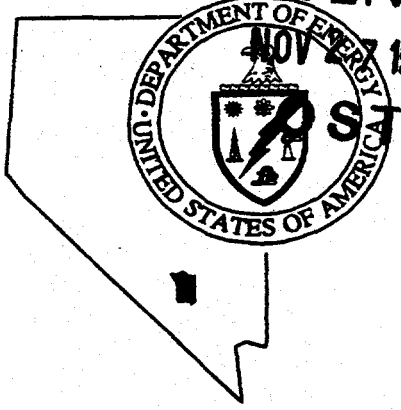
DOE/NV/11718-103
UC-702

Nevada
Environmental
Restoration
Project



Corrective Action Plan for CAU No. 404: Roller Coaster Sewage Lagoons and North Disposal Trench Tonopah Test Range

Controlled copy No.:____

Revision: 0

July 1997

Environmental Restoration
Division

U.S. Department of Energy
Nevada Operations Office

DISCLAIMER

DOE/NV/11718-103
UC-702

CORRECTIVE ACTION PLAN FOR CAU 404: ROLLER COASTER SEWAGE LAGOONS AND NORTH DISPOSAL TRENCH TONOPAH TEST RANGE

Prepared for
U. S. Department of Energy
Nevada Operations Office
Under Contract No. DE-AC08-96NV11718

Controlled Copy No.:____

Revision: 0

Prepared by
Bechtel Nevada
Remediation Projects

July 1997

CORRECTIVE ACTION PLAN FOR CAU 404: ROLLER COASTER SEWAGE LAGOONS AND NORTH DISPOSAL TRENCH TONOPAH TEST RANGE

Approved by: _____ Date: 7-23-97
Janet L. Appenzeller-Wing, Project Manager
Industrial Sites Subproject

Approved by: _____ Date: 7-23-97
for Stephen A. Mellington, Project Manager
Nevada Environmental Restoration Project

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ACRONYMS AND ABBREVIATIONS

ASTM	American Society for Testing and Materials
CADD	Corrective Action Decision Document
CAIP	Corrective Action Investigation Plan
CAP	Corrective Action Plan
CAS	Corrective Action Site
CAU	Corrective Action Unit
cm	centimeter
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DOE	U.S. Department of Energy
DOE/NV	U.S. Department of Energy / Nevada Operations Office
EPA	U.S. Environmental Protection Agency
ERD	Environmental Restoration Division
FFACO	Federal Facility Agreement and Consent Order
ft	feet
in	inches
km	kilometers
m	meters
m^3	cubic meters

ACRONYMS AND ABBREVIATIONS (continued)

mg/kg	milligrams per kilogram
mi	miles
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NTS	Nevada Test Site
PRG	Preliminary Remediation Goals
TTR	Tonopah Test Range
TPH	Total Petroleum Hydrocarbon
ug/kg	micrograms per kilogram
VCA	Voluntary Corrective Action
yd^3	cubic yards

1.0 INTRODUCTION

This Corrective Action Plan (CAP) provides the selected corrective action alternative and proposes the closure implementation methodology for the Roller Coaster Sewage Lagoons and North Disposal Trench Corrective Action Unit (CAU) No. 404. The site is located on the Tonopah Test Range (TTR), approximately 225 kilometers (km) (140 miles [mi]) northwest of Las Vegas, Nevada). See Figure 1 for the site location.

CAU 404 consists of two Corrective Action Sites (CAS): the Roller Coaster Lagoons (CAS No. TA-03-001-TA-RC) and the North Disposal Trench (CAS No. TA-21-001-TA-RC). A site map of the lagoons and trench is provided in Figure 2. The Roller Coaster Sewage Lagoons are comprised of two unlined lagoons that received liquid sanitary waste in 1963 from the Operation Roller Coaster Man Camp and debris from subsequent construction and range cleanup activities (DOE/NV, 1997). Each lagoon is approximately 36 meters (m) (120 feet [ft]) long by 23 m (75 ft) wide by 3 m (10 ft) deep.

The North Disposal Trench was excavated in approximately 1963 and received solid waste and debris from the man camp and subsequent construction and range cleanup activities (DOE/NV, 1997). The North Disposal Trench is approximately 30 m (100 ft) long by 4 m (12 ft) wide by 3 m (10 ft) deep. A small hydrocarbon spill occurred during the 1995 Voluntary Corrective Action (VCA) activities in an area associated with the North Disposal Trench CAS.

Results from the 1996 characterization activities are documented in the Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench (DOE/NV, 1997). The results indicate the following:

- Pesticides were detected above the U.S. Environmental Protection Agency (EPA) Region IX Preliminary Remediation Goals (PRG) (EPA, 1996) for samples collected in the East and West Sewage Lagoons.

- Two soil samples collected in the East Sewage Lagoon were evaluated to have concentrations above the Residential PRG for Dichlorodiphenyldichloroethylene (DDE) and Dichlorodiphenyltrichloroethane (DDT). The Residential PRG for DDE and DDT is 1,307 micrograms per kilogram (ug/kg). One of the two samples contained 1,600 ug/kg DDE which exceeded the Residential PRG. Concentrations above the Residential PRG for DDT was detected in the two samples from 1,900 ug/kg to 2,600 ug/kg.

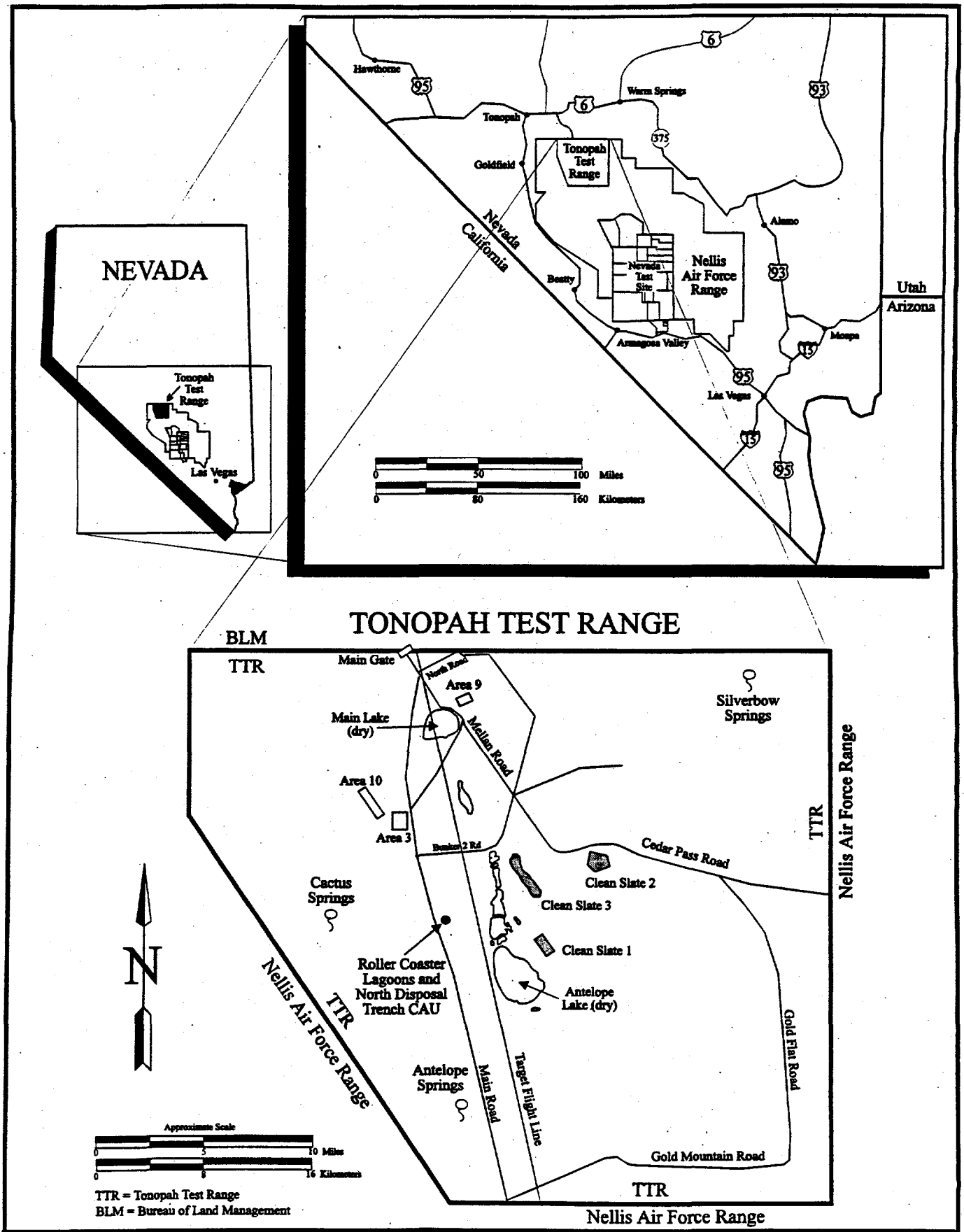


Figure 1
Site Location Map of the Roller Coaster Lagoons and North Disposal Trench CAU at the Tonopah Test Range

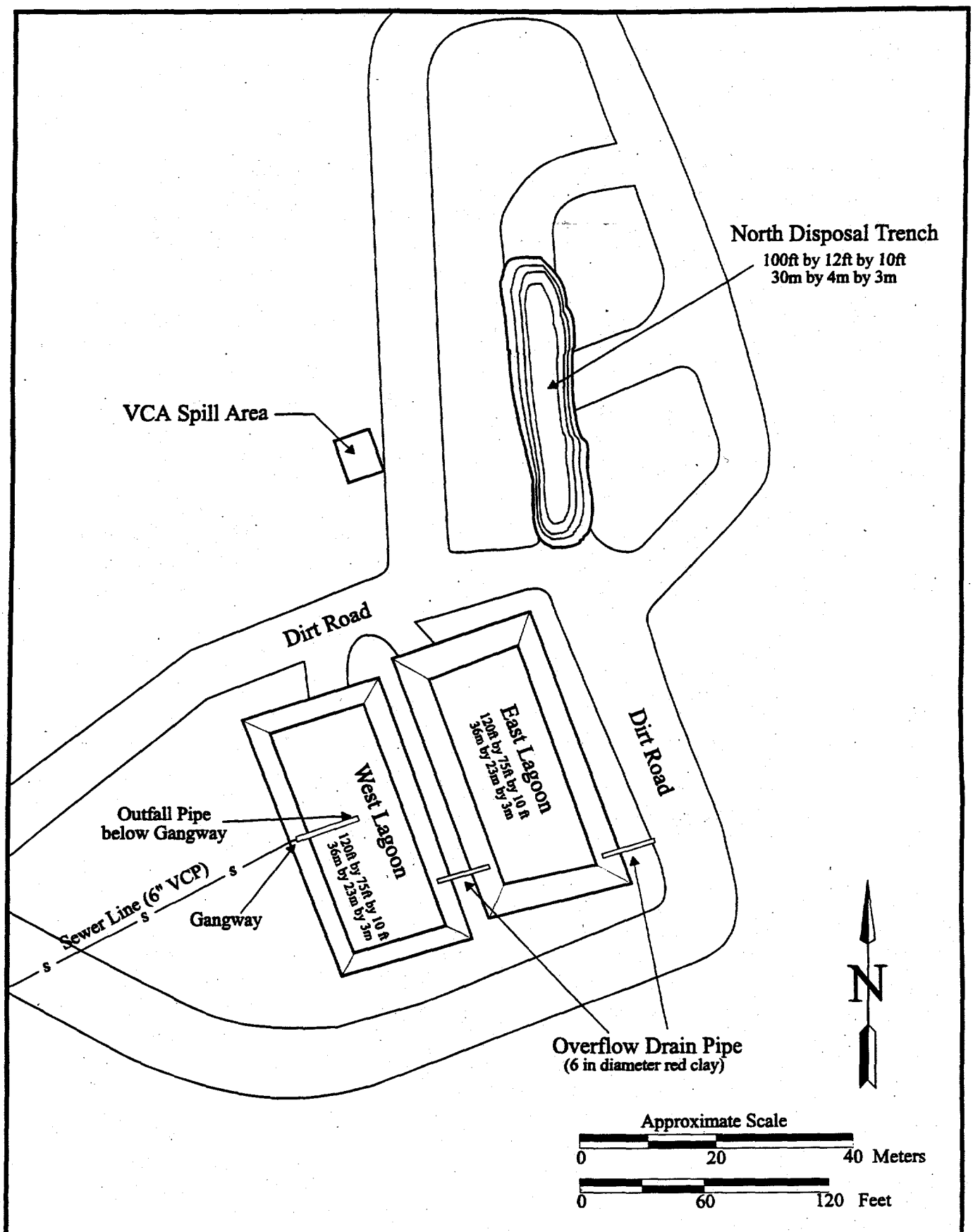


Figure 2
Roller Coaster Lagoons, North Disposal Trench,
and VCA Spill Area Map

SOURCE: DOE, 1997

- Four soil samples from the West Sewage Lagoon exceeded Residential and/or Industrial PRGs. Three of the four soil samples exceeded the Residential PRG for Dichlorodiphenyldichloroethane (DDD), and the concentrations ranged from 2,300 ug/kg to 5,400 ug/kg. The Residential PRG for DDD is 1,851 ug/kg. DDE concentrations in the four samples ranged from 2,200 ug/kg to 15,000 ug/kg which exceeded the Residential PRG (1,307 ug/kg). Two of the samples exceeded the Industrial PRG for DDE (5,610 ug/kg). The four samples also contained DDT ranging from 2,500 ug/kg to 14,000 ug/kg exceeding the Residential PRG of 1,307 ug/kg. Three of the four samples exceeded the DDT Industrial PRG of 5,610 ug/kg.

- No other constituents were detected above regulatory levels in the Sewage Lagoons.

- No constituents were detected above regulatory levels in the North Disposal Trench.

- The soil sample from the VCA spill (associated with the North Disposal Trench CAS) contained Total Petroleum Hydrocarbon (TPH) impacted soil above the 100 milligram per kilogram (mg/kg) TPH Action Level (NAC, 1996). The impacted soils were subsequently removed during the 1996 activities (DOE, 1997).

1.1 PURPOSE

The purpose of this CAP is to provide the methodology for implementing the corrective action alternative as provided in the Corrective Action Decision Document (CADD) (DOE, 1997). Detailed information of the site history and results of the previous characterization activities can be found in the Corrective Action Investigation Plan (CAIP) (DOE, 1996) and the CADD (DOE, 1997).

1.2 SCOPE

The scope of this plan is to provide the methods for implementation of the closure of CAU 404. Based on the findings of the previous investigation, the selected corrective action alternative is to:

- Install an engineered, vegetative cover on the East and West Sewage Lagoons to control erosion, limit infiltration from precipitation, and mitigate potential exposure pathways.

- Install a vegetative cover on the North Disposal Trench to remove the potential for future debris disposal.

No further action is proposed for the VCA spill area associated with the North Disposal Trench CAS. Analytical results from the 1996 characterization activities indicate petroleum hydrocarbon impacted soils above the 100 mg/kg TPH Action Level were excavated and disposed of in the Area 6 Hydrocarbon Landfill located at the Nevada Test Site (NTS).

1.3 CORRECTIVE ACTION PLAN CONTENTS

This CAP is divided into the following sections:

- Section 1.0 - Introduction: Summary of previous work and presents the purpose and scope.
- Section 2.0 - Detailed Statement of Work: Approved corrective alternative implementation methodology, construction quality assurance, and waste management.
- Section 3.0 - Schedule.
- Section 4.0 - Post-Closure Monitoring Plan.
- Section 5.0 - References.
- Appendix A - Engineering Drawings.
- Appendix B - Waste Management Plan.
- Appendix C - Comment/Response Form: presents the Nevada Division of Environmental Protection (NDEP) comments and comment resolution for the Draft CAP.

This plan was developed using information and guidance provided from the following documents:

- Voluntary Corrective Action Plan For Ordnance Removal From Five Disposal Sites At The Tonopah Test Range, DOE, 1995.
- Corrective Action Investigation Plan: Roller Coaster Sewage Lagoons and North Disposal Trench, Tonopah Test Range, Rev.1, DOE, 1996.
- Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench, DOE, 1997.
- Nevada Environmental Restoration Project, Project Management Plan, Revision 0, DOE, 1994.
- Nevada Environmental Restoration Project, Health and Safety Plan, Revision 2, DOE, 1996.
- Nevada Environmental Restoration Project, Industrial Sites, Quality Assurance Project Plan, Nevada Test Site, Revision 1, DOE, 1996.

2.0 DETAILED STATEMENT OF WORK

2.1 APPROVED ALTERNATIVE IMPLEMENTATION

The NDEP approved the CADD and selected corrective action alternative in a letter dated April 18, 1997 (NDEP, 1997). The selected alternative is to construct engineered, vegetative covers on the East and West Sewage Lagoons and a vegetative cover on the North Disposal Trench. Closure activities are anticipated to consist of the following activities:

- Installing an engineered cover for the East and West Sewage Lagoons.
- Backfilling the North Disposal Trench.
- Planting native shallow rooted plants/grasses on the engineered cover for the East and West Sewage Lagoons and the backfilled area of the North Disposal Trench.
- Installing a fence and signs in the areas of the East and West Sewage Lagoons and North Disposal Trench.

Although not addressed in the CADD (DOE, 1997), the overflow drain pipes, outfall pipe, and gangway (Figure 2) will be closed in place. The overflow drain pipes and outfall pipe will be plugged with a fast-setting, expansive cement to remove the potential of liquids being introduced to the site after closure. If plugging of the outfall pipe is not feasible at the West Lagoon, the plugging will be accomplished at the nearest manhole through the existing 15 centimeter (cm) (6 inch [in]) vitrified clay pipe. The gangway will be closed in place during the backfilling activities.

Coordination of the closure will include the U.S. Air Force because of the location of the site and land-use status. The future use of any land related to this CAU will be restricted from any activity that may alter or modify the containment control as identified in the Closure Report unless appropriate concurrence is obtained in advance.

2.1.1 Installation of Engineered Covers for the East and West Sewage Lagoons

Soil will be excavated and transported to the site from a borrow pit approximately 7 km (4.3 mi) north of the site (Appendix A). The soil obtained from the borrow pit will be used for the engineered backfill and the vegetative covers. No screening or size reduction is proposed for the backfilling of the Sewage Lagoons unless size distribution of the materials are not similar. A visual inspection the soils will be made by a geologist to determine if the soils are similar. Depending on the source area and grain size distribution of the backfill material, minor size reduction may be required in the top 0.3 m (1 ft) to 0.6 m (2 ft) of the vegetative covers.

Standard construction equipment will be used for excavation, compaction, and grading activities. Equipment will consist of, but will not be limited to, dozers, scrapers, graders, front end loaders, sheeps foot compactors, vibratory rollers, end and belly dump trucks, water trucks, and light farming equipment. Water for dust suppression and construction activities will be obtained from the Roller Coaster Well located approximately 0.6 km (0.4 mi) west of the site (Appendix A).

Backfilling of the lagoons will be conducted without construction equipment, personnel, or Personnel Protective Equipment (PPE) being in direct contact with the existing impacted soil. Backfill material transported to the site will be placed in the lagoon from the edges and pushed ahead of the construction equipment tires. The bottom lift of material will be approximately 0.3 m (1 ft) thick. This activity will reduce the generation of waste at the site by eliminating the potential spread of impacted materials and the requirement for equipment decontamination during and after completion of construction activities.

After the bottom approximate 0.3 m (1ft) of material is placed in the lagoons, additional backfill material will be added and compacted using standard construction practices. Soil will placed in the lagoons in approximate 0.2 meter (8 in) lifts and compacted prior to additional backfilling and compaction. Engineering drawings are provided in Appendix A for the East and West Sewage Lagoon backfill specifications.

Native, undisturbed soil densities are estimated to be between 60 and 80 percent of the maximum density. To minimize subsidence and decrease the permeability of the backfill relative to the native, undisturbed soils, the backfill will be compacted to 80 percent of the maximum density (ASTM, 1995a [modified proctor test]). Density tests (ASTM, 1995b [nuclear density tests]) will be conducted during the beginning of the backfilling and compaction activities to establish a field performance specification to acheive the 80 percent compaction requirement. The field performance specification will be determined by field density tests (ASTM, 1995b) after sucessive passes with the compaction equipment. Once determined, compaction activities will continue based upon the field performance specification without further field density testing. Additional field density tests may be required if changes are made to the compaction process or changes in the backfill material occur.

Approximately 3,590 cubic meters (m^3) (4,700 cubic yards [yd^3]) of fill is estimated to be required to bring each backfilled lagoon to the existing surface grade. The surface of the cover will be slightly mounded above the existing grade and will be textured for the seeding of the vegetative cover (see Section 2.1.3). The volume of soil required for backfilling activities assumes a 30 percent compaction ratio and will be further refined prior to construction activities and after the area is surveyed for as-built and final design purposes.

Diversion channels will be constructed by excavation in the native soil or by construction of small berms around the perimeter of the covers to channel precipitation run-off away from the site and prevent precipitation run-on to the site.

2.1.2 Backfilling of the North Disposal Trench

To minimize subsidence of the backfill relative to the native, undisturbed soils, the backfilling activities (and compaction performance specification) will be similarly executed as in the East and West Sewage Lagoons (see Section 2.1.1). However, findings from the CADD (DOE, 1997) indicate no impacted material was present which would require the controlled placement of a soil base prior to the engineered fill. Engineering drawings are provided in Appendix A for the backfilling of the North Disposal Trench.

Approximately 688 m^3 (900 yd^3) is estimated to bring the North Disposal Trench to the existing surface grade. The surface of the cover will be slightly mounded above the existing grade and will be textured for the seeding of the vegetative cover (see Section 2.1.3). The volume of soil required for backfilling activities assumes a 30 percent compaction ratio and will be further refined prior to construction activities and after the area is surveyed for as-built and final design purposes.

2.1.3 Establishment of Vegetative Cover

The approximate zone from the surface to 0.3 m to 0.4 m (1.0 ft to 1.3 ft) will be loose to loosely compacted at the East and West Sewage Lagoons and North Disposal Trench. The areas adjacent to the vegetative covers (indicated in Appendix A engineering drawings) and the backfilled lagoons and trench areas will be ripped, plowed, and/or disked to a depth of approximately 0.4 m (1.3 ft) prior to seeding. Amendments to the soil may be required which may include nutrients and polyacrylamide gel to assist in the retention of soil moisture for germination and development. Straw may be applied to the area as a mulch after broadcast-seeding. A seed mixture using seed from native, shallow-rooted plant species will be applied between early October and late November. The seed planting time ensures dormancy breaking requirements would be met, and that the seed would be in the ground prior to the winter precipitation. Species to be included in the seed mixture are:

- Budsage (*Artemisia spinescens*).
- Shadscale (*Atriplex confertifolia*).
- Winterfat (*Ceratoides lanata*).
- Fluff Grass (*Erioneuron pulchellum*).
- Galleta (*Hilaria jamesii*).
- Indian Ricegrass (*Oryzopsis hymenoides*).

- Bottlebrush Squirreltail (*Sitanion hystrix*).
- Desert Globemallow (*Sphaeralcea ambigua*).

2.1.4 Installation of Fencing and Signs

To allow the native plant species to establish and develop, the approximate area indicated in the engineering drawings (Appendix A) will be fenced to prevent damage from trampling and grazing by wild horses. The fence will be T-Post and barbed-wire fence because it will serve two purposes:

- prevent damage and grazing from wild horses; and
- inhibit unauthorized excavation into the cover.

The fence is anticipated to be maintained for a minimum of five years, or until the plants are determined by a qualified biologist. Signs will be posted on the fence identifying the area as a vegetation establishment area. Additional signs will be posted in the area of the sewage lagoons to inhibit unauthorized excavation.

2.2 CONSTRUCTION QUALITY ASSURANCE

The backfill will be compacted to a minimum of 80 percent of the maximum density. Proctor density tests (ASTM, 1995a) will be conducted on the backfill material to determine the maximum density. Field density tests (ASTM, 1995b [nuclear density tests]) will be conducted by during the beginning of the backfilling and compaction activities to confirm the 80 percent compaction specification is satisfied, as well as to establish a field performance specification for compaction. The performance specification will be determined by field density tests (ASTM, 1995b) after sucessive passes with the compaction equipment. Once determined, compaction and backfill activities will continue until the approximate zone of 0.3 m (1.0 ft) to 0.5 m (1.5 ft) below the surface is encountered based upon the field performance specification without further field density testing.

Additional field density tests may be required if changes are made to the compaction process (equipment, moisture application, etc.). Additional density testing may also be required if changes in the backfill occur (such as significant visual change in the grain size distribution).

Approximately six field density tests will be conducted in the bottom 0.3 m to 0.5 m (1.0 ft to 1.5 ft) layer of backfilled soil in each of the lagoons and disposal trench. A similar number of field density tests will be conducted in the layer of backfilled soil approximately 0.3 m to 0.5 m (1.0 ft to 1.5 ft) below the surface in each of the fill areas. The quality assurance data will be included in the Closure Report.

Engineering drawings are provided in Appendix A for the East and West Sewage Lagoons and North Disposal Trench backfill specifications.

2.3 WASTE MANAGEMENT

Hydrocarbon or hazardous wastes are not anticipated to be generated as a result of implementing this plan since backfilling of the lagoons will be conducted without construction equipment, personnel, or PPE being in direct contact with the existing impacted soil (see Section 2.1.1). This activity will reduce the generation of waste at the site by eliminating the potential spread of impacted materials and the requirement for equipment decontamination during and after completion of construction activities.

If hydrocarbon or hazardous wastes are generated, the wastes will be managed and disposed of in accordance with U.S. DOE orders, U.S. Department of Transportation requirements, state and federal regulations, agreements and permits between DOE/Nevada Operations Office (DOE/NV) and NDEP, and site-specific requirements as described in the Waste Management Plan (Appendix B).

3.0 SCHEDULE

The Roller Coaster Sewage Lagoons and North Disposal Trench CAU 404 closure activities are anticipated to begin within 60 days from the date that NDEP grants approval of the CAP and are outlined as follows:

- Begin field closure activities within 45 days of CAP approval.
- Complete field closure (backfill and fence installation) for the East and West Sewage Lagoons and North Disposal Trench within approximately 65 days after beginning field closure activities.
- Seed vegetative covers during October/November (see Section 2.1.3 for requirements). Depending upon closure schedule, this activity is anticipated to have a duration of approximately one to two weeks and could be done up to one year after the construction of the engineered cap). If the vegetative cover is not seeded by the time that the draft closure report is required to be reviewed by DOE/NV, the discussion/documentation regarding the establishment of the vegetative cover will be provided in the first annual post-closure monitoring report.
- Prepare the Closure Report for submittal to NDEP within approximately 120 days after completion of the backfill and fence installation.

Flexibility has been placed in the project schedule to account for minor difficulties (weather, equipment breakdowns, etc.). The DOE will keep the NDEP apprised of any condition that may impact the project schedule.

4.0 POST-CLOSURE MONITORING PLAN

Post-closure monitoring of the covers is intended to determine if maintenance and repairs to the vegetative covers and fence are required. The proposed monitoring consists of biannual (twice per year) visual inspections of the cover for condition (subsidence, significant erosion, unauthorized excavation, etc.) and plant development. Additional, nonscheduled inspections may be required after severe weather events such as heavy rainfall, flash flooding, and high winds. Any identified maintenance and repair requirements will be remedied within 90 days of discovery and documented in writing at the time of repair.

The biannual inspections will be performed for approximately five years after the planting of the vegetative covers, and will be documented on inspection forms. Completion of post-closure monitoring of CAU 404 may be proposed after two consecutive years of visual inspections have not indicated the need to revegetate or provide maintenance to the vegetative covers. Completion of post-closure monitoring may be proposed within five years after the original revegetation of the site and include the removal of the fence since the plants will have attained a maturity to not be significantly affected by the grazing of wild horses.

Intrusion into the impacted materials in the East or West Sewage Lagoons or sampling is not proposed during the post-closure monitoring period. Specific details for the Post-Closure Monitoring Plan will be proposed in the Closure Report for CAU 404.

An annual report will be prepared that will provide the observations and describe modifications and/or repairs made to the cover and cover area. The annual report will be prepared following the second inspection of each year that post-closure monitoring is conducted. If the vegetative cover is not seeded by the time that the Draft Closure Report is required to be reviewed by DOE/NV, the discussion and documentation regarding the establishment of the vegetative cover will be provided in the First Annual Post-Closure Report. The annual reports will include the following information:

- Discussion of observations.
- Inspection checklist and maintenance record.
- Conclusions and recommendations.

A copy of each annual report will be submitted to the NDEP.

5.0 REFERENCES

ASTM, 1995a, Method D 1557-91: Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort, 1995 Annual Book of ASTM Standards, Volume 04.08, Soil and Rock (I): D 420 - D 4914.

ASTM, 1995b, Method D 2922-91: Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nucelar Methods (Shallow Depth), 1995 Annual Book of ASTM Standards, Volume 04.08, Soil and Rock (I): D 420 - D 4914.

DOE, 1995, Voluntary Corrective Action Plan For Ordnance Removal From Five Disposal Sites At The Tonopah Test Range, prepared by IT Corp. for the Department of Energy. DOE/NV-386 UC-700.

DOE, 1996, Corrective Action Investigation Plan: Roller Coaster Sewage Lagoons and North Disposal Trench, Tonopah Test Range, Rev.1, prepared by IT Corp. for the Department of Energy. DOE/NV-425.

DOE, 1997, Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench, prepared by IT Corp. for the Department of Energy. DOE/NV-474 UC-700.

EPA, 1996, Region IX Preliminary Remediation Goals (PRGs), San Francisco, CA.

NAC, 1996, Hazardous Materials: Storage Tanks, Nevada Administrative Code 459.9921 through 459.999.

NDEP, 1997, April 18, 1997 letter from Paul J. Liebendorfer to Stephen A. Mellington, CADD fo CAU 404, Roller Coaster Sewage Lagoons and North Diposal Trench.

APPENDIX A

ENGINEERING DRAWINGS

UNITED STATES DE

NEVADA OPE

LAS VEG

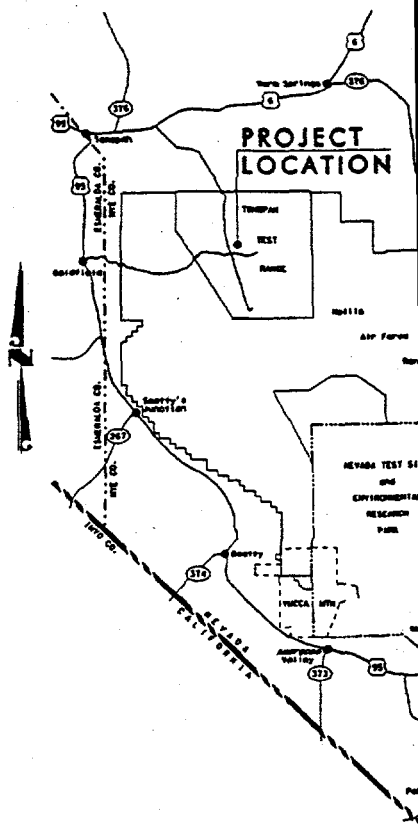
TONOPAH

ROLLER COASTER SEW

ARE

INDEX

DRAWING NUMBER	DRAWING TITLE	STANDARD NUMBER	DESCRIPTION
TITLE			
JS-054-133-T1	TITLE SHEET	STD TI	STANDARDS INDEX GENERAL NOTES. DRAFTING SYMBOLS & ANSI STANDARDS
CIVIL			
JS-054-133-C1	VICINITY MAP	STD C100	NOTES. LEGEND & SYMBOLS
JS-054-133-C2	SITE & GRADING PLAN	STD C101	ABBREVIATIONS
JS-054-133-C3	SECTIONS		



SCOPE OF WORK

THIS PROJECT SHALL CONSIST OF PLACING NATIVE FILL TO CLOSE THE LAGOONS AND THE DISPOSAL TRENCH NORTH OF THE LAGOONS. WORK WILL ALSO INCLUDE REVEGETATION OF THE SITE.

WORK SHALL BE PERFORMED IN ACCORDANCE WITH DOE/NV STD SPECIFICATIONS DATED DECEMBER 1994.

LOCAT

NOT

ARTMENT OF ENERGY

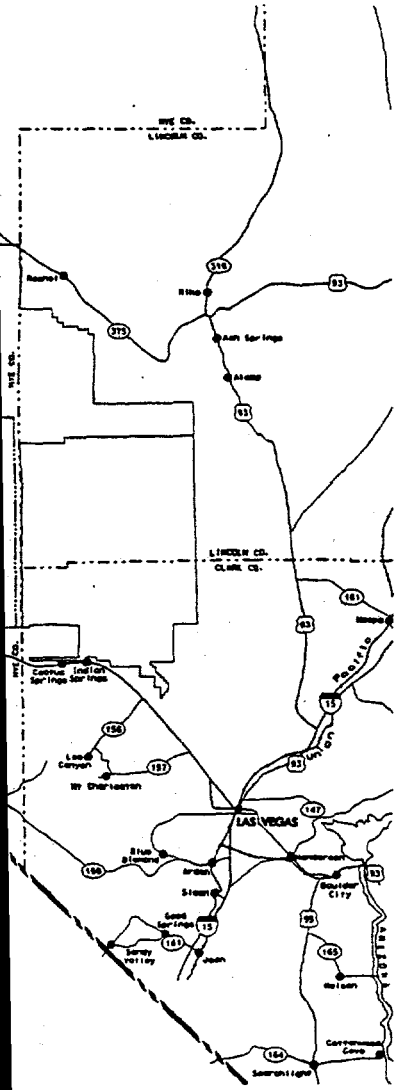
ATIONS OFFICE

AS, NEVADA

TEST RANGE

AGE LAGOONS CAU 404

A 54



N MAP

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TITLE II SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISIONS	DESIGN	CHECK	SAFETY	REVIEW	QA

U.S. DEPARTMENT OF ENERGY

NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

NEVADA TEST SITE — AREA 54

TONOPAH TEST RANGE

ROLLER COASTER SEWAGE LAGOONS CAU 404

TITLE SHEET

DESIGNED	DRAWN
FIE	FIE
CHECKED	SAWIR
QA	SAFETY

SUBMITTED (PE/CHIEF ENGINEER) — BECHTEL NEVADA — USER

APPROVAL BLOCK — DEPT OF ENERGY PROJ ENGR — DATE 7/23/97

Bechtel Nevada

P.O. BOX 98521 LAS VEGAS, NV 89193-8521

P.A. NO. N/A

ACTIVITY CODE C4RB10DE

PROJ. NO. 97085TTR

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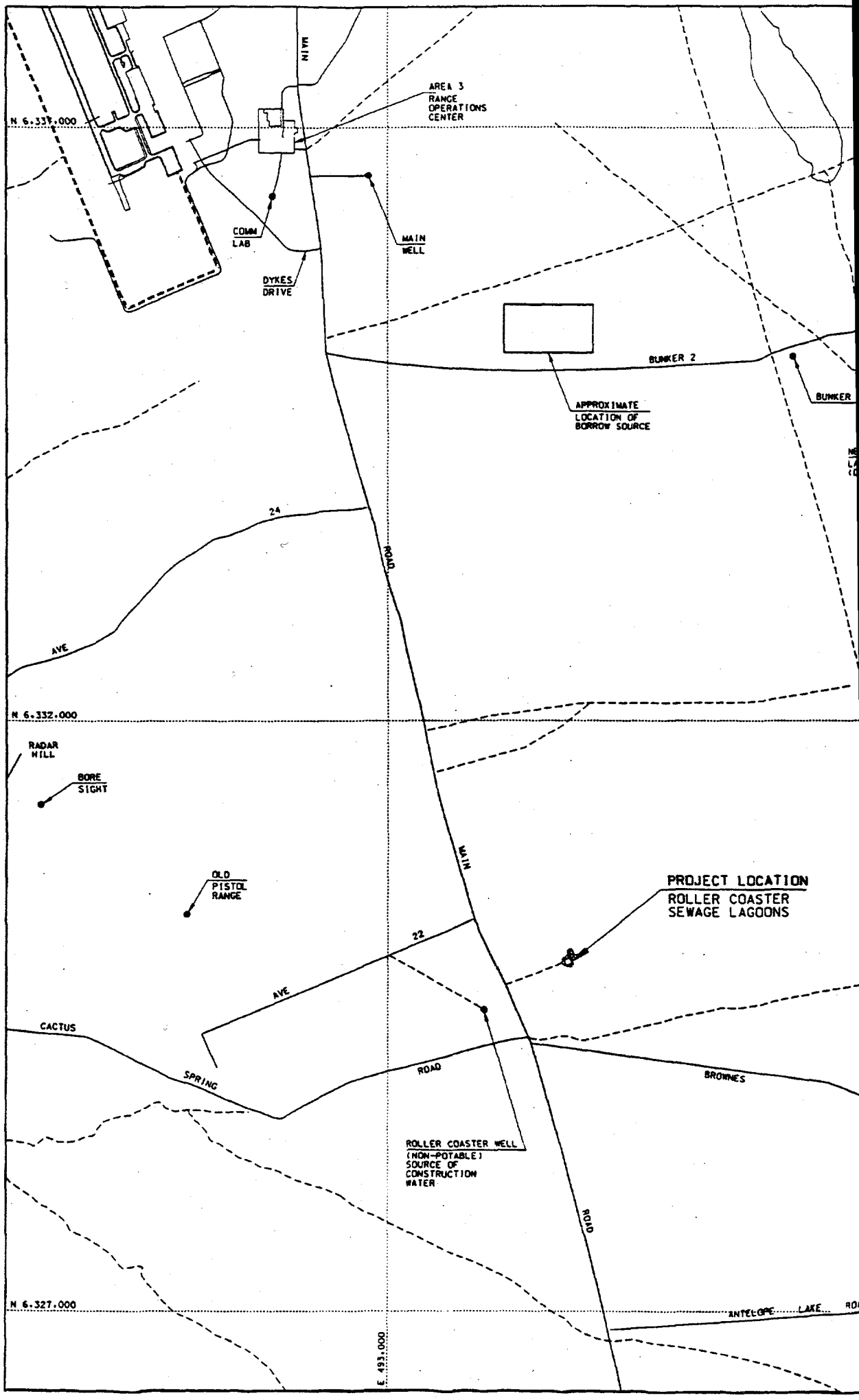
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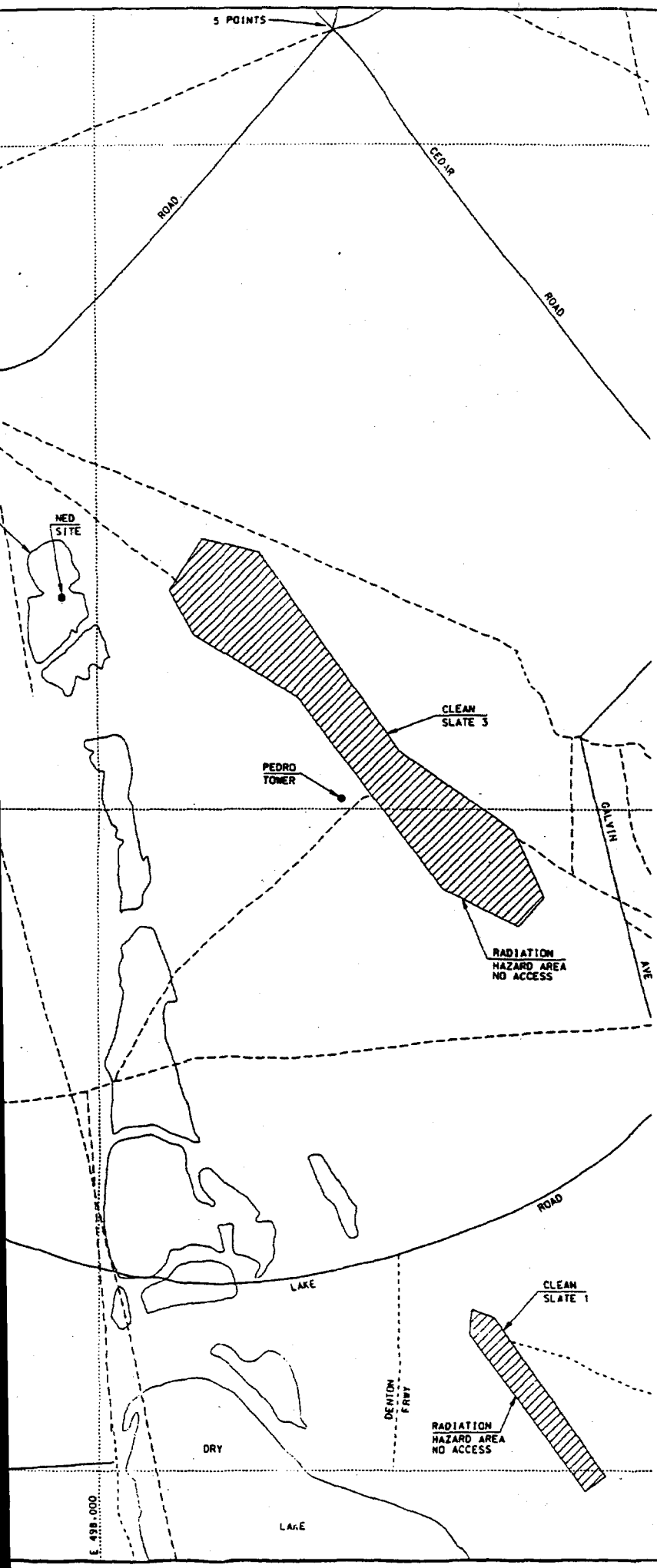


GENERAL NOTES:

1. CAP SHALL BE CONSTRUCTED OF NATIVE MATERIAL PLACED IN 8" LIFTS AND COMPACTED TO 80% OF MAXIMUM DENSITY PER ASTM D1557.
2. REVEGETATION SHALL BE PERFORMED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE TONOPAH TEST RANGE CLOSURE SITES REVEGETATION PLAN. BECHTEL NEVADA. MAY 1997. SEED MIX REQUIRES MODIFICATION TO INCLUDE ONLY PLANTS AND GRASSES WITH ROOT DEPTHS TO MAXIMUM OF 3 FEET.
3. ALL MEASURED VALUES TO BE BASED ON THE NORTH AMERICAN DATUM OF 1983. NEVADA STATE PLANE COORDINATE SYSTEM. CENTRAL ZONE. METERS.

GRAPHIC SCALE

0 500 1000 1500 2000 2500

SCALE: 1:20,000 METERS

TITLE II SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISIONS

U.S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA

DESIGNED FIE
CHECKED
SAFETY

NEVADA TEST SITE — AREA 54
TONOPAH TEST RANGE
ROLLER COASTER SEWAGE LAGOONS CAU 404
VICINITY MAP

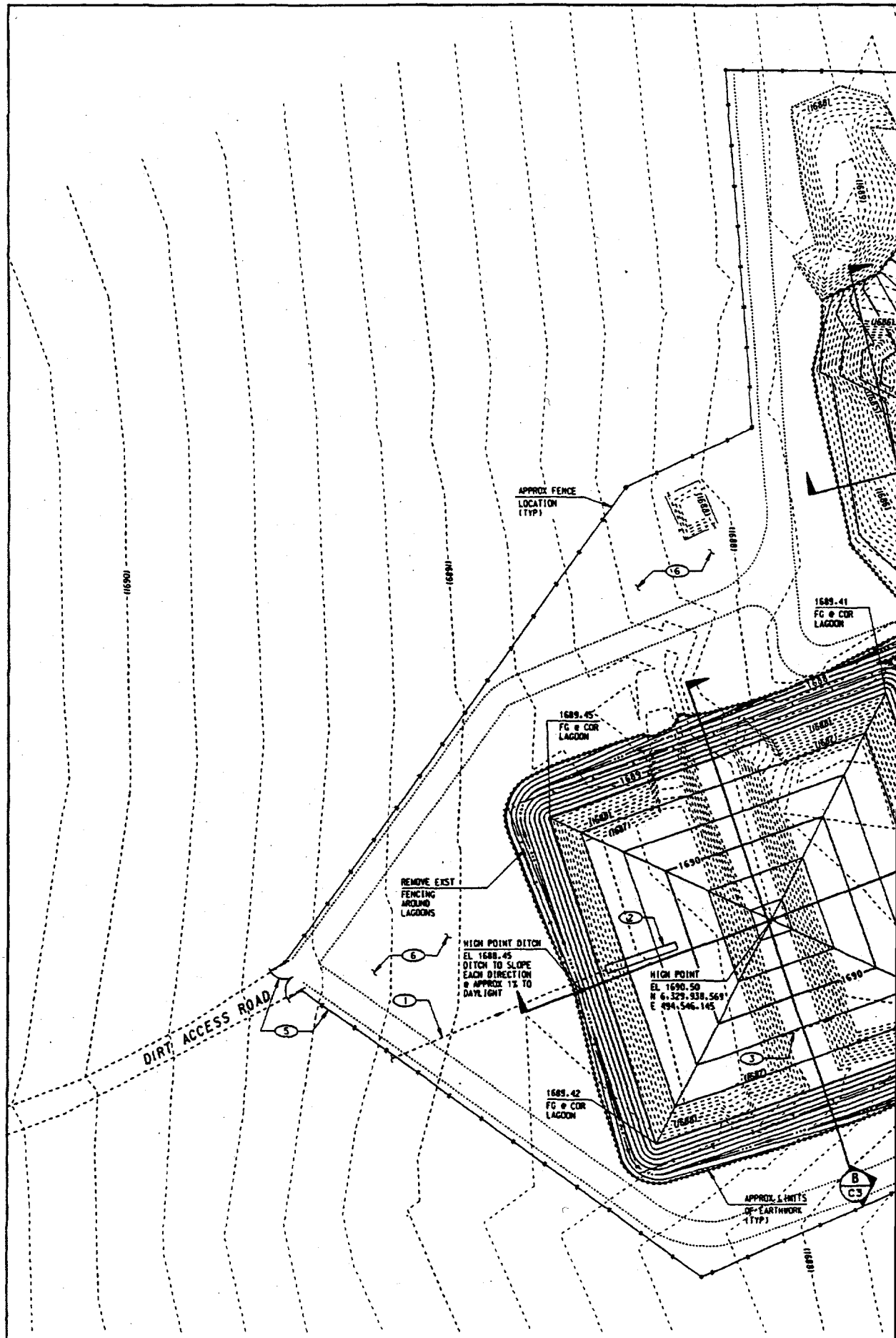
SUBMITTED (PEER/CHIEF ENGINEER) USER
BECHTEL NEVADA

APPROVAL BLOCK
DEPT OF ENERGY PROJ ENGR — DATE 7-2-97

Bechtel Nevada
P.O. BOX 3936 NORTH LAS VEGAS, NV 89036

P.A. NO. N/A
ACTIVITY CODE C4RB100E
PROJ. NO. 97065TTR

DRAWING NUMBER JS-054-133-C1
SHEET OF REVISION 0



SITE & GRADING

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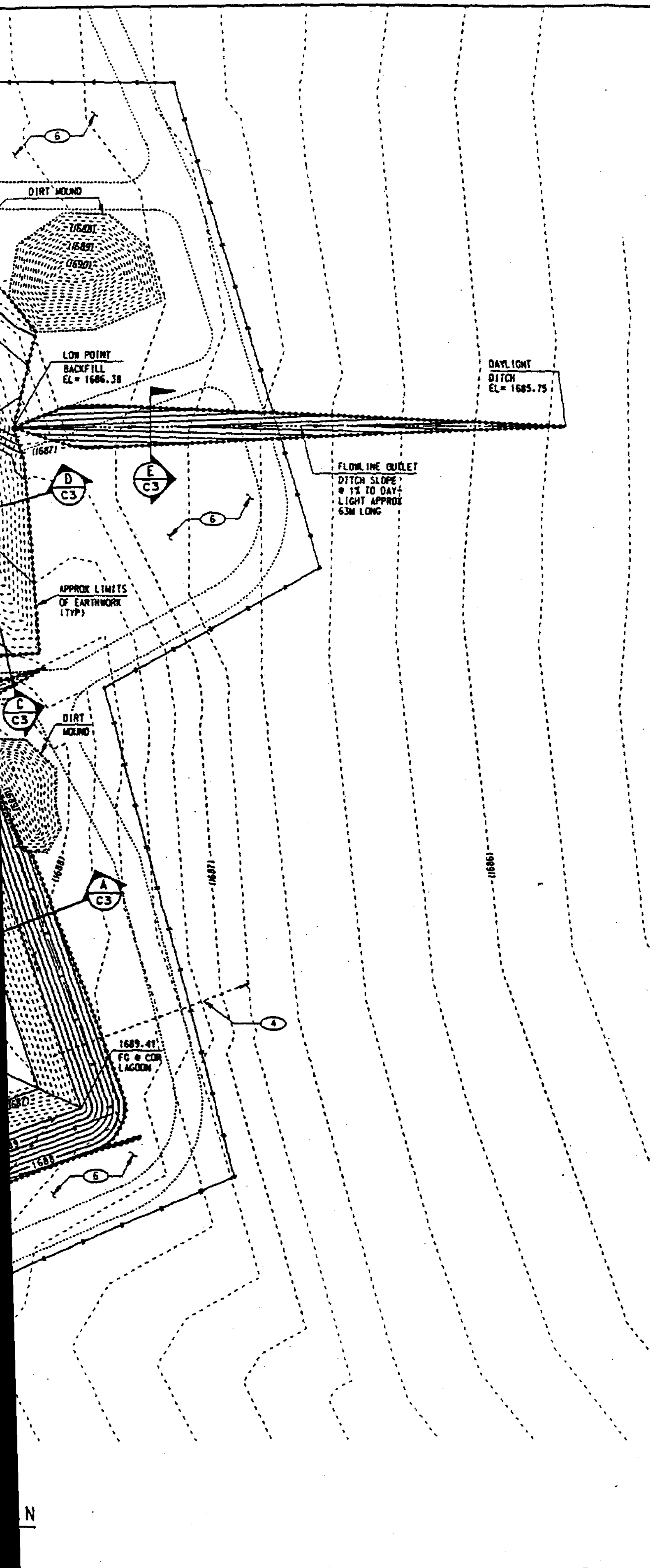


KEY NOTES

1. EXISTING INLET PIPE SHALL BE PLUGGED OR CAPPED AT THE LAGOON OR NEAREST UPSTREAM MANHOLE AND ABANDONED IN PLACE.
2. GANGWAY SHALL BE CLOSED IN PLACE DURING BACKFILLING ACTIVITIES.
3. EXISTING 6" OVERFLOW PIPE SHALL BE PLUGGED AND ABANDONED IN PLACE.
4. EXISTING 6" OVERFLOW PIPE SHALL BE PLUGGED AND ABANDONED IN PLACE.
5. A THREE STRAND, BARBED WIRE FENCE SHALL BE INSTALLED AROUND THE TRENCH AND THE SEWAGE LAGOONS. PROVIDE A 4 METER DOUBLE SWING VEHICLE ACCESS GATE AS SHOWN. WARNING SIGNS AGAINST EXCAVATION ARE TO BE INSTALLED ON THE CORNERS OF LAGOONS. SIGNS INDICATING REVEGETATION AREAS ARE TO BE MOUNTED ON NEW FENCE.
6. ENTIRE AREA WITHIN NEW FENCING SHALL BE REVEGETATED.

NOTE

1. CONSTRUCTION QUALITY ASSURANCE SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 2.2 OF THE CORRECTIVE ACTION PLAN FOR CAU 404: ROLLER COASTER SEWAGE LAGOONS AND NORTH DISPOSAL TRENCH TONOPAH TEST RANGE, REV 0.

GRAPHIC SCALE

0 3 6 9 12 15 18 21 24 27 30 33 36

SCALE 1:300 METERS
(CONTOUR INTERVAL = 0.2M)

REFERENCES

TITLE SHEET JS-054-133-T1

TITLE II SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISIONS	

U.S. DEPARTMENT OF ENERGY

NEVADA OPERATIONS OFFICE LAS VEGAS, NEVADA

NEVADA TEST SITE — AREA 54

TONOPAH TEST RANGE

ROLLER COASTER SEWAGE LAGOONS CAU 404

SITE & GRADING PLAN

SUBMITTED (PE/CHIEF ENGINEER) BECHTEL NEVADA

APPROVAL BLOCK — DEPT OF ENERGY PROJ ENGR — DATE

Bechtel Nevada

P.O. BOX 3936 NORTH LAS VEGAS, NV 89036

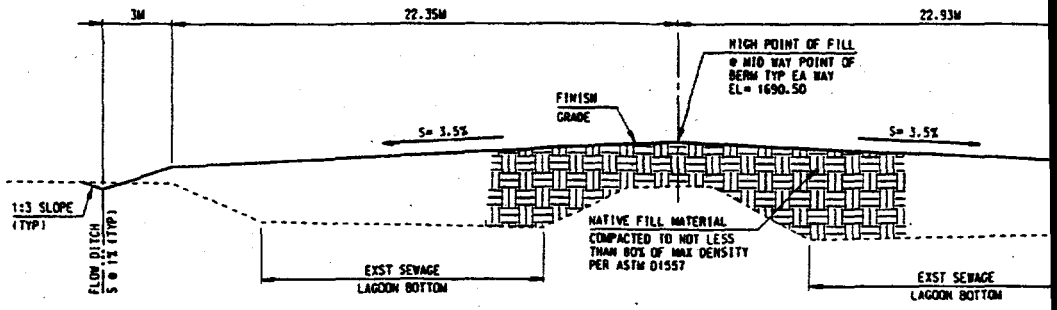
P.A. NO. N/A

ACTIVITY CODE C4RB10DE

PROJ. NO. 97085TTR

DRAWING NUMBER JS-054-133-C2

SHEET ___ OF ___ REVISION 0



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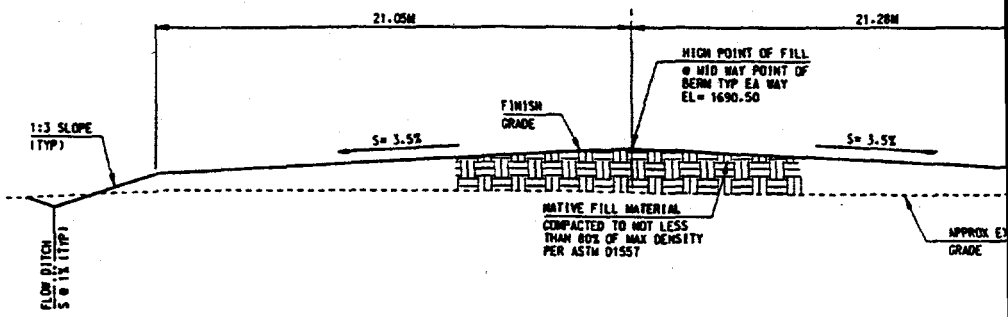

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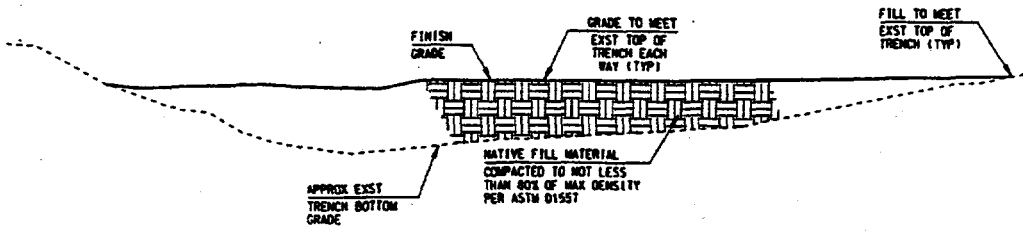

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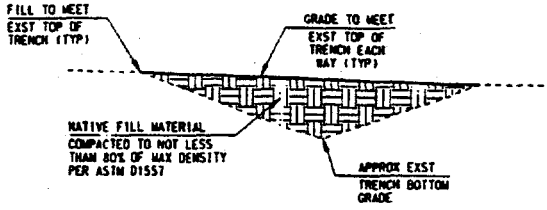

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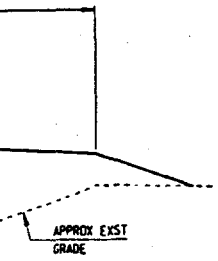

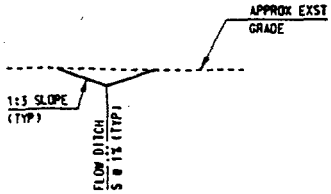

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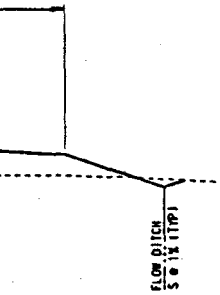

REFERENCES

TITLE SHEET	JS-054-133-T1

TITLE II SUBMITTAL
NOT FOR CONSTRUCTION

NO	DATE	REVISIONS	DESIGN	DRAWN	VERIFY	ENGR	QAE

U.S. DEPARTMENT OF ENERGY
NEVADA OPERATIONS OFFICE — LAS VEGAS, NEVADA

DESIGNED LRE | DRAWN LRE
CHECKED [illegible] | ENVIR [illegible]
SAFETY [illegible]

NEVADA TEST SITE — AREA 54
TONOPAH TEST RANGE
ROLLER COASTER SEWAGE LAGOONS CAU 404
SECTIONS

SUBMITTED (RESPONSIBLE ENGINEER) BECHTEL NEVADA — USGS

APPROVAL BLOCK
DEPT OF ENERGY PROJ ENGR — DATE 7-23-97

Bechtel Nevada
P.O. BOX 3936 NORTH LAS VEGAS, NV 89036

P.A. NO. N/A
ACTIVITY CODE C4RB100E
PROJ. NO. 97085TTR

DRAWING NUMBER JS-054-133-C3
SHEET ___ OF ___ REVISION 0

APPENDIX B

WASTE MANAGEMENT PLAN

WASTE MANAGEMENT PLAN
ROLLER COASTER SEWAGE LAGOONS AND NORTH DISPOSAL TRENCH CLOSURE ACTIVITIES

Prepared for
U. S. Department of Energy
Nevada Operations Office
Under Contract No. DE-AC08-96NV11718

Revision: 0

Prepared by:
Bechtel Nevada
Remediation Projects

July 1997

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ACRONYMS AND ABBREVIATIONS

BN	Bechtel Nevada
CADD	Corrective Action Decision Document
CAS	Corrective Action Site
CAU	Corrective Action Unit
CFR	Code of Federal Regulations
COCs	Contaminants of Concern
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DOE	United States Department of Energy
ERD	Environmental Restoration Division
EPA	U.S. Environmental Protection Agency
ft	feet
gal	gallons
IDW	Investigation Derived Waste
L	liters
m	meters
mg/kg	milligrams/kilogram
ml	milliliter
NAC	Nevada Administrative Code

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

NDEP	Nevada Division of Environmental Protection
NTS	Nevada Test Site
PPE	Personnel Protective Equipment
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RP	Remediation Projects
SVOCs	Semi-Volatile Organic Compounds
TCLP	Toxicity Characteristic Leaching Procedure
TPH	Total Petroleum Hydrocarbons
TTR	Tonopah Test Range
VCA	Voluntary Corrective Action
VOCs	Volatile Organic Compounds
WMP	Waste Management Project
ug/kg	micrograms/kilogram
USAF	United States Air Force

1.0 INTRODUCTION

1.1 BACKGROUND

Corrective Action Unit (CAU) 404 is located on the Tonopah Test Range (TTR), approximately 225 kilometers (140 miles) northwest of Las Vegas, Nevada (Figure 1). CAU 404 consists of two Corrective Action Sites (CAS): the Roller Coaster Sewage Lagoons (CAS No. TA-03-001-TA-RC) and the North Disposal Trench (CAS No. TA-21-001-TA-RC). A site map of the lagoons and trench is provided in Figure 2. The Roller Coaster Sewage Lagoons are comprised of two unlined lagoons that received liquid sanitary waste in 1963 from the Operation Roller Coaster man camp and debris from subsequent construction and range cleanup activities (DOE, 1997). Each lagoon is approximately 36 meters (m) (120 feet [ft]) long by 23 m (75 ft) wide by 3 m (10 ft) deep.

The North Disposal Trench was excavated in approximately 1963 and received solid waste and debris from the man camp and subsequent construction and range cleanup activities (DOE/NV, 1997). The North Disposal Trench is approximately 30 m (100 ft) long by 4 m (12 ft) wide by 3 m (10 ft) deep. A small hydrocarbon spill occurred during Voluntary Corrective Action (VCA) activities at an area associated with the North Disposal Trench CAS.

Results from the 1996 characterization activities were documented in the Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench (DOE/NV, 1997). The results indicate the following:

- Pesticides were detected above the U.S. Environmental Protection Agency (EPA) Region IX Preliminary Remediation Goals (PRG) (EPA, 1996) for samples collected in the East and West Sewage Lagoons.

- Two soil samples collected in the East Sewage Lagoon were evaluated to have concentrations above the PRG for Dichlorodiphenyldichloroethylene (DDE) and Dichlorodiphenyltrichloroethane (DDT). Concentrations above the PRGs for DDE was limited to one sample at 1,600 microgram per kilogram (ug/kg), and DDT ranged from 1,900 ug/kg to 2,600 ug/kg for two samples.

- Three soil samples collected in the West Sewage Lagoon were evaluated to have concentrations above the PRGs for Dichlorodiphenyldichloroethane (DDD) (2,300 ug/kg to 5,400 ug/kg), DDE (3,500 ug/kg to 15,000 ug/kg), and DDT (7,900 ug/kg to 9,900 ug/kg).

- No other constituents were detected above regulatory levels in the Sewage Lagoons or North Disposal Trench.

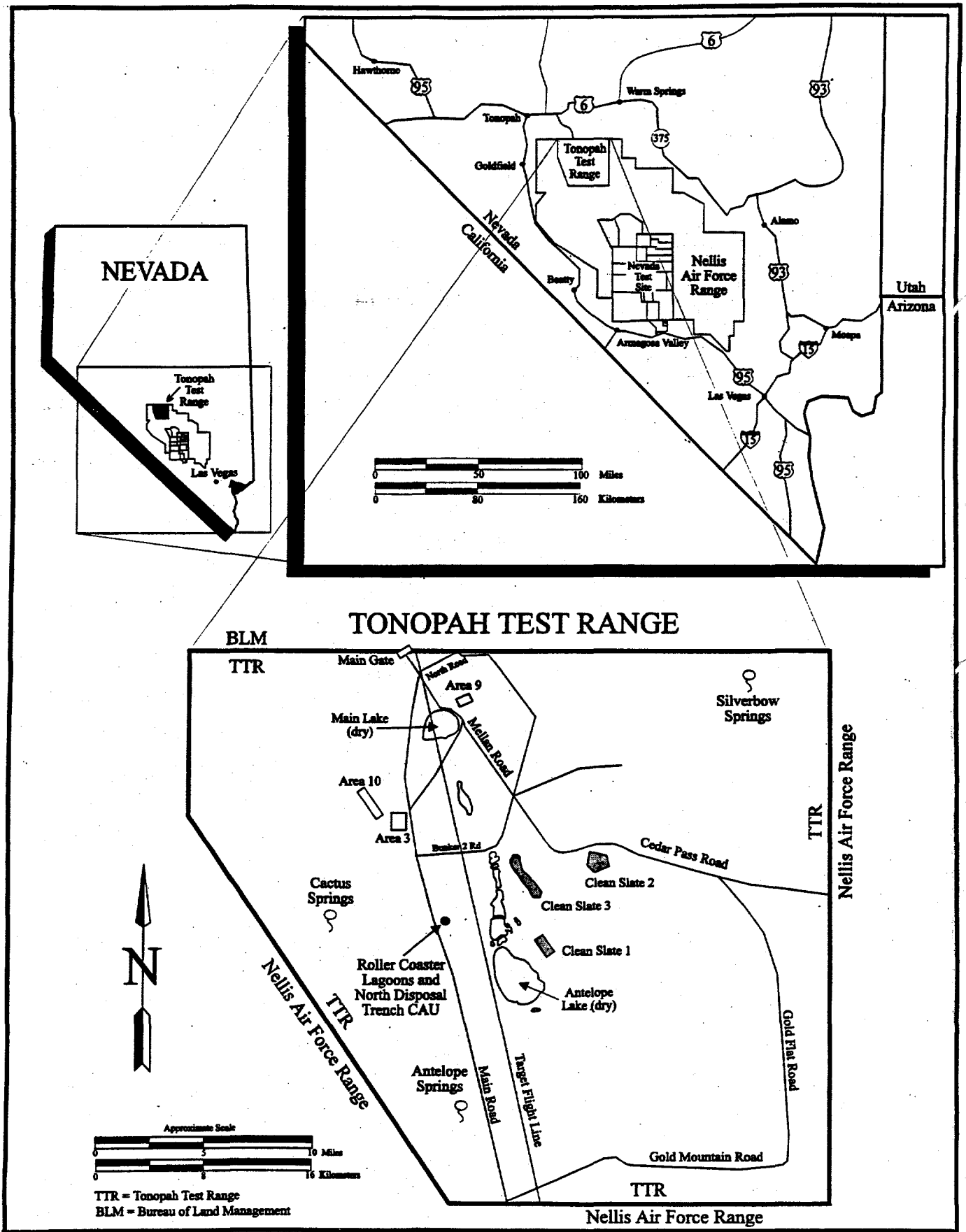

Figure 1
Site Location Map of the Roller Coaster Lagoons and
North Disposal Trench CAU at the Tonopah Test Range

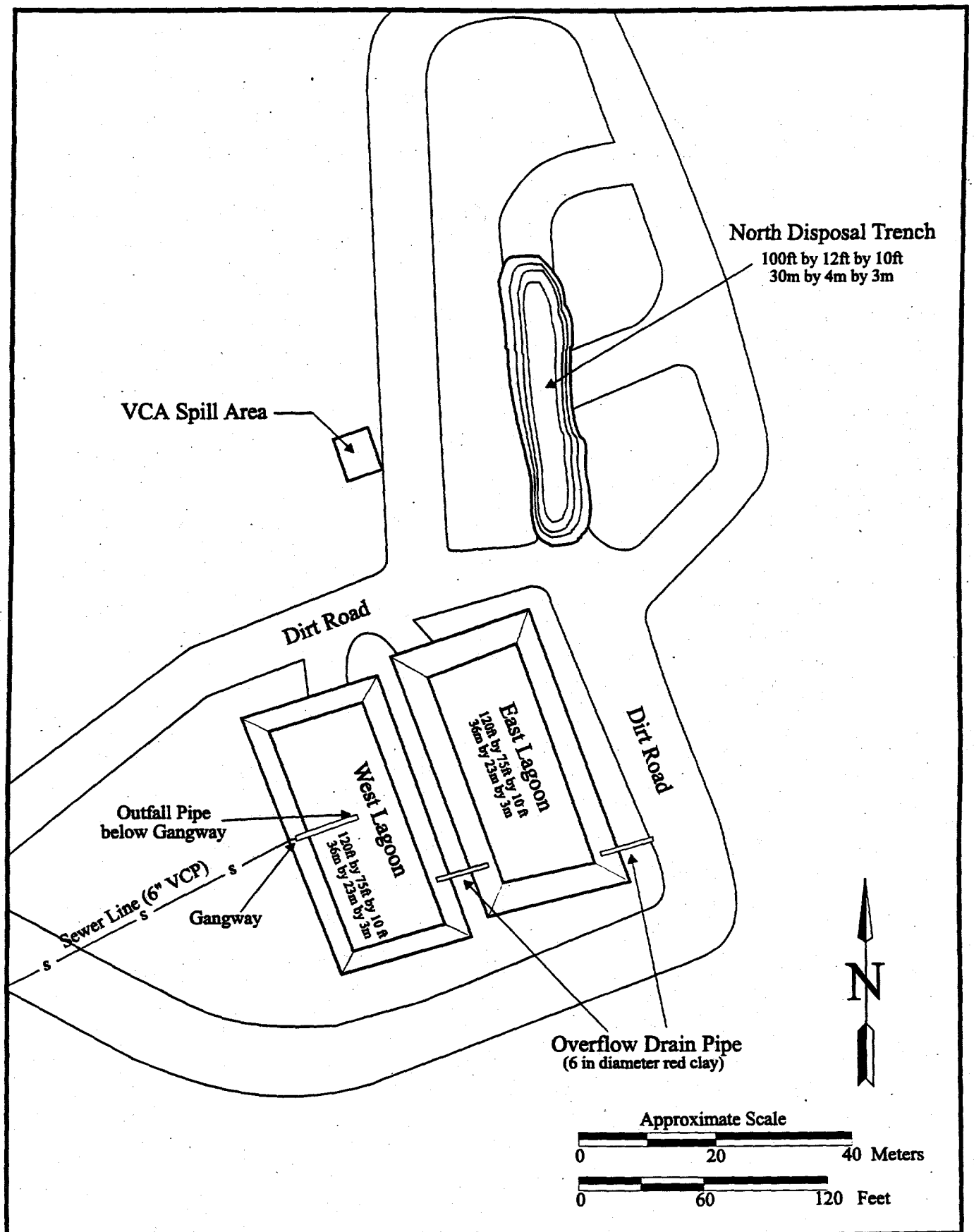

Figure 2
Roller Coaster Lagoons, North Disposal Trench,
and VCA Spill Area Map

SOURCE: DOE, 1997

- The soil sample from the VCA spill (associated with the North Disposal Trench CAS) contained Total Petroleum Hydrocarbon (TPH) impacted soil above the 100 milligram per kilogram (mg/kg) TPH Action Level (NAC, 1996). The impacted soils were subsequently during the 1996 activities (DOE, 1997).

1.2 SCOPE OF WORK

The Corrective Action Plan for the Roller Coaster Sewage Lagoons and North Disposal Trench CAU has been developed based upon an in-place closure approach. The selected corrective action alternative is to:

- Install an engineered, vegetative cover on the East and West Sewage Lagoons to control erosion, limit precipitation infiltration, and mitigate potential exposure pathways.

- Install a vegetative cover on the North Disposal Trench to remove the potential for future debris disposal.

No further action is proposed for the VCA spill area associated with the North Disposal Trench CAS since analytical results from the 1996 characterization activities indicate petroleum hydrocarbon impacted soils above the 100 mg/kg TPH Action Level were excavated and disposed of in the Area 6 Hydrocarbon Landfill located at the Nevada Test Site (NTS).

To execute the above-selected corrective action alternative, backfilling of the lagoons will be conducted without construction equipment, personnel, or Personnel Protective Equipment (PPE) being in direct contact with the existing impacted soil. Backfill material transported to the site will be placed in the lagoon from the edges and pushed ahead of the construction equipment tires. The bottom lift of material will be approximately 0.3 meters (one foot) thick. This activity will reduce the generation of waste at the site by eliminating the potential spread of impacted materials and the requirement for equipment decontamination during and after completion of construction activities. Therefore, no hydrocarbon or hazardous waste is anticipated to be generated during closure activities.

Nonhazardous solid waste is anticipated to be generated during closure activities. The nonhazardous solid waste will most likely consist of PPE, paper, plastic sheeting, wood, cement/concrete, metal, and other miscellaneous material. Even though hydrocarbon and/or hazardous wastes are not anticipated to be generated, the following sections of this plan have been developed as a contigency to address the nonhazardous solid waste as well as potential hydrocarbon and hazardous wastes.

1.3 PURPOSE

The purpose of the Waste Management Plan is to identify all types of waste that could be generated during the closure process, describe proper sampling and management techniques for each waste stream, and provide recommendations for disposal. The following items are discussed in this plan:

- Segregating, containerizing, and labeling all waste types.
- Sampling the waste streams for disposal purposes.
- Tracking, controlling, and managing waste.
- Compiling analytical data.
- Coordinating disposal with the Bechtel Nevada (BN) Waste Management Project (WMP).
- Conducting inspections and maintaining storage areas until disposal is complete.
- Providing documentation for all disposal activities.

2.0 WASTE STREAM DESCRIPTIONS

Three waste streams may be generated during closure activities. These waste streams are:

- Nonhazardous solid waste.
- Decontamination water.
- Potential Resource Conservation and Recovery Act (RCRA) or hydrocarbon waste.

All waste will be stored, sampled, analyzed, and disposed of in accordance with applicable state and federal regulations, U.S. Department of Energy (DOE) orders, and BN procedures. Where additional information is required for waste characterization, samples will be collected and submitted for analysis to determine the concentrations of contaminants of concerns (COCs). Analytical results will be validated and submitted to the BN WMP for disposal recommendations and implementation.

2.1 NONHAZARDOUS SOLID WASTE

Solid waste will consist primarily of compactable trash which will be placed in 208 liter (L) (55 gallon [gal]) drums and placed in the drum storage area until disposal arrangements are made with a local landfill (TTR or Nye County) or a landfill at the NTS. Solid waste will consist of:

- PPE.
- Paper and plastic sheeting.
- Wood, cement/concrete,and metal.
- Miscellaneous rags, sampling equipment, etc.

2.2 DECONTAMINATION WATER

Rinse water may be generated from equipment cleaning activities if the equipment contacts the impacted materials in the lagoons during the backfilling activities. If decontamination rinseate is generated, sampling will be required to determine disposal options for the rinseate. Sampling equipment will be cleaned prior to arrival at the site and between each sample point to reduce the potential of cross-contamination. All rinseate will be placed in containers, analyzed, stored, and disposed of in accordance with applicable regulations.

2.3 MANAGEMENT OF POTENTIAL RESOURCE CONSERVATION AND RECOVERY ACT OR HYDROCARBON WASTE

Potential Resource Conservation and Recovery Act (RCRA) or hydrocarbon waste may be generated during the closure activities if personnel or equipment contacts the impacted material in the lagoons. If generated, this material will be handled in a manner appropriate for a hazardous waste or hydrocarbon waste as described in Section 3.0, "Investigation Derived Waste (IDW) Management." The potentially impacted material will be placed in 208 L (55 gal) drums and stored at the site. Containers will be labeled as "Awaiting Analysis"; however, a waste code, if applicable, will not be assigned until analytical data from the sampling is evaluated and a formal decision from the BN WMP is made as to the regulatory status of the material.

3.0 INVESTIGATION DERIVED WASTE MANAGEMENT

All waste types that are generated will be managed in a manner that complies with all state and federal regulations, DOE orders, and BN procedures. Nonhazardous waste will be handled in accordance with DOE Environmental Restoration Division (ERD) Standard Operating Procedure ERD-05-210 (DOE, 1994). If the waste is determined to be hazardous based on analytical results, it will be handled in accordance with Standard Operating Procedure ERD-05-211 (DOE, 1994a). It is anticipated that no radiologically impacted material will be encountered. All waste will be handled in a manner that complies with the Nevada Test Site Performance Objective for Certification of Nonradioactive Hazardous Waste (REECo, 1995).

3.1 CONTAINER MANAGEMENT

All containers will be handled in accordance with Subpart I of 40 Code of Federal Regulations (CFR), Part 265 which deals with the use and management of containers. Additional requirements for storage of hazardous waste are described in Section 4.0, "Hazardous Waste Management Requirements." All containers must be in good condition (no rust or dents). If the container begins to leak, the contents must be transferred to a container that is in good condition. The containers must be lined or made of a material that will not react with the waste. The containers must always be closed while stored unless waste is added or removed. They must also be handled in such a manner that will not jeopardize the integrity of the container.

Rinseate and compactable solid waste will be stored in 208 L (55 gal) drums on pallets and handled as nonhazardous waste. An accumulation area will be set aside for the storage of the drums. This staging area will be located out of the way of heavy equipment traffic. The drum staging area will be fenced using orange safety fencing.

Waste drums will be new with no rust or dents and meet U.S. Department of Transportation requirements. The drums must have a metal ring securing the drum top to the drum. The ring will be secured with a drum lock. BN policy does not allow for a 208 L (55 gal) drum to be filled beyond a capacity of 7/8.

Appropriate labels and relevant information must be marked on each container or drum with an indelible marker and must be legible and clearly visible for inspection. Pertinent data may be written on duct tape or a blank adhesive label that is applied to the side of the container. The following information will be included:

- Waste-Tracking Label.
- Type of waste in container.
- Location waste was derived from.

- Date range that accumulation takes place.
- "Awaiting Analysis" sticker after sampling has been completed (if required).

BN Construction and/or WMP personnel are not permitted to remove drums from the site or have the contents of the drums disposed without written approval from BN Remediation Projects (RP) personnel. RP staff will make arrangements for the disposition of the waste with WMP staff.

3.2 SITE CONTROL

To prevent wild horses and unauthorized persons from entering the site, a rope fence or equal will be erected encompassing both sewage lagoon areas and waste accumulation area. "Keep Out" or similar warning signs were posted on all sides of the fence. Since the waste accumulation area will be placed in an area that is out of the construction traffic, the site location will be determined during the mobilization/site set-up.

3.3 IDW MANAGEMENT TECHNIQUES

Nonhazardous solid waste is anticipated to be generated during closure activities. The nonhazardous solid waste will most likely consist of PPE, paper, plastic sheeting, wood, cement/concrete, metal, and other miscellaneous material.

Although hydrocarbon and/or hazardous wastes are not anticipated to be generated, these waste types are addressed because there is a potential of their generation. Section 2.1.1 in the CAP provides a discussion regarding the backfilling methodology and the reasoning supporting waste minimization during closure activities.

Details for the management of IDW are provided in Table B-1.

TABLE B-1 -- MANAGEMENT OF INVESTIGATION DERIVED WASTE

WASTE TYPE	DECISION
SOIL/SOLIDS	
Impacted soil with less than 100 mg/kg TPH, nonhazardous	This waste type is not anticipated. However, if any excavated soil below 50 mg/kg TPH is encountered, it can be used as excavation backfill. If excavated soil is above 50 mg/kg TPH from a site exceeding the NDEP 100 mg/kg TPH Action Level, dispose of soil in Area 6 Hydrocarbon Landfill with WMP approval. Appropriate transfer documentation for disposal (letter recommending disposal, laboratory analytical results, radiological "green tag", weight tickets, and bill of lading) is required to be placed into the task file. Documentation of decisions, correspondence, and site activities is required.
Impacted soil with greater than 100 mg/kg TPH, nonhazardous	This waste type is not anticipated. However, if any TPH wastes exceed 100 mg/kg, stabilization will be completed, if required, prior to transfer to the Area 6 Hydrocarbon Landfill at the Nevada Test Site (NTS) for disposal with WMP approval. Appropriate documentation for disposal (letter from RP recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.
RCRA-regulated hazardous waste	This waste type is not anticipated. However, if encountered, containerize, label, and place in temporary Hazardous Waste Storage Area to await analysis. Conduct weekly inspections. To be managed as a RCRA-regulated hazardous waste, it must meet the requirements established in the Performance Objective For the Certification of Non-Radioactive Hazardous Waste (REECo, 1995). Appropriate documentation for transfer/disposal (letter recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.
Nonhazardous (PPE, plastic, paper, wood, etc.)	This waste type is anticipated based upon the proposed closure methodology (Section 2.1.1 in the CAP). Disposal in the TTR landfill is preferred if approved by the U.S. Air Force (USAF); otherwise, the materials will be transported to the NTS for disposal in the Area 9 (U10c) or Area 23 Sanitary Landfill. Appropriate documentation for disposal (letter recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.

WASTE TYPE	DECISION
RINSEATE	
TPH is less than 1 mg/L, nonhazardous	This waste type is not anticipated. However, if generated, the rinseate can be discharged into the NTS and possibly TTR (requires USAF approval) sanitary sewage lagoon, if the liquid has no hydrocarbon sheen. If the sheen can not be removed from the water through absorbent materials, then the liquid must be solidified and disposed of within the Area 6 Hydrocarbon Landfill. Appropriate documentation for disposal (letter recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.
TPH is greater than 1 mg/L, nonhazardous	This waste type is not anticipated. However, if generated, the rinseate will be solidified using soil or bentonite and disposed of within the Area 6 Hydrocarbon Landfill at the NTS. Appropriate documentation for disposal (letter recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.
Hazardous waste	This waste type is not anticipated. However, if generated, drums containing rinse water will be placed into the Drum Storage Area. Samples will be collected for waste characterization pending analysis. If rinseate is identified as a hazardous waste, follow the 3-day Satellite Accumulation storage rule and the 12-month storage limit for the Area 5 Hazardous Waste Storage Pad. Appropriate documentation for transfer/disposal (letter recommending disposal, laboratory analytical results/process knowledge, radiological "green tag", weight ticket, and/or bill of lading) are to be placed in the task file.

3.3.1 Solid Waste

All solid waste from the closure activities is considered a nonhazardous waste if the materials/equipment do not contact the impacted materials in the lagoons. Solid waste generated during the closure activities will be segregated if materials or equipment contact the impacted materials in the lagoons.

Solid waste will be segregated from liquid waste and stored in closed drums. Solid wastes must not contain any free liquids. If free liquids are noted, pads should be used to absorb the liquid or an absorbent-type material, such as bentonite, should be added to solidify the mixture.

3.3.2 Decontamination Water

Decontamination water (rinsate) is not anticipated to be generated, unless equipment or materials contact the impacted materials in the lagoons. If construction equipment does contact impacted materials in the lagoons, cleaning will be required during the backfilling activities.

For cleaning activities, a temporary decontamination pad will be constructed and lined with plastic sheeting. The pad should be large enough to steam clean the largest piece of heavy equipment and contain any overspray. Liquid that collects in the pad sump will be pumped into 208 L (55 gal) drums. The drum contents will be sampled for waste characterization and disposal determination.

Cleaning of sampling equipment will be done according to Standard Operating Procedure ERD-05-701 (DOE, 1994b) if sampling is required after generation of rinsate.

4.0 WASTE STORAGE REQUIREMENTS

4.1 CONTAINER MANAGEMENT

Drums containing decontamination water may be generated during closure activities if equipment contacts the impacted materials of the lagoons during backfilling activities. If generated, the drums will be placed on plastic and pallets or spill containment pallets pending receipt and evaluation of analytical results.

4.2 PREPAREDNESS AND PREVENTION

All hazardous waste facilities must be maintained and operated in a manner that minimizes the possibility of a fire, explosion, or any unplanned event [40 CFR, 265 Subpart C]. Even though, this site is not a hazardous waste facility and the hazards posed by the waste stored at this site do not require a specific kind of equipment, fire extinguishers will be available in all vehicles. Two-way radios will be available in field vehicles or as hand-held type.

Aisle space between the drums and containers will be sufficient to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area where the waste is stored in the event of an emergency.

TTR Emergency Response Teams, Fire Department, and TTR Security personnel, must be familiar with the layout of the facility, properties of the waste and constituents detected during the site characterization activities, possible excavation routes, etc. Hospitals must be informed of the type of injuries or illness which could result from fires, explosions, or releases at the site.

4.3 CONTINGENCY PLAN

Each owner or operator of a hazardous waste facility must comply with the requirements detailed in 40 CFR 265 Subpart D - Contingency Plan and Emergency Procedures. The generation of hazardous waste is not anticipated. This is based upon the closure methods provided in Section 2.1.1 of the CAP. This plan is designed as a contingency and to minimize hazards to human health or the environment in the event of fire, explosion, or any unplanned or non-sudden release of hazardous waste or hazardous waste constituent. The provisions of the plan must be carried out immediately after such an event and provide actions site personnel must take. A copy of the Contingency Plan can be found in Attachment B-1.

A copy of the plan and all revisions will be maintained at the site and provided to TTR Security personnel and Fire Departments, Medical Facilities, and Emergency Response Teams, if potential hazardous waste is to be generated. Hazardous waste will only be generated if equipment, PPE, and/or personnel contact the impacted materials in the lagoons.

If hazardous waste is generated, there will be at least one employee either on the site or on call at all time. This person will have the authority to commit the resources needed to carry out the Contingency Plan. The emergency coordinator will have thorough knowledge of all aspects of the Contingency Plan, all operations and activities at the facility, the location and characteristics of the waste handled, the location of the records at the site, and the site layout.

4.4 PERSONNEL TRAINING

Title 29 CFR 1910.120 details the occupational safety and health requirements that will be followed for personnel supporting excavation activities. All personnel will be required to read and understand the Site-Specific Health and Safety Plan prior to working at the site. A Tailgate Safety Briefing will be conducted every morning and as needed as activities or circumstances change.

4.5 INSPECTIONS

An inspection of the areas in which the containers and soil piles are stored will be conducted at least monthly. The purpose is to identify leaking or deteriorating containers due to corrosion or other factors. An inspection form is included in Attachment B-2. Unusual circumstances must be reported immediately to the BN task manager so that corrective measures can be taken. Copies of completed inspection forms will be submitted to the WMP.

5.0 INVESTIGATION DERIVED WASTE SAMPLING AND DISPOSAL

This section is anticipated to be implemented only if rinsate from equipment cleaning activities is generated from equipment which was in contact with impacted material in the lagoons.

5.1 INTRODUCTION

A representative waste sample must be collected for the characterization and disposal of the waste where additional information is needed. Sample handling, packaging, and shipping will be done in accordance with Standard Operating Procedure ERD-05-202 (DOE, 1994). All samples are to be immediately placed into laboratory supplied jars. The sample containers will be sealed, labeled, placed in an ice chest, cooled to four degrees centigrade, and transferred to the contract laboratory under Chain-Of Custody Procedure ERD-05-201 (DOE, 1994). Samples will be labeled with the date, time, sample number, parameter(s) to be analyzed, and the sampler's initials. Samples will be analyzed using a six-week turnaround. Table B-2 describes the parameters that will be analyzed.

Field observations and notes will be documented in a field notebook of all sampling procedures. All entries into the logbook will be made with indelible black ink. Field observations include:

- Time and date.
- Sampler(s).
- Waste type.
- Color.
- Odor.
- Unusual characteristics.

Soil samples will be collected with a stainless steel scoop. Sampling equipment will be decontaminated before and after use and will be stored in a plastic bag until used again. Liquid samples will be collected using a new coliwassa.

TABLE B-2 – ANALYTICAL PARAMETERS FOR WASTE CHARACTERIZATION

PARAMETER	METHOD	SAMPLE CONTAINER
Total Metals	SW 846, EPA 6010	1 - Liter, glass jar (liquid) 1-250 ml glass (soil)
TCLP[1] Metals	SW 846, EPA 6010	1 - Liter, glass jar (liquid) 1-250 ml glass (soil)
Total Pesticides	SW 846, EPA 8080	1 - Liter, glass jar (liquid) 1-250 ml glass (soil)
Total VOCs[2]	SW 846, EPA 8240	3 - 40 ml vial (liquid) 2-120 ml, glass (soil)
Total SVOCs[3]	SW 846, EPA 8270	1 - Liter, glass (liquid) 1-500 ml, glass (soil)
TPH	SW 846, EPA 8015 Modified	250 ml, glass jar (soil); 2-Liter glass + 120 ml glass with zero headspace (liquid)

Notes: 1 TCLP: Toxicity Characteristic Leaching Procedure, EPA Method 1311.
2 VOCs: Volatile Organic Compounds.
3 SVOCs: Semi-Volatile Organic Compounds.

5.2 WASTE SAMPLING TECHNIQUES

Each waste stream generated at the site must be sampled unless process knowledge and/or previous sampling results provide adequate information for a disposal determination. Unless, equipment, PPE, and/or personnel contact the impacted material in the East and West Sewage Lagoons, only nonhazardous solid waste not requiring sampling will be generated at the site. When all necessary information has been compiled, a letter must be submitted to the WMP or TTR waste management group requesting disposal support. Disposal will be documented with the bill-of-lading, waste manifest, chain-of-custody, etc, as applicable.

Waste generated during the backfill activities at the East and West Sewage Lagoons will be segregated from waste generated at the North Disposal Trench. If solid and liquid wastes are generated, the solid wastes will be separated from the liquid wastes prior to containerization. Waste will be stored 208 L (55 gal) drums.

5.2.1 Solid Waste

Sampling is not required for waste known to contain no COCs. Such determination can be based on process knowledge and/or analytical results from previous sampling events. Impacted materials above PRG action levels were only encountered in the East and West Sewage Lagoons. Therefore, only materials/equipment that contact the impacted soils in the lagoons are potentially suspect.

Solid waste, such as PPE, plastic, wood, concrete, etc. will not be sampled. Disposal will be based primarily on the associated activity that generated the waste. If construction material or debris (includes PPE) contact the impacted soils in the lagoons, the materials will be visually inspected by the Site Supervisor. The waste may be considered nonhazardous if it is not significantly impacted by a hazardous material. Final disposal recommendations will be determined by WMP personnel; however disposal method evaluation will consider analytical results from the Corrective Action Decision Document characterization activities (DOE, 1997).

5.2.2 Decontamination Water

Decontamination water will only be generated from equipment cleaning activities if equipment contacts the impacted materials in the lagoons. Each drum of decontamination water will be sampled with a new coliwassa and the samples submitted for laboratory analysis for the parameters listed in Table B-2. A composite sample may be collected from two or three drums containing rinse water generated by the same activity.

5.3 QUALITY ASSURANCE SAMPLES

Field quality control samples will be collected in accordance with Standard Operating Procedure ERD-05-401 (DOE, 1994). One trip blank sample will be collected each day that sampling activities are conducted and analyzed for volatile organic compounds. One complete blind replicate set will be collected for every ten rinsate sample set. Additional samples will be collected for matrix spike and matrix spike duplicate samples.

6.0 REFERENCES

DOE, September 1994; Nevada Operations Office, Environmental Restoration Division, Standard Operating Procedure, Management and Minimization of Nonhazardous Waste at the Nevada Test Site for the Nevada Environmental Restoration Project., Revision 0.

DOE, September 1994a; Nevada Operations Office, Environmental Restoration Division, Standard Operating Procedure, Management and Minimization of Hazardous Waste at the Nevada Test Site for the Nevada Environmental Restoration Project., Revision 0.

DOE, September 1994b; Nevada Operations Office, Environmental Restoration Division, Sampling Equipment Decontamination., Revision 0.

DOE, 1997, Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench, prepared by IT Corp. for the Department of Energy. DOE/NV-474 UC-700.

EPA, 1996, Region IX Preliminary Remediation Goals (PRGs), San Francisco, CA.

Nevada Administative Code, 1996, Hazardous Materials: Storage Tanks, Nevada Administrative Code 459.9921 through 459.999.

REECo, December 18, 1995, Nevada Test Site Performance Objective for Certification of Nonradioactive Hazardous Waste.

U.S. Environmental Protection Agency, Title 40, CFR 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

ATTACHMENT B-1

of APPENDIX B

CONTINGENCY PLAN

CONTINGENCY PLAN AND EMERGENCY PROCEDURES ROLLER COASTER SEWAGE LAGOONS AND NORTH DISPOSAL TRENCH CLOSURE ACTIVITIES

Prepared for
U. S. Department of Energy
Nevada Operations Office
Under Contract No. DE-AC08-96NV11718

Revision: 0

Prepared by:
Bechtel Nevada
Remediation Projects

July 1997

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ACRONYMS AND ABBREVIATIONS

BN	Bechtel Nevada
CADD	Corrective Action Decision Document
CAS	Corrective Action Site
CAU	Corrective Action Unit
CFR	Code of Federal Regulations
cm	centimeter
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DOE	United States Department of Energy
EC	Emergency Coordinator
ERD	Environmental Restoration Division
EPA	U.S. Environmental Protection Agency
EMP	Emergency Management Plan
ft	feet
in	inch
m	meters
mg/kg	milligrams/kilogram
m/s	meters per second

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

MSDS	Material Safety Data Sheets
NAC	Nevada Administrative Code
NTS	Nevada Test Site
PPE	Personnel Protective Equipment
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RP	Remediation Projects
TPH	Total Petroleum Hydrocarbons
ERD	Environmental Restoration Division
TTR	Tonopah Test Range
VCA	Voluntary Corrective Action
ug/kg	micrograms/kilogram

1.0 INTRODUCTION

1.1 PURPOSE

This document satisfies the requirements for a contingency plan and emergency procedures required by the federal hazardous waste regulations defined in the Resource Conservation and Recovery Act (RCRA). These requirements are prescribed by:

- Title 40 Code of Federal Regulations (CFR) Part 265, Subparts C and D.
- Title 40 CFR 262.34.
- Title 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.
- Bechtel Nevada (BN) Procedure 4.2.9, Response to Spills of Known Substances.
- BN Emergency Management Plan (EMP).

This plan discusses the actions that the BN Remediation Projects (RP), Nevada Test Site (NTS), and Tonopah Test Range (TTR) personnel will take in response to fires, explosions, or unplanned sudden or non-sudden releases of hazardous waste or hazardous waste constituents to the air, soil, or surface water at the Roller Coaster Sewage Lagoons and North Disposal Trench during closure activities.

1.2 SCOPE

This Plan covers a variety of possible emergencies at the Roller Coaster Sewage Lagoons and North Disposal Trench during closure activities. This document applies to all personnel assigned to the site closure activities. This Plan does not cover any releases incurred by subcontractors who are under contract to remove hazardous waste from the TTR once they have physically left the Roller Coaster Sewage Lagoons and North Disposal Trench site.

1.3 FACILITY DESCRIPTION

1.3.1 Site Location

The site is located on the TTR, approximately 225 kilometers (140 miles) northwest of Las Vegas, Nevada (Figure 1).

1.3.2 Site Description

The site consists of two two unlined lagoons (Roller Coaster Sewage Lagoons) and a trench (North Disposal Trench). A site map of the lagoons and trench is provided in Figure 2. The sewage lagoons received liquid sanitary waste in 1963 from the Operation Roller Coaster man camp and debris from subsequent construction and range cleanup activities (DOE/NV, 1997). Each lagoon is approximately 36 meters (m) (120 feet [ft]) long by 23 m (75 ft) wide by 3 m (10 ft) deep.

The North Disposal Trench was excavated in approximately 1963 and received solid waste and debris from the man camp and subsequent construction and range cleanup activities (DOE/NV, 1997). The North Disposal Trench is approximately 30 m (100 ft) long by 4 m (12 ft) wide by 3 m (10 ft) deep. A small hydrocarbon spill occurred during Voluntary Corrective Action (VCA) activities at an area associated with the North Disposal Trench Corrective Action Site (CAS).

The scope of this closure activity is to:

- Install an engineered, vegetative cover on the East and West Sewage Lagoons to control erosion, limit precipitation infiltration, and mitigate potential exposure pathways.

- Install a vegetative cover on the North Disposal Trench to remove the potential for future debris disposal.

No further action is proposed for the VCA spill area associated with the North Disposal Trench CAS. Analytical results from the 1996 characterization activities indicate petroleum hydrocarbon impacted soils above the 100 milligrams per kilogram (mg/kg) Total Petroleum Hydrocarbons (TPH) Action Level were excavated and disposed of in the Area 6 Hydrocarbon Landfill located at the NTS.

An area at the site will be used for storage of personal protective equipment (PPE), other supplies/equipment, and waste generated during the closure activities. A temporary decontamination pad may be constructed at the site if equipment contacts the impacted materials in the lagoons.

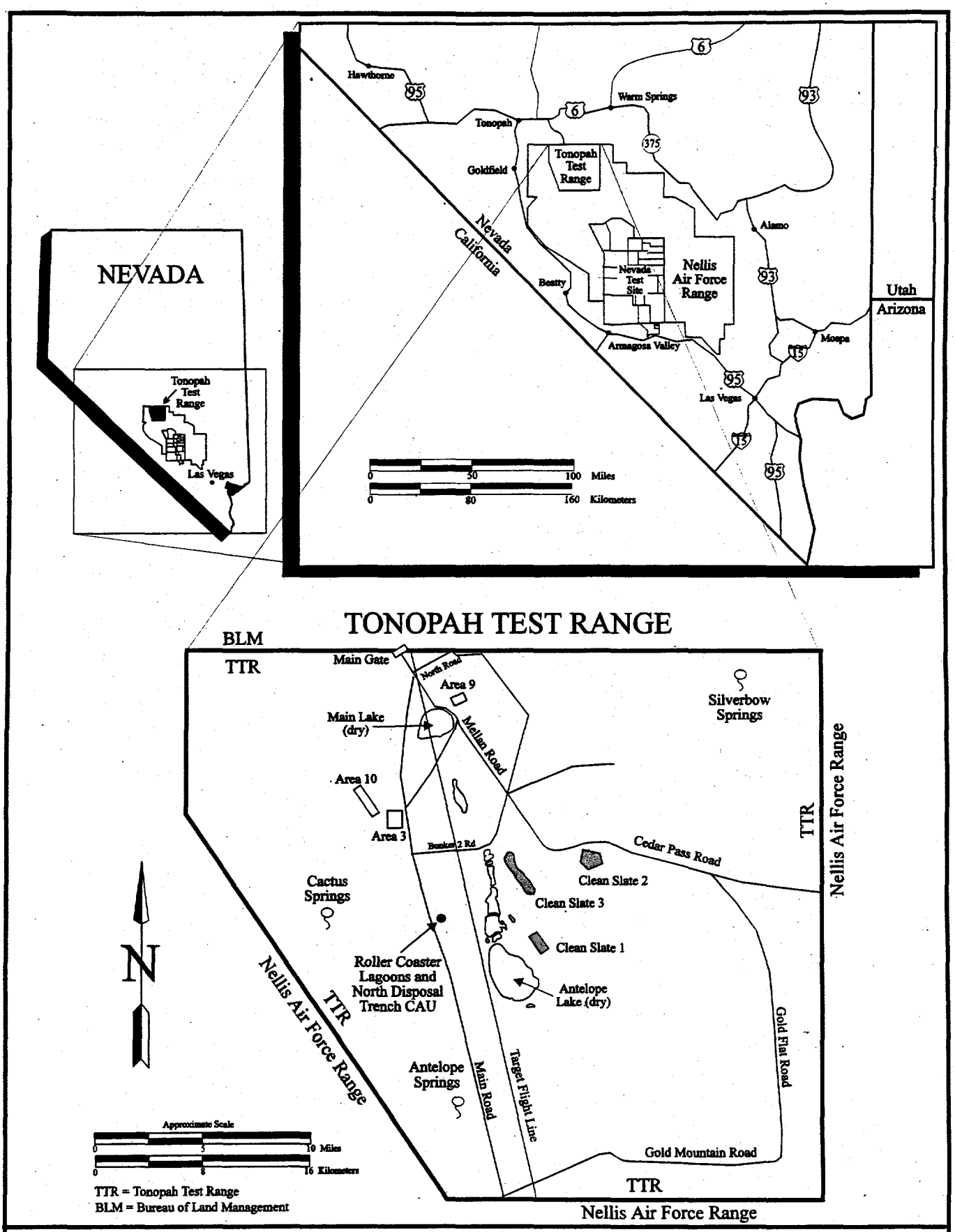

Figure 1
Site Location Map of the Roller Coaster Lagoons and
North Disposal Trench CAU at the Tonopah Test Range

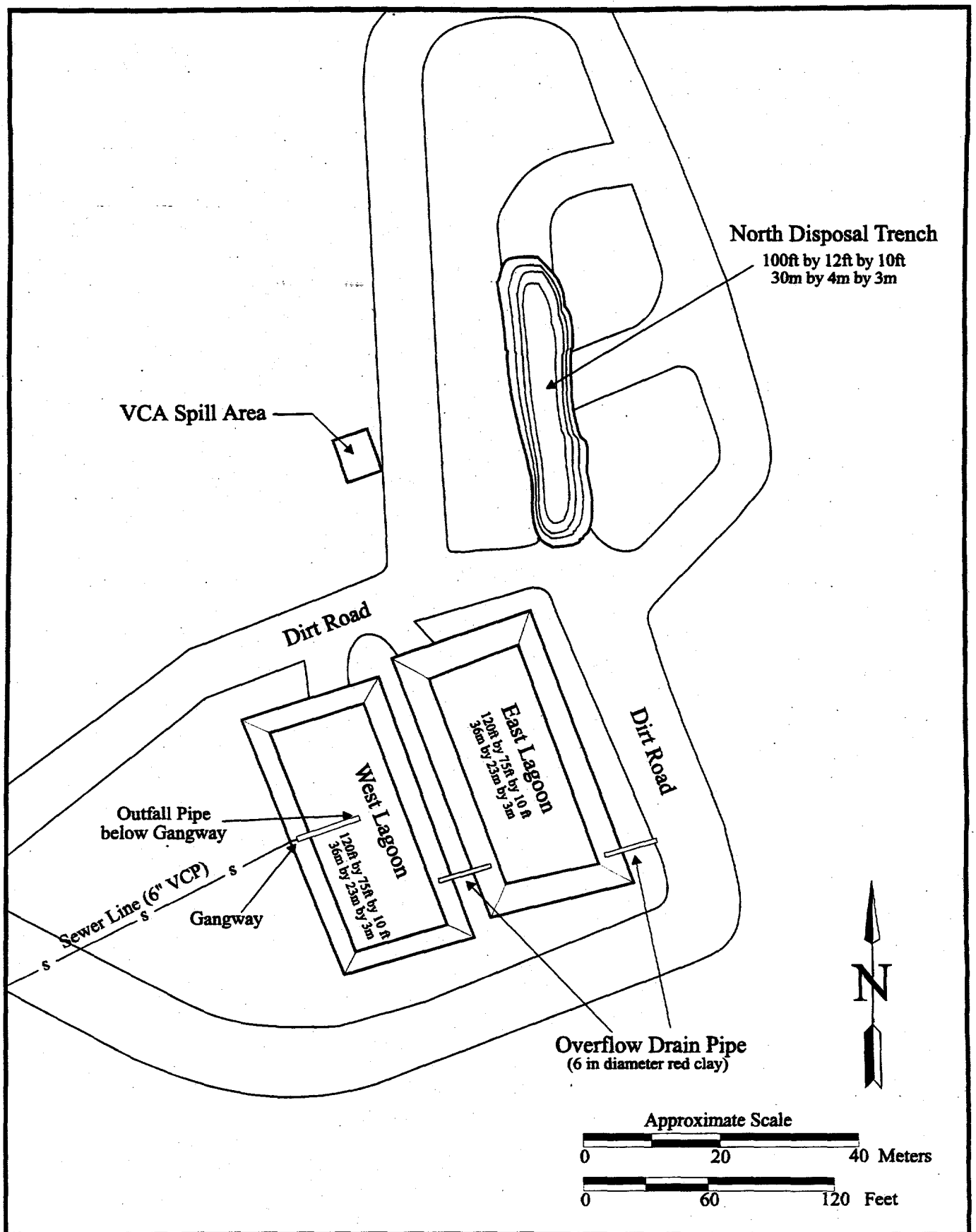

Figure 2
Roller Coaster Lagoons, North Disposal Trench,
and VCA Spill Area Map

SOURCE: DOE, 1997

1.3.3 Topography

The TTR is located in the Great Basin of the Basin and Range province. The Roller Coaster Sewage Lagoons and North Disposal Trench are located on the west side of Cactus Flat and east of the Cactus Range. Cactus Flat is a valley consisting of alluvial fans and dry lakes. The elevation at the site is approximately 1,642 m (5,400 ft) above mean sea level. Figure 3 is a topographic map of the area.

1.3.4 Climate

The TTR receives approximately 15 cm (6 in) of precipitation annually. Annual wind patterns are characterized by strong winds in the spring. The daily cycle is generally light winds at night, increasing winds from morning to afternoon and declining wind speed in the evening. Average monthly wind speed vary from 4.0 m/s (13 feet per second) in April to 2.7 m/s (9 feet per second) in November.

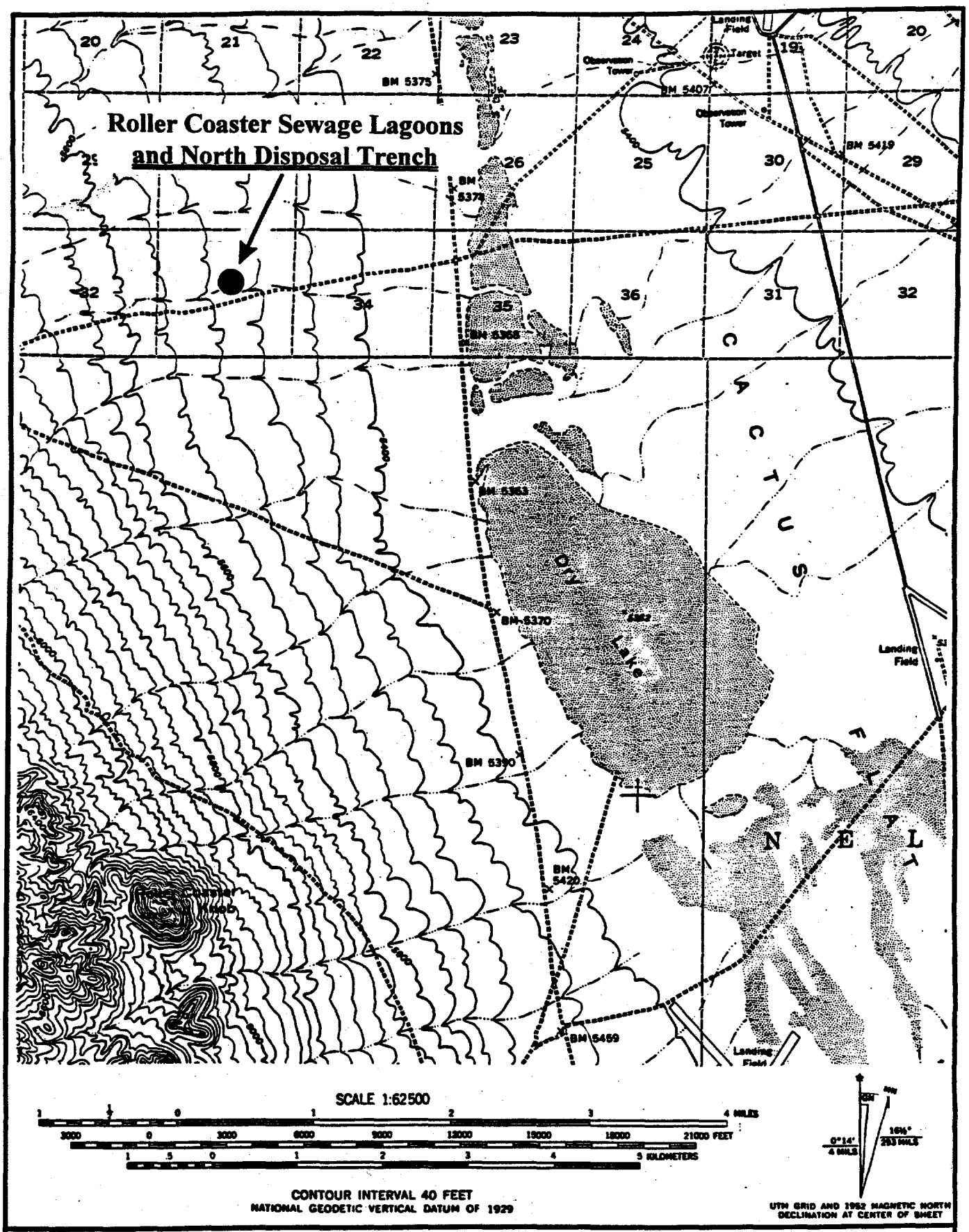

Figure 3
Topographic Map

SOURCE U.S.G.S. 1952 Mellan, NV Quad

2.0 WASTE DESCRIPTIONS AND ASSOCIATED HAZARDS

Results from the 1996 characterization activities were documented in the Corrective Action Decision Document (CADD) (DOE/NV, 1997). The results indicate the following:

- Pesticides were detected above the U.S. Environmental Protection Agency (EPA) Region IX Preliminary Remediation Goals (PRG) (EPA, 1996) for samples collected in the East and West Sewage Lagoons.

- Two soil samples collected in the East Sewage Lagoon were evaluated to have concentrations above the PRGs for Dichlorodiphenyldichloroethylene (DDE) and Dichlorodiphenyltrichloroethane (DDT). Concentrations above the PRGs for DDE was limited to one sample at 1,600 micrograms per kilogram (ug/kg), and DDT ranged from 1,900 ug/kg to 2,600 ug/kg for two samples.

- Three soil samples collected in the West Sewage Lagoon were evaluated to have concentrations above the PRGs for Dichlorodiphenyldichloroethane (DDD) (2,300 ug/kg to 5,400 ug/kg), DDE (3,500 ug/kg to 15,000 ug/kg), and DDT (7,900 ug/kg to 9,900 ug/kg).

- No other constituents were detected above regulatory levels in the Sewage Lagoons or North Disposal Trench.

- The soil sample from the VCA spill (associated with the North Disposal Trench CAS) contained TPH impacted soil above the Navada Administrayive Code (NAC) TPH Action Level of 100 mg/kg (NAC, 1996). The impacted soils were subsequently removed during the 1996 activities (DOE, 1997).

The Roller Coaster Sewage Lagoons contain materials that present chemical and physical hazards. Although the construction methods will reduce or eliminate the potential for personnel contact with the impacted materails (see Section 2.1.1 in the Corrective Action Plan), potential routes of entry could include inhalation, ingestion, absorption, and injection. The specific hazards associated with the site are described in the following sections.

2.1 CHEMICAL HAZARDS

The following is a generalization of the hazards associated with the various chemical classes that may possibly be encountered at the Roller Coaster Sewage Lagoons. Although analytical data indicates the presence of these chemical classes in the soil, it should be noted that they were detected in small concentrations.

2.1.1 Hydrocarbons

Hydrocarbons may be fatal if swallowed or inhaled. They are capable of being absorbed through the skin, can cause eye damage, chemical burns, and oxygen deficiency in confined spaces.

2.1.2 RCRA-Regulated Constituents

It is possible that RCRA-regulated hazardous constituents (pesticides) may be encountered in the Roller Coaster Sewage Lagoons. These compounds are often strong oxidizers that may be harmful or fatal if inhaled, swallowed, or absorbed through the skin. Contact can cause irritation of the eyes, nose, and throat, fatigue, headaches, and drowsiness. Target organs include the respiratory system, eyes, liver, and kidneys.

2.2 PHYSICAL HAZARDS

The following are generalizations of the physical hazards associated with the various chemical classes that may possibly be encountered at the Roller Coaster Sewage Lagoons.

2.2.1 Hydrocarbons

Petroleum hydrocarbon materials may burn, but do not usually ignite readily. When burned, these chemicals give off gases such as carbon monoxide, soot, etc. The vapors of this chemical class are denser than air and will sink to the bottom of depressions such as the ponds. These irritating vapors may build up to toxic or, under unusual conditions, explosive levels. They can degrade the integrity of plastic.

2.2.2 RCRA-Regulated Constituents

Since there are many regulated materials, most do not have a specific hazard associated with an entire class of chemicals. Most of these materials are not flammable and usually will not cause an unexpected chemical reaction. For specific physical hazard information consult the Material Safety Data Sheet (MSDS) for the material, an Industrial Hygienist, or other source.

2.2.3 Other Physical Hazards

Other physical hazards present at the Roller Coaster Sewage Lagoons and North Disposal Trench are associated with container-handling, heavy equipment operations, and working outdoors. These may include potential back injury, vehicle accidents, and heat and cold stress. Physical hazards are discussed in BN Safety Procedures and the Site Specific Health and Safety Plan.

3.0 EMERGENCY NOTIFICATION PROCEDURES

The reporting and notification procedure outlined in BN Safety Procedure M-A11-007, Accidents/Incident Notifying, Investigating, and Reporting will be followed in the event of an accident, injury or other incident. Expedient reporting and notification will be made for, but not limited to, personnel injury or fatality, toxic material release, fire, or explosion. Attachment 1 includes the Emergency/Contingency Plan notice that will be posted at the site. Information includes a list of the telephone numbers, emergency response procedures, waste description, etc.

3.1 DESIGNATION OF EMERGENCY COORDINATOR

The Emergency Coordinator (EC) system consists of one primary EC, one secondary EC, and one alternate EC. The ECs are onsite or on call at all times. In the event of an emergency, the primary EC should be contacted; if not available, the secondary EC should be contacted. If neither of these are available the alternate should be contacted. The individual who is available first becomes the EC for the situation. The RP Project Manager will appoint the ECs prior to field activities. The Emergency Coordinator list is a field document to be prepared prior to field activities.

3.2 RESPONSIBILITIES

The ECs have the authority to commit the necessary resources to implement this plan. Personnel resources will be applied consistent with the requirements of Title 40, CFR 1910.120. The ECs will remain thoroughly familiar with the following:

- All aspects of this Plan.
- All operations and activities under control at the Roller Coaster Sewage Lagoons Corrective Action Unit (CAU).
- The locations and characteristics of the wastes handled.
- The locations of all the records.
- The Roller Coaster Sewage Lagoons CAU.

In the event of an emergency, the EC will be responsible for the following:

- Stopping all operations, where applicable.

- Implementing this Plan.
- Contacting the TTR Safety Coordinator through the MAYDAY/911 system and making notification of the emergency.
- Notifying all Roller Coaster Sewage Lagoons CAU personnel of the emergency.
- Acting as the incident coordinator.
- Attempting to stop, slow, or dike the discharge, if it can be done safely with the materials at hand.
- Providing the technical expertise necessary so that all responders (including those outside the RP) are fully informed of the potential hazards.

The secondary EC will also be responsible for preparing, posting, and maintaining an emergency information sheet which provides the emergency response information, such as telephone numbers for emergency response teams. The secondary EC is also responsible for personnel evacuation. In the event the secondary EC is not available the alternate EC will conduct these duties.

3.3 NOTIFICATION

The first person who becomes aware of an emergency at the Roller Coaster Sewage Lagoons and North Disposal Trench shall immediately notify the proper authorities. Initial notification should be to their supervisor. If the emergency involves only a release of hazardous materials, the supervisor shall contact the EC who will start the necessary notification.

When the nature of the emergency is a fire, explosion, or involves personnel injury, the supervisor shall immediately notify Advanced Security Incorporated (ASI) Security ("Cactus") and the TTR ES&H (Environment, Safety, and Health) Coordinator via the radio on the Cedar Net or the 911 telephone system. The supervisor shall contact the EC.

If the first person to become aware of an emergency is not a RP employee and there are no RP personnel in the area, that person should follow the notification instructions posted at the perimeter of the Roller Coaster Sewage Lagoons.

3.4 RESPONSE PROCEDURES

There are two general classifications of incidents that could occur at the Roller Coaster Sewage Lagoons and North Disposal Trench; fire and/or explosions and a spill of potentially hazardous materials. The initial response will be to protect human health and safety, and then the environment. The following actions will be taken:

1) Work in the area will cease immediately.

2a) For fire: If necessary, contact "Cactus" via the radio on the Cedar Net or by telephone by using the 911 system or use the ABC-type fire extinguisher

2b) For spill: Attempt to stop, slow, or dike the discharge without compromising health and safety.

3) Notify the cognizant EC who will obtain additional emergency response assistance as required. Verify that all personnel are out of area.

4) Remove injured persons and administer first aid as required.

5) Shut down operating equipment as practical.

6) Complete appropriate documentation (Attachment 2).

3.5 EVACUATION PLAN

Notification for personnel to evacuate the area will be received via an emergency signal. The EC will be in possession of a blow-horn that will signal all workers to leave the area and gather in the designated assembly area. All radio nets will be kept clear and be used to transmit emergency information only. The EC will be accountable for all personnel.

The assembly area for evacuated personnel will be the paved road west of the site. If cover must be taken, personnel will be instructed to use equipment/vehicles and other topograhic features at the site.

3.6 EMERGENCY DECONTAMINATION AND FIRST AID

If a worker is contaminated with a chemical substance, direct the worker to proceed at once to the temporary decontamination pad and drench the worker with copious amounts of water. Pay particular attention to the victim's eyes and face. Do not remove PPE until all contamination has

been thoroughly rinsed off. Contact the Occupational Medicine Department for assistance and advice. Move the victim to fresh air.

3.7 CLEANUP

Cleanup of potential hazardous waste will be conducted by personnel having the appropriate training and PPE as determined by the EC. Cleanup will meet all current applicable standards and regulations.

4.0 EMERGENCY SERVICES

4.1 ON-SITE CONDITION OF EMERGENCY SERVICES

The onsite Fire Protection and Emergency Medical Services (ASI Security) are capable of responding to all credible emergencies at the TTR. These services are linked to the emergency communications dispatch system and have the capability to respond to emergencies involving hazardous, radioactive, or mixed waste constituents.

4.2 MEDICAL SERVICES

Emergency services are provided at the Sandia Compound during normal working hours, Monday through Thursday. During other than normal working hours, emergency services are provided by Sandia paramedic personnel and U.S. Air Force personnel only. All nurses and physicians are licensed by the state of Nevada. Paramedical qualifications meet or exceed Department of Transportation Highway Safety Program requirements for emergency medical services. Response time to the Roller Coaster Sewage Lagoons and North Disposal Trench is approximately ten minutes. Services are also available at the Nye County Regional Medical Center located in Tonopah, Nevada.

4.3 FIRE PROTECTION SERVICES

The Sandia TTR Fire Station serves the TTR 24 hours a day, 7 days a week. It is located in the Sandia Compound and will be the primary response team. The Fire Protection Services responds to spills, explosions, fires, and non-fire emergencies involving cleanup.

5.0 EMERGENCY EQUIPMENT

Emergency equipment includes equipment for fire control, emergency communications, spill control and cleanup, personnel protection, and first aid. The onsite emergency equipment is inspected monthly to ensure there is adequate inventory and that it is in good working order. Extra PPE and environmental monitoring equipment are available. A list of the available equipment and the location(s) they can be found in Attachment 3.

6.0 REFERENCES

Nevada Administrative Code, 1996, Hazardous Materials: Storage Tanks, Nevada Administrative Code 459.9921 through 459.999.

United States Department of Energy, January 1997; Nevada Operations Office, Environmental Restoration Division, Corrective Action Decision Document For the Roller Coaster Lagoons and North Disposal Trench, prepared by IT Corp. for the Department of Energy. DOE/NV-474 UC-700.

United States Environmental Protection Agency, 1996, Region IX Preliminary Remediation Goals (PRGs), San Francisco, CA.

United States Environmental Protection Agency, Title 40, CFR 262, Standards Applicable to Generators of Hazardous Waste.

United States Environmental Protection Agency, Title 40, CFR 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

United States Occupational Safety and Health Administration, Title 29, CFR 1910.120, Hazardous Waste Operations and Emergency Response.

ATTACHMENT 1

of ATTACHMENT B-1

of APPENDIX B

EMERGENCY/CONTINGENCY PLAN

EMERGENCY/CONTINGENCY PLAN

COMPANY: Bechtel Nevada
ADDRESS: Mercury, Nevada
LOCATION OF FACILITY: Tonopah Test Range, Roller Coaster Sewage Lagoons

PRIMARY EMERGENCY COORDINATOR
To Be Determined (TBD)
Work:
Home:

SECONDARY EMERGENCY COORDINATOR
TBD
Work:
Home:
Cellular:

ALTERNATE EMERGENCY COORDINATOR
TBD
Work:
Home:

DESCRIPTION OF WASTE HANDLED
Possible pesticides and petroleum hydrocarbons in soil and decontamination water. Wastes are contained in 55-gallon steel drums.

EMERGENCY RESPONSE CONTACTS

All emergency response teams can be contacted through ASI Security ("Cactus") on the Cedar Net Radio and by telephone using the "911" System:

EMERGENCY DISPATCH: 295-8345 or 295-8290

PRIMARY HOSPITAL:
Area 3 Medical Facility
(Building 0369)
295-8345 or 295-8290

SECONDARY HOSPITAL:
Nye Regional Medical Center
825 South Main Street
Tonopah, NV
(702) 482-6233

ATTACHMENT 2

of ATTACHMENT B-1

of APPENDIX B

INJURY/ILLNESS/INCIDENT REPORT

Bechtel Nevada

INJURY/ILLNESS/INCIDENT REPORT

The supervisor completes this report immediately after being notified of any work-related accident or incident (injury, illness, vehicle accident, property damage, or near-miss incident) and forwards it to the assigned Safety Representative or the Occupational Safety Department within two working days. Be specific. Provide enough data that anyone reading the report, who is not familiar with the incident, can understand what happened. For near-miss incidents complete Parts I and IV. For accidents, injuries, or illnesses, complete the applicable blocks in Parts I, II, III and IV. (Instructions are listed on the back of the last copy.)

PART I

1. Company:	2. Org./Dept. No.:	3. Date of Occurrence	4. Time *(Military)*	5. Location	6. Date Reported

7. Employee Name:	Social Security No.:	Job Classification:	Age:	☐ Male ☐ Female

8. Job Being Done at Time of Incident	9. Experience on This Job or This Equipment (Months) ☐ Under 3 ☐ 3 to 12 ☐ Over 12
	10. Length of Present Employment (Months) ☐ Under 3 ☐ 3 to 12 ☐ Over 12

PART II - INJURY/ILLNESS

11. Body Part(s) Involved	☐ Left ☐ Right	12. Nature of Injury/Illness	13. Object/Equip./Substance Inflicting Injury

PART III - VEHICLE OR PROPERTY DAMAGE

14. Description of Vehicle/Equipment	15. Vehicle/Property No.:	16. Nature of Damage	
17. Activity in Progress at Time of Incident	**18. Estimated Repair/Replacement Cost**	**19. Seat Belts Used** ☐ Yes ☐ No ☐ N/A	

PART IV - DESCRIPTION OF EVENTS, ANALYSIS OF CAUSES, AND ACTIONS TO PREVENT RECURRENCE

(☐ Mark if additional sheets are attached to accomplish adequate detail.)

20. Describe clearly how the accident/incident occurred:

21. What acts, failures to act and/or conditions contributed most directly to this accident/incident?

22. What root causes, basic or fundamental reasons, caused the existence of these failures, acts and/or conditions?

23. What action has or will be taken to prevent recurrence? | Implementation Date(s):

24. Preventable ☐ Yes ☐ No

25. Witnesses 1. 2. 3.

26. Investigating Supervisor:	Phone:	Signature:	Date:
27. Reviewing Safety Representative:	**Phone:**	**Signature:**	**Date:**
28. Manager:	**Phone:**	**Signature:**	**Date:**

Distribution: White - Occupational Safety; Canary - Originator; Pink - Safety Representative; Goldenrod - Originator's Department

BN-0018 (01/96)

INSTRUCTIONS FOR COMPLETION OF THIS FORM

The following information will assist in the completion of this form.

1. **Company:** Bechtel or Subcontractor.
2. **Org./Dept. No.:** As applicable.
3. **Date of Occurrence:** Date event happened.
4. **Time:** Use military time.
5. **Location:** (Examples: Bldg. 7, Area 6; Whse. A Yard, Area 23)
6. **Date Reported:** Date the incident was reported to supervisor.
7. **Employee Name, Social Security No., Job Classification, Age, Sex:** Self-explanatory
8. **Job Being Done at Time of Incident:** (Examples: Stocking shelves; installing a receptacle; cleaning equipment parts; carrying files to a desk; etc.)
9. **Experience on This Job or This Equipment:** Self-explanatory.
10. **Length of Present Employment:** Check applicable box, based on employee hire date.

ILLNESS/INJURY

11. **Body Part(s) Involved:** (Examples: left arm; right foot; back; both eyes; thumb, left hand; etc.)
12. **Nature of Injury/Illness:** (Examples: Sprain; strain; fracture; laceration; dermatitis; etc.)
13. **Object/Equip./Substance Inflicting Injury:** (Examples: Corner of shelf; point of screwdriver; solvent in dip tank)

PROPERTY DAMAGE

14. **Description of Vehicle/Property/Equipment:** (Clark forklift; warehouse roll-up door; 1987 Dodge pickup; etc.)
15. **Property No.:** Use property number on equipment or license number of vehicles. Note N/A if there is no identifying number.
16. **Nature of Damage:** (Examples: Broken window, left side; second rung of ladder bent, telephone cable cut; etc.)
17. **Activity in Progress at Time of Incident:** (Examples: Placing a pallet on a shelf; Rearranging office furniture, etc.)
18. **Estimated Repair/Replacement Cost:** Self-explanatory.
19. **Seat Belts:** Check applicable block to indicate if seat belts were used or not applicable.

DESCRIPTION OF EVENTS, ANALYSIS OF CAUSES, AND ACTIONS TO PREVENT RECURRENCE

20. **Description of how accident/incident occurred:** Include all facts surrounding the incident. Do not use one-line descriptions.
21. **Acts/failures to act, unsafe conditions contributing to accident:** Be as specific as possible in identifying the contributing factors.

    The following examples are offered, but should not be considered as the only factors to be considered. Keep in mind that a single incident can involve multiple unsafe acts and unsafe conditions.

Examples of Unsafe Acts:	**Examples of Unsafe Conditions:**
Used defective equipment	Inadequate or no guard/safety device
Used wrong tool	Poor housekeeping
Took unsafe position/posture	Protruding object hazard
No protective equipment used	Defective tools/equipment
Did not follow established procedure	Close clearance/congestion

22. **Basic or fundamental reasons causing failures, unsafe acts, or unsafe conditions:** Include all identified root causes. Usually there are management failures.

Examples include, but are not limited to:	
Inadequate employee training	Inadequate maintenance or repair
Inadequate procedures	Inadequate employee selection or placement
Inadequate enforcement of procedure	Inadequate safety rules or equipment

23. **Preventative action and implementation dates:** Describe what actions have or will be taken to prevent similar incidents. If an action has already been taken, enter the date it was completed. If an action is planned, enter the proposed date of completion.
24. **Preventable:** Determine if the employee reasonably could have done anything to prevent the accident/incident.
25. **Witnesses:** Self-explanatory.

SIGNATURE AND REVIEW PROCESS

26. The supervisor can either complete the form solely and send it to the Safety Representative for review or complete the form along with the assigned Safety Representative.
27. When the form has been signed by both the Supervisor and Safety Representative, submit it to the Manager for signature.
28. After the Manager has signed the form, his/her office will make appropriate distribution of the copies.

NOTE: Forward all photos, statements, diagrams, etc. concerning the accident/incident to the Occupational Safety Dept.

ATTACHMENT 3

of ATTACHMENT B-1

of APPENDIX B

EMERGENCY EQUIPMENT

EMERGENCY EQUIPMENT

EQUIPMENT	LOCATION
Fire Extinguishers 20 lb. ABC	Each vehicle Decon Area Office
First Aid Kits	Each vehicle Decon Area Office
Eye Wash Station	Decon Area
PPE Tyvek Nitrile Gloves Surgical Gloves Rubber Boots Rain Suits (3) Hard Hats Face Shields Safety Glasses	Office or Designated Field Vehicle
Portable Net 15 Radio (2) With charger.	Office and Site Supervisor Vehicle
Spill Response Materials 55-gallon drums Spill Kit Absorbent Pads	Office or Designated Field Vehicle
Miscellaneous Garbage Bags Buckets Brushes Soap Kimwipes Plastic Sandbags Duct tape	Office or Designated Field Vehicle

ATTACHMENT B-2

of APPENDIX B

FIELD INSPECTION FORM

Bechtel Nevada

ROLLER COASTER LAGOONS & N. DISPOSAL TRENCH - INSPECTION FORM

Inspect all the containers and surrounding area. Look for any unusual change in the unit such as deterioration of containers, accumulation of water, chemical odors, etc. Refer to the previous inspection of the unit in order to identify any changes.

GENERAL INFORMATION

1. Date of inspection: _____
2. Facility Manager (name and organization): _____
3. Reason for inspection: Weekly: ___ Problem Reported: ____ Unusual weather: ____
   Details (Name, organization and telephone number of person reporting problem): _____
   _____
4. Describe weather conditions over the past few weeks (high winds, precipitation, local flooding):
   _____
   _____
   _____

CONTAINERS

5. Condition of roll-off containers (leakage, corrosion, covers in place, etc): _____
   _____
   _____
   _____
   _____
6. Condition of drums (any leakage, corrosion, drums locked, etc): _____
   _____
   _____
   _____
   _____
   _____
7. Condition of soil piles (covers in place): _____
   _____
   _____
   _____
   _____
8. Condition of fencing (any breaks, posts still vertical): _____
   _____
9. Condition of signs (missing signs, fading, damaged): _____
   _____

ROLLER COASTER LAGOONS & N. DISPOSAL TRENCH - (CONT.)

10. Standing water present in area? No _____ Yes _____ Depth: _____
Does it present a problem to the accumulation area? If so, state corrective actions that might be taken: __

11. Any trash or other waste in area? No _____ Yes _____ No change _____
Details: _____

12. Signs of erosion indicating runoff from the accumulation areas?
No _____ Yes _____ If yes, explain: _____

AREA SURROUNDING POND AND LINES

13. Describe any significant changes in the general area (within several hundred feet of the unit) from the previous inspection. Changes can include water on the playa, change in land use, storage of materials nearby, soil piles, change in use of the facility, etc._____

14. What is the (possible) effect of the change? _____

15. Other comments or observations: _____

16. Recommendations: _____

17. Does the finding(s) of this inspection require another inspection prior to the scheduled monthly inspection? No _____ Yes _____ If yes, date of next inspection: _____

Inspected by : _____ Signed: _____ Date: _____

Names of other persons on inspection (print):

_____ _____ _____

APPENDIX C

DOCUMENT REVIEW SHEET

DOCUMENT REVIEW SHEET

1. Document Title/Number: Draft Corrective Action Plan for CAU No. 404: Roller Coaster Sewage Lagoons and North Disposal Trench, TTR
2. Document Date: May 20, 1997
3. Revision Number: 0
4. Originator/Organization: D. Madsen, BN, Remediation Projeects
5. Responsible DOE/NV ERP Subproject Manager: K. Cabble
6. Review Criteria: Technical Review
7. Reviewer/Organization: K. Beckley, NDEP

10. Comment Number/ Location	11. Type[a]	12. Comment	13. Comment Response	14. Accept
1. Pages 1 and 2	M	...Concentrations above the PRGs... DOE should include these PRG values in the text.	Both Residential and Industrial PRG values have been added to the text as requested.	
2. Page 9 Sect. 2.2	M	DOE needs to perform compaction verification at the surface layer, as well as at the beginning of the backfilling activities, to confirm that 80 percent compaction is achieved. Additionally, the closure report must contain this quality assurance data for the site to be considered for closure.	The text was changed to indicate that approximately six field density tests would be conducted in the bottom 1.0 ft to 1.5 ft of backfilled soil to be placed in each of the lagoons and disposal trench. A similar number of tests would be conducted in the backfill horizon approximately 1.0 ft below the surface. Density tests will not be conducted in the zone from approximately the surface to 1.0 ft because the zone will be ripped and/or disked for the revegetation activities. The density test results will be provided in the closure report.	

Notes: [a] Comment Types: M = Mandatory, S = Suggested
NDEP comments were provided in a June 26, 1997 letter from Karen K. Beckley, NDEP to Stephen A. Mellington, DOE/NV.

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