

QA: N/A

Office of Repository Development

***SPILL PREVENTION, CONTROL, AND
COUNTERMEASURES PLAN FOR SITE ACTIVITIES***

BAB000000-01717-4600-00009

Revision 2

March 2004

*U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Las Vegas, Nevada*

I. Certification

I certify that I have examined the Spill Prevention, Control, and Countermeasures Plan developed for this facility and find that it has been prepared in accordance with good engineering practices.

Michael S. Ruben

Professional Engineer

Michael S. Ruben

013571

Registration Number

3/22/2004

Date

12/31/2005

Expiration Date

II. Approval

This Spill Prevention, Control, and Countermeasures Plan is prepared to satisfy the requirements of 40 CFR Part 112 and will be implemented as described.

Erin J. Carr

Manager, Environmental Compliance

3/24/2004

Date

[Signature]

Manager, Environmental, Safety and Health

3/25/04

Date

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ACRONYMS

BSC	Bechtel SAIC Company, LLC
DOE	U.S. Department of Energy
ES&H	Environmental, Safety and Health
ESF	Exploratory Studies Facility
NRC	U.S. Nuclear Regulatory Commission
NTS	Nevada Test Site
NWPA	Nuclear Waste Policy Act
SPCC	Spill Prevention, Control, and Countermeasures
YMP	Yucca Mountain Project

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1. INTRODUCTION

1.1 REQUIREMENTS

A Spill Prevention, Control, and Countermeasures (SPCC) Plan must be prepared by all facilities subject to 40 CFR 112, the SPCC Regulation. A SPCC Plan is designed to help prevent any discharge of oil into navigable waters or adjoining shorelines. For a facility to be subject to the SPCC Regulation, it must meet three criteria:

- It must be non-transportation related.
- It must have an aggregate aboveground storage capacity greater than 1,320 gallons or a completely buried storage capacity greater than 42,000 gallons.
- There must be a reasonable expectation of a discharge into or upon navigable waters of the United States or adjoining shorelines.

According to the regulation, the Yucca Mountain Project (YMP) site meets the first criterion because it is a non-transportation related facility.

The YMP site has aboveground storage capacity of greater than 1,320 gallons, so the second criterion is also met. Oil storage capacity is the total of all containers of 55 gallons or greater at a facility that are intended to store oil, whether or not they are filled to their capacity.

There is a reasonable expectation that an oil discharge into navigable waters of the United States could occur because Forty-Mile Wash and the dry washes feeding it are considered navigable waters. This determination, according to the regulation, must be made without considering any manmade structures that are installed to prevent discharges, so the YMP site meets the third criterion also.

1.2 SCOPE

The SPCC Plan is required to address the facility's design, operation, and maintenance procedures established to prevent oil discharges from occurring, as well as countermeasures to control, contain, clean up, and mitigate the effects of an oil spill that could affect navigable waters.

1.3 APPROACH

The intent of the SPCC Plan is to describe discharge prevention measures including procedures for routine handling of products. The goal is the reduction of the number of oil releases at the YMP and the minimization of those that may occur. The YMP site is composed of multiple facilities that are separated geographically. The Plan presents general guidelines that are applicable to the entire project and then focuses on each individual facility that has the capacity to release oil.

1.4 CERTIFICATIONS

The YMP will commit the necessary personnel and equipment resources to respond to oil releases. The signature of the Bechtel SAIC Company, LLC (BSC) Environmental, Safety and Health (ES&H) Manager indicates certification of this commitment.

The SPCC Plan must be reviewed by a Registered Professional Engineer and certified that it has been prepared in accordance with good engineering practices. The signature of the BSC Registered Professional Engineer indicates certification of this requirement.

1.5 PLAN REVIEW AND REVISION

The SPCC Plan must be revised whenever there is a change in facility design, construction, operation, or maintenance that materially affects the facility's potential for the discharge of oil. This revision shall be fully implemented as soon as possible but no later than six months after the change occurs.

The SPCC Plan must be reviewed and evaluated every five years. As a result of this evaluation the SPCC Plan must be revised within six months of the review to include more effective prevention and control technology if:

- Such technology will significantly reduce the likelihood of a release event from the facility.
- Such technology has been field-proven at the time of the review.

No revision of the plan can be effective without the update of the certifications required in Section 1.4.

2. OVERVIEW OF YUCCA MOUNTAIN PROJECT

2.1 BACKGROUND

The Nuclear Waste Policy Act (NWPA) of 1982 (42 U.S.C. 10101 *et seq.*) directed the U.S. Department of Energy (DOE) to consider Yucca Mountain as one of several locations throughout the country to construct a geologic repository to permanently dispose of commercial spent nuclear fuel and high-level radioactive waste. In 1987, Congress amended the NWPA (referred to hereafter as the NWPA, as amended) by directing DOE to study only Yucca Mountain and to recommend whether the President should approve the site for development as a repository. On February 14, 2002, after more than two decades of scientific investigations, the Secretary of Energy submitted a comprehensive statement to the President recommending Yucca Mountain as a suitable site for a repository. On February 15, 2002, the President approved the Secretary's recommendation and forwarded it to Congress. On April 8, 2002, pursuant to the NWPA, as amended, the Governor of Nevada vetoed the President's recommendation. Congress overrode the Governor's veto on July 9, 2002, thereby officially designating Yucca Mountain as the nation's first site for the permanent disposal of commercial spent nuclear fuel and high-level radioactive waste.

The DOE is now preparing a license application that will be submitted to the U.S. Nuclear Regulatory Commission (NRC) to construct and ultimately operate the repository. The license application is expected to be submitted in December 2004. Upon submittal, NRC will have three years to review the application, conduct its licensing proceedings, and reach a construction-authorization decision. Should NRC grant the construction authorization, DOE would update the license application and request a license to receive and possess high-level radioactive waste as initial construction of the repository nears completion. If NRC grants the license to receive and possess the waste, DOE will begin placing the waste into the repository. In the final phase of licensing, when the repository has stopped receiving waste for disposal, DOE will apply for a license amendment to decommission and permanently close the repository.

2.2 LOCATION AND SITE SECURITY

The YMP site is physically located on land controlled by three Federal government organizations. The eastern portion is located on the Nevada Test Site (NTS), controlled by DOE. The southwestern portion is located on land administered by the Bureau of Land Management. The northwestern portion is located on land withdrawn for the United States Air Force. Use of all of these areas was obtained by the YMP through right-of-way reservations or management agreement.

All YMP locations where there is a sufficient quantity of oil to be subject to 40 CFR 112 are on the NTS. A contract guard force controls security measures on the NTS. All personnel entering the NTS must have a DOE-issued security badge. The security force controls all entrances to the NTS where security badges are checked. There are currently no security fences surrounding the NTS or the YMP site. However, should repository operations start, security fences will be installed at all critical areas.

2.3 YMP FACILITIES THAT HAVE A POTENTIAL FOR OIL RELEASES

YMP activities occur at several facilities that are separated geographically. Those facilities that could be reasonably expected to discharge oil in harmful quantities, as defined by 40 CFR 110, are the Exploratory Studies Facility (ESF) North Portal Area; the ESF South Portal Area; the Non-hazardous Waste Management Area; and the Borrow Pit. These facilities are all located within area 25 of the NTS, and all drainage is into Forty-Mile Canyon.

3. HISTORY OF SIGNIFICANT RELEASES

There have been no state reportable releases of oil at the YMP since November 30, 1999. A state reportable release is either greater than 3 cubic yards of oil-stained soil or greater than 25 gallons of released oil.

4. CONFORMANCE WITH 40 CFR 112.7 GUIDELINES

4.1 MAJOR FAILURE FLOW DIRECTION, RATE, AND QUANTITY

4.1.1 ESF North Portal Area

There are several locations in the ESF North Portal Area with oil containers of 55 gallon or greater capacity. These locations are listed specifically in Table 1. The last column in Table 1 is an equipment location key to Figure 1. A general arrangement drawing of the North Portal area is C-SUR-1000-023, latest revision, available through the site drawing system. The major structure containing oil is Tank #765150, the refueling tank, which has a capacity of 5,000 gallons. It is located on the north end of the pad and a rupture of this tank, without considering the containment would flow northerly, around the muck pile, and then southerly along the road into the culvert under the road, at which point it would enter the natural drainage and flow easterly. Any release on the pad would ultimately flow through the same road culvert near the south end of the pad, where it would enter the natural drainage and flow easterly. Because the slopes are gentle, the rate of flow would not be rapid.

Table 1. Exploratory Studies Facility North Portal Area Oil Containers

Material Type	Quantity (Gallons)	Equipment/Storage	Equipment/Storage Number	Location Key
Hydraulic Oil	500	Lube Enclosure	Conex #306495	1
Engine Oil SAE 15-40	500	Lube Enclosure	Conex #306495	1
Automatic Transmission Fluid	300	Lube Enclosure	Conex #306495	1
Gear Lubricant 80-90	150	Lube Enclosure	Conex #306495	1
Diesel Fuel	2000	Convault Tank	Tank #260710	2
Diesel Fuel	800	Generator Trailer	Generator #76967	
Diesel Fuel	600	Tank Trailer	Behind Admin #79381	
Diesel Fuel	5000	Refueling Tank	Tank #765150	4
Oily Water	110	Air Compressor Relief	North Portal Air Line	5
Oily Water	4000	Tunnel Waste Water	Tank#120802	6
Oily Water	55	IR Compressor Relief	Compressor #77208	7
Diesel Fuel	100	Generator Site 60	Cummins 306472	8
Diesel Fuel	100	Generator Site 60	Cummins 306471	9
Hydraulic Fluid	100	Mixing/Storage Tank	NPW-NP-TK-003	10
Hydraulic Fluid	100	Mixing/Storage Tank	NPW-NP-TK-002	11
Hydraulic Fluid	100	Mixing/Storage Tank	NPW-NP-TK-001	12
Hydraulic Fluid	100	Crane Grove	A535904	
Diesel Fuel	60	Crane Grove	A535904	
Diesel Fuel	60	Light Plant/Fill Stand	A76984	
Diesel Fuel	100	Forklift 30 Ton	A74279	
Hydraulic Fluid	60	Forklift 30 Ton	A74279	
Diesel Fuel	100	Forklift 20 Ton	A74225	

Table 1. Exploratory Studies Facility North Portal Area Oil Containers (Continued)

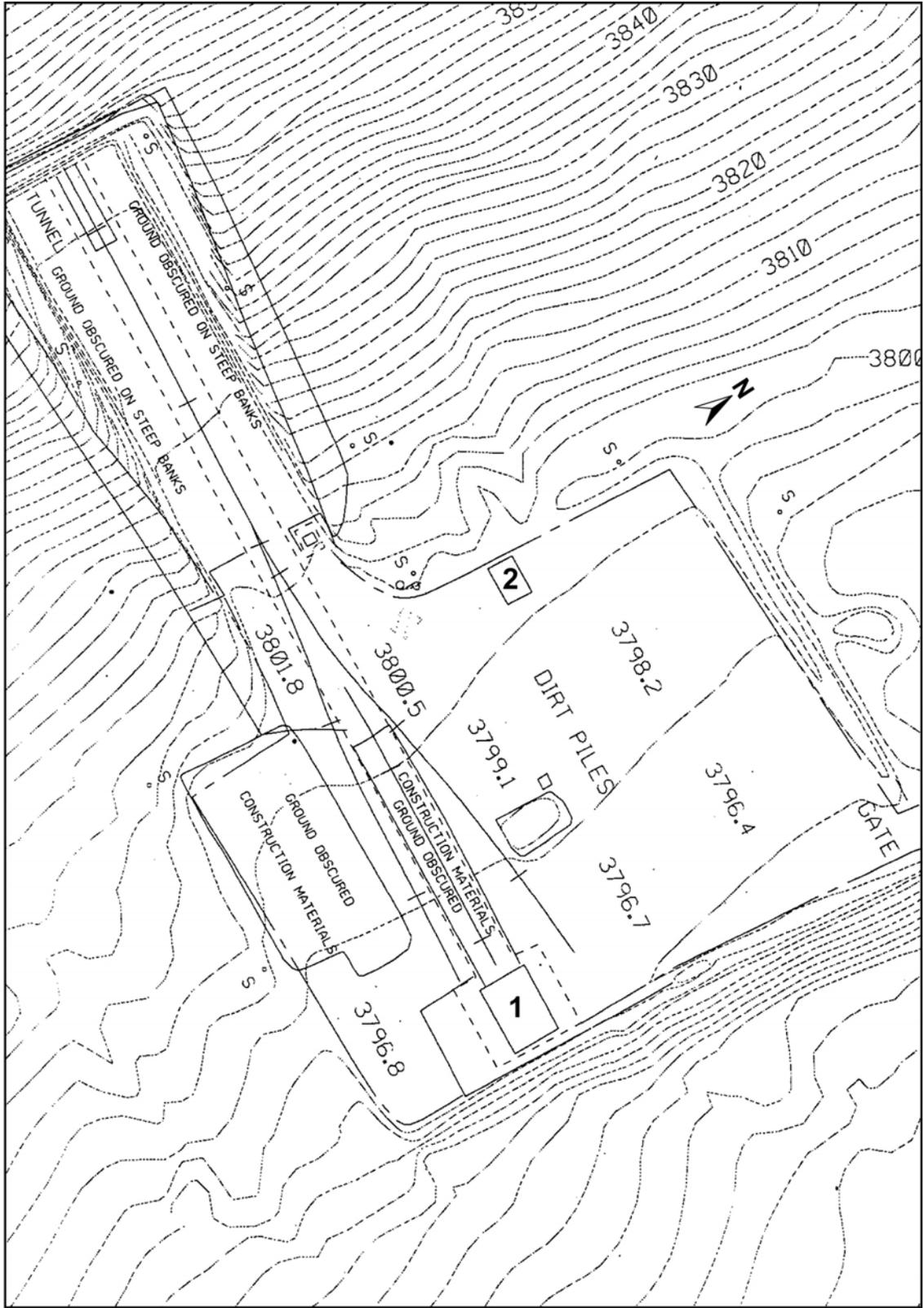
Material Type	Quantity (Gallons)	Equipment/Storage	Equipment/Storage Number	Location Key
Diesel Fuel	100	Forklift 15 Ton	A74269	
Diesel Fuel	100	Forklift 20 Ton	A74200	
Drive Train Fluid	55	Various Equipment	Barrel Storage	13
Diesel Fuel	2000	Fuel Truck	A81927	
Gasoline	1000	Fuel Truck	A81927	
Oily Water	27000	Tunnel Waste Water Tank	WW-NP-TK-002	14
Diesel Fuel	2000	Fuel Truck	700758	
Gasoline	2000	Fuel Truck	700758	
Diesel Fuel	120	Lube Rail Car	Car #A01443	
Engine Oil 15-40	60	Lube Rail Car	Car #A01443	
Hydraulic Fluid	60	Lube Rail Car	Car #A01443	
Used Oil	60	Lube Rail Car	Car #A01443	
Gear Compound	60	Lube Rail Car	Car #A01443	
Diesel Fuel	100	Generator MQ 150	20315	15
Diesel Fuel	100	Water Master	A71510	
Diesel Fuel	100	Water Master	A71509	
Diesel Fuel	100	Loader	A73295	
Diesel Fuel	100	Loader	A73277	
Hydraulic Fluid	100	Casa Grande Jumbo	N/A	

4.1.2 ESF South Portal Area

Oil containers at the South Portal Area are listed in Table 2. The last column in Table 2 is an equipment location key to Figure 2. The tunnel-boring machine has the largest capacity at 2,000 gallons, but it has been demobilized and it's fluids drained. Any residual drips from the tunnel-boring machine are contained by a concrete containment built under the machine. A catastrophic release of oil at the South Portal Pad would flow easterly through the natural drainage toward the C-Well Complex. Because the slopes are gentle, the rate of flow would not be rapid.

Table 2. Exploratory Studies Facility South Portal Area Oil Containers

Material Type	Quantity (Gallons)	Equipment/Storage	Equipment/Storage Number	Location Key
Hydraulic Fluid	2000	Tunnel Boring Machine	#306479	1
Diesel Fuel	100	Generator 755hp	#306466	2



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Figure 2. Exploratory Studies Facility South Portal Oil Container Locations

4.1.3 Non-Hazardous Waste Management Area

The largest oil container at the Non-Hazardous Waste Management Area is the Oil Skimmer used for separating oil from wastewater, with a capacity of 2,290 gallons. All oil containers at the Non-Hazardous Waste Management Area are listed in Table 3. The last column in Table 3 is an equipment location key to Figure 3. A catastrophic release of oil at the Non-Hazardous Waste Management Area would flow southeasterly into the drainage ditch along H-Road; then easterly down this ditch. Because the slopes are gentle, the rate of flow would not be rapid.

Table 3. Exploratory Studies Facility Non-Hazardous Waste Management Area

Material Type	Quantity (Gallons)	Equipment/Storage	Equipment/Storage Number	Location Key
Used Oil	750	Above Ground Tank	None	1
Oily Water	2290	Oil Skimmer	None	2
Used Anti-Freeze	200	Drums	None	3
Used Oil	750	Above Ground Tank	None	4
Used Diesel Fuel	100	Drums	None	5

4.1.4 Borrow Pit

Although there is an outfall at the northeast corner of the borrow pit it is unlikely that a catastrophic release of oil would result in any runoff from the borrow pit because of the small quantities involved and the topography of the pit. The oil containers at the borrow pit are listed in Table 4. The last column in Table 4 is an equipment location key to Figure 4.

Table 4. Exploratory Studies Facility Borrow Pit

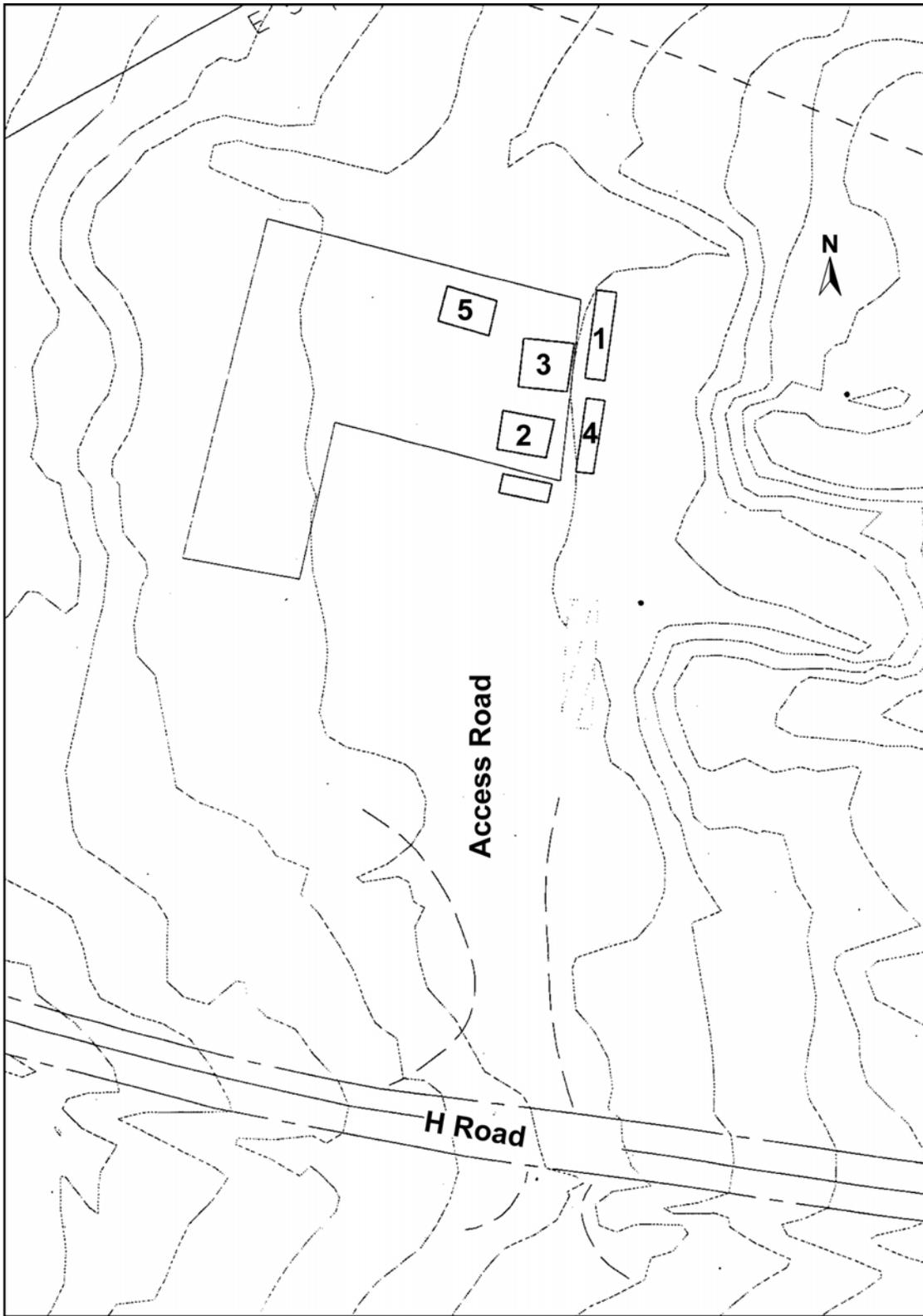
Material Type	Quantity (Gallons)	Equipment/Storage	Equipment/Storage Number	Location Key
Diesel Fuel	50	Shaker Plant	#A01097	1
Diesel Fuel	100	FD40 Dozer	#71273	

4.2 CONTAINMENT AND DIVERSIONARY STRUCTURES

All containers are located in containment structures. Standard design criteria for secondary containment are shown in Appendix A. Drums of not greater than 55-gallon capacity are placed on containment pallets.

4.3 DRAINAGE AND PUMPING OF CONTAINMENT STRUCTURES

Containment structures are pumped as soon as possible after rain events. None of the containment structures are equipped with valves or piping for release of trapped fluids.



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Figure 3. Exploratory Studies Facility Non-Hazardous Waste Management Area Locations



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Figure 4. Exploratory Studies Facility Borrow Pit Location

4.4 BULK STORAGE TANK MATERIAL AND CONSTRUCTION

All bulk storage tanks were procured for the purpose of holding the material with which they are filled. Tanks were installed following the manufacturer's specifications.

4.5 INSPECTIONS AND RECORDS

Inspections are carried out on a regular basis under Procedure LP-ESH-048-BSC, *Environment, Safety and Health Compliance Surveillance and Reporting*. Records are entered into Project files in accordance with this procedure.

4.6 POTENTIAL FOR FLOODING OR WASHOUT OF CONTAINMENT

The YMP has an active stormwater pollution prevention program, administered under the *Stormwater Pollution Prevention Plan*, YMP/94-08. The goal of this program is to prevent the contamination of rain runoff by hydrocarbons or sediment. There are a number of installed erosion and sediment control measures that are designed to prevent flood damage. The YMP is located in a dry, desert area where the potential for heavy rain events is low.

4.7 TRAINING

All employees are given familiarization training on release reporting through initial General Employee Training and annual refresher training.

4.8 PROCEDURES

In accordance with procedure AP-EM-004, *Spill Management*, employees are required to report releases immediately to supervision or Ranch Control at (702) 295-5915. If supervision is the first contact, supervision will contact Ranch Control. Further notifications are the responsibility of Ranch Control. The Environmental Compliance Manager is responsible for overseeing remedial activities and conducting sampling in accordance with procedure AP-EM-005, *Environmental Media Sampling*. The Site Operations Manager is responsible for reporting, if required, in accordance with procedure AP-REG-007, *Occurrence Reporting and Processing of Operations Information*, and cleanup of incidental releases in accordance with procedure LP-EM-001Q-BSC, *Release Readiness, Cleanup, and Reporting*.

4.9 OTHER ACTIONS TAKEN TO AVOID OIL CONTAMINATION

Because the unmitigated release of oil could cause anomalous data in site studies or impair the capability of a nuclear waste repository, there is an aggressive program to prevent or mitigate any releases. To this end, all equipment with large capacity fuel tanks or hydraulic systems are parked on specially prepared pads that are lined with impermeable liners to contain drips or small leaks.

Managers of facilities are required to do the following:

- a. Ensure spill prevention, containment, and countermeasure equipment, materials, and stations are strategically placed, maintained, and accessible.

- b. Ensure people working where hydrocarbons are used are aware of locations of spill response equipment that, either directly or by posting signs, show where spill response stations are located.
- c. Ensure employees are trained to the use of equipment and supplies in spill response stations in accordance with procedure LP-ESH-012-BSC, *Hazard Communication*.
- d. Ensure that spill response equipment and associated training is consistent with Material Safety Data Sheet instructions.

5. REFERENCES

Nuclear Waste Policy Act of 1982, 42 U.S.C. 10101 et seq.
40 CFR 110, Protection of Environment: Discharge of Oil
40 CFR 112, Protection of Environment: Oil Pollution Prevention
AP-EM-004, *Spill Management*
AP-EM-005, *Environmental Media Sampling*
AP-REG-007, *Occurrence Reporting and Processing of Operations Information*
LP-EM-001Q-BSC, *Release Readiness, Cleanup, and Reporting*
LP-ESH-012-BSC, *Hazard Communication*
LP-ESH-048-BSC, *Environment, Safety and Health Compliance Surveillance and Reporting*
Stormwater Pollution Prevention Plan, YMP/94-08

APPENDIX A
STANDARD DESIGN CRITERIA FOR SECONDARY CONTAINMENT

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STANDARD DESIGN CRITERIA FOR SECONDARY CONTAINMENT

General

The YMP is required to protect the environment from oil releases that could occur. This appendix has been developed to ensure secondary containment is effective in protecting the environment from oil releases.

Sites that store oil are either *short-term* or *long-term*. The criteria used to identify sites is described below, along with a standardized set of guidelines that are to be followed for construction of secondary containment for each situation.

BSC/ES&H must approve any other method for construction of secondary containment prior to use.

Short-Term Storage Site

A site is to be identified as short-term storage when the storage tank is intended to be in place for less than one year. Secondary containment for short-term storage sites will be constructed in accordance with the guidelines below.

Determine the quantity of oil that may be released from the largest single tank. A berm is to be constructed that is capable of containing at least 110 percent of the oil. It is necessary to subtract the volume within the berm that will be occupied by the tank or other equipment. Table A-1 may be used as a reference to determine holding capacity of various size containments.

Table A-1. Capacity of Berm Sizes

Containment Dimensions (Feet)	Holding Capacity With 4 Inch Berm (Gallons)	Holding Capacity With 12 Inch Berm (Gallons)
3 x 3	22	66
5 x 5	62	186
8 x 8	159	477
10 x 10	249	747
15 x 15	560	1680
20 x 20	997	2991
25 x 25	1558	4674

The berm is to be constructed using lumber, steel tubing, PVC pipe, or by berming soil. The surface of the ground within the bermed area will be prepared for liner placement by removing sharp rocks, plants, roots, and debris that may puncture the liner.

The berm will be lined with material that is impervious to oil. The material must be capable of enduring extreme heat and sunlight. The liner material must have a minimum thickness of 20

mil. Liner material is purchased in pieces that are pre-seamed by the manufacturer. The liner is installed in accordance with Table A-2. Liners will be secured in place around the perimeter of the bermed area. Any required seaming will be performed with a minimum of twelve inches overlap using compatible adhesive applied to the total area of both overlap surfaces prior to mating the two pieces.

All replacement and newly constructed berms shall be constructed in accordance with the multi-layer containment type criteria shown in Table A-2.

Provisions will be made to keep traffic off the liner. An overlay of sand or other material may be placed on the liner where vehicular traffic is anticipated.

Table A-2. Containment Types

Material	A Standard First Issue	B Smooth Surface	C Replacement of First Issue	D Drip Containment	E Special Case
Liner (30 mil PVC minimum)	X	X	X	X	See Definitions
Felt (20 mil minimum)	X	X	X	N/A	See Definitions
Type II (Select Fill Material; ¾ inch minus, well graded, gravel)	X (Installed beneath liner)	N/A	N/A (if placed on a surface generally level and rock free; otherwise, Select Fill)	X (Large pads only, installed as layers beneath and atop the liner material)	See Definitions
General Mat Material (Conveyer mat, heavy sheet goods, or equivalent)	X (Traffic protection; install atop liner beneath equipment contact points and common pathways)	X (Traffic protection; install atop liner beneath equipment contact points and common pathways)	X (Traffic protection; install atop liner beneath equipment contact points and common pathways)	N/A	See Definitions

Containment Types Definitions

A *Standard First Issue Containment*—Multi-layer containment materials configuration for all light to heavy duty equipment and fuel supply units that are operating in direct test support or as a semi-permanent system and cannot be readily disturbed because of program priority, schedule, or safety concerns.

B *Smooth Surface Containment*—Multi-layer containment materials configuration for the same equipment as type A, that are placed on a surface that is generally level and rock free.

C *Replacement of First Issue Containment*—General replacement layers for multi-layer containment materials configuration for types A and B when inspection indicates either no penetration of oil to the underlying soil or loss of liner integrity. Also, multi-layer containment materials configuration for all light to heavy equipment and empty fuel supply

units that are in temporary storage with no plans for frequent use and that can be moved or disturbed, as needed.

D *Drip Containment*—Multi-layer containment materials configuration for all light to heavy mobile equipment that is frequently active in construction, operations, or testing. This configuration is intended to provide protection against soil contamination by minor equipment drips and household releases only.

E *Special Case Containment*—Variations to the above multi-layer containment materials configurations when required to fit a particular situation or location.

Long-Term Storage Site

A site is identified as long-term storage when the storage tank is intended to be in place for more than one year.

Secondary containment will be constructed sufficient in size to contain 110 percent of the volume of the largest tank. It is necessary to subtract the volume within the containment that will be occupied by the tank and other equipment that would result in displacement of the spilled oil.

Secondary containment may be constructed with a concrete base on which the tanks and equipment will be placed. Concrete curbs will be constructed such that the containment is impervious to released oil. Concrete joints will be constructed with water stops.

If the use of concrete is impractical due to the location, uncertainty of time that the tank will be in place, or cost, then the containment is to be constructed with a double layer of liner material in addition to the short-term containment requirements. Additional preventative measures may include posts or barricades to protect the tank from upset.

The method of removal of precipitation that collects in the containment area must be incorporated into the design. Valves and other release provisions will not be used in secondary containment for long-term containments.

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