

74009

**ENVIRONMENTAL
RESTORATION
PROJECT**

Los Alamos National Laboratory (LANL)
Environment Restoration Project (ER)
Records Processing Facility (RPF)
ER Record ID Number Barcode Label

LOS ALAMOS NATIONAL LABORATORY
ENVIRONMENTAL RESTORATION PROJECT
RECORDS PROCESSING FACILITY
ER RECORD ID NUMBER BARCODE LABEL

ER ID NO. 74009 Data Received: 5/14/2003 Processor: DSV Page Count: 57

Privileged: (Y/N) N Record Category: P

FileFolder: N/A

Correction: (Y/N) N Corrected No. 0 Corrected By Member: 0

Administrative Review: (Y/N) Y

Refmark: (Y/N) N Ref ID Number: 0 Ref ID Number: 0

Miscellaneous Comments:

N/A

THIS FORM IS SUBJECT TO CHANGE. CONTACT THE RPF FOR LATEST VERSION. (JUNE 1997)

30945



67

PLAN-WFM-036, R.0

TA-54 Storm Water Pollution Prevention Plan

Effective Date: _____

Controlled Distribution Date: _____

Next Review Date: _____

Process Owner	Signature	Date
Robert Lechel	SIGNATURES ON FILE	

Team Leader	Signature	Date
Sean French		

Authorizing Signature:
WFM Facility Manager

Dennis McLain		
---------------	--	--

RECEIVED
 MAY 14 2003
 By: *[Signature]*



YOU ARE RESPONSIBLE FOR VERIFYING THAT YOU ARE WORKING TO THE MOST CURRENT REVISION OF THIS DOCUMENT.

HISTORY OF REVISIONS

Document Number	Issue Date	Action	Description
PLAN-WFM-036, R.0	August 2002	New Document	Before adoption as a WFM document, this Plan was presented in two volumes; both volumes are incorporated into this Plan.

PREFACE

This Storm Water Pollution Prevention (SWPP) Plan was developed in accordance with the provisions of the Clean Water Act (33 U.S.C. §§1251 et seq., as amended by the Water Quality Act of 1987, P.L. 100-4), and the regulations established by the U.S. Environmental Protection Agency (EPA) for National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permits for Storm Water Discharges Associated with Industrial Activity (U.S. EPA, October 2000). The applicable storm water discharge permit is EPA General Permit Number NMR05A734 (UC) and NMR05A735 (DOE) (U.S. EPA, October 2000).

This SWPP Plan applies to discharges of storm water from the operational areas at Los Alamos National Laboratory, Technical Area 54 (TA-54), Areas G, H, J, and L.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	POLLUTION PREVENTION TEAM	1
1.2	DUTIES OF TEAM MEMBERS	1
2.0	FACILITY DESCRIPTION	2
2.1	AREA G	3
2.2	AREA H.....	4
2.3	AREA J.....	4
2.4	AREA L	5
3.0	FACILITY ASSESSMENT	5
3.1	MATERIAL INVENTORY	6
3.1.1	Area G	6
3.1.2	Area H.....	6
3.1.3	Area J	6
3.1.4	Area L	7
3.1.5	Solid Waste Management Units (SWMUs).....	7
3.1.6	Other Potential Sources	10
3.2	NON-STORM WATER DISCHARGES	12
3.3	FACILITY SITE MAPS, DRAINAGE PATTERNS, AND SITE ACTIVITIES.....	14
3.4	SPILL EVENTS	21
3.5	STORM WATER SAMPLING	22
3.5.1	Reporting of Analytical Results	23
3.5.2	Sampling and Analysis of Other Media.....	23
4.0	BEST MANAGEMENT PRACTICES	24
4.1	GOOD HOUSEKEEPING	24
4.2	PREVENTIVE MAINTENANCE.....	25
4.3	INSPECTIONS	25
4.3.1	Visual Examination of Landfill and TSDF Discharges.....	26
4.3.2	Inspection of Landfills	27
4.4	SPILL PREVENTION & RESPONSE	27
4.5	TRAINING	27
4.6	RECORD KEEPING & REPORTING	28

4.7	SEDIMENT AND EROSION CONTROL	29
4.7.1	Area G Erosion Controls	30
4.7.2	Area H Erosion Controls	35
4.7.3	Area J Erosion Controls	35
4.7.4	Area L Erosion Controls	36
4.7.5	Best Management Practices (BMPs)	36
4.8	STORM WATER MANAGEMENT	36
4.8.1	Area G Storm Water Management	37
4.8.2	Area H Storm Water Management	43
4.8.3	Area J Storm Water Management	44
4.8.4	Area L Storm Water Management	44
5.0	ANNUAL SITE COMPLIANCE EVALUATION	45
5.1	EVALUATION PROCEDURES	46
5.2	REPORT ON RESULTS OF THE ANNUAL SITE COMPLIANCE EVALUATION	46
5.3	REVISION OF STORM WATER POLLUTION PREVENTION PLAN	47
5.4	STORM WATER SAMPLING AND ANALYTICAL DATA	49
5.5	RECORDS OF PAST OR PRESENT SPILL EVENTS	49
5.6	RECORDS OF QUARTERLY AND ANNUAL SITE COMPLIANCE EVALUATIONS	49
5.7	RECORDS OF STORM WATER POLLUTION PREVENTION EMPLOYEE TRAINING ..	49
5.8	NPDES PERMIT LANGUAGE	49
6.0	APPENDICES	49
	APPENDIX A. MEMBERS OF THE TA-54 STORM WATER POLLUTION PREVENTION TEAM AND INSPECTOR QUALIFICATIONS	50
	APPENDIX B. NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION FORM	52
	APPENDIX C. SITE MAPS	55

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

NPDES Permit Number: NMR05A734
ORGANIZATION: University of California (Los Alamos National Laboratory)
Contact: Dennis McLain
Title: Facility Manager-FMU 64

(Signature)

(Date)

1.0 INTRODUCTION

Los Alamos National Laboratory (LANL) operates under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities. This permit governs storm water discharges from industrial activities. Under the Permit, the Environmental Protection Agency (EPA) requires the development and implementation of a pollution prevention plan.

The purpose of a Storm Water Pollution Prevention (SWPP) Plan is to ensure that a documented, implementable process is in place to reduce pollution sources. Through potential pollutant reduction, environmental problems that result in lost resources and costly restoration activities may be avoided. SWPP Plans define and describe materials and facility activities that are potential sources of pollution. They also discuss the Best Management Practices (BMPs) that have been selected and implemented to prevent pollution. BMPs include maintenance activities, formalized work practice reviews, the prohibition of specific practices, training, activity scheduling, and additional applicable management practices.

This SWPP Plan applies to operations at LANL Technical Area (TA) 54, Areas G, H, J and L. Located between Pajarito Canyon and Cañada del Buey, TA-54 is the Laboratory's primary waste management facility. Materials managed within the facility include gas cylinders, and chemical, hazardous, mixed, PCB, asbestos, low-level, and transuranic (TRU) waste. TA-54 is operated under the direction of the Facility Waste Operations Division (FWO). A more detailed description of the Facility is provided in Section 2.

1.1 POLLUTION PREVENTION TEAM

To facilitate development, implementation, maintenance and revision of the SWPP Plan, a Pollution Prevention Team has been established. The Team consists of five members appointed and authorized by the Facility Manager responsible for TA-54. The members are selected based on their familiarity with site activities and the potential impact of these activities on storm water runoff. The Pollution Prevention Team also includes a representative of the Laboratory's Water Quality and Hydrology Group (RRES-WQH).

Team members serve until removed or replaced by TA-54's Facility Manager. Each member must receive the annual training described in Section 4.5. A list of the current Pollution Prevention Team members for TA-54 is provided in Appendix A. This list will be revised when there are changes in team members or their duties.

1.2 DUTIES OF TEAM MEMBERS

Specific duties of the Pollution Prevention Team members are as follows:

Team Leader: The Team Leader is responsible for the implementation and maintenance of the SWPP Plan and its associated BMPs for FMU-64. The Team Leader is also responsible for overseeing the assigned duties of other team members and for communication of current information to the facility manager, ER Project, and RRES-WQH.

- Team Coordinator:** The Team Coordinator will perform record keeping and reporting to facilitate the tracking of appropriate corrective actions. The team coordinator will ensure that inspection documents and other records relating to the SWPP Plan and storm water pollution control measures are managed in accordance with established document control procedures and forwarded to the appropriate personnel (see Section 4.6).
- The Coordinator shall ensure that Team members, operational site workers, and applicable supervisors receive training in accordance with Section 4.5.
- The Coordinator shall be responsible for revision of the SWPP Plan, as outlined in Section 5.3.
- Inspector I:** The Primary Inspector shall be responsible for conducting SWPP inspections. The inspections include periodic evaluations as described in Section 4.3, including the inspections of the installation and maintenance of recommended BMPs. The Primary Inspector is also responsible for the annual Site Compliance Evaluation detailed in Section 5.
- Inspector II:** The Secondary Inspector is responsible for assisting the Primary Inspector in all inspection duties. The Secondary Inspector should be available to perform inspections in the event that the Primary Inspector is temporarily unable to carry out the inspections.
- QA Officer:** The QA Officer shall be responsible for entering findings into the facility's issues tracking system, tracking these findings and updating the findings until the findings are resolved.
- Team Member:** The Team Member will be responsible for the review of proposed work within FMU-64 to ensure compliance with the SWPP Plan. In the event of a spill or release, the Member documents the spill and cleanup procedures.
- RRES-WQH Support:** The RRES-WQH Support personnel will aide in performing and documenting the Site Compliance Evaluations. In addition, support personnel will be available to help revise and maintain the TA-54 SWPP Plan.

2.0 FACILITY DESCRIPTION

This section provides descriptions of Areas G, H, J and L. Descriptions include the size of each area, type of materials stored, the type of storage or disposal used, activities conducted within the area, and general drainage patterns.

2.1 AREA G

Area G is the Laboratory's primary location for the storage and disposal of radioactive solid waste. The waste management within Area G occupies approximately 70 acres of the southeast portion of TA-54 and is located approximately two miles southeast of the intersection of Pajarito Road and Rex Drive. A series of pits and shafts in Area G are used for low-level waste (LLW) disposal and retrievable transuranic (TRU) waste storage. Several tension-support domes are used to store low-level mixed waste (LLMW), LLW, TRU, and mixed TRU waste. No liquids are accepted for disposal in area G. Section 3.1.1 provides a more detailed discussion on the materials that are stored and disposed of at Area G.

Pits and shafts used for waste disposal are located no closer than 50 ft from the mesa edge. They are also kept as far as is practicable from the well-defined drainage courses that dissect the mesa. Disposal pits are designed to be a maximum of 65 ft deep, with an average pit measuring up to 600 ft long and 100 ft wide. Pits are designed with a ramp at one end having a slope of up to 6 ft horizontal to one ft vertical (6:1) and walls that are stepped or sloped at approximately 1:2. Multiple pits may be active at any time. Loose materials disposed of in the pits are covered with crushed tuff to prevent dispersal by the wind. Inactive pits are covered with crushed tuff and either revegetated or paved to be used as pads for aboveground units. The potential for storm water pollution from the pits is low.

Shafts are constructed to limit external radiation from solid radioactive waste and are used for wastes that need additional separation from personnel to limit exposure. Shafts may be used for disposal of special waste forms including radiologically contaminated animal tissue, high-activity low-level waste, contaminated classified materials, and tritium waste. Shafts may also be used for retrievable storage of high-activity TRU waste. Shafts are spaced at a minimum of one shaft diameter, center to center, and shaft depth varies from 25 to 65 ft. Shafts are lined or unlined, depending on the type of waste they contain. The shafts are covered at all times, except during actual waste emplacement. Historically, when a shaft was closed, the top six ft of the shaft was filled with crushed tuff and capped with a concrete dome to promote surface water runoff away from the shaft. Currently, when shafts are closed, the final 10 ft of the shaft are filled with crushed tuff and the cap is comprised of crushed tuff domed to promote surface water runoff. There is potential for the exposure of storm water to the waste if a spill occurs while waste is placed into a shaft, but no such incident is known to have occurred at Area G.

Several structures have been constructed to temporarily store LLW, LLMW, TRU, and TRU mixed waste generated from Laboratory facilities. This waste is either located in buildings, tension support domes set on asphalt pads, or on asphalt pads alone. Waste stored on asphalt pads alone is currently in two configurations. One configuration, includes the storage of waste in metal boxes (transportainers). These containers are designed for waste transportation and must meet stringent DOT requirements. The containers are used to store over-sized waste items and are elevated by design preventing contact with run-on or run-off. With the exception of waste loading/off-loading activities (related to transportation to or from the buildings, domes, or metal boxes), the potential

for storm water contamination from waste stored within the buildings, domes, or metal boxes is considered to be low. Another configuration of waste stored on asphalt pads includes large (3 ft, 4 ft, or 6 ft diameter) experimental metal vessels. The interiors of these vessels contain radioactive contamination, however the vessels were designed to be air tight to contain the experiments that were housed inside them. They are placed on pallets to prevent contact with run-on or run-off. The potential for storm water contamination from these metal vessels stored on asphalt pads is considered to be low.

Area G has been divided into 11 separate drainage areas. These areas vary both in size and volume of runoff. Storm water runoff from the drainage areas flows into either Pajarito Canyon or Cañada del Buey. Drawing Sheet 3 of the facility site maps (Appendix C) shows these drainage areas delineated by red lines. Where there is a drainage associated with an area, the location of the drainage can be seen as an outward-directed point in the otherwise curved line delineating the drainage area. Note that pits 31, 37, 38, and 39 constitute closed drainage basins with no canyon drainage.

2.2 AREA H

Area H is a fenced rectangular area about 0.3 acres in size. The area is located on the south side of Mesita del Buey Road approximately 0.2 miles from the intersection of Pajarito Road and Rex Drive. Currently inactive, this area was used for the disposal of radioactive, non-radioactive, and administratively controlled wastes from 1960-1986. Area H contains nine shafts, each 6 ft in diameter and 60 ft deep. All nine shafts are closed. Shaft Number 09 has been capped with concrete and shaft numbers 01 through 08 have been overlaid with approximately three ft of soil. Storm water runoff from this area occurs as sheet flow that moves south into an adjacent drainage channel that discharges into Pajarito Canyon. The potential for storm water contamination from Area H is considered to be low.

2.3 AREA J

Area J is a fenced area approximately 5.25 acres in size. It is located on the north side of Mesita del Buey Road with the entrance to the area approximately 0.3 miles from the intersection of Pajarito Road and Rex Drive. Area J was a landfill used for the disposal of non-hazardous and non-radioactive waste. The waste in Area J is material that the Laboratory wishes to retain under its administrative control for security reasons. Area J was also used as a transfer station for asbestos waste and has served as the location for the historic land farming of soil contaminated from underground storage tank releases.

Administratively controlled waste has been disposed of in six open pits and four waste disposal shafts. The open pits varied in size while the shafts were six ft in diameter and approximately 65 ft deep. Completed pits have been covered by crushed tuff and contoured to prevent erosion of the cover. Inactive disposal shafts were capped with concrete. Asbestos waste was stored in roll-off bins or other metal storage containers pending shipment for off-site disposal.

A designated area in the west section of Area J was used to spread and aerate petroleum-contaminated soils. Remediation of these soils was performed in compliance with the requirements of the New Mexico Underground Storage Tank Regulations and the policies

of the New Mexico Environment Department (NMED). This area was bermed to control storm water run-on, to contain storm water runoff, and to minimize sediment transport.

Disposal pits and shafts in Area J are currently undergoing formal closure in accordance with New Mexico Solid Waste regulations (20 NMAC 9.1, Subpart V). A closure plan was prepared and submitted to the New Mexico Solid Waste Bureau. Closure activities include the transfer of disposed waste from pits 5 and 6 into Pit 4. An engineered cap consisting of crushed tuff and bentonite overlaid with topsoil will be placed over pits 1, 2, 3, and 4. The area will then be revegetated with native grasses. More details of the closure activities are presented in the "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure."

With the exception of construction activities associated with closure of the facility, the potential for storm water contamination from the Area J landfill is considered to be low. Pollution prevention controls to be implemented during closure are identified in "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure."

Two drainage areas have been identified in Area J. The runoff from these areas flows north into Cañada del Buey. Area H includes one drainage area, which drains south into Pajarito Canyon. See Drawing Sheet 1 of the facility site maps (Appendix C).

2.4 AREA L

Area L, which is approximately 3 acres in size, is the primary Laboratory facility for intermediate and long-term storage of solid and liquid chemical, hazardous, and low-level mixed wastes. Waste management responsibilities at Area L include packaging, transporting, and storing waste. This area is also permitted for the treatment of waste.

Depending on the availability of appropriate off-site recycling or disposal facilities, LANL wastes collected at Area L are either stored on site or transported off-site for treatment, storage, or disposal. Stored waste includes various types of radioactive or hazardous waste, mixed liquid waste, wastes containing polychlorinated biphenyls (PCBs), waste gas cylinders, and non-regulated waste. The waste is primarily stored in drums on pallets housed in building TA-54-215 or on pallets under some other form of cover.

Asphalt channels and a storm drain convey storm water runoff at Area L to a single outfall where a sampling point is located. Area L is paved with asphalt and contoured to efficiently divert runoff to these conveyances. Discharge from the outfall flows into Cañada del Buey.

3.0 FACILITY ASSESSMENT

This section identifies and discusses the materials and operational procedures with potential as sources of contamination to storm water runoff. Methods used to identify and monitor these sources are also examined. Items discussed include significant materials located within each area, methods and locations of storage and disposal, non-storm water discharges, facility site maps, the occurrence and tracking of spill events, and storm water sampling.

3.1 MATERIAL INVENTORY

As the Laboratory's primary waste management facility, a variety of materials are handled, stored or disposed of within Areas G, H, J and L. EPA considers "significant materials" to be of particular concern with regard to storm water pollution. As defined in 40 CFR §122.26(b)(12), "significant materials" are substances related to industrial activities with the potential for release with storm water discharges. These substances include fuels, pesticides, process chemicals, hazardous substances, or raw materials. A brief description of the "significant materials" handled, stored or disposed of within each area is provided below.

3.1.1 Area G

Solid LLW is stored or disposed of within Area G in pits and shafts. Typical waste streams include rubber, glass, molecular sieves, solidified powders and ash, radioactive equipment, scrap metal, building debris, radioactive biological waste, tritium waste, radioactive beryllium, and radioactive asbestos. Building debris can include such items as asbestos, soil, animal tissue, sanitary sewage sludge, paper, cardboard, plastic, and disposable protective clothing.

Several domes have been constructed to temporarily store waste. Waste types stored within the domes include LLW, LLMW, TRU, and mixed TRU waste.

Magnesium chloride is used for wetting the roads for dust suppression. This salt is applied in a manner that does not result in runoff.

The "RCRA Facility Investigation (RFI) Work Plan for Operable Unit 1148 Data Report" (OU 1148 RFI Report) includes inventories of closed waste disposal pits and shafts in Area G. Individual inventories include closure dates, waste volumes, and a brief description of waste forms present. An inventory of active disposal pits and shafts is included in the TA-54 Solid Waste Operations (SWO) waste management database. Material Safety Data Sheets (MSDSs) on file at TA-54 also identify and describe materials used in facility operations.

3.1.2 Area H

Area H was used as a disposal site for radioactive and non-radioactive waste between 1961 and 1986. All nine shafts at this location are closed and covered with a layer of soil. Shaft number 09 is additionally capped with concrete. Wastes disposed of in the shafts include such items as weapon components, classified documents and papers, weapon mock-ups, depleted uranium scraps, graphite nuclear-reactor fuel elements, classified shapes, tritium contaminated wastes, film, prints, and slides. Classified shapes are composed of aluminum, rubber, plastic, stainless steel, graphite, and depleted uranium. The inventory of each closed waste disposal shaft is available in the OU 1148 RFI Report.

3.1.3 Area J

Historically, Area J was a disposal site for non-liquid, non-hazardous, non-radioactive waste. The waste disposed of in Area J was administratively controlled waste that included a variety of materials, such as empty containers, computer hardware,

classified metal shapes, classified documents, power supply parts, and pumps. This material was disposed of in shafts and open pits.

Barium-contaminated sand that had been treated to meet RCRA treatment standards in Area L was disposed of at Area J, and soil contaminated from underground storage tank releases was also land farmed there in the past. During the land farming, contaminated soils were spread for aeration in six-inch lifts and periodically turned to enhance aeration and natural bioremediation. These soils were bermed to prevent sediment transport and storm water run-on/run-off.

Materials historically stored within Area J included packing materials, heavy operating equipment and packaged asbestos-containing waste. Friable and non-friable asbestos was stored in roll-off bins and metal storage cabinets on an asphalt pad pending shipment for off-site disposal.

The inventories of individual, closed waste disposal pits and shafts are available in the OU 1148 RFI Report. MSDSs on file also identify and describe materials used in facility operations.

Disposal pits and shafts in Area J are currently undergoing formal closure in accordance with New Mexico Solid Waste regulations (20 NMAC 9.1, Subpart V). A closure plan was prepared and submitted to the New Mexico Solid Waste Bureau. More details of the SWPP closure activities are outlined in the "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure."

3.1.4 Area L

Area L is used for the intermediate and long-term storage of chemical wastes, hazardous wastes, LLW, LLMW, and PCB-contaminated waste pending the availability of appropriate off-site treatment, storage or disposal facilities. These wastes include such items as corrosive acids, corrosive bases, oxidizers and peroxides, PCBs, poisons, flammables, water reactives, and compressed gas cylinders. They are stored in drums, gas cylinders, and other waste containers.

The inventories of closed waste disposal pits and shafts are available in the OU 1148 RFI Report. Individual inventories include closure dates, waste volume, and a brief description of waste forms present. An inventory of active storage units is available as part of the TA-54 Solid Waste Operations (SWO) waste management database. Material Safety Data Sheets (MSDSs) on file at TA-54 also identify and describe materials used in facility operations.

3.1.5 Solid Waste Management Units (SWMUs)

In addition to the waste management areas previously described, there are other active and inactive waste storage and disposal units that the Laboratory has identified as areas of concern. These Solid Waste Management Units (SWMUs) were identified in the Laboratory's 1990 Solid Waste Management Units Report. The SWMUs within each area are described in the following sections.

3.1.5.1 Area G SWMUs

Following is a list of SWMUs in Area G.

- Septic system leach field for buildings TA-54-2 and TA-54-11. The septic system is comprised of a 1,000-gal. underground tank and a 900-ft² seepage trench on the north side of the tank. The tank was pumped as needed. Designated as SWMU 54-007(a), this system was deactivated in 1998 and has been removed under a voluntary corrective action (VCA) during the summer of 2002. Prior to executing the VCA, an addendum to this Plan that addressed the storm water pollution prevention issues associated with removing the septic system was generated. Sampling and analysis of liquids and sludge at the time of deactivation indicated no hazardous or radioactive constituents were present.
- Former compactor facility, TA-54-02. Containers of radioactive waste were unloaded in the building, and material was compacted, packaged, and loaded for transport to a LLW pit. Designated SWMU 54-012(a).
- Former truck washing pit used for decontamination. This SWMU is inactive and was converted to Pit 19. Designated SWMU 54-013(b).
- Completed radioactive waste storage Pit 9 received retrievable mixed TRU waste. The pit is 30 ft x 400 ft x 20 ft deep. Designated SWMU 54-014(b).
- Inactive disposal shafts, 200 through 233 contain TRU waste. Each shaft is one foot in diameter, 18-ft deep, and lined with concrete. Designated SWMU 54-014(c).
- Inactive disposal trenches (A through D) used for TRU wastes. Designated SWMU 54-014(d).
- Former drum storage for TRU waste at TA-54-08. Designated SWMU 54-015(a).
- Former TRU and low-level waste storage near TA-54-11. Designated SWMU 54-015(b).
- TRU waste storage pads 1 through 4 for retrievable, contact handled waste. Material is covered by local tuff. Designated SWMUs 54-015 (c-f).
- Mixed waste storage dome TA-54-49. The dome, which is located on Pit 32, is used for staging, swiping, stacking and storage of TRU and mixed TRU waste. Designated as SWMU 54-015(j).
- Cement-filled sections of corrugated metal pipe filled over disposal Pit 29. Designated as SWMU 54-015(k).
- Sump at TA-54-33 designed to collect waste from the removal of the corrosion inhibitor that is sprayed on TRU waste drums. Designated as SWMU 54-016(b).
- Inactive disposal pits (1 through 8, 12, 13, 16 through 21, 24). Designated as SWMU 54-017.

- Inactive disposal pits (10, 22, 25 through 30, 32, 33, 35 through 37). Designated as SWMU 54-018.
- Inactive disposal shafts (1 through 20, 23 through 25, 29, 31 through 34, 38 through 92, 96, 109 through 112, 150, C1). Designated as SWMU 54-019.
- Inactive disposal shafts (21, 22, 30, 35 through 37, 93 through 95, 97, 99 through 108, 114 through 115, 118 through 141, 151 through 160, 190 through 192, 196, C2 through C13). Designated as SWMU 54-020.
- Inactive septic system seepage pit that includes one underground storage tank and one seepage pit. Recommended for NFA. Designated as SWMU 54-007(b).
- Underground tank used for water supply. The tank has never handled waste and is recommended for NFA. Designated as SWMU 54-010.
- Six waste oil storage tanks that have undergone RCRA closure. Recommended for NFA. Designated as SWMU 54-021.

PCB Transformer Leak at TA-54-75. Recommended for NFA. Designated as SWMU 54-022.

3.1.5.2 Area H SWMUs

The nine waste disposal shafts in Area H have been designated as SWMU 54-004. Shafts numbers 01 through 08 contain radioactive wastes and Shaft 09 contains both radioactive and hazardous wastes. Investigations performed in 1969 and 1973 indicated apparent subsurface tritium migration from the shafts. The Laboratory's Environmental Restoration Program recently completed a Corrective Measure Study for Material Disposal Area H (Area H) which addresses the extent of subsurface tritium migration based on the RCRA Facility Investigation data.

3.1.5.3 Area J SWMUs

The six subsurface waste disposal units presently containing waste materials at Area J have been collectively designated as SWMU 54-005. These units include pits 1 through 4 and shafts 1 and 2. Because of the type of waste stored at these units (described in section 3.1.3), the potential for these units to contain significant quantities of hazardous materials is low.

3.1.5.3 Area L SWMUs

Following is a list of SWMUs in Area L.

- Former bermed hazardous waste storage area for pails and drums. The site is the current location of Building TA-54-215. Designated 54-001(a).
- Container accumulation, packaging, and storage (TA-54-31). Designated SWMU 54-001(b).
- Bermed asphalt pad for the storage of waste oil and hazardous materials. This site is a former site of a portable berm that contained an open tank. Neither the tank nor berm ever managed waste. Recommended for NFA. Designated 54-001(c).

- PCB storage area in building TA-54-39. Designated SWMU 54-001(d).
- Sheltered concrete storage pad partitioned into six cells, TA-54-32. Designated 54-001(e).
- Pit A; Surface Impoundments B, C, D; Disposal Shafts 1, 14 through 34; and Disposal Shafts 2 through 13. Designated 54-006.
- Sewage tank serving building TA-54-39 and 2 additional sewage tanks. Waste Stream Characterization findings in 1993 verified the sources to the tanks. Recommended for NFA. Designated SWMU 54-008.
- Compressed gas storage area. Designated 54-002.
- Barium Treatment Tanks. Two tanks have been closed in accordance with RCRA. The two remaining tanks will no longer be used and are to be closed in accordance with RCRA. Designated 54-009.
- Drum compactor. All drums are emptied according to RCRA definition prior to crushing. Designated 54-012(b).
- Two lead stringer shafts at the northwest corner of Area L. The shafts are steel rods filled with irradiated lead and concrete and are designated SWMU 54-014(a).
- Former location of six waste oil storage tanks (Area of Concern) – contaminated soil at former location of tanks; inactive.
- Lead Casks near Shaft 4. Recommended for NFA. Designated 54-015(g).
- Rad-Contaminated Forklift Battery. Recommended for NFA. Designated 54-015(i).

3.1.6 Other Potential Sources

In addition to the specific materials stored within each area, there are other potential sources of pollutants that are identified below. The potential for these sources to be exposed to storm water exists primarily during waste transfers or in the event of a spill. Drainage areas referenced in the descriptions are those identified on the facility site maps (Appendix C).

Area G:

- Decontamination and Volume Reduction System, TA-54-412, prior to decontamination and volume reduction of oversized TRU and LLW waste, the waste containers are stored inside the building. The floor is coated concrete with drains that discharge to a large sump. Wastewater, when collected, will be characterized prior to final treatment, storage, or disposal. The area is found in Drainage Area E.
- Compactor Dome Facility, TA-54-281. Prior to compaction, waste is stored outside the dome using secondary containment when appropriate. The area is found in Drainage Area E.

- Miscellaneous items including equipment, dumpsters, fencing and culverts are stored in the area known as the “boneyard.” This area, located in Drainage Area C, was previously reserved for land application of sludge.
- Heavy operating equipment is stored south of TA-54-281, within Drainage Area D. Equipment consists of graders, trucks, water tanker trucks and other miscellaneous equipment.
- TA-54-33 is the Drum Preparation Facility. The dome floor is coated concrete with floor drains that discharge to tanks with secondary containment. Waste water, when collected, will be characterized prior to final treatment, storage or disposal.
- Waste staging areas. Within drainage areas B, F and G, areas near domes and other storage locations are used as waste staging areas. Wastes are typically contained within drums, boxes, or other sealed containers and elevated on pallets or skids to prevent contact with storm water.
- Vehicle staging area. An area in drainage A is used as a staging area for trucks and trailers awaiting clearance to proceed to the waste disposal and storage units.

Area L:

- Two transportable sheds, 54-46 and 54-50 contain miscellaneous equipment, parts and supplies.
- The entire fence portion of Area L is permitted to store solid hazardous waste. In addition, Area L contains numerous individually permitted hazardous waste storage units.
- Three temporary drum staging areas are used. Two of the areas are located west of 54-58, and the other area is located southeast of the administrative buildings. All drums with liquids are double-contained overpacks or are stored on secondary containment pallets.
- Two oil-bearing transformers are located outside the fence in the northwest section of Area L. Structure 54-238 is without secondary containment, and 54-237 has a built in sump to provide secondary containment.
- Two areas have loading docks for the transfer of drums. One is located at Building 54-39; the other is located in an area adjacent to Building 54-82.

3.1.6.1 Landfill Activities & Potential Sources

For landfill and land application operations, NPDES permit requirements specify that a facility SWPP Plan shall identify the potential pollutants associated with a list of operational activities. The activities applicable to TA-54 include earth/soil moving;

waste hauling; waste loading/unloading; outdoor storage of significant materials including daily, interim, and final cover material stockpiles; exposure of active and inactive landfill and land application areas; haul roads; and vehicle and equipment operation and maintenance. Following is a list of potential pollutants and the associated activities.

Radioactive Contamination

- Waste Hauling
- Loading/Unloading
- Outdoor Storage
- Waste Disposal Operations (prior to application of cover)

Petroleum Based Fluids

- Earth/Soil Moving
- Waste Hauling
- Haul Roads
- Vehicle and Equipment Operation
- Heavy Equipment Maintenance

Sediment Transport

- Earth/soil Moving
- Waste Hauling
- Vehicle and Equipment Operation
- Haul Roads
- Storage of Material Stockpiles
- Construction Activities

3.2 NON-STORM WATER DISCHARGES

Except for flows from fire fighting activities, sources of non-storm water that are combined with storm water discharges associated with industrial activity must be identified in the SWPP Plan. In June 1993, a Wastewater Stream Characterization (WSC) was conducted at TA- 54 to identify all piping that discharged from buildings into the environment. From this study and additional facility analyses, potential sources of non-storm water discharges have been identified in Areas G and L. The non-storm water discharges identified in the WSC study are listed in the "Non-Storm Water Discharge Assessment and Certification," which is maintained the Storm Water Pollution Protection Plan binder (SWPPP Binder). Additional identified non-storm water discharges are summarized below.

Area G:

- Discharges of water occur during testing of three fire hydrants. The hydrants are tested annually by the Los Alamos County Fire Department. Each test and

flushing of a hydrant releases approximately 1,000 gal of water. The runoff from flushing of fire hydrants flows off the mesa top through areas in which no potential contaminants are stored or managed. The presence of contaminants in the discharges is unlikely. The hydrants are not tested or flushed during precipitation events.

- On a regular basis during dry periods, unpaved roads in Area G are sprayed with water for dust control. Water truck fill stations located at the southeast corner of 54-153 and north of 54-375 are typically used to fill the water trucks that spray the road. In addition, fire hydrants near the Area G entrance gate, north of Building 54-1, may also be utilized for truck filling. There are no routine discharges from these lines, but occasional minor overflows occur when trucks are filled to capacity. If not infiltrated into the surrounding soil, water from overflows discharges into Cañada Del Buey.
- Portable emergency eyewash maintenance. Portable emergency eyewash units are drained, cleaned, disinfected and refilled twice each year. There may be as many as 25 portable emergency eye wash units in operation at Area G at any given time, and each unit contains approximately 20 gal of water. Water from maintenance of the units is discharged to the environment in a manner that does not affect storm water runoff.
- Fire water discharge. Rarely, the dry-pipe fire suppression systems in the waste storage domes can be inadvertently activated resulting in discharge of water not related to a fire. This occurs due to flexing in the structure of the dome itself. Due to the flexing of the structure, nitrogen used to maintain pressure in the system is released resulting in the pipes filling with water. If this happens in the winter, the pipes may freeze and break, thereby releasing the water. Twice in the past, when firewater has been released under these conditions, the firewater was collected, sampled, and analyzed for the presence of hazardous and/or radioactive constituents. In both cases analytical results clearly showed there was no contamination of the water.

Measures have been put in place to prevent this type of incident in the future (including installation of heaters and provisions for back-up compressed air systems). However, should a facility again experience a release of water not related to a fire, and if waste characterization indicates that the water has not become contaminated, the decision may be made to release the water to the environment in a controlled manner so as not to cause erosion and such that water is not discharged to a SWMU and does not leave the site.

- Rainwater in sumps. Rainwater is occasionally collected in sumps and drains at Area G. If it can be shown through characterization, using sampling and analysis and/or acceptable knowledge, that the rainwater is not contaminated with either hazardous or radioactive constituents, the rainwater may be discharged to the environment in a controlled manner so as not to cause erosion and such that the water is not released to a SWMU and does not leave the site.

Area L:

- The Los Alamos County Fire Department annually tests and flushes fire hydrants located within Area L. The hydrants discharge approximately 1,000 gal of water during each test. The discharges flow through Area L and discharge over the mesa edge into Cañada del Buey. The presence of contaminants in the discharges is unlikely. The hydrants are not tested or flushed during precipitation events.
- Water is released while testing the permanent eyewash and shower facilities. Testing is conducted weekly. Water from maintenance of the units is discharged to the environment in a manner that does not affect storm water runoff.
- In the event of a fire inside Waste Storage Dome 54-215, water is released from the fire protection system. This water is contained within the dome and then discharged to a 18,000 gal holding tank located east of the dome. Prior to release to the environment, water in the holding tank is subject to RCRA sampling requirements and NPDES discharge criteria.
- Rainwater from the non-PCB transformer sump located north of TA-54-215 will be discharged approximately once a year. The volume of water is estimated to be approximately 55 gal. The water will be pumped from the sump and discharged to the ground in a manner that does not affect storm water runoff.
- Rainwater in sumps. Rainwater is occasionally collected in sumps and drains at Area L. If it can be shown through characterization using sampling and analysis and/or acceptable knowledge that the rainwater is not contaminated with either hazardous or radioactive constituents, the rainwater may be discharged to the environment in a controlled manner so as not to cause erosion and such that the water is not released to a SWMU and does not leave the site.
- Portable emergency eyewash maintenance. Portable emergency eyewash units are drained, cleaned and disinfected, and refilled twice each year. There is one portable, emergency eye wash unit in operation at Area L, and it contains approximately 20 gal of water. Water from maintenance of the unit is discharged to the environment in a manner that does not affect storm water runoff.

As stated in the General Permit for Storm Water Discharges Associated with Industrial Activity (EPA, 2000), the SWPP Plan must include a certification that all storm water outfalls have been evaluated for the presence of non-storm water discharges. The Non-storm Water Discharge Assessment and Certification Form in this document (Appendix B) meets this requirement.

3.3 FACILITY SITE MAPS, DRAINAGE PATTERNS, AND SITE ACTIVITIES

Facility site maps illustrate the overall site location, property boundaries, buildings, operation or process areas, and SWMUs. They also provide information on drainage patterns, storm water and erosion control structures, pollutant sources, and receiving streams. These features assist in identifying where pollutants may mix with storm water and help facility management identify storm water management opportunities.

Specifically, facility site maps include the following features:

- Facility boundaries, including the location of security fences and gates

- Facility structures that include buildings, storage or disposal areas, storage tanks, and asphalt or concrete surfaces
- General topography of the facility area
- An outline of the drainage area for each storm water outfall and a prediction of the direction of flow
- Structural control measures used to control storm water flows or erosion (e.g., culverts, storm drains, asphalt channels, catch basins, riprap, silt fences)
- Names of the receiving canyons
- Locations where significant materials are exposed to storm water
- Locations of SWMUs
- Locations of activities that may be exposed to precipitation, such as loading/unloading areas and locations used for the treatment
- Waste storage or disposal areas

For the facility site maps of Areas G, H, J and L, see drawing Sheets 1-7 in Appendix C.

Area G:

The portion of Area G that is presently active includes 9 drainage areas labeled as Drainage Areas A through I. Two additional drainage areas have been designated just south of Drainage Area F but have not yet been assigned a letter designation. Drawing Sheet 3 outlines these drainage areas (red lines) and identifies the buildings, waste storage and disposal structures, major activity areas, storm water control structures, and sediment control structures within these areas. Several of these drainage areas are also monitored for potential surface water pollution that could be attributable to operations in Area G. There are several areas located on the perimeter of the mesa top from which water may sheet flow over the mesa edge during or after precipitation events.

In general, there is little attempt to minimize the natural flow of storm water from TA-54 into the adjacent canyons. At TA-54, emphasis is placed on minimizing storm water contact with any potential wastes or waste storage areas and installing engineered sediment retention BMPs to prevent any potentially contaminated sediment from leaving the facility boundary and flowing into the canyons.

A list of the significant activities occurring at Area G and the drainage areas potentially affected by these activities is included in Table 3-1. The indicator "SF" within the Drainage Area column indicates sheet flow. Activity numbers in the table correspond to the activities listed on the facility site maps.

TABLE 3-1. Activities Within Area G Drainage Areas

Drainage Area	Activity Number	Activity Area	Flow Direction	
A		Access road entrance gate	South to Pajarito Canyon	Staging of dumpsters, trucks, and trailers. No long-term storage. (Radioactive constituents)
A		Vehicle parking, maintenance, fueling area	South to Pajarito Canyon	Trucks, vans, carts stored and serviced. (Gasoline, motor oil, antifreeze, grease, and wash-water)
SF	1	Treatment, Storage, Disposal	No surface drainage	Disposal of low-level radioactive PCB waste in Pit 38. (Radioactive constituents, PCBs)
B	3	Southwest portion of overburden pile	South to Pajarito Canyon	Soils excavated during construction of disposal pits. (Sediments)
B	9	Treatment, Storage, Disposal	South to Pajarito Canyon	Tritium storage sheds TA-54-144, TA-54-145, TA-54-146 and TA-54-177. (Currently empty and planned for RCRA closure)
B	10	Treatment, Storage, Disposal	South to Pajarito Canyon	TRU waste drum storage dome TA-54-224. (Radioactive and chemical constituents.)
B	11	Treatment, Storage, Disposal	South to Pajarito Canyon	Tritium monitoring sheds, TA-54-273, TA-54-1027, TA-54-1028, TA-54-1030 and TA-54-1041. (Radioactive and chemical constituents.)
B	13	Treatment, Storage, Disposal	South to Pajarito Canyon	Miscellaneous radioactive materials storage area west of TA-54-283. (Radioactive and chemical constituents.)

Drainage Area	Activity Number	Activity Area	Flow Direction	
C	4	Sewage sludge	South to Pajarito Canyon	Sewage sludge has previously been spread atop soil for aeration. (Sewage constituents--No radioactive or hazardous waste is present in the sludge)
C	5	Equipment storage area	South to Pajarito Canyon	Storage of fencing, dumpsters, and other miscellaneous facility materials. (No known contaminants)
D	6	TRU waste shafts	Southeast to Pajarito Canyon	TRU waste. Shafts are mostly closed; a few continue to receive waste occasionally. (Radioactive constituents during loading/unloading)
SF	8	PCB shafts	Northeast to Cañada del Buey	Solid PCB-contaminated wastes located in an area of shallow slope, with limited surface flow. (Radioactive constituents and PCBs)
E	14	Equipment Storage Area	Southeast to Pajarito Canyon	Heavy equipment storage area. (Gasoline, motor oil, antifreeze, grease, and wash-water may be present.)
E	21	Non-storm water discharge	Northeast to Cañada del Buey	Water truck fill spout. Filled daily in summer, less frequently during the remainder of the year: for dust suppression. Overflow drains over edge of mesa. (No known contaminants)
F	7	Mixed activation waste shaft	Southeast to Pajarito Canyon	In use. (Radioactive constituents during loading/unloading)
F	23, 24, 25, 26	Treatment, Storage and Disposal	South & east into Pajarito Canyon & Cañada del Buey	TRU waste storage domes, TA-54-226, TA-54-229, TA-54-230, TA-54-231, TA-54-232, and TA-54-375. (Radioactive and chemical constituents)

Drainage Area	Activity Number	Activity Area	Flow Direction	
G	15	Treatment, Storage, Disposal	No surface drainage – contained in pit.	Low-level radioactive waste disposal Pit 15. (Radioactive constituents)
G	16	Treatment, Storage and Disposal	Northeast to Cañada del Buey	Drum Prep Facility (TA-54-33). Holding tank near east end of building. Site of Dec 1990/Jan 1991 water leak. Drum venting, washing, and inspection operations. (Radioactive and chemical constituents)
G	19	Fire hydrant	Northeast to Cañada del Buey	Flushed annually. Water drains directly north over edge of mesa. (No known contaminants)
H	20	Treatment, Storage, Disposal	Contained within pit	Active low-level waste disposal Pit 39 containing low level radioactive waste. (Radioactive constituents)
I	2	Treatment, Storage, Disposal	Northeast to Cañada del Buey	Fiberglass Reinforced Plywood Box Storage Dome TA-54-153. Staging, swiping, stacking of TRU waste drums & boxes. (Radioactive and chemical constituents)

Area H:

Area H is unpaved and contains no storm water point sources. During heavy precipitation, runoff from Area H occurs as sheet flow that moves south across the land into an adjacent drainage channel that discharges into Pajarito Canyon.

This area has been inactive since 1986. As a result, there are no significant materials stored at this site and no activities conducted that affect the potential for storm water pollution.

Area J:

Disposal pits and shafts in Area J are currently undergoing formal closure in accordance with New Mexico Solid Waste regulations (20 NMAC 9.1, Subpart V). Closure activities include removing existing asphalt and concrete caps, capping the pits and shafts with crushed tuff, re-contouring the area to discharge to two monitored storm water discharge stations, installing a bentonite cap, and revegetating the topsoil with native plants and grasses. Area J will drain to the north and east toward Cañada del Buey. See "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure" for complete details.

Activities identified on this map are also shown in Table 3-2.

TABLE 3-2. Activities Within Area J

Drainage Area	Activity Number	Activity Area	Flow Direction	Activities and (Potential Contaminants)
SF	1	Disposal Shaft	North to Cañada Del Buey	Disposal Shaft 1. Drilled in 1984. Filled and capped with crushed tuff. (sediment.)
SF	2	Disposal Shaft	North to Cañada Del Buey	Disposal Shaft 2. Drilled in 1984. Filled and capped with crushed tuff. (Sediment.)
SF	3	Disposal Shaft	North to Cañada Del Buey	Disposal Shaft 3. Drilled in 1994 Filled and capped with crushed tuff. (Sediment.)
SF	4	Disposal Shaft	North to Cañada Del Buey	Disposal Shaft 4. Drilled in 1994. Filled and capped with crushed tuff. (Sediment.)
A	5	Completed disposal pit #'s 1, 2, and 3	North & east to Cañada Del Buey	Pits are covered with crushed tuff & contoured. (Sediment.)
B	6	Former Asphalt entrance road & portion of asphalt storage pad.	North to Cañada Del Buey	Previously used for temporary storage of friable and non-friable asbestos. Asphalt has been removed for closure activities. . (No known contaminants.)

Drainage Area	Activity Number	Activity Area	Flow Direction	Activities and (Potential Contaminants)
SF	7	Former Storage Area	North to Cañada Del Buey	Former equipment storage area on asphalt pad used for heavy equipment, empty drums & pallets. Asphalt has been removed for closure activities. (No known contaminants.)
SF	8	Disposal Pit	North & east to Cañada Del Buey	Disposal Pit 4. Size approx. 425' x 80' x 20' deep. Filled and capped with crushed tuff. (Sediment.)
SF	9	Former Treatment, Storage & Disposal	North to Cañada Del Buey	Area formerly used for land farming of contaminated soil from underground storage tank releases. (Sediment.)

Area L:

Area L has been designated as a single drainage area. Most of the surface within the area is paved with asphalt and contoured to efficiently divert runoff to a single outfall, where a storm water sampling station is located. A 12-in. storm drain also conveys runoff to this location. After leaving the fenced boundary of Area L, storm water flows over the north edge of Mesita del Buey into adjacent Cañada del Buey. Activities within this drainage area are identified in Table 3-3.

TABLE 3-3. Activities Within Area L

Drainage Area	Activity Number	Activity Area	Flow Direction	Activities and Potential Contaminants
SF	1	Transformer	North to Cañada Del Buey	Oil bearing transformer without secondary containment, TA-54-238. (Oil)
SF	2	Transformer	North to Cañada Del Buey	Oil bearing transformer with secondary containment, TA-54-237. (Oil)
A	3	Storage	North to Cañada Del Buey	Drum staging area for regulated & non-regulated waste & sampling of mixed waste. (Radioactive and Chemical constituents)
A	4	Storage	Contained within structure	Mixed waste sampling area, TA-54-58. (Chemical constituents.)
A	5	Storage	Contained within structure	RCRA storage area, TA-54-36. (Chemical constituents)
A	6	Storage	North to Cañada Del Buey	Temporary drum staging area for corrosive caustics and mixed waste. (Radioactive and Chemical constituents.)
A	7	Loading/Unloading Area	North to Cañada Del Buey	Loading/unloading of mixed waste drums near TA-54-82. (Radioactive and Chemical constituents)
SF	8	Storage	North to Cañada Del Buey	Temporary mixed & hazardous waste drum storage area. (Radioactive and Chemical constituents)
A	9	Loading/Unloading Area	Contained within structure	Loading/unloading of PCB contaminated drums at TA-54-39. (PCBs and Chemical constituents)
A	10	Storage	Inside structure	Mixed waste storage dome, TA-54-215. (Radioactive and Chemical constituents)
A	11	Storage	North to Cañada Del Buey	RCRA permitted hazardous waste storage, 54-68. (Radioactive and Chemical constituents)
A	12	Storage	North to Cañada Del Buey	RCRA permitted hazardous waste storage, 54-69. (Radioactive and Chemical constituents)

3.4 SPILL EVENTS

There have been few spill events during operations at TA-54. Those that have occurred have taken place in Areas G and L. No spills have been documented in Areas H and J. With the exception of two releases of large quantities of potable water in Area G, TA-54 spill events have involved minor quantities, affecting only the immediate area. In

accordance with regulatory requirements, known releases that may have had the potential to affect the chemical or radiological quality of runoff and sediments and that occurred in a time period beginning three years prior to submission of the Notice of Intent (NOI) are maintained in the SWPPP Binder. Up-to-date spill event documentation is maintained in the binder for a minimum of 3 years. An updated copy of the binder is provided to TA-54's Records Management and Document Control facility (RMDC) annually.

3.5 STORM WATER SAMPLING

In compliance with regulatory requirements, Water Quality & Hydrology Group (RRES-WQH) personnel sample storm water discharges from the active operations in Areas G, J and L. Sampling is not conducted in Area H because the facility is an inactive site with no hazardous materials exposed to storm water.

Sampling is performed at designated sampling locations using either automatic sampling devices or manual procedures. At each appropriate location, the sampler collects a grab sample within the first 30 minutes of the discharge.

To the extent possible, all water samples are collected during a precipitation event that produces at least 0.10 inch of rainfall, occurs at least 72 hours from the previously measurable (0.1 inch) storm event, and has had a minimum of 60 days between previously sampled events. For storm water discharges associated with both TSD facilities and landfill or land application sites, samples are collected at least quarterly during years two and four after Permit issuance.

All samples are analyzed for the constituents listed in Table 3-4, as required by the MSDS for Landfills and TSD facilities. Analytical methods used are those approved in Title 40, Part 136 of the Code of Federal Regulations (U.S. EPA, 1992b). In the event that appropriate analytical methods for a particular constituent are not listed in 40 CFR, Part 136, appropriate analytical methods are selected from those described in either "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" (U.S. EPA, 1986), or "Standard Methods for the Examination of Water and Waste Water" (American Public Health Association, 1989).

TABLE 3-4. Analyzed Constituents for Storm Water Runoff from Landfills and TSD Facilities

Pollutant of Concern	Benchmark Value	Method of Analysis (from 40 CFR Part 136)
Aluminum, total recoverable	0.75 mg/l	202.1, 202.2, 200.7, 200.8
Ammonia, NH ₃	19 mg/l	350.1, 350.2, 350.3
Arsenic, total recoverable	0.16854 mg/l	206.2, 206.3, 206.4, 206.5, 200.7, 200.8
Cadmium, total recoverable	0.0159 mg/l	213.1, 213.2, 200.7, 200.8
Chemical Oxygen Demand, COD	120 mg/l	410.1, 410.2, 410.3, 410.4
Copper, total recoverable	0.0636 mg/l	202.1, 202.2, 200.7, 200.8
Cyanide, total	0.0636 mg/l	335.2, 335.3

Pollutant of Concern	Benchmark Value	Method of Analysis (from 40 CFR Part 136)
Iron, total recoverable	1.0 mg/l	236.1, 236.2, 200.7, 200.8
Lead, total recoverable	0.0816 mg/l	239.1, 239.2, 200.7, 200.8
Magnesium, total recoverable	0.0636 mg/l	242.1, 200.7
Mercury, total	0.0024 mg/l	245.1, 245.2
Nitrate + Nitrite Nitrogen, NO ₃ +NO ₂ -N	0.68 mg/l	353.1, 353.2, 353.3, 354.1
Oil & Grease	15 mg/l	413.1, 1664
Selenium, total recoverable	0.2385 mg/l	270.2, 200.7, 200.8
Silver, total recoverable	0.0318 mg/l	272.2, 272.2, 200.7, 200.8
TSS	100 mg/l	160.2
Zinc, total recoverable	0.117 mg/l	289.1, 289.2, 200.7, 200.8
pH	6.0-9.0 s.u.	150.1

In addition, the conditions set forth in the TA-54 Area G Permit to dispose of PCBs shall be met. The requirement states that surface water samples must be analyzed for the parameters listed in 40 CFR §761.75(b)(6)(iii). These include PCBs, pH, specific conductance, and chlorinated organics. Surface water samples taken in Drainage Area E (See Figure 6 of 7) will be analyzed for these parameters.

3.5.1 Reporting of Analytical Results

The analytical results of storm water runoff samples and other data collected in accordance with this SWPP Plan is reported directly to RRES-WQH. Discharge Monitoring Reports (DMRs) are completed and submitted annually by RRES-WQH. Included in the DMR is the date and duration of the storm event(s) sampled, rainfall measurements or estimates of the storm event that generated the sampled runoff, duration between the storm event sampled and the end of the previous measurable storm event, and an estimate of the total volume of the discharge sampled. Upon availability, analytical results of the events sampled at TA-54 are posted electronically on the RRES-WQH home page. This allows for timely use of the data by the operating facility. FWO-WFM personnel and RRES-WQH will maintain hard copies of the DMRs in the SWPPP Binder for a minimum of 3 years. An updated copy of the binder is provided to RMDC annually. In addition, storm water data collected throughout the life of the Permit is maintained in the Binder.

3.5.2 Sampling and Analysis of Other Media

In addition to the required sampling of storm water runoff, the Laboratory has implemented an ongoing sampling and analytical program to identify potential radiological and chemical contamination of other media. This program includes the sampling and analysis of soils, stream sediment, vegetation, and the atmosphere

throughout TA-54 and at locations in adjacent areas. Data collected in this program is available in annual reports prepared and distributed by the Laboratory's Water Quality and Hydrology Group (RRES-WQH). The Pollution Prevention Team Coordinator will review environmental data collected in and around TA-54 to identify and address any potential issues of concern not previously addressed in the SWPP Plan.

4.0 BEST MANAGEMENT PRACTICES

An important element in the development of a SWPP Plan is identification of appropriate Best Management Practices (BMPs). BMPs are standard operating and maintenance procedures designed to minimize the potential for spills, exposure of materials, or any other event that could adversely affect the quality of water and sediment that is transported out of the area by storm water runoff. The EPA has identified eight baseline BMPs that should be incorporated into an SWPP Plan. These include good housekeeping, preventive maintenance, inspections, spill prevention and response, training, record keeping and reporting, sediment and erosion control, and storm water management practices.

4.1 GOOD HOUSEKEEPING

Good housekeeping practices specifically applicable to the prevention of storm water contamination at TA-54 include:

- Standard procedures specifying appropriate methods for handling wastes so that they are not exposed to storm water
- Provision of secondary containment for all stored liquids that could contribute to storm water pollution
- Maintenance of operational areas in a clean and orderly state
- Regular inspections to ensure that procedures are properly followed and that no potential contaminants are present in exposed areas
- Training of employees about good housekeeping practices

Procedures for waste storage and disposal minimize the potential of exposing waste to precipitation and runoff. All dispersible waste placed in disposal pits is covered with crushed and compacted tuff at the end of each day, and asbestos waste is similarly covered immediately upon disposal. Waste to be disposed of in shafts is placed directly into the shaft from the transport vehicle or lowered to the bottom of the shaft with a crane. To the extent possible, mixed, hazardous, low-level, and TRU waste is stored on asphalt pads, in buildings, covered domes, or under canopies. This reduces exposure of waste packages to storm water and limits their contact with precipitation to times of transportation and loading activities.

All waste management and storage areas are kept clean and neat. Vehicles and heavy equipment are stored and maintained in specified areas separate from active waste disposal and storage areas. Parts and supplies used in equipment and facility maintenance are also stored within enclosed buildings or on exterior pads, as appropriate. No potentially hazardous supplies are stored in open areas.

Daily and weekly inspections of waste management and storage areas are performed to ensure that the condition of waste containers is acceptable, that emergency equipment is

present in the storage areas, 24-in. aisles separate pallets containing waste drums, and that good housekeeping requirements are met. Facility personnel inspect the drums daily and repack or overpack drums if leakage is evident. Inspectors also verify that tools and equipment are in their proper locations and in good working order.

4.2 PREVENTIVE MAINTENANCE

For facility equipment, FWO-WFM and FWO-SWO personnel follow the "Maintenance Implementation Plan for TA-54," PLAN-WFM-026, a comprehensive set of standards and procedures designed to ensure that equipment in waste management operations is in good working order and properly used and that scheduled maintenance is performed. The Plan incorporates provisions for corrective, predictive and preventive maintenance. It also addresses appropriate adjustment and/or replacement of devices, equipment, and systems. This program allows for identification and corrections of conditions that have the potential to cause breakdowns or failures that could result in the release of pollutants to the environment.

In addition to facility equipment, all areas (e.g., buildings, roads, equipment lay-down areas, etc.) are regularly inspected to identify the facilities or locations where maintenance or repair is required. Checklists are incorporated into the Preventive Maintenance Program to ensure that items are not overlooked during inspections and maintenance procedures.

Inspections of storm water management and erosion control structures are also conducted. DOP-WFM-025, , FMU-64 Environmental Assessment and RCRA Inspections is used to evaluate these structures. This procedure identifies specific items and areas to be inspected to ensure that storm water management devices are operating effectively.

Deficient items identified during inspections are documented on checklists or other forms. In addition, in the event that a deficiency cannot be immediately repaired/remediated, it is entered into the TA-54 Deficiency Tracking Database. This database allows the facility to track and prioritize deficiencies. The FWO-WFM Group is responsible for ensuring that maintenance or repair associated with a deficiency is promptly and adequately performed.

4.3 INSPECTIONS

For Areas G, J, and L, an inspection that follows EPA guidelines for annual site compliance evaluations is conducted quarterly by a member of the Pollution Prevention Team and a member or a contractor of RRES-WQH . The Pollution Prevention Team member and RRES-WQH member or contractor documents when the inspections are performed and notes potential storm water pollution problems that were encountered. At a minimum, the following items are assessed during inspections:

- Verification that site drainage is not impeded by sedimentation or erosion
- Evidence of excessive erosion in any part of the area
- Condition and function of storm water management and erosion control structures
- Occurrence of non-storm water discharges (other than those described in this SWPP Plan)

- Contact between significant materials and storm water through either exposure or leakage

Inspections include an examination of the operating and general site condition of waste storage areas, disposal sites, truck entrance and exit areas, fences, signs, buildings, tools, equipment, equipment storage areas, and health and safety apparatus. Storm water management and erosion control items to be examined include drainage channels, culverts, silt fences, riprap placement, waste management areas, vehicle maintenance areas, unvegetated areas prone to soil erosion, and other structures and locations associated with the control of storm water runoff.

A formal site inspection of Area H will be conducted quarterly. The condition of Area H structures, such as fences, gates, and signs, will be examined and the area will be inspected for signs of erosion, damage to vegetation, or excessive sediment transport.

In addition to quarterly storm water pollution prevention inspections, regular Resource Conservation and Recovery Act (RCRA) inspections are conducted at Areas G and L. RCRA inspections are performed in accordance with DOP-WFM-025 and are conducted and documented, at a minimum, weekly. In the event that waste handling operations occur in a regulated area, RCRA inspections will be conducted on that day. Items evaluated during RCRA inspections include, but are not limited to, the following:

- Tanks/containers in loading and unloading areas
- Shaft covers
- Landfill and waste storage area run-on/runoff control
- Landfill cover integrity
- Secondary containment
- Spill control equipment
- Road surface condition

Deficient items identified during inspections are documented on checklists or forms as appropriate. All documented deficiencies are entered into the TA-54 Deficiency Tracking Database, allowing facility personnel to track and prioritize deficiencies. Depending on the nature of deficiency, either FWO-SWO or FWO-WFM is responsible for ensuring that any maintenance or repair associated with a deficiency is promptly and adequately performed.

4.3.1 Visual Examination of Landfill and TSDF Discharges

For storm water discharges from landfills and TSD facilities, a visual examination of a representative discharge from each associated outfall is performed and documented quarterly. The examinations must be made at least once in each of the following periods: January through March, April through June, July through September, and October through December.

The visual examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed one hour) of when the runoff or snowmelt begins discharging. Observations of color, odor, clarity, floating

solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution should be documented during the examination. The performance of analytical tests on these samples is not required. Where practicable, the same individual should perform the collection and examination of discharges for the entire permit term. Section 4.6. contains details on reporting and record keeping requirements for visual examinations.

4.3.2 Inspection of Landfills

For landfills, inspections shall be conducted at least once monthly. These inspections should include an examination of sediment and erosion control measures in place.

4.4 SPILL PREVENTION & RESPONSE

Spills or releases shall be reported in accordance with LANL LIR 402-130-01, "Abnormal Events." All uncontrollable spills or releases must be reported to the EM&R Office by calling **667-6211** or, after hours, at **667-7080**. If a fire or explosion occurs, or if the potential for such exists, the situation must be reported by dialing 911 from a non-cellular phone or by activating a fire pull box. In the event of a spill, the EM&R Office will determine appropriate cleanup procedures and will notify the individuals or organizations responsible for completing spill reports or fulfilling regulatory reporting requirements.

FWO-WFM also maintains procedures for response to spills at TA-54. A spill trailer containing spill cleanup and safety equipment is located in Area G, immediately adjacent to Area L, and is available for rapid transport to any part of TA-54 where Emergency Management and Response personnel may need it. Facility personnel are trained in spill response procedures and in the use of appropriate spill control supplies. If spill response action is taken by facility personnel, the procedures in the Emergency Action Plan will be followed.

The completion of a spill report is required in the event of a spill. Such reporting consists of internal spill record keeping and may require external agency notification. External agency notification may consist of verbal or written notification to the National Response Center, Environmental Protection Agency Region VI, or the New Mexico Environment Department. The determination for the type of reporting will be made by FWO-WFM personnel, the EM&R Office, and RRES-WQH in accordance with Laboratory and DOE policies, and federal and state regulatory reporting requirements. Copies of internal spill reports are maintained by the responsible organization.

4.5 TRAINING

Employee training is essential for effective SWPP Plan implementation and maintenance. The objectives of the training program are to instill in employees an understanding of the purpose of the SWPP Plan, to help them recognize situations that could lead to potential storm water contamination, and to provide instruction in proper spill prevention and response, good housekeeping, and material management practices.

All operational site workers and supervisors at TA-54 will annually receive storm water pollution prevention training. The training will be performed within six months of the employee's employment date and will incorporate, at a minimum, sections on the following topics:

- Goals of the Storm Water Pollution Prevention Plan
- Spill response and cleanup
- Conducting inspections
- Good housekeeping and material management practices to prevent storm water pollution
- Site-specific structures, equipment, and procedures designed to minimize erosion and storm water pollution
- Goals and procedures resulting from the annual comprehensive Site Compliance Evaluation
- Any changes in facilities or procedures that are to be implemented as a results of the most recent Comprehensive Site Compliance Evaluation

Training activities are documented in accordance with LANL Training Standard LS113-09.0, *Training Documentation*, and records are maintained at both TA-54 and in LANL's official training database, the Employee Development System (EDS). Only those briefings formalized enough to include written learning objectives are included in EDS.

Documentation for informal briefings, such as group safety meetings, consists of recording the attendance and maintaining a file of meeting rosters. A list of the personnel present at the annual SWPP training session will be maintained by the FWO-WFM training coordinator.

Storm Water Pollution Prevention Inspectors receive additional training commensurate with their inspection duties. At a minimum, the Inspectors are trained to the requirements of the TA-54 inspection procedure DOP-WFM-016, "TA-54 TSDF Inspections." A list of personnel receiving this additional training will be maintained by the FWO-WFM training coordinator.

4.6 RECORD KEEPING & REPORTING

Proper record keeping permanently documents spills, maintenance activities, deficiencies, improvements, and changes in facility structures or operations. This facilitates the revision of an SWPP Plan to reflect current conditions and helps in assessing the cause of spills and implementing corrective action.

The most important aspect of record keeping is the documentation of all inspections, noting the areas that were inspected, problems that were found and the actions taken to correct them. Other items that must be documented to ensure adequacy of the SWPP Plan include:

- Sampling and analytical data for storm water, soils, and sediment

- Additions to or changes in, operational areas, storage locations, significant materials, or other factors that influence the quality of storm water runoff from TA-54
- Additions to or changes in storm water management and erosion control structures
- Land surface modifications or other structural changes affecting the direction of drainage, or erosion potential during storm events
- The occurrence and cleanup of any spills or releases
- Areas that are susceptible to erosion or sedimentation by storm water runoff
- The tracking system for the types of wastes disposed of in each cell or trench of a landfill

Reports on the visual examination of storm water samples from landfills and TSD facilities shall include the examination date and time, examination personnel, the nature of the discharge, visual quality of the discharge, and probable sources of any observed storm water contamination. These reports are required to be maintained with the SWPP Plan.

Inspection documents are classified as quality records and are managed according to FWO-WFM procedures. The Pollution Prevention Team Coordinator will ensure that copies of quality records are forwarded to the FWO-WFM records administrator, where they will be retained according to DOE's "Records Management System." Records relating to the SWPP Plan and storm water pollution control measures shall be retained for three years from the date of action.

4.7 SEDIMENT AND EROSION CONTROL

Waste management activities at TA-54 minimize the frequency and volume of sediment discharge from the mesa surface; however, since sediment discharge to the canyons cannot be entirely eliminated, structural controls are installed as necessary in areas that are relatively prone to erosion. These controls include silt fences, berms, ditches, culverts, wattles, riprap, rock gabion, reseeding with native plant species, and the reshaping of contours to eliminate steep slopes. As discussed in Section 4.8, "Storm Water Management," water control structures such as drainage channels and culverts are also used to control the effects of runoff and erosion.

Tuff that is excavated during the construction of pits and shafts is often stored for use as fill or cover material. Temporary stabilization shall be provided for this and other material stockpiled for use as fill or daily, intermediate, or final cover. Stabilization practices include, but are not limited to, temporary seeding, mulching, and the placement of silt fences or geotextiles on inactive portions of the stockpile. For landfill areas that have received final cover but where vegetation has not established itself, or for areas that have received intermediate cover but no final cover, temporary stabilization shall also be provided. Where land application has been completed, the area will be stabilized until vegetation has been established.

The following sections identify the sediment and erosion controls currently used within each area of TA-54.

4.7.1 Area G Erosion Controls

The tuff forming Mesita del Buey is, in its natural state, relatively resistant to erosion; however, disposal of wastes in pits requires the excavation, storage, and replacement of large volumes of this material. Area G inspections shall include roads, pads, stockpiles of excavated tuff, berms adjacent to disposal pits, and other unvegetated areas for evidence of erosion and sediment transport. During the sampling of storm water and sediment, sampling personnel will note any apparently abnormal amounts of sediment that may be observed in flumes, weirs, and intermittent stream channels in the areas below the edge of Mesita del Buey. If evidence of extensive erosion is encountered, the Pollution Prevention Team will be notified. The Team will then examine the affected drainage area to identify the source of the erosion and will recommend the appropriate actions to minimize future erosion and sediment transport.

Erosion controls at Area G are listed below.

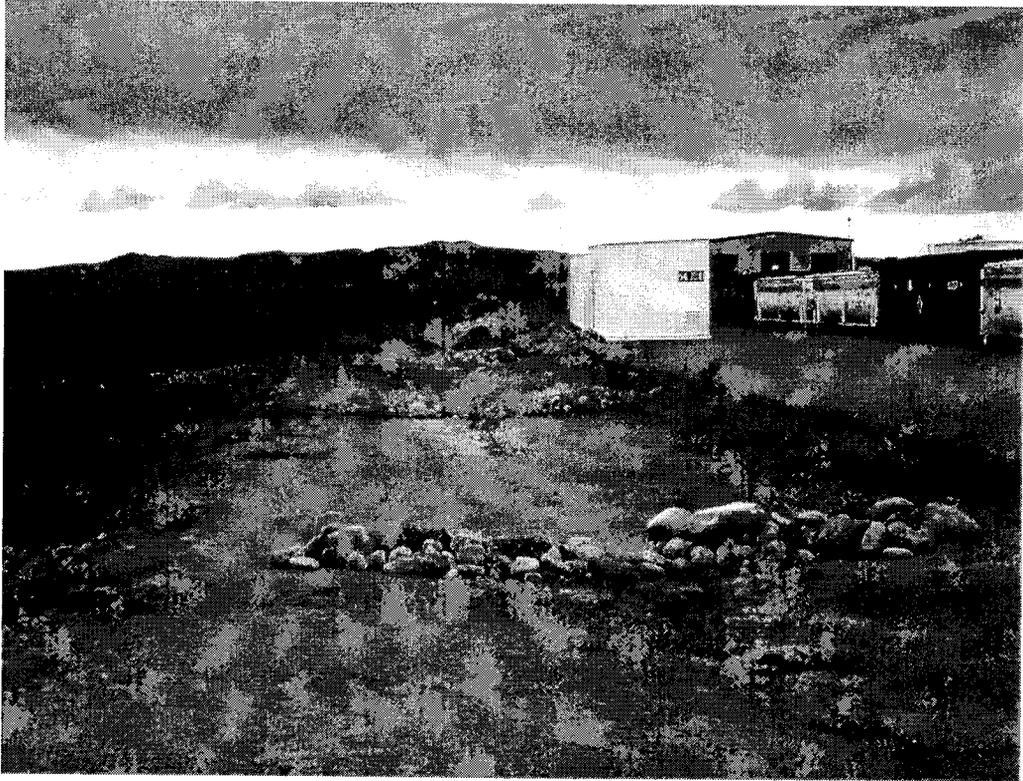
Drainage Area B:

- Two 12-in. PVC pipes discharge storm water onto a riprap-covered slope on the east side of 54-224. The area at the base of the riprap is rimmed with straw bales and silt fence designed to slow the flow of runoff and detain the minimal amount of sediment discharged from the asphalt pad upon which 54-224 is constructed.
- The perimeter security fence crosses a natural drainage area that is located south of 54-283 and 54-153. A series of three rock check dams are located in the natural drainage to slow runoff, thereby allowing suspended sediment to settle. Filter fabric is installed along the security fence in the bottom of this drainage (Photograph A).

Photograph A – Rock Check Dams



- A drainage channel has been formed of compacted soil along the east side of the mixed waste staging area to the east of 54-49. The channel contains four rock check dams to capture transported sediment. The adjacent slope has been stabilized using erosion control blankets (Photograph B).

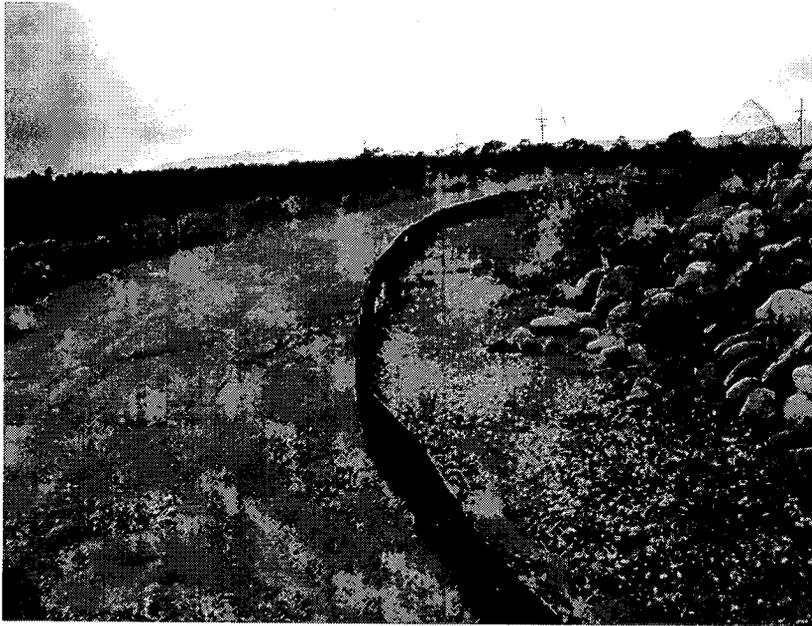
Photograph B – Drainage Channel with Rock Check Dams

- Silt fence is installed parallel to the fence corner southwest of 54-49.
- Silt fence is also located along the perimeter fence line both west of 54-49 and east of 54-224.

Drainage Area D:

- A series of straw bale check dams have been established along the fence line in the southeast portion of the area to dissipate runoff flowing along the fence line and minimize sediment transport.
- A silt fence is located along the south perimeter, adjacent to the roadway, of a stockpile area for soil and rock (Photograph C).

Photograph C – Silt Fence South of Stockpile Area



- A sediment trap has been established in the southeast portion of the area adjacent to the fence line (Photograph D).

Photograph D – Sediment Trap



Drainage Area E:

- A series of rock check dams are located within a natural drainage area to dissipate runoff energy and minimize sediment transport (Photograph E).

Photograph E – Rock Check Dams



Drainage Area F:

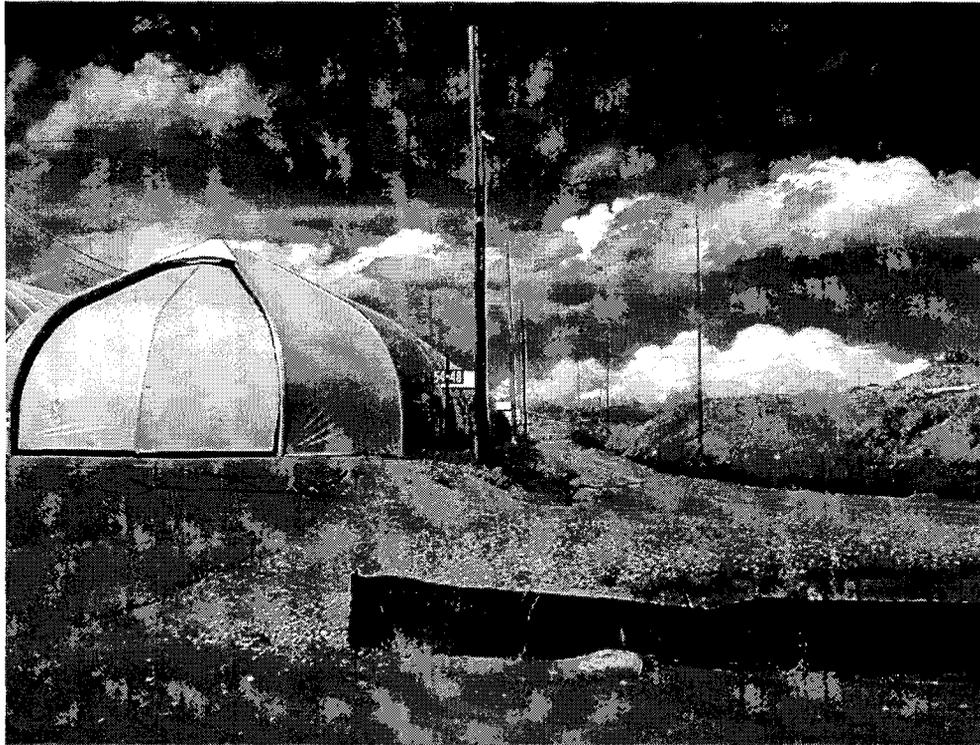
- The slope on the west side of the TRU Waste Storage Domes has been revegetated and contains a retaining wall and riprap (Photograph F).

Photograph F – Vegetated Slope on West Side of TRU Domes



- On the south side of the waste retrieval pads located east of 54-48, a silt fence has been placed along the edge of the asphalt (Photograph G).

Photograph G – Silt Fence for Waste Retrieval Pads



- Riprap is installed on a small slope on the east side of the TRU Waste Storage Domes (54-229, 54-230, 54-231, and 54-232).
- A silt fence has been placed along the edge of the parking area (adjacent to the access road) south of 54-324.

Drainage Area G:

- A riprap-lined drainage channel is located northeast of building 54-33. It drains to the north.
- A silt fence is installed along the north fence line.
- A silt fence is installed around the emergence egress gate.

4.7.2 Area H Erosion Controls

Area H is inspected quarterly for erosion. Following closure of the waste disposal shafts, the land surface was contoured and revegetated. As a result, there is typically little erosion and sediment transport from the area. The Pollution Prevention Team will continue to monitor the area for signs of erosion and sources of sediment discharge. If areas of concern are identified, the Pollution Prevention Team will identify the source of the sediment discharge, and will recommend actions to minimize the erosion and sediment transport.

4.7.3 Area J Erosion Controls

Disposal pits and shafts in Area J are currently undergoing formal closure in accordance with New Mexico Solid Waste regulations (20 NMAC 9.1, Subpart V). A

closure plan was prepared and submitted to the New Mexico Solid Waste Bureau. More details of the closure activities and erosion control measures are outlined in the "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure." Following completion of closure activities, erosion control measures will be inspected regularly to ensure they remain in proper working order. Once 70% vegetative cover has been established inspections will be reduced to annually.

4.7.4 Area L Erosion Controls

The majority of Area L is paved with asphalt to prevent erosion and sediment transport. Only small regions of soil are affected by area operations. Therefore, few erosion and sediment controls are required. Below are the controls currently in use.

- On the north side of the facility, approximately 20-ft from the security fence, a silt fence is installed along the edge of the mesa.
- The asphalt surface is sloped away from the fence to prevent runoff from leaving the site and eroding soil along the fence line.
- Concrete curbing is installed along the fence line on the north side of the storage dome to prevent storm water runoff from flowing over the retaining wall and onto the soil at the mesa edge.

If significant erosion or sediment transport occurs in any portion of Area L or in the natural drainage area around the single point source outfall, the Pollution Prevention Team will be notified. The Team will examine the affected drainage area, identify the source or sources of the sediment discharge, and recommend appropriate actions to minimize future erosion and sediment transport.

4.7.5 Best Management Practices (BMPs)

The best management practices (BMPs) utilized throughout TA-54 are installed and maintained in accordance with the *Storm Water/Surface Water Pollution Prevention–Best Management Practices (BMPS) Guidance Document*.

Silt fences are one of the BMPs currently in use within Areas J and G. The primary function of the silt fences is to detain sediment onsite by ponding storm water runoff and allowing transported sediment to settle out. The silt fences also support the growth of native vegetation along the perimeter fence lines by reducing runoff velocity and erosion damage.

Silt fences in use include both the traditional silt fence, which consists of filter fabric stretched across posts, and straw bale barriers wrapped in filter fabric. The latter is used primarily along the perimeter fence lines. Due to the nature of their construction and use, silt fences are susceptible to collapse, wind damage, and erosion undermining. General silt fence maintenance should therefore be an ongoing process.

4.8 STORM WATER MANAGEMENT

In general, no attempt is made to eliminate or minimize the natural flow of storm water from TA-54 into the adjacent canyons. Instead, emphasis is placed on preventing contamination of the runoff by minimizing its contact with stored waste, waste disposal

sites, containers, equipment, and other potentially contaminated items. This is accomplished by diverting runoff from the locations where waste management operations regularly take place. Methods of storm water management include the appropriate contouring of surface areas and the use of control structures such as drainage channels, berms and culverts. Canopies, domed structures and other buildings can also be used to minimize the contact between runoff and wastes. Storm water management methods currently in use in Areas G, H, J and L are identified in the following sections.

4.8.1 Area G Storm Water Management

In certain drainage areas, structures have been provided to efficiently channel storm water runoff to the ephemeral streams draining the mesa. These structures include asphalt drainage channels and a weir in drainage E; riprap lined channels in drainage areas B, F and G; and culverts in drainage areas B, E, F, G and H. Roads and drive pads are contoured to carry runoff away from the areas of active vehicular and loading operations. Silt fences and other erosion control structures are established in areas prone to erosion or affected by heavy runoff during storm events.

To minimize the entry of water into waste disposal pits, the perimeters of the pits are appropriately bermed. There is no surface flow out of the pits or waste disposal shafts, and the low permeability of the tuff minimizes any subsurface flow from these areas. Waste handling activities in open areas are suspended during storm events, thus minimizing the potential for contamination of runoff. Upon closure of a disposal pit, the tuff covering the area is graded to contours approximating the original configuration of the land surface and is either paved or revegetated to minimize the runoff and soil erosion potential at the site. As much as is practical, storm water runoff is directed such that it does not affect closed disposal units. When possible, this is achieved by locating disposal units in areas where significant runoff does not occur. In other cases, engineering controls such as diversion ditches, culverts, and berms may be used to limit contact between storm water runoff and closed disposal units. These measures reduce the possibility of eroding the cover over closed disposal units and exposure of the waste.

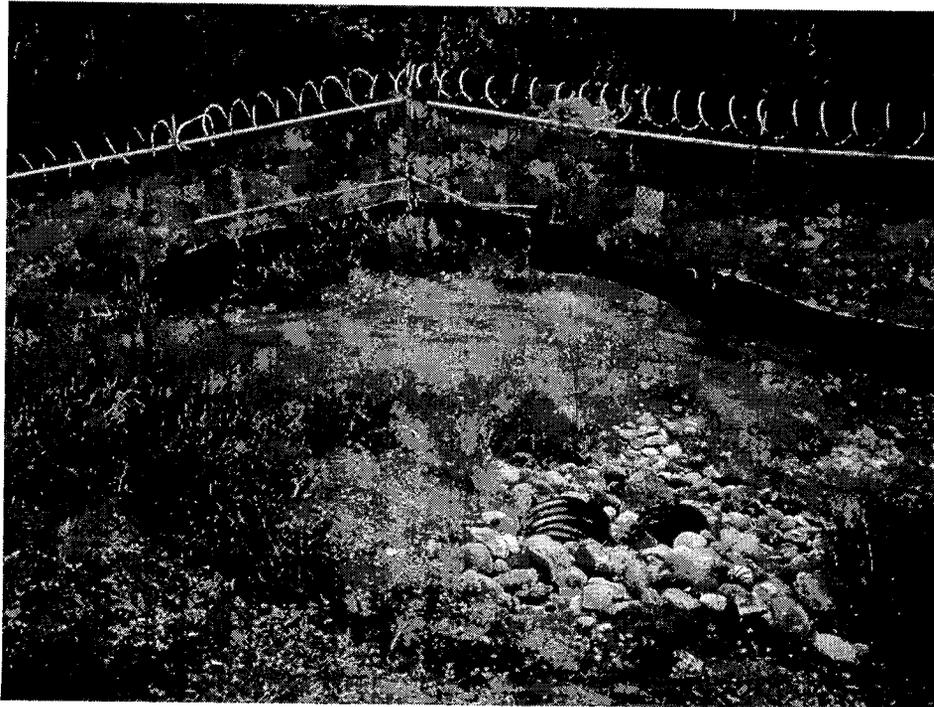
A listing of the structural controls used in storm water management follows.

Drainage Area B:

- A drainage channel is located along the north and south sides of the roadway.
- In the northern portion of the drainage area, two culverts are located under the main roadway. These culverts divert flows southward from Building 54-283 to a sediment trap located at the head of the natural drainage area.
- Two catch basins with 12-in. PVC pipes discharge storm water onto a riprap-covered slope on the east side of 54-224. The area at the base of the riprap is rimmed with straw bales (Photograph H).

Photograph H- PVC Pipes Discharging to Riprap

- An asphalt channel located southeast of TA-54-49, behind the tritium sheds, facilitates drainage of the asphalt pad adjacent to TA-54-49. This channel also serves as the discharge point for a culvert. Two culverts that have 90-degree up-turned ends—to dissipate the energy of the water—drain this channel and the adjacent earth channel located to the east (Photograph I).

Photograph I – Culverts with 90-Degree Up-Turned Ends

Drainage Area E:

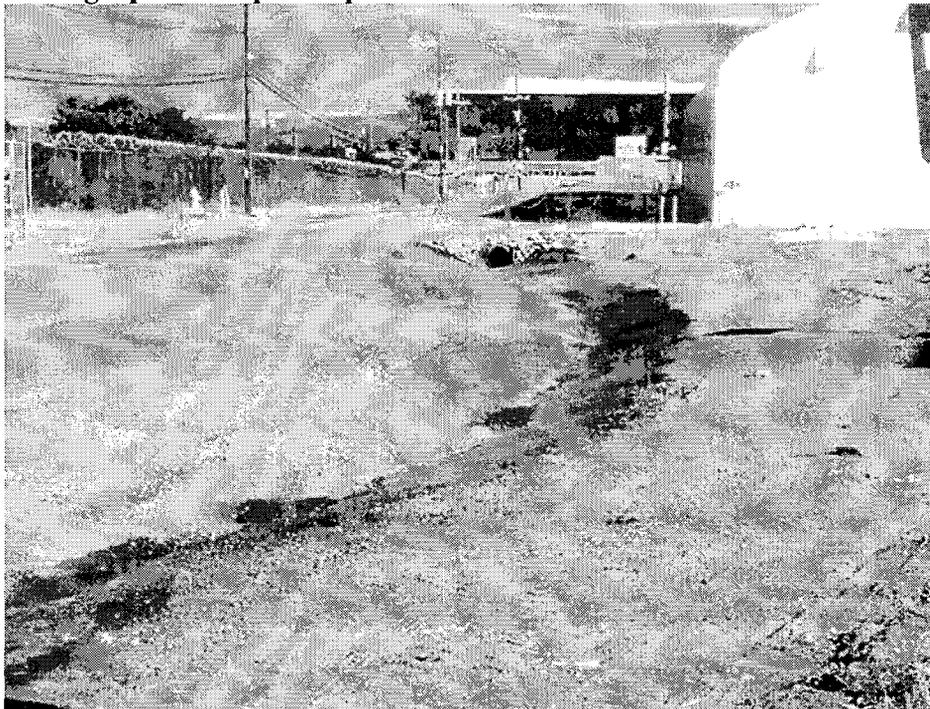
- A weir is located in the central region of the drainage area.
- A vehicle and equipment storage area is located on the south side of Building 54-281. The proper storage of vehicles and equipment reduces contact with storm water (Photograph J).

Photograph J – Vehicle and Equipment Storage Area



- An asphalt channel is located along the south side of the roadway in the northwest portion of the area. This channel flows east and discharges into a culvert that makes a 90 degree bend, directing flow around the disposal shafts on the west side of 54-375. The culvert discharges runoff into an open concrete channel which conveys flow southwest to a vegetated area (Photograph K).

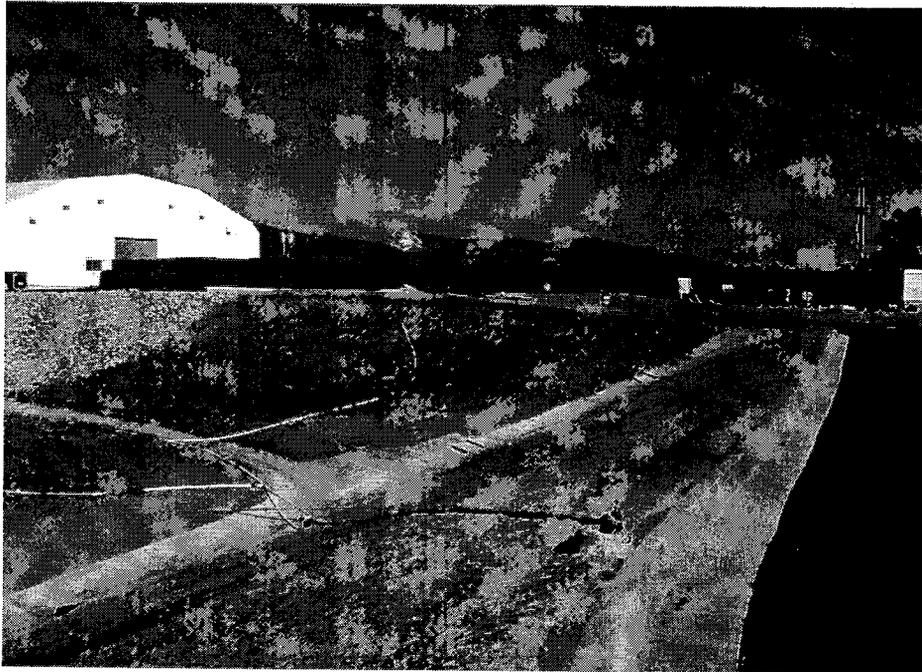
Photograph K – Open Asphalt Channel



- A riprapped slope is located southwest of 54-375. Runoff from the asphalt area around 54-375 collects above the slope and is conveyed down the slope through four HDPE pipes. The pipes discharge into an open concrete channel at the base of the slope.

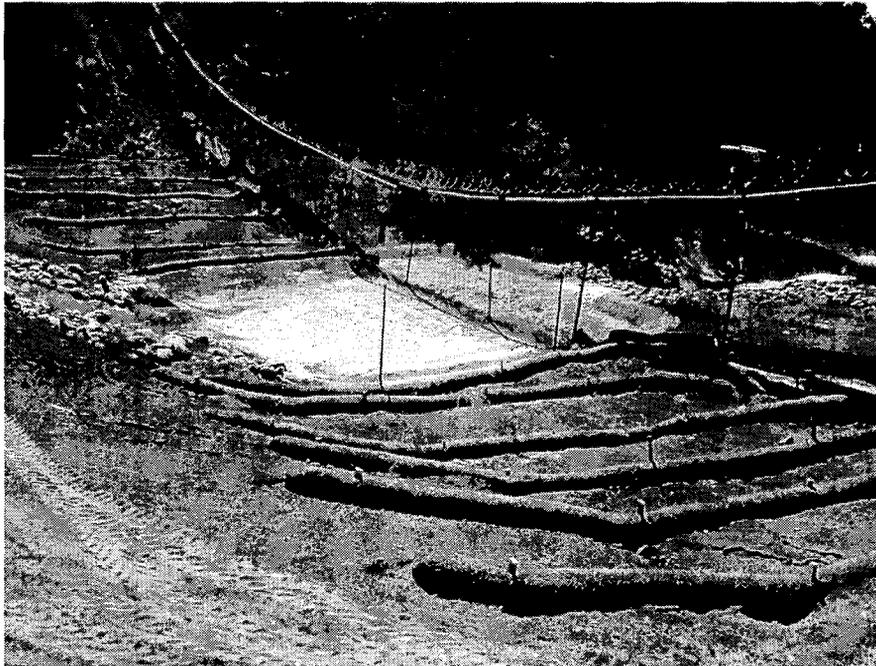
- Open concrete channels south of 54-375 and west of 54-226 collect runoff from the surrounding asphalt areas and convey it south to a large natural drainage area (Photograph L).

Photograph L – Open Concrete Channels



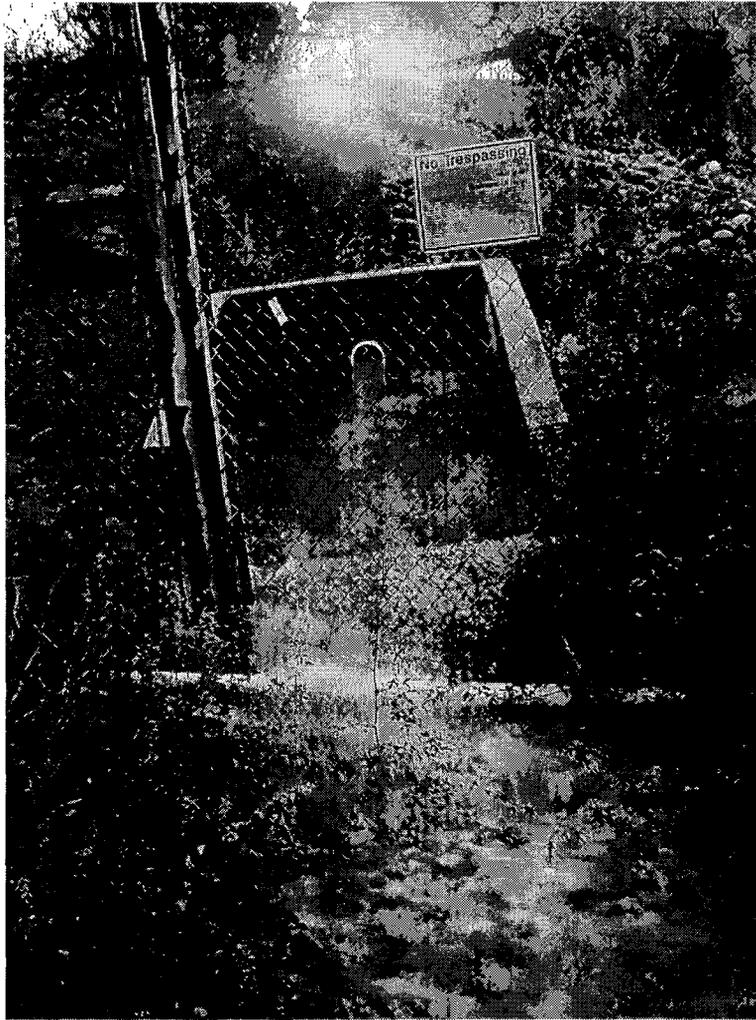
- A storm water detention basin is located in the bottom of the natural drainage area adjacent to the security fence. The basin contains a sediment settling zone, an outflow pipe, an overflow spillway, and a secondary settling basin. Runoff flows through the basin prior to entering a storm water sampling station (Photograph M).

Photograph M – Storm Water Detention Basin



Drainage Area F:

- 12-inch concrete curbs with “weep holes” have been installed along the eastern portion of the TRU Waste Domes.
- A large portion of the area has been covered with asphalt to minimize erosion potential.
- A trench drain on the east side of 54-324 collects runoff from the surrounding asphalt area and discharges it onto the ground between the base of the retaining wall and the south perimeter fence. Runoff from the channel flows south to a natural drainage area (Photograph N).

Photograph N – Trench Drain Outlet

- A curb cut located south of 54-325 discharges runoff from the surrounding asphalt onto a concrete channel on the riprapped slope west of 54-242. Runoff from the channel flows south to a natural drainage area.

Drainage Area H:

- A culvert is installed under the roadway on the south and west side of 54-33.
- An asphalt-lined channel is installed southeast of 54-33.
- An asphalt-lined channel is installed northeast of 54-153.

4.8.2 Area H Storm Water Management

Area H is not active, so there are no storm water management control structures in the area. Following closure, the area was contoured and revegetated to prevent runoff channels, and to allow storm water to sheet flow through the area. The Pollution Prevention Team will continue to monitor the area for problems caused by storm

water runoff. If areas of concern are identified, the Team will identify the source and recommend actions for proper storm water management.

4.8.3 Area J Storm Water Management

Closure activities at Area J will result in storm water run-off being diverted to two monitored storm water sampling stations on the north and northeast side of the site. To accomplish this, two drainage channels will be constructed to divert run-off from the entire site to the new storm water stations. Sediment traps will be constructed to reduce the amount of sediment transported offsite. BMPs will also be installed to minimize the amount of sediment transport from run-off during construction activities. A native vegetative cover will be established to reduce the amount and rate of run-off and subsequently reduce the potential for erosion. Further details on Area J storm water management are outlined in the "Storm Water Pollution Prevention Plan Addendum: TA-54 Area J Closure."

4.8.4 Area L Storm Water Management

In Area L, structural controls are used to divert runoff to a single outfall and operation activities are intended to prevent contact between contaminants and storm water runoff. Structural controls include the use of asphalt channels and a 12-in. CMP storm drain to convey runoff to a single outfall at the northeast corner of the area and contouring the paved surface to direct runoff to the conveyances. The asphalt surface is also sloped away from the perimeter security fence to minimize run-on to areas adjacent to Area L. Storage and operation activities within the Area L yard are located in areas that are either enclosed, bermed, equipped with sumps, or have a combination of these control features. Many storage and operations areas are also lined to collect runoff or covered by canopies to minimize exposure.

Activities that have a potential to contaminate storm water and that implement storm water management techniques are identified below.

- *Scintillation Vial Crushing:* The vial crusher is currently on top of a modular 196-gal. secondary containment structure. To minimize the potential for contact between storm water runoff and liquids from the vial crusher, vial crushing operations stop during inclement weather.
- *Drum Crushing:* Empty drums have been crushed in 54-82, which is a metal shed equipped with an internal sump surrounded by a 180 gal. secondary containment unit. Liquids that collected in the sump were pumped into a drum and removed for appropriate disposal. The drum crusher has not been operational for many years and it is not anticipated that it will be operational in the near future.
- *Waste Storage:* The main gas cylinder storage area is covered, and the gas cylinders are stored off the ground to minimize contact with runoff. Labpacks are stored in modular structures that incorporate secondary containment. Except for the mixed waste storage array, all containers storing hazardous materials are protected from direct exposure to precipitation. The mixed waste storage array is located on pallets within a bermed area to control run-on. Mixed waste drums are frequently inspected so that any deterioration is detected before leaks occur, and

the drums are overpacked with absorbent material to minimize spills if one of the primary containers leaks.

- *Sampling Pad Activities:* Rinsate from drum cleaning is contained in the covered, bermed area of the sampling pad and is collected for disposal according to the Laboratory's NPDES permit. The berm will contain approximately 5,450 gal.
- *Transportation Pad:* The transportation pad is a sealed, acid-resistant concrete pad that slopes to a sump. The secondary containment provided for the transportation pad is 2,516 gal. This provides storage space for a complete failure of the drums that are temporarily stored there for off-site transportation.
- *Vehicle and Equipment Storage, Fueling, and Maintenance:* Drip pans and other control devices are used to the extent feasible during vehicle repair and maintenance. Vehicle washing is performed outside of Area L, whenever possible. When vehicles and equipment must be washed in Area L, small amounts of water are used so that there is minimal wash water discharge into Cañada del Buey.

5.0 ANNUAL SITE COMPLIANCE EVALUATION

EPA regulations require the completion of an annual Comprehensive Site Compliance Evaluation. For the waste management units at TA-54, this evaluation is conducted in September by the Pollution Prevention Team Coordinator and/or RRES-WQH Support Members. This time period was selected for the annual inspection because it is at the end of the period when intense thunderstorms are common in the Los Alamos area and when problems related to precipitation, runoff and sediment transport are most likely to be apparent. Additionally, since heavy snowfall is infrequent before December, any problems that may be identified during an inspection in September can be corrected with a relatively low probability of delay due to snow or ice accumulation.

As a proactive measure, evaluations are performed quarterly at TA-54 following the EPA guidelines for annual Site Compliance Evaluations. These inspections are conducted by a member of the pollution prevention team and a member of RRES-WQH.

According to EPA guidelines, the individual performing the Site Compliance Evaluation is required to do the following:

- Inspect storm water drainage areas for evidence of potential contaminants.
- Evaluate the effectiveness of BMPs.
- Observe structural measures, sediment controls and other storm water BMPs.
- Revise the Plan as needed within two weeks of the inspection and implement changes within 12 weeks of the inspection.
- Prepare a report summarizing inspection results and follow-up actions.
- Sign the report and keep it with the Plan.

5.1 EVALUATION PROCEDURES

During the annual Comprehensive Site Compliance Evaluation, those performing the evaluation will examine all operational areas for conditions that may contribute to the presence of contaminants in runoff from TA-54. They will use a Site Compliance Evaluation Checklist to ensure that significant areas, structures and conditions are not overlooked during the inspection.

Areas inspected in detail will include material storage areas, waste disposal sites, outdoor waste handling areas, loading and unloading areas, equipment and vehicle storage and maintenance areas, and areas affected by non-storm water discharges. Specific items to be evaluated during the inspection of each of these areas include:

- Exposed materials or wastes that may contribute to contamination of storm water runoff
- Any evidence of spills that may have occurred in the operational areas, and their potential for contributing contamination to runoff
- Evidence of erosion and sediment transport
- Areas that may have been altered by construction or other activities so as to change the direction of storm water runoff
- Condition and effectiveness of sediment and erosion controls
- Condition and effectiveness of storm water management structures
- Effectiveness of BMPs such as good housekeeping and spill prevention and response measures
- Any other factors that may require modification of either operating procedures or the contents of the SWPP Plan

All observations made during the inspection will be documented on the Site Compliance Evaluation Checklist.

5.2 REPORT ON RESULTS OF THE ANNUAL SITE COMPLIANCE EVALUATION

Within two weeks of the annual Comprehensive Site Compliance Evaluation, the Pollution Prevention Team Coordinator and/or RRES-WQH Support Members will prepare a report describing the results of the inspection. The report will include, as a minimum, the following items:

- Date(s) on which the inspection was performed
- The personnel who performed the inspection
- A copy of the Site Compliance Evaluation Checklist
- A written summary of major observations relating to implementation of the SWPP Plan
- A summary of all changes made to the SWPP Plan in accordance with Section 5.3 below
- A description of any incidents of non-compliance with the SWPP Plan that were noted during the inspection

- Actions that should be taken to correct noted deficiencies

The report must also include a certification, signed by the Facility Manager, stating that the TA-54 waste management units are, to the best of his or her knowledge, in compliance with the SWPP Plan.

Reports for the current calendar year that describe the results of the annual Comprehensive Site Compliance Evaluation are included in the SWPPP Binder for a minimum of 3 years. RMDC is provided with a copy of the updated binder annually.

5.3 REVISION OF STORM WATER POLLUTION PREVENTION PLAN

Amendments to the SWPP Plan will be made, as needed, following the quarterly and annual comprehensive Site Compliance Evaluation. The Plan should also be amended whenever additional inspections identify a change in design, construction, operation, or maintenance procedures that affect the course of storm water discharge or affect the potential for contamination of storm water runoff. Examples of such a change could include changes in the types of operations performed in any of the TA-54 facilities or significant changes in the direction of runoff due to construction or modification of roads, paved pads, buildings, or other structural features.

The Pollution Prevention Team is responsible for timely amendment of the SWPP Plan. Required revisions to SWPP Plan sections must be made within two weeks after the need for the change is reported to the Pollution Prevention Team. It is the responsibility of each Pollution Prevention Team member to bring to the attention of the Team Coordinator any changes in facility conditions or operations that require the revision or incorporation of new material to the SWPP Plan. Any necessary changes to operational procedures or structural features must be implemented within 12 weeks of the revision of the SWPP Plan.

Table 5-1 contains a list of events that require modification of the SWPP Plan, along with the Plan sections that would typically be affected.

TABLE 5-1. Events Requiring Modification of the TA-54 SWPP Plan

Event Requiring Modification of the SWPP Plan	Actions Required to Modify the SWPP Plan	SWPP Plan Section Affected by the Changes
Change in members or duties of the TA-54 Pollution Prevention Team	Amend the list of team members and their duties in the SWPP Plan.	Appendix A
Significant changes in TA-54 operational procedures or locations of operations	Modify map and text sections of the SWPP Plan to reflect the changes.	Sections 2.1 - 2.4 & Section 3.3.1
Significant changes in the types of materials handled at TA-54	Review to determine whether changes in SWPP Plan procedures are required; add the new materials to the inventory list in the SWPP Plan.	Sections 3.1.1 - 3.1.4
Change in drainage area or direction of runoff due to construction or other modifications	Review changes and modify facility site map as appropriate. Modify text sections.	Section 3.3.1 & Sections 2.1 - 2.4 (as appropriate)
Changes in erosion and sediment control structures	Modify facility site map and appropriate text sections.	Sections 4.7.1 - 4.7.4
Changes in storm water management controls	Modify facility site map and appropriate text sections.	Sections 4.8.1 - 4.8.4
Completion of Comprehensive Site Compliance Evaluation	Review the entire SWPP Plan to ensure that it is still accurate and complete; correct any deficiencies found during the Site Compliance Evaluation; document the Evaluation and any follow-up actions.	SWPPP Binder
Receipt of laboratory analytical results for storm water discharge, soil, sediment, or other environmental sampling	Review to determine whether there are abnormal values for any constituent; take corrective action if appropriate; incorporate the analytical results in the SWPP Plan.	SWPPP Binder
Spill or leak of waste, water, or other materials at TA-54	Document the release and cleanup procedures; incorporate the documentation in the SWPP Plan.	SWPPP Binder

Table 5-1 is not all-inclusive. SWPP Plan Modification may be required for any event that has the potential to significantly affect storm water runoff or sediment transport from TA-54.

5.4 STORM WATER SAMPLING AND ANALYTICAL DATA

Storm water analytical data is collected and maintained by RRES-WQH. Available data is maintained in the RRES-WQH database.

5.5 RECORDS OF PAST OR PRESENT SPILL EVENTS

These records are generated by FWO personnel and three years of the records are maintained with this Plan in the Storm Water Pollution Prevention Binder.

5.6 RECORDS OF QUARTERLY AND ANNUAL SITE COMPLIANCE EVALUATIONS

These records are generated by TA-54 Storm Water Pollution Prevention Team members and three years of the records are maintained with this Plan in the Storm Water Pollution Prevention Binder.

5.7 RECORDS OF STORM WATER POLLUTION PREVENTION EMPLOYEE TRAINING

The FWO-WFM Training Manager at TA-54 maintains employee training records.

5.8 NPDES PERMIT LANGUAGE

A copy of the LANL NPDES Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activities is maintained with this Plan in the Storm Water Pollution Prevention Binder.

6.0 APPENDICES

- Appendix A. Members of the TA-54 Storm Water Pollution Prevention Team and Inspector Qualifications
- Appendix B. Non-storm Water Discharge Assessment and Certification Form
- Appendix C. Site Maps

**APPENDIX A. MEMBERS OF THE TA-54 STORM WATER POLLUTION PREVENTION TEAM
AND INSPECTOR QUALIFICATIONS**

Team Members

- | | |
|------------------------------|---|
| 1. Team Leader & Inspector | Sean French, FWO-WFM |
| 2. Coordinator & Inspector | Bob Lechel, FWO-WFM |
| 3. Inspector | Teresa Hofheins, FWO-WFM |
| 4. Quality Assurance Officer | Frank Primozić, FWO-WFM (Facility QA) |
| 5. Team Member | Steve Veenis, RRES-WQH |
| 6. ESH –18 Support | All listed in attached “Inspector Qualifications” |

Inspector Qualifications: NPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities

Steve Veenis, RRES-WQH Water Quality and Hydrology Group

Qualifications: LANL’s Subject Matter Expert (SME) on various NPDES Storm Water Permit requirements (11 years). Assisted in the development of LANL's BMP Guidance document. Involved in the development, implementation, and regulatory review of Industrial Activity and Construction SWPP Plans. Developed LANL’s initial guidance documents for the training of facility storm water representatives and storm water team leaders.

Mike Alexander, LANL, RRES-WQH Water Quality and Hydrology Group

Qualifications: LANL's Subject Matter Expert (SME) for NPDES storm water requirements (8 years). Assisted in the development of LANL's BMP Guidance document and Construction SWPP Plan Development Guidance document. Prior to employment at LANL, experience in the construction field.

Sean French- FWO-WFM Waste Facility Management

Qualifications: Familiar with NPDES Storm Water Permit requirements. Involved in the development, implementation, and regulatory review of the TA-54 SWPP Plans for the past 8 years.

Robert Lechel- FWO-WFM Waste Facility Management

Qualifications: Familiar with NPDES Storm Water Permit requirements. Assisted in the development, implementation, and regulatory review of this TA-54 SWPP Plan. He has field experience in installation of BMPs as well.

Teresa Hofheins- FWO-WFM Waste Facility Management

Qualifications: Familiar with NPDES Storm Water Permit requirements. Technical oversight and quality assurance on the implementation of the Area J closure BMPs.

Randy Johnson, Shaw Group

Qualifications: BS in Biology and Geology. LANL ER SOP 2.01 Part B and BMP inspection/maintenance field training by LANL ESH-18 representative. Familiar with NPDES Storm Water Permit requirements. Involved in the development and implemented SWPP Plans. Field experience in the installation, inspection and maintenance of BMPs and site restoration.

Gary Garcia, Shaw Group

Qualifications: BS in Agriculture with a concentration in Range Science. LANL ER SOP 2.01 Part B and BMP inspection/maintenance field training by qualified inspector. Familiar with NPDES Storm Water Permit requirements. Field experience in the installation, inspection and maintenance of BMPs and site restoration.

Jacinto Garduno, Shaw Group

Qualifications: LANL ER SOP 2.01 Part B and BMP inspection/maintenance field training by LANL ESH-18 representative. Familiar with NPDES Storm Water Permit requirements. Field experience in the installation, inspection and maintenance of BMPs and site restoration.

Joseph Bird, Shaw Group

Qualifications: Has participated in multiple storm water inspections and has field experience in the application, placement, and maintenance of BMPs. Has experience with and knowledge of LANL and EPA regulatory requirements concerning SWPP Plans and NPDES Permits.

APPENDIX B. NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION FORM

NON-STORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION						Completed by: _____ Title: _____ Date: _____
Date of Evaluation	Outfall Directly Observed During the Test (Location)	Identify Potential Significant Sources of Non- Storm Water	Method Used to Test or Evaluate Discharge	Is Non-Storm Water Present?	How Often?	Describe Results from Test for the Presence of Non-Storm Water Discharge
Aug-93	54-0011-OPN-3	Water Heater PRV	Visual inspection and review of drawings			
Aug-93	54-0002-OPN-3	Back Flow Preventer	Visual inspection and review of drawings			
Aug-93	54-0002-OPN-4	Water Heater PRV	Visual inspection and review of drawings			
Aug-93	54-0037-OPN-002	Water Heater PRV	Visual inspection and review of drawings			
Aug-93	54-0039-OPN-002	Water Heater PRV	Visual inspection and review of drawings			
Aug-93	54-0039-OPN-005	Fire System Drain	Visual inspection and review of drawings			
Aug-93	54-0039-OPN-006	Fire System Drain	Visual inspection and review of drawings			
Aug-93	54-0039-OPN-007	Fire System Drain	Visual inspection and review of drawings			
Aug-93	54-0039-OPN-008	Fire System Drain	Visual inspection and review of drawings			

Aug-93	54-0039-OPN-009	Fire System Drain	Visual inspection and review of drawings			
Aug-93	54-0060-OPN-002	Water Heater PRV	Visual inspection and review of drawings			
Annually	See Drawing Sheet 6 for locations	Fire Hydrant Testing (shown on map as "fill spout")	Visual inspection and review of drawings			
Quarterly		Water trucks used for dust suppression	Visual			
Quarterly		Testing of eyewash and shower facilities (Areas G & L)	Visual			
Quarterly		Vehicle and equipment wash down area on the north side of building 54-11	Visual			
Quarterly		Rainwater accumulation in transformer sump north of TA-54-215	Visual			

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and completed. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name & Official Title: Dennis McLain, Facility Manager-FMU 64

Signature: _____

Date Signed: _____