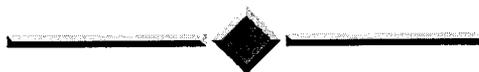


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# STORM WATER POLLUTION

## PREVENTION PLAN



### TECHNICAL AREA 49 MATERIAL DISPOSAL AREA AB AREAS 2 AND 12

LOS ALAMOS NATIONAL LABORATORY

a requirement of the

## NPDES GENERAL PERMIT

prepared by  
MK/PMC Los Alamos Project Team  
2237 Trinity Drive, Bldg. 2  
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**STORM WATER POLLUTION PREVENTION PLAN,  
TECHNICAL AREA 49, MATERIAL DISPOSAL AREA AB  
AREAS 2 AND 12  
LOS ALAMOS NATIONAL LABORATORY**

**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 US Environmental Protection Agency (EPA) for National Pollutant Discharge Elimination System general permits for storm water discharges associated with industrial activity (Final NPDES General Permits for Storm Water Discharges Associated with Industrial Activity, Notice 57, Federal Register 175, p. 41235). The applicable storm water discharge permit is EPA General Permit Number NMR00A384 (Final NPDES General Permits for Storm Water Discharges Associated with Industrial Activity, Notice 57, Federal Register 175, pp. 41299–41300). The SWPP plan is also intended to meet the requirements of applicable US Department of Energy (DOE) orders, as follows:

- DOE 5400.1, General Environmental Protection Program
- DOE 5400.5, Radiation Protection of the Public and the Environment
- DOE 5480.1B, Environment, Safety, and Health Program for Department of Energy Operations
- DOE 5480.4, Environmental Protection, Safety, and Health Protection Standards
- DOE 5820.2A, Radioactive Waste Management

This SWPP plan applies to discharges of storm water from construction and voluntary corrective action (VCA) activities at Areas 2, 2A, 2B, and 12 of Material Disposal Area AB located in Technical Area 49. Areas 2, 2A, and 2B are collectively referred to in this plan as Area 2. The construction activities are designed to improve adverse moisture conditions at Area 2 and will include stabilization of drainage channels both upgradient and downgradient of the site and installation of a storm water run-on diversion channel. The VCA activities are designed to complete a surface soil cleanup at Area 12.

## CONTENTS

<b>1.0</b>	<b>POLLUTION PREVENTION TEAM</b>	<b>1</b>
1.1	Designation of Pollution Prevention Team	1
1.2	Duties of Pollution Prevention Team Members	1
1.3	Appointment of New Team Members	1
<b>2.0</b>	<b>SITE ACTIVITIES AND POTENTIAL POLLUTION SOURCES</b>	<b>1</b>
2.1	Site Activities at MDA AB, Area 2	2
2.1.1	Surface Water Runoff	2
2.1.2	Surface Water Run-on	2
2.2.	Site Activities at MDA AB, Area 12	2
2.2.1	Surface Water Runoff	3
2.2.2	Surface Water Run-on	3
2.3	Inventory of Exposed Materials	3
2.3.1	Sources Within Area 2, PRSs 49-001(b, c, d, and g)	3
2.3.2	Sources Within Area 12, PRS 49-008(d)	3
2.4	Other Potential Sources	3
2.5	Nonstorm Water Discharges	4
2.6	Documented Spills and Leaks	5
2.7	Site Drainage Maps	5
2.8	Drainage Patterns	6
2.9	Sampling and Analysis of Storm Water Events	6
2.10	Risk Identification and Summary of Potential Pollution Sources in MDA AB	6
<b>3.0</b>	<b>BMPs TO PREVENT STORM WATER POLLUTION</b>	<b>7</b>
3.1	Good Housekeeping	7
3.2	Preventative Maintenance Program	8
3.3	Spill Prevention and Response Procedures	8
3.4	Inspections	8
3.5	Employee Training	9
3.6	Recordkeeping and Documentation	9
<b>4.0</b>	<b>CONTROLS TO REDUCE POLLUTANTS</b>	<b>10</b>
4.1	Sediment and Erosion Controls	10
4.2	Management of Storm Water Run-on and Runoff	10
4.3	Other Controls	11
4.4	Documentation of Runoff Control Activities	11

<b>5.0</b>	<b>COMPREHENSIVE SITE COMPLIANCE EVALUATION</b>	<b>11</b>
5.1	Evaluation Procedures	11
5.2	Report on Results of the Comprehensive Site Compliance Evaluation	12
5.3	Implementation of Corrective Actions	12
5.4	Revision of SWPP Plan	12
	<b>REFERENCE</b>	<b>15</b>
	<b>APPENDIX A POLLUTION PREVENTION TEAM MEMBERS FOR MDA AB LOS ALAMOS NATIONAL LABORATORY</b>	<b>17</b>
	<b>APPENDIX B RECORDS OF LEAKS AND SPILLS</b>	<b>19</b>
	<b>APPENDIX C SITE MAPS</b>	<b>23</b>
	<b>APPENDIX D SAMPLING AND ANALYTICAL DATA</b>	<b>25</b>
	<b>APPENDIX E INSPECTION AND MAINTENANCE REPORT FORMS</b>	<b>29</b>
	<b>APPENDIX F RECORD OF EMPLOYEE TRAINING RELATED TO STORM WATER POLLUTION PREVENTION</b>	<b>31</b>
	<b>APPENDIX G COMPREHENSIVE SITE COMPLIANCE EVALUATIONS</b>	<b>33</b>

## STORM WATER POLLUTION PREVENTION PLAN CERTIFICATION

"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 submitted, 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."

Deba Daymon for D. Daymon 11.4.98  
Deba Daymon, EES-13 Signature Date  
MDA Focus Area Leader  
Los Alamos National Laboratory

NONSTORM WATER DISCHARGE ASSESSMENT AND CERTIFICATION			Completed by: MK/PMC Los Alamos Project Team		
			Title: Nonstorm Water Discharges at TA-49, MDA AB		
			Date: October 1998		
Date of Test or Evaluation	Outfall Directly Observed During the Test (Location)	Method Used to Test or Evaluate Discharge	Describe Results from Test for the Presence of Nonstorm Water Discharge	Identify Potential Significant Sources	Name the Person Conducting the Test or Evaluation
1998	Dust suppression	Knowledge of process	Not expected to result in runoff, fire hydrant water will be used	Dirt roads and possibly excavated fill; no runoff is anticipated	ER Project
1998	Decontamination water	Knowledge of process	Nonhazardous detergent solution (max. of 6 gal./day)	Sampling activities; will not be discharged unless clean	ER Project
1998	Fill conditioning	Knowledge of process	Not expected to result in runoff, fire hydrant water will be used	Clean fill materials brought on site for regrading purposed	ER Project
CERTIFICATION					
I certify under penalty of law that this document and all attachments were prepared under my direction and supervision in accordance with a system designed to ensure 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.					
A. Name and Official Title Deba Daymon MDA Focus Area Leader Los Alamos National Laboratory			B. Area Code and Telephone No. (505) 667-9021		
C. Signature <i>Deba Daymon</i>			D. Date Signed 11.4.98		

## **1.0 POLLUTION PREVENTION TEAM**

This storm water pollution prevention (SWPP) plan applies to operations at Los Alamos National Laboratory (the Laboratory), Technical Area (TA) 49, Material Disposal Area (MDA) AB, Areas 2 and 12, on the Frijoles Mesa Site in Los Alamos County, New Mexico. Areas 2, 2A, and 2B are collectively referred to in this plan as Area 2. A Pollution Prevention Team has been established; its members are responsible for developing and implementing the SWPP plan.

### **1.1 Designation of Pollution Prevention Team**

The Pollution Prevention Team shall consist of at least three members appointed by the Laboratory MDA AB project leader and one member, a representative of the Water Quality and Hydrology Group, who will be appointed by the ESH-18 group leader. The members are selected because of their familiarity with facility activities at MDA AB and with the potential impact of these activities on storm water runoff. Each member of the team must receive the annual training described in Section 3.5. A list of current Pollution Prevention Team members is included in Appendix A.

### **1.2 Duties of Pollution Prevention Team Members**

The Pollution Prevention Team will select individual team members to perform specific duties applicable to the implementation of the SWPP plan. These individuals will include

- *Pollution Prevention Team Leader.* One of the Pollution Prevention Team members is designated as the team leader. He or she is responsible for revising and updating the SWPP plan, as required under Section 5.4 of this plan. The team leader, or qualified designee, will perform the annual comprehensive site compliance evaluation described in Section 5.1. The team leader will also ensure that all team personnel receive the training specified in Section 3.5.
- *Team Members.* Other members of the team are responsible for periodic inspections as described in Section 3.4. In the event of a spill or release, a team member will complete a Spill Report form (Appendix B) and place the completed form into Appendix B. Any team member may perform the annual comprehensive site compliance evaluation.

Team members may also be called upon to assist the team leader, especially in the event of a spill or a runoff event that requires a greater than usual level of effort for a short period of time.

### **1.3 Appointment of New Team Members**

New team members are appointed by the MDA AB project leader, except for the member that represents ESH-18; that member is appointed by the ESH-18 group leader. The list of team members (Appendix A) will be revised whenever a member is added to or removed from the team or when the SWPP plan duties of an existing team member are changed.

## **2.0 SITE ACTIVITIES AND POTENTIAL POLLUTION SOURCES**

TA-49, the Frijoles Mesa Site, occupies approximately 1280 acres along the southwestern boundary of the Laboratory. The potential release sites (PRSs) covered under this plan include 49-001 (b, c, d, and g) and 49-008(d). These PRSs are located on the mesa top at an elevation of approximately 7140 feet. They are approximately 1650 feet from an ephemeral stream in the bottom of Water Canyon. The distance to the nearest mesa edge, above a tributary to Water Canyon, is approximately 700 feet. The layout of MDA AB is shown in Appendix C.

TA-49 has been used from the mid-1940s to the present as a buffer zone for firing sites in adjacent TA-15 and TA-39. A period of intense experimental activity at TA-49 took place from late 1959 through mid-1961, during which nuclear safety and related experiments deposited significant amounts of plutonium, uranium, lead, and beryllium in underground shafts. These activities were responsible for almost all of the radioactive and hazardous materials currently present at TA-49.

## **2.1 Site Activities at MDA AB, Area 2**

A stabilization plan has been prepared describing best management practices (BMPs) and interim measures at MDA AB, Area 2; the plan includes the following site activities:

- remove the asphalt pad to reduce the moisture buildup that presently occurs beneath it;
- expose the fill materials underlying the asphalt pad to promote drying;
- construct a diversion channel upgradient of the site to divert surface water run-on from the site;
- regrade the site to eliminate ponding and improve drainage;
- cover the regraded site with a clean layer of crushed tuff;
- cover the clean crushed tuff surface with a layer of soil;
- revegetate the soil layer with shallow-rooting grasses and armor it with gravel to resist erosion;
- locate and remove, or stabilize, surface contaminants that could affect worker health and safety in work areas near the site; and
- monitor erosion controls and moisture conditions at the site to determine the effectiveness of the BMPs and interim measures.

### **2.1.1 Surface Water Runoff**

The site is approximately 1650 feet from an ephemeral stream in the bottom of Water Canyon. The distance to the nearest mesa edge, above a tributary to Water Canyon, is approximately 700 feet. Surface water runoff from the site occurs in natural channels draining into this tributary. Runoff prevention and erosion control measures may include, but are not limited to, covering the excavated area during anticipated storm water events; stabilizing upgradient and downgradient channels with straw bales, rocks, and native materials; constructing a surface water diversion channel upgradient of the construction activities; and constructing a silt fence downgradient of the construction activities. The approximate locations of these features are shown on the site drainage map in Appendix C.

### **2.1.2 Surface Water Run-on**

Surface run-on water will be controlled by stabilizing upgradient channels with straw bales and by constructing a diversion channel upgradient (west) of the site to divert surface storm water run-on during construction. The approximate locations of these features are shown on the site drainage map in Appendix C.

## **2.2. Site Activities at MDA AB, Area 12**

An addendum to the original VCA plan of May 1997 has been prepared to complete surface soil cleanup at Area 12, also known as the Bottle House. The following site activities have been proposed:

- perform a radiological survey to identify areas of elevated radioactivity,
- remove surface soils within the areas of elevated radioactivity,

- perform a confirmatory radiological survey in the areas of soil removal, and
- perform confirmatory sampling.

### **2.2.1 Surface Water Runoff**

The site is across the road from Area 2 and is approximately 1650 feet from an ephemeral stream in the bottom of Water Canyon. The distance to the nearest mesa edge, above a tributary to Water Canyon, is approximately 700 feet. The site is small (approximately 150 by 150 feet) and flat. No natural surface water runoff channels are present. Small volumes of runoff are conveyed in ditches beside the adjacent roads. Most runoff flows to the north and discharges into a natural channel that has been stabilized with straw bales, tree branches, rocks, and a silt fence. The approximate locations of these features are shown on the site drainage map in Appendix C.

### **2.2.2 Surface Water Run-on**

Run-on is diverted from the site by adjacent upgradient roads. The only natural source of surface water on the site is direct precipitation.

## **2.3 Inventory of Exposed Materials**

*Significant materials*, as defined in 40 CFR 122.26(b)(12), are substances related to industrial activities such as process chemicals, raw materials, fuels, and pesticides. When these substances are exposed to storm water runoff, they may be carried to a receiving stream with the surface water flow. To address this contamination potential, a brief description of materials known to have been disposed of at MDA AB is provided below.

### **2.3.1 Sources Within Area 2, PRSs 49-001(b, c, d, and g)**

The largest potential pollutant sources will be the soils exposed during excavation. The chemicals of potential concern at this site are plutonium, uranium, beryllium, and lead. All of these materials originated with the 1959–1961 nuclear safety experiments. No new materials have been handled, treated, stored, or disposed of at these PRSs during the past three years. As contaminated materials are excavated, the loosened soil and debris will become more vulnerable to transport by storm water.

### **2.3.2 Sources Within Area 12, PRS 49-008(d)**

The largest potential pollutant sources will be the soils exposed during excavation. The chemical of potential concern at this site is uranium, which originated with the 1959–1961 nuclear safety experiments. No new materials have been handled, treated, stored, or disposed of at this PRS during the past three years. As contaminated materials are excavated, the loosened soil and debris will become more vulnerable to transport by storm water.

## **2.4 Other Potential Sources**

There are several other potential sources of pollutants located in the vicinity of the work sites that should be mentioned. Some relate to construction activities, and others relate to other PRSs in the area. Exposure of these sources to storm water exists primarily during transfers or if an accidental spill occurs.

### *Laydown, Stockpile, Parking, and Waste Storage Areas*

- Areas free of cultural and other resource conflicts will be identified for material laydown and stockpiling and vehicle parking. The laydown areas have been sited outside the

boundaries of any PRSs and will be used for temporary storage of construction supplies and equipment, material processing, and material assembly. The stockpile areas will be used to store such materials as clean fill, soil, and gravel. The parking areas will be used for construction equipment, vehicles, and trailer offices. Waste asphalt will be loaded directly into trucks or rolloff bins or temporarily staged on unexcavated parts of the asphalt pad. The waste asphalt will be disposed of as a low-level radioactive material and will be protected from rain and runoff by tarps. It is anticipated that all of these activities will be conducted in areas already disturbed by past activities along the road leading east from the site toward Area 10.

#### *Heavy Equipment Use*

- Heavy equipment will be in use during construction activities. The possibility of leaks of diesel fuel, hydraulic fluid, and gasoline and motor oil from heavy equipment will be mitigated by weekly inspections for worn parts, leaking hoses, and other problems before the equipment is allowed on site.

#### *PRSs 49-003 and 49-008(c)*

- PRSs 49-003 and 49-008(c), which are located upgradient of Area 2 (Appendix C), consist of a radiochemical leach field and surface soil contamination associated with Area 11. This area was the site of a radiochemistry laboratory and a small-scale shot site. Storm water runoff from the site drains toward Area 2. The site is relatively level, well vegetated, and has little erosion potential. In a recent surface water assessment (formerly known as 4.5 assessments) of erosion potential, these PRSs were given a score of 36.8 and are considered low-priority sites. The only impacts of the stabilization activities at Area 2 on these PRSs will be channel stabilization BMPs in and near PRS 49-003. Because of the potential for surface water run-on, the drainage channels leading to Area 2 will be stabilized with straw bales both upgradient and downgradient of these PRSs. The locations of these BMPs are shown in Appendix C. No new materials have been handled, treated, stored, or disposed of at these PRSs during the past three years.

#### *PRS 49-001(g)*

- PRS 49-001(g) (Appendix C) consists of surface soil contamination associated with the nuclear safety tests at MDA AB. Storm water runoff could potentially mobilize surface contamination from Area 2 onto the part of PRS 49-001(g) that is downgradient of Area 2. Sediment sampling conducted as part of the Laboratory's environmental surveillance program suggests that mobilization of minor amounts of radioactive materials may have already occurred. To control further migration of these materials, a silt fence will be constructed, straw bales will be placed, and the channels downgradient of Area 2 will be stabilized with natural materials as part of this SWPP plan. The locations of these BMPs are shown in Appendix C.

### **2.5 Nonstorm Water Discharges**

There are few potential sources for nonstorm water discharges at MDA AB, and the discharge of these sources is limited in both quantity and frequency. Known potential sources of nonstorm water discharges include the following:

- During dry periods, unpaved roads may be sprinkled with water on a regular basis. Water may also be used as a dust suppressant and soil conditioner during construction. The water will be applied by sprinkling or misting and will be controlled to avoid runoff. Water will be taken from a fire hydrant at TA-49 and will be discharged for dust suppression and soil conditioning under the Laboratory notice of intent submitted to NMED on September 2, 1998.
- If sampling is performed, the sampling equipment will be decontaminated by washing with a nonhazardous detergent solution and discharged up to 6 gallons per day in accordance with ESH-18's "Decontamination Water Discharge Procedure, Surface Soil and Near Surface Soil Hand Sampling" dated February 13, 1996. Authorization to make such discharges without a discharge plan was provided in a letter from Marcy Leavitt, Ground Water Quality Bureau, New Mexico Environment Department, to Steven Rae, ESH-18. The authorization is dated December 20, 1995.

As stated in the Laboratory's general permit for storm water discharges associated with industrial activity, the SWPP plan must include a certification that all storm water outfalls have been evaluated for the presence of nonstorm water discharges. The nonstorm water discharge assessment and certification form (p. vi) meets this requirement.

## **2.6 Documented Spills and Leaks**

Data on past spills, leaks, and releases are documented in Appendix B (Records of Leaks and Spills form); however, no spills or leaks that may have had the potential to affect the chemical or radiological quality of runoff and sediments have occurred in this area since October 1, 1989. In the event of a future spill, a member of the Pollution Prevention Team will document the spill and associated cleanup on the Spill Report form presented in Appendix B of this SWPP plan. Copies of completed Spill Report forms associated with this project will also be included in Appendix B. Spill prevention and response procedures are discussed in Sections 2.8 and 3.3.

## **2.7 Site Drainage Maps**

Site drainage maps illustrate the overall site location and indicate property boundaries, buildings, and operation or process areas. They also provide information on drainage, storm water control structures, and receiving streams. These features are located on maps to help assess where potential storm water pollutants are located on the site, where they mix with storm water, and where storm water leaves the site. All of this information is essential in identifying the best opportunities for storm water pollution prevention or control. The site maps include the following features:

- an outline of the drainage area for each storm water outfall and a prediction of the direction of flow, including topography;
- each existing structural control measure to reduce pollutants in storm water runoff (e.g., diversion ditches);
- surface water bodies (e.g., canyon name);
- locations of areas of soil disturbance and areas that will not be disturbed; and
- locations of the following activities where such activities are exposed to precipitation, laydown areas, construction areas, parking areas, stockpile areas, and waste storage areas.

Please consult the MDA AB site maps in Appendix C.

## 2.8 Drainage Patterns

A list of the significant activities occurring at MDA AB and the drainage areas potentially affected by these activities are included in Table 1. The activity locations are shown on the map in Appendix C.

**TABLE 1**  
**DESCRIPTION OF DRAINAGE PATTERNS AND FLOW DIRECTIONS**

Drainage Area	Activity Area	Flow Direction	Activities and Potential Contaminants
A	Construction	North	Asphalt removal, soil excavation, soil drying/stockpiling, site regrading  Plutonium, uranium, beryllium, lead
B	Construction	East	Diversion channel construction, site regrading  No contaminants

## 2.9 Sampling and Analysis of Storm Water Events

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 sampling and analysis of soils, stream sediment, vegetation, and the atmosphere at various locations throughout TA-49 and adjacent areas. Data collected in this program are available in annual reports prepared and distributed by the Laboratory's Water Quality and Hydrology Group (ESH-18). The Pollution Prevention Team leader will review all environmental data collected in and around MDA AB to identify any potential issues of concern not already addressed in the SWPP plan. Limited historic data on the quality of storm water runoff are available for a channel that drains water onto Area 2 from the west. The samples were collected at point source D shown on the site drainage map in Appendix C, and the sampling results are presented in Appendix D. Future data collected for storm water runoff will also be included in Appendix D.

Runoff water will be periodically sampled in Water Canyon and analyzed for constituents that may have migrated from the site or from other PRSs in the watershed, as part of the Laboratory's NPDES general permit. Watershed-based NPDES sampling is a new approach that has been recently suggested to the EPA and is in the process of implementation. Details of the new sampling program are being developed by the Laboratory's Watershed Management Team, and information on sampling schedules, analytes, and results obtained will be incorporated into this SWPP plan as they become available.

## 2.10 Risk Identification and Summary of Potential Pollution Sources in MDA AB

The site activities that may contribute to potential storm water pollution are construction of the diversion channel, removal of the asphalt pad and soil, drying of the fill material, handling of waste,

stockpiling of materials, and the refueling of heavy equipment during construction activities. Debris loading will be conducted away from drainage pathways. Heavy equipment will be refueled in a manner that prevents fuel discharge to the environment.

- *Waste Storage Area.* No hazardous substances will be used during the construction activities. It is anticipated that all equipment will be dry decontaminated. If wet decontamination becomes necessary, a decontamination area will be set up including secondary containment for liquids. All liquids would be containerized and stored in the waste storage area awaiting disposal. Drummed liquid wastes, such as decontamination water, will be transferred into containers within secondary containment areas, which will block direct discharge from the site. All waste will be managed in accordance with the approved Waste Characterization Strategy form for these activities (Environmental Restoration Project 1998, 57587). The waste storage area will be inspected and documented weekly until all containers are removed.
- *Vehicle and Equipment Parking, Fueling, and Maintaining Areas.* Vehicles and equipment used at MDA AB are regularly parked outdoors in both paved and unpaved areas. Fueling and routine maintenance of vehicles also occur in these areas. The possibility that oil, diesel fuel, antifreeze, or other materials could be spilled in these areas cannot be completely eliminated. BMPs have been implemented to minimize the possibility of such a spill. These BMPs may include inspection of all caps, hoses, and nozzles on equipment before fuel transfer. On-site vehicles will receive regular preventive maintenance to reduce the chance of leaks, petroleum products will be stored in tightly sealed containers that are clearly labeled, a spill kit containing absorbent materials will be maintained on site, and a spotter will be used to prevent an overfill when refueling equipment.
- *Roads Used for Transport.* Waste and other materials are moved throughout MDA AB on both paved and unpaved roads. Administrative control practices, including speed limits, warning signs, and personnel training have been implemented to minimize the risk of a spill or release because of a transportation accident. In the event of such an accident, appropriate cleanup procedures will be implemented immediately by on-site personnel. Spill response procedures are discussed in Section 3.3.

### **3.0 BMPs TO PREVENT STORM WATER POLLUTION**

Standard operating and maintenance procedures for the construction activities are designed to minimize the potential for spills, releases, exposure of materials, or any other events that could adversely affect the quality of water and sediment that may be transported out of the area by storm water runoff. Procedures comply with the Laboratory's BMP Program; its Spill Prevention Control and Countermeasure (SPCC) plan; the Environment, Safety, and Health section of the Laboratory Manual; and applicable Department of Energy (DOE) directives and orders (see Preface).

#### **3.1 Good Housekeeping**

The following good housekeeping practices will be followed on site during the construction operations:

- All materials stored on site will be stored in a neat, orderly manner in accordance with all applicable Laboratory policies and procedures. Appropriate containers will be used, and they will be stored (if possible) under a roof, tarpaulin, or other enclosure.

- The Pollution Prevention Team leader will train all site personnel on good housekeeping BMPs and the requirements of this plan.
- The on-site waste manager will perform weekly inspections to ensure proper use and disposal of materials on site.
- All excavated asphalt and soil will immediately be placed in bulk containers or staged and protected from rain by tarps at the excavation site.
- All containers in the waste storage area will be sealed after operational hours or when full, whichever comes first.
- All containers and control areas will be properly labeled and posted.

### **3.2 Preventative Maintenance Program**

This plan requires weekly inspection and documentation that on-site heavy equipment is in good working order and free from leaks or spills. All operations involving heavy equipment (materials handling, decontamination, refueling, and parking) will be conducted away from potential drainage pathways to minimize the possibility for leak or spill contamination to leave the site. Problems identified during weekly inspections will be documented and will receive corrective action in a timely manner. A weekly inspection form is provided in Appendix E. The weekly inspection will include the following:

- All containers will be inspected and documented for structural integrity and for stability before movement.
- All storm water control measures, such as diversion channels, silt fences, secondary containment, and berms, will be inspected for structural integrity weekly and after significant storm water events. All deficiencies found during inspections will be corrected and documented in a timely manner.

Records of all equipment inspections and corrective actions will be maintained as part of the permanent project file and will be available upon request.

### **3.3 Spill Prevention and Response Procedures**

Although the probability of spills and releases is minimized by the application of good housekeeping procedures and appropriate operational methods, a spill is conceivable. Specific spill response and cleanup procedures will depend on the nature of the spilled material and the location of the release. In the event of a liquid spill, absorbent materials will be applied to the spill, drummed, and held on site in the waste storage area awaiting characterization. Spills of hazardous and radioactive materials will be reported to the EM&R Group at 667-6211 (after hours 667-7080); the group will give further instructions. A Spill Report form will be completed and submitted to EM&R using the form presented in Appendix B. The spill will also be reported to the Water Quality & Hydrology Group, ESH-18, Mail Stop K497, 665-0453.

### **3.4 Inspections**

Qualified personnel shall inspect disturbed areas of the project site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit. Inspections shall occur at least once every seven calendar days and within 24 hours of the end of a storm with at least 0.5 inches of rainfall. Where sites have been stabilized and construction completed, such inspection shall be conducted at least once every month. When a vegetation coverage of at least 70% is achieved, such inspection shall be conducted at least once every quarter. A set of tracking or follow-up

procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. Inspections should include the following:

- Measures to reduce pollutant loading shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed.
- Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
- Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system.
- Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly.
- Discharge locations or points that are accessible shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- Locations where vehicles enter or exit the site shall be inspected for evidence of off-site sediment tracking.

### **3.5 Employee Training**

Employees will be trained on procedures for proper decontamination; storage, handling, and disposal of generated liquid waste; inspection of heavy equipment; secondary containment and erosion control devices; implementing BMPs, including good housekeeping practices; spill response actions; and proper implementation of the SWPP plan and the SPCC plan. Training will take place during prefield work briefings and daily tailgate safety meetings before the start of each day's site activities. Training records are kept in Appendix F.

### **3.6 Recordkeeping and Documentation**

The Pollution Prevention Team leader is responsible for keeping the SWPP plan current so that it accurately reflects present conditions and practices for the MDA AB closure project. The Pollution Prevention Team leader will initiate revision of the SWPP plan whenever changes in operations or other conditions require it. It is the responsibility of each member of the Pollution Prevention Team to bring to the attention of the Pollution Prevention Team leader any changes in conditions or operations at the site that require the revision or incorporation of new material to the SWPP plan. Some conditions that may require revision to the SWPP plan are described in Section 5.3. Copies of this SWPP plan will be kept on site during the implementation of the field activities. A copy will also be sent to the Environmental Restoration (ER) Project's Records Processing Facility (RPF).

Other items that must be documented to ensure adequacy of the SWPP plan include

- results of inspections, including the annual comprehensive site compliance evaluation;
- relevant sampling and analytical storm water data;
- additions to and changes in operational areas and any exposed materials;
- land surface modifications or other structural changes affecting the directions of drainage during storm events;

- the occurrence and cleanup of any spills or releases;
- areas that are susceptible to erosion or sedimentation by storm water runoff; and
- any other factors that may influence the quality of storm water runoff from the project area.

Documents relating to these items are quality records, managed according to the DOE's Records Management System and the ER Project's RPF. In general, records related to the SWPP plan and storm water pollution control measures should be retained for at least six years, unless another period is specified in this SWPP plan.

#### **4.0 CONTROLS TO REDUCE POLLUTANTS**

Although sediment discharge to the canyons cannot be entirely eliminated, structural controls will be installed, as necessary, in areas that are prone to erosion. These controls include diversion ditches, channels, or swales; constructed berms; slope or surface stabilization; and other structures as necessary.

##### **4.1 Sediment and Erosion Controls**

Before construction activities begin, a silt fence will be installed downgradient of the construction area. This structure should capture any sediment transfer because of sheet flow runoff. There is currently a short drainage ditch upgradient of the site to help control run-on. Additional run-on and runoff ditches will be constructed as needed to control erosion and sediment transport.

After completion of the construction activities, boundary areas and areas with disturbed soils will be backfilled and revegetated to prevent sheet flow erosion. Specifically, the revegetation process will be as follows:

- Subsoil will be prepared to eliminate uneven surfaces and low spots, while maintaining profiles and contours and blending slopes into level areas. Foreign materials and weeds will be removed mechanically or by hand.
- Topsoil will be added to a minimum depth of four inches, raked smooth, and applied during dry weather on a dry, unfrozen subgrade. Topsoil will be graded to ensure positive drainage. The Ecology Group (ESH-20) will be contacted (667-3024) for a determination of seed content and applications rules.

If evidence of extensive erosion is encountered, the Pollution Prevention Team leader will be notified. The team leader will then examine the affected area to identify the source or sources of the sediment discharge and will recommend the appropriate actions to minimize future erosion and sediment transport.

Specific actions that may be used to control erosion and sediment transport include reshaping contours to eliminate steep slopes; construction of berms; installation of silt fences, riprap, or other appropriate water control structures; and revegetation of exposed areas. Tuff that is excavated during the closure activities for use as fill material will be placed in stable piles and surrounded by silt fences or bermed, if necessary, to prevent erosion.

##### **4.2 Management of Storm Water Run-on and Runoff**

At this time, the existing controls used for storm water management and the minimization of erosion and sedimentation include an upgradient drainage channel and associated culvert and downgradient culverts running under the road and draining into the canyons. Dense vegetation and a flat terrain also help minimize run-on and runoff.

The plan to manage storm water run-on and runoff at this site includes

- placing silt fences downgradient to the north of the construction area;
- regrading the fill area to prevent ponding;
- placing a surface run-on diversion channel with stabilized upgradient banks to the west of Area 2;
- placing riprap, if needed, at discharge points to prevent erosion;
- constructing flow dissipation devices, if needed, within the downstream and upstream drainage channels to lessen flow velocities; and
- implementing site monitoring and maintenance plans.

#### **4.3 Other Controls**

In general, the following controls will be implemented under this SWPP plan:

- no solid materials, including building materials, shall be discharged to a watercourse;
- off-site vehicle tracking of sediment and the generation of dust shall be minimized; and
- the plan shall ensure and demonstrate compliance with the Laboratory's permits and requirements for waste disposal, sanitary sewer, or septic system regulations.

#### **4.4 Documentation of Runoff Control Activities**

The Pollution Prevention Team leader is responsible for inspection, maintenance, and repair of the storm water pollution controls described in this plan. The team leader will also produce and maintain inspection, maintenance, and repair records. Original records will be submitted to the ER Project RPF, and copies will be maintained in the MK/PMC Los Alamos Project office. Additionally, the Laboratory MDA AB project leader will maintain copies of these records, which will be received from MK/PMC on a weekly basis.

### **5.0 COMPREHENSIVE SITE COMPLIANCE EVALUATION**

A comprehensive site compliance evaluation of the construction activities will be performed annually during August or September by the Pollution Prevention Team leader. These annual inspections are in addition to the more frequent inspections discussed in Section 3.4. The August/September time frame was selected because it falls at the end of the period when intense thunderstorms are common in the Los Alamos area and, therefore, is the time of year when any problems related to precipitation and runoff are most likely to be apparent. Additionally, any problems that may be identified during an inspection can be corrected within the required 12 weeks with a relatively low probability of delay because of snow or ice accumulation; heavy snowfall seldom occurs before December.

#### **5.1 Evaluation Procedures**

During the comprehensive site compliance evaluation, the Pollution Prevention Team leader will examine all construction areas for any conditions that may contribute to the presence of contaminants in runoff from those areas. The Pollution Prevention Team leader will use the annual site compliance evaluation forms in Appendix G to ensure that significant issues and relevant conditions are not overlooked during the inspection.

Areas inspected in detail will include all outdoor waste storage areas, material storage areas, and equipment and vehicle storage and maintenance areas where sources of nonstorm water runoff are located. Specific items that will be evaluated during the inspection of each area will 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,
- gullies or other 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, and
- any other factors that may require modification of either operating procedures or the contents of the SWPP plan.

In addition, the Pollution Prevention Team leader will examine all structural features designed to convey runoff and minimize erosion, including culverts, drains, and open channels, to ensure that they are in good working condition and are serving their intended purpose. All observations made during the inspection will be documented on the Annual Site Compliance Evaluation Checklist.

### **5.2 Report on Results of the Comprehensive Site Compliance Evaluation**

Within two weeks after performance of the comprehensive site compliance evaluation, the Pollution Prevention Team leader will prepare a report describing the results of the inspection and any irregularities that were encountered during the evaluation. The report will include, as a minimum, the following items:

- date(s) on which the inspection was performed;
- names of the personnel who performed the inspection;
- a copy of the Annual 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;
- a description of any incidents of noncompliance with the SWPP plan that were noted during the inspection and the actions that were taken to correct them; and
- a signed certification of compliance.

All reports describing results of the annual comprehensive site compliance evaluation will be incorporated into Appendix G of the SWPP plan. These reports will be retained as part of the SWPP plan for as long as the SWPP plan remains in effect.

### **5.3 Implementation of Corrective Actions**

Corrective actions that are identified during the annual comprehensive site compliance evaluation and require changes in operational procedures, inspections, or structural features for the control of runoff and sediment must be implemented within 12 weeks after the modification is incorporated into the SWPP plan.

### **5.4 Revision of SWPP Plan**

The Pollution Prevention Team is responsible for timely revision of the SWPP plan, whenever required, and is also responsible for evaluating changes in procedures, activities, or other conditions that may require amendment of the plan. The Pollution Prevention Team will make any required changes to the SWPP plan sections describing potential pollution sources (Section 2.2) within thirty days of being notified of the need for the change. Otherwise, this SWPP plan will be amended annually within 60 days after completion of the comprehensive site compliance evaluation when a need for corrective action is identified that reflects a deficiency in the existing plan or when there is a change in the design, construction, operation, or maintenance procedures that has a significant effect on the potential for discharge of contaminants in storm water runoff from the area. Examples of changes could include modifications in the types of operations

performed at MDA AB or significant changes in the direction of runoff because of construction or modification of roads, paved pads, buildings, or other structural features. The SWPP plan will also be amended whenever a comprehensive site compliance evaluation or other inspection identifies any significant changes in operational areas, procedures, or materials handled that may affect the potential for contaminant migration from the site in storm water or sediment.

Certain specific events trigger requirements for modification of the SWPP plan either by revision of existing sections or by incorporation of new material into the document. Some events requiring modification of the SWPP plan and sections of the SWPP plan that typically would be modified following the event are listed in Table 2. However, Table 2 is not exhaustive, and any event that has the potential for significantly affecting storm water runoff or sediment transport from MDA AB, Area 2, may require modification of the SWPP plan, whether or not it is listed in Table 2.

Amendments to the existing contents of the SWPP plan must be reviewed and approved by both the MDA AB project leader and ESH-18 personnel. Incorporation of new information into the appendixes does not require formal review of the entire SWPP plan. However, all members of the Pollution Prevention Team must review and approve the information before incorporating.

**TABLE 2**  
**EVENTS REQUIRING MODIFICATION OF THE SWPP PLAN**

<b>Event Leading to Modification of the SWPP Plan</b>	<b>Actions Required to Modify the SWPP Plan</b>	<b>Portions of the SWPP Plan Affected by Changes</b>
Change in members or duties of the MDA AB Pollution Prevention Team	Amend the list of team members and their duties in SWPP plan	Section 1.2 and Appendix A
Significant changes in MDA AB operational procedures or locations of operations	Modify map and text sections of the SWPP plan to reflect the changes	Sections 2.2 and 2.8 and Appendix C
Significant changes in the types of materials handled at MDA AB	Review to determine whether changes in SWPP plan procedures are required, add the new materials to the inventory list in the SWPP plan	Sections 2.2 and 2.8
Spill or leak of waste, water, or other materials at MDA AB	Document the release and cleanup procedures, incorporate the documentation in the SWPP plan	Section 2.4 and Appendix B
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	Appendix D
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	Appendix G and other parts of the SWPP plan as appropriate
BMP corrective action required	Maintain or upgrade BMPs as necessary	Sections 4.1 and 4.2

## **REFERENCE**

Environmental Restoration Project, March 6, 1998. "Waste Characterization Strategy Form, MDA Focus Area, TA-49, RFI Sampling, BMP Activities, and Asphalt Pad Removal, Material Disposal Area AB - Areas 2, 2A, and 2B," Los Alamos National Laboratory, Los Alamos, New Mexico. (Environmental Restoration Project 1998, ER ID 57587)

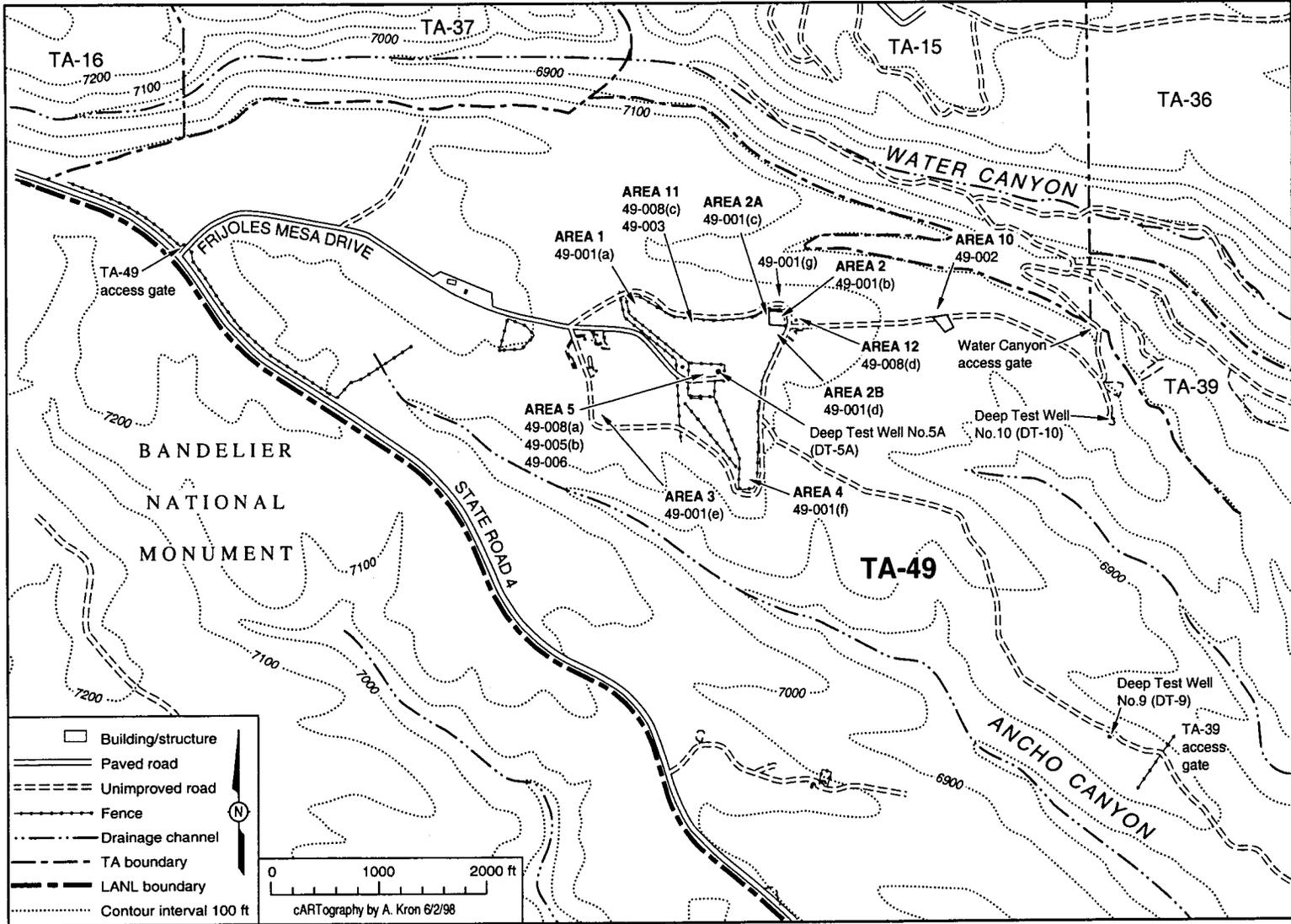
**APPENDIX A**  
**POLLUTION PREVENTION TEAM MEMBERS FOR MDA AB**  
**LOS ALAMOS NATIONAL LABORATORY**

- |                |   |
|----------------|---|
| 1. Team Leader | John DeJoia, Morrison Knudsen Corporation             |
| 2. Team Member | Rene Evans, Rocky Mountain Remediation Services, Inc. |
| 3. Team Member | Ken McFadden, Morrison Knudsen Corporation            |
| 4. Team Member | Steve Veenis, Merrick & Co.                           |

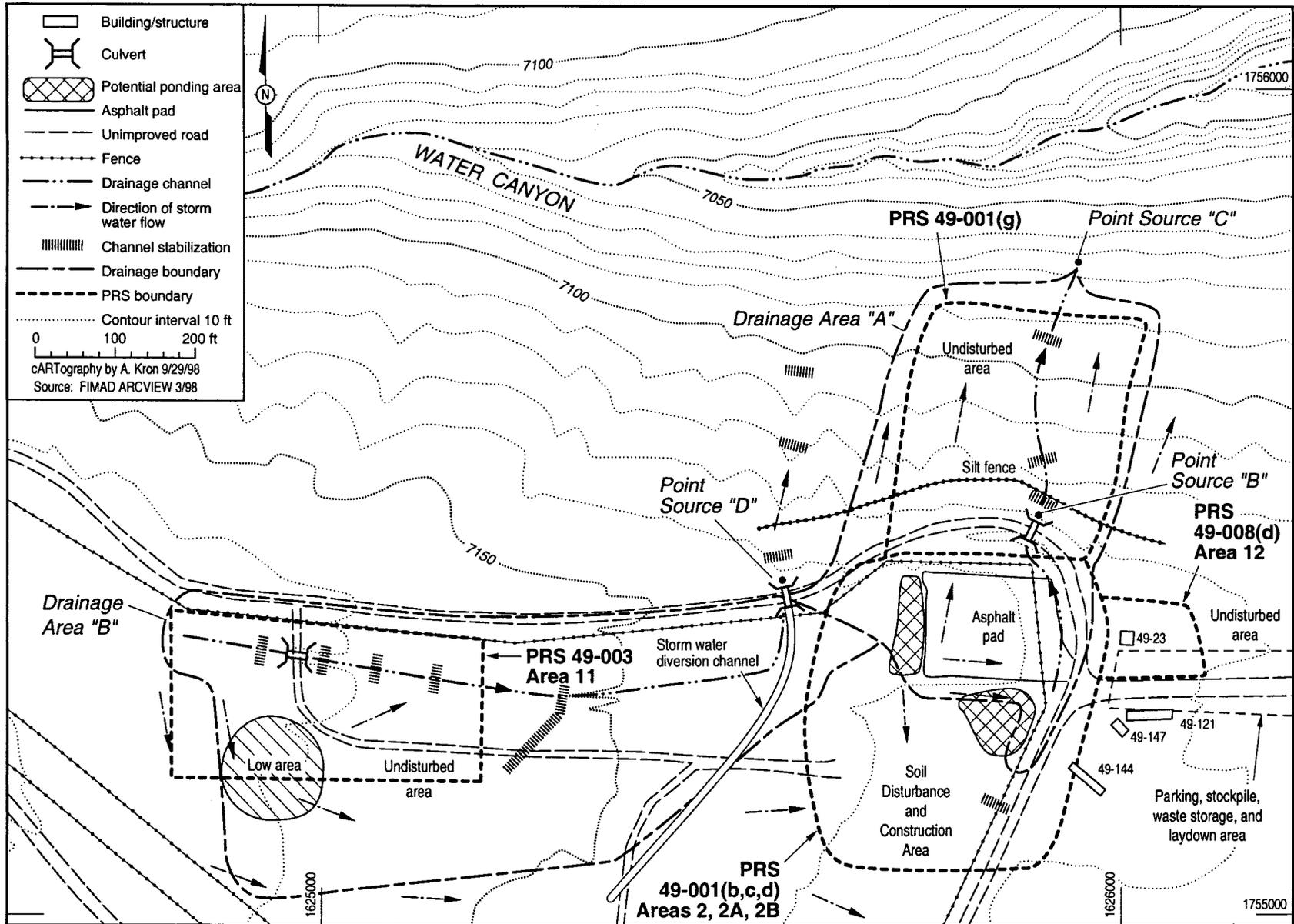








Map of TA-49.



Site drainage map.

## **APPENDIX D SAMPLING AND ANALYTICAL DATA**

This appendix includes water quality data for surface water runoff in the vicinity of Area 2. The sampling stations are identified as A-2 and A-3 in pre-1991 sampling and AB-2 and AB-3 in more recent sampling. They are located at point sources D and B, respectively, on the site drainage map in Appendix C of this plan. Future analytical data will also be included in this appendix.

**TABLE D-1  
CHEMICAL QUALITY OF STORM RUNOFF FROM TA-49<sup>a</sup>**

Station	Date 1987	Mg/L				pH
		Arsenic	Chromium	Nitrogen	Sulfate	
A-2 <sup>b</sup>	8-24	0.003	0.02	0.2	2	7.7
Standard <sup>c</sup>		0.05	0.05	10	250	

Constituent <sup>d</sup>	Concentration (mg/L)	Standards <sup>c</sup> (mg/L)
Ag	<0.05	0.05
Ba	<0.1	1.0
Be	<0.01	--
CN	<0.01	--
Cd	<0.01	0.01
Hg	<0.002	0.002
Ni	<0.01	--
Pb	<0.01	0.05
Se	<0.02	0.01

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- a. Storm water runoff quality data for TA-49 taken from "Environmental Surveillance at Los Alamos During 1987" (ESG 1988, 6877, p. 264).
  - b. Station A-2 is identified as Point Source D on the site drainage map in Appendix C.
  - c. Primary or secondary drinking water standards (EPA 1976, 1979).
  - d. Analyzed from stations for each runoff event.

**TABLE D-2  
STORM RUNOFF FROM TA-49<sup>a</sup>**

Station	Date 1987	Solution			Suspended Sediments	
		Cesium-137 (10 <sup>-9</sup> μCi/ml)	Plutonium-238 (10 <sup>-9</sup> μCi/ml)	Plutonium 239/240 (10 <sup>-9</sup> μCi/ml)	Plutonium-238 (pCi/g)	Plutonium- 239/240 (pCi/g)
A-2 <sup>b</sup>	8-24	38 (60)	-0.057 (0.033)	0.000 (0.010)	0.001 (0.001)	0.002 (0.001)

a. Storm water runoff quality data for TA-49 taken from "Environmental Surveillance at Los Alamos During 1987" (ESG 1988, 6877, p. 264).

b. Station A-2 is identified as Point Source D on the site drainage map in Appendix C.

**APPENDIX E**  
**INSPECTION AND MAINTENANCE REPORT FORMS**

This appendix presents the Inspection and Maintenance Report form for storm water control measures. Copies of completed forms related to the activities addressed in this SWPP plan are maintained in the on-site project file during field activities. Following completion of field activities, these forms will be transferred to the permanent project files.

## BMP Inspection and Maintenance Form

Site or Project Name: \_\_\_\_\_

Inspector's Name: \_\_\_\_\_ Date: \_\_\_\_\_

Total Rainfall with the Last 7 Days (Inches): \_\_\_\_\_

Complete the table below using YES, NO, or N/A\*, whichever applies.

	BMP installed correctly?	BMP is effective in controlling:	Storm water runoff	Sediment transport	Erosion	Has damage occurred since the last inspection?	Is maintenance required?	Is there accumulated sediment?	Sediment require removal?	Is there erosion or other potential pollutant sources in the area?
List BMP type and location within site										
1										
2										
3										
4										
5										

\*Clarify YES, NO, and N/A observations from the table in the sections below.

**Observations:**

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**Required Maintenance:**

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Maintenance to be conducted by: \_\_\_\_\_

Inspector's Signature: \_\_\_\_\_



**APPENDIX G**  
**COMPREHENSIVE SITE COMPLIANCE EVALUATIONS**

This appendix includes the Comprehensive Site Compliance Evaluation forms as well as copies of completed forms related to the stabilization activities addressed in this SWPP plan

**ANNUAL STORM WATER  
SITE COMPLIANCE EVALUATION REPORT**

**Name of Facility:** \_\_\_\_\_ **Date of Inspection:** \_\_\_\_\_

**Name of Inspector(s):** \_\_\_\_\_

**Scope:**

This evaluation was conducted by reviewing the current SWPP plan to develop a list of areas that have the potential to contribute pollutants to storm water runoff. This list also includes secondary containment and storm water diversion structures. Facility operations for the past year were reviewed to determine whether new operational areas, or modifications to existing areas, required a plan modification. In addition, all storm water pollution prevention measures were evaluated to ensure that they were accurately identified, in place, and working properly.

This comprehensive site compliance evaluation included

- evaluation of the effectiveness of control measures to reduce pollutant loading in the runoff and whether additional measures are needed.
- observation of the structural storm water management measures, sediment, and erosion control measures and other structural pollution prevention measures and best management practices.
- availability of the equipment needed to implement this SWPP plan, such as spill prevention, spill response, and waste storage equipment.

**Major Observations:**

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**Actions Taken:**

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**Areas of Concern for this Compliance Evaluation:**

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**ANNUAL SITE COMPLIANCE EVALUATION  
CHECKLIST OF  
AREAS REQUIRED TO BE EVALUATED**

**I. Areas Potentially Contributing Pollutants to Storm Water Discharges**

Yes/No, N/A

- New areas, materials or physical features, including
- Loading/unloading areas
- Outdoor storage
- Outdoor manufacturing or processing
- Dust or particulate generating processes
- On-site waste disposal activities
- PRSs
- Soil erosion
- Inventory of materials exposed to storm water up-to-date
- New nonstorm water discharges
- New spills or leaks since last inspection

Comments:

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**II. Measures and Controls**

Evaluate the effectiveness of existing programs or procedures to reduce pollutant loading into storm water discharges, ensure these are implemented correctly, and determine whether additional programs or procedures are needed. The following programs should be evaluated.

Yes/No, N/A

- Good Housekeeping
- Are areas clean and orderly?
- Are there established protocols/procedures?
- Is training provided?

Measures and Controls (continued)

Yes/No, N/A

- \_\_\_\_\_ Are there procedures for improvement of Operation/maintenance of equipment?
- \_\_\_\_\_ Storage practices?
- \_\_\_\_\_ Material inventory?
- \_\_\_\_\_ Routine area cleanup?
- \_\_\_\_\_ Organized work areas?
- \_\_\_\_\_ Educational programs?
  
- Preventative Maintenance (PM)
- \_\_\_\_\_ Does the PM program include the protection of the environment?
- \_\_\_\_\_ Was the PM program expanded to include storm water?
  
- Does current PM program include
- \_\_\_\_\_ Identification of equipment or systems to be inspected?
- \_\_\_\_\_ Schedule for inspections?
- \_\_\_\_\_ Appropriate/timely repairs?
- \_\_\_\_\_ Maintenance of records on inspections and equipment?
  
- Visual Inspections
- \_\_\_\_\_ Is there an existing inspection program?
- \_\_\_\_\_ Do inspections include storm water?
- \_\_\_\_\_ Are inspections documented?
- \_\_\_\_\_ Are there follow-up procedures?
- \_\_\_\_\_ Are there procedures for reporting problems to ESH-18?
  
- Employee Training
- \_\_\_\_\_ Is training provided on SWPP plan?
- \_\_\_\_\_ Is there a schedule for training?
  
- Review and Revisions
- \_\_\_\_\_ Are there review/revision procedures for the SWPP plan?
- \_\_\_\_\_ Are the responsibilities of SWPP plan team members assigned?

**III. Structural Storm Water Management Measures**

Observe structural control measures, erosion control measures, and/or other structural pollution prevention measures identified in the plan to ensure that they are adequate and functioning correctly. The following structural controls are to be observed.

Yes/No, N/A

**Erosion Controls**

- \_\_\_\_\_ Are there new areas of erosion or the potential for erosion?
- \_\_\_\_\_ Are erosion controls provided for storm water/other discharges?
- \_\_\_\_\_ Are containment and diversion structures in place?
- \_\_\_\_\_ Are vegetated areas maintained?

**Management of Runoff**

- \_\_\_\_\_ Are runoff controls described correctly?

**IV. Visual Inspection of Equipment**

This inspection should include a visual inspection of equipment needed to implement the plan, such as spill response equipment, silt fences, inlet controls, oil/water separators, and pumps.

Yes/No, N/A

Is spill control equipment available?

- \_\_\_\_\_ Are silt fences being used as an erosion control method?
- \_\_\_\_\_ If yes, are silt fences in good condition?
- \_\_\_\_\_ What other equipment is inspected?

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## COMPREHENSIVE SITE COMPLIANCE EVALUATION

### Certification of Compliance

"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."

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(Signature)

Signature Date

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(Printed Name)

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(Position Title)

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(Organization)