ERID-215105

Site Discharge Pollution Prevention Plan

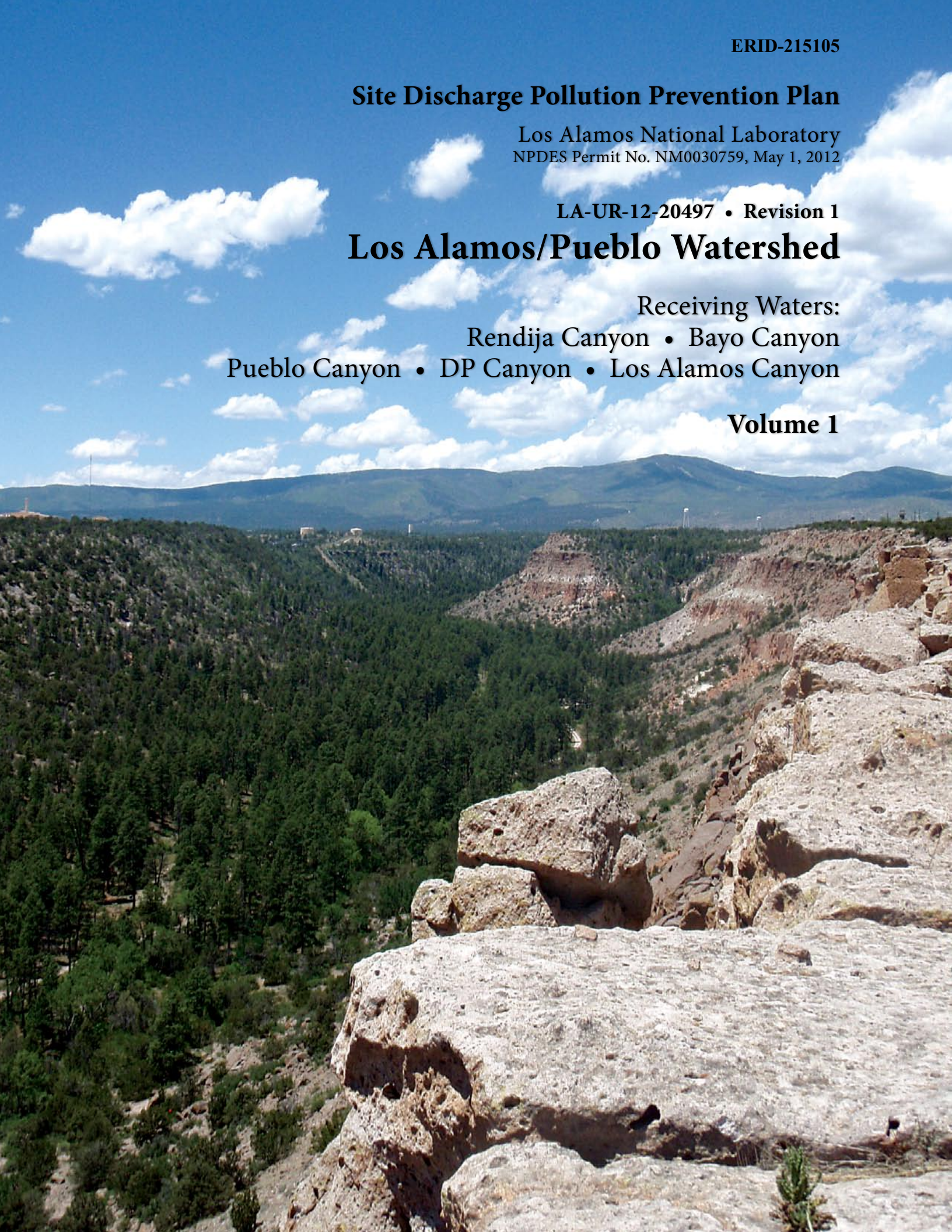
Los Alamos National Laboratory
NPDES Permit No. NM0030759, May 1, 2012

LA-UR-12-20497 • Revision 1

Los Alamos/Pueblo Watershed

Receiving Waters:
Rendija Canyon • Bayo Canyon
Pueblo Canyon • DP Canyon • Los Alamos Canyon

Volume 1



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CERTIFICATIONS AND APPROVAL

Certification Statement Of Authorization

'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.'

4-25-12

David McInroy, Program Director
Corrective Actions Program
Environmental Programs
Los Alamos National Security, LLC

Date

4/30/12

Gene Turner, Permitting Manager
Environmental Project Office
National Nuclear Security Administration

Date

SECTION 200
SDPPP AMENDMENTS

This Site Discharge Pollution Prevention Plan (SDPPP) is a dynamic document that requires continuous updating as elements of the Individual Permit (IP) storm water program are implemented, completed, or changed. This SDPPP will be updated annually to fully incorporate all changes made during the previous year and to reflect any changes projected for the following year. Amendments to this SDPPP are consolidated in Attachment A.

In support of the annual update, work conducted following the publication of this document will be documented in supporting records kept alongside the SDPPP to demonstrate compliance with the requirements of the IP. As required in Part I.F.4 of the IP, the SDPPP will be updated annually to fully capture this interim work and to reflect programmatic and regulatory changes that have occurred over the course of the year. Annual updates to this document will contain at a minimum the following information:

- Construction or a change in design, operation, or maintenance at the facility having a significant impact on the discharge, or potential for discharge, of pollutants from the facility;
- Findings of deficiencies in control measures during inspection or based on analytical monitoring results;
- Any change of monitoring requirement or compliance status;
- Any change of Site Monitoring Area (SMA) location; and
- Summary of changes from the last year's SDPPP.

SECTION 300
INTRODUCTION AND PROJECT DESCRIPTION

Los Alamos National Security, LLC (LANS) under the direction of the National Nuclear Security Administration (NNSA) have prepared this SDPPP pursuant to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (Permit or IP) issued by the U.S. Environmental Protection Agency (EPA) Region 6 office, effective November 1, 2010. The IP authorizes and regulates storm water discharges from historical industrial activity areas associated with specified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), collectively called Sites. These Sites may have the potential to discharge storm water into seven major watersheds on the Pajarito Plateau, which are tributaries to the Rio Grande.

300.1 Objectives

The SDPPP has three primary objectives:

- Identify and summarize potential pollutant sources, including potential sediment-borne pollutants, that may affect the quality of storm water discharges associated with Sites listed in Appendix A of the IP;
- Identify and describe the control measures intended to reduce or eliminate pollutants in storm water discharges;
- Monitor the effectiveness of control measures implemented at the SMAs in accordance with the requirements and schedules provided in the IP.

This SDPPP conforms to the required elements of the IP including those stipulated in Part I, Section F. A paper copy of the SDPPP is readily available onsite for the duration of the IP. A copy of the SDPPP is also available on a public website at *http://www.lanl.gov/environment/h2o/ip.shtml?2*

300.2 SDPPP Organization

The SDPPP is comprised of five volumes, each comprising one or more of seven major Pajarito Plateau watersheds. The SDPPP volumes are organized geographically from north to south, as shown in Table 300-1. A general vicinity map of the specific watersheds is provided in Attachment B of these volumes.

Table 300-1 SDPPP Organization

SDPPP Volume	Primary Watershed	Receiving Water(s)	Number of SMAs (Percentage)
Volume 1	Los Alamos / Pueblo	• Rendija Canyon • Bayo Canyon • Pueblo Canyon • Los Alamos Canyon • DP Canyon	64 (25.6%)
Volume 2	Sandia / Mortandad	• Sandia Canyon • Cañada del Buey • Mortandad Canyon • Ten Site Canyon	64 (25.6%)
Volume 3	Pajarito	• Twomile Canyon • Threemile Canyon • Pajarito Canyon • Starmers Gulch	51 (20.4%)
Volume 4	Water/ Cañon de Valle	• Cañon de Valle • Fence Canyon • Potrillo Canyon • Water Canyon	50 (20%)
Volume 5	Ancho / Chaquehui	• Ancho Canyon • Chaquehui Canyon	21 (8.4%)

Each volume of the SDPPP contains the following information:

- **Section 300** presents watershed-specific information and an overview of precipitation characteristics and monitoring.
- **Section 400** provides a description of the pollution prevention team, the functional roles and responsibilities, and describes the associated training programs at LANL.
- **Section 500** describes the potential storm water pollutant sources at the permitted Sites.
- **Section 600** describes the various baseline control measures implemented at the permitted Sites.
- **Section 700** provides an overview of storm water monitoring for the permitted Sites, including sampling procedures and applicable Target Action Levels (TALs).
- **Section 800** discusses inspection requirements required under the IP.
- **Section 900** discusses corrective action and other permit conditions as provided in the IP.
- **Section 1000** provides SMA-specific details for each of the monitored areas within the watershed.
- **Attachment A** Amendments
- **Attachment B** Vicinity Map
- **Attachment C** Precipitation Network
- **Attachment D** Physical Characteristics
- **Attachment E** Procedural Documents
- **Attachment F** Training Log
- **Attachment G** Acronyms and References

300.3 Los Alamos/Pueblo Watershed Overview

The Los Alamos Canyon/Pueblo watershed is located at the northern end of Los Alamos County and the Laboratory, a Vicinity Map is provided in Attachment B. The watershed heads on U.S. Forest Service (USFS) land in the Sierra de los Valles to the west and northwest of the Laboratory. The highest point in the watershed is at the summit of Pajarito Mountain at an elevation of 3,182 m (10,441 ft). The watershed extends eastward from the headwaters across the Pajarito Plateau for about 30.4 km (18.9 mi) to its confluence with the Rio Grande at an elevation of 1,678 m (5,504 ft). The Los Alamos Canyon/Pueblo watershed encompasses approximately 57 square miles. The watershed includes Los Alamos, Pueblo, and Delta Prime (DP) Canyons. Bayo, Guaje, Rendija, and Barrancas Canyons are tributary canyons in the watershed. The watershed contains numerous springs, perennial and ephemeral stream segments, and alluvial groundwater. Portions of Santa Fe National Forrest, DOE-managed property, Los Alamos County (including the Los Alamos townsite), Santa Fe County, and San Ildefonso Pueblo tribal lands are located within the Los Alamos Canyon/Pueblo watershed.

Bayo and Rendija Canyons are located north of Pueblo Canyon and north of Laboratory land. Rendija Canyon includes portions of former technical area (TA) TA-00 and Bayo Canyon includes former TA-10. The only active TA in these canyons is TA-74, a portion of which is located in Bayo Canyon. Guaje and Barrancas Canyons do not have Sites permitted under the IP and are not discussed further in this document.

Pueblo Canyon is located on the north side of the Los Alamos town site and extends from the Jemez Mountains to its confluence with Los Alamos Canyon, approximately 4.5 miles east of the Los Alamos town site at the intersection of NM 502 and NM 4. TA-72, TA-73, and former TA-00, TA-01, and TA-45 are located from west to east along the mesa south of Pueblo Canyon.

DP Canyon joins Los Alamos Canyon east of TA-21. TA-02, TA-41, and TA-43 are located within Los Alamos Canyon south of the Los Alamos townsite. TA-21, TA-73, and former TA-01 are located on the mesa north of Los Alamos Canyon. TA-62, TA-61, TA-53, and TA-72 are located south of Los Alamos Canyon.

Los Alamos Canyon is the southern-most canyon in the watershed. Former TA-00, TA-01, TA-02, TA-26, TA-30, and TA-32 are associated with this canyon. TA-03, TA-21, TA-41, TA-43, TA-53, and TA-61 are still areas of active industrial use on mesa-tops surrounding the canyon.

300.3.1 Receiving Waters and Wetlands in Los Alamos/Pueblo Watershed

Thirty wetlands occupying portions of fourteen different technical areas throughout the Laboratory have been identified and delineated by the US Army Corp of Engineers (COE 2005). The Los Alamos/Pueblo watershed contains, or may influence, five wetland areas totaling approximately 12.16 acres. The approximate dimensions and areas of wetlands in proximity to the Los Alamos/Pueblo watershed are shown in Table 300-2.

Table 300-2 Wetlands in Proximity to the Los Alamos/Pueblo Watershed

Wetland Identification	Approximate Area (acres)	Approximate Length (feet)	Approximate Width (feet)
43-1	0.20	295	30
43-2	0.08	145	25
53-1	0.01	65	10
74-1	2.76	2975	40
74-2	9.12	2650	150

Wetland 43-1 is located on the floor of Los Alamos Canyon approximately 1,000 feet east of the bridge that crosses Diamond Drive. It is bounded on the south by the north-facing slope of Los Alamos Canyon and on the north by Omega Road. The wetland is approximately 0.20 acres, with dimensions of 295 feet in length by an average of 30 feet in width. Vegetation in the area includes baltic rush (*Juncus balticus*), cattail (*Typha sp.*), and coyote willow (*Salix exigua*).

Wetland 43-2 is located on the floor of Los Alamos Canyon approxmiately 1,200 feet east of Diamond Drive bridge. It is bounded on the south by Omega Road and on the north by the south-facing slope of Los Alamos Canyon. Wetland 43-1 is adjacent approximately 35 feet to the south. The wetland is approximately 0.08 acres, with dimensions of 145 feet in length by an average of 25 feet in width. Vegetation in the area includes narrow-leaf cattail (*Typha angustifolia*), and dock (*Rumex sp.*).

Wetland 53-1 is located on the floor of Los Alamos Canyon. It is bounded by the north by the south-facing slope of the canyon and TA-21 on the mesa top. On the south, the area is bounded by the north-facing slope of the canyon and undeveloped area of TA-53 on the mesa top. The wetland is approximately 0.01 acres, with dimensions of 65 feet in length by 10 feet in width. Vegetation in the area includes baltic rush (*Juncus balticus*).

Wetland 74-1 is located on the wide floor of Pueblo Canyon. It is bounded on the north by the south-facing slope of the canyon and undeveloped land on the mesa top. On the south, it is bounded by the north-facing slope of the canyon and NM 502 on the mesa edge. It is located approximately 1,300 feet downstream (east) of wetland 74-2. The area is approximately 2.76 acres, with dimensions of 2,975 feet in length by an average of 40 feet in width. Vegetation in the area is primarily reed canary grass (*Phalaris arundinacea*), with some barnyard grass (*Eshinechloa crus-galli*), and curly dock (*Rumex crispus*).

Wetland 74-2 is located on the wide floor of Pueblo Canyon and approximately 1,900 feet downstream (east) of the Los Alamos Wastewater Treatment Plant. It is bounded on the north by the south-facing slope of the canyon and undeveloped land on the mesa top. On the south, it is bounded by the north-facing slope of the canyon and NM 502 on the mesa top. The wetland is approximately 1,300 feet upstream (west) of wetland 74-1. The area is approximately 9.12 acres, with dimensions of 2,650 feet in length by an average of 150 feet in width. Vegetation in the area is a monoculture of reed canary grass (*Phalaris arundinacea*).

300.3.2 Vicinity Map

A vicinity map for the Los Alamos/Pueblo watershed is provided in Attachment B. The map shows locations of SMAs and the wetlands in proximity to the watershed.

300.4 Precipitation Network and Monitoring

LANS maintains a network of meteorological towers that have provided local-area and national reporting of climate data since World War II. This network of towers has been augmented by a finer set of rain gages specifically used by the Individual Permit program at LANL. The network rain gages provide additional data for SMAs located at lower elevation or in areas remote from the traditional towers. In most watersheds, a combination of traditional meteorological towers and network gages, are used to measure, track, and report precipitation related to SMAs.

300.4.1 Regional Hydrologic Characteristics

Los Alamos, NM has a semiarid climate with an average rainfall of about 19 inches per year. Over 30% of the area is dominated by Ponderosa pine-stands at higher elevations that transition to Piñon-Juniper woodlands as elevation decreases. The Pajarito plateau is separated into finger mesas by west to east oriented canyons. The canyon bottoms contain riparian vegetation and stream flows are typically ephemeral and fed by snowmelt and/or rainfall. Perennial springs are present on the flanks of the Jemez Mountains and supply base flow to the upper reaches of some canyons, but the volume of flow is insufficient to maintain surface flows across the facility mostly due to channel transmission losses.

Canyons located within the LANL boundary are tributaries to the Rio Grande and some canyons will deliver surface flow from heavy rains or sustained snowmelt. Run-off leaving the Laboratory's eastern boundary and adjacent canyons is measured by gage stations located on each major canyon. Downstream of LANL, the Rio Grande flows southward to Cochiti Reservoir.

300.4.2 Precipitation Measurement

Precipitation monitoring for the IP is conducted to identify a "storm rain event," that could affect control measures and storm water management devices employed at SWMUs or AOCs. A "storm rain event" is defined by the IP as a 0.25-inch or more intensive rain event occurring within 30 minutes. Precipitation monitoring identifies "storm rain events," the date and time of the event, and also assists with the identification of adverse weather events. Adverse weather conditions include dangerous weather-related events (e.g., flooding, wildfires, or hail) that make inspection dangerous for worker safety.

Within the Los Alamos/Pueblo watershed, two meteorological towers and three extended network gages are used to measure and report precipitation. These precipitation gages are shown in Table 300-3. Attachment C illustrates the entire precipitation network currently employed at LANL.

300.4.3 Adverse Weather

On June 26, 2011 the Las Conchas Fire started northwest of the Laboratory. The wildfire burned over 150,000 acres of New Mexico forest ultimately becoming the largest forest fire in the state's history. Within the Los Alamos/Pueblo watershed aggregate area, approximately 47% of the watershed was burned, both above and below LANL boundaries.

All work associated with the IP project was interrupted from June 27 through July 7, 2011 due to the Las Conchas fire. This event mandated the evacuation of the Los Alamos Township and prompted the subsequent closure of the Laboratory. Work resumed at the Laboratory on July 7, 2011.

Table 300-3 Rain Gages for the Los Alamos/Pueblo Watershed

	Year Placed in Service	Location	Associated SMAs	2011 Storm Rain Events
RG-NCOM	1986	The rain gage is located on the roof of the volunteer fire department	3	08-21-11
RG-TA-53	1991	The rain gage is located on the narrow mesa between Sandia and Los Alamos Canyons.	6	07-28-11 07-30-11 08-01-11 09-01-11 09-07-11
RG038	2008	The rain gage is located in the adjacent DP Canyon.	34	08-01-11 08-19-11 08-21-11 09-01-11 09-07-11
RG055.5	2008	The rain gage is located in Pueblo Canyon near the confluence with Acid Canyon.	16	08-05-11 08-19-11 08-21-11 09-07-11
RG121.9	2008	The rain gage is located in upper Sandia Canyon.	5	08-05-11 08-19-11 08-21-11 09-07-11

**RG = Rain Gage*

300.4.4 Procedures

Standardized precipitation data management is used at LANL in order to efficiently manage field activities and ensure accurate reporting capabilities. Standard Operating Procedure (SOP), EP-DIV-SOP-10004, "Managing Electronic Precipitation Data for Storm Water Projects" describes the processes defining this work. Electronic precipitation data are stored in the Storm Water Tracking System (SWTS) module on the LANL Water Quality Database (WQDB).

Current versions of all IP related SOPs and QPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 400
SITE DISCHARGE POLLUTION PREVENTION TEAM

To facilitate the implementation, maintenance, and revision of the SDPPP, a Site Discharge Pollution Prevention Team (PPT) has been established. The PPT is responsible for assisting in developing and revising the SDPPP as well as maintaining control measures and taking corrective actions for deficiencies. Team members generally have, at a minimum, a bachelor's degree and specialty qualifications such as Certified Inspector of Sediment and Erosion Control (CISEC) and/or Certified Professional in Erosion and Sediment Control (CPESC).

400.1 Roles and Responsibilities

The PPT consists of personnel from the LANS Corrective Actions Program, ENV-RCRA, and subcontract staff whose selection is based on their familiarity with the Site location and surrounding operations. The specific responsibilities of the PPT are provided in Table 400-1. Each member of the PPT has access to either an electronic or paper copy of applicable portions of this permit and this SDPPP.

Table 400-1 PPT Roles and Responsibilities

PPT Title	Functional Responsibility
Surface Water and Canyons Investigation Project Manager	Responsible for managing implementation of Individual Permit requirements.
Storm Water Permitting/ Compliance Team Leader and Delegees	Responsible for ensuring compliance is met for the Individual Permit Storm Water Program, communicating with the Surface Water and Canyons Investigation Project Manager on compliance issues, providing training and developing qualifications for personnel as specified in Section 400.2 of the SDPPP.
Corrective Actions Project Field Lead	Responsible for implementation of Individual Permit field requirements (Sections 600 and 900) by installing, inspecting and maintaining baseline control measures, and implementation of corrective actions when TALs are exceeded.
Corrective Actions Project Monitoring Field Lead	Responsible for implementation of storm water monitoring as required in Section 700 of the SDPPP.
Inspector	Responsible for conducting Site inspections as required by the IP. Coordinates with the Lead Inspector, to resolve issues related to successful conduct of operations.
Lead Inspector	Responsible for coordinating Site inspections as required by the IP. Resolve issues related to successful conduct of operations.
Pollution Prevention Team Members	Responsible for implementing and updating the SDPPP, assisting in maintaining control measures and implementing corrective actions for deficiencies, and completing training as specified in section 400.2 of the SDPPP. Certification as needed.

400.2 Training

Project personnel receive both formal and informal training in the execution of storm water management at SMAs. Formal training, which covers all aspects of the developed SDPPP, is conducted annually prior to the field season and documented in the SDPPP. During the field season, daily tailgate meetings are conducted to inform personnel of work assignments, impending changes, and issues related to work.

Each PPT member receives SDPPP training and has ready access to the IP and SDPPP documentation. The list of PPT members is revised when there are changes in PPT members

or their duties. The most current list is kept with the master copy of the SDPPP.

Training for the PPT is conducted at least annually as specified in Part I, Section A.3. Summaries of these trainings will be documented in Attachment F, Training Log. Employee training is essential for effective implementation of the SDPPP and success of the storm water program. The objective of the training program is to:

- instill in employees and managers an understanding of the purpose and scope of the SDPPP Plan, Volume 1 through 5,
- give the PPT the tools and training they need to inspect, maintain, and modify control measures used at permitted Sites,
- satisfy reporting and documentation requirements.

SECTION 500
POTENTIAL POLLUTANT SOURCES

A baseline review has been completed for each permitted area as part of the planning process. The review evaluated the characteristics of the suspected release(s) from SWMUs and AOCs within the context of the monitored area, the placement of the sampler within the area, and recommended Site-specific controls specific for each area. This review also included an evaluation of any additional potential pollutant sources that might be present. This assessment work allows the PPT to better address the non-numeric technology-based effluent requirements specified in the IP.

The following sections discuss each of the primary categories of pollutant sources within the Los Alamos/Pueblo watershed. The primary categories of pollutant sources discussed within the context of each SMA are historical industrial activities, urban influences, and public influences. This discussion is further detailed at the SMA-level in Section 1000.

500.1 Historical Industrial Activity

Within the Los Alamos/Pueblo watershed, there are 64 Permitted Features comprised of 101 Sites associated with 64 SMAs. Sites associated with this watershed are primarily associated with historical Laboratory operations dating back to the establishment of the Laboratory in the 1940s. Potential pollutants of concern at related SMAs in the Los Alamos/Pueblo watershed are generally classified as metals, organics, and radioactivity present in surface soils.

Bayo Canyon area may be influenced by nine permitted Sites primarily related to mortar impact areas, firing ranges, and releases of treated effluent. These Sites were related to the operation of former TA-10 that was used as a firing site from 1943 to 1961 for tests with explosive compounds and radioactive materials. The site included a radiochemistry laboratory. The former TA-10 was decontaminated and decommissioned in 1960. In 1976, TA-10 was the site of an extensive Formerly Utilized Sites Remedial Action Program investigation. In the mid-1990s, TA-10 was studied and reported under the RFI Work Plan for Operable Unit 1079. RCRA facility investigation (RFI) activities included shrapnel removal and investigation or remediation for several of the Sites.

Rendija Canyon may be influenced by storm water discharges associated with six permitted Sites. There is a community small-arms firing range that is still in operation in proximity to this canyon. The remaining five Sites were used as mortar impact areas and are no longer operational.

Pueblo Canyon may be influenced by storm water discharges associated with 14 permitted Sites. The majority of these Sites are related to historical wastewater treatment. One Site within this canyon grouping is a sanitary wastewater treatment plant that was closed in 2009.

DP Canyon may be influenced by storm water discharges associated with seven Sites permitted under the IP. The majority of these Sites were related to his-

torical wastewater treatment. None of the Sites within DP canyon are operational.

Los Alamos Canyon may be influenced by storm water discharges associated with 66 Sites permitted under the IP. The majority of Sites are related to historical Laboratory operations related to wastewater treatment and only one Site within Los Alamos Canyon remains operational. There is an active storage area within TA-53 that is still operational.

Details of Site-specific historical activities, potential pollutants of concern, and the controls used in storm water management at these Sites are provided in greater detail in Section 1000.

500.2 Urban Influences

Increased volumes of storm water, if not adequately controlled, can result in a subsequent increase in sediment migration and may contribute to erosion of the managed area. Run-off from paved areas and roadways may contain increased concentrations of metals, petroleum products, and related vehicular fluids. Both the County of Los Alamos and the State of New Mexico maintain primary roadways that are adjacent to many of the SMAs monitored within this watershed. Where a Site has an unmitigated urban influence, the urban area is included in the Site inspection if the conclusion is that the interface could influence sampling results.

Run-on from urbanized areas is typically prevented from coming into contact with Site(s) by diversion. Where diversion is not possible the run-on is managed by the Site controls as it co-mingles with the SMA storm water run-off. Selection of control measures to manage co-mingled storm water are made on a Site-specific basis. Specific storm water controls selected for the Sites with urban influences are described in detail in Section 1000 of this SDPPP.

Nearly 70% of SMAs within this watershed are subject to influence from urban sources. The urban designation at a specific SMA indicates a potential influence from paved parking, roads, storage areas, or other activities in proximity to the SMA. Where designated as a potential pollutant source for a SMA, these urban influences are not directly a LANL-based activity. The principal concerns posed by urban influences are an increase in storm water volume across or near the SMA, or the introduction of contaminants into the storm water that are not related to the historical activities conducted at the Site(s).

500.3 Public Influences

Where Sites are readily accessible to the public, there is a higher potential for litter and floatable debris. There is also an increased potential for vandalism or tampering with monitoring equipment. Where a Site has an unmitigated public influence, that area is included in the Site inspection if the conclusion is that the interface could influence management or sampling at the Site. Where monitoring equipment is disturbed, the equipment will be enclosed in tamper-proof boxes. SMAs with a potential public influence have been identified in Section 1000 of this SDPPP.

Within the Los Alamos/Pueblo watershed, more than 50% of SMAs have the potential for public influence. Permitted Site(s) within each of the primary canyons comprising this watershed have some component accessible to pedestrian traffic.

SECTION 600
BASELINE CONTROL MEASURES

In the Los Alamos/Pueblo watershed baseline control measures have been implemented at 64 SMAs. Of the 64 SMAs in this watershed, 18 had completed baseline control installations and implementation before the effective date of the Permit, November 1, 2010, as identified in Appendix E, Table E-1 of the IP.

As described in the previous section, each SMA has been evaluated for pollutant sources that may be present in addition to potential historical industrial activity associated

with the Site(s). Control measures have been similarly selected and the installation is related to the specific concerns within the SMA.

This section describes the general types of storm water controls deployed at SMAs in the Los Alamos/Pueblo watershed. Specific control types are further described for each control class. Control measures referenced in this document follow the specifications provided in LANL Storm Water BMP Manual.

Changes to baseline control measures such as repair, modification, or replacement, will be documented in interim documentation. These changes will be kept alongside the SDPPP until they are reflected in annual updates.

600.1 Erosion and Sediment Controls

These types of controls minimize the potential for erosion occurring from storm water flows across an area and to retain transported sediment onsite.

Baseline control measures used for erosion control at LANL include the following major categories: established vegetation, seed and mulch, channel/swales, gabions, and caps.

- Types of established vegetation include forested needle cast, vegetation buffer strip, and grasses and shrubs.
- Types of seed and mulch include hydromulch and seed, erosion control blankets and seed, wood straw and seed, and gravel mulch.
- Types of channel/swales include earthen, concrete/asphalt, rock, culverts, water bars, vegetated swales, and rip rap.
- Caps can be composed of earth, rock, or asphalt.

Baseline control measures used for sediment control include the following major categories: established vegetation, berms, sediment traps and basins, gabions, and check dams.

- Types of berms include: earthen, base course, log, asphalt, Triangular Silt Dikes®, straw wattles, Terra Tubes®, retaining walls, curbing, and gravel bags.
- Check dams can be composed of: rock, log or juniper bales.

600.2 Management of Run-on and Run-off

The purpose of run-on/run-off control measures is to divert, infiltrate, reuse, contain or otherwise reduce storm water run-on/run-off. Baseline control measures used for managing run-on and run-off at LANL include the following control categories: established vegetation, channel/swales, gabions, sediment traps and basins, check dams, and berms.

600.3 Non-Storm Water Discharges

Visual surveys are conducted as part of the Permit-required Site inspections to identify the potential for non-storm water discharges at each SMA. There are no identified sources of unauthorized discharges at this time, including process wastewater, spills or leaks of toxic or hazardous materials, contaminated groundwater, or any contaminated non-storm water associated with the SMAs.

600.4 Other Control Measures

600.4.1 Litter and Debris

Control measures have been implemented to ensure that no waste, garbage, or floatable debris are discharged to receiving waters. SMAs adjacent to or within urban areas have the greatest potential for impacts due to off-site litter sources. Sites will be inspected for litter, and visible, potentially floatable debris as part of the Permit-required Site inspections. Any litter, and visible, floatable debris will be removed and managed in appropriate containers and in accordance with LANL waste management policies. SMAs exhibiting problems with litter or other floatable debris, as identified in Site inspections, will have signage or other structural controls installed to address these areas.

600.4.2 Dust Minimization

The potential for generating dust, along with off-site vehicle tracking of raw,

final or waste materials, or sediments is primarily at SMAs subject to construction activity involving ongoing soil disturbance. As identified in the Permit-required Site inspections, dust generation and the tracking of materials shall be minimized with the application of water and/or an approved soil stabilizer. Water and soil stabilizer used to suppress dust generation will be applied at a rate to avoid discharge from the Site.

600.4.3 Waste Minimization

The introduction of raw, final, or waste materials to exposed areas will be minimized. Good housekeeping practices will be maintained and materials introduced or removed from the areas will be managed or disposed of properly at the end of each workday in accordance with LANL waste management policies.

600.4.4 Flow Dissipation

Flow velocity dissipation of storm water is addressed through the implementation of baseline control measures. Virtually all control measures deployed dissipate the velocity of flow across an area. Discharges from culverts and other conveyances have controls currently installed to dissipate the resultant flow velocity.

600.5 Selection of Control Measures

The baseline review of SMAs identified any additional potential pollutant sources that may be present, evaluated the physical characteristics of the SMA, and recommended control measures appropriate to the SMA for installation. Section 1000 presents information specific to each SMA, discusses the physical area influencing the SMA, and presents controls by pollutant source, as applicable. These controls have been selected to address the specific physical characteristics of the Sites and the drainage area. Controls provided for each SMA comprise the baseline selection of controls intended to control and stabilize the drainage areas associated with Sites as provided in Appendix E, Table E-1 of the Permit.

600.6 Schedules for Baseline Control Measure Installation

Within six months of the effective date of the IP (November 1, 2010), baseline control measures were installed at each Site. The PPT will be responsible for ensuring control measure construction, implementation, and maintenance for each Site. Following the installation of all baseline controls, the effectiveness of control measures will be determined by the monitoring results of storm water samples at the SMA. The PPT is responsible for implementing control measures beyond the baseline within the required time frame. Section 700 describes in further detail, the relationship between monitoring results and non-numeric, technology-based, effluent limitations.

SECTION 700 STORM WATER MONITORING OVERVIEW

The purpose of the storm water monitoring specified in the IP is to determine the effectiveness of the control measures implemented to meet the non-numeric technology-based effluent limitations. This determination is made, in part, by the collection of storm water samples, following the initial installation of baseline control measures. Concentrations of specific pollutants in the collected sample are compared with specific Target Action Levels (TALs) listed in Section I.C of the IP.

700.1 Monitoring and Analysis Requirements

Monitoring requirements are specified by the IP and generally correspond to the pollutant concerns associated with a specific SMA. Concentrations of pollutants in excess of TALs are not violations of water quality standards. The TALs are used as a screening tool to indicate whether the baseline control measures implemented at Sites require additional corrective action as provided in Section I.E of the IP.

700.1.1 Initial Confirmation Sampling

The IP establishes an initial phase of confirmation sampling to follow the completion of the baseline control measures installation. Any sampling performed for purposes of confirmation monitoring at a particular SMA must be performed following a storm event that results in an actual discharge from the SMA in sufficient volume to perform the required analyses (referred to herein as a 'measurable storm event'). The interval between collected samples must be at least fifteen (15) days.

Within the Los Alamos/Pueblo watershed, 18 SMAs were completed with baseline control installations before the effective date of the Permit. Storm water monitoring at these 18 SMAs requires the collection of one storm water sample from two separate measurable storm events within one year after the effective date of the Permit. SMA-specific monitoring plan and requirements are presented in Section 1000.

SMAs with Baseline Control Measures Complete at the Effective Date of Permit in Los Alamos/Pueblo Watershed

- **DP-SMA-2**
- **LA-SMA-0.85**
- **LA-SMA-1.25**
- **LA-SMA-3.1**
- **LA-SMA-4.1**
- **LA-SMA-4.2**
- **LA-SMA-5.35**
- **LA-SMA-5.91**
- **LA-SMA-5.92**
- **LA-SMA-6.25**
- **LA-SMA-6.27**
- **ACID-SMA-1.05**
- **ACID-SMA-2**
- **ACID-SMA-2.1**
- **P-SMA-1**
- **P-SMA-2**
- **R-SMA-2.05**
- **R-SMA-2.3**

The remaining SMAs will similarly collect two storm water monitoring samples following the installation, from at least 2 separate measurable storm events occurring at least 15 days apart, within 18 months of the effective date of the IP.

For each sampling event, the date and duration (in minutes) of the storm event(s) sampled, the rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff, and the duration between the storm event samples and the end of the previous measurable storm event will be recorded. Snow melt samples will not be used for purposes of confirmation monitoring.

Grab samples will be taken when discharge occurs. Samples must be collected beginning within the first thirty (30) minutes of (or as soon after as practical), but beginning no later than one (1) hour after a measurable storm event. Samples are not used if the collected volume of the sample is insufficient to perform all required analyses.

700.1.2 Confirmation Results

Following the collection of confirmation samples, sampling results are compared against applicable TALs. Sampling results either confirm the effectiveness of the installed baseline control measures or the results dictate further actions as described in the following sections.

700.1.2.1 Confirmation Results Below Target Action Levels

If all analytical results for a particular pollutant of concern at a particular SMA are at or below the maximum target action level (MTAL) and the average of all applicable sampling results is at or below the average target action level (ATAL), or the applicable minimum quantification level (MQL), whichever is greater, analytical monitoring of that pollutant at the same SMA is no longer required for the remaining period of the permit. The Site(s) are certified to have completed corrective action as specified in Part I.E.2

of the IP and as discussed further in Section 900, Corrective Action.

An exception is made for instances where future installation of control measures at the Site(s) being monitored involves soil disturbance. If soil disturbance is involved, the initial confirmation monitoring phase is repeated and samples are collected again for all listed pollutants of concern at that SMA.

If analytical results for all pollutants of concern at a particular SMA are at or below the MTALs and the average of all applicable sampling results is at or below the ATALs, or the applicable MQLs, whichever is greater, no further sampling is required for the Site or group of Sites within the associated SMA for the remaining period of the permit (except as provided in Section E. 5. of the IP). Inspections at all Sites in accordance with Section G. of the Permit will continue and control measures will be maintained in effective operating condition as required by Section B.2 of the IP. A minimum of two confirmation samples must be collected and analyzed before removing a Site or group of Sites from monitoring requirements, except as provided in Sections E.5.(d) and (e) of the IP

700.1.2.2 Confirmation Results Above Target Action Levels

If, following installation of baseline control measures, any validated sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection of all Sites within the SMA drainage area, a re-evaluation of the existing control measures, and an initiation of corrective action will be conducted as soon as practicable.

Such corrective action may entail the design and installation of enhanced (additional, expanded or better tailored) control measures reasonably expected to achieve compliance with target action levels indentified in the Permit for all Sites within the SMA drainage area. If this type of corrective action is selected, at least two confirmation samples shall be collected (one confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart) following installation of any enhanced control. If either validated confirmation sample result for any specific pollutant of concern exceeds applicable target action levels, a visual inspection for all Sites within the SMA drainage area will be conducted, including a re-evaluation of the existing control measures, and an initiation of further measures to achieve completion of corrective action as soon as practicable.

700.2 Sampling Location Selection and Determining Substantially Identical Effluent

Sampling locations have been selected to provide a representative storm water sample of discharges from areas that are potentially impacted by Sites regulated under LANL`s RCRA Permit. Coordinates of samplers used to conduct storm water monitoring required under this Permit, estimates of the size of the SMA drainage area, and estimates of the Site(s) drainage area are provided in Attachment D, Physical Characteristics.

In some cases, due to the physical characteristics of the potentially impacted drainage area or the nature of the suspected release, it is not possible to monitor or manage Sites independently of one another. In many cases, NPDES permitted Sites ceased operation several decades ago. During their operational history, surrounding Sites were also operational. Resultant surface concerns may be co-mingled by natural sediment migration or by remedial actions at the Site or in proximity to the Site.

For example, Site 21-021 is a broad area of particulate deposition associated with the historical operation of ventilation stacks at TA-21. Storm water discharges associated with this unit potentially impact both the DP and Los Alamos canyon systems. This one Site is associated with 17 individual SMAs. Fifteen of the SMAs related to Site 21-021 also monitor storm water discharges associated with other Sites because they are co-located. In two instances, Site 21-021 is the only Site within the SMA.

Where more than one Site exists within an SMA, a discussion of substantially identical effluent is provided following the descriptions of the Sites in Section 1000. Sites can be said to have substantially identical effluents if they share one or more of the following characteristics:

- **Shared Drainage** – The Sites have the same drainage and are discharged to the same receiving water.
- **Contaminant Similarities** – The Sites have similar potential pollutants due to historic activities at the Sites.
- **Extensive Disturbance** – The Sites have been subject to extensive disturbance of surface soils to the extent that they can no longer be distinguished from one another.

700.3 Procedures

Procedures governing the collection and processing of storm water samples are detailed in the following documents:

- EP-SOP 5213, Inspecting Storm Water Run-off Samplers and Retrieving Samples;
- EP-SOP 5215, Processing Storm Water Samples;
- EP-DIV-SOP-10008, Installing, Setting Up, and Operating ISCO samplers;
- EP-DIV-SOP-10005, Operation and Maintenance of Gage Stations for Storm Water Projects

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 800 INSPECTION REQUIREMENTS OVERVIEW

Inspection of a Site, an SMA, or control measure is done when the following circumstances exist:

- A rain event at or near the Site registers 0.25 inch or more of rain within 30 minutes;
- Water sample confirmation results above TALs;
- At least annually for changes of conditions affecting erosion;
- After a significant event, such as fire, which could significantly impact the Control Measures and environmental conditions in the affected area(s).

If an inspection identifies erosion or a deficient control, the control will be repaired or new control measures may be recommended to reduce erosion potential. Inspection results, maintenance performed on existing control measures, and installation of new control measures will be documented in this SDPPP.

800.1 Post-Storm Inspections

If adverse weather prevents a post-storm Site inspection within the allotted 15 calendar days, then LANS will inspect the Site as soon as practicable following the adverse weather. All adverse weather events that impact the inspection of control measures are documented in this SDPPP. Adverse weather conditions may include dangerous weather-related events such as flooding, wildfires, or hail that make inspection dangerous for the worker. Interruptions in inspections

due to adverse weather will be documented with information similar to post-storm inspections. These records will be maintained alongside the SDPPP until the annual update occurs. Where several storm events exceeding 0.25 inch per 30 minutes occur over a period not to exceed 15 days from the first event, then LANL may conduct a single inspection within 15 days of the first event.

800.2 Monitoring Response Inspections

If, following installation of baseline control measures, any sample analytical result for a specific pollutant of concern at a particular SMA is greater than the applicable MTAL (or applicable MQL, whichever is greater) or the average of all applicable sampling results is greater than the applicable ATAL (or applicable MQL, whichever is greater), a visual inspection for all Sites within the SMA drainage area will be conducted. Existing control measures will be reevaluated and initiation of corrective action will be conducted as soon as practicable.

800.3 Annual Inspection and Erosion Re-evaluation

The PPT evaluates each Site annually for changes of conditions affecting erosion. Additionally, the PPT reevaluates the Site after notice of a significant event that could impact the control measures and environmental conditions of the Site. These types of inspections are done as soon as practicable. Following the erosion evaluations, the PPT documents the inspection in an inspection report.

800.4 Construction Activity Associated with Site Remediation

Where soil disturbance associated with the installation of control measures exceed one acre, these activities will be addressed under the requirements of the Construction General Permit (CGP) program or through a separate individual NPDES Permit. Where Sites in Appendix A of the IP are undergoing remediation, weekly inspections will be conducted to ensure sediments and control measures are maintained in working order until activities are completed. Corrective actions shall be taken immediately if deficiencies are noted in these inspections.

The SDPPP will be updated annually to reflect steps taken to minimize discharges from Sites subject to remediation activity at the Laboratory. The table provided in Attachment A will be used to document each amendment. All Amendments to the SDPPP and a summary of inspections conducted will be reported in the Annual Report as specified in Part I.H of the IP. Completed amendments will be retained alongside the SDPPP until the annual update occurs.

800.5 Inspection Observations

During the 2011 field season over 1400 inspections were conducted across the 250 IP SMAs; 336 of these inspections were within the Los Alamos/Pueblo watershed. Inspection summaries are provided for each inspection conducted at SMAs during the field season in Section 1000; they include the inspection type, inspection date, and a reference to the actual inspection form. The following section discusses general observations noted during the inspections conducted.

800.5.1 Maintenance

Most inspection observations fall into the category of maintenance-related comments. In response to deficiencies in control measures, observations note where control measures require replacement, fortification, or simple adjustments to be made. In the related maintenance tables, a summary of the work conducted in response to the observation and the time of the maintenance response are also provided.

800.6 Procedures

Procedural documents are developed to methodically describe the conduct of operations for the IP program. The following procedures provide detail for activities described in this Section:

- EP-DIV-SOP-20012, Installing, Inspecting, and Maintaining Storm Water Control Measures, describes this process and presents examples of resultant documentation.

Current versions of all IP related SOPs are summarized in Attachment E. The summary table in Attachment E also provides a hyperlink to the current version of the applicable procedure that resides on the public website. These procedures apply to the work activity described in this section. Additional procedures may be added as necessary to describe and document quality-affecting activities.

SECTION 900 CORRECTIVE ACTION AND OTHER CONDITIONS

Corrective action must be completed for all Sites permitted under the IP. Deadlines for completion of this requirement are specific to the priority attributed to the Sites by the Permit. The following sections describe the steps for meeting the corrective action requirements.

900.1 Completion of Corrective Action

Corrective action is to be completed for all Sites described in this SDPPP. Completion of corrective action is demonstrated by one of the following criteria:

1. Analytical results from confirmation sampling show pollutant concentrations for all pollutants of concern at the Site to be at or below applicable target action levels; or
2. Control measures that totally retain and prevent the discharge of storm water have been installed at the Site; or
3. Control measures that totally eliminate exposure of pollutants to storm water have been installed at the Site; or
4. The Site has achieved RCRA "no further action" status or a Certificate of Completion under NMED's Consent Order.

Sites monitored under the IP are being investigated under the Consent Order issued by the New Mexico Environment Department (NMED). At the conclusion of extensive investigation, and/or remediation, and reporting, the NMED issues a Certificate of Completion of Corrective Action under the Consent Order. Sites that have received such certifications from NMED have been thoroughly investigated and have met the standards set by the collective parties under this Consent Order.

Within the Los Alamos/Pueblo watershed, there are 101 Sites, of which 14 Sites have been issued Certificates of Completion under the Consent Order by the New Mexico Environment Department and are listed in Table 900.1-1.

Table 900.1-1 Sites within the Los Alamos/Pueblo Watershed meeting Completion of Corrective Action

Criteria	Site Number	Reference Number
4	00-018(b)	NMED 2011, HWB-LANL-10-096
4	01-001(b)	NMED 2010, HWB-LANL-10-056
4	01-001(c)	NMED 2010, HWB-LANL-10-056
4	01-001(e)	NMED 2010, HWB-LANL-10-056
4	01-003(e)	NMED 2010, HWB-LANL-10-056
4	01-006(d)	NMED 2010, HWB-LANL-10-056
4	21-013(b)	NMED 2011, HWB-LANL-11-030
4	21-013(g)	NMED 2011, HWB-LANL-11-030
4	21-018(a)	NMED 2011, HWB-LANL-11-030
4	21-023(c)	NMED 2011, HWB-LANL-11-030
4	43-001(b2)	NMED 2010, HWB-LANL-10-056
4	53-002(a)	NMED 2006, HWB-LANL-04-002
4	73-002	NMED 2007, HWB-LANL-07-016
4	73-006	NMED 2007, HWB-LANL-07-016

These Sites will continue to be monitored according to the requirements specified in the Permit until the Sites can be formally petitioned for removal from the IP.

900.1.1 Alternative Compliance

Where certification of corrective action cannot be completed, LANS may petition to place Site(s) into Alternative Compliance. In Alternative Compliance, the completion of corrective action will be accomplished on a case-by-case basis, and as necessary, pursuant to an individually tailored compliance schedule determined by EPA.

900.2 Deadlines

900.2.1 High Priority Sites

Within the Los Alamos/Pueblo watershed, there are 30 Sites that are deemed high priority Sites. Corrective action is to be completed and certified, within three years of the effective date of the IP. The high priority Sites for the Los Alamos/Pueblo watershed are as follows:

00-018(a)	00-019
01-001(d)	01-001(e)
01-001(f)	01-003(a)
01-003(e)	01-006(h)
02-003(a)	02-003(b)
02-003(e)	02-004(a)
02-005	02-006(b)
02-006(c)	02-006(d)
02-006(e)	02-007
02-008(a)	02-008(c)
02-009(a)	02-009(b)
02-009(c)	02-011(a)
02-011(b)	02-011(c)
02-011(d)	21-024(i)
73-001(a)	73-004(d)

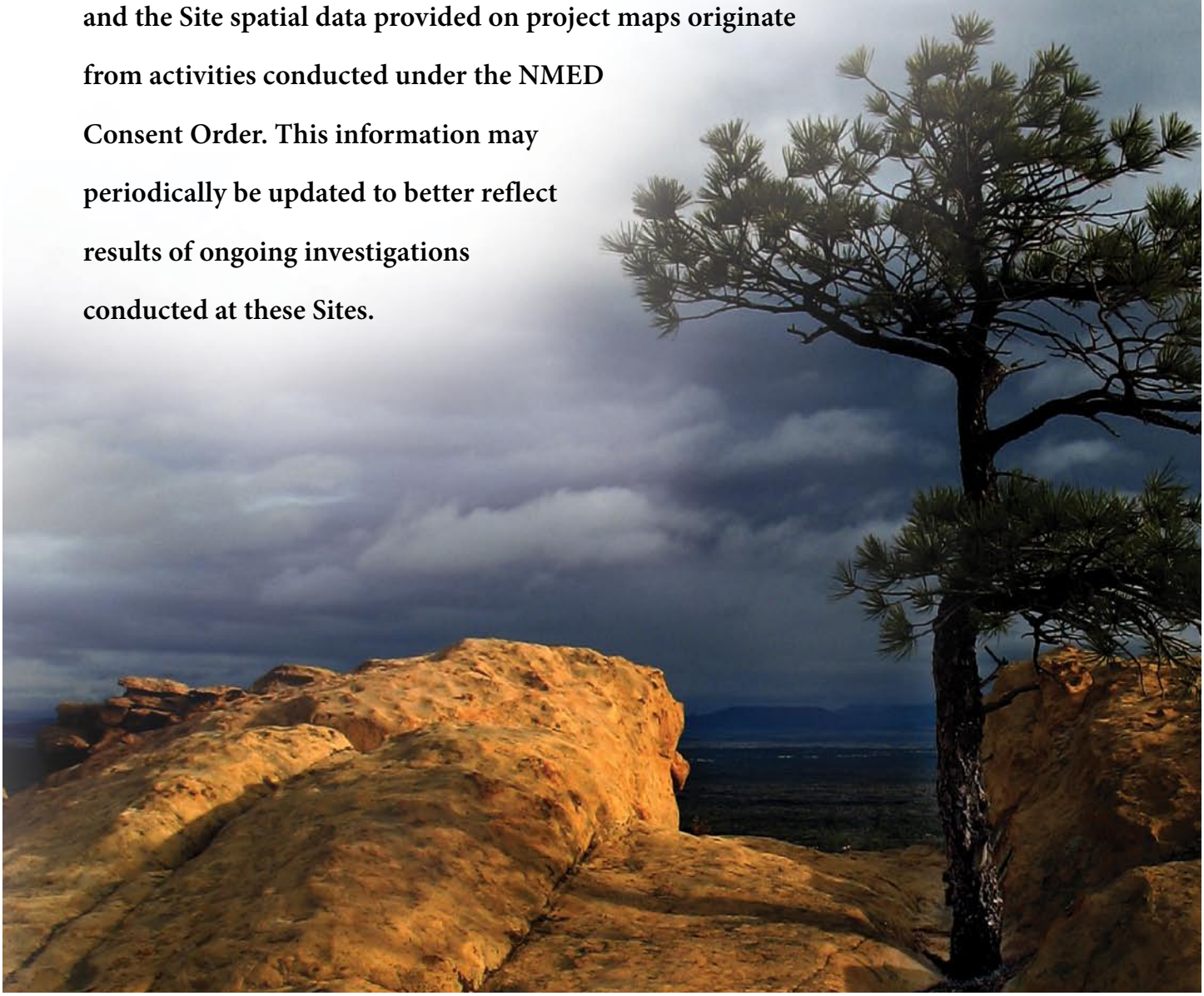
900.2.2 Moderate Priority Sites

Within the Los Alamos/Pueblo watershed, there are 71 Sites that are deemed moderate priority Sites. Corrective action is to be completed and certified within five years of the effective date of the IP.

SECTION 1000
SITE MONITORING AREAS

The following sections provide SMA-specific details of each permitted feature monitored under the IP. Each SMA described includes an area description, details of each identified potential pollutant source including a demonstration of substantially identical effluent where appropriate, a description of control measures specific to the identified pollutant source, a project map, the storm water monitoring requirements and schedule, and a summary of the current corrective action status for the SMA.

Site information provided in this SDPPP such as Site descriptions and the Site spatial data provided on project maps originate from activities conducted under the NMED Consent Order. This information may periodically be updated to better reflect results of ongoing investigations conducted at these Sites.



1000.1 R-SMA-0.5

1000.1.1 Area Description

1000.1.1 Area Description

1000.1.2 Potential Pollutant Sources

1000.1.3 Control Measures

1000.1.4 Project Map

1000.1.5 Storm Water Monitoring Plan and Schedule

1000.1.5.1 Initial Confirmation Monitoring

1000.1.5.2 Inspection Activity

1000.1.5.3 Maintenance

1000.1.6 Compliance Status

1000.1 R-SMA-0.5

1000.1.1 Area Description

R-SMA-0.5 is located on undeveloped land managed by the USFS. Storm water flows from the western boundary through the SMA to the receiving waters along the eastern boundary.

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R001, R-SMA-0.5, Site C-00-020.

AOC C-00-020 is a 30-acre mortar impact area located along the north valley wall of Rendija Canyon. The site also includes a northern tributary of Rendija Canyon west of Guaje Pines Cemetery. During a preliminary site survey in 1991, no ordnance was found at this site. Because signage and its arrangement at this site were similar to signage for impact areas AOC 00-011(a) through (e), the validity of the 1991 survey was called into question and this site was listed as an AOC.

The ER Project conducted an RFI at AOC C-00-020 in 1993 to search for and remove unexploded ordnance and ordnance explosive waste, map the geomorphology, and collect shallow surface-soil samples. No ordnance was found during the RFI. Because none was found, the RFI report stated that the site is not a former ordnance impact area, and recommended NFA for the site and approval for future residential use.

Table-1000.1.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
C-00-020	Mortar impact area	Discrete Location, No overlap	Individual	•	•	•	HE

1000.1.2.2 Public Influences

This Permitted Feature is accessible to the public but the terrain is rugged and steeply sloped. There is no evidence of hiking trails through the Permitted Feature or adjacent to the area.

1000.1.3 Control Measures

There is a large channel that runs directly through the monitored area. Controls used at this SMA are primarily to stabilize and reduce sediment loading in the storm water discharge from the area.

Subsections to 1000.1.3 list all control measures used to control pollutant sources identified in Section 1000.1.2. Control measures are shown in Table 1000.1.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.1.4.

1000.1.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.1.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R001 01 01 0014	Seed and Mulch - Seed and Wood Mulch			•		B
R001 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
R001 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
R001 03 03 0006	Berms - Log		•		•	CB
R001 03 06 0007	Berms - Straw Wattles	•			•	CB
R001 03 06 0008	Berms - Straw Wattles	•			•	CB
R001 03 06 0009	Berms - Straw Wattles		•		•	B
R001 03 06 0010	Berms - Straw Wattles	•			•	B
R001 03 06 0011	Berms - Straw Wattles		•		•	B
R001 03 06 0012	Berms - Straw Wattles		•		•	B
R001 03 06 0013	Berms - Straw Wattles		•		•	B

Seed and Mulch (R001-01-01-0014)

This seed and wood mulch has been applied around the western straw wattles to prevent erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (R001-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Log Berm (R001-03-03-0006)

This log berm is in place to stabilize the southern portion of the SMA and to reduce sediment loading in the storm water discharge.A log berm is a temporary containment control constructed of logs. Log berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Southern Straw Wattles (R001-03-06-0007)

Placed in the southern portion of the SMA to control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Berms - Straw Wattles (R001-03-06-0008)

Placed in the southern portion of the SMA to control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southeast (R001-03-06-0009)

This straw wattle is in place to stabilize the southern portion of the SMA and to reduce sediment loading in the storm water discharge. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - Southwest (R001-03-06-0010)

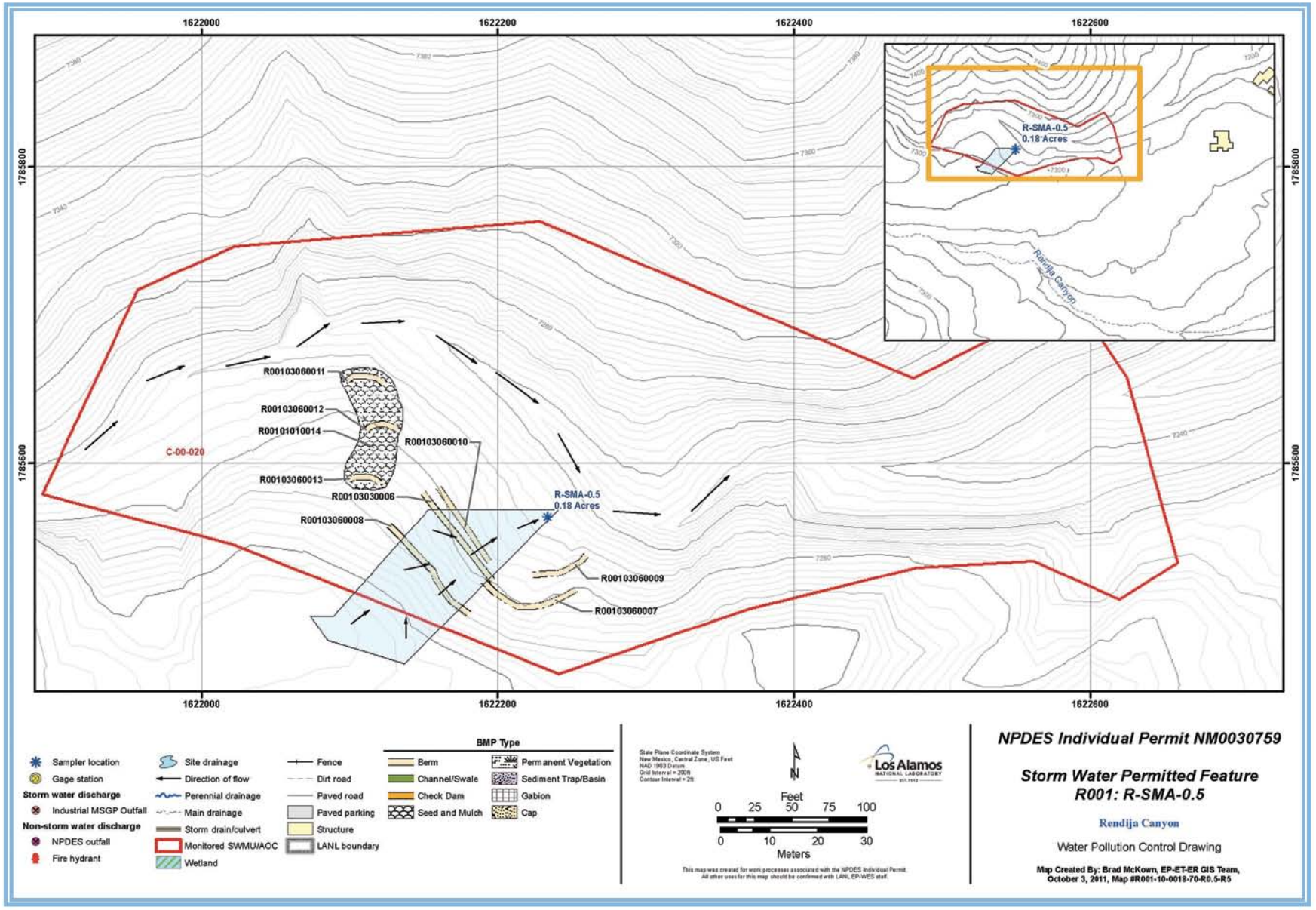
These straw wattles are located across the flow path southwest of the sampler. They are in place to stabilize the southern portion of the SMA and to reduce sediment loading in the storm water discharge.Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - West (R001-03-06-0011, -0012, -0013)

These are a series of three straw wattles located west of the SMA to control run-off and sediment transport. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.1.3.2 Control Measures for Public Influences

There are no control measures for public influences at PF R001, R-SMA-0.5. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


1622000
1622200
1622400
1622600
1785800
1785600
R00103060011
R00103060012
R00101010014
R00103060010
C-00-020
R00103060013
R00103030006
R00103060008
R-SMA-0.5
0.18 Acres
R00103060009
R00103060007
R-SMA-0.5
0.18 Acres
Rendija Canyon
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
R001: R-SMA-0.5
Rendija Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
October 3, 2011, Map #R001-10-0018-70-R0.5-R5

1000.1.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.1.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at R-SMA-1. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.1.5.2 Inspection Activity

RG-NCOM recorded one Storm Event at R-SMA-0.5 during the 2011 season. These rain event triggered one post storm inspection. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.1.5.2-1.

Table 1000.1.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-14033	06-22-2011
Storm Rain Event	BMP-17328	08-23-2011
Annual Erosion	COMP-17966	08-31-2011

1000.1.5.3 Maintenance

Table 1000.1.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17966	Installed straw wattle R00103060009 immediately above log berm R00103030004, which was retired.	09-15-2011	15 day(s)	Maintenance conducted as soon as practicable.
BMP-17966	Installed straw wattle R00103060010 immediately above log berm R00103030005, which was retired.	09-15-2011	15 day(s)	Maintenance conducted as soon as practicable.
BMP-17966	Installed straw wattles R00103060011, -0012, and -0013 across new road.	09-26-2011	26 day(s)	Maintenance conducted as soon as practicable.
BMP-17966	Installed seed and wood mulch R00101010014 in bare areas between wattle installations.	09-26-2011	26 day(s)	Maintenance conducted as soon as practicable.

1000.1.6 Compliance Status

The Site associated with R-SMA-0.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.2 R-SMA-1

1000.2.1 Area Description

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

1000.2.2.2 Public Influences

1000.2.3 Control Measures

1000.2.3.1 Control Measures for Public Influences

1000.2.4 Project Map

1000.2.5 Storm Water Monitoring Plan and Schedule

1000.2.5.1 Initial Confirmation Monitoring

1000.2.5.2 Corrective Action Plan & Schedule

1000.2.5.3 Inspection Activity

1000.2.5.4 Maintenance

1000.2.6 Compliance Status

1000.2 R-SMA-1

1000.2.1 Area Description

R-SMA-1 is located on undeveloped land managed by the USFS and land managed by Los Alamos County. The SMA is located in proximity to the Guaje Pines Cemetery, a residential subdivision, and the Los Alamos County golf course. There are multiple and significant run-on contributions to this large watershed originating from the following sources: Los Alamos golf course, residential areas, Guaje Pines Cemetery watering, fire hydrants, and road drainage.

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R002, R-SMA-1, Site C-00-041.

AOC C-00-041 was the site of a former asphalt batch plant in a 50 x 600 foot part of a side slope and drainage channel that flows into Rendija Canyon. The earliest evidence of asphalt plant operations was found on a 1951 aerial photograph. A similar photograph from 1958 shows the plant was still operational, but a 1965 photograph indicates that the asphalt plant no longer is present. The land was transferred in 1969 from the Atomic Energy Commission (predecessor to DOE), which had owned the land since 1943, to the US Forest Service. The Forest Service requested that DOE remediate the site because Forest Service regulations in effect at the time of the land transfer required restoring industrial sites when operations ended. Also, the NMED surface water division considered the asphalt and concrete "refuse in a watercourse," and recommended its removal. During field verification, this AOC was found to have two distinct parts: the southern part, where the asphalt plant was located, had four piles of asphalt, each about three feet in diameter and a few inches high, and parts of a building foundation; and the northern part, which had tar deposits that had flowed down a streambed. The ER Project conducted a VCA at AOC C-00-041 in 1995 to remove asphalt from the stream channel, the area to which the asphalt was confined, and to break up and remove the concrete blocks. Six samples, including two water samples, were collected from locations upstream beneath the asphalt at the upstream and downstream ends of the deposit, and from downstream of the deposit. The 300 cubic yards of excavated materials were disposed of at the Los Alamos County landfill. A Forest Service representative inspected the site and the VCA was declared complete to Forest Service satisfaction. The VCA report requested completion concurrence from DOE.

Table-1000.2.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
C-00-041	Asphalt and tar remnant site	Discrete Location, No overlap	Individual	•		•	

1000.2.2.2 Urban Influences

The watershed for this SMA has impacts from many roads and subdivisions in

the area. There is run-on to the site from the cemetery and range access roads. In addition, run-on from landscaping sources originating from private homes, the Los Alamos Golf Course and the Guaje Pines Cemetery impact this Permitted Feature.

1000.2.2.3 Public Influences

Pedestrian traffic originate from either the western or eastern boundaries. There is an existing hiking trail east of the sampler location. There is no litter present or observed in this area.

1000.2.3 Control Measures

Run-on has been controlled by the placement of a gabion blanket and gabions below the culvert outlet at the Guaje Pines Cemetery roundabout. The culvert is located on the eastern side of the round about associated with the cemetery.

Subsections to 1000.2.3 list all control measures used to control pollutant sources identified in Section 1000.2.2. Control measures are shown in Table 1000.2.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.2.4.

1000.2.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.2.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R002 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
R002 04 06 0006	Channel/Swale - Rip Rap	•		•		CB
R002 04 06 0007	Channel/Swale - Rip Rap	•		•		CB
R002 06 01 0005	Check Dam - Rock		•		•	CB

Established Vegetation (R002-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rip-Rap (R002-04-06-0006, -0007)

This pair of controls was installed by LA County in order to control run-on and erosion. They are located in the southern portion of the site drainage. Rip rap is a permanent, erosion resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam (R002-06-01-0005)

This rock check dam is located in the channel southwest of the sampler and serves to reduce sediment migration in the storm water discharge. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.2.3.2 Control Measures for Urban Influences

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R002 07 01 0001	Gabions - Gabions	•			•	CB
R002 07 01 0002	Gabions - Gabions	•			•	CB
R002 07 02 0004	Gabions - Gabion Blanket	•		•		CB

Gabions (R002-07-01-0001, -0002)

At this Permitted Feature a series of gabions have been located below the culvert outlet at the Guaje Pines Cemetery roundabout and serve as outlet protection for this run-on source. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

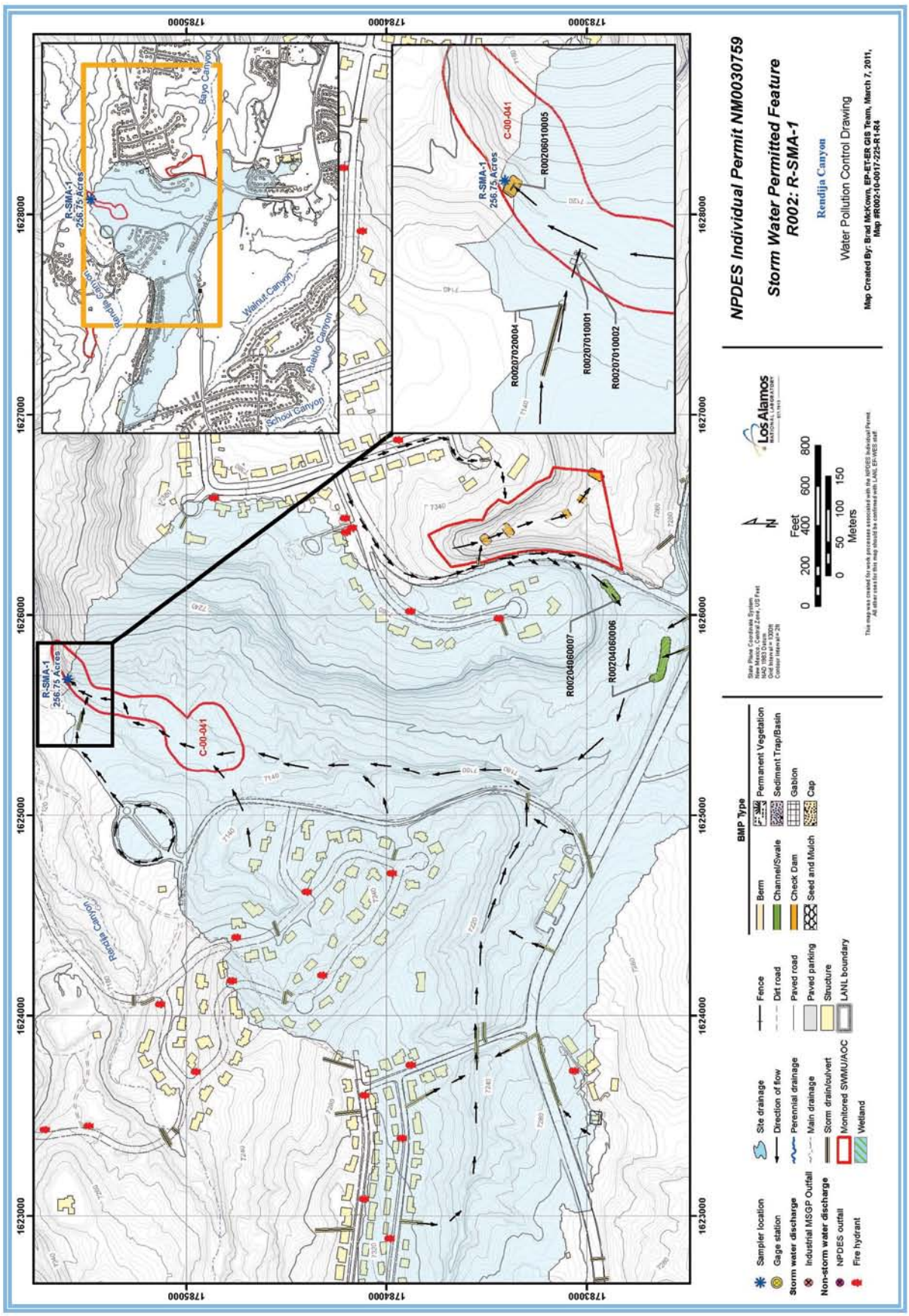
Gabion Blanket (R002-07-02-0004)

The gabion blanket serves as outlet protection, dissipating the velocity of storm water running off from the cemetery. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions and gabion blankets are used for erosion control when they are used to line a channel or swale.

1000.2.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF R002, R-SMA-1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.2.4 Project Map



1000.2.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

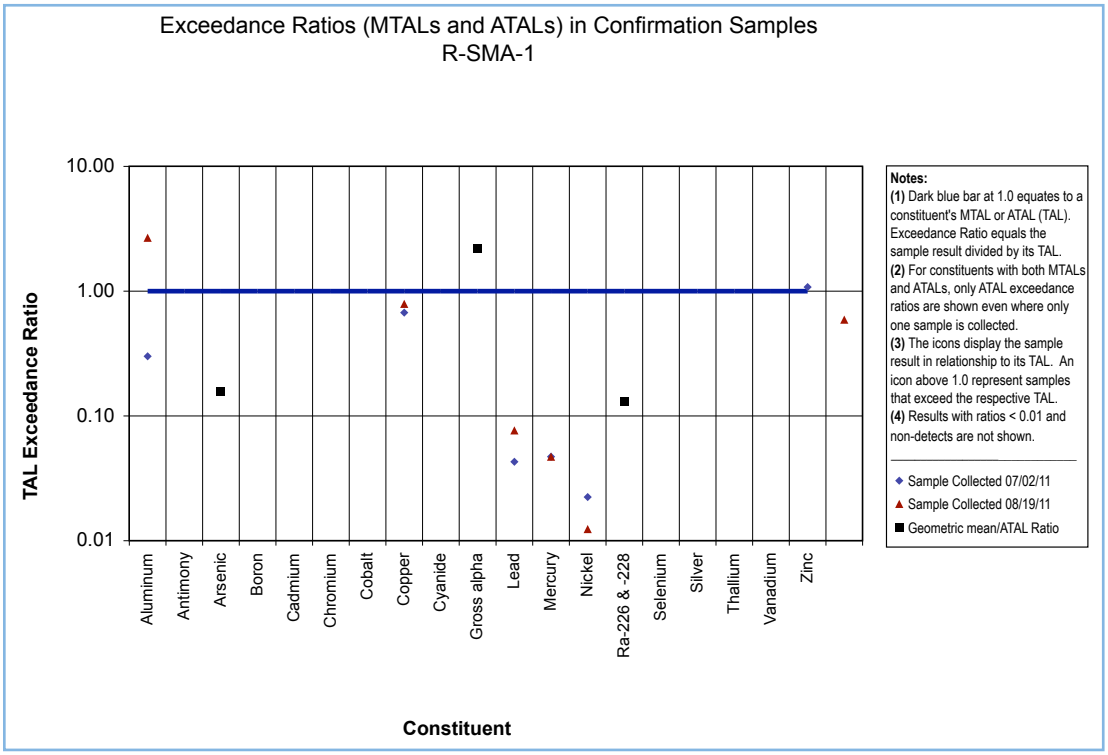
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.2.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from R-SMA-1 on July 02, 2011 and August 19, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.2.5.2.



1000.2.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at R-SMA-1. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.2.5.2-1.

Table 1000.2.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.2.5.3 Inspection Activity

RG-NCOM recorded one Storm Event at R-SMA-1 during the 2011 season. These rain events triggered one post storm inspection. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.2.5.3-1.

Table 1000.2.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-14032	06-22-2011
Storm Rain Event	BMP-17329	08-23-2011
Annual Erosion	COMP-17967	08-31-2011
TAL Exceedance	COMP-19538	09-02-2011

1000.2.5.4 Maintenance

During 2011 there were no maintenance activities at R-SMA-1.

1000.2.6 Compliance Status

The Site associated with R-SMA-1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.3 R-SMA-1.95

1000.3.1 Area Description

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

1000.3.2.2 Urban Influences

1000.3.2.3 Public Influences

1000.3.3 Control Measures

1000.3.3.1 Control Measures for Public Influences

1000.3.4 Project Map

1000.3.5 Storm Water Monitoring Plan and Schedule

1000.3.5.1 Initial Confirmation Monitoring

1000.3.5.2 Inspection Activity

1000.3.5.3 Maintenance

1000.3.6 Compliance Status

1000.3 R-SMA-1.95

1000.3.1 Area Description

R-SMA-1.95 is partially located on land managed by the USFS and partially located on land managed by the DOE. The southern boundary of the SMA contains the Sportsmen`s Club, a small arms firing range, and related structures leased and operated by Los Alamos County. There is an unpaved access road running parallel to the southern boundary. The eastern and western boundaries of the SMA are undeveloped but impacted by activities at the Sportsmen`s Club. The receiving waters are located along the northern boundary of the SMA.

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R003, R-SMA-1.95, Site 00-015.

AOC 00-015 is the Sportsmen's Club firing range, an active firing range located on General Services Administration land in Rendija Canyon. The firing range consists of several small-arms ranges and has operated since 1966. Lead is expected to be present in earthen berms and on the surface of the ranges. Shattered clay projectiles are present on the skeet and trap ranges.

Table-1000.3.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-015	Firing range, Rendija Canyon	Discrete Location, No overlap	Individual	•	•	•	HE

1000.3.2.2 Urban Influences

There is no impact to the Permitted Feature from the unpaved access road to the Los Alamos Sportsmen`s Club. Road run-off is managed by culverts and ditch drainage at the edge of the road. The dirt/semi-paved roads on the Club boundary are managed and no run-off was observed. The impact from parking associated with the firing range is minimal.

1000.3.2.3 Public Influences

The Sportsmen`s Club members maintain the area regularly, there is no additional need for signage or litter control.

1000.3.3 Control Measures

Run-on at the pistol range is managed and there is no impact to the site. Berms associated with the Sportsmen`s Club activity reduce the small amount of run-off potential. Heavy vegetation in the area also helps mitigate run-off. The area is maintained by the Club membership which also addresses any run-off issues.

Subsections to 1000.3.3 list all control measures used to control pollutant sources identified in Section 1000.3.2. Control measures are shown in Table 1000.3.3-1 and

described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.3.4.

1000.3.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.3.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R003 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
R003 03 01 0006	Berms - Earthen		•		•	CB
R003 03 06 0004	Berms - Straw Wattles		•		•	CB
R003 03 06 0005	Berms - Straw Wattles		•		•	CB

Established Vegetation (R003-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm With Spillway (R003-03-01-0006)
Located east of the rifle range. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattle Berms (R003-03-06-0004)
Located north of the trap range in conjunction with BMP -0005. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Berms - Straw Wattles (R003-03-06-0005)
Located north of the trap range. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.3.3.2 Control Measures for Urban Influences

Table 1000.3.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R003 04 01 0003	Channel/Swale - Earthen	•		•		CB
R003 04 04 0002	Channel/Swale - Culvert	•		•		CB

Earthen Channel (R003-04-01-0003)

This channel is associated with the access road and serves to divert storm water away from the SMA. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

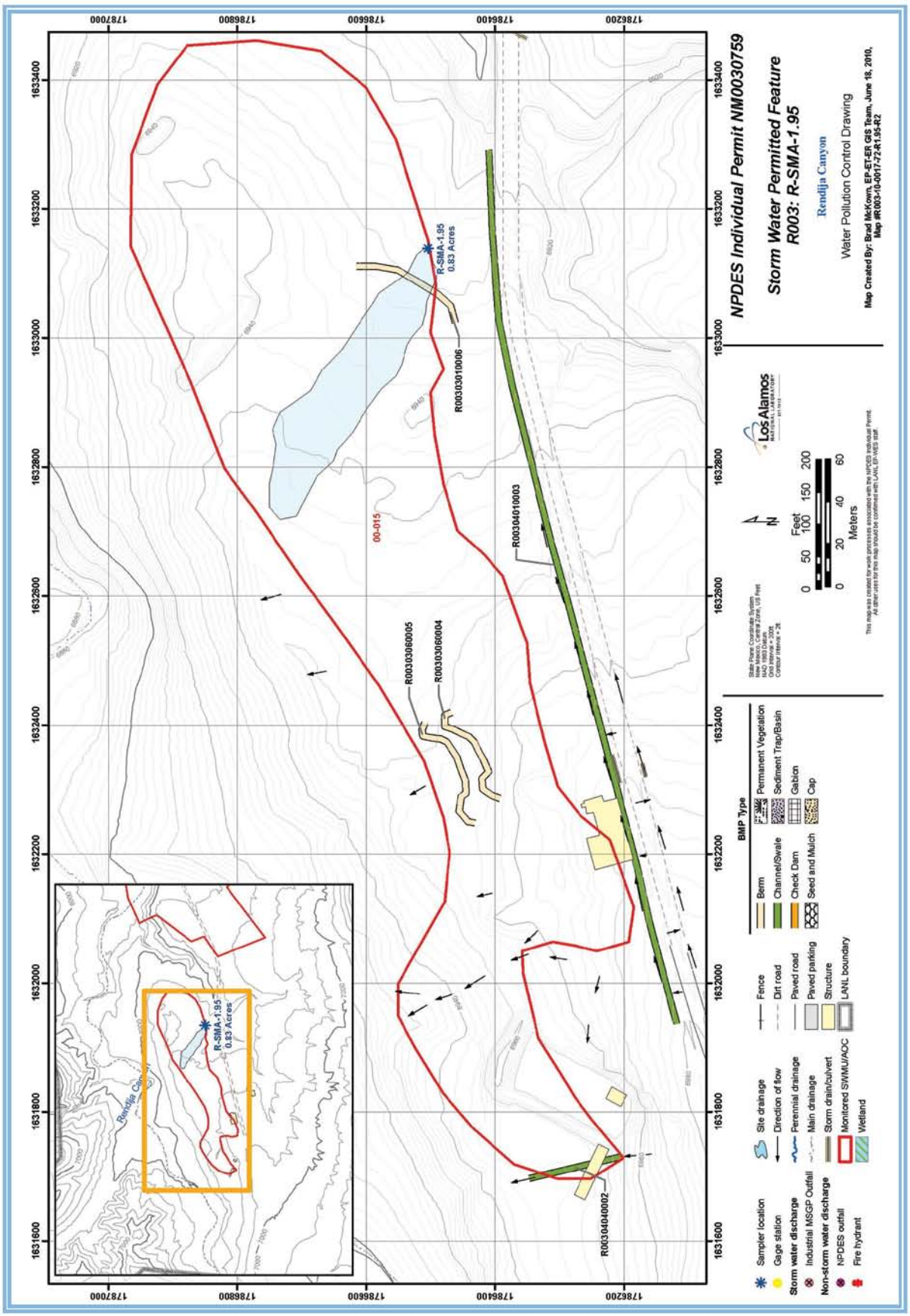
Culvert (R003-04-04-0002)

This culvert is located on the western side of the SMA and is used to control run-on to the Permitted Feature. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.3.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF R003, R-SMA-1.95. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.3.4 Project Map



1000.3.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

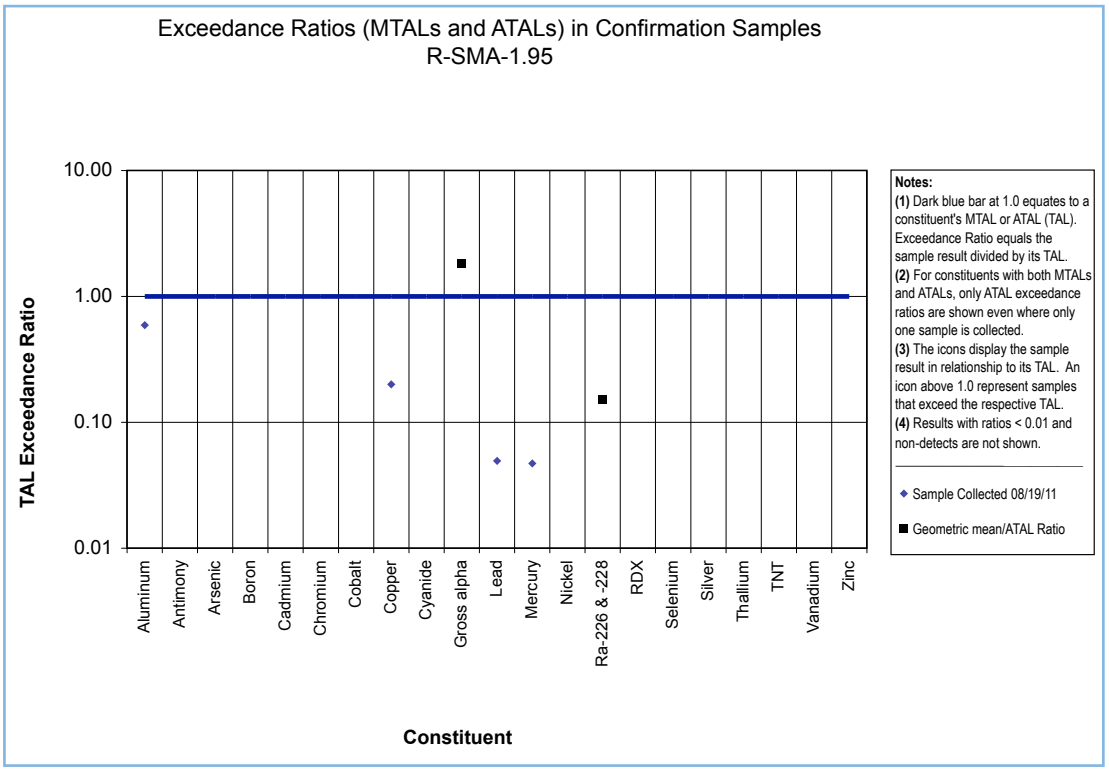
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.3.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from R-SMA-1.95 on August 19, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.3.5.2 Inspection Activity

RG038 recorded five Storm Events at R-SMA-1.95 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.3.5.2-1.

Table 1000.3.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-14031	06-22-2011
Storm Rain Event	BMP-15900	08-03-2011
Storm Rain Event	BMP-17154	08-23-2011
Annual Erosion	COMP-17975	08-31-2011
Storm Rain Event	BMP-18320	09-08-2011

1000.3.5.3 Maintenance

During 2011 there were no maintenance activities at R-SMA-1.95.

1000.3.6 Compliance Status

The Site associated with R-SMA-1.95 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.4 R-SMA-2.05

1000.4.1 Area Description

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

1000.4.2.2 Urban Influences

1000.4.2.3 Public Influences

1000.4.3 Control Measures

1000.4.3.1 Control Measures for Public Influences

1000.4.4 Project Map

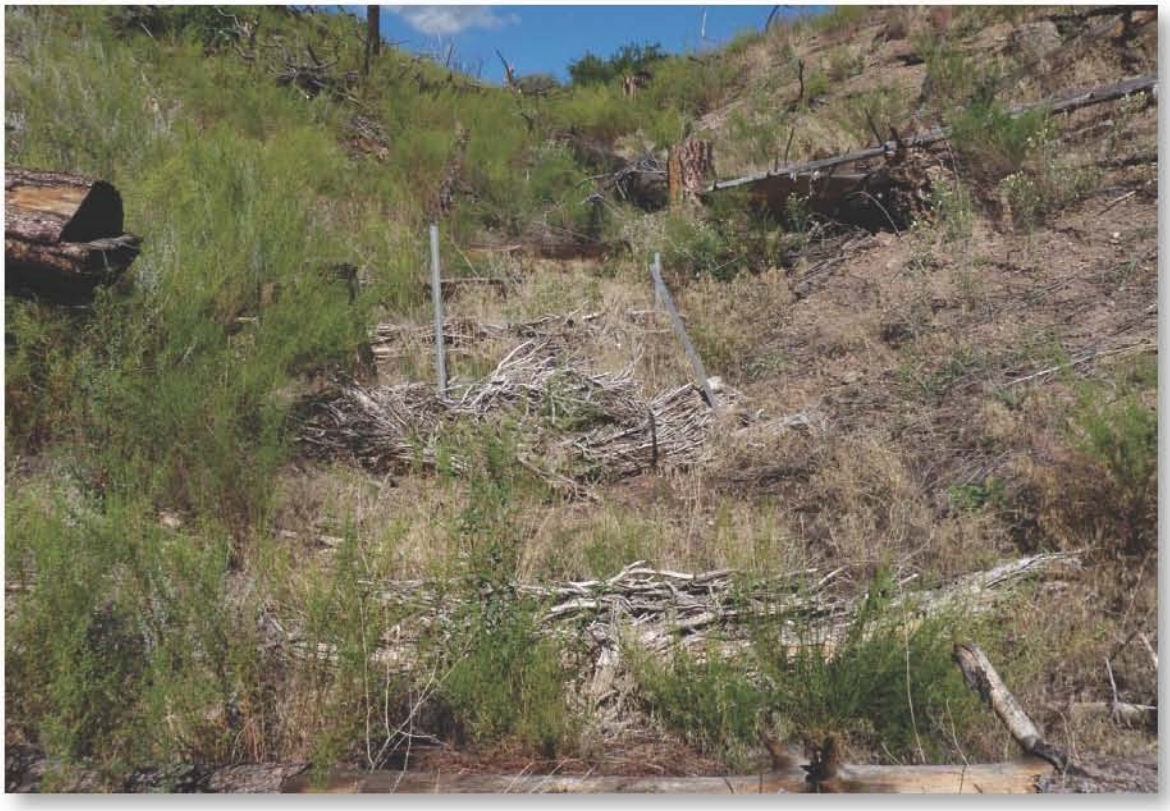
1000.4.5 Storm Water Monitoring Plan and Schedule

1000.4.5.1 Initial Confirmation Monitoring

1000.4.5.2 Inspection Activity

1000.4.5.3 Maintenance

1000.4.6 Compliance Status



1000.4 R-SMA-2.05

1000.4.1 Area Description

R-SMA-2.05 is located in Cabra Canyon, a tributary to Rendija Canyon. This area is rugged and remotely located. There are no run-on sources to this SMA. The northern boundary of the SMA is steeply sloped and the southern boundary of the SMA contains the receiving waters.

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R004, R-SMA-2.05, Site 00-011(c).

SWMU 00-011(c) is a possible mortar impact area located on DOE and US Forest Service property north of the Sportsmen's Club in Cabra Canyon, a tributary of Rendija Canyon. The possibility of its existence was discovered because of signs that were posted in the area in the 1940s. LANL conducted an RFI at SWMU 00-011(c) in 1993 to search for and remove UXO and OEW.

Table-1000.4.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-011(c)	Mortar impact area	Discrete Location, No overlap	Individual	•	•	•	HE

1000.4.2.2 Public Influences

There is a local hiking trail, "Guaje Mountain Trail", located along this eastern boundary. Because of the remote location, pedestrian traffic is estimated to be low.

1000.4.3 Control Measures

There are no run-on sources associated with this Permitted Feature other than natural overland flow. Similarly, run-off from this SMA is minimal, baseline controls have been installed to address any potential run-off.

Subsections to 1000.4.3 list all control measures used to control pollutant sources identified in Section 1000.4.2. Control measures are shown in Table 1000.4.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.4.4.

1000.4.3.1 Control Measures for Historical Industrial Activity Areas

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R004 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
R004 06 03 0002	Check Dam - Juniper Bales		•		•	CB
R004 06 03 0003	Check Dam - Juniper Bales		•		•	CB

Established Vegetation (R004-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

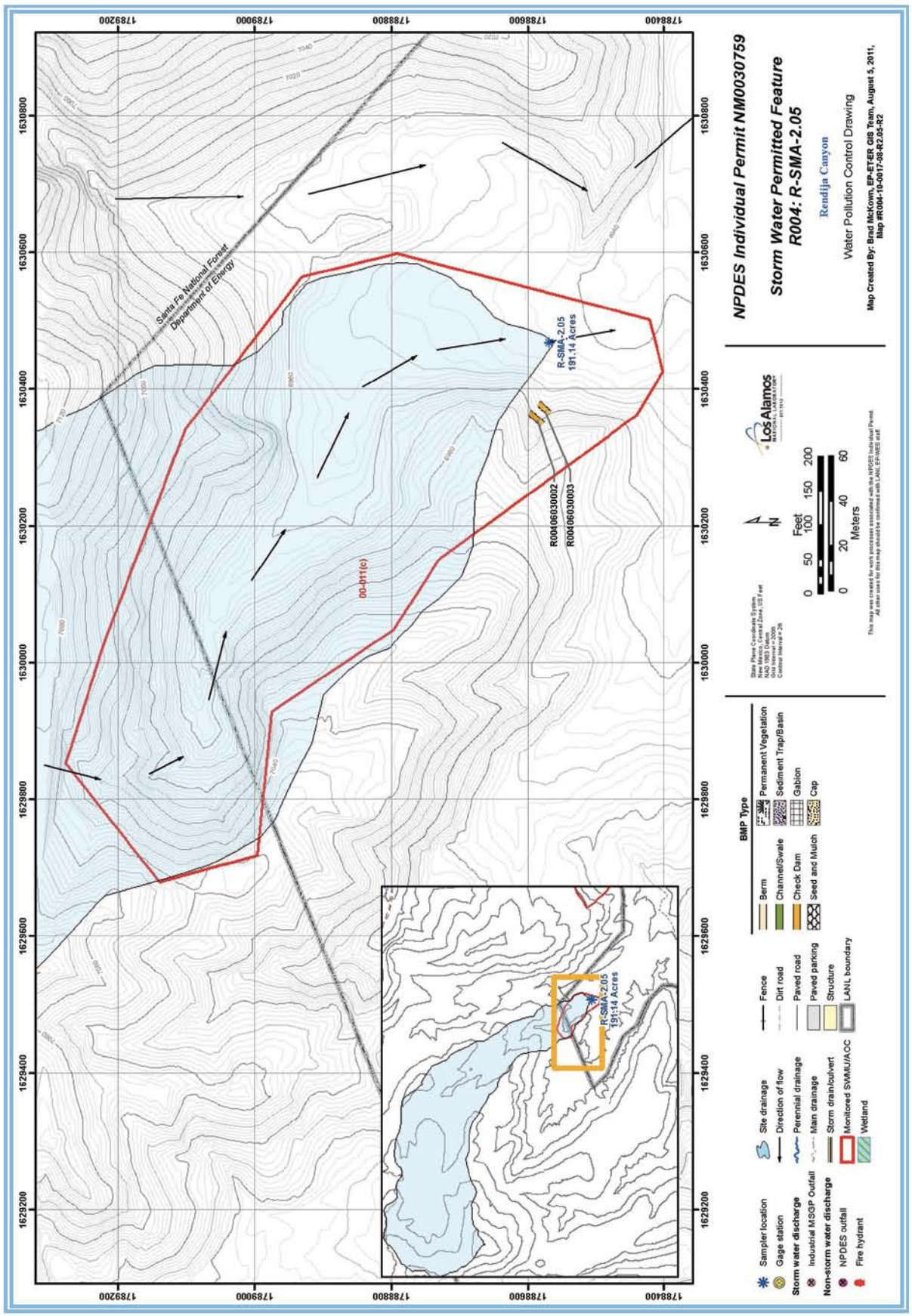
Juniper Bales (R004-06-03-0002, -0003)

A series of three juniper bale check dams are installed west of the sampler in the drainage channel. These controls serve to reduce sediment loading in storm water run-off from the area. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.4.3.2 Control Measures for Public Influences

There are no control measures for public influences at PF R004, R-SMA-2.05. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.4.4 Project Map



1000.4.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1)

1000.4.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at R-SMA-2.05. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.4.5.2 Inspection Activity

RG-NCOM recorded one Storm Event at R-SMA-2.05 during the 2011 season. These rain events triggered one post storm inspection. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.4.5.2-1.

Table 1000.4.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13792	06-22-2011
Storm Rain Event	BMP-17327	08-23-2011
Annual Erosion	COMP-17968	08-31-2011

1000.4.5.3 Maintenance

During 2011 there were no maintenance activities at R-SMA-2.05.

1000.4.6 Compliance Status

The Site associated with R-SMA-2.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.5 R-SMA-2.3

1000.5.1 Area Description

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

1000.5.2.2 Public Influences

1000.5.3 Control Measures

1000.5.3.1 Control Measures for Public Influences

1000.5.4 Project Map

1000.5.5 Storm Water Monitoring Plan and Schedule

1000.5.5.1 Initial Confirmation Monitoring

1000.5.5.2 Inspection Activity

1000.5.5.3 Maintenance

1000.5.6 Compliance Status

1000.5 R-SMA-2.3

1000.5.1 Area Description

R-SMA-2.3 is located on land managed by the USFS. This area is remotely located and the terrain is rugged. The SMA has no run-on sources and is heavily vegetated.

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R005, R-SMA-2.3, Site 00-011(e).

SWMU 00-011(e) is a former mortar impact area located on DOE and US Forest Service land north-northeast of the Sportsmen's Club in Thirty-Seven Millimeter Canyon, a tributary of Rendija Canyon. The area extends north along the tributary to the top of the cliff face. The area is approximately rectangular and, according to the map in the RFI report, measures approximately 1,080 x 945 feet. US Army personnel operating tanks firing 37-mm rounds used the canyon for training in the mid- to late 1940s. In the early 1960s, the site was fenced and posted with warning signs. The LANL conducted an RFI at SWMU 00-011(e) in 1993 to search for and remove UXO and OEW, to map the geomorphology, and to collect shallow surface soil samples.

Table-1000.5.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-011(e)	Mortar impact area	Discrete Location, No overlap	Individual	•	•	•	HE

1000.5.2.2 Public Influences

All boundaries of the SMA are accessible to the public. The area encompassed by the SMA is remote and rugged. Pedestrian traffic is estimated to be low on all boundaries.

1000.5.3 Control Measures

There are no run-on issues with this Permitted Feature. Run-off is minimal and is currently controlled with a Juniper bale check dam.

Subsections to 1000.5.3 list all control measures used to control pollutant sources identified in Section 1000.5.2. Control measures are shown in Table 1000.5.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.5.4.

1000.5.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.5.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R005 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
R005 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
R005 06 03 0003	Check Dam - Juniper Bales		•		•	CB

Established Vegetation (R005-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

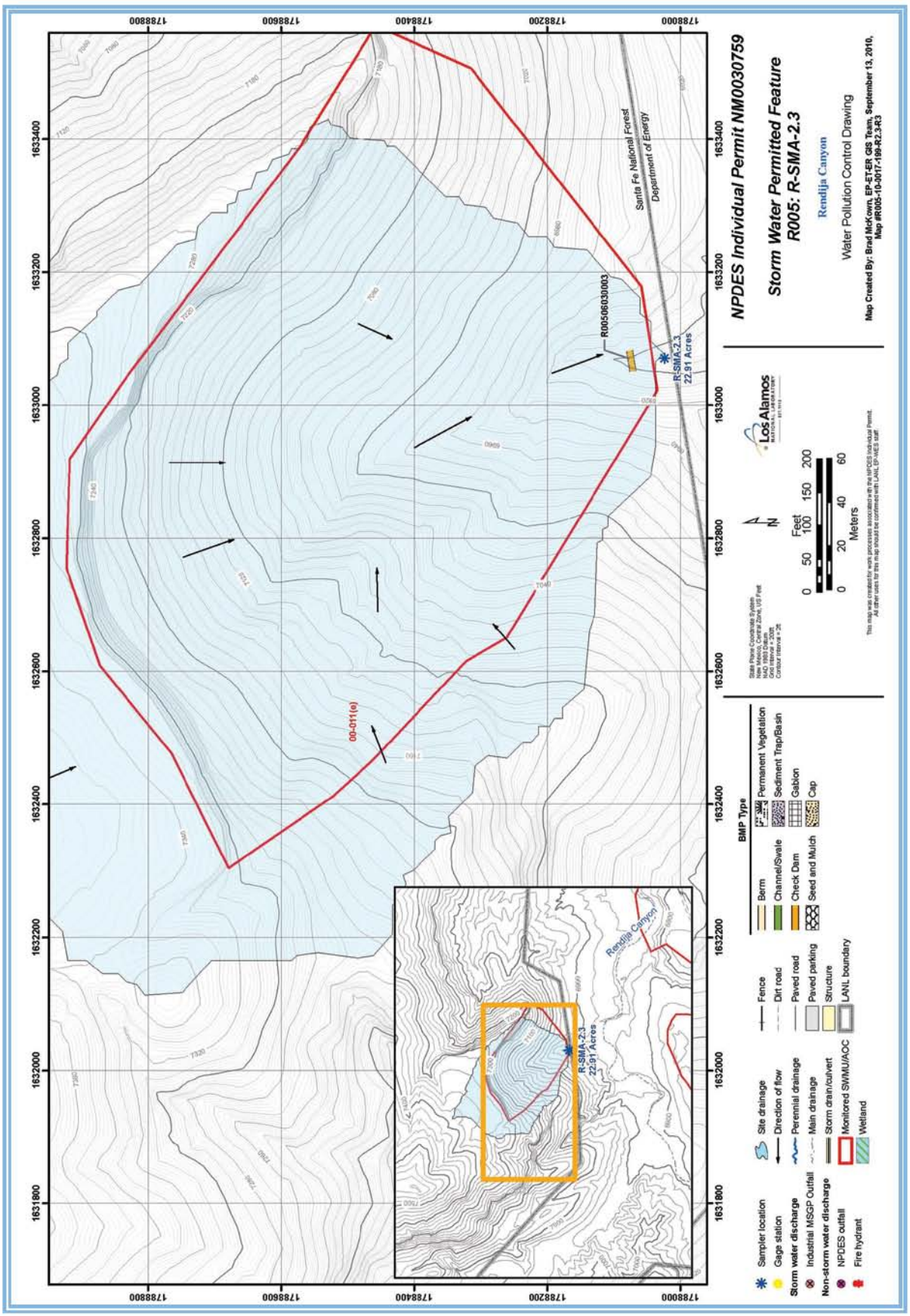
Juniper Bales (R005-06-03-0003)

Juniper bales have been installed north of the sampler to reduce sediment migration from the SMA. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.5.3.2 Control Measures for Public Influences

There are no control measures for public influences at PF R005, R-SMA-2.3. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.5.4 Project Map



1000.5.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1)

1000.5.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at R-SMA-2.3. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.5.5.2 Inspection Activity

RG038 recorded five Storm Events at R-SMA-2.3 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.5.5.2-1.

Table 1000.5.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-14030	06-22-2011
Storm Rain Event	BMP-15898	08-04-2011
Storm Rain Event	BMP-17152	08-23-2011
Annual Erosion	COMP-17976	08-31-2011
Storm Rain Event	BMP-18318	09-08-2011

1000.5.5.3 Maintenance

During 2011 there were no maintenance activities at R-SMA-2.3.

1000.5.6 Compliance Status

The Site associated with R-SMA-2.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.6 R-SMA-2.5

1000.6.1 Area Description

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

1000.6.2.2 Public Influences

1000.6.3 Control Measures

1000.6.3.1 Control Measures for Public Influences

1000.6.4 Project Map

1000.6.5 Storm Water Monitoring Plan and Schedule

1000.6.5.1 Initial Confirmation Monitoring

1000.6.5.2 Inspection Activity

1000.6.5.3 Maintenance

1000.6.6 Compliance Status

1000.6 R-SMA-2.5

1000.6.1 Area Description

R-SMA-2.5 is located almost entirely on land managed by the USFS. The area is steeply sloping in parts and a number of dirt access roads run through the SMA. A recreational hiking trail is also located within this SMA.

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF R006, R-SMA-2.5, Site 00-011(a).

SWMU 00-011(a) is a 28.5 acre former mortar impact area about four tenths of a mile east of the Sportsmen's Club firing range in Rendija Canyon. The impact area operated between 1944 and 1948. The area was fenced to keep individuals out of the site; surveys during the RFI found that the impact area was larger than previously thought, and the RFI covered more than the fenced area. LANL conducted an RFI at SWMU 00-011(a) in 1993 to search for and remove unexploded ordnance and ordnance explosive waste, to map the geomorphology, and to collect shallow surface soil samples. Two live mortar rounds were found and destroyed. Other materials recovered during the ordnance sweep included almost 2400 pieces of ordnance fragments and three times as much scrap material. Geomorphic mapping included mapping all drainage channels that drained the area enclosed within the boundaries of the site and the areas with high concentrations of ordnance fragments. Sampling locations were selected from sediment storage locations within the drainage channels that drained the areas of high fragment concentration. Nineteen soil samples were field-screened for radioactivity and were submitted for laboratory analysis of inorganic chemicals and HE. Radiation screening results were below detection limits. HE analytes were below detection limits.

Table-1000.6.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-011(a)	Former Mortar Impact Area	Discrete Location, No overlap	Individual	•	•	•	HE

1000.6.2.2 Urban Influences

Los Alamos County maintains the unpaved access road running through this SMA. The sampler is located close to this unpaved access road and can be impacted by grading activities conducted by the County. Inspections of this area should pay careful attention to the condition and potential impacts that road maintenance can have on the Permitted Feature.

1000.6.2.3 Public Influences

There is a public hiking trail on the northern boundary of the Permitted Feature.

1000.6.3 Control Measures

The gravel road cutting through the site directs run-on into the channel containing the sampler. Dirt paths throughout the site resulting from years of recreational activity, have modified the natural flow patterns and created ponding areas west of the sampler location. Jersey barriers have prevented access, which has allowed for re-vegetation from recreational impact across the site. Los Alamos county is responsible for maintenance of the area roads. The only discharge point south of Rendija Canyon road is the channel below the sampler.

Subsections to 1000.6.3 list all control measures used to control pollutant sources identified in Section 1000.6.2. Control measures are shown in Table 1000.6.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.6.4.

1000.6.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.6.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
R006 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
R006 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
R006 04 06 0004	Channel/Swale - Rip Rap	•		•		CB
R006 06 01 0003	Check Dam - Rock		•		•	CB
R006 06 01 0005	Check Dam - Rock	•			•	CB
R006 06 01 0006	Check Dam - Rock	•			•	CB

Established Vegetation (R006-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Channel/Swale - Rip Rap (R006-04-06-0004)
The rip rap is located south of the unpaved county road, northwest of the sampler. It is managing run-on generated from the county road. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

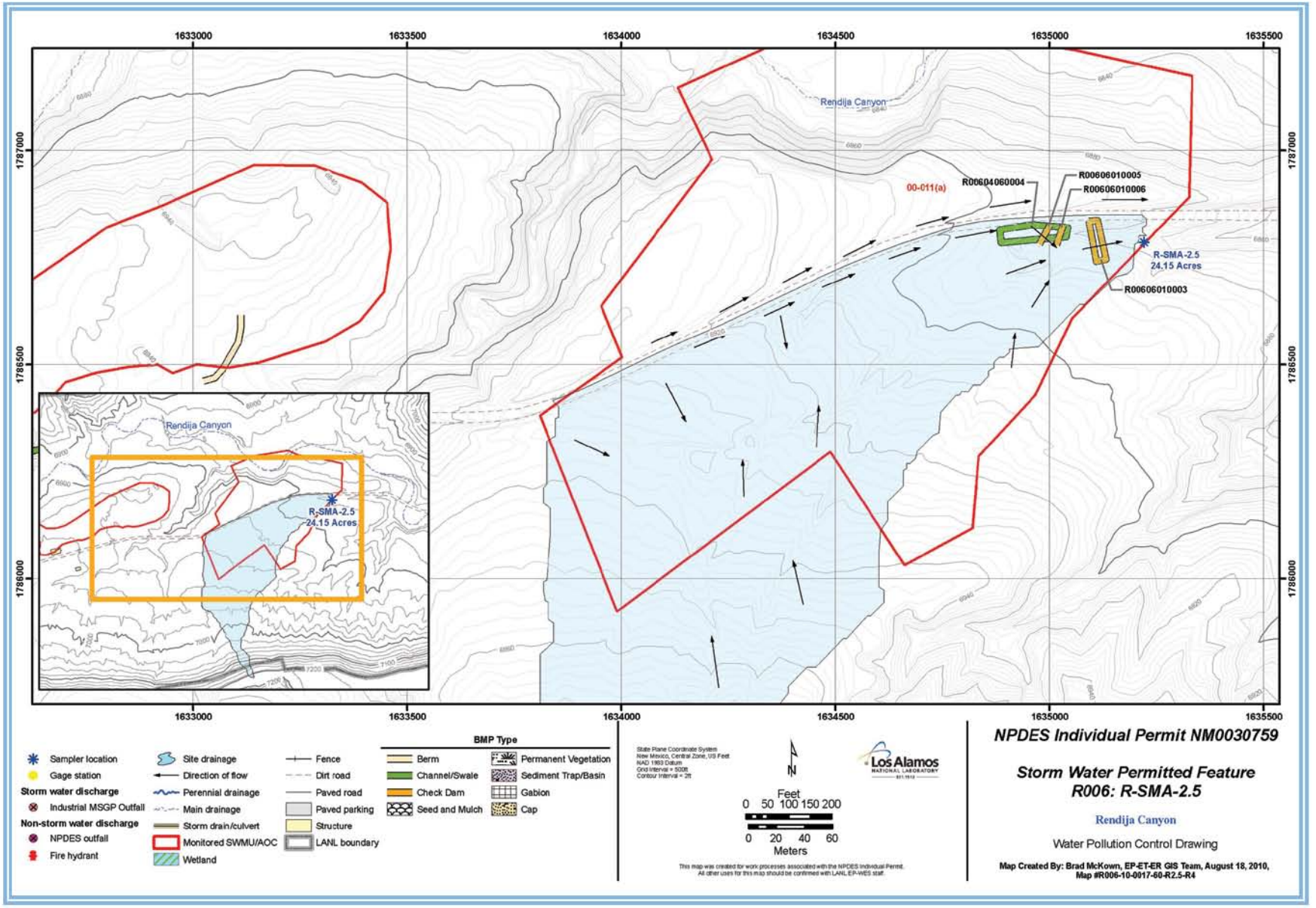
Rock Check Dam (R006-06-01-0003)
A rock check dam has been installed in a channel west of the sampler to encourage sediment retention. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Northern Check Dam (R006-06-01-0005)
Located in the northern portion of the SMA, east of Rip Rap number -0004. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Check Dam - Rock (R006-06-01-0006)
Located in the northern portion of the SMA, to the east of check dam -0005. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.6.3.2 Control Measures for Urban Influences
There are no control measures for Urban Influences at PF R006, R-SMA-2.5. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.6.3.3 Control Measures for Public Influences
There are no control measures for public influences at PF R006, R-SMA-2.5. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


1633000
1633500
1634000
1634500
1635000
1635500
1787000
1786500
1786000
Rendija Canyon
00-011(a)
R00604060004
R00606010005
R00606010006
R-SMA-2.5
24.15 Acres
R00606010003
Rendija Canyon
R-SMA-2.5
24.15 Acres
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
N
Feet
0 50 100 150 200
0 20 40 60
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
R006: R-SMA-2.5
Rendija Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 18, 2010,
Map #R006-10-0017-60-R2.5-R4

1000.6.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.6.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at R-SMA-1. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.6.5.2 Inspection Activity

RG038 recorded five Storm Events at R-SMA-2.5 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.6.5.2-1.

Table 1000.6.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-14029	06-22-2011
Storm Rain Event	BMP-15899	08-03-2011
Storm Rain Event	BMP-17153	08-23-2011
Annual Erosion	COMP-17977	08-31-2011
Storm Rain Event	BMP-18319	09-08-2011

1000.6.5.3 Maintenance

During 2011 there were no maintenance activities at R-SMA-2.5.

1000.6.6 Compliance Status

The Site associated with R-SMA-2.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.7 B-SMA-0.5

1000.7.1 Area Description

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

1000.7.2.2 Urban Influences

1000.7.2.3 Public Influences

1000.7.3 Control Measures

1000.7.3.1 Control Measures for Historical Industrial Activity Areas

1000.7.3.2 Control Measures for Public Influences

1000.7.4 Project Map

1000.7.5 Storm Water Monitoring Plan and Schedule

1000.7.5.1 Initial Confirmation Monitoring

1000.7.5.2 Inspection Activity

1000.7.5.3 Maintenance

1000.7.6 Compliance Status

1000.7 B-SMA-0.5

1000.7.1 Area Description

B-SMA-0.5 is located adjacent to the receiving waters of Bayo Canyon. The area is open and accessible to the public. On the northern boundary of the SMA is the primary drainage channel in Bayo canyon and Otowi Mesa. The drainage channel runs from the northwest to the southeast. The southern boundary is Kwage Mesa. The eastern boundary is undeveloped canyon bottom. The southern boundary is a paved access road with the Los Alamos County sewage treatment plant located south of the SMA.

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

There are eight historical industrial activity areas associated with Permitted Feature (PF) B001, B-SMA-0.5 Sites

- **10-001(a)**
- **10-001(b)**
- **10-001(c)**
- **10-001(d)**
- **10-004(a)**
- **10-004(b)**
- **10-008**
- **10-009**

SWMU 10-001(a) is an inactive firing site used from 1943 to 1961 to conduct experiments using HE in conjunction with nuclear weapons research. Each primary firing site had a shot pad, a battery building, and a fire control building. The primary firing sites were near Bayo Canyon and were rotated for use. After a shot, residual material reportedly was moved to a disposal pit (SWMU 10-005) near the firing sites. Sitewide decommissioning of the firing sites, radiochemistry laboratory, and associated structures was completed in 1963. TA-10 was released to Los Alamos County in 1967. Parts of Bayo Canyon are open to the public for recreational use. Potential contaminants at this SWMU were HE, lead, beryllium, barium, uranium, and strontium-90. SVOCs may have been dispersed by the explosives testing.

SWMU 10-001(b) is an inactive firing site used from 1943 to 1961 to conduct experiments using HE in conjunction with nuclear weapons research. Each primary firing site had a shot pad, a battery building, and a fire control building. The primary firing sites were near Bayo Canyon and were rotated for use. After a shot, residual material reportedly was moved to a disposal pit (SWMU 10-005) near the firing sites. Sitewide decommissioning of the firing sites, radiochemistry laboratory, and associated structures was completed in 1963. TA-10 was released to Los Alamos County in 1967. Parts of Bayo Canyon are open to the public for recreational use. Potential contaminants at this SWMU were HE, lead, beryllium, barium, uranium, and strontium-90. SVOCs may have been dispersed by the explosives testing.

SWMU 10-001(c) is an inactive firing site used from 1943 to 1961 to conduct experiments using HE in conjunction with nuclear weapons research. Each primary firing site had a shot pad, a battery building, and a fire control building. The primary firing sites were near Bayo Canyon and were rotated for use. After a shot, residual material reportedly was moved to a disposal pit (SWMU 10-005) near the firing sites. Sitewide decommissioning of the firing sites, radiochemistry laboratory, and associated structures was completed in 1963. TA-10 was released to Los Alamos County in 1967. Parts of Bayo Canyon are open to the public for recreational use. Potential contaminants at this SWMU were HE, lead, beryllium, barium, uranium, and strontium-90. SVOCs may have been dispersed by the explosives testing.

SWMU 10-001(d) is an inactive firing site used from 1943 to 1961

to conduct experiments using HE in conjunction with nuclear weapons research. Each primary firing site had a shot pad, a battery building, and a fire control building. The primary firing sites were near Bayo Canyon and were rotated for use. After a shot, residual material reportedly was moved to a disposal pit (SWMU 10-005) near the firing sites. Sitewide decommissioning of the firing sites, radiochemistry laboratory, and associated structures was completed in 1963. TA-10 was released to Los Alamos County in 1967. Parts of Bayo Canyon are open to the public for recreational use. Potential contaminants at this SWMU were HE, lead, beryllium, barium, uranium, and strontium-90. SVOCs may have been dispersed by the explosives testing.

SWMU 10-004(a) was a 1,060 gallon septic tank (structure 10-40), associated lines, and outfall that served the personnel building (Building 10-21) from 1949 through 1963. The tank discharged to a pit measuring 8 ft long x 12 ft deep. The septic system discharged to a drain-line and outfall located in a stream channel about 200 feet northeast of SWMU 10-002(a). The tank was removed during D&D activities in 1963 and disposed of at TA-54, Area G. It was unclear whether the four inch diameter tile drain and the soil around the outfall were removed during decommissioning. Suspect contaminants were strontium-90, total uranium, barium, cadmium, lead, beryllium, and inorganic and organic chemicals.

The ER Project conducted an RFI at this SWMU in September and October 1994. Thirty-one samples were taken from eight subsurface locations at this SWMU. Samples were analyzed for inorganic and organic chemicals, total uranium, and strontium-90. This SWMU was recommended for NFA.

SWMU 10-004(b) is a former reinforced-concrete sanitary septic tank that served the radiochemistry laboratory from 1944 to 1963. The tank was 4 x 10 x 4 ft deep, with a 540 gallon capacity. The tank handled sanitary waste but was suspected also to have received liquid wastes from the radiochemistry laboratory. Overflow from the tank drained through a four inch, open-joint, VCP drainpipe to the stream channel. The tank was removed during D&D activities in 1963 and disposed of at TA-54, Area G. Potential contaminants at this SWMU were strontium-90, total uranium, barium, cadmium, lead, beryllium, and inorganic and organic chemicals.

SWMU 10-008 was located about 1400 feet northwest of the primary firing sites. It was identified during 1994 IA activities to address shrapnel in Bayo Canyon. During the IA, shrapnel was found embedded in the northwestern sides of trees in the area, opposite the known firing sites. The presence of the shrapnel suggested the existence of an additional firing site. Archival research indicates that SWMU 10-008 was used for nonradioactive shots during the 1940s.

AOC 10-009 is a former Bayo Canyon landfill discovered during routine surface shrapnel characterization activities in Bayo Canyon. A small depression was noted that contained materials such as asbestos siding, heavy-gauge and coaxial wire and cable, glass laboratory equipment, and other debris. A geophysical survey conducted in the area indicates additional bgs material. The landfill area differs from the surrounding area, as there are fewer boulders in the immediate vicinity, smaller and younger trees, and potential bulldozer blade cuts. Additional interviews conducted with former area workers confirmed that the area had been used for disposal.

EPA was notified of a new SWMU in May 1995. The site was fenced in 1995, pending further investigation and/or remediation.

Table-1000.7.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
10-001(a)	Firing site	Co-located, Overlapping	Shared	•		•	
10-001(b)	Firing site	Co-located, Overlapping	Shared	•		•	
10-001(c)	Firing site	Co-located, Overlapping	Shared	•		•	
10-001(d)	Firing site	Co-located, Overlapping	Shared	•		•	
10-004(a)	Soil contamination from former septic tank	Co-located, Overlapping	Shared	•		•	
10-004(b)	Septic system	Co-located, Overlapping	Shared	•		•	
10-008	Tree-rimmed firing point, Bayo Canyon	Co-located, Overlapping	Shared	•		•	
10-009	Former Bayo Canyon landfill	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Former TA-10 was used to conduct open detonation tests and radio-chemistry operations. The entire area was decontaminated and demolished by 1963. Because of the extensive remedial work, shared drainage, and common contaminants, these Sites will discharge substantially identical effluent.

1000.7.2.2 Urban Influences

There is a drainage channel extending from Kwage Mesa down into the SMA. Los Alamos County activities generally occur below the SMA and do not impact monitoring results. TA-10 had paved access roads at one time, these have been left in place and are deteriorating to the extent that they do not provide run-on contributions.

1000.7.2.3 Public Influences

Pedestrian traffic on or around the SMA is estimated to be moderate. There is a well developed hiking trail that runs between the SMA and the drainage in Bayo Canyon. Vehicular traffic is estimated to be low since the area is no longer used by DOE.

1000.7.3 Control Measures

Run-on contributions from area roads is minimal. There is concentrated run-on flow from the slope south of one of the Sites impacting the fenced area. The majority of run-on to this Permitted Feature originates in natural areas.

Subsections to 1000.7.3 list all control measures used to control pollutant sources identified in Section 1000.7.2. Control measures are shown in Table 1000.7.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.7.4.

1000.7.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.7.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
B001 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
B001 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
B001 03 01 0006	Berms - Earthen	•			•	CB
B001 03 01 0007	Berms - Earthen		•		•	CB
B001 06 01 0008	Check Dam - Rock		•		•	CB

Established Vegetation (B001-02-01-0001, -02-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (B001-03-01-0006)

Located near 10-004(a) to control run-on and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Berms - Earthen (B001-03-01-0007)

Located in the northwestern corner of the SMA in order to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dam (B001-06-01-0008)

Located west of berm 0006 this dam will aid in controlling run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.7.3.2 Control Measures for Urban Influences

Table 1000.7.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
B001 04 01 0005	Channel/Swale - Earthen	•		•		CB
B001 04 04 0003	Channel/Swale - Culvert	•		•		CB

Channel/Swale (B001-04-01-0005)

The channel is located northwest of 10-0004(b), near the culvert outlet. It aids in diverting run-on from the natural areas. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

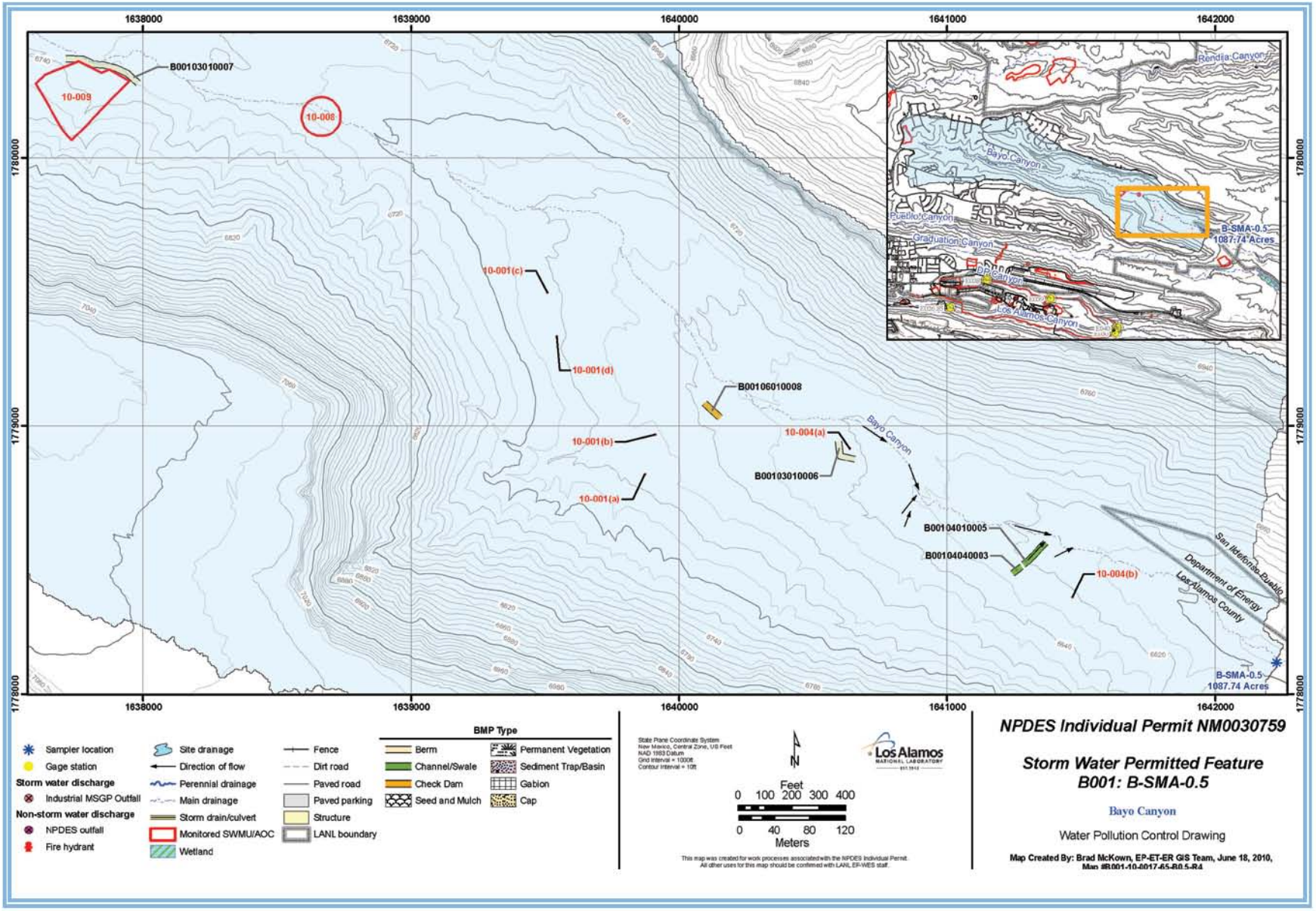
Culvert (B001-04-04-0003)

The culvert is located northwest of 10-0004(b), bisecting the unpaved access road and is diverting run-on from overland flow above the SMA. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.7.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF B001, B-SMA-0.5. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.7.4 Project Map



1000.7.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.7.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at B-SMA-0.5. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.7.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at B-SMA-0.5 during the 2011 season. These rain events triggered two post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.7.5.2-1.

Table 1000.7.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13831	07-12-2011
Storm Rain Event	BMP-15386	08-02-2011
Annual Erosion	COMP-17969	08-30-2011
Storm Rain Event	BMP-18278	09-08-2011

1000.7.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.7.5.3-1

Table 1000.7.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
COMP-17969	Cleaned sediment out of channel/swale B00104010005.	09-15-2011	16 day(s)	Maintenance conducted as soon as practicable.

1000.7.6 Compliance Status

The Sites associated with B-SMA-0.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.8 B-SMA-1

1000.8 B-SMA-1

1000.8.1 Area Description

B-SMA-1 is located in a high traffic area adjacent to San Ildefonso road in the Los Alamos township. The northern boundary of the SMA is influenced by development, residential housing, and the primary access road for residents (San Ildefonso road). The southern boundary is undeveloped and moderately sloping. Bayo Canyon receiving waters are to the southeast.

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF B002, B-SMA-1, Site 00-011(d).

SWMU 00-011(d) is an inactive firing range on predominantly Los Alamos County land and a small section of private property in a small north-trending tributary of Bayo Canyon. The site, which operated between 1944 and 1948, is located northeast of the intersection of San Ildefonso Road and Diamond Drive. The area is marked and fenced. An investigation was conducted in 1992 to search for and remove UXO and OEW. OEW that was recovered from the site was found in the subsurface and was composed of about 0.5 cubic yard of tail fin assemblies, motors, bullets, and other fragments from bazookas.

Table-1000.8.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-011(d)	Mortar impact area	Discrete Location, No overlap	Individual	•	•	•	HE

1000.8.2.2 Urban Influences

This SMA is surrounded by development on the northern, eastern, and western boundaries. There are significant run-on contributions to storm water run-off from this SMA. These run-on sources are primarily associated with engineered controls for roads and paved areas in proximity to the SMA.

1000.8.2.3 Public Influences

The SMA is surrounded by developed areas and has a public trail-head located along the southern border of the SMA. The SMA will be inspected for litter and other floatable debris. Signage will be implemented as necessary.

1000.8.3 Control Measures

There is significant run-on to the SMA from urban areas on the east and west sides. This run-on source is from engineered controls associated with paved roads and parking areas. There is also a small contribution from residences to the west.

Subsections to 1000.8.3 list all control measures used to control pollutant sources identified in Section 1000.8.2. Control measures are shown in Table 1000.8.3-1 and

described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.8.4.

1000.8.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.8.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
B002 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
B002 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
B002 06 01 0005	Check Dam - Rock		•		•	CB
B002 06 01 0006	Check Dam - Rock		•		•	CB
B002 06 01 0007	Check Dam - Rock		•		•	CB

Established Vegetation . (B002-02-01-0001, -02-0002)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dams - South (B002-06-01-0005, -0006, -0007)
This is a series of three rock check dams located just to the northwest of the sampler in the main channel. They are restricting run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.8.3.2 Control Measures for Urban Influences

Table 1000.8.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
B002 06 01 0003	Check Dam - Rock	•			•	CB
B002 06 01 0004	Check Dam - Rock	•			•	CB

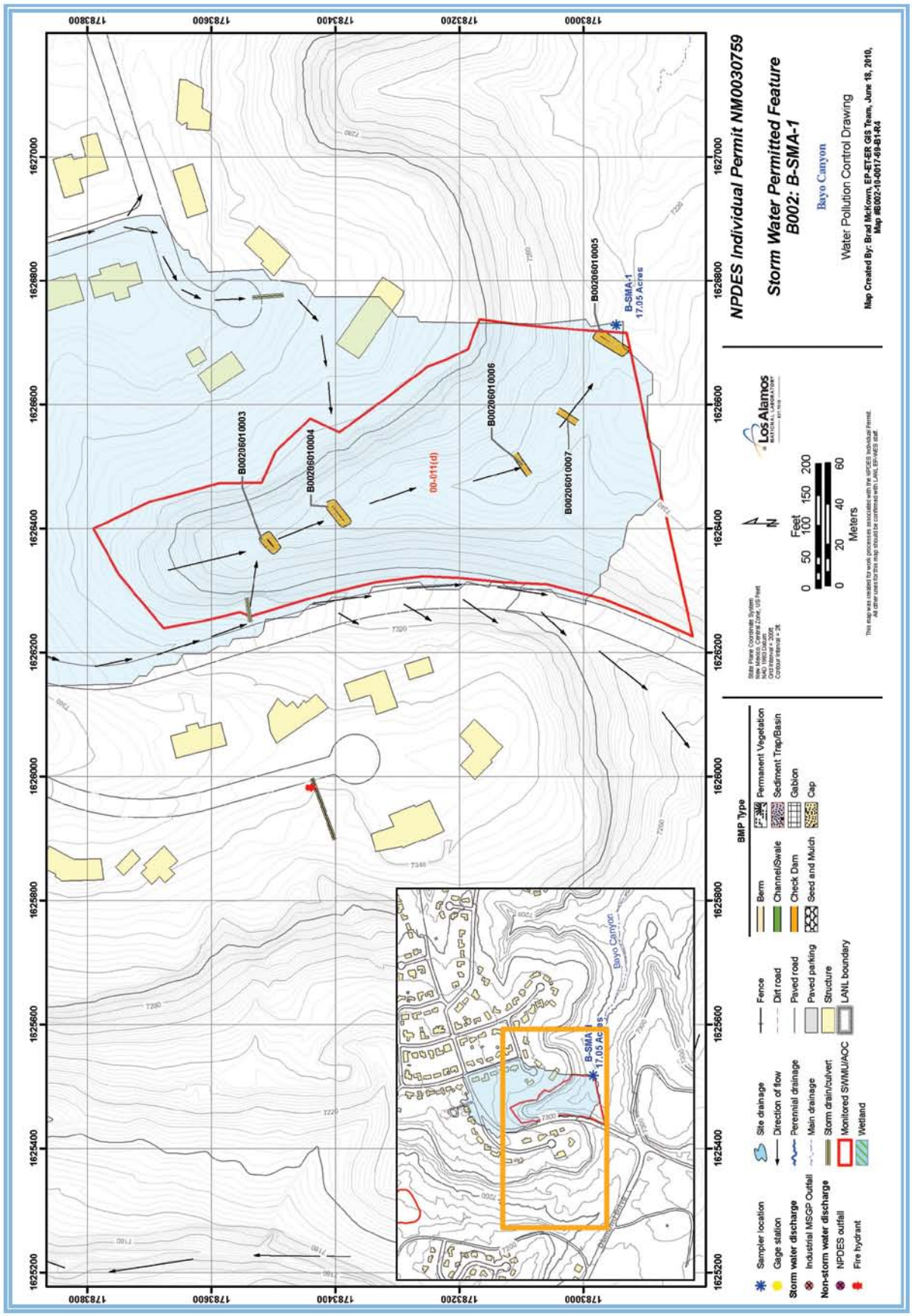
Rock Check Dams - North (B002-06-01-0003, -0004)

This is a pair of check dams located in the canyon drainage southeast of the mesa top culvert outfall. They are mitigating run-on issues from the culvert outflow. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.8.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF B002, B-SMA-1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.8.4 Project Map



1000.8.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	HE (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.8.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at B-SMA-1. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.8.5.2 Inspection Activity

RG055.5 recorded four Storm Events at B-SMA-1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.8.5.2-1.

Table 1000.8.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13832	06-22-2011
Storm Rain Event	BMP-16217	08-09-2011
Storm Rain Event	BMP-17193	08-23-2011
Annual Erosion	COMP-17970	08-30-2011
Storm Rain Event	BMP-18868	09-12-2011

1000.8.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.8.5.3-1.

Table 1000.8.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18868	Needle cast cleared from behind rock check dam B00206010003.	09-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18868	Needle cast cleared from behind rock check dam B00206010005.	09-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18868	Needle cast cleared from behind rock check dam B00206010006.	09-12-2011	0 day(s)	Maintenance conducted upon inspection.

1000.8.6 Compliance Status

The Site associated with B-SMA-1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.9 ACID-SMA-1.05

1000.9 ACID-SMA-1.05

1000.9.1 Area Description

ACID-SMA-1.05 is located within Los Alamos township. The northern boundary of the SMA is influenced by heavy development and contains the receiving waters. The southern boundary of the SMA is influenced by developed areas, including paved roads and parking. Storm water flows from the developed area north towards the receiving waters.

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P001, ACID-SMA-1.05, Site 00-030(g).

SWMU 00-030(g) consisted of the septic tank (structure 6), septic system and outfall located at the old Catholic Church (3200 Canyon Road), an area now covered by a paved parking lot for newly constructed apartments. The septic tank was installed in the 1940s and received waste from TA-01. It was made of reinforced concrete and measured 32 x 22 x 6.5 feet deep. A center baffle separated the tank into east and west chambers. Drainage from the septic system discharged through an outfall to Acid Canyon, a tributary to Pueblo Canyon, in an area owned by Los Alamos County. The location is north of Canyon Road and west of the intersection of Canyon Road and Central Avenue.

In 1993, the septic tank, drain-lines, and 12 to 18 inches of tuff were excavated and removed.

Table-1000.9.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-030(g)	Former Septic Tank (Near Old Catholic Church Parking Lot)	Discrete Location, No overlap	Individual	•	•	•	PCBs PEST

1000.9.2.2 Urban Influences

Most of the SMA is influenced by development in the surrounding area. There is run-on from the adjacent parking area and Canyon Road. The run-on from the parking area is controlled by curbing. Engineered controls divert storm water away from the SMA. The culvert outlet discharges to a bare tuff channel and does not require velocity dissipation.

1000.9.2.3 Public Influences

This SMA is open and accessible to the public along all boundaries. Signage is to be used where inspections note litter or floatable debris present.

1000.9.3 Control Measures

Potential sources of run-on to this Permitted Feature include Canyon Road, which

runs east to west, north of the SMA. Additional run-on may originate in the parking areas around the Canyon Village apartments.

Subsections to 1000.9.3 list all control measures used to control pollutant sources identified in Section 1000.9.2. Control measures are shown in Table 1000.9.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.9.4.

1000.9.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.9.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P001 03 01 0005	Berms - Earthen		•		•	CB

Earthen Berm (P001-03-01-0005)

This earthen berm is located along the southern boundary of the SMA and reduces run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.9.3.2 Control Measures for Urban Influences

Table 1000.9.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P001 03 09 0003	Berms - Curbing	•			•	CB
P001 04 04 0004	Channel/Swale - Culvert	•		•		CB

Curbing (P001-03-09-0003)

This curbing is located along the northern edge of the paved area adjacent to the canyon lip. It diverts run-on away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Culvert (P001-04-04-0004)

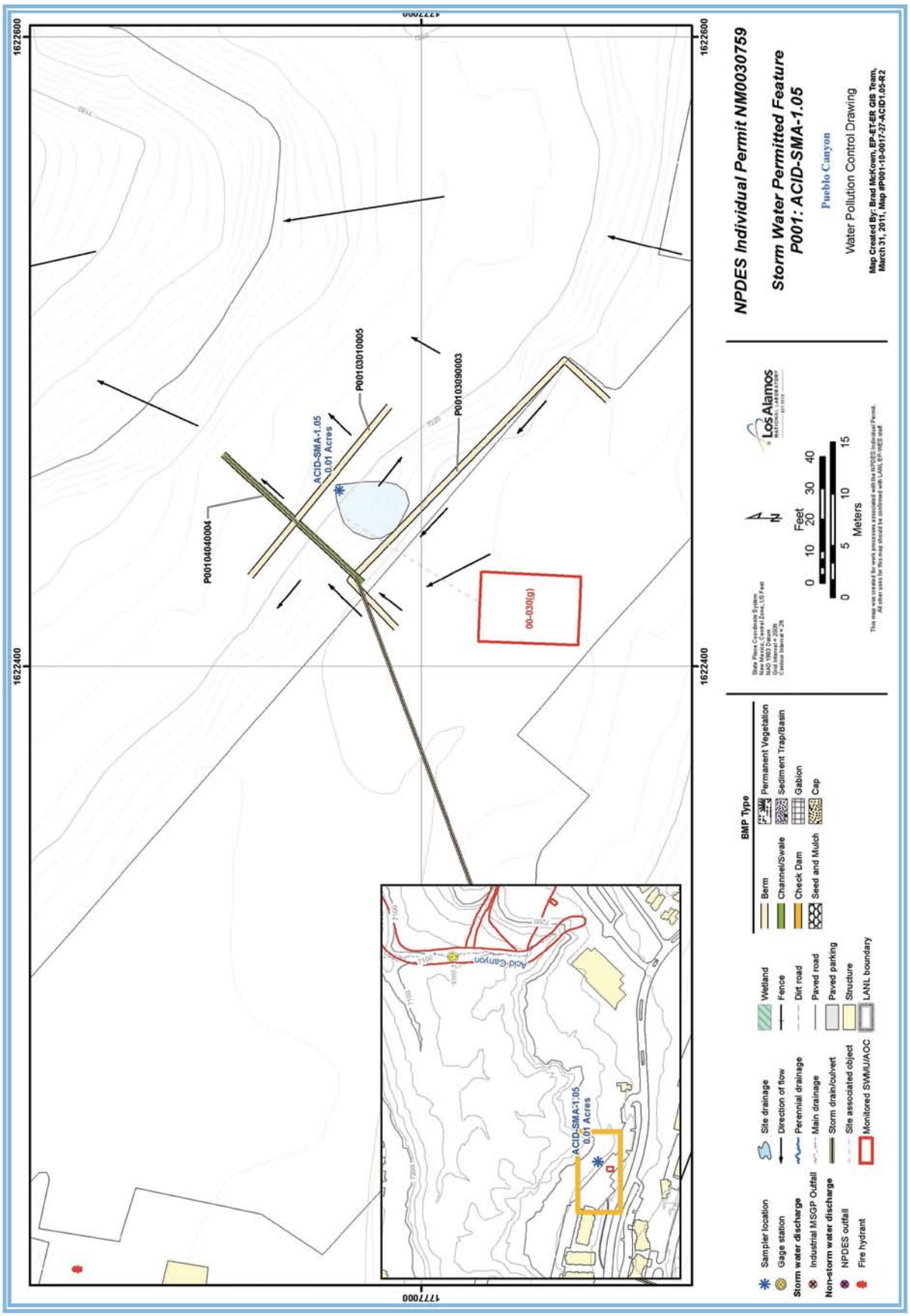
This culvert is located northwest of the SMA and is in place to divert run-on from the paved areas away from the SMA. A transverse and totally enclosed drain typically

used under roads to divert storm water off of or away from impervious surfaces.

1000.9.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P001, ACID-SMA-1.05. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.9.4 Project Map



1000.9.5 Storm Water Monitoring Plan and Schedule

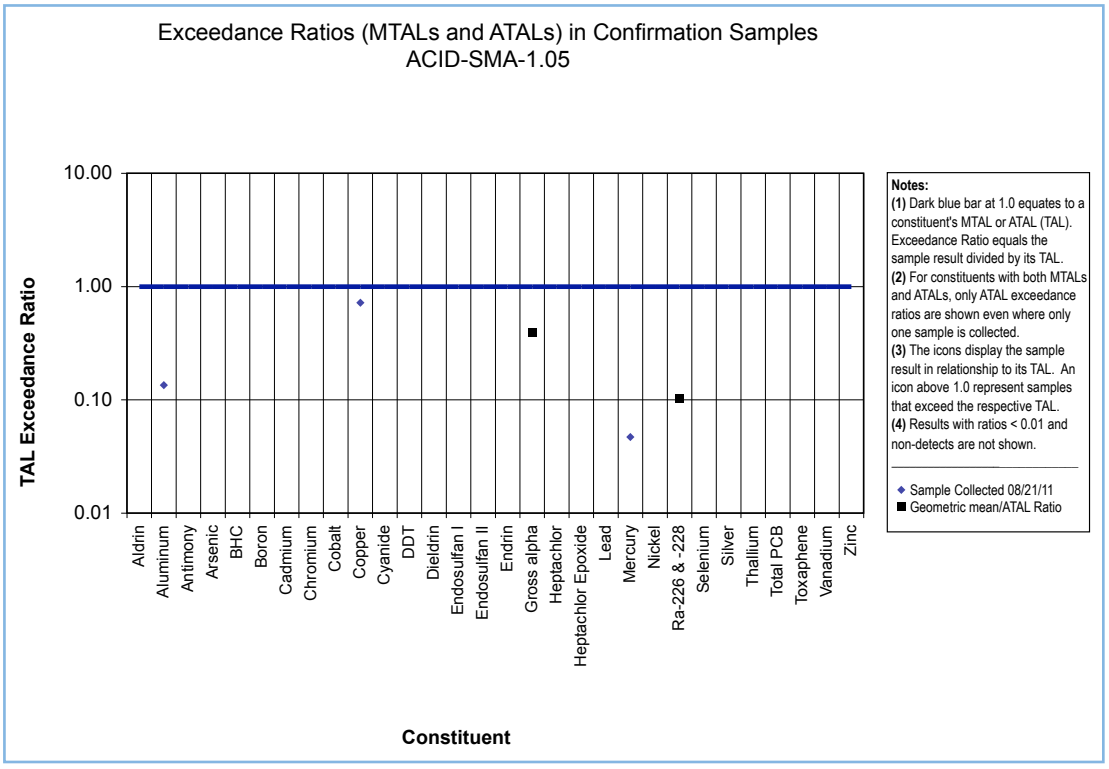
Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (0)	• (0)	• (0)	PCBs (0) PEST (0)

1000.9.5.1 Initial Confirmation Monitoring

Initial confirmation sample results from one sampling event at ACID-SMA-1.05 collected on August 21, 2011 are below target action levels, thus completing the IP required sampling for this SMA. No further confirmation monitoring is required at ACID-SMA-1.05 per Part 1.D.4(b) of the Permit.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.9.5.2 Inspection Activity

RG055.5 recorded four Storm Events at ACID-SMA-1.05 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.9.5.2-1.

Table 1000.9.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13799	06-23-2011
Storm Rain Event	BMP-16216	08-10-2011
Storm Rain Event	BMP-17192	08-23-2011
Annual Erosion	COMP-17971	09-06-2011
Storm Rain Event	BMP-18867	09-12-2011

1000.9.5.3 Maintenance

During 2011 there were no maintenance activities at ACID-SMA-1.05.

1000.9.6 Compliance Status

The Site associated with ACID-SMA-1.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.10 ACID-SMA-2

1000.10 ACID-SMA-2

1000.10.1 Area Description

ACID-SMA-2 is located within the Los Alamos township. The northern boundary of the SMA is influenced by heavy development and contains the receiving waters. The southern boundary of the SMA is influenced by developed areas and includes private residences, recreational facilities, and churches. The eastern boundary of the SMA is influenced by development and a variety of paved areas. The western boundary of the SMA is also influenced by urban development.

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF P002, ACID-SMA-2, Sites 01-002(b)-00, 45-001, 45-002 and 45-004.

SWMU 01-002(b)-00 consists of a former industrial waste line outfall and its drainage into Acid Canyon. The outfall was located within the boundaries of former TA-45 at the head of a small branch of Acid Canyon known as the south fork of Acid Canyon. This outfall was used from 1943 to 1951 to discharge untreated RLW generated in laboratories and research facilities at former TA-01. Discharges of untreated RLW ceased when the TA-45 RLW treatment plant began operation in 1951. In 1966, the SWMU 01-002(b)-00 outlet pipe, associated weir box, tuff around the outfall, and tuff from the canyon wall below the outfall were removed. In September 1967, the TA-45 property was transferred to Los Alamos County.

SWMU 45-001 consists of the former TA-45 liquid waste treatment plant and its two associated outfalls. The TA-45 liquid waste treatment plant (Building 45-2) was the first such facility at LANL and was located near the current intersection of Canyon Road and Central Avenue in the Los Alamos town site. The treatment plant began operation in 1951 and operated until 1961. The capacity of the plant was originally 90 gallons per minute, but was expanded to 145 gallons per minute in 1957. The treatment plant included neutralization and storage tanks, flocculation tanks, sedimentation basins, vacuum filters, and granular-media filters. Effluent from the plant discharged to Acid Canyon through outfalls located near the canyon rim. One outfall was used to discharge treated wastewater and the other was connected to floor drains in Building 45-2. Operation of the treatment plant ceased after the new RLW treatment facility was constructed at TA-50. D&D of SWMU 45 001 began in October 1966 and included demolition and removal of the treatment plant equipment, facilities, and waste lines and excavation of contaminated soil. In September 1967, the TA-45 property was transferred to Los Alamos County.

SWMU 45-002 was a vehicle decontamination facility located adjacent to the TA-45 wastewater treatment plant (WWTP), which received radioactive liquid waste from TA-1 and TA-3. TA-45 began operations in 1951 and was decontaminated and decommissioned in 1966 and 1967.

SWMU 45-002 was a vehicle decontamination facility adjacent to SWMU 45-001, where large radioactively contaminated items and vehicles were steamed cleaned. Wastewater from the facility was initially discharged directly to Acid Canyon, and was subsequently pumped to the treatment plant at TA-45. The outfall areas from SWMUs 1-002(b)-00, 45-001, 45-002, and 45-004 overlap and COPCs are commingled.

SWMU 45-004 consists of a former sanitary sewer outfall. This outfall was associated with the sanitary sewer system that was constructed at TA-45 in 1947 to serve the Los Alamos town site. This sewer system included a sanitary sewer lift

station (structure 45-3) and sanitary sewer manholes (structures 45-5 and 45-6). The outfall was located to the north of the lift station, approximately 100 feet north of the TA-45 treatment plant (SWMU 45-001) and was used for emergency discharge of overflow. The outfall discharged into a drainage leading into Acid Canyon. The sanitary sewer system was transferred to Los Alamos County in 1967.

Table-1000.10.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-002(b)00	Outfall associated with TA-01 (Located in former TA-45)	Discrete Location, No overlap	Shared	•	•	•	PCBs
45-001	Soil contamination from former RLW Treatment Plant	Co-located, Overlapping	Shared	•	•	•	PCBs
45-002	Soil contamination from former decontamination Facility	Co-located, Overlapping	Shared	•	•	•	PCBs
45-004	Sanitary sewer outfall	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are located adjacent to Acid Canyon and were associated with historical waste water treatment at TA-45. TA-45 was used as an industrial waste discharge area and later served as the Laboratory's first radioactive liquid waste (RLW) facility (LANL 1992, 007668, p. 3-69). During the demolition of TA-45 in 1996 and 1997, contaminated soil and tuff were removed along with all buildings and structures in the area (except the sewage lift station) (LANL 2005, 090579). These Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.10.2.2 Urban Influences

Significant run-on contributions from paved areas adjacent to this SMA are present. There is run-on from three culverts discharging from the urban area above the SMA.

1000.10.2.3 Public Influences

The SMA is located within the town of Los Alamos and is therefore entirely accessible by the public. There was no litter observed during the site visit.

1000.10.3 Control Measures

Check dams are dissipating velocity from urban run-on. A berm in the northern area of the storage yard operated by Los Alamos county is serving to control run-off from the area.

Subsections to 1000.10.3 list all control measures used to control pollutant sources identified in Section 1000.10.2. Control measures are shown in Table 1000.10.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.10.4.

1000.10.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.10.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P002 01 01 0014	Seed and Mulch - Seed and Wood Mulch			•		CB
P002 02 02 0006	Established Vegetation - Forested/ Needle Cast			•		CB

Seed and Mulch (P002-01-01-0014)

This seeded area is on the western side of Canyon Road northwest of the United Church adjacent to the straw wattles to help control erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (P002-02-02-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control andstorm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Table 1000.10.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P002 03 01 0004	Berms - Earthen		•		•	CB
P002 03 06 0009	Berms - Straw Wattles	•			•	CB
P002 03 06 0010	Berms - Straw Wattles	•			•	CB
P002 03 06 0011	Berms - Straw Wattles	•			•	CB
P002 06 01 0002	Check Dam - Rock	•			•	CB
P002 06 01 0013	Check Dam - Rock	•			•	CB

Earthen Berm (P002-03-01-0004)

This berm is located in the central portion of the SMA along the mesa edge alleviating run-off from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (P002-03-06-0009, -0010, -0011)

This is a group of three straw wattles on the western side of Canyon Road northwest of the United Church. They are in place to help control run-on from the paved road above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Central Rock Check Dam (P002-06-01-0002)

This rock check dam is situated downstream from the culvert outfall, reducing run-on to the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - East (P002-06-01-0013)

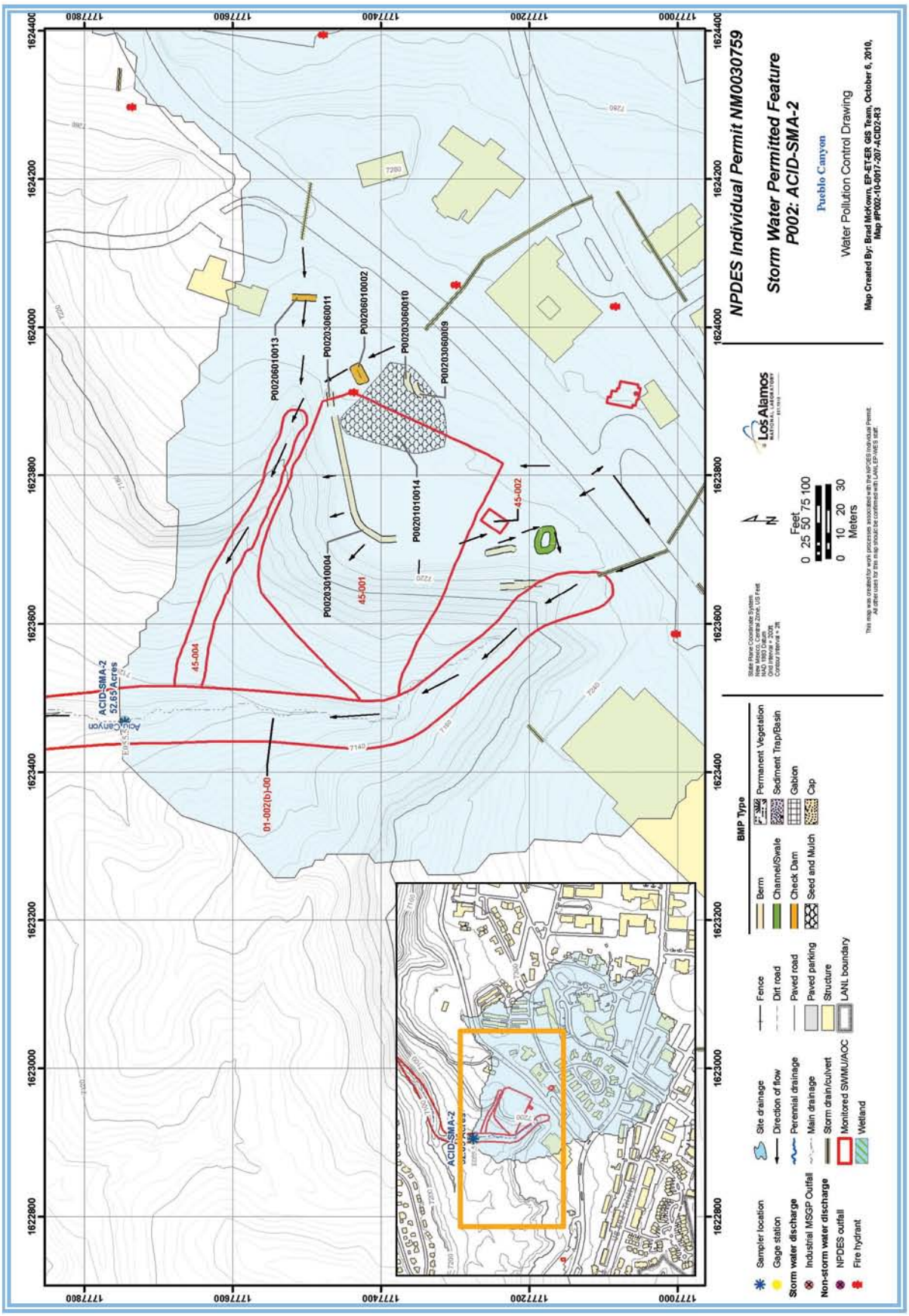
This rock check dam is located south of the synagogue near the mesa top edge in order to mitigate run-on from culvert discharge. Check dams reduce scour and

channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.10.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P002, ACID-SMA-2. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.10.4 Project Map



1000.10.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

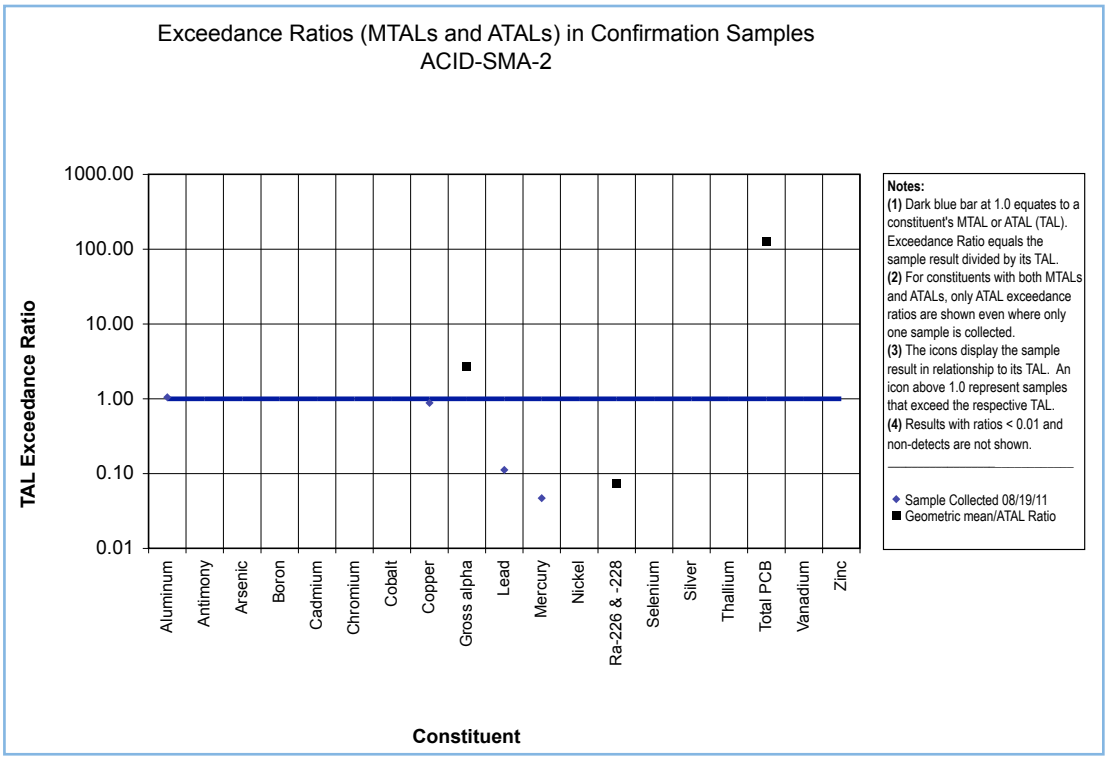
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.10.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from ACID-SMA-2 on August 19, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.10.5.2.



1000.10.5.2 Corrective Action Plan & Schedule

A single confirmation sample was collected at ACID-SMA-2. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.10.5.2-1.

Table 1000.10.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.10.5.3 Inspection Activity

RG055.5 recorded four Storm Events at ACID-SMA-2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.10.5.3-1.

Table 1000.10.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13833	06-23-2011
Storm Rain Event	BMP-16218	08-10-2011
Storm Rain Event	BMP-17194	08-24-2011
Annual Erosion	COMP-17972	09-06-2011
Storm Rain Event	BMP-18869	09-14-2011

1000.10.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.10.5.4-1.

Table 1000.10.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
COMP-17972	Picked up trash and flotable debris.	10-12-2011	36 day(s)	Maintenance conducted as soon as practicable.
COMP-17972	Sediment cleaned from rock check dam P00206010013.	10-12-2011	36 day(s)	Maintenance conducted as soon as practicable.
COMP-17972	Sediment cleaned from rock check dam P00206010002.	10-12-2011	36 day(s)	Maintenance conducted as soon as practicable.

1000.10.6 Compliance Status

The Sites associated with ACID-SMA-2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.11 ACID-SMA-2.01

1000.11 ACID-SMA-2.01

1000.11.1 Area Description

ACID-SMA-2.01 is located within the Los Alamos township. All boundaries are impacted by the Los Alamos county storage yard. There is no potential for impact to the area from Canyon Road or any other impervious areas. The western boundary is closest to the receiving waters.

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P002A, ACID-SMA-2.01, Site 00-030(f).

AOC 00-030(f) is a septic tank (structure 5), which consists of two septic tanks located on private property south of Canyon Road and north of Rose Street, slightly northeast of the United Church school building. On a 1943 engineering drawing, the tanks are labeled "Septic Tank No. 2." The tanks connected with sewer lines in the "Apartment Area," and handled sanitary waste from a school, a post exchange, and some of the original Ranch School buildings, but did not handle waste from TA-01 operations. The tank ceased operating when the central WWTP came on-line in 1947.

Table-1000.11.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-030(f)	Septic Tank	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.11.2.2 Urban Influences

There are large areas of impervious surface and significant roadways in proximity to this Permitted Feature.

1000.11.2.3 Public Influences

The SMA is located in a heavily developed, heavily used area. Inspections for litter and visible debris will be conducted.

1000.11.3 Control Measures

There is the potential for run-on contributions from the adjacent developed and paved areas at this SMA. Existing controls are in place to divert run-on around the SMA.

Subsections to 1000.11.3 list all control measures used to control pollutant sources identified in Section 1000.11.2. Control measures are shown in Table 1000.11.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.11.4.

1000.11.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.11.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P002A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
P002A 03 06 0005	Berms - Straw Wattles		•		•	CB

Established Vegetation (P002A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (P002A-03-06-0005)

This is a pair of straw wattles located west of the sampler. They are in place to manage run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.11.3.2 Control Measures for Urban Influences

Table 1000.11.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P002A 01 06 0003	Seed and Mulch - Erosion Control Blankets			•		CB
P002A 03 01 0004	Berms - Earthen	•			•	CB
P002A 04 06 0002	Channel/Swale - Rip Rap	•		•		CB

Erosion Control Blankets
(P002A-01-06-0003)
These erosion control blankets are located on the earthen berm in order to prevent erosion of the berm. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

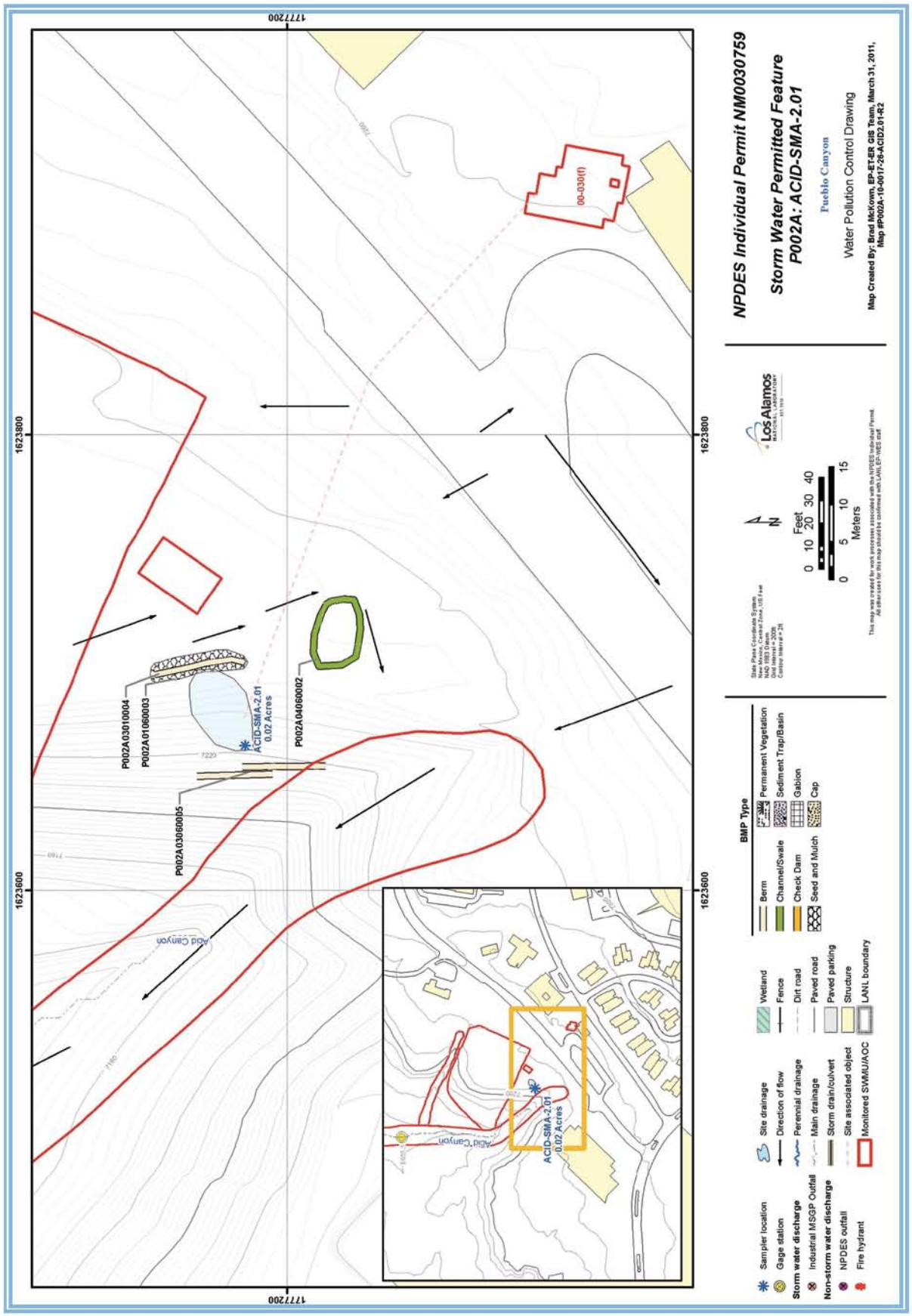
Earthen Berm
(P002A-03-01-0004)
This earthen berm is located on the eastern side of the SMA diverting run-on from the slope above away from the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap
(P002A-04-06-0002)
This rip rap is located southeast of the SMA boundary and helps divert run-on away from the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.11.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P002A, ACID-SMA-2.01. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.11.4 Project Map



1000.11.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.11.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at ACID-SMA-2.01. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.11.5.2 Inspection Activity

RG055.5 recorded four Storm Events at ACID-SMA-2.01 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.11.5.2-1.

Table 1000.11.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13798	06-23-2011
Storm Rain Event	BMP-16215	08-10-2011
Storm Rain Event	BMP-17191	08-24-2011
Annual Erosion	COMP-17973	09-06-2011
Storm Rain Event	BMP-18866	09-14-2011

1000.11.5.3 Maintenance

During 2011 there were no maintenance activities at ACID-SMA-2.01.

1000.11.6 Compliance Status

The Site associated with ACID-SMA-2.01 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.12 ACID-SMA-2.1

1000.12 ACID-SMA-2.1

1000.12.1 Area Description

ACID-SMA-2.1 is located within the Los Alamos township. The northern boundary of the SMA is undeveloped and contains the receiving waters in Acid Canyon. The southern boundary of the SMA is influenced by developed areas and includes private residences, recreational facilities, and churches. The eastern boundary of the SMA is influenced by development, a variety of paved areas, and contains the heavily used road, Diamond Drive, which borders the SMA. Traffic along this boundary is significant. The western portion of the SMA is similarly influenced by development.

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P003, ACID-SMA-2.1, Site 01-002(b)-00.

SWMU 01-002(b)-00 consists of a former industrial waste line outfall and its drainage into Acid Canyon. The outfall was located within the boundaries of former TA-45 at the head of a small branch of Acid Canyon known as the south fork of Acid Canyon. This outfall was used from 1943 to 1951 to discharge untreated RLW generated in laboratories and research facilities at former TA-01. Discharges of untreated RLW ceased when the TA-45 RLW treatment plant began operation in 1951. In 1966, the SWMU 01-002(b)-00 outlet pipe, associated weir box, tuff around the outfall, and tuff from the canyon wall below the outfall were removed. In September 1967, the TA-45 property was transferred to Los Alamos County.

Table-1000.12.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-002(b)00	Outfall associated with TA-01 (Located in former TA-45)	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.12.2.2 Urban Influences

There is significant run-on from four culverts that discharge from the urban areas above the Permitted Feature. The southern most culvert outlet is discharging into a natural drainage channel running north and south through the length of the SMA. The northern culvert outlet, near the northern corner of the Larry Walkup Aquatic Center, discharges to the northeast and its flow possibly joins the channel from the first culvert.

1000.12.2.3 Public Influences

The SMA is located in a heavily developed, heavily used area. The area will be inspected for litter and visible debris.

1000.12.3 Control Measures

There is potential for significant run-on to this SMA from urban areas within and around the site. Run-on could originate on paved roads, parking areas and roof top drains that are located primarily in the southern portion of the SMA.

Subsections to 1000.12.3 list all control measures used to control pollutant sources identified in Section 1000.12.2. Control measures are shown in Table 1000.12.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.12.4.

1000.12.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.12.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P003 01 01 0016	Seed and Mulch - Seed and Wood Mulch			•		CB
P003 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
P003 02 02 0014	Established Vegetation - Forested/ Needle Cast			•		CB
P003 02 03 0012	Established Vegetation - Vegetative Buffer Strip		•	•	•	CB
P003 03 01 0002	Berms - Earthen	•			•	CB

Seed and Mulch (P003-01-01-0016)

This seeded and mulched area is located on the eastern mesa top near the beginning of the natural drainage channel and is there to help control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (P003-02-01-0001, -02-0014)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Established Vegetation (P003-02-03-0012)

This buffer strip is located above the sampler and is helping mitigate run-off from the SMA. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Earthen Berms - Northern (P003-03-01-0002)

This berm is located along the mesa edge north and east of the Larry Walkup Aquatic Center, controlling run-on from the paved areas to the south. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.12.3.2 Control Measures for Urban Influences

Table 1000.12.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P003 01 06 0010	Seed and Mulch - Erosion Control Blankets			•		CB
P003 03 01 0009	Berms - Earthen	•			•	CB
P003 03 06 0005	Berms - Straw Wattles	•			•	CB
P003 03 06 0006	Berms - Straw Wattles	•			•	CB
P003 03 06 0007	Berms - Straw Wattles	•			•	CB
P003 04 06 0011	Channel/Swale - Rip Rap	•		•		CB
P003 06 01 0004	Check Dam - Rock	•			•	CB
P003 06 01 0015	Check Dam - Rock	•			•	CB

Erosion Control Blankets
(P003-01-06-0010)
These Erosion Control Blankets are located on the southern most earthen berm and are in place to prevent erosion on the berm. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Earthen Berms - Southern
(P003-03-01-0009)
This berm is located on the eastern mesa top, near the southern natural drainage channel. It is in place to mitigate run-on from the storage area to the east. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles
(P003-03-06-0005, -0006, -0007)
This is a series of three wattles that are located on the eastern mesa top, near the beginning of the natural channel. They are in place to control run-on from the paved areas to the east. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

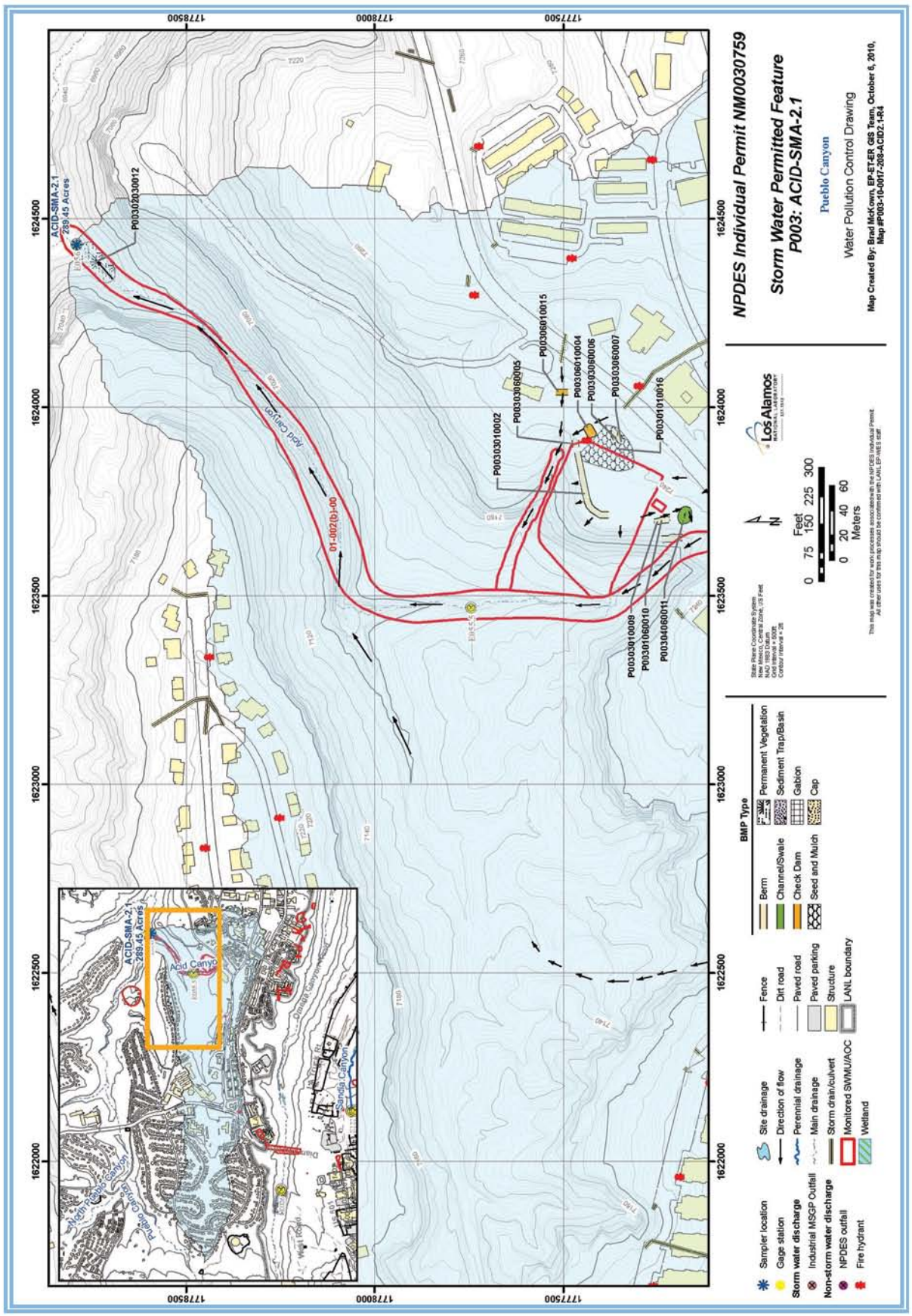
Rip Rap
(P003-04-06-0011)
This rip rap is located near the head of the southern most natural drainage channel. It is in place to prevent erosion due to run-on from the area above. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams
(P003-06-01-0004, -0015)
There are two rock check dams located downstream from the culverts adjacent to the mesa edge in the natural drainage channel located next to the synagogue. They are in place to control run-on from the urban area to the east. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.12.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P003, ACID-SMA-2.1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.12.4 Project Map



1000.12.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	PCBs (1)

1000.12.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at ACID-SMA-2.1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.12.5.2 Inspection Activity

RG055.5 recorded four Storm Events at ACID-SMA-2.1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.12.5.2-1.

Table 1000.12.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13834	06-21-2011
Storm Rain Event	BMP-16219	08-10-2011
Storm Rain Event	BMP-17195	08-25-2011
Annual Erosion	COMP-17974	09-06-2011
Storm Rain Event	BMP-18870	09-14-2011

1000.12.5.3 Maintenance

During 2011 there were no maintenance activities at ACID-SMA-2.1.

1000.12.6 Compliance Status

The Sites associated with ACID-SMA-2.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.13 P-SMA-0.3

1000.13.1 Area Description

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

1000.13.2.2 Urban Influences

1000.13.2.3 Public Influences

1000.13.3 Control Measures

1000.13.3.1 Control Measures for Public Influences

1000.13.4 Project Map

1000.13.5 Storm Water Monitoring Plan and Schedule

1000.13.5.1 Initial Confirmation Monitoring

1000.13.5.2 Inspection Activity

1000.13.5.3 Maintenance

1000.13.6 Compliance Status

1000.13 P-SMA-0.3

1000.13.1 Area Description

P-SMA-0.3 is located adjacent to the Los Alamos Waste Water Treatment Facility in Pueblo Canyon. Access to this area is gated and controlled. The only potential run on source associated with the active treatment facility is the unpaved access road along the northwestern SWMU boundary. Storm water flows from these areas, south and east towards the receiving waters of Pueblo Canyon.

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P004, P-SMA-0.3, Site 00-018(b).

AOC 00-018(b) is the active Bayo Canyon wastewater treatment plant, located at the intersection of Pueblo and Bayo Canyons. It began operating in 1963 and was upgraded in 1966. The plant treated the sanitary waste stream that previously was routed to the central wastewater treatment plant (SWMU 00-019) and sanitary waste from residences on Barranca Mesa. Most wastes treated at the plant were from businesses, eastern Los Alamos residences, and Barranca Mesa residences. After the Pueblo Canyon wastewater treatment plant was decommissioned in 1992, the remaining northern and western Los Alamos residential sanitary waste streams were routed to the Bayo Canyon wastewater treatment plant. This plant has been the primary supplier of effluent for irrigation at the Los Alamos golf course and recreational ball fields since 1992. The plant holds NPDES permit number NM0020141. Suspect contaminants at AOC 00-018(b) were inorganic chemicals, organic chemicals, PCBs/pesticides, and radionuclides.

In 1996, a total of seven samples were collected from this site: six were collected from depths up to 52.5 feet in two boreholes, and one was collected from media inside a pipe. Samples were analyzed for inorganic chemicals, organic chemicals, tritium, and gross alpha/beta/gamma radioactivity. No inorganic chemicals were detected above the BV in any sample. Tritium and acetone were detected; however, their concentrations did not exceed their respective SALs.

Table-1000.13.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-018(b)	Sludge-bed wastewater treatment plant	Discrete Location, No overlap	Individual	•		•	

1000.13.2.2 Urban Influences

This SMA is adjacent to an active Waste Water Treatment Plant. Access to the area is controlled through a gate at the SMA. The gate is open at the State Road 502 access point only during the day. The area is posted with an 'Authorized Vehicles Only' sign.

1000.13.3 Control Measures

The majority of potential run-on to the Permitted feature would originate on the undeveloped land surrounding the SMA. The run-on is controlled through the use of a culvert which diverts run-on away from the SMA.

Subsections to 1000.13.3 list all control measures used to control pollutant sources identified in Section 1000.13.2. Control measures are shown in Table 1000.13.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.13.4.

1000.13.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.13.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P004 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
P004 03 01 0002	Berms - Earthen	•			•	CB
P004 03 01 0006	Berms - Earthen		•		•	CB
P004 03 01 0007	Berms - Earthen	•			•	CB

Established Vegetation (P004-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (P004-03-01-0002)

The berm is located along the northwestern boundary of the Site. It is helping to manage run on from both the slope and the unpaved access road along the northwestern SWMU boundary. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - South (P004-03-01-0006)

This berm runs parallel to the boundary with Los Alamos County southwest of

the SMA footprint. It is used to help control storm water run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (P004-03-01-0007)
This berm is located northwest of 00-018(b) and is used to help mitigate run-on from both the slope and the unpaved access road along the northwestern SWMU boundary. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

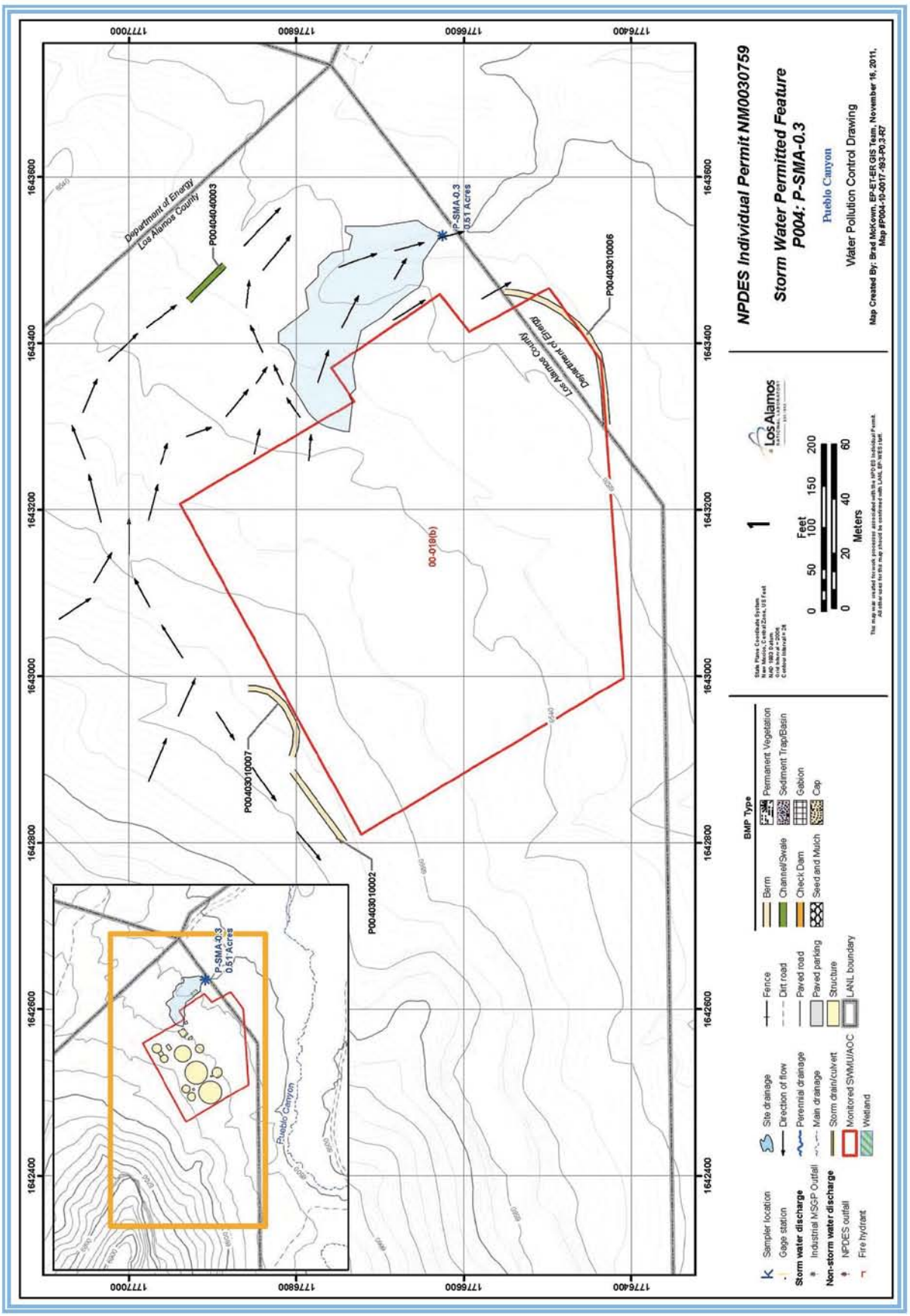
1000.13.3.2 Control Measures for Urban Influences

Table 1000.13.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P004 04 04 0003	Channel/Swale - Culvert	•		•		CB

Culvert (P004-04-04-0003)
The culvert is located east of the SMA. It is situated to divert run-on from the undeveloped areas north and east away from the Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.13.4 Project Map



1000.13.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.13.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at P-SMA-0.3. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.13.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at P-SMA-0.3 during the 2011 season. These rain events triggered two post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.13.5.2-1.

Table 1000.13.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13938	07-11-2011
Storm Rain Event	BMP-15389	08-02-2011
Storm Rain Event	BMP-18281	09-08-2011
Annual Erosion	COMP-19795	10-19-2011

1000.13.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.13.5.3-1.

Table 1000.13.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15389	Modified existing berm P00403010006 by extending the western end approximately 60 ft to the west to prevent potential sedimentation.	08-17-2011	15 day(s)	Maintenance conducted as soon as practicable.

1000.13.6 Compliance Status

On January 14, 2011, NMED issued a Certification of Completion without controls for Site 00-018(b) [NMED 2011].

The Site associated with P-SMA-0.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.14 P-SMA-1

1000.14.1 Area Description

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

1000.14.2.2 Urban Influences

1000.14.3 Control Measures

1000.14.4 Project Map

1000.14.5 Storm Water Monitoring Plan and Schedule

1000.14.5.1 Initial Confirmation Monitoring

1000.14.5.2 Inspection Activity

1000.14.5.3 Maintenance

1000.14.6 Compliance Status

1000.14 P-SMA-1

1000.14.1 Area Description

P-SMA-1 is located within the Los Alamos township just below a runway at Los Alamos Airport. The northern boundary undeveloped, steeply sloped, and contains the receiving waters. The southern boundary is flat, developed, and located on the mesa top. Much of the land on the mesa is owned by Los Alamos County. There are large paved areas at the head of this SMA. The significant portion of the storm water flows from the developed area on the mesa, north through engineered controls and into Pueblo Canyon before reaching the receiving waters. A portion of the storm water flows west through the Sites.

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF P005, P-SMA-1, Sites 73-001(a) and 73-004(d).

SWMU 73-001(a) is a former landfill, situated in TA-73 north of the Los Alamos Airport runway. The surface area of the landfill is about 12 acres. LANL and town site use of the area as a landfill is believed to have begun in 1943. LANL deposited sanitary wastes in the landfill. A hot-mix asphalt batch plant also operated in this area from about the mid-1940s until 1954. The plant was located east of the airport terminal building along the canyon rim in an area that subsequently was assimilated into the main landfill. The volume of wastes in the landfill is estimated to have been about 489,500 cubic yards. Initially, the landfill consisted of a natural, hanging valley into which municipal waste was deposited after first being burned. The intentional burning ceased in 1965 when Los Alamos County assumed operation of the landfill. As more capacity was required, trenches were excavated into the tuff adjacent to the original hanging valley. Los Alamos County operated the landfill from 1965 until the landfill was closed in 1973. From 1984 to 1986, the western portion of the landfill was excavated and moved to the debris disposal pit to allow the construction of existing airport hangars and tie-down areas. Clean fill was used to replace the excavated area. An IM was conducted in 2003 to remove surface debris in the drainages. Approximately 430 cubic yards of debris were removed from drainages and from a portion of SWMU 73-001(a). Currently, DOE is performing final remedy and clean-up measures at SWMU 73-001(a).

SWMU 73-004(d) is a septic system that served the landfill office located east of the present airport terminal building and within the footprint of SWMU 73-001(a). A four inch diameter vitrified-clay pipe (VCP) connected the building's toilet to the septic tank located about 20 feet northeast of the building. The building and septic tank were removed as part of the decommissioning operation in the early 1970s.

Table-1000.14.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
73-001(a)	Landfill	Co-located, Overlapping	Shared	•		•	
73-004(d)	Soil contamination form former septic tank	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

The historical industrial activity areas associated with this SMA were related to the operation of a former landfill. Because of the co-location, similar contaminants, shared common drainage, and extensive remediation of the area, Sites grouped within this SMA will discharge substantially identical effluent.

1000.14.2.2 Urban Influences

There is minimal run-on generated from the runway itself. Run-on to the SMA is generated from the paved areas, hanger roof tops, and pads located on site. Hangers are used for maintenance activities. There is no evidence of fueling activities in proximity to the SMA. Since planes and vehicles parked on site there is the possibility for leaks (fuel, hydraulic and engine oil).

1000.14.2.3 Public Influences

Access to the area is controlled by the airport manager. Areas are gated and locked.

1000.14.3 Control Measures

There is minimal run-on generated from the airport runway itself. The most significant run-on source is the culvert outlet that captures run-off (airport) from the five grated pad drains. Run-on to the SMA is generated from the paved areas, hanger roof tops, and pads associated with the airport. This run-on has the potential to erode the slope below the discharge point at the head of the primary drainage channel above the sampler. Vegetated buffer strips, rip rap, and berms are used together to control this run-on source.

Subsections to 1000.14.3 list all control measures used to control pollutant sources identified in Section 1000.14.2. Control measures are shown in Table 1000.14.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.14.4.

Table 1000.14.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P005 01 06 0020	Seed and Mulch - Erosion Control Blankets			•		B
P005 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
P005 02 03 0014	Established Vegetation - Vegetative Buffer Strip		•	•		CB
P005 03 01 0018	Berms - Earthen		•		•	B
P005 03 01 0019	Berms - Earthen		•		•	B
P005 03 06 0021	Berms - Straw Wattles		•		•	B
P005 03 06 0022	Berms - Straw Wattles		•		•	B
P005 03 06 0023	Berms - Straw Wattles		•		•	B
P005 03 06 0024	Berms - Straw Wattles		•		•	B
P005 03 06 0025	Berms - Straw Wattles		•		•	B
P005 03 06 0026	Berms - Straw Wattles		•		•	B

Table 1000.14.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P005 03 06 0027	Berms - Straw Wattles		•		•	B
P005 03 06 0028	Berms - Straw Wattles		•		•	B
P005 03 06 0029	Berms - Straw Wattles		•		•	B
P005 03 06 0030	Berms - Straw Wattles		•		•	B
P005 03 06 0031	Berms - Straw Wattles		•		•	B
P005 03 12 0017	Berms - Rock		•		•	B
P005 04 02 0005	Channel/Swale - Concrete/ Asphalt		•	•		CB
P005 04 04 0016	Channel/Swale - Culvert		•	•		CB
P005 04 06 0002	Channel/Swale - Rip Rap		•	•		CB
P005 04 06 0013	Channel/Swale - Rip Rap		•	•		CB

Seed and Mulch - Erosion Control Blanket (P005-01-06-0020)

This seed and matting is located northwest of the sampler at the north end of rock berm -0017 to prevent erosion. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Permanent Vegetation - Grasses and Shrubs (P005-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

North Vegetative Buffer Strip (P005-02-03-0014)

The buffer strip is located on the north side of the paved hanger area and controls run-off from the SMA. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Berms (P005-03-01-0018, -0019)

This is a pair of earthen berms in series located directly northwest of the sampler. They control run-off and sediment transport from the mesa-top. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles - North (P005-03-06-0021, -0022, -0023, -0024, -0025, -0026, -0027, -0028, -0029, -0030, -0031)

These are a series of 11 straw wattles located along the northern boundary of the SMA to control run-off from the mesa top. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Berm (P005-03-12-0017)

This rock berm is located across the SMA, southwest of the sampler. It controls run-off and sediment transport from the mesa-top. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Eastern Asphalt Swale (P005-04-02-0005)

This asphalt swale is located outside the eastern boundary of the SMA and is used to control run-off from the SMA. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert - West (P005-04-04-0016)

This culvert is located on the canyon edge in the center of the hanger area. It is used to help control run-off and prevent erosion of the slope. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap - East (P005-04-06-0002)

This rip rap is located near the head of the primary drainage channel above the sampler. It is used to control run-off from the taxiways and other paved areas. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap - West (P005-04-06-0013)

The rip rap is located east of the hangers. There is a ponding area to collect run-off from the impervious areas to the west and south. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Table 1000.14.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P005 02 03 0015	Established Vegetation - Vegetative Buffer Strip	•		•		CB
P005 03 08 0003	Berms - Retaining Wall		•		•	CB
P005 04 02 0009	Channel/Swale - Concrete/ Asphalt	•		•		CB
P005 04 04 0004	Channel/Swale - Culvert	•		•		CB

South Vegetative Buffer Strip (P005-02-03-0015)

The buffer strip is located on the south side of the paved hanger area and controls run-on from the runway. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

Retaining Wall (P005-03-08-0003)

The cement retaining wall is located along the edge of the mesa top east of the rip rap. It is used as a hillside stabilization control which manages run off from the slope above. A retaining wall is generally made of concrete, brick, or similar material that is properly designed and installed to specification for the area. Generally used to promote soil retention, especially on areas with steep slopes.

Asphalt-Concrete Swales (P005-04-02-0009)

This concrete swale is located along the southern edge of the canyon, north of the hangers. It is helping to manage roof run on from the westernmost hanger, diverting it away from the SMA to the north. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert (P005-04-04-0004)

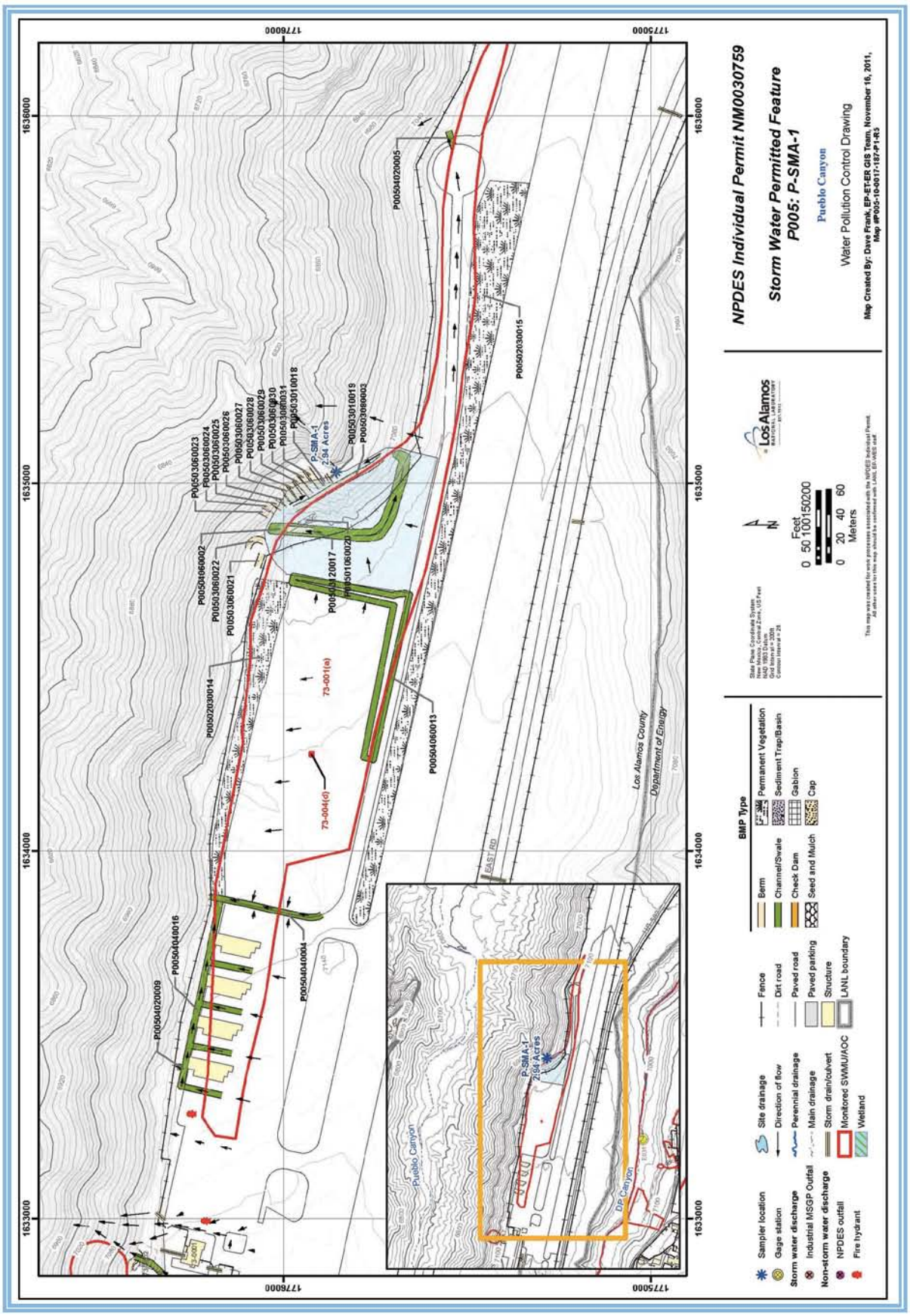
The culvert is located to the east of the hangers with the outlet positioned at the edge of the mesa. It is used to divert run-on from the paved areas away from the

Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.14.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P005, P-SMA-1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.14.4 Project Map



1000.14.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

1000.14.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at P-SMA-1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.14.5.2 Inspection Activity

RG038 recorded five Storm Events at P-SMA-1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.14.5.2-1.

Table 1000.14.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13939	07-08-2011
Storm Rain Event	BMP-15894	08-03-2011
Storm Rain Event	BMP-17148	08-26-2011
Storm Rain Event	BMP-18314	09-08-2011
Annual Erosion	COMP-19796	10-20-2011

1000.14.5.3 Maintenance

During 2011 there were no maintenance activities at P-SMA-1.

1000.14.6 Compliance Status

The Sites associated with P-SMA-1 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.15 P-SMA-2

1000.15.1 Area Description

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

1000.15.2.2 Urban Influences

1000.15.2.3 Public Influences

1000.15.3 Control Measures

1000.15.3.1 Control Measures for Public Influences

1000.15.4 Project Map

1000.15.5 Storm Water Monitoring Plan and Schedule

1000.15.5.1 Initial Confirmation Monitoring

1000.15.5.2 Inspection Activity

1000.15.5.3 Maintenance

1000.15.6 Compliance Status

1000.15 P-SMA-2

1000.15.1 Area Description

P-SMA-2 is located within the Los Alamos township, north of the Los Alamos County airport. The area on the mesa top is flat and storm water run-off occurs through natural rills down a steep, north facing slope to a bench before reaching Pueblo Canyon further north.

Storm water run-off in the area is influenced by run-on from structures and activities associated with the operation of the adjacent airport and runway, south of the SMA. Much of the area on the southern boundary of the SMA is paved and impervious. An unpaved access road runs across the area, forming the southern boundary of the SMA. The northeast and northwest boundaries of the SMA are undeveloped.

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF P006, P-SMA-2, Sites 73-002 and 73-006.

SWMU 73-002 is an inactive incinerator/surface disposal area located at TA-73 slightly west and north of the Los Alamos Airport terminal. The incinerator began operations in 1947, but because of problems with incomplete combustion, operated only for a short period of time. The incinerator was used to destroy municipal trash from the town site in addition to classified documents from LANL. The incinerator equipment and stack have been removed; no information on the removal operation is available. The building that formerly housed the incinerator (Building 73-2) is currently used for storage. Associated with the incinerator is an ash disposal area located north of the building, immediately below the south rim of Pueblo Canyon. A sizeable deposit of non-combustibles, primarily composed of rusted tin cans, is located on a ledge below the top of the canyon. From this ledge, the ash deposit extends approximately 140 feet to the top of the canyon at a slope of approximately 40 degrees. The width of the ash deposit is narrowest at the top (approximately 65 feet) and fans out, becoming widest at the ledge (approximately 160 feet). Below the ledge, accumulations of ash and other non-combustibles continue down slope in an irregular manner for some distance, but terminate at least 700 feet from the bottom of the canyon. Currently, DOE is performing remediation and characterization activities at SWMU 73-002.

SWMU 73-006 consists of the two drain-lines at TA-73 that discharged to Pueblo Canyon from the incinerator building (Building 73-2). The west drain-line, constructed of five inch diameter cast iron pipe, originated at two floor drains, one on the west side of the charging floor and the other on the west side of the stoking floor. The west drain-line was removed in 1997. The east drain-line, also constructed of five inch diameter cast iron pipe, originated at similar concrete-plugged drains located on the east side of the charging and stoking floors. The drains are presumed to have handled wash water and to have operated concurrently with the incinerator. The drain-lines discharged directly onto the ash disposal area, SWMU 73-002. The east drain-line was not located during the RFI in 1997 despite efforts to locate it.

Table-1000.15.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
73-002	Incinerator surface disposal	Co-located, Overlapping	Shared	•	•	•	Dioxin
73-006	Airport building outfalls	Co-located, Overlapping	Shared	•	•	•	Dioxin

Substantially Identical Determination

RCRA corrective actions have been completed in the area monitored by this SMA. Remediation consisted of excavation of contaminated soils and debris and removal of most of the remaining facility appurtenances. The incinerator building and the associated concrete pad are the only remaining physical expression of the former industrial activities.

The SWMUs were co-located, over-lapping, and present on the slope near the edge of the mesa top, north of the incinerator building, and north of the unpaved access road. Due to the extensive remediation, shared drainage, and the overlapping nature of the industrial release, the former industrial activity areas will discharge substantially identical effluent.

1000.15.2.2 Urban Influences

Run-on from the parking area is diverted around the area by two channels, east and west of the SWMUs. Run-on associated with the unpaved access road is diverted to the eastern and western drainage channels.

1000.15.2.3 Public Influences

The area comprising the SMA is open and accessible to the public on all boundaries. Activity along the southern boundary has the highest probability to influence the quality of storm water runoff due to the moderate traffic volume and the activities associated with the operation of the airport.

1000.15.3 Control Measures

Control measures at PF P006 are primarily designed to divert run-on from the larger paved area south of the outfall onto hillsides to the east and western portion of the permitted area.

Subsections to 1000.15.3 list all control measures used to control pollutant sources identified in Section 1000.15.2. Control measures are shown in Table 1000.15.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.15.4.

Table 1000.15.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P006 02 01 0007	Established Vegetation - Grasses and Shrubs			•		CB
P006 03 02 0009	Berms - Base Course	•			•	CB
P006 03 02 0010	Berms - Base Course	•			•	CB
P006 03 12 0008	Berms - Rock		•		•	CB

Established Vegetation (P006-02-01-0007)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm - West (P006-03-02-0009)

This berm is located north of the unpaved access road to control sediment loading from run-on associated with the unpaved road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm - East (P006-03-02-0010)

This base course berm serves as a run-off control at the northern edge of the Site and serves to mitigate storm water run-on associated with the unpaved road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berm (P006-03-12-0008)

The rock berm is located immediately south of the sampler, across the drainage path. It is used to control run-off from the slope above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.15.3.2 Control Measures for Urban Influences

Table 1000.15.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P006 04 01 0001	Channel/Swale - Earthen	•		•		CB
P006 04 02 0006	Channel/Swale - Concrete/ Asphalt	•		•		CB
P006 04 06 0002	Channel/Swale - Rip Rap	•		•		CB
P006 04 06 0003	Channel/Swale - Rip Rap	•		•		CB

Earthen Channel - West (P006-04-01-0001)
This western channel manages run-on from the parking area south of the SMA. Rock armor has been placed at the toe of this diversion channel to control erosion at the discharge area. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

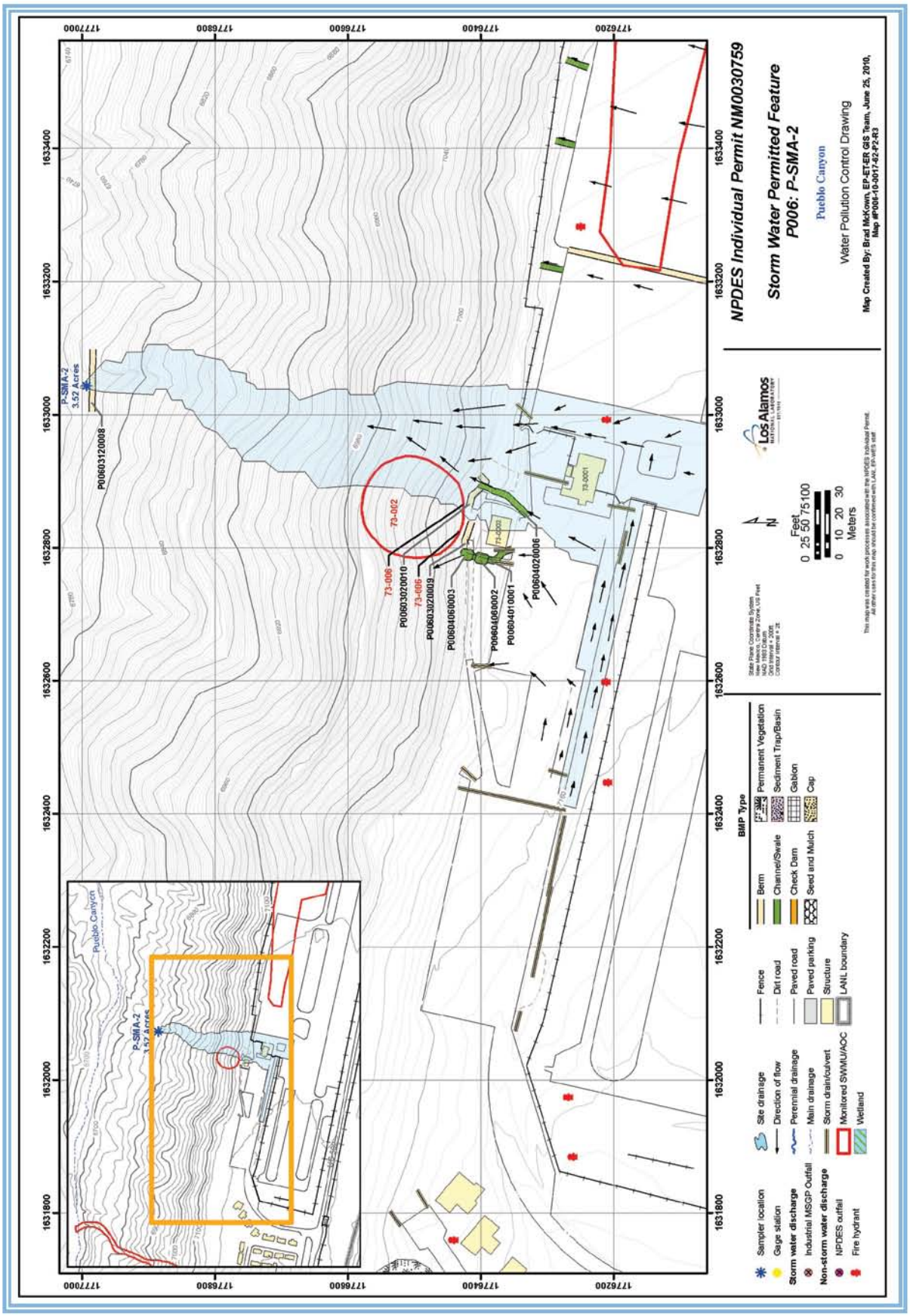
Concrete Channel - East (P006-04-02-0006)
The eastern channel serves to manage run-on from the paved areas around structure 73-0001, diverting it away from the Site. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rip Rap (P006-04-06-0002,-0003)
This is a series of two rip raps located on the western side of structure 73-0002. They are in place for erosion and run-on control. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.15.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P006, P-SMA-2. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.15.4 Project Map



1000.15.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	Dioxin (1)

1000.15.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at P-SMA-2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.15.5.2 Inspection Activity

RG038 recorded five Storm Events at P-SMA-2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.15.5.2-1.

Table 1000.15.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13940	07-12-2011
Storm Rain Event	BMP-15895	08-04-2011
Storm Rain Event	BMP-17149	08-29-2011
Storm Rain Event	BMP-18315	09-08-2011
Annual Erosion	COMP-19797	10-20-2011

1000.15.5.3 Maintenance

During 2011 there were no maintenance activities at P-SMA-2.

1000.15.6 Compliance Status

A Certificate of Completion was issued for both Sites within this SMA on August 13, 2007 [NMED 2007] . The New Mexico Environment Department has determined that a corrective action complete with controls designation is appropriate for the Sites 73-002 and 73-006.

The Sites associated with P-SMA-2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.16 P-SMA-2.15

1000.16 P-SMA-2.15

1000.16.1 Area Description

P-SMA-2.15 is within the Los Alamos township. The northern boundary of the SMA is moderately sloped and contains the receiving waters. The southern boundary is located on the mesa top in a residential area. Storm water flows from the developed residential area, north towards the receiving waters.

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P007, P-SMA-2.15, Site 31-001.

SWMU 31-001 consists of a former septic system located in the former TA-31. This septic system consisted of a septic tank (structure 00-7), two sanitary sewer manholes (structures 00-41 and 00-42), associated waste lines, and outfall. The former TA-31 was located in what is now the eastern residential area of Los Alamos, just west of the Los Alamos Airport. TA-31 served as the receiving area for all truck shipments to LANL from 1945 until 1954. SWMU 31-001 served former Building 31-7, which was constructed in 1949 and served as the main warehouse at TA-31. The septic tank (structure 00-7) was constructed of reinforced concrete and was 4 x 3 feet and several feet high. This septic tank was located above ground on a small bench above the rim of Pueblo Canyon, north of Building 31-7, and the outfall from the tank discharged into Pueblo Canyon. The septic tank was constructed in 1949, operated until 1954, and was removed in 1988. The waste line from Building 31-7 to the septic tank was approximately 600 feet long and included the two manholes (structures 00-41 and 00-42). The waste line was not encountered when the septic tank was removed in 1988. The contents of the septic tank were sampled when the tank was removed and found to contain no hazardous materials. When the RFI work plan was prepared in 1992, the sampling results could not be located and verified. No other environmental investigations have previously been conducted at SWMU 31-001.

The ER Project prepared a VCA plan and conducted the VCA for SWMU 31-001 in 1995. The VCA included excavating soil from approximately 2 ft above the outfall to 4 feet below the outfall. Soil was excavated to the underlying tuff with the depth of the excavation ranging from 1 to 2 feet and the width ranging from one half foot to 6 feet. Two confirmatory samples were collected from the excavation and analyzed for radionuclides, inorganic chemicals, and PCBs. No inorganic chemicals were detected above BV. Radionuclides did not exceed BVs/FVs. No PCBs were detected. In response to NMED comments on the VCA, LANL indicated that an additional investigation would be conducted to characterize potential contamination associated with organic chemicals other than PCBs. This investigation would address the area under the former septic system and in the outfall area to the point where the canyons investigation begins.

Table-1000.16.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
31-001	Soil Contamination from former Septic Tank	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.16.2.2 Urban Influences

A storm drain located at the northeast corner of Tewa Loop drains 150 feet of west Tewa Loop and the northeast part of Otowi Place. Storm water discharge is mainly street drainage with little or no contribution from residential landscaping.

The drain runs north underground and daylights at the edge of the mesa just north of an asphalt paved trail. The trail acts as a barrier for the sheet flow from the vegetated right of way. The trail itself contributes very little sheet flow to the edge of the canyon as evidenced by lack of erosion features.

1000.16.2.3 Public Influences

The SMA is located on a hillside adjacent to a residential area. The northern boundary of the SMA is steep and rugged. Pedestrian traffic is estimated to be very low at this SMA due to the steepness of the local terrain.

1000.16.3 Control Measures

Drainage from roads above is minimal due to the curbing and residential lawns. The two areas where the underground culvert daylights on the vegetated right of way are lined with rock and not eroding. The culvert that daylights at the canyon edge has rip rap that is currently functioning.

Subsections to 1000.16.3 list all control measures used to control pollutant sources identified in Section 1000.16.2. Control measures are shown in Table 1000.16.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.16.4.

Table 1000.16.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P007 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
P007 04 06 0006	Channel/Swale - Rip Rap		•	•		CB
P007 06 01 0005	Check Dam - Rock		•		•	CB

Established Vegetation (P007-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control andstorm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rip-Rap- Channel/Swale (P007-04-06-0006)

This rip-rap is located directly south of rock check dam -0005 to control erosion and run-off from further south. It is south of the sampler. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam - Rock (P007-06-01-0005)

Located at the northern tip of the SMA, this check dam will control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.16.3.2 Control Measures for Urban Influences

Table 1000.16.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P007 02 03 0002	Established Vegetation - Vegetative Buffer Strip	•		•		CB
P007 04 06 0003	Channel/Swale - Rip Rap	•		•		CB
P007 06 01 0004	Check Dam - Rock	•			•	CB

Permanent Vegetation - Vegetative Buffer Strip (P007-02-03-0002)
The buffer strip is located between the houses and the southern edge of the paved trail. This strip is controlling run-on from the area above. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

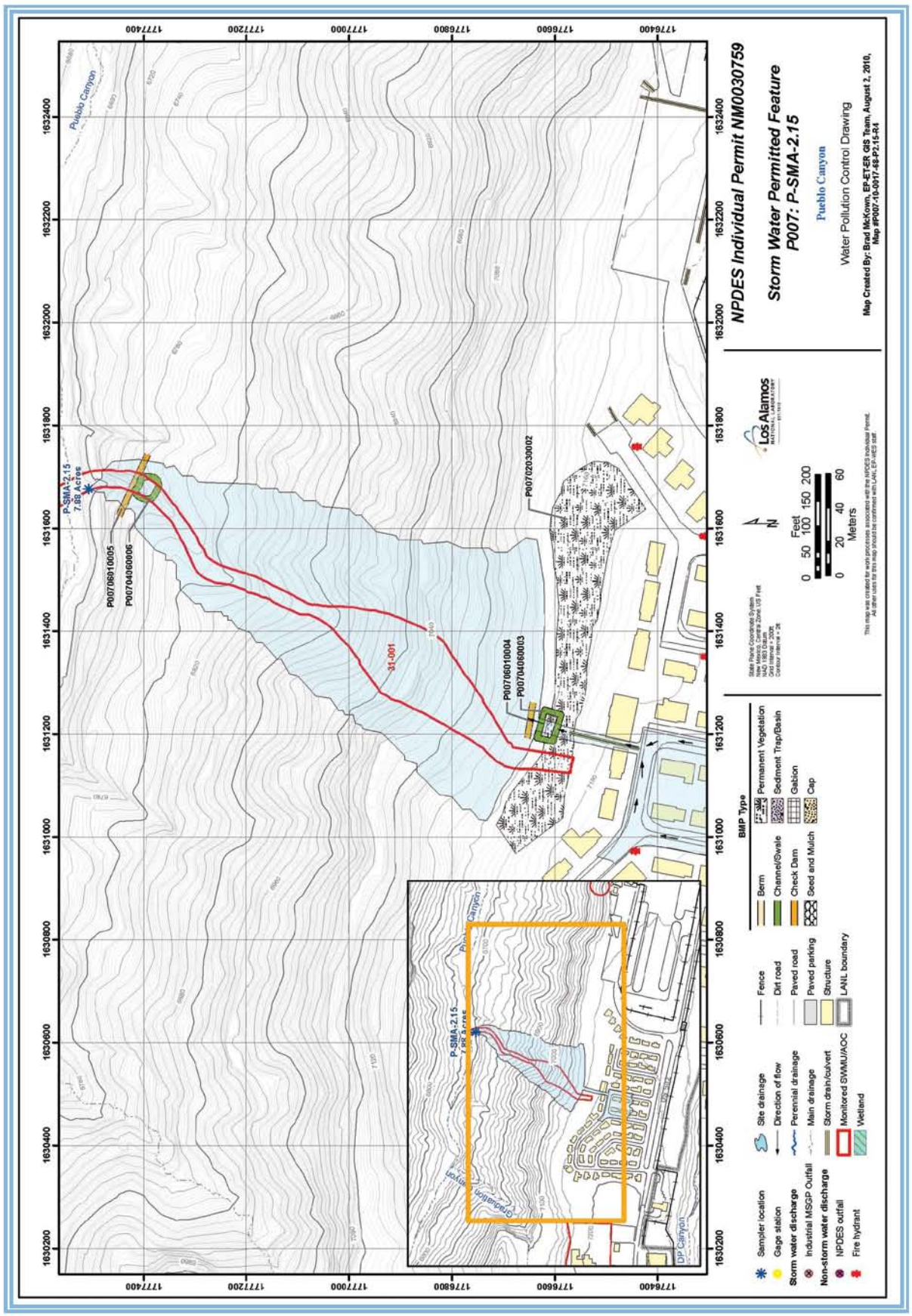
Channel/Swale Rip Rap (P007-04-06-0003)
Located at the southern edge of the SMA to control run-on and sediment in conjunction with check dam -0004. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (P007-06-01-0004)
Located at the southern edge of the SMA to control run-on and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.16.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P007, P-SMA-2.15. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.16.4 Project Map



1000.16.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.16.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at P-SMA-2.15. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.16.5.2 Inspection Activity

RG038 recorded five Storm Events at P-SMA-2.15 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.16.5.2-1.

Table 1000.16.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13943	07-12-2011
Storm Rain Event	BMP-15896	08-04-2011
Storm Rain Event	BMP-17150	08-26-2011
Storm Rain Event	BMP-18316	09-08-2011
Annual Erosion	COMP-19798	10-19-2011

1000.16.5.3 Maintenance

During 2011 there were no maintenance activities at P-SMA-2.15.

1000.16.6 Compliance Status

The Site associated with P-SMA-2.15 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.17 P-SMA-2.2

1000.17.1 Area Description

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

1000.17.2.2 Urban Influences

1000.17.2.3 Public Influences

1000.17.3 Control Measures

1000.17.3.1 Control Measures for Public Influences

1000.17.4 Project Map

1000.17.5 Storm Water Monitoring Plan and Schedule

1000.17.5.1 Initial Confirmation Monitoring

1000.17.5.2 Inspection Activity

1000.17.5.3 Maintenance

1000.17.6 Compliance Status

1000.17 P-SMA-2.2

1000.17.1 Area Description

P-SMA-2.2 is located within the Los Alamos township behind Aspen Ridge Lodge and Sombrillo Center. The northern boundary of the SMA is undeveloped and moderately sloped to the north and east. The southern boundary is flat, developed, and contains a facility owned by Los Alamos County. This area contains larger areas of paved surfaces, and associated structures. Storm water flows from the developed area on the mesa, northeast towards the receiving waters.

1000.17.2 Potential Pollutant Sources

1000.17.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P008, P-SMA-2.2, Site 00-019.

SWMU 00-019 is the former central wastewater treatment plant (WWTP). It operated from 1947 to 1961, when it was taken out of service and kept on standby until the property was transferred to Los Alamos County in 1967. SWMU 00-019 is located in the eastern part of the Los Alamos town site between the Sombrillo Nursing Facility and East Park, along the north edge of the mesa above Graduation Canyon, which is a hanging tributary of Pueblo Canyon. This SWMU is made up of two areas: the mesa-top portion, which includes the former above ground structures and subsurface piping associated with the treatment plant, and the canyon-side hill-slope outfall drainage areas north of the former plant. WWTP operations were confined to the mesa top and the two outfalls that discharged into Graduation Canyon. The western outfall pipe was an eight inch diameter vitrified clay pipe (VCP) with a concrete discharge apron. The eastern outfall was located 170 feet east of the western outfall and had a 12 inch diameter VCP with an exposed section of galvanized steel pipe at the discharge point. The outfall area terminates on a bench of Graduation Canyon, a small tributary of Pueblo Canyon.

The plant was decommissioned in 1961; Los Alamos County continued subsequent structure removal from 1965 to 1991. In 1999 and 2000, process pipelines were removed by LANL. In addition, the pump house, asbestos in the pump house, and remaining piping were also removed. During removal it was discovered that the process structures (primary settling tank, sludge digestion tank, trickling filter, final settling tank, and chlorine contact tank) remained in place. Preliminary investigation indicates that each of the tanks was emptied, then completely or partially collapsed, filled, and buried with soil of unknown origin. Construction of a senior citizen assisted-living facility was completed in 2004 over the site.

Table-1000.17.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-019	Former Wastewater treatment plant, Central	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.17.2.2 Urban Influences

There is minimal impact from landscaping around Sombrillo Center. Run-on contributions from the roofs and paved areas associated with development along the southern boundary are present at this SMA. Planned controls are to address these run-on sources.

1000.17.2.3 Public Influences

There is a public trail system north of the SMA in Graduation Canyon.

1000.17.3 Control Measures

Run-on contributions to this SMA are from roof drains on the north side of the Sombrillo Center, paved areas to the channel east of the Center, and paved run-on to the access road north of the center. Planned controls are to address these run-on sources.

The majority of discharge is captured along the road to Graduation Canyon north of the Center and on the bench below the channel east of the Center.

Subsections to 1000.17.3 list all control measures used to control pollutant sources identified in Section 1000.17.2. Control measures are shown in Table 1000.17.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.17.4.

1000.17.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.17.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P008 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
P008 03 02 0012	Berms - Base Course	•			•	CB
P008 03 06 0023	Berms - Straw Wattles		•		•	B
P008 03 13 0014	Berms - S-Fence		•		•	CB
P008 03 13 0015	Berms - S-Fence		•		•	CB
P008 03 13 0016	Berms - S-Fence		•		•	CB

Table 1000.17.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P008 03 13 0024	Berms - S-Fence		•		•	B
P008 02 06 0005	Channel/Swale - Concrete/ Asphalt		•	•		CB
P008 04 06 0006	Channel/Swale - Rip Rap		•	•		CB
P008 04 08 0017	Channel/ Swale - Turf Reinforcement Matting	•		•		CB
P008 06 01 0018	Check Dam - Rock	•			•	CB
P008 06 01 0019	Check Dam - Rock	•			•	CB
P008 06 01 0020	Check Dam - Rock	•			•	CB
P008 06 01 0021	Check Dam - Rock	•			•	CB
P008 06 01 0022	Check Dam - Rock	•			•	CB

Established Vegetation (P008-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (P008-03-02-0012)

The berm is located near the northwest corner of the Sombrillo Center along the mesa edge. It is in place to help manage run-on from the paved areas. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (P008-03-06-0023)
These straw wattles are located just south of the sampler. They are used to help control storm water run-off from he slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

S-Fence (P008-03-13-0014, -0015, -0016, -0024)
This is a series of four S-fences located on the slope southwest of the sampler. They are used to help control run-off from the slope above. S-Fence is used for sediment control applications, similar to silt fence. However, S-Fence is made of HDPE, is UV-resistant and designed to allow water flow-through and significantly reduces water velocity to reduce erosive energy while at the same time provides particle filtering. Install in accordance with manufacturer`s specifications.

West Concrete Swale (P008-04-02-0005)
This swale is located in the drainage channel north of the northwest corner of the Aspen Ridge Lodge. It is used to control run-off from the paved areas around and above the lodge. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

East Rip Rap (P008-04-06-0006)
This rip rap and its associated swale are located in the drainage channel adjacent to the northeast corner of the Aspen Ridge Lodge. They are used to control run-off from the paved areas around and above the lodge. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

TRM Lined Swale (P008-04-08-0017)
This TRM lined swale is located in the central portion of the SMA to control run-on and prevent erosion. Turf reinforcement mat is a long term non-degradable RECP composed of UV stabilized, non-degradable, synthetic fibers, nettings and/or filaments processed into three-dimensional reinforcement matrices designed for permanent and critical hydraulic applications where design discharges exert velocities and shear stresses that exceed the limits of mature, natural vegetation.

Check Dams (P008-06-01-0018, -0019, -0020, -0021, -0022)
This series of five rock check dams is located in the drainage channel in the center of the SMA drainage area. They are placed to help control run-on. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.17.3.2 Control Measures for Urban Influences

Table 1000.17.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P008 04 06 0001	Channel/Swale - Rip Rap	•		•		CB

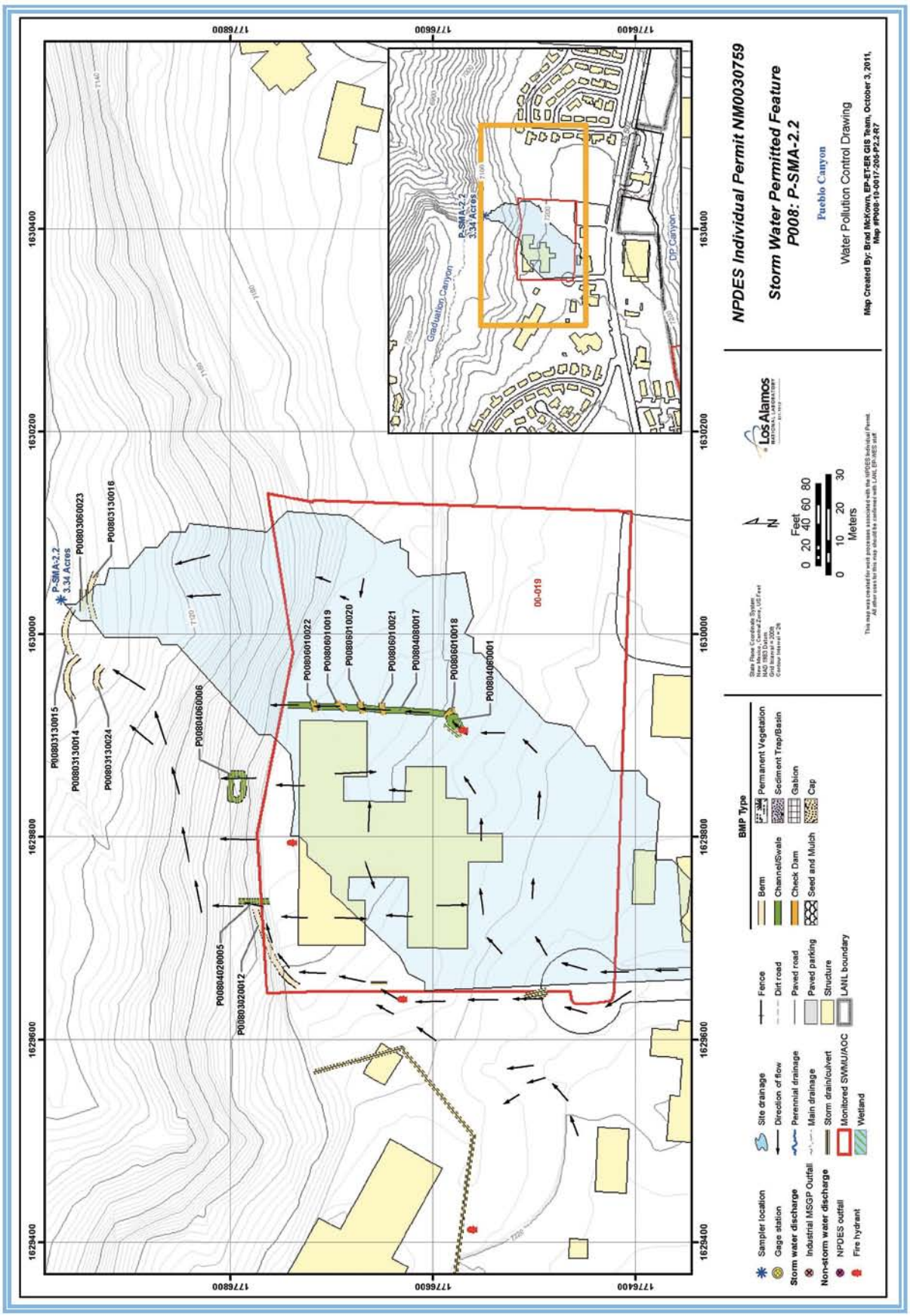
Rip Rap (P008-04-06-0001)

This rip rap is an outlet protection device located near the culvert outlet associated with an unpaved access road on the eastern side of the Aspen Ridge Lodge building. It helps to control run-on flow from the paved areas above as well as preventing erosion in the channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.17.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF P008, P-SMA-2.2. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.17.4 Project Map



1000.17.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.17.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at P-SMA-2.2. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.17.5.2 Inspection Activity

RG038 recorded five Storm Events at P-SMA-2.2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.17.5.2-1.

Table 1000.17.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13944	07-11-2011
Storm Rain Event	BMP-15897	08-04-2011
Storm Rain Event	BMP-17151	08-29-2011
Storm Rain Event	BMP-18317	09-08-2011
Annual Erosion	COMP-19799	10-20-2011

1000.17.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.17.5.3-1.

Table 1000.17.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18317	Installed temporary wattle as additional backup control for s-fence P00803130013.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-15897	Replaced wattle P00803060011 with new wattle P00803060023 in same location.	09-21-2011	48 day(s)	Maintenance conducted as soon as practicable.
BMP-18317	Replaced s-fence P00803130013 with new s-fence P00803130024.	09-29-2011	21 day(s)	Maintenance conducted as soon as practicable.
COMP-19799	Re-trenched and reset S-Fence P00803130014 to prevent undercutting.	11-09-2011	20 day(s)	Maintenance conducted as soon as practicable.

1000.17.6 Compliance Status

The Site associated with P-SMA-2.2 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.18 P-SMA-3.05

1000.18.1 Area Description

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

1000.18.2.2 Urban Influences

1000.18.2.3 Public Influences

1000.18.3 Control Measures

1000.18.3.1 Control Measures for Public Influences

1000.18.4 Project Map

1000.18.5 Storm Water Monitoring Plan and Schedule

1000.18.5.1 Initial Confirmation Monitoring

1000.18.5.2 Inspection Activity

1000.18.5.3 Maintenance

1000.18.6 Compliance Status

1000.18 P-SMA-3.05

1000.18.1 Area Description

P-SMA-3.05 is located within Los Alamos township. The northern boundary of the SMA is flat and slopes gently to the north and east. The western portion of the SMA includes an unpaved access road. The eastern boundary of the SMA is steeply sloped along the center and the receiving waters are further east along this boundary.

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF P009, P-SMA-3.05, Site 00-018(a).

SWMU 00-018(a) consists of the decommissioned Pueblo Canyon wastewater treatment plant (WWTP), located at the end of Olive Street in Pueblo Canyon on Los Alamos County property. The plant, which was built between 1946 and 1948, began operating in 1951 and received waste from the Health Research Laboratory (HRL) at TA-43 until 1983 and from Los Alamos business and residential customers until 1991. From 1983 to 1991, the plant, received only sanitary waste from Los Alamos businesses and residences.

From 1953 to 1983, this WWTP received laboratory waste (e.g., less than 10 L per month) from the HRL at TA-43, the only known laboratory contributor to the waste stream at the plant. Los Alamos County assumed active management of the WWTP in the 1960s and decommissioned the WWTP in 1992.

Formerly, Los Alamos County held a NPDES permit for the Pueblo Canyon WWTP. After the plant was decommissioned in 1992, sludge in the plant's digester was transferred to sludge drying beds. The sludge was sampled in 1996 and was removed by Los Alamos County in accordance with regulations applicable to publicly owned treatment works. Potential contaminants at SWMU 00-018(a) are organic chemicals, inorganic chemicals, and radionuclides.

Table-1000.18.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-018(a)	Former Sludge-bed wastewater treatment plant, Pueblo Canyon	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.18.2.2 Urban Influences

Run-on at this SMA is related to three to four culverts from the Pueblo Drive area and the drainage to the south of the Olive Street (access road). Olive Street is paved and potentially acts as a run-on source to the channel and culverts that are on site.

1000.18.2.3 Public Influences

There has been no litter observed at this SMA, but there are hiking trails adjacent to the area.

1000.18.3 Control Measures

There are major urban and natural drainage run-on issues at this Permitted Feature. The significant run-on is a result of the channel flow and culvert directing water to the SMA. The only run-off discharge from the area is a result of the channel/culvert run-on.

Subsections to 1000.18.3 list all control measures used to control pollutant sources identified in Section 1000.18.2. Control measures are shown in Table 1000.18.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.18.4.

1000.18.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.18.3-1

Control ID	Control Name	Purpose of Control				Conrol Status
		Run-On	Run-Off	Erosion	Sediment	
P009 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
P009 03 01 0008	Berms - Earthen		•		•	CB
P009 03 01 0009	Berms - Earthen		•		•	CB
P009 03 01 0010	Berms - Earthen		•		•	B
P009 03 02 0007	Berms - Base Course		•		•	CB

Established Vegetation (P009-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (P009-03-01-0008, -0009)

This is a pair of berms located in the central portion of the SMA that are used as run-off controls. An earthen berm is a temporary containment control constructed

of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Berms (P009-03-01-0010)
This earthen berm is located along the eastern side of the SMA drainage area at the edge of the mesa. It is placed to control run-off and sediment from the site before it drops into the canyon. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm (P009-03-02-0007)
This berm is located on the eastern side of the unpaved access road just east of the SMA footprint. It is in place to help control run-off from the road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.18.3.2 Control Measures for Urban Influences

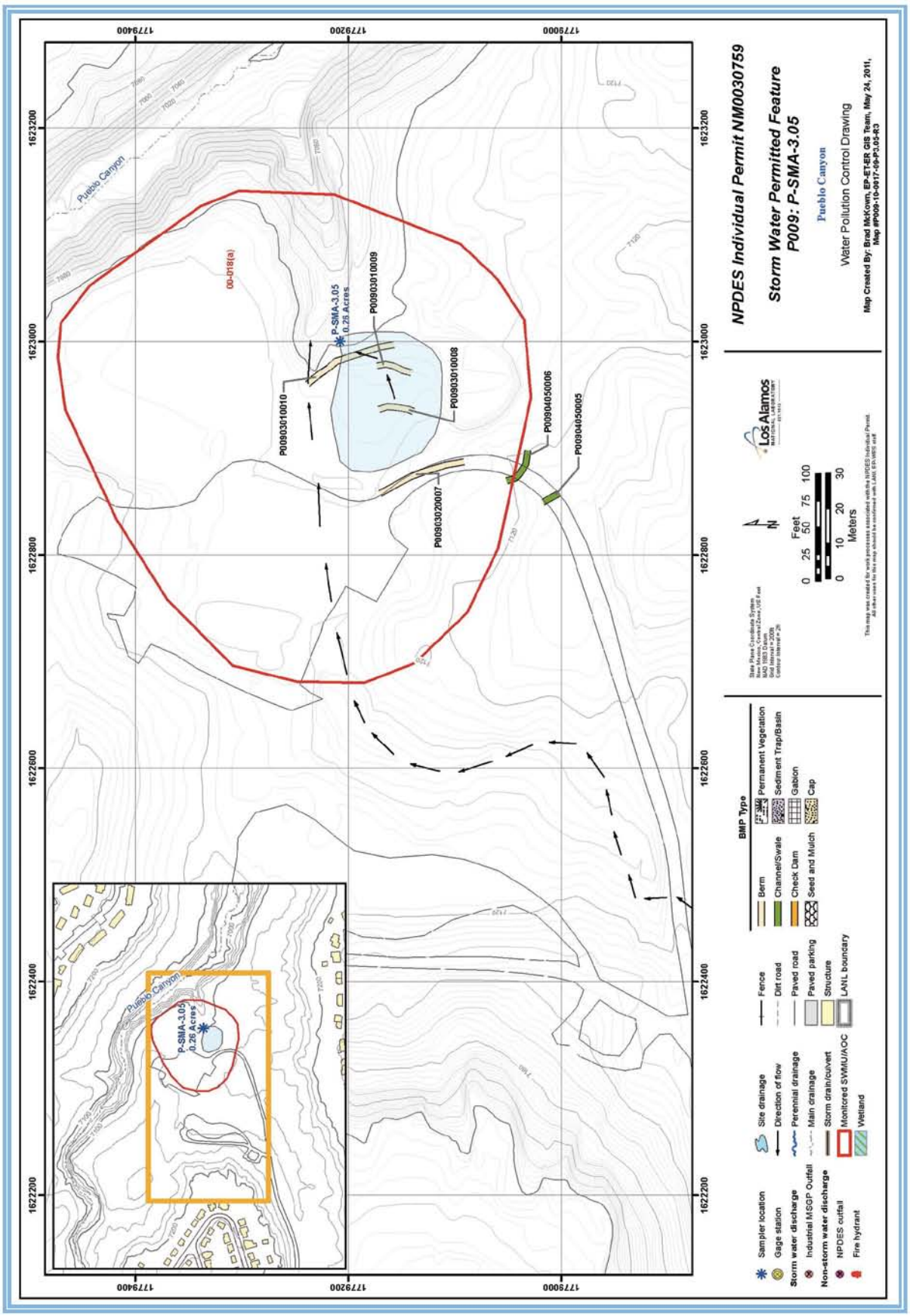
Table 1000.18.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
P009 04 05 0005	Channel/Swale - Water Bar	•		•		CB
P009 04 05 0006	Channel/Swale - Water Bar	•		•		CB

Water Bars (P009-04-05-0005, -0006)
This is a pair of water bars that have been installed across the unpaved access road south of Site 00-018(a). They are used to help control run-on from the paved areas. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

1000.18.3.3 Control Measures for Public Influences
There are no control measures for public influences at PF P009, P-SMA-3.05. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.18.4 Project Map



1000.18.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.18.5.1 Initial Confirmation Monitoring

After collection of the final confirmation sample, the sampler location was determined to be incorrect. Confirmation samples collected at this location in 2011 have been disregarded and initial confirmation sampling will begin again in 2012. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.18.5.2 Inspection Activity

RG055.5 recorded four Storm Events at P-SMA-3.05 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.18.5.3-1.

Table 1000.18.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13793	06-23-2011
Storm Rain Event	BMP-16213	08-10-2011
Storm Rain Event	BMP-17189	08-25-2011
Storm Rain Event	BMP-18864	09-13-2011
Annual Erosion	COMP-19800	10-19-2011

1000.18.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.18.5.4-1.

Table 1000.18.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18864	Repaired earthen berm P00903010008 with clean backfill, seed, and matting.	09-20-2011	7 day(s)	Maintenance conducted in timely manner.

1000.18.6 Compliance Status

The Site associated with P-SMA-3.05 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.19 LA-SMA-0.85

1000.19 LA-SMA-0.85

1000.19.1 Area Description

LA-SMA-0.85 is within a highly developed area at TA-03. The northern boundary of the SMA is undeveloped and contains a hiking trail. The southern boundary of the SMA is developed, contains paved parking, and building 03-0041. The eastern boundary of the SMA is developed and contains paved parking. The western boundary of the SMA is developed and contains paved parking.

There are multiple and large run-on sources to this SMA. Storm water from State Road 501 is directed to the storm drain culvert that is associated with the historical industrial area.

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L001, LA-SMA-0.85, Site 03-055(c).

SWMU 03-055(c) consists of an active storm drain and associated outfall located northeast of the fire station (Building 03-41). This system channels storm water towards Los Alamos Canyon. Previously, the storm drain was connected to building floor drains but currently only collects and channels storm water run-off from parking lots located in the northern portion of TA-03.

In 1992, the storm water drainage channel into which the outfall flows was sampled by EM-8 as part of a reconnaissance survey associated with the construction of the Industrial Partnership Center at TA-03. Sampling results indicated that, with the exception of one SVOC (bis-2-ethylhexylphthalate, a widely-used plasticizer commonly found throughout LANL), target analytes were either not detected or detected at concentrations within LANL-wide BVs. Bis-2-ethylhexylphthalate was detected in two samples. Both bis-2-ethylhexylphthalate concentrations detected are below current EPA human health SALs and ecological screening levels.

Table-1000.19.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
03-055(c)	Outfall associated with drains of Fire Station 3-41	Discrete Location, No overlap	Individual	•		•	

1000.19.2.2 Urban Influences

Run-on to the Permitted Feature from the parking area is diverted by curbing along the northern edge of the parking lot. Three drop inlets from West Jemez road contribute run-on to the SMA.

1000.19.2.3 Public Influences

This SMA is surrounded by parking and other impervious surfaces. A hiking trail is along the northern boundary of the SMA. Potential influence by the public is high at this SMA.

1000.19.3 Control Measures

The curb along the northern portion of the parking area prevents parking lot run-on to the SMA. The channel banks are elevated; thus preventing run-on from the east and west. Existing culverts are the primary run-on source.

Subsections to 1000.19.3 list all control measures used to control pollutant sources identified in Section 1000.19.2. Control measures are shown in Table 1000.19.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.19.4.

1000.19.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.19.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L001 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
L001 02 03 0007	Established Vegetation - Vegetative Buffer Strip		•	•		CB

Established Vegetation (L001-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Permanent Vegetation - Vegetative Buffer Strip (L001-02-03-0007)

This vegetated buffer strip is located in the central area of the SMA. It works to reduce erosion associated with storm water run-off discharging from the channel. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

1000.19.3.2 Control Measures for Urban Influences

Table 1000.19.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L001 03 09 0006	Berms - Curbing	•			•	CB
L001 07 01 0001	Gabions - Gabions		•		•	CB
L001 07 01 0004	Gabions - Gabions		•		•	CB
L001 07 01 0005	Gabions - Gabions		•		•	CB

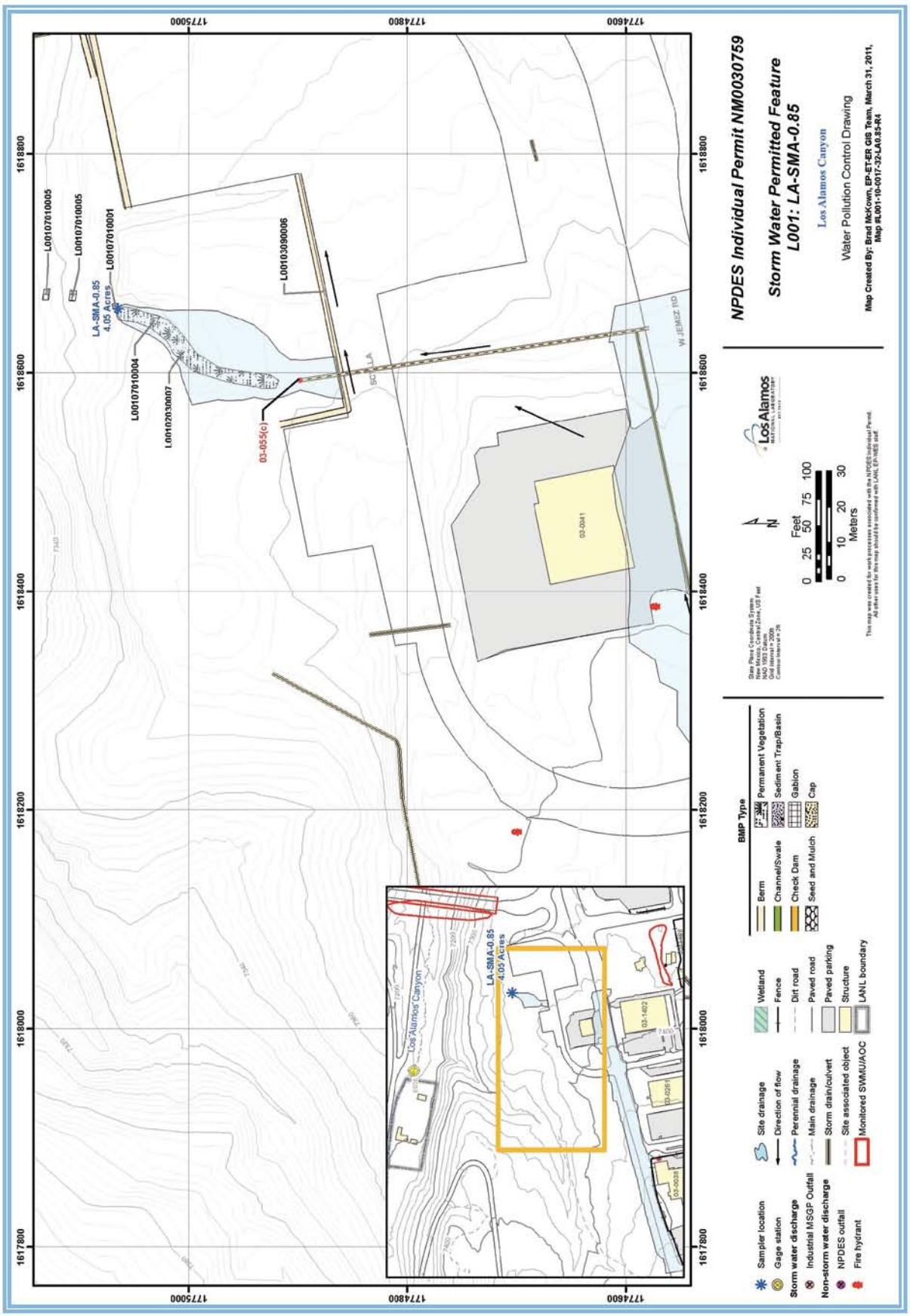
Curbing (L001-03-09-0006)
The curbing at the Permitted Feature is located along the northern boundary of the parking area. Its purpose is to direct run-on away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Gabions (L001-07-01-0001, -0004, -0005)
There are three gabions located north of the culvert outlet running under NM 501. They are used to control run-off from the Permitted Feature and to prevent sediment transportation associated with the culvert flow. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.19.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L001, LA-SMA-0.85. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.19.4 Project Map



1000.19.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

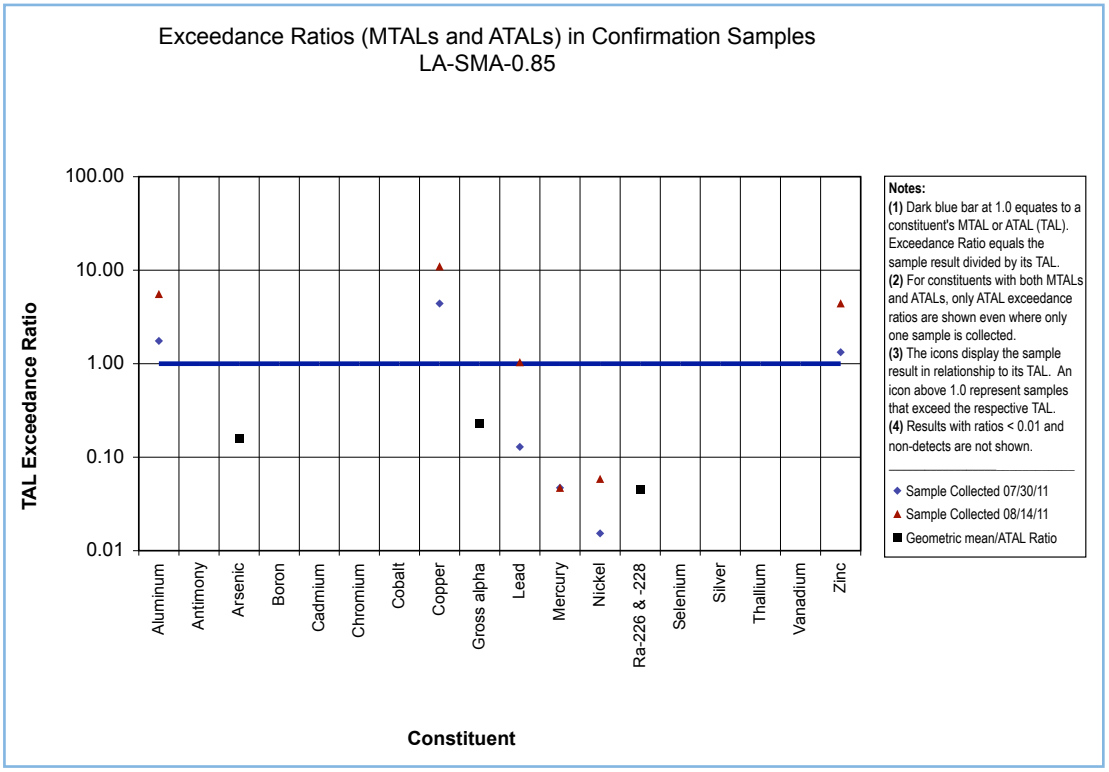
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.19.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-0.85 on July 30, 2011 and August 14, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.19.5.2.



1000.19.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at LA-SMA-0.85. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.19.5.2-1.

Table 1000.19.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.19.5.3 Inspection Activity

RG121.9 recorded four Storm Events at LA-SMA-0.85 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.19.5.3-1.

Table 1000.19.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13886	06-21-2011
Storm Rain Event	BMP-16256	08-11-2011
Storm Rain Event	BMP-17226	08-24-2011
Storm Rain Event	BMP-18901	09-14-2011
Annual Erosion	COMP-19726	09-29-2011
TAL Exceedance	COMP-20164	11-25-2011

1000.19.5.4 Maintenance

During 2011 there were no maintenance activities at LA-SMA-0.85.

1000.19.6 Compliance Status

The Site associated with LA-SMA-0.85 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.20 LA-SMA-0.9

1000.20 LA-SMA-0.9

1000.20.1 Area Description

LA-SMA-0.9 is located to the west of the Omega bridge. The area along the southern boundary of the SMA has the highest potential for public influence. The northern boundary of the SMA is rugged and undeveloped. Further north are the receiving waters of Los Alamos Canyon. Storm water flows from the southern area, north to the receiving waters.

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L002, LA-SMA-0.9, Sites 00-017 and C-00-044.

SWMU 00-017 consists of underground industrial waste lines that transported wastes generated at the HRL building, (building 43-1) and TA-48 to the former waste water treatment plant at TA-45 (consolidated unit 45-001-00). The waste lines includes former line 167, a cast-iron pipe that extended from the south edge of Los Alamos Canyon, west of the Omega Bridge, to a former manhole (unassigned land release [ULR]) 33 that was located in the canyon bottom, and then up the north side of the canyon wall. Line 170 is a 200-ft section of VCP that runs east of the HRL to manhole ULR 61. Line 171 is a 365-ft section of VCP that runs east from manhole ULR 61, under the north wing of the Los Alamos Medical Center, and under the east parking lot to the location of former manhole ULR-60. Former line 167 and former manhole ULR 33 were removed before 1985, except for the anchors and sections of pipe encased in anchors. Lines 170 and 171 are the only sections of industrial waste line known to remain in Los Alamos town site. The site of former line 167 and former manhole ULR 33 under the Omega Bridge remains undeveloped. Nine concrete anchors and 3 ft long sections of pipe encased in each of the anchors remain at the site.

The industrial waste lines were installed to serve the entire Laboratory from its beginning in 1943. With an estimated total length of 39,000 ft, the underground industrial waste lines and associated sumps and pumps were used to transport waste generated by various operations to treatment facilities. The estimated operation period for the majority of these waste lines is from the 1950s to the 1970s. Phased decommissioning and removal of the waste lines began in 1964, and various removal projects were completed through 1986.

Site C-00-044 consists of surface contamination resulting from historic use of lead-based paint on the Los Alamos Canyon Bridge (also known as the Omega Bridge). It is located in both TA-00 and TA-03. Paint chips were deposited beneath the bridge on the north and south slopes of Los Alamos Canyon as a result of periodic bridge maintenance activities, including scraping and chipping old paint prior to applying new paint. Specific constituents present at the site are the metals associated with the discrete paint chips.

Table-1000.20.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-017	Waste lines	Co-located, Overlapping	Shared	•	•	•	PCBs
C-00-044	Soil contamination	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Site 00-017 is soil contamination associated with a former industrial waste line. The mesa-top portions of this line are at depth and likely do not influence storm water discharges. Formerly, the line was on the surface as it crossed Los Alamos Canyon. This area was just west of the canyon bridge. Site C-00-044 is a soil contamination area thought to be associated with bridge maintenance conducted by Los Alamos County. Both Sites share a common drainage, have similar contaminants, and are physically co-located. The discharge from these sites will have substantially identical effluent.

1000.20.2.2 Urban Influences

Run-off from the bridge will not impact the site. The western portion of the bridge is curbed and there is no evidence of run-on impact from the bridge. Minimal run-on is present due to engineered controls, specifically, curbs, drop inlets, and grading.

1000.20.2.3 Public Influences

The eastern boundary of the SMA is directly underneath the bridge over Los Alamos Canyon. Although accessible, pedestrian traffic in this area will be low. No controls are necessary at this time. Should litter or floatable debris be noted in an inspection, signage is to be implemented.

1000.20.3 Control Measures

The western portion of the bridge is curbed. There is no evidence of run-on impact from the bridge. There is minimal run-on due to engineered controls, specifically, curbs, drop inlets, and grading.

Subsections to 1000.20.3 list all control measures used to control pollutant sources identified in Section 1000.20.2. Control measures are shown in Table 1000.20.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.20.4.

Table 1000.20.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L002 01 06 0019	Seed and Mulch - Erosion Control Blankets			•		B
L002 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L002 03 01 0013	Berms - Earthen		•		•	B
L002 03 01 0014	Berms - Earthen		•		•	B
L002 03 01 0015	Berms - Earthen		•		•	B
L002 03 01 0016	Berms - Earthen		•		•	B
L002 03 01 0017	Berms - Earthen		•		•	B
L002 03 01 0018	Berms - Earthen		•		•	B

Erosion Control Blankets (L002-01-06-0019)

These erosion control blankets were applied on and around earthen berms -0013-0018 to prevent erosion. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (L002-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (L002-03-01-0013, -0014, -0015, -0016, -0017, -0018)

This is a series of six earthen berms located south of the sampler location under the bridge. They were installed in order to mitigate run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.20.3.2 Control Measures for Urban Influences

Table 1000.20.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L002 03 09 0002	Berms - Curbing	•			•	CB
L002 03 09 0003	Berms - Curbing	•			•	CB
L002 03 10 0010	Berms - Gravel Bags	•			•	CB
L002 04 04 0004	Channel/Swale - Culvert	•		•		CB

Southern Curbing (L002-03-09-0002)

The southern curbing is located at the northeast access to the parking area and is positioned to divert run-on away from the area. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Eastern Curbing (L002-03-09-0003)

Curbing is located along the western side of the bridge, effectively diverting run-on away from the Permitted Feature. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Gravel Bags (L002-03-10-0010)

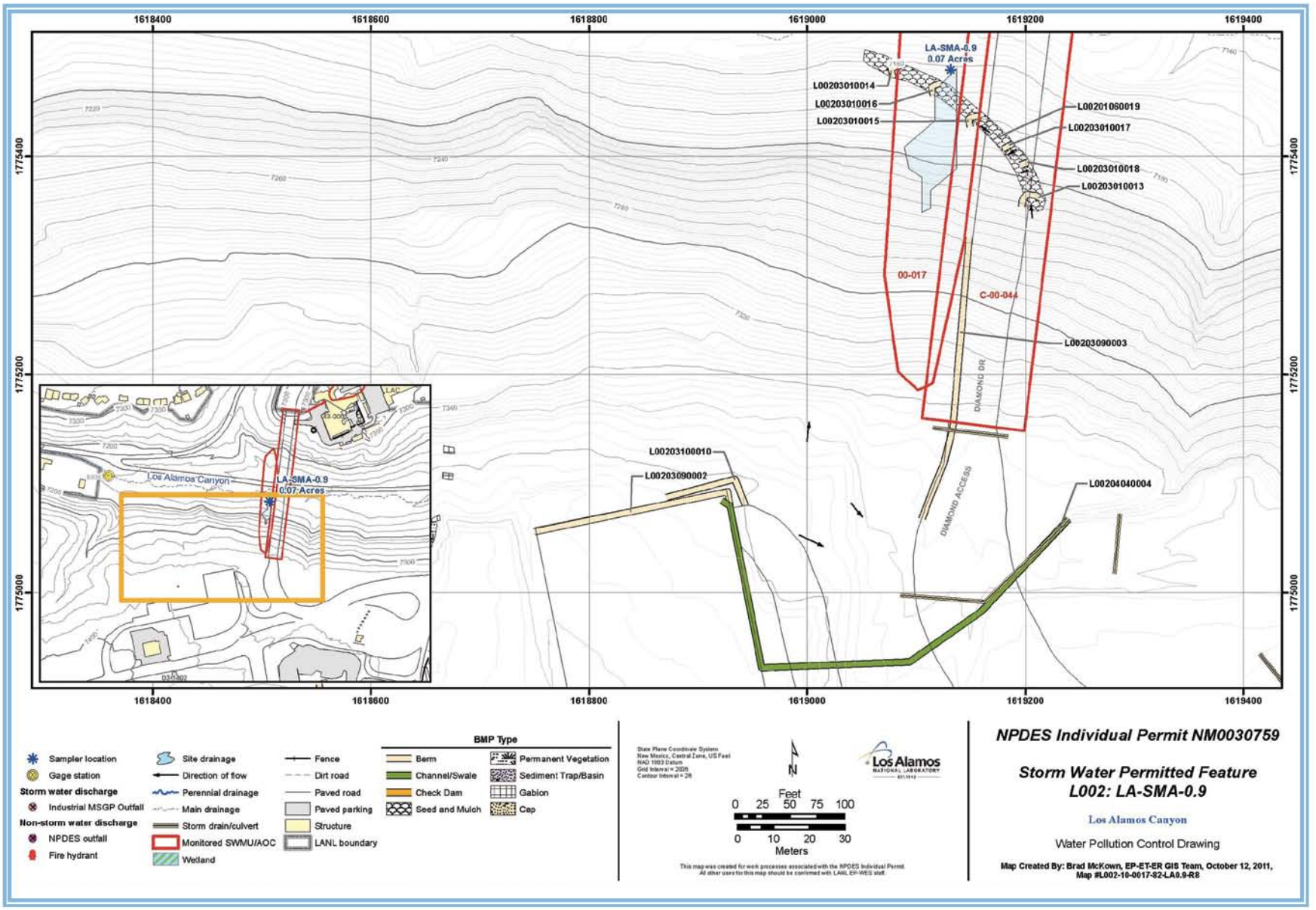
The gravel bags are located around the drop inlet west of Diamond Drive. They are in place to help control run-on to the area. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

Culvert (L002-04-04-0004)

The culvert traverses Diamond Drive day lighting on the western side and it directs run-on away from the Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.20.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L002, LA-SMA-0.9. Although the potential for public influences at this SMA exists, no controls are necessary at this time.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1618600
1618800
1619000
1619200
1619400
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1775200
1775000
LA-SMA-0.9
0.07 Acres
L00203010014
L00203010016
L00203010015
L00201060019
L00203010017
L00203010018
L00203010013
00-017
C-00-044
L00203090003
DIAMOND DR
DIAMOND ACCESS
L00203100010
L00203090002
L00204040004
Los Alamos Canyon
LA-SMA-0.9
0.07 Acres
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
N
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L002: LA-SMA-0.9
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 12, 2011,
Map #L002-10-0017-82-LA0.9-R8

1000.20.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.20.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-0.9. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.20.5.2 Inspection Activity

RG121.9 recorded four Storm Events at LA-SMA-0.9 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.20.5.2-1.

Table 1000.20.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13884	07-14-2011
Storm Rain Event	BMP-16254	08-03-2011
Storm Rain Event	BMP-17224	08-17-2011
Storm Rain Event	BMP-18899	08-30-2011
Construction	COMP-19872	10-04-2011
Annual Erosion	COMP-19727	10-04-2011

1000.20.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.20.5.3-1.

Table 1000.20.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17224	Cleared sediment from behind wattle L00203060009.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18899	Replaced wattle L00203060009 with new wattle L00203060012.	09-19-2011	7 day(s)	Maintenance conducted in timely manner.

1000.20.6 Compliance Status

The Sites associated with LA-SMA-0.9 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.21 LA-SMA-1

1000.21 LA-SMA-1

1000.21.1 Area Description

LA-SMA-1 is located to the west of Building 43-0001. The area along the northern boundary of the SMA has the highest potential for public influence. The southern boundary of the SMA is rugged and undeveloped. Further south are the receiving waters of Los Alamos Canyon. Storm water flows from the northern area, south to the receiving waters.

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L003, LA-SMA-1, Sites 00-017 and C-00-044.

SWMU 00-017 consists of underground industrial waste lines that transported wastes generated at the HRL building, (building 43-1) and TA-48 to the former waste water treatment plant at TA-45 (consolidated unit 45-001-00). The waste lines includes former line 167, a cast-iron pipe that extended from the south edge of Los Alamos Canyon, west of the Omega Bridge, to a former manhole (unassigned land release [ULR]) 33 that was located in the canyon bottom, and then up the north side of the canyon wall. Line 170 is a 200-ft section of VCP that runs east of the HRL to manhole ULR 61. Line 171 is a 365-ft section of VCP that runs east from manhole ULR 61, under the north wing of the Los Alamos Medical Center, and under the east parking lot to the location of former manhole ULR-60. Former line 167 and former manhole ULR 33 were removed before 1985, except for the anchors and sections of pipe encased in anchors. Lines 170 and 171 are the only sections of industrial waste line known to remain in Los Alamos town site. The site of former line 167 and former manhole ULR 33 under the Omega Bridge remains undeveloped. Nine concrete anchors and 3 ft long sections of pipe encased in each of the anchors remain at the site.

The industrial waste lines were installed to serve the entire Laboratory from its beginning in 1943. With an estimated total length of 39,000 ft, the underground industrial waste lines and associated sumps and pumps were used to transport waste generated by various operations to treatment facilities. The estimated operation period for the majority of these waste lines is from the 1950s to the 1970s. Phased decommissioning and removal of the waste lines began in 1964, and various removal projects were completed through 1986.

Site C-00-044 consists of surface contamination resulting from historic use of lead-based paint on the Los Alamos Canyon Bridge (also known as the Omega Bridge). It is located in both TA-00 and TA-03. Paint chips were deposited beneath the bridge on the north and south slopes of Los Alamos Canyon as a result of periodic bridge maintenance activities, including scraping and chipping old paint prior to applying new paint. Specific constituents present at the site are the metals associated with the discrete paint chips.

Table-1000.21.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
00-017	Waste lines	Co-located, Overlapping	Shared	•	•	•	PCBs
C-00-044	Soil contamination	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Site 00-017 is soil contamination associated with a former industrial waste line. The mesa-top portions of this line are at depth and likely do not influence storm water discharges. Formerly, the line was on the surface as it crossed Los Alamos Canyon. This area was just west of the canyon bridge. Site C-00-044 is a soil contamination area thought to be associated with bridge maintenance conducted by Los Alamos County. Both Sites share a common drainage, have similar contaminants, and are physically co-located. The discharge from these sites will have substantially identical effluent.

1000.21.2.2 Urban Influences

There is the potential for run-on from Diamond Drive to impact this SMA.

1000.21.2.3 Public Influences

The headwaters of the SMA is in a busy, developed area, particularly on the northern and eastern boundaries. Although public influence is possible, pedestrian traffic is estimated to be low overall at this SMA.

1000.21.3 Control Measures

Wattles, check dams, and other controls are in place, including the two culverts and an asphalt swale, controlling run-on to the Permitted Feature. In addition, curbing on the Omega Bridge above the site is directing run-on away from the area.

Subsections to 1000.21.3 list all control measures used to control pollutant sources identified in Section 1000.21.2. Control measures are shown in Table 1000.21.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.21.4.

Table 1000.21.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L003 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
L003 03 06 0013	Berms - Straw Wattles	•			•	B
L003 03 12 0012	Berms - Rock		•		•	CB
L003 06 01 0014	Check Dam - Rock		•		•	B

Established Vegetation (L003-02-01-0003)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles - Bridge (L003-03-06-0013)
Wattles have been placed under the Omega Bridge along the paved road to control run-on and sediment migration. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rock Berm (L003-03-12-0012)
This rock berm is located on the north side of the sampler. It was placed across the channel to control run-off from the SMA. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dam (L003-06-01-0014)
This check dam is located north of the sampler and serves to reduce sediment loading in storm water run-off discharge from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Table 1000.21.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L003 01 01 0009	Seed and Mulch - Seed and Wood Mulch			•		CB
L003 03 06 0006	Berms - Straw Wattles	•			•	CB
L003 03 06 0007	Berms - Straw Wattles	•			•	CB
L003 04 02 0005	Channel/Swale - Concrete/ Asphalt	•		•		CB
L003 04 04 0004	Channel/Swale - Culvert	•		•		CB

Seed and Mulch (L003-01-01-0009)

Wood mulch is employed at this SMA to reduce any potential erosion associated with the parking area. Seed and mulch will always be used in combination. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Straw Wattles (L003-03-06-0006, -0007)

A series of 2 wattles are in place under the western edge of the bridge. These wattles serve to reduce run-on associated with the culvert. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Asphalt Swale (L003-04-02-0005)

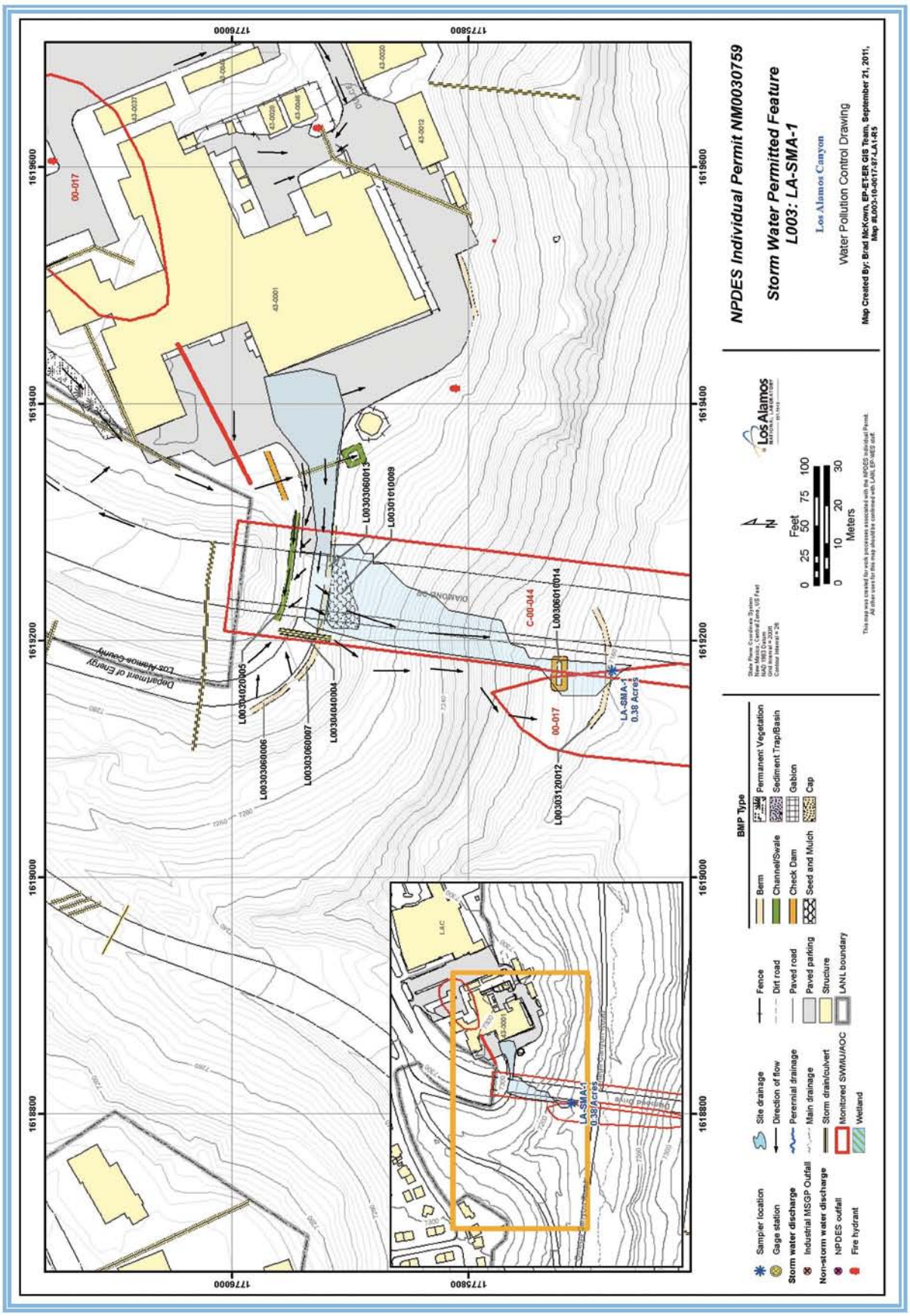
The asphalt swale is located under the eastern side of Omega Bridge and directs run-on from the slope along the paved road away from the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert
(L003-04-04-0004)
The culvert is located on the western side of the SMA. The channel at the culvert outlet is directing run-on flow from the paved areas away from the Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.21.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L003, LA-SMA-1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.21.4 Project Map



1000.21.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

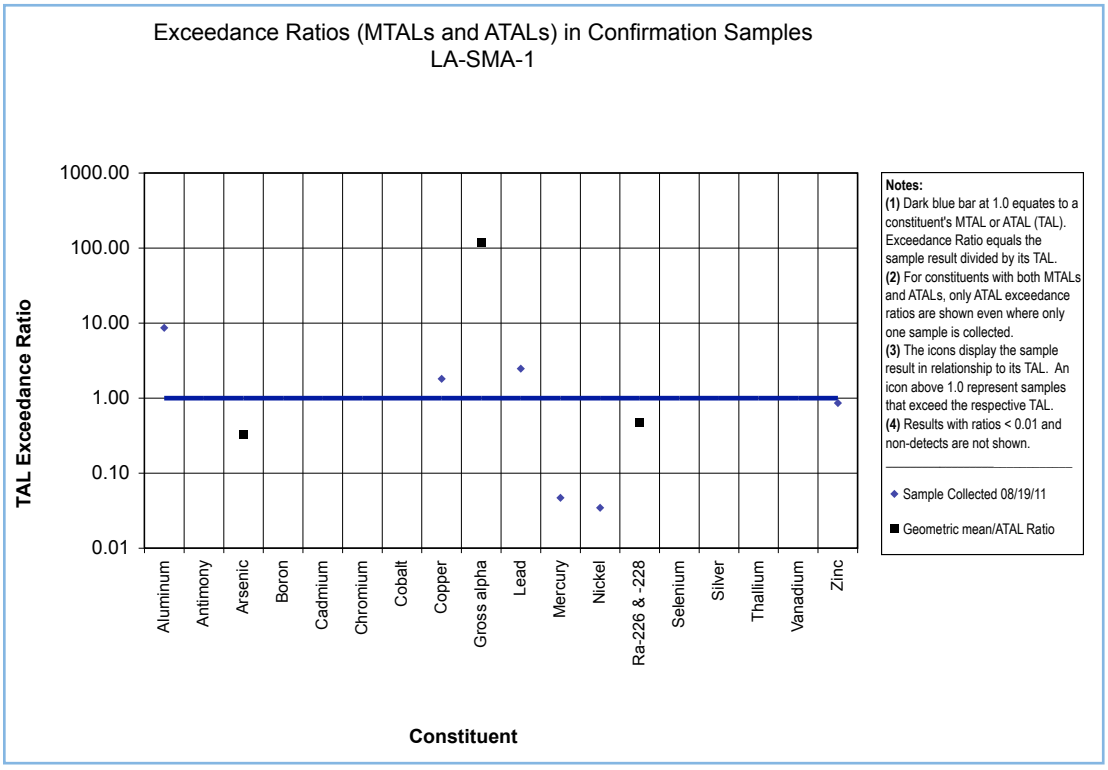
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.21.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-1 on August 19, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.21.5.2.



1000.21.5.2 Corrective Action Plan & Schedule

A single confirmation sample was collected at LA-SMA-1. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.21.5.2-1.

Table 1000.21.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.21.5.3 Inspection Activity

RG121.9 recorded four Storm Events at LA-SMA-1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.21.5.3-1.

Table 1000.21.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13885	06-23-2011
Storm Rain Event	BMP-16255	08-09-2011
Storm Rain Event	BMP-17225	08-29-2011
Storm Rain Event	BMP-18900	09-12-2011
Annual Erosion	COMP-19728	09-29-2011
TAL Exceedance	BMP-20159	11-29-2011

1000.21.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.21.5.4-1.

Table 1000.21.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13885	Built up rock check dam L00306010010.	06-23-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.21.5.4-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13885	Built up rock check dam L00306010011.	06-23-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17225	Replaced wattle L00303060008 with new wattle L00303060013 in same location.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17225	Picked up trash.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17225	Replaced rock check dam L00306010010 with new rock check dam L00306010014 in same location as backup control.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17225	Added more rock as needed to rock check dam L00306010014.	09-06-2011	8 day(s)	Maintenance conducted in timely manner.
BMP-17225	Built up and extended rock berm L00303120012.	09-06-2011	8 day(s)	Maintenance conducted in timely manner.

1000.21.6 Compliance Status

The Sites associated with LA-SMA-1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.22 LA-SMA-1.1

1000.22 LA-SMA-1.1

1000.22.1 Area Description

LA-SMA-1.1 is located south of Diamond Drive and primarily north and west of Building 43-0001. The SMA is heavily influenced by paved areas, roof drains, and associated engineered controls. Storm water flows from these northern surfaces, south towards the receiving waters in Los Alamos Canyon.

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L004, LA-SMA-1.1, Site 43-001(b2).

AOC 43-001(b2) is a storm drain outfall that was previously permitted under LANL's NPDES permit (removed from LANL's NPDES permit January 11, 1999). Formerly, the outfall received effluent from six floor drains in the sub-basement of the HRL (Building 43-1), blow-down from an evaporative cooler, and storm water from 13 roof drains on the west side of the HRL. The outfall presently discharges storm water only. Effluents and storm water discharged west of the HRL through a 130-ft-long, 12-in. CMP to Los Alamos Canyon. Historically, the outfall may have discharged radioactively contaminated water and/or treated cooling water.

Table-1000.22.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
43-001(b2)	Outfall from Building 43-1	Discrete Location, No overlap	Individual	•		•	

1000.22.2.2 Urban Influences

This SMA is heavily influenced by paved areas, structures, and activities in the parking lots located in the headwaters. Run-on contributions from Diamond Drive and Los Alamos County hospital have the potential to influence this SMA.

1000.22.2.3 Public Influences

This SMA is heavily influenced by paved areas, structures, and activities in the parking lots. Where inspections note litter or floatable debris, signage will be employed.

1000.22.3 Control Measures

A vegetative buffer strip is in place to control run-on at this Permitted Feature. Curbing along the eastern side of Diamond Drive diverts run-on from the road away from the SMA to a culvert drop inlet which discharges flow at the southern edge of the Permitted Feature.

Subsections to 1000.22.3 list all control measures used to control pollutant sources identified in Section 1000.22.2. Control measures are shown in Table 1000.22.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional

baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.22.4.

1000.22.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.22.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L004 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L004 04 06 0003	Channel/Swale - Rip Rap		•	•		CB
L004 04 06 0005	Channel/Swale - Rip Rap	•		•		B
L004 06 01 0004	Check Dam - Rock		•		•	CB

Established Vegetation (L004-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rip Rap (L004-04-06-0003)

The rip rap is located at the culvert outlet on the west side of structure 43-0001. It has been installed as outlet protection from run-off transported through the culvert. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Channel/Swale (L004-04-06-0005)

This channel/swale is located north of building 43-0001 and is used to manage run-on. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (L004-06-01-0004)

This check dam is located on the northern side of Dulce Road, above the culvert and below the outfall. It was installed to mitigate run-off and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across

a natural or man-made channel or drainage ditch.

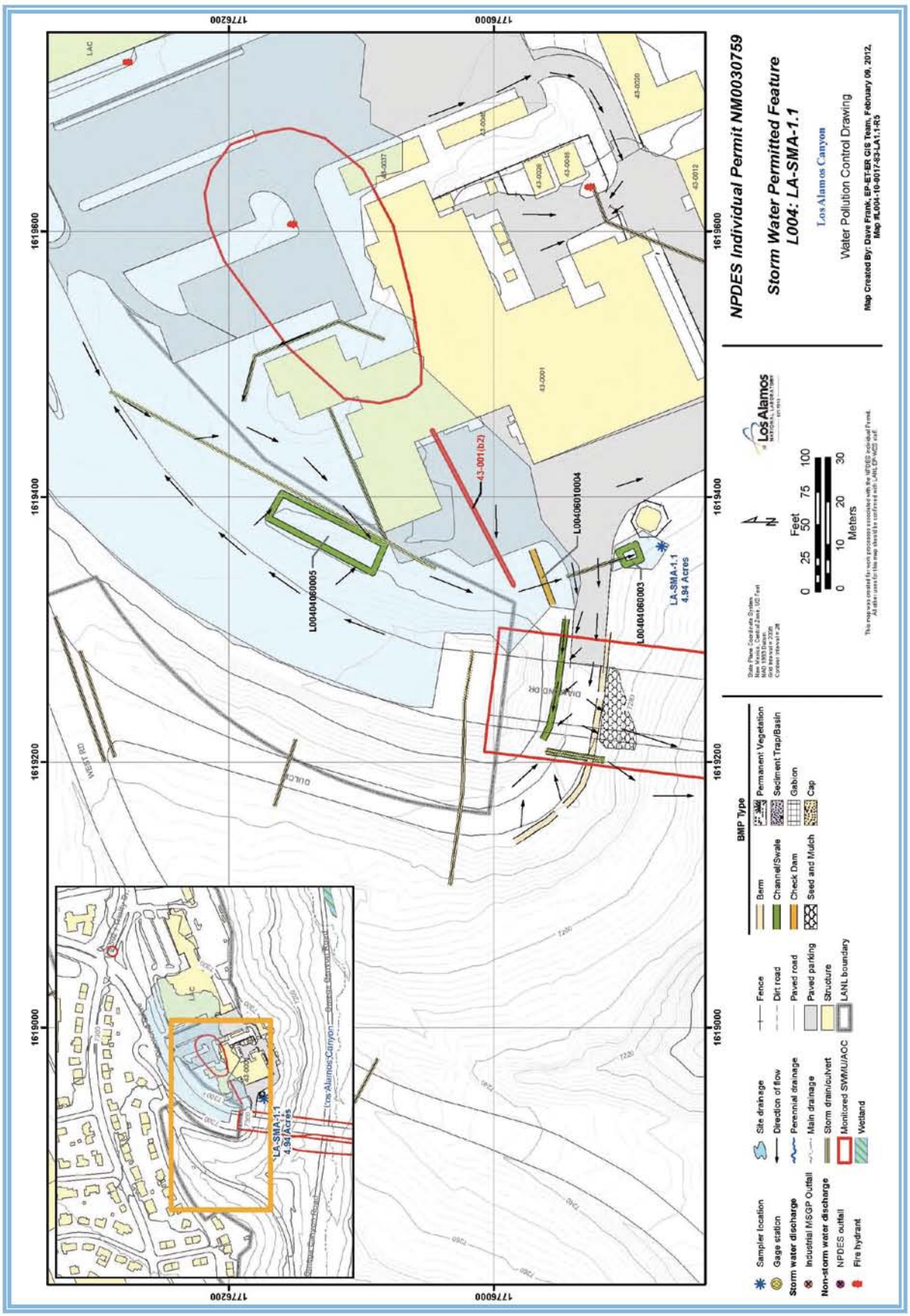
1000.22.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L004, LA-SMA-1.1. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.22.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L004, LA-SMA-1.1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.22.4 Project Map



1000.22.5 Storm Water Monitoring Plan and Schedule

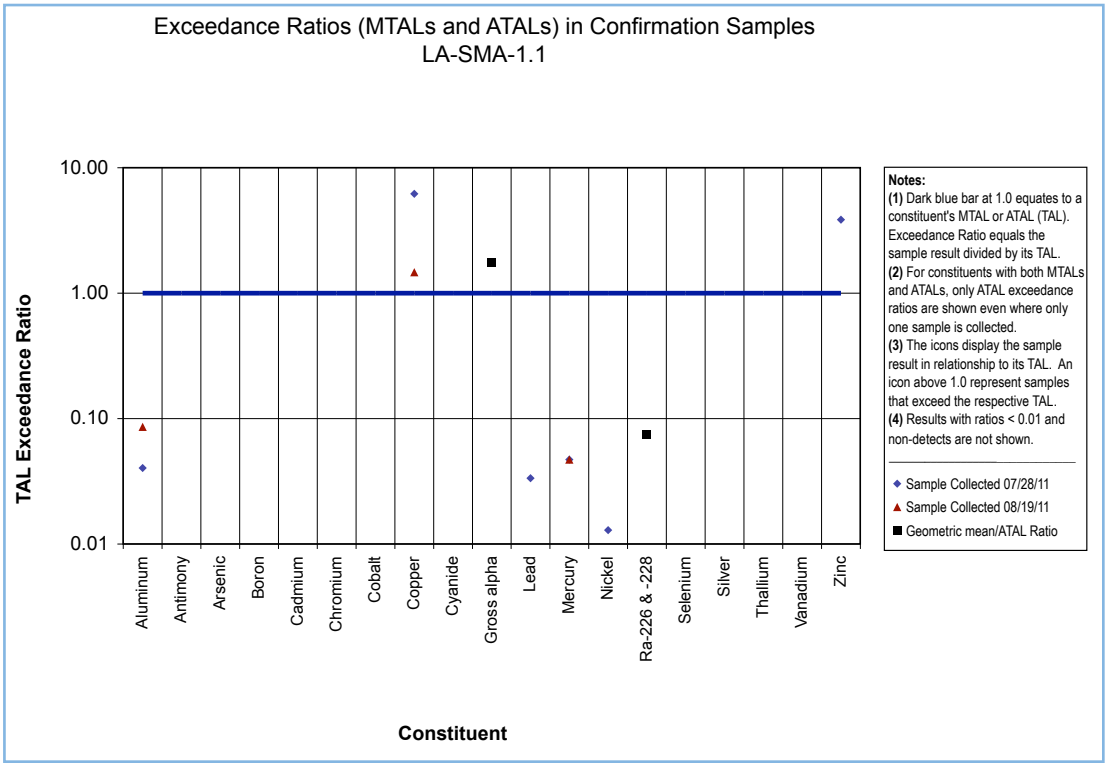
Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (0)	• (0)	• (0)	

1000.22.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-1.1 on July 28, 2011 and August 19, 2011, completing the initial confirmation sampling requirements for the SMA. No further confirmation monitoring is required at LA-SMA-1.1 per Part 1.E.2(d) of the Permit.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.22.5.2 Inspection Activity

RG121.9 recorded four Storm Events at LA-SMA-1.1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.22.5.3-1.

Table 1000.22.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13887	06-21-2011
Storm Rain Event	BMP-16257	08-11-2011
Storm Rain Event	BMP-17227	08-25-2011
Storm Rain Event	BMP-18902	09-14-2011
Annual Erosion	COMP-19729	09-29-2011
TAL Exceedance	COMP-20165	11-29-2011

1000.22.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-1.1.

1000.22.6 Compliance Status

On September 10, 2010, NMED issued a Certificate of Completion with controls for Site 43-001(b2) [NMED 2010].

The Site associated with LA-SMA-1.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.23 LA-SMA-1.25

1000.23.1 Area Description

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

1000.23.2.2 Urban Influences

1000.23.2.3 Public Influences

1000.23.3 Control Measures

1000.23.3.1 Control Measures for Public Influences

1000.23.4 Project Map

1000.23.5 Storm Water Monitoring Plan and Schedule

1000.23.5.1 Initial Confirmation Monitoring

1000.23.5.2 Corrective Action Plan & Schedule

1000.23.5.3 Inspection Activity

1000.23.5.4 Maintenance

1000.23.6 Compliance Status

1000.23 LA-SMA-1.25

1000.23.1 Area Description

LA-SMA-1.25 is located south of Building 43-0001 on a sloping and undeveloped hillside above Los Alamos Canyon. There is a large paved area just above this SMA. Storm water flows from these paved surfaces along the northern boundary, south to the receiving waters.

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L005, LA-SMA-1.25, Site C-43-001.

AOC C-43-001 is a storm drain outfall that collects run-off from the TA-43 HRL (Building 43-1) loading dock. This outfall is in the path of an overflow for a sanitary sewer lift station (structure 43-10). The overflow line is an eight inch VCP that extends from the lift station (43-10) 130 feet to a manhole. A 12 inch CMP containing discharge from two storm drains (and any influent from the overflow) flows southwest for 160 feet and drains into Los Alamos Canyon. Should an overflow from the lift station occur, the overflow effluent might possibly reach the AOC C-43-001 storm drain and outfall. Although no record documenting such a release to the storm drain and outfall has been found, this site is considered an area of concern because of its potential of receiving such a release.

Table- 000.23.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
C-43-001	Storm Drain associated with Building 43-1 Loading Dock	Discrete Location, No overlap	Individual	•		•	

1000.23.2.2 Urban Influences

The area in the headwaters of this SMA is primarily paved and run-on from this paved area has the potential to influence the SMA.

1000.23.2.3 Public Influences

LA-SMA-1.25 is located on the hillside below the Los Alamos Medical Center. Pedestrian traffic along the north and northeastern boundary may be significant.

1000.23.3 Control Measures

Run-on enters the Permitted Feature via Dulce Road and paved areas around building 43-0001 at the northern end of the SMA. There is also a roof drain from the building that contributes to the run-on. A culvert running under the paved area north and east of the area day lights near the west side of building 43-0024 and is also contributing run-on to this Permitted Feature.

Subsections to 1000.23.3 list all control measures used to control pollutant sources identified in Section 1000.23.2. Control measures are shown in Table 1000.23.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.23.4.

1000.23.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.23.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L005 02 02 0005	Established Vegetation - Forested/ Needle			•		CB
L005 03 12 0006	Berms - Rock		•		•	B
L005 07 01 0002	Gabions - Gabions		•		•	CB

Established Vegetation (L005-02-02-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Berm (L005-03-12-0006)

This rock berm is located south of the sampler to control run-off and sediment transport from the mesa top. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Gabions (L005-07-01-0002)

The gabion is located just to the south of the Site and is used to direct run-off and prevent sediment migration from the SMA. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.23.3.2 Control Measures for Urban Influences

Table 1000.23.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L005 03 02 0001	Berms - Base Course	•			•	CB

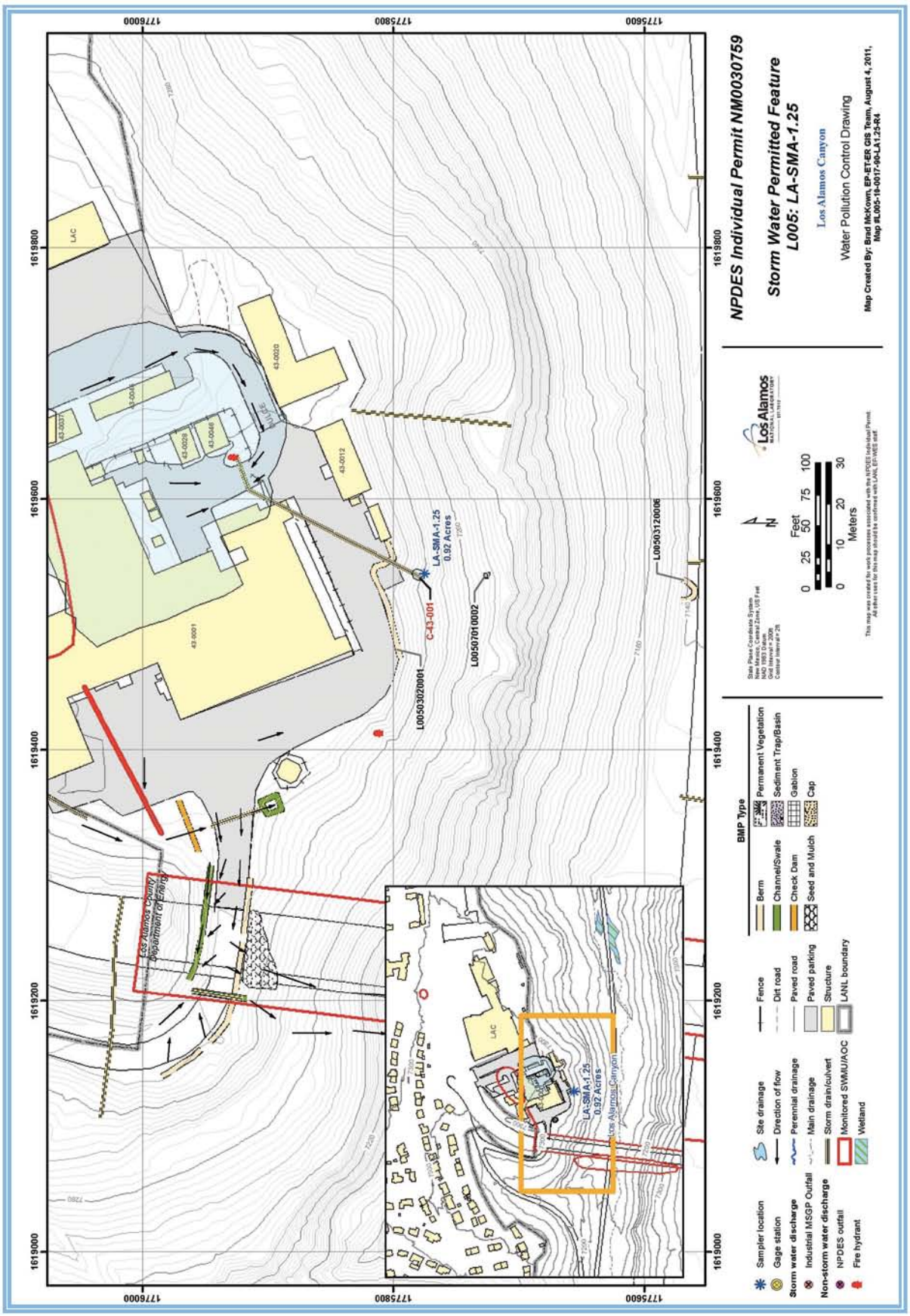
Base Course Berm (L005-03-02-0001)

This berm is located near the southwest corner of building 43-0001 it runs parallel to Dulce Road and diverts run-on from the paved area above the Permitted Feature. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.23.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L005, LA-SMA-1.25. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.23.4 Project Map



1000.23.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

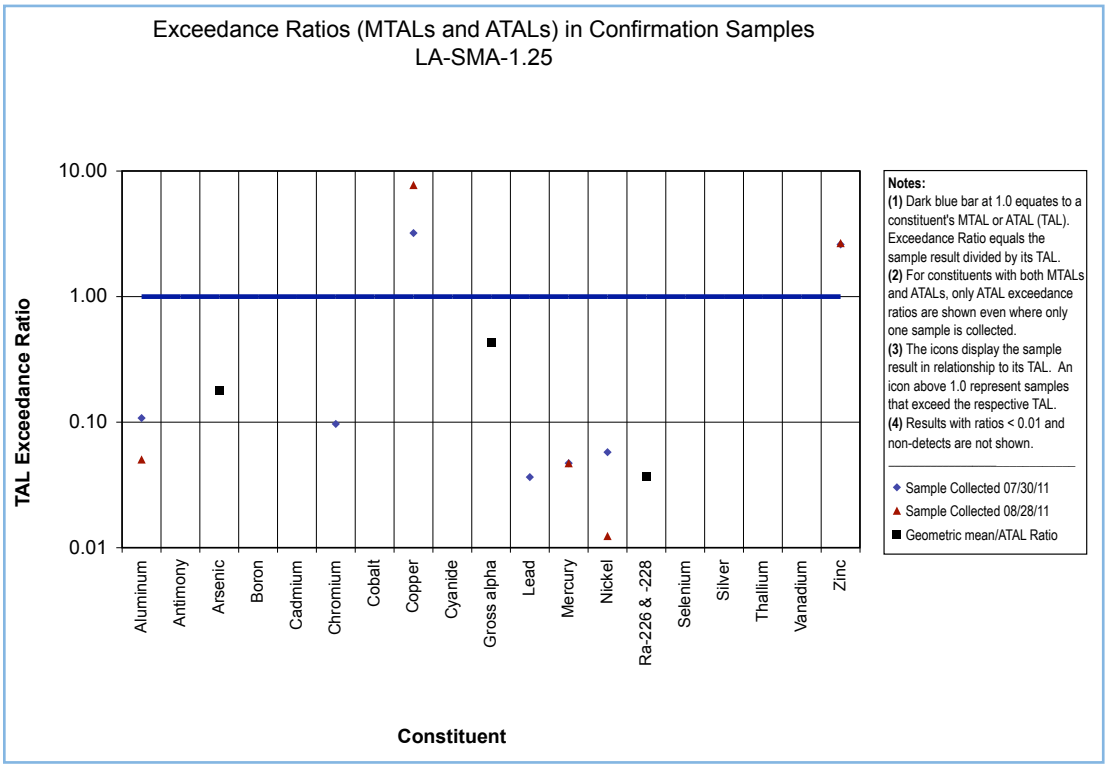
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.23.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-1.25 on July 30, 2011 and August 28, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.23.5.2.



1000.23.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at LA-SMA-1.25. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.23.5.2-1.

Table 1000.23.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.23.5.3 Inspection Activity

RG121.9 recorded four Storm Events at LA-SMA-1.25 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.23.5.3-1.

Table 1000.23.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13893	06-21-2011
Storm Rain Event	BMP-16258	08-11-2011
Storm Rain Event	BMP-17228	08-25-2011
Storm Rain Event	BMP-18903	09-14-2011
Annual Erosion	COMP-19776	10-05-2011
TAL Exceedance	COMP-20166	11-29-2011

1000.23.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.23.5.4-1.

Table 1000.23.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13893	Installed a U shaped rock berm L00503120006 north of access road, west of the culvert inlet.	07-13-2011	22 day(s)	Maintenance conducted as soon as practicable.

1000.23.6 Compliance Status

The Site associated with LA-SMA-1.25 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.24 LA-SMA-2.1

1000.24 LA-SMA-2.1

1000.24.1 Area Description

LA-SMA-2.1 is located on an undeveloped slope behind Ridge Park Village. The northern boundary of the SMA is potentially influenced by developed areas associated with the condominiums. Storm water flows from the developed areas surrounding Ridge Park Village down a gentle grade before discharging to the receiving waters further north and west.

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L006, LA-SMA-2.1, Site 01-001(f).

SWMU 01-001(f) consists of the location of a former septic tank (structure 01-140) that served HT and FP Buildings. The outfall discharged into Los Alamos Canyon. HT Building was used to heat-treat and machine natural and enriched uranium. In 1946, low levels of plutonium and polonium were detected at the drain exit of the waste line from the building. Substantial levels of radioactive contamination were found in HT Building during D&D in 1975.

Table-1000.24.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(f)	Septic Tank 140 (hillside)	Discrete Location, No overlap	Individual	•	•	•	PCBs

1000.24.2.2 Urban Influences

The area is surrounded by a cement retaining wall which mitigates potential run-on to the SMA. The middle storm drain diverts storm water away from the SMA.

1000.24.3 Control Measures

The area is bordered on the east by a cement retaining wall which contains any potential run-on to the SMA from Ridge Park Village.

Subsections to 1000.24.3 list all control measures used to control pollutant sources identified in Section 1000.24.2. Control measures are shown in Table 1000.24.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.24.4.

1000.24.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.24.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L006 01 06 0008	Seed and Mulch Erosion Control Blankets			•		CB
L006 02 02 0004	Established Vegetation - Forested/ Needle Cast			•		CB
L006 03 03 0007	Berms Log		•		•	CB
L006 04 06 0006	Channel/Swale Rip Rap		•	•		CB

Erosion Control Blankets (L006-01-06-0008)
The erosion control blankets are located to the southwest of the sampler location adjacent to the log berm. They are in place to help prevent erosion of the slope. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (L006-02-02-0004)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Log Berm (L006-03-03-0007)
This berm is located adjacent to the sampler on the up-slope, east, side and extends in a 'V' shape to the northeast and southwest around the sampler. It is used to help manage run-off from above. A log berm is a temporary containment control constructed of logs. Log berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap (L006-04-06-0006)
The rip rap is located adjacent to the west side of the sampler and extends to the west and southwest down the slope. It is in place to help control run-off from the slope

above and prevent erosion on the slope. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.24.3.2 Control Measures for Urban Influences

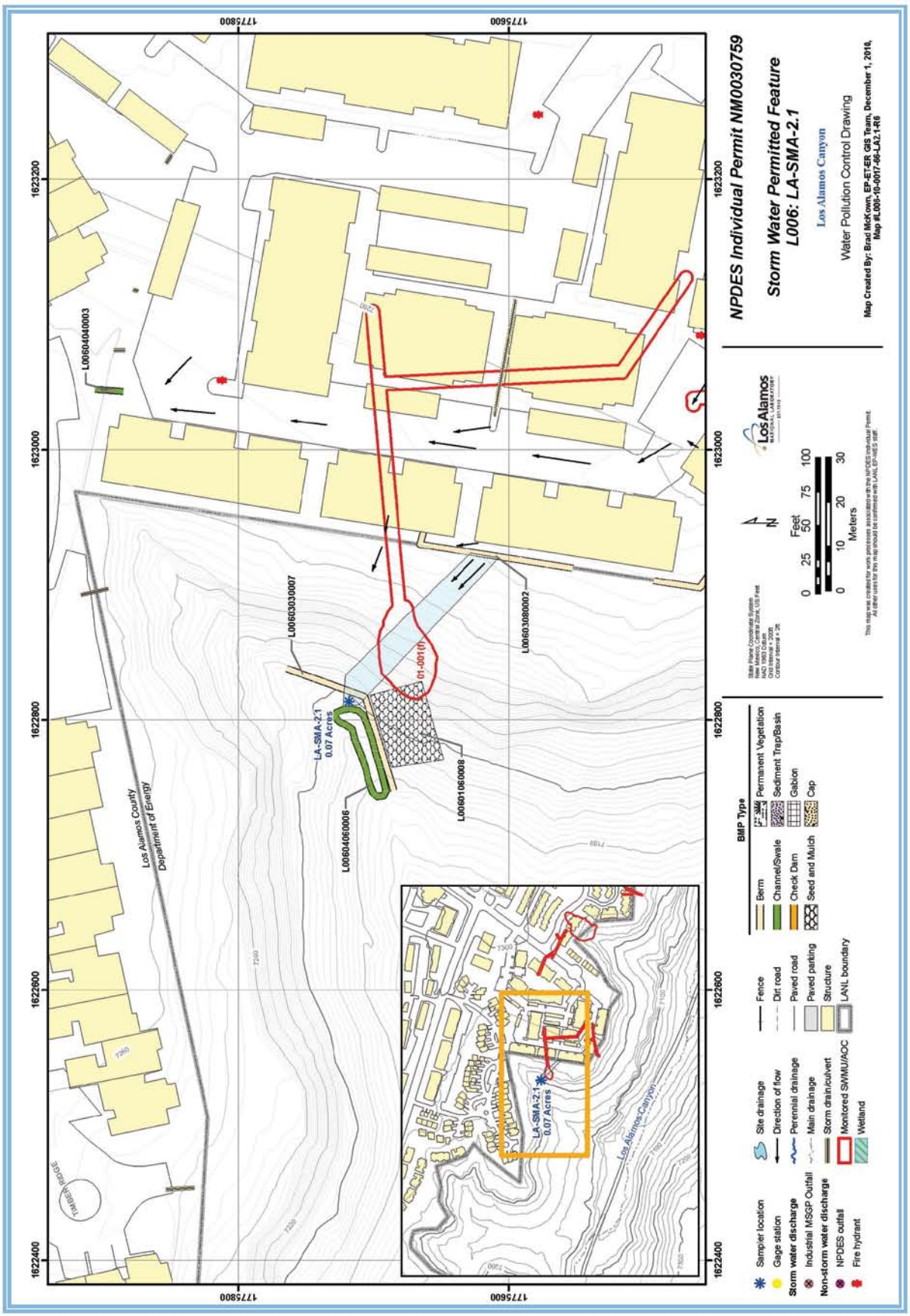
Table 1000.24.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L006 03 08 0002	Berms - Retaining Wall	•			•	CB
L006 04 04 0003	Channel/Swale - Culvert	•		•		CB

Retaining Wall (L006-03-08-0002)
The retaining wall is located on the eastern side of the Permitted Feature and is used to divert run-on away from the Site. A retaining wall is generally made of concrete, brick, or similar material that is properly designed and installed to specification for the area. Generally used to promote soil retention, especially on areas with steep slopes.

Culvert (L006-04-04-0003)
The culvert is located northeast of building #1305 and diverts run-on away from the Permitted Feature. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.24.4 Project Map



1000.24.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.24.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-2.1. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.24.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-2.1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.24.5.2-1.

Table 1000.24.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13894	06-24-2011
Storm Rain Event	BMP-16225	08-10-2011
Storm Rain Event	BMP-17201	08-24-2011
Storm Rain Event	BMP-18876	09-13-2011
Annual Erosion	COMP-19777	10-13-2011

1000.24.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-2.1.

1000.24.6 Compliance Status

The Site associated with LA-SMA-2.1 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.25 LA-SMA-2.3

1000.25.1 Area Description

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

1000.25.2.2 Urban Influences

1000.25.3 Control Measures

1000.25.4 Project Map

1000.25.5 Storm Water Monitoring Plan and Schedule

1000.25.5.1 Initial Confirmation Monitoring

1000.25.5.2 Corrective Action Plan & Schedule

1000.25.5.3 Inspection Activity

1000.25.5.4 Maintenance

1000.25.6 Compliance Status

1000.25 LA-SMA-2.3

1000.25.1 Area Description

The northern boundary of LA-SMA-2.3 may be influenced by Ridge Park Village Condominiums. Storm water flows in a southwest direction across the area of undeveloped terrain and to the receiving waters further to the south. Run-on contributions from sources along the northern boundary are controlled by curbing and similar engineered controls. There are two roof drains associated with the western-most condominium that may contribute run-on to this Permitted Feature.

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L007, LA-SMA-2.3, Site 01-001(b).

SWMU 01-001(b) consists of the location of a former septic tank (structure 01-135), which served FP and M-1 Buildings through a single sanitary-waste line connection. The tank was removed during the 1974-1976 radiological survey. FP Building was constructed in November 1945 and was a foundry for nonradioactive and nonferrous metals. The building was found to be free of radioactive contamination before it was removed. M-1 Building was completed in June 1950 and originally was used to machine lithium and later to machine uranium-238. The building superstructure was determined to be free of contamination in 1964, but the floor drains were suspected to be radioactively contaminated. The drains were removed and disposed in an unspecified area.

Table-1000.25.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(b)	Septic Tank 135	Discrete Location, No overlap	Individual	•		•	

1000.25.2.2 Urban Influences

The headwaters of the SMA are in a highly developed area. There is no run-on to this Permitted Feature from the paved area north of the condominiums. On the south side of the condominiums, a retaining wall diverts run-on from the patio areas. There is potential run-on from two roof drains associated with the western most building.

1000.25.3 Control Measures

Grading and sloping is diverting run-on from all paved areas associated with parking and access to the condominiums. The concrete retaining wall is south of the condominiums and effectively controls run-on from these areas.

Subsections to 1000.25.3 list all control measures used to control pollutant sources identified in Section 1000.25.2. Control measures are shown in Table 1000.25.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional

baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.25.4.

1000.25.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.25.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L007 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L007 03 06 0003	Berms - Straw Wattles	•			•	CB
L007 03 06 0004	Berms - Straw Wattles		•		•	CB

Established Vegetation (L007-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Wattles (L007-03-06-0003)

The wattles are located along the fence line below the middle area of the two roof drains associated with the western condominiums. Their function is to control run-on from the roof drains and slow sediment migration. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles (L007-03-06-0004)

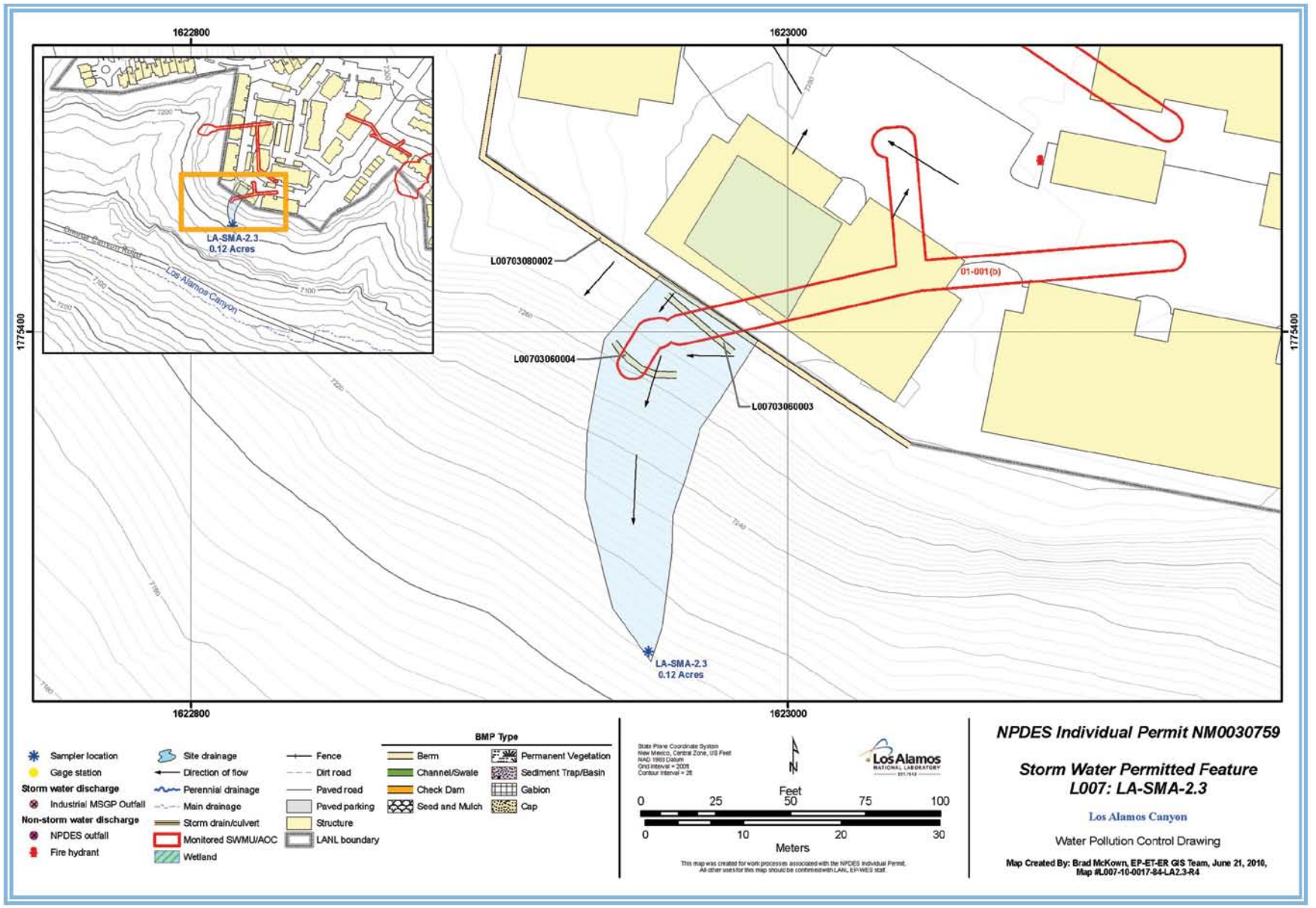
This wattle is located below the former outfall near the meas top edge. It is used to help control run-off from the paved areas above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Table 1000.25.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L007 03 08 0002	Berms - Retaining Wall	•			•	CB

Retaining Wall (L007-03-08-0002)

The concrete retaining wall is located south of the condominium patios and prevents run-on from the condominiums reaching the SMA. A retaining wall is generally made of concrete, brick, or similar material that is properly designed and installed to specification for the area. Generally used to promote soil retention, especially on areas with steep slopes.


1622800
1623000
1775400
LA-SMA-2.3
0.12 Acres
Omega Canyon Road
Los Alamos Canyon
L00703080002
L00703060004
L00703060003
01-001(b)
LA-SMA-2.3
0.12 Acres
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
Meters
0 10 20 30
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L007: LA-SMA-2.3
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, June 21, 2010,
Map #L007-10-0017-84-LA2.3-R4

1000.25.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

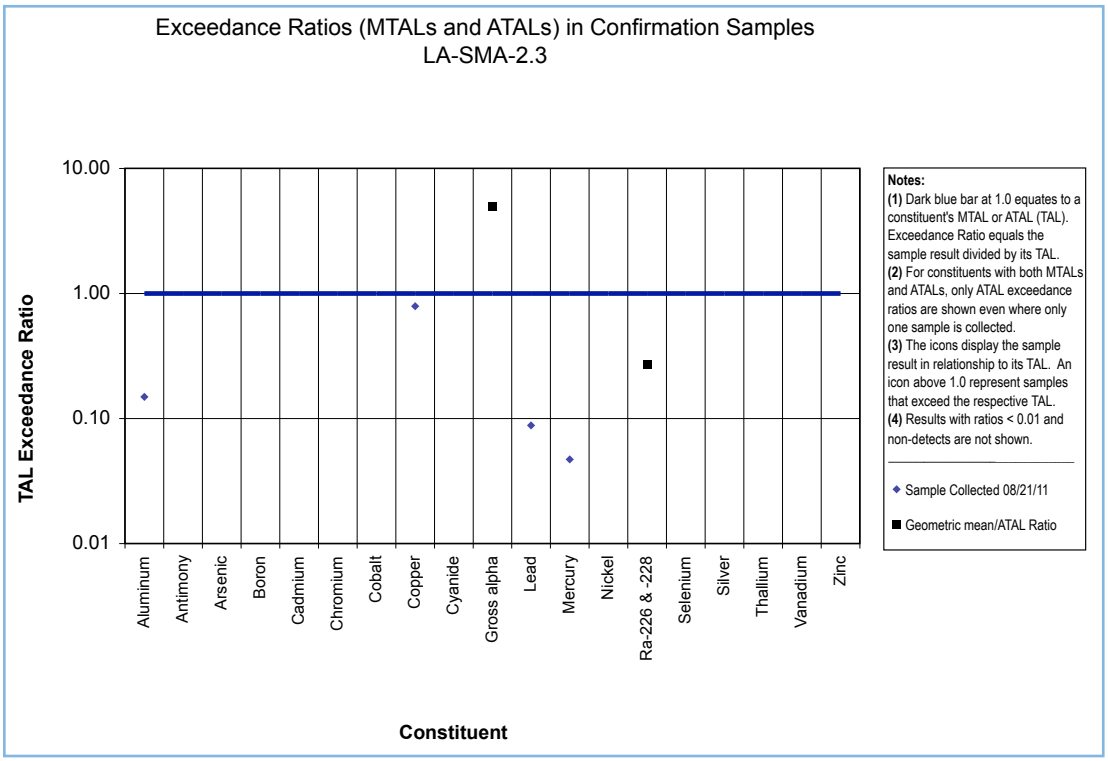
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.25.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-2.3 on August 21, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.25.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-2.3 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.25.5.3-1.

Table 1000.25.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13888	06-24-2011
Storm Rain Event	BMP-16220	08-10-2011
Storm Rain Event	BMP-17196	08-24-2011
Storm Rain Event	BMP-18871	09-13-2011
Annual Erosion	COMP-19778	10-13-2011

1000.25.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-2.3.

1000.25.6 Compliance Status

On September 10, 2010, NMED issued a Certificate of Completion with controls for Site 01-001(b) [NMED 2010].

The Site associated with LA-SMA-2.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.26 LA-SMA-3.1

1000.26 LA-SMA-3.1

1000.26.1 Area Description

LA-SMA-3.1 is located on an undeveloped slope behind Loma Vista Townhomes in Los Alamos. The northern boundary of the SMA is within this developed area. The majority of the SMA is steeply sloped and undeveloped. Storm water flows from the developed area surrounding the development, southwest towards the receiving waters in Los Alamos Canyon.

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L008, LA-SMA-3.1, Sites 01-001(e) and 01-003(a).

SWMU 01-001(e) consists of the locaton of a former septic tank (structure 01-139), which served the D-5 Sigma vault, I Building, and Delta Building. This SWMU is located beneath one of the Los Arboles condominium buildings. The tank's outfall discharged southeast of the buildings at the head of Bailey's Bridge Canyon. The tank reportedly became inactive and was left in place in 1965. However, it was not found during the 1974-1976 radiological sampling. The D-5 Sigma vault was used to store plutonium-239 and uranium-235. Radiological soil sampling (1974-1976) near the former D-5 Sigma vault showed minimal radiologic contamination, and no more contaminated soil was removed. I Building was used to store and machine beryllium between 1947 and 1958. Delta Building was used as a meeting place and, as a laboratory in which fission-product tracers were used.

SWMU 01-003(a) is the Bailey's Bridge landfill. The upper part of Bailey's Bridge Canyon was used to dispose of demolition debris from 1964 to about 1978. Construction and D&D debris with less than 2500 cpm surface alpha activity were disposed in the landfill. Potential contaminants at SWMU 01-003(a) were inorganic chemicals and radionuclides. A 1988 site reconnaissance survey showed radiation readings greater than 25 mR/hr in the Bailey's Bridge area. Soil sampling was conducted at this SWMU in 1992. LANL's ESG conducted debris and mapping and screening in 1994.

Table-1000.26.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(e)	Septic Tank 139	Co-located, Overlapping	Shared	•	•	•	PCBs
01-003(a)	Landfill	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Site 01-001(e) was a sanitary system, serving process buildings at former TA-01. During the system`s operational history, the discharge was routed to a small canyon. When TA-01 was dismantled, building debris was deposited in and filled the small canyon.

Because of the nature of activities in this area, proximity of the Sites to one another, and a shared conveyance, these Sites will discharge substantially identical effluent.

1000.26.2.2 Urban Influences

There is no significant run-on from urban sources impacting this Permitted Feature.

1000.26.2.3 Public Influences

Public access and influence is primarily in the northern headwaters of the SMA where activities associated with private residences have the potential to influence the SMA. The DOE-managed portion of the SMA is rugged, steep, and pedestrian traffic is estimated to be low.

1000.26.3 Control Measures

The only potential run-on source is from a small rock lined channel on the eastern side of the SMA that does not appear to flow. The rock channel drains from area lawns.

Subsections to 1000.26.3 list all control measures used to control pollutant sources identified in Section 1000.26.2. Control measures are shown in Table 1000.26.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.26.4.

1000.26.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.26.3-1

Control ID	Control Name	Purpose of Control				
		Run-On	Run-Off	Erosion	Sediment	
L008 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
L008 02 02 0006	Established Vegetation - Forested/ Needle Cast			•		CB
L008 02 03 0005	Established Vegetation - Vegetative Buffer Strip		•	•	•	CB

Established Vegetation (L008-02-01-0003, -02-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as

grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Vegetative Buffer Strip (L008-02-03-0005)

The buffer strip is located between the southern side of the town-homes and the canyon edge. It is in place to control erosion and sediment transport associated with area run-off. A vegetative buffer strip is a gently sloping area of vegetative cover that run-off water flows through before entering a stream, storm sewer, or other conveyance. The buffer strip may be an undisturbed strip of natural vegetation or it can be a graded and planted area. Vegetation buffer strips are more defined areas of permanent vegetation, often incorporated into developed areas, which act to protect soils from erosion.

1000.26.3.2 Control Measures for Urban Influences

Table 1000.26.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L008 04 04 0004	Channel/Swale - Culvert	•		•		CB

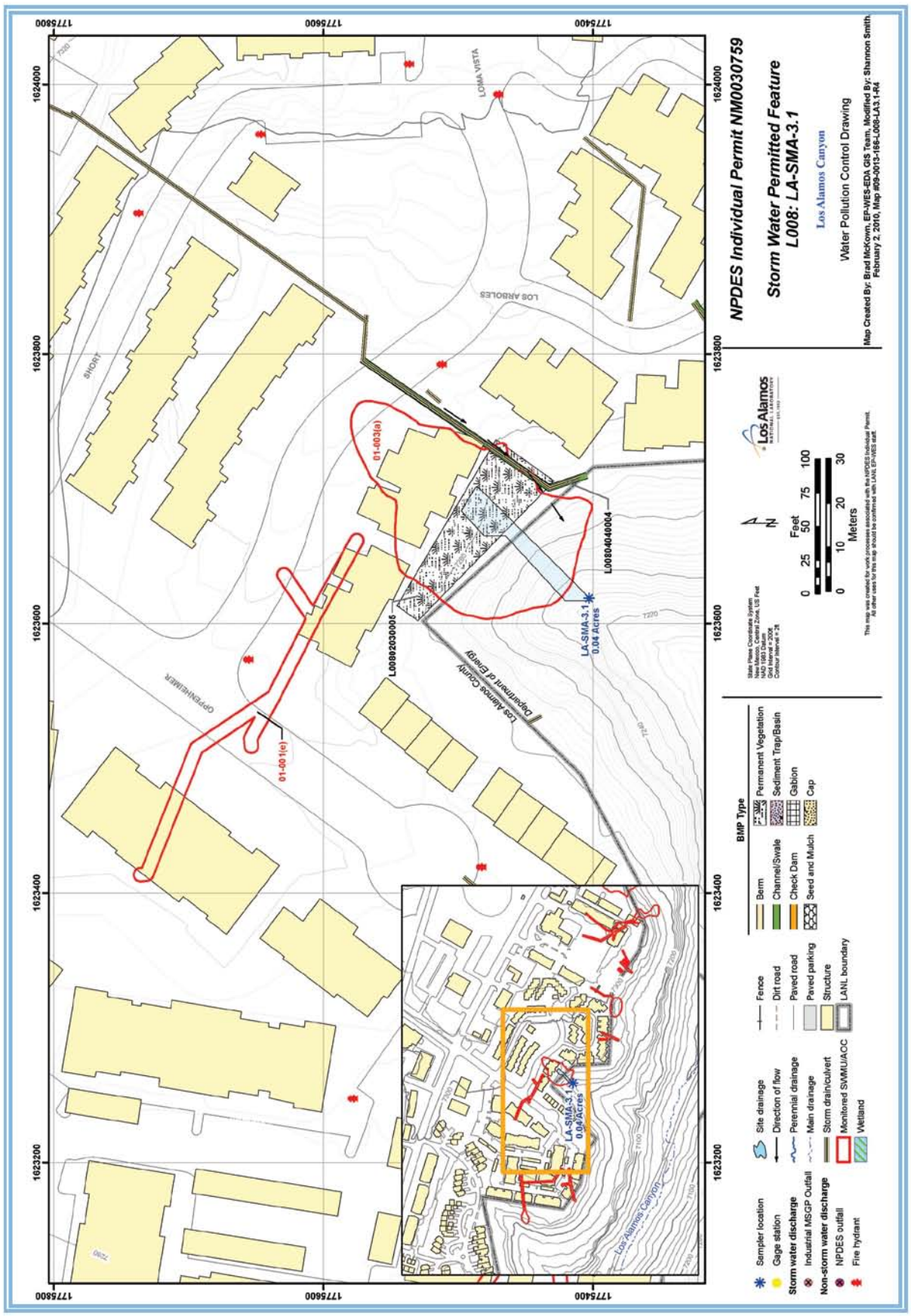
Culvert (L008-04-04-0004)

The culvert outlet is located to the east of the Permitted Feature. The culvert diverts run-on from the paved areas above the SMA to the east, away from the Site. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.26.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L008, LA-SMA-3.1. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.26.4 Project Map



1000.26.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	PCBs (1)

1000.26.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-3.1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.26.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-3.1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.26.5.2-1.

Table 1000.26.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13889	06-22-2011
Storm Rain Event	BMP-16221	08-10-2011
Storm Rain Event	BMP-17197	08-24-2011
Storm Rain Event	BMP-18872	09-13-2011
Annual Erosion	COMP-19779	10-05-2011

1000.26.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-3.1.

1000.26.6 Compliance Status

On September 10, 2010, NMED issued a Certificate of Completion with controls for Site 01-001(e) [NMED 2010].

The Sites associated with LA-SMA-3.1 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.27 LA-SMA-3.9

1000.27 LA-SMA-3.9

1000.27.1 Area Description

The northern boundary of LA-SMA-3.9 is developed land. Los Arboles condominiums, related access roads, and parking are all on this northern boundary. The southern boundary of the SMA is located on undeveloped, DOE-managed land. The eastern and western boundaries of the SMA contains partially developed, privately owned, and undeveloped, DOE-managed land. Storm water flows from the developed area on the northern boundary, across undeveloped terrain before entering the receiving waters further to the south.

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L009, LA-SMA-3.9, Sites 01-001(g) and 01-006(a).

SWMU 01-001(g) is the former location of a septic tank (structure 01-141), which was south of X Building near the edge of Los Alamos Canyon. It received sanitary waste from X Building, where radioactive targets were tested. One sanitary-waste line connected the building to structure 01-141, and the outfall discharged over the rim of the canyon. The tank was located and removed during the 1974-1976 radiological survey. At that time, structure 01-141, its surrounding soil, and the sludge in the structure tested free of radioactive contamination. The tank, sludge, outlet line, and about 151 ft of the inlet line were removed in 1975.

SWMU 01-006(a) consists of the drainline (structure 01-80) and outfall that served cooling tower 80. Structure 01-80 and the outfall were located on the east side of the cooling tower and south of X Building near the rim of Los Alamos Canyon. A 1987 DOE survey speculated that chromium-containing biocides may have been added to the cooling tower. Therefore, chromium may have affected structure 01-80 and its outfall.

Table-1000.27.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(g)	Septic Tank 141	Discrete Location, No overlap	Shared	•		•	
01-006(a)	Drainline and Outfall	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

The sites grouped in LA-SMA-3.9 were associated with activities in buildings in the former TA-01. TA-01 was operational from approximately 1945 to 1965 when operations were moved to TA-21. Beginning in 1965, the TA-01 area was decontaminated and dismantled. A further investigation and remediation occurred in 1974-1976. Physical components of 01-001(g) were removed in 1975. The drain line associated with 01-006(a) is thought to have been removed when Los Arboles

was constructed. Both of the sites in this SMA had outfalls directly to LA canyon. Contaminants of concern associated with each of the Sites are similar and the Sites share a common drainage. Effluent from these Sites will be substantially identical.

1000.27.2.2 Urban Influences

An unpaved access road crosses the southern portion of the SMA, but run-on from this road does not impact the monitored area. Paved areas within the Permitted Feature are also not having an impact on the site. Lawns and other landscaping associated with the condominium area do not contribute run-on to this Permitted Feature.

1000.27.3 Control Measures

The culvert northwest of the Permitted Feature is preventing run-on to the SMA from the road north of the condominiums. There is no run-on from lawns and no impact from the road and related paved areas.

Subsections to 1000.27.3 list all control measures used to control pollutant sources identified in Section 1000.27.2. Control measures are shown in Table 1000.27.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.27.4.

1000.27.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.27.3-1

Control ID	Control Name	Purpose of Control				
		Run-On	Run-Off	Erosion	Sediment	
L009 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L009 03 06 0003	Berms - Straw Wattles		•		•	CB

Established Vegetation (L009-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (L009-03-06-0003)

This wattle was installed across the main drainage channel just north of the sampler. It is used to mitigate run-off from the paved areas above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

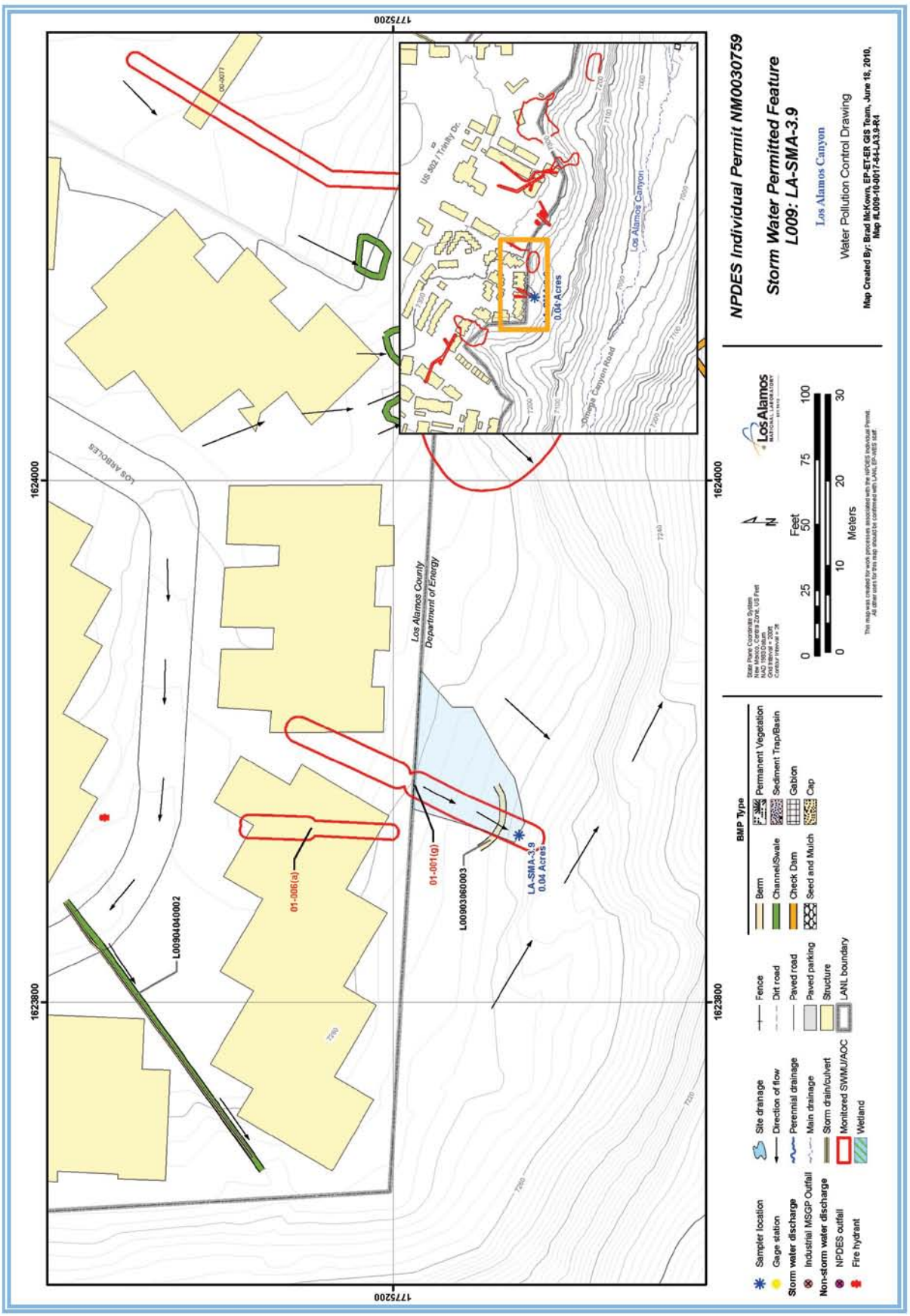
Table 1000.27.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L009 04 04 0002	Channel/Swale - Culvert	•		•		CB

Culvert (L009-04-04-0002)

This culvert is located northwest of the Permitted Feature and serves to divert run-on away from the monitored area. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.27.4 Project Map



1000.27.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.27.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-3.9. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.27.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-3.9 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.27.5.2-1.

Table 1000.27.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13890	06-24-2011
Storm Rain Event	BMP-16222	08-10-2011
Storm Rain Event	BMP-17198	08-25-2011
Storm Rain Event	BMP-18873	09-13-2011
Annual Erosion	COMP-19780	10-05-2011

1000.27.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-3.9.

1000.27.6 Compliance Status

The Sites associated with LA-SMA-3.9 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.28 LA-SMA-4.1

1000.28.1 Area Description

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

1000.28.2.2 Urban Influences

1000.28.3 Control Measures

1000.28.4 Project Map

1000.28.5 Storm Water Monitoring Plan and Schedule

1000.28.5.1 Initial Confirmation Monitoring

1000.28.5.2 Corrective Action Plan & Schedule

1000.28.5.3 Inspection Activity

1000.28.5.4 Maintenance

1000.28.6 Compliance Status

1000.28 LA-SMA-4.1

1000.28.1 Area Description

LA-SMA-4.1 is located on an undeveloped slope behind Los Arboles Condominiums. The northern boundary is potentially influenced by roads, parking, and activities in the Los Arboles Condominium. The southern boundary is undeveloped and contains the receiving waters. Storm water flows from the developed areas in the northern headwaters, southwest towards the receiving waters in Los Alamos Canyon.

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L010, LA-SMA-4.1, Sites 01-003(b) and 01-006(b).

AOC 01-003(b) is a former surface disposal site for construction debris below the north rim of Los Alamos Canyon about 150 yards east of Bailey's Bridge Canyon. The disposal site was not sampled during the 1974-1976 radiological survey. No evidence of this site was found during several site visits.

SWMU 01-006(b) is a former drainline and outfall that served building D (01-6) at former TA-01. The drainline exited the southwest side of the building and extended southwest and then south before discharging into Los Alamos Canyon. Building D was primarily used to process plutonium. The types and quantities of fluids handled by this drainline are unknown. During the excavation of buildings D (01-6) and D-2 (01-8) and the surrounding areas, all drainlines were removed. Currently, the area is undeveloped and privately owned, although the area downgradient of the outfall is on undeveloped DOE property.

Table-1000.28.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-003(b)	Surface disposal site	Discrete Location, No overlap	Shared	•	•	•	PCBs
01-006(b)	Drainline and Outfall	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are associated with activities at former TA-01, which was largely dismantled in the 1950s and has been the subject of investigation and remediation in subsequent years. The Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.28.2.2 Urban Influences

There is significant urban run-on associated with two storm drains that discharge to the area. Two privately-owned residences within Los Arboles contribute run-on from roof drains to the SMA. This run-on source is controlled with rip rap. Run-on from parking associated with these private residences do not impact the SMA.

1000.28.3 Control Measures

Run-on contributions associated with the southwest corner of the parking area at Los Alamos Inn are present at this SMA. Additional run-on to the SMA may originate from a storm culvert located behind the eastern side of the condominiums. This run-on contribution is controlled but not diverted.

Subsections to 1000.28.3 list all control measures used to control pollutant sources identified in Section 1000.28.2. Control measures are shown in Table 1000.28.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.28.4.

1000.28.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.28.3-1

Control ID	Control Name	Purpose of Control				
		Run-On	Run-Off	Erosion	Sediment	
L010 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
L010 06 01 0009	Check Dam - Rock		•		•	B

Established Vegetation (L010-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Check Dam (L010-06-01-0009)

A large rock check dam is in place below the Site to encourage sediment retention in storm water run-off discharged from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Table 1000.28.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L010 04 06 0004	Channel/Swale - Rip Rap	•		•		CB
L010 04 06 0005	Channel/Swale - Rip Rap	•		•		CB
L010 04 06 0007	Channel/Swale - Rip Rap	•		•		CB

Western Rip Rap (L010-04-06-0004)

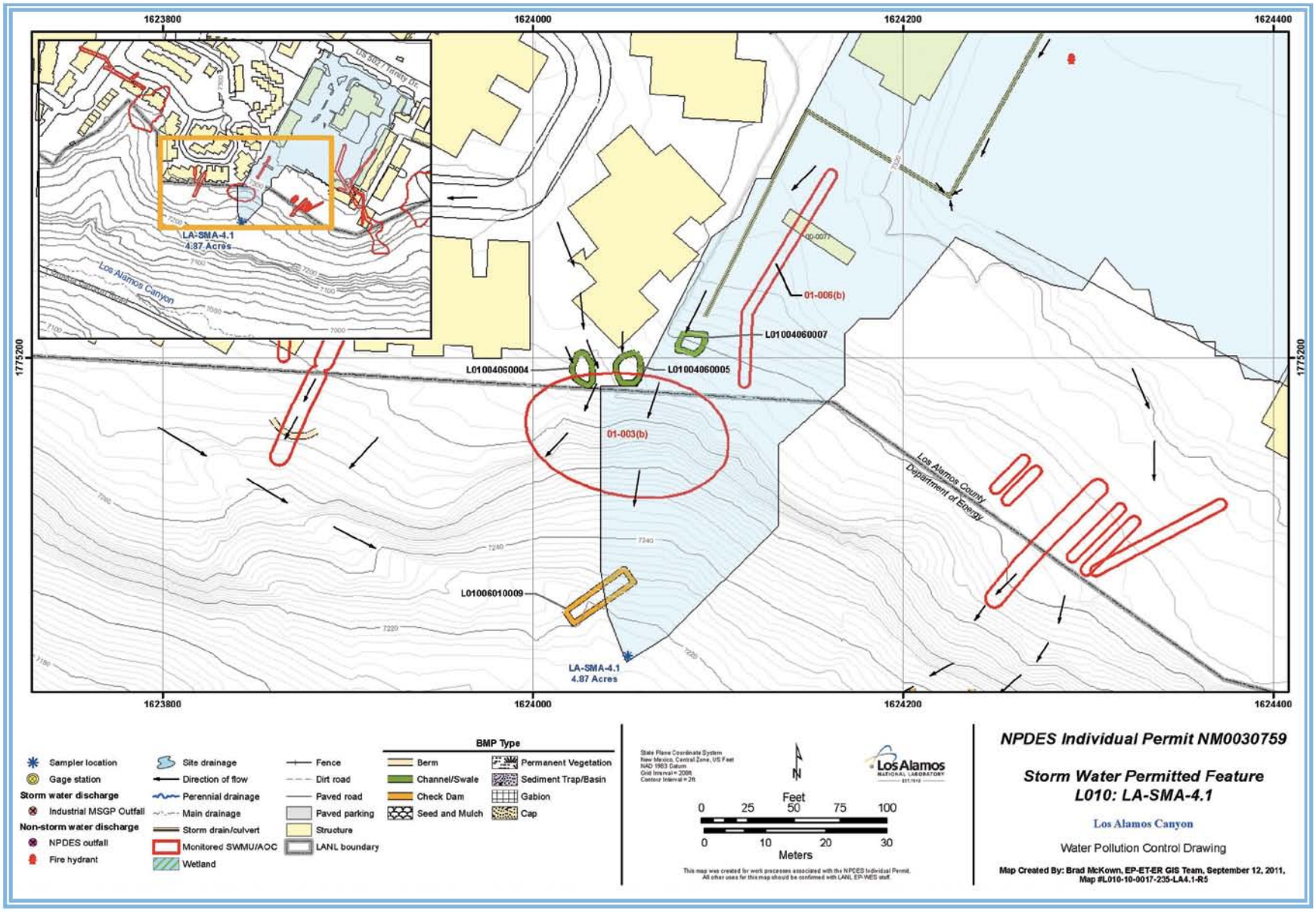
The western rip rap is located at the end of a concrete swale used to divert run-on from the condominiums. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Central Rip Rap (L010-04-06-0005)

The central rip rap is located below the CMP, above a drainage channel running behind the eastern side of the Los Arboles condominiums. This rip rap is preventing erosion at the head of the drainage channel that could result from run-on through the channel. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Eastern Rip Rap (L010-04-06-0007)

This rip rap is located in the natural drainage channel near the edge of the mesa top. This rip rap serves to control run-on from the condominiums. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.


1623800
1624000
1624200
1624400
1775200
LA-SMA-4.1
4.87 Acres
Los Alamos Canyon
01-006(b)
L01004060007
L01004060004
L01004060005
01-003(b)
Los Alamos County Department of Energy
L01006010009
LA-SMA-4.1
4.87 Acres
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
Meters
0 10 20 30
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L010: LA-SMA-4.1
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 12, 2011,
Map #L010-10-0017-235-LA4.1-R5

1000.28.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

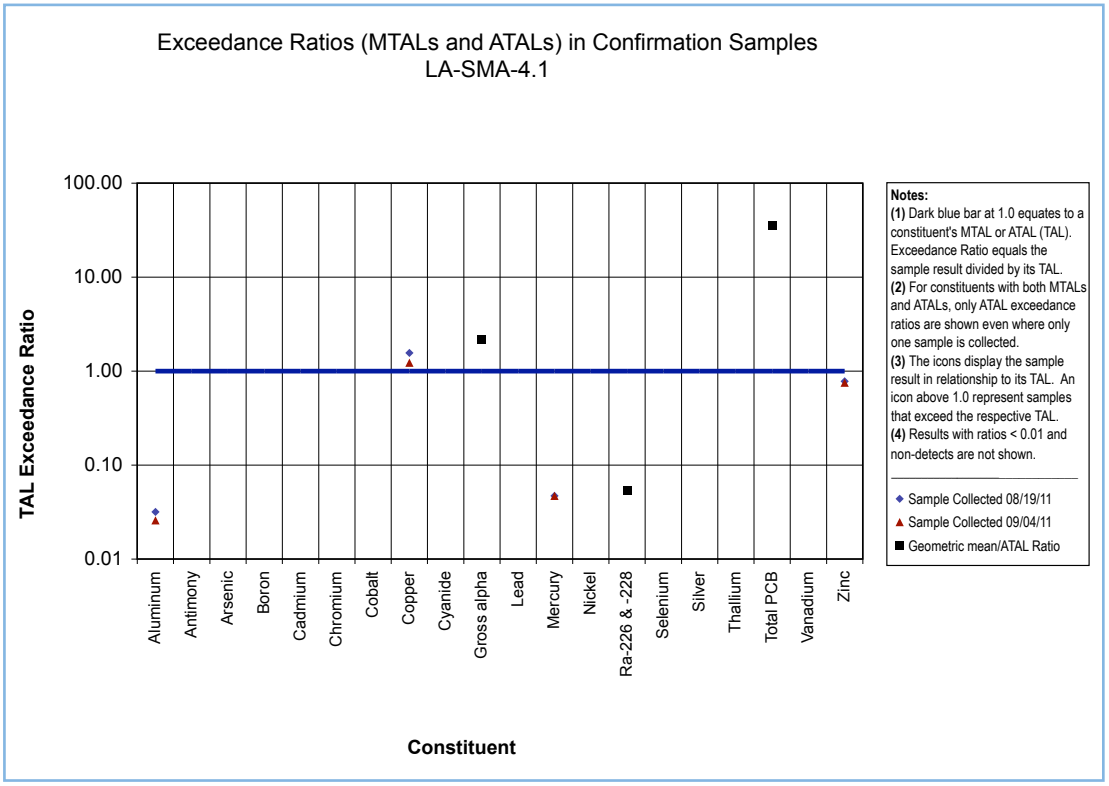
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.28.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-4.1 on August 19, 2011 and September 04, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.28.5.2.



1000.28.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at LA-SMA-4.1. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.28.5.2-1.

Table 1000.28.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.28.5.3 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-4.1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.28.5.3-1.

Table 1000.28.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13891	06-24-2011
Storm Rain Event	BMP-16223	08-10-2011
Storm Rain Event	BMP-17199	08-25-2011
Storm Rain Event	BMP-18874	09-13-2011
Annual Erosion	COMP-19781	10-05-2011
TAL Exceedance	COMP-20990	11-29-2011

1000.28.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.28.5.4-1.

Table 1000.28.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17199	Replaced rock check dam L01006010008 with rock check dam L01006010009 in same location.	09-01-2011	7 day(s)	Maintenance conducted in timely manner.

1000.28.6 Compliance Status

The Sites associated with LA-SMA-4.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.29 LA-SMA-4.2

1000.29 LA-SMA-4.2

1000.29.1 Area Description

LA-SMA-4.2 is located on a southwest facing slope above Los Alamos Canyon. The northern boundary of the area is on a flat bench on the mesa top. Storm water flows from the mesa top, southwest to the receiving waters.

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF L011, LA-SMA-4.2, Sites 01-001(c), 01-006(c) and 01-006(d).

SWMU 01-001(c) is the location of a former septic tank (structure 01-137) that served the former D-2 Building, which operated as a laundry for radioactively contaminated clothing and recyclable equipment until laundry operations were relocated to TA-21 in late 1945. D-2 Building was then operated as an electronics shop. There is some discrepancy as to whether the septic tank was installed in 1945 or in 1947, after the laundry operations had been relocated to TA-21. Based on the information in the Radiological Survey and Decontamination of TA-1 (Ahlquist et al., 1977), records documenting the installation date conflict. However, Ahlquist et al. further states that an installation date of 1947 would explain why the area behind Building D-2 was more highly contaminated than the septic tank itself.

In 1975, as part of the decontamination effort, septic tank 01-137 and associated drain-line was located, investigated, and removed. The area where the septic tank's outfall pipe discharged was investigated as a source of potential plutonium contamination. Contaminated soil in the areas around D-2 Building, septic tank 01-137, and associated drain-lines were also removed. Clean soil was used as backfill.

SWMU 01-006(c) consists of a series of drain-lines that served former D-2 Building at TA-01. Building D-2's drain-lines discharged directly onto Hillside 137 southwest of the building. D-2 Building operated as a laundry facility for radioactively contaminated clothing until late 1945 and then was used as an electronics shop. A septic tank (structure 01-137) was plumbed into an existing drain-line in 1945 or 1947 [see SWMU 01-001(c)] and one of the waste drain-lines was connected to it. During the 1974-1976 radiological survey, contamination was found in one trench located at the ends of two outfall pipes extending from the D-2 Building. The contaminated outfall pipes and contaminated soil were removed. Information about the other drain-lines is not available.

SWMU 01-006(d) is a drainline and outfall that served Building D-3 and discharged to Los Alamos Canyon at the former TA-01. The outfall is located on Hillside 37 in the same area as the D-2 drain lines [SWMU 01-006(c)]. Activities at building D-3 included counting radioactive filter papers from building H-1. During the decontamination of areas of buildings D and D-2, all drain lines were removed along with areas of elevated radioactivity. Because the main portion of the drain line of Building D-3 was located in the D-2 area, this drain line was likely removed during the excavation of buildings D and D-2. Currently the area is undeveloped and privately owned.

Table-1000.29.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(c)	Septic Tank 137	Co-located, Overlapping	Shared	•	•	•	PCBs
01-006(c)	Drainlines and Outfall	Co-located, Overlapping	Shared	•	•	•	PCBs
01-006(d)	Drainline and Outfall	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

All three sites in this SMA were associated with process buildings constructed during the Cold War operations. All three Sites discharged directly to the area known as Hillside 138. Based on the similarity in contaminants, a shared drainage, and the extensive remediation that has been conducted in the area, these Sites will all discharge substantially identical effluent.

1000.29.2.2 Urban Influences

The parking areas to the north and the unpaved access road above the SMA do not contribute run-on to the monitored area.

1000.29.2.3 Public Influences

Only the northern boundary is readily accessible to pedestrian traffic and pedestrian traffic is estimated low along this boundary.

1000.29.3 Control Measures

There is no evidence of concentrated flow and minimal evidence of run-on at this Permitted Feature. Water bars are installed along the unpaved access road to control any potential run-on to the SMA.

Subsections to 1000.29.3 list all control measures used to control pollutant sources identified in Section 1000.29.2. Control measures are shown in Table 1000.29.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.29.4.

1000.29.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.29.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L011 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L011 06 01 0002	Check Dam - Rock		•		•	CB
L011 06 01 0005	Check Dam - Rock		•		•	CB

Established Vegetation (L011-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Check Dam (L011-06-01-0002, -0005)
The two rock check dams are located due east of the sampler location and serve to reduce sediment loading in run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement.

1000.29.3.2 Control Measures for Urban Influences

Table 1000.29.3-2

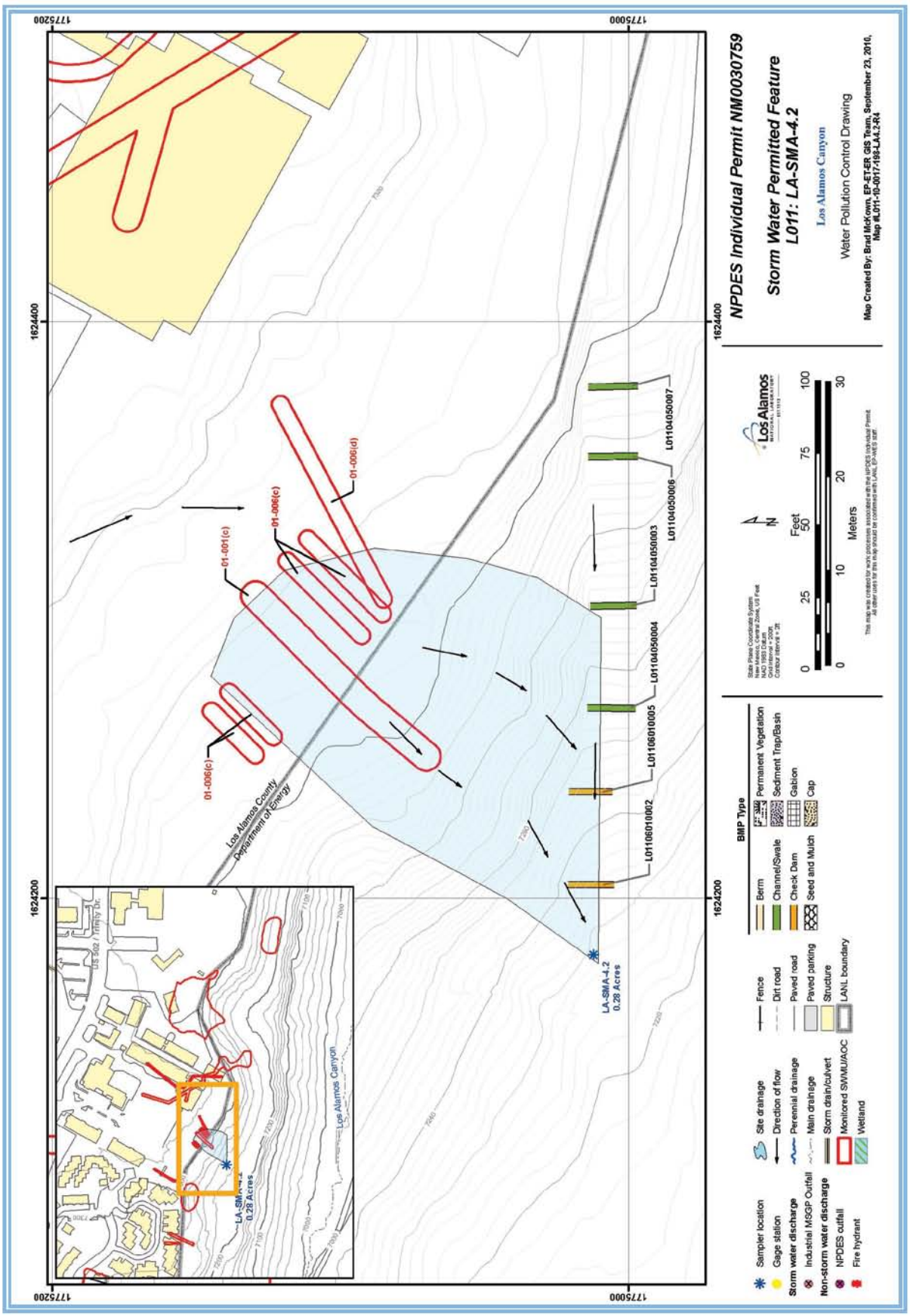
Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L011 04 05 0003	Channel/Swale - Water Bar	•		•		CB
L011 04 05 0004	Channel/Swale - Water Bar	•		•		CB
L011 04 05 0006	Channel/Swale - Water Bar	•		•		CB
L011 04 05 0007	Channel/Swale - Water Bar	•		•		CB

Water Bar
(L011-04-05-0003, -0004, -0006, -0007)
There are four installations of water bars located to the east of the Permitted Feature on the dirt access road. They are in place to prevent erosion of the area from run-on from above. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

1000.29.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L011, LA-SMA-4.2. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.29.4 Project Map



1000.29.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	PCBs (1)

1000.29.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-4.2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.29.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-4.2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.29.5.2-1.

Table 1000.29.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13892	06-24-2011
Storm Rain Event	BMP-16224	08-10-2011
Storm Rain Event	BMP-17200	08-25-2011
Storm Rain Event	BMP-18875	09-13-2011
Annual Erosion	COMP-19782	10-05-2011

1000.29.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.29.5.3-1.

Table 1000.29.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17200	Repaired water bar L01104050004.	09-01-2011	7 day(s)	Maintenance conducted in timely manner.

1000.29.6 Compliance Status

On September 10, 2010, NMED issued a Certificate of Completion with controls for Sites 01-001(c) and 01-006(d) [NMED 2010].

The Sites associated with LA-SMA-4.2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.30 LA-SMA-5.01

1000.30 LA-SMA-5.01

1000.30.1 Area Description

LA-SMA-5.01 is located within the developed area of Los Alamos. The northern boundary of the SMA is influenced by paved areas and structures.The southern boundary of the SMA is steeply sloped and undeveloped. The eastern and western boundaries of the SMA are influenced by paved areas and structures in the headwaters. Storm water flows from the developed areas on the mesa, south towards the receiving waters.

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L012, LA-SMA-5.01, Sites 01-001(d) and 01-006(h).

SWMU 01-001(d) is a former septic tank (structure 01-138) located at former TA-01. The septic tank measured 3 ft by 6 ft by 5 ft deep, made of reinforced concrete, and was installed in 1943. It was located southeast of Building Y and served Buildings K, V, and Y. Building K was a chemical stock room that contained a mercury still. Building V housed the original TA-01 uranium and beryllium machining shop. Dry-grinding of boron was also conducted in Building V. Building Y housed a physics laboratory that handled tritium, uranium-238, and polonium-210. The buildings were connected to septic tank 138 by a single sanitary waste line. The associated outfall was located southeast of Building Y and discharged directly into Los Alamos Canyon. This outfall area is known as Hillside 138. The septic tank, associated drainlines, and surrounding soil were removed between 1975 and 1976.

The location of the former septic tank and drainlines is currently on privately owned and residential and commercially developed property, and lies beneath a building and an asphalt parking lot. The outfall is located on undeveloped land owned by DOE.

SWMU 01-006(h) is a storm drain (structure 01-50) and outfall (structure 01-81) that served portions of R and of Y Buildings. The outfall was located 25 feet south of Y Building on the north rim of Los Alamos Canyon, immediately west of hillside 138. R Building housed model, glass, carpentry, and plumbing shops. The storm drain was discovered during trenching for the 1974-1976 radiological survey.

Table-1000.30.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-001(d)	Soil contamination from Septic Tank 138	Co-located, Overlapping	Shared	•	•	•	PCBs
01-006(h)	Storm drains and outfalls	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA were associated with process buildings constructed during the Cold War operations. All three Sites discharged directly to the area known as Hillside 138. Based on the similarity in contaminants, a shared drainage, and the extensive remediation that has been conducted in the area, these Sites will all discharge substantially identical effluent.

1000.30.2.2 Urban Influences

The roof tops in the headwaters of the SMA provides run-on to this Permitted Feature.

1000.30.2.3 Public Influences

There is pedestrian access along the northern portion of this SMA and traffic is estimated to be high. This SMA will be inspected for litter and visible debris.

1000.30.3 Control Measures

Paved areas and roof top drainage in the headwaters of this SMA provide a source for significant run-on contribution.

Subsections to 1000.30.3 list all control measures used to control pollutant sources identified in Section 1000.30.2. Control measures are shown in Table 1000.30.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.30.4.

1000.30.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.30.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L012 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•		CB
L012 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L012 03 01 0004	Berms - Earthen		•		•	CB
L012 03 12 0010	Berms Rock	•			•	CB
L012 04 05 0008	Channel/Swale Water Bar	•		•		CB

Table 1000.30.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L012 04 05 0009	Channel/Swale Water Bar	•		•		CB
L012 04 06 0006	Channel/Swale - Rip Rap		•	•		CB

Wood Mulch (L012-01-01-0005)

Seed and mulch have been applied to a bare area near the discharge point for this SMA to encourage vegetative growth. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L012-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Central Earthen Berm (L012-03-01-0004)

The berm located near the center of the slope above the sampler serves to control run-off from the Site. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berm (L012-03-12-0010)

This berm is located on the slope west of the sampler and is in place to help control run-on from above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Water Bars (L012-04-05-0008, -0009)

This is a pair of water bars that were installed on the slope west of the sampler. They were installed to help mitigate run-on from the slope above. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

Rip Rap (L012-04-06-0006)

This rip rap is installed on the central berm above the sampler and is acting as a spillway to help control run-off from the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.30.3.2 Control Measures for Urban Influences

Table 1000.30.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L012 03 01 0007	Berms - Earthen	•			•	CB
L012 03 06 0002	Berms - Straw Wattles	•			•	CB

Earthen Berm (L012-03-01-0007)

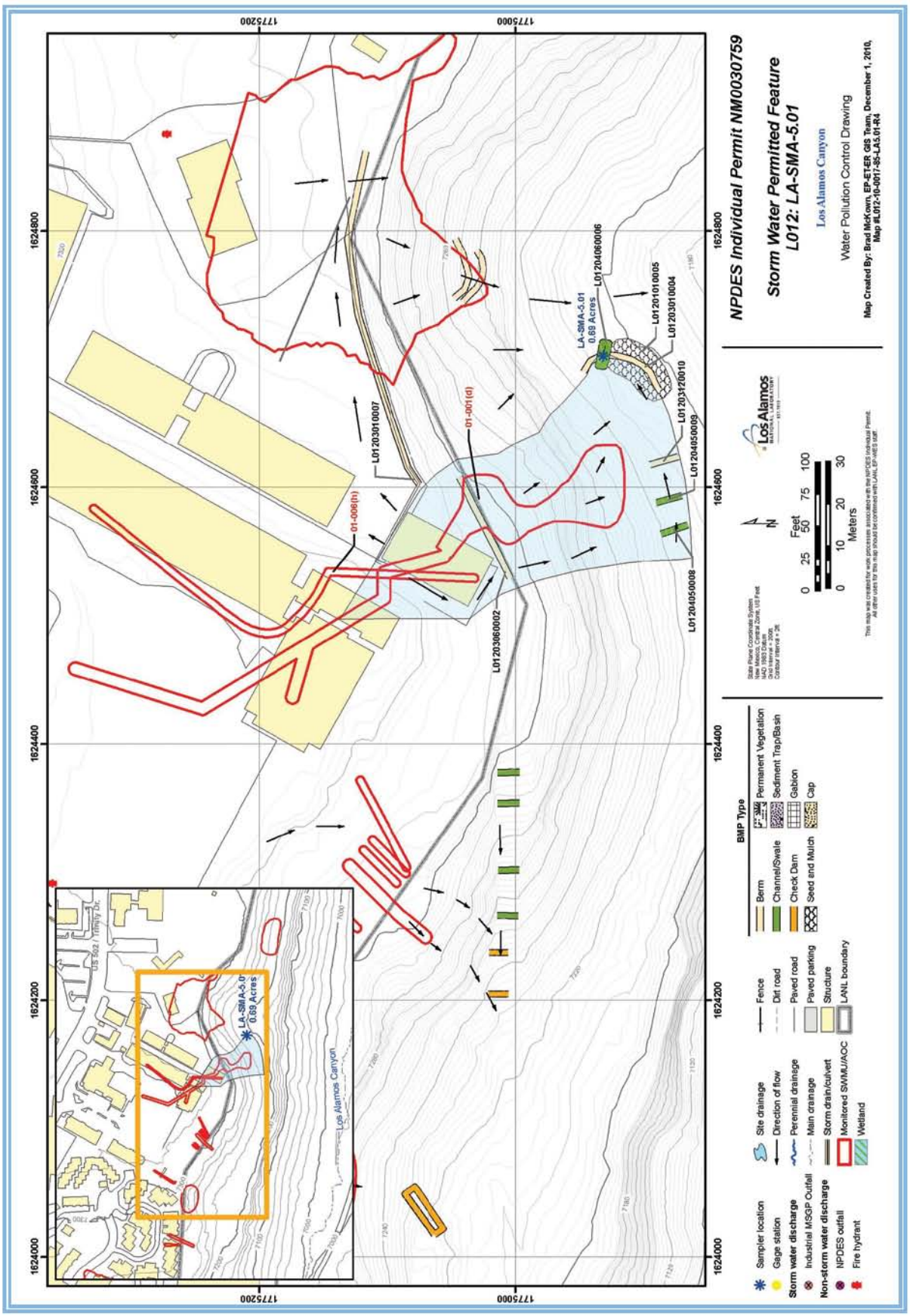
This berm is located along the southern boundary of the parking area adjacent to the SMA. It diverts run-on away from the SMA to the east. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (L012-03-06-0002)

These wattles are located along the southeastern edge of the mesa top. They are in place to help control run-on from the paved areas above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.30.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L012, LA-SMA-5.01. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L012: LA-SMA-5.01
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, December 1, 2010,
Map #L012-10-0401-SS-LAS.01-R4
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet 0 25 50 75 100
Meters 0 10 20 30
LA-SMA-5.01
0.68 Acres
L01203010007
01-006(h)
01-001(d)
L01203060002
L01204050008
L01204050009
L01203120010
L01203010004
L01201010005
L01204060006
BMP Type
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Berm
Channel/Swale
Check Dam
Seed and Mulch
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
US 502 / Trinity Dr.
Los Alamos Canyon
1624800
1624600
1624400
1624200
1624000
1775200
1775000

1000.30.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.30.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.01. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.30.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-5.01 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.30.5.2-1.

Table 1000.30.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13895	06-24-2011
Storm Rain Event	BMP-16227	08-10-2011
Storm Rain Event	BMP-17203	08-25-2011
Storm Rain Event	BMP-18878	09-13-2011
Annual Erosion	COMP-19783	10-05-2011

1000.30.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.01.

1000.30.6 Compliance Status

The Sites associated with LA-SMA-5.01 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.31 LA-SMA-5.02

1000.31 LA-SMA-5.02

1000.31.1 Area Description

LA-SMA-5.02 is located within the developed area of Los Alamos. The northern boundary of the SMA is influenced by paved areas and structures. The eastern and western boundaries of the SMA are influenced by paved areas and structures in the headwaters. Further south, the terrain is steeply sloped and undeveloped. Storm water flows from the developed areas on the mesa, south towards the receiving waters.

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L012A, LA-SMA-5.02, Site 01-003(e).

SWMU 01-003(e) is a surface disposal site southeast of Los Alamos Inn located along the north wall of Los Alamos Canyon. Discarded materials observed at the disposal area included utility boxes, concrete construction debris, piping, and other miscellaneous debris. In the early 1990's, a private landowner significantly altered the original canyon rim landscape by extending the rim farther south using fill material of unknown origin. A major portion of SWMU 01-003(e) surface disposal site is now under the fill material.

Table-1000.31.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-003(e)	Surface disposal site	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.31.2.2 Urban Influences

The parking area in the headwaters of the SMA provides run-on to this Permitted Feature. Storm water from the parking lot above discharges to a storm drain culvert at the southern edge of the parking area.

1000.31.2.3 Public Influences

There is pedestrian access along the northern portion of this SMA and traffic is estimated to be high. This SMA will be inspected for litter and visible debris.

1000.31.3 Control Measures

Paved areas in the headwaters of this SMA provide a source for significant run-on contribution. The storm drain located on the south side of the parking area contributes run-on to the SMA from the impervious areas in the northern portion of the Permitted Feature.

Subsections to 1000.31.3 list all control measures used to control pollutant sources identified in Section 1000.31.2. Control measures are shown in Table 1000.31.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation

and location of existing control measures, are shown on the Project Map provided in Section 1000.31.4.

1000.31.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.31.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L012A 01 01 0007	Seed and Mulch - Seed and Wood Mulch			•		CB
L012A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L012A 03 06 0005	Berms - Straw Wattles		•		•	CB
L012A 03 06 0006	Berms - Straw Wattles		•		•	CB
L012A 03 06 0008	Berms - Straw Wattles		•		•	B
L012A 03 06 0009	Berms - Straw Wattles		•		•	B

Seed and Mulch (L012A-01-01-0007)

Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L012A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (L012A-03-06-0005, -0006)
This pair of wattles is located in a flow path north of the sampler. They are in place to mitigate run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles - North (L012A-03-06-0008, -0009)
This pair of wattles is located across the main drainage channel north of the sampler. They are in place to mitigate run-off from the SMA. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

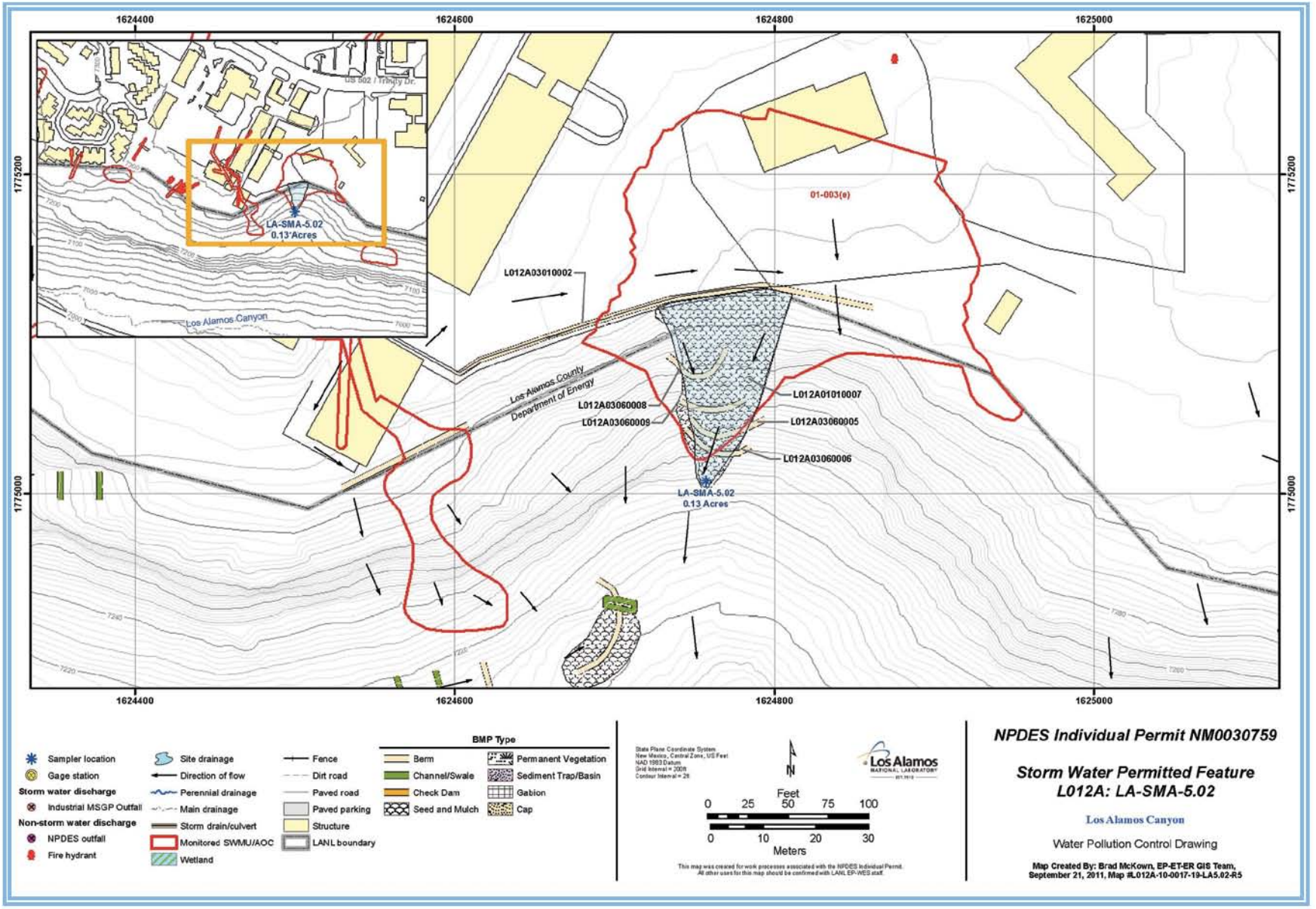
1000.31.3.2 Control Measures for Urban Influences

Table 1000.31.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L012A 03 01 0002	Berms - Earthen	•			•	CB

Northern Earthen Berm (L012A-03-01-0002)
The northern berm is located along the southern edge of the parking area and helps control run-on to the monitored area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.31.3.3 Control Measures for Public Influences
There are no control measures for public influences at PF L012A, LA-SMA-5.02. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


1624400
1624600
1624800
1625000
1775200
1775000
LA-SMA-5.02
0.13 Acres
Los Alamos Canyon
US 502 / Trinity Dr.
01-003(e)
L012A03010002
Los Alamos County
Department of Energy
L012A03060008
L012A03060009
L012A01010007
L012A03060005
L012A03060006
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
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Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
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Cap
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Meters
0 10 20 30
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L012A: LA-SMA-5.02
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
September 21, 2011, Map #L012A-10-0017-19-LA5.02-R5

1000.31.5 Storm Water Monitoring Plan and Schedule

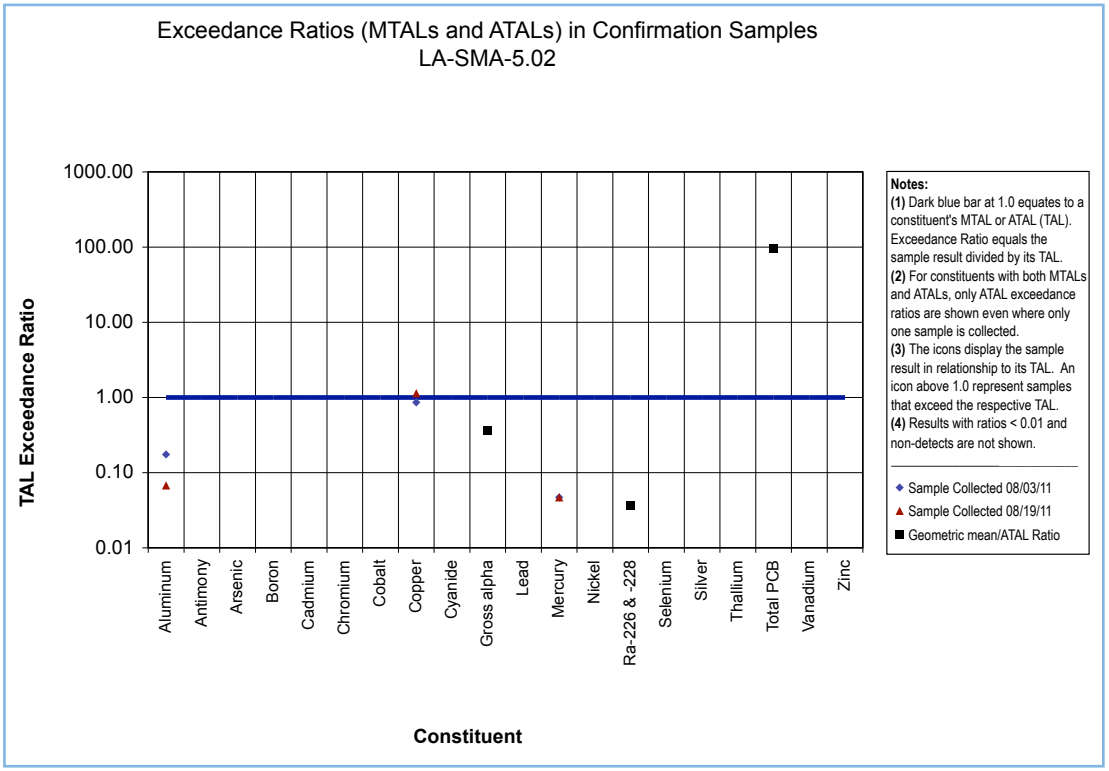
Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (0)	• (0)	• (0)	PCBs (0)

1000.31.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-5.02 on August 03, 2011 and August 19, 2011, completing the initial confirmation sampling requirements for the SMA. No further confirmation monitoring is required at LA-SMA-5.02 per Part 1.E.2(d) of the Permit.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.31.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-5.02 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.31.5.3-1.

Table 1000.31.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13897	06-24-2011
Storm Rain Event	BMP-16228	08-10-2011
Storm Rain Event	BMP-17204	08-25-2011
Storm Rain Event	BMP-18879	09-13-2011
Annual Erosion	COMP-19784	10-05-2011

1000.31.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.31.5.4-1.

Table 1000.31.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17204	Installed a new wattle above the west end of wattle L012A03060005.	09-01-2011	7 day(s)	Maintenance conducted in timely manner. .
BMP-17204	Installed a new wattle above the west end of wattle L012A03060006.	09-01-2011	7 day(s)	Maintenance conducted in timely manner.

1000.31.6 Compliance Status

On September 10, 2010, NMED issued a Certificate of Completion with controls for Site 01-003(a) [NMED 2010].

The Site associated with LA-SMA-5.02 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.32 LA-SMA-5.2

1000.32 LA-SMA-5.2

1000.32 Area Description

LA-SMA-5.2 is a south-facing slope located within Los Alamos township. The northern boundary of the SMA is influenced by unpaved areas, materials storage, and activities associated with a private industrial activity. The southern boundary is rugged and steeply sloped. The eastern boundary of the SMA is influenced by run-on from unpaved areas in the headwaters. The western boundary of the SMA is influenced by run-on from unpaved areas in the headwaters. Storm water flows from the mesa top area, down a gradual bench, before reaching the receiving waters further south.

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L013, LA-SMA-5.2, Site 01-003(d).

SWMU 01-003(d) is former surface disposal area located at the former TA-01. Beginning in approximately 1943, this site was used for surface disposal of empty solvent and paint cans that resulted from the operations of Zia Company, which operated paint, carpentry, furniture repair, and sign shops at this location. Disposal operations likely ceased during the mid to late 1950s, when the majority of TA-01 building were demolished. The SWMU is located on an undeveloped hillside of Los Alamos Canyon just south of the current Qwest building.

Currently, the site is located on undeveloped DOE land.

Table-1000.32.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
01-003(d)	Surface disposal site	Discrete Location, No overlap	Individual	•		•	

1000.32.2.2 Urban Influences

Los Alamos County owns and operates a storage yard above the monitored area. Storm water discharges from this storage yard are diverted east and away from the Permitted Feature.

1000.32.2.3 Public Influences

The SMA is steeply sloped and unlikely to have pedestrian traffic on all boundaries excepting the northern boundary.

1000.32.3 Control Measures

The paved area, owned by Los Alamos County, to the north of the Permitted Feature is sloped to the east, diverting run-on away from the SMA to a natural channel that discharges into Los Alamos Canyon.

Subsections to 1000.32.3 list all control measures used to control pollutant sources identified in Section 1000.32.2. Control measures are shown in Table 1000.32.3-1 and

described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.32.4.

1000.32.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.32.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L013 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L013 06 01 0003	Check Dam - Rock		•		•	B
L013 06 01 0004	Check Dam - Rock		•		•	B

Established Vegetation (L013-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dams (L013-06-01-0003, -0004)

This pair of rock check dams are located at the southern tip of the SMA to control run-off and sediment. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

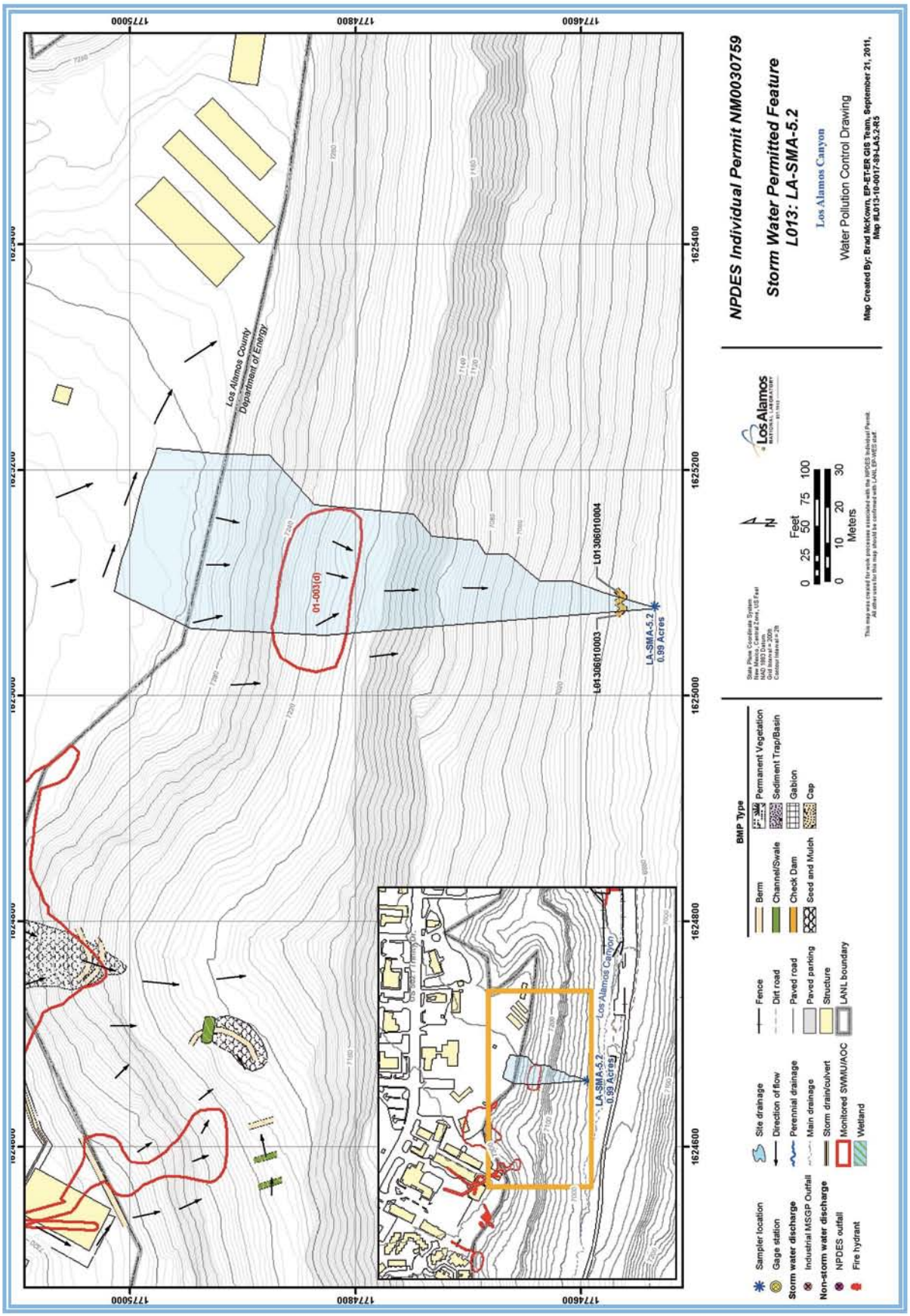
1000.32.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L013, LA-SMA-5.2. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.32.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L013, LA-SMA-5.2. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.32.4 Project Map



1000.32.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.32.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.2. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.32.5.2 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-5.2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.32.5.2-1.

Table 1000.32.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13895	06-24-2011
Storm Rain Event	BMP-16226	08-09-2011
Storm Rain Event	BMP-17202	08-29-2011
Storm Rain Event	BMP-18877	09-12-2011
Annual Erosion	COMP-19785	09-30-2011

1000.32.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.32.5.3-1.

Table 1000.32.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17202	Installed straw wattle below juniper bale L01306030002 as temporary backup control.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17202	Replaced juniper bale(s) L01306030002 with two native rock check dams L01306010003 and L01306010004.	09-01-2011	3 day(s)	Maintenance conducted in timely manner.

1000.32.6 Compliance Status

The Site associated with LA-SMA-5.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.33 LA-SMA-5.31

1000.33 LA-SMA-5.31

1000.33.1 Area Description

LA-SMA-5.31 is located within the Los Alamos township. The northern boundary of the SMA is rugged, steeply sloped, and potentially influenced by activities and development on the mesa above. The southern boundary is located in the bottom of Los Alamos Canyon. Storm water flows from the developed area on the mesa, south down a steep grade, before reaching the receiving waters further south.

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L015, LA-SMA-5.31, Site 41-002(c).

SWMU 41-002(c) is a sludge drying bed, and is one component of a small sanitary sewage treatment plant at TA-41. The plant received sewage from TA-02 from the mid 1970s until 1987. After 1987, wastes were pumped to TA-03 for treatment until 1992, and then to TA-46 after that. The TA-41 treatment plant was retained as a standby unit in case the lift pump failed.

Table-1000.33.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
41-002(c)	Sludge Drying Bed	Discrete Location, No overlap	Individual	•		•	

1000.33.2.2 Public Influences

The SMA is steeply sloped and unlikely to have pedestrian traffic on all boundaries excepting the northern boundary.

1000.33.3 Control Measures

Run-on flows onto the Permitted Feature via a natural channel discharging from paved areas on the mesa top above the Site. A rock check dam diverts this run-on source around the managed area.

Subsections to 1000.33.3 list all control measures used to control pollutant sources identified in Section 1000.33.2. Control measures are shown in Table 1000.33.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.33.4.

1000.33.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.33.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L015 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L015 03 06 0007	Berms - Straw Wattles		•		•	B
L015 03 06 0008	Berms - Straw Wattles		•		•	B
L015 03 06 0009	Berms - Straw Wattles		•		•	B
L015 06 01 0002	Check Dam - Rock	•			•	CB

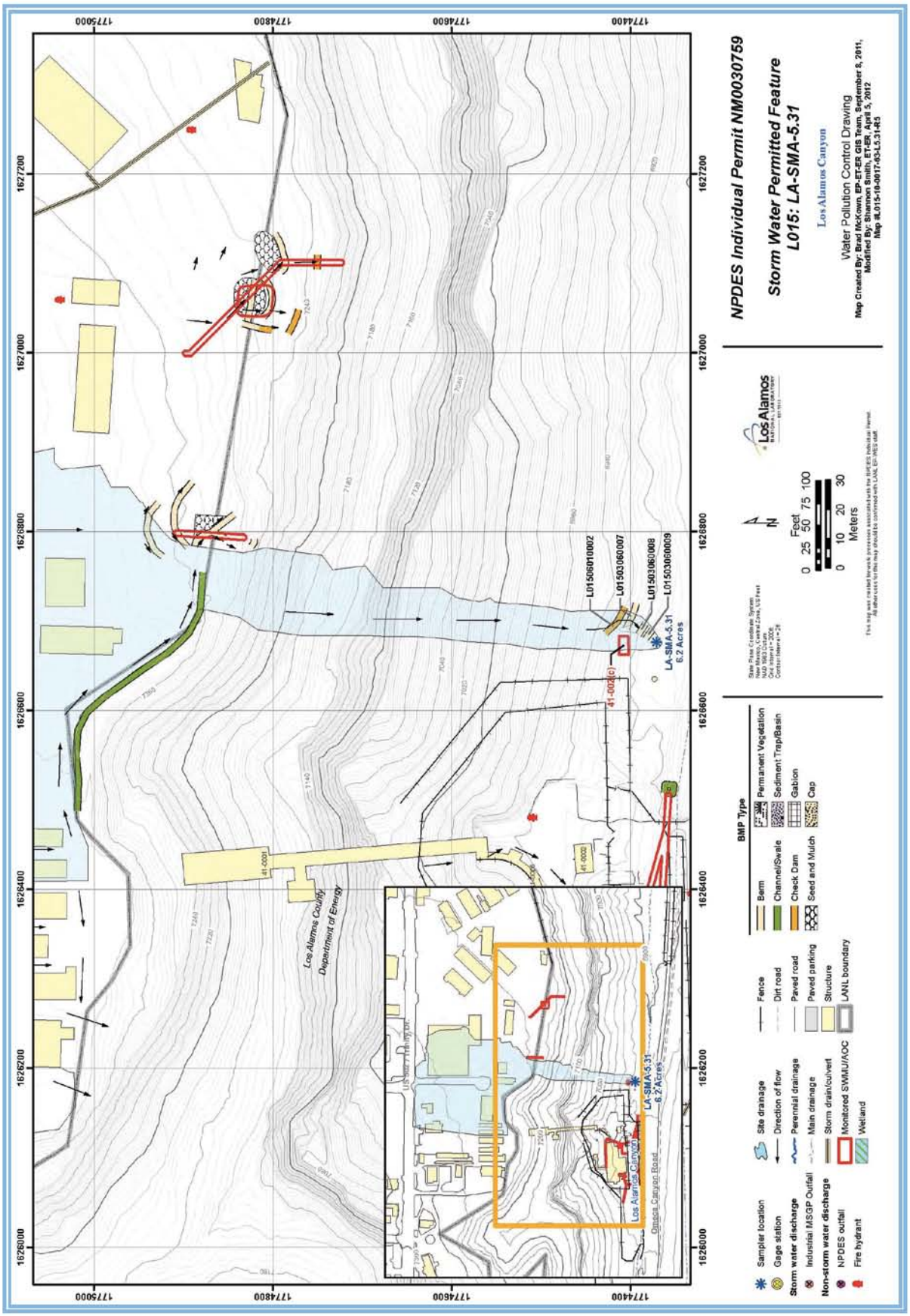
Established Vegetation (L015-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattles (L015-03-06-0007, -0008, -0009)
This is a series of three wattles that are located at the southern tip of the SMA to control run-off and sediment migration. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Check Dam (L015-06-01-0002)
The rock check dam is located northeast of the sampler at the southern end of the SMA. It is in place to control run-on from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.33.3.2 Control Measures for Public Influences
There are no control measures for public influences at PF L015, LA-SMA-5.31. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.33.4 Project Map



1000.33.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

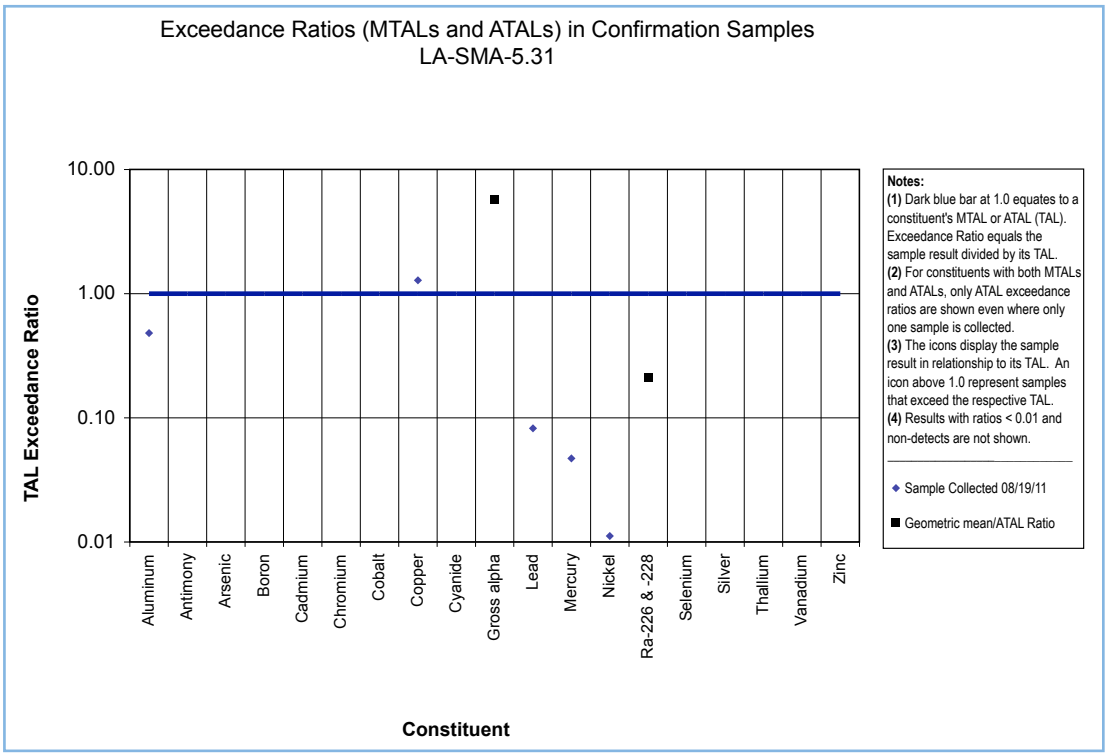
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.33.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-5.31 on August 19, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.33.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.31 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.33.5.3-1.

Table 1000.33.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13898	06-24-2011
Storm Rain Event	BMP-15880	08-05-2011
Storm Rain Event	BMP-17134	08-23-2011
Storm Rain Event	BMP-18300	09-07-2011
Storm Rain Event	BMP-18828	09-12-2011
Annual Erosion	COMP-19787	09-30-2011

1000.33.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.33.5.4-1.

Table 1000.33.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17134	Built up and extended rock check dam L01506010002.	08-29-2011	6 day(s)	Maintenance conducted in timely manner.
BMP-17134	Replaced wattle L01503060004 with new wattle L01503060007.	08-29-2011	6 day(s)	Maintenance conducted in timely manner.
BMP-17134	Replaced wattle L01503060005 with new wattle L01503060008.	08-29-2011	6 day(s)	Maintenance conducted in timely manner.
BMP-17134	Replaced wattle L01503060006 with new wattle L01503060009.	08-29-2011	6 day(s)	Maintenance conducted in timely manner.

1000.33.6 Compliance Status

The Site associated with LA-SMA-5.31 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.34 LA-SMA-5.33

1000.34.1 Area Description

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

1000.34.2.2 Public Influences

1000.34.3 Control Measures

1000.34.3.1 Control Measures for Public Influences

1000.34.4 Project Map

1000.34.5 Storm Water Monitoring Plan and Schedule

1000.34.5.1 Initial Confirmation Monitoring

1000.34.5.2 Corrective Action Plan & Schedule

1000.34.5.3 Inspection Activity

1000.34.5.4 Maintenance

1000.34.6 Compliance Status

1000.34 LA-SMA-5.33

1000.34.1 Area Description

The northern boundary of LA-SMA-5.33 is influenced by paved areas and other industrial areas in Los Alamos County. Currently this area is occupied by the Los Alamos County Roads Division, a car wash, an auto repair shop, and an automotive paint and body shop. The southern boundary of the SMA is sloped, undeveloped, and rugged terrain. Further south of this boundary are the receiving waters. The western boundary of the SMA may be influenced by private industrial activities. These run-on and run-off sources do not influence the former historical industrial activity area associated with this Permitted Feature.

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L016, LA-SMA-5.33, Site 32-004.

AOC 32-004 is a former drain-line and outfall from a former office building (Building 32-3) at TA-32. Building 32-3 included a vault room where a radioactive source was stored. The footprint of the site is now located on both private and DOE property. Exploratory trenches were excavated to locate the drain-line, which was found to extend from former Building 32-03 to the edge of Los Alamos Canyon. The drain-line was excavated and the portion on County-owned property removed. During excavation, the trench was field-screened for organic chemicals and radioactivity. No evidence of contamination was found inside or outside the 42.5 foot segment of drain-line that was removed. Because no contamination was found in any of the removed drain pipe, the portion of the drain-line located on DOE property (about 50 feet) was left in place and its two ends were plugged with grout.

Table-1000.34.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
32-004	Drainline and outfall from former Building 32-3	Discrete Location, No overlap	Individual	•		•	

1000.34.2.2 Urban Influences

There may be private owners discharging to this SMA via the paved parking areas north of the area. Los Alamos County owns associated roads, and parking areas located in the headwaters of the SMA. There is also a privately owned public car wash facility located north of the SMA that may have an impact.

1000.34.3 Control Measures

The historical industrial activity area is an existing drain line and the majority of Site is below grade. Wattles have been placed north of the area to reduce run-on from the mesa above. Subsections to 1000.34.3 list all control measures used to control pollutant sources

identified in Section 1000.34.2. Control measures are shown in Table 1000.34.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.34.4.

1000.34.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.34.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L016 01 03 0010	Seed and Mulch - Hydromulch			•		B
L016 02 02 0004	Established Vegetation - Forested/ Needle Cast			•		CB
L016 03 01 0009	Berms - Earthen	•			•	B
L016 03 04 0011	Berms - Asphalt	•			•	B
L016 03 04 0012	Berms - Asphalt	•			•	B
L016 03 10 0005	Berms - Gravel Bags		•		•	CB

Hydromulch (L016-01-03-0010)

Hydromulch has been applied on and north of earthen berm -0009 to prevent erosion. Hydraulic mulch consists of applying a mixture of shredded wood fiber or a hydraulic matrix and a stabilizing emulsion or tackifier with hydroseeding equipment, which temporarily protects exposed soil from erosion by raindrop impact or wind.

Established Vegetation (L016-02-02-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (L016-03-01-0009)

This earthen berm is located at the northern end of the SMA to control run-on from the mesa top. An earthen berm is a temporary containment control constructed

of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

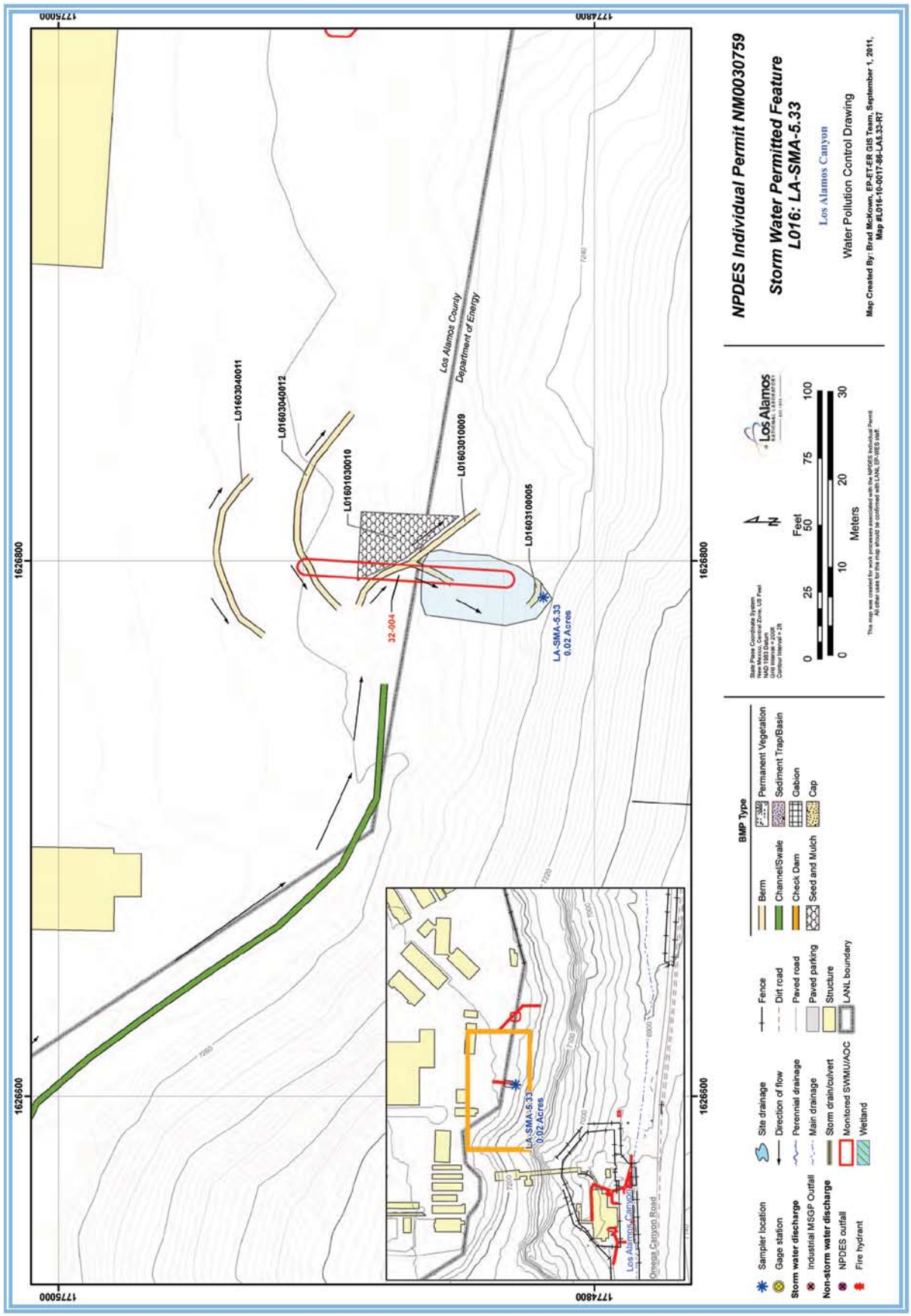
Asphalt Berms
(L016-03-04-0011, -0012)
This is a pair of asphalt berms located north of the SMA to control run-on and sediment migration from the mesa top. An asphalt berm is a temporary containment control constructed of asphalt.

Gravel Bags
(L016-03-10-0005)
The gravel bags were placed in southern end of the SMA, across the slope above the sampler location. They are used to help control storm water run-off from the slope above. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

1000.34.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L016, LA-SMA-5.33. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.34.4 Project Map



1000.34.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

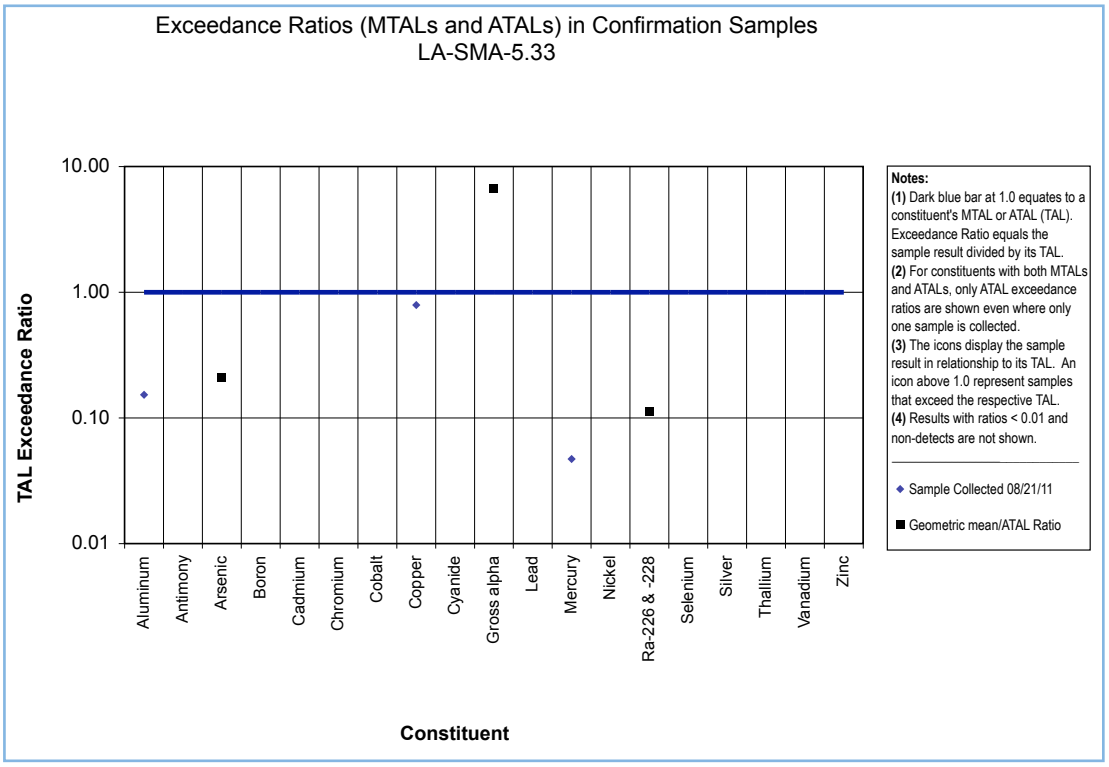
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.34.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-5.33 on August 21, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.34.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.33 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.34.5.3-1.

Table 1000.34.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13899	06-23-2011
Storm Rain Event	BMP-15881	08-04-2011
Construction	COMP-16877	08-23-2011
Storm Rain Event	BMP-17135	08-25-2011
Construction	COMP-18121	09-01-2011
Storm Rain Event	BMP-18301	09-06-2011
Storm Rain Event	BMP-18829	09-12-2011
Annual Erosion	COMP-19788	10-04-2011

1000.34.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.34.5.4-1.

Table 1000.34.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13889	Cleaned out inlet to culvert L00804040004.	06-22-2011	0 day(s)	Maintenance conducted upon inspection.

1000.34.6 Corrective Action Status

The Site associated with LA-SMA-5.33 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.35 **LA-SMA-5.35**

1000.35.1 Area Description

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

1000.35.2.2 Urban Influences

1000.35.3 Control Measures

1000.35.4 Project Map

1000.35.5 Storm Water Monitoring Plan and Schedule

1000.35.5.1 Initial Confirmation Monitoring

1000.35.5.2 Corrective Action Plan & Schedule

1000.35.5.3 Inspection Activity

1000.35.5.4 Maintenance

1000.35.6 Compliance Status

1000.35 LA-SMA-5.35

1000.35.1 Area Description

LA-SMA-5.35 is located within the Los Alamos township and is potentially influenced by development on the mesa above the northern boundary. The southern boundary of the SMA is flat, lightly developed, and contains the receiving waters. Storm water flows from the developed mesa above the SMA and is managed by engineered control devices both on the mesa top and in the developed area along the southern boundary.

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L014, LA-SMA-5.35, Site C-41-004.

AOC C-41-004 is the storm drain system surrounding laboratory Building 41-4. The drain system has seven storm drainage catch basins/manholes (structures 41-22 through 41-28). Although there are no indications of contaminant releases to the system, operational tritium releases from the emission stacks located between Building 41-4 and Building 41-30 (office building) may have introduced surface contamination into the storm drain system.

Table-1000.35.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
C-41-004	Storm drains	Discrete Location, No overlap	Individual	•		•	

1000.35.2.2 Urban Influences

The potential run-on contributions from the developed area on the mesa above the SMA are controlled by an asphalt swale. The urban areas north and west do contribute run-on via a natural drainage.

1000.35.3 Control Measures

An asphalt swale and curbing route storm water from the mesa top to a discharge point east of the SMA. Inlet protection serves to reduce sediment loading at the drop inlets to the storm drain system. Rip rap serves as outlet protection for storm water discharge from the storm drain system.

Subsections to 1000.35.3 list all control measures used to control pollutant sources identified in Section 1000.35.2. Control measures are shown in Table 1000.35.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.35.4.

1000.35.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.35.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L014 04 06 0007	Channel/Swale - Rip Rap		•	•		CB

Rip Rap (L014-04-06-0007)

The rip rap is located adjacent to, and surrounds, the sampler. It functions as a run-off control and culvert outlet protection device. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.35.3.2 Control Measures for Urban Influences

Table 1000.35.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L014 03 10 0003	Berms - Gravel Bags	•			•	CB
L014 03 10 0006	Berms - Gravel Bags	•			•	CB
L014 04 02 0001	Channel/Swale - Concrete/ Asphalt	•		•		CB

Southeastern Berms (L014-03-10-0003)

These gravel bags are located outside the fenced area surrounding building 41-0004 on the south side. They are used to control run-on from the paved areas above. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

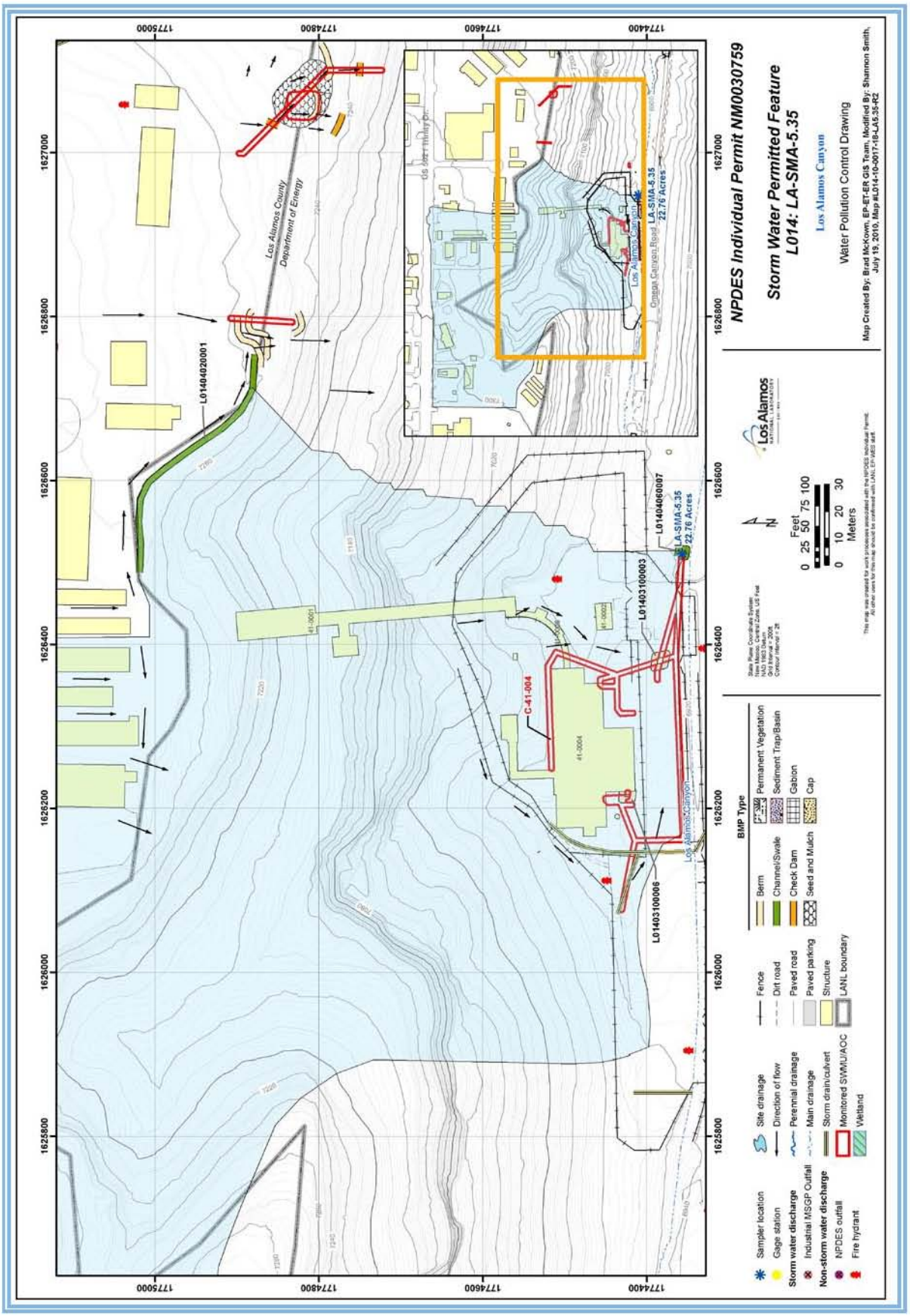
Western Berms - Gravel Bags (L014-03-10-0006)

These gravel bags are located near the southwest corner of building 41-0004. They are in place to control run-on from the structure and the paved areas surrounding the structure. A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow run-off, allowing sediment to settle out, and release run-off slowly as sheet flows, preventing erosion.

Asphalt Swale
(L014-04-02-0001)

The asphalt swale is located on the southern boundary of the paved area on the mesa top above the site. The swale diverts run-on to the east away from the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

1000.35.4 Project Map



1000.35.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

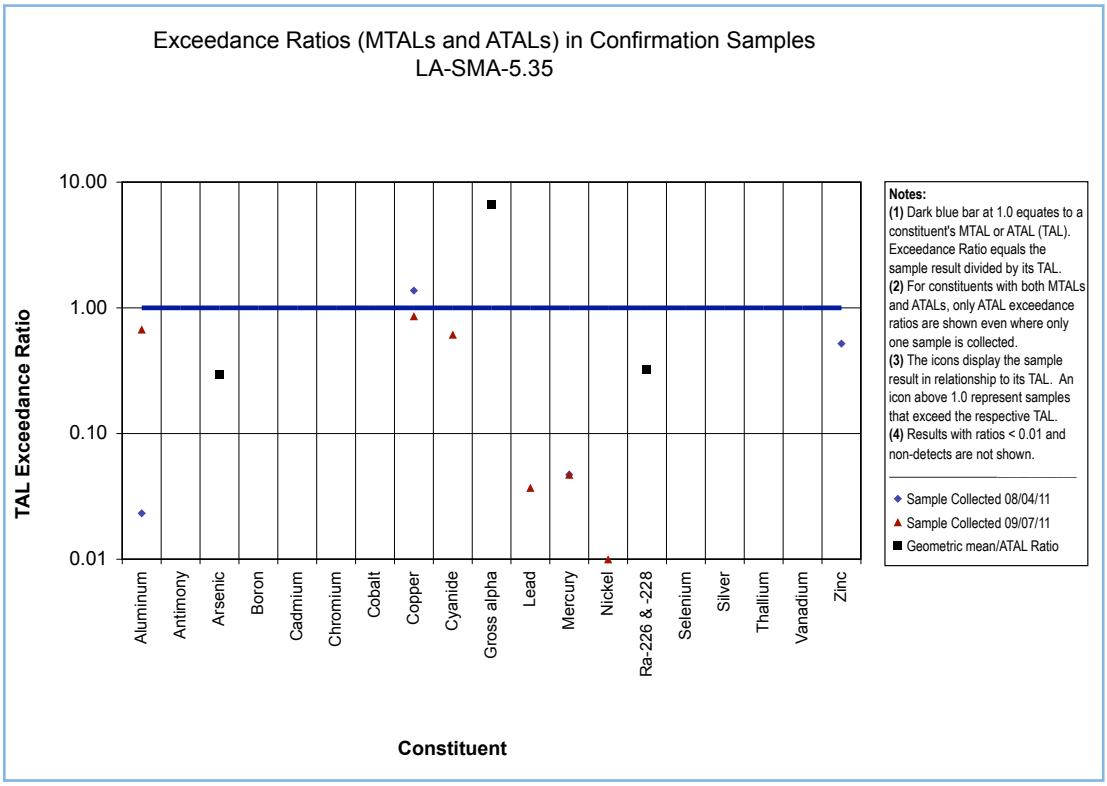
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.35.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-5.35 on August 04, 2011 and September 07, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.35.5.2.



1000.35.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at LA-SMA-5.35. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.35.5.2-1.

Table 1000.35.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.35.5.3 Inspection Activity

RG055.5 recorded four Storm Events at LA-SMA-5.35 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.35.5.3-1.

Table 1000.35.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13795	07-12-2011
Storm Rain Event	BMP-16214	08-10-2011
Storm Rain Event	BMP-17190	08-25-2011
Storm Rain Event	BMP-18865	09-12-2011
Annual Erosion	COMP-19786	09-30-2011

1000.35.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.35.5.4-1.

Table 1000.35.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13795	Added a small amount of native rock to the rip rap.	07-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17180	Modify rip rap - 0007 by adding more rock as needed.	09-01-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-17180	Repair gravel bags -0003.	09-01-2011	7 day(s)	Maintenance conducted in timely manner.

1000.35.6 Compliance Status

The Site associated with LA-SMA-5.35 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.36 **LA-SMA-5.361**

1000.36.1 Area Description

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

1000.36.2.2 Urban Influences

1000.36.3 Control Measures

1000.36.4 Project Map

1000.36.5 Storm Water Monitoring Plan and Schedule

1000.36.5.1 Initial Confirmation Monitoring

1000.36.5.2 Inspection Activity

1000.36.5.3 Maintenance

1000.36.6 Compliance Status

1000.36 LA-SMA-5.361

1000.36.1 Area Description

LA-SMA-5.361 is located within the Los Alamos township. The northern boundary of the SMA is influenced by vacant Los Alamos County land. The southern boundary of the SMA is sloped and rugged terrain. Further south of this boundary are the receiving waters. Storm water flows from the developed areas, south towards the receiving waters.

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L017, LA-SMA-5.361, Site 32-002(b).

SWMU 32-002(b) is former septic tank and its associated drainline and outfall. The septic system was installed when SWMU 32-002(a) septic system could no longer meet the usage requirement of the building 32-1. The influent line of SWMU 32-002(a) was diverted to the septic tank of SWMU 32-002(b), which also received effluent from building 32-2. The outfall of SWMU 32-002(b) was at the edge of Los Alamos Canyon. The septic tank was removed in 1988, and the drainline was removed in 1996 and disposed of at TA-54, MDA G.

Table-1000.36.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
32-002(b)	Soil contamination from former septic tank	Co-located, Overlapping	Individual	•		•	

1000.36.2.2 Urban Influences

There are a variety of activities occurring on the mesa that may influence this Permitted Feature. Run-on controls are significant to successful management of storm water discharge at this SMA. A check dam and overall area rehabilitation are used to manage storm water discharging from this SMA.

1000.36.3 Control Measures

Run-on enters the SMA from areas north of the Permitted Feature via a natural channel flowing southeast through the area.

Subsections to 1000.36.3 list all control measures used to control pollutant sources identified in Section 1000.36.2. Control measures are shown in Table 1000.36.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.36.4.

1000.36.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.36.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L017 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L017 06 01 0009	Check Dam		•		•	B

Established Vegetation (L017-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Rock Check Dam (L017-06-01-0009)

This rock check dam is located immediately north of the sampler. It is used to control run-off and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.36.3.2 Control Measures for Urban Influences

Table 1000.36.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L017 01 01 0008	Seed and Mulch - Seed and Wood Mulch			•		CB
L017 03 01 0002	Berms - Earthen	•			•	CB

Eastern Seed and Mulch (L017-01-01-0008)

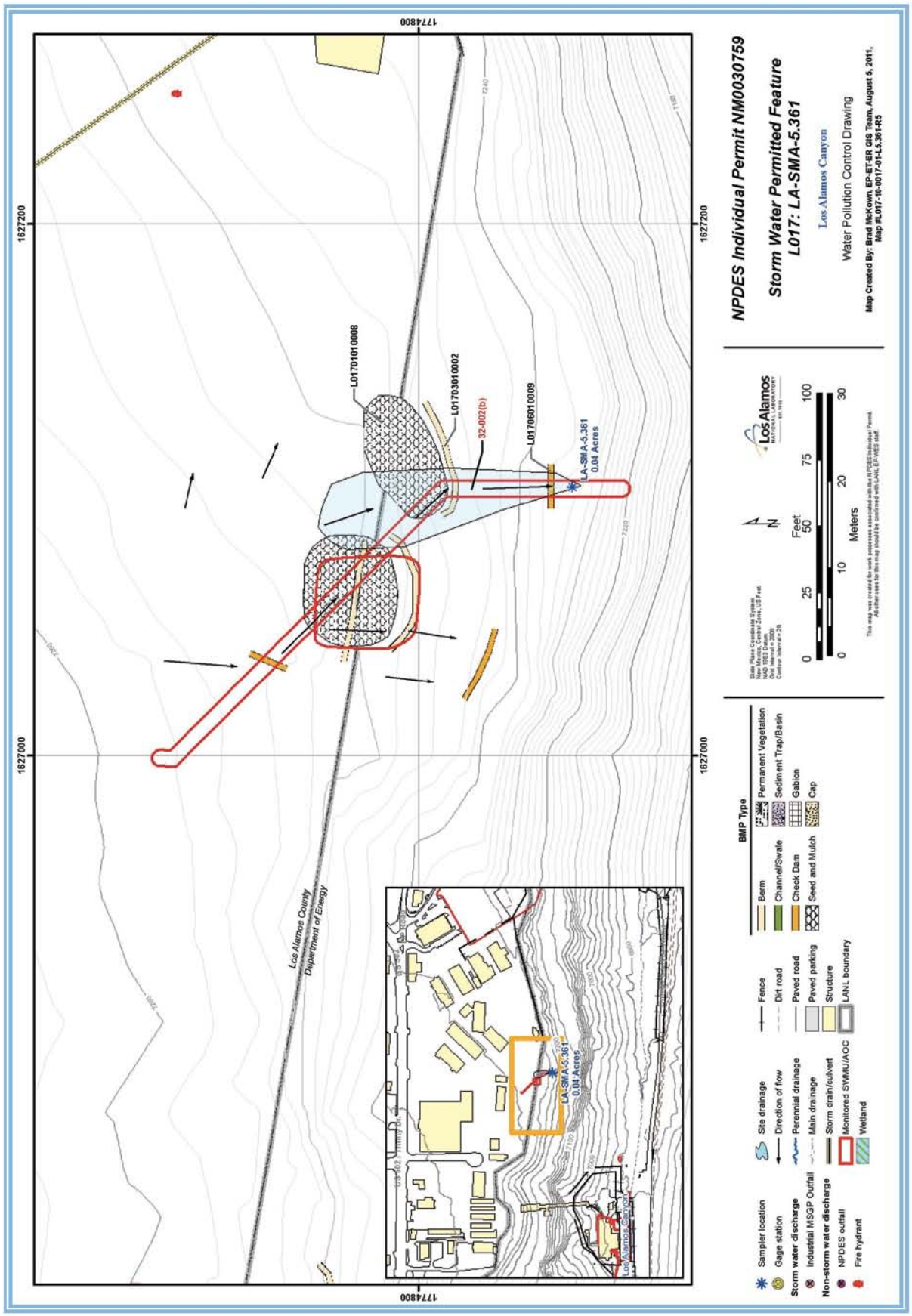
This seed and mulch controls erosion across the LANL boundary, north of the sampler and includes part of the site drainage. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of

wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Earthen Berm
(L017-03-01-0002)

The berm is located north of the sampler on the mesa top. It is in place to mitigate run-on from the area above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.36.4 Project Map



1000.36.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.36.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.361. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.36.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.361 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.36.5.2-1.

Table 1000.36.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13794	06-23-2011
Storm Rain Event	BMP-15872	08-03-2011
Storm Rain Event	BMP-17126	08-24-2011
Storm Rain Event	BMP-18292	09-06-2011
Storm Rain Event	BMP-18820	09-12-2011
Annual Erosion	COMP-19789	10-05-2011

1000.36.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.36.5.3-1.

Table 1000.36.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13794	Replace rock check dam -0003 with another rock check dam. Will retire -0003 when work is completed.	07-12-2011	19 day(s)	Maintenance conducted as soon as practicable.

1000.36.6 Compliance Status

The Site associated with LA-SMA-5.361 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.37 **LA-SMA-5.362**

1000.37.1 Area Description

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

1000.37.2.2 Urban Influences

1000.37.3 Control Measures

1000.37.4 Project Map

1000.37.5 Storm Water Monitoring Plan and Schedule

1000.37.5.1 Initial Confirmation Monitoring

1000.37.5.2 Inspection Activity

1000.37.5.3 Maintenance

1000.37.6 Compliance Status

1000.37 LA-SMA-5.362

1000.37.1 Area Description

LA-SMA-5.362 is located within the Los Alamos township. The northern boundary of the SMA is influenced by vacant Los Alamos Country land. The southern boundary of the SMA is sloped and rugged terrain. Further south of this boundary are the receiving waters. Storm water flows from the developed areas, south towards the receiving waters.

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L017A, LA-SMA-5.362, Site 32-003.

AOC 32-003 is the former location of a transformer station. The station consisted of three transformers on a wood platform (structure 32-10) elevated 19.5 feet above the ground. In the OU 1079 RFI work plan and during the 1993 Phase I investigation, a pile of wood debris and several sawed-off poles were assumed to be the remains of SWMU 32-002(a) (structure 32-7). Archival engineering drawings located after the Phase I investigation indicate that the wood debris may have been a platform for the former transformer. The former transformer location currently is beneath the asphalt parking area of the Los Alamos County Public Works Department.

The ER Project conducted a Phase I RFI at AOC 32-003 in 1993. Two samples were collected at the wood-debris pile and three samples were collected from locations in the drainage immediately down-gradient from the former transformer location. Samples were analyzed for inorganic and organic chemicals. Lead and zinc were found above BVs but below SALs (230 mg/kg and 110 mg/kg, respectively). Aroclor-1260 was found at 1.5 mg/kg, above its SAL. Lead, zinc, and Aroclor-1260 exceeded their ESALs. Lead and zinc fell within their respective BVs farther down the drainage and concentrations downstream would be too low to have an impact. Aroclor-1260 was the only contaminant retained as a potential contaminant at AOC 32-003. The Phase I RFI report recommended further investigation at AOC 32-003 to evaluate PCB contamination.

The ER Project conducted a Phase II RFI and VCA at AOC 32-003 in 1996. The wood-debris pile was removed and disposed of as PCB debris. Samples were collected from seven locations to define the extent of contamination and were sent to the MCAL for PCB analysis. PCBs were present in soils at levels of up to 4,700 mg/kg, and analytical results indicated that an area about 38 ft long x 30 ft wide x 2 ft to 5 ft deep required excavation. A VCA was conducted to excavate contaminated soil. Samples were collected from each of four lifts of PCB-contaminated soil. Samples were submitted to the MCAL for analysis and results were used to determine whether the required cleanup level of 10 mg/kg for total PCBs was achieved. Once the level was achieved, excavation ceased. Site restoration activities included backfilling with clean fill, compacting, and reseeding the area. Additional sampling confirmed that the VCA was successful. The Phase II/VCA report recommended NFA at AOC 32-003 because the site was characterized and remediated in accordance with applicable state and federal regulations, and available data indicate that contaminants are present only in concentrations that pose no unacceptable human health risk.

In response to a 1998 NMED request, the ER Project conducted an ecological risk screening assessment at AOC 32-003. The ecological risk screening assessment considered potential contaminants in surface and subsurface soil samples collected

south of the paved area within the footprint of SWMU 32-002(a) and down the outfall areas to the edge of the canyon bottom. Three spatial aggregates were identified during the scoping process; AOC 32-003 was included in the eastern SWMU aggregate. Threatened and endangered species are potential receptors for contaminant releases associated with the eastern SWMU aggregate and were determined relevant to ecological risk screening assessment at AOC 32-003. Chromium and mercury were identified as the major potential contaminants driving potential ecological risk at the site. Other analytes with HQs greater than 1.0 were silver, thallium, Aroclor-1260, lead, di-n-butyl phthalate, bis(2-ethylhexyl) phthalate, antimony, zinc, copper, cadmium, uranium-234, and uranium-238. Those substances would be identified as potential ecological contaminants for any future site investigation or assessment activities. The ecological risk screening assessment report said that the analysis of the eastern SWMU aggregate under worst-case assumptions leads to a conclusion of potential ecological risk.

Table-1000.37.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
32-003	Former Transformer Station	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.37.2.2 Urban Influences

There are a variety of activities occurring on the mesa that may influence this Permitted Feature. Run-on controls are significant to successful management of storm water discharge at this SMA. A check dam, berms, and overall area rehabilitation are used to manage storm water discharging from this SMA.

1000.37.3 Control Measures

Run-on enters the SMA from areas north of the Permitted Feature via a natural channel flowing southeast through the area.

Subsections to 1000.37.3 list all control measures used to control pollutant sources identified in Section 1000.37.2. Control measures are shown in Table 1000.37.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.37.4.

Table 1000.37.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L017A 01 01 0007	Seed and Mulch - Seed and Wood Mulch			•		CB
L017A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L017A 03 01 0005	Berms - Earthen		•		•	CB
L017A 03 01 0008	Berms - Earthen	•			•	CB
L017A 03 12 0009	Berms - Rock	•			•	B
L017A 06 01 0006	Check Dam - Rock		•		•	CB

Western Seed and Mulch (L017A-01-01-0007)

This mulched area controls erosion straddling the LANL boundary. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L017A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (L017A-03-01-0005)

This berm is located on the mesa top near the southern boundary of SWMU 32-0003. It is used to manage run-off from the areas to the north. An earthen berm is

a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (L017A-03-01-0008)

This berm lies parallel to the LANL boundary atop mulched area -0007 and controls sediment and run-on. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berm (L017A-03-12-0009)

This rock berm is located west of Site 32-003 to control run-on and manage sediment from above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dam (L017A-06-01-0006)

The check dam is situated just north of the sampler across the main storm water drainage path. It is in place to help control run-off from the slope above and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

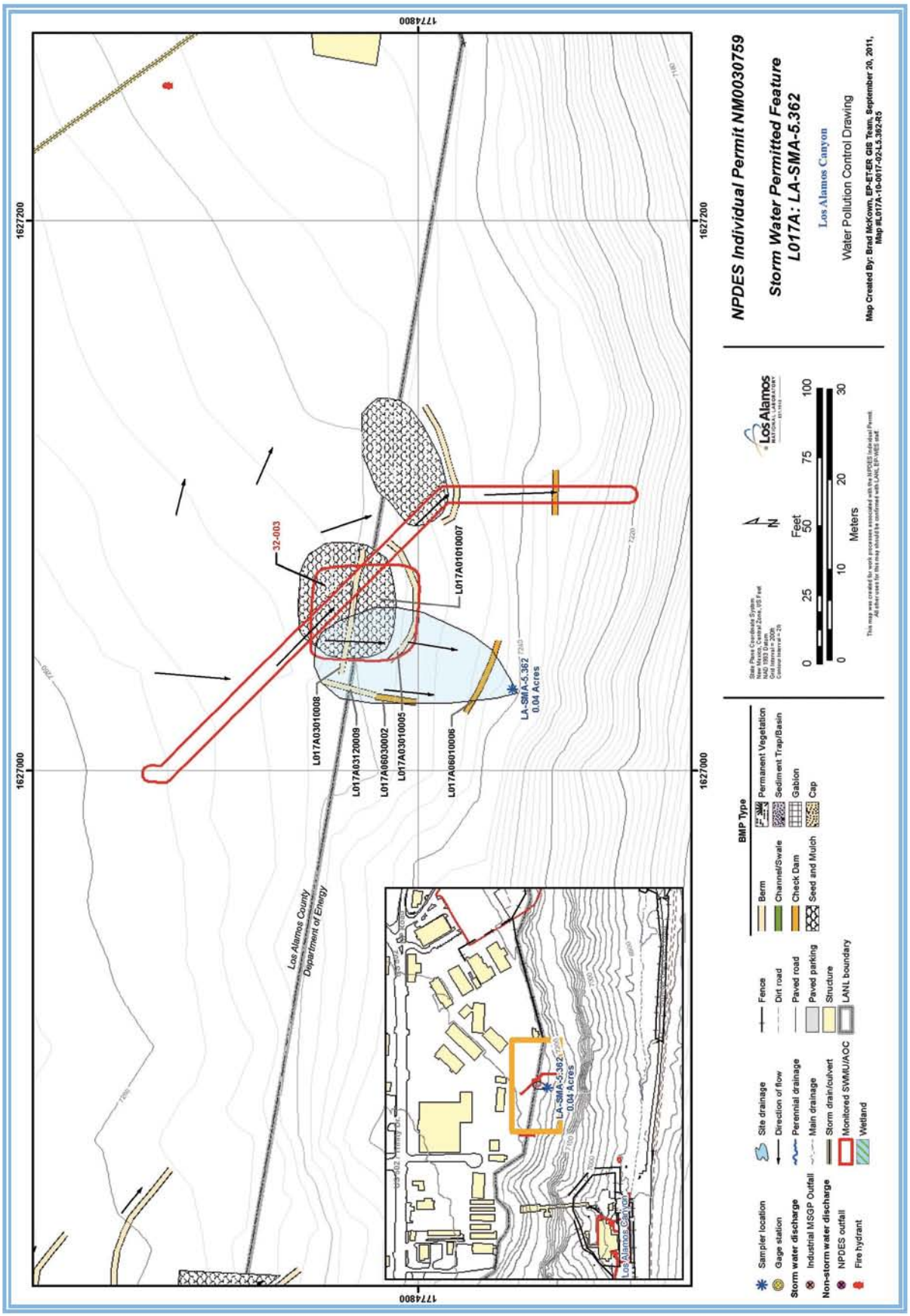
1000.37.3.2 Control Measures for Urban Influences

Table 1000.37.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L017A 06 03 0002	Check Dam - Juniper Bales	•			•	CB

Juniper Bales (L017A-06-03-0002)

These juniper bales are located on the southern boundary of the SMA, just outside the seeded and mulched area. They are in place to mitigate run-on from the paved areas northwest of the Permitted Feature. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L017A: LA-SMA-5.362
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 20, 2011,
Map #LA017A-10-0017-02-LA-5.362-R5
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
BMP Type
Berm
Permanent Vegetation
Channel/Swale
Sediment Trap/Basin
Check Dam
Gabion
Seed and Mulch
Cap
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
32-003
L017A01010007
L017A03010008
L017A03120009
L017A06030002
L017A03010005
L017A06010006
LA-SMA-5.362
0.04 Acres
Los Alamos County
Department of Energy
1627200
1627000
1774800

1000.37.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.37.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.362. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.37.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.362 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.37.5.2-1.

Table 1000.37.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13800	06-23-2011
Storm Rain Event	BMP-15873	08-03-2011
Storm Rain Event	BMP-17127	08-24-2011
Storm Rain Event	BMP-18293	09-06-2011
Storm Rain Event	BMP-18821	09-12-2011
Annual Erosion	COMP-19790	10-05-2011

1000.37.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.37.5.3-1.

Table 1000.37.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17127	Repair earthen berm -0005.	09-06-2011	13 day(s)	Maintenance conducted in timely manner.
BMP-17127	Build a rock berm and any other needed maintenance on site as discussed with Brad Schilling.	09-06-2011	13 day(s)	Maintenance conducted in timely manner.

1000.37.6 Compliance Status

The Site associated with LA-SMA-5.362 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.38 **LA-SMA-5.51**

1000.38 LA-SMA-5.51

1000.38.1 Area Description

LA-SMA-5.51 is located in a flat, previously developed area adjacent to the receiving waters. The northern boundary of the SMA is potentially influenced by paved areas on the mesa above the area. Privately-owned businesses, activities, and large paved areas are located in this area. The southern boundary of the SMA extends across the receiving waters to the mesa at TA-61. The eastern boundary of the SMA is influenced by paved areas and activities on the northern mesa-top portion of the SMA. Further south along this boundary, activities on the mesa at TA-61 may have similar influences. The western boundary of the SMA is influenced by paved areas and activities on the northern mesa-top portion of the SMA. Further south along this boundary, activities on the mesa at TA-61 may have similar influences. Storm water flows into the area from a variety of sources and the receiving waters flow through the SMA.

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

There are fourteen historical industrial activity areas associated with PF L018, LA-SMA-5.51, Sites 02-003(a), 02-003(e), 02-004(a), 02-005, 02-006(b), 02-006(c), 02-006(d), 02-006(e), 02-008(a), 02-009(b), 02-011(a), 02-011(b), 02-011(c) and 02-011(d).

AOC 02-003(a) was the site of the former stack-gas valve house (structure 02-019) and associated stainless-steel gaseous effluent vent lines (lines 117 and 118) located at TA-02. This system was associated with the WBR, a homogeneous liquid-fueled reactor fueled by enriched uranyl-salt compound. The stack-gas valve house and effluent vent lines system were installed in 1944 and received off-gas from the water boiler reactor (WBR). The stack-gas valve house was primarily aboveground and was constructed of reinforced concrete, 11 ft x 9 ft x 10 ft high, with 18-in.-thick walls. From 1944 to 1948, gaseous effluent entered the stack-gas valve house from line 117 and was directed via line 118 to the southeast. Line 118 was used as a temporary gas vent until July 1948 when the condensate trap and line 119 [AOC 02-003(b)] became operational. Line 118 was left in place from 1948 until its removal in 1985. Line 117 and the stack-gas valve house remained in used until 1974 when they became inactive and were removed and disposed of during D&D efforts in 1985.

AOC 02-003(e) is the location of a former 800-L stainless-steel holding tank (structure 02-062), installed in approximately 1944, and associated with operation of the Water Boiler Reactor. The holding tank was adjacent to the stack-gas valve house [structure 02-019 and AOC 02-003(a)] and was designed to collect WBR cooling water in the event of a cooling coil breach.

The WBR holding tank was installed in approximately 1944 and remained on standby until 1974 when the WBR was placed in safe-shutdown mode. The holding tank was removed and disposed of during D&D activities in 1985. During D&D, the tank showed no sign of having been used. However, reports of a 'surge tank' overflowing indicate that the original tank may have been replaced during its active life.

AOC 02-004(a) is the former Omega West Reactor (OWR) building (structure 02-001). The building housed the OWR, the OWR fuel-handling area, the OWR cooling-liquid recirculating piping, OWR gaseous effluent vent line, the OWR material storage area, and the WBR. To facilitate descriptions, AOC 02-004(a) is grouped into the following areas:

- Omega West Reactor, fuel-handling area, cooling-liquid recirculating piping, and gaseous effluent vent line
- Omega West Reactor material storage area
- Water Boiler Reactor, Omega West

Reactor, Fuel-Handling Area, Cooling-Liquid Recirculating Piping, and Gaseous Effluent Vent Line

A 25-kW fast-neutron research reactor, Clementine, was located in the western third of building 02-001. The reactor was self-contained and operated from 1946 to 1953. Clementine was the precursor to the OWR and was dismantled in 1954.

The OWR was built above the former Clementine site in the western third of building 02-001. The OWR was an 8-MW water-cooled tank-type research reactor fueled by solid enriched uranium. The OWR was put online in 1956 and operated until it was put on standby status in 1993. The reactor remained inactive until it was decommissioned, removed, and disposed of in 2003.

The OWR operated with a recirculating cooling-liquid system that consisted of a series of closed-loop pipes in a 100-ft-long corridor that extended from the OWR west to the reactor equipment building [building 02-044, AOC 02-004(f)]. The water was routed through pumps, filters, and chillers in the reactor equipment building and back to the reactor. The cooling tower (structure 02-049) was added in 1959 to supplement the building 02-044 chillers in this closed system. The recirculating system was active from 1956 to 1993, when it was put on standby status during the OWR shutdown. Off-gas from the OWR was routed through the gaseous effluent vent line, which teed off of the piping corridor between the OWR and OWR equipment building (building 02-044), as shown in engineering drawing C-10473 to a connection into line 119 on the east side of TA-02, where the effluent continued up to the mesa-top stack [structure 02-009, SWMU 02-006(a)].

Omega West Reactor Material Storage Area

Operation of the OWR included the temporary storage of material (isotope columns, through-put port metal sleeves, etc.) that had become activated during contact in the reactor neutron flux field. The contaminated material was stored adjacent to the guard quarters (building 02-004), located south of the reactor, awaiting final disposition. The material storage area may have been used as early as 1958, when the OWR building was originally constructed and was removed in 2000.

Water Boiler Reactor

The Water Boiler Reactor (WBR) was the name used for a series of three small research reactors, low power (LOPO), high power (HYPO), and super power (SUPO), located in the eastern third of the OWR building (02-001). The reactors, each progressively stronger in power output, were filled with liquid fuel, and surrounded by neutron-reflecting blocks sitting on a graphite base. The LOPO reactor became functional in May 1944 and was dismantled, removed, and disposed of in September 1944. The HYPO reactor became operational in December 1944 and was later upgraded to SUPO, which became operational in 1951. The SUPO was decommissioned, removed, and disposed of in 1990.

The reactors were surrounded by a 15-ft x 15-ft x 11-ft concrete shield. A shallow sand pit and a utility trench beneath the reactor collected liquids and condensate from reactor gases and transported them to support structures on the east side of building 02-001 . External structures and underground piping associated with the gaseous effluent vent line system were removed and disposed of in 1986. Six concrete structures were dismantled, and 435 ft of contaminated underground piping was removed and disposed of during D&D activities. Cesium-137 contamination was found in the OWR building near the sand pit and utility trench during D&D activities. The soil was removed and disposed of during D&D activities.

SWMU 02-005 is an area affected

by drift loss of potassium dichromate from the Omega West Reactor cooling tower (structure 02-49) from 1957 to the mid-1970s. Potassium dichromate was added to the cooling water to prevent corrosion of aluminum heat exchangers. Deposition from drift loss occurred mainly to areas north and east of the Omega West Reactor building (Building 02-1) because of the northeasterly wind direction that prevails in that part of Los Alamos Canyon. Potassium dichromate use was discontinued in the mid-1970s when the aluminum heat exchangers were replaced by stainless steel heat exchangers.

The ER Project conducted an RFI at SWMU 02-005 in 1995 but no report was issued. Field-screening results showed no detectable concentrations of organic chemicals and no alpha activity above instrument background. Dose rates also were below instrument background. Beta/gamma activity was slightly above instrument background. In all, 14 RFI samples were collected. The samples were submitted for laboratory analysis of inorganic chemicals and radionuclides.

SWMU 02-006(b) is a former acid waste line that transported effluent from several laboratories in the TA-02 Omega West Reactor building (Building 2-1). The line consisted of a four inch Duriron pipe with Oakum fittings and lead joints. The effluent discharged to Los Alamos Creek. The acid waste line was taken out of service more than 30 years ago. Most of the acid waste line was subsequently removed, with only a three foot long section of the pipe remaining. The remainder was removed during 2003 D&D activities. Excavation was backfilled to original grade.

AOC 02-006(c) is a combined drain-line connected to the chemical room in the Omega West Reactor building (Building 02-01) and several laboratories at 02-01. Drain-line effluent reportedly discharged to Los Alamos Creek; however, engineering drawing C-1750 show the drain-line discharging to a disposal unit. The OU 1098 work plan stated that the lines probably drained to the then current septic system (02-43). The 1993 Wastewater Stream Characterization for TA-02 states the line flows to a lift station which pumps the sewage up to the TA-03 sanitary waste collection system.

The ER Project has conducted no RFI sampling at AOC 02-006(c).

AOC 02-006(d) is a drain-line that received effluent from the Building 02-1 reactor control room air conditioner, sink, backflow preventer valve, and water fountain. According to the 1990 SWMU report, the drain-line discharged to Los Alamos Creek. The outlet for the drain-line is not shown on engineering drawings, and the exact location of the drain-line was not determined. The OU 1098 work plan stated that this AOC would not be sampled because the exact location of the drain is unknown and there was no evidence of a discharge outlet to Los Alamos Creek from the vicinity of the room where the drain was reportedly located.

AOC 02-006(e) is a sump (structure 02-26) that received effluent from Building 02-1 reactor room floor drains and mezzanine discharge. The sump overflowed into Los Alamos Creek. Several small spills of primary cooling water are reported to have occurred when hatches to the reactor tank were opened and condensed reactor water spilled onto the top of the reactor tank and through the AOC 02-006(e) drain. Suspect contaminants are long-lived fission products.

The ER Project conducted RFI sampling at AOC 02-006(e) in 1995 but did not document the investigation in a written report. One sample was collected and submitted for laboratory analysis of inorganic chemicals and radionuclides. Additional sampling was conducted at AOC 02-006(e) during 2000 as part of the post-Cerro Grande Fire recovery. Samples were collected from two

locations at the site. Surface samples were collected at both locations and a subsurface sample was collected at a depth of approximately two feet from one location. Problems with sampling equipment prevented collection of subsurface samples at both locations. All samples were submitted for laboratory analysis for inorganic chemicals, radionuclides, and organic chemicals.

SWMU 02-008(a) is an outfall, which discharged blowdown from the TA-02 Omega West Reactor cooling tower (structure 02-49) to Los Alamos Creek. This outfall is a formerly NPDES permitted outfall. The cooling tower was built in 1957 and periodically discharged blowdown to the creek until 1963, when the liquid waste storage system was added to the Omega West Reactor process. Until the mid-1970s, potassium dichromate routinely was added to the cooling water to prevent corrosion of the aluminum heat exchangers. The cooling tower underwent D&D in June 2000 and was removed.

SWMU 02-009(b) is an area of radioactive soil contamination located north of the former stack-gas valve house (structure 02-019) and the east bridge at TA-02. This area was used for truck staging during the D&D of the Water Boiler Reactor. A survey of the area at the time of D&D identified detectable beta/gamma activity. A small amount of soil was removed from the site and disposed of as part of the D&D activities.

AOC 02-011(a) consists of 11 drain segments and associated outfall areas across TA-02. These individual segments drain either directly or indirectly to Los Alamos Creek. The AOC 02-011(a) storm drains approximately date from the time of construction of the reactor building in 1944. The drains near the operational areas of the reactor received effluent until the 2003 D&D of the OWR facility, although the reactor was inactive from 1993 to 2003. Several of the drains were removed in either the 2000 or 2003 D&D activities, but five of the drains, or some portion of them, remain in place.

The stormdrain segments consist of:

- An approximately 50-ft-long concrete storm drain (also described as a concrete flume), located northwest of the OWR building that drained into a drop inlet/catch basin (structure 02-36), as shown in engineering drawing R-5102, sheet 2 of 2. Available information indicates that the drain handled only stormwater.
- A 24-in.-diameter, 8-ft-long underground corrugated metal pipe (CMP) between catch basin 02-036 and catch basin 02-027, as shown in engineering drawing R-5102, sheet 2 of 2. Available information indicates that the drain handled only stormwater.
- An 85 ft-long concrete storm drain (e.g., concrete flume) located northwest of the OWR building (02-001) that drained into catch basin 02-027, as shown in engineering drawing R-5102, sheet 2 of 2 The drain was reportedly used periodically for discharge of water from the fuel transfer pit.
- A 15-in.-diameter, 15-ft-long concrete storm drain west of the OWR building that drained into catch basin 02-028, as shown in engineering drawing R-5102, sheet 2 of 2. Available information indicates that the drain handled only stormwater.
- A 24-in.-diameter, 30-ft-long concrete storm drain between catch basins 02-027 and 02-028, as shown in engineering drawing R-5102, sheet 2 of 2. This drain may have handled the fuel transfer pit water coming from the concrete flume, with associated contaminated aluminum shards.
- A 30-in.-diameter, 75-ft-long CMP between a catch basin (structure 02-028) and Los Alamos Creek, as shown in engineering drawing R-5102, sheet 2 of 2. This drain may have handled the fuel transfer pit water coming from the concrete flume, with associated

contaminated aluminum shards.
- A 6-in.-diameter, 18-ft-long pipe between OWR building and the salvage basin (structure 02-026) and Los Alamos Creek.
- An 18-in.-diameter, 75-ft-long CMP between the OWR building catch basin (unnumbered structure within building 02-001) and Los Alamos Creek, as shown in engineering drawing C-1699 There is no information that this drain handled anything but stormwater runoff.
- A 3-in.-diameter, 75-ft-long pipe between the OWR building and the outfall to Los Alamos Creek. Wastewater system design memoranda indicate that floor drains from the eastern side of the WBR area drained to this outfall before 1990.
- A 12-in.-diameter, 30-ft--long storm drain northeast of the OWR building that discharged to Los Alamos Creek through a series of concrete ditches and CMP along the east side of the OWR building, as shown in engineering drawing C-1718. The total length of the drain and ditches to Los Alamos Creek is approximately 130 ft. The drains and concrete ditches remained in place until they were removed during D&D activities in 2003. There is no information that this drain handled anything but stormwater.
- A 4-in.-diameter, 95-ft-long pipe between the OWR building and Los Alamos Creek.

AOC 02-011(b) consists of two former drains associated with former Building 02-19, the stack-gas valve house and the associated potential soil contamination. One drain was a 9 ft long x 15 in. diameter CMP between former Building 02-19 and a former drainage basin (structure 02-35), and the second drain was a 9 ft long x 24 in. diameter CMP from former structure 02-35 that drained outside the east fence. Suspect contaminants at the drains would have come from operations of the Clementine Reactor (no associated SWMUs or AOCs) and from the former Water Boiler Reactor.

The ER Project conducted an RFI in 1995 at AOC 02-011(b) in conjunction with an RFI at 02-008(c). Samples were submitted for analysis of inorganic chemicals and radionuclides.

Additional sampling was conducted at AOC 02-011(b) in 2000 as part of the post-Cerro Grande Fire recovery. A single borehole was drilled at the site to the soil/bedrock interface and samples were collected at the surface, immediately above bedrock, and at three intermediate depths, for a total of five samples. All samples were submitted for laboratory analysis for radionuclides.

AOC 02-011(c) is a storm drain associated with a reactor facility equipment building [AOC 02-004(f)], Building 02-44. The drain-line is a four inch diameter VCP that is approximately 12 feet long, and it drains outside the west fence.

The ER Project will conducted sampling at this AOC when Building 02-44 undergoes D&D.

AOC 02-011(d) is a former NPDES permitted outfall that discharged effluent from the reactor facility equipment building [AOC 02-004(f)], Building 02-44. Discharge was composed of primary cooling water from an ion-exchange system. Primary cooling water was circulated in the ion-exchange system to remove contaminants. Periodically, flushing clean city water through them would regenerate the ion-exchangers. Before 1963, effluent discharged directly to Los Alamos Creek. From 1963 to 1968, the effluent was held in three 1200 gallon storage tanks [AOCs 02-004(b,c, and d)] until short-lived radionuclides decayed or were diluted to a safe level before being discharged to the creek. After 1968, effluent was transferred to the three 1200 gallon tanks and then was transported to TA-50 for disposal. From 1957 to 1963, periodic sampling

of the groundwater and creek water from monitoring points below the site showed no detectable increase in activity levels. AOC 02-011(d) was removed from the NPDES permit effective July 11, 1995. This outfall's location was incorrectly identified in the RFI work plan as discharging from AOC 02-011(c), west of Building 02-44. This outfall's location is south of Building 02-44.

The ER Project conducted an RFI at AOC 02-011(d) in 1995, but the investigation was not documented in a written report. Five samples were collected and submitted for analysis for inorganic chemicals and radionuclides.

Additional sampling was conducted at AOC 02-011(d) in 2000 as part of the post-Cerro Grande Fire recovery. Two surface samples, plus one field duplicate, were collected near the outfall. These samples were submitted for laboratory analysis for radionuclides.

Table-1000.38.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
02-003(a)	Soil contamination associated with former valve house and gaseous effluent line	Co-located, Overlapping	Shared	•	•	•	PCBs
02-003(e)	Soil contamination associated with former holding tank (near water boiler reactor)	Co-located, Overlapping	Shared	•	•	•	PCBs
02-004(a)	Former Omega West reactor facility	Co-located, Overlapping	Shared	•	•	•	PCBs
02-005	Soil contamination from Drift loss, cooling tower blowdown	Co-located, Overlapping	Shared	•	•	•	PCBs
02-006(b)	Former Acid waste line	Co-located, Overlapping	Shared	•	•	•	PCBs
02-006(c)	Former Drainline	Co-located, Overlapping	Shared	•	•	•	PCBs

Table-1000.38.2.1 Historical Industrial Areas within the Permitted Feature (Continued)

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
02-006(d)	Drainline	Co-located, Overlapping	Shared	•	•	•	PCBs
02-006(e)	Former sump	Co-located, Overlapping	Shared	•	•	•	PCBs
02-008(a)	Outfall from Structure 02-49	Co-located, Overlapping	Shared	•	•	•	PCBs
02-009(b)	Soil contamination associated with former water boiler reactor	Co-located, Overlapping	Shared	•	•	•	PCBs
02-011(a)	Storm drains associated with former Building 2-1	Co-located, Overlapping	Shared	•	•	•	PCBs
02-011(b)	Former drains	Co-located, Overlapping	Shared	•	•	•	PCBs
02-011(c)	Storm drain	Co-located, Overlapping	Shared	•	•	•	PCBs
02-011(d)	Outfall from Building 2-44	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are areas of residual contamination related to operations at the former Omega West Reactor facility. The facility underwent extensive remediation, concluding with the decontamination and decommissioning of all remaining structures in 2003. Because the Sites share a common drainage, and have similar contaminants, they will discharge substantially identical effluent.

Two concrete surface-water flumes (approximately 50 feet and 80 feet long), their associated catch basins (structures 02-0027 and 02-0036), the main paved road, two bridges, and Los Alamos Creek's northern retaining wall adjacent to the former facility are the only remaining surface structures at the site.

The site is accessible by a paved road from the west but is protected by a locked gate. An unpaved road extends from the perimeter fence eastward through Los Alamos Canyon and is also protected by a locked gate. No subsurface man-made structures are known to exist at TA-02. Some portions of the few remaining above ground structures may extend a few feet below grade.

1000.38.2.2 Urban Influences

The SMA boundaries for this Permitted Feature are quite large and encompass mesa top contribution on both the northern and southern boundaries.

1000.38.3 Control Measures

Potential run-on may enter this Permitted Feature via the dirt access road or from the slope above, to the north.

Subsections to 1000.38.3 list all control measures used to control pollutant sources identified in Section 1000.38.2. Control measures are shown in Table 1000.38.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.38.4.

1000.38.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.38.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L018 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
L018 02 02 0005	Established Vegetation - Forested/ Needle Cast			•		CB
L018 03 01 0006	Berms - Earthen	•			•	CB
L018 03 01 0007	Berms - Earthen		•		•	CB
L018 03 01 0008	Berms - Earthen		•		•	CB
L018 07 01 0003	Gabions - Gabions		•	•		CB

Established Vegetation (L018-02-01-0002, -02-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Western Berm
(L018-03-01-0006)
This berm lies perpendicular to berm -0007 in the western area of the site drainage in order to control run-on and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

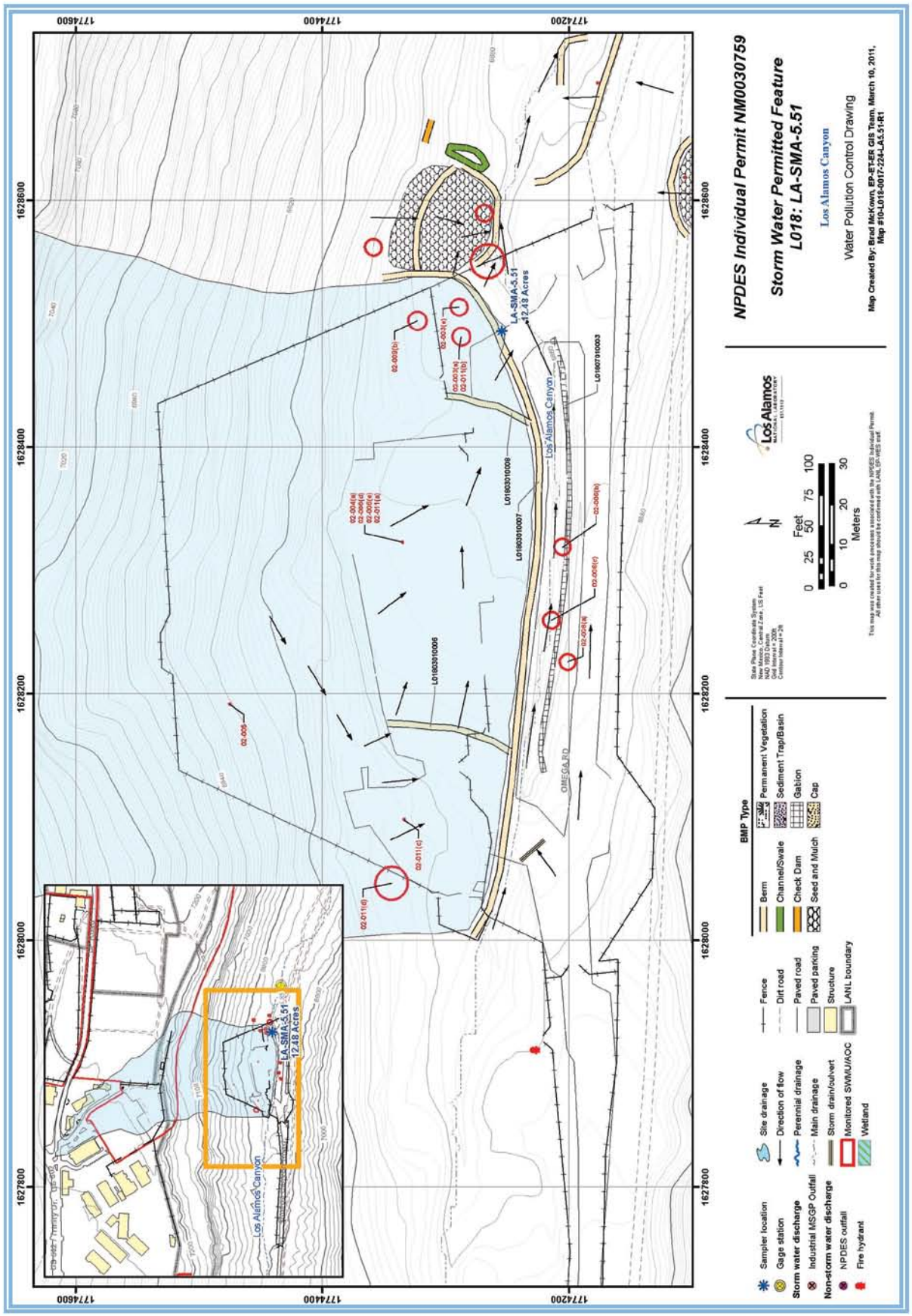
Long Berms
(L018-03-01-0007, -0008)
This berm lies parallel to Omega Road at the southern edge of the site drainage along with perpendicular berm -0008 in order to mitigate run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Gabions
(L018-07-01-0003)
Gabions are placed along the southern edge of the SMA along the stream channel passing south of the SMA. They serve to stabilize the stream channel preventing erosion from area run-off. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.38.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L018, LA-SMA-5.51. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.38.4 Project Map



1000.38.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.38.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.51. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.38.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.51 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.38.5.2-1.

Table 1000.38.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13788	07-12-2011
Storm Rain Event	BMP-15868	08-05-2011
Storm Rain Event	BMP-17122	08-23-2011
Storm Rain Event	BMP-18288	09-07-2011
Storm Rain Event	BMP-18816	09-12-2011
Annual Erosion	COMP-19791	09-30-2011

1000.38.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.51.

1000.38.6 Compliance Status

The Sites associated with LA-SMA-5.51 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.39 **LA-SMA-5.52**

1000.39.1 Area Description

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

1000.39.2.2 Urban Influences

1000.39.3 Control Measures

1000.39.4 Project Map

1000.39.5 Storm Water Monitoring Plan and Schedule

1000.39.5.1 Initial Confirmation Monitoring

1000.39.5.2 Inspection Activity

1000.39.5.3 Maintenance

1000.39.6 Compliance Status

1000.39 LA-SMA-5.52

1000.39.1 Area Description

LA-SMA-5.52 is located in a flat, previously developed area adjacent to the receiving waters of Los Alamos Canyon. The northern boundary of the SMA is potentially influenced by paved areas on the mesa above the area. Privately-owned businesses, activities, and large paved areas are located in this area. The southern boundary of the SMA extends to the receiving waters. The eastern and western boundaries of the SMA may be influenced by paved areas and activities on the northern mesa-top portion of the SMA. Further south along these boundaries, the terrain is undeveloped. Storm water flows north to south across the area.

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF L018A, LA-SMA-5.52, Sites 02-003(b), 02-007 and 02-008(c).

AOC 02-003(b) consists of the former location of a 205 foot section of a three inch stainless steel gas line (line 119) and a condensate trap (structure 02-48). The condensate trap consisted of a concrete manhole superstructure and a small-diameter standpipe that intersected line 119 at its low point between structure 02-19 [AOC 02-003(a)] and its junction with the Omega West Reactor vent line. AOC 02-003(b) structures were used to carry gaseous effluent from structure 02-19 to the intersection with the Omega West Reactor vent line. Structure 02-19 was the stack-gas valve house and associated four inch cast iron effluent line (line 117) that was part of the gaseous effluent system associated with the Water Boiler Reactor. Off-gases from the Water Boiler Reactor contained low levels of cesium-137, iodine-131, technetium-99, and strontium-90. On a quarterly basis, through 1961, the condensate trap was cleaned. Material from the trap was disposed of on the alluvium in Los Alamos Canyon. Average activity of the material was 12 microcuries of cesium-137 and iodine-131. The gas line and condensate trap underwent D&D in 1986. Soil beneath the structures was excavated when cesium-137 contamination was detected during D&D. Radioactivity measuring about 1000 pCi/g was left at a depth of five feet and then covered with seven feet of clean fill.

AOC 02-003(b) was sampled in 1995 with former SWMU 02-009(c) (consolidated into SWMU 02-007-00). Thirty-six samples were collected for the 1995 RFI and were analyzed for inorganic chemicals, organic chemicals, and radionuclides.

SWMU 02-007 is a former septic tank (structure 02-043) and outfall located at TA-02. The septic tank was constructed of reinforced concrete and measured 13 ft long x 8 ft wide x 6 ft deep. The septic tank received effluent from laboratory sink drains in the OWR facility (building 02-001). The septic tank was installed in 1944. In 1947, the chemical waste shack (building 02-003, AOC 02-010) was connected to the septic system, and remained connected until the chemical waste shack was decommissioned in 1971. Overflow from the tank discharged to Los Alamos Creek through a 6-in.-diameter VCP. However, the exact location of the outfall discharge is not known. The septic tank, overflow outfall, and surrounding soils were removed and disposed of in 1986.

AOC 02-008(c) is the location of two former outfall discharge points and associated drainpipes located at TA-02. In 1985, the easternmost drainpipe was installed to discharge groundwater seepage from the OWR building 02-001 basement sump to Los Alamos Creek. 1988, this drainpipe was plugged, left in place, and replaced with drainpipe that was installed approximately 100 ft west of the original drainpipe location. The second drainpipe also discharged groundwater seepage from the OWR

basement sump to Los Alamos Creek. Both drainpipes were removed and disposed of during D&D activities in 2003.

Table-1000.39.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
02-003(b)	Soil contamination associated with former condensate trap	Co-located, Overlapping	Shared	•	•	•	PCBs
02-007	Soil contamination from former septic system	Co-located, Overlapping	Shared	•	•	•	PCBs
02-008(c)	Outfall from Building 2-1	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Sites grouped within this SMA are areas of residual contamination related to operations at the former Omega West Reactor facility. The facility underwent extensive remediation, concluding with the decontamination and decommissioning of all remaining structures in 2003. Because the Sites share a common drainage, and have similar contaminants, they will discharge substantially identical effluent.

Two concrete surface-water flumes (approximately 50 feet and 80 feet long), their associated catch basins (structures 02-0027 and 02-0036), the main paved road, two bridges, and Los Alamos Creek's northern retaining wall adjacent to the former facility are the only remaining surface structures at the site.

The site is accessible by a paved road from the west but is protected by a locked gate. An unpaved road extends from the perimeter fence eastward through Los Alamos Canyon and is also protected by a locked gate. No subsurface man-made structures are known to exist at TA-02. Some portions of the few remaining above ground structures may extend a few feet below grade.

1000.39.2.2 Urban Influences

The SMA boundaries for this Permitted Feature are quite large and encompass mesa top contribution on the northern boundary.

1000.39.3 Control Measures

Potential run-on may enter this Permitted Feature via the dirt access road or from the slope above, to the north.

Subsections to 1000.39.3 list all control measures used to control pollutant sources identified in Section 1000.39.2. Control measures are shown in Table 1000.39.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional

baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.39.4.

1000.39.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.39.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L018A 01 01 0006	Seed and Mulch Seed and Wood Mulch			•		CB
L018A 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
L018A 03 01 0003	Berms Earth	•			•	CB
L018A 03 01 0004	Berms Earth		•		•	CB
L018A 04 06 0005	Channel/Swale Rip Rap	•		•		CB
L018A 06 01 0002	Check Dam Rock	•			•	CB

Seed and Wood Mulch (L018A-01-01-0006)

Seed and mulch has been applied across the southern portion of the SMA near the sampler. It is used to help control erosion. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L018A-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - North
(L018A-03-01-0003)
This berm is located north of the sampler spanning the width of the SMA footprint. It is in place to help control run-on from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

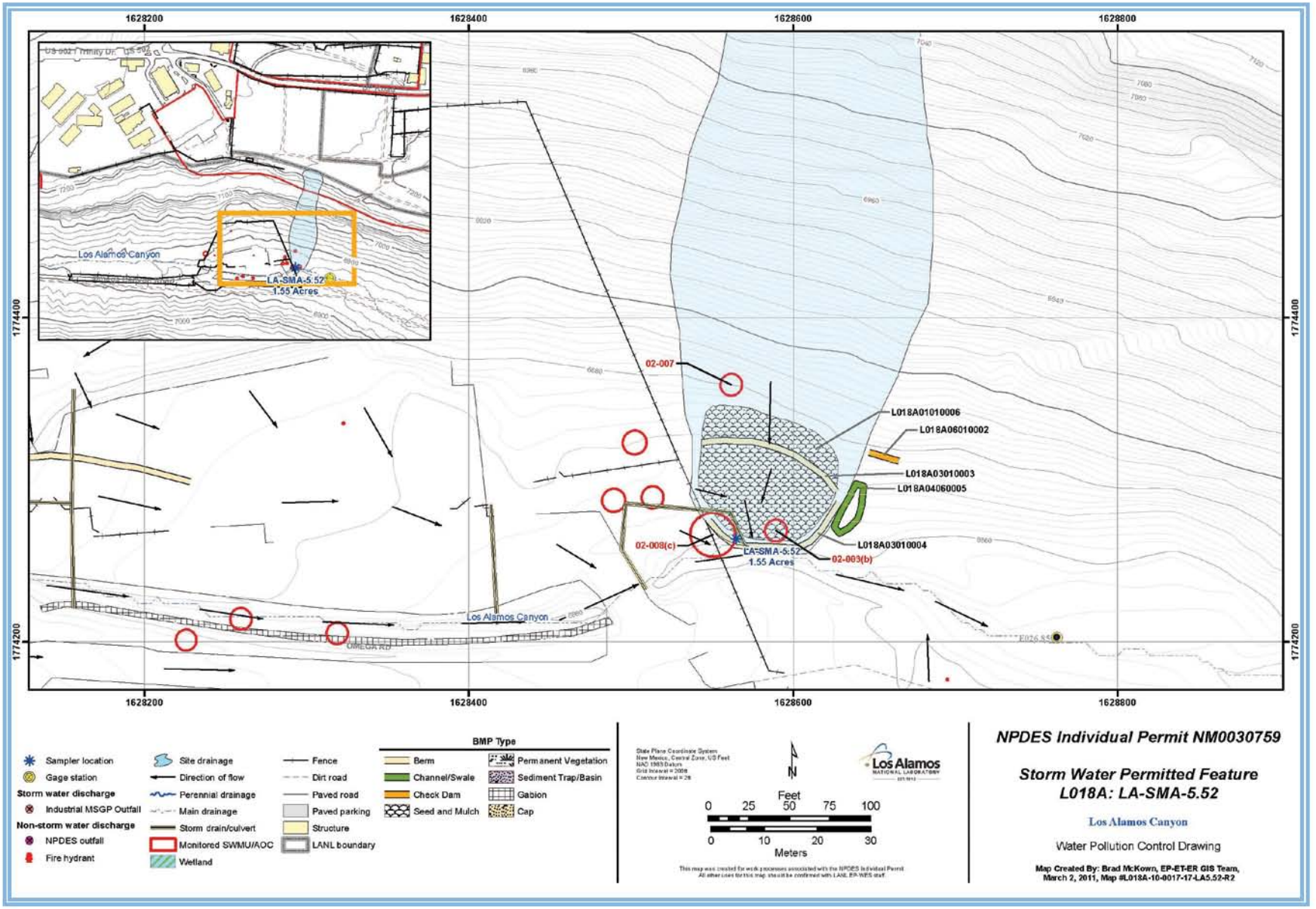
Earthen Berm - South
(L018A-03-01-0004)
This berm is located south of the sampler along the SMA boundary. It is in place to mitigate run-off from the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rip Rap
(L018A-04-06-0005)
The rip rap is located east of the SMA south of the check dam. It is used to help control run-on and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam
(L018A-06-01-0002)
This check dam is located east of the SMA and is in place to help control run-on to the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.39.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L018A, LA-SMA-5.52. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.


1628200
1628400
1628600
1628800
1774400
1774200
Los Alamos Canyon
LA-SMA-5.52
1.55 Acres
02-007
L018A01010006
L018A06010002
L018A03010003
L018A04060005
L018A03010004
02-008(c)
02-003(b)
OMEGA RD
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
0 10 20 30
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L018A: LA-SMA-5.52
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 2, 2011, Map #L018A-10-0017-17-LA5.52-R2

1000.39.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.39.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.52. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.39.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.52 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.39.5.2-1.

Table 1000.39.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13789	07-12-2011
Storm Rain Event	BMP-15869	08-05-2011
Storm Rain Event	BMP-17123	08-23-2011
Storm Rain Event	BMP-18289	09-07-2011
Storm Rain Event	BMP-18817	09-12-2011
Annual Erosion	COMP-19792	09-30-2011

1000.39.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.52.

1000.39.6 Compliance Status

The Sites associated with LA-SMA-5.52 are high priority Sites. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.40 LA-SMA-5.53

1000.40 LA-SMA-5.53

1000.40.1 Area Description

LA-SMA-5.53 is located in a flat, previously developed area adjacent to the receiving waters. The southern boundary of the SMA is located on the undeveloped canyon slope. The northern boundary of the SMA extends to the canyon floor, south of the unpaved access road and receiving waters.

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L018B, LA-SMA-5.53, Site 02-009(a).

SWMU 02-009(a) is an area of radioactive soil contamination at TA-02 located south of the southeastern fence corner behind building 02-050. A survey of the area at the time of the Water Boiler Reactor D&D identified above-background levels of radioactivity. A small amount of soil was removed from the site and was disposed of as part of the D&D activities.

Table-1000.40.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
02-009(a)	Soil contamination associated with former water boiler reactor	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.40.3 Control Measures

Potential run-on may enter this Permitted Feature via the unpaved access road or from the slope above, to the south.

Subsections to 1000.40.3 list all control measures used to control pollutant sources identified in Section 1000.40.2. Control measures are shown in Table 1000.40.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.40.4.

1000.40.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.40.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L018B 01 01 0003	Seed and Mulch - Seed and Wood Mulch			•		CB
L018B 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
L018B 03 01 0002	Berms - Earthen		•		•	CB
L018B 03 06 0004	Berms - Straw Wattles	•			•	CB
L018B 03 06 0005	Berms - Straw Wattles	•			•	CB
L018B 03 06 0006	Berms - Straw Wattles	•			•	CB

Seed and Mulch (L018B-01-01-0003)

This mulch is spread on a slope south of the sampler to control erosion. Wood mulching consists o applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L018B-02-02-0001)

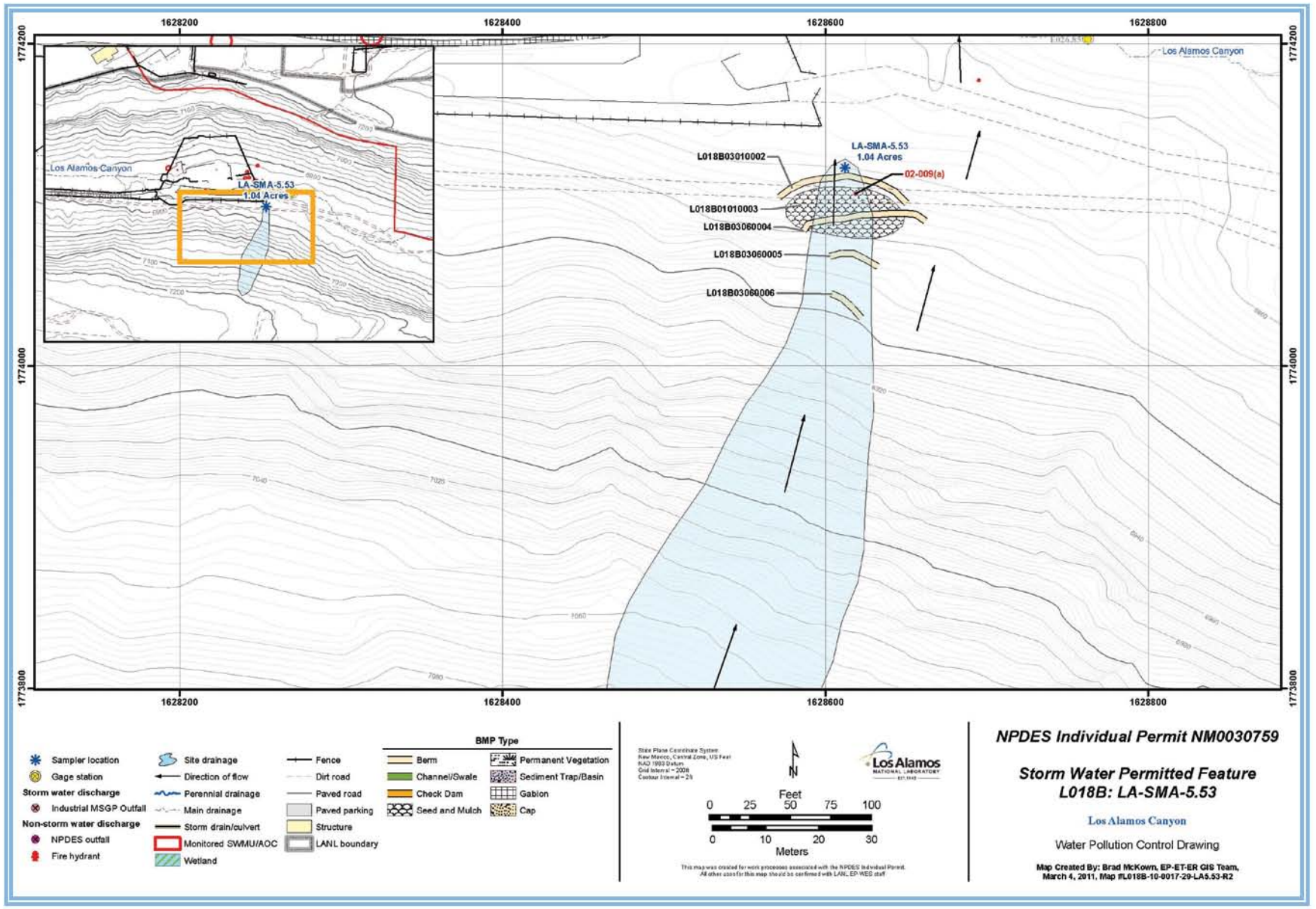
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (L018B-03-01-0002)

This berm is south of and directly up hill from the sampler in order to control run-off and sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Southern Wattles
(L018B-03-06-0004, -0005, -0006)

This group of three wattles sit on the slope south of the sampler to control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.


1628200
1628400
1628600
1628800
1774200
1774000
1773800
Los Alamos Canyon
LA-SMA-5.53
1.04 Acres
L018B03010002
02-009(a)
L018B01010003
L018B03060004
L018B03060005
L018B03060006
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
N
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L018B: LA-SMA-5.53
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
March 4, 2011, Map #L018B-10-0017-29-LA5.53-R2

1000.40.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.40.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.53. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.40.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.53 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.40.5.2-1.

Table 1000.40.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13790	07-12-2011
Storm Rain Event	BMP-15870	08-05-2011
Storm Rain Event	BMP-17124	08-23-2011
Storm Rain Event	BMP-18290	09-07-2011
Storm Rain Event	BMP-18818	09-12-2011
Annual Erosion	COMP-19793	09-30-2011

1000.40.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.53.

1000.40.6 Compliance Status

The Site associated with LA-SMA-5.53 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.41 LA-SMA-5.54

1000.41 LA-SMA-5.54

1000.41.1 Area Description

LA-SMA-5.54 is located in a flat, previously developed area adjacent to the receiving waters. The southern boundary of the SMA is located on the undeveloped canyon slope. The northern boundary of the SMA is located north of the unpaved access road, just south of the receiving waters. The unpaved access road intersects the SMA and has a higher potential for run-on contributions.

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L018C, LA-SMA-5.54, Site 02-009(c).

SWMU 02-009(c) is an area of alpha-, beta-, and gamma-emitting-radioactively contaminated soil at TA-02 located south of the condensate trap [structure 02-048, AOC 02-003(b)]. Radioactive soil contamination was identified at this area during the 1985-1986 D&D activities associated with the removal of the condensate trap. During these D&D activities, two sections of contaminated 6-in.-diameter VCP, one 34 ft long and one 20 ft long, were uncovered lying parallel to the septic tank overflow pipe at the condensate trap. The pipes were approximately 5 ft below and to either side of the septic tank overflow pipe. The pipes were present at depths of 3-8 ft bgs. All structures (pipes) and adjacent soils down to the saturated zone were removed and disposed of during the 1985-1986 D&D activities.

Table-1000.41.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
02-009(c)	Soil contamination associated with condensate trap and leach field	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.41.3 Control Measures

Potential run-on may enter this Permitted Feature from the undeveloped slope south of the SMA.

Subsections to 1000.41.3 list all control measures used to control pollutant sources identified in Section 1000.41.2. Control measures are shown in Table 1000.41.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.41.4.

Table 1000.41.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L018C 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
L018C 03 01 0002	Berms - Earthen	•			•	CB
L018C 03 06 0003	Berms - Straw Wattles		•		•	CB

Established Vegetation (L018-02-02-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

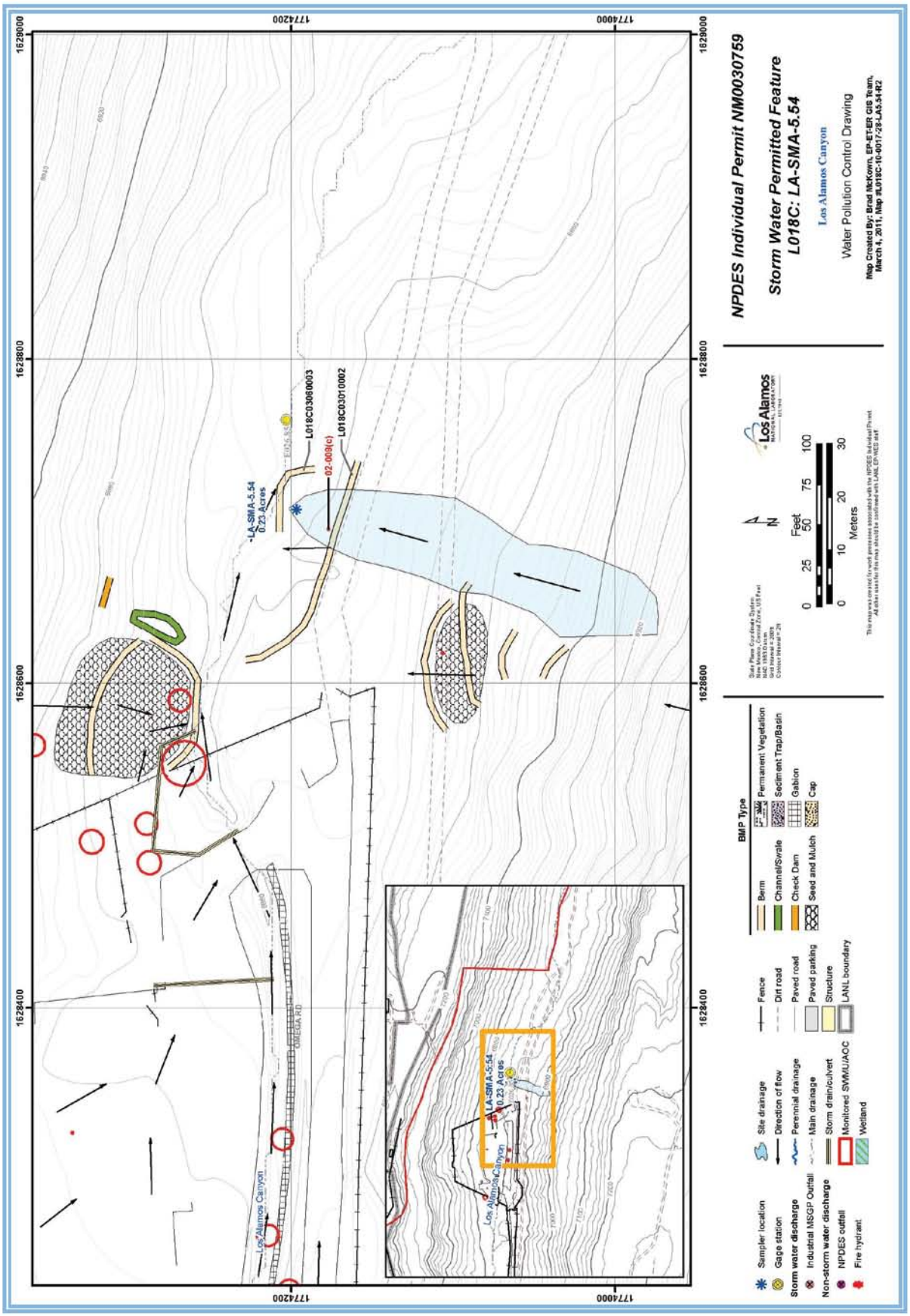
Earthen Berms (L018C-03-01-0002)

This berm lies south of the sampler across the northern portion of the site drainage. It restricts run-on and controls sediment. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Straw Wattles (L018C-03-06-0003)

These wattles lie north of the sampler outside the site drainage in order to control run-off and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.41.4 Project Map



1000.41.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.41.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.54. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.41.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.54 during the 2011 season. These rain events triggered four post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.41.5.2-1.

Table 1000.41.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13791	07-08-2011
Storm Rain Event	BMP-15871	08-05-2011
Storm Rain Event	BMP-17125	08-23-2011
Storm Rain Event	BMP-18291	09-07-2011
Storm Rain Event	BMP-18819	09-12-2011
Annual Erosion	COMP-19794	09-30-2011

1000.41.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.41.5.3-1.

Table 1000.41.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17125	Sediment and needle cast cleared from behind wattle L018C03060003, also installed 1 stake at breach point.	08-23-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18291	Maintenance conducted on straw wattles L018C03060003.	09-07-2011	0 day(s)	Maintenance conducted upon inspection.

1000.41.6 Compliance Status

The Site associated with LA-SMA-5.54 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.42 LA-SMA-5.91

1000.42.1 Area Description

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

1000.42.3 Control Measures

1000.42.4 Project Map

1000.42.5 Storm Water Monitoring Plan and Schedule

1000.42.5.1 Initial Confirmation Monitoring

1000.42.5.2 Inspection Activity

1000.42.5.3 Maintenance

1000.42.6 Compliance Status

1000.42 LA-SMA-5.91

1000.42.1 Area Description

LA-SMA-5.91 is located on DP Mesa. The northern boundary of the SMA is influenced by development, paved areas, and a paved access road. The southern boundary of the SMA drops to a bench above the receiving waters before discharging to BV Canyon. The eastern boundary of the SMA is influenced by paved areas in the headwaters. Further south, the terrain is rugged and steeply sloped. The western boundary of the SMA is influenced by paved areas in the headwaters. Further south, the terrain is rugged and steeply sloped.

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF L019, LA-SMA-5.91, Sites 21-009, 21-021, 21-023(c) and 21-027(d).

AOC 21-009 is a former waste treatment laboratory (Building 21-33) that was built in 1948 and operated until 1965. It was a wooden-frame structure with a wooden floor built on concrete pillars. The laboratory building was 16 x 48 ft with a 12 foot ceiling. Building components and laboratory furniture were contaminated with plutonium dust. Perchloric acid was used and may have contaminated the exhaust hoods. Wastewater from the laboratory was discharged to septic tank 21-33, which discharged to an outfall at the Los Alamos Canyon rim. The tank was removed during demolition of Building 21-33, however, the drain-line from the laboratory to the septic tank (21-33) may remain in place. The outfall and tank associated with this waste line were designated as AOC 21-023(c). The AOC will be investigated in conjunction with the investigation of SWMU 21-018(a)-99 (MDA V).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMUs 21-013(b), 21-018(a and b), 21-023(c) and AOC 21-013(g) are consolidated as consolidated unit 21-018(a)-99. These units are associated with MDA V, which is located on the west end of TA-21 on an 0.88 acre site. MDA V consists of three absorption beds that were used to dispose of liquid waste from a former laundry operation conducted at Building 21-20 [SWMU 21-018(b)] and for a short time waste from a waste disposal laboratory at Building 21-45 [SWMU 21-024(f)].

SWMU 21-023(c) is a former septic system (tank, drain-line, and outfall) that served the waste treatment laboratory in Building 21-33 (SWMU 21-009). The septic system included a concrete tank (structure 21-62) that measured 3.5 ft wide x 7 ft long x 5.8 ft deep and a four inch VCP drain-line. The septic system began operation in 1948. This septic system is included in this consolidated unit because it is located west of MDA V, has identical potential contaminants, and may have been impacted by overflow from the absorption beds at MDA V. The septic tank was decommissioned in 1965 when it was removed and taken to the disposal facility at MDA G. Sewage was pumped from the sump in Building 21-33 through the septic tank and was discharged about 30 feet from the canyon edge above BV Canyon, a tributary to Los Alamos Canyon.

SWMU 21-027(d) is the drain-line and outfall for the secondary containment around a former above ground fuel tank (AOC C-21-028) at TA-21. The first segment of the drain-line (approximately five feet) from the sump to a gate valve, consisted of a four inch steel pipe. At the gate valve, the drain-line changed to a four inch VCP, which was buried between the gate valve and the outfall. The outfall for the drain-line is located near the mesa edge and continues down the hillside towards BV Canyon, a tributary of Los Alamos Canyon. The VCP drain-line was removed in 1965.

Table-1000.42.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-009	Soil contamination associated with former Waste treatment laboratory	Co-located, Overlapping	Shared	•		•	
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-023(c)	Septic system	Co-located, Overlapping	Shared	•		•	
21-027(d)	Soil contamination from former drainline	Discrete Location, No overlap	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. The remaining sites in this SMA were associated with the operation of a former laundry facility or the demolition of the facility in 1965.

Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.42.2.2 Urban Influences

This SMA is located below a heavily developed area on DP Mesa. Much of the area above this SMA is impervious and activities on the mesa above may influence storm water run-on to the SMA.

1000.42.2.3 Public Influences

The northern portion of this SMA is located in a heavy traffic area of DP Mesa. Storm water is possibly entrained from many areas. The probability of actual pedestrian access to the SMA is minimal.

1000.42.3 Control Measures

Potential run-on to this Permitted Feature originates from the paved access road south of MDA B, as well as from large paved areas north and east of the SMA. Berms along the southern portion of 21-018(a) and 21-013(b) also control run-off.

Subsections to 1000.42.3 list all control measures used to control pollutant sources identified in Section 1000.42.2. Control measures are shown in Table 1000.42.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.42.4.

1000.42.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.42.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L019 01 06 0012	Seed and Mulch - Erosion Control Blankets			•		CB
L019 02 01 0006	Established Vegetation - Grasses and Shrubs			•		CB

Erosion Control Blanket (L019-01-06-0012)

The erosion control blanket is located just south of Site 21-009 and the unpaved access road. It is in place to help control erosion on the slope. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Established Vegetation (L019-02-01-0006)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

1000.42.3.2 Control Measures for Urban Influences

Table 1000.42.3-2

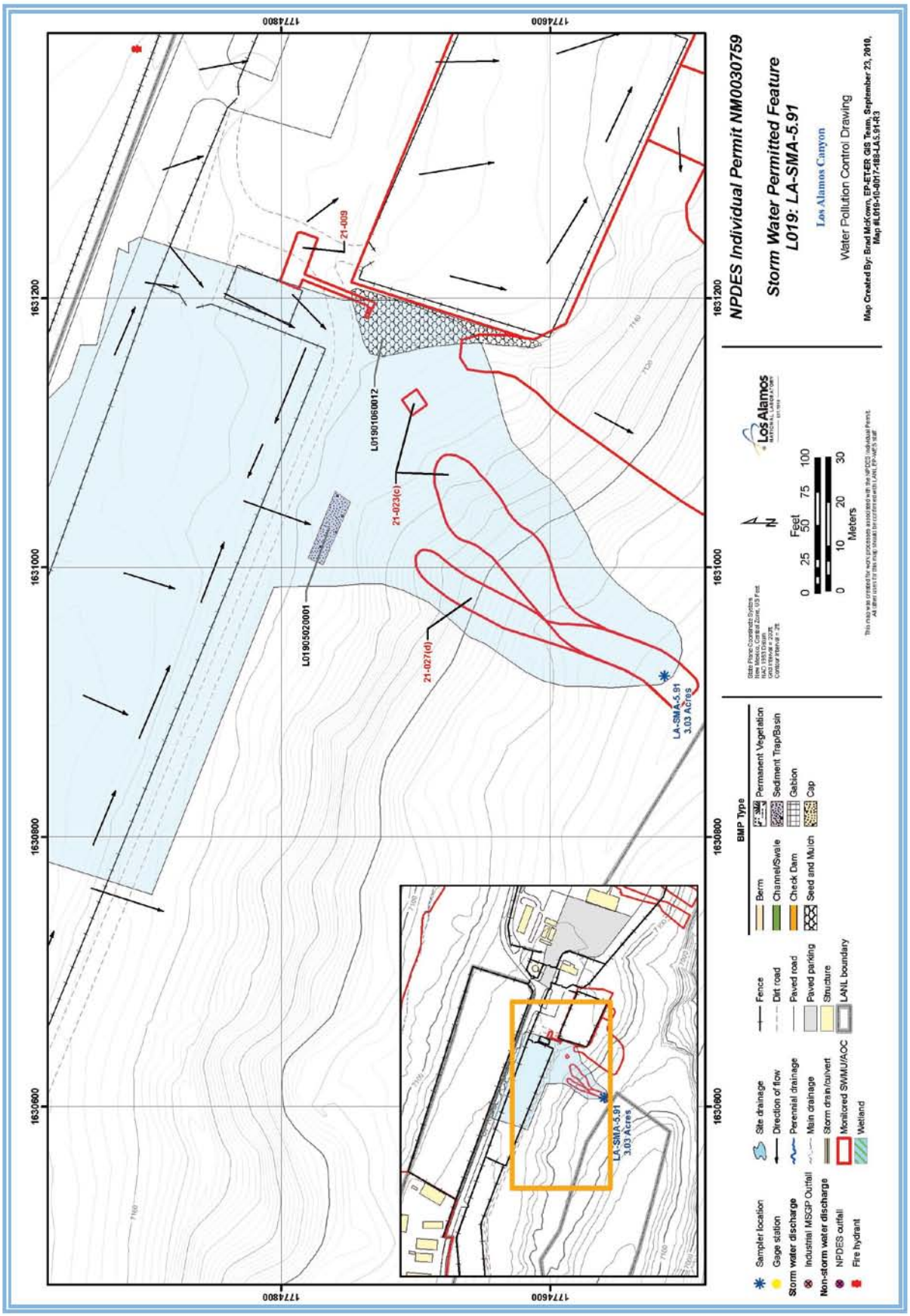
Control ID	Control Name	Purpose of Control				
		Run-On	Run-Off	Erosion	Sediment	
L019 05 02 0001	Sediment Traps and Basins - Sediment Basin	•	•		•	CB

Sediment Basin (L019-05-02-0001)

This sediment basin is located near the edge of the mesa top above Site 21-027(d). It was installed to capture sediment entrained in run-on from impervious areas above the SMA. Sediment basins are used to detain sediment and run off and release it at a reduced rate through a controlled outlet structure. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control.

1000.42.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L019, LA-SMA-5.91. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L019: LA-SMA-5.91
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKern, EP-ETER GIS Team, September 23, 2010,
Map #LA019-10-d011-488-LA-5.91-R3
L019010600012
L019050200001
21-009
21-023(e)
21-027(d)
LA-SMA-5.91
3.03 Acres
BMP Type
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Berm
Channel/Swale
Check Dam
Seed and Mulch
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Feet
Meters
1631200
1631000
1630800
1630600
1774800
1774600

1000.42.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all enhanced control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

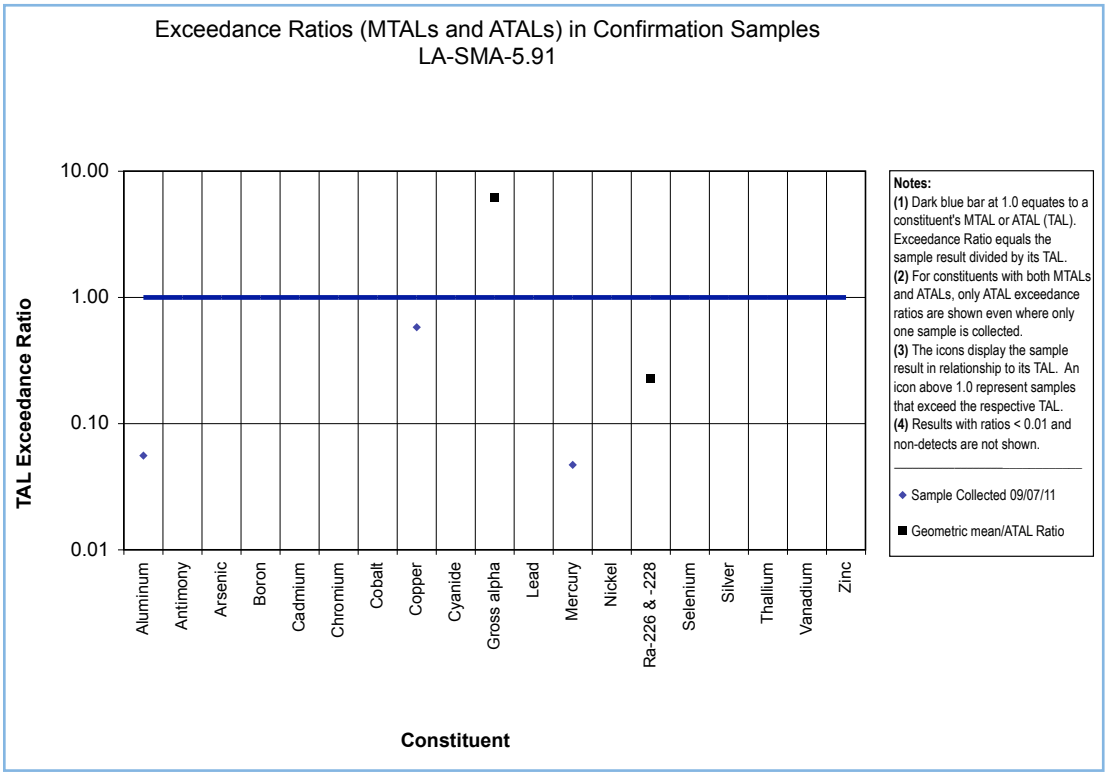
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.42.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-5.91 on September 07, 2011, completing the initial confirmation sampling requirements for the SMA.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.

Based on the analytical results from confirmation sampling conducted at this SMA, corrective actions have been initiated. The corrective plan and schedule are provided in 1000.42.5.2.



1000.42.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at LA-SMA-5.91. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.42.5.2-1.

Table 1000.42.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 FY2012		•		•

1000.42.5.3 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.91 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.42.5.2-1.

Table 1000.42.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13907	07-07-2011
Storm Rain Event	BMP-15889	08-03-2011
Storm Rain Event	BMP-17143	08-24-2011
Storm Rain Event	BMP-18309	09-09-2011
Annual Erosion	COMP-19730	10-13-2011

1000.42.5.4 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.91.

1000.42.6 Compliance Status

A Certificate of Completion was issued for Site 21-023(c) within this SMA on June 3, 2011 [NMED 2011]. The New Mexico Environment Department has determined that a corrective action complete without controls designation is appropriate for Site 21-023(c).

The Sites associated with LA-SMA-5.91 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.43 LA-SMA-5.92

1000.43 LA-SMA-5.92

1000.43.1 Area Description

LA-SMA-5.92 is located on DP Mesa. The northern boundary of the SMA is influenced by development, paved areas, and a paved access road. The southern boundary of the SMA drops to a bench above the receiving waters before discharging to BV Canyon. The eastern boundary of the SMA is influenced by paved areas in the headwaters. Further south, the terrain is rugged and steeply sloped. The western boundary of the SMA is influenced by paved areas in the headwaters. Further south, the terrain is rugged and steeply sloped.

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF L019A, LA-SMA-5.92, Sites 21-013(b), 21-013(g), 21-018(a) and 21-021.

SWMU 21-013(b) is a former surface disposal area located at TA-21 on the southern edge of DP Mesa, southwest of MDA V. This disposal area contains concrete building debris from the 1965 demolition of a waste treatment laboratory (Building 21-33). A contamination survey of the building interior prior to demolition showed that various surfaces were contaminated with plutonium dust. It is possible that interior surfaces may also have been contaminated with perchloric acid. As part of the MDA V investigation activities in 2005, the surface building debris was removed.

AOC 21-013(g) consists of building debris located at TA-21 immediately south of MDA V. The origin of the miscellaneous building debris is unknown. As part of the MDA V investigation activities in 2005, the surface debris was removed.

SWMUs 21-013(b), 21-018(a and b), 21-023(c) and AOC 21-013(g) are consolidated as consolidated unit 21-018(a)-99. These units are associated with MDA V, which is located on the west end of TA-21 on an 0.88 acre site. MDA V consists of three absorption beds that were used to dispose of liquid waste from a former laundry operation conducted at Building 21-20 [SWMU 21-018(b)] and for a short time waste from a waste disposal laboratory at Building 21-45 [SWMU 21-024(f)].

SWMU 21-018(a) consists of three cobble-and gravel-filled absorption beds with dimensions of 25 ft wide x 220 ft long x 5 to 6 ft deep. The absorption beds were in continuous use from 1945 to 1961. The average discharge rate to MDA V was 6,000 to 8,000 gallons per day. Discharged wastewater flowed into pit 1, which overflowed into pit 2 and then into pit 3. The volume of water that reached pits 2 and 3 is unknown. Historical evidence shows the beds were under designed for the volume of wastewater discharged, resulting in overflows into adjacent drainages and into BV Canyon, a tributary of Los Alamos Canyon. Absorption bed 1 was designed to also act as a grease pit. Liquid waste discharge to MDA V stopped in 1961. A soil cover was placed over the site to repair erosion damage in 1985.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.43.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-013(b)	Surface disposal site	Co-located, Overlapping	Shared	•		•	
21-013(g)	Surface disposal site	Co-located, Overlapping	Shared	•		•	
21-018(a)	Absorption Beds (MDA V)	Co-located, Overlapping	Shared	•		•	
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. The remaining sites in this SMA were associated with the operation of a former laundry facility or the demolition of the facility in 1965.

Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.43.2.2 Urban Influences

This SMA is located below a heavily developed area on DP Mesa. Much of the area above this SMA is impervious and activities on the mesa above may influence storm water run-on to the SMA.

1000.43.2.3 Public Influences

The headwaters of this SMA are in a heavy traffic area of DP Mesa. Storm water is possibly entrained from many areas. The probability of actual pedestrian access to the SMA is minimal.

1000.43.3 Control Measures

Potential run-on to this Permitted Feature originates from the base course access road south of MDA B traversing the area, as well as from large paved areas north of the SMA. Berms along the southern portion of 21-018(a) and 21-013(b) also control run-off.

Subsections to 1000.43.3 list all control measures used to control pollutant sources identified in Section 1000.43.2. Control measures are shown in Table 1000.43.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.43.4.

1000.43.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.43.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L019A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L019A 03 01 0005	Berms - Earthen	•	•		•	CB
L019A 03 03 0003	Berms - Log		•		•	CB
L019A 05 02 0006	Sediment Traps and Basins - Sediment Basin		•		•	CB

Established Vegetation (L019A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (L019A-03-01-0005)

This berm is located on the southern boundary of Site 21-018(a) and is used to divert run-on away from 21-013(b). An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Log Berm (L019A-03-03-0003)

The log berm is located just to the south of Site 21-013(b) and is used to control erosion and run-off from the Site. A log berm is a temporary containment control constructed of logs. Log berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Sediment Basin (L019A-05-02-0006)

The sediment trap is located outside of the southeast corner of the fenced area. It is used to mitigate run-off from the slope above. Sediment basins are used to detain sediment and run off and release it at a reduced rate through a controlled outlet structure. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control.

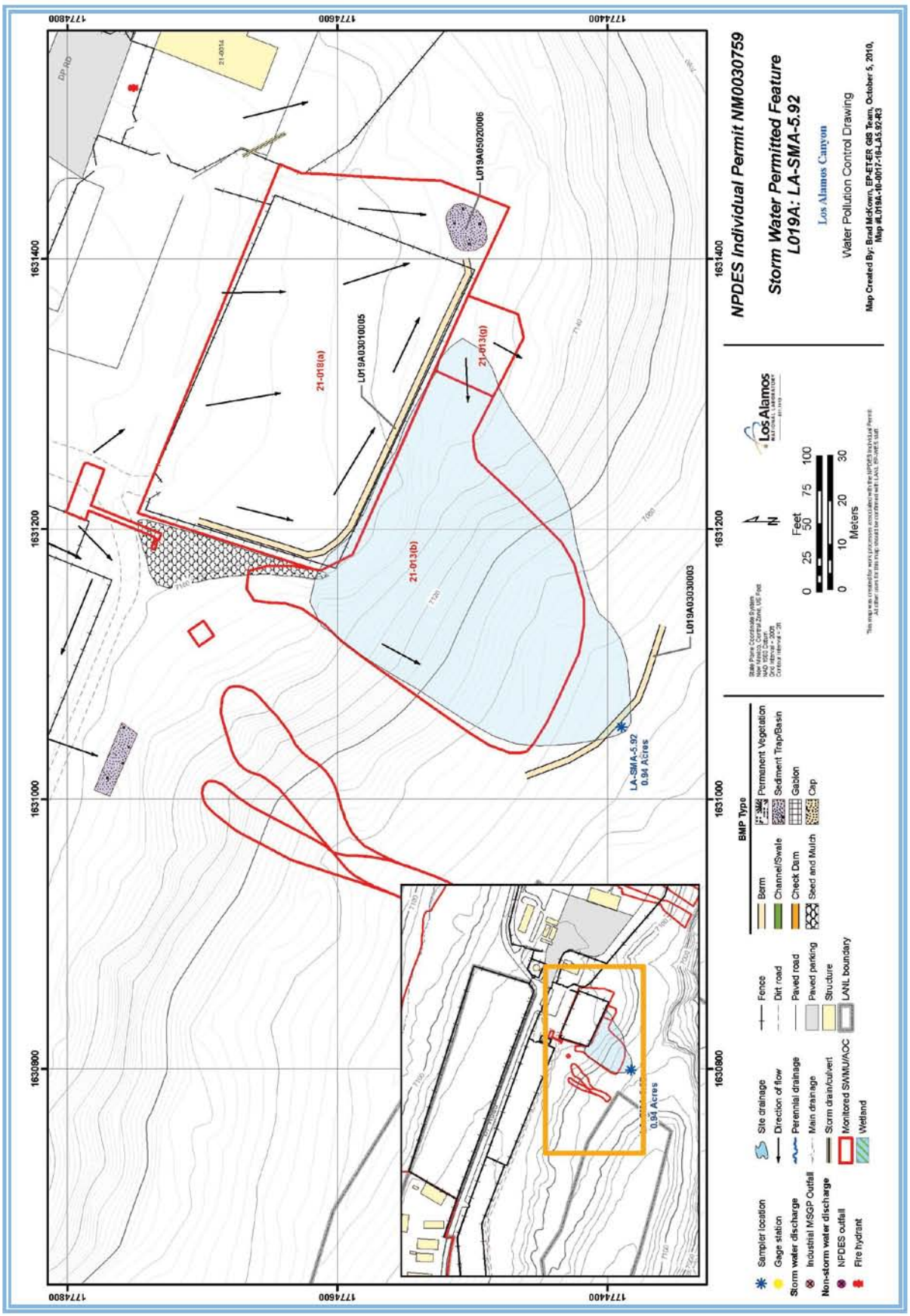
1000.43.3.2 Control Measures for Urban Influences

There are no control measures for Urban Influences at PF L019A, LA-SMA-5.92. Although the potential for urban influences at this SMA exists, no controls are necessary at this time.

1000.43.3.3 Control Measures for Public Influences

There are no control measures for public influences at PF L019A, LA-SMA-5.92. Although the potential for public influences at this SMA exists, no controls are necessary at this time.

1000.43.4 Project Map



1000.43.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

1000.43.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-5.92. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.43.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-5.92 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.43.5.2-1.

Table 1000.43.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13908	07-07-2011
Storm Rain Event	BMP-15890	08-03-2011
Storm Rain Event	BMP-17144	08-24-2011
Storm Rain Event	BMP-18310	09-09-2011
Annual Erosion	COMP-19731	10-13-2011

1000.43.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-5.92.

1000.43.6 Compliance Status

A Certificate of Completion was issued for Sites 21-013(b), 21-013(g), and 21-018(a) within this SMA on June 3, 2011 [NMED 2011]. The New Mexico Environment Department has determined that a corrective action complete with controls designation is appropriate for Site 21-013(g); and a designation of complete without controls designation is appropriate for Sites 21-013(b) and 21-018(a).

The Sites associated with LA-SMA-5.92 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.44 LA-SMA-6.25

1000.44 LA-SMA-6.25

1000.44.1 Area Description

LA-SMA-6.25 is located on the southern side of DP Mesa. The northern boundary of LA-SMA-6.25 is influenced by structures, paved areas, and a paved access road. The southern boundary of the SMA is rugged terrain and slopes towards the receiving waters to the south. The eastern and western boundaries of the SMA are influenced by development on the mesa. Further south, the terrain is rugged and steeply sloped. Storm water flows from the developed mesa south towards the receiving waters in Los Alamos Canyon.

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF L020, LA-SMA-6.25, Sites 21-021, 21-024(d) and 21-027(c).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(d) is a septic system that routed sewage from an office building (Building 21-1, which was removed in 1965) through a septic tank (structure 21-106) to the surface on the south rim of DP Mesa above Los Alamos Canyon. The tank is made of reinforced concrete and is 9.5 ft wide x 18 ft long x 5 ft deep. Drain-lines are six inch VCP. Samples collected in 1988 indicate that soils south of the outfall marker had elevated levels of mercury, americium-241, plutonium-238, plutonium-239/-240, and tritium; concentrations of oil and grease were above detection limits.

RFI activities were conducted at SWMU 21-024(d) in 1992 and 1993. The 1992 investigation included a radiological survey of the discharge area at the canyon rim and on the bench immediately below the mesa top. Four samples were collected from two locations; the mesa top and the bench area. The radiological survey indicated BVs of alpha and gamma emitters and slightly elevated levels of low-energy gamma emitters. Analytical results for the 1992 investigation activities indicated that plutonium-239/-240 exceeded SALs. No inorganic chemicals exceeded SALs. No VOCs or SVOCs were above detection limits.

In 1993, an eight foot borehole was drilled adjacent to structure 21-106 and one sample was collected from each two foot interval. Analytical results for 1993 samples indicated that plutonium-239 concentrations were greater than SALs. The RFI report recommended NFA with respect to hazardous constituents, but also indicated that corrective action may be necessary to address radioactive contamination.

In 1995, a VCA at SWMU 21-024(d) was conducted to address plutonium-239 contamination. VCA activities consisted of sampling structure 21-106 for waste characterization, conducting a radiological field survey for low-energy gamma radiation, removing the contents of structure 21-106, and transporting/disposing of the waste off the site. Thirteen locations were determined to have elevated radioactivity. Additional field instruments were used to quantify the alpha activity. Five confirmation samples were collected and submitted to an off-site fixed laboratory for plutonium-239 analysis. Structure 21-106 was left in place, in accordance with state of New Mexico regulations. The inlet and outlet lines were grouted with concrete, the tank was filled with pea gravel, and the site was regraded, reseeded, and restored to its original conditions. Analytical results of the confirmation samples indicated that plutonium-239 concentrations were less than SALs for the outfall area. The VCA

completion report concluded that the extent of radioactive contamination had been defined. A request was made to DOE to remove SWMU 21-024(d) from the list of ER Project SWMUs because no additional corrective action was required at this site.

SWMU 21-027(c) is an outfall that discharged 50 feet inside the south TA-21 perimeter fence to a broad, gently sloping area with no readily identified channel. The line discharged to the south on DP Mesa. This SWMU was reported to be a four inch VCP line that was abandoned in place; it exited former Building 21-6 (removed in 1966), which included a cafeteria and a machine shop. On the basis of the known use of Building 21-6, suspect contaminants were solvents and oils.

The ER Project conducted an RFI at this SWMU in 1992. Investigators performed a radiological survey and collected six soil samples from six locations within the drainage channel. One sample was taken from each of the locations. Samples were analyzed for inorganic chemicals, organic chemicals, and radionuclides. Elevated levels of arsenic, calcium, americium-241, and plutonium-239/-240 were found. The Phase Report 1C recommended deferring a decision about this SWMU until characterization of other SWMUs in the area was completed.

Table-1000.44.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(d)	Septic system	Co-located, Overlapping	Shared	•		•	
21-027(c)	Outfall from former Building 21-6	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are areas of potential soil contamination associated with historical outfalls and airborne deposition to soils present on the south rim of DP Mesa. These Sites share a common drainage and have similar suspect contaminants. Storm water runoff from these areas will produce substantially identical effluents.

1000.44.3 Control Measures

The asphalt berm at the northern end of the site is directing run-on from the paved area away from the Sites.

Subsections to 1000.44.3 list all control measures used to control pollutant sources identified in Section 1000.44.2. Control measures are shown in Table 1000.44.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.44.4.

Table 1000.44.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L020 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
L020 03 04 0002	Berms - Asphalt	•			•	CB
L020 03 06 0006	Berms - Straw Wattles		•		•	B

Established Vegetation (L020-02-01-0003)

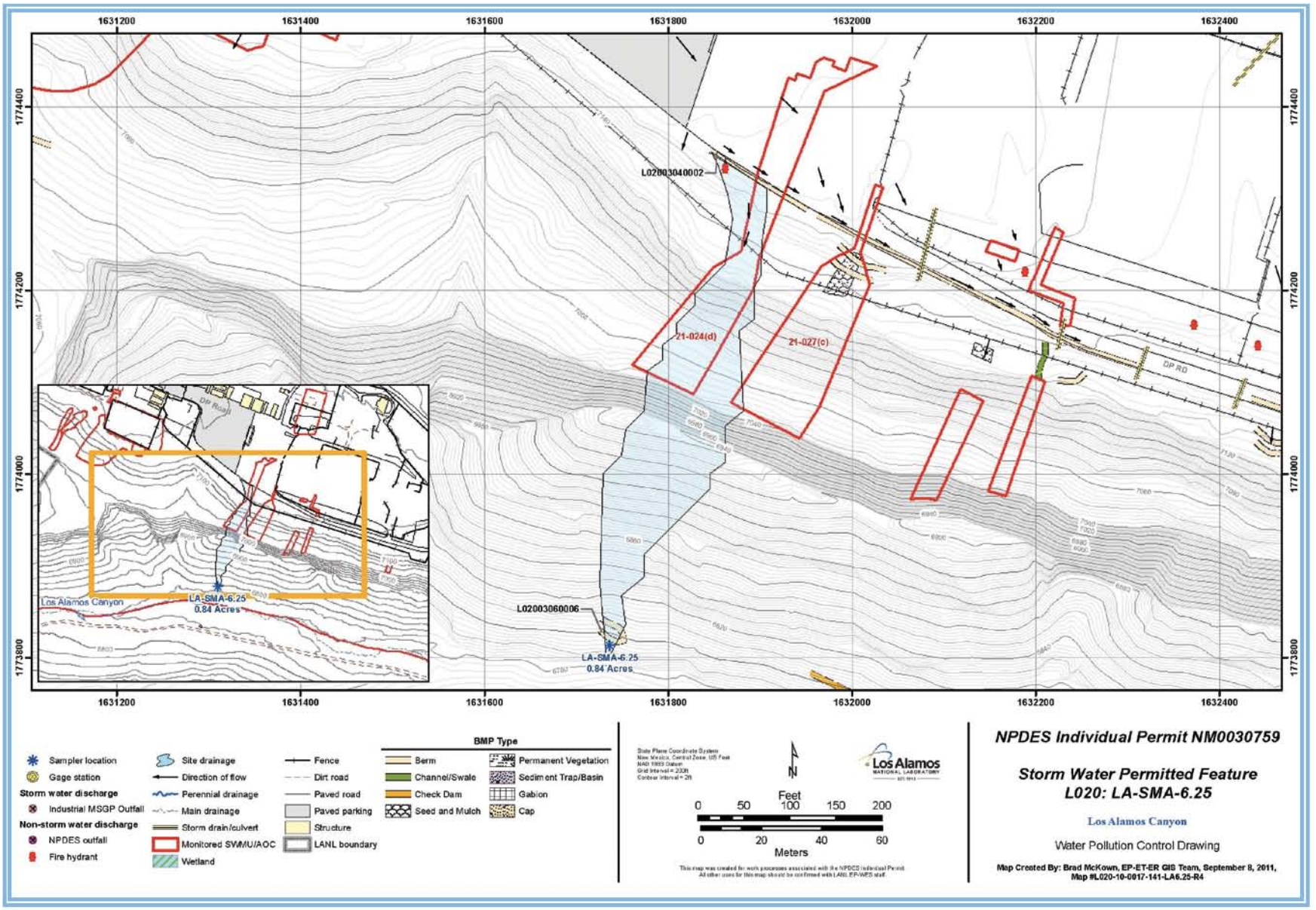
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Berm (L020-03-04-0002)

The base course berm is located above the sampler and diverts run-on from the paved area away from the Permitted Feature. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (L020-03-06-0006)

The wattles are located on the slope immediately above the sampler location. They help mitigate run-off from the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.


1631200
1631400
1631600
1631800
1632000
1632200
1632400
1774400
1774200
1774000
1773800
L02003040002
21-024(d)
21-027(c)
DP RD
L02003060006
LA-SMA-6.25
0.84 Acres
Los Alamos Canyon
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 50 100 150 200
Meters
0 20 40 60
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L020: LA-SMA-6.25
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 8, 2011,
Map #L020-10-0017-141-LA6.25-R4

1000.44.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

1000.44.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.25. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.44.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.25 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.44.5.2-1.

Table 1000.44.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13900	06-24-2011
Storm Rain Event	BMP-15882	08-05-2011
Storm Rain Event	BMP-17136	08-26-2011
Storm Rain Event	BMP-18302	09-12-2011
Annual Erosion	COMP-19732	09-29-2011

1000.44.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.44.5.3-1.

Table 1000.44.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15882	Replaced wattle L02003060005 with wattle L02003060006 at same location.	08-11-2011	6 day(s)	Maintenance conducted in a timely manner.

1000.44.6 Compliance Status

The Sites associated with LA-SMA-6.25 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.45 LA-SMA-6.27

1000.45 LA-SMA-6.27

1000.45.1 Area Description

LA-SMA-6.27 is located on DP Mesa. Access to the area is controlled. The northern boundary of the SMA is influenced by paved areas, structures, and a paved access road. The southern boundary of the SMA is rugged and steeply sloped. Storm water flows from the developed areas on the mesa, down a small bench before dropping sharply to the receiving waters further south.

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L021, LA-SMA-6.27, Sites 21-021 and 21-027(c).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-027(c) is an outfall that discharged 50 feet inside the south TA-21 perimeter fence to a broad, gently sloping area with no readily identified channel. The line discharged to the south on DP Mesa. This SWMU was reported to be a four inch VCP line that was abandoned in place; it exited former Building 21-6 (removed in 1966), which included a cafeteria and a machine shop. On the basis of the known use of Building 21-6, suspect contaminants were solvents and oils.

The ER Project conducted an RFI at this SWMU in 1992. Investigators performed a radiological survey and collected six soil samples from six locations within the drainage channel. One sample was taken from each of the locations. Samples were analyzed for inorganic chemicals, organic chemicals, and radionuclides. Elevated levels of arsenic, calcium, americium-241, and plutonium-239/-240 were found. The Phase Report 1C recommended deferring a decision about this SWMU until characterization of other SWMUs in the area was completed.

Table-1000.45.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-027(c)	Outfall from former Building 21-6	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission

sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Site 21-024(c) is soil contamination associated with a former outfall from a drain-line serving a cafeteria and machine shop. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.45.3 Control Measures

The run-on from paved areas to the north are managed with controls that serve to reduce the sediment and velocity of contributions from these areas.

Subsections to 1000.45.3 list all control measures used to control pollutant sources identified in Section 1000.45.2. Control measures are shown in Table 1000.45.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.45.4.

1000.45.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.45.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L021 01 01 0003	Seed and Mulch - Seed and Wood Mulch			•		CB
L021 02 01 0004	Established Vegetation - Grasses and Shrubs			•		CB
L021 03 04 0001	Berms - Asphalt	•			•	CB
L021 03 06 0008	Berms - Straw Wattles		•		•	CB
L021 03 06 0009	Berms - Straw Wattles	•			•	B

Seed and Mulch (L021-01-01-0003)

The mulched area is located to the south of the asphalt berm and is used to control erosion on the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets.

Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L021-02-01-0004)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

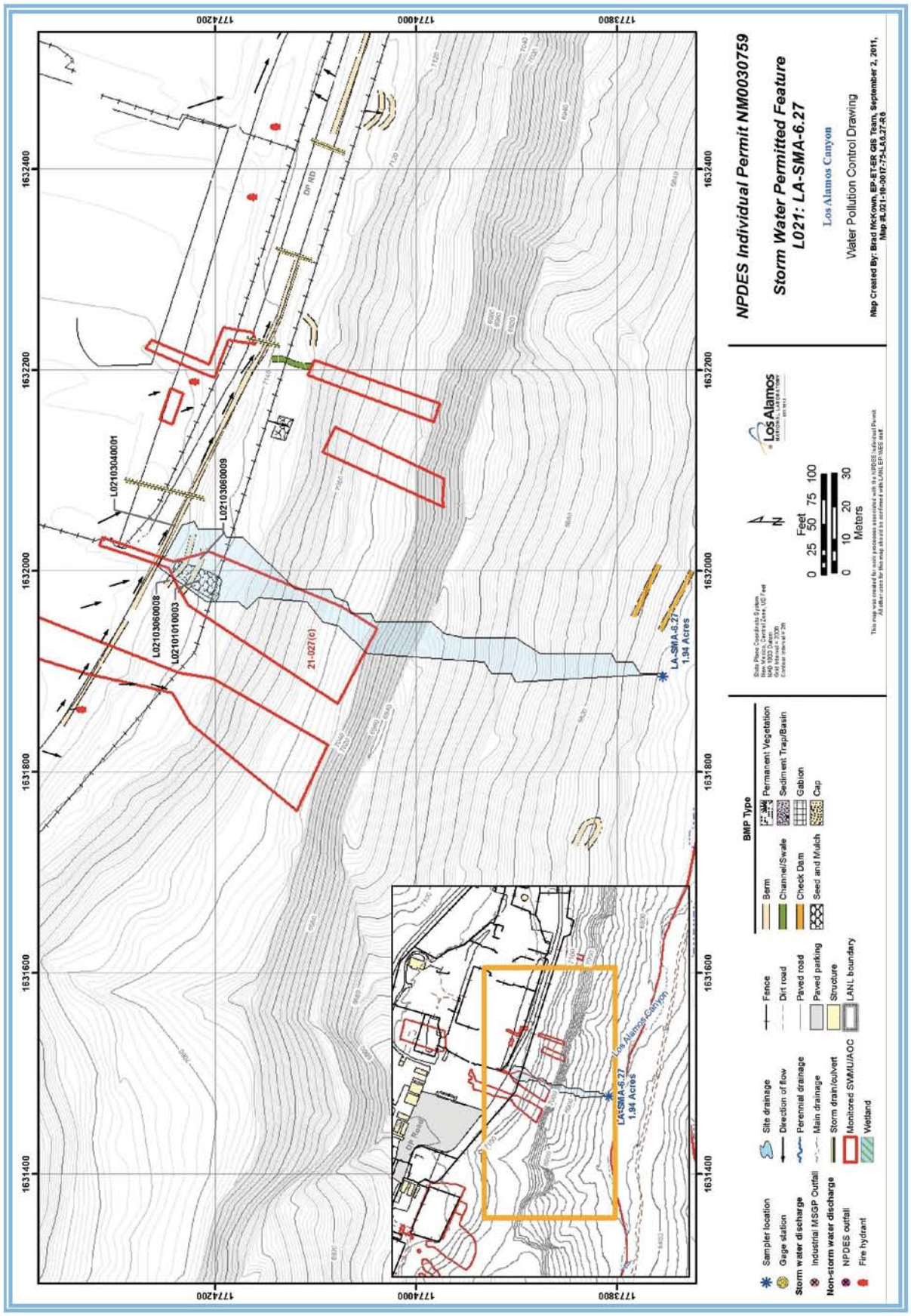
Asphalt Berm (L021-03-04-0001)

This low berm is located on the southern boundary of the paved area near building 21-0002. It is used to divert run-on from the paved areas to the east away from the SMA. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (L021-03-06-0008, -0009)

This is a pair of straw wattles that are located on the northern side of the fence near the mesa top edge. These are used to control run-off from the paved areas to the north. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

1000.45.4 Project Map



1000.45.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

1000.45.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.27. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.45.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.27 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.45.5.2-1.

Table 1000.45.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13901	06-23-2011
Storm Rain Event	BMP-15883	08-03-2011
Storm Rain Event	BMP-17137	08-26-2011
Storm Rain Event	BMP-18303	09-12-2011
Annual Erosion	COMP-19733	09-29-2011

1000.45.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.45.5.3-1.

Table 1000.45.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15883	Replaced wattle L02103060007 with wattle L02103060009 at same location.	08-11-2011	8 day(s)	Maintenance conducted in timely manner.

1000.45.6 Compliance Status

The Sites associated with LA-SMA-6.27 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.46 LA-SMA-6.3

1000.46 LA-SMA-6.3

1000.46.1 Area Description

LA-SMA-6.3 is a south facing drainage that is influenced by paved areas, structures, and roads in the northern portion of the SMA. Storm water flows south from the developed area on DP Mesa down a steep and undeveloped slope to the receiving waters along the southern boundary of the Permitted Feature.

LA-SMA-6.3 was originally permitted with Sites 21-006(b) and 21-027(a). In July 2008, a utility line break on DP Mesa released non-storm water across the drainage area of this SMA and redefined the drainage patterns within the SMA. As a result, Site 21-027(a) is now captured in LA-SMA-6.31 and Site 21-006(b) remains monitored in LA-SMA-6.3.

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L022, LA-SMA-6.3, Site 21-006(b).

SWMU 21-006(b) was an ether seepage pit, drain line, and outfall that discharged ether extraction waste from building TA-21-2. The system routed ether waste from the plutonium processing building to an unlined seepage pit, then to an outfall location near the edge of Los Alamos Canyon. Since the operation producing the ether waste was a component of the plutonium purification process, the system discharged ether waste that potentially carried radionuclides. The outfall location was investigated in 1988 and 1992, and elevated levels of americium, cesium, and plutonium isotopes were found.

Table-1000.46.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-006(b)	Underground Seepage pit	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.46.3 Control Measures

An asphalt berm, located on the southern edge of DP Road controls run-on from the paved areas in the headwaters of this SMA. Because of the development in the headwaters of the Permitted Feature, run-on controls are crucial to successful management of storm water at this site.

Subsections to 1000.46.3 list all control measures used to control pollutant sources identified in Section 1000.46.2. Control measures are shown in Table 1000.46.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.46.4.

1000.46.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.46.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L022 01 01 0007	Seed and Mulch - Seed and Wood Mulch			•		CB
L022 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
L022 03 04 0005	Berms - Asphalt	•			•	CB
L022 06 01 0001	Check Dam - Rock		•		•	CB
L022 06 01 0004	Check Dam - Rock		•		•	CB

Seed and Mulch (L022-01-01-0007)

The mulched area at this Permitted Feature is located just south of the fence running parallel to the road, in the north-central section of the site drainage, and is used to prevent erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L022-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

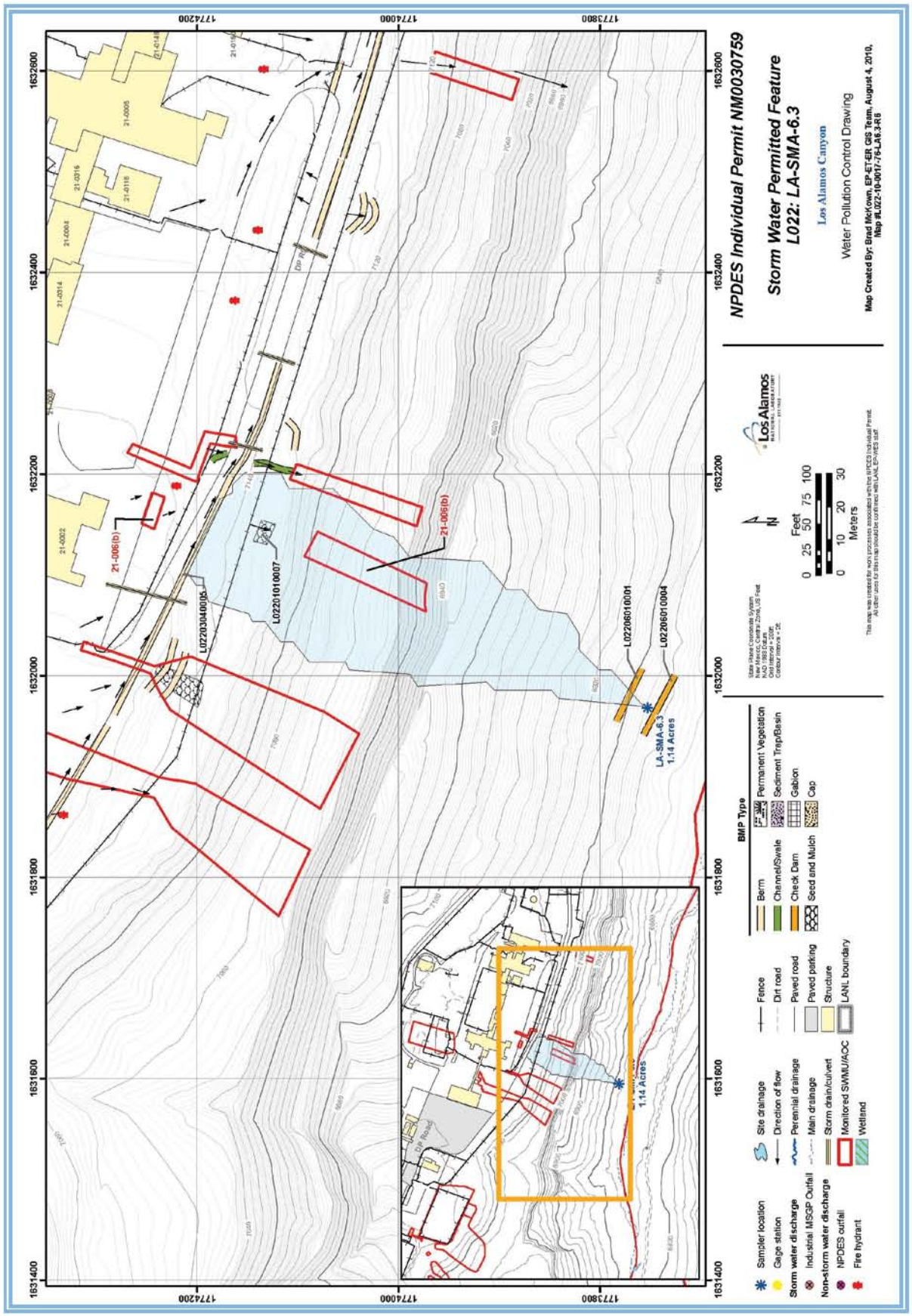
Asphalt Berm (L022-03-04-0005)

The berm is located along the northern boundary of the SMA adjacent to the paved access road. This berm serves to direct run-on originating from paved areas on DP Mesa, away from the monitored area. An asphalt berm is a temporary containment control constructed of asphalt.

Southern Rock Check Dams
(L022-06-01-0001, -0004)

This is a pair of check dams located at the southern end of the SMA, one (0001) above the sampler and the other (0004) below. These check dams are in place to help mitigate run-off from the area and control sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.46.4 Project Map



1000.46.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.46.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.3. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.46.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.3 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.46.5.2-1.

Table 1000.46.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13902	06-24-2011
Storm Rain Event	BMP-15884	08-05-2011
Storm Rain Event	BMP-17138	08-26-2011
Storm Rain Event	BMP-18304	09-12-2011
Annual Erosion	COMP-19734	09-29-2011

1000.46.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-6.3.

1000.46.6 Compliance Status

The Site associated with LA-SMA-6.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.47 LA-SMA-6.31

1000.47 LA-SMA-6.31

1000.47.1 Area Description

LA-SMA-6.31 is a south facing drainage located on DP Mesa. The drainage is influenced by paved areas, structures, and roads on the developed area of DP Mesa. Storm water flows south from the developed area, through a rock-lined channel to the receiving waters in Los Alamos Canyon.

LA-SMA-6.3 was originally permitted with Sites 21-006(b) and 21-027(a). In July 2008, a utility line break on DP Mesa released non-storm water across the drainage area of this SMA and redefined the drainage patterns within the SMA. As a result, Site 21-027(a) is now captured in LA-SMA-6.31 and Site 21-006(b) remains monitored in LA-SMA-6.3.

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L022A, LA-SMA-6.31, Site 21-027(a).

SWMU 21-027(a) is a surface drainage system located at TA-21 between former equipment room 3A in Building 21-3 and the south rim of DP Mesa. The drainage system includes four outfalls, one of which is a former permitted NPDES outfall. The system originated at the southwest corner of former Building 21-3 with floor drains from equipment room 3A that connected to two 3 inch lines. Those lines connected to a four inch line that emptied into a 12 inch storm drain. The four inch line extended from the southwest corner of former Building 21-3 beneath a paved area to the southwest corner of the former site of a cooling tower (structure 21-143) where the line emptied into a ponding area. The ponding area also received NPDES permitted discharges of treated cooling water from the cooling tower. The pond discharged to a 24 inch corrugated metal pipe culvert that carried the effluent to the DP Mesa edge. Building 21-3, its drains and the pipes beneath, and the cooling tower were removed during D&D activities in 1994 and 1995. The four inch pipes beneath the paved area were left in place, as was the storm drain, which collects run-off from nearby parking lots. Run-off flows over the mesa edge and into Los Alamos Canyon.

Table-1000.47.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-027(a)	21-027(a)	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.47.3 Control Measures

Run-on and run-off controls are in place. The SMA is stabilized and run-on to the area is conveyed to the mesa edge via a rock-lined channel. The asphalt berm diverts flow to the east of the Permitted Feature.

Subsections to 1000.47.3 list all control measures used to control pollutant sources identified in Section 1000.47.2. Control measures are shown in Table 1000.47.3-1 and

described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.47.4.

1000.47.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.47.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L022A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L022A 03 04 0002	Berms - Asphalt	•			•	CB
L022A 03 06 0006	Berms - Straw Wattles		•		•	B
L022A 04 03 0003	Channel/ Swale - Rock	•		•		CB
L022A 06 01 0005	Check Dam - Rock		•		•	CB

Established Vegetation (L022A-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Berm (L022A-03-04-0002)

This berm is located near the southern boundary of DP Road, running generally east to west. It is in place to divert run-on from the road away from the site. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (L022A-03-06-0006)

These wattles are located south of DP Road, behind the fence, and east of the rock channel. They are used to prevent sediment transport from area run-off to the slope below the rip rap. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

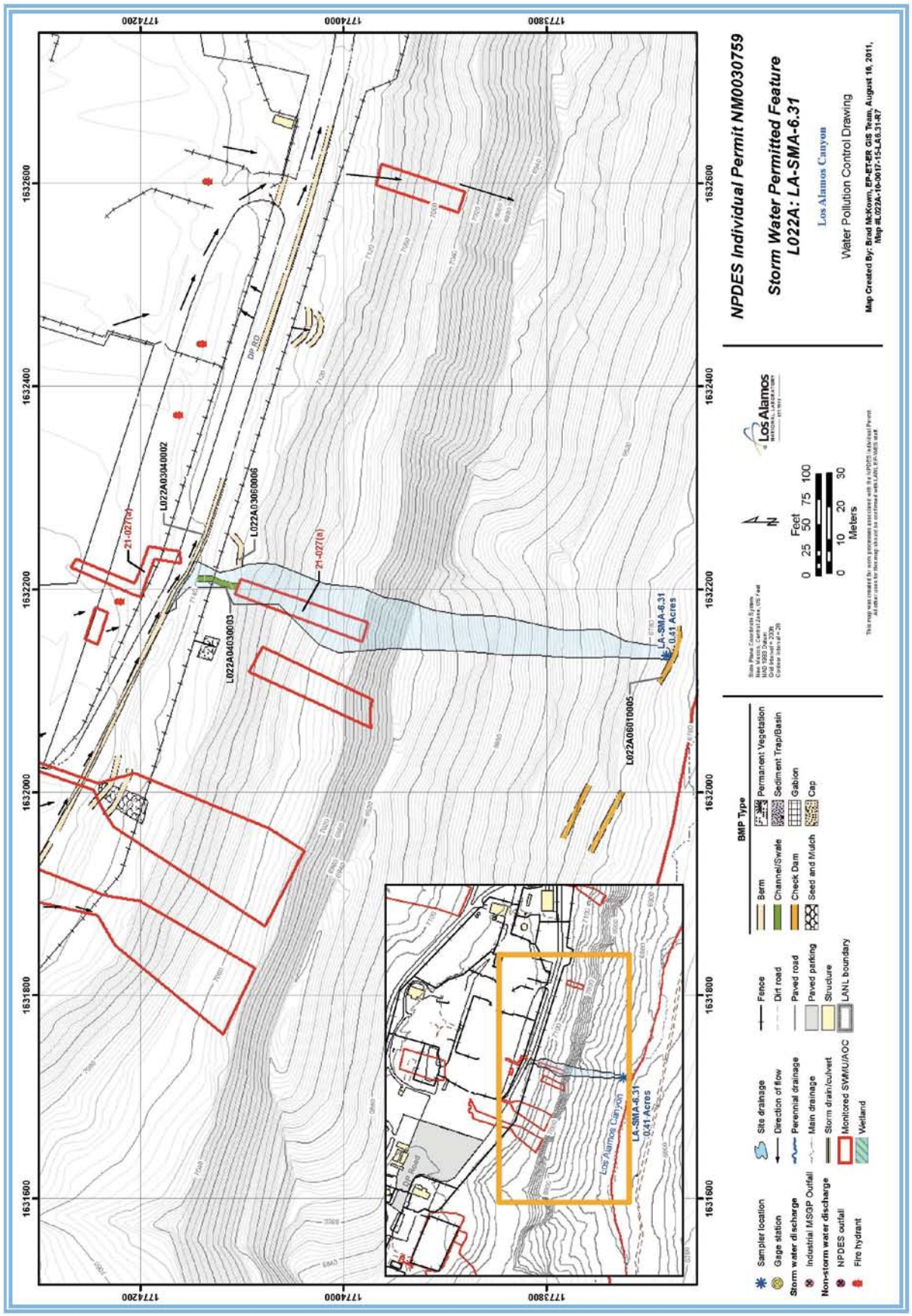
Rock Channel or Swale (L022A-04-03-0003)

The rock channel is located at the northern end of the site and is used in conjunction with rip rap to control run-on from the paved area and reduce impact to the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Southern Rock Check Dam (L022A-06-01-0005)

Located at the southern end of the SMA, below the sampler. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.47.4 Project Map



1000.47.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.47.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.31. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.47.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.31 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.47.5.2-1.

Table 1000.47.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13906	07-12-2011
Storm Rain Event	BMP-15888	08-05-2011
Storm Rain Event	BMP-17142	08-26-2011
Storm Rain Event	BMP-18308	09-09-2011
Annual Erosion	COMP-19735	09-29-2011

1000.47.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.47.5.3-1.

Table 1000.47.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13906	Replaced wattle L022A03060004 with wattle L022A03060006 at same location.	07-18-2011	6 day(s)	Maintenance conducted in timely manner.

1000.47.6 Compliance Status

The Site associated with LA-SMA-6.31 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.48 LA-SMA-6.32

1000.48 LA-SMA-6.32

1000.48.1 Area Description

LA-SMA-6.32 is located on the southern rim of DP Mesa. The northern boundary of LA-SMA-6.32 is influenced by structures, paving, and a paved access road. The southern boundary of the SMA is rugged, moderately sloped, and contains the receiving waters. Storm water flows from the developed mesa, south across undeveloped terrain, to the receiving waters in Los Alamos Canyon.

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L023, LA-SMA-6.32, Site 21-021.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.48.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Individual	•		•	

1000.48.3 Control Measures

DP Road, located near the northern boundary of the Permitted Feature, is crowned to the north away from the mesa edge. A berm along the southern edge of DP Road is managing potential run-on to the site.

Subsections to 1000.48.3 list all control measures used to control pollutant sources identified in Section 1000.48.2. Control measures are shown in Table 1000.48.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.48.4.

1000.48.3.1 Control Measures for Historical Industrial Activity Areas

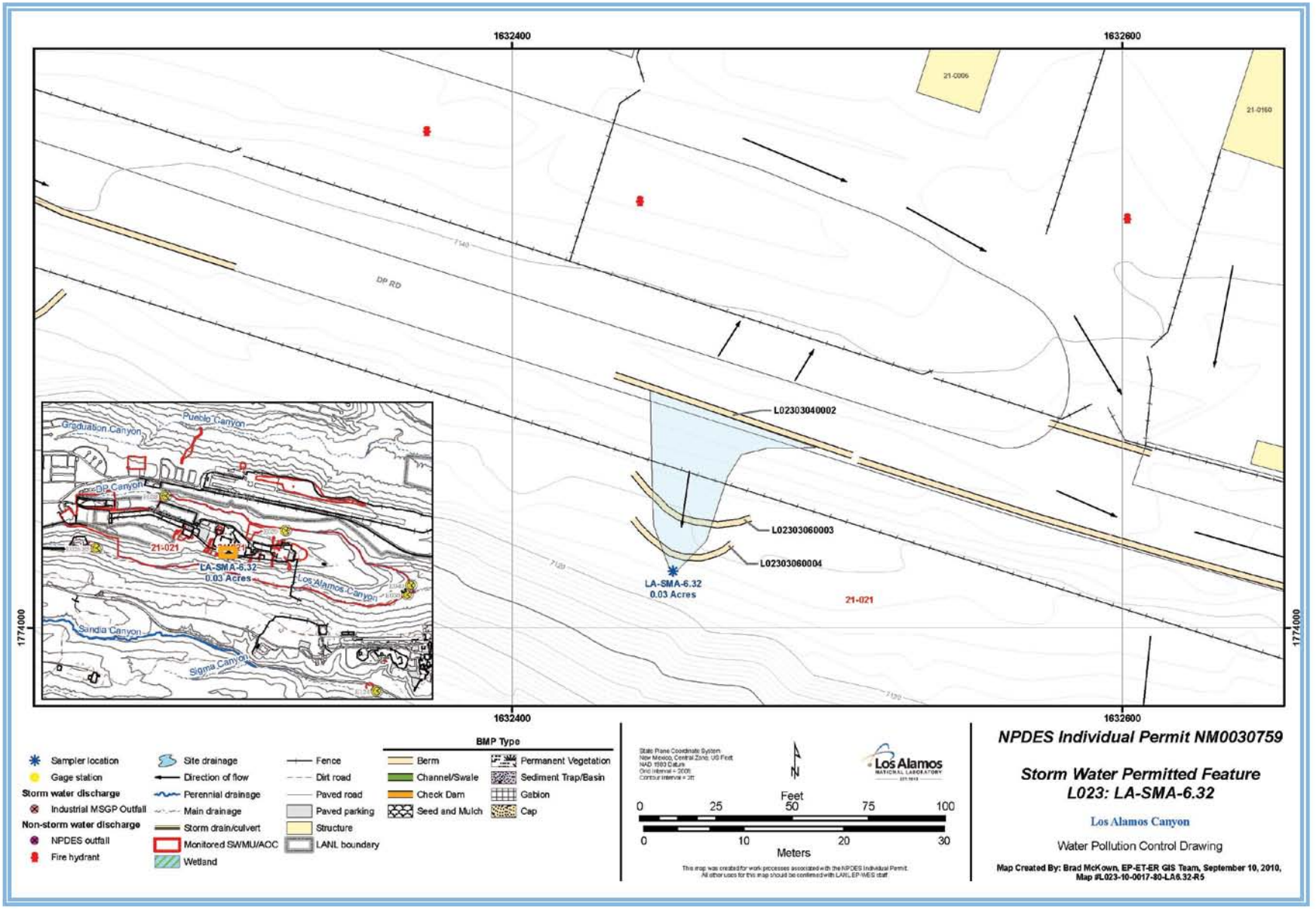
Table 1000.48.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L023 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L023 03 04 0002	Berms - Asphalt	•			•	CB
L023 03 06 0003	Berms - Straw Wattles		•		•	CB
L023 03 06 0004	Berms - Straw Wattles		•		•	CB

Established Vegetation (L023-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Asphalt Berm (L023-03-04-0002)
This berm is located near the northern boundary of the Permitted Feature and controls run-on to the area from the adjacent road. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (L023-03-06-0003)
This pair of wattles is located in the southern area of the SMA, across the drainage channel above the sampler. They are used to help control run-off from the slope above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.


1632400
1632600
1774000
DP RD
L02303040002
L02303060003
L02303060004
LA-SMA-6.32
0.03 Acres
21-021
21-0006
21-0160
Pueblo Canyon
Graduation Canyon
DP Canyon
Los Alamos Canyon
Sandia Canyon
Sigma Canyon
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
Meters
0 10 20 30
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L023: LA-SMA-6.32
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 10, 2010,
Map #L023-10-0017-80-LA6.32-R5

1000.48.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.48.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.32. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.48.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.32 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.48.5.2-1.

Table 1000.48.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13903	06-23-2011
Storm Rain Event	BMP-15885	08-03-2011
Storm Rain Event	BMP-17139	08-26-2011
Storm Rain Event	BMP-18305	09-09-2011
Annual Erosion	COMP-19736	09-29-2011

1000.48.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-6.32.

1000.48.6 Compliance Status

The Sites associated with LA-SMA-6.32 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.49 LA-SMA-6.34

1000.49 LA-SMA-6.34

1000.49.1 Area Description

LA-SMA-6.34 is located on the southern rim of DP Mesa. Storm water flows from the developed area south towards the receiving waters of Los Alamos Canyon. On the northern boundary of the SMA are several paved areas, parking, and building 21-150. The southern boundary is moderately to steeply sloped, undeveloped land. The eastern and western boundaries are partially developed and partially undeveloped with some influence from the paved areas and the paved road running across the SMA.

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L024, LA-SMA-6.34, Sites 21-021 and 21-022(h).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

These three SWMUs are sumps that were associated with equipment rooms in the south ends of buildings TA-21-2, 3, and 4. The SWMUs 21-022(h and i) sumps were removed previously.

Table-1000.49.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-022(h)	Sump and Waste line	Discrete Location, No overlap	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA share a common drainage and have similar suspect contaminants. Storm water discharging from these areas will produce substantially identical effluents.

1000.49.3 Control Measures

Berms located on the northern and southern sides of DP Road effectively control run-on from the impervious areas north of the Permitted Feature.

Subsections to 1000.49.3 list all control measures used to control pollutant sources identified in Section 1000.49.2. Control measures are shown in Table 1000.49.3-1 and described in paragraphs following the table. The control status field in these tables

indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.49.4.

1000.49.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.49.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L024 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L024 03 04 0003	Berms - Asphalt	•			•	CB
L024 03 04 0004	Berms - Asphalt	•			•	CB
L024 06 01 0005	Check Dam - Rock		•		•	CB

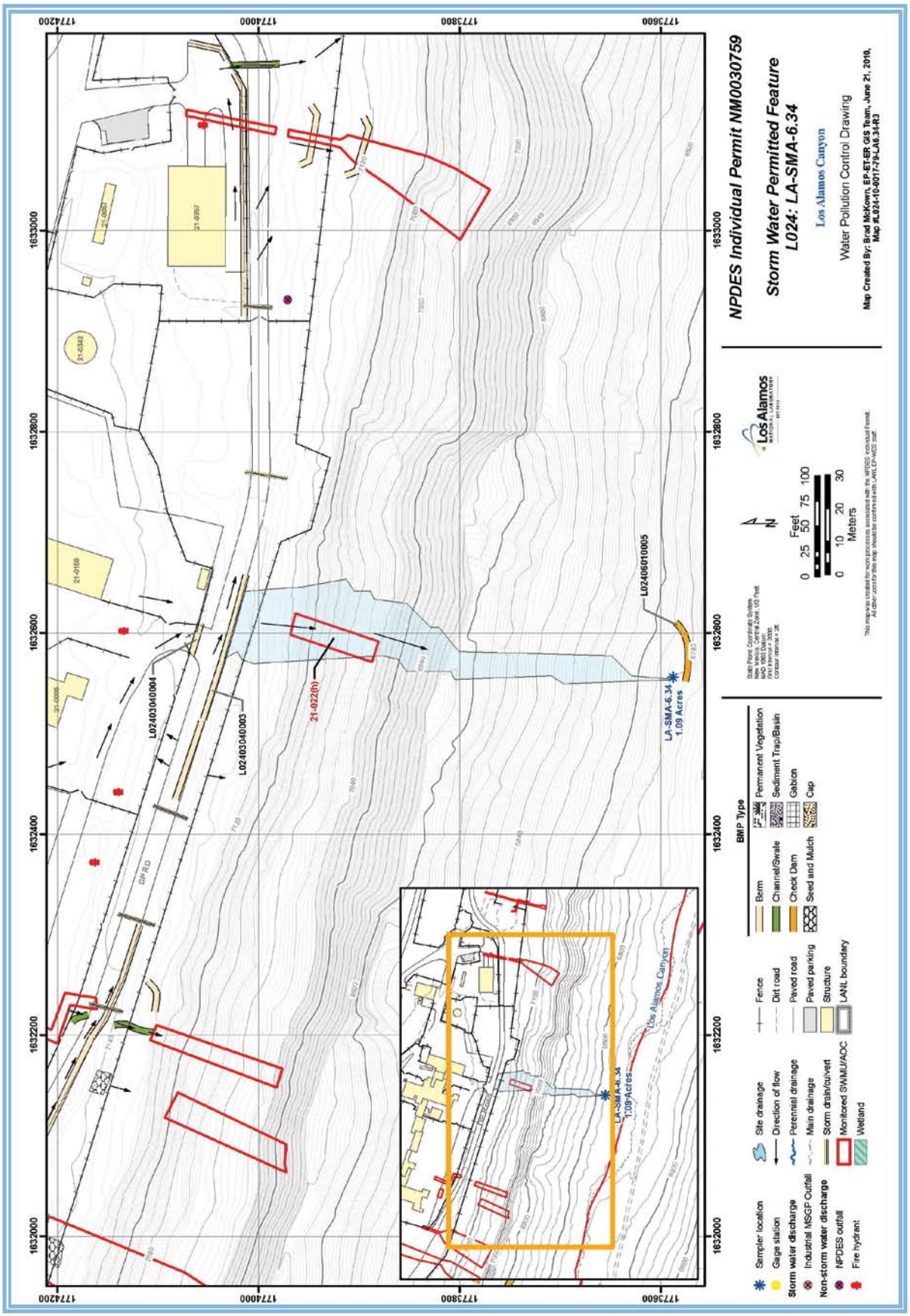
Established Vegetation (L024-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Southern Berm (L024-03-04-0003)
The berm is located on the southern side of DP Road and is used to divert run-on from the road to the east away from the Permitted Feature. An asphalt berm is a temporary containment control constructed of asphalt.

Northern Berm (L024-03-04-0004)
This berm is located on the north side of DP Road and diverts run-on from the impervious areas to the east, away from the Permitted Feature. An asphalt berm is a temporary containment control constructed of asphalt.

Southern Rock Check Dam(L024-06-01-0005)
The check dam is located south of the SMA, just below the sampler. It is in place to help control storm water run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.49.4 Project Map



1000.49.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.49.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.34. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.49.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.34 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.49.5.2-1.

Table 1000.49.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13904	07-12-2011
Storm Rain Event	BMP-15886	08-05-2011
Storm Rain Event	BMP-17140	08-26-2011
Storm Rain Event	BMP-18306	09-12-2011
Annual Erosion	COMP-19737	09-29-2011

1000.49.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-6.34.

1000.49.6 Compliance Status

The Sites associated with LA-SMA-6.34 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.50 LA-SMA-6.36

1000.50 LA-SMA-6.36

1000.50.1 Area Description

LA-SMA-6.36 is located on the southern rim of DP Mesa. Storm water flows from the developed area on the mesa, south to the receiving waters of Los Alamos Canyon. The northern boundary of the SMA is influenced by paving and structures on DP Mesa. The southern boundary of the SMA is steeply sloped, rugged, and contains the receiving waters.

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L025, LA-SMA-6.36, Sites 21-021 and 21-024(a).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(a) is a septic system that routed sewage from the old steam plant (Building 21-9) through a septic tank (structure 21-53, which was abandoned in place in 1966), to the surface on the south rim of DP Mesa above Los Alamos Canyon. The 8 ft wide x 16 ft long x 7 ft, 9 in. deep septic tank is made of reinforced concrete; drain-lines are six inch VCP. Based on the building's operations as a steam plant, potential contaminants are fuel oil and boiler blowdown constituents such as sulfites and copper salts. Releases from the blowdown lines, which are not part of SWMU 21-024(a), may have commingled with SWMU 21-024(a) wastewater discharge.

RFI sampling activities were conducted in 1992 and 1993. A radiation survey was performed between the suspected outfall release point and the edge of DP Mesa. The outfall discharge point was never positively identified; however, a pooling area, which contained pieces of VCP, was identified. Eighteen samples were taken at six locations in 1992. In 1993, a borehole was drilled and sampled down-gradient of the tank's outlet pipe to identify potential releases from the septic tank system.

The radiological survey from 1992 indicated background levels of alpha, gamma, and low-energy gamma emitters. The 1992 samples were analyzed for inorganic chemicals, organic chemicals, and radionuclides. The 1993 borehole samples were analyzed for inorganic chemicals, organic chemicals, and radionuclides. The vertical and horizontal extent of contamination at SWMU 21-024(a) has been defined. NFA was proposed for SWMU 21-024(a) in the Phase I RFI report addendum.

Table-1000.50.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(a)	Septic system	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Site 21-024(a) has soil contamination associated with a former septic system serving a steam plant. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.50.3 Control Measures

The Permitted Feature is flat with minimal run-on, which is effectively controlled by the vegetative buffer south of DP Road. The curb south of the building 21-0356 is diverting run-on to a culvert and away from the monitored area.

Subsections to 1000.50.3 list all control measures used to control pollutant sources identified in Section 1000.50.2. Control measures are shown in Table 1000.50.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.50.4.

Table 1000.50.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L025 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
L025 03 01 0008	Berms - Earthen		•		•	CB
L025 03 01 0009	Berms - Earthen	•			•	CB
L025 03 09 0004	Berms - Curbing	•			•	CB

Established Vegetation (L025-02-01-0002)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - South (L025-03-01-0008)

This berm is located along the eastern side of the SMA, above the canyon edge, south of the security fence. It is place to help manage storm water run-off from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

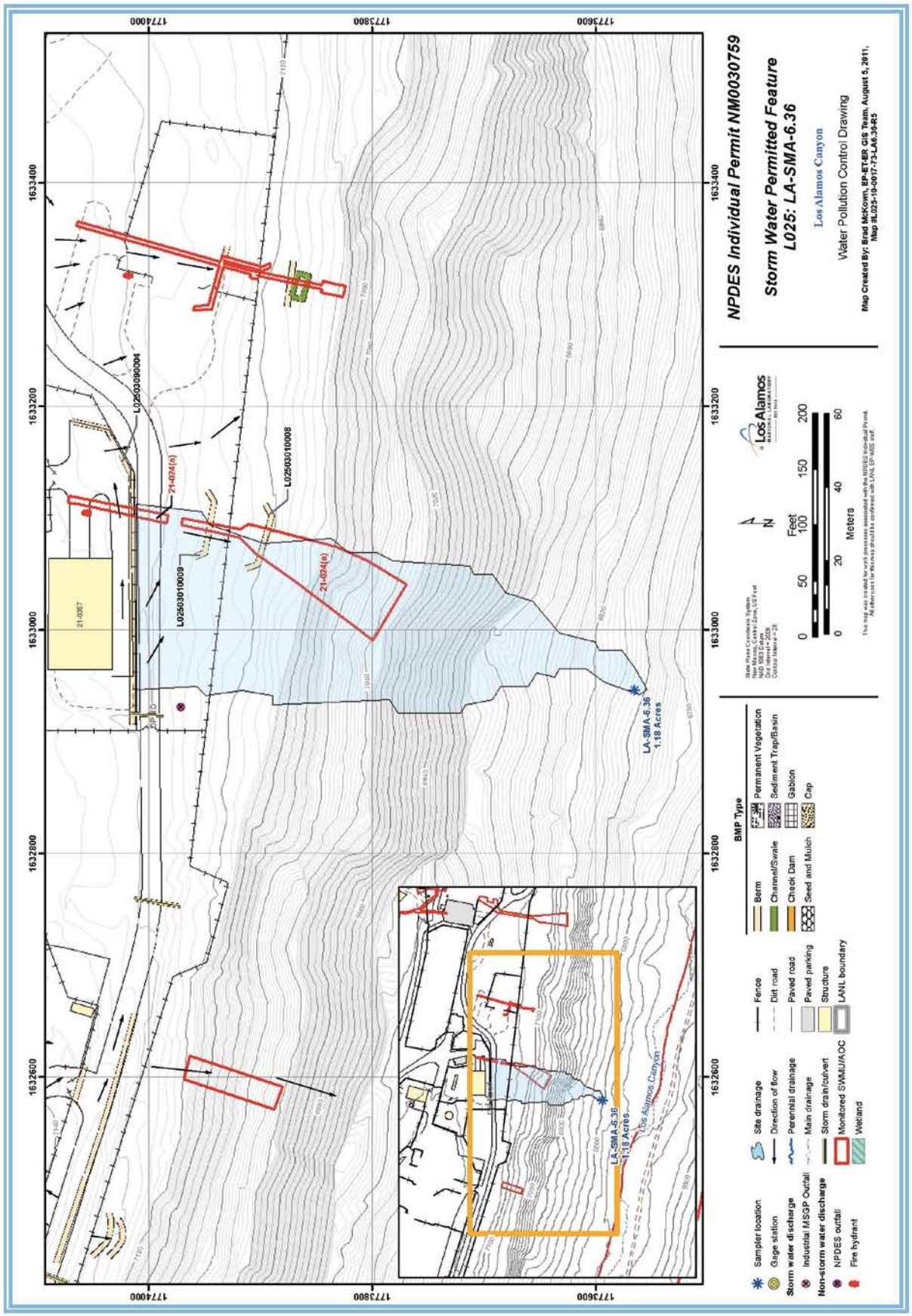
Earthen Berm - North (L025-03-01-0009)

This berm is located along the eastern side of the SMA, above the canyon edge, north of the security fence. It is place to help manage storm water run-on from the paved areas. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Curbing (L025-03-09-0004)

The curbing is located on the northern side of DP Road adjacent to a paved area. It is used to divert run-on to the east, away from DP Road and the Permitted Feature. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

1000.50.4 Project Map



1000.50.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.50.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.36. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.50.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.36 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.50.5.2-1.

Table 1000.50.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13905	06-23-2011
Storm Rain Event	BMP-15887	08-03-2011
Storm Rain Event	BMP-17141	08-26-2011
Storm Rain Event	BMP-18307	09-12-2011
Annual Erosion	COMP-19738	09-29-2011

1000.50.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-6.36.

1000.50.6 Compliance Status

The Sites associated with LA-SMA-6.36 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.51 LA-SMA-6.38

1000.51 LA-SMA-6.38

1000.51.1 Area Description

LA-SMA-6.38 is a south facing drainage located on DP Mesa. The drainage is influenced by paved areas, structures, and roads on the developed area of DP Mesa. Storm water flows south from the developed area, to the receiving waters in Los Alamos Canyon.

1000.51.2 Potential Pollutant Sources

1000.51.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L026, LA-SMA-6.38, Sites 21-021 and 21-024(c).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(c) is a septic system that routed sewage from a laboratory building (Building 21-54) and another laboratory building (Building 21-61), through a septic tank (structure 21-56). The septic tank was built in the late 1940s and abandoned in place in 1966. It is constructed of reinforced concrete and is 4 ft wide x 8 ft long x 5 ft deep. Drain-lines are four inch VCP. One inlet line routed sanitary waste and connected floor drains from Building 21-54 to the septic tank (structure 21-56). Building 21-54 was built in 1945 and served as a machine shop and a warehouse; it was removed and demolished in 1967. Little is known about what was stored in the warehouse or what type of machine work was done in the building. However, documents describing the work required for demolition of the building indicate that the building was contaminated with radioactive materials, including plutonium.

A second inlet line routed sanitary waste and connected floor drains from Building 21-61 to a connection with the inlet line from Building 21-54. Building 21-61 was built in 1950 and decontaminated and decommissioned in 2002. No information has been found to document the type of classified work that was performed in the building from 1950 to 1956. In 1956, the building was remodeled to support work on Project Rover, an experimental project related to the development of nuclear-powered space vehicles. The operations included the use of an electric furnace to coat reactor parts and fuel rods. The reactor parts and fuel rods were coated with niobium pentachloride to improve heat resistance and prolong the life of reactor components. No leaks or releases are known to have occurred.

During the early 1960s the coating operation was suspended and the use of the building stopped. A 1961 request for furnace work notes that a small amount of uranium contamination was present in the building. It is unclear from the available information whether the noted uranium contamination came from activities between 1950 and 1956 or from Project Rover work. In the late 1960s and early 1970s, the building was used as a metal fabrication shop to support TA-21 remodeling efforts.

Starting in 1978, Building 21-61 and the bare ground directly east of the building were used to store capacitors and transformers containing PCB oil, PCB-contaminated pumps, and drums of PCB-contaminated waste oil, solvents, and trash. Kerosene and petroleum-based solvents were used in the storage area to rinse the transformers and capacitors after the PCB oil was drained. PCB-contaminated materials were stored on the bare ground until 1981, when the northern two-thirds of the yard east of the building were paved with asphalt. Near the center of the fenced yard, a rectangular berm approximately 40 ft wide x 60 ft long

surrounds part of the asphalt pad. The berm has an outlet valve in the southeast corner. Soil was not excavated prior to placement of the asphalt pad. After 1981, drums containing less than 500 ppm PCB were stored on the asphalt pad and drums containing greater than 500 ppm PCB were stored inside Building 21-61. Storage of PCB-contaminated materials at Building 21-61 was discontinued in 1989, when PCB storage was moved to the PCB waste storage facility at TA-54.

One outlet line from the septic tank extended approximately 80 feet and discharged effluent 20 feet from the south rim of DP Mesa above Los Alamos Canyon. A vaguely defined channel existed down-gradient from the area where the outlet pipe surfaces.

During 1988 reconnaissance sampling, one sample was collected within the outfall drainage channel. Concentrations of chromium, silver, zinc, copper, lead, mercury, americium-241, plutonium-238, tritium, uranium-234, uranium-235, and uranium-238 were reported above regional background levels. In addition, oil/grease and dichloromethane were reported above detection limits.

RFI sampling activities were conducted in 1992 and 1993. The 1992 activities included a radiological field survey and collection of four samples from two locations. The radiological field survey indicated background levels of alpha, gamma, and low-energy gamma emitters. Chromium, lead, and uranium were above SALs. All organic analytes detected were common analytical laboratory contaminants and are not indicative of contamination from this site. The 1993 activities consisted of drilling a borehole down-gradient of the septic tank. Four samples were collected from the 20 foot borehole. All inorganic, radionuclide, and organic constituents were below SALs.

RFI activities determined that the extent of contamination had not been defined because only a small number of samples were collected at this site. RFI Phase II sampling activities were recommended in order to adequately characterize SWMU 21-024(c). In 1998, a SAP was prepared for SWMU 21-024(c) in conjunction with SWMU 21-003-99. The objective for SWMU 21-024(c) is to define the nature and extent of contamination at this site.

Table-1000.51.2.1 Historical Industrial Areas within the Permitted Feature 1000.51.2.1

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(c)	Septic system	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.51.3 Control Measures

Run-on enters this Permitted Feature from a graveled storage area above the SMA. Run-on flows through sparse vegetation, then over the edge of the mesa.

Subsections to 1000.51.3 list all control measures used to control pollutant sources identified in Section 1000.51.2. Control measures are shown in Table 1000.51.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.51.4.

1000.51.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.51.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L026 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L026 03 06 0004	Berms - Straw Wattles		•		•	CB
L026 03 06 0005	Berms - Straw Wattles	•			•	CB
L026 03 06 0008	Berms - Straw Wattles	•			•	B
L026 04 06 0006	Channel/Swale - Rip Rap	•		•		CB

Established Vegetation (L026-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Straw Wattle (L026-03-06-0004)

This wattle is located immediately north of the sampler. It is used to help control run-off from the slope and reduce sediment loading. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles (L026-03-06-0005)

This wattle is placed across the drainage path near the edge of the mesa top and is

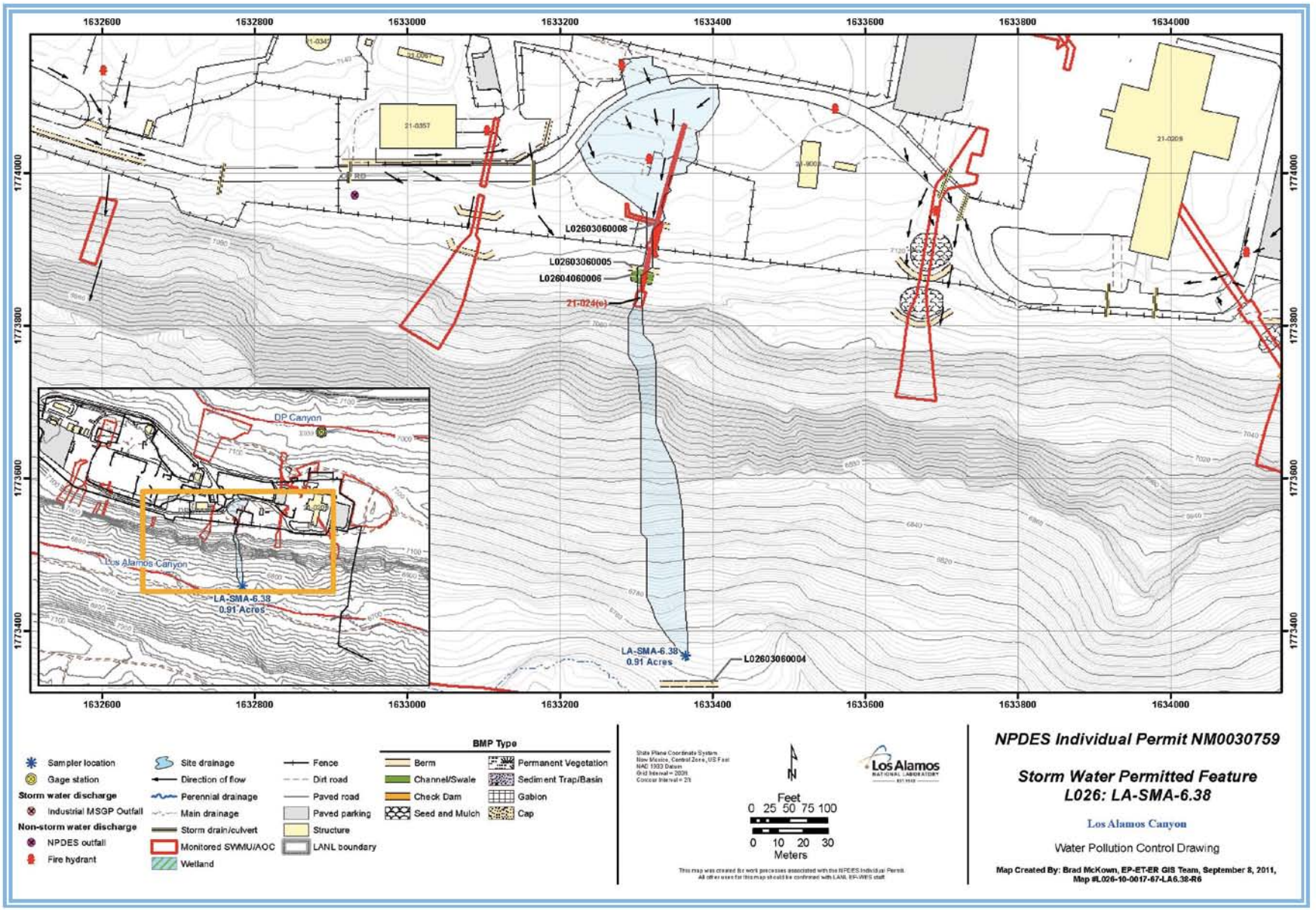
used to mitigate run-on from the nearby graveled areas. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Berms
(L026-03-06-0008)

Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap
(L026-04-06-0006)

This rip rap is located near the edge of the mesa top. It is in place to help control run-on from the paved areas and to reduce erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.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L02603060005
L02604060006
21-024(e)
LA-SMA-6.38
0.91 Acres
L02603060004
DP Canyon
Los Alamos Canyon
LA-SMA-6.38
0.91 Acres
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Feet
0 25 50 75 100
0 10 20 30
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L026: LA-SMA-6.38
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 8, 2011,
Map #L026-10-0017-67-LA6.38-R6

1000.51.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.51.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.38. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.51.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.38 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.51.5.2-1.

Table 1000.51.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13909	06-23-2011
Storm Rain Event	BMP-15891	08-05-2011
Storm Rain Event	BMP-17145	08-26-2011
Storm Rain Event	BMP-18311	09-12-2011
Annual Erosion	COMP-19739	09-29-2011

1000.51.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.51.5.3-1.

Table 1000.51.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15891	Replaced wattle L02603060007 with wattle L02603060008 in same location.	08-11-2011	6 day(s)	Maintenance conducted in timely manner.

1000.51.6 Compliance Status

The Sites associated with LA-SMA-6.38 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.52 LA-SMA-6.395

1000.52 LA-SMA-6.395

1000.52.1 Area Description

LA-SMA-6.395 is located on the southern rim of DP Mesa. The northern boundary of the SMA is influenced by DP Mesa road, parking areas, structures. The southern boundary of the SMA is steeply sloped towards the receiving waters. The eastern and western boundaries of the SMA are largely undeveloped and steeply sloped as they approach the southern boundary. Storm water flows from the developed mesa south towards the receiving waters of Los Alamos Canyon.

1000.52.2 Potential Pollutant Sources

1000.52.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L027, LA-SMA-6.395, Sites 21-021 and 21-024(j).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(j) consists of a septic tank (structure 21-194) and associated drain-lines. Structure 21-194 received sewage from a warehouse/laboratory (Building 21-155). Constructed in 1961, structure 21-194 is made of reinforced concrete and is 5 ft long x 3 ft wide x 6 ft deep. It is located off the southwest corner of Building 21-155 near the south edge of the perimeter road. Information regarding the discharged effluent waste is not available. Structure 21-194 was left in place and filled with earth in 1966. No quantitative information exists on suspect contaminants.

The ER Project conducted an RFI at this SWMU in 1993. Pipes were located using a geophysical survey. The approximate location of structure 21-194 was identified based on the existing inlet and outlet pipes and by using existing maps. A 20 foot borehole was drilled about two to three feet down-gradient of the suspected outlet, and one sample was taken from each five foot interval in the borehole. Analytical results indicated that no radionuclides or inorganic chemicals were reported above SALs and no VOCs or SVOCs were reported above detection limits. The RFI report recommended NFA at SWMU 21-024(j) based on analytical results and recommended leaving the tank in place.

This SWMU was included in a 1995 permit modification request.

Table-1000.52.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(j)	Septic system	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Site 21-024(j) has soil contamination associated with a former outfall from a septic system. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.52.3 Control Measures

Run-on controls are in place to direct run-on from DP Mesa road to the channel east and away from the monitored area. There is no sign of concentrated run-off.

Subsections to 1000.52.3 list all control measures used to control pollutant sources identified in Section 1000.52.2. Control measures are shown in Table 1000.52.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.52.4.

1000.52.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.52.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L027 01 01 0006	Seed and Mulch - Seed and Wood Mulch			•		CB
L027 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L027 03 01 0004	Berms - Earthen		•		•	CB
L027 03 01 0005	Berms - Earthen	•			•	CB

Seed and Wood Mulch (L027 01 01 0006)

Mulch was applied to held control erosion on the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown

to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

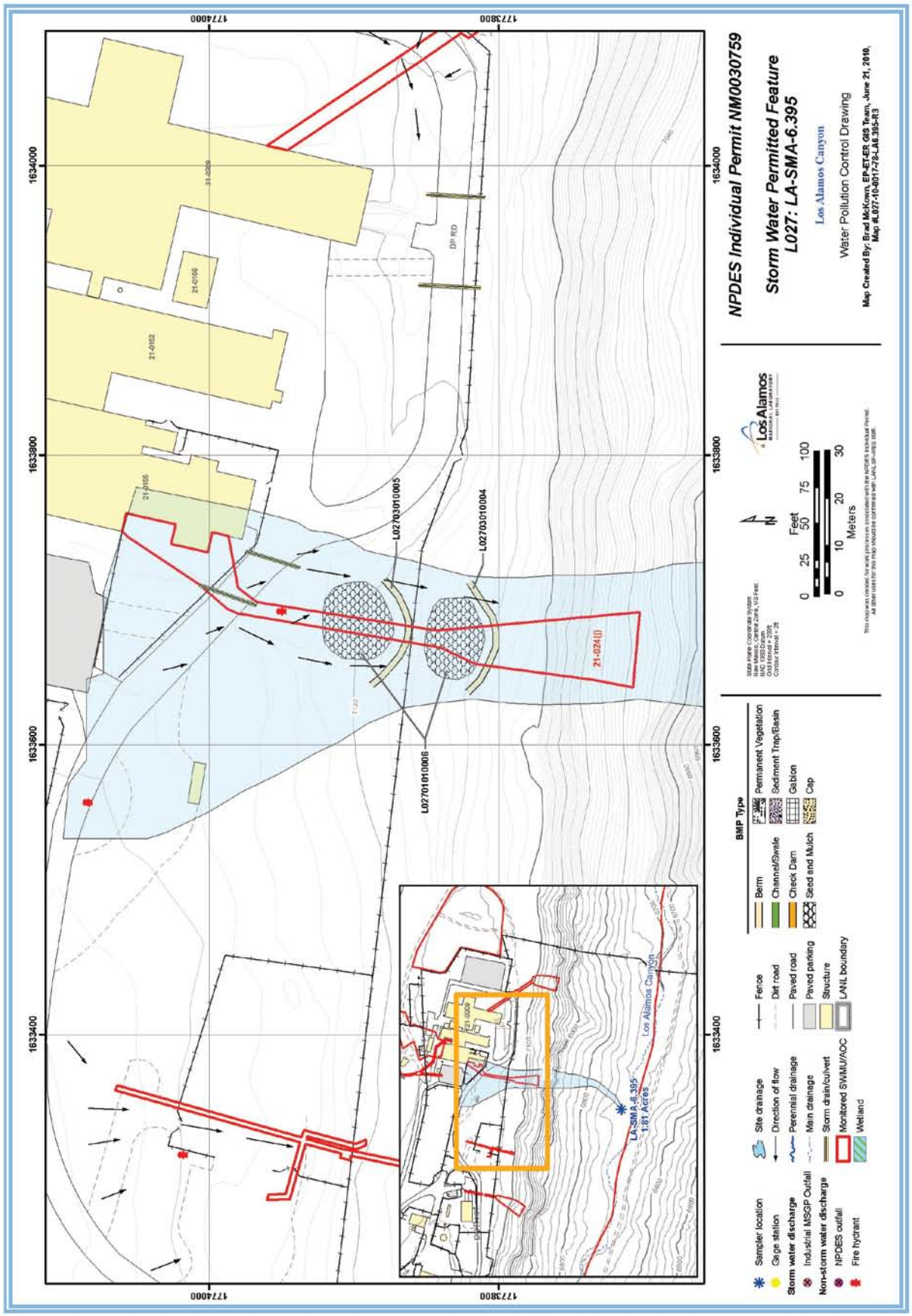
Established Vegetation (L027-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berms (L027-03-01-0004, -0005)

This is a pair of earthen berms located near the mesa top edge across the main drainage channel. They are in place to help control run-off from the paved areas to the north. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

1000.52.4 Project Map



1000.52.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.52.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.395. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.52.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.395 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.52.5.2-1.

Table 1000.52.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13912	06-23-2011
Storm Rain Event	BMP-15893	08-03-2011
Storm Rain Event	BMP-17147	08-26-2011
Storm Rain Event	BMP-18313	09-12-2011
Annual Erosion	COMP-19740	09-29-2011

1000.52.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-6.395.

1000.52.6 Compliance Status

The Sites associated with LA-SMA-6.395 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.53 LA-SMA-6.5

1000.53.1 Area Description

1000.53.2 Potential Pollutant Sources

1000.53.2.1 Historical Industrial Activity Areas

1000.53.3 Control Measures

1000.53.4 Project Map

1000.53.5 Storm Water Monitoring Plan and Schedule

1000.53.5.1 Initial Confirmation Monitoring

1000.53.5.2 Inspection Activity

1000.53.5.3 Maintenance

1000.53.6 Compliance Status

1000.53 LA-SMA-6.5

1000.53.1 Area Description

LA-SMA-6.5 is a south facing drainage located on DP Mesa. The drainage is influenced by paved areas, structures, and roads on the developed area of DP Mesa. Storm water flows south from the paved parking area east of Building 21-0209 and across the parking lot access road to the receiving waters in Los Alamos Canyon.

1000.53.2 Potential Pollutant Sources

1000.53.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF L028, LA-SMA-6.5, Sites 21-021 and 21-024(i).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(i) is a former septic system at TA-21 that routed sewage from Building 21-152 through a septic tank (structure 21-181) to the surface southeast of a high-temperature chemistry building (Building 21-209). Also, the blowdown from cooling towers (structures 21-166 and 21-167) was routed to the outfall for this SWMU. The septic tank, which was removed from service in 1965, was made of reinforced concrete and was 6 x 10 x 8 deep. The associated inlet and outlet lines were made of six inch VCP. Drain-lines from the septic system surface in a broad open area that has a gentle slope extending about 30 feet to the south edge of DP Mesa above Los Alamos Canyon. Remediation activities took place between 1998 and 2002. These activities included excavation of contaminated soils from the outfall area (conducted in 1998) and removal of the septic system (conducted in 2001). The septic tank removal action involved removal of the septic tank contents, removal of the tank and outlet line, and removal of the inlet line from the tank to the fence of the Tritium Study Test Assembly facility.

Table-1000.53.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•	•	•	PCBs SVC
21-024(i)	Former Septic system	Co-located, Overlapping	Shared	•	•	•	PCBs SVC

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission

sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Site 21-024(i) has soil contamination associated with a former outfall from a septic system. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.53.3 Control Measures

This Permitted Feature has potential run-on from a paved parking lot north of the area.

Subsections to 1000.53.3 list all control measures used to control pollutant sources identified in Section 1000.53.2. Control measures are shown in Table 1000.53.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.53.4.

1000.53.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.53.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L028 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•		CB
L028 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L028 03 01 0004	Berms - Earthen	•			•	CB
L028 03 01 0006	Berms - Earthen	•			•	CB
L028 06 01 0002	Check Dam - Rock		•		•	CB

Seed and Wood Mulch (L028-01-01-0005)

The seed and mulch was applied in the north-central portion of the SMA near the edge of the mesa top. It is being used to help control erosion caused by storm water flow. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch,

gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (L028-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm - South (L028-03-01-0004)

The berm is located north of the check dam and south of the paved parking area. It is used to manage run-on from the paved area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

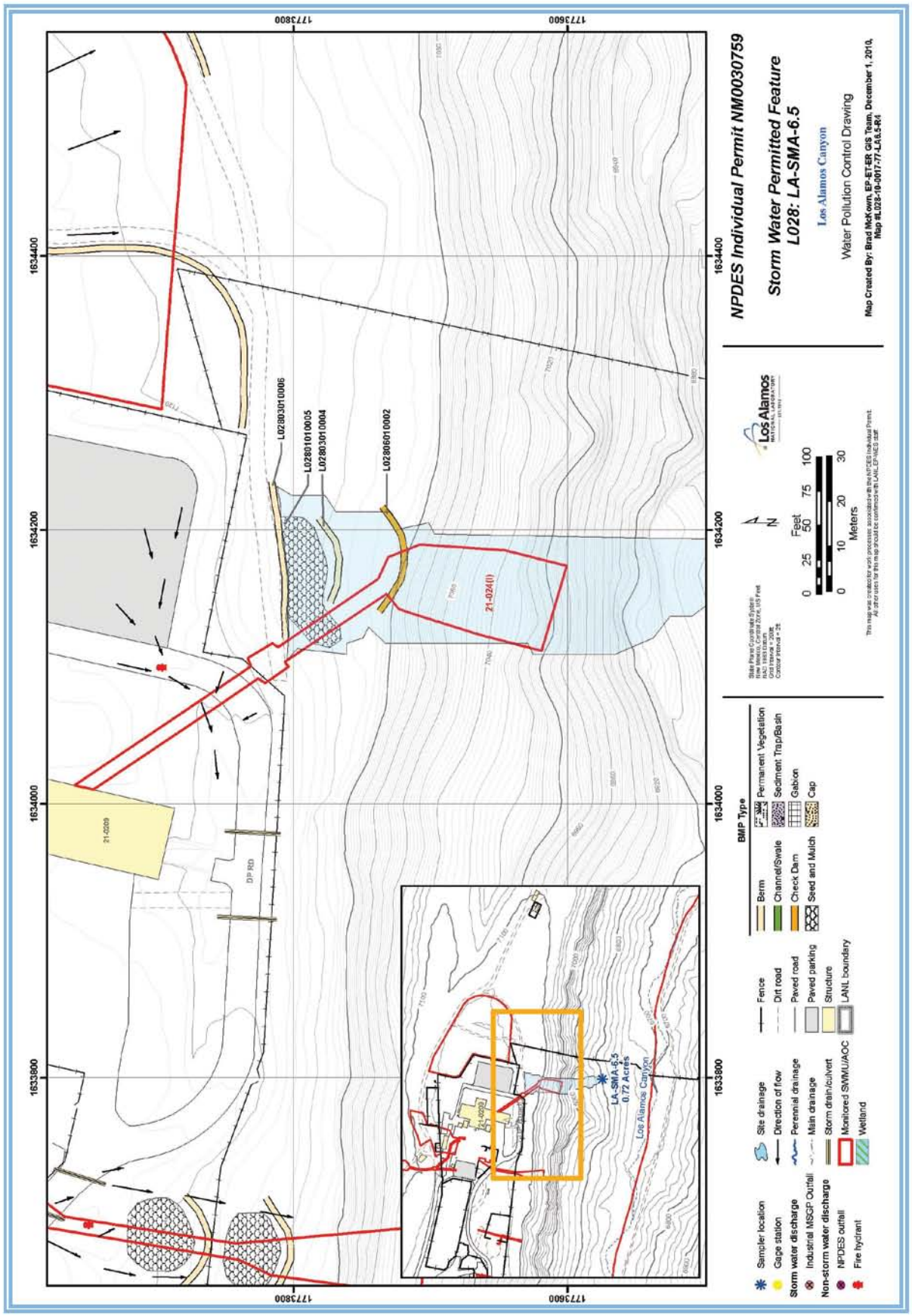
Earthen Berm - North (L028 03 01 0006)

This berm is located along the southern edge of the unpaved access road south of the paved parking area. It is in place to help control run-on from the paved area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dam (L028-06-01-0002)

The check dam is located on the edge of the mesa top south of the earthen berm. It is in place to help control run-off from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.53.4 Project Map



1000.53.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2) SVC (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.53.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-6.5. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.53.5.2 Inspection Activity

RG038 recorded five Storm Events at LA-SMA-6.5 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.53.5.2-1.

Table 1000.53.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13910	06-23-2011
Storm Rain Event	BMP-15892	08-03-2011
Storm Rain Event	BMP-17146	08-24-2011
Storm Rain Event	BMP-18312	09-12-2011
Annual Erosion	COMP-19741	09-29-2011

1000.53.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.53.5.3-1.

Table 1000.53.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13910	Repair erosion control blanket and reseed berm L2803010006.	07-13-2011	20 day(s)	Maintenance conducted as soon as practicable.

1000.53.6 Compliance Status

The Site associated with LA-SMA-6.5 is a high priority Site. Corrective action is to be certified complete within three years of the effective date of the IP.

1000.54 LA-SMA-9

1000.54 LA-SMA-9

1000.54.1 Area Description

LA-SMA-9 is located south of US 502 in an undeveloped area. Storm water flows from the undeveloped mesa before dropping south over the edge of the mesa to the receiving waters of Los Alamos Canyon. An unpaved access road crosses the top of the SMA and contributes to run-on at this SMA.

1000.54.2 Potential Pollutant Sources

1000.54.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF L029, LA-SMA-9, Sites 26-001, 26-002(a), 26-002(b) and 26-003.

SWMU 26-001 is a disposal area at TA-26 on the south-facing slope of Los Alamos Canyon that contains debris from a five-room concrete storage vault that was decommissioned and dismantled in 1966. The vault originally was used to store radioactive sources. The Zia Company later used it to store HE. The vault operated from about 1946 to 1966. Before dismantling, the vault was surveyed for radioactive contamination. Contaminated debris was removed. The non-contaminated remains of the vault were bulldozed into the canyon.

SWMU 26-002(a) is the former acid sump system that served the historic concrete storage vault at former TA-26 (D-Site) from 1948 to 1965. The sump system consisted of a six inch VCP floor drain in the south center room of the vault connected to a collection sump and outfall that discharged to Los Alamos Canyon. The collection sump was located outside the vault. The sump was decommissioned and its contents were disposed of either at TA-50, MDA C or over the edge of the mesa along with the vault debris. H-1 personnel assumed that the sump system was contaminated with radioactivity because of the contamination found in the storage vault.

The OU 1071 work plan proposed field surveys to verify removal of subsurface structures and surface and subsurface sampling at SWMU 26-002(a) to detect radioactive contamination.

SWMU 26-002(b) was the equipment room drainage system for the former TA-26 historic concrete storage vault. It carried effluent through a 4 in. VCP that discharged directly to Los Alamos Canyon.

The OU 1071 work plan proposed field surveys to verify removal of subsurface structures and surface and subsurface sampling at SWMU 26-002(b) and at the outfall to detect radioactive contamination.

SWMU 26-003 is the sanitary septic system that served sanitary facilities in the east room of the historic concrete storage vault at former TA-26. The septic system consisted of a four inch VCP drain-line connected to a 250 gallon steel septic tank. Effluent discharged to Los Alamos Canyon. The septic tank was thought to have handled only sanitary waste. However, because radioactive contamination was found in the vault, it is possible that contaminants were introduced into the system. Positive documentation of the septic tank's removal was not located, but it probably was removed at the same time as the sump system [SWMU 26-002(a)] was decommissioned. A radiological survey of the septic tank was not conducted because the tank was not easily accessible. H-1 personnel assumed that the septic tank was free from radioactive contamination because the tank served the toilet and sink in the least contaminated room of the storage vault.

The OU 1071 work plan proposed surveying to verify removal of subsurface structures, followed by surface and subsurface sampling to determine the presence or absence of contamination.

Table-1000.54.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
26-001	Surface disposal site	Co-located, Overlapping	Shared	•		•	
26-002(a)	Soil contamination from former acid sump system	Co-located, Overlapping	Shared	•		•	
26-002(b)	Drainline associated with Vault 26-1	Co-located, Overlapping	Shared	•		•	
26-003	Septic tank	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

TA-26 is a former technical area located south of State Highway 502, east and south of the Los Alamos County airport, and west of the East Gate Industrial Park. The area consisted of several structures, all of which were removed prior to 1966. Because of the proximity of the Sites to one another, the nature activities conducted in the area, and a shared conveyance, storm water run off from these areas will produce substantially identical effluent.

1000.54.2.2 Public Influences

Only the northern boundary is readily accessible to pedestrian traffic and pedestrian traffic is estimated low along this boundary.

1000.54.3 Control Measures

Berms and vegetation are used to address some of the run-on to this Permitted Feature. Existing controls augment these BMPs to provide for longer term, more sustainable control of the run-on sources. Run-off that is discharged over the edge of the mesa into the canyon is minimized by the concrete retaining wall.

Subsections to 1000.54.3 list all control measures used to control pollutant sources identified in Section 1000.54.2. Control measures are shown in Table 1000.54.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.54.4.

Table 1000.54.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L029 01 01 0006	Seed and Mulch - Seed and Wood Mulch			•		CB
L029 01 01 0007	Seed and Mulch - Seed and Wood Mulch			•		CB
L029 01 01 0008	Seed and Mulch - Seed and Wood Mulch			•		CB
L029 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
L029 03 01 0012	Berms - Earthen		•		•	CB
L029 03 01 0013	Berms - Earthen		•		•	CB
L029 03 01 0014	Berms Earthen		•		•	CB
L029 03 08 0005	Berms - Retaining Wall	•			•	CB
L029 04 05 0009	Channel/Swale - Water Bar	•		•		CB
L029 04 05 0010	Channel/Swale - Water Bar	•		•		CB
L029 04 05 0011	Channel/Swale - Water Bar	•		•		CB

Seed and Mulch (L029-01-01-0006, -0007, -0008)

There are three areas across the width of the SMA where seed and mulch have been applied near the northern boundary of the SMA. These areas were seeded to help prevent erosion of the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching

is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation
(L029-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

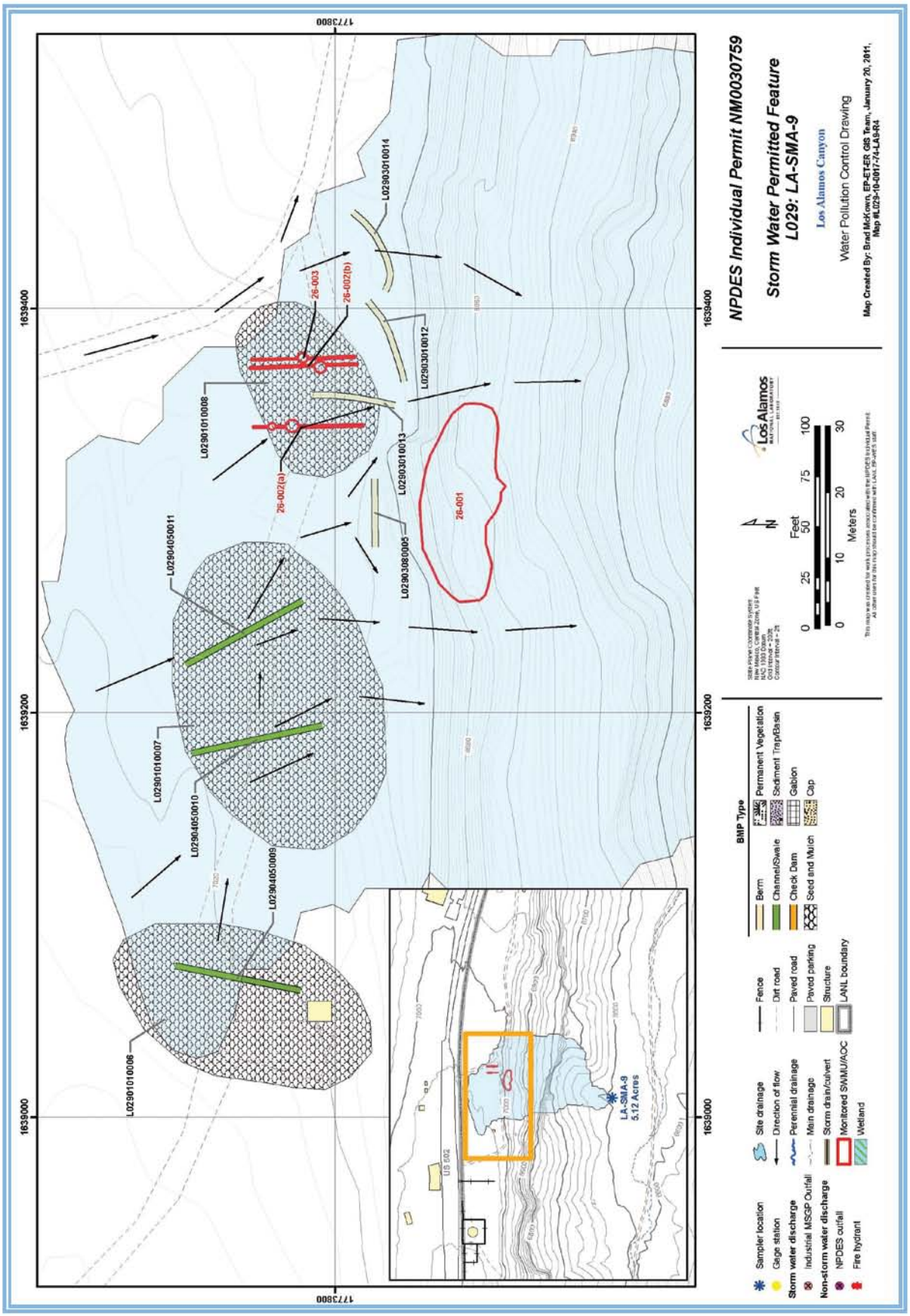
Earthen Berms
(L029-03-01-0012, -0013, -0014)
This is a group of three berms located near the edge of the mesa top above 26-001 located on the slope. They are used to control run-off from the SMA. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Retaining Wall
(L029-03-08-0005)
The retaining wall is located on the mesa top edge above Site 26-001. It is in place to divert run-on away from the Site towards the east. A retaining wall is generally made of concrete, brick, or similar material that is properly designed and installed to specification for the area. Generally used to promote soil retention, especially on areas with steep slopes.

Water Bar
(L029-04-05-0009, -0010, -0011)
This is a series of three water bars installed across the unpaved access road to control run-on and prevent erosion. A diversion dam constructed across a road or trail to remove and disperse surface run-off in a manner that adequately protects the soil resource and limits sediment transportation.

1000.54.3.2 Control Measures for Public Influences

There are no control measures for public influences at PF L029, LA-SMA-9. Although the potential for public influences at this SMA exists, no controls are necessary at this time.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
L029: LA-SMA-9
Los Alamos Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, January 20, 2011,
Map #LA029-10-0017-74-LA9-R4
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
BMP Type
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
Berm
Channel/Swale
Check Dam
Seed and Mulch
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
LA-SMA-9
5.12 Acres
L02901010006
L02901010007
L02904050010
L02904050009
L02904050011
L02901010008
L02903010014
L02903010012
L02903010013
L02903080005
26-001
26-002(a)
26-003
26-002(b)
1639400
1639200
1639000
1773800

1000.54.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.54.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-9. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.54.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at LA-SMA-9 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.54.5.2-1.

Table 1000.54.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13911	06-24-2011
Storm Rain Event	BMP-15388	08-01-2011
Storm Rain Event	BMP-15815	08-04-2011
Storm Rain Event	BMP-18280	09-07-2011
Annual Erosion	COMP-19742	09-29-2011

1000.54.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-9.

1000.54.6 Compliance Status

The Sites associated with LA-SMA-9 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.55 LA-SMA-10.11

1000.55.1 Area Description

1000.55.2 Potential Pollutant Sources

1000.55.2.1 Historical Industrial Activity Areas

1000.55.2.2 Public Influences

1000.55.3 Control Measures

1000.55.3.1 Control Measures for Public Influences

1000.55.4 Project Map

1000.55.5 Storm Water Monitoring Plan and Schedule

1000.55.5.1 Initial Confirmation Monitoring

1000.55.5.2 Inspection Activity

1000.55.5.3 Maintenance

1000.55.6 Compliance Status

1000.55 LA-SMA-10.11

1000.55.1 Area Description

LA-SMA-10.11 is located within TA-53 in a sparsely developed area. The monitored area has been the subject of extensive remediation and rehabilitation. The SMA is nearly flat and well vegetated. There are no significant run-on sources to the SMA and storm water discharge from this area is minimal during precipitation events.

1000.55.2 Potential Pollutant Sources

1000.55.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L030, LA-SMA-10.11, Site 53-002(a).

SWMU 53-002(a) consists of two former surface impoundments at TA-53 known as the northeast (NE) and northwest (NW) impoundments. These impoundments were constructed in 1969, and each is 210 x 210 x 6 ft with a former capacity of 1.6 million gallons The dikes comprising the sidewalls of the impoundments were constructed of compacted tuff lined with four to six inches of gunite. The bottoms of the impoundments were lined with four inches of bentonite clay. These impoundments were originally constructed to contain all sanitary, industrial, and radioactive wastewaters generated in TA-53 with no discharge. Because wastewater flows exceeded the evaporative capacity of the impoundments, however, it became necessary to discharge wastewater from the impoundments to an unlined drainage channel leading to Los Alamos Canyon. Discharges occurred on a batch basis through NPDES permitted outfall 09S. The impoundments also had an emergency overflow that discharged to the south of the impoundments, near a tributary to Sandia Canyon. In 1989, all radioactive wastewaters from TA-53 were discharged to a third impoundment. The NE and NW impoundments received sanitary and industrial wastewaters until 1993, when the impoundments were taken out of service. The water in the impoundments was then allowed to evaporate. The sludge and liner were removed from the northeast and northwest impoundments in an IA conducted in May/June 2002.

Table-1000.55.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
53-002(a)	Former surface impoundment	Discrete Location, No overlap	Individual	•		•	

1000.55.3 Control Measures

There are no significant run-on sources at this SMA. Run-off is controlled with rip rap at the former emergency overflow.

Subsections to 1000.55.3 list all control measures used to control pollutant sources identified in Section 1000.55.2. Control measures are shown in Table 1000.55.3-1 and described in paragraphs following the table. The control status field in these tables

indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.55.4.

1000.55.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.55.3-1

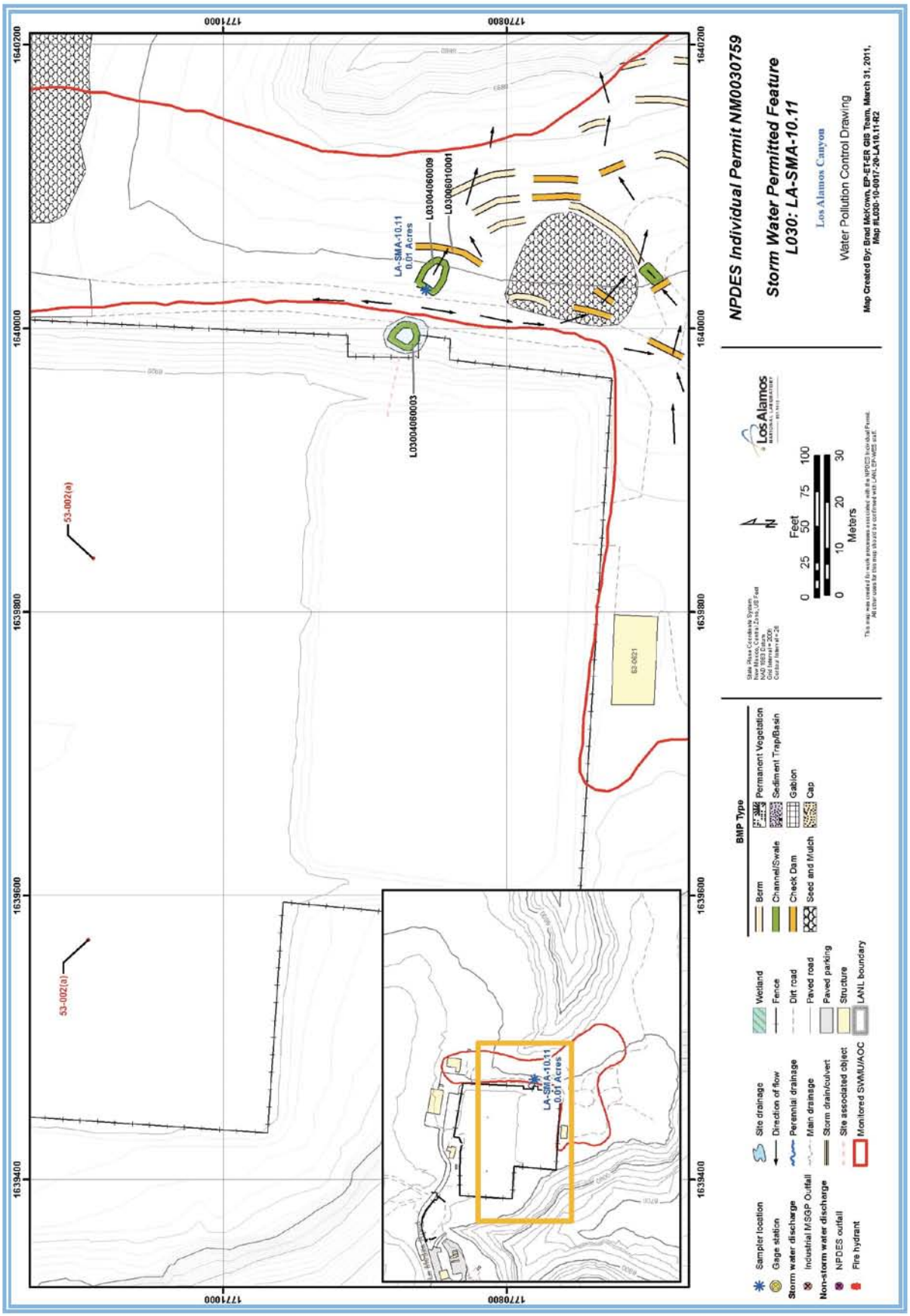
Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L030 04 06 0003	Channel/Swale - Rip Rap		•	•		CB
L030 04 06 0009	Channel/Swale - Rip Rap		•	•		CB
L030 06 01 0001	Check Dam - Rock		•		•	CB

Rip Rap (L030-04-06-0003)
Rip rap is located in the central portion of the Permitted Feature, northwest of the sampler, and is used to control run-off from the former lagoon emergency overflow. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Channel/Swale (L030-04-06-0009)
This rip rap is located on the eastern side of the unpaved access road adjacent to the sampler. It is used to control run-off from the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dam (L030-06-01-0001)
The check dam is located southeast of the sampler. Its purpose is to mitigate run-off from the SMA and control sediment transport. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.55.4 Project Map



1000.55.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.55.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at LA-SMA-10.11. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.55.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at LA-SMA-10.11 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.55.5.2-1.

Table 1000.55.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13796	07-07-2011
Storm Rain Event	BMP-15384	08-01-2011
Storm Rain Event	BMP-15811	08-08-2011
Storm Rain Event	BMP-18276	09-12-2011
Annual Erosion	COMP-19743	09-29-2011

1000.55.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-10.11.

1000.55.6 Compliance Status

A Certificate of Completion was issued for Site 53-002(a) within this SMA on September 13, 2006 [NMED 2006]. The New Mexico Environment Department has determined that a corrective action complete with controls designation is appropriate for Site 53-002(a).

The Site associated with LA-SMA-10.11 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.56 LA-SMA-10.12

1000.56 LA-SMA-10.12

1000.56.1 Area Description

LA-SMA-10.12 is located within TA-53. The northern boundary of the SMA slopes towards the east before dropping over the mesa edge to the receiving waters. The southern and western boundaries of the SMA are crossed by an unpaved access road. The eastern boundary of the SMA contains a bare channel where an overflow from a former sewage treatment lagoon previously discharged.

1000.56.2 Potential Pollutant Sources

1000.56.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF L030A, LA-SMA-10.12, Site 53-008.

AOC 53-008 is an unpaved open area (referred to as a "boneyard") used to store used materials and equipment associated with experiments conducted at TA-53. This storage area, approximately 3 to 4 acres in size, is irregularly shaped and located east and south of the former TA-53 surface impoundments [Consolidated Unit 53-002(a)-99]. Most of the storage area is vegetated with grasses, shrubs, and juniper trees, and several dirt trails also run through it. Materials shown to be present at the site in 1989 photographs include vacuum pumps, metal ducting, concrete shielding blocks, empty overpack drums, and drums containing steel bearings.

This site was inspected in September 1993 during preparation of the RFI work plan and found to contain shielding blocks (magnetite concrete and steel), concrete, steel, other metallic debris, and other miscellaneous items. No hazardous materials or chemicals were observed, with the exception of lead stored in a shed (structure 53-621) at the south end of the site.

This area has been used for storage from approximately 1972 to the present. Currently, much of the material previously stored at the site has been removed.

Table-1000.56.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
53-008	Storage area	Discrete Location, No overlap	Individual	•		•	

1000.56.3 Control Measures

Near the southern portion of the SMA, run-off from bare areas and the unpaved access road flows west to east and ultimately to a natural channel that discharges towards the receiving waters.

Subsections to 1000.56.3 list all control measures used to control pollutant sources identified in Section 1000.56.2. Control measures are shown in Table 1000.56.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.56.4.

1000.56.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.56.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L030A-01-01-0024	Seed and Mulch Seed and Wood Mulch			•		CB
L030A 01 02 0018	Seed and Mulch Seed and Gravel			•		CB
L030A 03 01 0025	Berms - Earthen		•		•	B
L030A 03 12 0005	Berm - Rock	•			•	CB
L030A 03 12 0006	Berm - Rock	•			•	CB
L030A 03 12 0009	Berms - Rock		•		•	CB
L030A 03 12 0012	Berm - Rock	•			•	CB
L030A 03 12 0013	Berm - Rock		•		•	CB
L030A 03 12 0014	Berm - Rock		•		•	CB
L030A 03 12 0015	Berm - Rock		•		•	CB
L030A 03 12 0016	Berm - Rock		•		•	CB
L030A 03 12 0017	Berm - Rock	•			•	CB
L030A 03 12 0019	Berm - Rock	•			•	CB
L030A 03 12 0020	Berm - Rock		•		•	CB

Table 1000.56.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
L030A 03 12 0021	Berm - Rock		•		•	CB
L030A 03 12 0022	Berm - Rock		•		•	CB
L030A 03 12 0023	Berm - Rock		•		•	CB
L030A 04 06 0007	Channel/Swale - Rip Rap		•	•		CB
L030A 06 01 0001	Check Dam - Rock	•			•	CB
L030A 06 01 0002	Check Dam - Rock	•			•	CB
L030A 06 01 0003	Check Dam - Rock		•		•	CB
L030A 06 01 0004	Check Dam - Rock		•		•	CB
L030A 06 01 0008	Check Dam - Rock	•			•	CB
L030A 06 01 0011	Check Dam - Rock		•		•	CB

Wood Mulch (L030A-01-01-0024)

Wood mulch has been applied near the edge of the mesa north of the SMA to help prevent erosion of the slope. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Gravel Mulch (L030A-01-02-0018)

Gravel mulch has been applied to the area around the check dams east of the unpaved access road in order to help control erosion on the slope. Seed and mulch will always

be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Berms
(L030A-03-01-0025)
An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berms
(L030A-03-12-0005, -0006, -0019)
This is a series of three rock berms that are located across an unpaved access road in the southern portion of the SMA. They are used to control run-on from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berms - North
(L030A-03-12-0009, -0022, -0023)
This is a series of three berms located in the northern portion of the permitted feature, east of the primary unpaved access road. They are used to help divert run-off away from the sampled area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berm - West
(L030A-03-12-0012)
This berm is located south of the fence line corner across an abandoned unpaved access road. It is used to help mitigate storm water run-on from the slope above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berms - East
(L030A-03-12-0013, -0014, -0015, -0016, -0020, -0021)
This is a group of six rock berms that are located on the slope between the sampler and the unpaved access road. The are in place to assist with storm water run-off control on the slope. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berm - North Central
(L030A-03-12-0017)
This rock berm is located just east of the north south unpaved access road. It is used to help control storm water run-on from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rip Rap
(L030A-04-06-0007)
This rip rap is located east of the primary unpaved access road towards the center of the SMA. It is used to mitigate run-off from the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams - South
(L030A-06-01-0001, -0003)
This is a pair of check dams located within a flow path, east of the primary unpaved access road. They are used to help control run-on from the unpaved roads. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

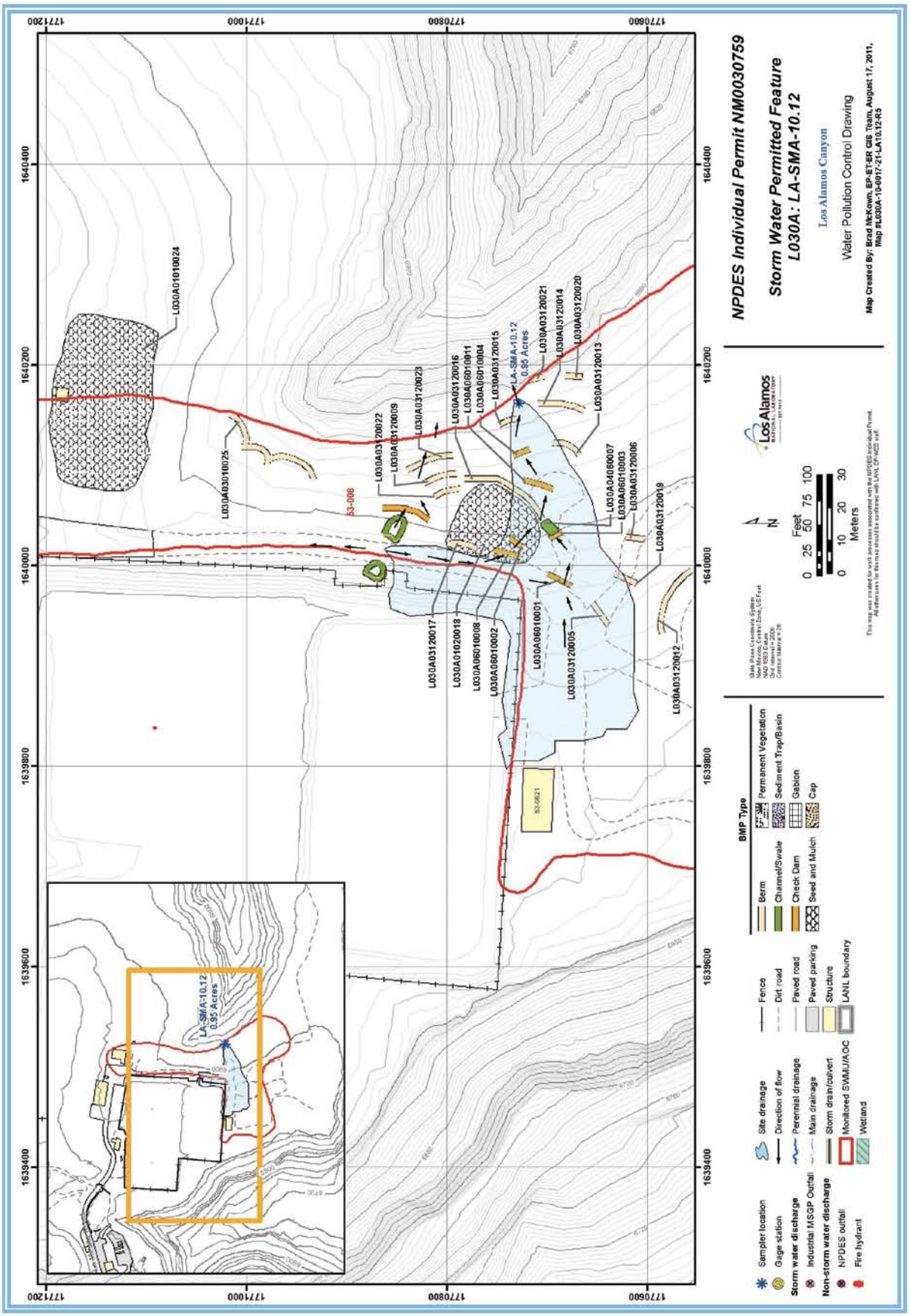
Rock Check Dams - Central
(L030A-06-01-0002, -0008)
This is a pair of check dams located along the eastern edge of the unpaved

access road near the southeast corner of the fenced area. They are functioning as run-on controls, managing storm water flow from the road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam
(L030A-06-01-0004)
This check dam is located west of the sampler. It is managing run-off from the slope above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - North
(L030A-06-01-0011)
This is a pair of check dams that are located east of the north-south unpaved access road, northwest of the sampler. They are used to control run-off and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.56.4 Project Map



1000.56.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

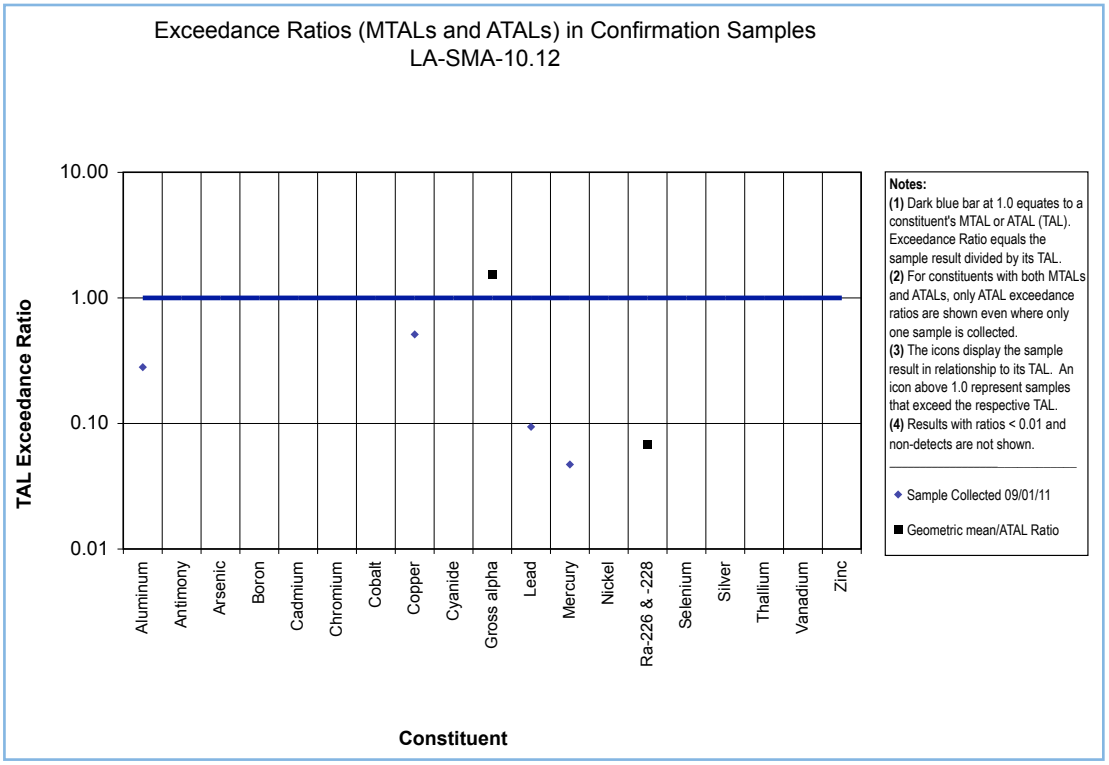
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.56.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from LA-SMA-10.12 on September 01, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.56.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at LA-SMA-10.12 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.56.5.2-1.

Table 1000.56.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13797	07-07-2011
Preventative Maintenance	BMP-14402	07-22-2011
Storm Rain Event	BMP-15385	08-01-2011
Storm Rain Event	BMP-15812	08-08-2011
Construction	COMP-16059	08-17-2011
Storm Rain Event	BMP-18277	09-09-2011
Annual Erosion	COMP-19744	09-29-2011

1000.56.5.3 Maintenance

During 2011 there were no maintenance activities at LA-SMA-10.12.

1000.56.6 Compliance Status

The Site associated with LA-SMA-10.12 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.57 DP-SMA-0.3

1000.57.1 Area Description

1000.57.2 Potential Pollutant Sources

1000.57.2.1 Historical Industrial Activity Areas

1000.57.3 Control Measures

1000.57.4 Project Map

1000.57.5 Storm Water Monitoring Plan and Schedule

1000.57.5.1 Initial Confirmation Monitoring

1000.57.5.2 Inspection Activity

1000.57.5.3 Maintenance

1000.57.6 Compliance Status

1000.57 DP-SMA-0.3

1000.57.1 Area Description

SMA DP-SMA-0.57 is located north of DP Mesa. The surrounding area is heavily developed. Run-off generally trends to the east and north before reaching the receiving waters of DP Canyon further north. Storm water run-off in the area is influenced by run-off from structures and activities associated with Los Alamos County operation of the adjacent fire training school and storage yard. Much of the area within and around the SMA is paved and impervious. There are multiple run-on sources to this SMA.

1000.57.2 Potential Pollutant Sources

1000.57.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF D001, DP-SMA-0.3, Site 21-029.

SWMU 21-029, DP Tank Farm, is the former location at TA-21 of 15 storage tanks and 2 fill stations that contained various petroleum hydrocarbon products. DP Tank Farm was operational from 1946 to 1985 and is a 3.5 acre site located between the eastern boundary of the Knights of Columbus property line and the western boundary of the Los Alamos County Fire and Training Station. DP Tank Farm was the primary fueling station supporting LASL/LANL operations until the late 1970s, when some of the fuel storage and distribution operations were moved to TA-03. Thirteen of the tanks were installed below ground, and two were installed aboveground. In order to contain any petroleum hydrocarbon release, an earthen berm was constructed on the northern perimeter of the site sometime between 1974 and 1986. The berm was approximately 397 ft long x 4 ft high. All storage tanks and structures (including piping, fill stations, and valve boxes) were decommissioned and removed in 1988. The excavation for each underground tank was backfilled with the soil that had covered the tanks. During decommissioning activities, one tank (structure-21-ATF-10) had a leaking gasket. The remaining tanks were reportedly in excellent condition, as found during the 1980 corrosion inspections. Approximately four cubic yards of contaminated soil were removed from beneath the former location of structure-21-ATF-10. In addition, approximately 75 cubic yards of contaminated soil were removed from the former locations of the two fill stations. Clean fill was brought in to fill the depression caused by the removal of contaminated soil beneath structure-21-ATF-10. Clean soil from the soil berm was used to regrade the site. Piping and concrete were disposed of at Los Alamos County landfill. Petroleum-contaminated soil excavated during decommissioning activities was removed. In addition, in 1996, 1720 cubic yards of petroleum-contaminated soil and tuff were excavated and removed from the former location of the East Fill Station. The excavation was backfilled, regraded, and reseeded.

Table-1000.57.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-029	Former DP Tank Farm	Discrete Location, No overlap	Individual	•		•	

1000.57.2.2 Urban Influences

There is drum storage at the fire fighting training facility. Influences from fire fighting training activities should be monitored for impacts to this SMA. Two fire hydrants are located within the SMA and fire fighting equipment maintained by Los Alamos County (trucks, foams, and retardants) is stored in the area.

1000.57.3 Control Measures

There are a number of run-on sources from adjacent areas to this SMA. Run-on from DP Road travels east along the access drive north of the southern fence boundary. Run-on from DP Road also enters the site at the access point on the western portion of the SMA.

Subsections to 1000.57.3 list all control measures used to control pollutant sources identified in Section 1000.57.2. Control measures are shown in Table 1000.57.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.57.4.

1000.57.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.57.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D001 02 02 0005	Established Vegetation - Forested/Needle			•		CB
D001 03 01 0014	Berms - Earthen	•			•	B
D001 03 02 0011	Berms Base Course		•		•	CB
D001 03 02 0012	Berms Base Course		•		•	CB
D001 03 12 0013	Berms Rock		•		•	CB
D001 06 01 0008	Check Dam Rock		•		•	CB
D001 06 01 0009	Check Dam Rock		•		•	CB
D001 07 01 0001	Gabions - Gabions		•		•	CB

Established Vegetation (D001-02-02-0005)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Berms (D001-03-01-0014)

An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berms (D001-03-02-0011, -0012)

This is a pair of berms located adjacent, parallel, to the fence line west of the sampler. They are used to help manage storm water run-off from the unpaved access road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berm (D001-03-12-0013)

This rock berm is located at the western end of the gabion and runs parallel to the fence line. It is used to help control run-off. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dam (D001-06-01-0008)

This check dam is located in the drainage channel immediately south of the sampler. It is used to assist in managing run-off flow from above. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - West (D001-06-01-0009)

This check dam is located west of the sampler along the edge of the mesa. It is in place to help control run-off. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Gabions (D001-07-01-0001)

Gabions are installed at the discharge point near the northwest corner of the fire department training area. They are used to limit sediment transport from flow associated with the surrounding impervious area. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions are used for sediment control when installed perpendicular to the storm water flow as with a check dam.

1000.57.3.2 Control Measures for Urban Influences

Table 1000.57.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D001 02 01 0015	Established Vegetation - Grasses and Shrubs			•		B
D001 07 02 0006	Gabions - Gabion Blanket	•		•		CB

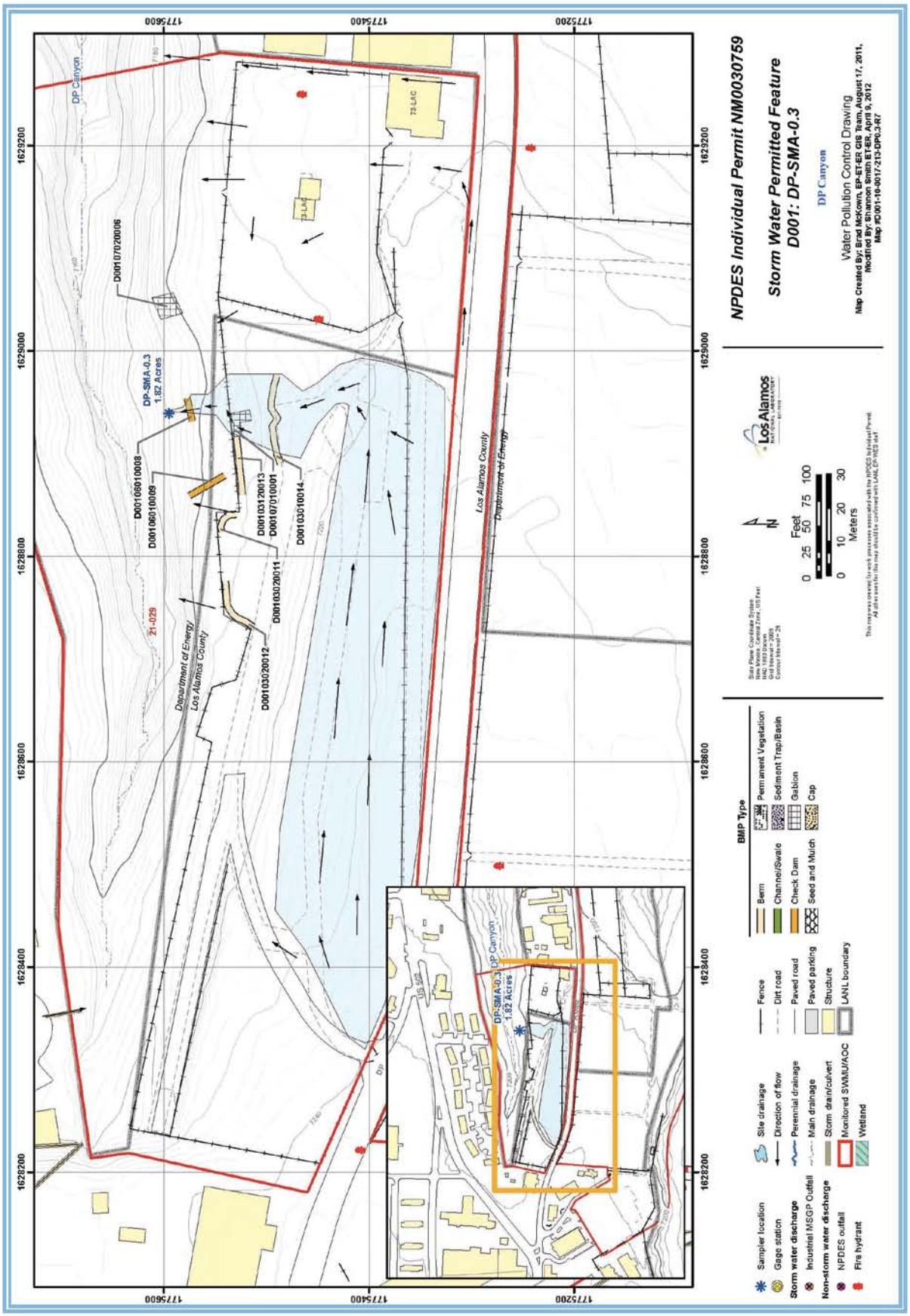
Established Vegetation (D001-02-01-0015)

This established vegetation is located between the fence and the edge of the mesa top east of the sampler in order to help prevent erosion. Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while pinon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Gabion Blanket (D001-07-02-0006)

This gabion blanket is located east of the sampler at the edge of the mesa top. It is used to help control run-on and prevent erosion. Gabions are large, multi-celled, welded wire or rectangular wire mesh boxes, used in channel revetments, retaining walls, abutments, and check dams. Gabions and gabion blankets are used for erosion control when they are used to line a channel or swale.

1000.57.4 Project Map



1000.57.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

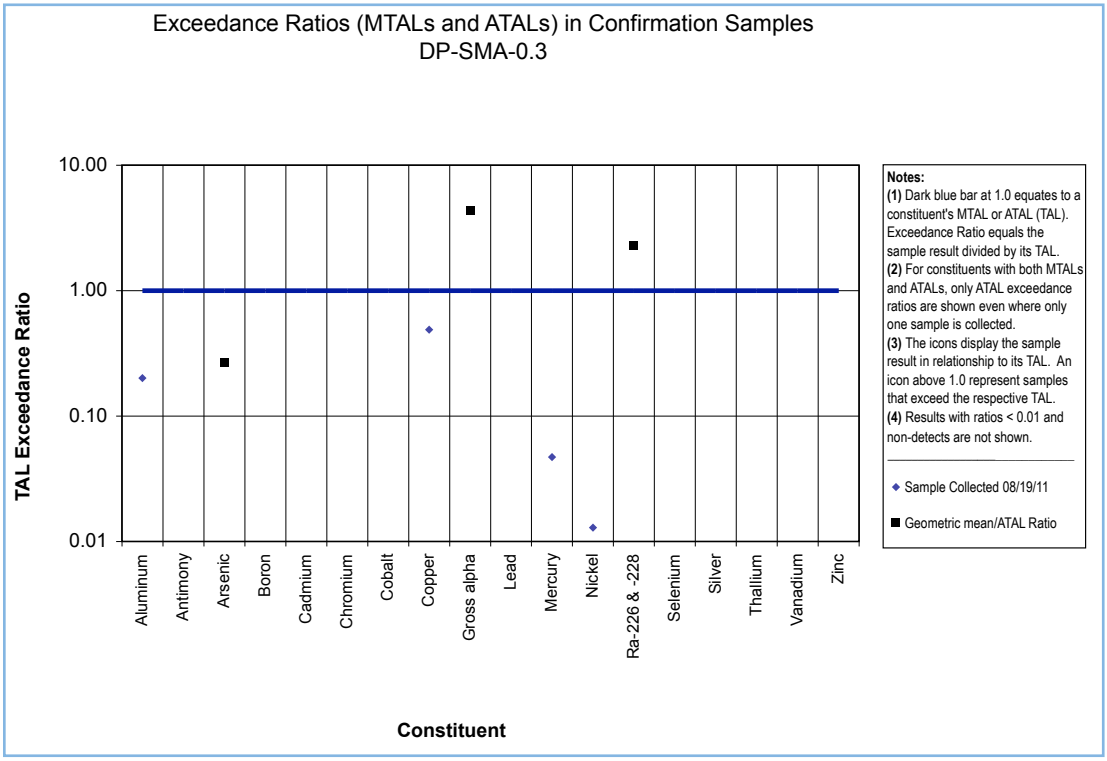
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.57.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from DP-SMA-0.3 on August 19, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.57.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-0.3 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.57.5.3-1.

Table 1000.57.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13871	06-22-2011
Storm Rain Event	BMP-15874	08-03-2011
Construction	COMP-16178	08-11-2011
Storm Rain Event	BMP-17128	08-24-2011
Storm Rain Event	BMP-18294	09-09-2011
Annual Erosion	COMP-19719	09-29-2011

1000.57.5.3 Maintenance

During 2011 there were no maintenance activities at DP-SMA-0.3.

1000.57.6 Compliance Status

The Site associated with DP-SMA-0.3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.58 DP-SMA-0.4

1000.58 DP-SMA-0.4

1000.58.1 Area Description

Storm water at DP-SMA-0.4 flows from the developed area on DP Mesa north towards the receiving waters. The northern boundary of the SMA is influenced by a paved access road that circles DP Mesa. The SMA extends beyond the access road in a gentle slope to the receiving waters of DP Canyon.

1000.58.2 Potential Pollutant Sources

1000.58.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF D002, DP-SMA-0.4, Site 21-021.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.58.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Individual	•		•	

1000.58.2.2 Urban Influences

Drainage from the paved access road is managed and diverted east away from the area. DP Mesa road is banked south, away from the SMA greatly reducing run-on sources to the area.

1000.58.3 Control Measures

Storm water controls around this SMA are working to divert water away from the monitored area. The paved area in the headwaters of the SMA is controlled with a vegetated swale. The area around the monitoring station is heavily vegetated and effectively mitigating run-off from the SMA.

Subsections to 1000.58.3 list all control measures used to control pollutant sources identified in Section 1000.58.2. Control measures are shown in Table 1000.58.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.58.4.

1000.58.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.58.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D002 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
D002 03 06 0005	Berms - Straw Wattles	•			•	CB
D002 03 06 0007	Berms - Straw Wattles		•		•	CB
D002 04 01 0002	Channel/Swale - Earthen	•		•		CB
D002 04 06 0006	Channel/Swale - Rip Rap	•			•	CB
D002 06 03 0004	Check Dam - Juniper Bales	•			•	CB

Established Vegetation (D002-02-01-0001)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Wattles - Straw (D002-03-06-0005)
These wattles divert run-on from the culvert outlet back into the former channel and away from the SWMU. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattle (D002-03-06-0007)
This wattle is located near the curve north of the paved road Kiwi. They were installed to help control run-off from the paved road. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Earthen Swale (D002-04-01-0002)
Run-on from the paved area south of DP Mesa road is controlled by a vegetated swale.

Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rip Rap (D002-04-06-0006)

The rip rap is located at the northern end of the culvert outlet. It is used to mitigate storm water run-on and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Juniper Bales (D002-06-03-0004)

These juniper bales divert run-on from the culvert back into the former channel and away from the SWMU. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.58.3.2 Control Measures for Urban Influences

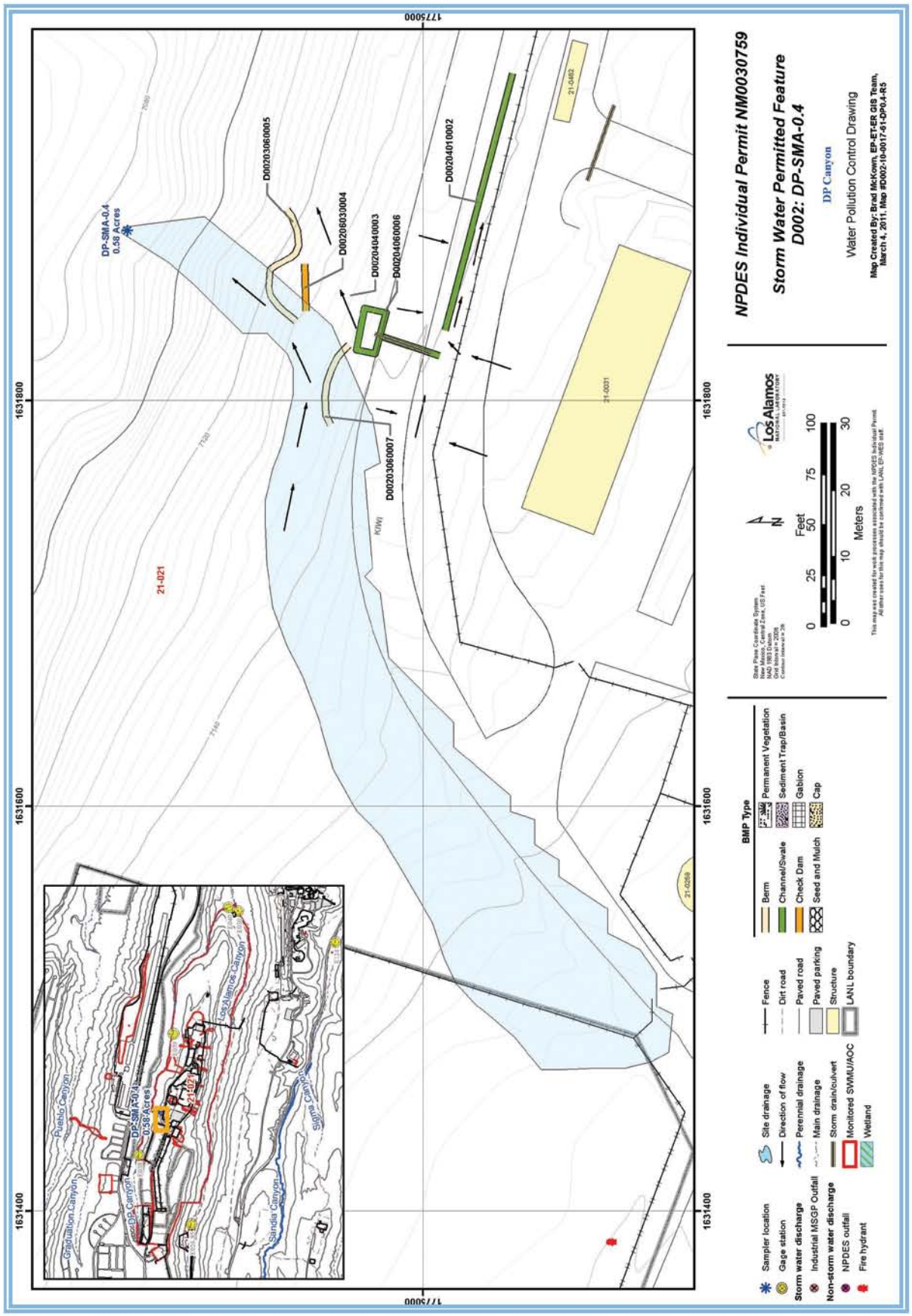
Table 1000.58.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D002 04 04 0003	Channel/Swale - Culvert	•		•		CB

Culvert (D002-04-04-0003)

This culvert serves to divert run-on from the impervious areas towards the north and east, away from the permitted area. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

1000.58.4 Project Map



1000.58.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.58.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-0.4. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.58.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-0.4 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.58.5.2-1.

Table 1000.58.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13877	06-22-2011
Storm Rain Event	BMP-15875	08-03-2011
Storm Rain Event	BMP-17129	08-24-2011
Storm Rain Event	BMP-18295	09-09-2011
Annual Erosion	COMP-19720	09-29-2011

1000.58.5.3 Maintenance

During 2011 there were no maintenance activities at DP-SMA-0.4.

1000.58.6 Compliance Status

The Sites associated with DP-SMA-0.4 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.59 DP-SMA-0.6

1000.59.1 Area Description

1000.59.2 Potential Pollutant Sources

1000.59.2.1 Historical Industrial Activity Areas

1000.59.2.2 Urban Influences

1000.59.3 Control Measures

1000.59.4 Project Map

1000.59.5 Storm Water Monitoring Plan and Schedule

1000.59.5.1 Initial Confirmation Monitoring

1000.59.5.2 Inspection Activity

1000.59.5.3 Maintenance

1000.59.6 Compliance Status

1000.59 DP-SMA-0.6

1000.59.1 Area Description

DP-SMA-0.6 is located within a fenced and developed area on DP Mesa. There is no public access to the SMA the area is gated and locked. The surrounding area is influenced by structures and related paved areas. The southern boundary of the SMA is bounded by the footprint of former building 21-021. The eastern boundary of the SMA is developed and contains a paved access road. The western boundary of the SMA is developed land. Storm water flows north across a gentle grade before reaching the receiving waters to the north.

1000.59.2 Potential Pollutant Sources

1000.59.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF D003, DP-SMA-0.6, Sites 21-021 and 21-024(l).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(l) is an outfall that received liquid waste from the floor drain of the Building 21-21 mechanical room. The drain-line to the outfall ran north toward DP Canyon; however, no engineering drawing has been found showing the location of the drain-line to the outfall. It is possible that the outfall was near the present location of an above ground tank (structure 21-335), AOC 21-004(a). A second likely location is a culvert approximately 40 feet northeast of structure 21-335. A geophysical survey will be conducted to locate the outfall discharge point by following the three inch cast iron drain-line as it exits Building 21-21. Analytical results from 1988 reconnaissance sampling indicated zinc, americium-241, plutonium-239/-240, and tritium were reported above their respective BVs/FVs. Oil and grease were also reported above detection limits. Uranium is considered a potential contaminant because Building 21-21 was used to store uranium and plutonium metal.

Table-1000.59.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(l)	Outfall from Building 21-21	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks

associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Site 21-024(l) was a drain-line and outfall from a mechanical room in former building 21-021. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.59.3 Control Measures

Run-on to the site is controlled by culverts and swales along the access road west of former building 21-021, a channel west of the site, and curbed perimeter along the fence surrounding the foundation of the former building 21-021.

Subsections to 1000.59.3 list all control measures used to control pollutant sources identified in Section 1000.59.2. Control measures are shown in Table 1000.59.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.59.4

1000.59.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.59.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D003 01 06 0015	Seed and Mulch - Erosion Control Blankets			•		CB
D003 03 01 0013	Berms - Earthen		•		•	CB
D003 03 01 0014	Berms - Earthen		•		•	CB
D003 03 02 0011	Berms - Base Course	•			•	CB
D003 04 01 0004	Channel/Swale - Earthen	•		•		CB
D003 04 04 0005	Channel/Swale - Culvert	•		•		CB
D003 05 02 0010	Sediment Traps and Basins - Sediment Basin		•		•	CB
D003 08 02 0012	Cap - Rock			•		CB

Sampler Area Seed and Mulch (D003-01-06-0015)

This erosion controlling seed and mulch surrounds the sampler, extending primarily east and west around it. Used to temporarily stabilize and protect disturbed soil from raindrop impact and surface erosion, to increase infiltration, to decrease compaction and soil crusting, to conserve soil moisture, and to promote vegetation establishment. Erosion control blankets are used in place of mulch on areas of high velocity run-off and/or steep grade, to aid in controlling erosion on critical areas by protecting young vegetation.

Earthen Berms (D003-03-01-0013, -0014)

This group of two berms are located west of the sampler in the middle of mulched area -0015 in order to control run-off and erosion. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berms (D003-03-02-0011)

This berm lies south of the sampler, and controls run-on and sediment as water moves from the southwest to the northeast. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Channel/Swale (D003-04-01-0004)

Swales along the access road west of former building 21-021 divert run-on from the impervious area to the south away from the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Culvert (D003-04-04-0005)

Culverts along the access road east of former building 21-021 divert run-on from the impervious area to the south of the site around the perimeter of the Permitted Feature. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

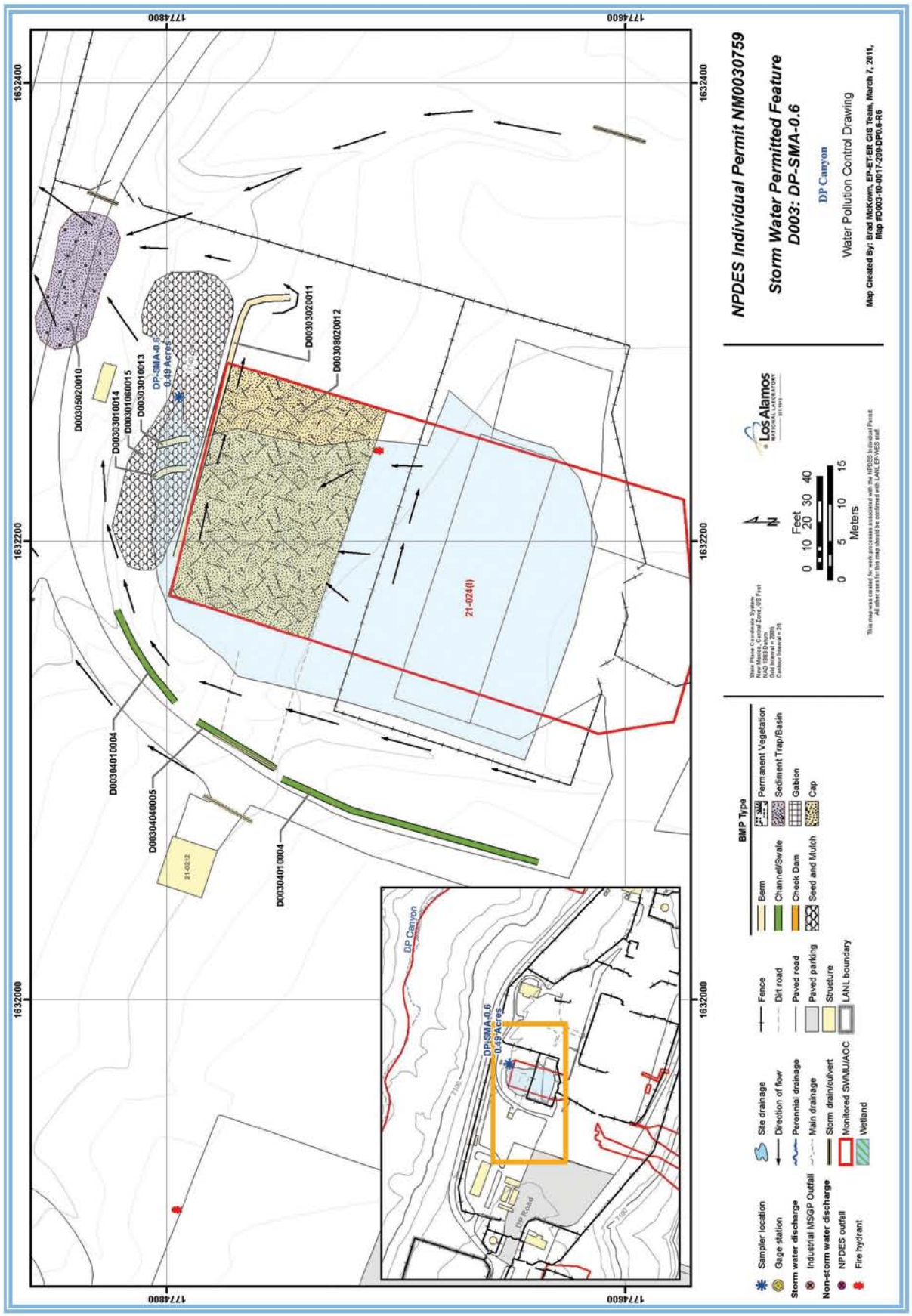
Northeastern Sediment Traps and Basins (D003-05-02-0010)

This is a large sediment basin northeast of the sampler. It controls runoff and sediment as water moves northeast. Sediment basins are used to detain sediment and run off and release it at a reduced rate through a controlled outlet structure. Sediment traps and detention basins are used primarily for sediment control and secondarily for run-off control.

Central Cap (D003-08-02-0012)

This large rock cap is centrally located to control erosion. A rock cap consists of clean non-native rock material (i.e. base course, cobble, etc.) generally 1 foot or greater in depth that is properly compacted. Generally used to cap potential soil contamination areas. This category of storm water control includes earth, rock and asphalt caps. Caps are used primarily for erosion control and to isolate areas of potential soil contamination from storm water.

1000.59.4 Project Map



1000.59.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.59.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-0.6. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.59.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-0.6 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.59.5.2-1.

Table 1000.59.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13878	06-22-2011
Storm Rain Event	BMP-15876	08-03-2011
Storm Rain Event	BMP-17130	08-24-2011
Storm Rain Event	BMP-18296	09-09-2011
Annual Erosion	COMP-19721	10-13-2011

1000.59.5.3 Maintenance

During 2011 there were no maintenance activities at DP-SMA-0.6.

1000.59.6 Compliance Status

The Sites associated with DP-SMA-0.6 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.60 DP-SMA-1

1000.60 DP-SMA-1

1000.60.1 Area Description

DP-SMA-1 is located north of the developed DP Mesa. This primary access road for the mesa provides storm water contribution to the SMA. The northern boundary of the SMA contains the receiving waters of DP Canyon. The southern boundary of the SMA is influenced by access roads and numerous structures. The eastern boundary is undeveloped, sloping, and contains an unpaved access road. The western boundary is undeveloped.

1000.60.2 Potential Pollutant Sources

1000.60.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF D004, DP-SMA-1, Sites 21-011(k) and 21-021.

SWMU 21-011(k) consists of the outfall discharge line at TA-21 that carried industrial wastewater from the new industrial waste treatment plant (Building 21-257) through two holding tanks to a discharge point on the south slope of DP Canyon. Untreated wastes from the former industrial waste treatment plant (Building 21-35) were also discharged in the area of the outfall. The discharge point was the end of a four inch cast iron pipe located approximately 55 feet north of the TA-21 perimeter road. A gently sloping, rocky surface extends from the outfall pipe approximately 30 feet north to the canyon rim, where there is a steep drop down into DP Canyon. The outfall is no longer active. In 1996 and 1997, a portion of the radionuclide source term from the outfall area was removed and storm water control measures were installed as a BMP. Approximately 390 cubic yards of soil were excavated and removed. Storm water controls were installed in 1997 and upgraded in 1999.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.60.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-011(k)	Outfall from Building 21-257	Co-located, Overlapping	Shared	•	•	•	PCBs
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•	•	•	PCBs

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission

sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.60.2.2 Urban Influences

Controlling run-on sources from the paved access road is crucial to successful management of this SMA. Run-on occurs freely on the western side of the SMA. Run-on from paved areas to the east are directed across the area. The unpaved road is beginning to vegetate but does contribute to run-on for the area.

1000.60.3 Control Measures

Run-on originates on the paved access road and to a lesser extent, on the unpaved access road. Run-on controls function primarily to divert storm water from these areas around the monitored area.

Subsections to 1000.60.3 list all control measures used to control pollutant sources identified in Section 1000.60.2. Control measures are shown in Table 1000.60.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.60.4.

1000.60.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.60.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D004 01 01 0010	Seed and Mulch - Seed and Wood Mulch			•		CB
D004 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
D004 03 01 0011	Berms - Earthen		•		•	B
D004 03 02 0014	Channel/Swale - Rock	•			•	B
D004 03 12 0009	Berms - Rock		•		•	CB

Table 1000.60.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D004 03 12 0012	Berms - Rock		•		•	B
D004 04 06 0004	Channel/Swale - Rip Rap	•		•		CB
D004 06 03 0006	Check Dam - Juniper Bales		•		•	CB
D004 06 03 0007	Check Dam - Juniper Bales		•		•	CB
D004 06 03 0008	Check Dam - Juniper Bales		•		•	CB

Seed and Wood Mulch (D004-01-01-0010)

The areas on the north side of the earthen berm have had seed and wood mulch applied as an erosion control. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact,increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (D004-02-01-0003)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Berms (D004-03-01-0011)

This earthen berm is located on the northeastern edge of the SMA drainage area and is used to control run-off. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm (D004-03-02-0014)

The berm is located south of Kiwi Road from the Site and diverts run-on from the adjacent road away from the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-

off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Berm (D004-03-12-0009, -0012)

These rock berms are located southwest of the sampler. They are used to mitigate run-off from the slope above and to reduce sediment loading. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rip Rap (D004-04-06-0004)

This rip rap is located in the middle of the Permitted Feature and is used to prevent erosion as run-on water flows from the east and south across the area. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Check Dam - Juniper Bales (D004-06-03-0006, -0007, -0008)

This is a series of three juniper bales located northwest of the sampler, near the terminus of the natural channel on the western side of 21-011(k). They are intercepting the channel flow run off. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.

1000.60.3.2 Control Measures for Urban Influences

Table 1000.60.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D004 03 01 0002	Berms - Earthen	•			•	CB
D004 03 06 0013	Berms - Straw Wattles	•			•	B
D004 04 02 0005	Channel/Swale - Concrete/Asphalt	•		•		CB

Earthen Berm (D004-03-01-0002)

The berm is located across the southern portion of the site and diverts run-on from the adjacent road away from the Permitted Feature. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

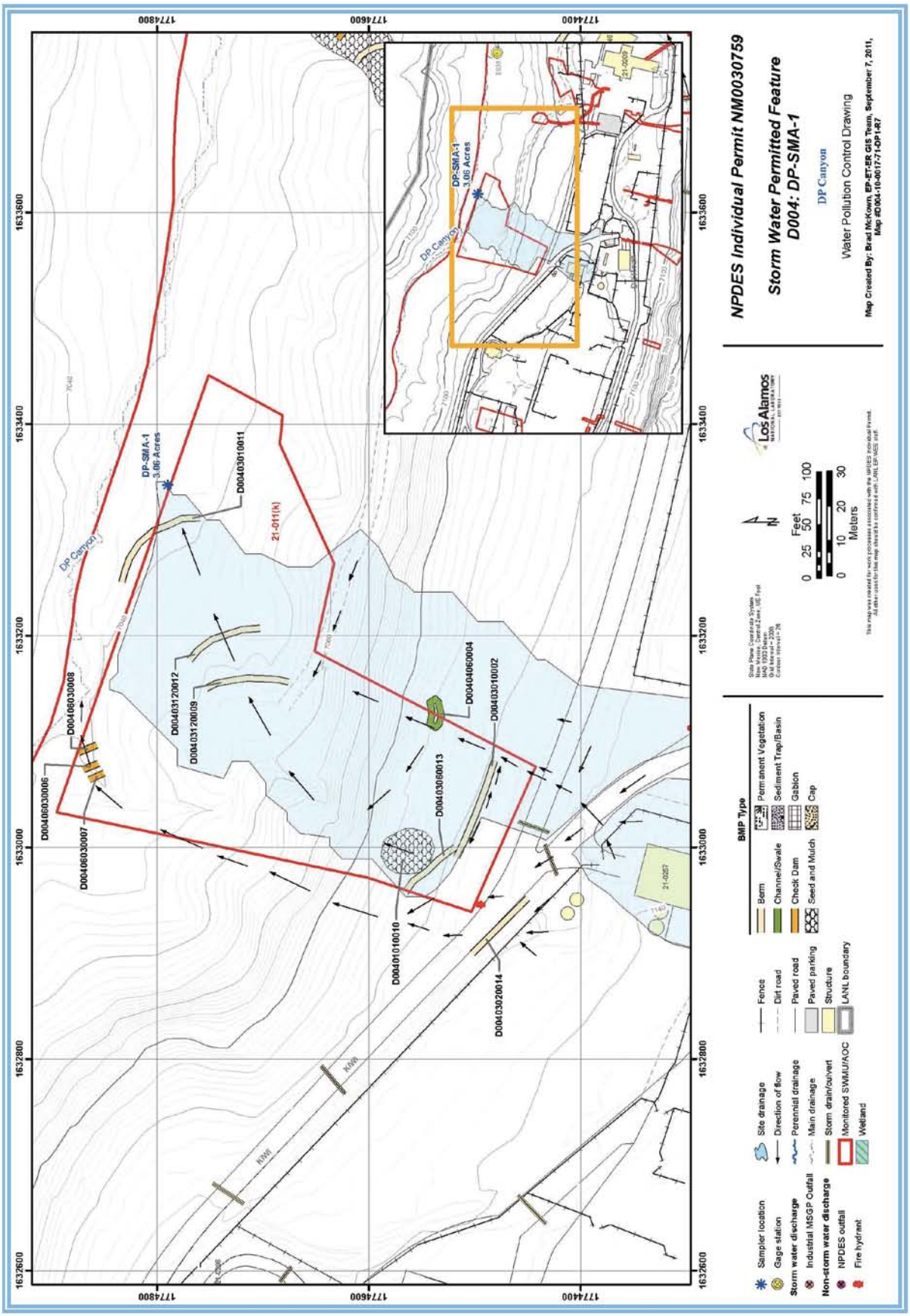
Southern Berm (D004-03-06-0013)

This berm is located across the southern portion of the Site and diverts run-on from the adjacent road away from the Permitted Feature. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Asphalt Swale
(D004-04-02-0005)

The asphalt swale is located in the southern portion of the SMA and is used to divert run-on away from the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

1000.60.4 Project Map



1000.60.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	PCBs (2)

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.60.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-1. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.60.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-1 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.60.5.2-1.

Table 1000.60.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13879	06-22-2011
Storm Rain Event	BMP-15877	08-03-2011
Storm Rain Event	BMP-17131	08-24-2011
Storm Rain Event	BMP-18297	09-09-2011
Annual Erosion	COMP-14362	09-29-2011

1000.60.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.60.5.3-1.

Table 1000.60.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13879	Installed wattle D00403060013 at west end of berm D00403010002.	08-08-2011	47 day(s)	Maintenance conducted as soon as practicable.

1000.60.6 Compliance Status

The Sites associated with DP-SMA-1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.61 DP-SMA-2

1000.61.1 Area Description

1000.61.2 Potential Pollutant Sources

1000.61.2.1 Historical Industrial Activity Areas

1000.61.2.2 Urban Influences

1000.61.3 Control Measures

1000.61.4 Project Map

1000.61.5 Storm Water Monitoring Plan and Schedule

1000.61.5.1 Initial Confirmation Monitoring

1000.61.5.2 Inspection Activity

1000.61.5.3 Maintenance

1000.61.6 Compliance Status

1000.61 DP-SMA-2

1000.61.1 Area Description

DP-SMA-2 is located north of the developed DP Mesa. The northern boundary of the SMA is crossed by unpaved access roads and is undeveloped. The receiving waters are further north along this boundary. The southern boundary is developed land. The eastern boundary is developed with building 21-346 located immediately east. The western boundary of the SMA is vegetated, moderately sloping land. The eastern boundary of the SMA is undeveloped land.

1000.61.2 Potential Pollutant Sources

1000.61.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF D005, DP-SMA-2, Sites 21-021 and 21-024(h).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(h) is a septic system that discharged sewage from an administrative building and shop (Building 21-151) through a septic tank (structure 21-163, which was abandoned in place in 1966) to the surface on the north rim of DP Mesa above DP Canyon. The tank is made of reinforced concrete and is 6 ft, 4 in. wide x 11 ft, 4 in. long x 8 ft, 8 in. deep. The drain-lines are six inch VCP. These lines carried effluent from Building 21-151 to the septic tank and from the tank to the outfall. In the early 1960's, Building 21-151 was removed. In 1965, a polonium-processing and a high temperature laboratory (Building 21-152) was tied into the existing septic tank (structure 21-163). In 1966, the septic tank was no longer used and left in place. In 1988, a grab sample was collected north of the septic tank at the junction of two drainage channels. Analytical results indicated above-background concentrations of americium-241, tritium, and plutonium-239/ 240. Oil and grease concentrations were reported above detection limits.

RFI sampling activities were conducted in 1992 and 1993. The investigation consisted of a field radiological survey and soil sampling. Eight samples were collected from three locations down-gradient from the septic tank. Radiological field survey results indicated background levels of alpha emitters and elevated levels of gamma and low-energy gamma emitters. Samples were analyzed for radionuclides, inorganic chemicals, SVOCs, and VOCs.

In 1995, this SWMU was selected for a VCA. The VCA, conducted in 1996, consisted of sampling the septic tank contents, conducting radiological field surveys for low-energy gamma radiation and alpha activity, removing and disposing of the septic tank contents as mixed waste, grouting the inlet and outlet lines with concrete, filling the tank with pea gravel, and regrading, reseeding, and restoring the area to its original site condition. The VCA completion report concluded that SWMU 21-024(h) requires NFA. The report indicated that radioactive contamination in the septic tank and drainage area was addressed. A request was made to DOE to remove SWMU 21-024(h) from further consideration because no risk assessment for radioactivity is necessary at this SWMU.

Table-1000.61.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(h)	Septic system	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.61.3 Control Measures

An unpaved road borders the southern portion of the SMA. Berms along the edge of the road are used to control run-on to the SMA. Check dams are in place to control run-off from this area.

Subsections to 1000.61.3 list all control measures used to control pollutant sources identified in Section 1000.61.2. Control measures are shown in Table 1000.61.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.61.4.

1000.61.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.61.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D005 01 01 0010	Seed and Mulch - Seed and Wood Mulch			•		CB
D005 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB

Table 1000.61.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D005 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
D005 03 01 0011	Berms - Earthen		•		•	B
D005 03 02 0003	Berms - Base Course	•			•	CB
D005 06 03 0007	Check Dam - Juniper Bales		•		•	CB
D005 06 03 0009	Check Dam - Juniper Bales		•		•	CB

Seed and Mulch (D005-01-01-0010)

The area where the seed and mulch was applied is located around the sampler and to the south and west encompassing the juniper bales. It was applied to control erosion in the area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).

Established Vegetation (D005-02-01-0001, -02-0002)

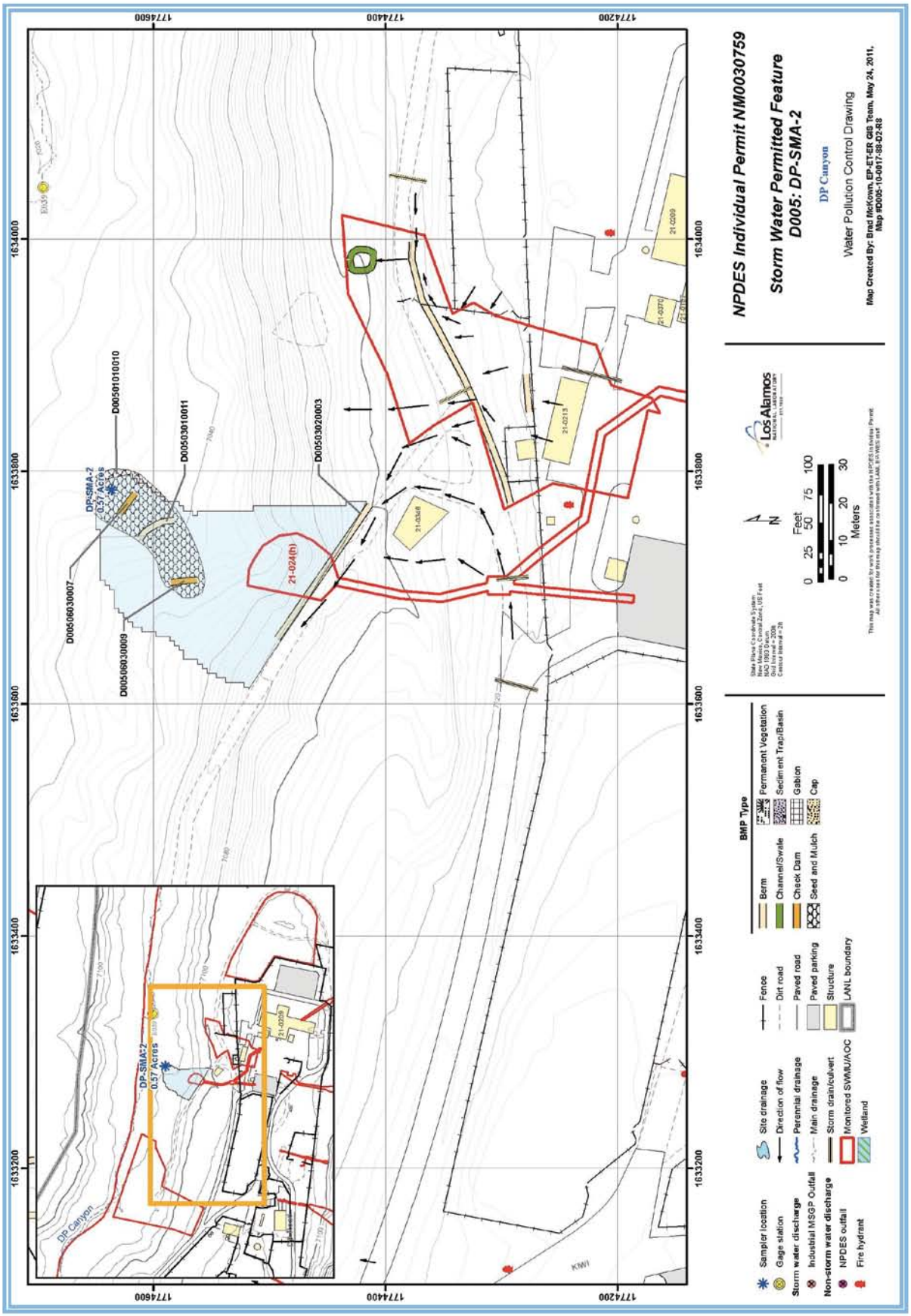
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Berms (D005-03-01-0011)

This earthen berm is placed between the juniper bale barriers located southwest of the sampler. It is in place to control run-off. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Base Course Berm
(D005-03-02-0003)
This berm prevents run-on to the outfall area along the northeastern edge of the access road. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Juniper Bales
(D005-06-03-0007, -0008, -0009)
This is a series of three juniper bales that are located southwest of the sampler. They are in place to control run-off in the area. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
D005: DP-SMA-2
DP Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, May 24, 2011,
Map #D005-10-0917-08-02-R8
Los Alamos
NATIONAL LABORATORY
EST. 1943
N
Feet
0 25 50 75 100
Meters
0 10 20 30
BMP Type
Berm
Permanent Vegetation
Channel/Swale
Sediment Trap/Basin
Check Dam
Gabion
Seed and Mulch
Cap
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
DP-SMA-2
0.57 Acres
D005010010
D005030010011
D005030020003
D005060030007
D005060030009
21-024(h)
DP Canyon
1634000
1633800
1633600
1633400
1633200
1774600
1774400
1774200

1000.61.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

1000.61.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.61.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-2 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.61.5.2-1.

Table 1000.61.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13880	06-22-2011
Storm Rain Event	BMP-15878	08-03-2011
Storm Rain Event	BMP-17132	08-24-2011
Storm Rain Event	BMP-18298	09-09-2011
Annual Erosion	COMP-19722	09-29-2011

1000.61.5.3 Maintenance

During 2011 there were no maintenance activities at DP-SMA-2.

1000.61.6 Compliance Status

The Sites associated with DP-SMA-2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.62 DP-SMA-2.35

1000.62.1 Area Description

1000.62.2 Potential Pollutant Sources

1000.62.2.1 Historical Industrial Activity Areas

1000.62.3 Control Measures

1000.62.4 Project Map

1000.62.5 Storm Water Monitoring Plan and Schedule

1000.62.5.1 Initial Confirmation Monitoring

1000.62.5.2 Inspection Activity

1000.62.5.3 Maintenance

1000.62.6 Compliance Status

1000.62 DP-SMA-2.35

1000.62.1 Area Description

DP-SMA-2.35 is located on the developed DP Mesa. The northern boundary of the SMA is an unpaved access road. The southern boundary of the SMA is developed and run-on contributions from building 21-0213 is impacting the Permitted Feature. The eastern boundary of the SMA is partially developed. The western boundary of the SMA is influenced by paving and unpaved access roads. The western boundary is in proximity to DP-SMA-2.

1000.62.2 Potential Pollutant Sources

1000.62.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF D006, DP-SMA-2.35, Sites 21-021 and 21-024(n).

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

SWMU 21-024(n) is a drain-line that exits Building 21-155 and discharges into DP Canyon. Building 21-155 has been a warehouse and a laboratory and contains a furnace. The furnace is believed to be a heating unit for DP East. The drain system consists of corrugated metal pipe that exits a concrete bulkhead and discharges onto a gravel road adjacent to MDA U [SWMU 21-017(a)-99]. The effluent flows north to the ditch paralleling the north perimeter road. From there, it flows east to a culvert that passes under the north perimeter road and into DP Canyon. One sample was collected directly under the opening in the ten inch drain pipe as part of the 1988 reconnaissance sampling. The analytical results indicate zinc, plutonium-239/-240 and tritium concentrations were above BVs/FVs. Oil and grease concentrations were reported above detection limits. Petroleum products are also potential contaminants because of the furnace in Building 21-155.

RFI activities were conducted at this site in 1992. The investigation activities consisted of a radiological field survey and collection of nine samples from three locations at the discharge point and along the ditch that carries discharges into DP Canyon. The radiological survey indicated background levels of alpha, gamma, and low-energy gamma emitters. Analytical data indicates that no inorganic chemicals or radionuclides were reported above SALs and no organic chemicals were reported above detection limits. The Phase Report 1C recommended NFA for SWMU 21-024(n) because the nature and extent of contamination has been characterized adequately.

Table-1000.62.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	
21-024(n)	Drainline	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.62.3 Control Measures

Run-on contributions from structures and paved areas have the potential to influence storm water discharges from this SMA. Baseline controls are installed to to address run-on from building 21-0213 at the fence north of building 21-0213. Run-off controls below the gravel/paved pad south of the access road are installed to better manage run-off from this SMA.

Subsections to 1000.62.3 list all control measures used to control pollutant sources identified in Section 1000.62.2. Control measures are shown in Table 1000.62.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.62.4.

1000.62.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.62.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D006 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB

Table 1000.62.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D006 03 02 0002	Berms - Base Course		•		•	CB
D006 03 06 0005	Berms - Straw Wattles	•			•	B
D006 04 06 0004	Channel/Swale - Rip Rap		•	•		CB

Established Vegetation (D006-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Berm Base Course (D006-03-02-0002)

This base course berm is located below the gravel/paved pad south of the access road. It runs parallel to the northwest border of the sample area and is used to manage run-off from the area. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

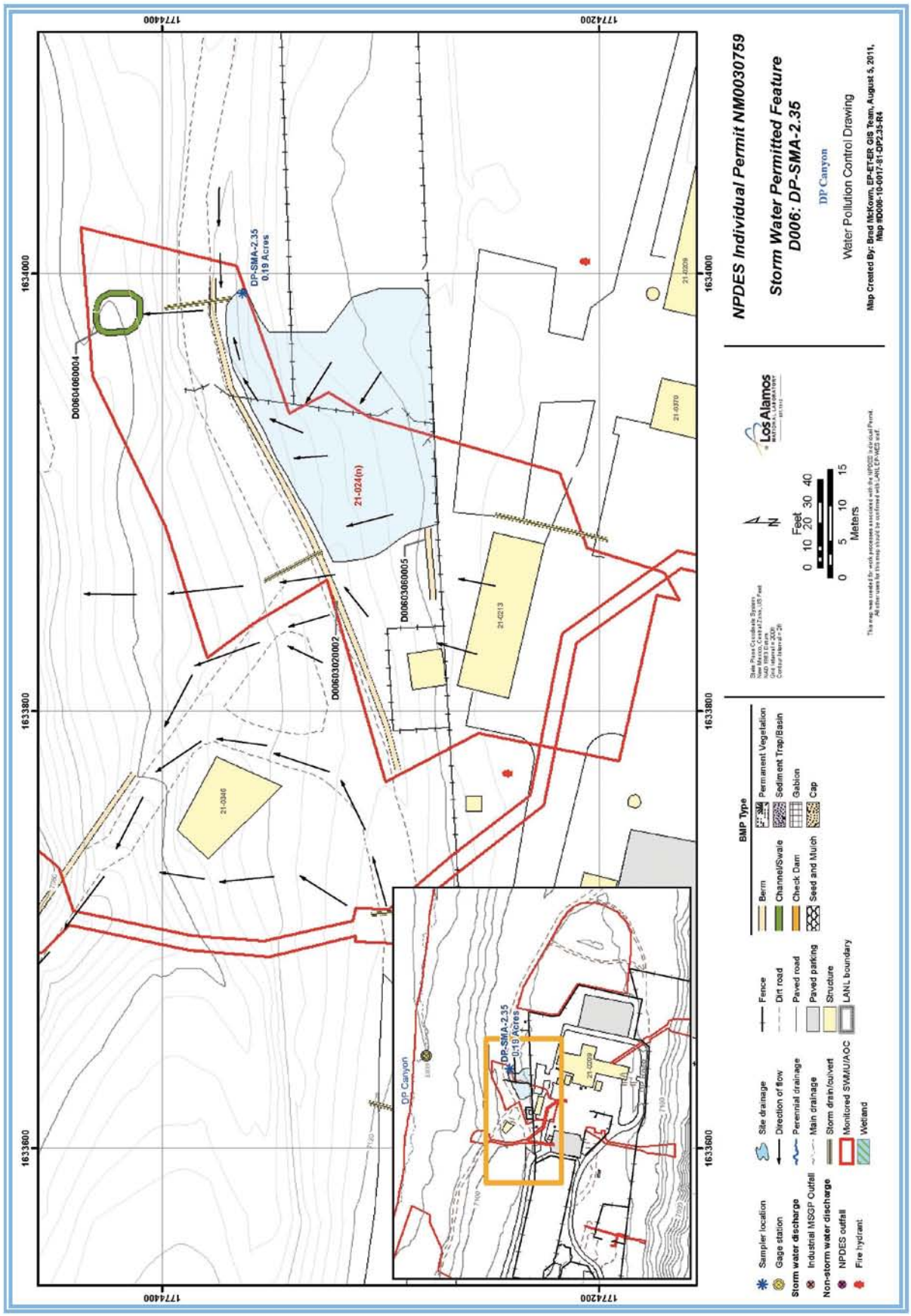
Berms (D006-03-06-0005)

Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap (D006-04-06-0004)

The rip rap is located due north of the sampler across the main drainage path. It is in place to manage storm water run-off from the area and prevent erosion. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

1000.62.4 Project Map



1000.62.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.62.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-2.35. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.62.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-2.35 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.62.5.2-1.

Table 1000.62.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13787	06-23-2011
Storm Rain Event	BMP-15867	08-03-2011
Storm Rain Event	BMP-17121	08-24-2011
Storm Rain Event	BMP-18287	09-09-2011
Annual Erosion	COMP-19723	09-29-2011

1000.62.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.62.5.3-1.

Table 1000.62.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13787	Replaced wattle D00603060003 with new wattle D00603060005.	07-14-2011	21 day(s)	Maintenance conducted as soon as practicable.

1000.62.6 Compliance Status

The Sites associated with DP-SMA-2.35 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.63 DP-SMA-3

1000.63 DP-SMA-3

1000.63.1 Area Description

DP-SMA-3 is located on the developed DP Mesa. The western and northern boundaries of the area are elevated, which greatly reduces any run-on contributions to the monitored area along these boundaries. The SMA is heavily vegetated and is stable. An unpaved access road runs directly though the monitored area.

1000.63.2 Potential Pollutant Sources

1000.63.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF D007, DP-SMA-3, Sites 21-013(c) and 21-021.

SWMU 21-013(c) is an inactive surface disposal area located northeast of the high-temperature chemistry building (Building 21-209) at the eastern end of DP Mesa. This SWMU was identified during a 1988 site visit. The site consisted of mounds of earth; an excavated trench; and an earthen berm that contained scattered concrete, asphalt, and metal debris. Four large concrete pylons and several piles of soil, asphalt, and concrete also were located at the site. Other surface debris included glass, scrap metal, wood, cans, paper, and plastic. The SWMU had been disturbed in the past and appeared to contain only building materials. It was not known when the materials were disposed of at this site.

During the 1994 Phase I RFI at this SWMU, 40 surface and subsurface soil samples were collected to confirm the presence or absence of contamination. Because source terms were unknown, samples were field-screened for radioactivity and were submitted for a full-suite of analyses. Although no elevated contaminant levels were identified, a VCA was conducted in August 1995 to remove the soil and debris from the site.

Trenches were excavated into the berm to verify contents and allow for field screening and visual inspection. Following debris removal, portions of the berm were recontoured to preserve the established vegetation. Exploratory trenches were excavated into the soil piles to allow for field screening and visual inspection. Debris was removed if the piles contained debris. If piles did not contain debris, they were not recontoured. The asphalt, concrete, and remainder of debris were removed from the site. Confirmation sampling was conducted to verify site cleanup. Two samples were collected from areas where debris had been removed. The site was restored and reseeded with native grasses. A VCA completion report was submitted in lieu of an RFI report. The VCA report requested concurrence of NFA for SWMU 21-013(c). Additional investigation may be required to complete the determination of nature and extent of any residual contamination.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.63.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-013(c)	Surface disposal site	Co-located, Overlapping	Shared	•		•	
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Site 21-021 is a mesa-wide deposition of airborne contaminants from exhaust stacks associated with former processing buildings at TA-21. These former air emission sources are suspected of widely influencing surface and near surface soils across the entire DP Mesa. Because of the proximity of the Sites to one another, the nature of activities conducted in these areas, and the similar suspect contaminants at both sites, storm water runoff from these areas will produce substantially identical effluents.

1000.63.3 Control Measures

The area is elevated reducing the impact from run-on from surrounding areas. The site is partially vegetated and there is no significant run-off at this Permitted Feature. Existing controls are in place to reduce the sediment loading and velocity of storm water discharge from this area.

Subsections to 1000.63.3 list all control measures used to control pollutant sources identified in Section 1000.63.2. Control measures are shown in Table 1000.63.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.63.4.

1000.63.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.63.3-1

Control ID	Control Name	Purpose of Control				Control Satus
		Run-On	Run-Off	Erosion	Sediment	
D007 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
D007 03 02 0014	Berms - Base Course		•		•	CB

Table 1000.63.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Satus
		Run-On	Run-Off	Erosion	Sediment	
D007 03 12 0015	Berms - Rock		•		•	CB
D007 06 01 0008	Check Dam - Rock		•		•	CB
D007 06 01 0009	Check Dam - Rock		•		•	CB
D007 06 01 0010	Check Dam - Rock		•		•	CB
D007 06 01 0011	Check Dam - Rock		•		•	CB
D007 06 01 0012	Check Dam - Rock		•		•	CB
D007 06 01 0013	Check Dam - Rock		•		•	CB

Established Vegetation (D007-02-01-0001)

Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Base Course Berm (D007-03-02-0014)

This berm is located south of the SMA on the north side of the unpaved access road. It is in place to mitigate sheet flow runoff. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Berm (D007-03-12-0015)

This berm is located south east of the SMA on the eastern side of the unpaved access road. It is used to help manage storm water run-off from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dams - North (D007-06-01-0008, -0009, -0010)

This is a series of three check dam located in the drainage channel along the unpaved access road north of the SMA. They are used to help control run-off. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging

sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

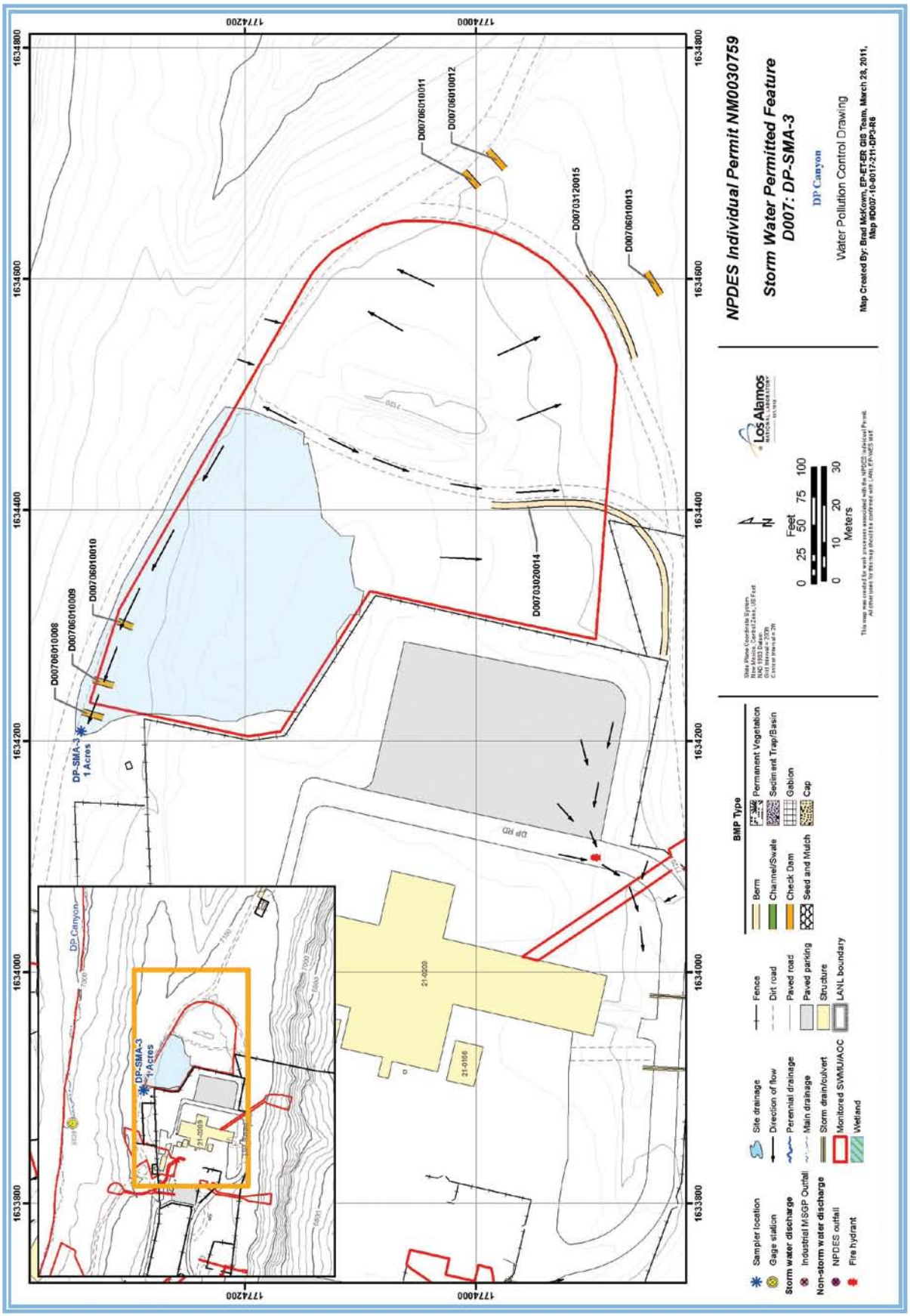
Rock Check Dams - East (D007-06-01-0011, -0012)

This is a pair of check dams that are located south and east of the SMA near the 'Y' in the unpaved access road. They are in place to help manage storm water run-off from the roads. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam (D007-06-01-0013)

This check dam is located southeast of the rock berm. It is used to help manage run-off from the unpaved road. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

1000.63.4 Project Map



1000.63.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following installation and certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

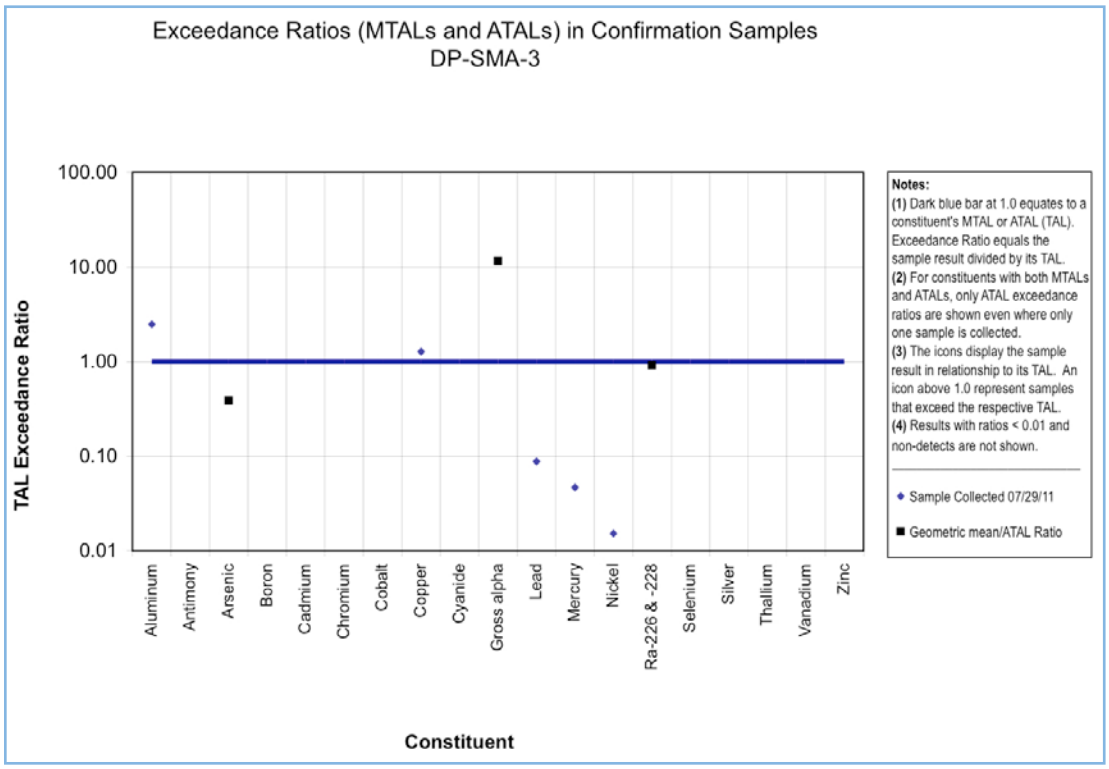
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.63.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from DP-SMA-3 on July 29, 2011. Initial confirmation sampling will continue as provided above through May 1, 2012.

The results of this sampling effort are graphically displayed in the following chart where results are shown as a ratio of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the 2011 Annual Report.



1000.63.5.2 Inspection Activity

RG038 recorded five Storm Events at DP-SMA-3 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.63.5.3-1.

Table 1000.63.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13881	06-23-2011
Storm Rain Event	BMP-15879	08-03-2011
Storm Rain Event	BMP-17133	08-24-2011
Storm Rain Event	BMP-18299	09-09-2011
Annual Erosion	COMP-19724	09-29-2011
Visual Inspection	BMP-21533	11-28-2011
TAL Exceedance	COMP-20163	11-28-2011
Construction	COMP-21586	12-08-2011
Construction	COMP-21600	12-15-2011

1000.63.5.3 Maintenance

During 2011 there were no maintenance activities at DP-SMA-3.

1000.63.6 Compliance Status

The Sites associated with DP-SMA-3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.64 DP-SMA-4

1000.64.1 Area Description

1000.64.2 Potential Pollutant Sources

1000.64.2.1 Historical Industrial Activity Areas

1000.64.3 Control Measures

1000.64.4 Project Map

000.64.5 Storm Water Monitoring Plan and Schedule

1000.64.5.1 Initial Confirmation Monitoring

1000.64.5.2 Inspection Activity

1000.64.5.3 Maintenance

1000.64.6 Compliance Status

1000.64 DP-SMA-4

1000.64.1 Area Description

DP-SMA-4 is below the developed mesa at TA-21. The north-northeastern boundary of the SMA is steep, undeveloped terrain and contains the receiving waters. The southern boundary of the SMA is moderately flat with an unpaved parking area adjacent to the remaining structures. The unpaved access road is located southeast of the SMA boundary.

1000.64.2 Potential Pollutant Sources

1000.64.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF D008, DP-SMA-4, Site 21-021.

SWMU 21-021 consists of all air stack releases and particulates of plutonium, strontium, and possible chemical constituents at TA-21, which is a nominal 300,000 square meters. Stack emissions SWMUs 21-019(a-m) and 21-020(a and b) will be deferred to SWMU 21-021.

Table-1000.64.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
21-021	Soil contamination from Stack Emissions	Co-located, Overlapping	Individual	•		•	

1000.64.2.2 Urban Influences

Run-on from the unpaved road travels through a natural drainage channel west of the SMA. The source is small and there is no evidence of concentrated flow entering or leaving the area.

1000.64.3 Control Measures

Run-on from the unpaved access road follows a natural drainage channel west of the SMA and does not impact the monitoring area. Vegetation is thick and storm water flow is largely overland.

Subsections to 1000.64.3 list all control measures used to control pollutant sources identified in Section 1000.64.2. Control measures are shown in Table 1000.64.3-1 and described in paragraphs following the table. The control status field in these tables indicate whether a control is a certified baseline control measure (CB), an additional baseline control measure (B), or an enhanced control measure (EC). Implementation and location of existing control measures, are shown on the Project Map provided in Section 1000.64.4.

Table 1000.64.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D008 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
D008 02 02 0004	Established Vegetation - Forested/ Needle Cast			•		CB
D008 03 01 0006	Berms - Earthen	•			•	CB
D008 03 01 0007	Berms - Earthen		•		•	CB
D008 06 01 0008	Check Dam - Rock	•			•	B

Established Vegetation (D008-02-01-0001, -02-0004)
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and mixed conifer vegetation is classified as forested.

Earthen Berm (D008-03-01-0006)
This berm is located adjacent to the unpaved parking area northeast of building 21-0230. It is used to manage run-on from the parking area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (D008-03-01-0007)
This berm is located just down slope from the parking area berm and above the SMA. It is used to help control run-off in the area. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Check Dam (D008-06-01-0008)
This rock check dam is located just down slope from the parking area and above the SMA. It is used to help control run-on in the area. Check dams reduce scour and channel erosion

by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

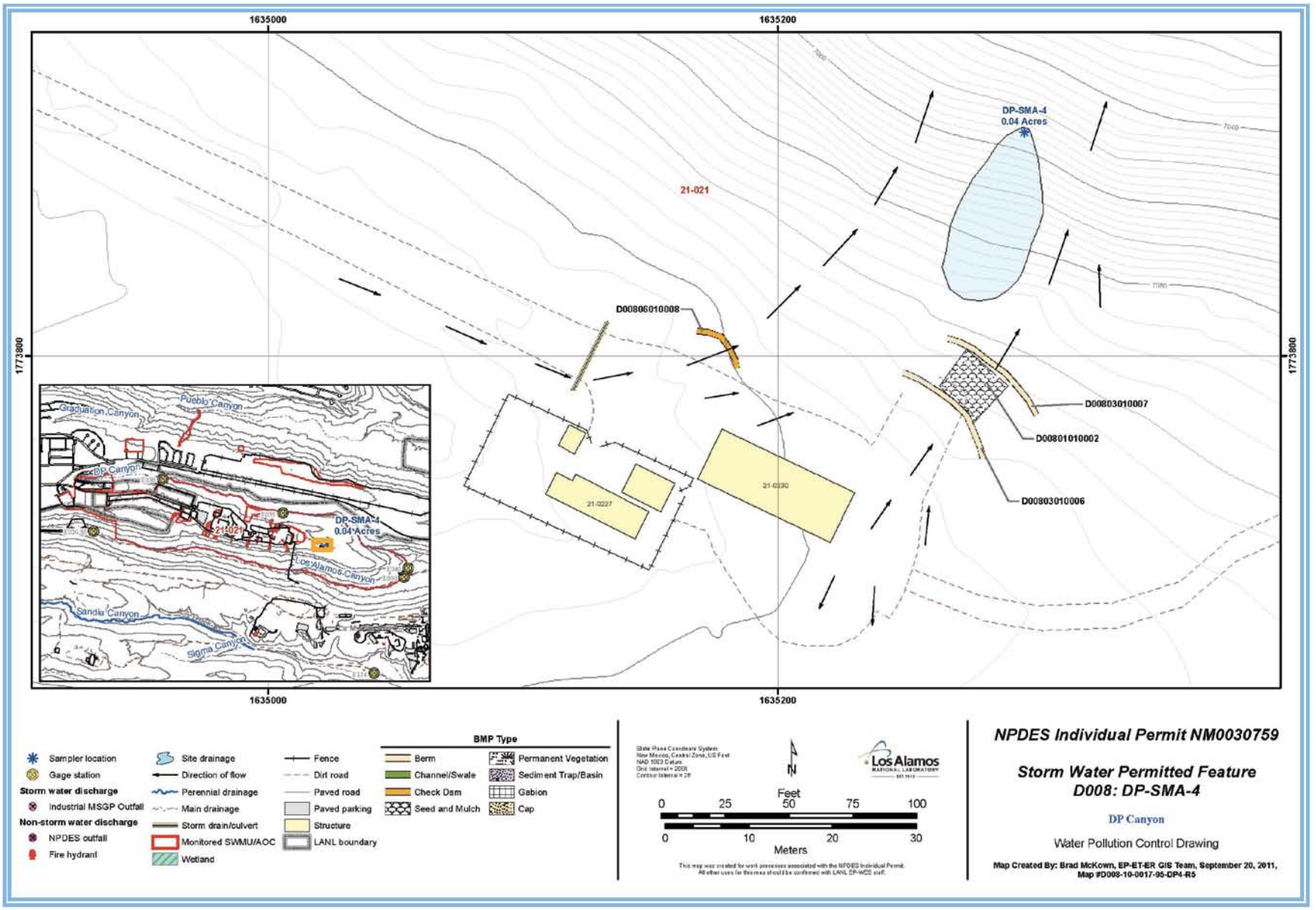
1000.64.3.2 Control Measures for Urban Influences

Table 1000.64.3-2

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
D008 01 01 0002	Seed and Mulch - Seed and Wood Mulch			•		CB

Wood Mulch (D008-01-01-0002)

Wood mulch is employed at this SMA to reduce any potential erosion associated with the unpaved parking area. Wood mulching consists of applying a mixture of shredded wood mulch, bark or compost. The primary function of wood mulching is to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing run-off. Seed and mulch will always be used in combination. Mulch includes wood, hydromulch, gravel, erosion control blankets, and turf reinforcement blankets. Perennial vegetative cover from seeding has been shown to remove between 50 and 100 percent of total suspended solids from storm water run-off, with an average removal of 90 percent (USEPA, 1993).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DP-SMA-4
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21-021
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D00803010006
21-0227
21-0230
Graduation Canyon
Pueblo Canyon
DP Canyon
Los Alamos Canyon
Sandia Canyon
Sigma Canyon
Sampler location
Gage station
Storm water discharge
Industrial MSGP Outfall
Non-storm water discharge
NPDES outfall
Fire hydrant
Site drainage
Direction of flow
Perennial drainage
Main drainage
Storm drain/culvert
Monitored SWMU/AOC
Wetland
Fence
Dirt road
Paved road
Paved parking
Structure
LANL boundary
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
N
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
D008: DP-SMA-4
DP Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 20, 2011,
Map #D008-10-0017-95-DP4-R5

1000.64.5 Storm Water Monitoring Plan and Schedule

Storm water monitoring under this IP shall commence following certification of all baseline control measures. Analyses of collected samples (quantities are shown parenthetically) are to be conducted as shown in the following table.

Metals	Cyanide	Radioactivity	Other
• (2)	• (2)	• (2)	

One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart and within eighteen (18) months after the effective date of the Permit (11/1/2010).

1000.64.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at DP-SMA-4. Initial confirmation sampling will continue as provided above through May 1, 2012. Thereafter, confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.64.5.2 Inspection Activity

RG-TA-53 recorded five Storm Events at DP-SMA-4 during the 2011 season. These rain events triggered three post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.64.5.2-1.

Table 1000.64.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13882	06-23-2011
Storm Rain Event	BMP-15387	08-01-2011
Storm Rain Event	BMP-15814	08-03-2011
Storm Rain Event	BMP-18279	09-13-2011
Annual Erosion	COMP-19725	09-29-2011

1000.64.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.64.5.3-1.

Table 1000.64.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18279	Installed new rock check dam D00806010008 slightly upstream as a replacement for rock check dam D00806010005.	09-13-2011	0 day(s)	Maintenance conducted upon inspection.

1000.64.6 Compliance Status

The Sites associated with DP-SMA-4 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

ATTACHMENT A
AMENDMENTS

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.0	05-01-2011		Original Issuance	T	
V1.1	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-04-08-0017	T	CCN - 12937
V1.2	04-28-2011	P-SMA-2.2	Map Revision(R6)	T	CCN - 12937
V1.3	05-01-2011	1000.23.6	Errata-Typo in Section 1000.23.6, The Site that NMED granted complete with controls status in the September 2010 letter was 01-003(e), not 01-003(a).	E	NMED 2010,
V1.4	05-26-2011	P-SMA-3.05	New Control - Augment Existing Control Id: P009-03-01-0010	T	CCN - 13230
V1.5	05-26-2011	P-SMA-3.05	Map Revision(R3)	T	CCN - 13230
V1.6	05-26-2011	DP-SMA-1	New Control - Augment Existing Control Id: D004-03-01-0011	T	CCN - 13231
V1.7	05-26-2011	DP-SMA-1	New Control - Augment Existing Control Id: D004-03-12-0012	T	CCN - 13231
V1.8	05-26-2011	DP-SMA-1	Map Revision(R6)	T	CCN - 13231
V1.9	05-26-2011	DP-SMA-2	New Control - Augment Existing Control Id: D005-03-01-0011	T	CCN - 13232
V1.10	05-26-2011	DP-SMA-2	Retire Control - Damaged and/or Replaced Control Id: D005-06-03-0008	T	CCN - 13232
V1.11	05-26-2011	DP-SMA-2	Map Revision(R8)	T	CCN - 13232
V1.12	11-23-2010	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-10-218 / LA-UR-10-07681

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.13	12-16-2010	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-10-244 / LA-UR-10-08294
V1.14	02-10-2011	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-11-0026 / LA-UR-11-00912
V1.15	04-27-2011	References	Add Reference Document Baseline Control Measure Certification Documentation	D	ENV-RCRA-11-0083 / LA-UR-11-10500
V1.16	05-16-2011	References	Add Reference Document Baseline Control Measure Certification Documentation	D	ENV-RCRA-11-0091 / LA-UR-11-10593
V1.17	05-01-2011	Procedural Documents	Remove document, proposed, never finalized. SOP-5219 Photograph Management	E	
V1.18	05-05-2011	Procedural Documents	Update Procedure SOP-5213 Inspecting storm water runoff samplers and retrieving samples, changed to EP-DIV-SOP-10013	D	EP-DIV-SOP-10013
V1.19	05-31-2011	Procedural Documents	Update Procedure SOP-5217 Inspecting, Maintaining, and Installing SOP-5217 Inspecting, Maintaining, and Installing Control Measures replaced with EP-DIV-SOP-20012 Installing, Inspecting, and Maintaining Individual Permit Storm Water Control Measures	D	EP-DIV-SOP-20012
V1.20	06-08-2011	LA-SMA-5.91	Certificate of Completion Issued RE: Certificates of Completion Material Disposal Area V, Technical Area 21 Los Alamos National Laboratory EPA ID #NM0890010515 HWB-LANL-11-030	D	ERID-203706

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.21	06-08-2011	LA-SMA-5.92	Certificate of Completion Issued RE: Certificates of Completion Material Disposal Area V, Technical Area 21 Los Alamos National Laboratory EPA ID #NM0890010515 HWB-LANL-11-030	D	ERID-203706
V1.22	05-01-2011	LA-SMA-6.25	Errata-Incorrect Y coordinate published, Correct Y: 1773814.01	E	
V1.23	05-01-2011	LA-SMA-6.36	Errata-Incorrect Y coordinate published, Correct Y: 1773565.42	E	
V1.24	05-01-2011	LA-SMA-6.38	Errata-Incorrect Y coordinate published, Correct Y: 1773368.00	E	
V1.25	05-01-2011	LA-SMA-6.395	Errata-Incorrect Y coordinate published, Correct Y: 1773291.00	E	
V1.26	05-01-2011	P-SMA-0.3	Errata-Incorrect Y coordinate published, Correct Y: 1776624.74	E	
V1.27	05-01-2011	P-SMA-2.2	Errata-Incorrect Y coordinate published, Correct Y: 1776968.28	E	
V1.28	05-01-2011	R-SMA-1	Errata-Incorrect Y coordinate published, Correct Y: 1785593.15	E	
V1.29	05-01-2011	R-SMA-2.5	Errata-Incorrect Y coordinate published, Correct Y: 1786785.96	E	
V1.30	07-11-2011	LA-SMA-6.36	Retire Control - Damaged and/or Replaced Control Id: L025-04-04-0005	T	CCN - 14366
V1.31	07-11-2011	LA-SMA-6.36	Map Revision(R5)	T	CCN - 14366

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.32	07-12-2011	LA-SMA-5.361	Retire Control - Damaged and/or Replaced Control Id: L017-06-01-0003	T	CCN - 14692
V1.33	07-12-2011	LA-SMA-5.361	New Control - Routine/ Replacement Control Id: L017-06-01-0009	T	CCN - 14692
V1.34	08-05-2011	LA-SMA-5.361	Map Revision(R0)	T	CCN - 14692
V1.35	07-14-2011	DP-SMA-2.35	Retire Control - Damaged and/or Replaced Control Id: D006-03-06-0003	T	CCN - 14834
V1.36	07-14-2011	DP-SMA-2.35	New Control - Routine/ Replacement Control Id: D006-03-06-0005	T	CCN - 14834
V1.37	08-05-2011	DP-SMA-2.35	Map Revision(R4)	T	CCN - 14834
V1.38	07-18-2011	LA-SMA-6.31	Retire Control - Damaged and/or Replaced Control Id: L022A-03-06-0004	T	CCN - 14870
V1.39	07-18-2011	LA-SMA-6.31	New Control - Routine/ Replacement Control Id: L022A-03-06-0006	T	CCN - 14870
V1.40	08-05-2011	LA-SMA-6.31	Map Revision(R7)	T	CCN - 14870
V1.41	07-13-2011	LA-SMA-1.25	New Control - Routine/ Replacement Control Id: L005-03-12-0006	T	CCN - 15244
V1.42	08-04-2011	LA-SMA-1.25	Map Revision(R4)	T	CCN - 15244
V1.43	08-08-2011	LA-SMA-10.12	Retire Control - Damaged and/or Replaced Control Id: L030A-06-01-0010	T	CCN - 14398
V1.44	08-05-2011	LA-SMA-10.12	Map Revision(R4)	T	CCN - 14398

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.45	08-08-2011	R-SMA-2.05	Retire Control - Damaged and/or Replaced Control Id: R004-06-03-0004	T	CCN - 14276
V1.46	08-05-2011	R-SMA-2.05	Map Revision(R2)	T	CCN - 14276
V1.47	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-06-01-0018	T	CCN - 12937
V1.48	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-06-01-0019	T	CCN - 12937
V1.49	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-06-01-0020	T	CCN - 12937
V1.50	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-06-01-0021	T	CCN - 12937
V1.51	04-20-2011	P-SMA-2.2	New Control - Augment Existing Control Id: P008-06-01-0022	T	CCN - 12937
V1.52	09-01-2011	300	Change to SDPPP-Add Las Conchas information.	T	
V1.53	08-31-2011	LA-SMA-5.33	Retire Control - Damaged and/or Replaced Control Id: L016-03-06-0008	T	CCN - 18146
V1.54	08-31-2011	LA-SMA-5.33	New Control - Augment Existing Control Id: L016-03-01-0009	T	CCN - 18146
V1.55	08-31-2011	LA-SMA-5.33	New Control - Augment Existing Control Id: L016-01-03-0010	T	CCN - 18146
V1.56	08-31-2011	LA-SMA-5.33	New Control - Augment Existing Control Id: L016-03-04-0011	T	CCN - 18146
V1.57	08-31-2011	LA-SMA-5.33	New Control - Augment Existing Control Id: L016-03-04-0012	T	CCN - 18146

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.58	09-01-2011	LA-SMA-5.33	Map Revision(R7)	T	CCN - 18146
V1.59	08-11-2011	LA-SMA-6.27	Retire Control - Damaged and/or Replaced Control Id: L021-03-06-0007	T	CCN - 16606
V1.60	08-11-2011	LA-SMA-6.27	New Control - Routine/ Replacement Control Id: L021-03-06-0009	T	CCN - 16606
V1.61	09-02-2011	LA-SMA-6.27	Map Revision(R6)	T	CCN - 16606
V1.62	08-08-2011	DP-SMA-1	New Control - Routine/ Replacement Control Id: D004-03-06-0013	T	CCN - 14275
V1.63	08-04-2011	DP-SMA-1	New Control - Routine/ Replacement Control Id: D004-03-02-0014	T	CCN - 14275
V1.64	09-07-2011	DP-SMA-1	Map Revision(R7)	T	CCN - 14275
V1.65	09-08-2011	P-SMA-0.3	Map Revision(R6)	T	CCN - 16402
V1.66	08-11-2011	LA-SMA-6.38	Retire Control - Damaged and/or Replaced Control Id: L026-03-06-0007	T	CCN - 16604
V1.67	08-11-2011	LA-SMA-6.38	New Control - Routine/ Replacement Control Id: L026-03-06-0008	T	CCN - 16604
V1.68	09-08-2011	LA-SMA-6.38	Map Revision(R6)	T	CCN - 16604
V1.69	08-11-2011	LA-SMA-6.25	Retire Control - Damaged and/or Replaced Control Id: L020-03-06-0005	T	CCN - 16605
V1.70	08-11-2011	LA-SMA-6.25	New Control - Routine/ Replacement Control Id: L020-03-06-0006	T	CCN - 16605
V1.71	09-08-2011	LA-SMA-6.25	Map Revision(R4)	T	CCN - 16605

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.72	09-01-2011	LA-SMA-4.1	Retire Control - Damaged and/or Replaced Control Id: L010-06-01-0008	T	CCN - 18549
V1.73	09-01-2011	LA-SMA-4.1	New Control - Routine/ Replacement Control Id: L010-06-01-0009	T	CCN - 18549
V1.74	09-12-2011	LA-SMA-4.1	Map Revision(R5)	T	CCN - 18549
V1.75	08-29-2011	LA-SMA-5.31	Retire Control - Damaged and/or Replaced Control Id: L015-03-06-0004	T	CCN - 18125
V1.76	08-29-2011	LA-SMA-5.31	Retire Control - Damaged and/or Replaced Control Id: L015-03-06-0005	T	CCN - 18125
V1.77	08-29-2011	LA-SMA-5.31	Retire Control - Damaged and/or Replaced Control Id: L015-03-06-0006	T	CCN - 18125
V1.78	08-29-2011	LA-SMA-5.31	New Control - Routine/ Replacement Control Id: L015-03-06-0007	T	CCN - 18125
V1.79	08-29-2011	LA-SMA-5.31	New Control - Routine/ Replacement Control Id: L015-03-06-0008	T	CCN - 18125
V1.80	08-29-2011	LA-SMA-5.31	New Control - Routine/ Replacement Control Id: L015-03-06-0009	T	CCN - 18125
V1.81	09-08-2011	LA-SMA-5.31	Map Revision(R4)	T	CCN - 18125
V1.82	09-08-2011	LA-SMA-0.9	Map Revision(R6)	T	CCN - 18167
V1.83	08-15-2011	LA-SMA-10.12	New Control - Augment Existing Control Id: L030A-03-01-0025	T	CCN - 16585
V1.84	08-17-2011	LA-SMA-10.12	Map Revision(R5)	T	CCN - 16585

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.85	08-10-2011	DP-SMA-0.3	New Control - Augment Existing Control Id: D001-03-01-0014	T	CCN - 16408
V1.86	08-10-2011	DP-SMA-0.3	Retire Control - Damaged and/or Replaced Control Id: D001-06-01-0007	T	CCN - 16408
V1.87	08-17-2011	DP-SMA-0.3	Map Revision(R6)	T	CCN - 16408
V1.88	09-19-2011	300	Change to SDPPP Highlight row of associated volume in Table 300-1.	T	
V1.89	09-13-2011	DP-SMA-4	Retire Control - Damaged and/or Replaced Control Id: D008-06-01-0005	T	CCN - 15977
V1.90	09-13-2011	DP-SMA-4	New Control - Routine/ Replacement Control Id: D008-06-01-0008	T	CCN - 15977
V1.91	09-20-2011	DP-SMA-4	Map Revision(R5)	T	CCN - 15977
V1.92	08-29-2011	LA-SMA-1	Retire Control - Damaged and/or Replaced Control Id: L003-03-06-0008	T	CCN - 18106
V1.93	08-29-2011	LA-SMA-1	New Control - Routine/ Replacement Control Id: L003-03-06-0013	T	CCN - 18106
V1.94	08-29-2011	LA-SMA-1	Retire Control - Damaged and/or Replaced Control Id: L003-06-01-0010	T	CCN - 18106
V1.95	08-29-2011	LA-SMA-1	New Control - Routine/ Replacement Control Id: L003-06-01-0014	T	CCN - 18106
V1.96	08-29-2011	LA-SMA-1	Retire Control - Damaged and/or Replaced Control Id: L003-06-01-0011	T	CCN - 18106
V1.97	09-21-2011	LA-SMA-1	Map Revision(R5)	T	CCN - 18106
V1.98	09-06-2011	LA-SMA-5.362	New Control - Routine/ Replacement Control Id: L017A-03-12-0009	T	CCN - 18697

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.99	09-20-2011	LA-SMA-5.362	Map Revision(R5)	T	CCN - 18697
V1.100	09-01-2011	LA-SMA-5.02	New Control - Routine/ Replacement Control Id: L012A-03-06-0008	T	CCN - 19222
V1.101	09-01-2011	LA-SMA-5.02	New Control - Routine/ Replacement Control Id: L012A-03-06-0009	T	CCN - 19222
V1.102	09-21-2011	LA-SMA-5.02	Map Revision(R5)	T	CCN - 19222
V1.103	09-01-2011	LA-SMA-5.2	Retire Control - Damaged and/or Replaced Control Id: L013-06-03-0002	T	CCN - 19331
V1.104	09-01-2011	LA-SMA-5.2	New Control - Routine/ Replacement Control Id: L013-06-01-0003	T	CCN - 19331
V1.105	09-01-2011	LA-SMA-5.2	New Control - Routine/ Replacement Control Id: L013-06-01-0004	T	CCN - 19331
V1.106	09-21-2011	LA-SMA-5.2	Map Revision(R5)	T	CCN - 19331
V1.107	09-21-2011	LA-SMA-5.362	Errata - Removed “Change Juniper Bales description to:” from control description for Juniper Bales (L017A-06-03-0002).	E	
V1.108	09-19-2011	LA-SMA-0.9	Retire Control - Damaged and/or Replaced Control Id: L002-03-06-0009	T	CCN - 13425
V1.109	09-19-2011	LA-SMA-0.9	New Control - Routine/ Replacement Control Id: L002-03-06-0012	T	CCN - 13425
V1.110	10-03-2011	LA-SMA-0.9	Map Revision(R7)	T	CCN - 13425
V1.111	09-15-2011	R-SMA-0.5	Retire Control - Damaged and/or Replaced Control Id: R001-03-03-0004	T	CCN - 19514

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.112	09-15-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-03-06-0009	T	CCN - 19514
V1.113	09-15-2011	R-SMA-0.5	Retire Control - Damaged and/or Replaced Control Id: R001-03-03-0005	T	CCN - 19514
V1.114	09-15-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-03-06-0010	T	CCN - 19514
V1.115	09-26-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-03-06-0011	T	CCN - 19514
V1.116	09-26-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-03-06-0012	T	CCN - 19514
V1.117	09-26-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-03-06-0013	T	CCN - 19514
V1.118	09-26-2011	R-SMA-0.5	New Control - Routine/ Replacement Control Id: R001-01-01-0014	T	CCN - 19514
V1.119	10-03-2011	R-SMA-0.5	Map Revision(R5)	T	CCN - 19514
V1.120	09-21-2011	P-SMA-2.2	Retire Control - Damaged and/or Replaced Control Id: P008-03-06-0011	T	CCN - 19682
V1.121	09-21-2011	P-SMA-2.2	New Control - Routine/ Replacement Control Id: P008-03-06-0023	T	CCN - 19682
V1.122	09-29-2011	P-SMA-2.2	Retire Control - Damaged and/or Replaced Control Id: P008-03-13-0013	T	CCN - 19682
V1.123	09-29-2011	P-SMA-2.2	New Control - Routine/ Replacement Control Id: P008-03-13-0024	T	CCN - 19682
V1.124	10-03-2011	P-SMA-2.2	Map Revision(R7)	T	CCN - 19682

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.125	09-19-2011	References	Add Reference Document STATUS REPORT NPDES PERMIT No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 1, Los Alamos/ Pueblo Watershed Aggregate, Reporting Period: April 1 2011-June 30, 2011	D	LA-UR-11-11470
V1.126	10-04-2011	References	Add Reference Document STATUS REPORT NPDES PERMIT No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 1, Los Alamos/ Pueblo Watershed Aggregate, Reporting Period: July 1, 2011-July 31, 2011	D	LA-UR-11-11621
V1.127	10-12-2011	LA-SMA-0.9	Retire Control - Damaged and/or Replaced Control Id: L002-03-06-0008	T	CCN - 20193
V1.128	10-12-2011	LA-SMA-0.9	Retire Control - Damaged and/or Replaced Control Id: L002-03-06-0011	T	CCN - 20193
V1.129	10-12-2011	LA-SMA-0.9	Retire Control - Damaged and/or Replaced Control Id: L002-03-06-0012	T	CCN - 20193
V1.130	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0013	T	CCN - 20193
V1.131	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0014	T	CCN - 20193
V1.132	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0015	T	CCN - 20193
V1.133	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0016	T	CCN - 20193

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.134	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0017	T	CCN - 20193
V1.135	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-03-01-0018	T	CCN - 20193
V1.136	10-12-2011	LA-SMA-0.9	New Control - Augment Existing Control Id: L002-01-06-0019	T	CCN - 20193
V1.137	10-12-2011	LA-SMA-0.9	Map Revision(R8)	T	CCN - 20193
V1.138	10-19-2011	P-SMA-0.3	Retire Control - Lifecycle Expired Control Id: P004-04-05-0005	T	CCN - 20550
V1.139	11-16-2011	P-SMA-0.3	Map Revision(R7)	T	CCN - 20550
V1.140	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-12-0017	T	CCN - 20211
V1.141	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-01-0018	T	CCN - 20211
V1.142	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-01-0019	T	CCN - 20211
V1.143	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-01-06-0020	T	CCN - 20211
V1.144	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0021	T	CCN - 20211
V1.145	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0022	T	CCN - 20211
V1.146	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0023	T	CCN - 20211

ATTACHMENT A
AMENDMENTS (Continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.147	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0024	T	CCN - 20211
V1.148	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0025	T	CCN - 20211
V1.149	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0026	T	CCN - 20211
V1.150	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0027	T	CCN - 20211
V1.151	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0028	T	CCN - 20211
V1.152	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0029	T	CCN - 20211
V1.153	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0030	T	CCN - 20211
V1.154	10-06-2011	P-SMA-1	New Control - Routine/ Replacement Control Id: P005-03-06-0031	T	CCN - 20211
V1.155	10-20-2011	P-SMA-1	Retire Control - Damaged and/or Replaced Control Id: P005-03-04-0010	T	CCN - 20211
V1.156	10-20-2011	P-SMA-1	Retire Control - Damaged and/or Replaced Control Id: P005-04-02-0011	T	CCN - 20211
V1.157	11-22-2011	P-SMA-1	Map Revision(R5)	T	CCN - 20211
V1.158	06-02-2010	LA-SMA-6.395	Retire Control - Damaged and/or Replaced-Should have been retired in R0.	E	CCN - 5250
V1.159	06-02-2010	LA-SMA-6.395	Retire Control - Damaged and/or Replaced-Should have been retired in R0	E	CCN - 5250

ATTACHMENT A
AMENDMENTS (Continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.160	05-01-2011	P-SMA-2.15	Errata-Control P00702020001 Established Vegetation - Forested/Needle Cast should have been P00702010001 Established Vegetation - Grasses and Shrubs	E	
V1.161	10-04-2010	LA-SMA-6.27	Errata-L021-03-06-0008 Straw Wattles incorrectly labeled as Run-On/Sediment control in R0, should have been Run-Off/Sediment.	E	CCN - 10311
V1.162	03-10-2011	LA-SMA-5.51	Errata-Updated Site descriptions for 02-003(e), 02-004(a), 02-009(b), and 02-011(a).	E	
V1.163	03-10-2011	LA-SMA-5.52	Errata-Updated Site descriptions for 02-007 and 02-008(c).	E	
V1.164	03-10-2011	LA-SMA-5.53	Errata-Updated site description for 02-009(a).	E	
V1.165	03-10-2011	LA-SMA-5.54	Errata-Updated Site description for 02-009(c).	E	
V1.166	03-10-2011	LA-SMA-2.3	Errata-Updated Site description for 01-001(b).	E	
V1.167	03-10-2011	LA-SMA-5.01	Errata-Updated Site description for 01-001(d).	E	
V1.168	03-10-2011	LA-SMA-3.1	Errata-Updated Site descriptions for 01-001(e) and 01-003(a).	E	
V1.169	03-10-2011	LA-SMA-2.1	Errata-Updated Site description for 01-001(f).	E	
V1.170	03-10-2011	LA-SMA-3.9	Errata-Updated Site description for 01-001(g) and 01-006(a).	E	
V1.171	03-10-2011	LA-SMA-5.2	Errata-Updated Site description for 01-003(d).	E	

ATTACHMENT A
AMENDMENTS (Continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.172	03-10-2011	LA-SMA-4.1	Errata-Updated Site description for 01-006(b).	E	
V1.173	03-10-2011	LA-SMA-4.2	Errata-Updated Site description for 01-006(d).	E	
V1.174	03-10-2011	LA-SMA-5.361	Errata-Updated Site description for 32-002(b).	E	
V1.175	12-10-2011	LA-SMA-5.31	Errata-Updated Site description for 41-002(c).	E	
V1.176	01-17-2012	DP-SMA-1	Retire Control - Damaged and/or Replaced Control Id: D004-04-02-0005	T	CCN - 21682
V1.177	01-19-2012	1000.x.5	Change to SDPPP-Addition of Sections 1000.x.5.1, 1000.x.5.2, and 1000.x.5.3 to report: confirmation monitoring, inspections conducted, and maintenance conducted.	T	
V1.178	01-19-2012	1000.x.6	Change to SDPPP-Title change to Section 1000. x.6, Corrective Action Status changed to Compliance Status.	T	
V1.179	01-19-2012	Attachment F	Change to SDPPP-Added Training information to Attachment F.	T	
V1.180	01-19-2012	300 & Attachment C	Change to SDPPP-Added 2011 precipitation data to Table 300-2 and to Attachment C.	T	
V1.181	02-01-2012	800.5	Change to SDPPP-Original Section 800.5 Procedures moved to Section 800.6. New Section 800.5 Inspection Observations added.	T	
V1.182	02-01-2012	900.1	Change to SDPPP-Additional descriptive text and volume-specific information added to Section 900.1.	T	

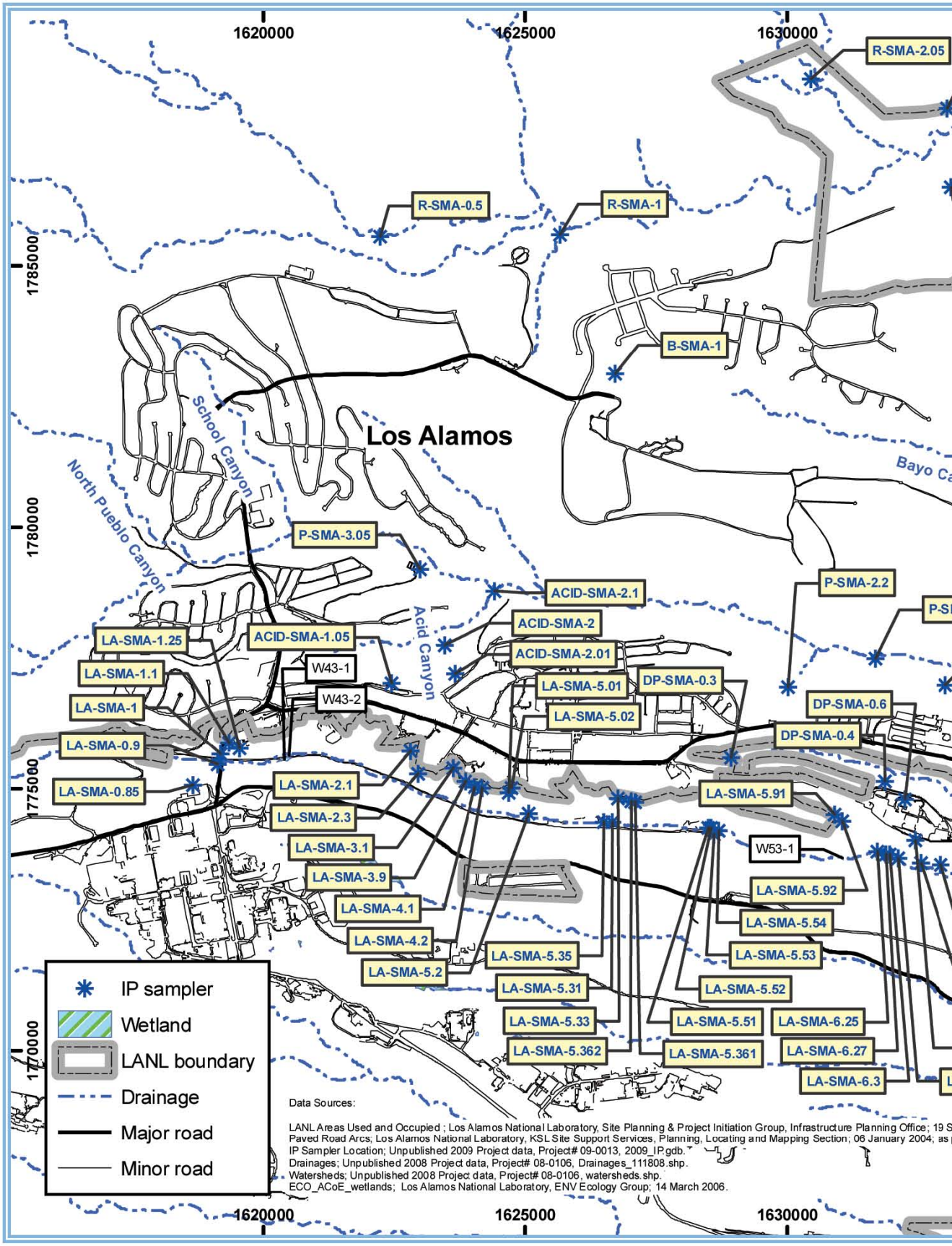
ATTACHMENT A
AMENDMENTS (Continued)

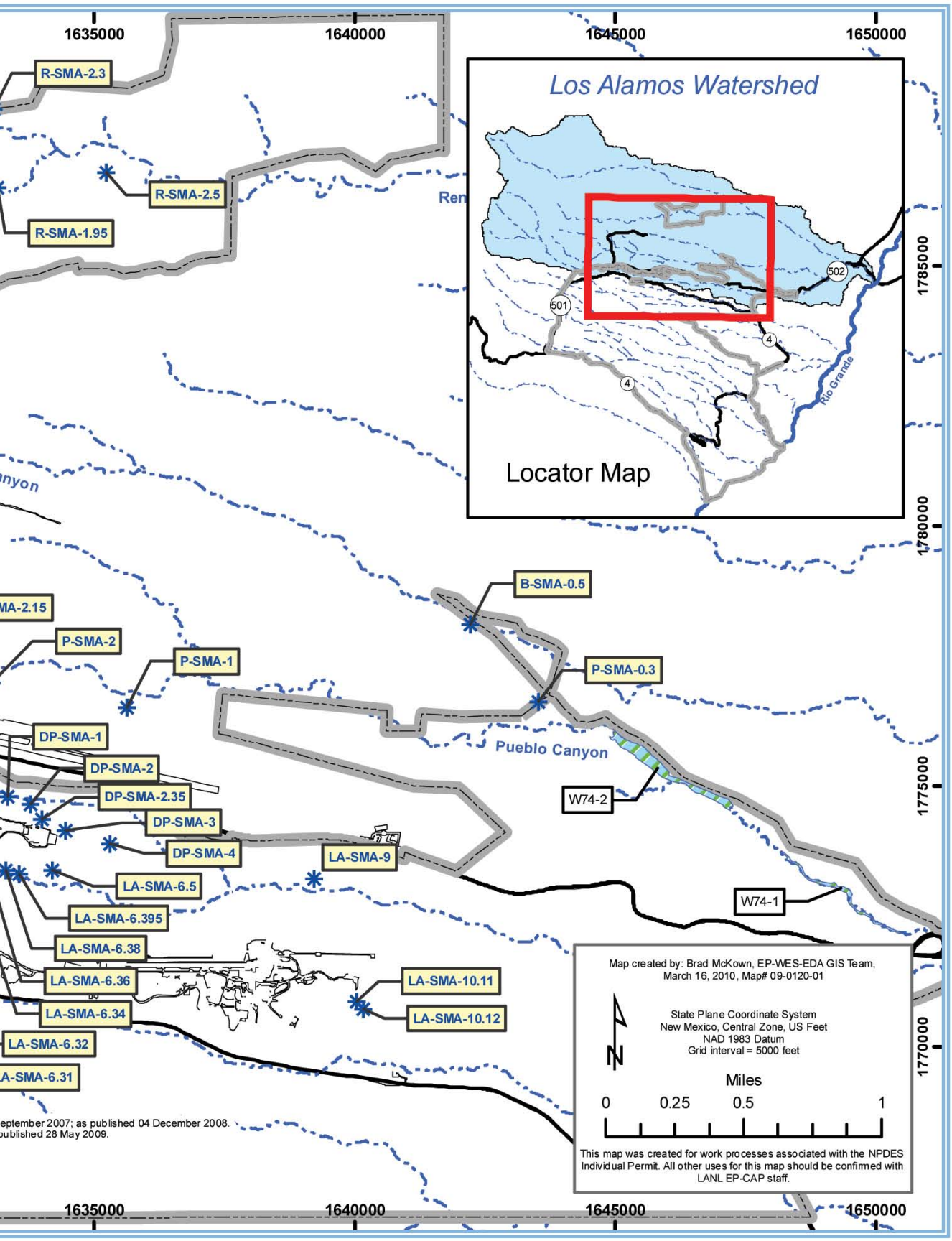
Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.183	09-29-2011	LA-SMA-1.1	Retire Control - Damaged and/or Replaced Control Id: L004-02-03-0006	T	CCN - 21825
V1.184	09-29-2011	LA-SMA-1.1	New Control - Augment Existing Control Id: L004-04-06-0005	T	CCN - 21825
V1.185	02-09-2012	LA-SMA-1.1	Map Revision(R5)	T	CCN - 21825
V1.186	03-01-2012	Attachment D	Change to SDPPP-Add Latitude and Longitude coordinate values parenthetically below New Mexico State Plane coordinates in Physical Characteristics table.	T	
V1.187	03-13-2012	Attachment D	Change to SDPPP-Addition of footnotes identifying Site boundary and sampler movements to Physical Characteristics table.	T	
V1.188	03-13-2012	800.5	Change to SDPPP-Updated Section 800.5 describing presentation of inspection and maintenance tables.	T	
V1.189	03-27-2012	800.6	Change to SDPPP-Text for procedures replaced: EP-SOP-5217 replaced with reference to EP-DIV-SOP-20012 and SOP-5219 was replaced with reference to ENV-RCRA-QP-082.0. Bullet for EP-SOP-5211 removed.	T	
V1.190	04-04-2012	References	Add Reference Document LANL, LA-UR-12-10341, 2012, Storm Water Individual Permit Annual Report, NPDES Permit No. NM0030759, Reporting Period: January 1 - December 31, 2011, (ENV-RCRA)	D	
V1.191	04-09-2012	DP-SMA-0.3	Retire Control - Lifecycle Expired Control Id: D001-01-01-0010	T	CCN - 22336

ATTACHMENT A
AMENDMENTS (Continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V1.192	03-23-2012	DP-SMA-0.3	New Control - Routine/ Replacement Control Id: D001-02-01-0015	T	CCN - 22336
V1.193	04-09-2012	DP-SMA-0.3	Map Revision(R7)	T	CCN - 22336
V1.194	03-26-2012	LA-SMA-5.31	Retire Control - Lifecycle Expired Control Id: L015-01-01-0003	T	CCN - 22341
V1.195	04-05-2012	LA-SMA-5.31	Map Revision(R5)	T	CCN - 22341

ATTACHMENT B
VICINITY MAP




1635000
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1645000
1650000
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1780000
1775000
1770000
R-SMA-2.3
R-SMA-2.5
R-SMA-1.95
Los Alamos Watershed
501
502
4
4
Rio Grande
Locator Map
B-SMA-0.5
P-SMA-2
P-SMA-1
P-SMA-0.3
Pueblo Canyon
DP-SMA-1
DP-SMA-2
DP-SMA-2.35
DP-SMA-3
DP-SMA-4
LA-SMA-9
W74-2
LA-SMA-6.5
LA-SMA-6.395
LA-SMA-6.38
LA-SMA-6.36
LA-SMA-6.34
LA-SMA-6.32
LA-SMA-6.31
LA-SMA-10.11
LA-SMA-10.12
W74-1
Map created by: Brad McKown, EP-WES-EDA GIS Team,
March 16, 2010, Map# 09-0120-01
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 5000 feet
N
Miles
0
0.25
0.5
1
This map was created for work processes associated with the NPDES Individual Permit. All other uses for this map should be confirmed with LANL EP-CAP staff.

ATTACHMENT C
PRECIPITATION NETWORK

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG-NCOM	April 06, 2011	0.14	0.03	180
	April 07, 2011	0.16	0.07	120
	April 19, 2011	0.07	0.05	60
	April 24, 2011	0.18	0.06	120
	April 25, 2011	0.02	0.02	60
	April 26, 2011	0.02	0.01	60
	May 01, 2011	0.15	0.03	240
	May 18, 2011	0.1	0.04	120
	May 24, 2011	0.01	0.01	0
	June 05, 2011	0.01	0.01	0
	July 20, 2011	0.01	0.01	0
	July 24, 2011	0.05	0.05	60
	July 27, 2011	0.19	0.17	60
	July 28, 2011	0.01	0.01	0
	July 29, 2011	0.07	0.03	120
	July 30, 2011	0.2	0.08	120
	August 02, 2011	0.13	0.06	60
	August 03, 2011	0.07	0.05	60
	August 05, 2011	0.26	0.1	120
	August 13, 2011	0.21	0.1	180
	August 15, 2011	0.02	0.02	60
	August 18, 2011	0.01	0.01	0
	August 19, 2011	0.45	0.16	120
	August 20, 2011	0.1	0.08	60

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG-NCOM (Cont'd)	August 21, 2011	0.77	0.52	120
	August 22, 2011	0.07	0.03	60
	August 27, 2011	0.03	0.02	60
	September 01, 2011	0.06	0.05	60
	September 04, 2011	0.32	0.17	120
	September 15, 2011	0.5	0.14	120
	September 16, 2011	0.04	0.02	60
RG-TA-53	April 06, 2011	0.02	0.01	60
	April 07, 2011	0.12	0.08	60
	April 24, 2011	0.09	0.05	60
	April 26, 2011	0.04	0.03	60
	May 01, 2011	0.06	0.03	60
	May 18, 2011	0.01	0.01	0
	June 05, 2011	0.01	0.01	0
	July 28, 2011	0.5	0.46	60
	July 29, 2011	0.14	0.13	60
	July 30, 2011	0.66	0.38	120
	August 01, 2011	0.36	0.35	60
	August 02, 2011	0.26	0.17	120
	August 03, 2011	0.17	0.13	60
	August 05, 2011	0.31	0.19	120
	August 13, 2011	0.22	0.12	180
	August 15, 2011	0.08	0.05	60
	August 18, 2011	0.05	0.05	0

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG-TA-53 (Cont'd)	August 19, 2011	0.02	0.01	60
	August 20, 2011	0.09	0.06	60
	August 21, 2011	0.08	0.03	120
	August 27, 2011	0.34	0.14	120
	September 01, 2011	1.33	0.39	240
	September 04, 2011	0.26	0.1	120
	September 07, 2011	0.62	0.31	120
	September 15, 2011	0.42	0.14	180
	September 16, 2011	0.06	0.06	60
RG038	April 06, 2011	0.04	0.01	0
	April 07, 2011	0.13	0.08	60
	April 09, 2011	0.01	0.01	0
	April 19, 2011	0.01	0.01	0
	April 24, 2011	0.14	0.05	60
	April 25, 2011	0.01	0.01	0
	April 26, 2011	0.03	0.01	0
	May 01, 2011	0.05	0.01	0
	May 02, 2011	0.03	0.02	0
	May 18, 2011	0.02	0.01	0
	July 25, 2011	0.01	0.01	0
	July 28, 2011	0.04	0.03	0
	July 29, 2011	0.09	0.06	60
	July 30, 2011	0.25	0.13	120

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG038 (Cont'd)	August 01, 2011	0.43	0.33	60
	August 02, 2011	0.07	0.04	60
	August 03, 2011	0.15	0.14	60
	August 05, 2011	0.23	0.14	60
	August 13, 2011	0.25	0.11	60
	August 14, 2011	0.01	0.01	0
	August 15, 2011	0.16	0.11	60
	August 19, 2011	0.78	0.45	120
	August 20, 2011	0.08	0.05	60
	August 21, 2011	0.54	0.39	120
	August 22, 2011	0.01	0.01	0
	August 27, 2011	0.1	0.06	60
	September 01, 2011	0.75	0.28	120
	September 04, 2011	0.19	0.08	120
	September 07, 2011	0.41	0.29	60
	September 15, 2011	0.47	0.16	120
	September 16, 2011	0.08	0.06	60
RG055.5	April 06, 2011	0.1	0.02	60
	April 07, 2011	0.18	0.1	60
	April 09, 2011	0.02	0.02	0
	April 19, 2011	0.06	0.04	60
	April 24, 2011	0.22	0.06	120
	April 25, 2011	0.02	0.01	0

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG055.5 (Cont'd)	April 26, 2011	0.03	0.01	0
	May 01, 2011	0.16	0.05	60
	May 02, 2011	0.01	0.01	60
	July 20, 2011	0.01	0.01	0
	July 24, 2011	0.01	0.01	0
	July 25, 2011	0.01	0.01	0
	July 28, 2011	0.08	0.08	0
	July 29, 2011	0.04	0.01	0
	July 30, 2011	0.22	0.09	60
	August 01, 2011	0.06	0.05	0
	August 02, 2011	0.1	0.08	60
	August 03, 2011	0.11	0.05	60
	August 05, 2011	0.47	0.3	60
	August 13, 2011	0.39	0.1	120
	August 15, 2011	0.07	0.05	0
	August 18, 2011	0.01	0.01	0
	August 19, 2011	1.18	0.51	120
	August 20, 2011	0.19	0.13	60
	August 21, 2011	1.37	1.03	120
	August 22, 2011	0.01	0.01	0
	August 27, 2011	0.02	0.02	0
	September 01, 2011	0.16	0.11	60
	September 04, 2011	0.31	0.12	120

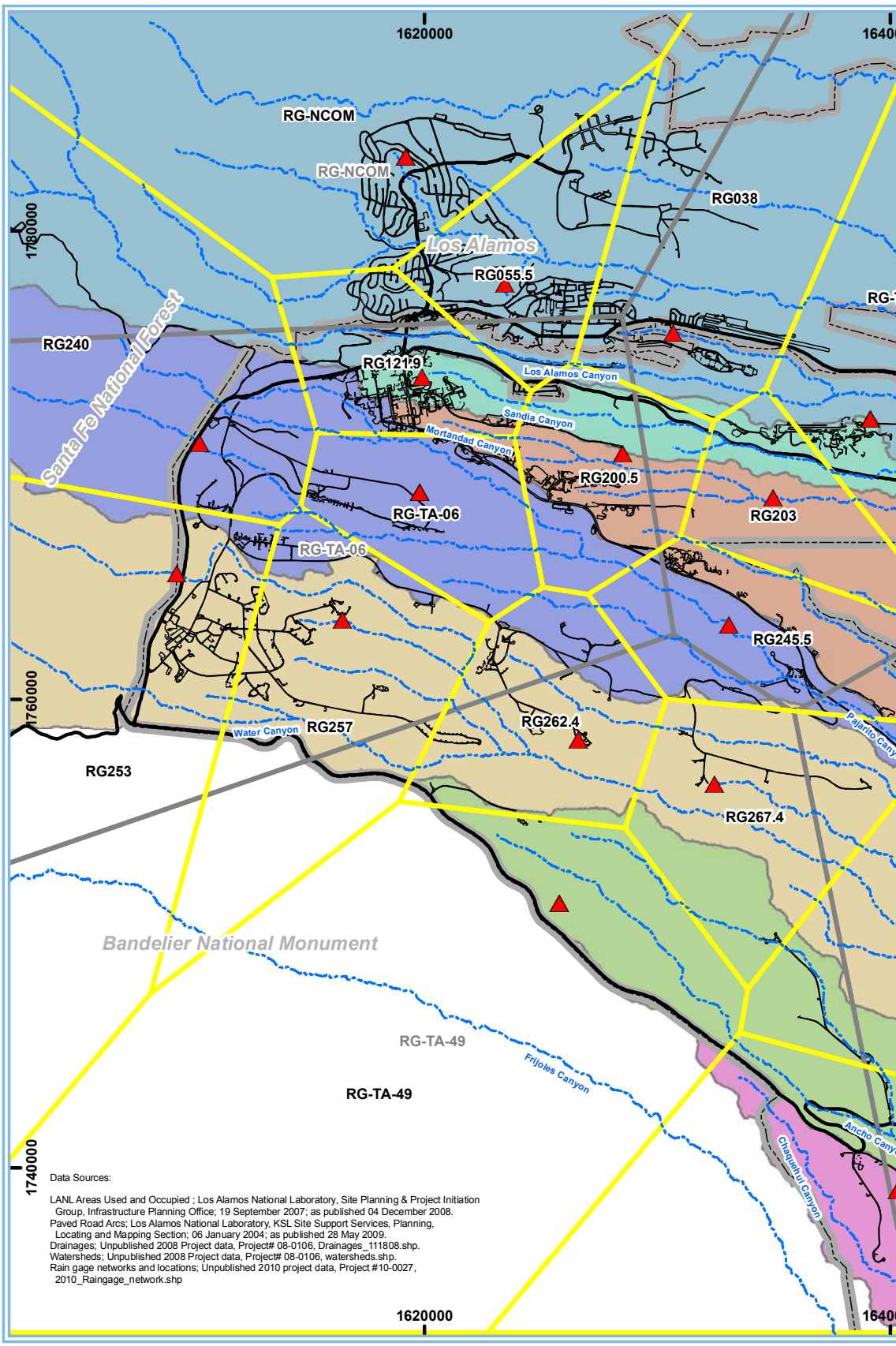
ATTACHMENT C
PRECIPITATION NETWORK (Continued)

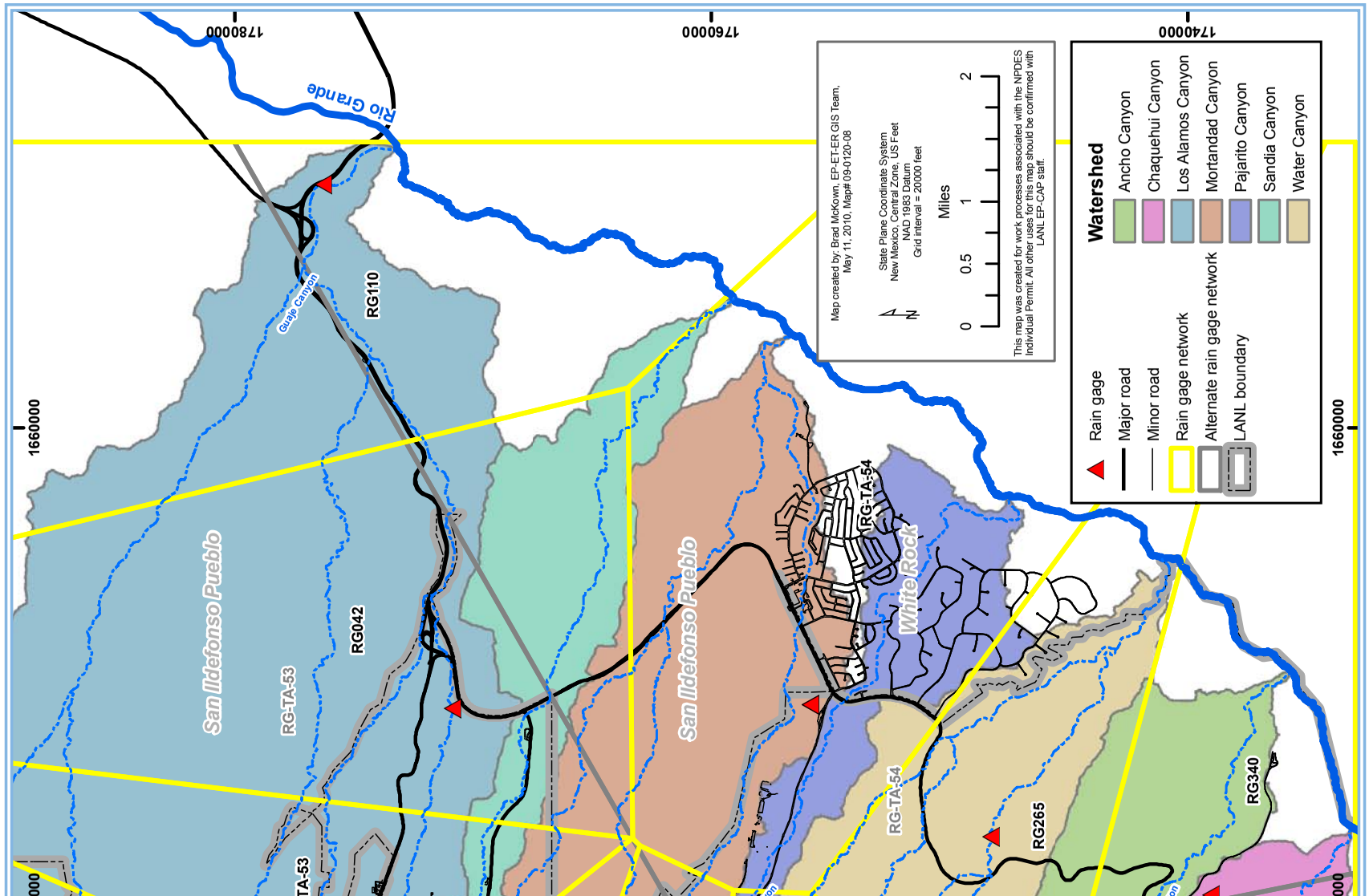
Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG055.5 (Cont'd)	September 07, 2011	0.38	0.35	60
	September 15, 2011	0.52	0.13	120
	September 16, 2011	0.09	0.07	0
RG121.9	April 06, 2011	0.13	0.02	60
	April 07, 2011	0.13	0.07	105
	April 09, 2011	0.02	0.01	0
	April 19, 2011	0.07	0.04	60
	April 23, 2011	0.01	0.01	0
	April 24, 2011	0.21	0.05	120
	April 25, 2011	0.03	0.02	0
	April 26, 2011	0.05	0.02	0
	May 01, 2011	0.18	0.07	60
	May 02, 2011	0.03	0.01	60
	May 18, 2011	0.07	0.03	60
	May 19, 2011	0.01	0.01	0
	May 24, 2011	0.01	0.01	0
	June 19, 2011	0.01	0.01	0
	July 20, 2011	0.02	0.02	0
	July 25, 2011	0.05	0.05	0
	July 27, 2011	0.01	0.01	0
	July 28, 2011	0.16	0.16	0
	July 29, 2011	0.03	0.02	75
	July 30, 2011	0.23	0.11	60

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG121.9 (Cont'd)	August 01, 2011	0.07	0.05	0
	August 02, 2011	0.1	0.07	60
	August 03, 2011	0.11	0.09	60
	August 05, 2011	0.54	0.27	120
	August 13, 2011	0.34	0.1	120
	August 15, 2011	0.12	0.11	0
	August 18, 2011	0.01	0.01	0
	August 19, 2011	1.05	0.46	120
	August 20, 2011	0.05	0.03	0
	August 21, 2011	1.18	0.74	120
	August 22, 2011	0.03	0.02	0
	September 01, 2011	0.13	0.05	60
	September 04, 2011	0.29	0.13	120
	September 07, 2011	0.43	0.4	60
	September 15, 2011	0.54	0.16	120
	September 16, 2011	0.09	0.07	0

ATTACHMENT C
PRECIPITATION NETWORK (Continued)




Rio Grande
Guaje Canyon
RG110
RG042
RG-TA-53
San Ildefonso Pueblo
RG-TA-54
White Rock
RG265
RG340
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1760000
1740000
1660000
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-08
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 20000 feet
Miles
0
0.5
1
2
This map was created for work processes associated with the NPDES
Individual Permit. All other uses for this map should be confirmed with
LANL EP-CAP staff.
Watershed
Ancho Canyon
Chaquehui Canyon
Los Alamos Canyon
Mortandad Canyon
Pajarito Canyon
Sandia Canyon
Water Canyon
Rain gage
Major road
Minor road
Rain gage network
Alternate rain gage network
LANL boundary

ATTACHMENT D
PHYSICAL CHARACTERISTICS

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate NMSP[a] (Latitude)	Sampler Y Coordinate NMSP[a] (Longitude)	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Rendija	R001	R-SMA-0.5	1622233 (35.9074)	1785564 (-106.3114)	7,904.02	C-00-020	5,713.50
Rendija	R002	R-SMA-1	1625681 (35.907483)	1785593 (-106.299767)	11,184,193.74	C-00-041	167,622.33
Rendija	R003	R-SMA-1.95	1633138 (35.91)	1786505 (-106.274583)	36,350.91	00-015	36,258.48
Rendija	R004	R-SMA-2.05	1630468 (35.915667)	1788570 (-106.2836)	8,326,059.38	00-011(c)	315,501.23
Rendija	R005	R-SMA-2.3	1633071 (35.914167)	1788024 (-106.2748)	997,811.95	00-011(e)	589,347.70
Rendija	R006	R-SMA-2.5	1635220 (35.910767)	1786786 (-106.26755)	1,051,999.79	00-011(a)	555,288.30
Bayo	B001	B-SMA-0.5	1642229 (35.886967)	1778118 (-106.243883)	47,382,063.07	10-001(a) 10-001(b) 10-001(c) 10-001(d) 10-004(a) 10-004(b) 10-008 10-009	0.67 0.67 0.67 0.67 0.67 0.67 16,469.47 53,761.21
Bayo	B002	B-SMA-1	1626728 (35.900217)	1782948 (-106.296217)	742,668.92	00-011(d)	257,355.99
Pueblo	P001	ACID-SMA-1.05	1622456 (35.88395)	1777026 (-106.310633)	329.31	00-030(g)	0.00
Pueblo	P002	ACID-SMA-2	1623468 (35.885917)	1777746 (-106.307217)	2,293,481.12	01-002(b)-00 45-001 45-002 45-004	44,098.36 83,300.17 597.17 11,705.58
Pueblo	P002A	ACID-SMA-2.01	1623664 (35.884483)	1777219 (-106.30655)	745.92	00-030(f)	0.00
Pueblo	P003	ACID-SMA-2.1	1624432 (35.8888)	1778791 (-106.303967)	12,608,570.36	01-002(b)-00	138,431.18
Pueblo	P004	P-SMA-0.3	1643529 (35.88285)	1776625 (-106.2395)	22,304.54	00-018(b)	1,466.59

a. NMSP = New Mexico State Plane
b. Site boundary revised/minor sampler movement

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate NMSP[a] (Latitude)	Sampler Y Coordinate NMSP[a] (Longitude)	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Pueblo	P005	P-SMA-1	1635623 (35.8807451)	1776527 (-106.268185 4)	127,851.00	73-001(a) 73-004(d)	109,911.00 0.00
Pueblo	P006	P-SMA-2	1633043 (35.883867)	1776993 (-106.2749)	153,330.93	73-002 73-006	6,229.99 0.73
Pueblo	P007	P-SMA-2.15	1631676 (35.885283)	1777508 (-106.279517)	343,412.62	31-001	60,660.85
Pueblo	P008	P-SMA-2.2	1630034 (35.8838)	1776968 (-106.28505)	145,593.67	00-019	109,333.89
Pueblo	P009	P-SMA-3.05	1623000 (35.889933)	1779208 (-106.3088)	11,355.80	00-018(a)	11,355.80
Los Alamos	L001	LA-SMA-0.85	1618659 (35.87855)	1775066 (-106.32345)	176,425.39	03-055(c)	6.58
Los Alamos	L002	LA-SMA-0.9	1619131 (35.8797)	1775480 (-106.32185)	3,088.01	00-017 C-00-044	3,088.01 86.97
Los Alamos	L003	LA-SMA-1	1619175 (35.880233)	1775679 (-106.3217)	16,436.40	00-017 C-00-044	823.42 10,451.46
Los Alamos	L004	LA-SMA-1.1	1619362 (35.880767)	1775873 (-106.321067)	215,092.44	43-001(b2)	266.22
Los Alamos	L005	LA-SMA-1.25	1619552 (35.8805039)	1775784 (-106.3204729)	40,101.00	C-43-001	0.77
Los Alamos	L006	LA-SMA-2.1	1622814 (35.88035)	1775719 (-106.309417)	2,939.96	01-001(f)	813.10
Los Alamos	L007	LA-SMA-2.3	1622953 (35.879183)	1775293 (-106.30895)	5,248.82	01-001(b)	482.13
Los Alamos	L008	LA-SMA-3.1	1623619 (35.879483)	1775403 (-106.3067)	1,726.20	01-001(e) 01-003(a)	0.00 1,562.95
Los Alamos	L009	LA-SMA-3.9	1623864 (35.8788)	1775152 (-106.305883)	1,629.06	01-001(g) 01-006(a)	439.90 0.00
Los Alamos	L010	LA-SMA-4.1	1624051 (35.878483)	1775039 (-106.30525)	211,995.73	01-003(b) 01-006(b)	3,766.35 775.51

a. NMSP = New Mexico State Plane
b. Site boundary revised/minor sampler movement

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate NMSP[a] (Latitude)	Sampler Y Coordinate NMSP[a] (Longitude)	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Los Alamos	L011	LA-SMA-4.2	1624181 (35.878417)	1775012 (-106.3048)	12,042.67	01-001(c) 01-006(c) 01-006(d)	847.56 463.40 124.55
Los Alamos	L012	LA-SMA-5.01	1624703 (35.8782)	1774932 (-106.30305)	29,869.76	01-001(d) 01-006(h)	6,529.24 512.99
Los Alamos	L012A	LA-SMA-5.02	1624757 (35.878417)	1775009 (-106.302867)	5,676.41	01-003(e)	5,271.56
Los Alamos	L013	LA-SMA-5.2	1625079 (35.8771)	1774535 (-106.301783)	42,935.07	01-003(d)	6,860.00
Los Alamos	L015	LA-SMA-5.31	1626676 (35.87665)	1774371 (-106.296383)	270,158.18	41-002(c)	162.95
Los Alamos	L016	LA-SMA-5.33	1626786 (35.877883)	1774819 (-106.296017)	1,035.74	32-004	202.62
Los Alamos	L014	LA-SMA-5.35	1626511 (35.876617)	1774357 (-106.296933)	991,479.07	C-41-004	5,515.26
Los Alamos	L017	LA-SMA-5.361	1627101 (35.877683)	1774742 (-106.29495)	1,896.99	32-002(b)	469.31
Los Alamos	L017A	LA-SMA-5.362	1627030 (35.877733)	1774766 (-106.295183)	1,938.38	32-003	566.30
Los Alamos	L018	LA-SMA-5.51	1628494 (35.87635)	1774255 (-106.29025)	532,039.20	02-003(a) 02-003(e) 02-004(a) 02-005 02-006(b) 02-006(c) 02-006(d) 02-006(e) 02-008(a) 02-009(b) 02-011(a) 02-011(b) 02-011(c) 02-011(d)	161.40 144.90 0.77 0.77 0.00 0.00 0.77 0.77 0.00 168.95 0.77 161.40 0.77 549.88
Los Alamos	L018A	LA-SMA-5.52	1628565 (35.876367)	1774264 (-106.29)	67,659.19	02-003(b) 02-007 02-008(c)	145.16 141.15 207.09

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b. Site boundary revised/minor sampler movement

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate NMSP[a] (Latitude)	Sampler Y Coordinate NMSP[a] (Longitude)	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Los Alamos	L018B	LA-SMA-5.53	1628612 (35.875983)	1774123 (-106.28985)	45,134.04	02-009(a)	0.77
Los Alamos	L018C	LA-SMA-5.54	1628707 (35.876183)	1774197 (-106.289533)	9,901.95	02-009(c)	0.77
Los Alamos	L019	LA-SMA-5.91	1630920 (35.877067)	1774515 (-106.282067)	131,978.85	21-009 21-021 21-023(c) 21-027(d)	76.19 131,978.85 7,086.03 4,377.27
Los Alamos	L019A	LA-SMA-5.92	1631053 (35.876717)	1774390 (-106.281617)	40,952.69	21-013(b) 21-013(g) 21-018(a) 21-021	30,910.98 1,085.18 754.38 40,952.69
Los Alamos	L020	LA-SMA-6.25	1631736 (35.875133)	1773814 (-106.2793)	36,694.83	21-021 21-024(d) 21-027(c)	35,158.12 9,126.66 166.22
Los Alamos	L021	LA-SMA-6.27	1631895 (35.874967)	1773755 (-106.278767)	84,336.82	21-021 21-027(c)	16,225.68 5,570.05
Los Alamos	L022	LA-SMA-6.3	1631968 (35.874967)	1773753 (-106.278517)	49,510.74	21-006(b)	3,334.27
Los Alamos	L022A	LA-SMA-6.31	1632134 (35.874767)	1773683 (-106.27795)	41,520.65	21-027(a)	2,300.07
Los Alamos	L023	LA-SMA-6.32	1632453 (35.8757)	1774019 (-106.276883)	1,306.64	21-021	1,306.64
Los Alamos	L024	LA-SMA-6.34	1632556 (35.874517)	1773588 (-106.276533)	47,523.59	21-021 21-022(h)	18,514.86 1,806.06
Los Alamos	L025	LA-SMA-6.36	1632946 (35.87445)	1773565 (-106.275217)	51,271.33	21-021 21-024(a)	51,271.33 6,256.19
Los Alamos	L026	LA-SMA-6.38	1633364 (35.873917)	1773368 (-106.2738)	29,336.27	21-021 21-024(c)	39,652.88 830.51
Los Alamos	L027	LA-SMA-6.395	1633522 (35.8737)	1773291 (-106.273267)	78,216.16	21-021 21-024(j)	78,216.16 8,407.95
Los Alamos	L028	LA-SMA-6.5	1634193 (35.87395)	1773382 (-106.271017)	41,930.68	21-021 21-024(i)	31,435.91 8,168.18

a. NMSP = New Mexico State Plane
b. Site boundary revised/minor sampler movement

ATTACHMENT D
PHYSICAL CHARACTERISTICS (Continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate NMSP[a] (Latitude)	Sampler Y Coordinate NMSP[a] (Longitude)	SMA Drainage Area (Sq.Ft.)	Site Number	Site Drainage Area (Sq.Ft.)
Los Alamos	L029	LA-SMA-9	1639218 (35.8735)	1773218 (-106.25405)	223,211.70	26-001 26-002(a) 26-002(b) 26-003	2,954.44 89.00 74.90 59.77
Los Alamos	L030	LA-SMA-10.11	1640027 (35.867017)	1770857 (-106.251317)	614.30	53-002(a)	0.00
Los Alamos	L030A	LA-SMA-10.12	1640162 (35.866667)	1770729 (-106.250867)	41,262.29	53-008	0.00
DP	D001	DP-SMA-0.3	1628939 (35.880017)	1775595 (-106.28875)	79,157.60	21-029	79,157.60
DP	D002	DP-SMA-0.4	1631884 (35.878783)	1775146 (-106.2788)	25,403.38	21-021	25,403.38
DP	D003	DP-SMA-0.6	1632263 (35.877833)	1774795 (-106.277533)	21,298.08	21-021 21-024(l)	21,298.08 16,304.05
DP	D004	DP-SMA-1	1633342 (35.877817)	1774790 (-106.273883)	133,285.91	21-011(k) 21-021	67,526.79 133,285.91
DP	D005	DP-SMA-2	1633784 (35.8774)	1774636 (-106.272383)	24,659.43	21-021 21-024(h)	24,490.29 2,787.74
DP	D006	DP-SMA-2.35	1633991 (35.87665)	1774364 (-106.2717)	8,394.88	21-021 21-024(n)	8,394.88 4,902.18
DP	D007	DP-SMA-3	1634450 (35.8765837)	1774143 (-106.2709559)	43,541.00	21-013(c) 21-021	39,700.00 20,622.00
DP	D008	DP-SMA-4	1635297 (35.875333)	1773888 (-106.267283)	2,059.25	21-021	1,777.41

a. NMSP = New Mexico State Plane
b. Site boundary revised/minor sampler movement

ATTACHMENT E
PROCEDURAL DOCUMENTS

Procedure	Title	Summary
EP-DIV-SOP-10013	Inspecting storm water runoff samplers and retrieving samples	This procedure describes the process for inspecting ISCO storm water runoff samplers and retrieving storm water runoff samples from all locations where the Los Alamos National Laboratory (LANL) conducts storm water sampling activities. This procedure applies to the storm water project technical staff and subcontractor personnel conducting activities at storm water sampler stations.
SOP-5215	Processing Storm Water Samples	Describes the processing of storm water samples in the laboratory at TA-59 and preparation of samples for shipping.
EP-DIV-SOP-20012	Installing, Inspecting, and Maintaining Individual Permit Storm Water Control Measures	This procedure describes how to implement non-engineered controls to minimize pollutants in storm water discharges by installing, inspecting and maintaining storm water control measures (control measures, formerly called BMPs) for the Individual Permit Compliance Project. This procedure also includes inspection of engineered controls (e.g. weirs). IP required inspections covered in this SOP include: After a significant event, such as fire, which could significantly impact the control measures and environmental conditions in the affected area(s); Within 15 calendar days of a storm rain event at or near the Site(s) registers 0.25" or more of rain within 30 minutes; Water sample results are above Target Action Levels; At least annually for changes of conditions affecting erosion.

ATTACHMENT E
PROCEDURAL DOCUMENTS (Continued)

Procedure	Title	Summary
EP-DIV-SOP-10004	Managing Electronic Precipitation Data for Storm Water Projects	This standard operating procedure (SOP) states the responsibilities and describes the process for managing electronic precipitation measurement data collected for use by LANL storm water programs. Electronic data management processes include: downloading electronic data from remote data loggers and/or the LANL Weather Machine; processing the raw data files; uploading electronic data from the remote data loggers into Hydstra ©; calculating the 24-hour cumulative amount, storm duration, and maximum 30-minute storm intensity; and transferring the calculated precipitation results to the Storm Water Tracking System (SWTS).
EP-DIV-SOP-10005	Operation and Maintenance of GAGE Stations for Storm Water Projects	This procedure describes the installation, verification, activation, inspection, maintenance, seasonal deactivation, and permanent decommissioning of surface water gaging stations and the rain gage that is installed at some gage stations. Gage station equipment and electronic instruments include flumes, weirs, stilling wells, electronic data loggers, transducers for stage (water level) measurement, digital cell phones and telemetry, solar battery-charging equipment, and electronic rain gages. This procedure also describes how to obtain supplemental flow measurements in flowing streams.

ATTACHMENT E
PROCEDURAL DOCUMENTS (Continued)

Procedure	Title	Summary
EP-DIV-SOP-10008	Installing, Setting Up, and Operating ISCO Samplers	This procedure describes the installation, setup, programming, and operation of Teledyne ISCO model 3700 full-size portable automated samplers used to collect storm water runoff samples. This procedure applies to the project and contractor personnel conducting operation and maintenance activities at stream gaging stations and single stage stations.

ATTACHMENT F
TRAINING LOG

Pursuant to Section I.A.3 of the Permit, "training is to be provided at least once per year, to all employees who work in areas where industrial materials or activities are exposed to storm water, or who are responsible for implementing activities identified in the SDPPP (e.g., inspectors, maintenance personnel), including all members of the Site Discharge Pollution Prevention Team. Training must cover both the specific components and scope of the SDPPP and the control measures required under this Part."

In accordance with the training requirements of the IP, training sessions for PPT members were conducted twice in the calendar year 2011.

Annual Employee Training on the NPDES Individual Permit NM0030759 was conducted on October 20, 2011. Training topics included:

- An overview of the IP
- Roles, Responsibilities, Authorities, and Accountabilities
- Baseline Control Measures
- SDPPP

Individual Permit 2011 SDPPP and Control Measure Briefing training was conducted on March 15, 2011. Training topics included:

- An overview of the IP
- SDPPP scope and components
- BMP Storm Water Manual
- Field Map Review
- SOP 5217: Inspection, Installation, and Maintenance Review
- 2010 Field Season Lessons Learned
- Qualifications and On the Job Training
- Process Overview

ATTACHMENT G
ACRONYMS AND REFERENCES

AOC	Area of Concern
ATAL	Average Target Action Level
Control	Best Management Practice
CEARP	Comprehensive Environmental Assessment and Response Program
CMP	Corrugated Metal Pipe
CWA	Clean Water Act
D & D	Decontamination and Decommissioning
DL	Detectable Level
DU	Depleted Uranium
EPA	Environmental Protection Agency
FFCA	Federal Facility Compliance Agreement
HEs	High Explosives
IP	NPDES Permit No. NM0030759
JCNNM	Johnson Controls Northern New Mexico
LACP	Los Alamos Characterization Program
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security
MDA	Material Disposal Area
MQL	Minimum Quantification Level
MSGP	Multi-Sector General Permit
MTAL	Maximum Target Action Level
NMED	New Mexico Environmental Department
NMFS	National Marine Fisheries Service
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
OEW	Ordnance and Explosive Waste
PCBs	Polychlorinated biphenyl
PF	Permitted Feature
PPT	Pollution Prevention Team
RADS	Radioactive Pollutants
RCRA	Resource Conservation and Recovery Act
RFI	Remedial Facilities Investigation
RLW	Radioactive Liquid Waste
SAA	Satellite Accumulation Area
SDPPP	Site Discharge Pollution Prevention Plan
SMA	Site Monitoring Area
SWMU	Solid Waste Management Unit
SWTS	Storm Water Tracking System
TA	Technical Area
TALs	Target Action Levels
TMDL	Total Maximum Daily Load
TSCA	Toxic Substances Control Act
USFWS	United States Fish & Wildlife Service
UXO	Unexploded Ordnance
VCA	Voluntary Corrective Action
VCP	Vitrified Clay Pipe
WPCD	Water Pollution Control Drawing
WQDB	Water Quality DatabaseSite
WWTP	Waste Water Treatment Plan

REFERENCES

The following list includes documents used in the preparation of this plan. The reference list is provided to allow the reader to search additional sources of information and serves as a starting point for further research. Where provided, parenthetical information following each reference provides the author(s), publication date, and ER ID number. ER ID numbers are assigned by the Environmental Programs Directorate's Record Processing Facility (RPF) and are used to locate the document at the RPF and, where applicable, in the master reference set. Copies of these references are maintained at the NMED Hazardous Waste Bureau; the U.S. Department of Energy–Los Alamos Site Office; the U.S. Environmental Protection Agency, Region 6; and the Directorate.

LANL (Los Alamos National Laboratory) 1990.
"*Solid Waste Management Units Report*," Vol. I of IV (TA-00 through TA-09), Los Alamos National Laboratory document LA-UR-90-3400, prepared by International Technology Corporation under Contract 9-XS8-0062R-1, Los Alamos, New Mexico. (LANL 1990, 007512)

LANL, ENV-RCRA-10-218 / LA-UR-10-07681 2010.
NPDES permit number NM0030759 - submittal of certification of baseline control measures completion for 63 site monitoring areas, dated December 1, 2010 , Hayes, Catherine A ; Lemke, Terrill W

LANL, ENV-RCRA-10-244 / LA-UR-10-08294 2010.
NPDES permit number NM0030759 - submittal of certification of baseline control measures completion for 65 site monitor areas, dated December 16, 2010 , Hayes, Catherine A ; Lemke, Terrill W

LANL, ENV-RCRA-11-0002 / LA-UR-11-00114 2011.
NPDES permit number NM0030759 - submittal of certification of baseline control measures completion for 57 site monitoring areas, dated January 12, 2011 , Hayes, Catherine A ; Lemke, Terrill W

LANL, ENV-RCRA-11-0026 / LA-UR-11-00912 2011.
NPDES permit number NM0030759 - submittal of certification of baseline control measures completion for 26 site monitoring areas, dated February 11, 2011 , Hayes, Catherine A ; Lemke, Terrill W

LANL, ENV-RCRA-11-0083 / LA-UR-11-10500 2011.
NPDES Permit No. NM0030759 - Submittal of BCM Certification Documentation , Hayes, Catherine A.

LANL (Los Alamos National Laboratory) 2011.
Storm Water Individual Permit Annual Report Reporting Period: January 1 – December 31, 2010, Los Alamos National Laboratory document LA-UR-11-10019, Los Alamos, New Mexico

LANL, ENV-RCRA-11-0083 / LA-UR-11-10500 2011.
NPDES Permit No. NM0030759 - Submittal of Certification of Completion of Baseline Control Measures For 21 Site Monitoring Areas, Dated April 28, 2011, Terrill Lemke (ENV-RCRA)

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LANL, ERID-206378/LA-UR-11-11472 2011.
Status Report NPDES Permit No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 3, Pajarito Watershed Aggregate, Reporting Period: April 1 2011-June 30, 2011, Jackie Little

LANL, ERID-207306/LA-UR-11-11624 2011.
Status Report NPDES Permit No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 3, Pajarito Watershed Aggregate, Reporting Period: July 1, 2011-July 31, 2011, Jackie Little

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LANL (Los Alamos National Laboratory) 1990.
"Solid Waste Management Units Report," Vol. III of IV (TA-26 through TA-50), Los Alamos National Laboratory document LA-UR-90-3400, prepared by International Technology Corporation under Contract 9-XS8-0062R-1, Los Alamos, New Mexico. (LANL 1990, 007512)

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LANL (Los Alamos National Laboratory) 2006.
"*Summary of Watersheds Potentially Impacted by the Los Alamos National Laboratory*", Los Alamos National Laboratory document LA-UR-06-05387, Los Alamos, New Mexico

LANL (Los Alamos National Laboratory) 2008.
"*2008 Interim Facility-Wide Groundwater Monitoring Plan*", Los Alamos National Laboratory document LA-UR-08-3273, Los Alamos, New Mexico

US Army Corps of Engineers Albuquerque District 2005.
"*Wetlands Delineation Report Los Alamos National Laboratory Los ALamos, New Mexico*", (COE 2005) [COE 2005]