ERID-215108

Site Discharge Pollution Prevention Plan

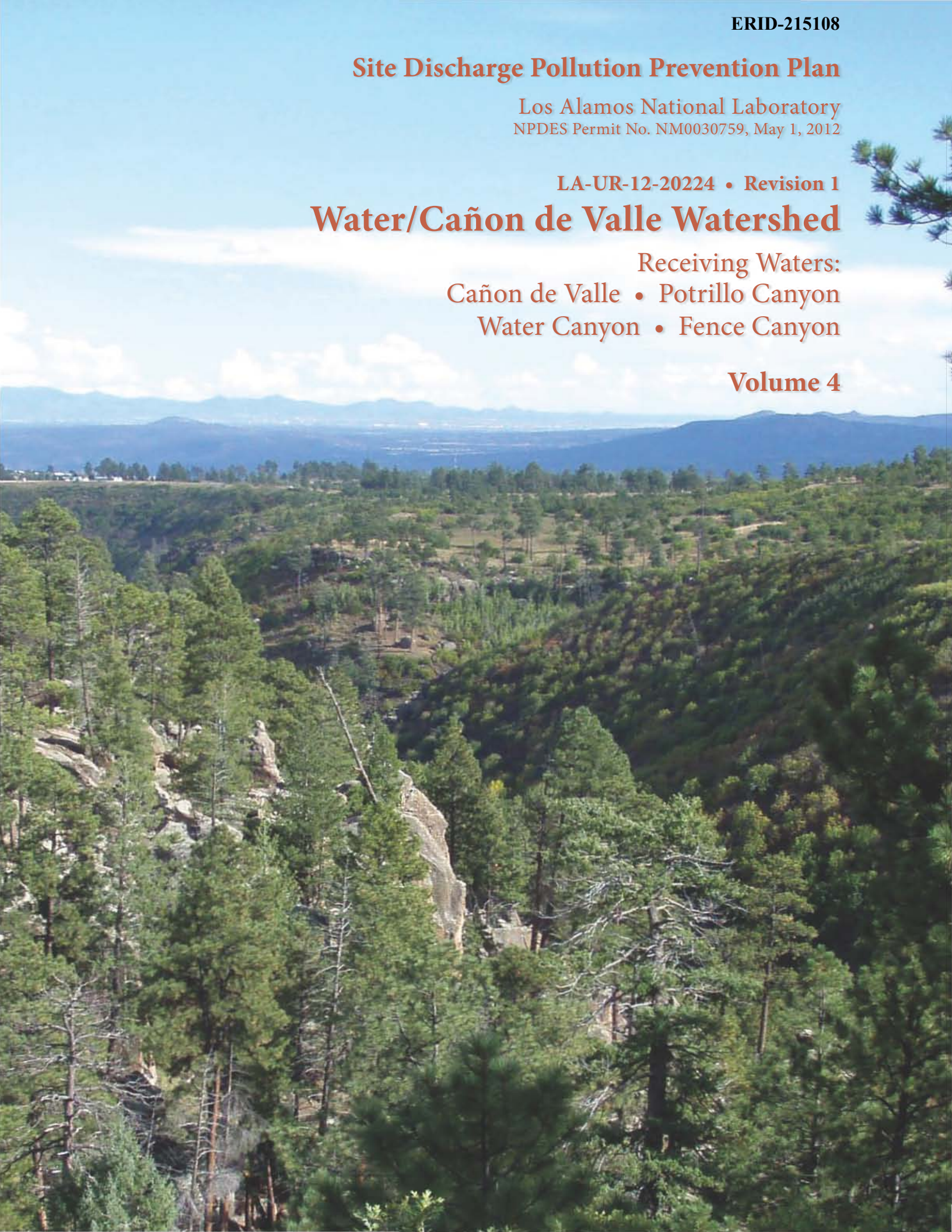
Los Alamos National Laboratory
NPDES Permit No. NM0030759, May 1, 2012

LA-UR-12-20224 • Revision 1

Water/Cañon de Valle Watershed

Receiving Waters:
Cañon de Valle • Potrillo Canyon
Water Canyon • Fence Canyon

Volume 4



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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 Water/Cañon de Valle Watershed Overview

The Water/Cañon de Valle watershed, shown on the vicinity map in Attachment B, is an east-to-southeast trending drainage that originates on the eastern slopes of the Sierra de los Valles in the Valles Caldera National Preserve at an elevation of 10,380 ft. The watershed remains on the Valles Caldera National Preserve for 0.4 mi, then passes through 2.8 mi of the Santa Fe National Forest before it crosses into the Laboratory at the western boundary of TA-16. The drainage extends east/southeast 9.7 mi across the entire Laboratory before it crosses into the community of White Rock. The drainage passes through White Rock for 0.5 mi before joining the Rio Grande at an elevation of 5427 ft. The drainage extends 13.8 mi from its headwaters to its confluence with the Rio Grande, draining an area of 19 square miles. Primary canyons within this watershed are Cañon de Valle, the primary tributary to Water Canyon, Portrillo and Fence Canyons.

The Water/Cañon de Valle Watershed consists mainly of occasional perennial reaches arising from springs that occur in the upper reaches of the watershed; however, Potrillo and Fence Canyons are entirely ephemeral in character. Springs on the flanks of the Jemez Mountain, west of the Laboratory's western boundary, supply flow to the upper reaches of Water/Cañon de Valle watershed. Perennial water exists from State Highway 501 to the eastern edge of TA-28 in Upper Water and from Peter Seep in Cañon De Valle Canyon. Two NPDES outfalls discharge into drainage ditches that flow into upper Water Canyon but do not reach Water Canyon because of low discharge volume. Middle and Lower Water Canyon is ephemeral except for a perennial reach in the lower Canyon supported by Spring 5AA. Flow in Water Canyon from the southwest LANL boundary to the confluence with Cañon de Valle Canyon sometimes results from surface water flow from Water Canyon, which is located in Water Canyon west of LANL. Portions of the upper portion of the Water/Cañon de Valle watershed were burned during the Cerro Grande fire of May 2000.

Water Canyon originates west of the Laboratory on the eastern slopes of the Sierra de Los Valles in the Santa Fe National Forest at an elevation of 9943 ft. The canyon extends east-southeast 2.6 mi across the Santa Fe National Forest before crossing into the Laboratory at the western boundary of TA-16. The canyon extends east-southeast across the entire Laboratory and is joined by Cañon de Valle and Potrillo Canyon just before it crosses into the community of White Rock. The canyon extends through White Rock for 0.5 mi before reaching the Rio Grande at an elevation of 5427 ft. Water Canyon has a channel length of 13.8 mi and a drainage area of 8.8 square miles. The canyon passes through Laboratory TA-15, -16, -36, -37, -68, and -71. In addition, some TA-11 and -49 Sites are associated with the canyon. The canyon includes a small tributary, S-Site Canyon, which originates in TA-16 and joins Water Canyon just above its confluence with Cañon de Valle. On a regional scale, Water Canyon is an interrupted stream. Several perennial springs are located in the upper reaches of Water Canyon and Cañon de Valle (the major subdrainage to Water Canyon). Streamflow is ephemeral over most of the canyon passing through Laboratory property. Several perennial springs are located in upper Water Canyon in the Santa Fe National Forest, including Armistead Spring and American Spring. These springs result in perennial reaches. A small perennial spring in lower Water Canyon, below the confluence with Potrillo Canyon, supports a very short perennial reach. Snowmelt seldom extends downstream as far as the Laboratory boundary. Some anthropogenic flow occurs in Water Canyon from near the southwest

boundary of the Laboratory to the confluence with Cañon de Valle. Two active NPDES-permitted outfalls drain into the lower reaches of Water Canyon. NPDES-permitted outfall 03A028 is associated with a power-control building and cooling tower at TA-15. NPDES-permitted outfall 03A185 is associated with the Dual-axis Radiographic/ Radiography Hydrotest (DARHT) facility, also located at TA-15.

Cañon de Valle originates west of the Laboratory, on the eastern slopes of the Sierra de Los Valles in the Valles Caldera National Preserve at an elevation of 10,389 ft. The canyon extends east-southeast for 0.4 mi, crosses into the Santa Fe National Forest and continues east-southeast for 2.8 mi before entering the Laboratory at the western boundary of TA-16. The canyon extends east-southeast across the entire length of TA-16 to its eastern boundary, where it turns south, straddling the boundary between TA-15 and -37 for 0.8 mi before eventually joining Water Canyon at the juncture of TA-15, -37, and -49 at an elevation of 6812 ft. Cañon de Valle has a channel length of 7.5 mi and a drainage area of 4.2 square miles. Flow in Cañon de Valle is interrupted upstream of the Laboratory's western boundary and is largely ephemeral on Laboratory property with short perennial reaches in the upper portion of the canyon. Several perennial springs located in the Santa Fe National Forest in upper Cañon de Valle result in perennial reaches. Cañon de Valle contains one active NPDES-permitted outfall (05A055), which is associated with the TA-16 high-explosives wastewater-treatment facility (Building 16-1507). In addition, one active (03A130) and one inactive (05A097) NPDES-permitted outfall drains/formerly drained into S-Site Canyon, a tributary of Cañon de Valle. The inactive outfall has been requested for deletion from the Laboratory's NPDES permit. The active outfall is associated with the TA-11 vibration test building (Building 11-30).

Potrillo Canyon originates on Laboratory property in the central portion of TA-15 at an elevation of 7280 ft. The canyon extends southeast across the Laboratory for 6.5 mi through TA-15, -36, and -71 before joining Water Canyon at an elevation of 5810 ft in the southeastern portion of TA-71 (near the northern boundary of TA-71). Potrillo Canyon has a channel length of 6.5 mi and a drainage area of 3.4 square miles. Streamflow in Potrillo Canyon is entirely ephemeral, occurring only during rainfall runoff. Potrillo Canyon has no perennial springs and no perennial reaches. No Laboratory NPDES-permitted outfalls drain into Potrillo Canyon.

Fence Canyon originates on Laboratory property near the western boundary of TA-36 at an elevation of 7094 ft. The canyon extends southeast and runs near the northern boundaries of TA -68 and -71 before joining Potrillo Canyon in the northeastern corner of TA-71 at an elevation of 6426 ft. Fence Canyon has a channel length of 3.1 mi and a drainage area of 1.1 square miles. Stream flow in Fence Canyon is ephemeral and results primarily from rainfall runoff. The canyon contains no perennial springs or perennial reaches. No Laboratory NPDES-permitted outfalls drain into Fence Canyon.

300.3.1 Receiving Waters and Wetlands in Water/Cañon de Valle 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 Water/Cañon de Valle watershed contains, or may influence, three wetland areas totaling approximately 0.23 acres. The approximate dimensions and areas of wetlands in proximity to the Water/Cañon de Valle watershed are shown in Table 300-2.

Table 300-2 Wetlands in Proximity to the Water/Cañon de Valle Watershed

Wetland Identification	Approximate Area (acres)	Approximate Length	Approximate Width
11-1	0.19	305	27
16-1	0.03	70	20
16-2	0.01	30	25

Wetland 11-1 is located on the floor of S-Site Canyon on the north border of TA-11. 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 and developed area of TA-11 on the mesa top. The wetland is approximately 0.19 acres, with dimensions of 305 feet in length by an average width of 27 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), and sedge grasses (*Carex sp.*).

Wetland 16-1 is located on the floor of Cañon de Valle, approximately 160 feet upstream (west) of wetland 16-2. It is bounded on the north by the south-facing slope of the canyon and TA-16 burning grounds on the mesa top. On the south the area is bounded by the north-facing slope of the canyon and undeveloped land in TA-16. The wetland is approximately 0.03 acres, with dimensions of 70 feet in length by an average width of 20 feet. Vegetation in this area includes baltic rush (*Juncus balticus*), and undetermined grasses.

Wetland 16-2 is located on the floor of Cañon de Valle approximately 160 feet downstream (east) of wetland 16-1. It is bounded on the north by the south-facing slope of the canyon and TA-16 burning grounds on the mesa top. On the south the area is bounded by the north-facing slope of the canyon and undeveloped land in TA-16. The wetland is approximately 0.01 acres, with dimensions of 30 feet by 25 feet in width. Vegetation in this area includes baltic rush (*Juncus balticus*), and undetermined grasses.

300.3.2 Vicinity Map

A vicinity map for the Water/Cañon de Valle 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 Piñion-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 Water/Cañon de Valle watershed, four 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.

Table 300-3 Rain Gages for the Water/Cañon de Valle Watershed

Meteorological Tower or Rain Gage	Year Placed in Service	Location	Associated SMAs	2011 Storm Rain Events
RG253	2009	The rain gage is located in Cañon de Valle above SR501.	8	07-20-11 07-27-11 07-30-11 08-02-11 08-03-11 08-04-11 08-05-11 08-19-11 08-21-11 08-22-11
RG257	2008	The rain gage is located in the Burn Grounds Tributary of Cañon de Valle near Fish Ladder Springs.	27	08-05-11 08-21-11 09-01-11 09-15-11
RG262.4	2009	The rain gage is located on the eastern side of the confluence of Cañon de Valle and Upper Water Canyon.	12	07-25-11 07-30-11 08-18-11 08-21-11 09-01-11 09-15-11

Table 300-3 Rain Gages for the Water/Cañon de Valle Watershed (Continued)

Meteorological Tower or Rain Gage	Year Placed in Service	Location	Associated SMAs	2011 Storm Rain Events
RG267.4	2008	The rain gage is located in Fence Canyon.	3	07-29-11 07-30-11 08-15-11 08-18-11 09-01-11

*RG = Rain Gage

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 Water/Cañon de Valle aggregate area, approximately 30% of the watershed was burned, all of which was located above LANL.

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.

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 Water/Cañon de Valle 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 Water/Cañon de Valle watershed, there are 50 Permitted Features comprised of 89 Sites associated with 50 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 Water/Cañon de Valle watershed are generally classified as metals, organics, and radioactivity present in surface soils.

Laboratory activities in proximity to the Water/Cañon de Valle Watershed have been varied and include high explosives fabrication facilities and test-device assembly buildings and supporting administrative, technical, and physical-support buildings and structures. These operations have been conducted in and have possibly discharged to the watershed and its tributaries since the Laboratory began operation in 1943. These early discharges were associated with outfalls, surface run-off, and dispersion from high explosives fabrication and related supporting structures.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Water Canyon include TA-11, -15, -16, and -49. Releases from Sites include releases from outfalls, septic systems, spills, open detonations from firing sites, a drop tower, and MDAs.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Cañon de Valle include TA-13, -14, -15, and -16. Potential releases from Sites in proximity to this canyon are principally associated with fabrication and testing of high explosives. These activities and related ancillary areas such as disposal areas, sumps, and outfalls are currently under investigation in this canyon.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Portrillo Canyon include TA-15 and -36. Potential releases from Sites associated with open detonation and testing of high explosives and supporting facilities such as outfalls

from septic systems are areas currently under investigation in this canyon.

TAs associated with SWMUs and AOCs potentially influencing storm water discharges to Fence Canyon include TA-36, an area previously associated with the open detonation of high explosives.

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.

None of the 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 watershed, none of the SMAs have the potential for public influence.

SECTION 600
BASELINE CONTROL MEASURES

In the Water/Cañon de Valle watershed baseline control measures have been implemented at 50 SMAs. Of the 50 SMAs in this watershed, four 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 implemented at SMAs in the Water/Cañon de Valle watershed. Specific

control types are further described for each control class. Control measures referenced in this document follow the specifications provided in the 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 Water/Cañon de Valle watershed, four SMAs were completed with baseline control installations before the effective date of the Permit. Storm water monitoring at these four 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 Water/Cañon de Valle Watershed

- PT-SMA-3
- PT-SMA-4.2
- W-SMA-1
- W-SMA-9.5

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.

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 reevaluation 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.

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-DIV-SOP 100013, 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 re-evaluated 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; 330 of these inspections were within the Water/Cañon de Valle 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 Individual Permit 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 methods:

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 Water/Cañon de Valle watershed, there are 89 Sites, of which 1 Sites have been issued Certificates of Completion under the Consent Order by the New Mexico Environment Department and are listed in the table below.

Table 900.1-1 Sites within the Ancho/Chaquehui Watershed meeting Completion of Corrective Action

Criteria	Site Number	Reference Number
4	16-030(c)	NMED 2008, HWB-LANL-02-019

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

There are no Sites within the Water/Cañon de Valle watershed that have been deemed high priority Sites.

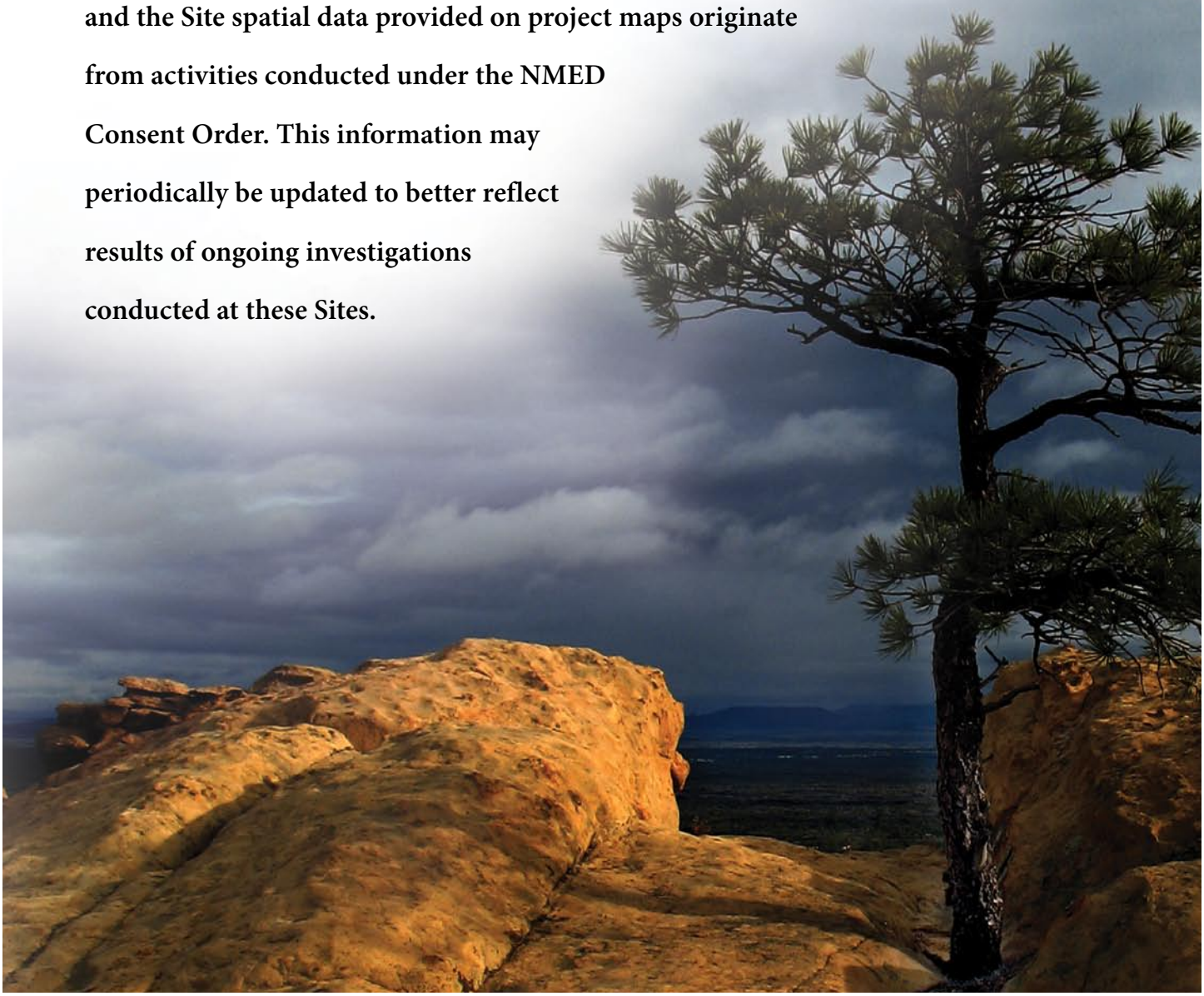
900.2.2 Moderate Priority Sites

Within the Water/Cañon de Valle watershed, there are 89 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 CDV-SMA-1.2

1000.1.1 Area Description

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

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 CDV-SMA-1.2

1000.1.1 Area Description

CDV-SMA-1.2 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes gently towards the receiving waters further north. The southern boundary of the SMA may be influenced by unpaved access roads. The eastern and western boundaries of the SMA are flat and undeveloped.

1000.1.2 Potential Pollutant Sources

1000.1.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with Permitted Feature (PF) V001, CDV-SMA-1.2, Sites 16-017(b)-99 and 16-029(k).

SWMU 16-017(b)-99 is a former electroplating building at TA-16. Former SWMU 16-017 consisted of a group of 23 intact, abandoned structures associated with S-Site. These structures were proposed for deferral in the work plan. Structure number 16-93, the former HE Electroplating Building, was built prior to 1950 and was abandoned in 1970.

During the Annual Unit Audit conducted in 1999, former SWMU 16-017 was split into 23 separate SWMUs to better facilitate tracking. Each of the former structures in the series was given an alpha identifier at that time.

SWMU 16-029(k) consists of two former sumps, a drain-line, and an outfall from Building 16-93. In the mid- to late-1960s, the HE sumps were filled with gravel. Surface soil data from samples taken in the vicinity of the plating outfall drainage in the late 1980s showed barium, cadmium, lead, zinc, and cyanide above BVs but below SALs. Soil samples were analyzed for HE, inorganic chemicals, and organic chemicals. No HEs were detected in the samples.

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
16-017(b)-99	Soil contamination from former HE Machining Building 16-93	Co-located, Overlapping	Shared	•	•	•	HE
16-029(k)	Sumps	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with a former electroplating building at TA-16. They share a common drainage, similar contaminants, and have been subject to extensive remediation. Because of this, Sites grouped within this SMA will discharge substantially identical effluent.

1000.1.3 Control Measures

Potential run-on to this Permitted Feature originates from the south in natural areas and there is minor contributions from an unpaved access road. Existing storm water controls serve to mitigate these minor run-on sources.

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	
V001 01 01 0003	Seed and Mulch - Seed and Wood Mulch			•		CB
V001 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•		CB
V001 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
V001 03 02 0008	Berms - Base Course		•		•	CB
V001 03 06 0005	Berms - Straw Wattles	•			•	CB
V001 03 06 0006	Berms - Straw Wattles	•			•	CB
V001 03 06 0009	Berms - Straw Wattles	•			•	B
V001 04 06 0001	Channel/Swale - Rip Rap		•	•		CB
V001 06 01 0007	Check Dam - Rock		•		•	CB

Seed and Mulch - East (V001-01-01-0003)

Seed and mulch has been applied to the area east of the SMA around the straw wattles in order to 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).

Seed and Mulch - West (V001-01-01-0004)

Seed and mulch has been applied to the area west of the SMA around the straw wattles in order to 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 (V001-02-01-0002)

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.

Southern Berm (V001-03-02-0008)

This berm is installed south of other controls to interrupt north-flowing run-off and sediment. 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 - Eastern (V001-03-06-0005)

These wattles are located east of the SMA near the sampler. These wattles are used to mitigate run-on to Site 16-029(k). 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 - Western (V001-03-06-0006)

These wattles are located west of the SMA near the sampler. They are used to mitigate run-on to 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 Wattle (V001-03-06-0009)

This straw wattle was installed southeast of the sampler to control run-on and sediment flowing towards the sampler. 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.

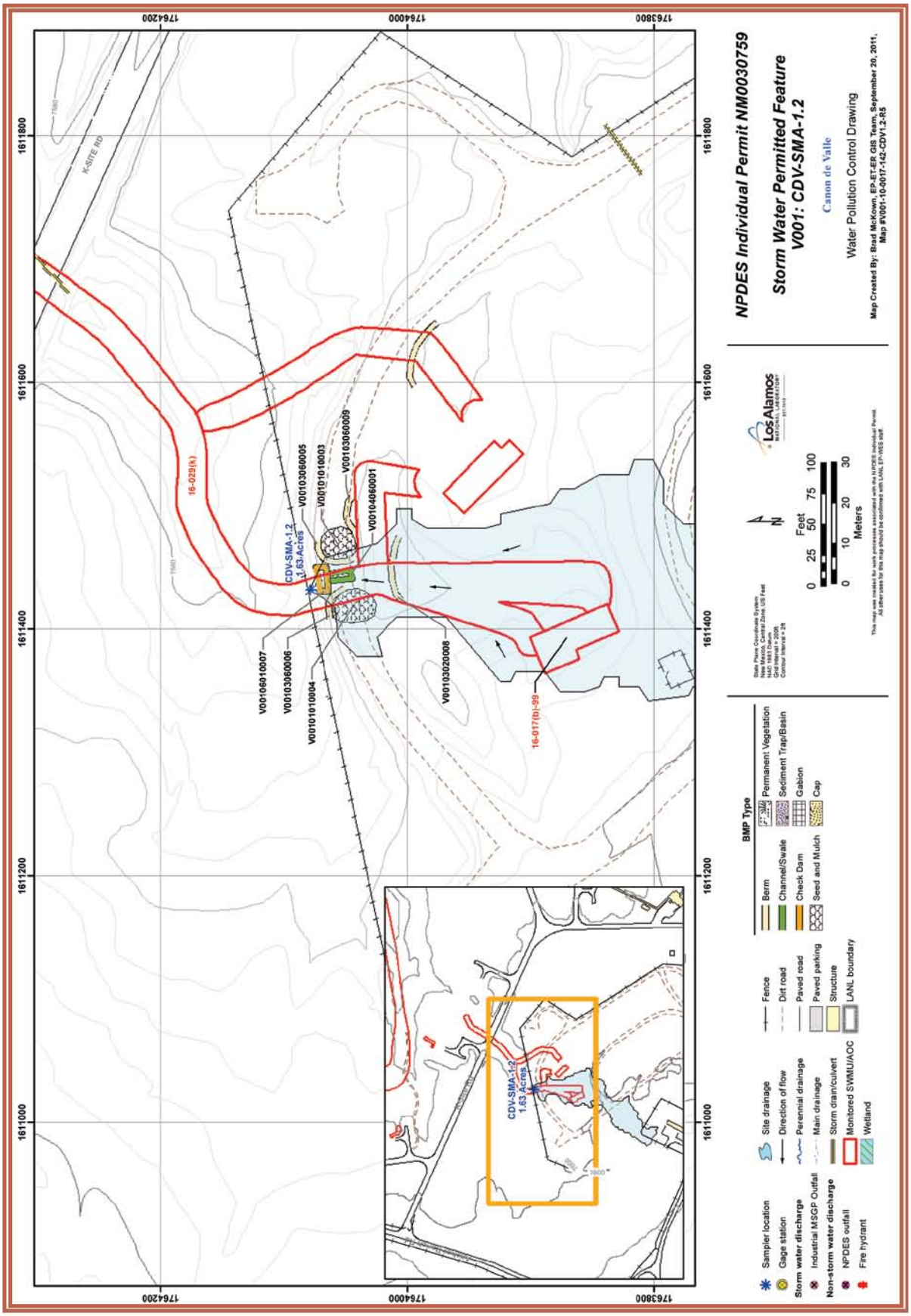
Rip Rap (V001-04-06-0001)

This rip rap is located in the drainage channel just south of the sampler. It is in place to restrict run-off from the SMA. 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 (V001-06-01-0007)

The rock check dam is located at the northern end of the SMA adjacent to the sampler. It is in place to restrict 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.

1000.1.4 Project Map



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 CDV-SMA-1.2. 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.

1000.1.5.2 Inspection Activity

RG253 recorded ten Storm Events at CDV-SMA-1.2 during the 2011 season. These rain events triggered five post storm inspections. 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-13844	07-12-2011
Storm Rain Event	BMP-14938	07-26-2011
Storm Rain Event	BMP-15267	08-01-2011
Storm Rain Event	BMP-15943	08-05-2011
Storm Rain Event	BMP-16322	08-11-2011
Storm Rain Event	BMP-17306	09-02-2011
Annual Erosion	COMP-19539	09-21-2011

1000.1.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.1.5.3-1.

Table 1000.1.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17306	Maintenance conducted on berm V00103020008.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17306	Wattle V00103060009 was installed to control run on.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.

1000.1.6 Compliance Status

The Sites associated with CDV-SMA-1.2 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.2 CDV-SMA-1.3

1000.2.1 Area Description

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

1000.2.3 Control Measures

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 Inspection Activity

1000.2.5.3 Maintenance

1000.2.6 Compliance Status

1000.2 CDV-SMA-1.3

1000.2.1 Area Description

CDV-SMA-1.3 is located in an undeveloped area within TA-16 and access to the area is controlled. All boundaries are undeveloped and the area slopes gently towards the receiving waters further north.

1000.2.2 Potential Pollutant Sources

1000.2.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V002, CDV-SMA-1.3, Sites 16-017(a)-99 and 16-026(m).

SWMU 16-017(a)-99 is a former storage magazine at TA-16. Former SWMU 16-017 consisted of a group of 23 intact, abandoned structures associated with S-Site. These structures were proposed for deferral in the work plan. Structure number 16-92, the former HE Machining Building, was built prior to 1950 and was abandoned in 1951. The former magazine structure was physically removed by 1955.

During the Annual Unit Audit conducted in 1999, former SWMU 16-017 was split into 23 separate SWMUs to better facilitate tracking. Each of the former structures in the series was given an alpha identifier at that time.

SWMU 16-026(m) is potentially contaminated soil associated with the drain-line and outfall from the sumps in Building 16-92. Operations at Building 16-92 may have resulted in uranium contamination from the handling of disassembled items containing uranium.

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
16-017(a)-99	Soil contamination from former HE Machining Building 16-92	Co-located, Overlapping	Shared	•	•	•	HE
16-026(m)	Outfall associated with former Building 16-92	Discrete Location, No overlap	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with historical operations at Building 16-92 at TA-16. They share a common drainage, similar contaminants, and have been subject to extensive remediation. Because of these characteristics, Sites grouped within this SMA will discharge substantially identical effluent.

1000.2.3 Control Measures

There are no run-on contributions to this Permitted Feature and minimal run-off.

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

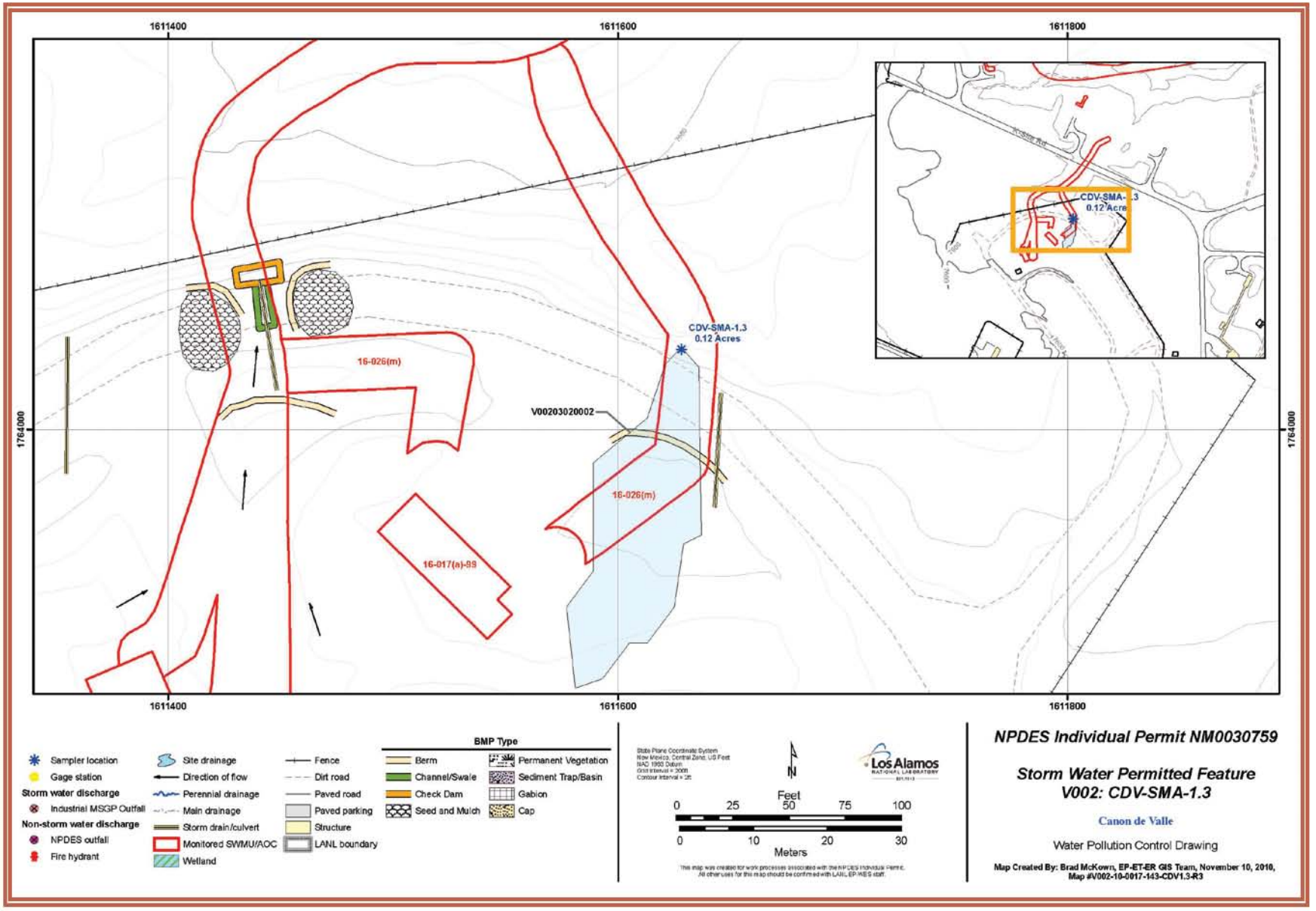
Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V002 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V002 03 02 0002	Berms - Base Course		•		•	CB

Established Vegetation (V002-02-01-0001)

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 (V002-03-02-0002)

This berm is installed south of the sampler to interrupt north-flowing run-off and sediment. 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.


1611400
1611600
1611800
1764000
CDV-SMA-1.3
0.12 Acres
16-026(m)
V00203020002
16-017(a)-99
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
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V002: CDV-SMA-1.3
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 10, 2010,
Map #V002-10-0017-143-CDV1.3-R3

1000.2.5 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).

1000.2.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-1.3. 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.

1000.2.5.2 Inspection Activity

RG253 recorded ten Storm Events at CDV-SMA-1.3 during the 2011 season. These rain events triggered five post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.2.5.2-1.

Table 1000.2.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13845	07-12-2011
Storm Rain Event	BMP-14939	07-26-2011
Storm Rain Event	BMP-15268	08-01-2011
Storm Rain Event	BMP-15944	08-05-2011
Storm Rain Event	BMP-16323	08-11-2011
Storm Rain Event	BMP-17307	08-23-2011
Annual Erosion	COMP-19540	09-21-2011

1000.2.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.2.5.3-1.

Table 1000.2.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17307	Repaired existing berm east of SMA as needed to to prevent run on.	09-02-2011	10 day(s)	Maintenance conducted in timely manner.

1000.2.6 Compliance Status

The Sites associated with CDV-SMA-1.3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.3 CDV-SMA-1.4

1000.3.1 Area Description

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

1000.3.3 Control Measures

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 CDV-SMA-1.4

1000.3.1 Area Description

CDV-SMA-1.4 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by an unpaved access road. The southern boundary of the SMA is influenced by paved and unpaved access roads. The eastern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further to the east. The western boundary of the SMA is influenced by paved and unpaved access roads.

1000.3.2 Potential Pollutant Sources

1000.3.2.1 Historical Industrial Activity Areas

There are four historical industrial activity areas associated with PF V003, CDV-SMA-1.4, Sites 16-020, 16-026(l), 16-028(c) and 16-030(c).

SWMU 16-020, known as the silver outfall, is a former operational release area where untreated, spent photo-fixing bath solutions were released to the soils and stream sediments. Chemicals in the untreated spent photo-fixing bath solutions included silver thiosulfate, sodium thiosulfate, sulfuric acid, boric acid, and cyanide. These chemicals were process wastes from the x-ray film photo-processing laboratory in Building 16-222, built in 1952. This spent solution was discharged on the south side of the building where it flowed approximately 295 feet in a gently sloping, small stream channel down to the confluence with the main channel of Cañon de Valle. The facility discharged significant quantities of silver for a period of 20 years. In 1979, the facility began to recover the silver, and around this time, the outfall became an NPDES permitted outfall. In 1995, the building became inactive, and all photo-processing equipment was moved to Building 16-260. At that time, discharges from the facility ceased. On January 14, 1998, the outfall was removed from LANL's NPDES permit. The TA-16-222 Complex was removed by the decontamination and decommissioning (D&D) program in 2003.

The silver outfall was sampled in 1995 for HE, inorganic chemicals, and organic chemicals. Several analytes, including silver, chromium, and PAHs were present at levels above SALs.

After the Cerro Grande fire, in the summer of 2000, more than 200 cubic yards of contaminated soil were removed from the site to minimize the potential for flood-induced contaminant mobilization. Following this IA, the site was stabilized with BMPs such as check dams, straw wattles, and rock pavements. Verification samples were collected following the IA; moderate levels of contamination remained.

SWMU 16-026(l) is potentially contaminated soil associated with outfalls from Building 16-220. The area where the outfall daylights could not be located, even after several site visits.

The rewritten Chapter 6 for the OU 1082 work plan recommended NFA for SWMU 16-026(l) because it could not be located during site visits.

SWMU 16-028(c) is consolidated with SWMU 16-026(l) as consolidated unit 16-026(l)-00. The SWMUs are drain-lines and outfalls from drains throughout a former x-ray building (Building 16-220). The outfalls discharged from similar processes in former Building 16-220 to an area where the outfalls overlap. Potential contaminants are commingled here. Building 16-220 was the low-energy x-ray facility for HE components, located on the north side of S-Site. The radiography area of S-Site was built in 1952 and consisted of seven buildings: three rest houses, three x-ray buildings, and a centrally located photo processing building. The buildings were connected by enclosed walkways.

SWMU 16-028(c) is a former NPDES permitted outfall (removed from LANL's NPDES permit effective September 19, 1997) and drain-lines that received discharges from eight floor drains in former Building 16-220. The effluent contained non-contact cooling water, chiller condensate, and

periodic discharge from an HE vacuum pump and floor washings. The six inch VCP daylighted in a rocky ditch near the building. The ditch flows to a relatively flat, grassy field. The floor drains at Building 16-220 were plugged in 1991, and the building underwent D&D in 2003.

SWMU 16-030(c) is potentially contaminated soil associated with an outfall from an x-ray film-processing laboratory (Building 16-222) located in the center of the radiography area at TA-16. Building 16-222 was built in 1953. The only outfall that could be located in the vicinity of Building 16-222 originates from a roof drain downspout on the northwest side of the building, and four roof drains discharge to the downspout. The outfall associated with the x-ray film laboratory could not be located during a site visit.

The rewrite of Chapter 6 of the RFI work plan for OU 1082 recommended NFA at SWMU 16-030(c) because the outfall could not be located.

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
16-020	Outfall from former Building 16-222	Co-located, Overlapping	Shared	•		•	
16-026(l)	Outfalls associated with former Building 16-220	Co-located, Overlapping	Shared	•		•	
16-028(c)	Outfall from former Building 16-222	Co-located, Overlapping	Shared	•		•	
16-030(c)	Outfall from former Building 16-222	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA were associated with activities at the former 220s Complex in TA-16. These Sites share a common drainage, have similar contaminants, and have been subject to extensive remediation. Because of these characteristics, Sites grouped within this SMA will discharge substantially identical effluent.

1000.3.3 Control Measures

There are rock check dams in the channel and existing vegetation throughout the area that control run-on at this SMA. Existing rock check dams, rip rap and vegetation in the main channel control run-off from the area.

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	
V003 01 01 0025	Seed and Mulch - Seed and Wood Mulch			•		CB
V003 02 01 0007	Established Vegetation - Grasses and Shrubs			•		CB
V003 02 02 0005	Established Vegetation - Forested/ Needle Cast			•		CB
V003 03 02 0017	Berms - Base Course	•			•	CB
V003 03 06 0018	Berms - Straw Wattles	•			•	CB
V003 03 06 0019	Berms - Straw Wattles	•			•	CB
V003 03 06 0020	Berms - Straw Wattles	•			•	CB
V003 03 06 0021	Berms - Straw Wattles	•			•	CB
V003 03 06 0022	Berms - Straw Wattles		•		•	CB
V003 03 06 0023	Berms - Straw Wattles		•		•	CB
V003 03 06 0024	Berms - Straw Wattles		•		•	CB
V003 03 06 0029	Berms - Straw Wattles	•			•	B
V003 03 06 0030	Berms - Straw Wattles	•			•	B

Table 1000.3.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V003 03 06 0031	Berms - Straw Wattles	•			•	B
V003 03 06 0032	Berms - Straw Wattles	•			•	B
V003 03 06 0033	Berms - Straw Wattles	•			•	B
V003 03 06 0034	Berms - Straw Wattles	•			•	B
V003 03 06 0035	Berms - Straw Wattles	•			•	B
V003 03 06 0036	Berms - Straw Wattles	•			•	B
V003 03 06 0037	Berms - Straw Wattles	•			•	B
V003 03 06 0038	Berms - Straw Wattles	•			•	B
V003 03 06 0049	Berms - Straw Wattles	•			•	B
V003 03 06 0050	Berms - Straw Wattles	•			•	B
V003 03 06 0051	Berms - Straw Wattles	•			•	B
V003 03 06 0052	Berms - Straw Wattles	•			•	B
V003 03 06 0053	Berms - Straw Wattles	•			•	B
V003 03 06 0054	Berms - Straw Wattles	•			•	B
V003 04 06 0055	Channel/Swale - Rip Rap		•	•		B

Table 1000.3.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V003 06 01 0004	Check Dam - Rock	•			•	CB
V003 06 01 0012	Check Dam - Rock		•		•	CB
V003 06 01 0016	Check Dam - Rock	•			•	CB
V003 06 01 0026	Check Dam - Rock	•			•	CB
V003 06 01 0039	Check Dam - Rock		•		•	B
V003 06 01 0040	Check Dam - Rock		•		•	B
V003 06 01 0041	Check Dam - Rock		•		•	B
V003 06 01 0042	Check Dam - Rock		•		•	B
V003 06 01 0043	Check Dam - Rock	•			•	B
V003 06 01 0044	Check Dam - Rock		•		•	B
V003 06 01 0045	Check Dam - Rock		•		•	B
V003 06 01 0046	Check Dam - Rock		•		•	B
V003 06 01 0047	Check Dam - Rock	•			•	B
V003 06 01 0056	Check Dam - Rock	•			•	B
V003 06 01 0057	Check Dam - Rock	•			•	B

Seed and Wood Mulch (V003-01-01-0025)

This application of seeding and mulch is located in and around the North and South wattles. It is in place to 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 (V003-02-01-0007, -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.

Base Course Berm (V003-03-02-0017)

This berm is located north of the main portion of the SMA along the unpaved access road circumventing the area. It is in place to restrict run-on to 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.

Straw Wattles - North (V003-03-06-0018, -0019, -0020, -0021)

This is a series of four wattles located north of the sampler east of the SMA. They are in place to prevent run-on to 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.

Straw Wattles - South (V003-03-06-0022, -0023, -0024)

This is a series of three wattles located adjacent to the sampler straddling the eastern SMA boundary. 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 - West (V003-03-06-0029, -0030, -0031, -0032, -0033, -0034, -0035, -0036, -0037, -0038, -0049, -0050, -0051, -0052, -0053, -0054)

These are 16 straw wattles placed on the slope east of the access road and west of 16-026(c) and 16-026(l) to control run-on and manage 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.

Rip Rap (V003-04-06-0055)

The rip rap is located in the drainage channel just to the west of the sampler. It is in place to mitigate run-off from the SMA. 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.

North Rock Check Dams (V003-06-01-0004, -0016, -0026)

This is a series of three rock check dams located above the northern culvert inlet. They are in place to help alleviate 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.

Rock Check Dams - West (V003-06-01-0012, -0039, -0040)

This is a series of three rock check dams located to the west in the channel above the sampler. They are in place to control run-off and 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.

Rock Check Dams - Central (V003-06-01-0041, -0042)

This is a pair of rock check dams located in the channel immediately west of the sampler. They are in place to control run-off and 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.

Southwest Rock Check Dam (V003-06-01-0043)

This rock check dam is located southwest of the sampler and has been placed to control run-on and 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.

Rock Check Dam - West Central (V003-06-01-0044)

This rock check dam is located on the western side of the site drainage, controlling run-off and sediment near a storm drain culvert. 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 (V003-06-01-0045, -0046)

This pair of rock check dams is located in the channel east of the sampler and are used to control run-off and 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.

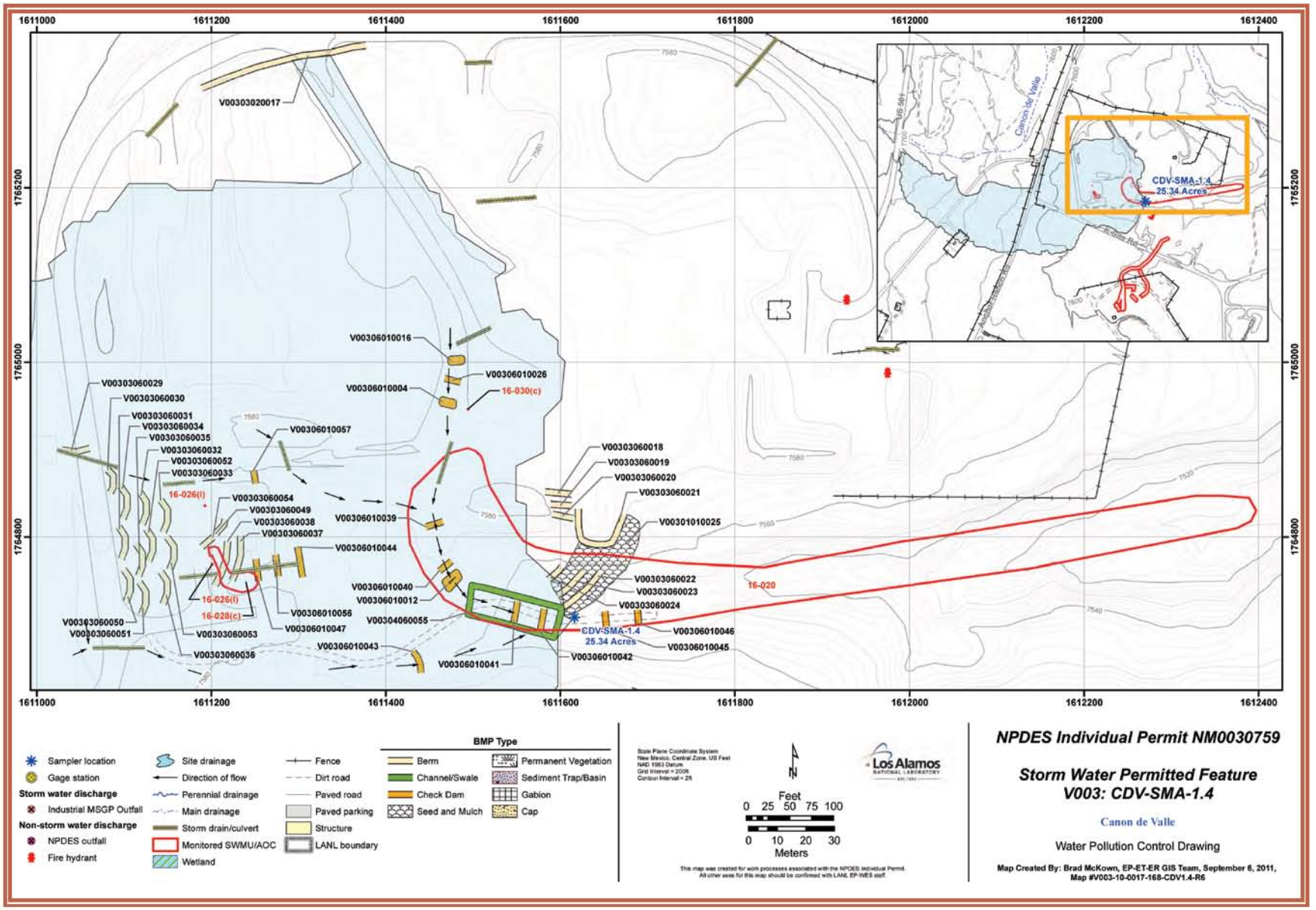
Rock Check Dams (V003-06-01-0047, -0056)

This pair of check dams are on the western side of the site drainage, controlling run-on and sediment near a storm drain culvert. 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.

Northwest Rock Check Dam (V003-06-01-0057)

This rock check dam is located north of 16-026(l) and 16-028(c) below a storm drain/culvert. It has been placed to control run run-on and 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.


1611000
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V00306010026
V00306010004
16-030(c)
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V00303060030
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V00303060034
V00303060035
V00303060032
V00303060052
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V00306010056
V00306010047
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V00303060053
V00303060036
V00306010043
V00306010041
CDV-SMA-1.4
25.34 Acres
V00306010046
V00306010045
V00306010042
V00303060022
V00303060023
V00303060024
Canon de Valle
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
V003: CDV-SMA-1.4
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 6, 2011,
Map #V003-10-0017-168-CDV1.4-R6

1000.3.5 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).

1000.3.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-1.4. 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.

1000.3.5.2 Inspection Activity

RG253 recorded ten Storm Events at CDV-SMA-1.4 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 1000.3.5.3-1.

Table 1000.3.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13846	07-08-2011
Storm Rain Event	BMP-14940	07-26-2011
Storm Rain Event	BMP-15269	08-01-2011
Significant Event	COMP-16070	08-08-2011
Storm Rain Event	BMP-15945	08-08-2011
Significant Event	COMP-17749	08-23-2011
Storm Rain Event	BMP-17308	08-29-2011
Annual Erosion	COMP-19541	09-21-2011

1000.3.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.3.5.4-1.

Table 1000.3.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15945	Backup Control Measure installation at CDV-SMA-1.4 in response to 8/3/11 significant event which caused the failure of many controls at this site involved installation of 10 straw wattles (V00303060029-0038) and 2 rock check dams V00306010039 and -0040 which replaced rock berms -0008, -0009, -0010, -0011, -0013, -0014, and -0015.	08-11-2011	3 day(s)	Maintenance conducted in timely manner.
BMP-15945	Installed rock check dams -0041 and -0042 as replacement for -0006. Rock check dam -0044 installed as replacement for -0027 and -0028. Rock check dam -0057 installed as additional replacement for rock berms -0013, -0014 and -0015. Installed rock check dams -0043, -0045, -0046, -0047, and -0056.	08-29-2011	21 day(s)	Maintenance conducted as soon as practicable.
BMP-17308	Maintenance conducted on rock check dam V00306010012.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17308	Maintenance conducted on rock check dam V00306010027	08-29-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.3.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17308	Maintenance conducted on rock check dam V00306010028.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17308	Repaired/reinstalled wattles -0029 through -0038. Repaired rock check dam -0040. Installed 6 straw wattles -0049 through -0054.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17308	Maintenance conducted on rock check dam V0030601006.	08-29-2011	0 day(s)	Maintenance conducted upon inspection.

1000.3.6 Compliance Status

A Certificate of Completion was issued for Site 16-030(c) on January 23, 2008 [NMED 2008]. The New Mexico Environment Department has determined that a corrective action complete without controls designation is appropriate for Site 16-030(c). The Sites associated with CDV-SMA-1.4 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.4 CDV-SMA-1.45

1000.4 CDV-SMA-1.45

1000.4.1 Area Description

CDV-SMA-1.45 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes gently towards the receiving waters further north. The southern boundary of the SMA is flat and undeveloped. The eastern boundary of the SMA is flat and undeveloped. The western boundary of the SMA is flat and undeveloped.

1000.4.2 Potential Pollutant Sources

1000.4.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V004, CDV-SMA-1.45, Site 16-026(i).

SWMU 16-026(i) is soil contamination associated with an outfall from an x-ray building (Building 16-224) located on the north side of S-Site. The radiography area of S-Site was built in 1952 and consists of seven buildings: three rest houses, three x-ray buildings, and a centrally located photo processing building. The buildings are connected by enclosed walkways. Building 16-224 is 58 x 44 x 10 ft high. The rest houses store finished, packaged HE components before and after they are radiographed. The components are transported between the rest houses and the x-ray buildings on the enclosed walkways. When components arrive at the x-ray buildings, they are removed from their packaging, x-rayed, and repackaged. The floor drains that discharged to this SWMU are located in the northeast and northwest corners of Building 16-224. The drain-line daylights northeast of Building 16-224. Site workers stated that HE dust and small chips would break off during the x-ray process and could enter the floor drains. Because this SWMU is associated with floor drains in the x-ray building, HE contamination could be present at the outfall. Small HE chips have historically been observed in the drains. The drains were plugged in 1991. The outfall is characterized by low flow onto a shallow, grassy slope.

Addendum 2 of the OU 1082 work plan proposed sampling at SWMU 16-026(i) to detect barium and HE.

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
16-026(i)	Outfall from former Building 16-224	Discrete Location, No overlap Individual	Individual	•		•	

1000.4.3 Control Measures

There are no run-on contributions to this Permitted Feature. The area is gently sloping and vegetated.

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

Table 1000.4.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V004 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
V004 03 06 0002	Berms - Straw Wattles	•			•	CB
V004 03 06 0003	Berms - Straw Wattles		•		•	CB

Established Vegetation (V004-02-02-0001)

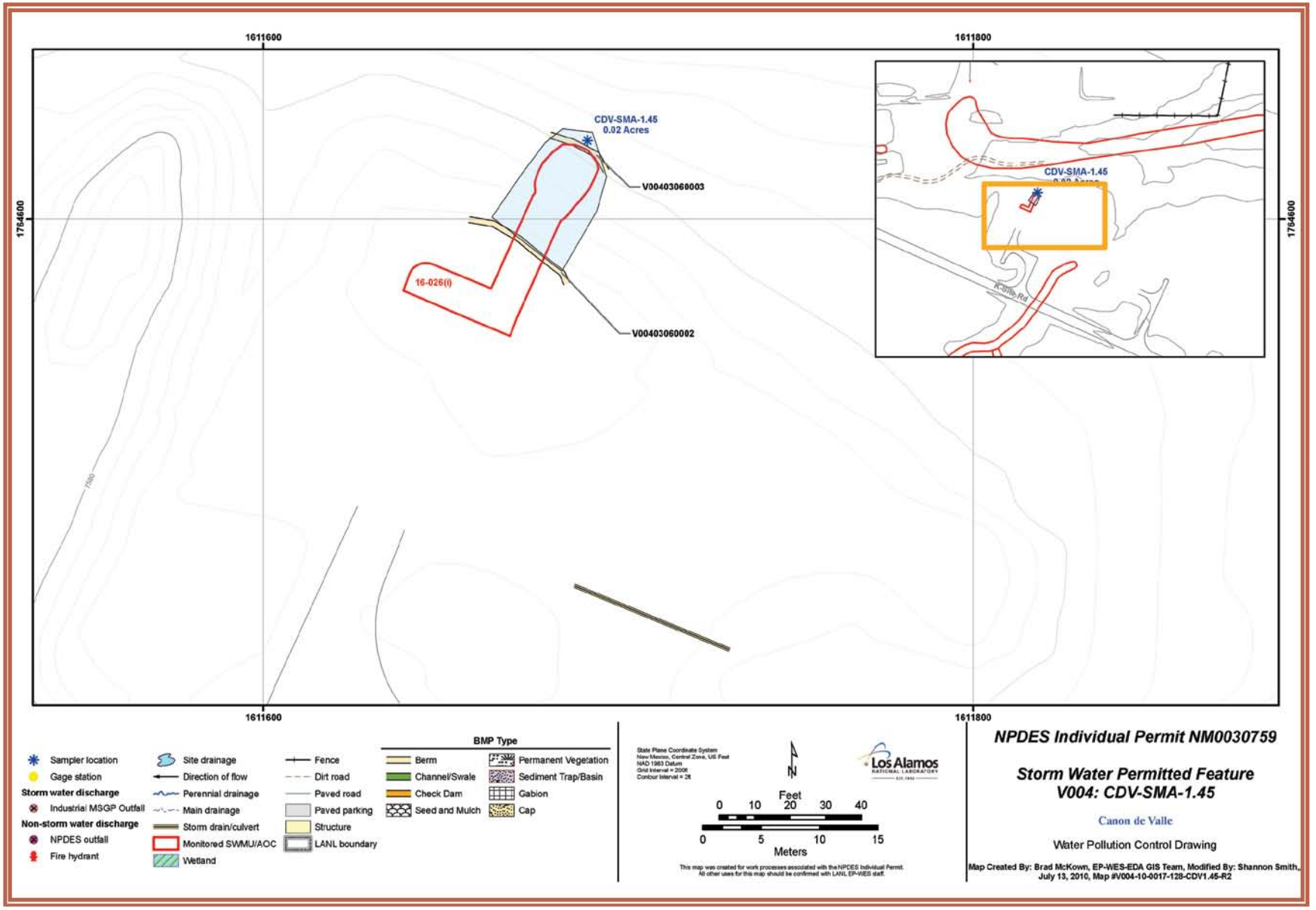
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Straw Wattle - South (V004-03-06-0002)

This wattle is located above the sampler. It is used to help reduce run-on to 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 (V004-03-06-0003)

This wattle is located just above the sampler on the gradual slope. It is used to help mitigate 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.


1611600
1611800
1764600
CDV-SMA-1.45
0.02 Acres
V00403060003
V00403060002
16-026(i)
CDV-SMA-1.45
R-Site 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 10 20 30 40
0 5 10 15
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V004: CDV-SMA-1.45
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team, Modified By: Shannon Smith,
July 13, 2010, Map #V004-10-0017-128-CDV1.45-R2

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.

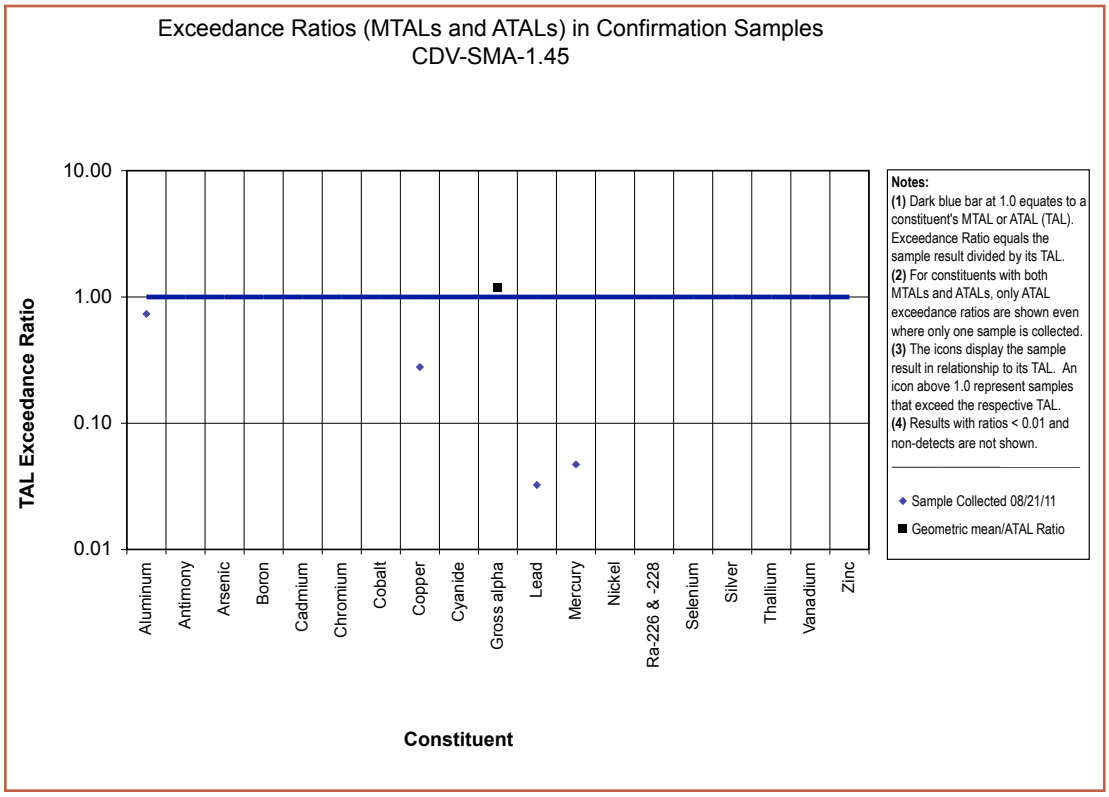
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.4.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from CDV-SMA-1.45 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.



1000.4.5.2 Inspection Activity

RG253 recorded ten Storm Events at CDV-SMA-1.45 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 1000.4.5.3-1.

Table 1000.4.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13847	07-08-2011
Storm Rain Event	BMP-14941	07-26-2011
Storm Rain Event	BMP-15270	08-01-2011
Storm Rain Event	BMP-15946	08-08-2011
Storm Rain Event	BMP-17309	08-25-2011
Annual Erosion	COMP-19542	09-21-2011
Visual Inspection	BMP-21525	11-07-2011

1000.4.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-1.45.

1000.4.6 Compliance Status

The Site associated with CDV-SMA-1.45 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.5 CDV-SMA-1.7

1000.5 CDV-SMA-1.7

1000.5.1 Area Description

CDV-SMA-1.7 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped on the mesa top and more steeply sloped further north. The receiving waters are along this boundary. The southern boundary of the SMA is flat and undeveloped. The eastern boundary of the SMA is flat and undeveloped on the mesa top. Further north, along this boundary, the terrain becomes more steeply sloping. The western boundary of the SMA is flat and undeveloped on the mesa top. Further north, along this boundary, the terrain becomes more steeply sloping.

1000.5.2 Potential Pollutant Sources

1000.5.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V005, CDV-SMA-1.7, Site 16-019.

SWMU 16-019 is known as MDA R. MDA R consists of the original World War II S-Site burning ground and associated waste-disposal site. Located north of Building 16-260 and south of Cañon de Valle, MDA R was built in the mid-1940s and was used as a burning ground for waste explosives until the early 1950s. Total area of the site is estimated to be 2.27 acres. MDA R consisted of three U-shaped, 75 square feet bermed pits. A road encircled the pits and the area was fenced. Before the pits were constructed, HE was burned in an open field. During construction of the 260 Line, the berms and surface soil at MDA R were graded northward into Cañon de Valle. The ER Project visited the site in 1992 and observed debris that had been pushed northward over the edge of the MDA R burning ground toward the canyon floor. Debris was held back by a natural barrier of wood and trees that was created by clearing the area for Building 16-260, which was built in 1951. No information is available about D&D activities at MDA R. The area was covered with grasses and pine trees before the spring 2000 Cerro Grande fire. Potential contaminants were barium, HE, lead, asbestos, and low levels of other inorganic chemicals.

The Cerro Grande fire burned over MDA R and continued to burn underground for several weeks. SWMU 16-019 underwent an accelerated action as part of the emergency response efforts associated with the fire, including fire-suppression activities and stabilization. Fire suppression involved excavating and staging about 800 cubic yards of clean soil and 1,500 cubic yards of contaminated soil and debris. Stabilization efforts consisted of implementing stormwater BMPs, including constructing a run-on diversion channel and installing erosion-control materials. In September 2000, the ER Project sampled SWMU 16-019 to determine the nature and extent of potential contamination at MDA R after the area had been excavated.

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
16-019	Material disposal area (MDA) R (includes SWMU 16-009(b))	Discrete Location, No overlap	Individual	•	•	•	HE

1000.5.3 Control Measures

The SMA is sloping and well vegetated. Existing controls address minor run-on from the paved access road and manage run-off.

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	
V005 01 01 0004	Seed and Mulch - Seed and Wood Mulch		•	•		CB
V005 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
V005 04 06 0015	Channel/Swale - Rip Rap			•		CB
V005 06 01 0005	Check Dam - Rock		•		•	CB
V005 06 01 0006	Check Dam - Rock		•		•	CB
V005 06 01 0007	Check Dam - Rock		•		•	CB

Table 1000.5.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V005 06 01 0008	Check Dam - Rock	•			•	CB
V005 06 01 0009	Check Dam - Rock	•			•	CB
V005 06 01 0010	Check Dam - Rock	•			•	CB
V005 06 01 0011	Check Dam - Rock		•		•	CB
V005 06 01 0012	Check Dam - Rock		•		•	CB
V005 06 01 0013	Check Dam - Rock	•			•	CB
V005 06 01 0014	Check Dam - Rock	•			•	CB

Seed and Wood Mulch (V005-01-01-0004)

Seed and mulch has been applied to central portion of the SMA extending to the east of the SMA boundary. It was applied in order to alleviate erosion from run-off 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 (V005-02-01-0003)

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 (V005- 04-06-0015)

This rip rap is located near the outlet of the culvert padding under the paved access road southwest of the SMA footprint. It is in place to help control erosion of the drainage 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.

Central Rock Check Dams (V005-06-01-0005, -0011, -0012)

This is a series of three check dams which interrupt north-flowing run-off and sediment south of 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 otherproprietary product placed across a natural or man-made channel or drainage ditch.

Western Rock Check Dams (V005-06-01-0006, -0007)

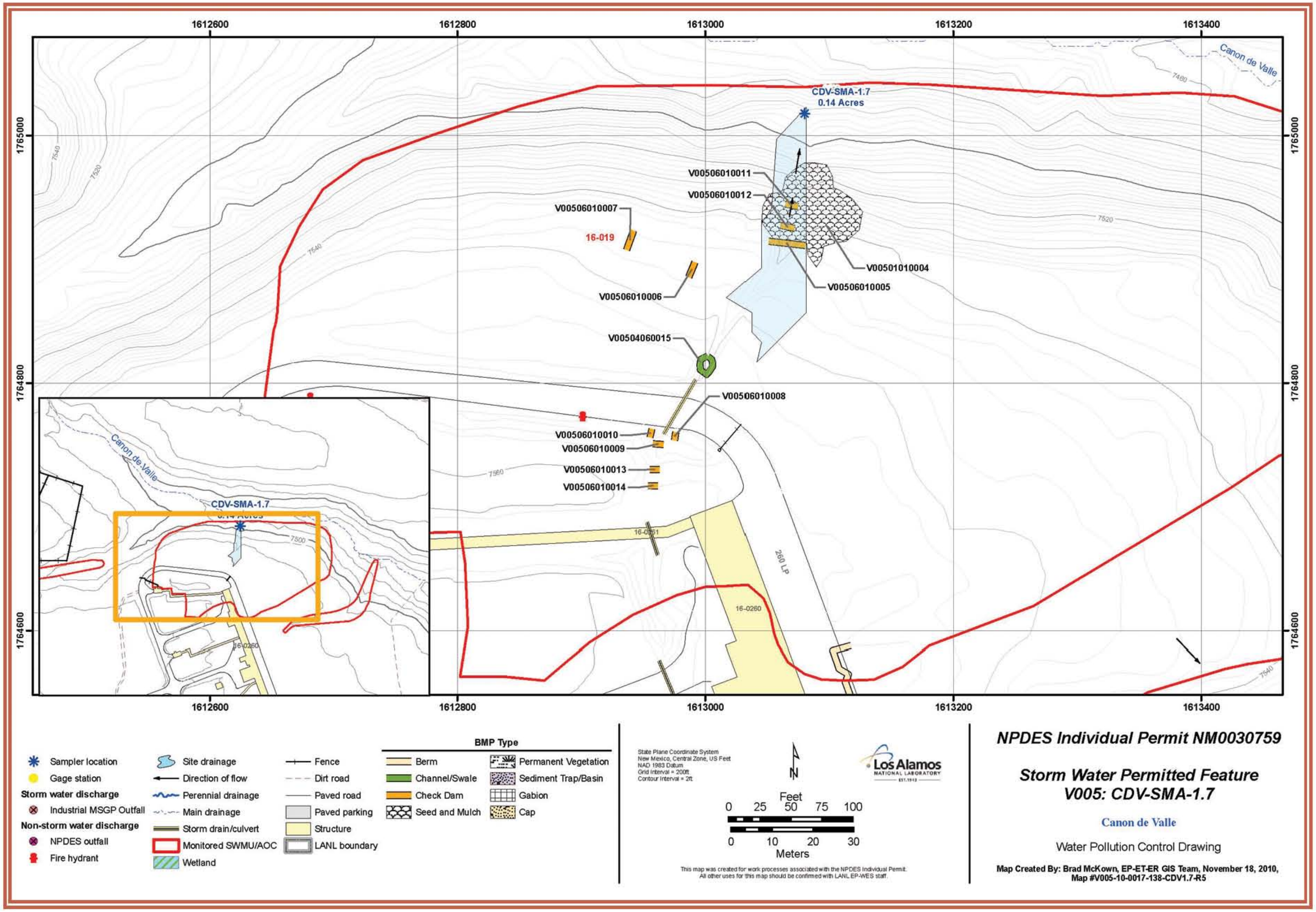
This is a pair of check dams located in the channel west of the SMA. They control run-off and sediment transport in the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Southwest Check Dams (V005-06-01-0008, -0009, -0010)

This is a group of three check dams controlling run-on and sediment migration in the southwest portion of the SMA near the culvert inlet. 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 (V005-06-01-0013, -0014)

This is a pair of check dams located in the drainage channel south of the southwestern check dams. They are in place to help control storm water 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.


1612600
1612800
1613000
1613200
1613400
1765000
1764800
1764600
Canon de Valle
CDV-SMA-1.7
0.14 Acres
V00506010011
V00506010012
V00506010007
16-019
V00501010004
V00506010005
V00506010006
V00504060015
V00506010008
V00506010010
V00506010009
V00506010013
V00506010014
260 LP
16-0260
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
V005: CDV-SMA-1.7
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 18, 2010,
Map #V005-10-0017-138-CDV1.7-R5

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
• (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).

1000.5.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-1.7. 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.

1000.5.5.2 Inspection Activity

RG253 recorded ten Storm Events at CDV-SMA-1.7 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 1000.5.5.2-1.

Table 1000.5.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13849	07-08-2011
Storm Rain Event	BMP-14942	07-22-2011
Storm Rain Event	BMP-15271	08-05-2011
Storm Rain Event	BMP-16326	08-12-2011
Storm Rain Event	BMP-17310	08-23-2011
Annual Erosion	COMP-19543	10-04-2011

1000.5.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-1.7.

1000.5.6 Compliance Status

The Site associated with CDV-SMA-1.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.6 CDV-SMA-2

1000.6 CDV-SMA-2

1000.6.1 Area Description

CDV-SMA-2 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is primarily undeveloped and slopes gently towards the receiving waters further east. The southern boundary of the SMA is primarily undeveloped. The eastern boundary of the SMA is undeveloped and contains the receiving waters. The western boundary of the SMA is influenced by structures and paved areas associated with building 16-0260.

1000.6.2 Potential Pollutant Sources

1000.6.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V006, CDV-SMA-2, Site 16-021(c).

SWMU 16-021(c) is the outfall associated with the 13 HE sumps on the northeast side of TA-16-260, which was built in 1951. The drainage channel from the outfall flows approximately 600 feet to the bottom of Cañon de Valle over a drop in elevation of 80 feet. The drainage channel from the outfall is well defined, with apparent high-water marks. The water flows over a 15 foot high cliff approximately 500 feet from the outfall. A small pond approximately 55 feet long was formed by a rock dam located 93 feet from the outfall. HE-contaminated water from the outfall enters the former pond about 40 feet from the outfall. The longitudinal axis of the former pond is oriented east-west with the flow in the easterly direction. The dam is about nine feet thick, but only the first two feet of rock are closely packed. At present, there is no water in the former pond, although the soil and sediment are wet sporadically. The outfall will no longer receive HE-bearing wastewater following the plugging of the sumps. Nearby springs and surface waters are contaminated at levels greater than background and MCLs, potentially due to contaminants derived from SWMU 16-021(c). Several best-management practices (BMPs), including hay bale dams, sandbag barriers, and geotextile matting in the highly-contaminated zone, have been implemented at this SWMU to minimize run-on and run-off.

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
16-021(c)	Outfall associated with Building 16-260	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.6.3 Control Measures

The run-on sources for this Permitted Feature are associated with structure 16-0260. The roof and paved area on the west side of the SMA contribute minimally to run-on at the SMA. This run-on is controlled by existing curbing. There is minimal run-on from the access road at the northeast corner of the SMA. New run-on and run-off controls have been installed to provide additional run-off controls and to fortify the natural drainage channel.

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	
V006 01 01 0011	Seed and Mulch - Seed and Wood Mulch			•		CB
V006 02 01 0004	Established Vegetation - Grasses and Shrubs			•		CB
V006 02 02 0005	Established Vegetation - Forested/ Needle Cast			•		CB
V006 03 01 0006	Berms - Earthen		•		•	CB
V006 03 01 0007	Berms - Earthen	•			•	CB
V006 03 01 0008	Berms - Earthen	•			•	CB
V006 03 01 0009	Berms - Earthen	•			•	CB
V006 03 01 0010	Berms - Earthen	•			•	CB
V006 03 09 0001	Berms - Curbing	•			•	CB
V006 04 06 0003	Channel/Swale - Rip Rap		•	•		CB

Table 1000.6.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V006 06 01 0002	Check Dam - Rock		•		•	CB
V006 08 02 0012	Cap - Rock		•	•		CB

Seed and Wood Mulch (V006-01-01-0011)

Seed and Wood Mulch has been applied west of the sampler extending north to encompass the earthen berms. It was applied 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).

Established Vegetation (V006-02-01-0004, -02-0005)

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.

Earthen Berm (V006-03-01-0006)

This berm is located across the drainage path above the sampler. It is used to help control 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 - West (V006-03-01-0007)

This berm is located near the western end of the Site footprint. It is used 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 - North (V006-03-01-0008)

This berm is located near the northern edge of the SMA footprint and is used to help control run-on from the natural area 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 Berms (V006-03-01-0009, -0010)

This is a pair of earthen berms located on the slope north of the sampler. They are used to help manage run-on from the natural 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 (V006-03-09-0001)

This curbing is located along the eastern side of the paved areas near building 16-0260. It is used to divert run-on away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Rip Rap (V006-04-06-0003)

This rip rap is located in the main drainage channel above the sampler. It is used to restrict 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.

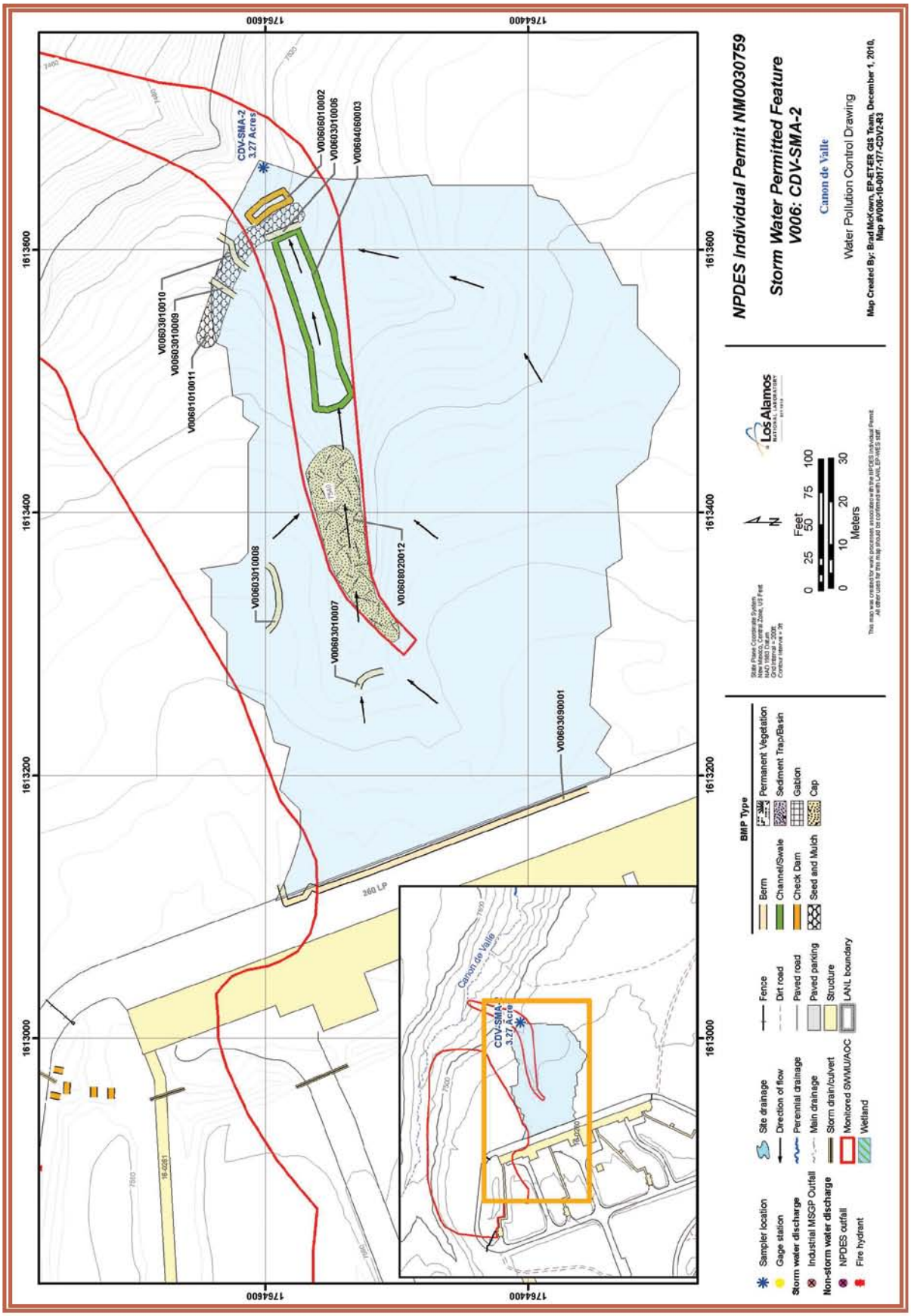
Rock Check Dam (V006-06-01-0002)

The check dam is located southwest of the sampler across the drainage channel. It is in place to control run-off from 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.

Rock Cap (V006-08-02-0012)

The cap is located at the western end of the Site,16-021(c), footprint. It is used to help control run-off in the drainage channel. 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.

1000.6.4 Project Map



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)	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).

1000.6.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-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.

1000.6.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-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 1000.6.5.2-1.

Table 1000.6.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13850	07-08-2011
Storm Rain Event	BMP-16359	08-12-2011
Storm Rain Event	BMP-17574	09-02-2011
Storm Rain Event	BMP-19391	09-23-2011
Annual Erosion	COMP-19544	10-04-2011

1000.6.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.6.5.3-1.

Table 1000.6.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13850	Picked up trash items at time of inspection.	07-08-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16359	Curbing V00603090001 was disturbed at southern end, a section ~20 ft long. Adjusted curbing.	08-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17574	Repaired and backfilled berm V00603010007, installed new matting.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.

1000.6.6 Compliance Status

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

1000.7 CDV-SMA-2.3

1000.7 CDV-SMA-2.3

1000.7.1 Area Description

CDV-SMA-2.3 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is undeveloped. The eastern boundary of the SMA is largely undeveloped. The receiving waters are along this boundary. The western boundary of the SMA is influenced by a paved access road.

1000.7.2 Potential Pollutant Sources

1000.7.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF V007, CDV-SMA-2.3, Sites 13-001, 13-002, 16-003(n), 16-003(o), 16-029(h) and 16-031(h).

SWMU 13-001 is an inactive firing site located east of former building 16-340. The firing site is associated with firing activities conducted at P-Site (former TA-13). The area contains shrapnel and debris, including firing cables, lead balls, and chunks of steel and copper.

SWMU 13-002 is a surface disposal area located east of former building 16-340. The disposal area contains debris and shrapnel associated with firing activities conducted at P-Site (former TA-13). A portion of the TA-16 WWTP [Consolidated Unit 16-004(a)-99] is located on top of the southern tip of the surface disposal area.

SWMU 16-003(n) is an inactive HE sump that was associated with Building 16-342. Building 16-342 was an HE process building on the 340 Line at TA-16 that was used to mix and blend constituents of plastic-bonded explosive formulations. The sump was a rectangular tank with a removable quarter inch aluminum lid. Outside dimensions are 12 ft long x 4 ft wide x 5 ft high. The walls and bottom are eight inch thick, steel-reinforced concrete. The sump operated to remove suspended solids from process water before it was discharged to a now inactive outfall. HE fines (scrap) were collected in a cloth filter bag secured inside a metal filter basket. The baskets and filter bags periodically were collected and cleaned at the basket-washing facility. HE fines that were too small to be collected in the filter bags settled to the bottom of the sump. To help separate the suspended solids, the water flowed under an aluminum baffle and over a concrete weir before it discharged to the outfall. HE in the bottom of the sump periodically was removed and burned. Water was filtered and tested before it discharged to the outfall, which discharged to former NPDES permitted outfall, which discharged to Cañon de Valle. The outfall was removed from LANL's NPDES permit effective July 31, 1996. Solvents were containerized for disposal, but historically the solvents were discharged to the sump. Natural uranium was used at Building 16-342. The sump received process and wash-down water following cleaning activities. Potential contaminants at SWMU 16-003(n) are HE, organic chemicals, inorganic chemicals, and radionuclides.

SWMU 16-003(o) consists of six inactive HE sumps and the outfall associated with the explosives synthesis building (Building 16-340). The sumps historically discharged to former NPDES permitted Outfall 05A054. The outfall was removed from the LANL NPDES permit effective July 20, 1998. Building 16-340 was used in producing plastic-bonded explosives. VOCs are used in plastic explosive preparation. Most VOCs are distilled during processing. The remaining solvents historically were discharged with the wastewater to the sumps. A solvent distillation unit, the "fish ladder," was installed in the late 1980s to trap and volatilize

residual solvents. The OU 1082 work plan reported that Building 16-340 was the largest solvent user at TA-16. The building is slated for decommissioning. The RFI work plan proposed including this SWMU in a generic TA-16 sump sampling plan. Sampling was completed in 1995 and confirmed the presence of contamination. Seed, mulch, and a straw-bale barrier were installed in 2000 as a BMP to minimize contaminant migration and erosion at this site.

SWMU 16-029(h) consists of the outfall and two inactive drainlines (one known and one alleged) from the HE sump [AOC 16-003(p)] located on the south side of former building 16-478. The known drainline exits the southeast corner of the sump and extends 80 ft east of the sump to the rim of Cañon de Valle. This drainline discharged directly into Cañon de Valle before the drainline was plugged in 1987. A second drainline is alleged to be present. The second drainline is reportedly a French drain that extends south of the sump. Former building 16-478 was used as a bunker, utility room, control room, and high-speed machining room for tests on experimental HE. When the building was removed in 2005, the sump was left in place. During the investigation activities conducted in 2009–2010, no evidence of the French drain was found.

It should be noted that SWMU 16-029(h) was identified as an HE sump in the 1990 SWMU Report. The SWMU Report identified this sump twice: once as an inactive HE sump designateas SWMU 16-029(h) and also as an active HE sump designated as AOC 16-003(p). Addendum 2 to the Operable Unit 1082 Work Plan redefined SWMU 16-029(h) to be the drainlines and outfall associated with the sump adjacent to former building 16-478.

SWMU 16-031(h) is an outfall located approximately 300 ft northeast of former building 16-340. The outfall was formerly NPDES permitted (EPA04A134) and received discharge from the sink, vacuum pump, and floor drain of a utility room within former building 16-478. The drain, which consists of a 4-in. VCP, daylights approximately 30 ft from the building. Initially, former building 16-478 was used for photographing explosives testing and was later used for testing the effects of machining on HE products. A water-sealed/water-cooled vacuum pump was located in the utility room and served a vacuum system in another area of the building. The vacuum system held HE pieces in place for machining. The vacuum line contained a water filter to prevent HE from reaching the vacuum pump lines.

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
13-001	Firing site	Co-located, Overlapping	Shared	•		•	
13-002	Landfill	Co-located, Overlapping	Shared	•		•	
16-003(n)	Sump	Co-located, Overlapping	Shared	•		•	
16-003(o)	Sumps	Co-located, Overlapping	Shared	•		•	
16-029(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	
16-031(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located on the mesa southeast of the TA-16-340 Complex and are associated historical operations of the P-Site (TA-13) Firing Site. They have similar contaminants, share a common drainage, and have been the subject of extensive remediation. Because of these characteristics, these Sites will discharge substantially identical effluent.

1000.7.3 Control Measures

The paved areas to the east of the SMA contributes some run-on, however there is no run-on from the paved road. There is the potential of run-on to the SMA from a culvert discharging west of the area.

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	
V007 02 01 0004	Established Vegetation - Grasses and Shrubs			•		CB
V007 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
V007 03 06 0007	Berms - Straw Wattles	•			•	CB
V007 03 06 0009	Berms - Straw Wattles		•		•	CB
V007 03 06 0010	Berms - Straw Wattles		•		•	CB
V007 03 06 0011	Berms - Straw Wattles		•		•	CB
V007 03 06 0012	Berms - Straw Wattles		•		•	CB
V007 03 06 0013	Berms - Straw Wattles		•		•	CB
V007 03 06 0017	Berms - Straw Wattles		•		•	B
V007 03 06 0018	Berms - Straw Wattles		•		•	B
V007 06 01 0016	Check Dam - Rock		•		•	B
V007 06 01 0019	Check Dam - Rock	•			•	B
V007 06 01 0020	Check Dam - Rock	•			•	B
V007 07 01 0002	Gabions - Gabions		•		•	CB

Established Vegetation (V007-02-01-0004, -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.

Western Wattle Berms (V007-03-06-0007)

These wattles manage sediment from the paved LP 340 road located in the western portion of 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.

Berms - Straw Wattles (V007-03-06-0009, -0010, -0011, -0012, -0013, -0017, -0018)

These wattles retard run-off and sediment on the unpaved access roads south of the drainage channel. 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 Check Dam (V007-06-01-0016)

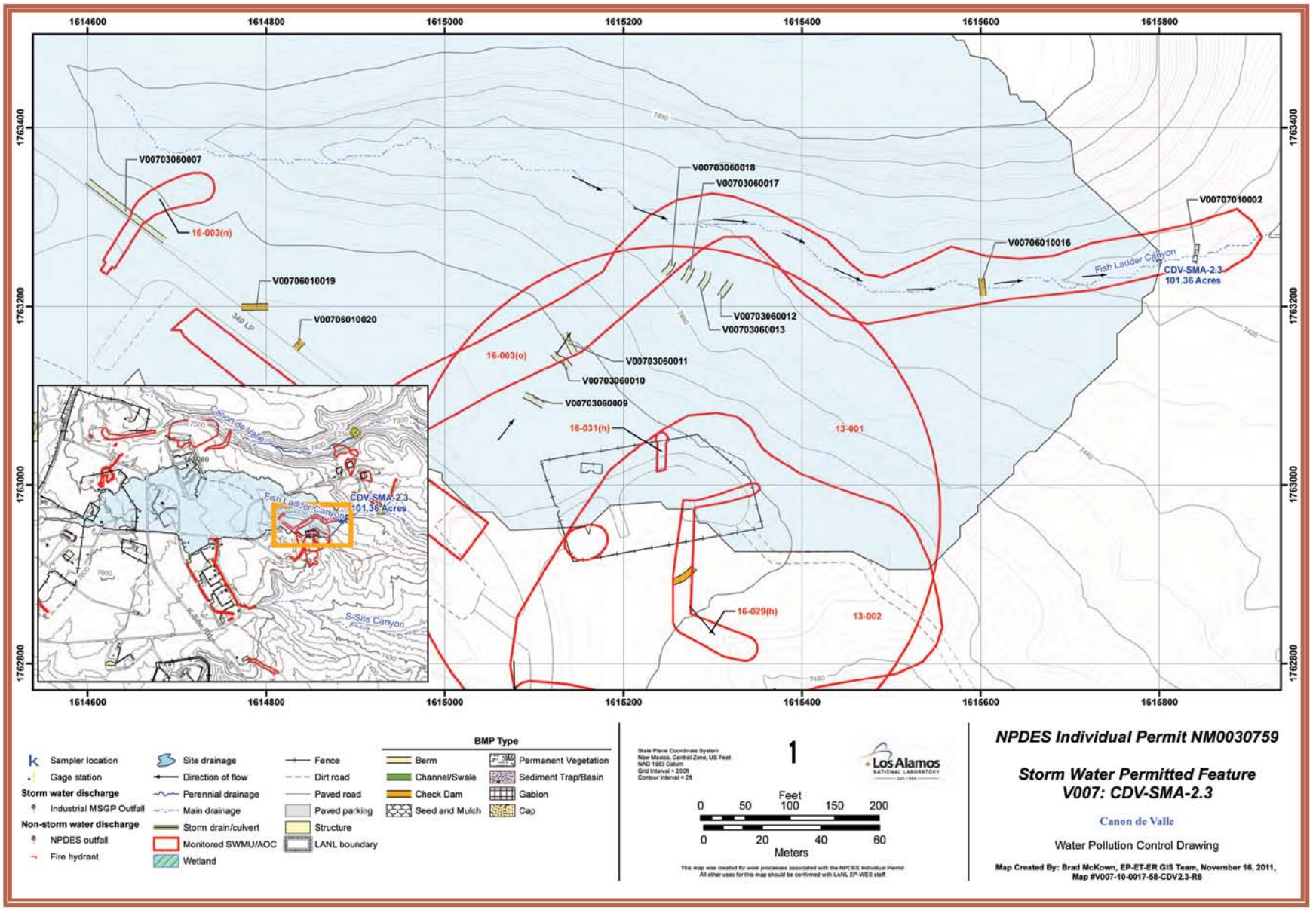
This check dam is located in the natural drainage channel west of the sampler. It is in place to control run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dams - West (V007-06-01-0019, -0020)

This pair of rock check dams are located southeast of 10-003(n) and were installed to manage run-on and 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.

Gabions (V007-07-01-0002)

The gabion is located east of the sampler location and is used to mitigate run-off 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.



1000.7.4 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 CDV-SMA-2.3. 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.

1000.7.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-2.3 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 1000.7.5.2-1.

Table 1000.7.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13851	07-12-2011
Storm Rain Event	BMP-16360	08-15-2011
Storm Rain Event	BMP-17575	09-01-2011
Storm Rain Event	BMP-18464	09-12-2011
Annual Erosion	COMP-19545	09-22-2011
Storm Rain Event	BMP-19392	09-26-2011

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
BMP-17575	Backfilled to seal underneath wattle V00703060010.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17575	Backfilled to seal underneath wattle V00703060011.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17575	Maintenance conducted to wattle V00703060015.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17575	Sediment removed from upstream of straw wattle V00703060014.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17575	Restaked straw wattle V00703060007 in original position.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17575	New rock check dam V007060100016 built using existing native rock installed at inspection as backup.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18464	Added 2 stakes to wattle V00703060007.	09-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-19392	Wattle V00703060015 replaced with wattle V00703060018.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.7.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-19392	Wattle V00703060014 replaced with wattle V00703060017.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19545	Installed rock check dams V00706010019 and -0020, retired wattle V00703060008.	10-14-2011	22 day(s)	Maintenance conducted as soon as practicable

1000.7.6 Compliance Status

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

1000.8 CDV-SMA-2.41

1000.8 CDV-SMA-2.41

1000.8.1 Area Description

CDV-SMA-2.41 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and moderately slopes towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is undeveloped.

1000.8.2 Potential Pollutant Sources

1000.8.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V008, CDV-SMA-2.41, Site 16-018.

SWMU 16-018 (known as MDA P) is located north of the TA-16 burning ground near the south rim of Cañon de Valle. The site operated from 1950 until 1984 as a disposal site for debris that resulted from burning HE and HE-contaminated material at TA-16. Concrete and construction debris was deposited directly on the slopes leading down the canyon. Other materials were burned at one of the nearby open-burn units and the resulting debris or residue was pushed over the mesa rim. The western area of MDA P primarily received construction debris from the demolition of World War II buildings; the eastern area received debris and residue from the open-burn units. The contaminants of primary concern at MDA P included detonable HE, HE residues in soil, barium, and asbestos. MDA P also contained low levels of uranium and inorganic chemicals such as lead and cadmium.

The ER Project submitted a closure plan to NMED in 1995. The plan was approved in 1997 and Phase I work began on removing the waste from MDA P. The discovery of detonable HE in the MDA P landfill required the use of a remote excavator. Remote landfill excavation began in February 1999 and was completed on May 3, 2000, just before the Cerro Grande fire. (Following the Cerro Grande Fire of 2000, the Laboratory's Water Quality and Hydrology group, in conjunction with NMED and DOE, determined that this SWMU needed erosion control measures to be installed because the existing measures, straw barriers and silt fence, were destroyed. The straw barriers and silt fence were replaced and fortified with an earthen berm below the site. A polymer-based emulsion was applied to exposed slopes to reduce the potential for sediment transport.) Nonremote excavation of contaminated soil beneath the landfill resumed after fire recovery and was completed in March 2001. Waste disposal was completed in June 2001. Phase II confirmation sampling and geophysical measurements began in June 2001. During the Phase II sampling, additional contamination was found and additional excavation of localized contamination was completed.

Nearly 55,000 cubic yards of soil, rock, and metal and concrete debris were excavated from MDA P. Of this quantity, 21,506 cubic yards of soil were disposed as hazardous waste. The remainder of this quantity consisted of industrial waste soils, concrete and metal debris that was recycled or managed as industrial waste, and rock that was decontaminated and then used as rip rap within TA-16. Other excavated waste included 3,947 pounds of asbestos-containing material; 888 containers of unknown content; 95 miscellaneous metal objects; 3,240 pounds of low-level radioactive waste; 5,389 pounds of mixed waste; and various smaller quantities of HE, HE-contaminated debris, and residuals from treating HE.

Scrap metal and concrete were shipped to recycling facilities. Contaminated soils and industrial wastes were shipped to off-site solid waste landfills. Solid, nonhazardous wastes were disposed of at MDA J. LANL submitted the final MDA P Area closure certification report to NMED in 2003. NMED disapproved the report.

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
16-018	Material disposal area (MDA P); RCRA unit (currently undergoing RCRA closure)	Co-located, Overlapping	Individual	•	•	•	PCBs

1000.8.3 Control Measures

The paved road south of the SMA does not contribute run-on. Run-on from the unpaved access road southwest of the area is controlled by the culvert and riprap located on the southwest SMA boundary.

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	
V008 02 01 0005	Established Vegetation - Grasses and Shrubs			•		CB
V008 03 06 0002	Berms - Straw Wattles		•		•	CB
V008 04 04 0011	Channel/Swale - Culvert	•		•		CB
V008 04 06 0009	Channel/Swale - Culvert	•		•		CB
V008 04 06 0010	Channel/Swale - Rip Rap	•		•		CB

Table 1000.8.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V008 06 03 0007	Check Dam - Juniper Bales		•		•	CB
V008 06 03 0008	Check Dam - Juniper Bales		•		•	CB

Established Vegetation (V008-02-01-0005)

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.

Straw Wattles (V008-03-06-0002)

Straw wattles were installed at the north end of the SMA to control run-off and sediment and direct flow. 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.

Culvert (V008-04-04-0011)

The culvert passes under the access road near the southwest corner of the SMA. It is in place to divert run-on. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap (V008-04-06-0009)

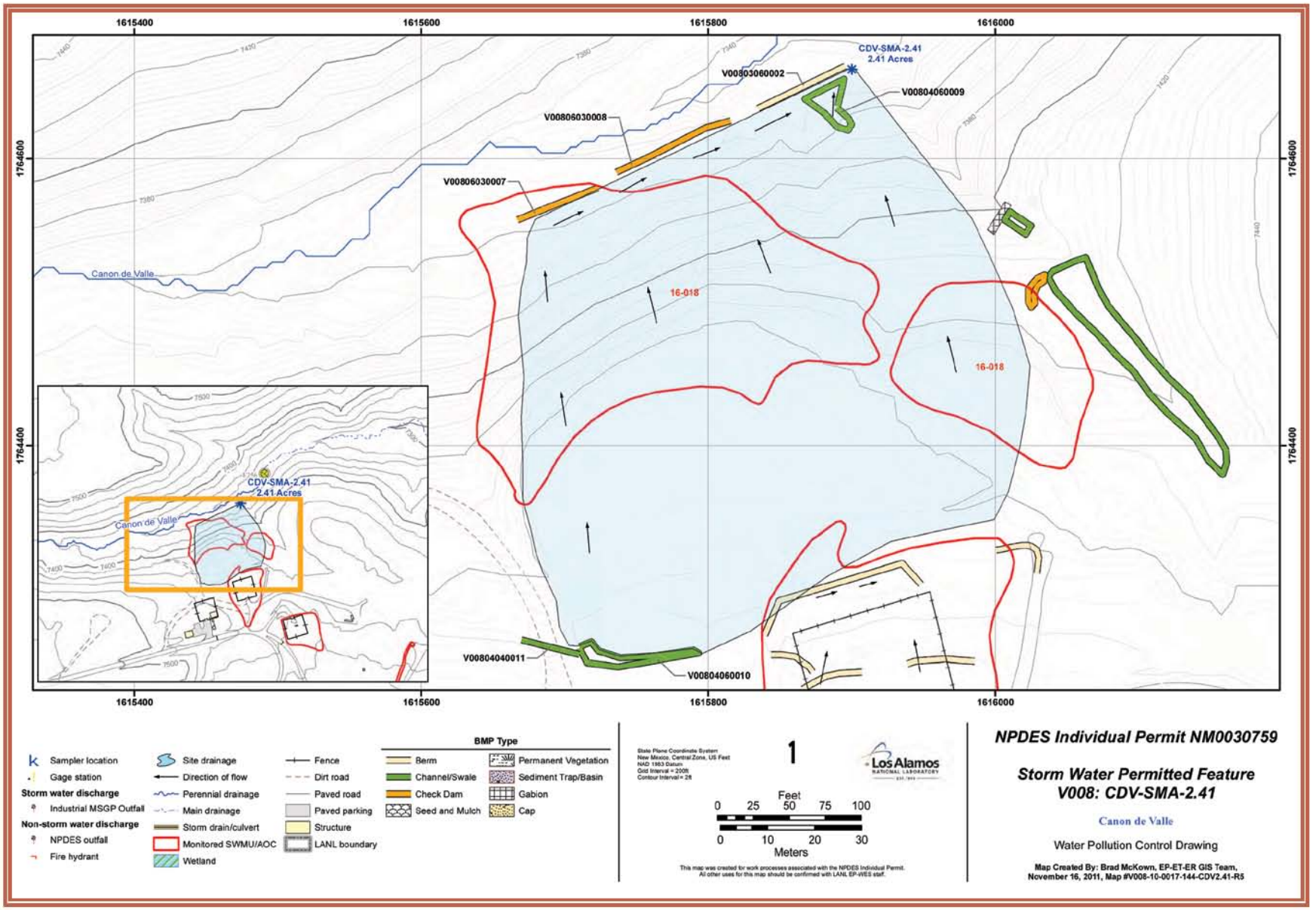
The rip rap is located just south of the sampler. It is in place to mitigate run-on. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rip Rap (V008-04-06-0010)

This rip rap is located near the culvert that passes under the access road near the southwest corner of the SMA. It is in place to control run-on and prevent CB 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 (V008-06-03-0007, -0008)

This is a series of two juniper bales located along the northwest boundary of the SMA. They are in place to control run-off from the slope above. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.


1615400
1615600
1615800
1616000
1764600
1764400
CDV-SMA-2.41
2.41 Acres
V00803060002
V00804060009
V00806030008
V00806030007
Canon de Valle
16-018
16-018
V00804040011
V00804060010
BMP Type
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
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
1
Feet
0 25 50 75 100
0 10 20 30
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V008: CDV-SMA-2.41
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
November 16, 2011, Map #V008-10-0017-144-CDV2.41-R5

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.

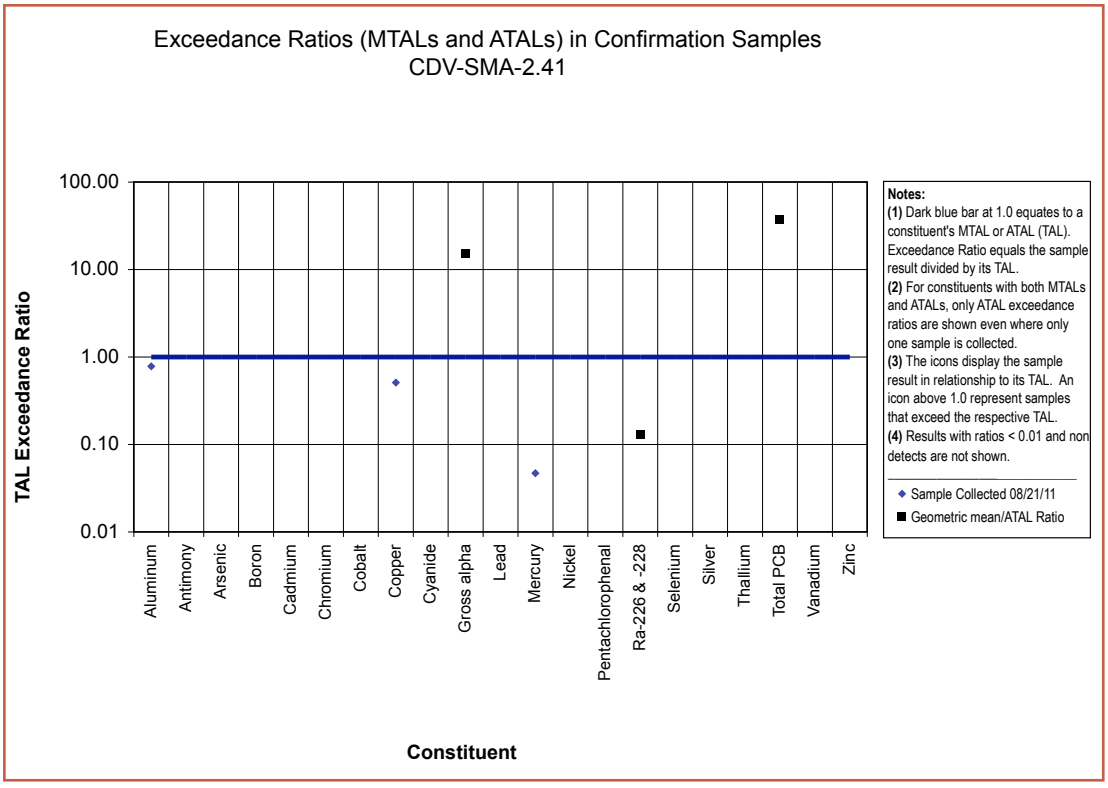
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	PCBs (1)

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).

1000.8.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from CDV-SMA-2.41 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.



1000.8.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-2.41 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 1000.8.5.3-1.

Table 1000.8.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13852	07-11-2011
Storm Rain Event	BMP-16361	08-15-2011
Storm Rain Event	BMP-17576	08-30-2011
Storm Rain Event	BMP-18465	09-12-2011
Annual Erosion	COMP-19199	09-19-2011
Storm Rain Event	BMP-19393	09-27-2011
Visual Inspection	BMP-21526	11-07-2011

1000.8.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.8.5.4-1.

Table 1000.8.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17576	Repair wattle V00803060002.	09-12-2011	13 day(s)	Maintenance conducted in timely manner.
BMP-19393	Some erosion taking place up stream from wattle V00803060002 so it was extended by adding one wattle.	09-27-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19199	Rip rap V00804060009 was extended and modified.	10-14-2011	25 day(s)	Maintenance conducted as soon as practicable.
COMP-19199	Straw wattles V00803060002 were extended and modified	10-14-2011	25 day(s)	Maintenance conducted as soon as practicable.

1000.8.6 Compliance Status

The Site associated with CDV-SMA-2.41 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.9 CDV-SMA-2.42

1000.9 CDV-SMA-2.42

1000.9.1 Area Description

CDV-SMA-2.42 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped and moderately slopes towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures. The eastern boundary of the SMA is influenced by paved and unpaved access roads. The western boundary of the SMA is undeveloped.

1000.9.2 Potential Pollutant Sources

1000.9.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V008A, CDV-SMA-2.42, Site 16-010(b).

SWMU 16-010(b) is a former flash pad (structure 16-387) that was located at TA-16. The flash pad was built at TA-16 in 1951 and was used to flash-burn HE-contaminated material. The flash pad was enclosed within a 100 x 100 ft fenced area, and consisted of a layer of sand several inches thick over a soil base. The flash pad operated as a hazardous waste treatment unit under RCRA interim status and is currently undergoing RCRA closure.

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
16-010(b)	**Flash pad; RCRA unit (undergoing closure)**	**Co-located, Overlapping**	**Individual**	•	•	•	PCBs

1000.9.3 Control Measures

There is some potential for run-on to enter the area from the paved access road located along the southeastern perimeter of the Site. The western road does not contribute to run-on.

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	
V008A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V008A 03 01 0006	Berms - Earthen		•		•	CB
V008A 03 01 0016	Berms - Earthen		•		•	CB
V008A 03 06 0007	Berms - Straw Wattles		•		•	CB
V008A 03 06 0008	Berms - Straw Wattles		•		•	CB
V008A 03 06 0009	Berms - Straw Wattles		•		•	CB
V008A 03 06 0010	Berms - Straw Wattles		•		•	CB
V008A 03 06 0011	Berms - Straw Wattles		•		•	CB
V008A 03 06 0012	Berms - Straw Wattles	•			•	CB
V008A 03 06 0014	Berms - Straw Wattles	•			•	CB
V008A 04 06 0002	Channel/Swale - Rip Rap		•	•		CB
V008A 04 06 0005	Channel/Swale - Rip Rap		•	•		CB
V008A 04 06 0018	Channel/Swale - Rip Rap		•	•		B
V008A 04 06 0019	Channel/Swale - Rip Rap		•	•		B

Table 1000.9.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V008A 06 01 0004	Check Dam - Rock		•		•	CB
V008A 06 01 0017	Check Dam - Rock	•			•	B
V008A 07 01 0003	Gabions - Gabions		•		•	CB

Established Vegetation (V008A-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 (V008A-03-01-0006)

This berm is installed north of and along side of the sampler 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.

Earthen Berm - East (V008A-03-01-0016)

This berm is located northeast of the sampler location. 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.

Straw Wattles (V008A-03-06-0007, -0008, -0009, -0010, -0011)

This group of five wattles was installed to control run-off and sediment south of the sampler. 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 South (V008A-03-06-0012, -0014)

This pair of wattles was installed south of the group of five to control run-on and sediment south of the sampler. 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 - East (V008A-04-06-0002)

This rip rap is located north of the SMA and sampler in a drainage channel. It is used

to control run-off in 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.

Rip Rap - West (V008A-04-06-0005)

This rip rap is located adjacent to the gabion at the canyon edge and assists with controlling run-off from the slope 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.

Rip Rap - South (V008A-04-06-0018)

This rip rap is located south of the sampler and was installed to manage run-on and control 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.

Rip Rap - North (V008A-04-06-0019)

This rip rap is located north of the SMA near the canyon edge to manage run-off and contro 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 (V008A-06-01-0004)

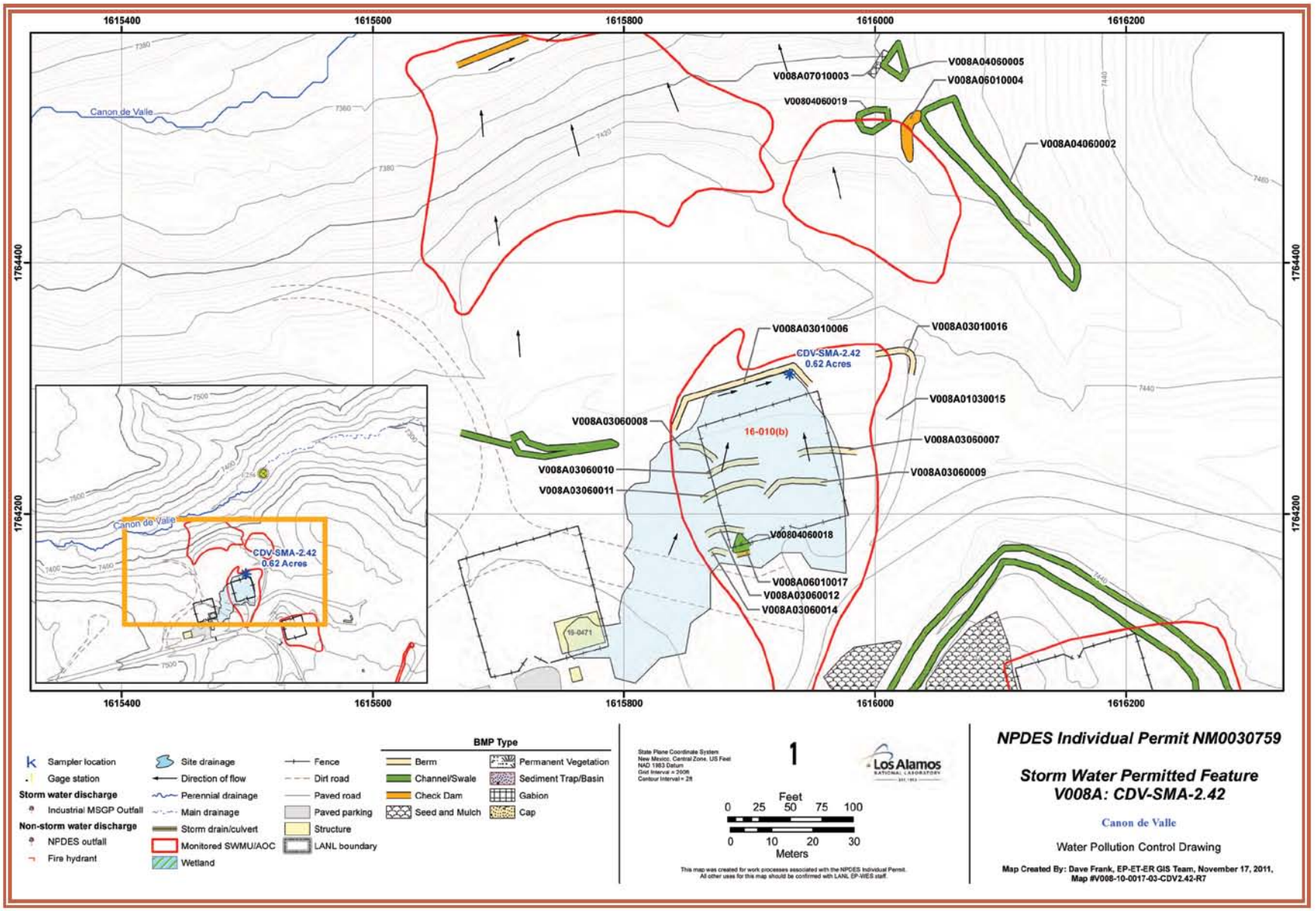
The rock check dam is located adjacent to the eastern rip rap north of the sampler. It is also in place to limit run-off from the SMA. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - South (V008A-06-01-0017)

This rock check dam is located south of the sampler and was installed to manage run-on and 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.

Gabions (V008A-07-01-0003)

The gabion is located at the outfall of the drainage channel near the lip of the canyon north of the SMA. It is used to restrict run-off from the 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.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Canon de Valle
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V008A06010004
V00804060019
V008A04060002
V008A03010006
V008A03010016
CDV-SMA-2.42
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V008A03060008
16-010(b)
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V008A06010017
V008A03060012
V008A03060014
16-0471
BMP Type
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
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
1
Feet
0 25 50 75 100
0 10 20 30
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V008A: CDV-SMA-2.42
Canon de Valle
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, November 17, 2011,
Map #V008-10-0017-03-CDV2.42-R7

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
• (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).

1000.9.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-2.42. 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.

1000.9.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-2.42 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 1000.9.5.2-1.

Table 1000.9.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13856	07-11-2011
Storm Rain Event	BMP-16365	08-15-2011
Storm Rain Event	BMP-17580	09-01-2011
Storm Rain Event	BMP-18469	09-12-2011
Annual Erosion	COMP-19200	09-19-2011
Storm Rain Event	BMP-19397	09-26-2011

1000.9.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.9.5.3-1.

Table 1000.9.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17580	Added some rocks upstream of gabbion V008A07010003 to help with sediment transport.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17580	Backfilled areas where straw wattles V008A03060010 had been undercut.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17580	Backfilled areas where straw wattles V008A03060011 had been undercut.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17580	Backfilled areas where straw wattles V008A03060014 had been undercut.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17580	Back filled breach in earthen berm V008A03010006, will need to come back and add more fill and matting.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17580	Repair earthen berm V008A03010006 with more earth, seed, and matting.	09-12-2011	11 day(s)	Maintenance conducted in timely manner.
BMP-18469	Rock check dam V008A06010017 installed at time of inspection to address run on from the road.	09-12-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.9.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-19397	Repaired rip rap V008A04060005 by adding rock and extending.	10-03-2011	7 day(s)	Maintenance conducted in timely manner.
COMP-19200	Rip rap V008A04060005 was modified and extended.	10-14-2011	25 day(s)	Maintenance conducted as soon as practicable.
COMP-19200	Rock check dam V008A06010004 was modified and extended.	10-14-2011	25 day(s)	Maintenance conducted as soon as practicable.
COMP-19200	Rip rap V008A04060018-0019 installed.	10-14-2011	25 day(s)	Maintenance conducted as soon as practicable.

1000.9.6 Compliance Status

The Site associated with CDV-SMA-2.42 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.10 CDV-SMA-2.5

1000.10 CDV-SMA-2.5

1000.10.1 Area Description

CDV-SMA-2.5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved surfaces. The southern boundary of the SMA is influenced by structures and paved areas on the western edge. The receiving waters are along the southeastern edge of this boundary. The eastern boundary of the SMA is influenced by paved and unpaved access roads. The western boundary of the SMA is influenced by structures and paved areas.

1000.10.2 Potential Pollutant Sources

1000.10.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF V009, CDV-SMA-2.5, Sites 16-010(c), 16-010(d) and 16-028(a).

SWMU 16-010(c) is a former burn table at TA-16 that was converted to a flash pad/burn tray (structure 16-388). The burn table was used to treat HE scrap. The 100 x 100 ft enclosed area consisted of a concrete pad that was used to unload explosives and a 16 x 4 ft metal tray that was approximately two feet above the ground surface. Scrap HE was placed on the tray and burned. The current flash pad consists of a 22 x 22 ft concrete pad set on a secondary containment area and surrounded on three sides by a concrete wall. Prior to treatment, the HE-contaminated wastes are placed on steel pallets or steel trays. Propane burners are used as heat sources to treat the wastes at the flash pad, which can be covered with a movable steel roof when not in use. The current burn tray consists of a stainless-steel kettle that is 30 inches in diameter and 24 inches high. Propane burners are used to treat HE-contaminated liquid wastes at the burn tray. The entire assembly, which can be covered with a retractable cover, is provided with secondary containment. SWMU 16-010(c) is an active hazardous waste treatment unit operated under interim status and is managed in accordance with state and federal regulations.

SWMU 16-010(d) is a former burn slab at TA-16 that was converted to a burn tray (structure 16-399). The burn table is used to treat HE scrap. The 100 square foot enclosed area consists of a concrete pad that is used to unload explosives and a 16 x 4 ft metal tray on the burn table that is approximately two feet above the ground surface. HE is placed on the tray and burned. A metal-covered rain guard can be rolled back to expose the tray. In 1998, BMPs were installed at this site in the form of run-on diversion, repaving, and installation of an earthen berm and a roof covering. SWMU 16-010(d) is an active hazardous waste treatment unit operated under interim status and is managed in accordance with state and federal regulations.

SWMU 16-028(a) is the south drainage channel from the burning ground at TA-16. The channel runs between a water treatment shed (Building 16-363) and a former liquid impoundment, which has undergone RCRA closure. In 1997, straw bale barriers were installed at this site to minimize contaminant migration from the site. In 2000, additional BMPs were installed in the form of straw wattles and permanent seeding.

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
16-010(c)	Burn site 16-388 RCRA Unit (active)	Co-located, Overlapping	Shared	•	•	•	SVC HE
16-010(d)	Burn site 16-399 RCRA unit (active)	Co-located, Overlapping	Shared	•	•	•	SVC HE
16-028(a)	Drainage Channel	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

Sites grouped within this SMA are associated with current or historical hazardous waste treatment activities. The Sites have similar contaminants and share a common drainage. Sites grouped within this SMA will discharge substantially identical effluent.

1000.10.3 Control Measures

There are multiple paved areas in and around this SMA that have the potential to contribute to run-on onto the SWMUs.

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	
V009 01 01 0003	Seed and Mulch - Seed and Wood Mulch		•	•		CB
V009 01 01 0004	Seed and Mulch - Seed and Wood Mulch	•		•		CB

Table 1000.10.3-1(Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V009 01 01 0023	Seed and Mulch - Seed and Wood Mulch			•		CB
V009 01 01 0034	Seed and Mulch - Seed and Wood Mulch			•		B
V009 02 01 0012	Established Vegetation - Grasses and Shrubs			•		CB
V009 03 01 0011	Berms - Earthen		•		•	CB
V009 03 06 0019	Berms - Straw Wattles	•			•	CB
V009 03 06 0020	Berms - Straw Wattles		•		•	CB
V009 03 06 0021	Berms - Straw Wattles		•		•	CB
V009 03 06 0024	Berms - Straw Wattles		•		•	B
V009 03 06 0025	Berms - Straw Wattles		•		•	B
V009 03 06 0026	Berms - Straw Wattles	•			•	B
V009 03 06 0027	Berms - Straw Wattles	•			•	B
V009 04 06 0005	Channel/Swale - Rip Rap	•		•		CB
V009 04 06 0006	Channel/Swale - Rip Rap		•	•		CB

Table 1000.10.3-1(Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V009 04 06 0007	Channel/Swale - Rip Rap	•		•		CB
V009 04 06 0009	Channel/Swale - Rip Rap	•		•		CB
V009 06 01 0015	Check Dam - Rock	•			•	CB
V009 06 01 0016	Check Dam - Rock	•			•	CB
V009 06 01 0017	Check Dam - Rock	•			•	CB
V009 06 01 0018	Check Dam - Rock	•			•	CB
V009 06 01 0022	Check Dam - Rock	•			•	CB
V009 06 01 0028	Check Dam - Rock	•			•	B
V009 06 01 0029	Check Dam - Rock	•			•	B
V009 06 01 0030	Check Dam - Rock	•			•	B
V009 06 01 0031	Check Dam - Rock	•			•	B
V009 06 01 0032	Check Dam - Rock		•		•	B
V009 06 01 0033	Check Dam - Rock	•			•	B

Southern Seed and Mulch (V009-01-01-0003)

This application of seed and mulch is located around the straw wattles northeast of structure 16-0441. It was applied to prevent erosion of the slope that might result from area run-off. 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).

Seed and Mulch - West (V009-01-01-0004)

This seed and mulch was applied to the north side of the wattles northwest of structure 16-0441. It was applied to prevent erosion of the area due to any run-on from above. 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).

Seed and Mulch (V009-01-01-0023)

This mulch is in the northern portion of the site drainage near the northern rip-rap to 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).

Seed and Mulch - Northwest (V009-01-01-0034)

This seed and mulch has been applied to control erosion near the northern border of the SMA, north of Burning Ground Road. 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 (V009-02-01-0012)

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 (V009-03-01-0011)

This berm is located in the eastern portion of the SMA across the flow path 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.

Berms- Wattles (V009-03-06-0019)

This wattle controls run-on and sediment near building 16-0441. 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 - South (V009-03-06-0020, -0021)

This group of two wattles control run-off and sediment near building 16-0441. 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 - East (V009-03-06-0024, -0025)

This is two sets of straw wattles set across the flow path on the eastern side of the SMA and north of the sampler. They are in place 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.

Straw Wattles - Central (V009-03-06-0026)

These straw wattles are located across the flow path located west of the access road to Building 16-0441. They are placed 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.

Straw Wattles - Northwest (V009-03-06-0027)

These straw wattles are located northwest of Building 16-0441 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.

Northwest Rip Rap (V009-04-06-0005)

This rip rap is located above the paved area north of structure 16-0441. It is used to control run-on 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.

Southern Rip Rap (V009-04-06-0006)

This rip rap is located on the southeast side of the paved access road to structure 16-0441 in the drainage channel. It is used to restrict run-off from the paved 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.

Rip Rap - Central (V009-04-06-0007)

This rip rap is located in the drainage on the north side of Burning Ground Road. Its function is to mitigate run-on from the paved road and prevent erosion of the drainage 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.

Northern Rip Rap (V009-04-06-0009)

This rip rap is located in the northern area of the SMA at the culvert outlet. It follows the drainage channel northeast then continues towards the south east around the fenced Site. It is diverting run-on around the site and preventing erosion of the drainage 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.

Rock Check Dams (V009-06-01-0015, -0016, -0017, -0018)

This is a series of four check dams installed at the head of the drainage channel on the northwest side of 16-010(c). They are used to help control run-on and sediment migration. 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 (V009-06-01-0022)

This rock check dam is located above the paved area north of structure 16-0441. It was installed 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.

Rock Check Dam - Central (V009-06-01-0028)

This rock check dam is installed in the drainage channel on the northwest side of 16-010(c) and is used to help control run-on and sediment migration. 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 - West (V009-06-01-0029, -0030, -0031)

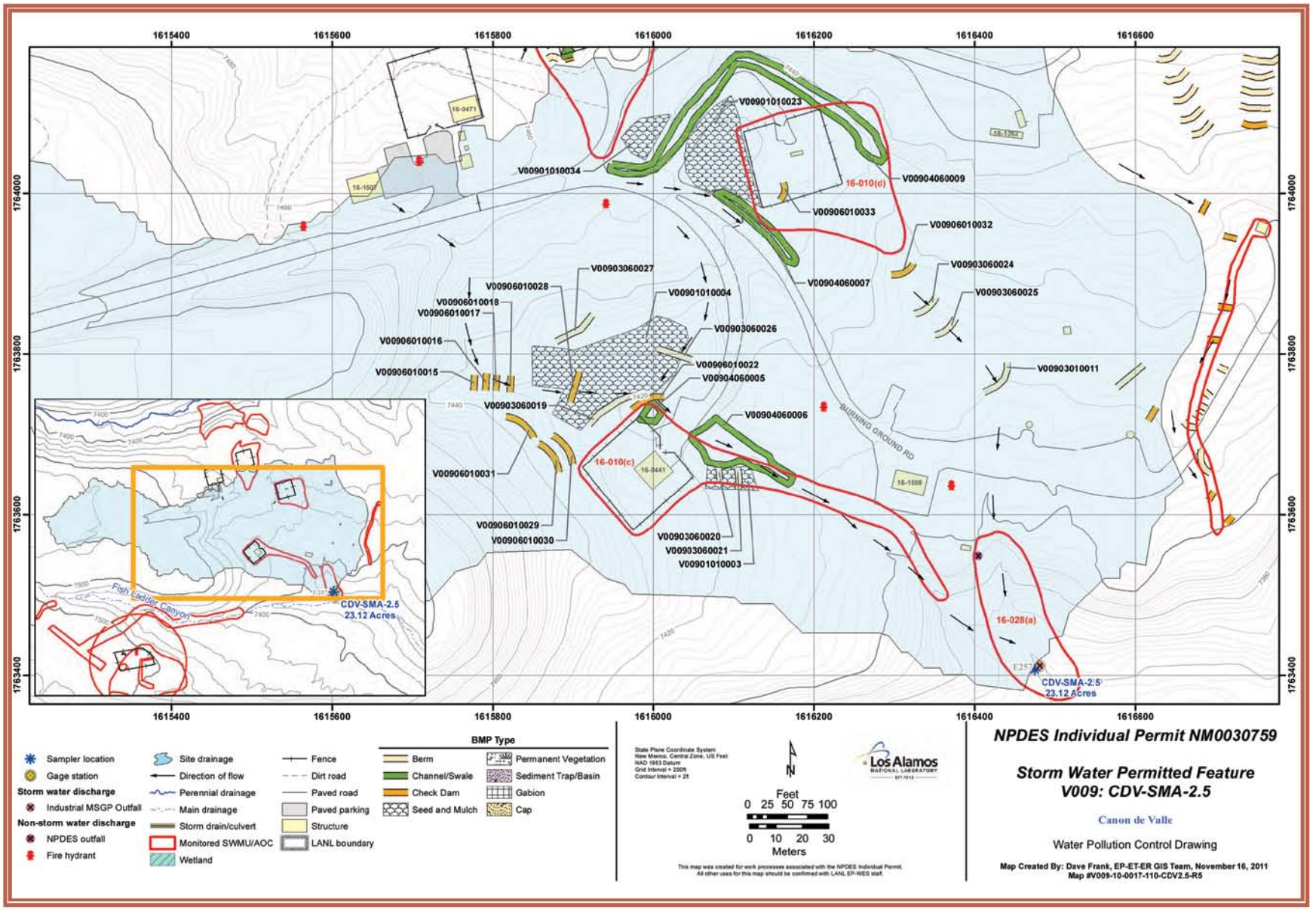
These are a group of three rock check dams installed on the slope west of Building 16-0441 to manage run-on and sediment transport. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Rock Check Dam - North Central (V009-06-01-0032)

This rock check dam is located across the flow path north of both Burning Ground Road and the sampler. It has been placed to control run-off and 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.

Rock Check Dam - North (V009-06-01-0033)

This rock check dam is located in the southern portion of the fenced area of Site 16-010(d) to manage run-on and 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.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V00906010028
V00906010018
V00906010017
V00906010016
V00906010015
V00901010004
V00903060026
V00906010022
V00904060005
V00903060019
V00904060006
V00903010011
V00906010031
V00906010029
V00906010030
V00903060020
V00903060021
V00901010003
16-010(d)
16-010(c)
16-028(a)
16-0471
16-1502
16-1262
16-0441
16-1508
BURNING GROUND RD
Fish Ladder Canyon
CDV-SMA-2.5
23.12 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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Feet
0 25 50 75 100
0 10 20 30
Meters
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-WES staff.
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V009: CDV-SMA-2.5
Canon de Valle
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, November 16, 2011
Map #V009-10-0017-110-CDV2.5-R5

1000.10.5 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.

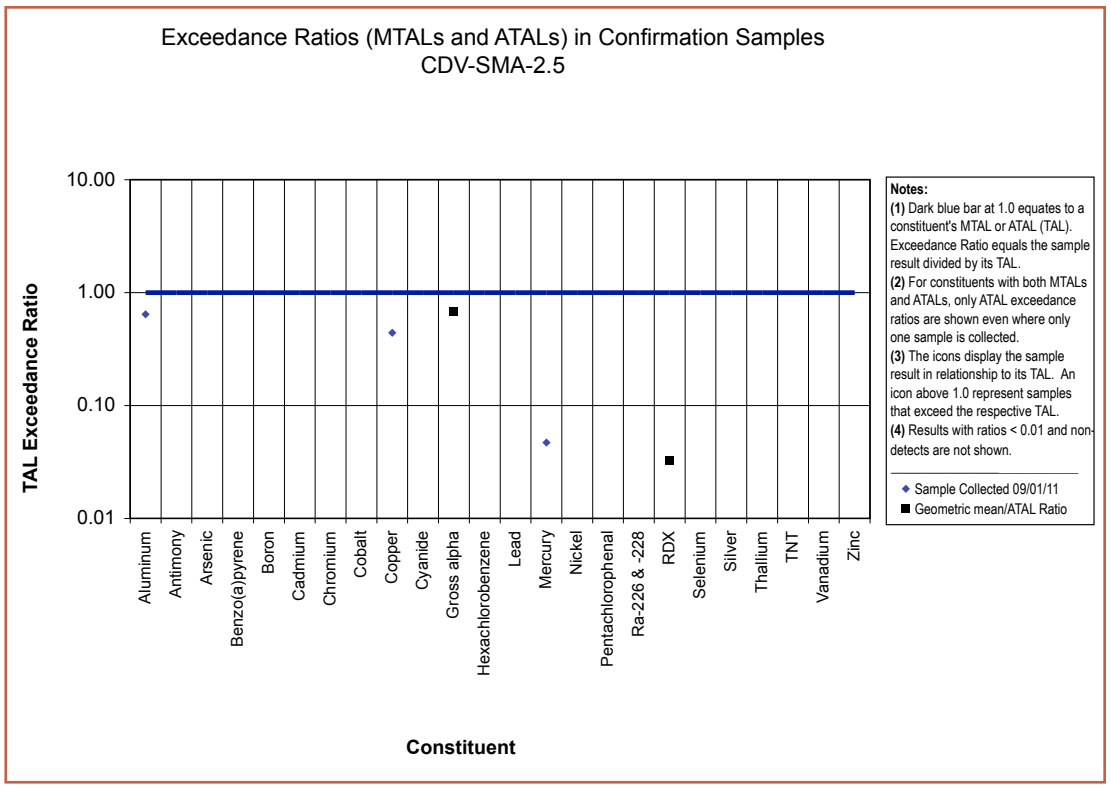
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1) SVC (1)

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).

1000.10.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from CDV-SMA-2.5 on September 1, 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.



1000.10.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-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 1000.10.5.2-1.

Table 1000.10.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13853	07-11-2011
Storm Rain Event	BMP-16362	08-15-2011
Storm Rain Event	BMP-17577	09-02-2011
Annual Erosion	COMP-19201	09-19-2011
Storm Rain Event	BMP-19394	09-26-2011

1000.10.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.10.5.3-1.

Table 1000.10.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17577	Placed rock bags in breach in earthen berm V00903010011 as temporary measure. Additional maintenance needed.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17577	Restaked juniper bale V00906030013.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17577	Restaked juniper bale V00906030014.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17577	Wattles V00903060019 staked back in.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17577	Wattles V00903060020 staked back in.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17577	Wattles V00903060021 staked back in.	09-02-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.10.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17577	Repaired earthen berm V00903010011 with clean fill, seed, and matting.	09-12-2011	10 day(s)	Maintenance conducted upon inspection.
BMP-17577	Repaired rock check dam V00906010015.	09-12-2011	10 day(s)	Maintenance conducted upon inspection.
BMP-17577	Repaired rock check dam V00906010016.	09-12-2011	10 day(s)	Maintenance conducted upon inspection.
BMP-17577	Repaired rock check dam V00906010017.	09-12-2011	10 day(s)	Maintenance conducted upon inspection.
BMP-17577	Repaired rock check dam V00906010018.	09-12-2011	10 day(s)	Maintenance conducted upon inspection.
BMP-19394	2 wattles in V00903060021 replaced because they were torn.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-19394	Replaced one of 2 wattles in V00903060020.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19201	Install rock check dam V00906010033 inside fence.	10-20-2011	31 day(s)	Maintenance conducted as soon as practicable.
COMP-19201	Install rock check dam V00906010032 south of 16-010(d).	10-20-2011	31 day(s)	Maintenance conducted as soon as practicable.
COMP-19201	Install seed and wood mulch V00901010034 in bare area north of rip rap V00904060009.	10-20-2011	31 day(s)	Maintenance conducted as soon as practicable.

1000.10.6 Compliance Status

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

1000.11 CDV-SMA-2.51

1000.11 CDV-SMA-2.51

1000.11.1 Area Description

CDV-SMA-2.51 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary of the SMA is influenced by a paved road on the eastern edge. The receiving waters are along the southeastern edge of this boundary. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is influenced by paved areas.

1000.11.2 Potential Pollutant Sources

1000.11.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V009A, CDV-SMA-2.51, Site 16-010(i).

SWMU 16-010(i) is structure 16-392, an inactive burn pad that formerly was a filter bed that received wash water from the basket-wash facility. The wash water was received through a trough (structure 16-1136). Filtered wash water from the basket-wash facility collected within perforated piping along the bottom of the filter bed and drained via gravity through a pipe to an adjacent outfall southeast of the filter bed. The filter bed was modified to a burn pad to burn suspected uranium-contaminated objects. The trough was dismantled when the filter bed was modified.

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
16-010(i)	Burn Pad	Co-located, Overlapping	Individual	•	•	•	SVC HE

1000.11.3 Control Measures

The paved access road east of the SMA has the potential to contribute to run-on onto the Site.

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	
V009A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V009A 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
V009A 03 02 0005	Berms - Base Course	•			•	CB
V009A 03 02 0012	Berms - Base Course	•			•	CB
V009A 03 06 0007	Berms - Straw Wattles	•			•	CB
V009A 03 06 0008	Berms - Straw Wattles	•			•	CB
V009A 03 06 0009	Berms - Straw Wattles	•			•	CB
V009A 03 06 0010	Berms - Straw Wattles	•			•	CB
V009A 03 06 0011	Berms - Straw Wattles	•			•	CB
V009A 03 06 0018	Berms - Straw Wattles	•			•	CB
V009A 03 06 0019	Berms - Straw Wattles	•			•	CB
V009A 03 06 0020	Berms - Straw Wattles	•			•	CB
V009A 03 06 0022	Berms - Straw Wattles	•			•	CB

Table 1000.11.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V009A 03 06 0023	Berms - Straw Wattles	•			•	CB
V009A 03 06 0024	Berms - Straw Wattles	•			•	CB
V009A 03 06 0025	Berms - Straw Wattles	•			•	CB
V009A 03 06 0026	Berms - Straw Wattles	•			•	CB
V009A 03 06 0027	Berms - Straw Wattles	•			•	CB
V009A 03 06 0028	Berms - Straw Wattles	•			•	B
V009A 06 01 0003	Check Dam - Rock		•		•	CB
V009A 06 01 0004	Check Dam - Rock		•		•	CB
V009A 06 01 0006	Check Dam - Rock	•			•	CB
V009A 06 01 0013	Check Dam - Rock		•		•	CB
V009A 06 01 0014	Check Dam - Rock		•		•	CB
V009A 06 01 0015	Check Dam - Rock		•		•	CB
V009A 06 01 0016	Check Dam - Rock	•			•	CB
V009A 06 03 0017	Check Dam - Juniper Bales	•			•	CB

Permanent Vegetation (V009A-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.

Base Course Berm - East (V009A-03-02-0005)

This berm is located east of the main flow path on the eastern side of Burning Ground Road. It is used to help mitigate run-on flow 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.

Base Course Berm - West (V009A-03-02-0012)

This berm is located west of the SMA and north of the Burning Ground Road. It is used to help control run-on from the slope above. 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 - South (V009A-03-06-0007, -0008, -0009, -0010, -0011)

This is a series of five straw wattles located along the west side of Burning Ground Road near the curve in the road. They are used to help control run-on from the 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.

Straw Wattles - West (V009A-03-06-0018, -0019, -0020, -0022, -0023, -0028)

This is a series of six straw wattles located on the western side of the northern portion of the SMA. They are used to assist with the management of run-on from the undeveloped 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.

Straw Wattles - East (V009A-03-06-0024, -0025, -0026, -0027)

This is a series of four straw wattles located on the eastern side of the northern portion of the SMA. They are used to assist with the management of run-on from the undeveloped 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.

Rock Check Dams - South (V009A-06-01-0003, -0004)

This is a pair of check dams located in the drainage channel above the sampler. They are used to help control storm water run-off from 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.

Rock Check Dam (V009A-06-01-0006)

This check dam is located just west of the SMA near the bend in Burning

Ground Road. It 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.

Rock Check Dams - West Channel (V009A-06-01-0013, -0014, -0015)

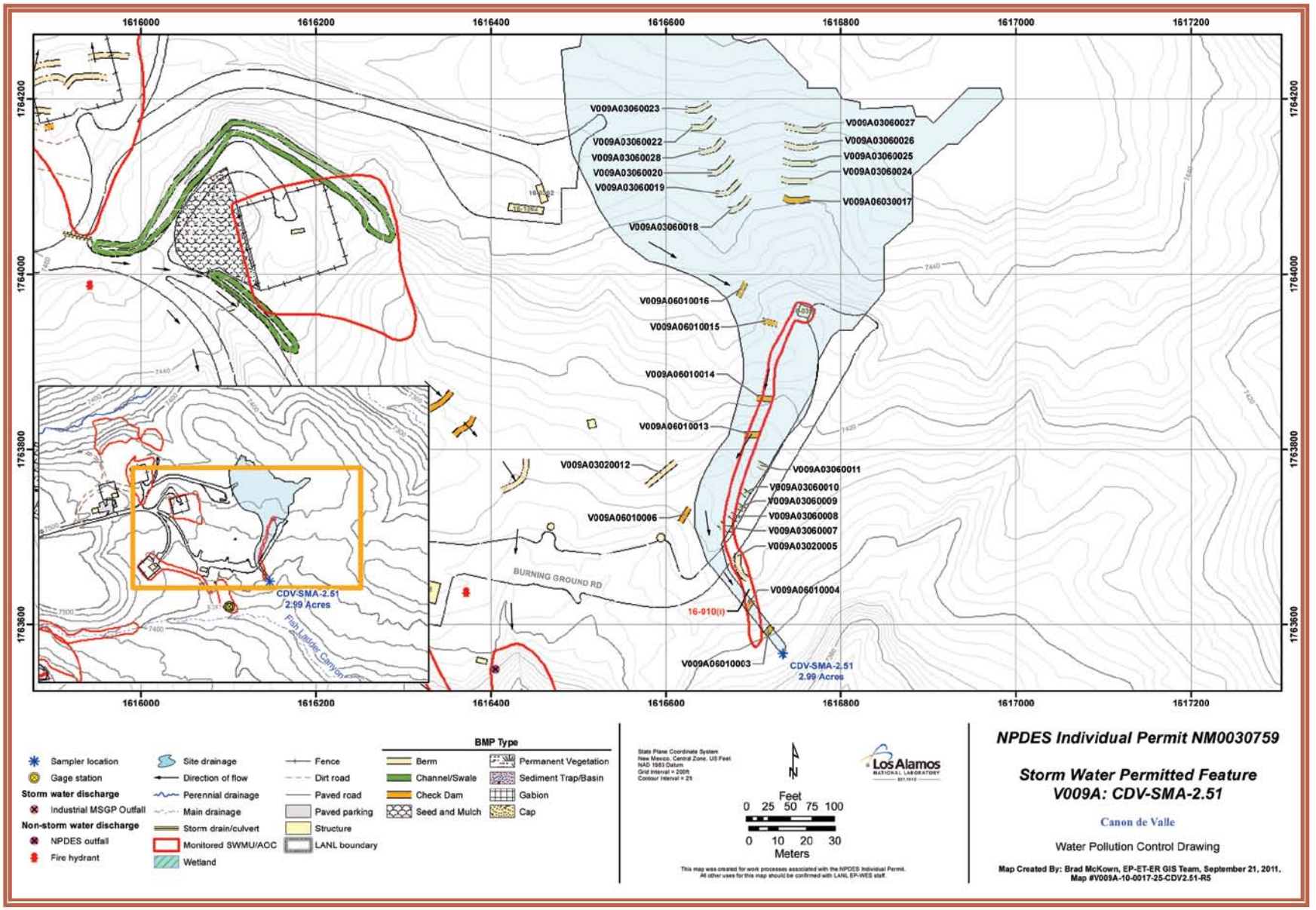
This is a series of three rock check dams located in the main drainage channel. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product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

Rock Check Dam - Northwest (V009A-06-01-0016)

This check dam is located near the border of the SMA foot print northwest of structure 16-0362. It is used to help manage storm water run-on from the paved areas located above the Site. 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.

Juniper Bales (V009A-06-03-0017)

The juniper bales are located in the northern portion of the SMA, just south of the Straw Wattles East. They are used to help manage run-on from the slope above. A juniper bale barrier is a series of juniper bales placed on a level contour to intercept sheet flows.


1616000
1616200
1616400
1616600
1616800
1617000
1617200
1764200
1764000
1763800
1763600
V009A03060023
V009A03060022
V009A03060028
V009A03060020
V009A03060019
V009A03060018
V009A03060027
V009A03060026
V009A03060025
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V009A03060010
V009A03060009
V009A03060008
V009A03060007
V009A03020005
V009A06010004
V009A06010003
BURNING GROUND RD
16-010(l)
CDV-SMA-2.51
2.99 Acres
Fish Ladder 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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Feet
0 25 50 75 100
0 10 20 30
Meters
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-WES staff.
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V009A: CDV-SMA-2.51
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 21, 2011.
Map #V009A-10-0017-25-CDV2.51-R5

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)	HE (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).

1000.11.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-2.51. 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.

1000.11.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-2.51 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 1000.11.5.2-1.

Table 1000.11.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13857	07-11-2011
Storm Rain Event	BMP-16366	08-15-2011
Storm Rain Event	BMP-17581	09-01-2011
Storm Rain Event	BMP-18470	09-06-2011
Annual Erosion	COMP-19202	09-19-2011
Storm Rain Event	BMP-19398	09-26-2011

1000.11.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.11.5.3-1.

Table 1000.11.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17581	Needle cast removed from behind rock check dam V009A06010014.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060021.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060022.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060023.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060024.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060025.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060026.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Silt removed from behind wattle V009A03060027.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17581	Repositioned rocks in rock check dam V009A06010003 back to original position.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.11.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17581	Repositioned rocks in rock check dam V009A06010004 back to original position.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16366	Replaced wattle V009A03060021 with new wattle V009A03060028 in same location.	09-06-2011	22 day(s)	Maintenance conducted as soon as practicable.
BMP-19398	Repositioned rock in rock check dam V009A06010003.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-19398	Repositioned rock in rock check dam V009A06010004.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-19398	Reshaped rock check dam V009A06010013.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-19398	Reshaped rock check dam V009A06010016.	09-26-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19202	Add additional rock to rock check dam V009A06010004.	10-17-2011	29 day(s)	Maintenance conducted as soon as practicable.
COMP-19202	Add additional rock to rock check dam V009A06010003.	10-20-2011	32 day(s)	Maintenance conducted as soon as practicable.

1000.11.6 Compliance Status

The Site associated with CDV-SMA-2.51 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.12 CDV-SMA-3

1000.12 CDV-SMA-3

1000.12.1 Area Description

CDV-SMA-3 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is largely developed, paved, and gently sloping southwest towards the receiving waters. The southern boundary of the SMA undeveloped and gently sloping. The eastern boundary of the SMA is influenced by paved areas and structures. The western boundary of the SMA borders an unpaved access road and contains the receiving waters. Storm water flows southwest towards the receiving waters.

1000.12.2 Potential Pollutant Sources

1000.12.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V010, CDV-SMA-3, Site 14-009.

SWMU 14-009 is a 45 x 50 x 1 ft-deep surface disposal area on the southwest slope of the western firing area at TA-14. The disposal area consists of ruptured sandbags. When explosives were tested, sandbags were placed around a firing site to contain the detonation. When the pressure of a blast ruptured the sandbags, the sand was used to control erosion around the firing site.

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
14-009	Surface disposal site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.12.3 Control Measures

The primary source of run-on for this Permitted Feature originates on the paved areas to the north and west of the SMA. Additional run-on from roof drains on building 14-0043 also impacts the SMA via the same flow patterns.

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	
V010 01 01 0012	Seed and Mulch - Seed and Wood Mulch			•		EC
V010 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
V010 03 01 0010	Berms - Earthen			•		EC
V010 03 01 0011	Berms - Earthen			•		EC
V010 03 12 0005	Berms - Rock	•			•	CB
V010 03 12 0009	Berms - Rock		•		•	CB
V010 04 06 0007	Channel/Swale - Rip Rap	•		•		CB
V010 06 01 0004	Check Dam - Rock		•		•	CB

Seed and Mulch (V010-01-01-0012)

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 (V010-02-01-0003)

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.

Earthen Berm - North (V010-03-01-0010)

This is the northernmost earthen berm located near the center of the SMA. It is in place to control run-off and sediment transport 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.

Earthen Berm - South (V010-03-01-0011)

This earthen berm is located in the southwestern portion of the SMA between the sampler and rock berm - 0009. It is in place to control run-off and sediment transport. 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 - North (V010-03-12-0005)

The berm is located at the northern edge of the SMA, south of structure 14-0043. It is in place to help manage storm water run-on from above. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock-Berm (V010-03-12-0009)

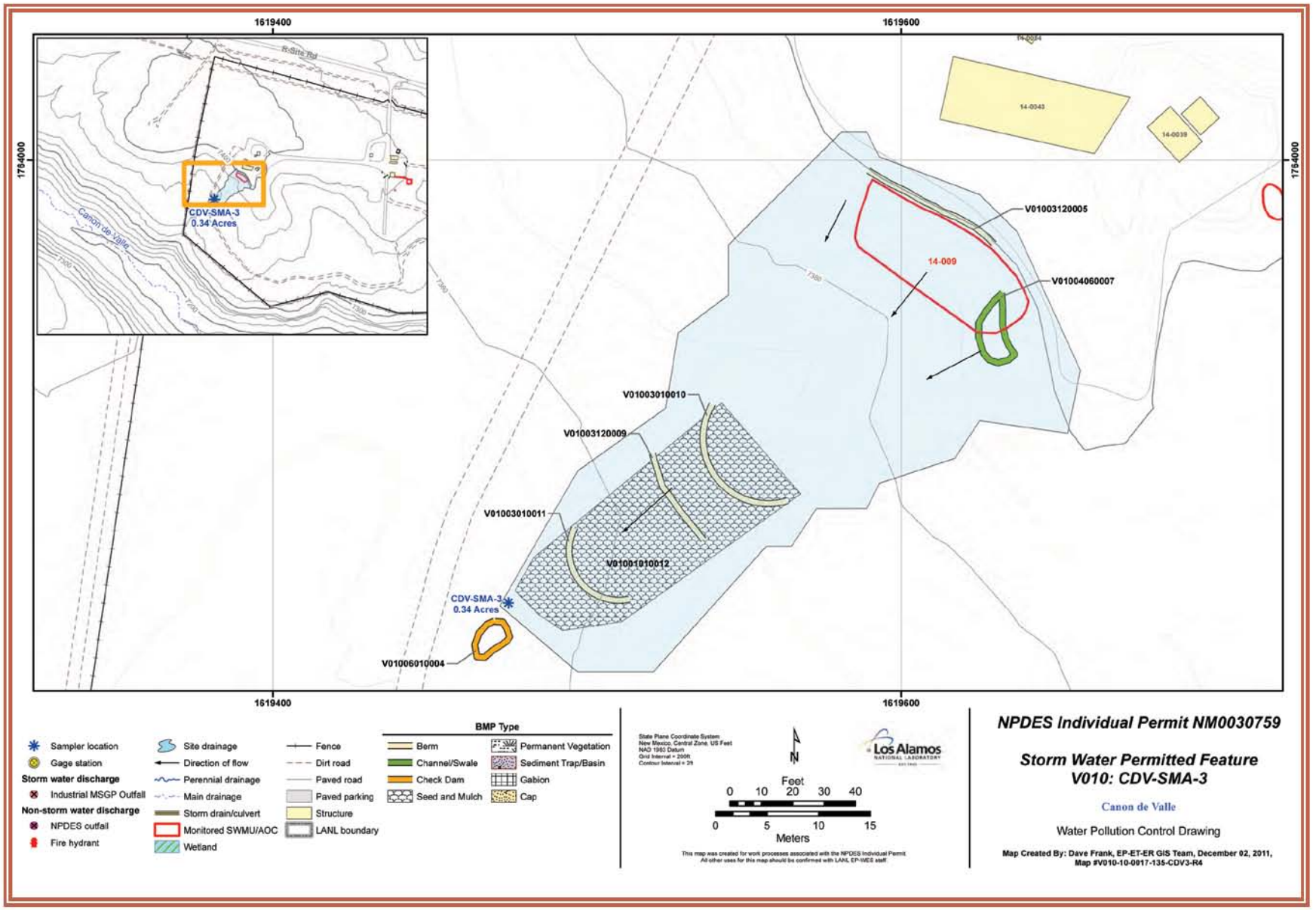
Installed in the southwestern section of the drainage area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Channel/Swale Rip-Rap (V010-04-06-0007)

Installed south of building 14-0043. 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 (V010-06-01-0004)

This rock check dam is located south of the sampler to control 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.


1619400
1619600
1764000
R-Site Rd
Canon de Valle
CDV-SMA-3
0.34 Acres
14-0044
14-0043
14-0039
14-009
V01003120005
V01004060007
V01003010010
V01003120009
V01003010011
V01001010012
V01006010004
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 10 20 30 40
Meters
0 5 10 15
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V010: CDV-SMA-3
Canon de Valle
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, December 02, 2011,
Map #V010-10-0917-135-CDV3-R4

1000.12.5 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.

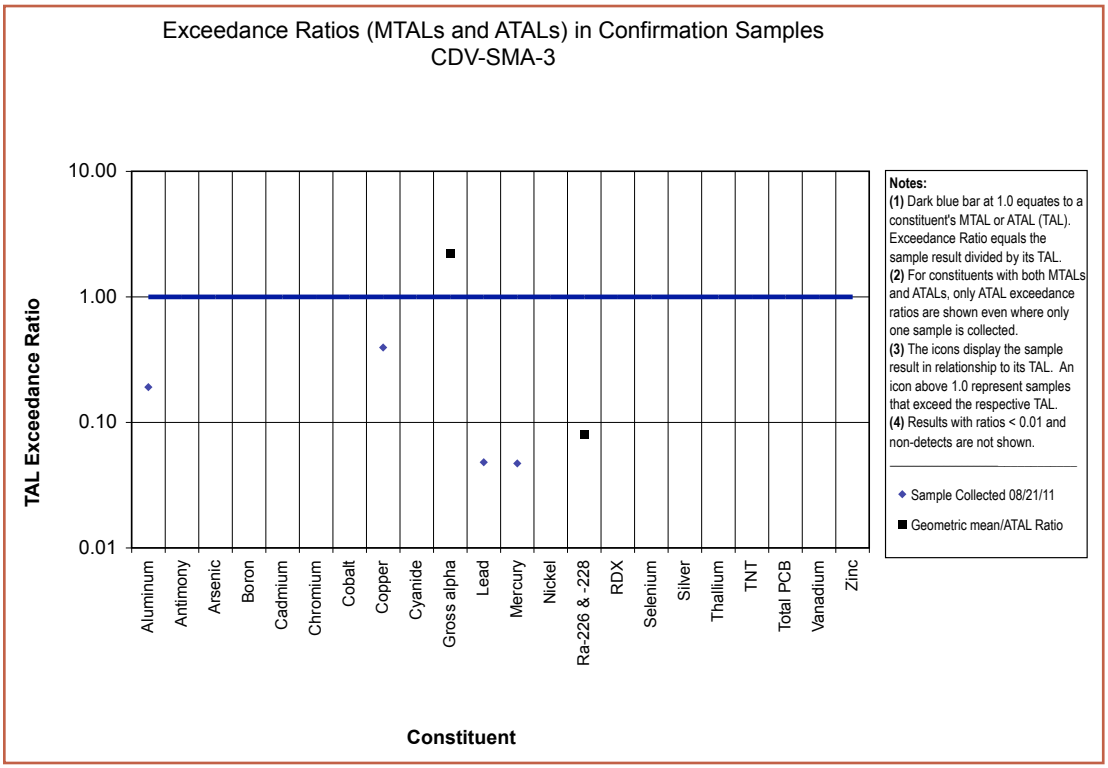
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1)

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).

1000.12.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from CDV-SMA-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.



1000.12.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-3 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 1000.12.5.3-1.

Table 1000.12.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13854	07-13-2011
Storm Rain Event	BMP-16363	08-10-2011
Storm Rain Event	BMP-17578	08-25-2011
Annual Erosion	COMP-18555	09-06-2011
Storm Rain Event	BMP-18467	09-08-2011
Storm Rain Event	BMP-19395	09-21-2011
Visual Inspection	BMP-21528	11-08-2011
Construction	COMP-21070	11-21-2011
Construction	COMP-21184	11-29-2011

1000.12.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.12.5.4-1.

Table 1000.12.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17578	Cleared pine needle debris from rip rap V01004060007.	08-25-2011	0 day(s)	Maintenance conducted upon inspection.

1000.12.6 Compliance Status

The Site associated with CDV-SMA-3 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.13 CDV-SMA-4

1000.13 CDV-SMA-4

1000.13.1 Area Description

CDV-SMA-4 is located within TA-14 and access to the area is controlled. The northern and western boundaries of the SMA are influenced by paved areas and development. Storm water flows southeast from this developed area towards the receiving waters along the southwestern boundary of the SMA.

1000.13.2 Potential Pollutant Sources

1000.13.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V011, CDV-SMA-4, Site 14-010.

SWMU 14-010 is a decommissioned explosive waste sump and drain-line and its associated drainage area south of and adjacent to structure 14-2 [a decommissioned firing chamber, SWMU 14-002(a)]. The sump's contents were removed and disposed of in 1973 and the area was paved over or replaced by the bullet test facility.

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
14-010	Soil contamination from former Sump and Drain lines	Discrete Location, No overlap	Individual	•	•	•	HE

1000.13.3 Control Measures

There is run-on to the SWMU from the paved area above the SMA. Existing controls address this potential run-on source.

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	
V011 01 01 0004	Seed and Mulch - Seed and Wood Mulch			•		CB
V011 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V011 03 12 0002	Berms - Rock	•			•	CB
V011 06 01 0003	Check Dam - Rock		•		•	CB

Seed and Wood Mulch (V011-01-01-0004)

This mulch controls erosion between rock berm -0002 and check dam -0003. It is northwest of the sampler. 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 (V011-02-01-0001)

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.

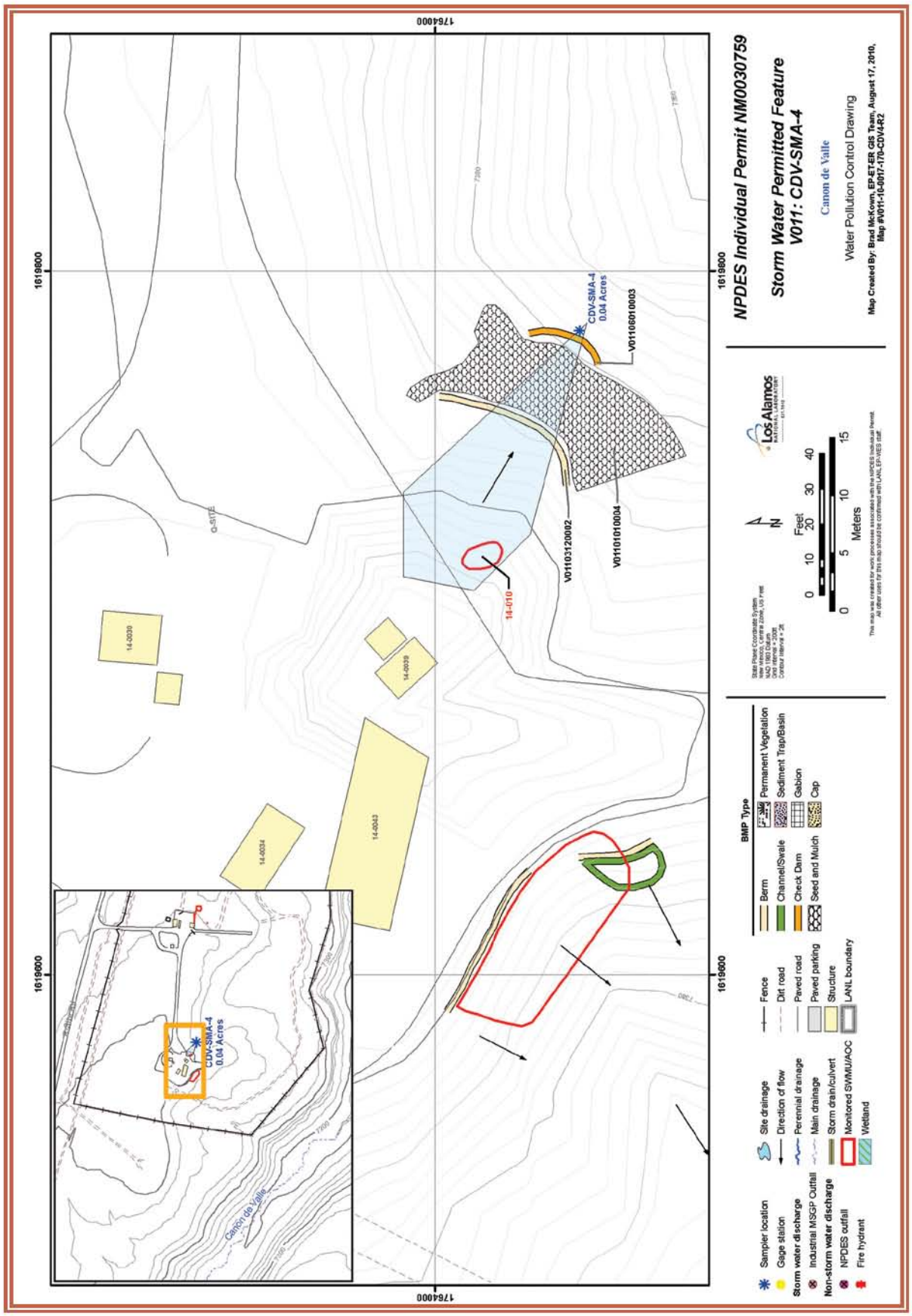
Rock Berms (V011-03-12-0002)

This rock berm is northwest of the sampler, above the mulched area, interrupting run-on and sediment from the northwest. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dam (V011-06-01-0003)

This check dam is immediately northwest of the sampler 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.

1000.13.4 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)	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).

1000.13.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-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.

1000.13.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-4 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 1000.13.5.2-1.

Table 1000.13.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13855	07-13-2011
Storm Rain Event	BMP-16364	08-10-2011
Storm Rain Event	BMP-17579	08-25-2011
Annual Erosion	COMP-18554	09-06-2011
Storm Rain Event	BMP-18468	09-08-2011
Storm Rain Event	BMP-19396	09-21-2011

1000.13.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-4.

1000.13.6 Compliance Status

The Site associated with CDV-SMA-4 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.14 CDV-SMA-6.01

1000.14 CDV-SMA-6.01

1000.14.1 Area Description

CDV-SMA-6.01 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas. Moving east, the terrain is largely undeveloped and gently sloping towards the southeast. The southern boundary of the SMA is influenced by unpaved access roads. The eastern boundary of the SMA is undeveloped and contains the receiving waters. Storm water flows southeast towards the receiving waters.

1000.14.2 Potential Pollutant Sources

1000.14.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V012, CDV-SMA-6.01, Sites 14-001(g) and 14-006.

AOC 14-001(g) is a three-sided blast shield at an active firing site; the shield directs the force of detonation away from the nearby control building (Building 14-23). At the base, the shield is a 2 ft thick x 6 ft concrete pad overlaid by a neoprene shock pad, a 4.5 inch steel plate, and several inches of sand. Materials are placed on the pad and detonated from Building 14-23. Known as Q-site, TA-14 has been used since 1944 for explosives development and testing, including testing that involves radioactive materials. The site is served by four drainages that ultimately discharge to Cañon de Valle.

The ER Project issued an RFI report in 1996 that included AOC 14-001(g), although AOC 14-001(g) was not sampled during the RFI. The RFI report stated that any corrective action at this AOC would be deferred until the site is decommissioned.

SWMU 14-006 consists of an HE sump (structure 14-31), associated drain-line, and unpermitted outfall for a control building (Building 14-23) located at TA-14. Building 14-23 was built in late 1944 or 1945. The sump is made of steel and concrete, and is 4.5 ft wide x 8.3 ft long x 4.8 ft deep. The sump outlet is plugged. Two floor drains and an asphalt roof drain bypass the sump in a metal-covered concrete culvert and discharge to the outfall. Sludge in the sump is collected for burning.

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
14-001(g)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
14-006	Sump and/or associated equipment	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with historical and current activities at TA-14, known as Q-Site. This area has been used since 1944 for explosives development and testing. Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.14.3 Control Measures

There is potential run-on contributions from the paved areas around building 14-023.

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.

1000.14.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.14.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V012 01 01 0010	Seed and Mulch - Seed and Wood Mulch			•		CB
V012 01 06 0007	Seed and Mulch - Erosion Control Blankets			•		CB
V012 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
V012 03 01 0006	Berms - Earthen	•			•	CB
V012 03 02 0003	Berms - Base Course		•		•	CB
V012 03 06 0008	Berms - Straw Wattles	•			•	CB
V012 03 06 0009	Berms - Straw Wattles	•			•	CB
V012 03 13 0004	Berms - S-Fence		•		•	CB
V012 03 13 0005	Berms - S-Fence		•		•	CB

Seed and Wood Mulch (V012-01-01-0010)

Seed and mulch has been applied between and around the wattles and berms above 14-006 to help 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).

Erosion Control Blankets (V012-01-06-0007)

The erosion control blankets have been installed on the slope surrounding the S-fences in order to help control 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 (V012-02-01-0002)

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 (V012-03-01-0006)

This berm is located along the eastern edge of paved area above the sampler. It is used to help control 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.

Base Course Berm (V012-03-02-0003)

This berm is located south of the SMA boundary. It is used to control run-off from the associated firing site. 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.

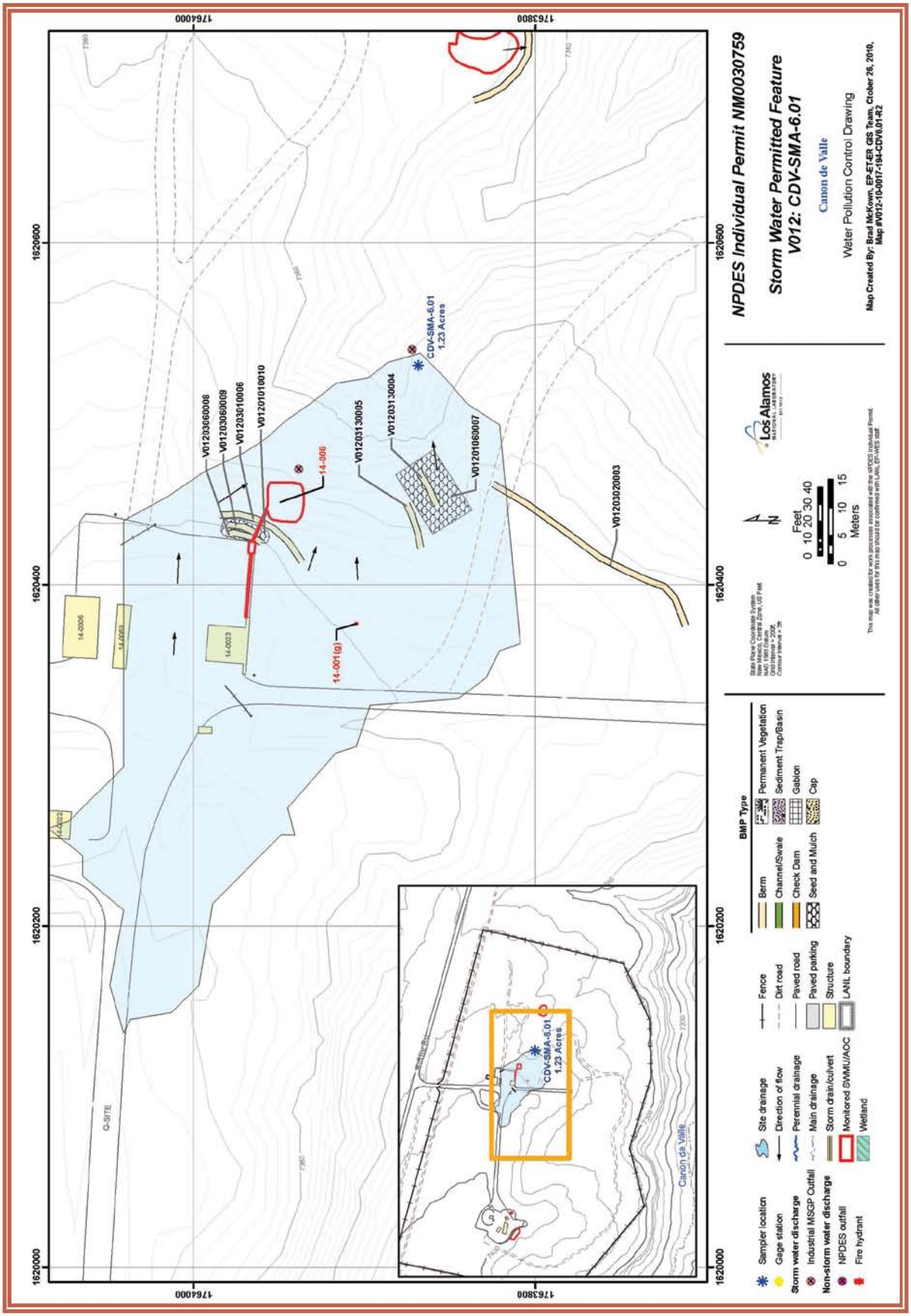
Straw Wattles (V012-03-06-0008, -0009)

This is a pair of wattles located near the earthen berm along the eastern edge of paved area above the sampler. They are in place to help control storm water run-on from the paved 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.

S-Fence (V012-03-13-0004, -0005)

This pair of S-fences is located in the southern portion of the SMA and is used to help mitigate storm water run-off from the area. 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.

1000.14.4 Project Map



1000.14.5 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)	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).

1000.14.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-6.01. 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.

1000.14.5.2 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-6.01 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 1000.14.5.2-1.

Table 1000.14.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13860	07-13-2011
Storm Rain Event	BMP-16368	08-10-2011
Storm Rain Event	BMP-17583	08-25-2011
Annual Erosion	COMP-17963	09-06-2011
Storm Rain Event	BMP-18472	09-08-2011
Storm Rain Event	BMP-19400	09-21-2011

1000.14.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-6.01.

1000.14.6 Compliance Status

The Sites associated with CDV-SMA-6.01 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.15 CDV-SMA-6.02

1000.15 CDV-SMA-6.02

1000.15.1 Area Description

CDV-SMA-6.02 is located within TA-14 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and a paved access road. Moving east, the terrain is largely undeveloped and gently sloping towards the southeast. The southern boundary of the SMA is influenced by an unpaved access road. The eastern boundary of the SMA is undeveloped and contains the receiving waters. Storm water flows south towards the receiving waters.

1000.15.2 Potential Pollutant Sources

1000.15.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF V012A, CDV-SMA-6.02, Sites 14-002(d) and 14-002(e).

SWMU 14-002(d) is the site of one of two former firing pads at TA-14 that were located on a gravel area adjacent to the south end of Building 14-5. The pads were used from 1944 to the mid-1950s for small-scale explosives tests. The firing pads have been removed from the site.

SWMU 14-002(e) is the site of one of two former firing pads that were located on a gravel area adjacent to the south end of Building 14-5. The pads were used from 1944 to the mid-1950s for small-scale explosives tests. The firing pads have been removed from the site.

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
14-002(d)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
14-002(e)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE

Substantially Identical Determination

Sites grouped within this SMA are associated with historical and current activities at TA-14, known as Q-Site. This area has been used since 1944 for explosives development and testing. Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.15.3 Control Measures

There is potential run-on contributions from the paved access road north of the Permitted Feature.

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.

1000.15.3-1 Control Measures for Historical Industrial Activity Areas

Table 1000.15.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V012A 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•		EC
V012A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V012A 03 01 0002	Berms - Earthen	•			•	CB
V012A 03 01 0003	Berms - Earthen		•		•	B
V012A 03 01 0004	Berms - Earthen		•		•	EC

Seed and Mulch (V012A-01-01-0005)

Seed and mulch has been applied over most of the SMA 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 (V012A 02 01 0001)

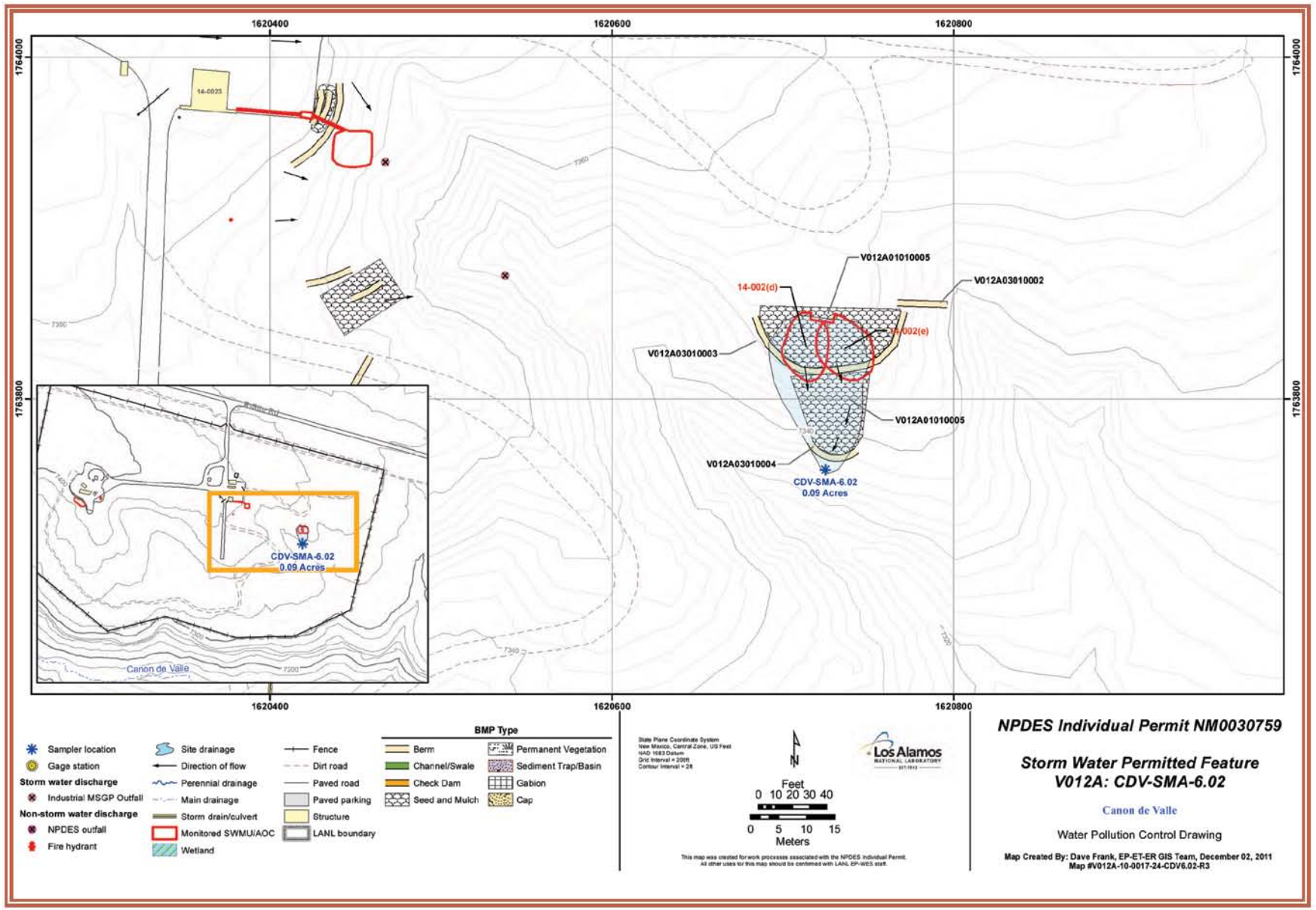
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Earthen Berm - East (V012A-03-01-0002)

This berm is located south of the paved access road and helps divert storm water run-on 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.

Earthen Berm
(V012A-03-01-0003)
This berm is located along the southern portion of the 14-002(d) and 14-002(e)SMWU boundaries. It is used to help control storm water run-off and deter sediment transport. 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
(V012A-03-01-0004)
This earthen berm is located just north of the sampler to control run on and sediment transport. 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.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14-0023
14-002(d)
14-002(e)
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V012A01010005
V012A03010004
CDV-SMA-6.02
0.09 Acres
CDV-SMA-6.02
0.09 Acres
Canon de Valle
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
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0 5 10 15
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V012A: CDV-SMA-6.02
Canon de Valle
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, December 02, 2011
Map #V012A-10-0017-24-CDV6.02-R3

1000.15.5 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)	HE (2)

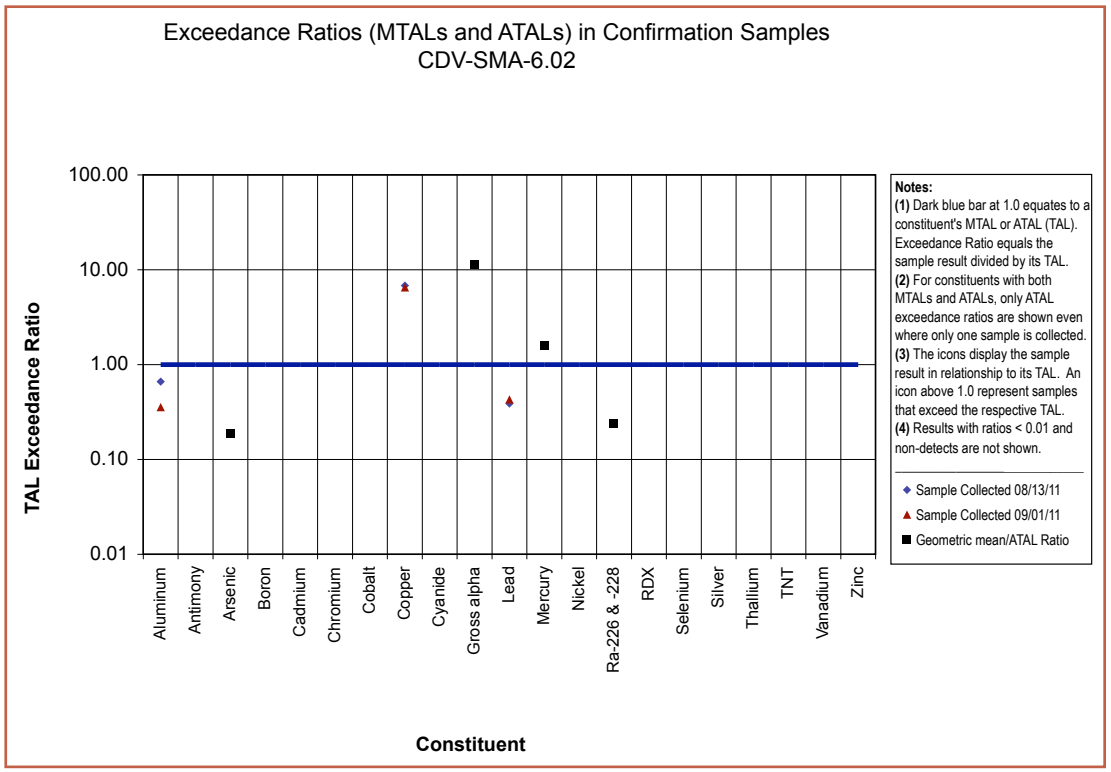
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.15.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from CDV-SMA-6.02 on August 13, 2011 and September 01, 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 1000.15.5.2.



1000.15.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at CDV-SMA-6.02. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.15.5.2-1.

Table 1000.15.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q2 FY2012		•		•
Seed and Wood Mulch	Installed			•	
Earthen Berms	Installed		•		•

1000.15.5.3 Inspection Activity

RG257 recorded four Storm Events at CDV-SMA-6.02 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 1000.15.5.3-1.

Table 1000.15.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13861	07-13-2011
Storm Rain Event	BMP-16369	08-10-2011
Storm Rain Event	BMP-17584	08-25-2011
Annual Erosion	COMP-18553	09-06-2011
Storm Rain Event	BMP-18473	09-08-2011
Storm Rain Event	BMP-19401	09-21-2011
Visual Inspection	BMP-21529	11-08-2011
Construction	COMP-21080	11-23-2011

1000.15.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.15.5.4-1.

Table 1000.15.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13861	Repaired/replaced erosion control matting on berm V012A03010002.	07-18-2011	5 day(s)	Maintenance conducted in timely manner.
BMP-16369	Repaired/replaced matting on berm V012A03010003.	08-22-2011	12 day(s)	Maintenance conducted in timely manner.

1000.15.6 Compliance Status

The Sites associated with CDV-SMA-6.02 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.16 CDV-SMA-7

1000.16 CDV-SMA-7

1000.16.1 Area Description

CDV-SMA-7 is located within TA-15 and access to the area is controlled. The northern boundary of this SMA is moderately sloping, undeveloped land. The southern boundary is moderately sloped, undeveloped land above the receiving waters. The immediate eastern boundary of the SMA is moderately sloping and undeveloped. The western boundary of the SMA is moderately sloping, undeveloped land.

1000.16.2 Potential Pollutant Sources

1000.16.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V013, CDV-SMA-7, Site 15-008(d).

SWMU 15-008(d) consists of building debris located south of Building 15-22. Building 15-22 is located on the west side of TA-15 in an area referred to as The Hollow. This building is now a storage building, but was originally constructed in the 1970s as a control center for an experimental accelerator in nearby Building 15-203. This control center was never needed to operate the accelerator, and the building was never used for this purpose. The RFI work plan states that no activities involving hazardous materials were conducted in Building 15-22 and that the building debris was not present in 1992 when the work plan was prepared.

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
15-008(d)	Surface disposal	Discrete Location, No overlap	Individual	•		•	

1000.16.3 Control Measures

Potential run-on to this Permitted Feature primarily originates on the paved access road and natural areas around the SMA. Another source of run-on is from the concrete slab remaining from a removed building north and west of the SMA. Run-on from the road is diverted to the west and south away from the Site by a natural drainage channel.

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.

1000.16.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.16.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V013 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V013 03 01 0006	Berms - Earthen	•			•	CB
V013 03 01 0007	Berms - Earthen		•		•	CB

Established Vegetation (V013-02-01-0001)

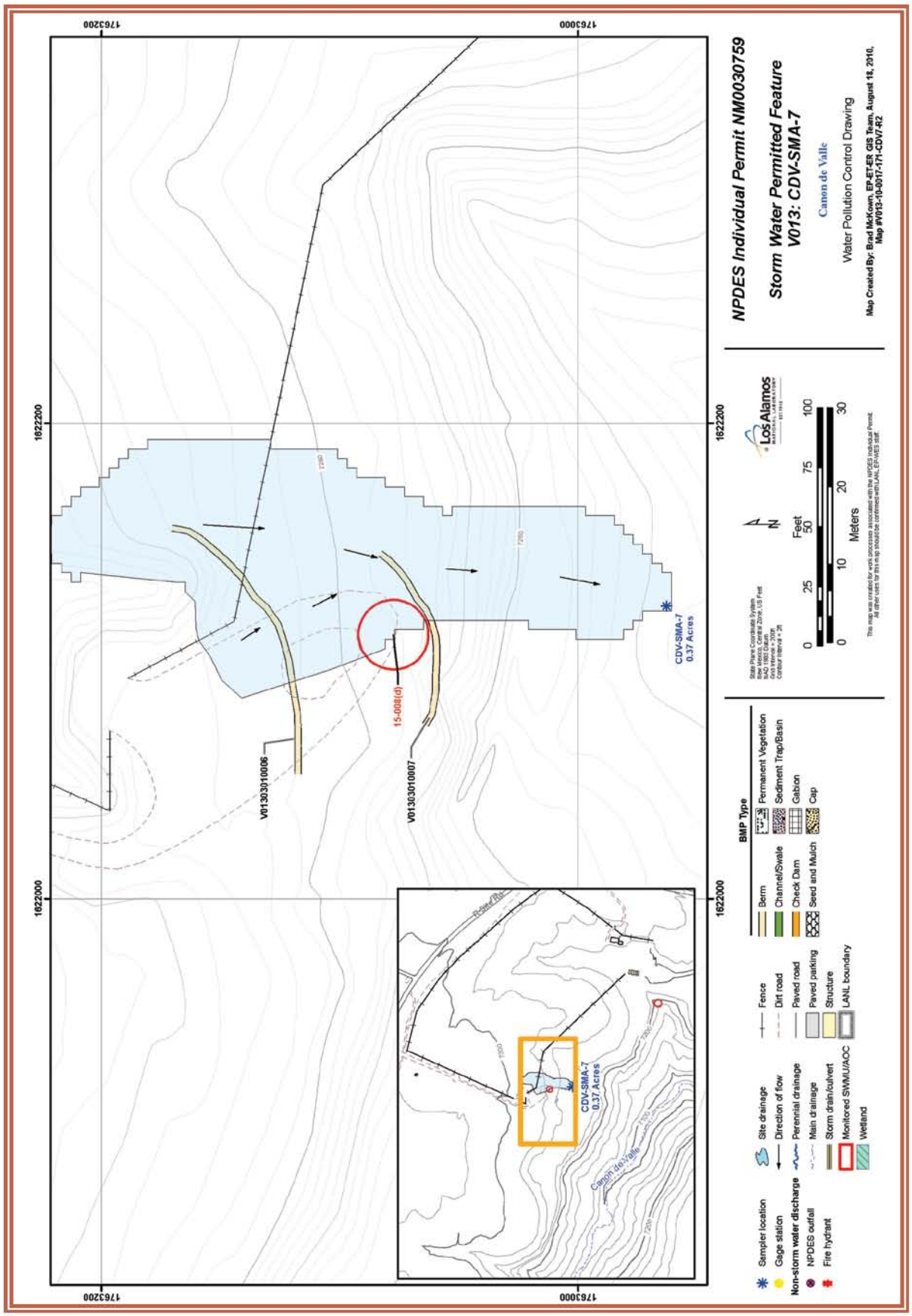
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Earthen Berm - North (V013-03-01-0006)

This berm is located north of Site 15-0008(d) and helps to control storm water run-on from the unpaved access roads. 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 (V013-03-01-0007)

This berm is located along the southern boundary of Site 15-0008(d) and is used to manage run-off 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.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
V013: CDV-SMA-7
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 18, 2010.
Map #V013-10-0017-171-CDV7-R2
BMP Type
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
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
Non-storm water discharge
NPDES outfall
Fire hydrant
CDV-SMA-7
0.37 Acres
15-008(d)
V013030010006
V013030010007
Feet
Meters
1622200
1622000
1763200
1763000

1000.16.5 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).

1000.16.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-7. 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

RG257 recorded four Storm Events at CDV-SMA-7 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 1000.16.5.2-1.

Table 1000.16.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13858	07-13-2011
Storm Rain Event	BMP-16367	08-10-2011
Storm Rain Event	BMP-17582	08-25-2011
Storm Rain Event	BMP-18471	09-09-2011
Storm Rain Event	BMP-19399	09-23-2011
Annual Erosion	COMP-19546	10-04-2011

1000.16.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-7.

1000.16.6 Compliance Status

The Site associated with CDV-SMA-7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.17 CDV-SMA-8

1000.17 CDV-SMA-8

1000.17.1 Area Description

CDV-SMA-8 is located within TA-15 and access to the area is controlled. The monitored area is largely undeveloped. A paved access road runs along the northern and eastern boundary. Storm water flows southwest 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 V014, CDV-SMA-8, Site 15-011(c).

SWMU 15-011(c) consists of an outfall on the edge of Cañon de Valle, where many of the drainages associated with discharges in The Hollow converge. These discharges include those from SWMUs 15-011(a and b) and 15-014(i, j, and k). SWMU 15-011(c) is located west of, and approximately 100 feet lower than, the buildings in The Hollow. Materials that could have been discharged to this SWMU include acid residues from sulfuric, chromic, and hydrochloric acids; degreasing solvents; inorganic chemicals; and uranium. No previous environmental investigations have been performed at this SWMU.

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
15-011(c)	Outfall Discrete Location, No overlap	**Co-located, Overlapping**	Individual	•	•	•	SVC

1000.17.3 Control Measures

There is run-on potential from the paved areas northeast of the sampler.

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	
V014 02 02 0001	Established Vegetation - Forested/ Needle Cast			•		CB
V014 02 03 0002	Established Vegetation - Forested/ Needle Cast		•	•		CB
V014 03 01 0007	Berms - Earthen		•	•		B
V014 03 01 0008	Berms - Earthen	•		•		B
V014 06 01 0003	Established Vegetation - Vegetative Buffer Strip	•			•	CB
V014 06 01 0004	Check Dam - Rock	•			•	CB
V014 06 01 0005	Check Dam - Rock	•			•	CB
V014 06 01 0006	Check Dam - Rock	•			•	CB

Established Vegetation (V014-02-02-0001)

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.

Vegetative Buffer Strip (V014-02-03-0002)

The buffer strip is located southwest of the sampler, at the base of the gully. It is positioned to slow run-off exiting the SMA and to prevent erosion on the slope. 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 Berm - North (V014-03-01-0007)

This earthen berm is located in the drainage northeast of the sampler to help control area 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.

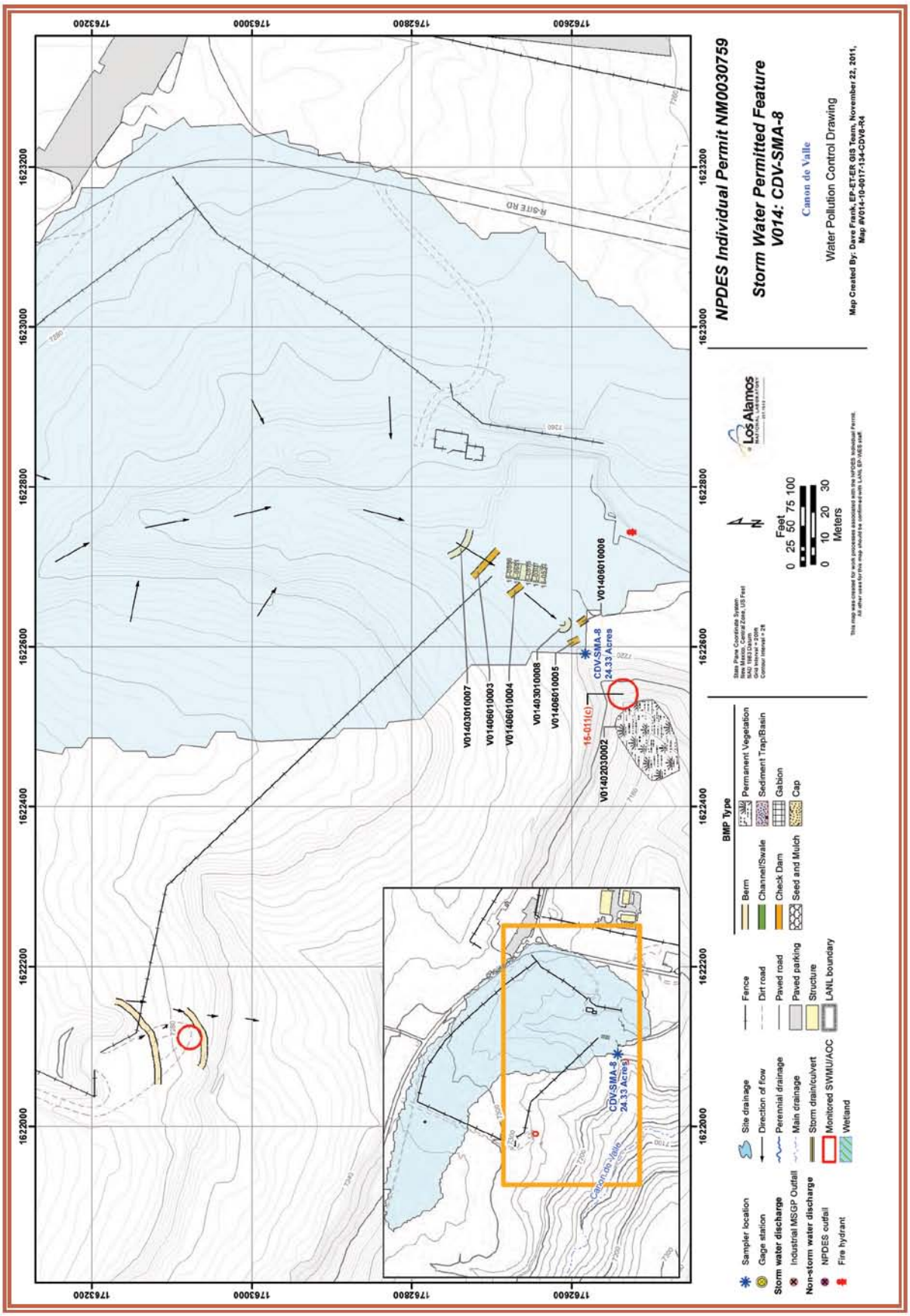
Earthen Berm - South (V014-03-01-0008)

This earthen berm is located in the channel just northeast of the sampler and controls area 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 Check Dams (V014-06-01-0003, -0004, -0005, -0006)

This is a series of four check dams that have been installed in the drainage northeast of the sampler. They are being used to help control area 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.

1000.17.4 Project Map



1000.17.5 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)	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).

1000.17.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-8. 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

RG262.4 recorded six Storm Events at CDV-SMA-8 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 1000.17.5.2-1.

Table 1000.17.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13859	07-13-2011
Storm Rain Event	BMP-15090	08-04-2011
Storm Rain Event	BMP-16949	08-24-2011
Storm Rain Event	BMP-18495	09-08-2011
Storm Rain Event	BMP-19422	09-21-2011
Annual Erosion	COMP-19547	10-04-2011
Construction	COMP-21076	11-15-2011

1000.17.5.3 Maintenance

During 2011 there were no maintenance activities at CDV-SMA-8.

1000.17.6 Compliance Status

The Site associated with CDV-SMA-8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.18 CDV-SMA-8.5

1000.18 CDV-SMA-8.5

1000.18.1 Area Description

CDV-SMA-8.5 is located within the secure area of TA-15 and access to the area is controlled. The northern, eastern, and southern boundaries of the SMA are developed. Storm water flows down a gentle grade northwest towards the receiving waters.

1000.18.2 Potential Pollutant Sources

1000.18.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V015, CDV-SMA-8.5, Site 15-014(a).

SWMU 15-014(a) is a former NPDES permitted outfall that is used for discharges from various drains in Building 15-183. This outfall has been in use since 1961. Originally, waste discharged to this outfall included photographic waste. The drain associated with this outfall was replaced in 1987 with a new drain installed at the same location. This outfall was removed from the NPDES permit January 14, 1998. No photographic wastes were discharged to this outfall after it was added to the NPDES permit. This outfall is located approximately 130 feet from the edge of Cañon de Valle. Discharges from the outfall follow a surface drainage to the canyon and the location of the drainage is marked by increased vegetation. No previous investigations have been conducted at this SWMU, other than the routine monitoring required by the NPDES permit. NPDES monitoring included sampling and analysis of pH and silver and, before August 1994, also included analysis of cyanide. LANL conducted a Phase I RFI at SWMU 15-014(a) from June 1995 through March 1996.

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
15-014(a)	Outfalls from Building 15-183	Discrete Location, No overlap	Individual	•		•	

1000.18.3 Control Measures

Run-on is a result of flow off the paved area at the north corner of building 16-0313 and the associated roof drainage. Potential run-on from both the paved area and roof drains are captured by a culvert and diverted southwest of the area.

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

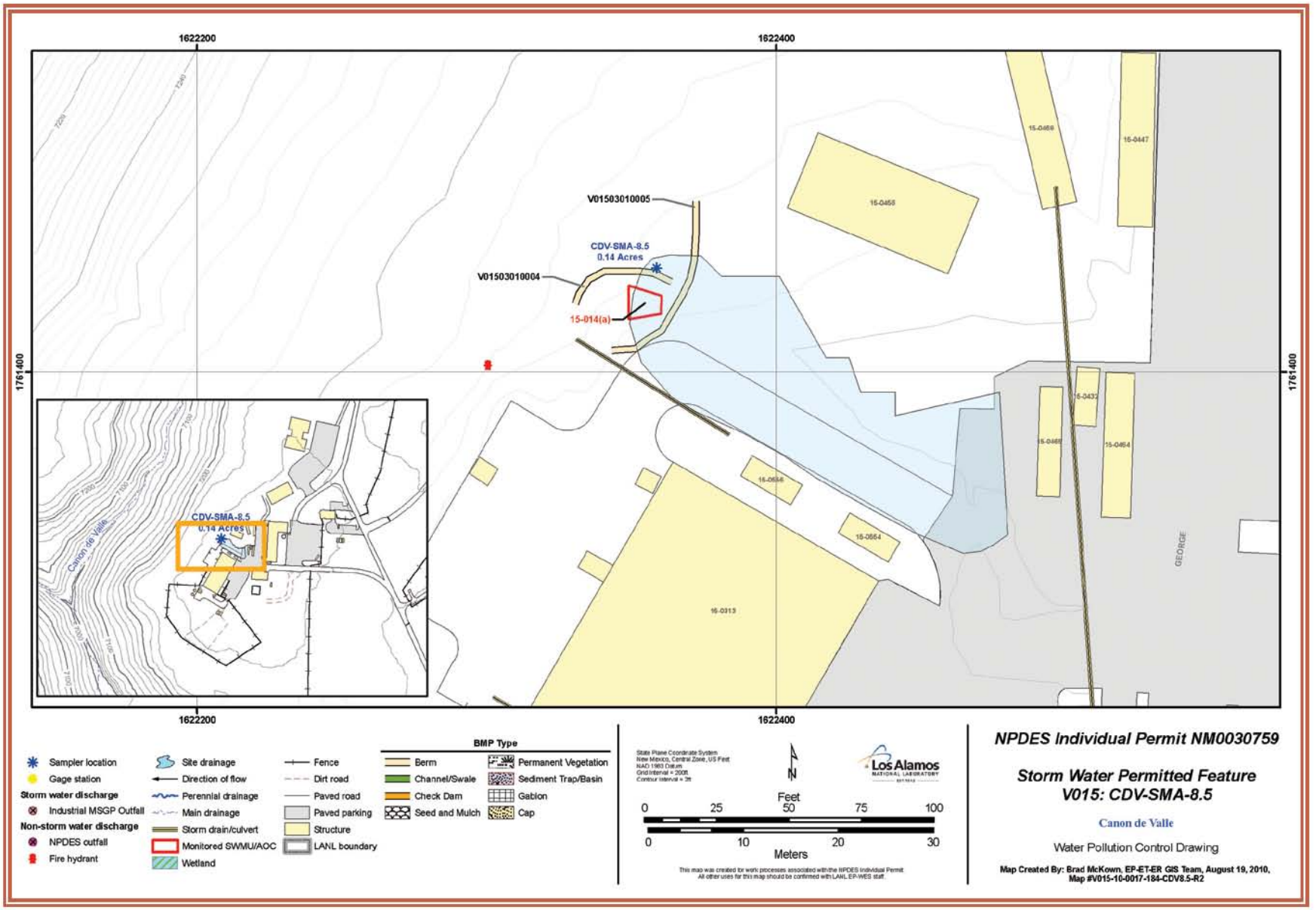
Table 1000.18.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V015 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V015 03 01 0004	Berms - Earthen		•		•	CB
V015 03 01 0005	Berms - Earthen	•			•	CB

Established Vegetation (V015-02-01-0001)
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 - West (V015-03-01-0004)
This berm is located adjacent to the sampler, running east to west and helps 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.

Earthen Berm - East (V015-03-01-0005)
This berm is located near the paved access road above the sampler. It is used to help control 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.


1622200
1622400
1761400
V01503010005
CDV-SMA-8.5
0.14 Acres
V01503010004
15-014(a)
15-0458
15-0447
15-0432
15-0464
15-0313
GEORGE
Canon de Valle
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
V015: CDV-SMA-8.5
Canon de Valle
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 19, 2010,
Map #V015-10-0017-184-CDV8.5-R2

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)	

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

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-8.5. 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.

1000.18.5.3 Inspection Activity

RG262.4 recorded six Storm Events at CDV-SMA-8.5 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 1000.18.5.2-1.

Table 1000.18.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13863	07-13-2011
Storm Rain Event	BMP-15091	08-01-2011
Storm Rain Event	BMP-16950	08-25-2011
Annual Erosion	COMP-17964	09-06-2011
Storm Rain Event	BMP-18496	09-09-2011
Storm Rain Event	BMP-19423	09-26-2011

1000.18.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.18.5.3-1.

Table 1000.18.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13863	Repaired/replaced damaged erosion control matting on berm V01503010005.	07-19-2011	6 day(s)	Maintenance conducted in timely manner.
BMP-19423	Repaired earthen berm V01503010005.	10-05-2011	9 day(s)	Maintenance conducted in a timely manner.

1000.18.6 Compliance Status

The Site associated with CDV-SMA-8.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.19 CDV-SMA-9.05

1000.19.1 Area Description

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

1000.19.3 Control Measures

1000.19.4 Project Map

1000.19.5 Storm Water Monitoring Plan and Schedule

1000.19.5.1 Initial Confirmation Monitoring

1000.19.5.2 Inspection Activity

1000.19.5.3 Maintenance

1000.19.6 Compliance Status

1000.19 CDV-SMA-9.05

1000.19.1 Area Description

CDV-SMA-9.05 is located within TA-15 and access to the area is controlled. The surrounding area is largely undeveloped. The northern and eastern boundaries of the SMA contain a paved access road that runs along the periphery. The western boundary of the SMA is undeveloped and gently sloping towards the receiving waters, south along this boundary. Storm water flows northwest towards the receiving waters.

1000.19.2 Potential Pollutant Sources

1000.19.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF V016, CDV-SMA-9.05, Site 15-007(b).

SWMU 15-007(b) consists of a landfill known as MDA Z. MDA Z is located near inactive Firing Site G in the south central portion of TA-15. MDA Z operated from 1965 to 1981 and received construction debris, used sandbags filled with concrete, and steel blast matting from PHERMEX. In 1995, waste materials observed at the site included concrete, steel reinforcing bars, and partially burned wood. MDA Z is roughly triangular in shape, with dimensions of approximately 225 x 50 ft, and appears to have been constructed in a natural depression. The used sandbags filled with concrete were apparently used to form a retaining wall along one side of the landfill, and waste was placed behind this wall. The waste materials disposed of at this site are not covered with soil and are exposed.

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
15-007(b)	Material disposal area (MDA) Z	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.19.3 Control Measures

There is no evidence of significant run-on from the asphalt drive above the Permitted Feature.

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

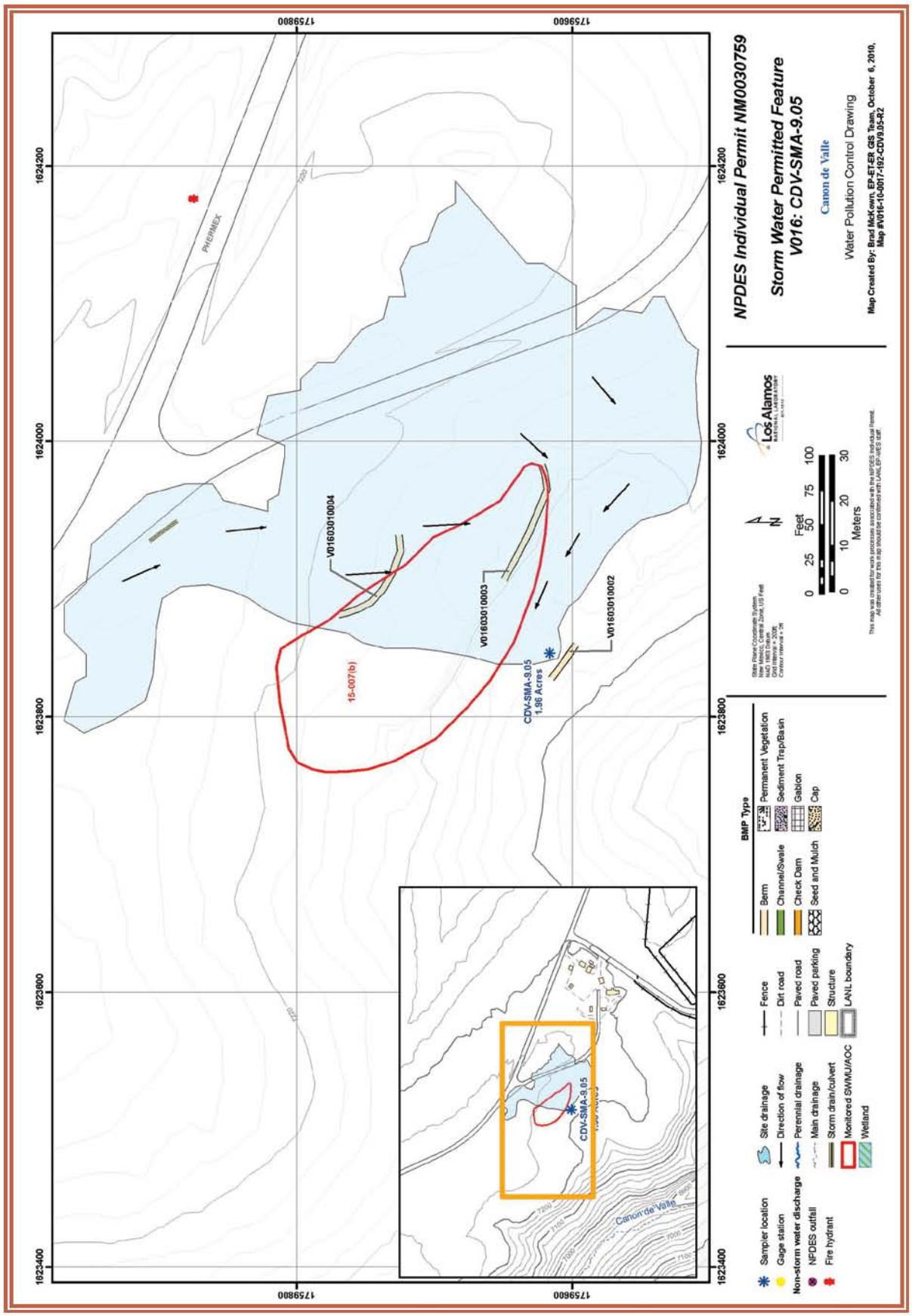
Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
V016 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
V016 03 01 0002	Berms - Earthen		•		•	CB
V016 03 01 0003	Berms - Earthen		•		•	CB
V016 03 01 0004	Berms - Earthen	•			•	CB

Established Vegetation (V016-02-01-0001)
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 (V016-03-01-0002, -0003)
This pair of berms bracket the sampler in order to help control run-off and sediment transport. 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.

Earth Berm (V016-03-01-0004)
This berm is located in the western central portion of the Site drainage, north of berm -0003. It controls 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.

1000.19.4 Project Map



1000.19.5 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)	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).

1000.19.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at CDV-SMA-9.05. 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.

1000.19.5.2 Inspection Activity

RG262.4 recorded six Storm Events at CDV-SMA-9.05 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 1000.19.5.2-1.

Table 1000.19.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13864	06-20-2011
Storm Rain Event	BMP-15092	08-01-2011
Storm Rain Event	BMP-16951	08-22-2011
Storm Rain Event	BMP-18497	09-08-2011
Storm Rain Event	BMP-19424	09-21-2011
Annual Erosion	COMP-19548	10-06-2011

1000.19.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.19.5.3-1.

Table 1000.19.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-19424	Repaired earthen berm V01603010002.	10-04-2011	13 day(s)	Maintenance conducted in timely manner.
BMP-19424	Repaired earthen berm V01603010003.	10-04-2011	13 day(s)	Maintenance conducted in timely manner.
BMP-19424	Repaired earthen berm V01603010004.	10-04-2011	13 day(s)	Maintenance conducted in timely manner.

1000.19.6 Compliance Status

The Site associated with CDV-SMA-9.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.20 F-SMA-2

1000.20 F-SMA-2

1000.20.1 Area Description

F-SMA-2 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved access roads. The southern boundary of the SMA is influenced by an unpaved access road and moderately sloping canyon walls. The eastern boundary of the SMA is moderate to steeply sloped moving towards the receiving waters. The western boundary of the SMA is moderately sloping canyon walls. Storm water flows from the developed area, towards the receiving waters east of the area.

1000.20.2 Potential Pollutant Sources

1000.20.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF F001, F-SMA-2, Site 36-004(c).

AOC 36-004(c) is the Minie Firing Site located near the head of Fence Canyon, approximately 800 ft southeast of the Meenie Firing Site [AOC 36-004(b)]. AOC 36-004(c) is an active RCRA-regulated OD site and is also used to conduct experiments involving explosives. This firing site consists of the firing point, a control bunker (building 36-0008), a make-up building (36-0007), a firing platform (no structure number), and an x-ray house (no structure number). Construction of the Minie Firing Site began in 1949 and was completed in 1950. The site has been extensively used to conduct armor-piercing experiments. In these experiments, penetrator jets are directed at targets on the canyon wall to the west of the site. Metal plates are placed behind the targets to stop the penetrators. AOC 36-004(c) has also been used for OD of scrap HE. Emergency detonation of leaking gas cylinders has also been performed, but very infrequently.

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
36-004(c)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.20.3 Control Measures

Run-on at this Permitted Feature is controlled by a diversion channel, drop inlet, and culvert. The diversion channel discharges into a flat grassy area where flow infiltrates. The majority of the potential run-on at this SMA originates on the natural slope on the northern side.

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.

1000.20.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.20.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
F001 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
F001 03 01 0010	Berms - Earthen		•		•	EC
F001 03 01 0011	Berms - Earthen		•		•	EC
F001 03 01 0012	Berms - Earthen		•		•	EC
F001 03 01 0013	Berms - Earthen		•		•	EC
F001 03 01 0014	Berms - Earthen		•		•	EC
F001 03 01 0015	Berms - Earthen		•		•	EC
F001 04 01 0001	Channel/Swale - Earthen	•		•		CB
F001 04 04 0003	Channel/Swale - Culvert	•		•		CB
F001 06 01 0005	Check Dam - Rock		•		•	CB
F001 06 01 0006	Check Dam - Rock		•		•	CB
F001 06 01 0007	Check Dam - Rock		•		•	CB
F001 06 01 0009	Check Dam - Rock		•		•	B

Established Vegetation (F001-02-01-0002)

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 Berms (F001-03-01-0010, -0011, -0012, -0013, -0014, -0015)

This is a group of six earthen berms installed near the sampler on the east side of the SMA to control run-off and sediment transport. 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 Channel (F001-04-01-0001)

The channel is centrally located in the SMA. It is diverting run-on from the area around and to the west. 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 (F001-04-04-0003)

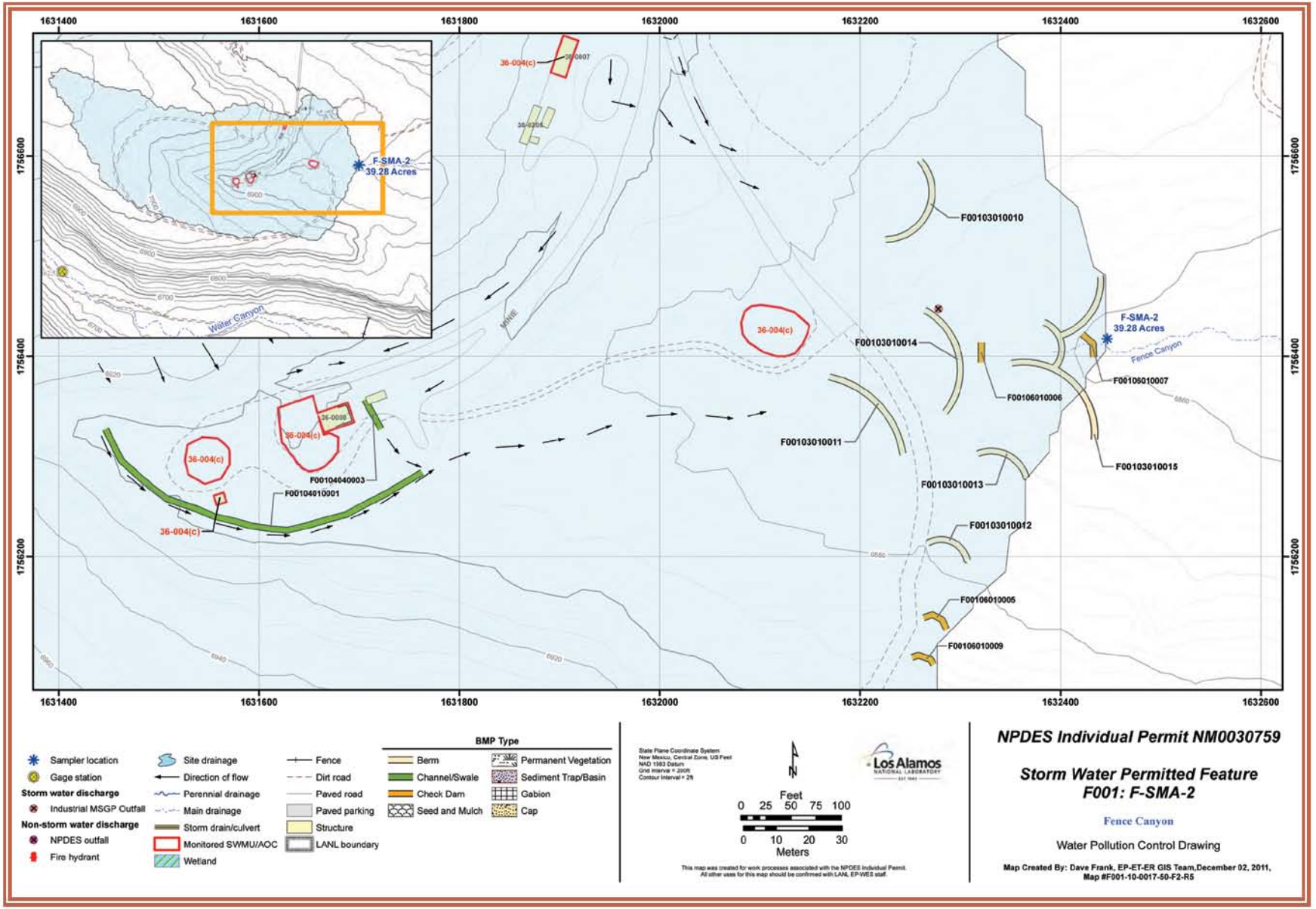
The culvert is located across the unpaved access road to the SMA. The culvert directs run-on from the paved areas, away from Site 36-004(c), to the south and west. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rock Check Dams - South (F001-06-01-0005, -0009)

This is a pair of rock check dams located east of the curve in the unpaved access road. They are used to mitigate storm water run-off and prevent sediment migration. 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 (F001-06-01-0006, -0007)

This pair of rock check dams is located west of the sampler in the drainage channel. They are functioning as run-off controls for storm water flow from the area and controlling sediment migration. 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.


1631400
1631600
1631800
1632000
1632200
1632400
1632600
1756600
1756400
1756200
F-SMA-2
39.28 Acres
Water Canyon
MINE
Fence Canyon
36-004(c)
36-0008
F00103010010
F00103010014
F00106010006
F00106010007
F00103010011
F00103010015
F00103010013
F00103010012
F00106010005
F00106010009
F00104040003
F00104010001
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
F001: F-SMA-2
Fence Canyon
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team,December 02, 2011,
Map #F001-10-0017-50-F2-R5

1000.20.5 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.

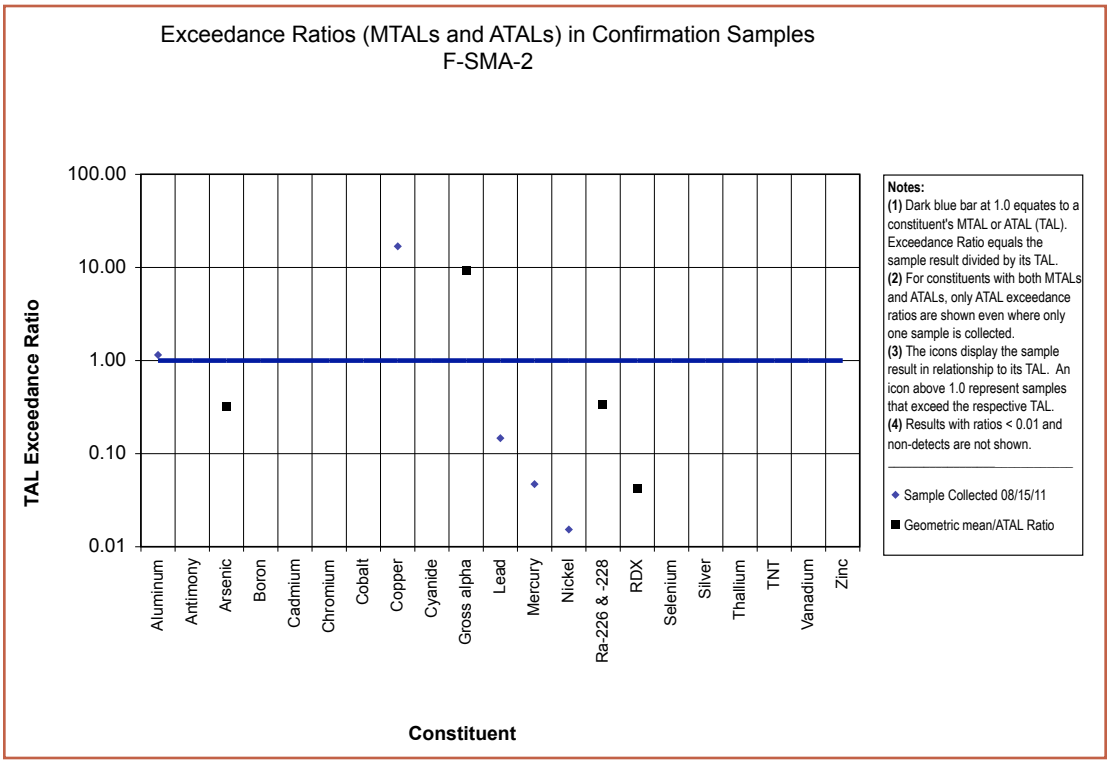
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1)

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).

1000.20.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from F-SMA-2 on August 15, 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.



1000.20.5.2 Inspection Activity

RG267.4 recorded five Storm Events at F-SMA-2 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 1000.20.5.3-1.

Table 1000.20.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13883	07-08-2011
Storm Rain Event	BMP-15592	08-03-2011
Storm Rain Event	BMP-16663	08-18-2011
Storm Rain Event	BMP-16952	08-26-2011
Annual Erosion	COMP-17962	09-01-2011
Storm Rain Event	BMP-18535	09-07-2011
Visual Inspection	BMP-21534	10-31-2011
TAL Exceedance	COMP-20258	10-31-2011
Construction	COMP-21081	11-29-2011
Construction	COMP-21585	12-09-2011

1000.20.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.20.5.4-1.

Table 1000.20.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15592	Built up and extended rock check dam F00106010004.	08-17-2011	14 day(s)	Maintenance conducted in timely manner.
BMP-16170	Cleared debris and built up rock check dam F00106010005 while conducting maintenance at rock check dam F00106010004.	08-17-2011	14 day(s)	Maintenance conducted in timely manner.
BMP-16952	Cleared twig and weed debris from rock check dam F00106010006.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.20.5.4-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-16952	Cleared wood mulch debris from rock berm F00103120008.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16952	Redistributed existing rock for temporary maintenance to rock check dam F00106010004.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16952	Redistributed existing rock for temporary maintenance to rock check dam F00106010005.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16952	Rock check dam F00106010004 retired, replaced with new rock check dam F00106010009 up-drainage of former location.	09-07-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-16952	Built up and extended rock check dam F00106010005.	09-07-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-16952	Built up and extended rock check dam F00106010007.	09-07-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-16952	Built up and extended rock berm F00103120008.	09-07-2011	12 day(s)	Maintenance conducted in timely manner.

1000.20.6 Compliance Status

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

1000.21 PT-SMA-0.5

1000.21 PT-SMA-0.5

1000.21.1 Area Description

PT-SMA-0.5 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped. The southern boundary of the SMA slopes moderately towards the receiving waters. The eastern boundary of the SMA is flat and undeveloped. There is a paved access road along this boundary. The western boundary of the SMA is also flat and undeveloped.

1000.21.2 Potential Pollutant Sources

1000.21.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I001, PT-SMA-0.5, Sites 15-009(e) and C-15-004.

SWMU 15-009(e) is a decommissioned 1500-gal. septic tank (structure 15-0072) at E-F Firing Site [SWMU 15-004(f)]. The septic tank was constructed in 1947 and received sanitary waste from the E-F Firing Site control building (15-0027), located approximately 175 ft northeast of the tank; the drainline goes around structure 15-0463, which is a transportable used for storage. The septic tank is constructed of 4- to 6-in. reinforced concrete and is 5 ft long × 9 ft deep × 7 ft wide. The septic tank was used until 1981 when E-F Firing Site last operated. Discharges from the septic tank flowed through a vitrified clay pipe to an outfall located approximately 30 ft from the tank at the edge of Potrillo Canyon.

AOC C-15-004, a former transformer station (former structure 15-0056), was located approximately 30 ft southwest of the former E-F Firing Site control room (building 15-0027). Two transformers (18-gal. and 30-gal. capacity) were located on a 5-ft-long wooden platform 10 ft above the ground. Each transformer contained mineral oil with polychlorinated biphenyls (PCBs) of unknown concentration. The date of installation is also not known, but the transformers were removed from the site in 1989. No evidence was found of a release on the wooden platform or on the soil beneath the platform.

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
15-009(e)	Septic system	Co-located, Overlapping	Shared	•	•	•	SVC HE PCBs
C-15-004	Former Transformer Station	Co-located, Overlapping	Shared	•	•	•	SVC HE PCBs

Substantially Identical Determination

Sites grouped within this SMA were associated with the operation of the E-F Firing Site control building (15-0027). Both structures were present on the northern edge of Portrillo Canyon. Because of the shared drainage, similar contaminants, and physical disturbance of the area, these Sites will discharge substantially identical effluent.

1000.21.3 Control Measures

The culvert and drainage along the north and south of the access road contribute minor run-on. Existing controls address the minimal run-on contribution associated with this access road.

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.

1000.21.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.21.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I001 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•		CB
I001 02 01 0001	Seed and Mulch - Seed and Wood Mulch			•		CB
I001 03 01 0002	Berms - Earthen		•		•	CB

Table 1000.21.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I001 03 01 0003	Berms - Earthen	•			•	CB
I001 06 01 0004	Check Dam - Rock	•			•	CB

Seed and Wood Mulch (I001-01-01-0005)

Seed and mulch has been applied off the southwest corner of the paved parking area in order 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 (I001-02-01-0001)

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 (I001-03-01-0002)

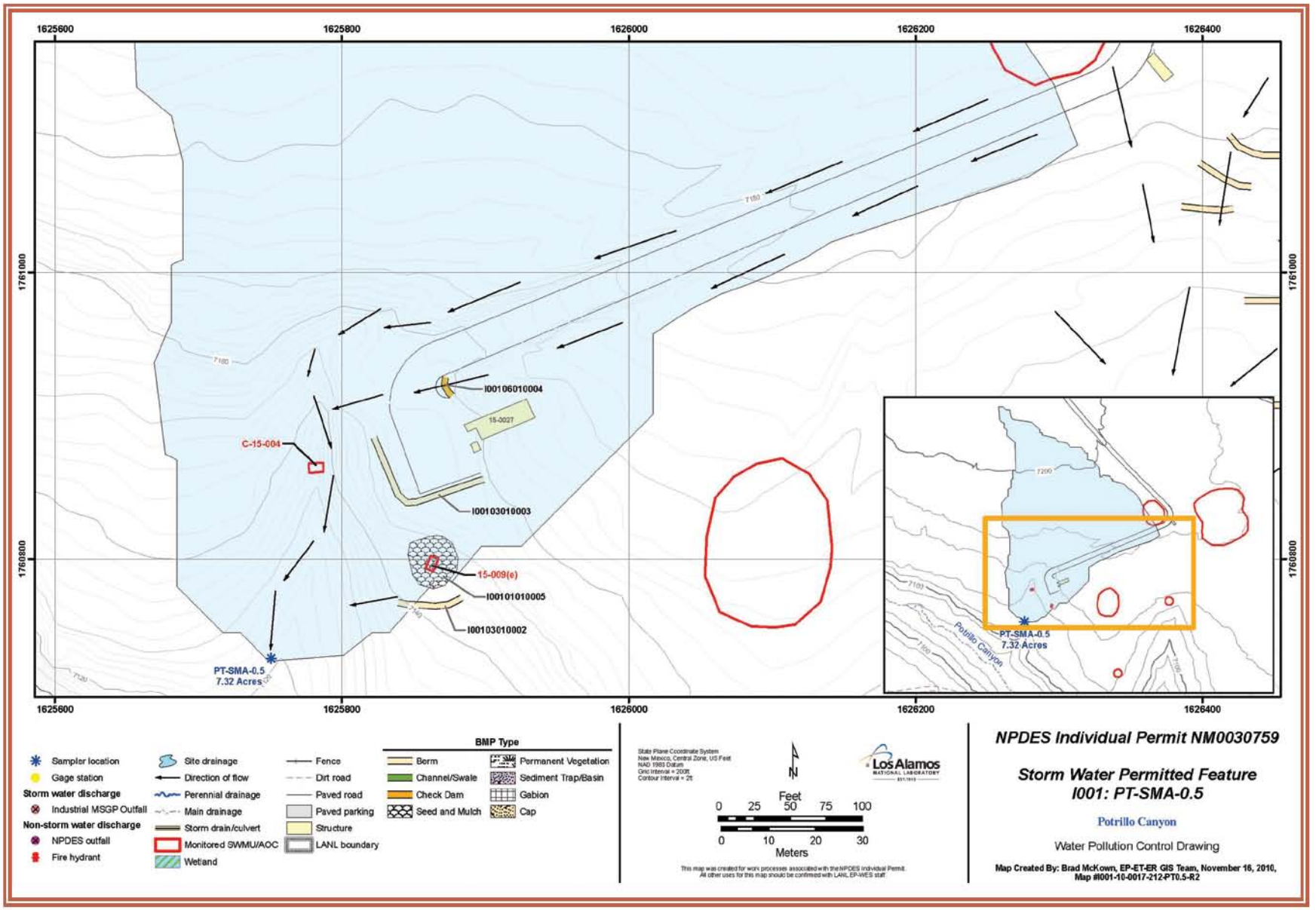
This berm is located south of the seed and wood mulch and is in place to help control run-off from the slope above. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - North (I001-03-01-0003)

This berm is located at the southwest corner of the paved parking area. It is used to help control 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.

Rock Check Dam (I001-06-01-0004)

This check dam is located in the roadside drainage channel at the intersection of the paved access road and the paved parking area. It is used to help control area storm water 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.


1625600
1625800
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I00106010004
15-0027
C-15-004
I00103010003
15-009(e)
I00101010005
I00103010002
PT-SMA-0.5
7.32 Acres
Potrillo 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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I001: PT-SMA-0.5
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 16, 2010,
Map #I001-10-0017-212-PT0.5-R2

1000.21.5 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.

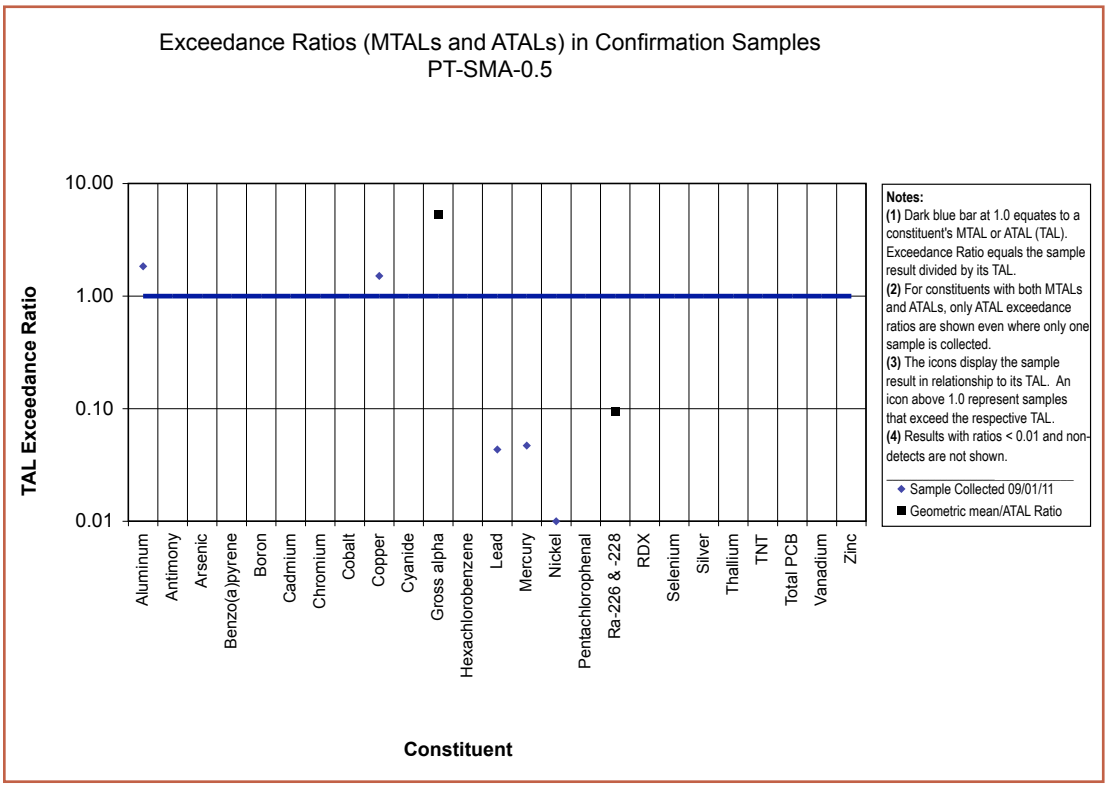
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	PCBs (1) HE (1) SVC (1)

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).

1000.21.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from PT-SMA-0.5 on September 1, 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.



1000.21.5.2 Inspection Activity

RG262.4 recorded six Storm Events at PT-SMA-0.5 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 1000.21.5.3-1.

Table 1000.21.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13965	07-11-2011
Storm Rain Event	BMP-15093	08-02-2011
Storm Rain Event	BMP-16966	08-23-2011
Storm Rain Event	BMP-18498	09-08-2011
Storm Rain Event	BMP-19425	09-20-2011
Annual Erosion	COMP-18155	10-12-2011

1000.21.5.3 Maintenance

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

Table 1000.21.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18498	Repaired earthen berm I00303010003.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.

1000.21.6 Compliance Status

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

1000.22 PT-SMA-1

1000.22 PT-SMA-1

1000.22.1 Area Description

PT-SMA-1 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is flat and undeveloped. The southern boundary of the SMA slopes directly towards the receiving waters. The eastern boundary of the SMA is gently sloped and undeveloped. The western boundary of the SMA is undeveloped and influenced by a paved access road.

1000.22.2 Potential Pollutant Sources

1000.22.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I002, PT-SMA-1, Sites 15-004(f) and 15-008(a).

SWMU 15-004(f) is an inactive firing site, E-F Firing Site, that consists of three inactive firing points (D, E, and F) covering a total area of approximately 60 acres. Together with SWMU 15-008(a), SWMU 15-004(f) comprises Consolidated Unit 15-004(f)-99. E-F Firing Site began operating in 1946 and was last used in 1981. It was operated extensively from 1947 to 1973 and was the largest firing site at the Laboratory.

Originally, E-F Firing Site consisted of a single firing point (D) that was built in 1946 and that ceased to operate in 1949. In 1947, the firing area was expanded to include Firing Point E, which was used for large-scale shots containing up to 2500 lb of HE, and Firing Point F, which was used for smaller-scale shots. Firing Points E and F were approximately 800 ft apart and were wired to an underground control bunker (structure 15-0027). Tests at the two firing points were conducted on the ground and created depressions in the ground. After test shots, the firing points were either regraded or backfilled with gravel to fill in any depressions. Eventually, soil mounds were constructed on two sides of Firing Point E to protect TA-15 structures from shrapnel. Tests at E-F Firing Site involved HE, uranium, beryllium, lead, and mercury.

SWMU 15-008(a) consists of two small surface disposal areas located on the edge of Potrillo Canyon directly south of E-F Firing Site [SWMU 15-004(f)]. Together with SWMU 15-004(f), SWMU 15-008(a) comprises Consolidated Unit 15-004(f)-99. The disposal areas are located within 200 ft of each other, with each disposal area having dimensions of approximately 8 ft in diameter × 2 ft high. Both areas were used to dispose of debris from tests conducted at the E-F Firing Site, including soil, rock, pebbles, metal fragments, plastic, electrical cable, electrical accessories. The exact period of operation of the surface disposal sites is not known but probably falls within the period of operation for E-F Firing Site (1946 to 1981).

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
15-004(f)	Firing site E-F	Co-located, Overlapping	Shared	•	•	•	SVC HE
15-008(a)	Surface Disposal Site (E-F Site)	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

Both Sites are associated with the operation of an open detonation firing Site E-F. Because of the similarities in contaminants, operational history, and shared drainage, these Sites will discharge substantially identical effluent.

1000.22.3 Control Measures

Road run-on impacts the SMA at the 90 degree bend. This is the primary source of run-on to the Permitted Feature. Planned controls are to address this run-on source and to further stabilize bare areas.

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	
I002 01 01 0022	Seed and Mulch - Seed and Wood Mulch			•		CB
I002 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
I002 03 01 0018	Berms - Earthen		•		•	CB

Table 1000.22.3-1 (Continued

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I002 03 01 0019	Berms - Earthen		•		•	CB
I002 03 01 0020	Berms - Earthen		•		•	CB
I002 03 01 0021	Berms - Earthen		•		•	CB
I002 03 12 0012	Berms - Rock	•			•	CB
I002 03 12 0013	Berms - Rock	•			•	CB
I002 03 12 0014	Berms - Rock		•		•	CB
I002 03 12 0015	Berms - Rock		•		•	CB
I002 03 12 0016	Berms - Rock		•		•	CB

Seed and Wood Mulch (I002-01-01-0022)

Seed and wood mulch has been to the area south of the 90 degree bend in the paved access road to the east extending past the earthen berms. 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 (I002-02-01-0002)

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.

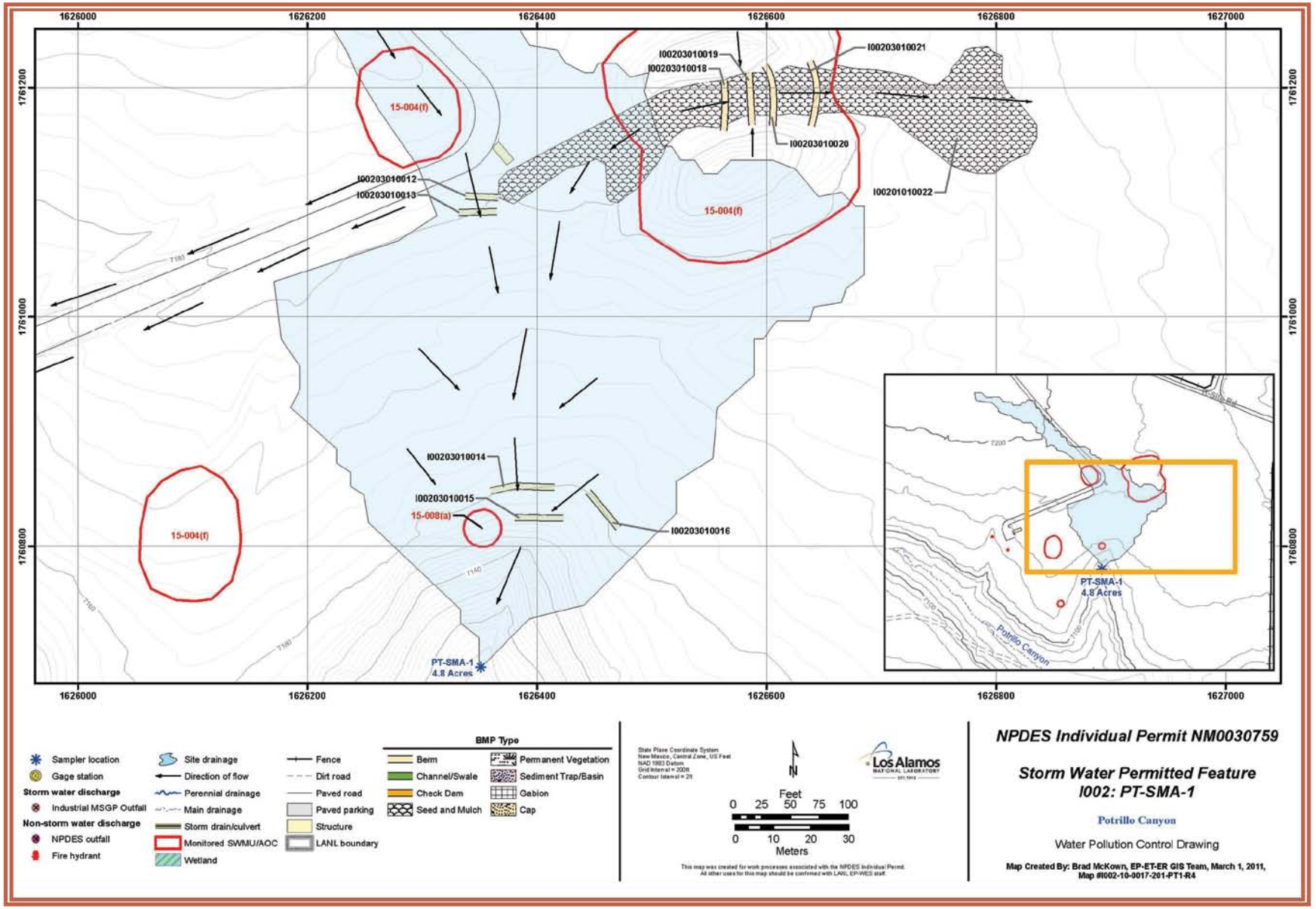
Earthen Berms (I002-03-01-0018, -0019, -0020, -0021)

This is a group of four berms that are located east of the 90 degree bend in the

paved access road. They are being used to help control 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.

Rock Berms
(I002-03-12-0012, -0013)
This is a pair of berms located southeast of the 90 degree bend in the paved access road. They are in place to help control run-on from the road. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Berms - South
(I002-03-12-0014, -0015, -0016)
This is a group of four berms located near the edge of the mesa above the sampler. They are used to help mitigate run-off from the area. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.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I00203010020
I00201010022
I00203010012
I00203010013
15-004(f)
15-004(f)
15-004(f)
I00203010014
I00203010015
15-008(a)
I00203010016
PT-SMA-1
4.8 Acres
PT-SMA-1
4.8 Acres
Potrillo 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
I002: PT-SMA-1
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 1, 2011,
Map #I002-10-0017-201-PT1-R4

1000.22.5 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.

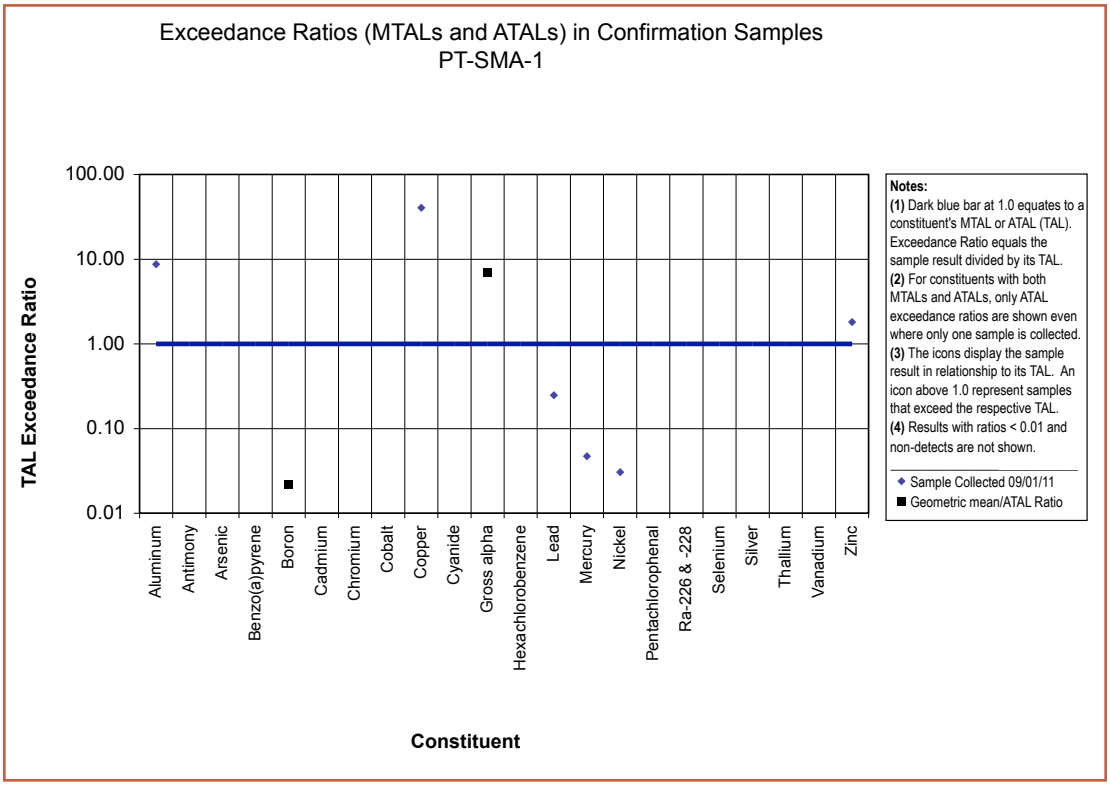
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1) SVC (1)

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).

1000.22.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from PT-SMA-1 on September 1, 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.



1000.22.5.2 Inspection Activity

RG262.4 recorded six Storm Events at PT-SMA-1 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 1000.22.5.3-1.

Table 1000.22.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13966	07-11-2011
Storm Rain Event	BMP-15094	08-02-2011
Storm Rain Event	BMP-16967	08-23-2011
Storm Rain Event	BMP-18499	09-08-2011
Storm Rain Event	BMP-19426	09-20-2011
Annual Erosion	COMP-18154	10-12-2011

1000.22.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.22.5.4-1.

Table 1000.22.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13966	Made temporary repair to earthen berm I00203010021 with extra staples and rocks.	07-11-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16967	Rearranged rock to extend western side of rock berm I00203120015.	08-23-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18499	Rearranged rocks in rock berm I00203120013.	09-08-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18499	Installed wattle as temporary backup control for earth berm I00203010018.	09-08-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18499	Installed wattle as temporary backup control for earth berm I00203010019.	09-08-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.22.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-18499	Installed wattle as temporary backup control for earth berm I00203010020.	09-08-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18499	Installed wattle as temporary backup control for earth berm I00203010021.	09-08-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18499	Repaired seed/mulch I00201010022 by adding more seed and mulch to bare areas.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-18499	Repaired berm I00203010018.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-18499	Repaired berm I00203010019.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-18499	Repaired berm I00203010020.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-18499	Repaired berm I00203010021.	09-20-2011	12 day(s)	Maintenance conducted in timely manner.

1000.22.6 Compliance Status

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

1000.23 PT-SMA-1.7

1000.23 PT-SMA-1.7

1000.23.1 Area Description

PT-SMA-1.7 is located within TA-15 and access to the area is controlled. The northern boundary of the SMA is undeveloped and slopes to the east. The receiving waters are north and east along this boundary. The southern boundary of the SMA is undeveloped and slopes to the east. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by structures and paved areas.

1000.23.2 Potential Pollutant Sources

1000.23.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF I003, PT-SMA-1.7, Site 15-006(a).

SWMU 15-006(a), the PHERMEX firing site, is deferred for investigation per Table IV-2 of the Consent Order. Together with SWMU 15-003 (also deferred), this SWMU comprises Consolidated Unit 15-003-00. The PHERMEX firing site consists of a firing chamber (structure 15-0184) and related equipment. The PHERMEX firing site and associated facilities were built in the early 1960s.

Table-1000.23.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org	Rad	Other
15-006(a)	Phermex site (TA-15-184)	Discrete Location, No overlap	Individual	•	•	•	HE

1000.23.3 Control Measures

There is a potential for run-on from the impervious areas in the western portion of the SMA. The 'U' shaped mound in the center portion of the Permitted Feature controls run-off from the area. This configuration is part of the construction of the firing area.

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	
I003 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
I003 03 06 0002	Berms - Straw Wattles		•		•	CB
I003 03 06 0004	Berms - Straw Wattles		•		•	CB
I003 03 06 0012	Berms - Straw Wattles		•		•	B
I003 03 06 0013	Berms - Straw Wattles		•		•	B
I003 03 06 0014	Berms - Straw Wattles		•		•	B
I003 03 06 0015	Berms - Straw Wattles	•			•	B
I003 06 01 0010	Check Dam - Rock	•			•	CB
I003 06 01 0011	Check Dam - Rock	•			•	CB

Established Vegetation (I003-02-01-0001)

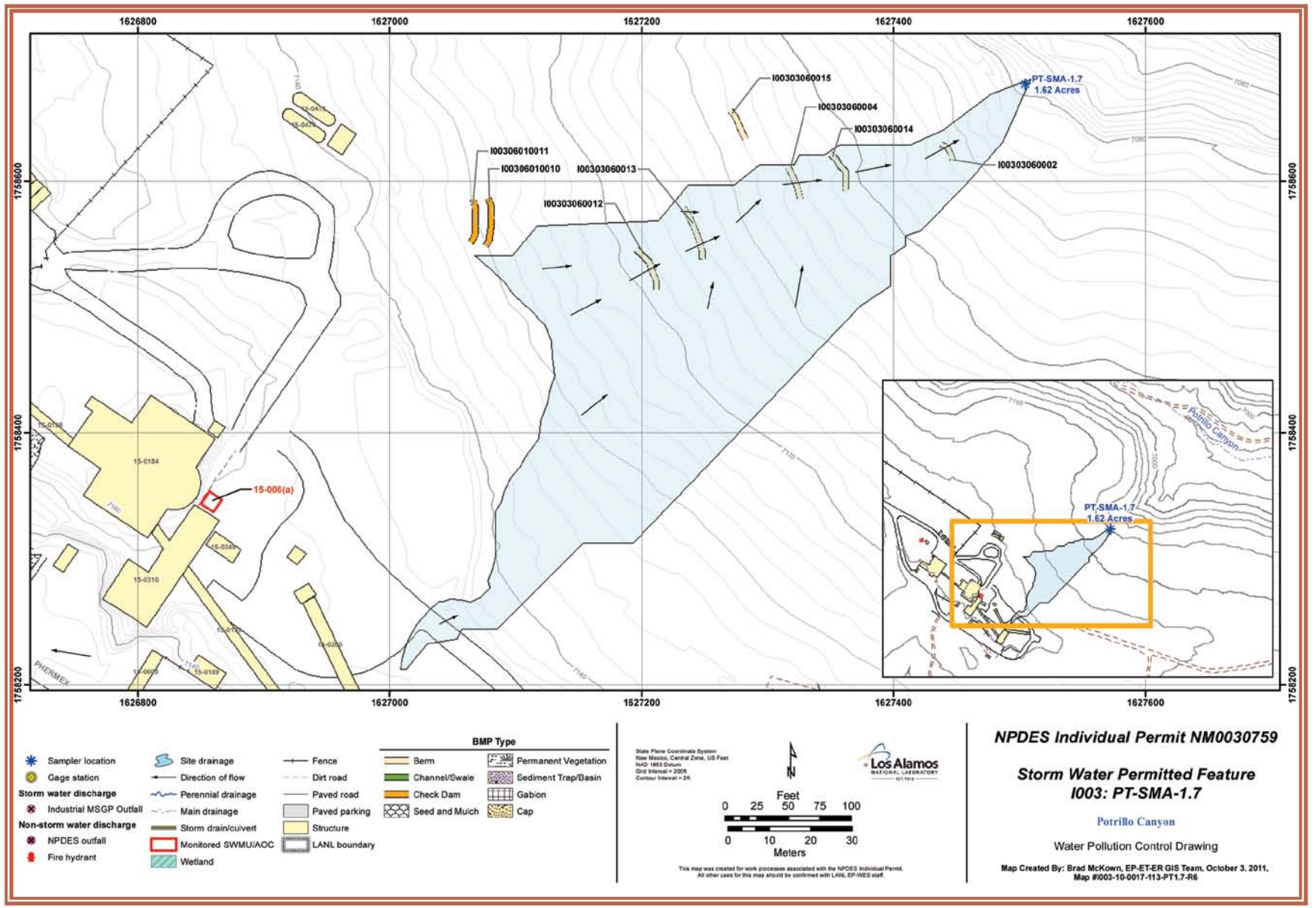
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Straw Wattles (I003-03-06-0002, -0004, -0012, -0013, -0014, -0015)

A series of 6 wattles have been installed to mitigate run-on to the SMA and to reduce sediment loading in 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.

Rock Check Dams
(I003-06-01-0010, -0011)

This is a pair of check dams located on the slope southeast of 15-0474. They are in place to help control storm water run-on from the paved area 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.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1627600
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I00303060004
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I00303060002
I00306010011
I00306010010
I00303060013
I00303060012
PT-SMA-1.7
1.62 Acres
15-006(a)
15-0184
15-0310
15-0189
Potrillo Canyon
PHERMEX
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
I003: PT-SMA-1.7
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 3, 2011,
Map #I003-10-0017-113-PT1.7-R6

1000.23.5 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).

1000.23.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at PT-SMA-1.7. 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.

1000.23.5.2 Inspection Activity

RG262.4 recorded six Storm Events at PT-SMA-1.7 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 1000.23.5.2-1.

Table 1000.23.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13967	06-06-2011
Storm Rain Event	BMP-15095	08-01-2011
Storm Rain Event	BMP-16968	08-22-2011
Storm Rain Event	BMP-18500	09-08-2011
Storm Rain Event	BMP-19427	09-21-2011
Annual Erosion	COMP-18153	10-14-2011

1000.23.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.23.5.3-1.

Table 1000.23.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13967	Replaced straw wattle I00303060009 with new wattle I00303060012 in same location.	07-08-2011	32 day(s)	Maintenance conducted as soon as practicable.
BMP-13967	Replaced straw wattle I00303060008 with new wattle I00303060013 in same location.	08-18-2011	73 day(s)	Maintenance conducted as soon as practicable.
BMP-16968	Cleaned out sediment from wattle I00303060003.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16968	Cleaned out sediment from wattle I00303060005.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18500	Replaced straw wattle I00303060003 with new wattle I00303060014 in same location.	09-22-2011	14 day(s)	Maintenance conducted in timely manner.
BMP-18500	Replaced straw wattle I00303060005 with new wattle I00303060015 in same location.	09-22-2011	14 day(s)	Maintenance conducted in timely manner.

1000.23.6 Compliance Status

The Site associated with PT-SMA-1.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.24 PT-SMA-2

1000.24 PT-SMA-2

1000.24.1 Area Description

PT-SMA-2 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is influenced by an unpaved access road. Further to the south are the receiving waters.

1000.24.2 Potential Pollutant Sources

1000.24.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF I004, PT-SMA-2, Sites 15-008(f), 36-003(b) and 36-004(e).

AOC 15-008(f) consists of several sand mounds located adjacent to the I-J Firing Site [SWMU 36-004(e)]. AOC 15-008(f) is deferred for investigation per Table IV-2 of the Consent Order. The I-J Firing Site is located on a mesa overlooking Potrillo Canyon and was originally located in TA-15 when it was constructed in 1948, although it is now part of TA-36.

SWMU 36-003(b) is a decommissioned septic system located at the west end of TA-36. The septic system consists of a septic tank (structure 36-0061) and its associated drainlines and outfall. The septic tank sits near the edge of Mesita del Potrillo, approximately 100 ft southwest of building 36-0055, the control bunker for the I-J Firing Site. The control bunker housed the electronics and instrumentation used in the operation of the I-J Firing Site [SWMU 36-004(e)] and also contained a toilet, sink, and water fountain, all of which were connected to the septic tank via a 4-in.-diameter clay-tile pipe. The septic tank is constructed of reinforced concrete and measures 7 ft long × 3.5 ft wide × 5.73 ft deep with a capacity of 420 gal. The tank has a buried overflow pipe that formerly discharged near the north rim of Potrillo Canyon. The overflow pipe was capped in 1989 to stop its discharge into the canyon. After the overflow pipe was capped, the septic tank continued to be used. Until the early 1990s when the tank was taken out of service, the tank contents were periodically removed and taken to a sanitary wastewater treatment plant for treatment and disposal after the overflow pipe had been capped.

AOC 36-004(e) is the I-J Firing Site located at the west end of TA-36 on Mesita del Potrillo along the north rim of Potrillo Canyon. AOC 36-004(e) is deferred for investigation per Table IV-2 of the Consent Order. The I-J Firing Site consists of two firing points (I and J) and the control building (36-0055). The site was constructed in 1948 and was located in TA-15 until 1981 when the boundary of TA-36 was expanded to encompass the portion of TA-15 that contained the I-J Firing Site. Shots at I-J Firing Site used up to 500 lb of HE and involved a variety of solid and liquid explosives and inorganic chemicals. According to former employees, significant amounts of DU were used at I-J Firing Site in addition to small quantities of mercury and cadmium. Some shots were fired into iron, copper, or lead targets. Other metals used in shots included aluminum, antimony, various steels, lithium-magnesium alloys, and lithium hydride. In addition, hydrocarbons, argon, benzene, small amounts of mercury, cadmium, and beryllium were used in shots.

All shots involving radioactive materials at the I-J Firing Site were conducted in fully enclosed containment vessels. These vessels were removed from the I-J Firing Site for use at TA-15, although one was later returned to the I-J Firing Site. The returned vessel was identified in the 1990 SWMU report as AOC C-36-001 and was subsequently removed from the site in 1994 and disposed of at MDA G, TA-54. Other firing-site activities conducted at I-J Firing Site included tests in which DU projectiles were fired into an embankment. This projectile test area was designated as AOC C-36-006(e).

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
15-008(f)	I-J Firing site mounds at TA-36	Co-located, Overlapping	Shared	•	•	•	SVC HE
36-003(b)	Septic system, I-J Site	Discrete Location, No overlap	Shared	•	•	•	SVC HE
36-004(e)	Firing site	Co-located, Overlapping	Shared	•	•	•	SVC HE

Substantially Identical Determination

These Sites were all associated with the operation of I-J Firing site and involved experiments using a variety of solid and liquid explosives and inorganic chemicals (LANL 1993, 020946, p. 5-40). Because of the nature of activities, similarity of contaminants, and common drainage, these Sites will discharge substantially identical effluent.

1000.24.3 Control Measures

Road run-off discharges at the southern portion of the turn around. Existing controls help to address the run-on generated from the pavement.

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	
I004 02 01 0005	Established Vegetation - Grasses and Shrubs			•		CB
I004 03 01 0009	Berms - Earthen		•		•	CB

Table 1000.24.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I004 03 12 0010	Berms - Rock	•			•	CB

Established Vegetation (I004-02-01-0005)

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.

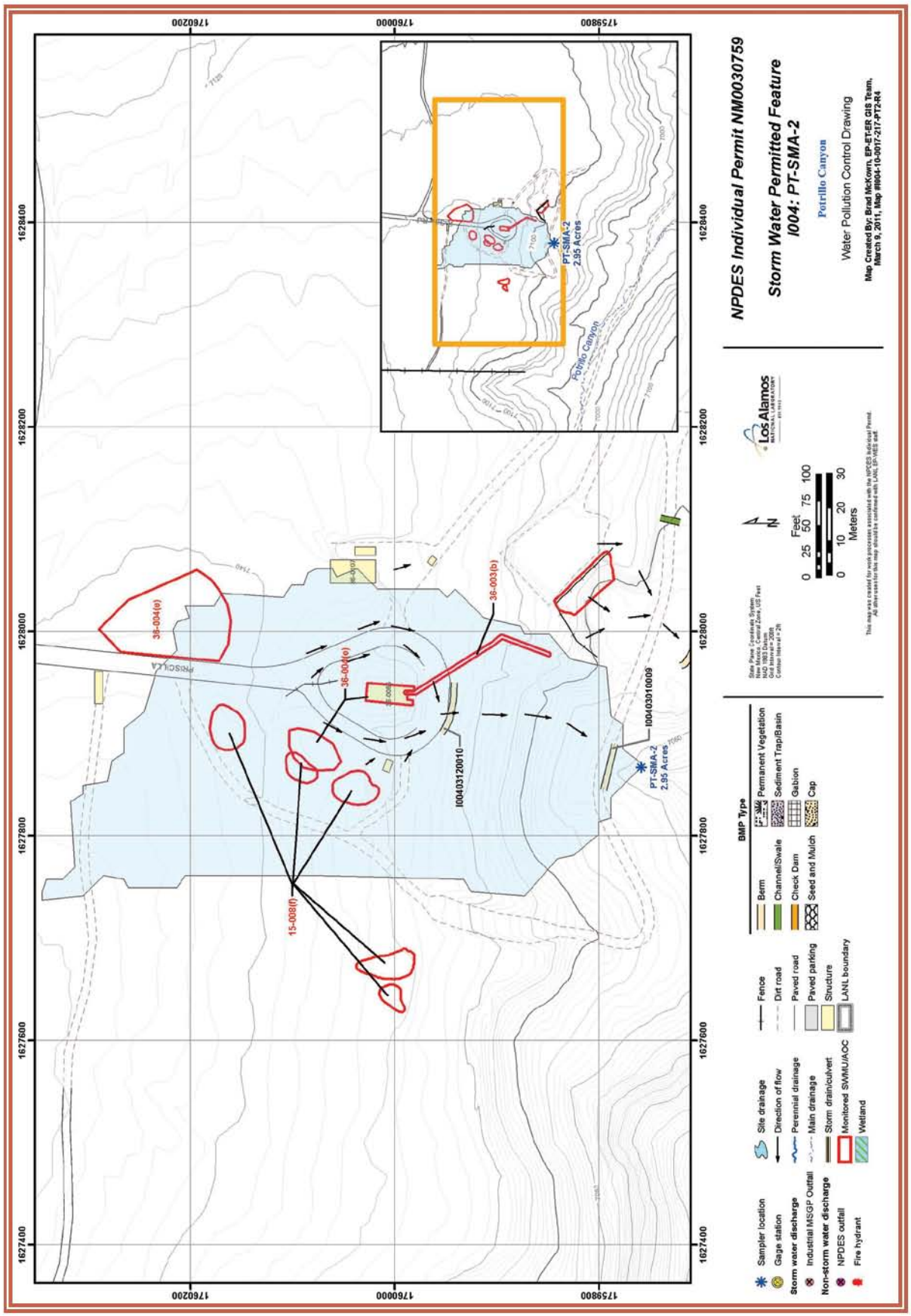
Earthen Berm (I004-03-01-0009)

This berm is located just north of the sampler location south of the unpaved access road. It is used to help control 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.

Rock Berms (I004-03-12-0010)

This berm is located in roughly the center of the site drainage, south of building 36-0055. It replaces a trio of straw wattles and controls run-on and sediment. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

1000.24.4 Project Map



1000.24.5 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)	HE (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).

1000.24.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at PT-SMA-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.

1000.24.5.2 Inspection Activity

RG262.4 recorded six Storm Events at PT-SMA-2 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 1000.24.5.2-1.

Table 1000.24.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13968	07-11-2011
Storm Rain Event	BMP-15096	08-02-2011
Storm Rain Event	BMP-16969	08-23-2011
Storm Rain Event	BMP-18501	09-08-2011
Storm Rain Event	BMP-19428	09-21-2011
Annual Erosion	COMP-18152	10-12-2011

1000.24.5.3 Maintenance

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

1000.24.6 Corrective Action Status

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

1000.25 PT-SMA-2.01

1000.25 PT-SMA-2.01

1000.25.1 Area Description

PT-SMA-2.01 is located within TA-36 and access to the area is controlled. The northern boundary of the SMA is influenced by a paved access road. The southern boundary of the SMA is influenced by an unpaved access road. Further to the south are the receiving waters.

1000.25.2 Potential Pollutant Sources

1000.25.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I004A, PT-SMA-2.01, Sites C-36-001 and C-36-006(e).

AOC C-36-001 is a former containment vessel that provided secondary containment for explosives tests at TA-36. The containment vessel was manufactured in 1970 and located at the PHERMEX test facility at TA-15. The containment vessel was later relocated to the I-J Firing Site and placed south of building 36-0055 where it remained until 1983 when it was removed. The containment vessel consisted of a 19.5-ton steel sphere that was 12 ft in diameter. An explosive device was placed and detonated in a primary containment vessel which, in turn, was placed inside the AOC C-36-001 containment vessel. The explosion gases were vented through a filtration system that captured particulates and did not allow release of the test material. No specific location(s) exists for this site; the location is identified only as the general area south of building 36-0055.

AOC C-36-006(e) is a former projectile test area located within the southern portion of the I-J Firing Site [AOC 36-004(e)] along the north rim of Potrillo Canyon. AOC C-36-006(e) was formerly used for testing DU projectiles as part of I-J Firing Site activities. Projectiles were fired from a 120-mm gun into a nearby embankment. Although some projectiles were recovered after an experiment was completed, much of the projectile material remains on site.

Originally, the I-J Firing Site was located within the boundary of TA-15. In 1981, the boundary of TA-36 was expanded to include portions of TA-15. As part of this expansion, the area in which the I-J Firing Site was located was transferred to TA-36. However, the 1990 SWMU report is inconsistent in addressing the SWMUs and AOCs affected by the transfer. Although the SWMU report addresses the I-J Firing Site as SWMU 36-004(e), it addresses the nearby projectile test area (which was also part of the 1981 transfer to TA-36) as AOC 15-006(e). AOC 15-006(e) was renamed AOC C-36-006(e) in the OU 1086 work plan because the projectile test area was within the boundaries of TA-36 when the work plan was written.

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
C-36-001	Containment vessel	Co-located, Overlapping	Shared	•	•	•	SVC HE
C-36-006(e)	I-J Firing Site, projectile test area	Discrete Location, No overlap	Shared	•	•	•	SVC HE

Substantially Identical Determination

These Sites were all associated with the operation of I-J Firing site and involved experiments using a variety of solid and liquid explosives and inorganic chemicals (LANL 1993, 020946, p. 5-40). Because of the nature of activities, similarity of contaminants, and common drainage, these Sites will discharge substantially identical effluent.

1000.25.3 Control Measures

An unpaved access road located in the southern portion of the area has the potential to generate run-on to this SMA. Control measures are implemented to mitigate any influences from this potential run-on source.

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	
I004A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
I004A-03-01-0003	Berms Earthen		•		•	CB
I004A-04-05-0002	Channel/Swale Water Bar	•		•		CB

Established Vegetation (I004A-02-01-0001)

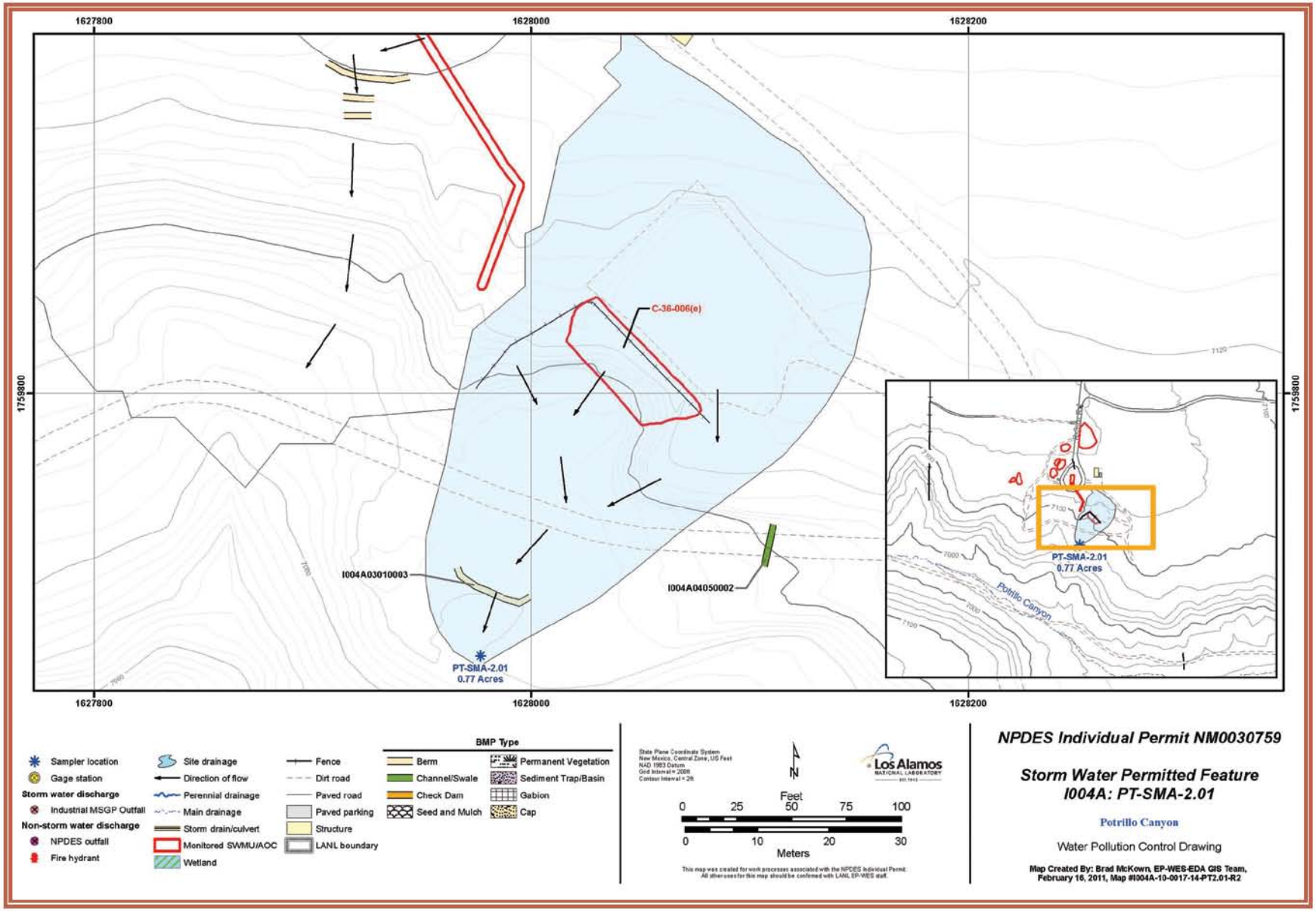
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Earthen Berm (I004A-03-01-0003)

This berm is located on the south side of the unpaved access road, north of the sampler. It is used to help control 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.

Water Bar (I004A-04-05-0002)

This water bar is located across the unpaved access road east of the SMA. It is used to help 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.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1628200
1759800
C-36-006(e)
I004A03010003
I004A04050002
PT-SMA-2.01
0.77 Acres
Potrillo 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
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I004A: PT-SMA-2.01
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-WES-EDA GIS Team,
February 16, 2011, Map #I004A-10-0017-14-PT2.01-R2

1000.25.5 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.

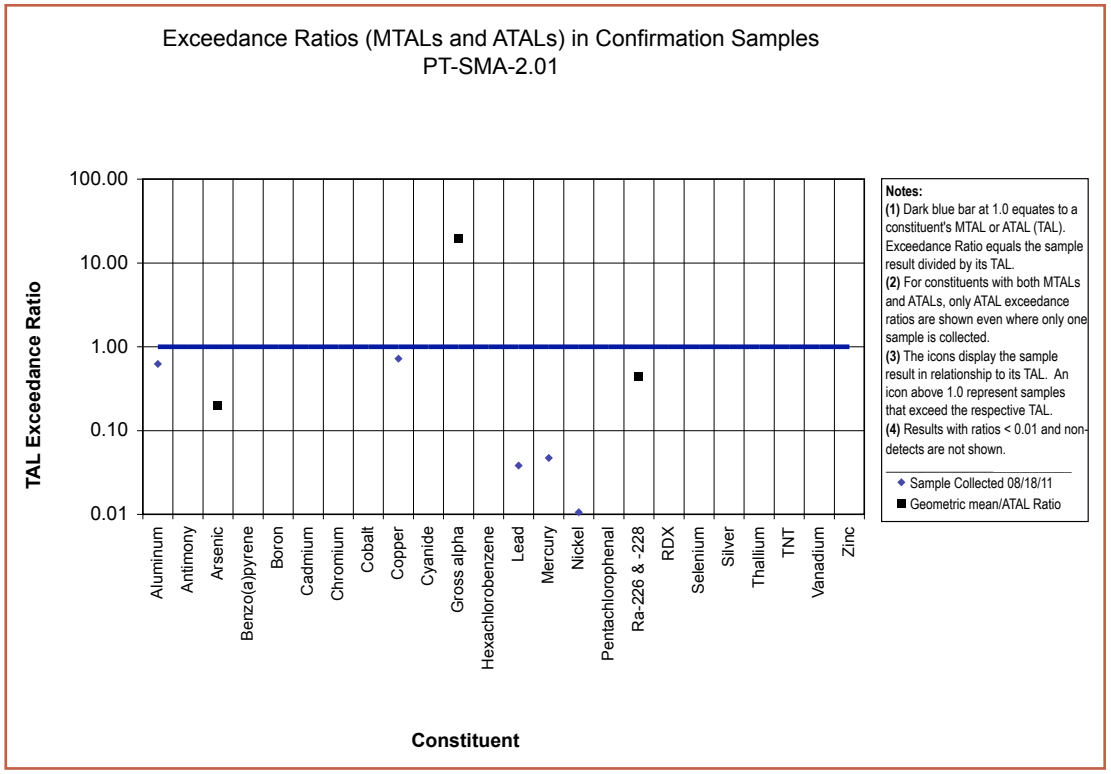
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	HE (1) SVC (1)

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 PT-SMA-2.01 on August 18, 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 RG262.4 recorded six Storm Events at PT-SMA-2.01 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 1000.25.5.3-1.

Table 1000.25.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13974	07-11-2011
Storm Rain Event	BMP-15097	08-02-2011
Storm Rain Event	BMP-16972	08-23-2011
Storm Rain Event	BMP-18502	09-08-2011
Storm Rain Event	BMP-19429	09-21-2011
Annual Erosion	COMP-18151	10-12-2011
Visual Inspection	BMP-21560	11-08-2011

1000.25.5.3 Maintenance

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

1000.25.6 Corrective Action Status

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

1000.26 PT-SMA-3

1000.26 PT-SMA-3

1000.26.1 Area Description

PT-SMA-3 is located within TA-33 and access to the area is controlled. The northern boundary of the SMA is steeply sloped and undeveloped. The southern boundary of the SMA is steeply sloped and influenced by paved and unpaved access roads. Storm water flows from the developed area northeast towards the receiving waters.

1000.26.2 Potential Pollutant Sources

1000.26.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF I005, PT-SMA-3, Sites 36-004(a) and 36-006.

AOC 36-004(a) is the Eenie Firing Site located on Mesita del Potrillo on the rim of Potrillo Canyon. AOC 36-004(a) is deferred for investigation per Table IV-2 of the Consent Order. Together with SWMU 36-006, AOC 36-004(a) comprises Consolidated Unit 36-006-99. AOC 36-004(a) consists of the impact area, a control bunker (building 36-0003), and a make-up building (36-0004) that contains a storage area. Construction of the Eenie Firing Site began in 1949 and was completed in 1951. Materials used in experimental shots include lead oxide, mercury, copper, nickel, brass, DU, and nitroglycerine. Other activities conducted at the site include shoulder-mounted projectiles fired into targets in the southern portion of the firing site.

SWMU 36-006 consists of an inactive surface disposal area located on the southern slope of Potrillo Canyon, approximately 100 ft north of the Eenie Firing Site [AOC 36-004(a)]. Together with AOC 36-004(a), SWMU 36-006 comprises Consolidated Unit 36-006-99. SWMU 36-006 was used to dispose of cables, metal, concrete, and other similar debris from the TA-36 firing sites. The majority of the debris covers an approximately 75-ft-wide area that extends approximately 100 ft down the south canyon slope. The remainder of the debris is scattered laterally 300 ft along the south canyon slope. This debris was dumped into the canyon from trucks. SWMU 36-006 was used from 1955 to 1970. Although the TA-36 firing sites are still active, SWMU 36-006 is no longer used as a surface disposal area.

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
36-004(a)	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
36-006	Surface disposal site	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

These Sites are both associated with the operation and experimental testing of high explosives. Because of the period of operation, shared drainage, and similar contaminants, these Sites will discharge substantially identical effluent.

1000.26.3 Control Measures

Run-on to this Permitted Feature may originate from the unpaved access road located in the southern portion of the area. Natural channels divert a portion of this potential run-on influence to the west away from the SMA. Installed control measures serve to moderate storm water flow across the SMA.

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				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I005 04 04 0005	Channel/Swale - Culvert	•		•		CB
I005 04 06 0004	Channel/Swale - Rip Rap	•		•		CB
I005 06 01 0006	Check Dam - Rock		•		•	CB

Culvert (I005-04-04-0005)

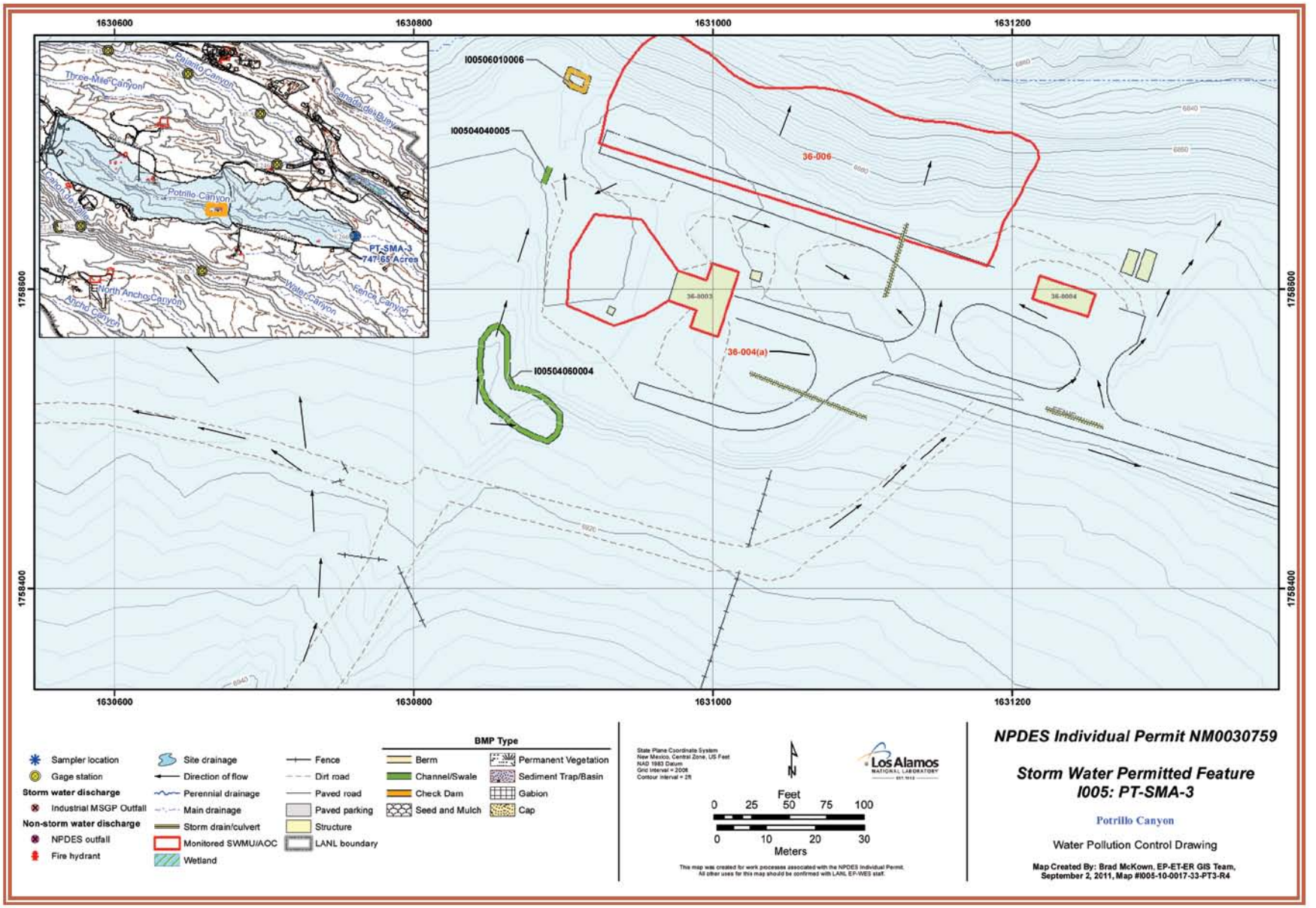
The culvert is located under the unpaved access road to the parking/storage area. It directs flow away from the SMA to the east. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap - West (I005-04-06-0004)

Rip rap has been placed in a flow path within the SMA. The rip rap serves to dissipate the velocity of run-on from the unpaved access road along the southern portion of the SMA. 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 (I005-06-01-0006)

A rock check dam is located on the western side of the SMA and serves to reduce sediment loading in storm water discharges from the related culvert. 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.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I00504040005
I00504060004
36-006
36-004(a)
36-003
36-004
PT-SMA-3
74.65 Acres
Three-Mile Canyon
Pajarito Canyon
Cañon de Valle
Potrillo Canyon
North Ancho Canyon
Ancho Canyon
Water Canyon
Fence 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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Los Alamos
NATIONAL LABORATORY
Feet
0 25 50 75 100
0 10 20 30
Meters
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-WES staff.
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
I005: PT-SMA-3
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
September 2, 2011, Map #I005-10-0017-33-PT3-R4

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)	HE(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 PT-SMA-3. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.26.5.2 Inspection Activity

RG267.4 recorded five Storm Events at PT-SMA-3 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 1000.26.5.2-1.

Table 1000.26.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13969	07-08-2011
Storm Rain Event	BMP-15593	08-05-2011
Storm Rain Event	BMP-16664	08-18-2011
Storm Rain Event	BMP-16970	08-26-2011
Storm Rain Event	BMP-18536	09-07-2011
Annual Erosion	COMP-18149	10-12-2011

1000.26.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.26.5.3-1.

Table 1000.26.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15593	Modified rip rap I00504060004 by building up and extending the sides.	08-17-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-16664	Extended sides of rip rap I00504060004.	08-17-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16664	Cleaned ends of culvert I00504040005, but center needs to be cleaned. Still functioning.	08-17-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16970	Cleared culvert I00504040005 inlet and outlet, also opened outlet, it was previously bent downward.	08-26-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16664	Worked with WFO FOD to clean out culvert I00504040005.	09-07-2011	20 day(s)	Maintenance conducted as soon as practicable.
BMP-18536	Cleared culvert I00504040005.	09-07-2011	0 day(s)	Maintenance conducted upon inspection.

1000.26.6 Compliance Status

The Sites associated with PT-SMA-3 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.27 PT-SMA-4.2

1000.27 PT-SMA-4.2

1000.27.1 Area Description

PT-SMA-4.2 is located within TA-36 and access to the area is controlled. The northern and western boundaries of the SMA are influenced by paved areas and access roads. The southern and eastern boundaries of the SMA are largely undeveloped. Storm water flows from the developed areas, southeast towards the receiving waters.

1000.27.2 Potential Pollutant Sources

1000.27.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF I007, PT-SMA-4.2, Site 36-004(d).

SWMU 36-004(d) consists of the Lower Slobbovia Firing Site and the Skunk Works Firing Site, located in Potrillo Canyon, and three burn pits located on the mesa top next to Potrillo Canyon. AOC 36-004(d) is deferred for investigation per Table IV-2 of the Consent Order.

The Lower Slobbovia Firing Site consists of two firing points and a control building (36-0012). One of the firing points (structure 36-0013) was constructed in 1950 and is located on top of an approximately 200-ft-diameter sand and dirt pad. The control building (36-0012) was constructed into the side of the pad. The second firing point consisted of a wooden tower (structure 36-0120), constructed in 1986 at the northwest end of a 1000-ft long sled track for conducting drop tests. Shots fired at the Lower Slobbovia Firing Site primarily involve HE. Less than 2% of the shots have involved significant amounts of metal (e.g., DU, lead, copper, aluminum, and steel). The largest shot fired at Lower Slobbovia used 5000 to 6000 lb of HE. In addition, underground tests, buried to approximately 100 ft, were conducted at this site.

The Skunk Works Firing Site, located approximately 0.5 mi northwest of the Lower Slobbovia Firing Site, was used to conduct small-explosives experiments during the 1950s. These experiments involved gas (acetylene and oxygen), liquid (tetranitromethane), and solid explosives. Beryllium and radioactive materials were not used at the site. Structures at the Skunk Works Firing Site included a 5-ft × 5.5-ft × 5-ft belowgrade structure that formerly served as a battery storage room and two buildings (36-0044 and 36-0045) that were moved to the site from TA-15. All the structures have been removed. The Skunk Works firing pad was located next to building 36-0045. A shallow depression, located approximately 100 ft farther up the canyon, was also used as a firing pad.

The burn pits were used for burning and disposal of test debris before MDA AA was established in the mid-1960s. These pits are located on Mesita del Potrillo approximately 4000 ft west of the Lower Slobbovia control building (36-0012). The largest pit is a bermed enclosure located north of Potrillo Road and is approximately 40 ft in diameter. Two smaller areas are located south of Potrillo Road. Debris was transported by truck from TA-36 firing sites to the pits, placed in the pits, and burned. The debris consisted of wood, nails, other metal fragments, plastics, and sand contaminated with barium, uranium, and HE.

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
36-004(d)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.27.3 Control Measures

Installed control measures serve to control run-on sources from impervious areas surrounding this SMA.

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				Control Status
		Run-On	Run-Off	Erosion	Sediment	
I007 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
I007 02 02 0006	Established Vegetation - Forested/ Needle Cast			•		CB
I007 04 04 0005	Channel/Swale - Culvert	•		•		CB
I007 04 06 0002	Channel/Swale - Rip Rap		•	•		CB
I007 04 06 0003	Channel/Swale - Rip Rap	•		•		CB
I007 06 01 0004	Check Dam - Rock	•			•	CB

Established Vegetation (I007-02-01-0001, -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.

Culvert (I007-04-04-0005)

The culvert is located under the paved access road near building 36-0012. It diverts run-on from the impervious areas to the south 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.

Rip Rap (I007-04-06-0002)

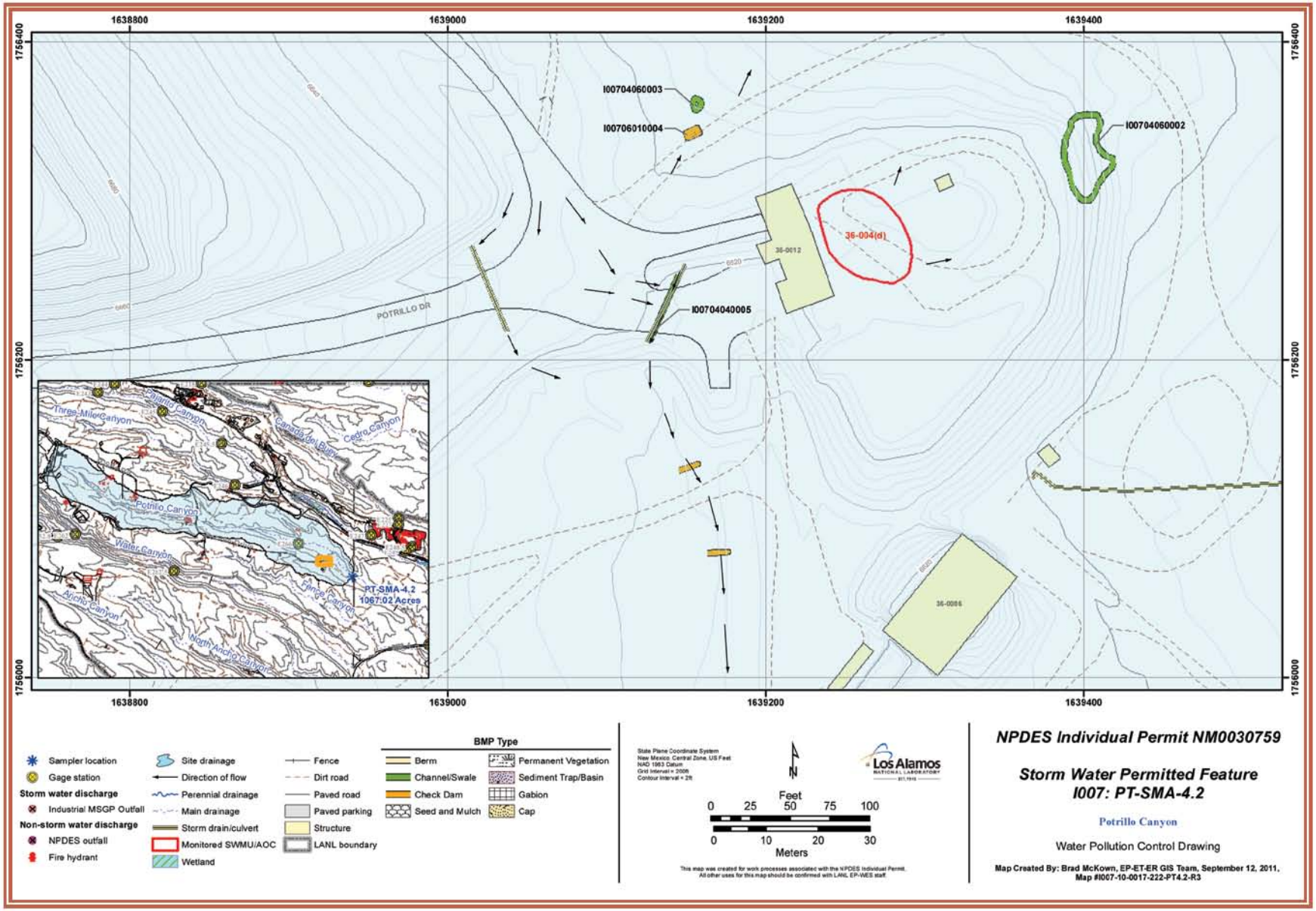
This rip rap is located near the pad east of the Site and is used to control run-off from the unpaved areas. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Northern Rip Rap (I007-04-06-0003)

The rip rap is situated north of the paved area east of the rock check dam and is used to control run-on in 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 (I007-06-01-0004)

The rock check dam is situated north of the paved area and is used to 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.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36-004(d)
36-0012
36-0086
POTRILLO DR
Three Mile Canyon
Canada del Buey
Cedro Canyon
Potrillo Canyon
Water Canyon
Arroyo Canyon
North Arroyo Canyon
PT-SMA-4.2
1067.02 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
I007: PT-SMA-4.2
Potrillo Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 12, 2011,
Map #I007-10-0017-222-PT4.2-R3

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
• (1)	• (1)	• (1)	HE (1)

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 PT-SMA-4.2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.27.5.2 Inspection Activity

RG267.4 recorded five Storm Events at PT-SMA-4.2 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 1000.27.5.2-1.

Table 1000.27.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13970	07-08-2011
Storm Rain Event	BMP-15594	08-03-2011
Storm Rain Event	BMP-16665	08-18-2011
Storm Rain Event	BMP-16971	08-24-2011
Storm Rain Event	BMP-18537	09-07-2011
Annual Erosion	COMP-18150	10-12-2011

1000.27.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.27.5.3-1.

Table 1000.27.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13970	Repaired and extended rip rap I00704060002.	07-18-2011	10 day(s)	Maintenance conducted in timely manner.
BMP-15594	Cleared sediment and replaced rock at rip rap I007040060003.	08-03-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15594	Cleared sediment and replaced rock at rip rap I007040060004.	08-03-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15594	Worked with WFO FOD to clean out culvert I00704040005.	08-10-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-16971	Extended rip rap I00704060002.	09-07-2011	14 day(s)	Maintenance conducted in timely manner.

1000.27.6 Compliance Status

The Site associated with PT-SMA-4.2 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.28 W-SMA-1

1000.28 W-SMA-1

1000.28.1 Area Description

W-SMA-1 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures, roads, and paved areas within the developed portion of TA-16. The southern boundary of the SMA is undeveloped.. The eastern boundary of the SMA is largely undeveloped but may be influenced by paved and unpaved access roads. The western boundary of the SMA is influenced by structures, roads, and paved areas within the developed portion of TA-16.

1000.28.2 Potential Pollutant Sources

1000.28.2.1 Historical Industrial Activity Areas

There are three historical industrial activity areas associated with PF W001, W-SMA-1, Sites 16-017(j)-99, 16-026(c2) and 16-026(v).

SWMU 16-017(j)-99 is a former magazine (structure 16-63) at TA-16. The magazine was a 24 ft x 26 ft x 9 ft wood-framed structure surrounded by an earthen berm on three sides and the top. The magazine was built in 1945 and removed in 1998. This SWMU was originally designated as part of SWMU 16-017, a group of 24 structures in central TA-16. In 1999, SWMU 16-017 was separated into 24 SWMUs, each consisting of a single structure.

SWMU 16-026(c2) consists of the two outfalls that served chemical storage building 16-462 at TA-16. The outfalls are located approximately 30 ft southeast of the building. Floor troughs within 16-462 drain to 6-in. diameter VCP drainlines that exit the south and southeast side of the building. Effluent flowed from the drainlines southeast to a drainage ditch. Building 16-462 was built in 1952 to store chemicals for use in the analytical chemistry laboratory (building 16-460). All drains at building 16-462 were plugged in 1991.

SWMU 16-026(v) is an outfall that served decommissioned analytical chemistry laboratory building 16-460 at TA-16. The outfall is located approximately 60 ft southeast of the building. The outfall was NPDES-permitted (05A072) and received effluent from a sump [SWMU 16-003(c)], building floor drains, steam-cup drains, sink drains, and a drinking fountain. The outfall has been plugged and no longer receives effluent. It was removed from the NPDES permit effective September 19, 1997.

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
16-017(j)-99	Former storage magazine 16-63	Co-located, Overlapping	Shared	•		•	
16-026(c2)	Outfall from Building 16-462	Co-located, Overlapping	Shared	•		•	
16-026(v)	Outfall from Building 16-460	Outfall from Building 16-460		•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with historical activities at TA-16, in an area know as V-Site. These Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.28.3 Control Measures

Run-on contributions to this SMA may originate from the paved and unpaved access roads in proximity to the SMA. Buildings in the area may also provide additional contributions. Control measures function to manage and moderate storm water flow across this area.

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				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W001 02 01 0005	Established Vegetation - Grasses and Shrubs			•		CB

Table 1000.28.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W001 02 02 0004	Established Vegetation - Forested/ Needle Cast			•		CB
W001 04 06 0001	Channel/Swale - Rip Rap	•		•		CB
W001 04 06 0011	Channel/Swale - Rip Rap	•		•		CB
W001 06 01 0002	Check Dam - Rock		•		•	CB
W001 06 01 0003	Check Dam - Rock		•		•	CB
W001 06 01 0008	Check Dam - Rock		•		•	CB
W001 06 01 0009	Check Dam - Rock		•		•	CB
W001 06 01 0010	Check Dam - Rock		•		•	CB

Established Vegetation (W001-02-01-0005, -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.

Rip Rap East (W001-04-06-0001)

This rip rap is located on the slope near the fence line. It is in place to control run-on from the drainage channel 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.

Rip Rap (W001-04-06-0011)

This rip rap is located near the culvert outlet and is serving as an outlet protection device, preventing erosion of the drainage 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 Rock Check Dam (W001-06-01-0002)

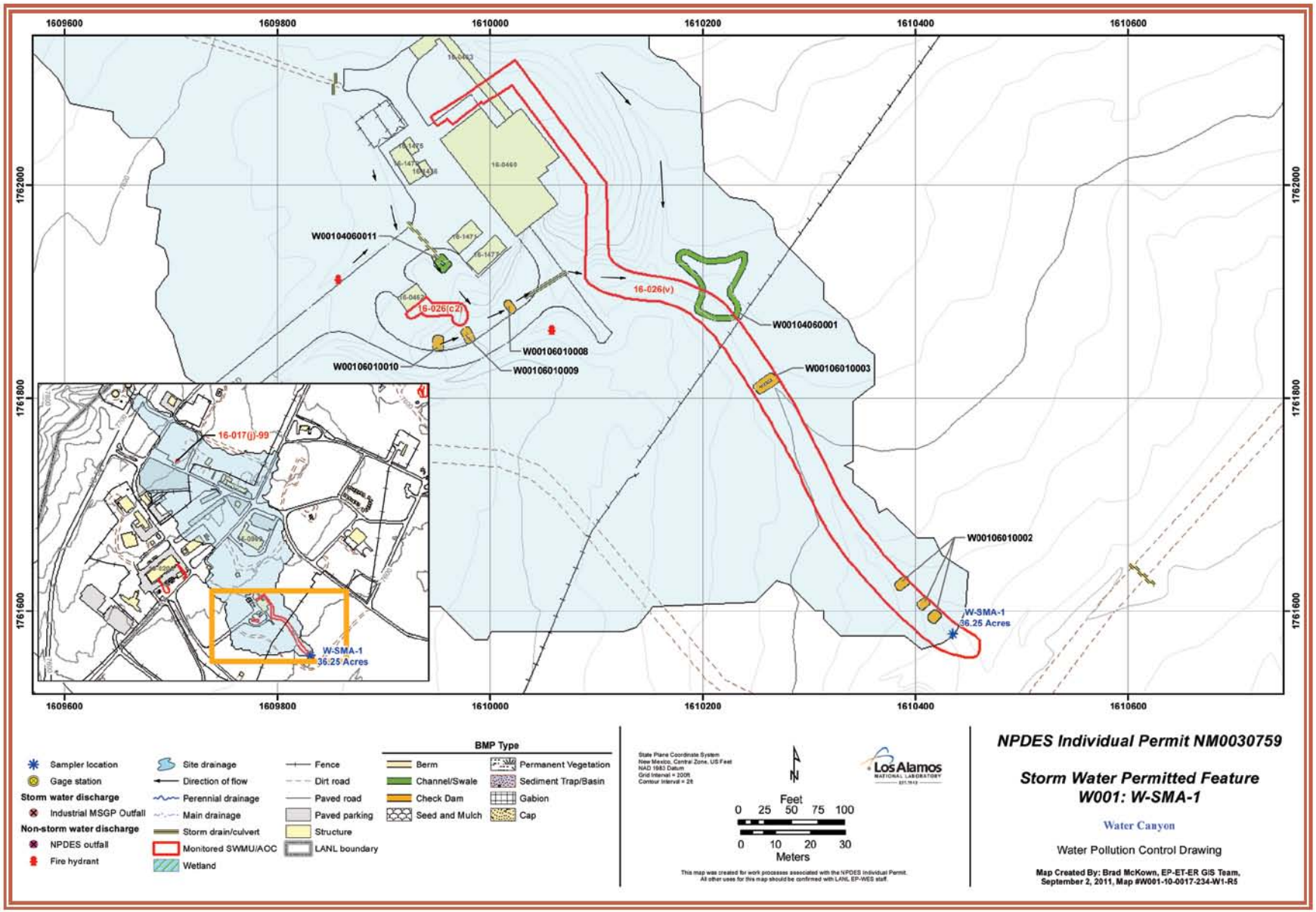
This is a series of three rock check dams located at the eastern edge of the SMA in the channel above the sampler. They are in place to control run-off and reduce sediment loading. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is 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.

Central Rock Check Dam (W001-06-01-0003)

This check dam is located to the northwest of the Eastern Check Dams, in the same channel. It is used to control run-off and reduce sediment migration. 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 (W001-06-01-0008, -0009, -0010)

This is a series of three rock check dams located near building 16-0460 in a small drainage drainage channel. They are used to control run-on from the paved access 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.


1609600
1609800
1610000
1610200
1610400
1610600
1762000
1761800
1761600
W00104060011
16-026(c2)
16-026(v)
W00106010008
W00106010009
W00106010010
W00104060001
W00106010003
W00106010002
16-017(j)-99
W-SMA-1
36.25 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
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W001: W-SMA-1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,
September 2, 2011, Map #W001-10-0017-234-W1-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)	

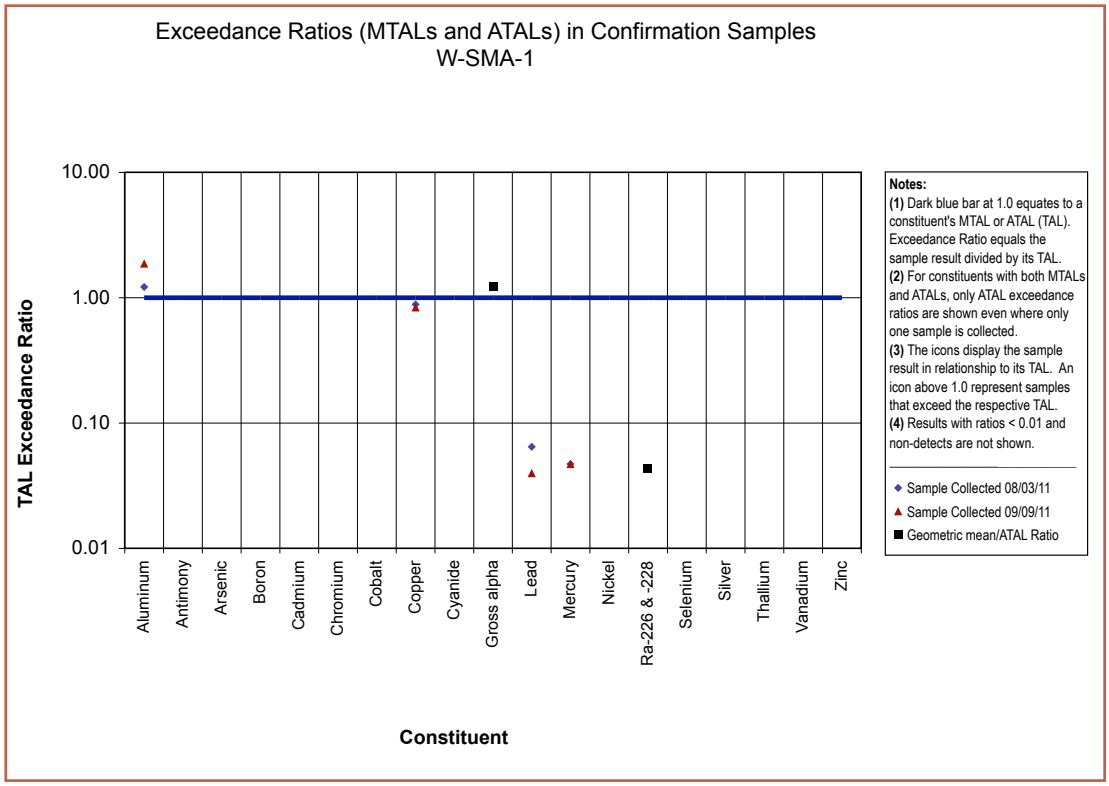
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.28.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-1 on August 03, 2011 and September 09, 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 W-SMA-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 CY12		•		•

1000.28.5.3 Inspection Activity

RG253 recorded ten Storm Events at W-SMA-1 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 1000.28.5.3-1.

Table 1000.28.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13997	07-13-2011
Storm Rain Event	BMP-14943	07-25-2011
Storm Rain Event	BMP-15272	08-04-2011
Storm Rain Event	BMP-16039	08-09-2011
Storm Rain Event	BMP-17311	09-01-2011
Annual Erosion	COMP-19549	09-22-2011

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-13997	Reshaped rock check dam W00106010003.	07-13-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15272	Removed needle cast and small limbs from behind rock check dam W00106010002.	08-04-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15272	Removed needle cast and small limbs from behind rock check dam W00106010003.	08-04-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15272	Built up and extended rock check dam W00106010002.	08-16-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-15272	Built up and extended rock check dam W00106010003.	08-16-2011	12 day(s)	Maintenance conducted in timely manner.
BMP-16039	Added rock and extended rip rap W00104060001.	08-16-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-17311	Repositioned rocks back to original location on rip rap W00104060001.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.

1000.28.6 Compliance Status

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

1000.29 W-SMA-1.5

1000.29 W-SMA-1.5

1000.29.1 Area Description

The northern boundary of the W-SMA-1.5 is influenced by paved areas and structures associated with Building 16-0202. The southern boundary of the SMA is influenced by paved access roads. The receiving waters are in this boundary. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is influenced by a paved access road.

1000.29.2 Potential Pollutant Sources

1000.29.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W002, W-SMA-1.5, Sites 16-026(b2) and 16-028(d).

SWMU 16-026(b2) is an outfall that served decommissioned machine shop building 16-202 at TA-16. The outfall is located approximately 135 ft southeast of building 16-202 and daylights in the drainage ditch along Anchor Ranch Road. The outfall received discharge from an oil/water separator, which consisted of a 3 × 3 × 3 ft cement pit located below-floor-level. The separator was installed in 1952, when building 16-202 was built and remains in place. Use of the separator ceased after 1977.

SWMU 16-028(d) is a formerly NPDES-permitted outfall (04A083) located at TA-16 approximately 80 ft southeast of decommissioned building 16-202. The outfall formerly served decommissioned machine shop building 16-202 and connected to the building through an 8-in. diameter VCP. The outfall received noncontact cooling water and wash water from two floor drains, effluent from two non-HE sumps, discharge from two sink drains, and rainwater from 16 roof drains. In 1995, building 16-202 was converted to office space and the drainlines within the building were modified so that the outfall only receives stormwater from the building's roof drains. The outfall was removed from the NPDES permit effective September 19, 1997.

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
16-026(b2)	Outfall from Building 16-202	Co-located, Overlapping	Shared	•		•	
16-028(d)	Outfall from former Building 16-202	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with historical discharges from building 16-0202. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.29.3 Control Measures

The majority of potential run-on at this SMA originates from the paved areas and roof drainage from building 16-0202. Control measures serve to mitigate influences from

these run-on sources. Run-off controls function to reduce the sediment loading and reduce the velocity of potential run-off from the area.

Subsections to 1000.29.3 list all control measures used to control pollutant sources identified in Section 1000.29.2. 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	
W002 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W002 03 06 0004	Berms - Straw Wattles	•			•	CB
W002 03 06 0005	Berms - Straw Wattles	•			•	CB
W002 04 06 0007	Channel/Swale - Rip Rap		•	•		CB
W002 04 07 0002	Channel/Swale - Vegetated Swale		•	•		CB
W002 04 07 0003	Channel/Swale - Vegetated Swale		•	•		CB
W002 06 01 0008	Check Dam - Rock	•			•	CB
W002 06 01 0009	Check Dam - Rock	•			•	CB
W002 06 01 0010	Check Dam - Rock		•		•	CB
W002 06 01 0011	Check Dam - Rock		•		•	CB
W002 06 01 0012	Check Dam - Rock		•		•	CB

Established Vegetation (W002-02-01-0001)

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 (W002-03-06-0004, -0005)

This is a pair of wattles located west of building 16-00663 adjacent to the paved area. They are in place to help control run-on from the paved areas around the area buildings. 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 (W002-04-06-0007)

This rip rap is located in the natural drainage channel to the southwest of building 16-0663. It is used to mitigate run-off and prevent erosion of 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.

Vegetated Swale - West (W002-04-07-0002)

The swale is located south of the rip rap and is being used to manage pavement run-off. 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.

Vegetated Swale - East (W002-04-07-0003)

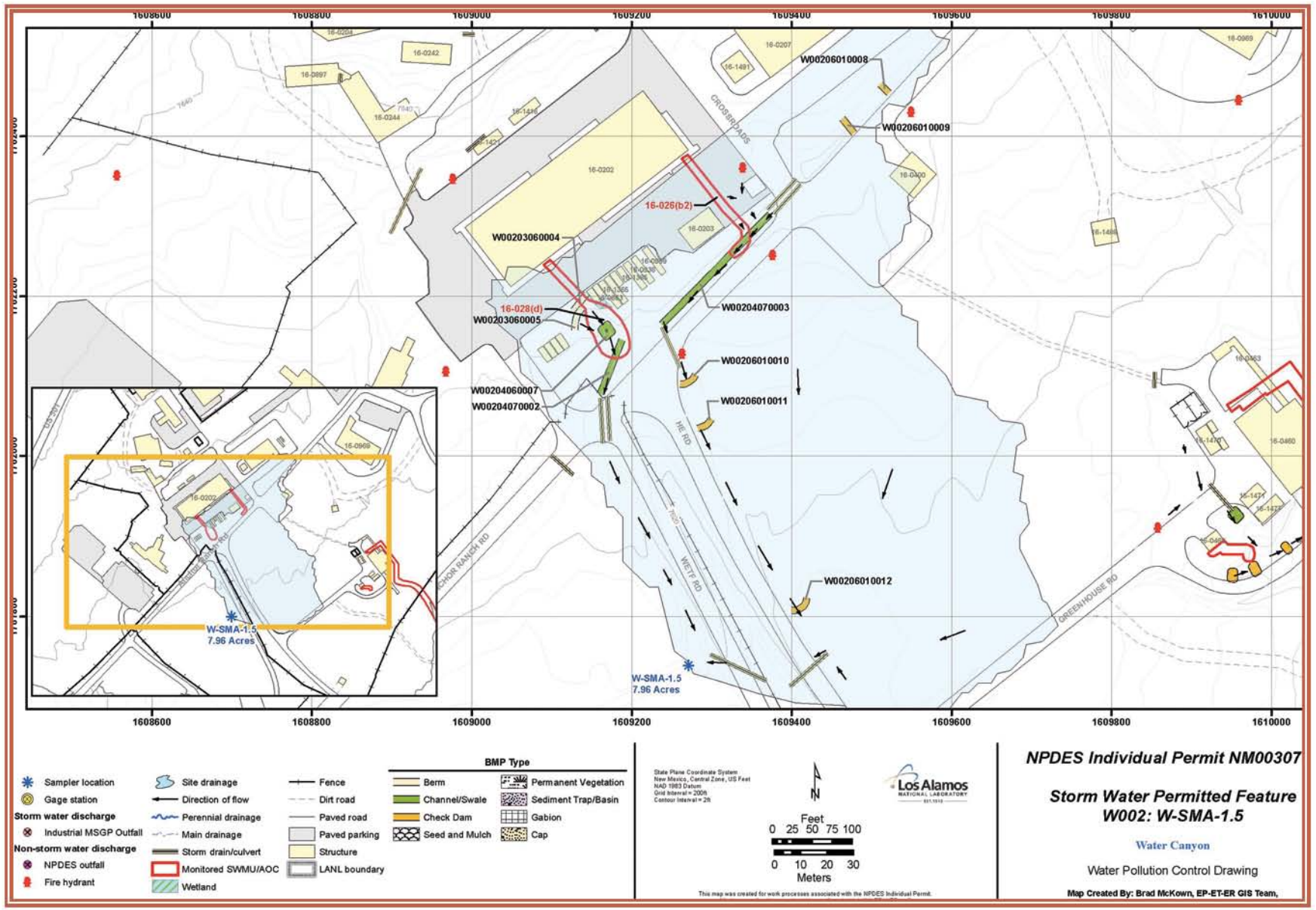
The swale is located south of building 16-0203. Its purpose is to manage pavement run-off. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Check Dams - North (W002-06-01-0008, -0009)

This pair of check dams controls run-on and sediment in the roadside channel east of 16-026(b2) on the northern part of Anchor 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 Dams (W002-06-01-0010, -0011, -0012)

These three check dams control run-off and sediment in the channel east of HE 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.


1608600
1608800
1609000
1609200
1609400
1609600
1609800
1610000
W00206010008
W00206010009
16-026(b2)
W00203060004
16-028(d)
W00203060005
W00204070003
W00206010010
W00204060007
W00204070002
W00206010011
W00206010012
CROSSROADS
HE RD
WETF RD
CHOR RANCH RD
GREENHOUSE RD
W-SMA-1.5
7.96 Acres
W-SMA-1.5
7.96 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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
N
Feet
0 25 50 75 100
0 10 20 30
Meters
This map was created for work processes associated with the NPDES Individual Permit.
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM00307
Storm Water Permitted Feature
W002: W-SMA-1.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team,

1000.29.5 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)	

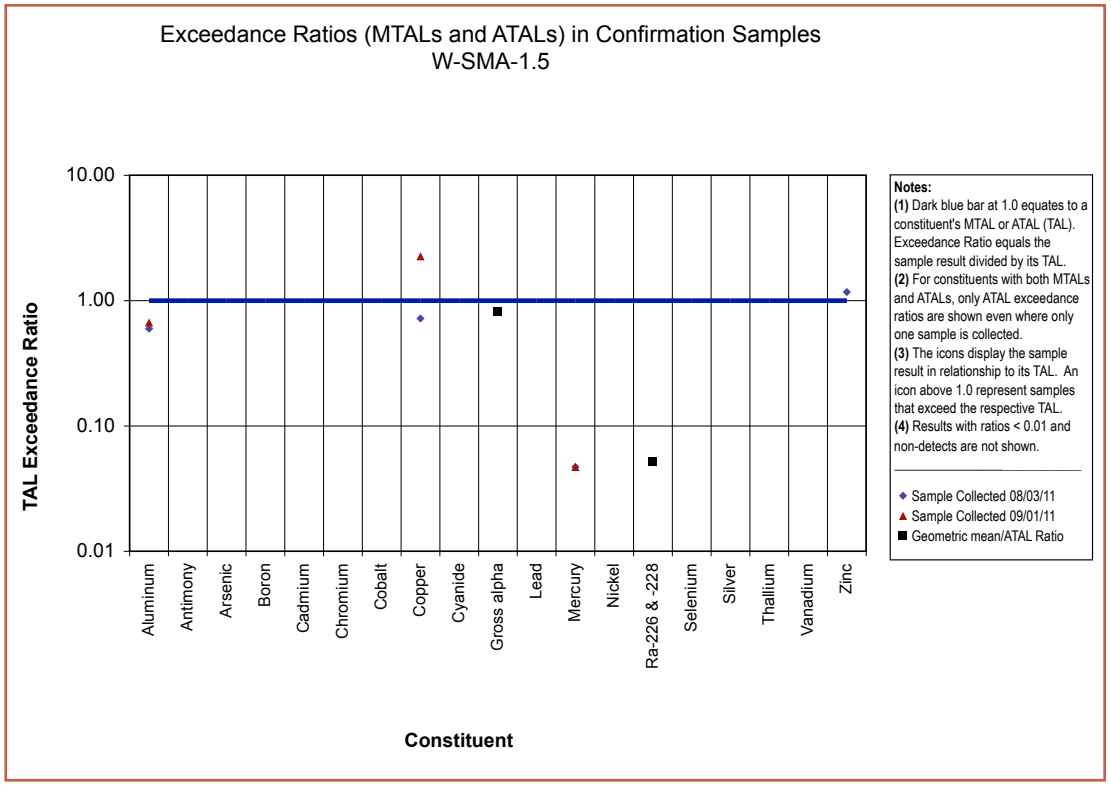
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.29.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-1.5 on August 03, 2011 and September 01, 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 1000.29.5.2.



1000.29.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at W-SMA-1.5. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.29.5.2-1.

Table 1000.29.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Earthen Berms	Q3 CY12		•		•

1000.29.5.3 Inspection Activity

RG253 recorded ten Storm Events at W-SMA-1.5 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 1000.29.5.3-1.

Table 1000.29.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13996	07-13-2011
Storm Rain Event	BMP-14944	07-25-2011
Storm Rain Event	BMP-15273	08-04-2011
Storm Rain Event	BMP-16040	08-09-2011
Storm Rain Event	BMP-17312	08-29-2011
Annual Erosion	COMP-19550	09-22-2011
TAL Exceedance	COMP-20170	10-20-2011

1000.29.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.29.5.4-1.

Table 1000.29.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13996	Picked up trash in drainage channel and disposed of it.	07-12-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-14944	Restacked rocks into place that had been scattered from initial install of rock check dam W00206010012.	07-25-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.29.5.4-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-14944	Picked up trash.	07-25-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15273	Needle cast removed from channel behind rock check dam W00206010011.	08-04-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15273	Needle cast removed from channel behind rock check dam W00206010010.	08-04-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16040	Installed rip rap below check dam W00206010012 to prevent erosion from large flows.	08-16-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-16040	Built up and extended rock check dam W00206010010.	08-16-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-16040	Built up and extended rock check dam W00206010011.	08-16-2011	7 day(s)	Maintenance conducted in timely manner.
BMP-16040	Built up and extended rock check dam W00206010012.	08-16-2011	7 day(s)	Maintenance conducted in timely manner.
COMP-19550	Rock check dam W002060010 was modified and extended to the west.	10-20-2011	30 days(s)	Maintenance conducted as soon as practicable.
COMP-19550	Rock check dam W002060011 was modified and extended to the west.	10-20-2011	30 days(s)	Maintenance conducted as soon as practicable.

1000.29.6 Compliance Status

The Sites associated with W-SMA-1.5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.30 W-SMA-2.05

1000.30.1 Area Description

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

1000.30.3 Control Measures

1000.30.4 Project Map

1000.30.5 Storm Water Monitoring Plan and Schedule

1000.30.5.1 Initial Confirmation Monitoring

1000.30.5.2 Inspection Activity

1000.30.5.3 Maintenance

1000.30.6 Compliance Status

1000.30 W-SMA-2.05

1000.30.1 Area Description

W-SMA-2.05 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas. The southern boundary of the SMA is influenced by paved roads. The receiving waters are along this boundary. The eastern and western boundaries of the SMA are influenced by structures and paved areas.

1000.30.2 Potential Pollutant Sources

1000.30.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W003, W-SMA-2.05, Site 16-028(e).

SWMU 16-028(e) is a formerly NPDES-permitted outfall (04A091) that served materials testing laboratory building 16-450 at TA-16.The outfall was located southeast of building 16-450 and received discharges through a drainline from an HE sump [SWMU 16-029(g)]. The outfall discharged outside the security fence at the edge of Water Canyon. The sump was removed in 1997 and the outfall drainline was plugged, but left in place. The outfall was removed from the NPDES permit effective September 19, 1997.

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
16-028(e)	Outfall associated with Building 16-450	Discrete Location, No overlap	Individual	•		•	

1000.30.3 Control Measures

There are run-on contributions from area parking lots, roof drains, and access roads, at this SMA. Existing controls serve to divert pavement run-on and to reduce sediment migration associated with Site run-off.

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	
W003 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W003 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
W003 03 06 0003	Berms - Straw Wattles	•			•	CB
W003 03 12 0006	Berms - Rock		•		•	B
W003 06 01 0004	Check Dam - Rock		•		•	CB
W003 06 01 0005	Check Dam - Rock		•		•	CB

Established Vegetation (W003-02-01-0001, -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- Wattles (W003-03-06-0003)

This pair of wattles, tracked as one control, sits east of the fence to divert run-on from parking lot and roof drains and control 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.

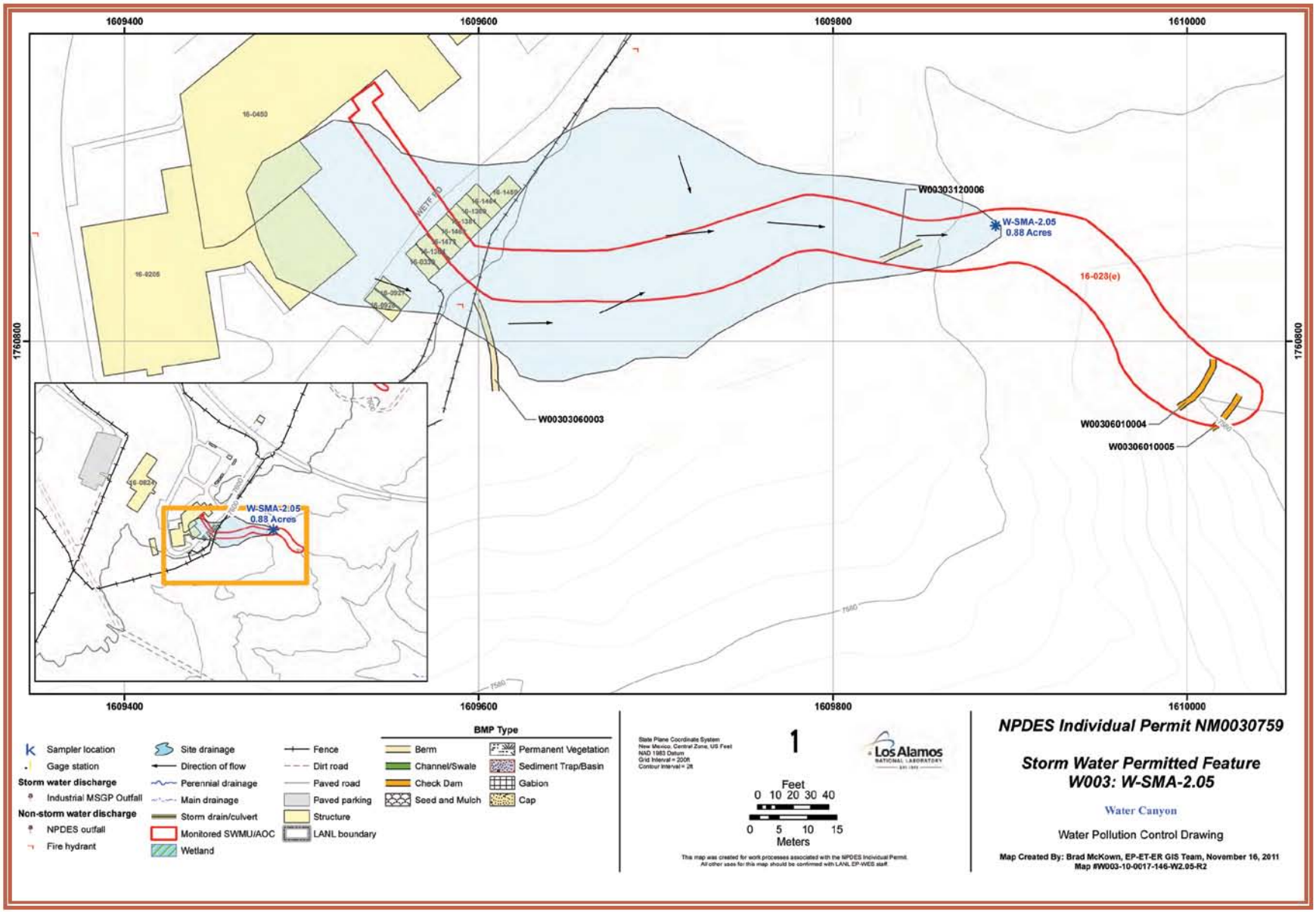
Rock Berm (W003-03-12-0006)

This rock berm was installed west of the sampler to control run-off and sediment transport. Rock berms are used for flow reduction and sediment control in situations with unchannelized flow.

Rock Check Dams (W003-06-01-0004, -0005)

This pair of check dams are located in the channel east of the sampler 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.


1609400
1609600
1609800
1610000
1760800
W00303120006
W-SMA-2.05
0.88 Acres
16-023(e)
W00303060003
W00306010004
W00306010005
16-0450
16-0205
16-0824
16-1464
16-1469
16-1479
16-1384
16-1386
16-0329
16-0927
16-0926
WETLAND
1580
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
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid Interval = 200ft
Contour Interval = 2ft
1
Feet
0 10 20 30 40
0 5 10 15
Meters
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-WES staff.
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W003: W-SMA-2.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, November 16, 2011
Map #W003-10-0017-146-W2.05-R2

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.

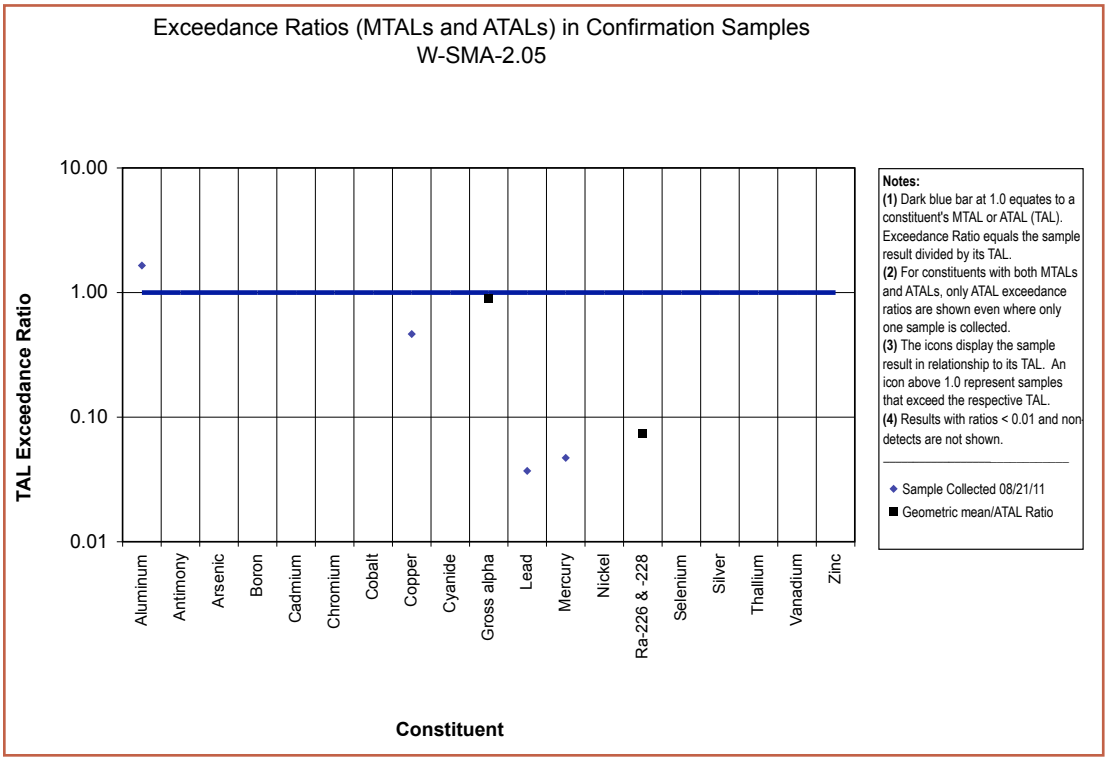
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.30.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-2.05 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.



1000.30.5.2 Inspection Activity

RG253 recorded ten Storm Events at W-SMA-2.05 during the 2011 season. These rain events triggered five post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.30.5.3-1.

Table 1000.30.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13990	07-18-2011
Storm Rain Event	BMP-14945	07-25-2011
Storm Rain Event	BMP-15274	08-01-2011
Storm Rain Event	BMP-15950	08-05-2011
Storm Rain Event	BMP-16329	08-10-2011
Storm Rain Event	BMP-17313	09-01-2011
Annual Erosion	COMP-19551	09-22-2011
Visual Inspection	BMP-21580	11-08-2011

1000.30.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.30.5.4-1.

Table 1000.30.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-14945	Leaves and needlecast removed from behind rock check dam W00306010004.	07-25-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15950	Removed needle cast and leaf debris from behind rock check dam W00306010005.	08-05-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-15950	Removed needle cast and leaf debris from behind rock check dam W00306010004. Built up and extended rock check dam W00306010004.	08-05-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17313	Repositioned rocks back to original location on rock check dam W00306010004.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.30.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17313	Repositioned rocks back to original location on rock check dam W00306010005.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19551	Rock check dam W00306010004 modified and extended.	10-13-2011	21 day(s)	Maintenance conducted as soon as practicable.
COMP-19551	Installed rock berm W00303120006.	10-13-2011	21 day(s)	Maintenance conducted as soon as practicable.

1000.30.6 Compliance Status

The Site associated with W-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.

1000.31 W-SMA-3.5

1000.31 W-SMA-3.5

1000.31.1 Area Description

W-SMA-3.5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved access roads. The southern boundary of the SMA is undeveloped and gently slopes towards the receiving waters further south. The eastern boundary of the SMA is influenced by structures and paved access roads. The western boundary of the SMA is largely undeveloped.

1000.31.2 Potential Pollutant Sources

1000.31.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W004, W-SMA-3.5, Site 16-026(y).

SWMU 16-026(y) is an outfall at TA-16 that serves building 16-411. The drainline to the outfall is a 4-in.-diameter VCP that exits building 16-411 on its west side and turns south to terminate at its discharge point on the hill slope of Water Canyon. The discharge point is located south of a double security fence at the edge of Water Canyon. Building 16-411 was built in 1951 and used for the assembly of finished HE components. The outfall received discharges from an equipment room floor drain, a sink, roof drains, a water fountain, and an eyewash station. In the 1990's, the roof drains were rerouted to a separate outfall and the other drains were either plugged or rerouted to a holding tank.

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
16-026(y)	Outfall from Building 16-411	Discrete Location, No overlap	Individual	•		•	

1000.31.3 Control Measures

Potential run-on sources at this SMA include run-on from paved roads and possibly roof drainage associated with structure 16-0411.

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	
W004 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W004 03 06 0004	Berms - Straw Wattles	•			•	CB
W004 03 06 0005	Berms - Straw Wattles	•			•	CB
W004 03 06 0006	Berms - Straw Wattles	•			•	CB
W004 04 06 0003	Channel/Swale - Rip Rap		•	•		CB
W004 06 01 0007	Check Dam - Rock		•		•	CB

Established Vegetation (W004-02-01-0002)

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.

Straw Wattles (W004-03-06-0004, -0005, -0006)

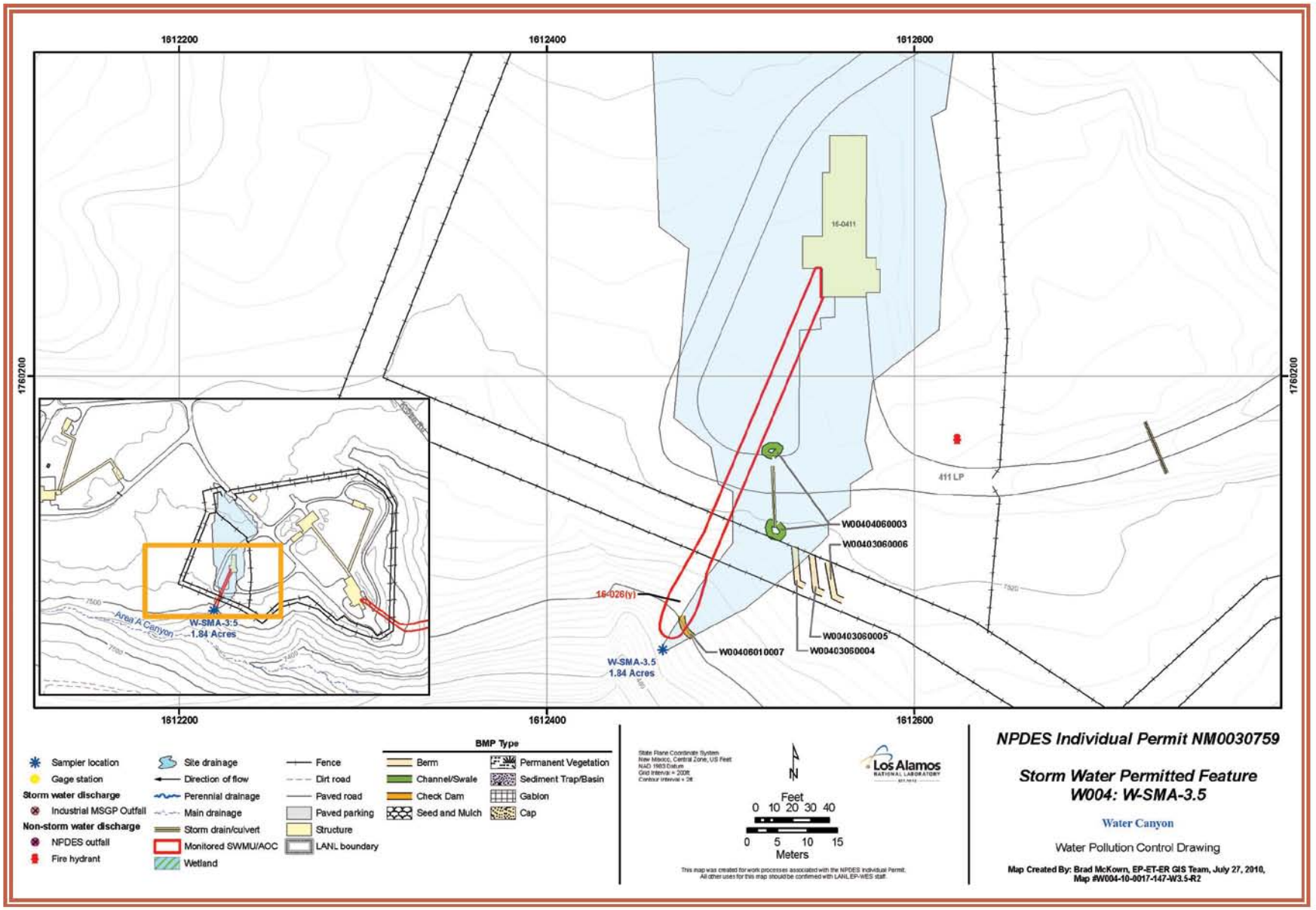
These three wattles are between the fences in bare area south of road. They control run-on and sediment. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Channel/Swale - Rip Rap (W004-04-06-0003)

These areas of rip rap serve as inlet and outlet protection for the associated culvert. They control run-off and 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.

Check Dam - Rock (W004-06-01-0007)

This check dam is directly northeast of the sampler. It controls 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.


1612200
1612400
1612600
1760200
16-0411
411 LP
W00404060003
W00403060006
16-026(y)
W00403060005
W00406010007
W00403060004
W-SMA-3.5
1.84 Acres
Area A Canyon
W-SMA-3:5
1.84 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 10 20 30 40
0 5 10 15
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W004: W-SMA-3.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W004-10-0017-147-W3.5-R2

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
• (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).

1000.31.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-3.5. 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.

1000.31.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-3.5 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 1000.31.5.2-1.

Table 1000.31.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13989	07-15-2011
Storm Rain Event	BMP-16378	08-15-2011
Storm Rain Event	BMP-17593	08-30-2011
Storm Rain Event	BMP-18482	09-13-2011
Annual Erosion	COMP-19552	09-22-2011
Storm Rain Event	BMP-19410	09-27-2011

1000.31.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-3.5.

1000.31.6 Compliance Status

The Site associated with W-SMA-3.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.32 W-SMA-4.1

1000.32 W-SMA-4.1

1000.32.1 Area Description

W-SMA-4.1 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are largely undeveloped but may be influenced by paved areas associated with building 16-0410. The eastern boundary of the SMA is undeveloped and moderately sloping towards the receiving waters further east. The western boundary of the SMA is influenced by paved access roads and parking associated with building 16-0410.

1000.32.2 Potential Pollutant Sources

1000.32.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W005, W-SMA-4.1, Site 16-003(a).

SWMU 16-003(a) is an HE sump and outfall that served assembly building 16-410 at TA-16. The concrete sump is located on the exterior southeast wall of the building and is 12 ft long x 4 ft wide x 5 ft high. The sump served floor, roof, and equipment drains and removed suspended HE solids from process water before it was discharged to the outfall, which is located approximately 320 ft southeast of the building. The sump was installed in the early 1950s and modified in 1966 to improve its effectiveness and to reduce HE handling. The outfall was National Pollutant Discharge Elimination System- (NPDES) permitted (05A053) and was removed from the NPDES permit effective January 14, 1998.

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
16-003(a)	Sump	Discrete Location, No overlap	Individual	•	•	•	HE

1000.32.3 Control Measures

The potential for run-on contributions to this SMA is minimal. The terrain is rolling and storm water discharge is greatly reduced by this topographical feature and the existing vegetation. The access road is graded away from the drainage channel diverting run-on from the paved area away from the SMA. Planned controls are to fortify sediment retention associated with potential run-off from this SMA.

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	
W005 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W005 03 06 0002	Berms - Straw Wattles		•		•	CB
W005 03 06 0003	Berms - Straw Wattles	•			•	CB
W005 03 06 0004	Berms - Straw Wattles	•			•	CB
W005 03 06 0005	Berms - Straw Wattles	•			•	CB

Established Vegetation (W005-02-01-0001)

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 (W005-03-06-0002)

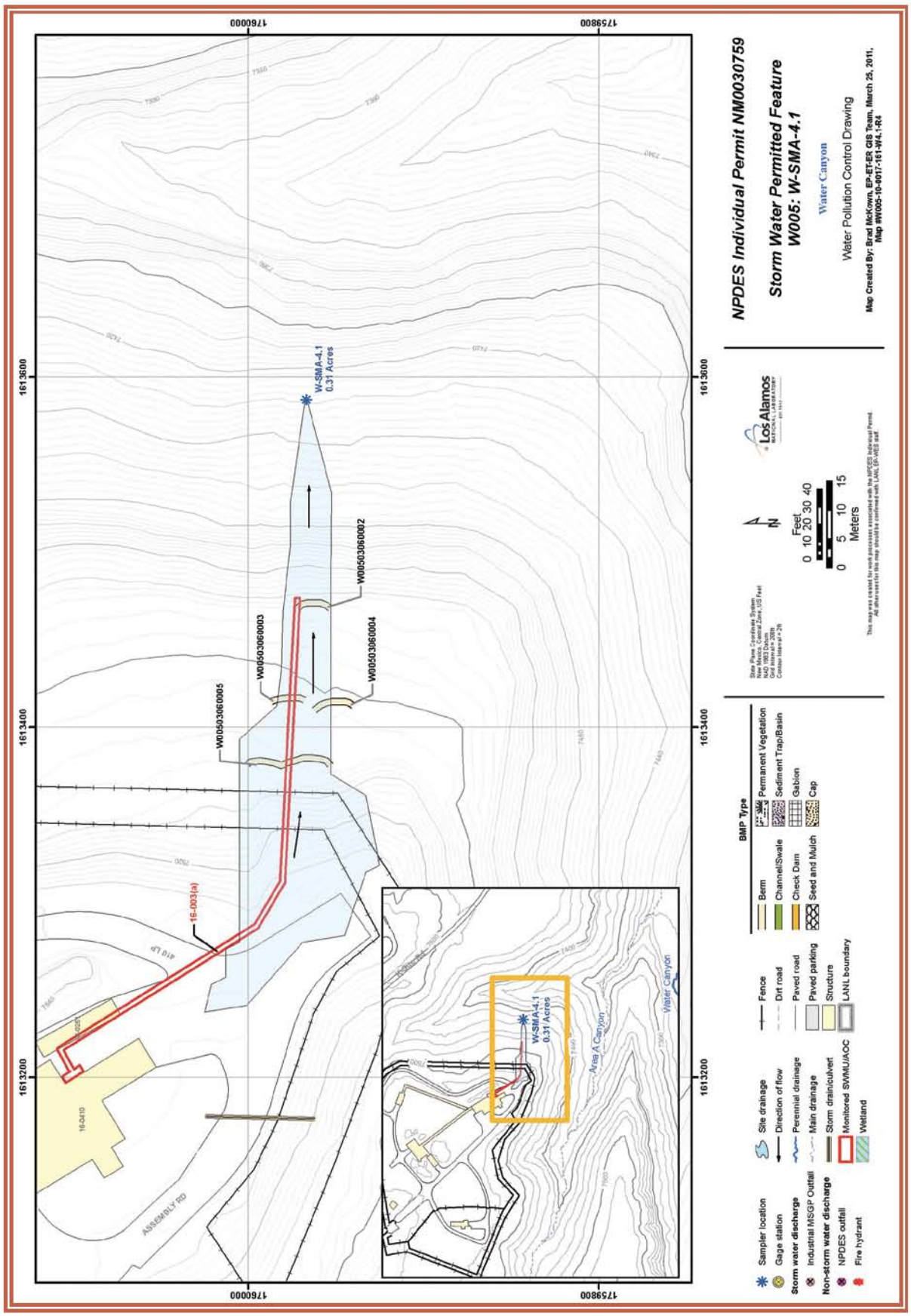
This wattle lies approximately 100 feet west of the sampler to control run-off and sediment, placed east of the other wattles. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Straw Wattles (W005-03-06-0003, -0004)

These wattles are located east of the fence to manage run-on and capture 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 - West (W005-03-06-0005)

This group of two wattles as one BMP is west of the -0003 and -0004 pair to control run-on and sediment east of the fence. 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.


NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W005: W-SMA-4.1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, March 25, 2011,
Map #W005-10-8017-161-W4.1-R4
W-SMA-4.1
0.31 Acres
W00503060002
W00503060003
W00503060004
W00503060005
16-003(a)
16-0410
ASSEMBLY RD
Area A Canyon
Water Canyon
1613600
1613400
1613200
1760000
1759800
Feet
0 10 20 30 40
Meters
0 5 10 15
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

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)	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).

1000.32.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-4.1. 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.

1000.32.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-4.1 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 1000.32.5.2-1.

Table 1000.32.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13988	07-15-2011
Storm Rain Event	BMP-16379	08-15-2011
Storm Rain Event	BMP-17594	08-23-2011
Storm Rain Event	BMP-18483	09-13-2011
Annual Erosion	COMP-19553	09-22-2011
Storm Rain Event	BMP-19411	09-22-2011

1000.32.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-4.1.

1000.32.6 Compliance Status

The Site associated with W-SMA-4.1 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.33 W-SMA-5

1000.33 W-SMA-5

1000.33.1 Area Description

W-SMA-5 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by moderate development consisting of structures and paved access roads. The southern boundary of the SMA is influenced by moderate development and gently slopes to the east. The eastern boundary of the SMA is influenced by structures and associated paved areas. The receiving waters are further east along this boundary. The western boundary of the SMA is largely undeveloped and gently sloping eastward.

1000.33.2 Potential Pollutant Sources

1000.33.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF W006, W-SMA-5, Sites 16-001(e), 16-003(f), 16-026(b), 16-026(c), 16-026(d) and 16-026(e).

SWMU 16-001(e) is an inactive dry well located at TA-16 approximately 170 ft east of HE processing building 16-306. Constructed in the 1980s, the dry well never functioned properly, because it drained to impermeable tuff (Qbt 4). Eventually, the dry well was filled with soil and capped with concrete.

SWMU 16-003(f) consists of two inactive HE sumps at TA-16 associated with building 16-304. The sumps are located on the exterior northeast side of the building. Constructed between 1951 and 1953, building 16-304 was used for developing and fabricating plastic components for the weapons program. Chemical solvents were used in the building.

SWMU 16-026(b) is an outfall located to the east of a rest house (building 16-307). The outfall formerly received from two HE sumps [SWMU 16-029(a)] located near the exterior southeast wall of the rest house. The outfall discharged to Water Canyon. The sumps were plugged in 1990–1991. Used to store molds and materials for plastics development, the rest house also previously housed a solvent disassembly tank used to remove HE from test devices.

SWMU 16-026(c) is an outfall located at TA-16 to the south of a rest house (building 16-305). The outfall formerly received discharge from two HE sumps [SWMU 16-029(b)] located near the exterior southwest wall of the rest house. The outfall discharged to Water Canyon. The sumps were plugged in 1990-1991. Used to store chemicals and solvents for plastics development and production, the rest house was also used for filament winding of developmental weapons components.

SWMU 16-026(d) is an outfall located to the southeast of a rest house (building 16-303). The outfall formerly received discharge from two HE sumps [SWMU 16-029(c)] located on the exterior southwest wall of the rest house. The outfall discharged to Martin Spring Canyon. The sumps were plugged in 1990-1991.

SWMU 16-026(e) is an outfall located to the south of building 16-301. The outfall formerly received discharge from two HE sumps [SWMU 16-029(d)] located on the exterior west side of building 16-301. The outfall discharged to Martin Spring Canyon. The sumps were plugged in 1990-1991. Building 16-301 originally housed mock-HE processing operations and stored raw materials that were used to prepare mock HE. Building 16-301 was later used as an environmental testing laboratory for research into the effects of temperature, pressure, and humidity on weapons and components.

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
16-001(e)	Dry well	Co-located, Overlapping	Shared	•	•	•	SVC
16-003(f)	Sumps	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(b)	Outfall from Structure 16-307	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(c)	Outfall from Building 16-305 Drain	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(d)	Outfall from Building 16-303	Co-located, Overlapping	Shared	•	•	•	SVC
16-026(e)	Outfall from Structure 16-301	Co-located, Overlapping	Shared	•	•	•	SVC

Substantially Identical Determination

Sites grouped within this SMA are associated with historical HE casting-activities conducted in facilities comprising the 300s Line at TA-16. These Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.33.3 Control Measures

There are multiple potential sources of run-on to the SMA. Run-on originating east of K-Site road feeds a culvert that discharges into the channel in Site 16-026(c). Additionally, run-on from the facilities and the paved areas that are in the western portion of the SMA contribute run-on to the 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.

Table 1000.33.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W006 01 01 0002	Seed and Mulch - Seed and Wood Mulch	•		•		CB
W006 02 01 0009	Established Vegetation - Grasses and Shrubs			•		CB
W006 03 06 0001	Berms - Straw Wattles	•			•	CB
W006 03 06 0019	Berms - Straw Wattles	•			•	B
W006 04 04 0011	Channel/Swale - Culvert	•		•		CB
W006 04 06 0006	Channel/Swale - Rip Rap	•		•		CB
W006 04 06 0007	Channel/Swale - Rip Rap	•		•		CB
W006 06 01 0003	Check Dam - Rock		•		•	CB
W006 06 01 0012	Check Dam - Rock		•		•	CB
W006 06 01 0013	Check Dam - Rock		•		•	CB
W006 06 01 0014	Check Dam - Rock		•		•	CB
W006 06 01 0015	Check Dam - Rock		•		•	CB
W006 06 01 0017	Check Dam - Rock		•		•	CB

Table 1000.33.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W006 06 01 0020	Check Dam - Rock		•		•	B
W006 06 01 0021	Check Dam - Rock		•		•	B
W006 07 01 0004	Gabions - Gabions		•		•	CB
W006 07 01 0010	Gabions - Gabions		•		•	CB

Seed and Mulch (W006-01-01-0002)

This mulched area is located on the slope to the east of the paved access road, west of the sampler and is helping to control run-on from the road. 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 (W006-02-01-0009)

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 (W006-03-06-0001)

The straw wattles are located on the slope to the east of the paved access road. They are helping to control run-on to 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.

Straw Wattles - South (W006-03-06-0019)

This wattle is located northwest of the sampler and south of 16-001(e). It is used to help managestorm water run-on from the paved areas and the slope above the sampler. 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.

Culvert (W006-04-04-0011)

The culvert is located east of building 16-0306 across HE Road. It is used to mitigate run-on from the slope above. A transverse and totally enclosed drain typically used under roads to divert storm water off of or away from impervious surfaces.

Rip Rap - East (W006-04-06-0006)

The rip rap is located to the east of the unpaved access road near the eastern boundary of the SMA. Its purpose is to control erosion below the culvert outlet. 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 Rip Rap (W006-04-06-0007)

This rip rap is located in the channel northwest of the sampler and is in place to mitigate 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 (W006-06-01-0003)

The check dam is located in the channel west of the sampler. It is controlling run-off from 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.

Rock Check Dams (W006-06-01-0012, -0013, -0014, -0015, -0017, -0021)

This group of six check dams is installed in channels west of the buildings, east of K Site Road. They 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.

Rock Check Dam - East (W006-06-01-0020)

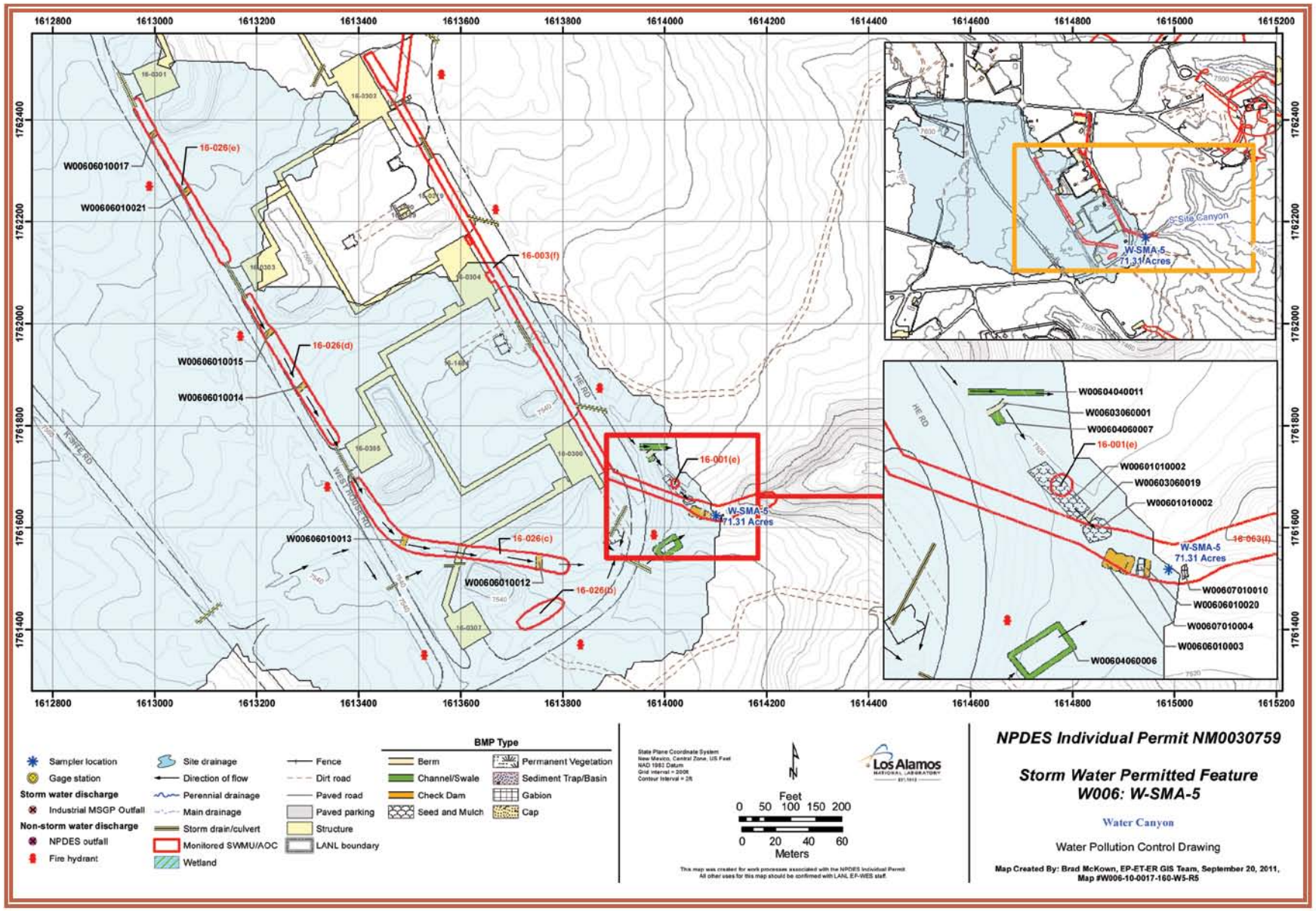
This rock check dam is located in the channel west of the sampler to control run-off from the area. Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other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

Gabions - West (W006-07-01-0004)

The gabion is located just to the west of the sampler. It is regulating run-off 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.

Gabions - East (W006-07-01-0010)

This gabion is located immediately to the east of the sampler. It functions as a run-off control for the monitored 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.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1615000
1615200
1762400
1762200
1762000
1761800
1761600
1761400
16-026(e)
W00606010017
W00606010021
16-003(f)
16-026(d)
W00606010015
W00606010014
16-001(e)
W-SMA-5
71.31 Acres
W00606010013
16-026(c)
W00606010012
16-026(b)
Sila Canyon
W00604040011
W00603060001
W00604060007
W00601010002
W00603060019
W00607010010
W00606010020
W00607010004
W00606010003
W00604060006
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
0 20 40 60
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W006: W-SMA-5
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, September 20, 2011,
Map #W006-10-0017-160-W5-R5

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
• (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).

1000.33.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-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.

1000.33.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-5 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 1000.33.5.2-1.

Table 1000.33.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13987	07-13-2011
Storm Rain Event	BMP-16380	08-15-2011
Storm Rain Event	BMP-17595	09-01-2011
Storm Rain Event	BMP-18484	09-06-2011
Storm Rain Event	BMP-19412	09-27-2011
Annual Erosion	COMP-19554	10-03-2011

1000.33.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.33.5.3-1.

Table 1000.33.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13987	Reshaped rock check dam W00606010012.	07-13-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16380	Cleared sediment and debris from rock check dam W00606010017.	08-15-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Cleared debris clogging culvert W00604040011.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Native rock check dam W00606010020 installed below below juniper bales W00606030005 as backup control.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Repositioned rocks for rip rap W00604060006 to original location to cover bare spots in channel.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Repositioned rocks for rock check dam W00606010012 back to original location.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Repositioned rocks for rock check dam W00606010013 back to original location.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-17595	Repositioned rocks for rock check dam W00606010017 back to original location.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.33.5.3-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17595	Rocks repositioned rocks on east end of rock check dam W00606010015 to widen.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16380	Replaced wattle W00603060018 with new wattle W00603060019 in same area.	09-06-2011	22 day(s)	Maintenance conducted as soon as practicable.
BMP-16380	Replaced rock check dam W00606010016 with new rock check dam W00606010021 in same area.	09-06-2011	22 day(s)	Maintenance conducted as soon as practicable.
BMP-18484	Added more rock to improve function of rock check dam W00606010012.	09-06-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-18484	Repositioned some of rip rap W00604060006.	09-06-2011	0 day(s)	Maintenance conducted upon inspection.
COMP-19554	Extended rock check dam W00606010012.	10-12-2011	10 day(s)	Maintenance conducted in timely manner.

1000.33.6 Compliance Status

The Sites associated with W-SMA-5 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.34 W-SMA-6

1000.34 W-SMA-6

1000.34.1 Area Description

W-SMA-6 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping southward towards the receiving waters. The southern boundary of the SMA is undeveloped and contains the receiving waters. The eastern and western boundaries of the SMA are undeveloped.

1000.34.2 Potential Pollutant Sources

1000.34.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W007, W-SMA-6, Site 11-001(c).

SWMU 11-001(c) is a former firing pit located at TA-16, northwest of former building 16-370 near the edge of Water Canyon. According to the 1990 SWMU report, the firing pit was similar in construction to Firing Pit 11-0014, which was a 37-ft semicircular wall that was 12.5 ft high and 4.5 ft thick. The SWMU 11-001(c) firing pit was first used in 1944.

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
11-001(c)	Firing site	Discrete Location, No overlap	Individual	•	•	•	HE

1000.34.3 Control Measures

There are no run-on sources at this SMA and run-off from the area is minimal. Existing controls serve to capture sediment and moderate run-off.

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

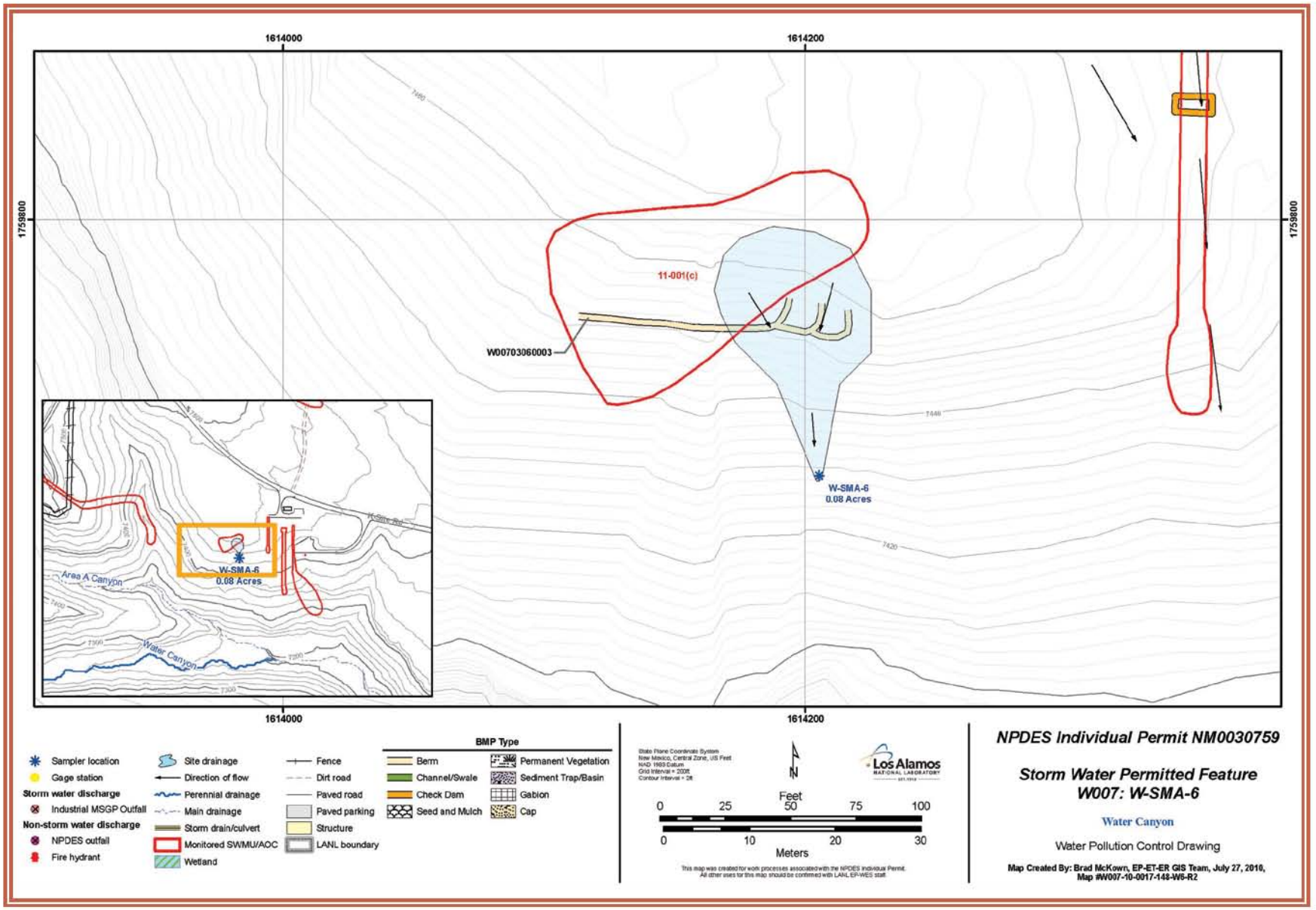
Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W007 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W007 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
W007 03 06 0003	Berms - Straw Wattles		•		•	CB

Established Vegetation (W007-02-01-001,-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 - Straw Wattles (W007-03-06-0003)

This is a group of six wattles serving as one control. They are installed to the north of the sampler 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.


1614000
1614200
1759800
11-001(c)
W00703060003
W-SMA-6
0.08 Acres
Area A Canyon
Water 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
W007: W-SMA-6
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, July 27, 2010,
Map #W007-10-0017-148-W6-R2

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
• (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).

1000.34.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-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.

1000.34.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-6 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 1000.34.5.2-1.

Table 1000.34.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13986	07-11-2011
Storm Rain Event	BMP-16381	08-10-2011
Storm Rain Event	BMP-17596	09-01-2011
Storm Rain Event	BMP-18485	09-06-2011
Annual Erosion	COMP-19555	09-22-2011
Storm Rain Event	BMP-19413	09-29-2011

1000.34.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-6.

1000.34.6 Compliance Status

The Site associated with W-SMA-6 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.35 W-SMA-7

1000.35 W-SMA-7

1000.35.1 Area Description

W-SMA-7 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary is undeveloped and gently sloping towards the receiving waters. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by structures and paved areas associated with building 16-0360.

1000.35.2 Potential Pollutant Sources

1000.35.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W008, W-SMA-7, Site 16-026(h2).

SWMU 16-026(h2) consists of four outfalls at TA-16 that served HE equipment assembly building 16-360. The western outfall received discharge from a steam pit drain. The southern outfall received condensate from three floor drains. The remaining two outfalls are located to the east of the building and discharge stormwater from roof drains. In the 1990s, the steam pit drain and floor drains were rerouted to the sanitary sewer 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
16-026(h2)	Outfall associated with Building 16-360	Discrete Location, No overlap	Individual	•		•	

1000.35.3 Control Measures

Run-on contributions from the developed areas do not greatly impact this SMA. Run-on from the southern side of building 16-0360 infiltrates into the soil south of the parking area. Run-on from the eastern side of the building roof drains to the north of the SMA.

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	
W008 01 01 0005	Seed and Mulch - Seed and Wood Mulch			•		CB
W008 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W008 02 02 0009	Established Vegetation - Forested/ Needle Cast			•		CB
W008 03 06 0010	Berms - Straw Wattles	•			•	CB
W008 03 06 0011	Berms - Straw Wattles	•			•	CB
W008 03 06 0012	Berms - Straw Wattles	•			•	CB
W008 03 06 0013	Berms - Straw Wattles	•			•	CB
W008 06 01 0001	Check Dam - Rock		•		•	CB
W008 06 01 0003	Check Dam - Rock		•		•	CB
W008 06 01 0004	Check Dam - Rock		•		•	CB

Seed and Mulch (W008-01-01-0005)

Seed and wood mulch has been applied to bare areas between the two eastern check dams. It was applied to help control erosion in the channel 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 (W008-02-01-0002, -02-0009)

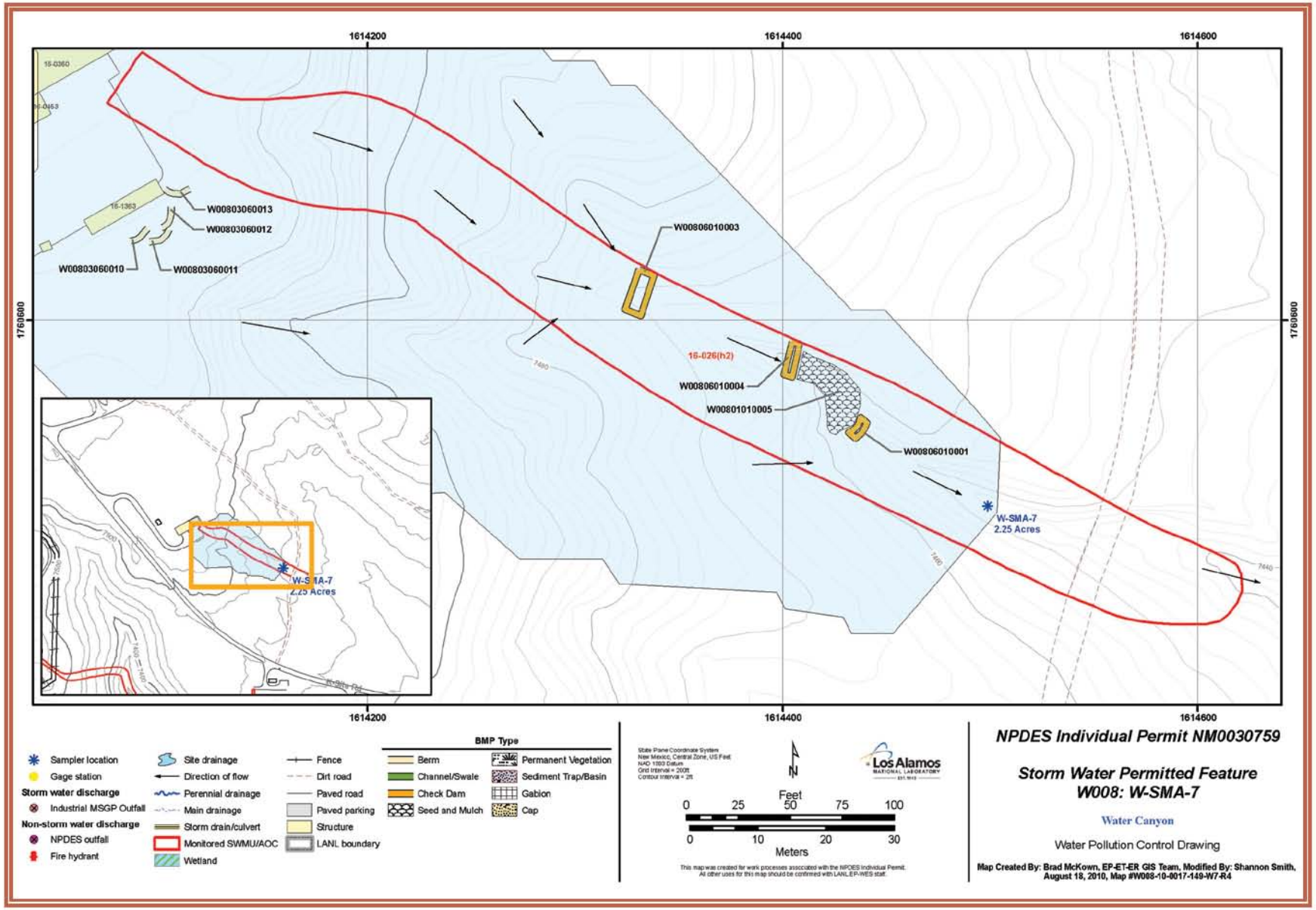
Established vegetation describes areas of existing mature vegetation that provides erosion control and storm water infiltration. There are two broad categories of existing permanent vegetation at LANL, low-growing vegetation is classified as grasses and shrubs while piñon-juniper, ponderosa pine and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

Straw Wattles (W008-03-06-0010, -0011, -0012, -0013)

Located south and east of building 16-1363, these four wattles are in place 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.

Rock Check Dams (W008-06-01-0001, -0003, -0004)

A series of three check dams are located in the drainage channel above the sampler and is controlling run-off from 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.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W00803060010
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W00806010003
16-026(h2)
W00806010004
W00801010005
W00806010001
W-SMA-7
2.25 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
W008: W-SMA-7
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Modified By: Shannon Smith, August 18, 2010, Map #W008-10-0017-149-W7-R4

1000.35.5 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).

1000.35.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-7. 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.

1000.35.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-7 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 1000.35.5.2-1.

Table 1000.35.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13985	07-11-2011
Storm Rain Event	BMP-16382	08-10-2011
Storm Rain Event	BMP-17597	08-30-2011
Storm Rain Event	BMP-18486	09-13-2011
Annual Erosion	COMP-19556	09-22-2011
Storm Rain Event	BMP-19414	09-27-2011

1000.35.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.35.5.3-1.

Table 1000.35.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13985	Moved wattle W00803060010 back into place and pounded in all stakes.	07-11-2011	0 day(s)	Maintenance conducted upon inspection.

1000.35.6 Compliance Status

The Site associated with W-SMA-7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.36 W-SMA-7.8

1000.36.1 Area Description

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

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 W-SMA-7.8

1000.36.1 Area Description

W-SMA-7.8 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA borders a paved access road (K-Site road) and gently slopes towards the south. The southern boundary of the SMA is moderately sloped and contains the receiving waters further to the south. The eastern and western boundaries of the SMA are undeveloped.

1000.36.2 Potential Pollutant Sources

1000.36.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W009, W-SMA-7.8, Site 16-031(a).

SWMU 16-031(a) is an outfall that served a former cooling tower (building 16-372) at TA-16. The outfall discharged approximately 150 ft south of the cooling tower at the edge of Water Canyon. The outfall drainline was a 6-in.-diameter VCP that originated from a drain inside the southeast corner of the cooling tower. The cooling tower served building 16-370, a barium nitrate grinding facility and metal-forming shop. The cooling tower was built in 1953 and was burned during the Cerro Grande fire in 2000. The concrete foundation remains in place.

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
16-031(a)	Outfall from cooling tower 16-372	Discrete Location, No overlap	Individual	•		•	

1000.36.3 Control Measures

There is a potential for run-on from the paved areas north of the SMA. Existing controls manage run-on and sediment migration.

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	
W009 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W009 03 01 0004	Berms - Earthen	•			•	CB
W009 04 06 0003	Channel/Swale - Rip Rap	•		•		CB
W009 06 01 0001	Check Dam - Rock	•			•	CB
W009 06 01 0005	Check Dam - Rock	•			•	CB
W009 06 01 0006	Check Dam - Rock	•			•	CB
W009 06 01 0007	Check Dam - Rock		•		•	CB

Established Vegetation (W009-02-01-0002)

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 (W009-03-01-0004)

This berm is in the northern area of the site to manage run-on and sediment as water flows south to a series of check dams. 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 (W009-04-06-0003)

This rip rap is located to the north of berm -0004, and is used to control run-on before it reaches the berm and check dams. 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 (W009-06-01-0001)

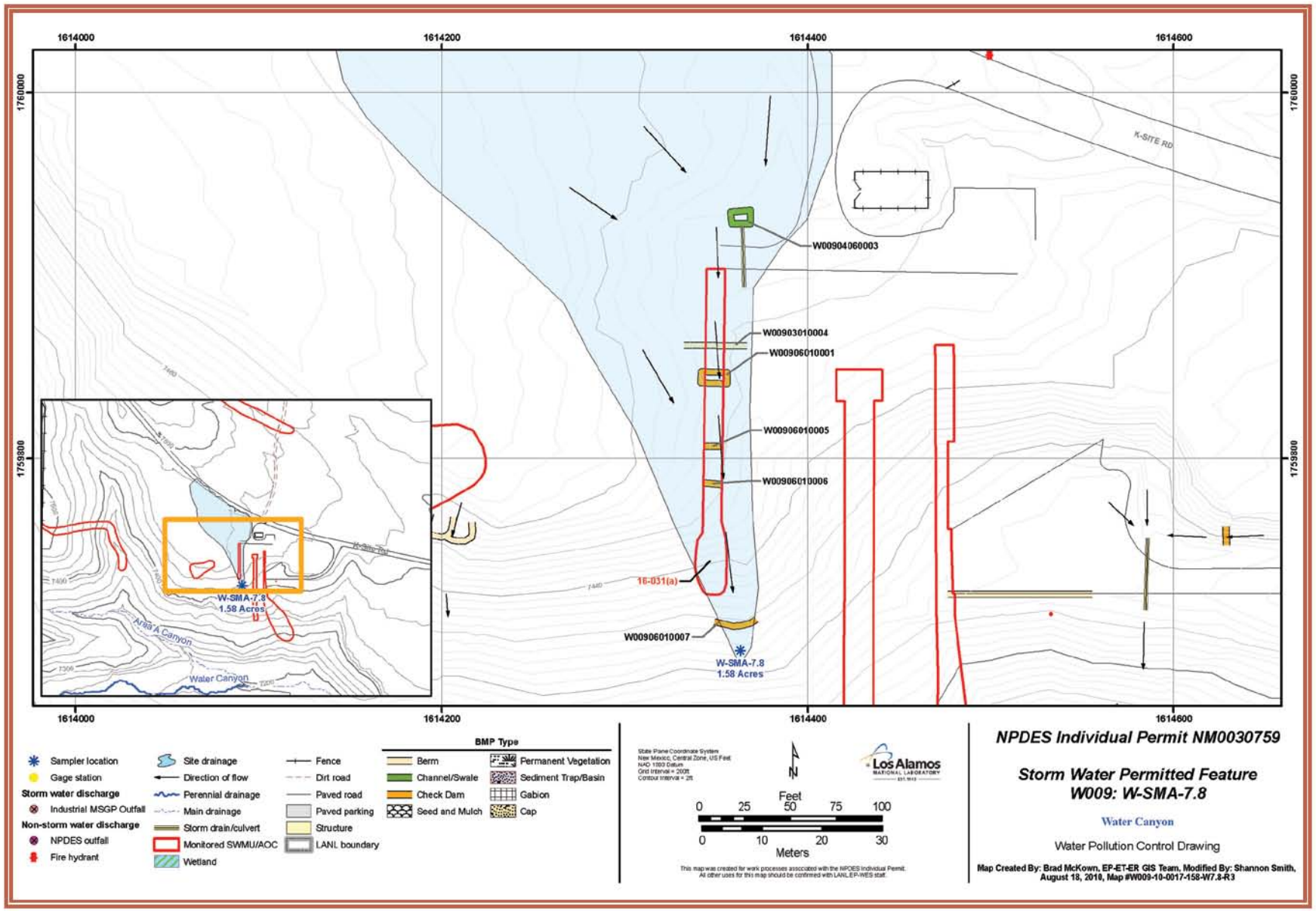
The check dam is centrally located in the SMA in a natural channel. It is used to control run-on to Site 16-031(a). Check dams reduce scour and channel erosion by reducing flow velocity and encouraging sediment settlement. A check dam is a small device constructed of rock, gravel bags, sandbags, fiber rolls, or other proprietary product placed across a natural or man-made channel or drainage ditch.

Check Dams- Rock (W009-06-01-0005, -0006)

These two check dams are located north of the sampler 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.

Check Dam (Rock) (W009-06-01-0007)

This check dam is directly north of the sampler and controls 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.


1614000
1614200
1614400
1614600
1760000
1759800
K-SITE RD
W00904060003
W00903010004
W00906010001
W00906010005
W00906010006
W00906010007
16-031(a)
W-SMA-7.8
1.58 Acres
Area A Canyon
Water 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
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W009: W-SMA-7.8
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, Modified By: Shannon Smith, August 18, 2010, Map #W009-10-0017-158-W7.8-R3

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 W-SMA-7.8. 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

RG257 recorded four Storm Events at W-SMA-7.8 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-13984	07-11-2011
Storm Rain Event	BMP-16383	08-10-2011
Storm Rain Event	BMP-17598	08-31-2011
Storm Rain Event	BMP-18487	09-06-2011
Annual Erosion	COMP-19557	09-22-2011
Storm Rain Event	BMP-19415	09-29-2011

1000.36.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-7.8.

1000.36.6 Compliance Status

The Site associated with W-SMA-7.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.37 W-SMA-7.9

1000.37.1 Area Description

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

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 W-SMA-7.9

1000.37.1 Area Description

W-SMA-7.9 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is undeveloped. The southern boundary of the SMA is undeveloped and steeply sloped. The receiving waters are further south on this boundary. The eastern and western boundaries of the SMA are undeveloped.

1000.37.2 Potential Pollutant Sources

1000.37.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W010, W-SMA-7.9, Site 16-006(c).

SWMU 16-006(c) is a septic system located at TA-16, just west of former building 16-370. The septic system served building 16-370 and consisted of a 1200-gal. concrete septic tank (structure 16-371) and outfall drainline. The 1990 SWMU Report states that the septic tank discharged to a drain field. However, engineering drawings do not verify the existence of a drain field. The tank was constructed in 1953 and served floor drains and bathrooms on the third floor of building 16-370. Associated drainlines connect to a manhole (structure 16-813) which drained to the septic tank. The outlet line drained to an outfall approximately 260 ft south of the septic tank. The outfall discharged at the edge of Water Canyon. After the drainline was plugged, the tank was pumped regularly during the time building 16-370 remained operational.

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
16-006(c)	Septic Tank	Discrete Location, No overlap	Individual	•	•	•	SVC

1000.37.3 Control Measures

There are no run-on sources at this SMA. Existing controls manage run-off and sediment migration.

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.

1000.37.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.37.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W010 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
W010 06 01 0003	Check Dam - Rock		•		•	CB

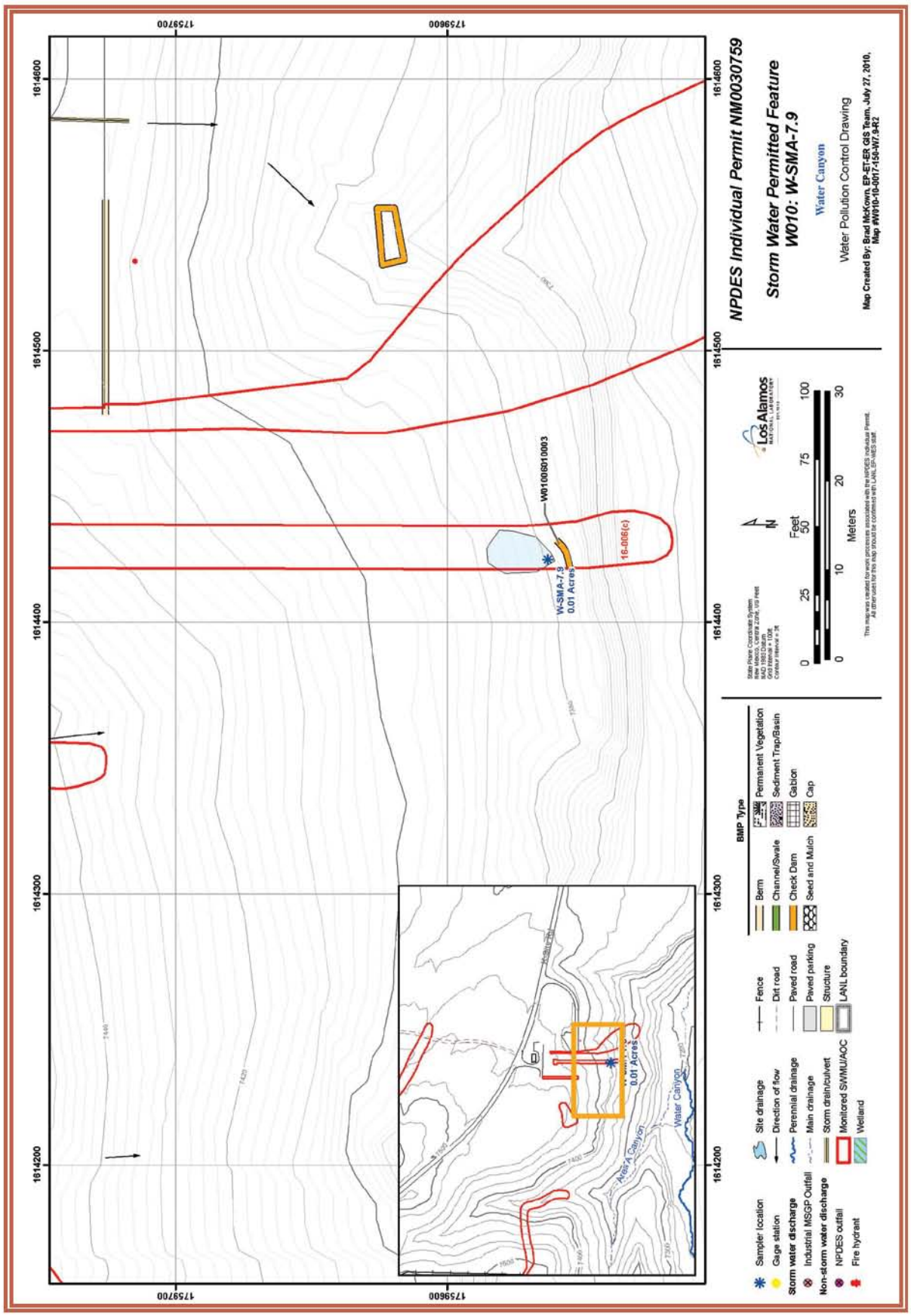
Established Vegetation (W010-02-02-0002)

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 Dam (W010-06-01-0003)

This check dam is installed directly south of the sampler and controls 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.

1000.37.4 Project Map



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)	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).

1000.37.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-7.9. 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.

1000.37.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-7.9 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-13983	07-11-2011
Storm Rain Event	BMP-16373	08-10-2011
Storm Rain Event	BMP-17588	08-31-2011
Storm Rain Event	BMP-18477	09-06-2011
Storm Rain Event	BMP-19405	09-21-2011
Annual Erosion	COMP-19558	09-22-2011

1000.37.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-7.9.

1000.37.6 Compliance Status

The Site associated with W-SMA-7.9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.38 W-SMA-8

1000.38 W-SMA-8

1000.38.1 Area Description

W-SMA-8 is located within TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by paved surfaces and an access road. The southern boundary of the SMA is undeveloped and slopes towards the receiving waters further south. The eastern boundary of the SMA is influenced by a paved access road. The western boundary of the SMA is undeveloped.

1000.38.2 Potential Pollutant Sources

1000.38.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W011, W-SMA-8, Sites 16-016(g) and 16-028(b).

SWMU 16-016(g) is a surface disposal area at TA-16 associated with former building 16-370. Debris includes cans and pipes that were distributed over a 20-ft-diameter area and located in a drainage ditch approximately 60 ft south of the building.

SWMU 16-028(b) is a formerly NPDES-permitted outfall (04A092) at TA-16 that served former building 16-370. The outfall is located approximately 50 ft south of building 16-370. The outfall drainline consists of a 6-in. VCP that exits building 16-370 from its west side and daylights in Water Canyon. The outfall formerly received effluent from 29 floor drains, an eyewash station, a drinking fountain, and a sink. Building 16-370 was built in 1953 as a barium nitrate grinding facility. In the late 1950s, it was converted to a metal-forming shop for steel and aluminum. All drains that discharged to the outfall were plugged in the 1990s. The outfall was removed from the NPDES permit effective January 14, 1998.

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
16-016(g)	Surface disposal site	Co-located, Overlapping	Shared	•	•	•	SVC
16-028(b)	Outfall from Building 16-370	Co-located, Overlapping	Shared	•	•	•	SVC

Substantially Identical Determination

Sites grouped within this SMA are associated with historical operations at building 16-370 in TA-16. The building was decommissioned and demolished in 2005. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.38.3 Control Measures

There is the potential for run-on from the facility pad and the paved access road east of former building footprint. Existing controls controls moderate run-on at this SMA.

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	
W011 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
W011 02 02 0004	Established Vegetation - Forested/ Needle Cast			•		CB
W011 03 01 0007	Berms - Base Course	•			•	CB
W011 03 02 0008	Berms - Base Course		•		•	B
W011 06 01 0002	Check Dam - Rock	•			•	B
W011 06 01 0006	Check Dam - Rock	•			•	CB

Established Vegetation (W011-02-01-0003, -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 Berms (W011-03-01-0007)

This berm is located on the southern and western edges of the pad that was the former building It is controlling run-on to 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.

Base Course Berm (W011-03-02-0008)

This base course berm is located near the eastern edge of the site drainage and

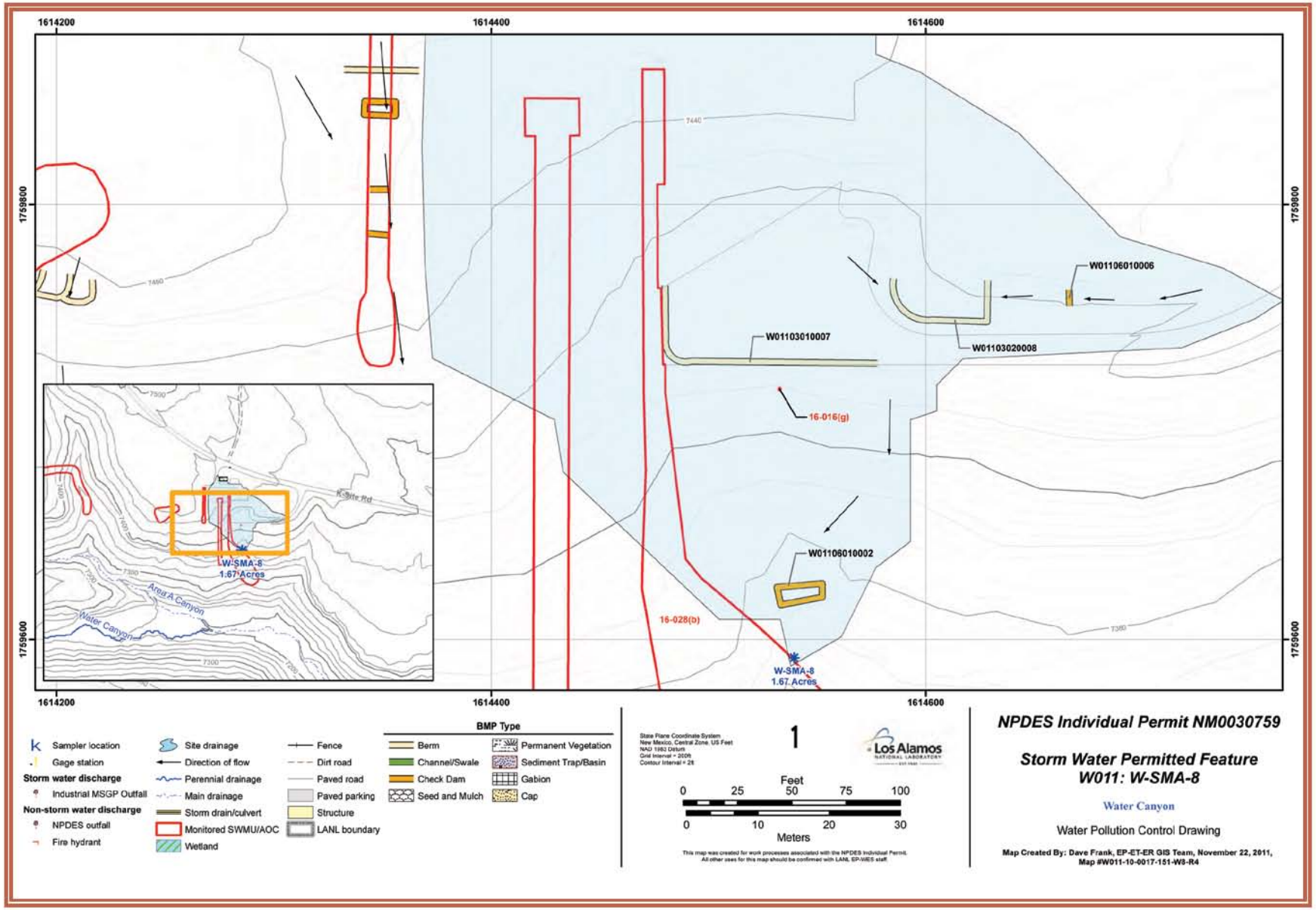
interrupts west-flowing run-on and sediment. A base course berm is a temporary containment control constructed of compacted soil, asphalt and rock. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Rock Check Dams (W011-06-01-0002)

The check dam is located to the south of the pad, in a natural channel. It is in place to mitigate run-off from the pad. 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 (W011-06-01-0006)

This rock check dam sits at the eastern edge of the site drainage and interrupts west-flowing 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.


1614200
1614400
1614600
1759800
1759600
W01106010006
W01103010007
W01103020008
16-016(g)
W01106010002
16-028(b)
W-SMA-8
1.67 Acres
R-Site Rd
Area A Canyon
Water 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
1
Feet
0 25 50 75 100
0 10 20 30
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W011: W-SMA-8
Water Canyon
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, November 22, 2011,
Map #W011-10-0017-151-W8-R4

1000.38.5 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).

1000.38.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-8. 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

RG257 recorded four Storm Events at W-SMA-8 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-13982	07-11-2011
Storm Rain Event	BMP-16374	08-10-2011
Storm Rain Event	BMP-17589	09-01-2011
Storm Rain Event	BMP-18478	09-06-2011
Storm Rain Event	BMP-19406	09-12-2011
Annual Erosion	COMP-19559	09-22-2011
Construction	COMP-21075	11-15-2011

1000.38.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.38.5.3-1.

Table 1000.38.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-17589	Extended rock check dam W01106010002 eastward towards cliff face.	09-01-2011	0 day(s)	Maintenance conducted upon inspection.

1000.38.6 Compliance Status

The Sites associated with W-SMA-8 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.39 W-SMA-8.7

1000.39.1 Area Description

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

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 W-SMA-8.7

1000.39.1 Area Description

W-SMA-8.7 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are influenced by paved and unpaved access roads. Storm water flows south and east towards the receiving waters along the southeastern boundary. The eastern boundary of the SMA is influenced by unpaved access roads. The western boundary of the SMA is influenced by paved access roads.

1000.39.2 Potential Pollutant Sources

1000.39.2.1 Historical Industrial Activity Areas

There are six historical industrial activity areas associated with PF W012, W-SMA-8.7, Sites 13-001, 13-002, 16-004(a), 16-026(j2), 16-029(h) and 16-035.

SWMU 13-001 is an inactive firing site located east of former building 16-340. The firing site is associated with firing activities conducted at P-Site (former TA-13). The area contains shrapnel and debris, including firing cables, lead balls, and chunks of steel and copper.

SWMU 13-002 is a surface disposal area located east of former building 16-340. The disposal area contains debris and shrapnel associated with firing activities conducted at P-Site (former TA-13). A portion of the TA-16 WWTP [Consolidated Unit 16-004(a)-99] is located on top of the southern tip of the surface disposal area.

SWMU 16-004(a) is the inactive Imhoff tank (structure 16-530) that was used for sewage treatment at the TA-16 sanitary WWTP. Located southeast of the former TA-16-340 Complex and north of the communitor (a cutting device for sewage solids), the Imhoff tank received effluent that flowed over a weir into a dosing siphon. Any sludge that may have collected in the tank was digested before being discharged to drying beds [SWMUs 16-004(d) and 16-004(f)].

SWMU 16-026(j2) is the outfall from an HE sump [SWMU 16-029(f)] associated with a rest house (structure 16-345). The rest house is located on the 340 Line. The line was built in 1951 and 1952 and was used to prepare plastic-bonded explosive powders. In the 1980s to 1990s, solvents were containerized to prevent their reaching the sumps. Structure 16-345 serves as an HE storage facility for Building 16-340. It has a single sump and associated drain-lines. The sump received wash-down water generated during cleaning activities. HE is the only known material that was stored in the building. The outfall is located southeast of structure 16-345 and received effluent from the sump, but the exact discharge point is unknown. Rest house 16-345 is currently inactive.

This site was sampled in 1995. Six samples were collected from five locations and submitted to an analytical laboratory for inorganic and organic chemicals, and HE analyses. Sampling results indicate that organic chemicals were detected and inorganic chemicals were present at levels exceeding SALs. In 1997, an additional eight samples were collected from two locations and submitted to an analytical laboratory for similar analyses. The additional sampling conducted in 1997 did not provide a bounding on the contamination.

SWMU 16-029(h) consists of the outfall and two inactive drainlines (one known and one alleged) from the HE sump [AOC 16-003(p)] located on the south side of former building 16-478. The known drainline exits the southeast corner of the sump and extends 80 ft east of the sump to the rim of Cañon de Valle. This drainline discharged directly into Cañon de Valle before the drainline was plugged in 1987. A second drainline is alleged to be present. The second drainline is reportedly a French drain that extends south of the sump. Former building 16-478 was used as

a bunker, utility room, control room, and high-speed machining room for tests on experimental HE. When the building was removed in 2005, the sump was left in place. During the investigation activities conducted in 2009–2010, no evidence of the French drain was found.

It should be noted that SWMU 16-029(h) was identified as an HE sump in the 1990 SWMU Report. The SWMU Report identified this sump twice: once as an inactive HE sump designateas SWMU 16-029(h) and also as an active HE sump designated as AOC 16-003(p). Addendum 2 to the Operable Unit 1082 Work Plan redefined SWMU 16-029(h) to be the drainlines and outfall associated with the sump adjacent to former building 16-478.

SWMU 16-035 is an area of potential soil contamination located approximately 200 ft east of former building 16-340. The soil contamination is associated with a former control bunker (former structure 13-2 renumbered to 16-476). The control bunker was one of several buildings constructed at TA-13 in 1944 to support the Manhattan Project. The control bunker was removed during D&D activities in 2005.

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
13-001	Firing site	Co-located, Overlapping	Shared	•	•	•	HE
13-002	Landfill	Co-located, Overlapping	Shared	•		•	
16-004(a)	Wastewater treatment facility	Co-located, Overlapping	Shared	•		•	
16-026(j2)	Outfall from former Building 16-345	Co-located, Overlapping	Shared	•		•	
16-029(h)	Outfall from former Building 16-478	Co-located, Overlapping	Shared	•		•	
16-035	Soil contamination from former Control Bunker 16-2 (Renumbered to 16-476)	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located on the mesa southeast of the TA-16-340 Complex and are associated historical operations of the P-Site (TA-13) Firing Site. They have similar contaminants, share a common drainage, and have been the subject of extensive remediation. Because of these characteristics, these Sites will discharge substantially identical effluent.

1000.39.3 Control Measures

There is potential run-on from the paved road located in the northwest portion of SMA that is discharged through the culvert. There is also the potential for run-on from the paved parking area located in the southern portion of the SMA, adjacent to structure 16-0531.

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	
W012 02 01 0004	Established Vegetation - Grasses and Shrubs			•		CB
W012 02 02 0002	Established Vegetation - Forested/ Needle Cast			•		CB
W012 03 02 0009	Berms - Base Course	•			•	CB
W012 03 06 0010	Berms - Straw Wattles		•		•	CB
W012 06 01 0006	Check Dam - Rock		•		•	CB
W012 06 01 0007	Check Dam - Rock		•		•	CB
W012 06 01 0008	Check Dam - Rock	•			•	CB

Established Vegetation (W012-02-01-0004, -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.

Base Course Berm (W012-03-02-0009)

Installed northwest of building 16-0532, this berm controls run-on and sediment. 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 (W012-03-06-0010)

This wattle is located due east of structure 16-0531 near the edge of the mesa top. It is used to help control storm water run-off in 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.

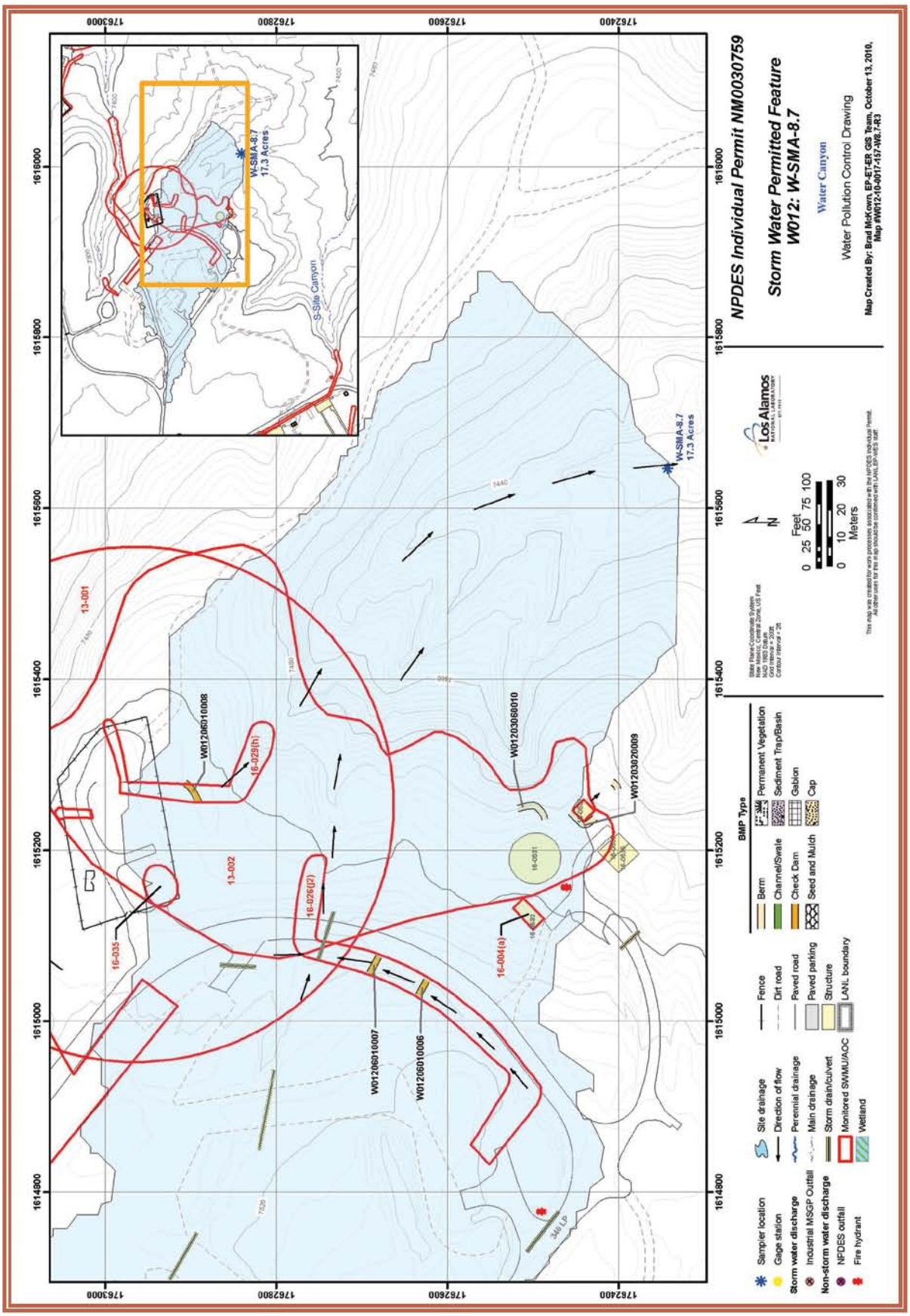
Rock Check Dams - West (W012-06-01-0006, -0007)

This is a pair of check dams located in the drainage channel west of the access road, 340 Loop. They are in place to help mitigate run-off from the paved areas and reduce sediment migration. 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 (W012-06-01-0008)

This rock check dam is located across the northern channel close to the edge of the mesa top. It is in place to help control storm water 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.

1000.39.4 Project Map



1000.39.5 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).

1000.39.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-8.7. 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

RG257 recorded four Storm Events at W-SMA-8.7 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-13981	07-12-2011
Storm Rain Event	BMP-16375	08-15-2011
Storm Rain Event	BMP-17590	09-01-2011
Storm Rain Event	BMP-18479	09-06-2011
Annual Erosion	COMP-19560	09-22-2011
Storm Rain Event	BMP-19407	09-27-2011

1000.39.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-8.7.

1000.39.6 Compliance Status

The Sites associated with W-SMA-8.7 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.40 W-SMA-8.71

1000.40 W-SMA-8.71

1000.40.1 Area Description

W-SMA-8.71 is located within TA-16 and access to the area is controlled. The northern and southern boundaries of the SMA are influenced by paved and unpaved access roads. Storm water flows south and east towards the receiving waters along the southeastern boundary. The eastern boundary of the SMA is undeveloped. The western boundary of the SMA is influenced by paved access roads.

1000.40.2 Potential Pollutant Sources

1000.40.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W012A, W-SMA-8.71, Site 16-004(c).

SWMU 16-004(c) is the inactive clarifier or final tank (structure 16-532) used for sewage treatment at the TA-16 sanitary WWTP. The clarifier was located southeast of the trickling filter. The clarifier received discharge from the trickling filter; water flowed through an outlet in the clarifier and discharged to formerly NPDES-permitted outfall EPA-SSS03S and eventually into a tributary of Water Canyon. At full capacity, structure 16-532 could manage 117,600 gal./d.

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
16-004(c)	Tank	Co-located, Overlapping	Individual	•		•	

1000.40.3 Control Measures

There is the potential for run-on from the paved access road near the SWMU.

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	
W012A 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W012A 03 02 0003	Berms - Base Course	•			•	CB
W012A 03 06 0002	Berms - Straw Wattles		•		•	CB

Established Vegetation (W012A-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.

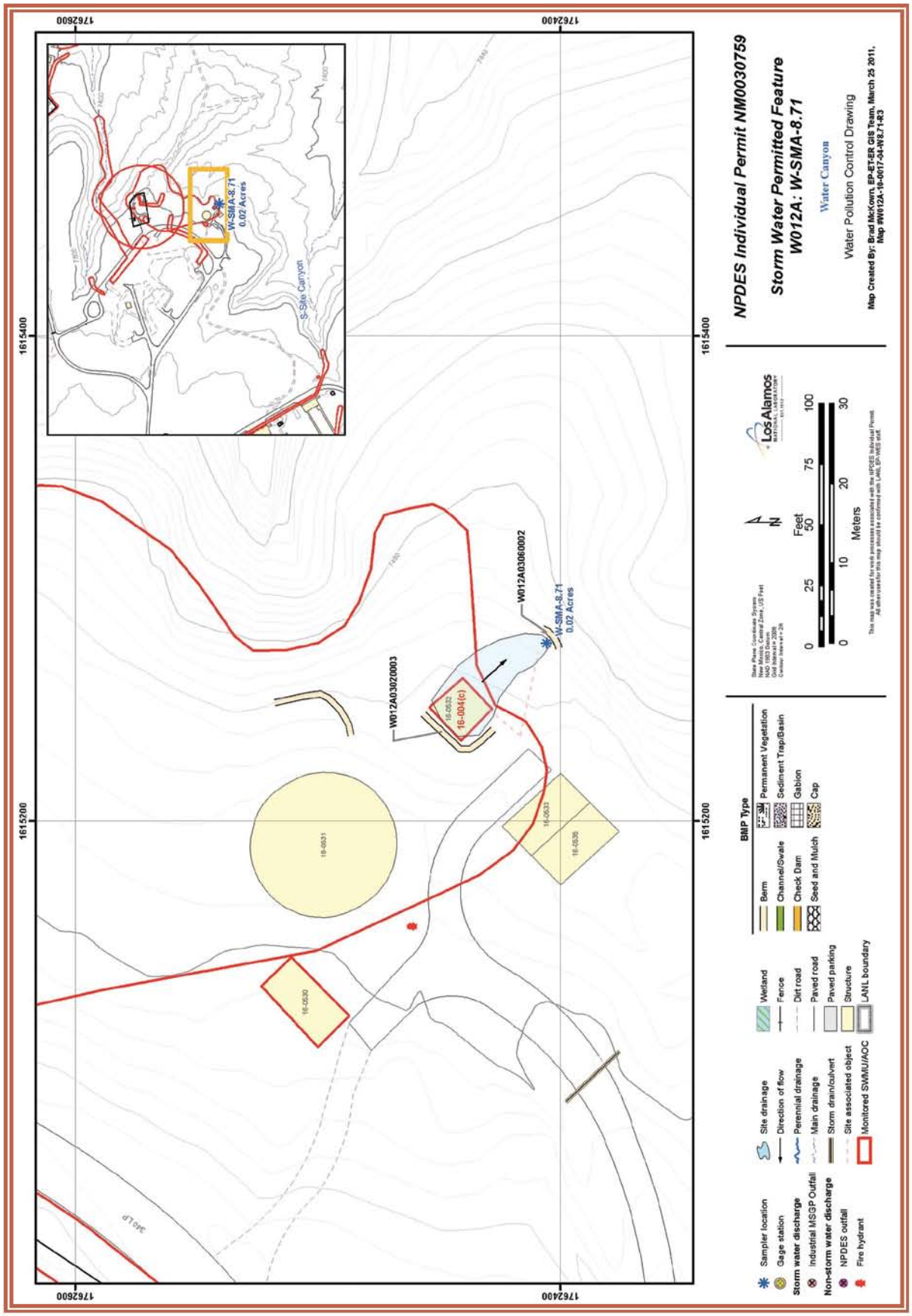
Base Course Berms (W012A-03-02-0003)

Installed west of structure 16-0532, this berm controls run-on and sediment. 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 (W012A-03-06-0002)

This wattle is southeast and adjacent to the sampler 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.

1000.40.4 Project Map



1000.40.5 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.

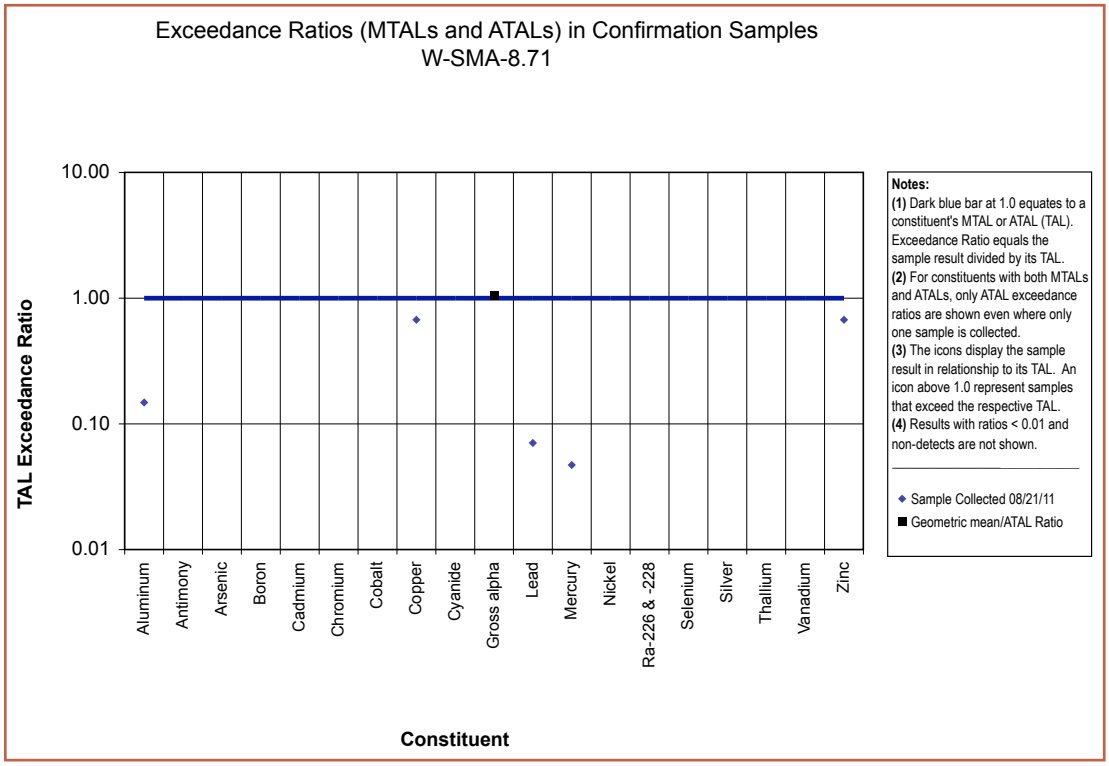
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.40.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-8.71 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.



1000.40.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-8.71 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 1000.40.5.3-1.

Table 1000.40.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13980	07-12-2011
Storm Rain Event	BMP-16384	08-11-2011
Storm Rain Event	BMP-17599	08-23-2011
Storm Rain Event	BMP-18488	09-06-2011
Annual Erosion	COMP-19561	09-22-2011
Storm Rain Event	BMP-19416	09-27-2011

1000.40.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.40.5.4-1.

Table 1000.40.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-13980	Shoveled and built back up northeast end of base course berm W012A03020003.	07-12-2011	0 day(s)	Maintenance conducted upon inspection.

1000.40.6 Compliance Status

The Site associated with W-SMA-8.71 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.41 W-SMA-9.05

1000.41 W-SMA-9.05

1000.41.1 Area Description

W-SMA-9.05 is located in TA-16 and access to the area is controlled. The northern boundary of the SMA is influenced by building 16-380 and associated paved parking. Storm water flows south through a moderately sloping and well-defined drainage to the receiving waters.

1000.41.2 Potential Pollutant Sources

1000.41.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W013, W-SMA-9.05, Site 16-030(g).

AOC 16-030(g) is an outfall located south of building 16-380 at TA-16. The outfall received effluent from a sump [SWMU 16-003(m)], two roof drains, a steam-heating system, and a drop inlet from a parking lot. The outfall was NPDES-permitted (05A052) and discharged to Water Canyon. It was removed from the NPDES permit in 1993. The sump and the steam-heating system discharge lines have been plugged, and the outfall currently receives only roof drain and parking lot run-off.

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
16-030(g)	Outfall from Building 16-380	Discrete Location, No overlap	Individual	•	•	•	HE

1000.41.3 Control Measures

There is a small amount of paved parking that contributes run-on to the site. This run-on source is adequately handled by existing controls. A much larger run-on source from the access road is diverted around this SMA. These controls are critical to effectively managing run-off from 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.

1000.41.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.41.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W013 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W013 03 01 0003	Berms - Earthen	•			•	CB
W013 03 06 0010	Berms - Earthen		•		•	B
W013 03 06 0011	Berms - Earthen		•		•	B
W013 04 04 0004	Channel/Swale - Earthen	•		•		CB
W013 06 01 0001	Check Dam - Rock		•		•	CB
W013 06 01 0012	Check Dam - Rock		•		•	B

Established Vegetation (W013-02-01-0002)

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 (W013-03-01-0003)

The earthen berm is one of several controls that serve to divert run-on from the paved access road, west and around 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.

Earthen Berms (W013-03-01-0010, -0011)

This pair of berms are located above the sampler 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.

Earthen Swale (W013-04-01-0004)

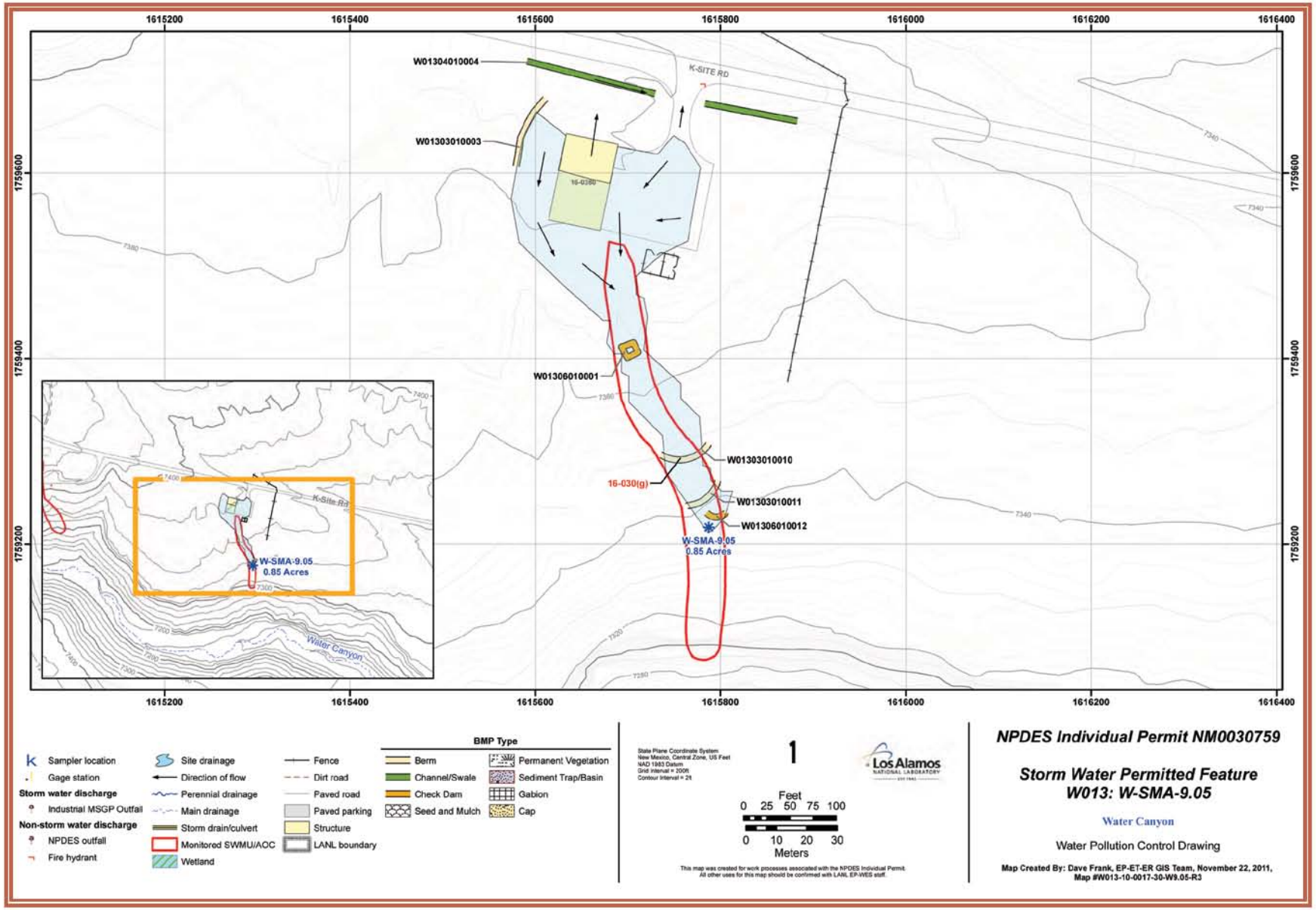
This swale serves to divert run-on from the paved road, east and around the Permitted Feature. Channels and swales are natural or constructed diversions that collect and convey concentrated flows of storm water run-off around an area. Lined channels or swales and culverts can also be used as erosion control if they transport storm water across a SWMU without contacting it.

Rock Check Dam (W013-06-01-0001)

A rock check dam is placed in the discharge channel to reduce any erosion associated with storm water run-off flowing through this well defined channel. 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 (W013-06-01-0012)

This rock check dam is located just north of the sampler 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.


1615200
1615400
1615600
1615800
1616000
1616200
1616400
1759600
1759400
1759200
W01304010004
K-SITE RD
W01303010003
16-0380
W01306010001
W01303010010
16-030(g)
W01303010011
W01306010012
W-SMA-9.05
0.85 Acres
K-Site Rd
Water 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
1
Feet
0 25 50 75 100
0 10 20 30
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W013: W-SMA-9.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, November 22, 2011,
Map #W013-10-0017-30-W9.05-R3

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)	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).

1000.41.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-9.05. 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

RG257 recorded four Storm Events at W-SMA-9.05 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-13801	07-07-2011
Storm Rain Event	BMP-16372	08-10-2011
Storm Rain Event	BMP-17587	08-31-2011
Storm Rain Event	BMP-18476	09-06-2011
Annual Erosion	COMP-19562	09-22-2011
Storm Rain Event	BMP-19404	09-27-2011
Construction	COMP-20883	11-15-2011

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-17587	Replaced straw wattles W01303060006 with new wattle W01303060009 at same location.	09-06-2011	6 day(s)	Maintenance conducted in timely manner.

1000.41.6 Compliance Status

The Site associated with W-SMA-9.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.42 W-SMA-9.5

1000.42 W-SMA-9.5

1000.42.1 Area Description

W-SMA-9.5 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and sloping gently north towards the receiving waters. The southern boundary of the SMA is undeveloped. The eastern and western boundaries of the SMA are influenced by an unpaved access road that runs through the SMA.

1000.42.2 Potential Pollutant Sources

1000.42.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W014, W-SMA-9.5, Site 11-012(c).

AOC 11-012(c) is an area of potential surface-soil contamination at the top of a knoll about 500 ft west of a control building (Building 11-4). AOC 11-012(c) is located at the site of a former 16 square foot wood storage structure (structure 11-9). Former structure 11-9 was built in 1945. A 1956 survey showed the structure was free of radioactive contamination; a 1959 inspection showed the building was free of radioactivity but showed HE contamination. Structure 11-9 was destroyed in 1960 by intentional burning and the ashes were removed and disposed of at the TA-16, MDA P. Suspect contaminants at the site are HE, HE impurities, and HE degradation products.

The OU 1082 work plan proposed sampling at the site to determine if contaminants are present.

Table-1000.42.2.1 Historical Industrial Areas within the Permitted Feature

Site	Description	Physical Configuration	Drainage Configuration	Pollutants of Concern			
				Inorg	Org		Other
11-012(c)	Soil contamination associated with former Structure 11-9	Discrete Location, No overlap	Individual	•		•	

1000.42.3 Control Measures

The unpaved access road bisecting the SMA is the highest point in the area. As a consequence, there is very little run-on contribution from this area. Run-off from the access road flows to the north.

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	
W014 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W014 03 01 0006	Berms - Earthen	•			•	B
W014 03 01 0007	Berms - Earthen	•			•	B
W014 03 06 0002	Berms - Straw Wattles		•		•	CB
W014 03 06 0003	Berms - Straw Wattles		•		•	CB

Established Vegetation (W014-02-01-0001)
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.

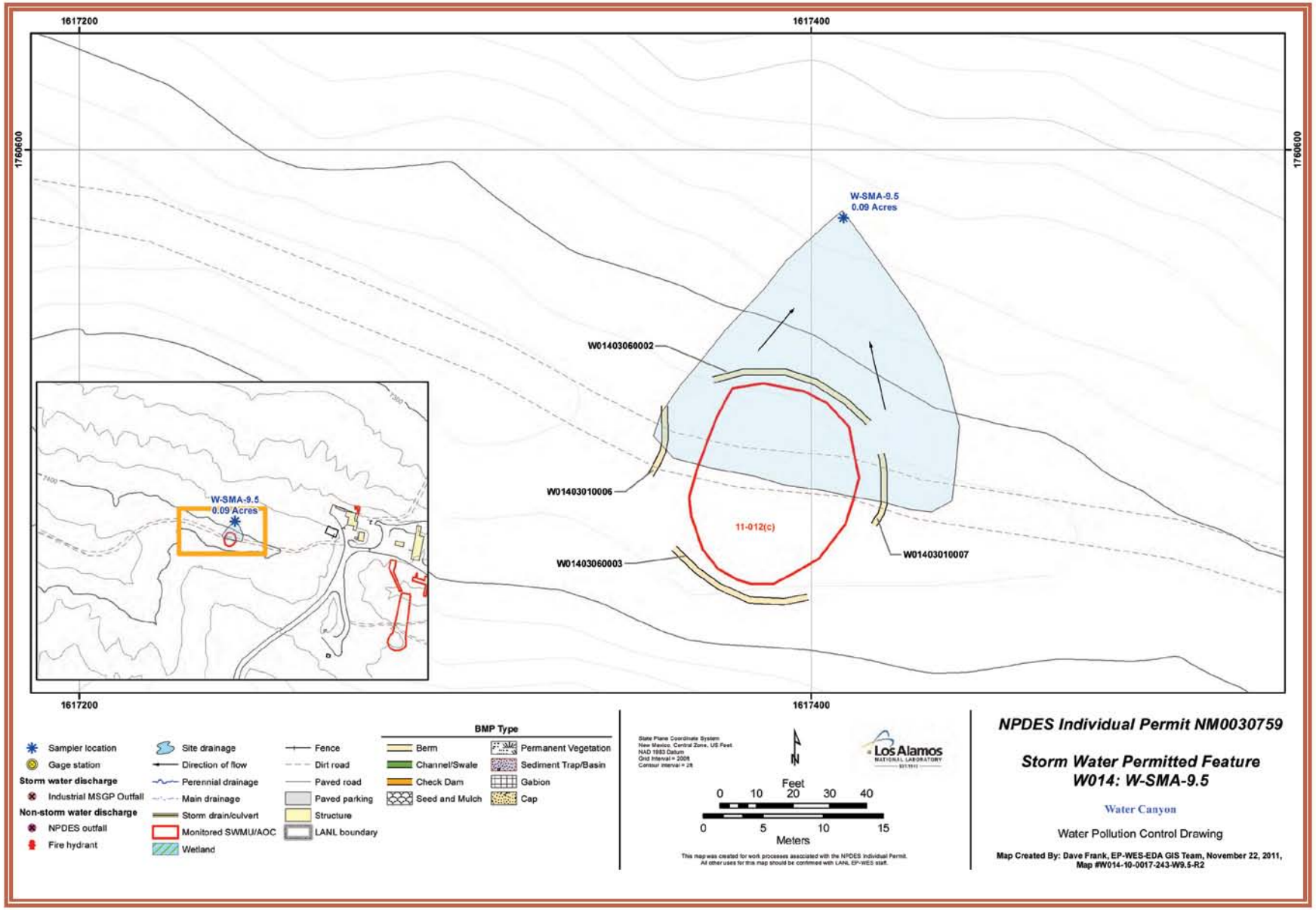
Earthen Berm - West (W014-03-01-0006)
This earthen berm is installed and west of the Site on the unpaved access road to reduce the associated storm water run-on contributions from the road. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berm - East (W014-03-01-0007)
This earthen berm is installed east of the Site on the unpaved access road to reduce the associated storm water run-on contributions from the road. 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 (W014-03-06-0002)
Wattles are installed north of the unpaved access road to improve sediment retention in storm water run-off discharges from this 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.

Straw Wattles - South (W014-03-06-0003)
This wattle, located south of the SMA, serves to control run-off from overland flow on the monitored 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.


1617200
1617400
1760600
W-SMA-9.5
0.09 Acres
W01403060002
W01403010006
W01403060003
W01403010007
11-012(c)
W-SMA-9.5
0.09 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 10 20 30 40
0 5 10 15
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W014: W-SMA-9.5
Water Canyon
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-WES-EDA GIS Team, November 22, 2011,
Map #W014-10-0017-243-W9.5-R2

1000.42.5 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)	

1000.42.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-9.5. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

1000.42.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-9.5 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 1000.42.5.2-1.

Table 1000.42.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13979	07-07-2011
Storm Rain Event	BMP-16376	08-15-2011
Storm Rain Event	BMP-17591	08-30-2011
Storm Rain Event	BMP-18480	09-08-2011
Storm Rain Event	BMP-19408	09-22-2011
Annual Erosion	COMP-17960	10-03-2011
Construction	COMP-20885	11-15-2011

1000.42.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-9.5.

1000.42.6 Compliance Status

The Site associated with W-SMA-9.5 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.43 W-SMA-9.7

1000.43 W-SMA-9.7

1000.43.1 Area Description

W-SMA-9.7 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north. The southern boundary of the SMA is influenced by structures and paved areas within the developed area of TA-11. The eastern and western boundaries of the SMA are largely undeveloped.

1000.43.2 Potential Pollutant Sources

1000.43.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W015, W-SMA-9.7, Sites 11-011(a) and 11-011(b).

SWMU 11-011(a) is an active NPDES-permitted outfall (EPA-03A130) located at TA-11 north of the K-Site complex and approximately 6 ft northeast of the Electrodynamics Vibration Test Facility (building 11-30). The outfall consists of a 2-in. pipe that discharges to a drainage channel. The outfall receives untreated cooling tower blowdown and discharges from floor drains in building 11-30A (an adjunct of building 11-30).

SWMU 11-011(b) is an outfall located at TA-11 north of the Electrodynamics Vibration Test Facility (building 11-30). The outfall consists of a 3-in. pipe that extends about 10 in. beyond the side of a hill. The outfall receives discharge from floor drains in building 11-30. A sink drain that formerly discharged to the outfall has been removed.

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
11-011(a)	Outfall from Building 11-30	Co-located, Overlapping	Shared	•		•	
11-011(b)	Outfall from Building 11-30A	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with the operation of building 11-0030. The Sites have similar contaminants, share a common drainage, and will discharge substantially identical effluent.

1000.43.3 Control Measures

Run-on to the SMA primarily originates in the paved areas around building 11-0030 as well as from the building`s roof. Existing controls moderate this run-on source.

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	
W015 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W015 03 06 0002	Berms - Straw Wattles		•		•	CB
W015 03 06 0007	Berms - Straw Wattles		•		•	B
W015 06 03 0004	Check Dam - Juniper Bales	•			•	CB
W015 06 03 0005	Check Dam - Juniper Bales	•			•	CB

Established Vegetation (W015-02-01-0001)

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 - Central (W015-03-06-0002)

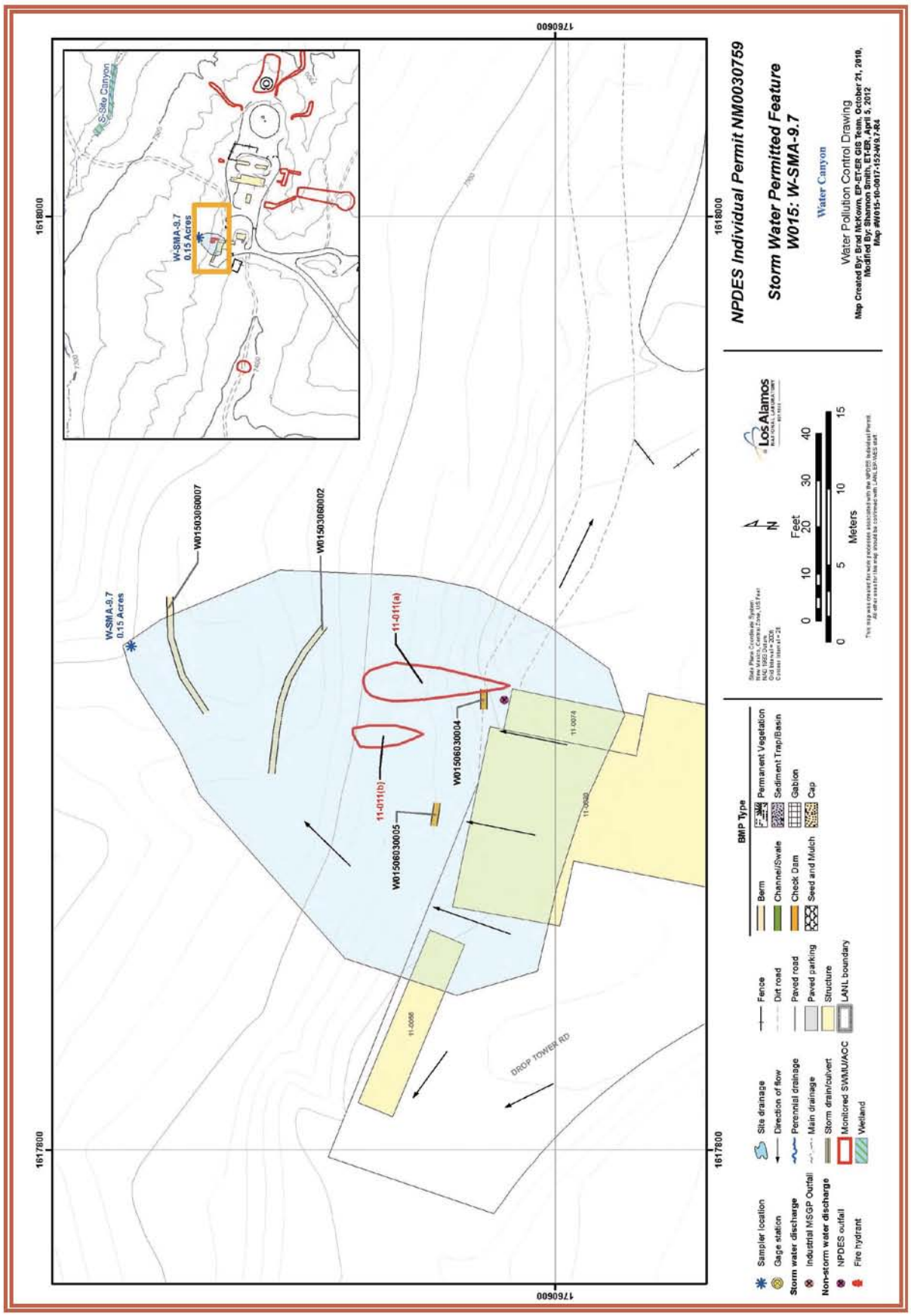
This wattle is located south of the sampler across the central portion of the SMA. It is used to control run-off from the paved areas above and restrict sediment migration. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. 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 (W015-03-06-0007)

This wattle is located south of the sampler and serves to control run-off and capture 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.

Juniper Bales (W015-06-03-0004, -0005)

This pair of juniper bales control run-on and sediment. They are installed north of the buildings near the paved 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
W015: W-SMA-9.7
Water Canyon
Water Pollution Control Drawing
W-SMA-9.7
0.15 Acres
W0150306000 7
W0150306000 2
W0150306000 4
W0150306000 5
11-011(a)
11-011(b)
DROP TOWER RD
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
Los Alamos
Feet
Meters

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
• (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).

1000.43.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-9.7. 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.

1000.43.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-9.7 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 1000.43.5.2-1.

Table 1000.43.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13978	07-07-2011
Storm Rain Event	BMP-16385	08-15-2011
Storm Rain Event	BMP-17600	08-30-2011
Storm Rain Event	BMP-18489	09-08-2011
Storm Rain Event	BMP-19417	09-22-2011
Annual Erosion	COMP-19564	10-03-2011

1000.43.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.43.5.3-1.

Table 1000.43.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-19417	Replaced wattle W01503060003 with new wattle W01503060007 in same location.	09-22-2011	0 day(s)	Maintenance conducted upon inspection.

1000.43.6 Compliance Status

The Sites associated with W-SMA-9.7 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.44 W-SMA-9.8

1000.44 W-SMA-9.8

1000.44.1 Area Description

W-SMA-9.8 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north. The southern boundary of the SMA is influenced by paved areas and structures associated with the developed portion of TA-11.

1000.44.2 Potential Pollutant Sources

1000.44.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W016, W-SMA-9.8, Site 11-005(c).

SWMU 11-005(c) is an inactive outfall at TA-11 located approximately 50 ft north of former building 11-2, the Betatron Building. The outfall received discharge from a drain-line in building 11-2. The drainline was installed in 1944 and served a sink, water heater, and floor drain. During construction of the drop tower complex in 1956, the drainline was capped, making the outfall inactive.

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
11-005(c)	Outfall from former Building 11-2	Discrete Location, No overlap	Individual	•		•	

1000.44.3 Control Measures

The primary source of run-on to this SMA is from the paved areas around building 11-0024 and possibly the building`s roof drains.

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.

1000.44.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.44.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W016 02 01 0005	Established Vegetation - Grasses and Shrubs			•		CB
W016 03 02 0007	Berms - Base Course	•			•	CB
W016 03 06 0010	Berms - Straw Wattles		•		•	CB
W016 03 06 0011	Berms - Straw Wattles		•		•	B
W016 04 06 0003	Channel/Swale - Rip Rap	•		•		CB

Established Vegetation (W016-02-01-0005)

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.

Base Course Berm (W016-03-02-0007)

This berm is located north of structure 11-0002, running towards the west from the corner of the fenced area. It is in place to mitigate area run-on, diverting it around the SMA. 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 Wattle - North (W016-03-06-0010)

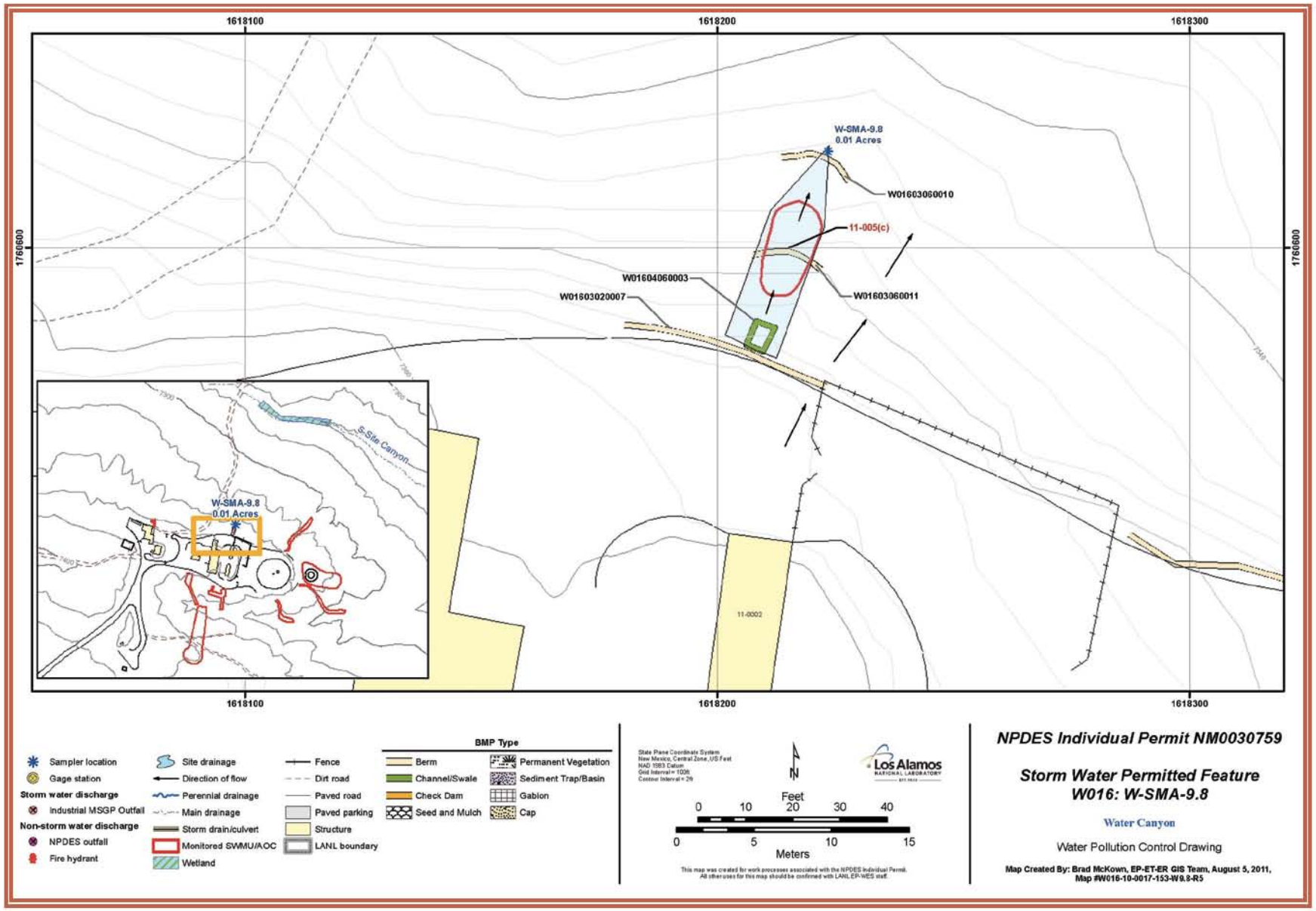
This wattle is located across the drainage channel immediately south of the sampler, extending outside the SMA footprint. It is used to help mitigate storm water run-off in the area. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland 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.

Straw Wattle - Central (W016-03-06-0011)

This wattle is located across the midsection of the SMA footprint. It is functioning as a run-off and sediment control. 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
(W016-04-06-0003)

The rip rap is located at the edge of the pavement near the edge of the slope and above the sampler. It is functioning as a run-on control and an erosion control in the drainage 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.


1618100
1618200
1618300
1760600
W-SMA-9.8
0.01 Acres
W01603060010
11-005(c)
W01604060003
W01603020007
W01603060011
S-Site Canyon
11-0002
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 10 20 30 40
0 5 10 15
Meters
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W016: W-SMA-9.8
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 5, 2011,
Map #W016-10-0017-153-W9.8-R5

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
• (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).

1000.44.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-9.8. 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.

1000.44.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-9.8 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 1000.44.5.2-1.

Table 1000.44.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13977	07-07-2011
Storm Rain Event	BMP-16386	08-15-2011
Storm Rain Event	BMP-17601	08-30-2011
Storm Rain Event	BMP-18490	09-08-2011
Storm Rain Event	BMP-19418	09-22-2011
Annual Erosion	COMP-19565	10-03-2011

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-13977	Base course berm W01603020007 pulled back over and re-shaped properly.	07-07-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-13977	Replaced wattle W01603060009 with new wattle W01603060011 at same location.	07-15-2011	8 day(s)	Maintenance conducted in timely manner.

1000.44.6 Compliance Status

The Site associated with W-SMA-9.8 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.45 W-SMA-9.9

1000.45 W-SMA-9.9

1000.45.1 Area Description

W-SMA-9.9 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently slopes northeast towards the receiving waters. The southern boundary of the SMA is influenced by paved surfaces. The eastern and western boundaries of the SMA are sparsely developed.

1000.45.2 Potential Pollutant Sources

1000.45.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W017, W-SMA-9.9, Site 11-006(b).

SWMU 11-006(b) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(b) catch basin is located on the north side of the drop tower complex and consists of a concrete basin (structure 11-50) measuring 6 × 4 × 2 ft, an overflow drain, and a former National Pollutant Discharge Elimination System (NPDES)-permitted outfall (EPA 05A069) located to the northeast that drains into Water Canyon. Historically, SWMU 11-006(b) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash water was channeled to a drainage and NPDES-permitted outfall on the northeast side of the catch basin. Waste collected from the catch basin was disposed of at the TA-16 burning ground. The outfall was removed from the NPDES permit in May 1998. Currently, the catch basin is capped and sealed; however, the outfall still receives storm water run-off. Due to the removal of EPA-05A069 from the NPDES permit, any run-off collected in the concrete pad and asphalt apron is now diverted to the other two catch basins associated with the former drop tower [SWMUs 11-006(c) and 11-006(d)].

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
11-006(b)	Catch Basin System	Discrete Location, No overlap	Individual	•		•	

1000.45.3 Control Measures

The curbing located south of the SMA moderates run-on to the Site. Existing controls work to stabilize, promote vegetative growth,and manage sediment migration at the Site.

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	
W017 01 06 0021	Seed and Mulch - Erosion Control Blankets			•		EC
W017 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W017 03 01 0017	Berms - Earthen	•			•	EC
W017 03 01 0018	Berms - Earthen		•		•	EC
W017 03 01 0019	Berms - Earthen		•		•	EC
W017 03 01 0020	Berms - Earthen		•		•	EC
W017 03 09 0001	Berms - Curbing	•			•	CB

Erosion Control Blankets (W017-01-06-0021)

These erosion control blankets are located on and around the earthen berms along the main drainage channel to control 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 (W017-02-01-0002)

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 (W017-03-01-0017)

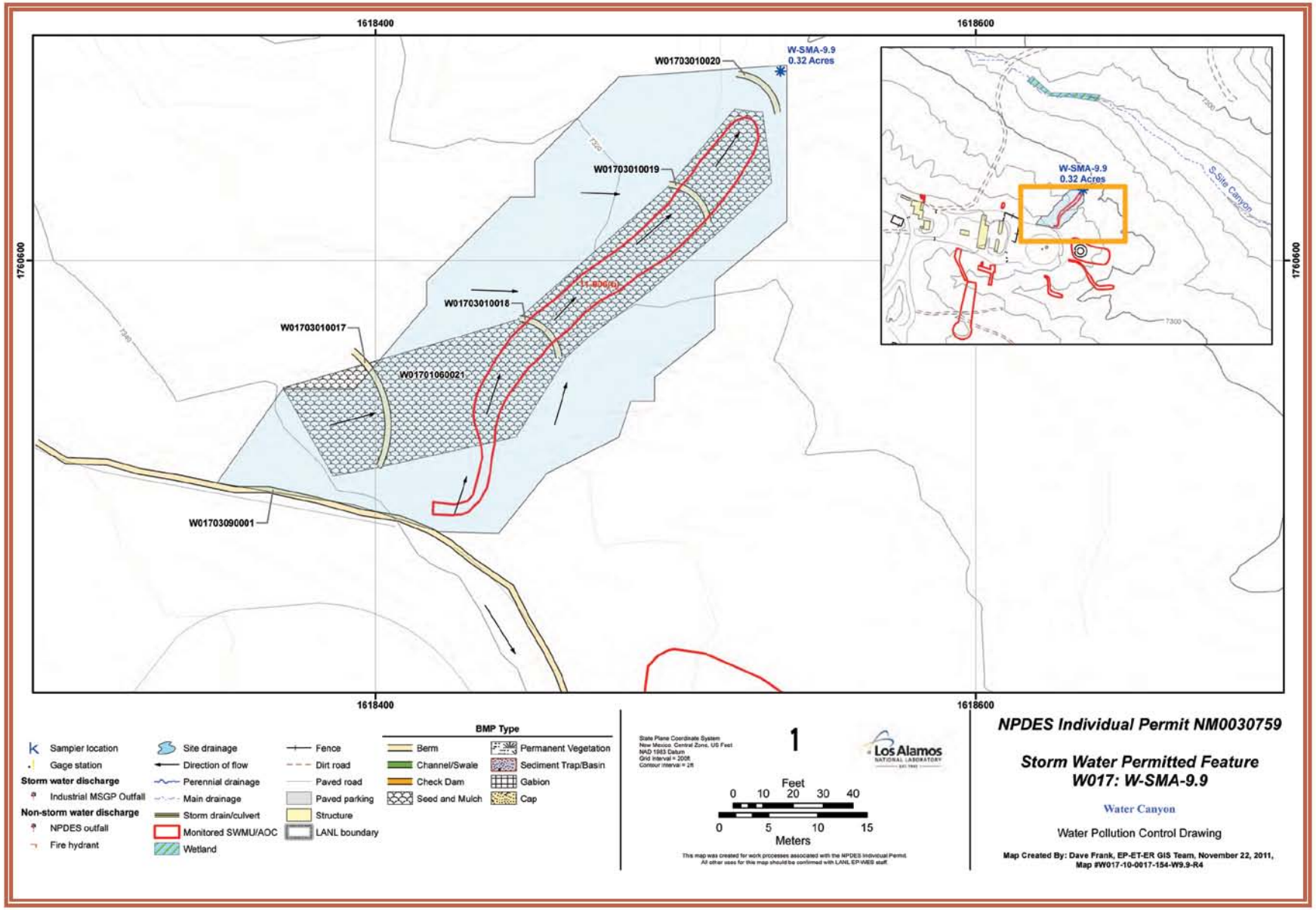
This earthen berm is located northeast of curbing -0001 and controls run-on and sediment inside the Site drainage. An earthen berm is a temporary containment control constructed of compacted soil. Berms are used primarily for run-on diversion of channelized flow and are also used for sediment control and run-off control in low-flow applications.

Earthen Berms (W017-03-01-0018, -0019, -0020)

These three earthen berms are installed in the channel along the northeast portion of the Site drainage 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.

Curbing (W017-03-09-0001)

The curbing is located along the edge of the paved parking area running along the SMA`s southern boundary. It is controlling run-on from the paved areas, diverting it away from the SMA. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.


1618400
1618600
1760600
W01703010020
W-SMA-9.9
0.32 Acres
W01703010019
W01703010018
W01703010017
W01701060021
W01703090001
S-Site Canyon
7300
7320
7340
BMP Type
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
Berm
Channel/Swale
Check Dam
Seed and Mulch
Permanent Vegetation
Sediment Trap/Basin
Gabion
Cap
1
Feet
0 10 20 30 40
0 5 10 15
Meters
Los Alamos
NATIONAL LABORATORY
NPDES Individual Permit NM0030759
Storm Water Permitted Feature
W017: W-SMA-9.9
Water Canyon
Water Pollution Control Drawing
Map Created By: Dave Frank, EP-ET-ER GIS Team, November 22, 2011,
Map #W017-10-0017-154-W9.9-R4

1000.45.5 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.

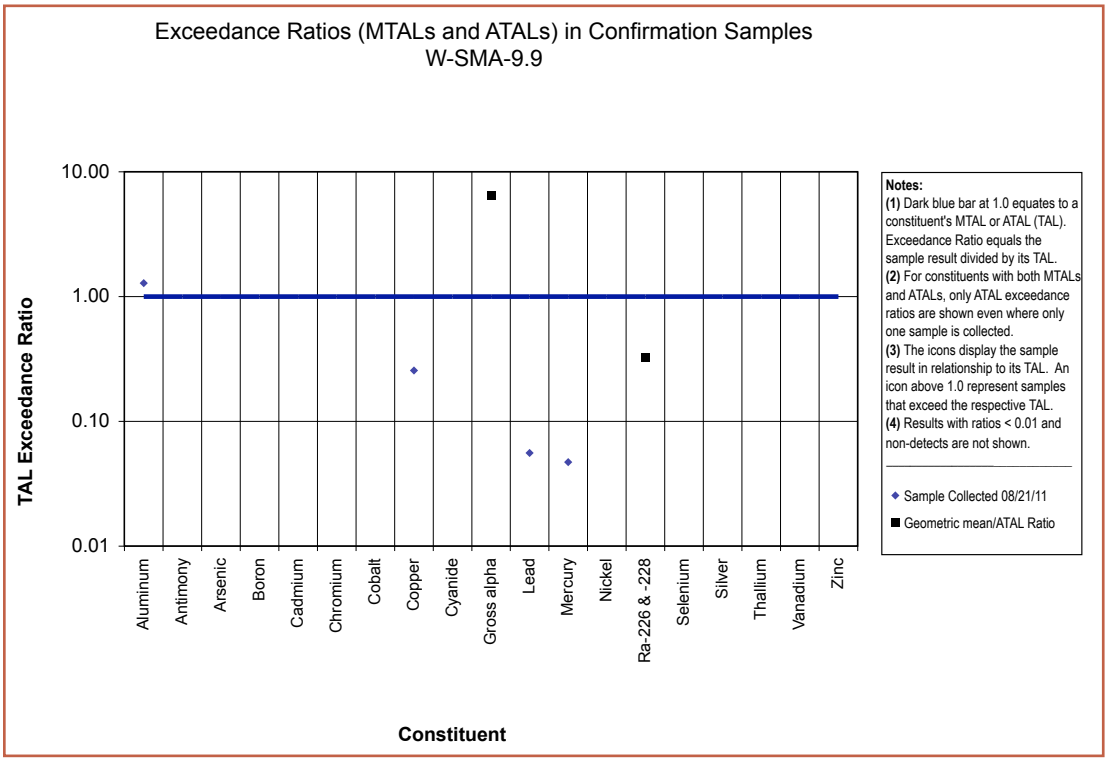
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.45.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-9.9 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.



1000.45.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-9.9 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 1000.45.5.3-1.

Table 1000.45.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13976	07-07-2011
Storm Rain Event	BMP-16387	08-15-2011
Storm Rain Event	BMP-17602	08-30-2011
Storm Rain Event	BMP-18491	09-08-2011
Storm Rain Event	BMP-19419	09-27-2011
Annual Erosion	COMP-19566	10-03-2011
Visual Inspection	BMP-21582	10-20-2011
Construction	COMP-20886	11-07-2011

1000.45.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-9.9.

1000.45.6 Compliance Status

The Site associated with W-SMA-9.9 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.46 W-SMA-10

1000.46 W-SMA-10

1000.46.1 Area Description

W-SMA-10 is located within TA-11 and access to the area is controlled. The northern boundary of the SMA is influenced by structures and paved areas associated with the developed area of TA-11. The southern boundary of the SMA is largely undeveloped and gently slopes eastward. The eastern boundary of the SMA is largely undeveloped and gently sloping towards the receiving waters further to the east. The western boundary of the SMA is largely undeveloped but may be influenced by paved and unpaved access roads.

1000.46.2 Potential Pollutant Sources

1000.46.2.1 Historical Industrial Activity Areas

There are seven historical industrial activity areas associated with PF W018, W-SMA-10, Sites 11-002, 11-003(b), 11-005(a), 11-005(b), 11-006(c), 11-006(d) and 11-011(d).

SWMU 11-002 is a 30 foot diameter active burning area located east of the drop tower at the edge of its asphalt apron. From 1948 to 1992 it was used as an experimental burning area for components on or in assembled configurations with HE, propellants, and jet fuel. HE and propellant burns were conducted directly on the sand pad, and jet fuel burns occurred within an open-topped steel containment tank. The SWMU remains an active experiment area.

AOC 11-003(b) is a former mortar impact area used as a target by the decommissioned air-gun facility (Building 11-24) at TA-11. This AOC is immediately adjacent to the active drop-tower complex at TA-11 (K-Site). The air-gun facility was completed in 1956. The gun was used to launch experimental packages into targets located south of Building 11-24. The targets, which were located 150 to 250 feet south of Building 11-24, were 12 feet square, 12 inch thick concrete slabs that were set in line with the gun bore. Firing into the targets tested various weapons packages designed to withstand extremes of acceleration and deceleration. On a single occasion in 1972, an impact test involved a 12 inch diameter, hollow-steel sphere filled with steel or lead ball bearings suspended in a graphite matrix. The sphere fractured upon impact, potentially leaving behind half inch diameter lead balls.

SWMU 11-005(a) is an active septic system located at TA-11 approximately 70 ft southwest of building 11-24. This septic system consists of a septic tank (structure 11-20), associated drainlines from buildings 11-1 and 11-4, and a tile drain field that extends to an outfall on a sloped area to the south of the septic tank. The septic system began operation in 1944. The drainline from building 11-1 has been plugged. Currently, discharge to the septic system comes only from a restroom in building 11-4. Building 11-1 is currently a storage area for electrical equipment but was originally used as a control building for the Betatron Facility (building 11-2) and the Cloud Chamber (building 11-3). Building 11-4 is currently the control building for the Vibration-Test Facility (building 11-30), though it was historically used as a machine shop and photo-processing facility. A memorandum from 1950 indicated a mercury spill occurred in building 11-4; however, the location, source, and extent of the spill are unknown. The outflow line from SWMU 11-005(a) (structure 11-20) is now plugged and the septic tank is pumped on a regular basis.

SWMU 11-005(b) is an active septic system located at TA-11, approximately 70 ft south of building 11-3. This septic system consists of a septic tank (structure 11-43), an outlet drainline to an outfall to the south of the septic tank, and a drain field west of the drainline. The septic system serves the restroom added to the exterior of building 11-3 and possibly may have served building 11-24, a former air gun facility that now houses a machine shop.

SWMU 11-006(c) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(c) catch basin is located on the southeast side of the drop tower complex and consists of a concrete basin (structure 11-51) measuring 6 × 4 × 2 ft and a former NPDES-permitted outfall (EPA05A096) located to the southeast that drains into Water Canyon. Historically, SWMU 11-006(c) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash-down water flowed through an asphalt-lined drainage to a natural drainage and the NPDES-permitted outfall. The outfall is located on the southeast side of the catch basin and flows east into Water Canyon. Waste collected from the catch basin was disposed of at the TA-16 burning ground. The outfall was removed from the NPDES permit in May 1998. Currently, this catch basin collects storm water run-off that is pumped to SWMU 11-006(d).

SWMU 11-006(d) is one of three catch basins and its associated outfall located at TA-11 near the drop tower complex. The SWMU 11-006(d) catch basin is located on the south side of the drop tower complex and consists of a concrete basin (structure 11-52) measuring 6 × 4 × 2 ft and a former NPDES-permitted outfall (EPA05A097) located to the southeast of the catch basin. Historically, SWMU 11-006(d) received wash-down water from the concrete pad and asphalt apron at the base of the drop tower via an HE sump [SWMU 11-006(a)]. Any HE particles remaining in the wash-down water after it exited the sump were further filtered out in the catch basin. After exiting the catch basin, the remaining wash-down water flowed through an asphalt-lined drainage to a natural drainage and then east into Water Canyon. Waste collected from the catch basin was disposed of at the burning grounds at TA-16. Currently, this catch basin collects storm water run-off that drains to the outfall.

SWMU 11-011(d) is an outfall located at TA-11 south of building 11-24, the air gun facility. The outfall consisted of a 4-in. steel pipe and serviced the air gun facility. Originally, operations at building 11-24 consisted of acceleration and impact tests on full-scale warhead mockups. After World War II, building 11-24 was converted to an office and light machine shop.

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
11-002	Burn site	Co-located, Overlapping	Shared	•		•	
11-003(b)	Air gun	Co-located, Overlapping	Shared	•		•	
11-005(a)	Septic system	Co-located, Overlapping	Shared	•		•	
11-005(b)	Septic system	Co-located, Overlapping	Shared	•		•	
11-006(c)	Catch Basin System	Co-located, Overlapping	Shared	•		•	
11-006(d)	Catch Basin System	Co-located, Overlapping	Shared	•		•	
11-011(d)	Outfall from Building 11-24	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are associated with the operation of facilities at TA-16 known as K-Site. The Sites are within the influence of an inactive drop tower, share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.46.3 Control Measures

There is the potential for run-on to the SMA from the paved road west of the drop tower. There is also the potential for run-on from roofs of area buildings and the drop tower structure itself.

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	
W018 01 01 0015	Seed and Mulch - Seed and Wood Mulch			•		CB
W018 01 01 0017	Established Vegetation - Grasses and Shrubs			•		CB
W018 02 01 0009	Established Vegetation - Grasses and Shrubs			•		CB
W018 03 04 0010	Berms - Asphalt	•			•	CB
W018 03 04 0016	Berms - Asphalt	•			•	CB
W018 03 06 0014	Berms - Straw Wattles		•		•	CB
W018 03 06 0018	Berms - Straw Wattles		•		•	CB
W018 03 06 0019	Berms - Straw Wattles		•		•	CB
W018 03 06 0020	Berms - Straw Wattles		•		•	CB
W018 03 06 0021	Berms - Straw Wattles		•		•	CB
W018 03 09 0002	Berms - Curbing	•			•	CB
W018 04 06 0004	Channel/Swale - Rip Rap			•		CB
W018 04 06 0006	Channel/Swale - Rip Rap	•		•		CB
W018 04 06 0013	Channel/Swale - Rip Rap	•		•		CB

Seed and Mulch (W018-01-01-0015)

The mulched area is located to the east of the burn pad and controls 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).

Seed and Mulch - South (W018-01-01-0017)

Seed and mulch was applied in and around the straw wattles south 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 (W018-02-01-0009)

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 - West (W018-03-04-0010)

This berm is located along the edge of the mesa top south of structure 11-0003. It is being used to help control storm water run-on from the paved areas. An asphalt berm is a temporary containment control constructed of asphalt.

Asphalt Berm (W018-03-04-0016)

The berm is located south of building 11-0003. It is used to manage run-on from the paved access road. An asphalt berm is a temporary containment control constructed of asphalt.

Straw Wattles (W018-03-06-0014)

The wattles are located to the northeast of the burn pad and mitigate run-off from the Site. 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 - South (W018-03-06-0018, -0019, -0020, -0021)

This series of four wattles is located on the slope west of the sampler. They are in place to help control storm water run-off from the mesa top 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.

Curbing (W018-03-09-0002)

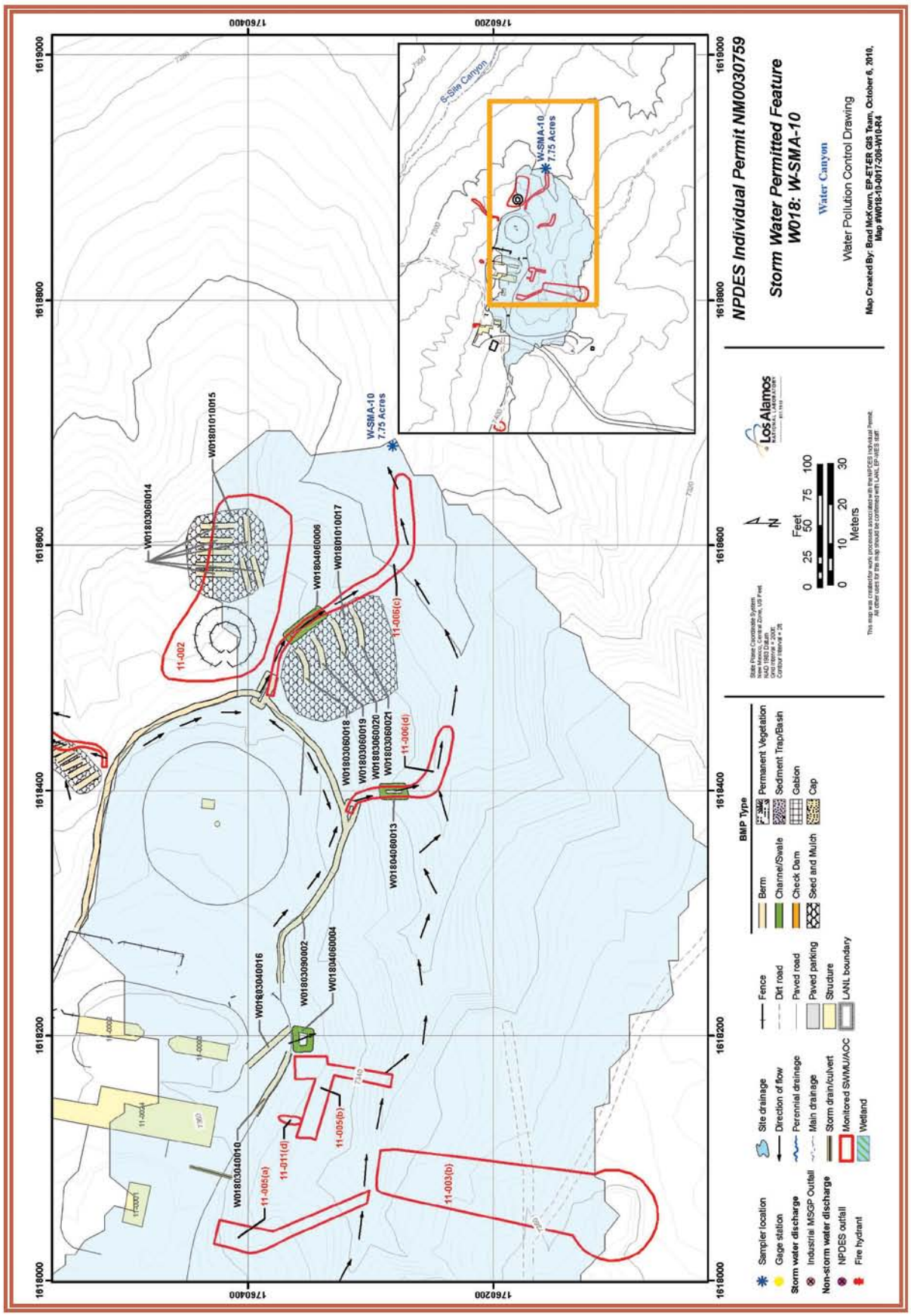
The curbing is located along the southern edge of the circular paved area. It is managing run-on from the paved areas. Curbing is an engineered device used to direct, convey, or divert storm water flow and prevent erosion.

Rip Rap - West
(W018-04-06-0004)
This rip rap is located south of structure 11-0003. It is preventing the erosion of the slope adjacent to the paved 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.

Rip Rap - East
(W018-04-06-0006)
This rip rap is located in the channel east of the drop tower pad. It functions as a run-on control and prevents 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.

Rip Rap - Central
(W018-04-06-0013)
The rip rap is located directly south of the drop tower pad. It is in place to control run-on and prevent erosion of 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.

1000.46.4 Project Map



1000.46.5 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.

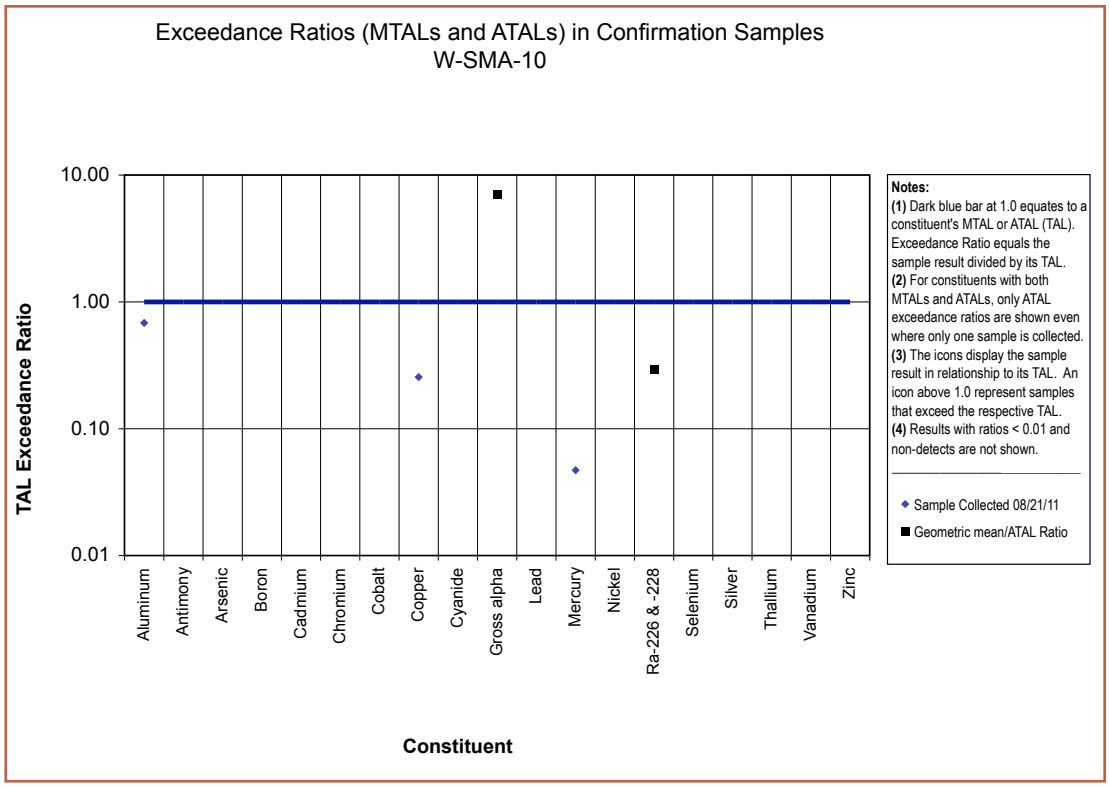
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.46.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-10 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.



1000.46.5.2 Inspection Activity

RG257 recorded four Storm Events at W-SMA-10 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 1000.46.5.3-1.

Table 1000.46.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13995	07-07-2011
Storm Rain Event	BMP-16377	08-15-2011
Storm Rain Event	BMP-17592	09-01-2011
Storm Rain Event	BMP-18481	09-08-2011
Storm Rain Event	BMP-19409	09-22-2011
Annual Erosion	COMP-19567	10-03-2011

1000.46.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-10.

1000.46.6 Compliance Status

The Sites associated with W-SMA-10 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.47 W-SMA-11.7

1000.47 W-SMA-11.7

1000.47.1 Area Description

W-SMA-11.7 is located within TA-49 and access to the area is controlled. The northern boundary of the SMA is influenced by an unpaved access road running the length of this boundary. The southern boundary of the SMA is undeveloped and slopes gently towards the east. The eastern boundary of the SMA is gently sloping and contains the receiving waters. The western boundary of the SMA is undeveloped and gently sloping eastward.

1000.47.2 Potential Pollutant Sources

1000.47.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W019, W-SMA-11.7, Site 49-008(c).

AOC 49-008(c) consists of contaminated soil in Area 11 of TA-49. Area 11 is an approximately 220 x 300 ft area 700 feet west of MDA AB [SWMU 49-001(a)-00]. Activities conducted at Area 11 from 1959 to 1961 supported hydronuclear experiments conducted elsewhere at TA-49. Principal support activities consisted of radiochemistry operations and small-scale containment experiments. The radiochemistry operations were conducted in a former laboratory and change house (Building 49-15) that was the main structure at Area 11. Other structures included a small storage building, latrines, and butane and propane tanks. The Building 49-15 laboratory was used to analyze samples collected during experiments in the experimental shafts at Areas 2, 2A, 2B, and 4 [SWMU 49-001(a)-00]. Laboratory processes included sample dissolution in acids (nitric, hydrochloric, hydrofluoric, sulfuric, and perchloric) and solvent extraction using methyl isobutyl ketone, ammonium hydroxide, and sodium hydroxide. Principle radionuclides present in samples included plutonium, americium, uranium, and cesium-137. Waste generated during radiochemical operations were typically collected in containers and taken to radioactive waste disposal facilities elsewhere at LANL. Interim waste storage boxes were reportedly stored south of Building 49-15. Some liquid wastes reportedly discharged to a leach field (SWMU 49-003). Small-scale containment experiments were conducted in 13 underground shafts located on the west side of Area 11. These shafts were drilled to a depth of 12 feet and lined with ten inch diameter steel casing. HE was placed in the shafts, which were backfilled to contain the explosions. Small amounts of irradiated uranium-238 tracer were used in some experiments. The total amount of uranium used was 10.5 g. The structures in Area 11 were decontaminated, demolished, and removed in 1970 and 1971. Contamination was detected in sinks, ducts, and blowers in Building 49-15. Contaminated debris was removed and disposed of at TA-54 and uncontaminated debris (approximately 2160 cubic ft) was taken to the open burning/landfill area at Area 6 (SWMU 49-004). Investigations at this site include a 1987 environmental survey known as the A411 survey, which included collection and analysis of soil and vegetation samples from Area 11. Results showed elevated levels of plutonium, americium, and uranium east of the former Building 49-15, where the leach field was located. Vegetation samples did not reveal elevated radioactivity.

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
49-008(c)	Soil contamination (Area 11)	Discrete Location, No overlap	Individual	•		•	

1000.47.3 Control Measures

There are no significant run-on concerns at this SMA. The access road is banked away from the SMA and the surrounding area is undeveloped. Existing controls manage sediment migration associated with any storm water discharge from this SMA.

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	
W019 01 01 0039	Seed and Mulch - Seed and Wood Mulch			•		CB
W019 02 01 0001	Established Vegetation - Grasses and Shrubs	•		•		CB
W019 03 01 0040	Berms - Earthen		•		•	B
W019 03 06 0009	Berms - Straw Wattles		•		•	CB
W019 03 06 0010	Berms - Straw Wattles		•		•	CB
W019 03 06 0011	Berms - Straw Wattles		•		•	CB

Table 1000.47.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W019 03 06 0012	Berms - Straw Wattles		•		•	CB
W019 03 06 0015	Berms - Straw Wattles		•		•	CB
W019 03 06 0016	Berms - Straw Wattles		•		•	CB
W019 03 06 0017	Berms - Straw Wattles		•		•	CB
W019 03 06 0018	Berms - Straw Wattles		•		•	CB
W019 03 06 0019	Berms - Straw Wattles		•		•	CB
W019 03 06 0020	Berms - Straw Wattles		•		•	CB
W019 03 06 0021	Berms - Straw Wattles		•		•	CB
W019 03 06 0022	Berms - Straw Wattles		•		•	CB
W019 03 06 0025	Berms - Straw Wattles	•			•	CB
W019 03 06 0026	Berms - Straw Wattles	•			•	CB
W019 03 06 0028	Berms - Straw Wattles	•			•	CB
W019 03 06 0030	Berms - Straw Wattles	•			•	CB
W019 03 06 0031	Berms - Straw Wattles	•			•	CB
W019 03 06 0033	Berms - Straw Wattles	•			•	CB

Table 1000.47.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W019 03 06 0034	Berms - Straw Wattles	•			•	CB
W019 03 06 0036	Berms - Straw Wattles	•			•	CB
W019 03 06 0037	Berms - Straw Wattles	•			•	CB
W019 03 06 0038	Berms - Straw Wattles	•			•	CB
W019 04 06 0002	Channel/Swale - Rip Rap		•	•		CB
W019 06 01 0003	Check Dam - Rock		•		•	CB
W019 06 01 0004	Check Dam - Rock		•		•	CB
W019 06 01 0005	Check Dam - Rock		•		•	CB
W019 06 01 0006	Check Dam - Rock		•		•	CB
W019 06 01 0007	Check Dam - Rock		•		•	CB
W019 06 01 0008	Check Dam - Rock		•		•	CB

Seed and Wood Mulch (W019-01-01-0039)

Seed and mulch was applied to three different areas at this SMA. Two of the areas are within the Site footprint, near the western end and the third area is just west of the Site footprint. In all cases the seed and mulch was applied in order 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 (W019-02-01-0001)

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 (W019-03-01-0040)

This earthen berm is installed on the western portion of the SMA to control run-on and sediment transport. 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 - East (W019-03-06-0009, -0010, -0011, -0012)

This is a group of four wattles located at the eastern end of 49-008(c). They are in place to help manage storm water run-off from the area to the west. 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 - Central (W019-03-06-0015, -0016, -0017, -0018)

This is a group of four wattles located in the central portion of the SMA near the southern boundary. They are in place to help control storm water run-off in 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.

Straw Wattle (W019-03-06-0019)

This wattle is located near the western culvert outlet. It is in place to help mitigate run-off at the culvert outlet. 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 (W019-03-06-0020, -0021, -0022)

This is a grouping of 3 straw wattles that are located west of the 49-008(c) Site footprint. They are in place to help mitigate storm water run-off originating west of the Site. 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 (W019-03-06 -0025, -0026, -0028, -0030, -0031, -0033, -0034, -0036, -0037, -0038)

This grouping of wattles serve to moderate run-on to 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.

Rip Rap (W019-04-06-0002)

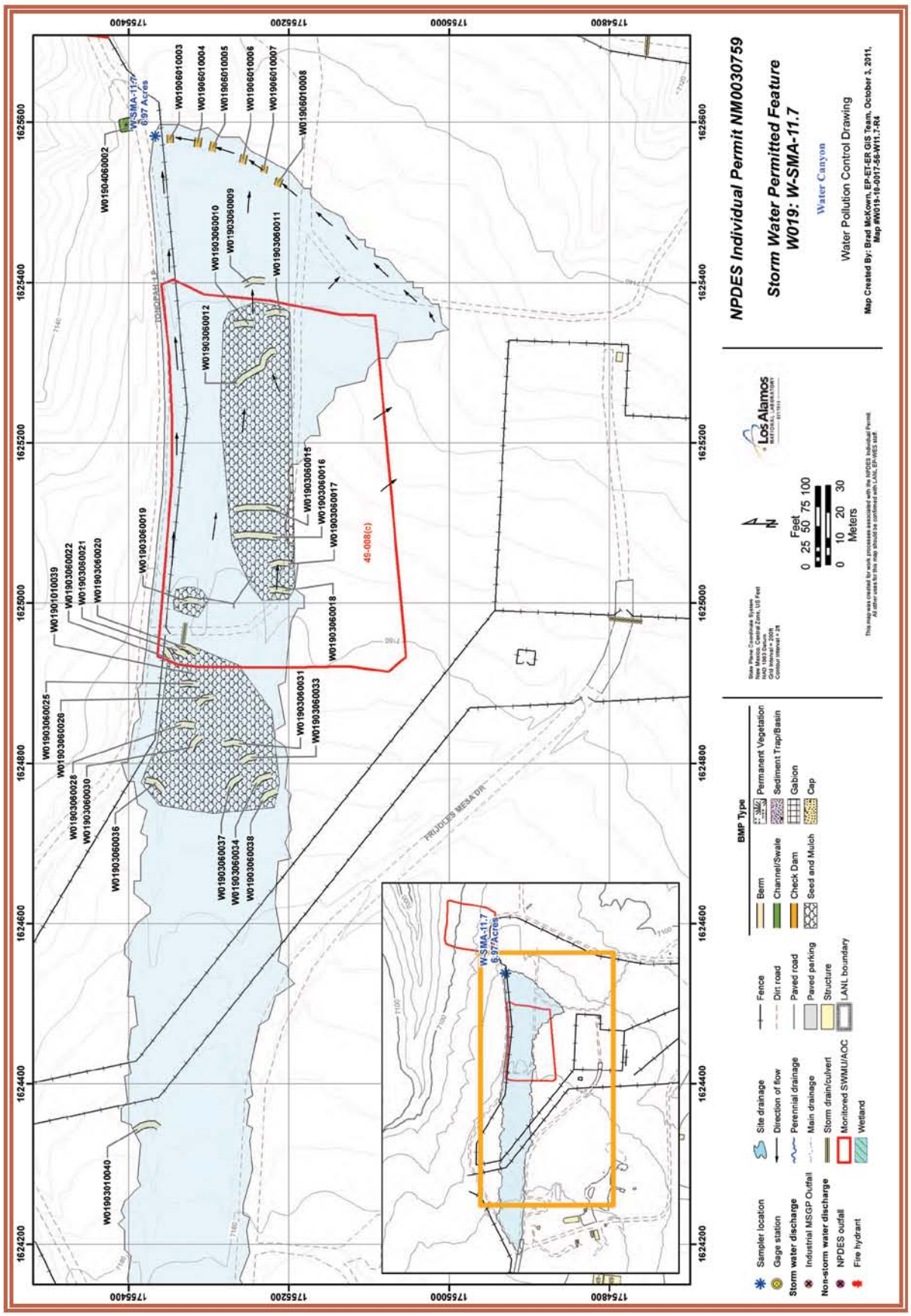
The rip rap is located north of the sampler at the culvert outlet. Its primary function is to help prevent erosion at the outlet. Rip rap is a permanent, erosion-resistant protective layer made of loose

stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams - East (W019-06-01-0003, -0004, -0005, -0006, -0007, -0008)

This is a series of six rock check dams located in the drainage channel on the east side of the SMA. They are in place to help mitigate storm water run-off and reduce sediment migration. 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 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.

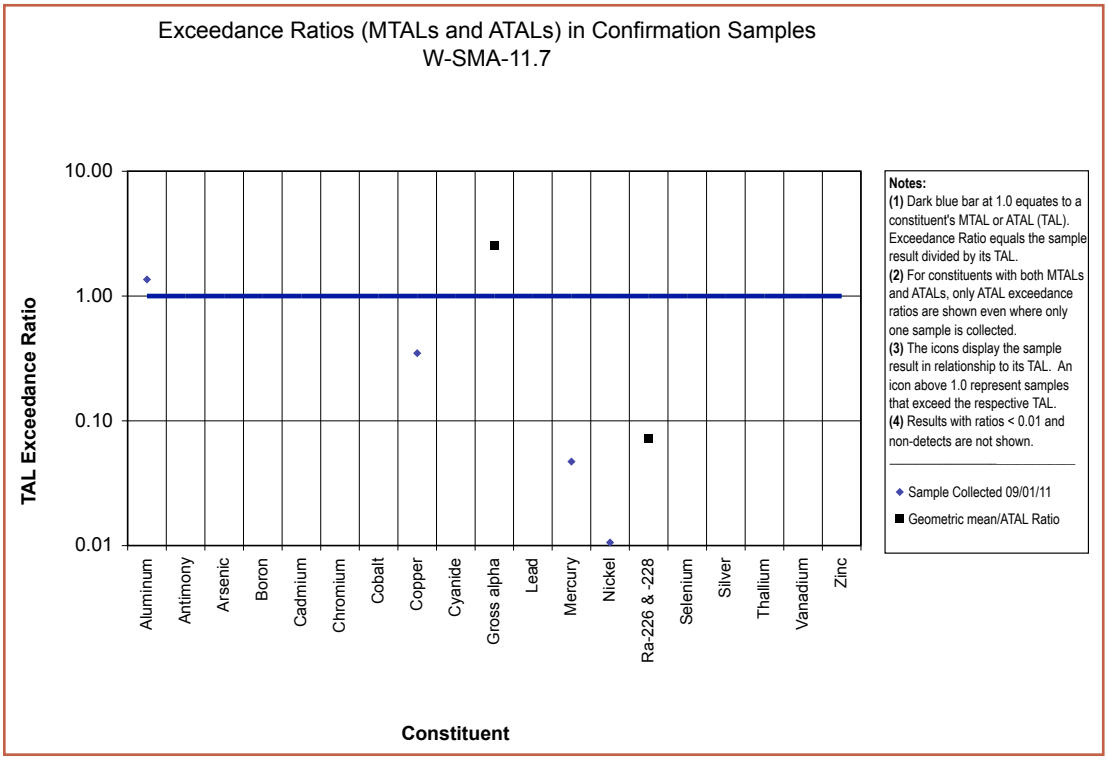
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.47.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-11.7 on September 1, 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.



1000.47.5.2 Inspection Activity

RG262.4 recorded six Storm Events at W-SMA-11.7 during the 2011 season. These rain events triggered five post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.47.5.3-1.

Table 1000.47.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Significant Event	COMP-16441	07-08-2011
Preventative Maintenance	BMP-13994	07-14-2011
Storm Rain Event	BMP-15098	07-28-2011
Storm Rain Event	BMP-15731	08-02-2011
Storm Rain Event	BMP-16973	08-31-2011
Storm Rain Event	BMP-18503	09-13-2011
Construction	COMP-19267	09-22-2011
Storm Rain Event	BMP-19430	09-29-2011
Annual Erosion	COMP-19568	10-05-2011

1000.47.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-11.7.

1000.47.6 Compliance Status

The Site associated with W-SMA-11.7 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.48 W-SMA-12.05

1000.48 W-SMA-12.05

1000.48.1 Area Description

W-SMA-12.05 is located in TA-49 and access to the area is controlled. The northern boundary of the SMA is undeveloped and gently sloping towards the receiving waters further north along this boundary. The southern boundary of the SMA is influenced by a paved access road. The eastern and western boundaries of the SMA are undeveloped.

1000.48.2 Potential Pollutant Sources

1000.48.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W020, W-SMA-12.05, Site 49-001(g).

SWMU 49-001(g) is an area of contaminated surface soil at TA-49 north and east of MDA AB. One incident during construction of a new shaft and three incidents during test experiments resulted in releases of radioactivity to the surface soils comprising this SWMU. The most significant of these releases occurred during construction of shaft 2-M in Area 2. This incident occurred in December 1960, when radioactive contamination was encountered during the drilling of shaft 2-M. Alpha contamination was detected in the shaft, at the surface of the shaft, and on clothing, tools, and vehicles. The contamination encountered at shaft 2-M had been emplaced into the tuff by an experiment previously conducted in adjacent shaft 2-L. Contaminated surface soil was removed and placed in shaft 2-M, along with equipment that was expendable or could not be decontaminated. In January 1961, all open shafts in Area 2 were filled with sand and crushed tuff and the surface of Area 2 was capped with up to six feet of compacted clay and gravel. The cap was extended 12.5 feet beyond the outermost shafts. In September 1961, the cap was paved with four to six inches of asphalt. Since the time of the release, the asphalt cap has been repaired and repaved. In addition, three smaller releases occurred at MDA AB when sampling boxes were opened and surface soil around the shaft and the sampling box became contaminated. Two of the sampling box releases occurred in January and March of 1960 at Area 2 and the third in March of 1961 at Area 2B. Response actions for these releases involved covering the affected soils with concrete. In addition, the two releases at Area 2 subsequently have been covered by the asphalt cap installed in response to the drilling release at shaft 2-M. The release at Area 2B is covered by a 30 x 40 ft concrete slab. Another potential source of soil contamination was the burning of several structures, in 1969, that were contaminated with low levels of radioactivity. In 1999, the ER Project implemented a stabilization plan at SWMUs 49-001(b,c,d and g) that involved IMs and BMPs. These activities were designed to stabilize contamination beneath the asphalt cap and prevent any further moisture infiltration or biological intrusion. These activities included plugging and abandoning borehole CH 2, removing the existing asphalt cap, regrading the site with crushed tuff, placing topsoil over the site, installing biological intrusion barriers, installing erosion controls and, and replacing the security fence around the site. Erosion-control BMPs and the cover are routinely inspected and remain in good condition.

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
49-001(g)	Soil contamination (MDA AB)	Discrete Location, No overlap	Individual	•	•	•	HE

1000.48.3 Control Measures

Run-on enters the SMA from the unpaved access road on the southern border of the SMA. Existing controls are to mitigate impacts from this run-on source.

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	
W020 02 01 0003	Established Vegetation - Grasses and Shrubs			•		CB
W020 03 01 0015	Berms - Earthen		•		•	B
W020 03 01 0016	Berms - Earthen		•		•	B
W020 03 01 0017	Berms - Earthen		•		•	B
W020 03 06 0011	Berms - Straw Wattles		•		•	CB
W020 03 06 0012	Berms - Straw Wattles		•		•	CB

Table 1000.48.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W020 03 06 0013	Berms - Straw Wattles		•		•	CB
W020 04 06 0002	Channel/Swale - Rip Rap	•		•		CB
W020 06 01 0001	Check Dam - Rock		•		•	CB

Established Vegetation (W020-02-01-0003)

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.

Western Earthen Berms (W020-03-01-0015, -0017)

This pair of earthen berms are located west of the SMA and are used to help control storm water run-off from the natural 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 (W020-03-01-0016)

This earthen berm is located across the drainage channel, just south of the sampler, to manage storm water 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 - East (W020-03-06-0011, -0012, -0013)

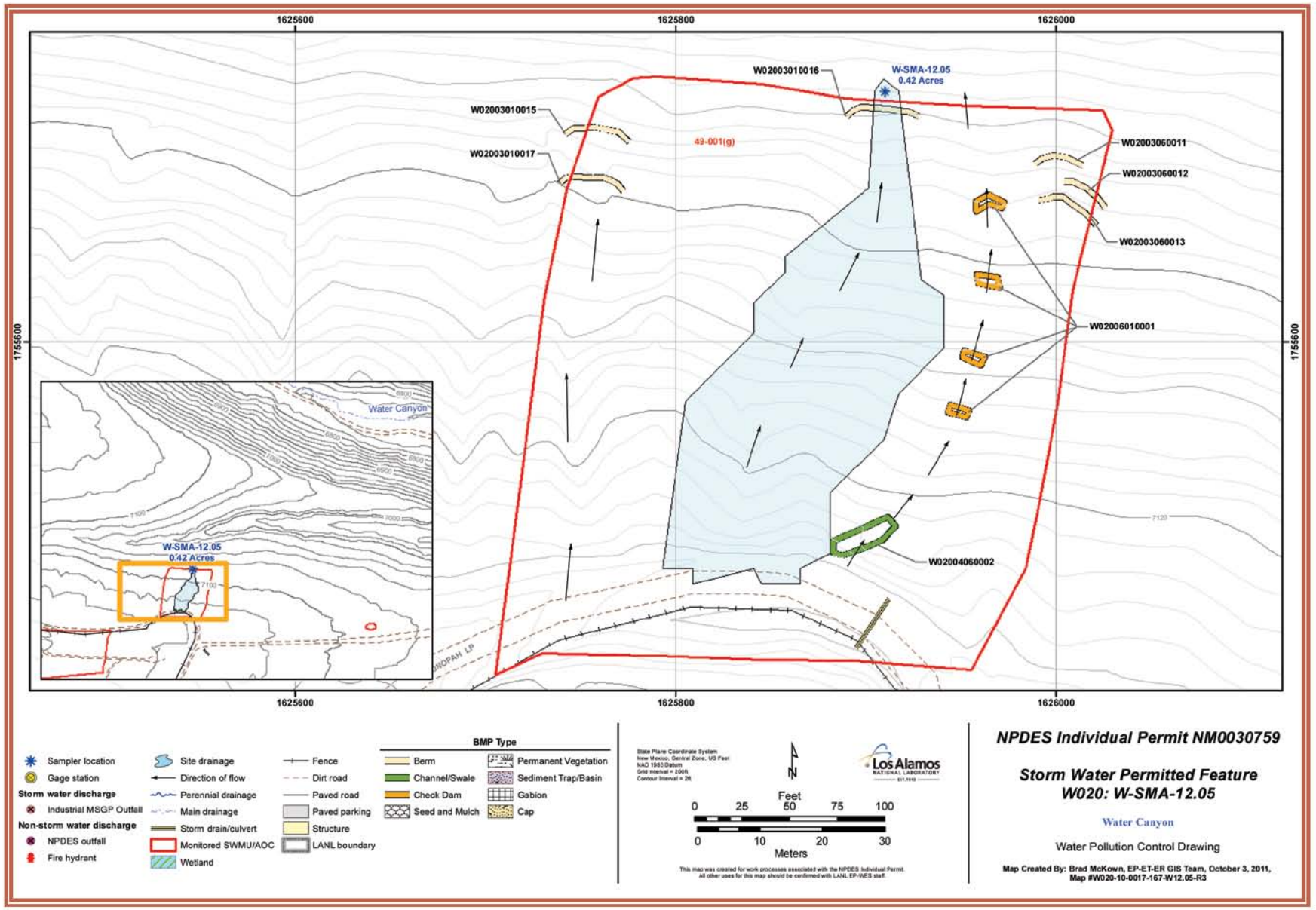
This is a series of three wattles located east of the SMA. They are used to mitigate storm water run-off from the natural areas above. Straw wattles help to stabilize slopes by shortening the slope length and by slowing, spreading and filtering overland water flow. This helps to prevent sheet erosion as well as rill and gully development, both of which occur when run-off flows uninterrupted down a slope.

Rip Rap (W020-04-06-0002)

The rip rap is located in the natural drainage channel on the north side of the unpaved access road, near the southeast corner of the SMA. It controls erosion at the head of the natural drainage 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.

Rock Check Dam
(W020-06-01-0001)

This is a series of check dams located in the natural drainage channel flowing to the north on the eastern side of the SMA. Their purpose if to mitigate run-off from 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.


1625600
1625800
1626000
1755600
W02003010016
W-SMA-12.05
0.42 Acres
W02003010015
W02003010017
49-001(g)
W02003060011
W02003060012
W02003060013
W02006010001
W02004060002
Water Canyon
W-SMA-12.05
0.42 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
W020: W-SMA-12.05
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, October 3, 2011,
Map #W020-10-0017-167-W12.05-R3

1000.48.5 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)	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).

1000.48.5.1 Initial Confirmation Monitoring

For the calendar year 2011, storm water flow has not been sufficient for full-volume sample collection at W-SMA-12.05. 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

RG262.4 recorded six Storm Events at W-SMA-12.05 during the 2011 season. These rain events triggered five 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-13993	07-14-2011
Storm Rain Event	BMP-15101	07-28-2011
Storm Rain Event	BMP-15734	08-02-2011
Storm Rain Event	BMP-16976	08-24-2011
Storm Rain Event	BMP-18506	09-13-2011
Construction	COMP-19268	09-22-2011
Construction	COMP-19746	09-28-2011
Storm Rain Event	BMP-19433	09-29-2011
Annual Erosion	COMP-19569	10-05-2011

1000.48.5.3 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.48.5.3-1.

Table 1000.48.5.3-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-15101	Replaced straw wattle W02003060005 with new straw wattle W02003060014, extended to the east to address channeling.	08-02-2011	5 day(s)	Maintenance conducted in timely manner.

1000.48.6 Compliance Status

The Site associated with W-SMA-12.05 is a moderate priority Site. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.49 W-SMA-14.1

1000.49 W-SMA-14.1

1000.49.1 Area Description

W-SMA-14.1 is located in TA-15 and access to the area is controlled. The northern boundary of the SMA is influenced by paved and unpaved access roads. The southern boundary of the SMA is influenced by structures and paved areas associated with the operation of the Phermex facility. The receiving waters are along this boundary. The eastern boundary of the SMA is influenced by structures and paved areas associated with the operation of the Phermex facility. The western boundary of the SMA is influenced by paved and unpaved access roads.

1000.49.2 Potential Pollutant Sources

1000.49.2.1 Historical Industrial Activity Areas

There are two historical industrial activity areas associated with PF W021, W-SMA-14.1, Sites 15-004(h) and 15-014(l).

AOC 15-004(h) consists of inactive Firing Site H (structure 15-17). This firing site was built in 1948 and operated until 1953. It was used for tests involving larger amounts of explosives than those conducted at Firing Site A. Firing Site H is at the location of the active PHERMEX facility in the southeast corner of TA-15. The old firing point is located approximately 100 feet north of the power control building for PHERMEX (structure 15-185). Of the structures associated with the inactive firing site, only the camera chamber (structure 15-92) remains. The surface of the site was reportedly regraded in 1992. The exact nature of the materials used during tests at this site is unknown, but materials are believed to include depleted uranium, beryllium, lead, and HE. Previous investigations have included an aerial radiological survey in 1982. This survey identified elevated levels of radiation, but these were believed to be associated with activities at PHERMEX, rather than those of the inactive firing site.

The RFI work plan proposed collection of one surface and one subsurface sample from each of nine random sample grid locations around the former firing site and nine biased locations at the former firing point. These samples would be screened for radioactivity, inorganic chemicals, and HE, and selected samples would be submitted for laboratory analysis for uranium and inorganic chemicals. The RFI report indicated that because of its close proximity to PHERMEX, actions at this AOC were being deferred until decommissioning of PHERMEX.

SWMU 15-014(l) is a drain-line and outfall associated with a cooling tower (structure 15-202) located near the PHERMEX facility in the southeast corner of TA-15. This active drain-line and outfall are used to discharge blowdown from structure 15-202, and these discharges flow to Water Canyon. According to ESH-18, the outfall also receives de minimus amounts of heating-system water, deionized water, air-compressor drainage, pump bearing cooling water, floor washings (soap), boiler drainage, and dehalogenation wastewater from the PHERMEX power control building (Building 15-185). This drain-line and outfall currently are in use, but the date that they were first used is unknown. Operations at PHERMEX began in the early 1960s. The outfall currently is included in the NPDES permit as Outfall EPA 03A 028. The permit covers both cooling tower blowdown from structure 15-202 and de minimus discharges from Building 15-185. The only chemicals added to the cooling water used in structure 15-202 are antiscalants and corrosion inhibitors. Two such products have been used at this cooling tower. Both use 2-phosphono-1,2,4-butane-tricarboxylic acid and benzotriazole as active ingredients and one also contains sodium molybdate. None of these constituents meets the definition of a RCRA hazardous waste or constituent.

Hexavalent chromium has never been added to the water at this cooling tower. No previous investigations have been conducted at this SWMU.

Because no documentation suggests that hazardous materials were ever discharged from this outfall, the ER Project recommended NFA for this SWMU. SWMU 15-014(l) was recommended for NFA in the June 2001 permit modification request. The basis for the NFA recommendation was that this site is regulated in accordance with another state and/or federal authority and is not known to release or is suspected of releasing RCRA solid or hazardous wastes and/or constituents to the environment.

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
15-004(h)	Firing site H	Co-located, Overlapping	Shared	•	•	•	HE
15-014(l)	Outfalls from former Building 15-202 (renumbered from 15012(e))	Co-located, Overlapping	Shared	•		•	

Substantially Identical Determination

Sites grouped within this SMA are located within the administrative area of Phermex. The Sites share a common drainage, have similar contaminants, and will discharge substantially identical effluent.

1000.49.3 Control Measures

There is the potential for significant run-on from paved access roads, parking areas, and roof drainage at this SMA. Existing controls manage sediment migration from the Sites within the SMA.

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	
W021-01-01-0015	Seed and Mulch - Seed and Wood Mulch			•		CB
W021 02 01 0001	Established Vegetation - Grasses and Shrubs			•		CB
W021 03 06 0002	Berms - Straw Wattles	•			•	CB
W021 03 06 0003	Berms - Straw Wattles	•			•	CB
W021 03 06 0004	Berms - Straw Wattles	•			•	CB
W021 03 06 0005	Berms - Straw Wattles	•			•	CB
W021 03 06 0006	Berms - Straw Wattles	•			•	CB
W021 03 06 0007	Berms - Straw Wattles	•			•	CB
W021 04 06 0014	Channel/Swale - Rip Rap	•		•		CB
W021 06 01 0008	Check Dam - Rock	•			•	CB
W021 06 01 0009	Check Dam - Rock	•			•	CB
W021 06 01 0010	Check Dam - Rock	•			•	CB
W021 06 01 0011	Check Dam - Rock	•			•	CB

Table 1000.49.3-1 (Continued)

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W021 06 01 0012	Check Dam - Rock		•		•	CB
W021 06 01 0013	Check Dam - Rock		•		•	CB

Seed and Wood Mulch (W021-01-01-0015)

Seed and mulch has been applied to the area south of structure 15-0198 and around the berms in order to assist with erosion control 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 (W021-02-01-0001)

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 (W021-03-06-0002, -0003, -0004, -0005, -0006, -0007)

This is a group of six straw wattles that are located at the southeast corner of structure 15-0185 near the edge of the mesa top. They are in place to help mitigate storm water run-on and stabilize the slope. 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 (W021-04-06-0014)

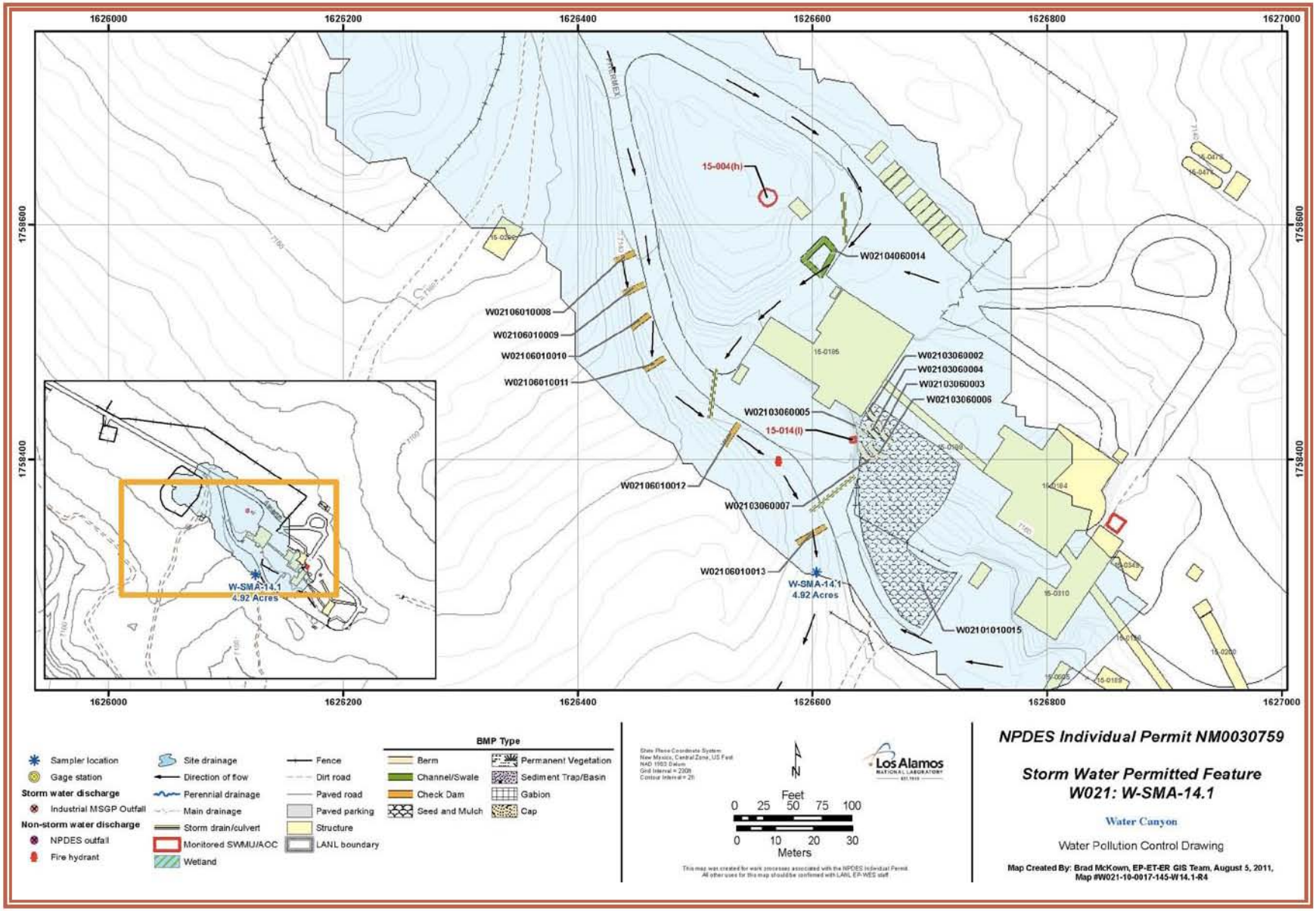
This rip rap is located in the natural area enclosed by the Phermex Road loop near the culvert outlet. It is used primarily to help prevent erosion at the culvert outlet. Rip rap is a permanent, erosion-resistant protective layer made of loose stones. It is intended to protect soil from erosion in areas of concentrated run-off.

Rock Check Dams (W021-06-01-0008, -0009, -0010, -0011)

This is a series of four rock check dams located in the drainage west of the paved access road and structure 15-0185. They are used to help control run-on from the paved access 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 Dams - South
(W021-06-01-0012, -0013)

This is a pair of check dams that are located in the drainage channel south of structure 15-0185 above the sampler. They are in place to help mitigate storm water run-off from the paved areas 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.


1626000
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1627000
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1758400
15-004(h)
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W02106010009
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W02106010011
W02103060002
W02103060004
W02103060003
W02103060006
W02103060005
15-014(l)
W02106010012
W02103060007
W02106010013
W-SMA-14.1
4.92 Acres
W02101010015
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
W021: W-SMA-14.1
Water Canyon
Water Pollution Control Drawing
Map Created By: Brad McKown, EP-ET-ER GIS Team, August 5, 2011,
Map #W021-10-0017-145-W14.1-R4

1000.49.5 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)	HE(2)

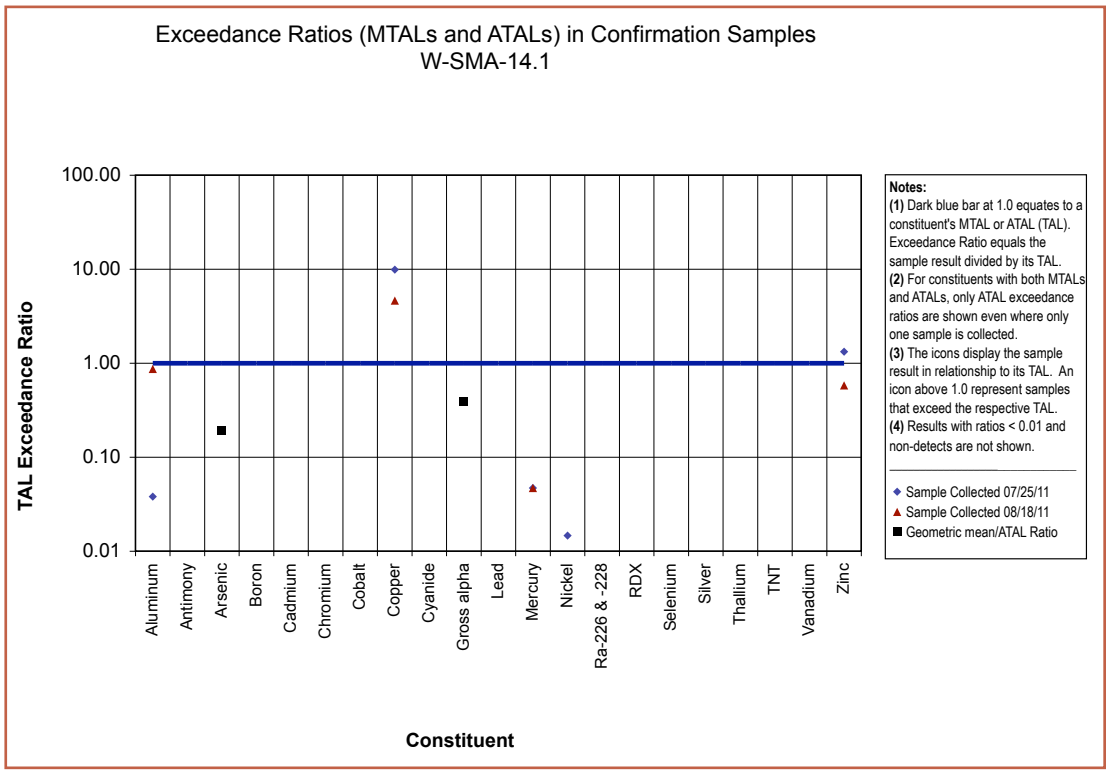
One (1) confirmation sample shall be collected during each of at least two (2) separate measurable storm events occurring at least fifteen (15) days apart.

1000.49.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-14.1 on July 25, 2011 and August 18, 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 1000.49.5.2.



1000.49.5.2 Corrective Action Plan & Schedule

Confirmation samples have been collected at W-SMA-14.1. Based on the results of this sampling, enhanced controls are planned for this SMA as provided in Table 1000.49.5.2-1.

Table 1000.49.5.2-1 Schedule and Planned Controls

Planned Control	Schedule	Purpose of Control			
		Run-On	Run-Off	Erosion	Sediment
Berms Earthen Berms	Q3 CY12	•	•		•

1000.49.5.3 Inspection Activity

RG262.4 recorded six Storm Events at W-SMA-14.1 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 1000.49.5.3-1.

Table 1000.49.5.3-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13992	06-20-2011
Storm Rain Event	BMP-15099	08-01-2011
Storm Rain Event	BMP-16974	08-22-2011
Annual Erosion	COMP-17965	09-06-2011
Storm Rain Event	BMP-18504	09-08-2011
Storm Rain Event	BMP-19431	09-29-2011

1000.49.5.4 Maintenance

Maintenance activities conducted at the SMA are summarized in Table 1000.49.5.4-1.

Table 1000.49.5.4-1 Maintenance

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010008.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010009.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.

Table 1000.49.5.4-1 Maintenance (Continued)

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010010.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010011.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010012.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.
BMP-16974	Cleared debris and re-organized rock at rock check dam W02106010013.	08-22-2011	0 day(s)	Maintenance conducted upon inspection.

1000.49.6 Compliance Status

The Sites associated with W-SMA-14.1 are moderate priority Sites. Corrective action is to be certified complete within five years of the effective date of the IP.

1000.50 W-SMA-15.1

1000.50 W-SMA-15.1

1000.50.1 Area Description

W-SMA-15.1 is located in TA-49. Access to the area is heavily controlled. The northern boundary of the SMA, slopes towards the receiving waters. The southern boundary of the SMA is an unpaved access road. The eastern and western boundaries of the SMA are undeveloped. Storm water flows in a north-northeasterly direction across the area.

1000.50.2 Potential Pollutant Sources

1000.50.2.1 Historical Industrial Activity Areas

There is one historical industrial activity area associated with PF W022, W-SMA-15.1, Site 49-005(a).

SWMU 49-005(a) is an inactive landfill located at TA-49 east of Area 10 and north of the road that runs east from Area 10. The landfill is approximately 50 to 100 feet northeast of the Area 10 experimental chamber and shafts. The landfill reportedly was constructed in 1984 as a disposal area for non-radiological contaminated debris that resulted from the 1984 general surface cleanup of TA-49. The wastes reportedly consisted primarily of wood and small pieces of metal.

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
49-005(a)	Landfill (east of Area 10)	Discrete Location, No overlap	Individual	•		•	

1000.50.3 Control Measures

There is no run-on to this SMA and no evidence of run-off.

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.

1000.50.3.1 Control Measures for Historical Industrial Activity Areas

Table 1000.50.3-1

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Run-Off	Erosion	Sediment	
W022 02 01 0002	Established Vegetation - Grasses and Shrubs			•		CB
W022 06 01 0003	Check Dam - Rock		•		•	CB

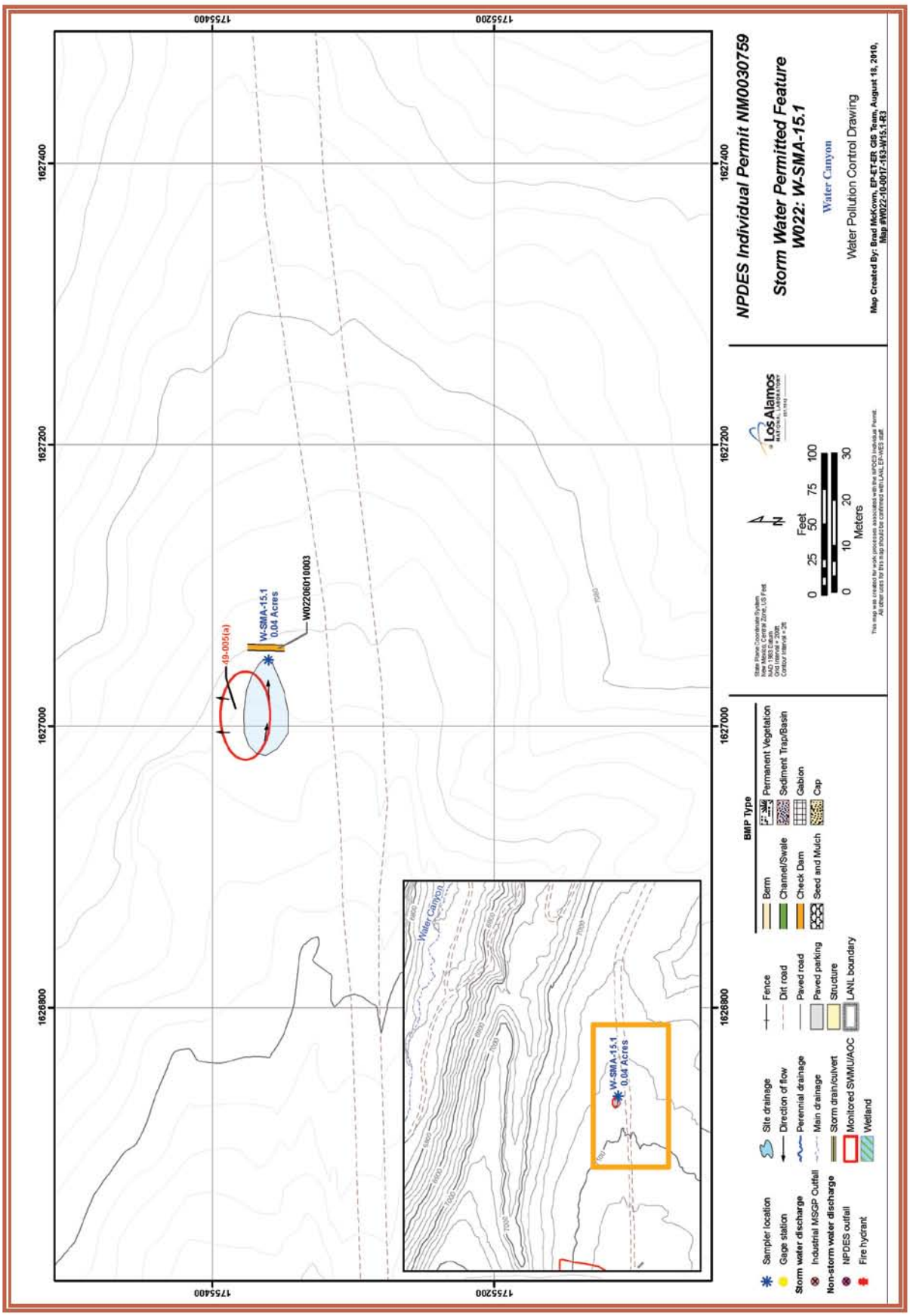
Established Vegetation (W022-02-01-0002)

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.

Rock Check Dam (W022-06-01-0003)

This check dam is located east of the sampler and is used to help control storm water 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.

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.

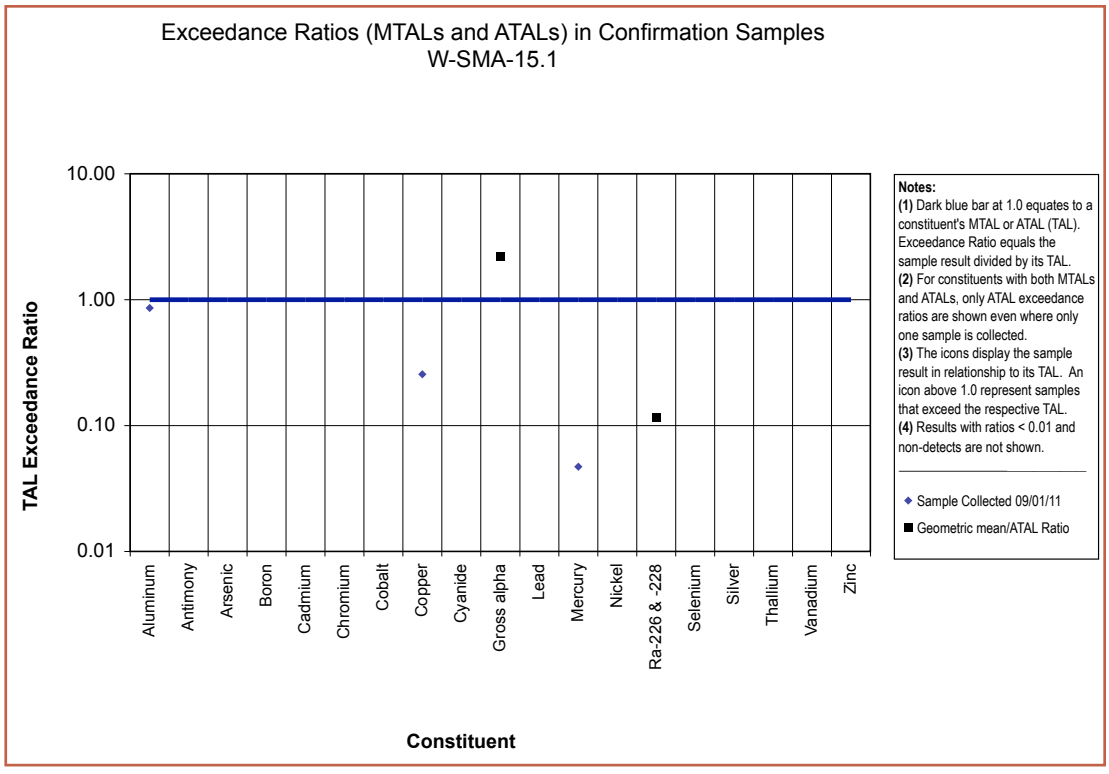
Metals	Cyanide	Radioactivity	Other
• (1)	• (1)	• (1)	

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).

1000.50.5.1 Initial Confirmation Monitoring

Initial confirmation samples were collected from W-SMA-15.1 on September 1, 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.



1000.50.5.2 Inspection Activity

RG262.4 recorded six Storm Events at W-SMA-15.1 during the 2011 season. These rain events triggered five post storm inspections. Post storm inspections and all other inspection activity conducted at the SMA are summarized in Table 1000.50.5.3-1.

Table 1000.50.5.2-1 Inspection(s)

Inspection Type	Inspection Reference	Inspection Date
Preventative Maintenance	BMP-13991	07-14-2011
Storm Rain Event	BMP-15100	08-28-2011
Storm Rain Event	BMP-15733	08-02-2011
Storm Rain Event	BMP-16975	08-24-2011
Storm Rain Event	BMP-18505	09-07-2011
Storm Rain Event	BMP-19432	09-21-2011
Annual Erosion	COMP-19570	10-04-2011

1000.50.5.3 Maintenance

During 2011 there were no maintenance activities at W-SMA-15.1.

1000.50.6 Corrective Action Status

The Site associated with W-SMA-15.1 is a moderate priority Site. 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
V4.0	05-01-2011		Original Issuance	T	
V4.1	11-23-2010	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-10-218 / LA-UR-10-07681
V4.2	01-12-2011	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-11-0002 / LA-UR-11-00114
V4.3	02-10-2011	References	Add missing reference document. Baseline Control Measure Certification Documentation	E	ENV-RCRA-11-0026 / LA-UR-11-00912
V4.4	04-27-2011	References	Add Reference Document Baseline Control Measure Certification Documentation	D	ENV-RCRA-11-0083 / LA-UR-11-10500
V4.5	05-16-2011	References	Add Reference Document Baseline Control Measure Certification Documentation	D	ENV-RCRA-11-0091 / LA-UR-11-10593
V4.6	05-01-2011	Procedural Documents	Remove, document proposed, but never finalized SOP-5219 Photograph Management	E	
V4.7	05-05-2011	Procedural Documents	Update Procedure SOP-5213 Inspecting storm water runoff samplers and retrieving samples, changed to EP-DIV-SOP-10013 with same title	D	EP-DIV-SOP-10013
V4.8	05-31-2011	Procedural	Update Procedure 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

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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
V4.9	05-01-2011	1000.3.6	Errata-Referenced document for Certificate of Completion for 16-030(c) in R0 should have (NMED 2008) listed and not (ERID-100116) although it is the same document.	E	HWB-LANL-02-019
V4.10	05-01-2011	W-SMA-10	Errata-Incorrect Y coordinate published, Correct Y: 1760282.09	E	
V4.11	05-01-2011	W-SMA-5	Errata-Incorrect Y coordinate published, Correct Y: 1761624.96	E	
V4.12	05-01-2011	W-SMA-8	Errata-Incorrect Y coordinate published, Correct Y: 1759591.53	E	
V4.13	08-12-2011	PT-SMA-1.7	Retire Control - Damaged and/or Replaced Control Id: I003-03-06-0009	T	CCN - 14395
V4.14	07-08-2011	PT-SMA-1.7	New Control - Routine/ Replacement Control Id: I003-03-06-0012	T	CCN - 14395
V4.15	08-05-2011	PT-SMA-1.7	Map Revision(R4)	T	CCN - 14395
V4.16	07-15-2011	W-SMA-9.8	Retire Control - Damaged and/or Replaced Control Id: W016-03-06-0009	T	CCN - 14847

ATTACHMENT A
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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
V4.17	07-15-2011	W-SMA-9.8	New Control - Routine/ Replacement Control Id: W016-03-06-0011	T	CCN - 14847
V4.18	08-05-2011	W-SMA-9.8	Map Revision(R5)	T	CCN - 14847
V4.19	08-05-2011	W-SMA-14.1	Map Revision(R4)	T	CCN - 14152
V4.20	08-05-2011	PT-SMA-3	Map Revision(R3)	T	CCN - 14374
V4.21	07-14-2011	W-SMA-11.7	Retire Control - Damaged and/or Replaced Control Id: W019-03-06-0027	T	CCN - 14837
V4.22	07-14-2011	W-SMA-11.7	Retire Control - Damaged and/or Replaced Control Id: W019-03-06-0029	T	CCN - 14837
V4.23	07-14-2011	W-SMA-11.7	Retire Control - Damaged and/or Replaced Control Id: W019-03-06-0032	T	CCN - 14837
V4.24	07-14-2011	W-SMA-11.7	Retire Control - Damaged and/or Replaced Control Id: W019-03-06-0035	T	CCN - 14837
V4.25	08-05-2011	W-SMA-11.7	Map Revision(R3)	T	CCN - 14837
V4.26	09-01-2011	300	Change to SDPPP-Add Las Conchas information.	T	
V4.27	08-02-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0005	T	CCN - 15978
V4.28	08-02-2011	W-SMA-12.05	New Control - Routine/ Replacement Control Id: W020-03-06-0014	T	CCN - 15978
V4.29	09-02-2011	W-SMA-12.05	Map Revision(R2)	T	CCN - 12978
V4.30	09-02-2011	PT-SMA-3	Map Revision(R4)	T	CCN - 16580
V4.31	08-18-2011	PT-SMA-1.7	Retire Control - Damaged and/or Replaced Control Id: I003-03-06-0008	T	CCN - 17073
V4.32	08-18-2011	PT-SMA-1.7	New Control - Routine/ Replacement Control Id: I003-03-06-0013	T	CCN - 17073
V4.33	09-02-2011	PT-SMA-1.7	Map Revision(R5)	T	CCN - 17073
V4.34	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0006	T	CCN - 16405

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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
V4.35	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0008	T	CCN - 16405
V4.36	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0009	T	CCN - 16405
V4.37	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0010	T	CCN - 16405
V4.38	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0011	T	CCN - 16405
V4.39	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0027	T	CCN - 16405
V4.40	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-06-01-0028	T	CCN - 16405
V4.41	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-04-06-0001	T	CCN - 16405
V4.42	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-03-12-0013	T	CCN - 16405
V4.43	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-03-12-0014	T	CCN - 16405
V4.44	08-03-2011	CDV-SMA-1.4	Retire Control - Damaged and/or Replaced Control Id: V003-03-12-0015	T	CCN - 16405
V4.45	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0029	T	CCN - 16405
V4.46	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0030	T	CCN - 16405
V4.47	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0031	T	CCN - 16405
V4.48	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0032	T	CCN - 16405
V4.49	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0033	T	CCN - 16405

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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
V4.50	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0034	T	CCN - 16405
V4.51	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0035	T	CCN - 16405
V4.52	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0036	T	CCN - 16405
V4.53	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0037	T	CCN - 16405
V4.54	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0038	T	CCN - 16405
V4.55	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0039	T	CCN - 16405
V4.56	08-11-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0040	T	CCN - 16405
V4.57	09-06-2011	CDV-SMA-1.4	Map Revision(R5)	T	
V4.58	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0041	T	CCN - 18128
V4.59	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0042	T	CCN - 18128
V4.60	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0043	T	CCN - 18128
V4.61	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0044	T	CCN - 18128
V4.62	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0045	T	CCN - 18128
V4.63	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0046	T	CCN - 18128
V4.64	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0047	T	CCN - 18128
V4.65	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0049	T	CCN - 18128

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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
V4.66	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0050	T	CCN - 18128
V4.67	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0051	T	CCN - 18128
V4.68	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0052	T	CCN - 18128
V4.69	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0053	T	CCN - 18128
V4.70	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-03-06-0054	T	CCN - 18128
V4.71	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-04-06-0055	T	CCN - 18128
V4.72	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0056	T	CCN - 18128
V4.73	08-29-2011	CDV-SMA-1.4	New Control - Routine/ Replacement Control Id: V003-06-01-0057	T	CCN - 18128
V4.74	08-29-2011	CDV-SMA-1.4	Map Revision(R6)	T	CCN - 18128
V4.75	09-02-2011	W-SMA-1	Map Revision(R5)	T	CCN - 16823
V4.76	09-12-2011	PT-SMA-4.2	Map Revision(R3)	T	CCN - 19001
V4.77	09-07-2011	F-SMA-2	Retire Control - Damaged and/or Replaced Control Id: F001-06-01-0004	T	CCN - 19003
V4.78	09-07-2011	F-SMA-2	New Control - Routine/ Replacement Control Id: F001-06-01-0009	T	CCN - 19003
V4.79	09-12-2011	F-SMA-2	Map Revision(R4)	T	CCN - 19003
V4.80	09-19-2011	300	Change to SDPPP Highlight row of associated volume in Table 300-1.	T	
V4.81	09-01-2011	W-SMA-5	Retire Control - Damaged and/or Replaced Control Id: W006-06-03-0005	T	CCN - 18133
V4.82	09-01-2011	W-SMA-5	New Control - Routine/ Replacement Control Id: W006-06-01-0020	T	CCN - 18133

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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
V4.83	09-06-2011	W-SMA-5	Retire Control - Damaged and/or Replaced Control Id: W006-03-06-0018	T	CCN - 18133
V4.84	09-06-2011	W-SMA-5	New Control - Routine/ Replacement Control Id: W006-03-06-0019	T	CCN - 18133
V4.85	09-06-2011	W-SMA-5	Retire Control - Damaged and/or Replaced Control Id: W006-06-01-0016	T	CCN - 18133
V4.86	09-06-2011	W-SMA-5	New Control - Routine/ Replacement Control Id: W006-06-01-0021	T	CCN - 18133
V4.87	09-20-2011	W-SMA-5	Map Revision(R5)	T	CCN - 18133
V4.88	09-14-2011	CDV-SMA-2.42	Retire Control - Lifecycle Expired Control Id: V008A-01-03-0015	T	CCN - 18550
V4.89	09-12-2011	CDV-SMA-2.42	New Control - Routine/ Replacement Control Id: V008A-06-01-0017	T	CCN - 18550
V4.90	09-22-2011	CDV-SMA-2.42	Map Revision(R6)	T	CCN - 18550
V4.91	09-02-2011	CDV-SMA-1.2	New Control - Routine/ Replacement Control Id: V001-03-06-0009	T	CCN - 18676
V4.92	09-20-2011	CDV-SMA-1.2	Map Revision(R5)	T	CCN - 18676
V4.93	09-01-2011	CDV-SMA-2.3	Retire Control - Damaged and/or Replaced Control Id: V007-06-01-0005	T	CCN - 19173
V4.94	09-01-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-06-01-0016	T	CCN - 19173
V4.95	09-20-2011	CDV-SMA-2.3	Map Revision(R6)	T	CCN - 19173
V4.96	09-06-2011	CDV-SMA-2.51	Retire Control - Damaged and/or Replaced Control Id: V009A-03-06-0021	T	CCN - 19330
V4.97	09-06-2011	CDV-SMA-2.51	New Control - Routine/ Replacement Control Id: V009A-03-06-0028	T	CCN - 19330
V4.98	09-21-2011	CDV-SMA-2.51	Map Revision(R5)	T	CCN - 19330
V4.99	09-06-2011	W-SMA-9.05	Retire Control - Damaged and/or Replaced Control Id: W013-03-06-0006	T	CCN - 19332

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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
V4.100	09-06-2011	W-SMA-9.05	New Control - Routine/ Replacement Control Id: W013-03-06-0009	T	CCN - 19332
V4.101	09-21-2011	W-SMA-9.05	Map Revision(R2)	T	CCN - 19332
V4.102	09-22-2011	W-SMA-11.7	New Control - Augment Existing Control Id: W019-03-01-0040	T	CCN - 19596
V4.103	10-03-2011	W-SMA-11.7	Map Revision(R4)	T	CCN - 19596
V4.104	09-22-2011	W-SMA-12.05	New Control - Augment Existing Control Id: W020-03-01-0015	T	CCN - 19597
V4.105	09-22-2011	W-SMA-12.05	New Control - Augment Existing Control Id: W020-03-01-0016	T	CCN - 19597
V4.106	09-22-2011	W-SMA-12.05	New Control - Augment Existing Control Id: W020-03-01-0017	T	CCN - 19597
V4.107	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0004	T	CCN - 19597
V4.108	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0006	T	CCN - 19597
V4.109	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0007	T	CCN - 19597
V4.110	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0008	T	CCN - 19597
V4.111	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0009	T	CCN - 19597
V4.112	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0010	T	CCN - 19597
V4.113	09-22-2011	W-SMA-12.05	Retire Control - Damaged and/or Replaced Control Id: W020-03-06-0014	T	CCN - 19597
V4.114	10-03-2011	W-SMA-12.05	Map Revision(R3)	T	CCN - 19597
V4.115	09-22-2011	PT-SMA-1.7	Retire Control - Damaged and/or Replaced Control Id: I003-03-06-0003	T	CCN - 19690
V4.116	09-22-2011	PT-SMA-1.7	New Control - Routine/ Replacement Control Id: I003-03-06-0014	T	CCN - 19690

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
V4.117	09-22-2011	PT-SMA-1.7	Retire Control - Damaged and/or Replaced Control Id: I003-03-06-0005	T	CCN - 19690
V4.118	09-22-2011	PT-SMA-1.7	New Control - Routine/ Replacement Control Id: I003-03-06-0015	T	CCN - 19690
V4.119	10-03-2011	PT-SMA-1.7	Map Revision(R6)	T	CCN - 19690
V4.120	09-26-2011	CDV-SMA-2.3	Retire Control - Damaged and/or Replaced Control Id: V007-03-06-0014	T	CCN - 19745
V4.121	09-26-2011	CDV-SMA-2.3	Retire Control - Damaged and/or Replaced Control Id: V007-03-06-0015	T	CCN - 19745
V4.122	09-26-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-03-06-0017	T	CCN - 19745
V4.123	09-26-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-03-06-0018	T	CCN - 19745
V4.124	10-03-2011	CDV-SMA-2.3	Map Revision(R7)	T	CCN - 19745
V4.125	10-03-2011	CDV-SMA-2.41	Map Revision(R4)	T	CCN - 19864
V4.126	09-19-2011	References	Add Reference Document STATUS REPORT NPDES PERMIT No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 4, Water/Cañon De Valle Watershed Aggregate, Reporting Period: April 1 2011-June 30, 2011	D	LA-UR-11-11473
V4.127	10-04-2011	References	Add Reference Document STATUS REPORT NPDES PERMIT No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 4, Water/Cañon De Valle Watershed Aggregate, Reporting Period: July 1, 2011-July 31, 2011	D	LA-UR-11-11625
V4.128	10-14-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-06-01-0019	T	CCN - 20201
V4.128	10-14-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-06-01-0019	T	CCN - 20201

ATTACHMENT A
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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
V4.129	10-14-2011	CDV-SMA-2.3	New Control - Routine/ Replacement Control Id: V007-06-01-0020	T	CCN - 20201
V4.130	10-14-2011	CDV-SMA-2.3	Retire Control - Damaged and/or Replaced Control Id: V007-03-06-0008	T	CCN - 20201
V4.131	11-16-2011	CDV-SMA-2.3	Map Revision(R8)	T	
V4.132	10-13-2011	W-SMA-2.05	New Control - Augment Existing Control Id: W003-03-12-0006	T	CCN - 20390
V4.133	11-16-2011	W-SMA-2.05	Map Revision(R2)	T	CCN - 20390
V4.134	11-16-2011	CDV-SMA-2.41	Map Revision(R5)	T	CCN - 20544
V4.135	11-14-2011	W-SMA-8	Retire Control - Damaged and/or Replaced Control Id: W011-03-02-0001	T	CCN - 21065
V4.136	11-14-2011	W-SMA-8	Retire Control - Damaged and/or Replaced Control Id: W011-06-01-0005	T	CCN - 21065
V4.137	11-14-2011	W-SMA-8	New Control - Augment Existing Control Id: W011-03-01-0007	T	CCN - 21065
V4.138	11-14-2011	W-SMA-8	New Control - Augment Existing Control Id: W011-03-02-0008	T	CCN - 21065
V4.139	11-22-2011	W-SMA-8	Map Revision(R4)	T	CCN - 21065
V4.140	11-14-2011	CDV-SMA-8	New Control - Augment Existing Control Id: V014-03-01-0007	T	CCN - 21064
V4.141	11-14-2011	CDV-SMA-8	New Control - Augment Existing Control Id: V014-03-01-0008	T	CCN - 21064
V4.142	11-22-2011	CDV-SMA-8	Map Revision(R4)	T	CCN - 21064
V4.143	11-14-2011	W-SMA-9.05	Retire Control - Damaged and/or Replaced Control Id: W013-03-06-0005	T	CCN - 21063
V4.144	11-22-2011	W-SMA-9.05	Retire Control - Damaged and/or Replaced Control Id: W013-03-06-0007	T	CCN - 21063
V4.145	11-14-2011	W-SMA-9.05	Retire Control - Damaged and/or Replaced Control Id: W013-03-06-0008	T	CCN - 21063
V4.146	11-14-2011	W-SMA-9.05	Retire Control - Damaged and/or Replaced Control Id: W013-03-06-0009	T	CCN - 21063

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
V4.147	11-14-2011	W-SMA-9.05	New Control - Augment Existing Control Id: W013-03-01-0010	T	CCN - 21063
V4.148	11-14-2011	W-SMA-9.05	New Control - Augment Existing Control Id: W013-03-01-0011	T	CCN - 21063
V4.149	11-14-2011	W-SMA-9.05	New Control - Augment Existing Control Id: W013-06-01-0012	T	CCN - 21063
V4.150	11-22-2011	W-SMA-9.05	Map Revision(R3)	T	CCN - 21063
V4.151	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0007	T	CCN - 21062
V4.152	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0008	T	CCN - 21062
V4.153	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0009	T	CCN - 21062
V4.154	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0010	T	CCN - 21062
V4.155	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0011	T	CCN - 21062
V4.156	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0012	T	CCN - 21062
V4.157	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0013	T	CCN - 21062
V4.158	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0014	T	CCN - 21062
V4.159	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0015	T	CCN - 21062
V4.160	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-03-06-0016	T	CCN - 21062
V4.161	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-06-03-0004	T	CCN - 21062
V4.162	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-06-03-0005	T	CCN - 21062

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
V4.163	11-14-2011	W-SMA-9.9	Retire Control - Damaged and/or Replaced Control Id: W017-01-01-0006	T	CCN - 21062
V4.164	11-14-2011	W-SMA-9.9	New Control - Corrective Action Control Id: W017-03-01-0017	T	CCN - 21062
V4.165	11-14-2011	W-SMA-9.9	New Control - Corrective Action Control Id: W017-03-01-0018	T	CCN - 21062
V4.166	11-14-2011	W-SMA-9.9	New Control - Corrective Action Control Id: W017-03-01-0019	T	CCN - 21062
V4.167	11-14-2011	W-SMA-9.9	New Control - Corrective Action Control Id: W017-03-01-0020	T	CCN - 21062
V4.168	11-14-2011	W-SMA-9.9	New Control - Corrective Action Control Id: W017-01-06-0021	T	CCN - 21062
V4.169	11-22-2011	W-SMA-9.9	Map Revision(R4)	T	CCN - 21062
V4.170	11-14-2011	W-SMA-9.5	New Control - Augment Existing Control Id: W014-03-01-0006	T	CCN - 21061
V4.171	11-14-2011	W-SMA-9.5	New Control - Augment Existing Control Id: W014-03-01-0007	T	CCN - 21061
V4.172	11-14-2011	W-SMA-9.5	Retire Control - Damaged and/or Replaced Control Id: W014-03-06-0004	T	CCN - 21061
V4.173	11-14-2011	W-SMA-9.5	Retire Control - Damaged and/or Replaced Control Id: W014-03-06-0005	T	CCN - 21061
V4.174	11-22-2011	W-SMA-9.5	Map Revision(R2)	T	CCN - 21061
V4.175	10-14-2011	CDV-SMA-2.42	New Control - Routine/ Replacement Control Id: V008A-04-06-0018	T	CCN - 20316
V4.176	10-14-2011	CDV-SMA-2.42	New Control - Routine/ Replacement Control Id: V008A-04-06-0019	T	CCN - 20316
V4.177	11-17-2011	CDV-SMA-2.42	Map Revision(R7)	T	CCN - 20316
V4.178	09-19-2011	CDV-SMA-2.5	Retire Control - Damaged and/or Replaced Control Id: V009-06-03-0013	T	CCN - 20196
V4.179	09-19-2011	CDV-SMA-2.5	Retire Control - Damaged and/or Replaced Control Id: V009-06-03-0014	T	CCN - 20196

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
V4.180	09-19-2011	CDV-SMA-2.5	New Control - Routine/ Replacement Control Id: V009-03-06-0024	T	CCN - 20196
V4.181	09-19-2011	CDV-SMA-2.5	New Control - Routine/ Replacement Control Id: V009-03-06-0025	T	CCN - 20196
V4.182	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-03-06-0026	T	CCN - 20196
V4.183	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-03-06-0027	T	CCN - 20196
V4.184	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0028	T	CCN - 20196
V4.185	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0029	T	CCN - 20196
V4.186	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0030	T	CCN - 20196
V4.187	09-19-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0031	T	CCN - 20196
V4.188	10-17-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0032	T	CCN - 20196
V4.189	10-20-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-06-01-0033	T	CCN - 20196
V4.190	10-17-2011	CDV-SMA-2.5	New Control - Augment Existing Control Id: V009-01-01-0034	T	CCN - 20196
V4.191	11-16-2011	CDV-SMA-2.5	Map Revision(R5)	T	CCN - 20196
V4.192	11-22-2011	CDV-SMA-6.02	New Control - Corrective Action Control Id: V012A-03-01-0004	T	CCN - 21214
V4.193	11-22-2011	CDV-SMA-6.02	New Control - Corrective Action Control Id: V012A-01-01-0005	T	CCN - 21214
V4.194	12-02-2011	CDV-SMA-6.02	Map Revision(R3)	T	CCN - 21214
V4.195	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0010	T	CCN - 21491

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
V4.196	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0011	T	CCN - 21491
V4.197	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0012	T	CCN - 21491
V4.198	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0013	T	CCN - 21491
V4.199	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0014	T	CCN - 21491
V4.200	12-01-2011	F-SMA-2	New Control - Corrective Action Control Id: F001-03-01-0015	T	CCN - 21491
V4.201	12-01-2011	F-SMA-2	Retire Control - Damaged and/or Replaced Control Id: F001-03-12-0008	T	CCN - 21491
V4.202	12-02-2011	F-SMA-2	Map Revision(R5)	T	CCN - 21491
V4.203	11-21-2011	CDV-SMA-3	New Control - Corrective Action Control Id: V010-03-01-0010	T	CCN - 21493
V4.204	11-21-2011	CDV-SMA-3	New Control - Corrective Action Control Id: V010-03-01-0011	T	CCN - 21493
V4.205	11-21-2011	CDV-SMA-3	New Control - Corrective Action Control Id: V010-01-01-0012	T	CCN - 21493
V4.206	11-21-2011	CDV-SMA-3	Retire Control - Damaged and/or Replaced Control Id: V010-04-06-0008	T	CCN - 21493
V4.207	12-02-2011	CDV-SMA-3	Map Revision(R4)	T	CCN - 21493
V4.208	01-19-2011	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	
V4.209	01-19-2012	1000.x.5	Change to SDPPP-Addition of Sections 1000.x.5.1, 1000. x.5.2, 1000.x.5.3, and 1000. x.5.4 to report: confirmation monitoring, inspections conducted, maintenance conducted, and deficiencies noted.	T	

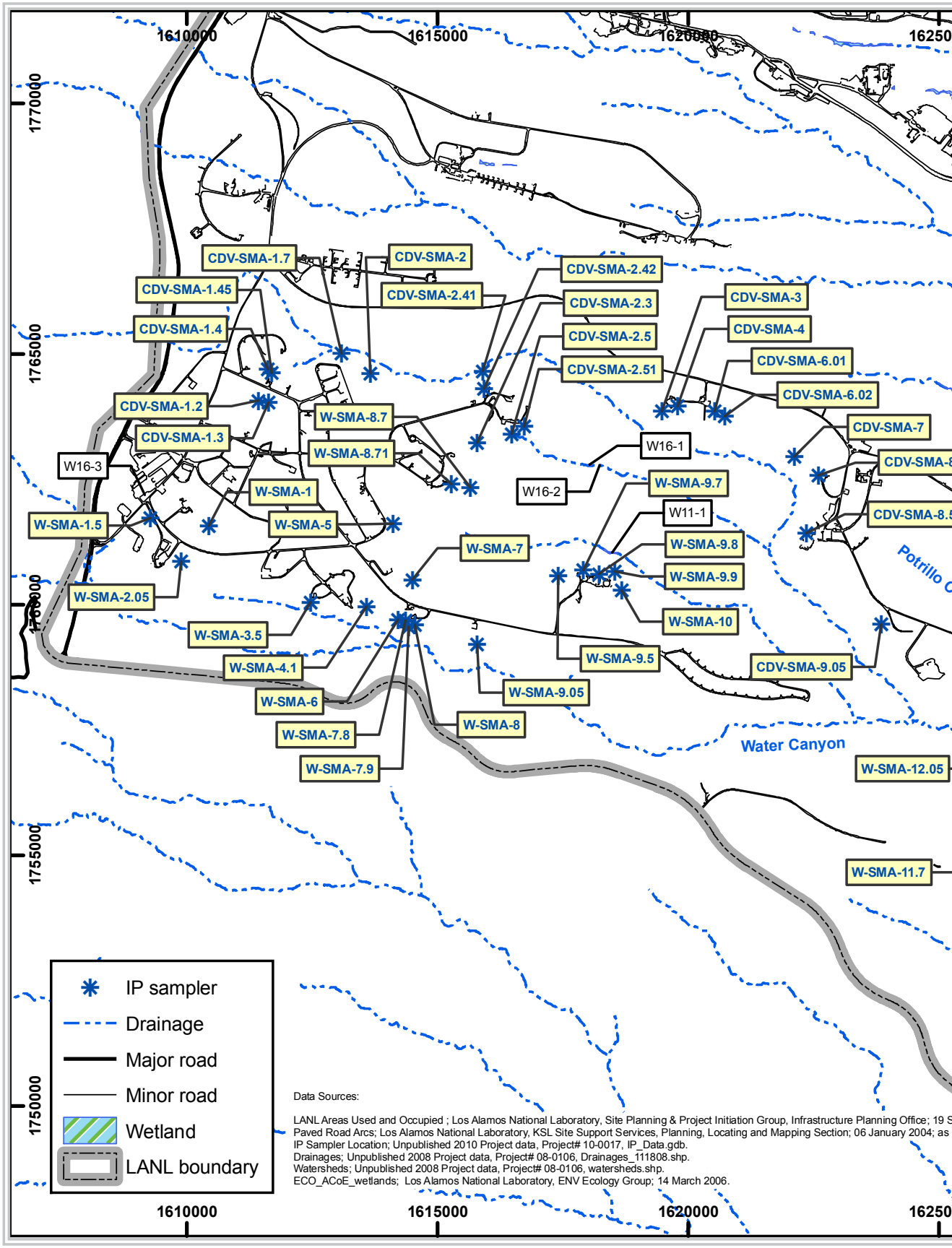
ATTACHMENT A
AMENDMENTS (Continued)

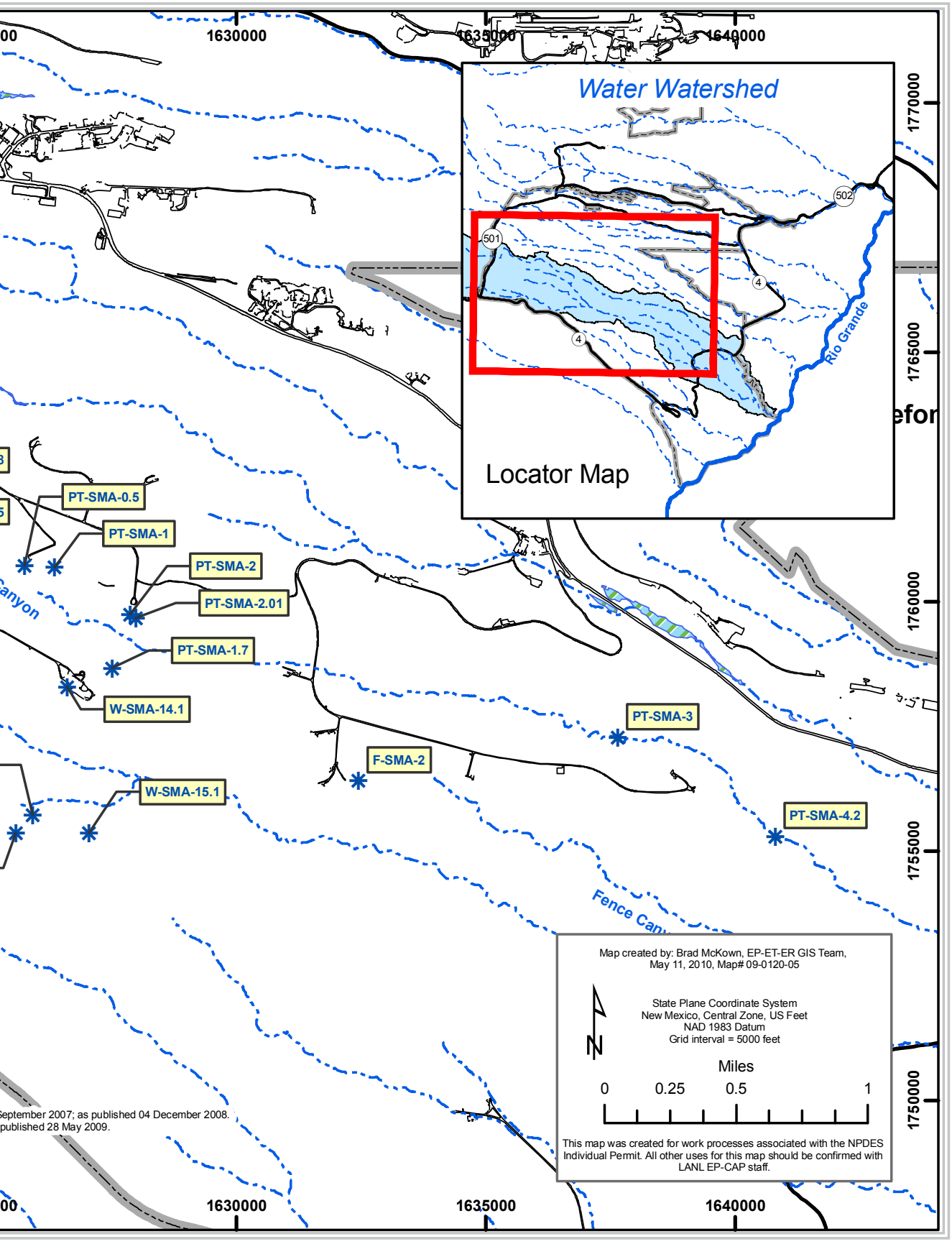
Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V4.210	01-19-2012	1000.x.6	Change to SDPPP-Title change to Section 1000.x.6, Corrective Action Status changed to Compliance Status.	T	
V4.211	01-19-2012	Attachment F	Change to SDPPP-Added Training information to Attachment F.	T	
V4.212	01-19-2012	300 & Attachment C	Change to SDPPP-Added 2011 precipitation data to Table 300-2 and to Attachment C.	T	
V4.213	01-23-2012	CDV-SMA-6.02	New Control - Augment Existing Control Id: V012A-03-01-0003	T	CCN - 21710
V4.214	01-23-2012	CDV-SMA-6.02	New Control - Augment Existing Control Id: V012A-03-01-0004	T	CCN - 21710
V4.215	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	
V4.216	02-01-2012	800.5	Change to SDPPP-Original Section 800.5 Procedures moved to Section 800.6. New Section 800.5 Deficiencies added.	T	
V4.217	02-01-2012	900.1	Change to SDPPP-Additional descriptive text and volume-specific information added to Section 900.1.	T	
V4.218	02-06-2012	300.4.2	Change to SDPPP-Added additional descriptive text to Section 300.4.2.	T	
V4.219	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	
V4.220	03-13-2012	800.5	Change to SDPPP-Updated Section 800.5 describing presentation of inspection and maintenance tables.	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
V4.221	03-13-2012	800.5	Change to SDPPP-Updated Section 800.5 describing presentation of inspection, maintenance, and deficiency tables.	T	
V4.222	04-04-2011	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	
V4.223	09-22-2011	W-SMA-9.7	Retire Control - Damaged and/or Replaced Control Id: W015-03-06-0003	T	CCN - 22070
V4.224	09-22-2011	W-SMA-9.7	New Control - Routine/ Replacement Control Id: W015-03-06-0007	T	CCN - 22070

ATTACHMENT B
VICINITY MAP




Water Watershed
Locator Map
Rio Grande
PT-SMA-0.5
PT-SMA-1
PT-SMA-2
PT-SMA-2.01
PT-SMA-1.7
W-SMA-14.1
W-SMA-15.1
F-SMA-2
PT-SMA-3
PT-SMA-4.2
Fence Can
1630000
1635000
1640000
1770000
1765000
1760000
1755000
1750000
Map created by: Brad McKown, EP-ET-ER GIS Team,
May 11, 2010, Map# 09-0120-05
State Plane Coordinate System
New Mexico, Central Zone, US Feet
NAD 1983 Datum
Grid interval = 5000 feet
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.
September 2007; as published 04 December 2008.
published 28 May 2009.

ATTACHMENT C
PRECIPITATION NETWORK

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG253	April 06, 2011	0.22	0.04	120
	April 07, 2011	0.2	0.12	60
	April 09, 2011	0.01	0.01	0
	April 19, 2011	0.11	0.06	0
	April 23, 2011	0.03	0.01	0
	April 24, 2011	0.21	0.05	120
	April 25, 2011	0.03	0.01	0
	April 26, 2011	0.04	0.01	0
	May 01, 2011	0.12	0.06	60
	May 02, 2011	0.06	0.02	60
	May 18, 2011	0.12	0.05	60
	May 19, 2011	0.01	0.01	0
	May 24, 2011	0.02	0.02	0
	July 20, 2011	0.71	0.59	60
	July 25, 2011	0.11	0.1	0
	July 27, 2011	0.38	0.28	60
	July 28, 2011	0.05	0.02	0
	July 29, 2011	0.1	0.06	60
	July 30, 2011	0.74	0.36	60
	August 01, 2011	0.01	0.01	0
	August 02, 2011	1.48	1.34	60
	August 03, 2011	1.73	1.37	120
	August 04, 2011	0.35	0.25	60
	August 05, 2011	1	0.46	120
	August 13, 2011	0.26	0.12	60

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG253 (Cont'd)	August 15, 2011	0.17	0.17	0
	August 17, 2011	0.01	0.01	0
	August 18, 2011	0.12	0.07	60
	August 19, 2011	0.61	0.34	120
	August 20, 2011	0.05	0.03	0
	August 21, 2011	12.28	6.81	180
	August 22, 2011	0.64	0.45	60
	August 27, 2011	0.06	0.03	60
	September 01, 2011	0.07	0.07	0
	September 04, 2011	0.02	0.02	0
	September 15, 2011	0.68	0.19	180
	September 16, 2011	0.03	0.02	0
RG257	April 06, 2011	0.09	0.02	60
	April 07, 2011	0.13	0.08	60
	April 09, 2011	0.02	0.01	0
	April 19, 2011	0.07	0.03	0
	April 23, 2011	0.03	0.01	0
	April 24, 2011	0.1	0.03	60
	April 25, 2011	0.01	0.01	0
	April 26, 2011	0.03	0.01	0
	May 01, 2011	0.15	0.07	60
	May 02, 2011	0.02	0.01	0
	May 18, 2011	0.04	0.01	0
	April 06, 2011	0.09	0.02	60

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG257 (Cont'd)	April 07, 2011	0.13	0.08	60
	April 09, 2011	0.02	0.01	0
	April 19, 2011	0.07	0.03	0
	April 23, 2011	0.03	0.01	0
	April 24, 2011	0.1	0.03	60
	April 25, 2011	0.01	0.01	0
	April 26, 2011	0.03	0.01	0
	May 01, 2011	0.15	0.07	60
	May 02, 2011	0.02	0.01	0
	May 18, 2011	0.04	0.01	0
	May 19, 2011	0.01	0.01	0
	May 22, 2011	0.01	0.01	0
	May 24, 2011	0.01	0.01	0
	July 20, 2011	0.22	0.16	60
	July 25, 2011	0.11	0.1	0
	July 27, 2011	0.04	0.02	0
	July 28, 2011	0.04	0.03	0
	July 29, 2011	0.04	0.02	0
	July 30, 2011	0.29	0.19	60
	August 02, 2011	0.03	0.03	0
	August 05, 2011	0.01	0.01	0
	August 13, 2011	0.1	0.03	60
	August 15, 2011	0.11	0.11	0
	August 18, 2011	0.18	0.14	60

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG257 (Cont'd)	August 19, 2011	0.21	0.06	120
	August 20, 2011	0.38	0.16	120
	August 21, 2011	0.62	0.31	120
	August 27, 2011	0.29	0.22	60
	September 01, 2011	0.17	0.06	60
	September 04, 2011	0.29	0.11	120
	September 15, 2011	0.56	0.27	120
	September 16, 2011	0.12	0.08	60
RG262.4	April 06, 2011	0.05	0.02	0
	April 07, 2011	0.11	0.09	60
	April 09, 2011	0.01	0.01	0
	April 19, 2011	0.01	0.01	0
	April 24, 2011	0.08	0.03	60
	April 26, 2011	0.01	0.01	0
	May 01, 2011	0.01	0.01	0
	May 02, 2011	0.03	0.01	0
	May 18, 2011	0.01	0.01	0
	May 19, 2011	0.01	0.01	0
	May 22, 2011	0.01	0.01	0
	July 20, 2011	0.03	0.02	0
	July 24, 2011	0.04	0.04	0
	July 25, 2011	0.35	0.34	60
	July 28, 2011	0.05	0.05	0
	July 29, 2011	0.11	0.07	60

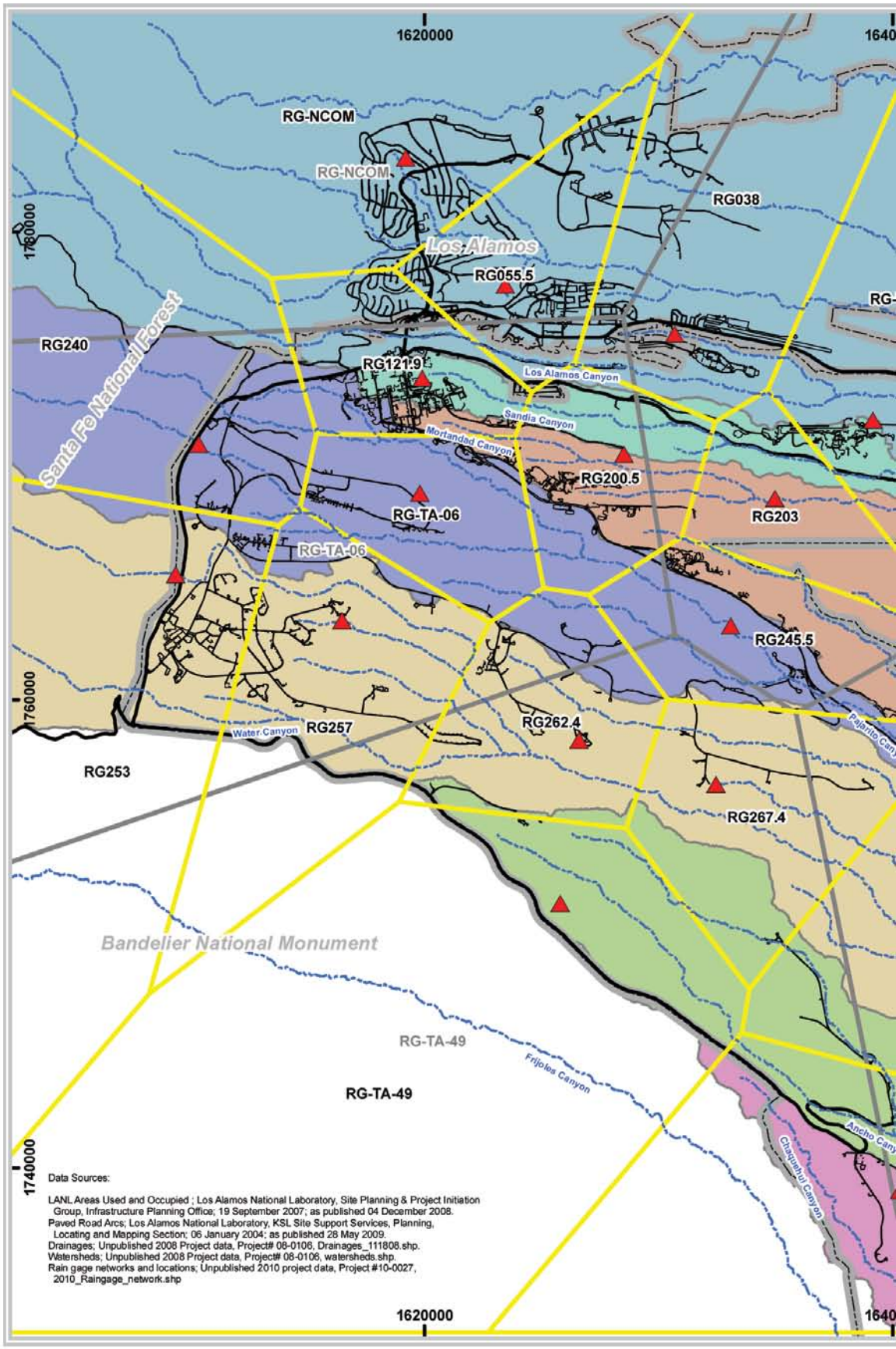
ATTACHMENT C
PRECIPITATION NETWORK (Continued)

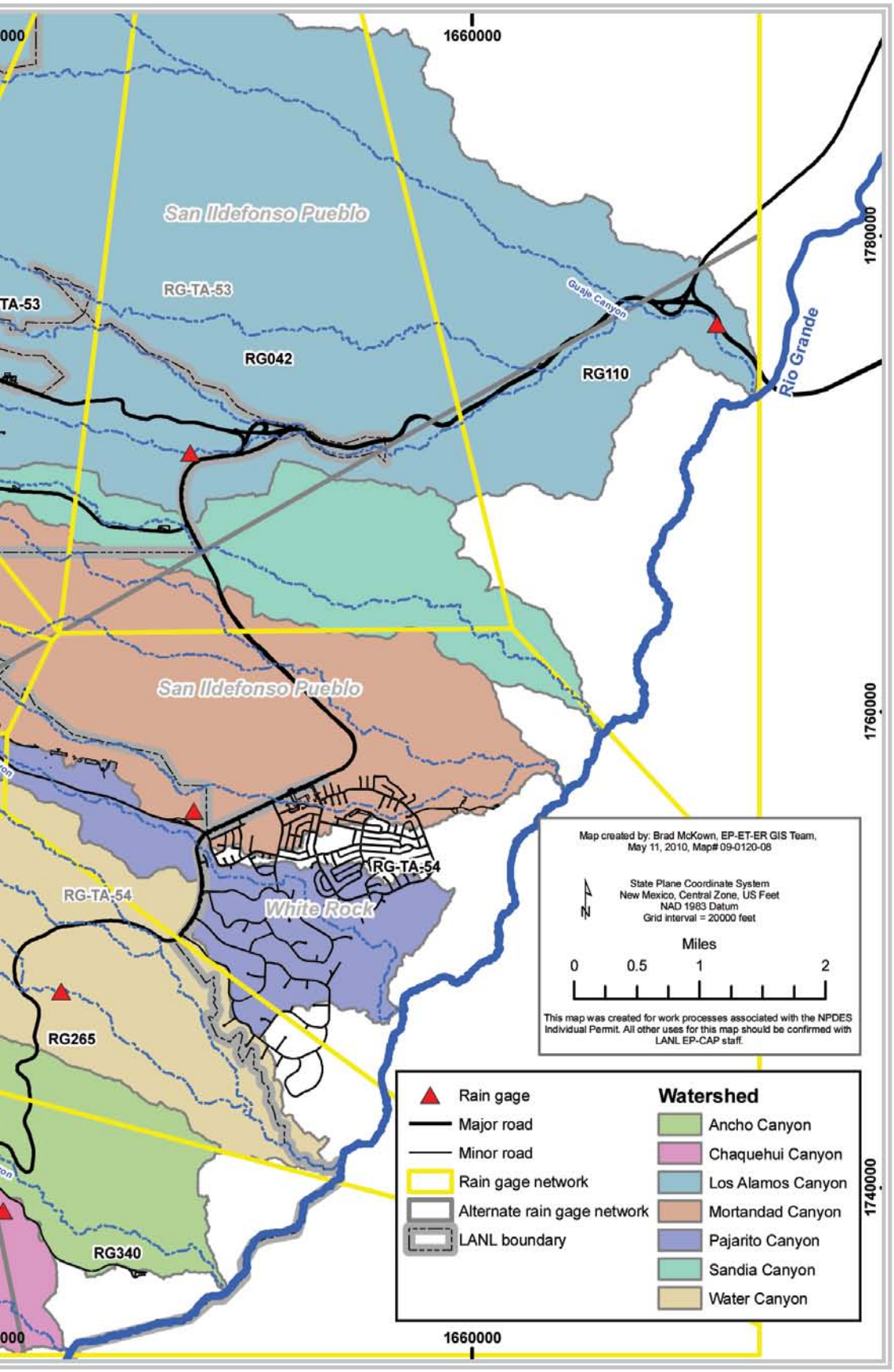
Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
RG262.4 (Cont'd)	July 30, 2011	0.54	0.38	60
	August 02, 2011	0.26	0.1	60
	August 03, 2011	0.22	0.17	60
	August 05, 2011	0.21	0.09	60
	August 13, 2011	0.28	0.16	60
	August 15, 2011	0.22	0.22	0
	August 17, 2011	0.09	0.09	0
	August 18, 2011	0.9	0.88	60
	August 19, 2011	0.1	0.03	60
	August 20, 2011	0.09	0.08	60
	August 21, 2011	0.62	0.25	120
	August 22, 2011	0.01	0.01	0
	August 27, 2011	0.11	0.08	60
	September 01, 2011	1.58	0.69	120
	September 04, 2011	0.4	0.17	120
	September 07, 2011	0.01	0.01	0
	September 15, 2011	0.58	0.25	120
	September 16, 2011	0.01	0.01	0
RG267.4	April 06, 2011	0.04	0.01	0
	April 07, 2011	0.12	0.11	60
	April 24, 2011	0.05	0.03	0
	April 25, 2011	0.01	0.01	0
	April 27, 2011	0.01	0.01	0
	May 18, 2011	0.03	0.02	0

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

Rain Gage	Date	Total (Inches)	Intensity (Inches/ Minute)	Duration (Minutes)
	May 19, 2011	0.02	0.01	0
	May 25, 2011	0.01	0.01	0
	June 30, 2011	0.02	0.01	0
	July 20, 2011	0.01	0.01	0
	July 24, 2011	0.26	0.23	60
	July 25, 2011	0.16	0.16	0
	July 28, 2011	0.11	0.11	0
	July 29, 2011	0.47	0.43	60
	July 30, 2011	0.6	0.43	120
	August 02, 2011	0.19	0.17	0
	August 03, 2011	0.04	0.03	0
	August 05, 2011	0.1	0.06	60
	August 13, 2011	0.27	0.17	60
	August 15, 2011	0.25	0.25	0
	August 18, 2011	0.92	0.89	60
	August 19, 2011	0.13	0.04	60
	August 20, 2011	0.09	0.08	60
	August 21, 2011	0.2	0.12	60
	August 27, 2011	0.15	0.12	60
	September 01, 2011	1.18	0.8	120
	September 04, 2011	0.42	0.17	120
	September 07, 2011	0.1	0.1	0
	September 15, 2011	0.52	0.22	120
	September 16, 2011	0.07	0.07	0

ATTACHMENT C
PRECIPITATION NETWORK (Continued)

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White Rock
RG265
RG340
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.
Rain gage
Major road
Minor road
Rain gage network
Alternate rain gage network
LANL boundary
Watershed
Ancho Canyon
Chaquehui Canyon
Los Alamos Canyon
Mortandad Canyon
Pajarito Canyon
Sandia Canyon
Water Canyon

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.)
Cañon de Valle	V001	CDV-SMA-1.2	1611432 (35.84835)	1764078 (-106.3478)	71,098.60	16-017(b)-99 16-029(k)	1,891.44 9,387.79
Cañon de Valle	V002	CDV-SMA-1.3	1,611,628.38 (35.848233)	1764036 (-106.34715)	5,081.36	16-017(a)-99 16-026(m)	0.00 1,979.83
Cañon de Valle	V003	CDV-SMA-1.4	1,611,616.31 (35.850083)	1764707 (-106.347183)	1,103,638.73	16-020 16-026(l) 16-028(c) 16-030(c)	22,202.52 1.52 1,140.45 0.77
Cañon de Valle	V004	CDV-SMA-1.45	1611691 (35.84985)	1764622 (-106.346933)	745.98	16-026(i)	371.83
Cañon de Valle	V005	CDV-SMA-1.7	1613080 (35.850933)	1765018 (-106.34225)	6,008.01	16-019	6,107.99
Cañon de Valle	V006	CDV-SMA-2	1613663 (35.8498)	1764602 (-106.340283)	141,784.03	16-021(c)	826.05
Cañon de Valle	V007	CDV-SMA-2.3	1615798 (35.8461)	1763255 (-106.333067)	4,414,721.62	13-001 13-002 16-003(n) 16-003(o) 16-029(h) 16-031(h)	151,726.59 32,210.35 3,775.42 66,548.37 917.51 440.35
Cañon de Valle	V008	CDV-SMA-2.41	1615900 (35.849967)	1764662 (-106.332733)	105,008.00	16-018	40,161.61
Cañon de Valle	V008A	CDV-SMA-2.42	1615932 (35.849)	1764311 (-106.332617)	27,010.00	16-010(b)	17,216.77
Cañon de Valle	V009	CDV-SMA-2.5	1616475 (35.846517)	1763407 (-106.330783)	1,007,115.83	16-010(c) 16-010(d) 16-028(a)	25,089.01 28,219.01 11,573.35
Cañon de Valle	V009A	CDV-SMA-2.51	1616733 (35.846967)	1763567 (-106.329917)	130,340.52	16-010(i)	3,552.40
Cañon de Valle	V010	CDV-SMA-3	1619475 (35.847767)	1763859 (-106.320667)	14,716.22	14-009	1,325.37
Cañon de Valle	V011	CDV-SMA-4	1619783 (35.84805)	1763959 (-106.319633)	1,802.01	14-010	63.31
Cañon de Valle	V012	CDV-SMA-6.01	1620528 (35.8478)	1763869 (-106.317117)	53,452.22	14-001(g) 14-006	0.77 530.52
Cañon de Valle	V012A	CDV-SMA-6.02	1620725 (35.8475)	1763759 (-106.31645)	3,799.18	14-002(d) 14-002(e)	790.03 835.62
Cañon de Valle	V013	CDV-SMA-7	1622123 (35.8453)	1762963 (-106.311733)	15,991.04	15-008(d)	391.32
Cañon de Valle	V014	CDV-SMA-8	1622591 (35.844267)	1762583 (-106.31015)	1,059,672.69	15-011(c)	0.00
Cañon de Valle	V015	CDV-SMA-8.5	1622359 (35.841117)	1761436 (-106.310933)	6,183.46	15-014(a)	87.44
Cañon de Valle	V016	CDV-SMA-9.05	1623846 (35.836117)	1759616 (-106.3059)	85,514.04	15-007(b)	11,687.07
Fence	F001	F-SMA-2	1632447 (35.827333)	1756418 (-106.276883)	1,710,990.84	36-004(c)	8,461.12
Potrillo	I001	PT-SMA-0.5	1625751 (35.839183)	1760731 (-106.299483)	318,686.70	15-009(e) C-15-004	57.42 65.85

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.)
Potrillo	I002	PT-SMA-1	1626351 (35.839083)	1760695 (-106.297467)	209,294.32	15-004(f) 15-008(a)	20,138.89 825.97
Potrillo	I003	PT-SMA-1.7	1627504 (35.83355)	1758678 (-106.293567)	70,545.34	15-006(a)	0.00
Potrillo	I004	PT-SMA-2	1627867 (35.836517)	1759759 (-106.29235)	128,520.54	15-008(f) 36-003(b) 36-004(e)	2,906.56 641.17 4,895.21
Potrillo	I004A	PT-SMA-2.01	1627977 (35.8363)	1759680 (-106.291967)	33,690.78	C-36-001 C-36-006(e)	0.77 1,619.03
Potrillo	I005	PT-SMA-3	1637651 (35.829733)	1757290 (-106.259333)	32,567,818.38	36-004(a) 36-006	5,923.61 22,024.28
Potrillo	I007	PT-SMA-4.2	1640805 (35.824283)	1755302 (-106.248683)	46,479,584.84	36-004(d)	4,745.93
Water	W001	W-SMA-1	1610435 (35.841483)	1761579 (-106.351167)	1,579,254.32	16-017(j)-99 16-026(c2) 16-026(v)	698.75 763.13 18,729.71
Water	W002	W-SMA-1.5	1609271 (35.841917)	1761739 (-106.355083)	346,851.64	16-026(b2) 16-028(d)	1,521.22 3,205.49
Water	W003	W-SMA-2.05	1609892 (35.839517)	1760865 (-106.353)	38,238.00	16-028(e)	10,540.86
Water	W004	W-SMA-3.5	1612463 (35.837283)	1760051 (-106.344317)	79,999.28	16-026(y)	1,422.74
Water	W005	W-SMA-4.1	1613587 (35.83705)	1759967 (-106.340517)	13,457.43	16-003(a)	608.80
Water	W006	W-SMA-5	1614101 (35.841617)	1761625 (-106.3388)	3,106,212.41	16-001(e) 16-003(f) 16-026(b) 16-026(c) 16-026(d) 16-026(e)	211.80 12,124.96 2,770.92 12,687.24 7,240.26 6,643.32
Water	W007	W-SMA-6	1614205 (35.836333)	1759702 (-106.338433)	3,352.44	11-001(c)	1,187.35
Water	W008	W-SMA-7	1614499 (35.83855)	1760511 (-106.33745)	98,139.69	16-026(h2)	22,572.70
Water	W009	W-SMA-7.8	1614363 (35.836317)	1759695 (-106.3379)	68,927.10	16-031(a)	1,947.70
Water	W010	W-SMA-7.9	1614423 (35.83595)	1759563 (-106.3377)	293.51	16-006(c)	274.49
Water	W011	W-SMA-8	1614539 (35.836033)	1759592 (-106.3373)	72,474.70	16-016(g) 16-028(b)	0.77 2,727.77
Water	W012	W-SMA-8.7	1615647 (35.843583)	1762343 (-106.333583)	753,727.65	13-001 13-002 16-004(a) 16-026(j2) 16-029(h) 16-035	131,627.22 137,435.01 602.27 14,230.37 4,770.03 1,429.78
Water	W012A	W-SMA-8.71	1615273 (35.843767)	1762406 (-106.334833)	1,012.98	16-004(c)	323.11
Water	W013	W-SMA-9.05	1615787 (35.83502)	1759218 (-106.3331)	37,066.41	16-030(g)	9,984.21

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.)
Water	W014	W-SMA-9.5	1617409 (35.83875)	1760581 (-106.327633)	4,115.62	11-012(c)	929.46
Water	W015	W-SMA-9.7	1617908 (35.83905)	1760691 (-106.32595)	6,496.60	11-011(a) 11-011(b)	163.16 52.29
Water	W016	W-SMA-9.8	1618223 (35.838867)	1760621 (-106.324883)	444.31	11-005(c)	179.36
Water	W017	W-SMA-9.9	1618535 (35.838983)	1760663 (-106.323833)	13,987.15	11-006(b)	1,713.60
Water	W018	W-SMA-10	1618681 (35.837933)	1760282 (-106.323333)	337,409.32	11-002 11-003(b) 11-005(a) 11-005(b) 11-006(c) 11-006(d) 11-011(d)	6,848.23 8,878.77 1,687.45 1,723.33 2,115.86 1,343.42 96.85
Water	W019	W-SMA-11.7	1625583 (35.82445)	1755367 (-106.300033)	303,605.32	49-008(c)	84,627.27
Water	W020	W-SMA-12.05	1625910 (35.82545)	1755732 (-106.298933)	18,490.24	49-001(g)	18,378.50
Water	W021	W-SMA-14.1	1626603 (35.832517)	1758304 (-106.2966)	214,290.19	15-004(h) 15-014(l)	163.74 19.27
Water	W022	W-SMA-15.1	1627047 (35.824433)	1755361 (-106.2951)	1,624.22	49-005(a)	778.72

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

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 Database
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. II of IV (TA-10 through TA-25), 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 (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)

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

NMED (New Mexico Environment Department) 2008.
"*Re: Approval of Los Alamos National Laboratory Proposal for No Further Action*", New Mexico Environment Department letter to D. Gregory (DOE LASO) and D. McInroy (LANL) from J.P. Bearzi (NMED-HWB), Los Alamos, New Mexico. (NMED 2008, HWB-LANL-02-019)

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 (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

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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 Certification of Completion of Baseline Control Measures for 21 Site Monitoring Areas, Dated April 28, 2011, Terrill Lemke (ENV-RCRA)

LANL, ENV-RCRA-11-0091 / LA-UR-11-10593 2011.
NPDES Permit No. NM0030759 - Submittal of Certification of Completion of Baseline Control Measures for 18 Site Monitoring Areas, Dated May 16, 2011, Terrill Lemke (ENV-RCRA)

LANL, ERID-206379/LA-UR-11-11473 2011.
Status Report NPDES Permit No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 4, Water/Cañon De Valle Watershed Aggregate, Reporting Period: April 1 2011-June 30, 2011, Jackie Little

LANL, ERID-207307, LA-UR-11-11625 2011.
Status Report NPDES Permit No. NM0030759, Site Discharge Pollution Prevention Plan, Volume 4, Water/Cañon De Valle Watershed Aggregate, Reporting Period: July 1, 2011-July 31, 2011, Jackie Little

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), LA-UR-12-10341 2012.
Storm Water Individual Permit Annual Report, NPDES Permit No. NM0030759, Reporting Period: January 1 - December 31, 2011, Environmental Protection Division, Water Quality & RCRA Group (ENV-RCRA)

US Army Corps of Engineers Albuquerque District 2005.
"*Wetlands Delineation Report Los Alamos National Laboratory Los ALamos, New Mexico*", (COE 2005)