EMID-702683

N3B Los Alamos

2022 Update to the Site Discharge Pollution Prevention Plan

NPDES Permit No. NM0030759
May 1, 2023

Sandia/Mortandad Watershed

Receiving Waters:
Cañada del Buey, Mortandad Canyon, Sandia Canyon, and Ten Site Canyon

Volume 2

CONTENTS

Attachments

59.0 S-SMA-0.25: SWMUs 03-013(a) and 03-052(f)

Two historical industrial activity areas, Sites 03-013(a) and 03-052(f,) are associated with S-SMA-0.25 (permitted feature S001). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

59.1 Site Descriptions

03-013(a) (3/28/2022)

SWMU 03-013(a) is a former 1500-ft-long CMP storm drain that served building 03-38 (maintenance shops) in TA-03. The storm drain ran underground around building 03-38, east along the south side of the Otowi Building (building 03-261), and connected to four other storm drains before daylighting 100 ft east of the Otowi Building, where it became an open concrete and rock-lined ditch. The open drain continued past transportable office buildings (buildings 03-1616 and 03-1617) and passed beneath streets and sidewalks to a point northeast of the Oppenheimer Study Center (building 03-207), where it discharged to the SWMU 03-052(f) outfall and ultimately to Sandia Canyon.

Most of the CMP associated with SWMU 03-013(a) was removed in 2004 to accommodate construction of the NSSB (building 03-1400) and a new parking structure (structure 03-1402) southeast and east of the Otowi Building. The excavated CMP was managed as nonhazardous/nonradioactive industrial waste. Inspection of the drainline trench showed no evidence of a release from the storm drainline. A new storm drainline was installed west of SWMU 03-052(f) to manage stormwater runoff from the new parking structure. The new storm drain discharges to the SWMU 03-052(f) outfall.

03-052(f) (1/13/2017)

SWMU 03-052(f) is a former NPDES-permitted outfall (EPA 03A023), which received wastewater from floor drains [AOC 03-013(b)], sinks, water fountains, and a storm drain [SWMU 03-013(a)] in building 03-38 until 1987, when the drains in building 03-38 were rerouted to the TA-03 sanitary sewer system. Stoddard solvents, dry acid, and caustic materials from the maintenance shop were discarded through sinks and floor drains to this outfall. Spent paint solvents and cutting oils contaminated with machined beryllium particles also may have been released to the floor drains during the 1960s and 1970s. In addition, cooling water for welding torches was discharged directly to the drains.

The first spill recorded at this SWMU was approximately 200 gal. of water and waste-oil mixture that was discharged when an automatic compressor-blowdown mechanism failed. A second spill from a ruptured air-compressor oil line resulted in the release of approximately 1 quart of compressor oil to the drain, producing an oily sheen on the surface of the water at the SWMU 03-052(f) outfall. A third spill occurred when approximately 15 gal. of diesel fuel was released from a ruptured truck fuel line into the utilities construction trench between buildings 03-1793 and 03-1794. On the same day, a clay sewer pipe in the utility trench broke, releasing approximately 2,000 gal. of wastewater into the excavation. A sump pump was used to remove the wastewater from the excavation, and the wastewater was discharged to SWMU 03-052(f). The diesel-contaminated asphalt and soil were removed and disposed of. Runoff from parking lots and the surrounding areas also discharges to the outfall. Outfall 03A023 was removed from the NPDES permit on July 11, 1997.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 59-1.

Table 59-1 POCs Known or Suspected to Have Been Used Historically at the Sites

Site	Potential POC Source	Potential POCs
03-013(a)	Storm drain	Metals, PAHs, organic chemicals
03-052(f)	Outfall	Metals, beryllium, chromium, lead, nickel, inorganic chemicals, PCBs, organic chemicals

59.2 Control Measures

All active control measures in use at S-SMA-0.25 are listed in Table 59-2 and their locations are shown on the project map (Figure 59-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 59-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00102040011	Established Vegetation	-	X	X	-	B	5-8-2013
S00103090017	Curbing	X	-	-	X	B	10-20-2015
S00103100022	Gravel Bags	X	-	-	X	B	6-30-2021
S00103100024	Gravel Bags	X	-	-	X	B	8-5-2022
S00104030014	Rock Channel/Swale	X	-	X	-	EC	4-9-2014
S00104060007	Riprap	X	-	X	-	CB	6-1-2009
S00105010013	Sediment Trap	X	-	-	X	EC	4-9-2014
S00105050012	Bioretention Basin	X	-	-	X	EC	4-9-2014
S00107010008	Gabions	-	X	-	X	CB	6-1-2009
S00107020003	Gabion Blanket	-	X	X	-	CB	10-12-2006

59.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-0.25 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 59-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 59-4.

Table 59-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93205[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-6-2022	11 10 4	Yes Yes Yes
BMP-94719[b]	7-27-2022 7-31-2022	1.24 0.32	8-5-2022	9 5	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 59-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93205	Removed and disposed of floatable garbage and debris at inspection.	7-27-2022	0 days	Maintenance was conducted as soon as practicable.
BMP-94113 (follow up from BMP-93205)	Installed Gravel Bags S0010310024 as a replacement for gravel Bags S0010310023, which had been removed.	8-5-2022	30 days	Maintenance was conducted as soon as practicable.

59.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 28, 2011, and August 15, 2011. Analytical results from these samples yielded TAL exceedances for copper (9.7 µg/L and 10.9 µg/L), gross-alpha activity (28.1 pCi/L), PCB concentration (50 ng/L), and zinc (52.9 µg/L and 74.4 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-0.25, corrective-action stormwater samples were collected on July 15, 2014, and August 22, 2014. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for copper (15.2 µg/L and 9.79 µg/L), PCB concentrations (42 ng/L and 4 ng/L), and zinc (103 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Following certification of control measures installed to totally eliminate exposure of pollutants to stormwater at 03-013(a) under the 2010 IP requirements, a corrective-action investigation sample was collected on June 4, 2016. Analytical results from this sample were submitted to EPA on August 31, 2016 and are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2016, NPDES Permit No. NM0030759" (LANL 2017, 602194).

Stormwater monitoring was not conducted at S-SMA-0.25 in 2022 under the 2010 IP requirements.

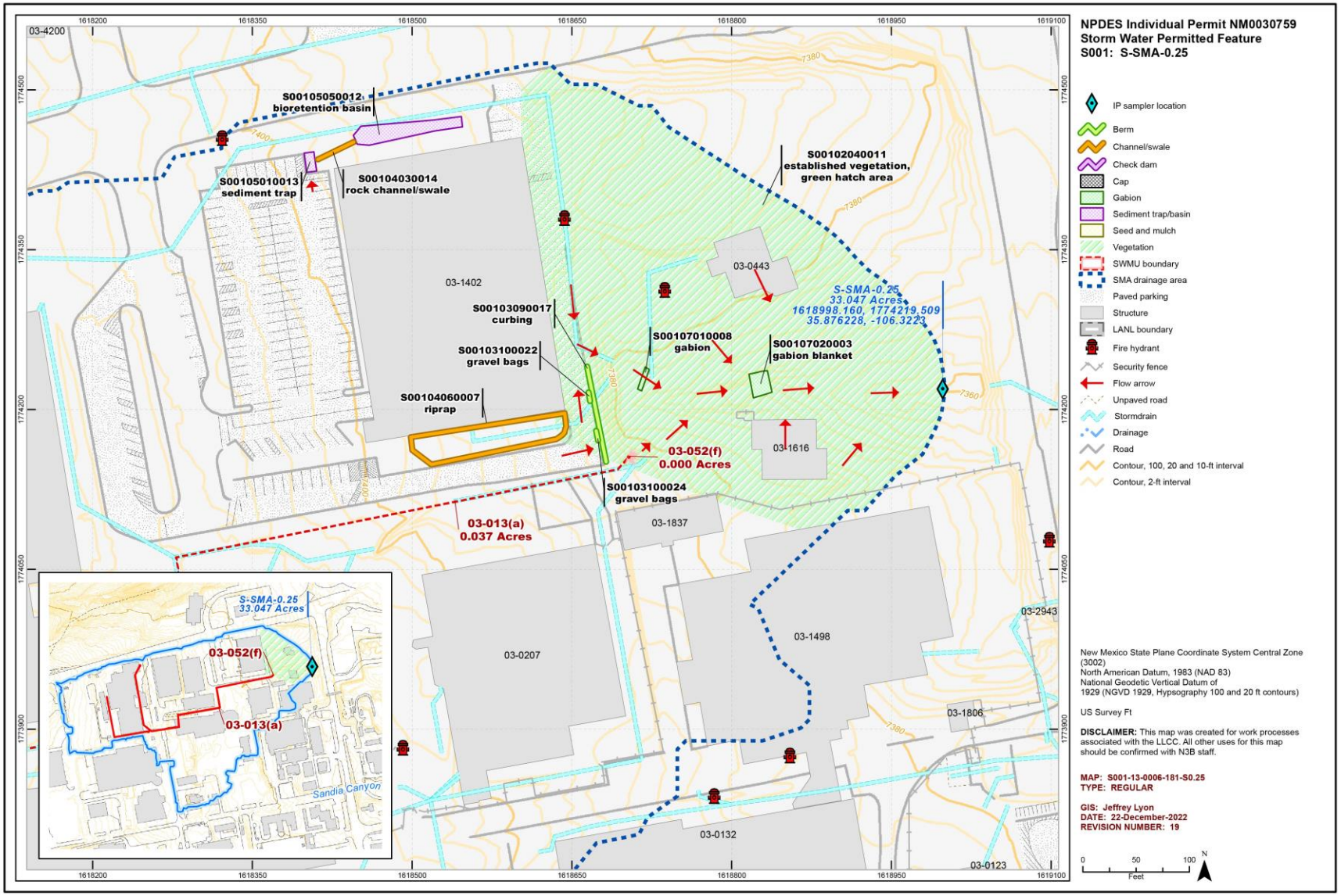


Figure 59-1 S-SMA-0.25 location map

60.0 S-SMA-1.1: SWMU 03-029

One historical industrial activity area, Site 03-029, is associated with S-SMA-1.1 (permitted feature S002). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

60.1 Site Description

03-029 (1/11/2017)

SWMU 03-029 was reportedly a 30-ft × 70-ft asphalt landfill, located approximately 300 ft south of building 03-271 near the rim of Sandia Canyon. The landfill reportedly received excess asphalt from the batch plant. After being decommissioned, it was subsequently covered with sand, which raised and leveled the surface areas at the mesa rim. Efforts to determine the landfill location were performed using ground-penetrating radar and electromagnetic surveys and trenching; however, no evidence of a landfill was found.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 60-1.

Table 60-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-029	Former asphalt landfill	PAHs

60.2 Control Measures

All active control measures in use at S-SMA-1.1 are listed in Table 60-2 and their locations are shown on the project map (Figure 60-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 60-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00203010018	Earthen Berm	-	X	-	X	EC	11-7-2012
S00203090017	Curbing	X	-	-	X	EC	11-7-2012
S00204040016	Culvert	X	-	X	-	EC	11-7-2012
S00204060014	Riprap	X	-	X	-	EC	11-7-2012
S00204060015	Riprap	X	-	X	-	EC	11-7-2012
S00204060019	Riprap	X	-	X	-	EC	11-7-2012
S00205020013	Sediment Basin	-	X	-	X	EC	11-7-2012
S00207010003	Gabions	-	X	-	X	CB	1-1-2000

60.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-1.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 60-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 60-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93206[a,b]	6-25-2022	0.49	7-6-2022	11	Yes
	6-26-2022	0.32		10	Yes
	7-2-2022	0.32		4	Yes
BMP-94720[b]	7-27-2022	1.24	8-5-2022	9	Yes
	7-31-2022	0.32		5	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

60.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on August 4 and September 4, 2011. Analytical results from these samples yielded TAL exceedances for copper (5.2 µg/L and 5.8 µg/L), gross-alpha activity (17.1 pCi/L), and PCB concentrations (90 ng/L and 110 ng/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-1.1, corrective-action stormwater samples were collected on July 7 and July 29, 2014. Analytical results from these samples yielded TAL exceedances for gross-alpha activity (39.9 pCi/L) and PCB concentrations (18 ng/L and 19 ng/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Stormwater monitoring was not conducted at S-SMA-1.1 in 2022 under the 2010 IP requirements.

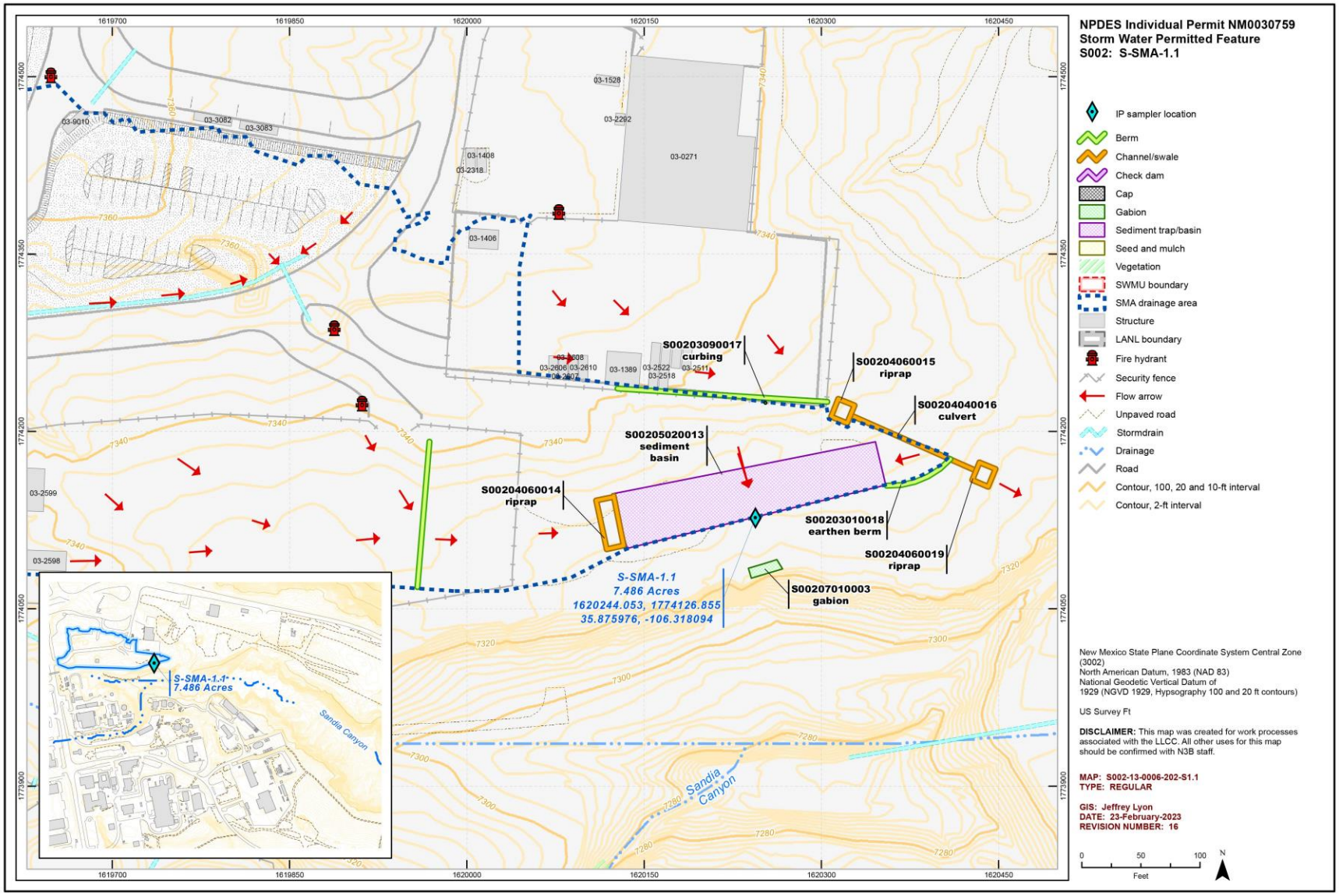


Figure 60-1 S-SMA-1.1 location map

61.0 S-SMA-2: SWMUs 03-012(b), 03-045(b), 03-045(c), and 03-056(c)

Four historical industrial activity areas, Sites 03-012(b), 03-045(b), 03-045(c), and 03-056(c), are associated with S-SMA-2 (permitted feature S003). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

61.1 Site Descriptions

03-012(b) (11/26/2019)

SWMU 03-012(b) is an area of soil contamination associated with operational releases in the form of drift from former cooling towers at the power plant located at TA-03. The cooling towers [structure 03-58 and former structure 03-25 (currently structure 03-592)] were located to the east of the power plant. Between 1951 and 1985, treated effluent from the former TA-03 WWTP was used in the cooling towers; potassium dichromate was added to the effluent to prevent bacteria growth. Operational releases occurred as a result of both drift from the cooling towers to soil around the towers and discharges from the cooling towers to the SWMU 03-045(b) outfall. A gas turbine generator (structure 03-2422), along with supporting utilities, was installed east of the power plant within the eastern portion of SWMU 03-012(b) in 2007.

The distinction between SWMUs 03-012(b) and 03-045(b) is often not clear in historical documents. The 1990 SWMU Report, which originally identified these sites as SWMUs, describes SWMU 03-012(b) as former chilled water operational releases, including cooling tower drift loss and cooling water discharges to Sandia Canyon. SWMU 03-045(b) is described as the NPDES outfall for cooling towers 03-25 and 03-58. The 1993 RFI work plan for OU 1114 identifies SWMU 03-012(b) as the power plant outfall, while the addendum to the RFI work plan for OU 1114 identifies SWMU 03-045(b) as the outfall for the power plant cooling towers and notes that this discharge point is identical to SWMU 03-012(b). Similar descriptions are provided in the 1996 Phase I RFI report for TA-03.

Based on the original descriptions in the 1990 SWMU report, SWMU 03-012(b) was intended to address only chromium releases associated with the addition of potassium dichromate to the power plant effluent. Although chromium was released from the cooling tower outfall as well as by drift, discharge of chromium from the outfall ceased before the NPDES permit was issued for the outfall. Thus, SWMUs 03-012(b) and 03-045(b) are physically the same outfall but address releases of different materials at different time periods. That is, SWMU 03-012(b) is associated with releases of chromated cooling water, which occurred until the mid-1970s, and SWMU 03-045(b) is associated with permitted discharges from the outfall, which occurred later.

03-045(b) (1/11/2017)

SWMU 03-045(b) is an NPDES-permitted outfall (EPA 01A001) that received effluent from two of the TA-03 power plant (building 03-22) cooling towers (structures 03-25 and 03-58) and the chlorine building (structure 03-24), and discharged to a small tributary of Sandia Canyon southeast of building 03-22. From 1951 until the mid-1970s, this cooling water contained chromate. Cooling tower (structure 03-25) was demolished in 1990, and a new cooling tower (structure 03-592) was constructed at the same location in 1998; the concrete foundation of structure 03-25 collected stormwater that discharged to the outfall.

All wastewater previously discharged from the TA-03 power plant to SWMU 03-045(b) was treated in a neutralization tank (structure 03-1381) to adjust the pH of wastewater before it was discharged, to meet NPDES requirements. Sulfuric acid and soda ash were used to adjust the pH of wastewater before discharge to the SWMU 03-045(b) outfall. A sulfuric acid release to the SWMU 03-045(b) outfall from the power plant neutralization tank (structure 03-1381) occurred in May 1990. Low pH values were reported in a 2.5-mi section of the watercourse below the outfall. Soda ash was added along the watercourse to raise the pH. A subsequent survey detected no measurements below pH 6.9.

The SWMU 03-045(b) outfall is currently permitted as NPDES outfall 001 on the 2007 LANL NPDES authorization permit. The outfall currently receives treated sanitary effluent from the TA-46 SWSC Plant and the SERF, as well as occasional discharges of power plant cooling tower blowdown. The outfall is also authorized to discharge power plant wastewater from boiler blowdown drains, demineralizer backwash, and floor and sink drains to Sandia Canyon.

03-045(c) (1/11/2017)

SWMU 03-045(c) is an NPDES-permitted outfall (EPA 03A027), located approximately 55 ft east of SWMU 03-045(b). SWMU 03-045(c) previously received effluent from a cooling tower (structure 03-285) that served the generators powering a Laboratory computer system. Cooling tower 03-285 was taken out of service in 2007 and demolished in 2012. SWMU 03-045(c) now receives blowdown from the cooling towers at the Strategic Computing Complex (building 03-2327), which became operational in 2002. Cooling tower 03-285 was constructed in 1968, and SWMU 03-045(c) may have historically received chromate-treated water. Outfall 03A027 is currently permitted for the discharge of cooling tower blowdown water and other wastewater from structures 03-285 and 03-2327.

03-056(c) (3/28/2022)

SWMU 03-056(c) is a former outdoor storage area that was located on the northeast side of a utilities shop, building 03-223, at TA-03. The SWMU extends along the length of building 03-223 to the south and is bounded by a security fence to the north. The outdoor storage area was used to store electrical equipment, capacitors, and transformers with PCB-containing dielectric fluids. Waste solvents used for cleaning electrical equipment were also reportedly stored at this location in unmarked drums.

The types of solvents used at the site from 1967 to approximately 1981 are not known. Viking R30 (1,1,1-trichloroethane) was used from 1981 to 1990. Beginning in 1990 and continuing to 1992, a nonhazardous citrus-based solvent was used as a substitute for solvent-based cleaners. In addition, Transclene, which contains tetrachloroethene, may have been stored at the site because it was used by an electrical equipment maintenance subcontractor to retrofill transformers in the field. It is believed that the maintenance crew disposed of all these waste materials at an approved waste disposal facility.

In 1991, the facility manager placed approximately 1 to 2 ft of clean fill over the surface of the former storage area to elevate it and to reroute run-on drainage away from the site. In 1992, the storage area was decommissioned. Investigations and remedial actions were performed at SWMU 03-056(c) in 1994, 1995, 2000 and 2001. As a result of remediation and restoration efforts, the mesa top was backfilled and paved.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 61-1.

Table 61-1 POCs Known or Suspected to Have Been Used Historically at the Sites

Site	Potential POC Source	Potential POCs
03-012(b)	Operational release	Chromium, hexavalent chromium, inorganic chemicals
03-045(b)	Operational release	Metals, hexavalent chromium, inorganic chemicals
03-045(c)	Outfall from structure 03-285	Naturally occurring metals concentrated by evaporation, hexavalent chromium
03-056(c)	Transformer storage area	Organic chemicals, PCBs

61.2 Control Measures

All active control measures in use at S-SMA-2 are listed in Table 61-2 and their locations are shown on the project map (Figure 61-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 61-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00301010015	Seed and Wood Mulch	-	-	X	-	EC	4-26-2013
S00302040022	Established Vegetation	-	X	X	-	B	5-8-2013
S00303140026	Coir Log	-	X	-	X	B	9-18-2014
S00304040024	Culvert	X	-	X	-	B	9-18-2014
S00304060005	Riprap	X	-	X	-	CB	1-1-2000
S00304060009	Riprap	X	-	X	-	CB	6-1-2009
S00304060011	Riprap	X	-	X	-	B	5-29-2012
S00304060012	Riprap	X	-	X	-	EC	4-26-2013
S00304060021	Riprap	X	-	X	-	EC	4-26-2013
S00304060025	Riprap	X	-	X	-	B	9-18-2014
S00304080023	TRM-Lined Swale	X	-	X	-	B	9-18-2014
S00305040014	Gravel Infiltration Strip	X	-	-	X	EC	4-26-2013
S00306010018	Rock Check Dam	X	-	-	X	EC	4-26-2013
S00306010019	Rock Check Dam	X	-	-	X	EC	4-26-2013
S00306010020	Rock Check Dam	X	-	-	X	EC	4-26-2013

61.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 61-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 61-4.

Table 61-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93207[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-6-2022	11 10 4	Yes Yes Yes
BMP-94721[b]	7-27-2022 7-31-2022	1.24 0.32	8-5-2022	9 5	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 61-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93207	Removed and disposed of floatable garbage and debris at inspection.	7-6-2022	0 days	Maintenance was conducted as soon as practicable.
BMP-94114 (follow up from BMP-93207)	Removed and disposed of additional floatable debris and garbage that could not be completed at inspection.	8-4-2022	29 days	

61.4 Stormwater Monitoring

Following the installation of baseline control measures, two baseline stormwater samples were collected on July 28 and August 13, 2011. Analytical results from these samples yielded TAL exceedances for copper (5.8 µg/L and 8.3 µg/L), gross-alpha activity (29 pCi/L), PCB concentrations (140 ng/L and 190 ng/L), and zinc (62.6 µg/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-2, two corrective-action stormwater samples were collected on July 11 and August 1, 2013. Analytical results from these corrective action monitoring samples yielded TAL exceedances for copper (4.43 µg/L and 5.08 µg/L), PCB concentrations (49 ng/L and 220 ng/L), and zinc (44.2 µg/L and 54 µg/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at S-SMA-2 in 2022 under the 2010 IP requirements.

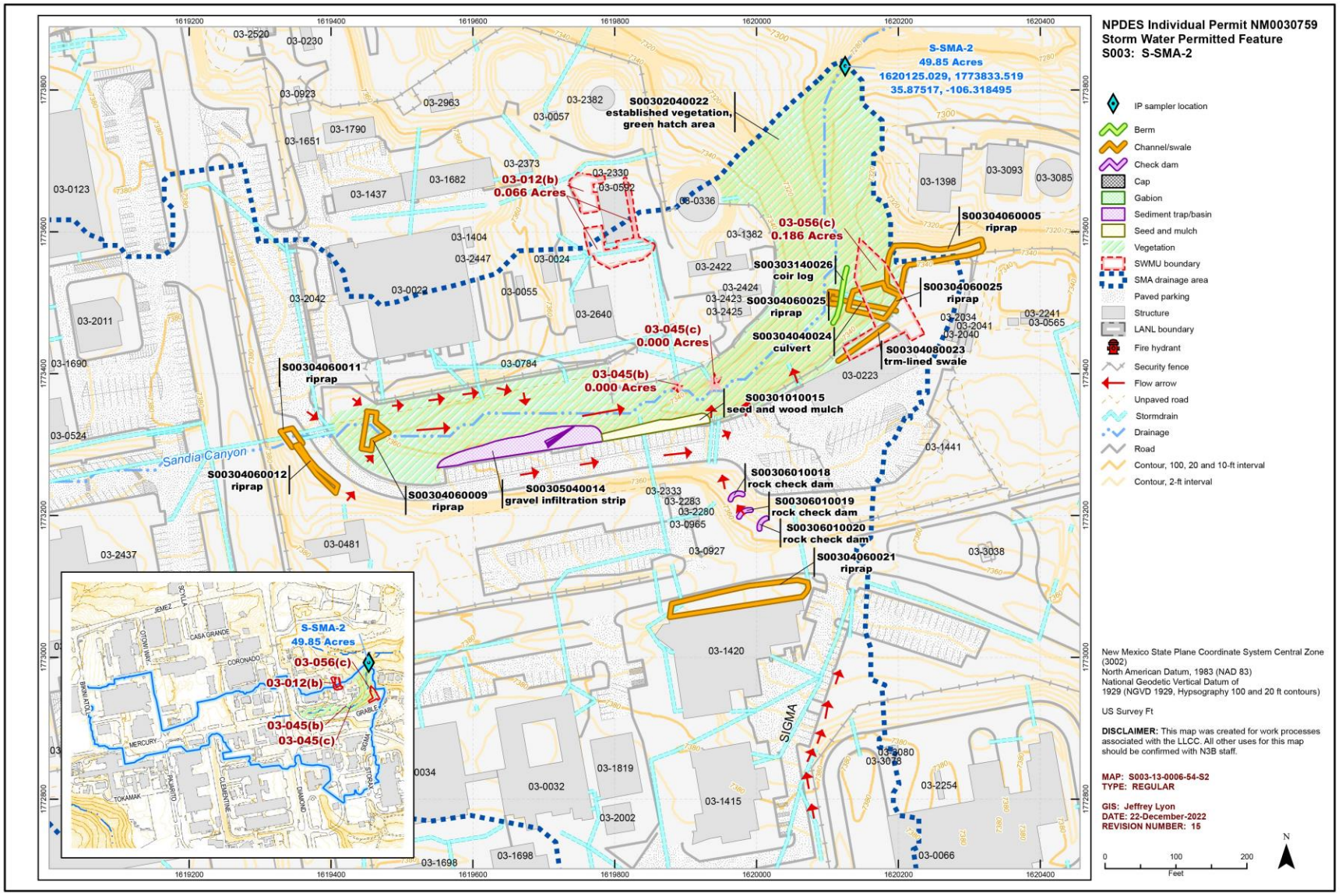


Figure 61-1 S-SMA-2 location map

62.0 S-SMA-2.01: AOC 03-052(b) and SWMU 03-056(k)

Two historical industrial activity areas, Sites 03-052(b) and 03-052(k), are associated with S-SMA-2.01 (permitted feature S003A). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

62.1 Site Descriptions

03-052(b) (1/12/2017)

AOC 03-052(b) consists of five stormwater collection areas at TA-03, about 20 ft north and west of the Sigma Building (building 03-66). Surface runoff flows from the area around the north end of the Sigma Building to three stormwater collection areas within the building fence, which channel stormwater to two stormwater collection areas north of the building 03-66 fence. The collection areas northeast of building 03-66 discharge to a storm drain outlet just north of Eniwetok Drive, and the area to the northwest of building 03-66 flows to a single storm drain that discharges to a low-lying grassy area northwest of building 03-66.

03-056(k) (1/12/2017)

AOC 03-056(k) is a container storage area on the north side of a loading dock at the northwest corner of the Sigma Building (building 03-66). Waste oil, solvents, and radioactively-contaminated graphite were staged in this area. Four documented releases of radiological materials are known to have occurred at this site.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 62-1.

Table 62-1 POCs Known or Suspected to Have Been Used Historically at the Sites

Site	Potential POC Source	Potential POCs
03-052(b)	Storm drainage	Organic chemicals, uranium, DU
03-056(k)	Container storage area	Organic chemicals, radionuclides

62.2 Control Measures

All active control measures in use at S-SMA-2.01 are listed in Table 62-2 and their locations are shown on the project map (Figure 62-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 62-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S003A01010021	Seed and Wood Mulch	-	X	-	X	B	9-28-2016
S003A03010017	Earthen Berm	-	X	-	X	B	9-28-2016
S003A03010020	Earthen Berm	-	X	-	X	B	9-28-2016
S003A04040013	Culvert	-	X	X	-	B	9-28-2016
S003A04040015	Culvert	-	X	X	-	B	9-28-2016
S003A04060003	Riprap	-	X	X	-	CB	4-28-2010
S003A04060010	Riprap	X	-	X	-	B	9-28-2016
S003A04060016	Riprap	X	-	X	-	B	9-28-2016
S003A05020011	Sediment Basin	X	-	-	X	B	9-28-2016
S003A05020012	Sediment Basin	X	-	-	X	B	9-28-2016
S003A05020014	Sediment Basin	X	-	-	X	B	9-28-2016
S003A05060019	Infiltration Basin	-	X	-	X	B	9-28-2016

62.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-2.01 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 62-3. All other inspections conducted at the SMA in 2022 are summarized in Table 62-4, and maintenance activities conducted at the SMA are summarized in Table 62-5.

Table 62-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93214[a,b]	6-25-2022	0.49	7-5-2022	10	Yes
	6-26-2022	0.32		9	Yes
	7-2-2022	0.32		3	Yes
BMP-94732[b]	7-27-2022	1.24	8-5-2022	9	Yes
	7-31-2022	0.32		5	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 62-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Verification	BMP-91335	3-23-2022	SMA boundary updated. See Figure 62-4 for current physical characteristics.

Table 62-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93214	Removed and disposed of floatable garbage and debris at inspection.	7-5-2022	0 days	Maintenance was conducted as soon as practicable.

62.4 Stormwater Monitoring

Following the installation of baseline control measures, two baseline stormwater samples were collected on August 5 and September 7, 2011. Analytical results from these samples yielded TAL exceedances for copper (10.7 µg/L and 10.9 µg/L) and PCB concentrations (380 ng/L and 1900 ng/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408)

Following the installation of enhanced control measures at S-SMA-2.01, one corrective action stormwater sample was collected on September 13, 2013. Analytical results from this corrective action monitoring sample yielded a TAL exceedance for PCB concentration (164 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067)

Stormwater monitoring was not conducted at S-SMA-2.01 in 2022 under the 2010 IP requirements.

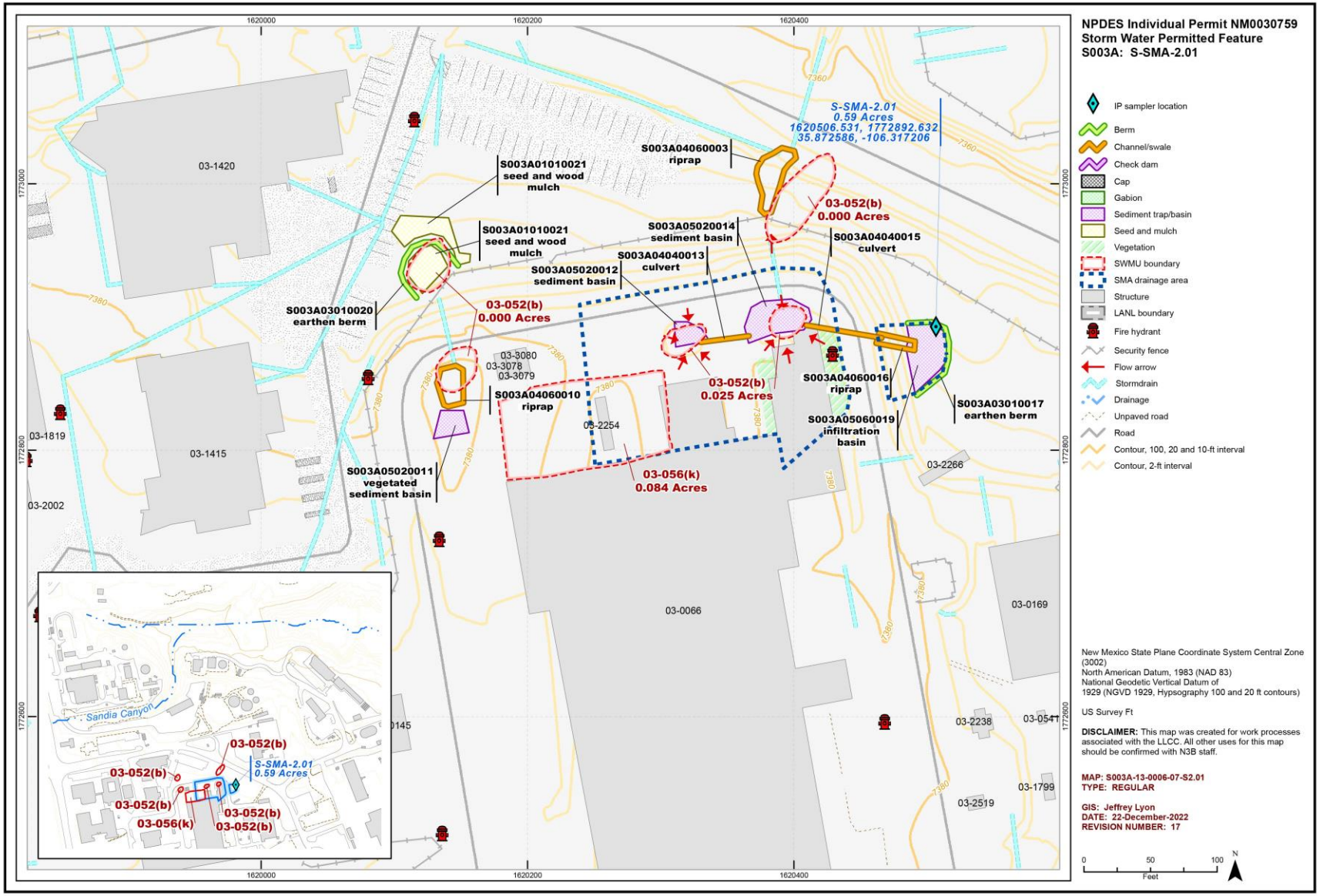


Figure 62-1 S-SMA-2.01 location map

63.0 S-SMA-2.8: AOC 03-014(c2)

One historical industrial activity area, Site 03-014(c2) is associated with S-SMA-2.8 (permitted feature S004). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

63.1 Site Description

03-014(c2) (1/12/2017)

AOC 03-014(c2) is the inactive overflow outfall that previously received treated effluent from the former TA-03 WWTP from 1975 until the WWTP chlorination system [SWMU 03-014(j)] was constructed in 1985. The outfall was located on the north side of the chlorination system pump pit (structure 03-166). Effluent for this outfall discharged as sheet flow onto a steep slope containing a stormwater-runoff erosion channel, which eventually trends northeast into Sandia Canyon. Soil and sediment were occasionally cleaned out of the channel with a backhoe and piled onto the upslope channel bank.

Following the construction of the chlorination system, the outfall was rerouted underground from the pump pit to the chlorination dosing and contact chamber, where the final effluent discharged freely from a flow measurement weir north of the contact chamber into Sandia Canyon. This outfall was abandoned in 1988 or 1989, when the WWTP effluent was routed to a new outfall, AOC 03-014(b2).

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 63-1.

Table 63-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-014(c2)	Outfall	Inorganic chemicals, organic chemicals, radionuclides

63.2 Control Measures

All active control measures in use at S-SMA-2.8 are listed in Table 63-2 and their locations are shown on the project map (Figure 63-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 63-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00402040008	Established Vegetation	-	X	X	-	B	4-26-2013
S00403010005	Earthen Berm	-	X	-	X	CB	6-25-2010
S00403020004	Base Course Berm	X	-	-	X	CB	12-9-2010
S00403020010	Base Course Berm	X	-	-	X	B	6-1-2017
S00403060011	Straw Wattle	-	X	-	X	B	10-22-2019
S00408040007	Metal Cap	X	-	X	-	B	12-12-2012

63.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-2.8 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 63-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 63-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93208[a]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93708	7-2-2022	0.32	7-14-2022	12	Yes
BMP-94722[b]	7-27-2022 7-31-2022	1.24 0.32	8-4-2022	8 4	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

63.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at S-SMA-2.8. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted under the 2010 IP requirements at S-SMA-2.8 from March 15 through November 9, 2022, resulting in a monitoring season of 240 days. Eight inspections were performed during the monitoring season and are summarized in Table 63-4. RG121.9 recorded 34 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 63-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91526	4-11-2022	No	None	None
SMPLR-91954	5-6-2022	No	None	None
SMPLR-92388	6-17-2022	No	None	None
SMPLR-92894	6-30-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.08/0.31 0.13/0.24 0.03/0.16 0.07/0.16 0.12/0.67 0.49/1.45 0.32/1.87

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93551	8-11-2022	No	7-1-2022 7-2-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.11/0.43 0.32/0.41 0.16/0.39 0.05/0.1 0.24/0.29 0.2/0.3 0.12/0.34 1.24/1.37 0.11/0.29 0.16/0.23 0.32/0.6 0.43/0.86
SMPLR-95423	9-23-2022	No	8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022 9-9-2022 9-22-2022	0.07/0.2 0.07/0.21 0.11/0.21 0.05/0.26 0.09/0.12 0.1/0.15 0.11/0.11 0.11/0.19 0.22/0.26
SMPLR-96078	10-18-2022	No	10-2-2022 10-3-2022 10-4-2022 10-7-2022 10-15-2022 10-16-2022	0.1/0.26 0.06/0.11 0.02/0.11 0.23/0.25 0.18/1.02 0.07/0.23
SMPLR-96406	11-9-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

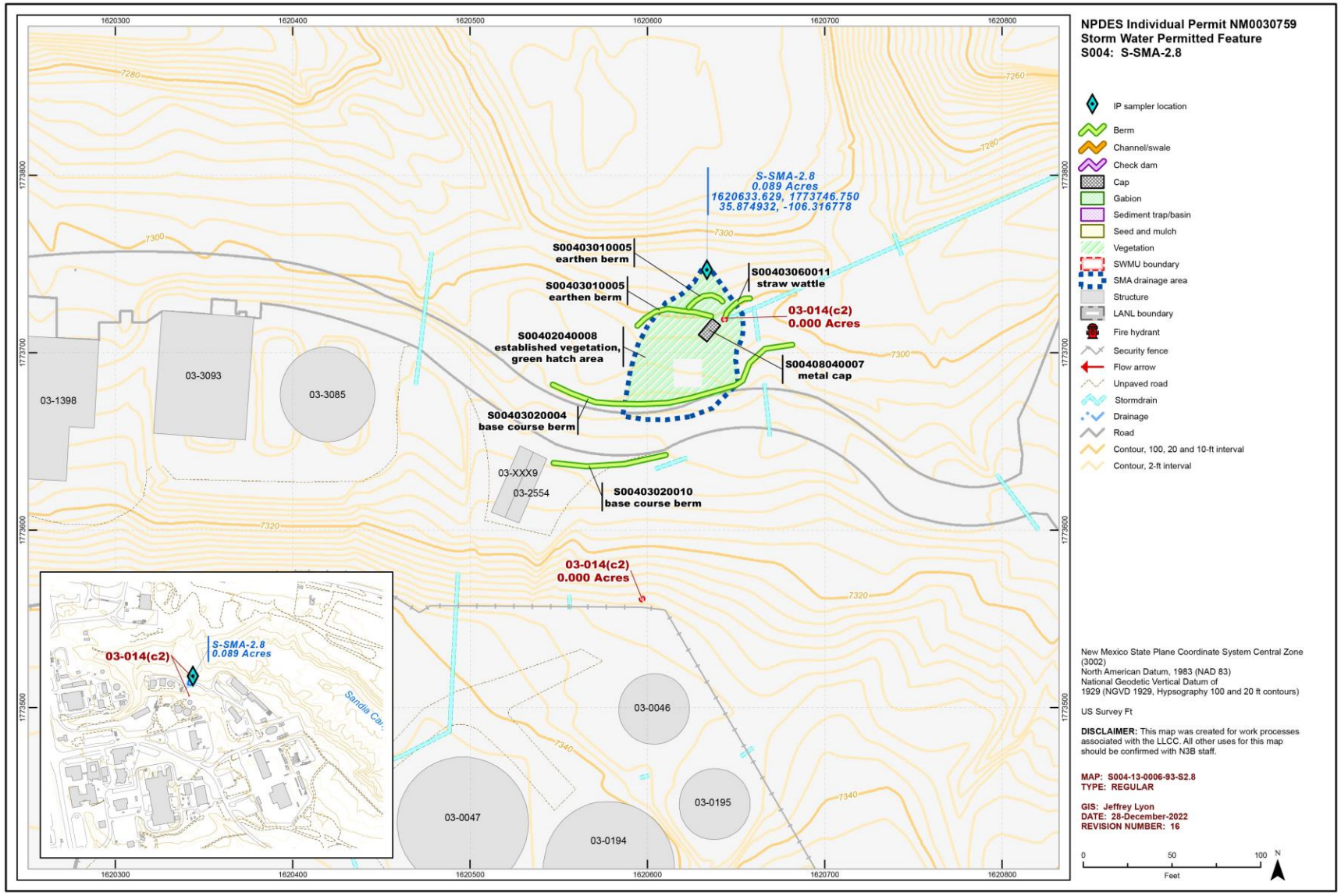


Figure 63-1 S-SMA-2.8 location map

64.0 S-SMA-3.51: SWMU 03-009(i)

One historical industrial activity area, Site 03-009(i), is associated with S-SMA-3.51 (permitted feature S005). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

64.1 Site Description

03-009(i) (7/29/2016)

SWMU 03-009(i) is an inactive surface disposal site located east of the liquid and compressed gas facility (building 03-170). This site consists primarily of clean fill from TA-03 construction sites with construction debris, including crushed tuff, and pieces of concrete and asphalt mixed with some of the fill material. The OU 1114 RFI work plan incorrectly states that the use of the disposal area ceased in 1980; the 1990 SWMU Report did not specify dates of operation. Aerial photographs from 1979 and 1986 show the site was not used before 1980 and was still being used for fill placement in 1986. Site visits in the early 1990s confirmed that fill was still being placed at the site periodically.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 64-1.

Table 64-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-009(i)	Surface disposal site	Iron, PAHs

64.2 Control Measures

All active control measures in use at S-SMA-3.51 are listed in Table 64-2 and their locations are shown on the project map (Figure 64-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 64-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00501010018	Seed and Wood Mulch	X	-	X	-	B	5-23-2017
S00502040013	Established Vegetation	-	X	X	-	B	4-26-2013
S00503010016	Earthen Berm	-	X	-	X	B	5-23-2017
S00503010017	Earthen Berm	X	-	-	X	B	5-23-2017
S00503120019	Rock Berm	X	-	-	X	B	9-20-2017
S00504040020	Culvert	X	-	X	-	B	9-20-2017
S00506010007	Rock Check Dam	X	-	-	X	CB	6-24-2010
S00506010009	Rock Check Dam	X	-	-	X	CB	6-24-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00506010010	Rock Check Dam	X	-	-	X	CB	6-24-2010
S00506010012	Rock Check Dam	X	-	-	X	CB	8-27-2010
S00506010015	Rock Check Dam	X	-	-	X	B	11-5-2014

64.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-3.51 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 64-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 64-4.

Table 64-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93211[a,b]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93710	7-2-2022	0.32	7-14-2022	12	Yes
BMP-94729[b]	7-27-2022 7-31-2022	1.24 0.32	8-4-2022	8 4	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 64-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94121 (follow up to BMP-93710)	Returned displaced rock material to Rock Berm S0053120019.	8-3-2022	20 days	Maintenance was performed as soon as practicable.

64.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at S-SMA-3.51. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted under the 2010 IP requirements at S-SMA-3.51 from March 15 through November 16, 2022, resulting in a monitoring season of 247 days. Nine inspections were performed during the monitoring season and are summarized in Table 64-5. RG121.9 recorded 34 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022.

Table 64-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91528	4-7-2022	No	None	None
SMPLR-91920	5-6-2022	No	None	None
SMPLR-92390	6-17-2022	No	None	None
SMPLR-92896	6-30-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.08/0.31 0.13/0.24 0.13/0.24 0.07/0.16 0.12/0.67 0.49/1.45 0.32/1.87
SMPLR-93554	8-11-2022	No	7-1-2022 7-2-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.11/0.43 0.32/0.41 0.16/0.39 0.05/0.1 0.24/0.29 0.2/0.3 0.12/0.34 1.24/1.37 0.11/0.29 0.16/0.23 0.32/0.6 0.43/0.86
SMPLR-95426	9-23-2022	No	8-16-2022[c] 8-18-2022[c] 8-19-2022[c] 8-20-2022[c] 8-21-2022[c] 8-23-2022[c] 9-5-2022[c] 9-9-2022[c] 9-22-2022[c]	0.07/0.2 0.07/0.21 0.11/0.21 0.05/0.26 0.09/0.12 0.1/0.15 0.11/0.11 0.11/0.19 0.22/0.26
SMPLR-96081	10-12-2022	No	10-2-2022[c] 10-3-2022[c] 10-4-2022[c] 10-7-2022[c]	0.1/0.26 0.06/0.11 0.02/0.11 0.23/0.25
SMPLR-96326	10-18-2022	No	10-15-2022[c] 10-16-2022[c]	0.18/1.02 0.07/0.23
SMPLR-96414	11-16-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

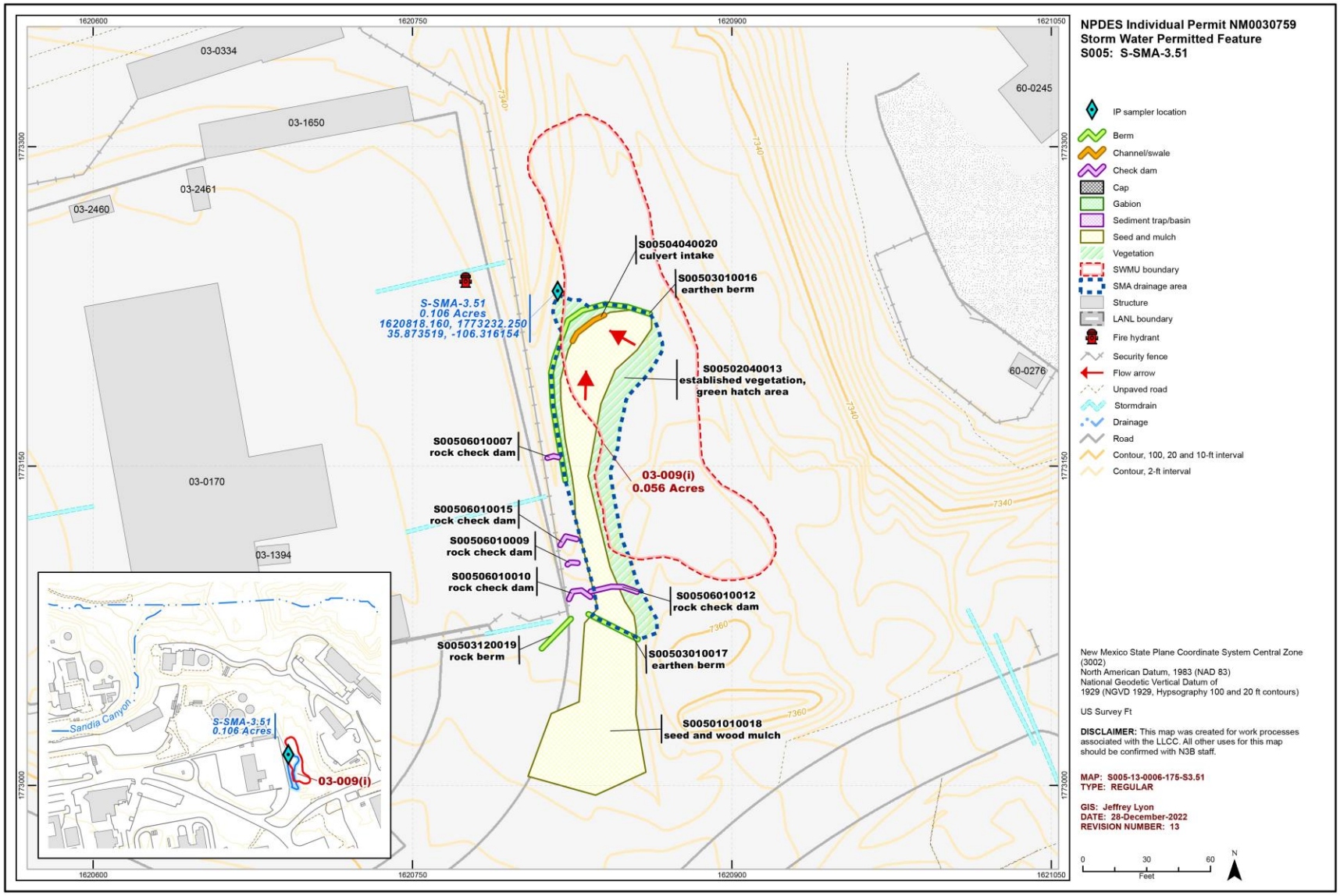


Figure 64-1 S-SMA-3.51 location map

65.0 S-SMA-3.52: SWMU 03-021

One historical industrial activity area, Site 03-021, is associated with S-SMA-3.52 (permitted feature S005A). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

65.1 Site Description

03-021 (1/11/2017)

SWMU 03-021 is an outfall and associated drainage channel located approximately 60 ft north of the north exterior wall of the liquid and compressed gas facility (building 03-170). The outfall is a formerly NPDES-permitted outfall (EPA 04A094) and was removed from the 1997 permit. From 1964 to 1976, the outfall discharged caustic wash and rinse water from compressed-gas-cylinder cleaning operations were performed in a below-floor-grade pit in the northern part of building 03-170. A 2-in.-diameter iron outfall pipe in an open exterior ditch carried the caustic wash and rinse water from the pit. The end of the outfall pipe discharged into a northeast-trending surface ditch that continued about 180 ft to the main north-south drainage ditch.

This outfall was not used after 1976, when the compressed-gas suppliers assumed cylinder washing and painting responsibilities. The outfall was buried when 5 to 10 ft of fill material was placed over the former outfall area and graded during site preparation activities for the construction of building 03-1650, the compressed-gas cylinder storage shed.

Potential POCs and Sources Associated with the Site

POCs and sources associated with the Site are listed in Table 65-1.

Table 65-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-021	Outfall	Heavy metals

65.2 Control Measures

All active control measures in use at S-SMA-3.52 are listed in Table 65-2 and their locations are shown on the project map (Figure 65-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 65-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S005A02040005	Established Vegetation	-	X	X	-	B	4-26-2013
S005A03010009	Earthen Berm	-	X	-	X	B	6-1-2017
S005A04080010	TRM-Lined Swale	-	X	X	-	B	6-1-2017

65.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-3.52 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 65-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 65-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93212[a,b]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93711	7-2-2022	0.32	7-14-2022	12	Yes
BMP-94730[b]	7-27-2022 7-31-2022	1.24 0.32	8-5-2022	9 5	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

65.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at S-SMA-3.52. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted under the 2010 IP requirements at S-SMA-3.52 from March 15 through November 10, 2022, resulting in a monitoring season of 241 days. Nine inspections were performed during the monitoring season and are summarized in Table 65-4. RG121.9 recorded 34 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 65-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91527	4-7-2022	No	None	None
SMPLR-91919	5-6-2022	No	None	None
SMPLR-92389	6-17-2022	No	None	None
SMPLR-92895	6-30-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.08/0.31 0.13/0.24 0.03/0.16 0.07/0.16 0.12/0.67 0.49/1.45 0.32/1.87

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93553	8-16-2022	No	7-1-2022 7-2-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.11/0.43 0.32/0.41 0.16/0.39 0.05/0.1 0.24/0.29 0.2/0.3 0.12/0.34 1.24/1.37 0.11/0.29 0.16/0.23 0.32/0.6 0.43/0.86
SMPLR-95468	9-23-2022	No	8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022 9-9-2022 9-22-2022	0.07/0.2 0.07/0.21 0.11/0.21 0.05/0.26 0.09/0.12 0.1/0.15 0.11/0.11 0.11/0.19 0.22/0.26
SMPLR-96080	10-12-2022	No	10-2-2022 10-3-2022 10-4-2022 10-7-2022	0.1/0.26 0.06/0.11 0.02/0.11 0.23/0.25
SMPLR-96325	10-18-2022	No	10-15-2022 10-16-2022	0.18/1.02 0.07/0.23
SMPLR-96413	11-10-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

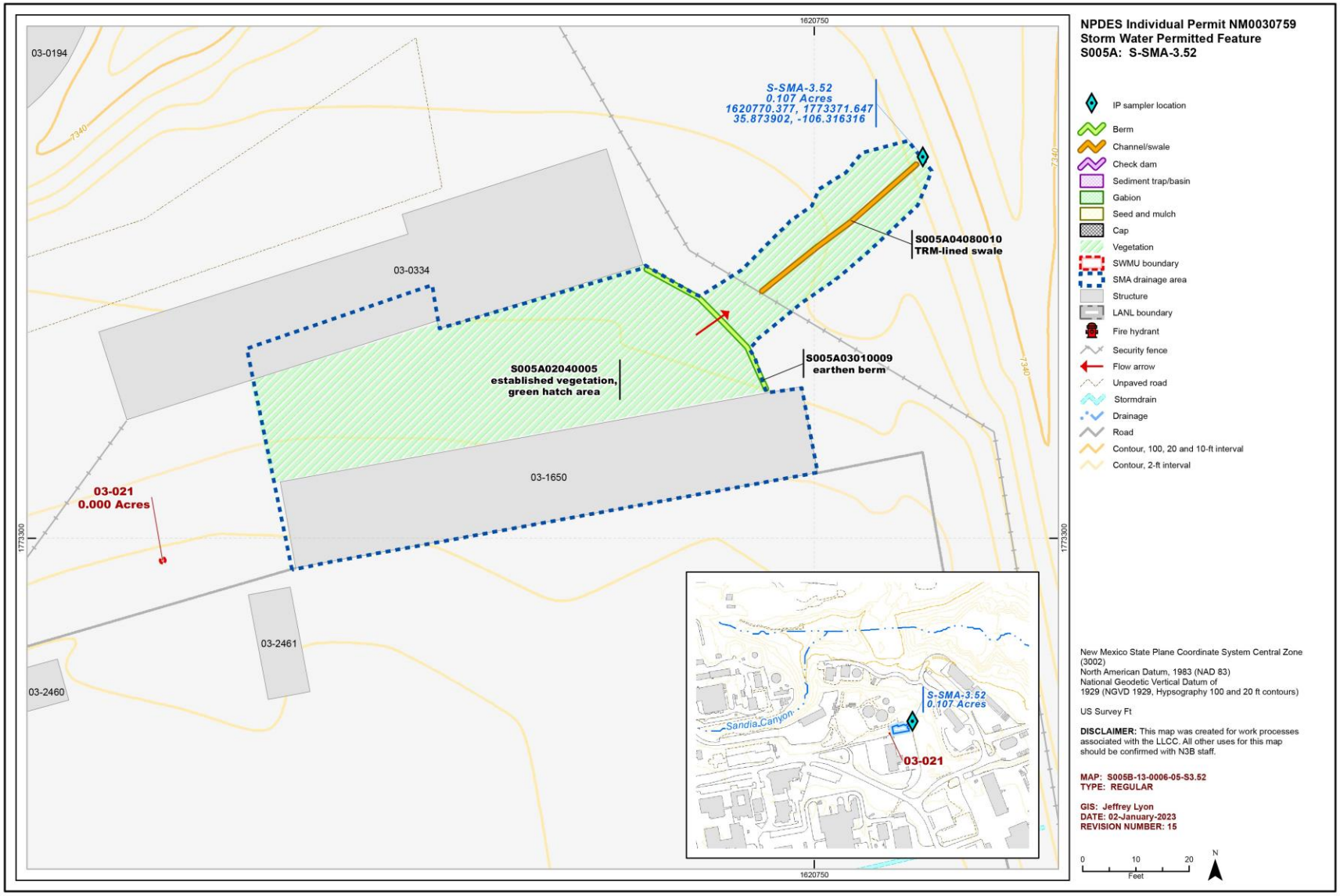


Figure 65-1 S-SMA-3.52 location map

66.0 S-SMA-3.53: AOC 03-014(b2)

One historical industrial activity area, Site 03-014(b2), is associated with S-SMA-3.53 (permitted feature S005B). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

66.1 Site Descriptions

03-014(b2) (12/21/2021)

AOC 03-014(b2) is a former NPDES-permitted outfall (EPA SSSO1S) and associated inlet drainline for the former TA-03 WWTP. The outfall received treated effluent from a flow-measurement weir north of the WWTP chlorination system [SWMU 03-014(j)] dosing and contact chamber, via a 1.5-ft-diameter × 300-ft- long CMP. The outfall discharged to a rocky outcrop at the edge of Sandia Canyon. Outfall SSS01S was permitted for the discharge of wastewater, and was removed from the NPDES permit in 1994.

AOC 03-014(b2) received effluent from the former TA-03 WWTP from 1989 to 1992 when the WWTP was decommissioned. AOC 03-014(b2) received treated effluent from the SWSC plant at TA-46 from 1992 to 1998, when effluent discharges were redirected to the outfall at the power plant, building 03-22. AOC 03-014(b2) was monitored three times per month for biochemical oxygen demand, total suspended solids, pH, fecal coliform, total chlorine, and radioactive constituents. From 1989 to 1993, radioactive constituents were reported above the detection limits.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 66-1.

Table 66-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-014(b2)	Outfall	Inorganic chemicals, organic chemicals, radionuclides

66.2 Control Measures

All active control measures in use at S-SMA-3.53 are listed in Table 66-2 and their locations are shown on the project map (Figure 66-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 66-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S005B02040009	Established Vegetation	-	X	X	-	B	4-26-2013
S005B03120005	Rock Berm	-	X	-	X	CB	8-27-2010
S005B04040007	Culvert	X	-	X	-	EC	12-12-2012
S005B04060006	Riprap	X	-	X	-	EC	12-12-2012

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S005B06010003	Rock Check Dam	X	-	-	X	CB	8-27-2010
S005B06010004	Rock Check Dam	X	-	-	X	CB	8-27-2010
S005B08030008	Concrete/Asphalt Cap	-	X	X	-	EC	12-12-2012

Enhanced controls were installed and certified on May 2, 2013, and submitted to EPA on June 4, 2013, as part of corrective action. Photographs of the enhanced controls are available at https://ext.em-la.doe.gov/IPS/Home/ConstructionCertifications.

66.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-3.53 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 66-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 66-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93213[a,b]	6-25-2022	0.49	7-5-2022	10	Yes
	6-26-2022	0.32		9	Yes
	7-2-2022	0.32		3	Yes
BMP-94731[b]	7-27-2022	1.24	8-4-2022	8	Yes
	7-31-2022	0.32		4	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

66.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 4, 2011. Analytical results from this sample yielded TAL exceedances for aluminum (1490 µg/L), copper (9.6 µg/L), gross-alpha activity (62.5 pCi/L), and PCB concentration (700 ng/L). The complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-3.53, a corrective-action stormwater sample was collected on July 7, 2014 (Figure 72-2). Analytical results from this sample yielded TAL exceedances for copper (7.41 µg/L), gross-alpha activity (34.4 pCi/L), and PCB concentration (100 ng/L). The complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Stormwater monitoring was not conducted at S-SMA-3.53 in 2022 under the 2010 IP requirements.

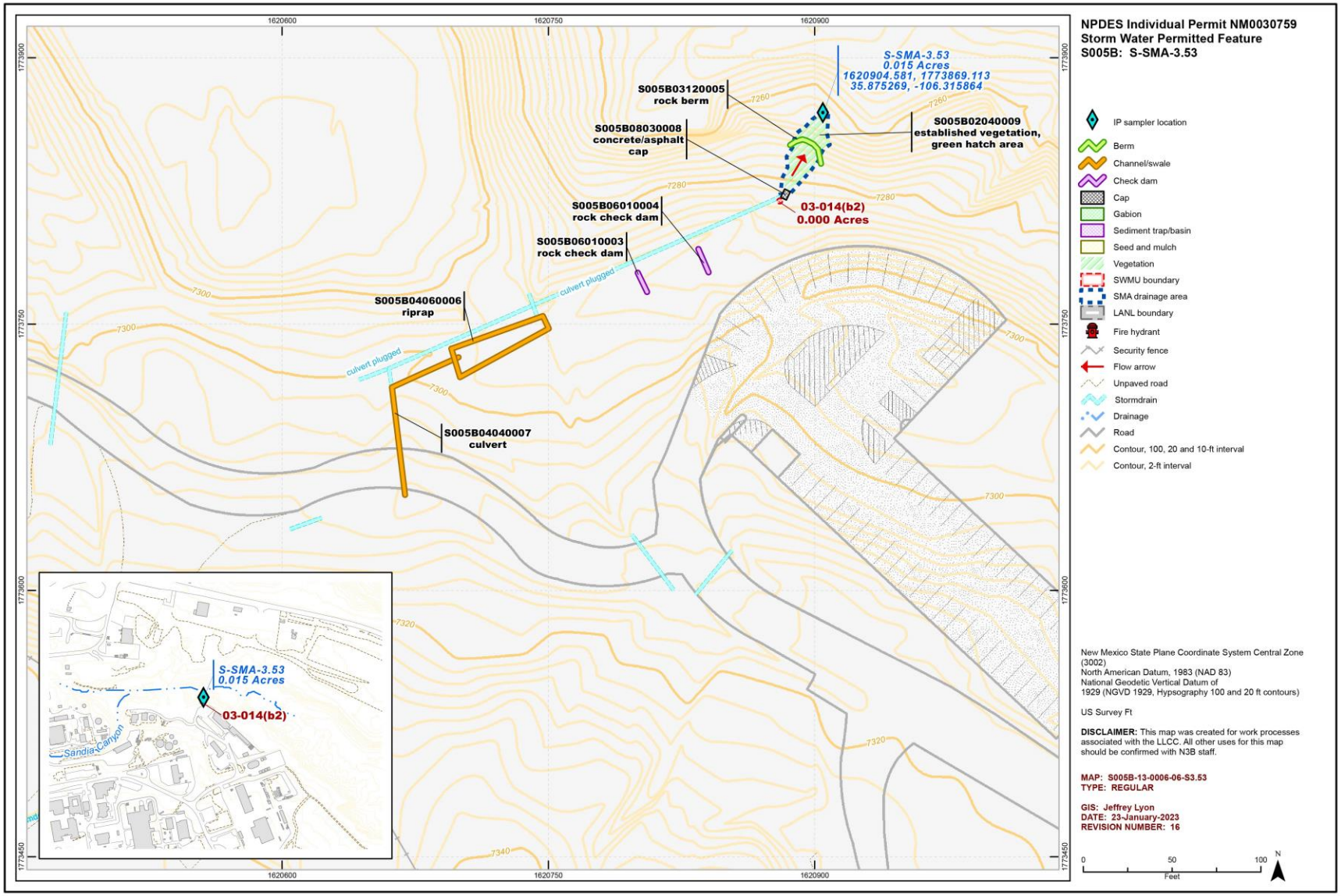


Figure 66-1 S-SMA-3.53 location map

67.0 S-SMA-3.6: SWMU 60-007(b)

One historical industrial activity area, Site 60-007(b), is associated with S-SMA-3.6 (permitted feature S006). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

67.1 Site Descriptions

60-007(b) (12/21/2021)

SWMU 60-007(b) consists of two storm drainage ditches that extend from the north and south sides of two paved parking areas on the east side of the motor pool building (building 60-1), run along the east of the parking areas, and into Upper Sandia Canyon directly east of the parking areas at TA-60. The northern storm drainage ditch starts approximately 600 ft from a paved area directly north of building 60-1. The southern storm drainage ditch starts at the southeast corner of the paved parking area, east of the southeast corner of building 60-1, extends to the east, and then turns north around the eastern-most parking area, eventually joining the northern storm drainage ditch before it extends into Upper Sandia Canyon.

Stormwater, containing motor oil and heavy metals from the parking areas, runs into the storm drainage ditch. Other former sources of potential contamination to the ditches are a steam-cleaning pad, a used-oil storage tank, and an oil/water separator. In addition, equipment that used PCB-containing oil was stored on an asphalt area east of building 60-1. The areas of the ditches visibly affected by these sources were remediated in 1986 by removing stained soil down to bedrock.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 67-1.

Table 67-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
60-007(b)	Release	Metals, PAHs, PCBs

67.2 Control Measures

All active control measures in use at S-SMA-3.6 are listed in Table 67-2 and their locations are shown on the project map (Figure 67-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 67-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00602040021	Established Vegetation	-	X	X	-	B	4-26-2013
S00603010019	Earthen Berm	X	-	-	X	EC	10-15-2012
S00603010020	Earthen Berm	X	-	-	X	EC	10-15-2012
S00603060041	Straw Wattle	-	X	-	X	B	10-3-2016
S00603100030	Gravel Bags	X	-	-	X	B	9-24-2013
S00603110034	Eco-Block	X	-	-	X	B	10-3-2016
S00603140044	Coir Log	-	X	-	X	B	11-28-2018
S00603140045	Coir Log	X	X	-	X	B	8-19-2019
S00604040035	Culvert	X	-	X	-	B	10-3-2016
S00604040036	Culvert	-	X	X	-	B	10-3-2016
S00604040043	Culvert	-	X	-	X	B	8-30-2017
S00604060010	Riprap	-	X	X	-	CB	6-1-2009
S00604060011	Riprap	X	-	X	-	CB	6-1-2009
S00604060028	Riprap	X	-	X	-	B	4-26-2013
S00604060029	Riprap	X	-	X	-	B	4-26-2013
S00604060037	Riprap	-	X	X	-	B	10-3-2016
S00604060038	Riprap	X	-	X	-	B	10-3-2016
S00606010001	Rock Check Dam	-	X	-	X	CB	8-10-2006
S00606010012	Rock Check Dam	-	X	-	X	CB	6-1-2009
S00606010013	Rock Check Dam	-	X	-	X	CB	6-1-2009
S00606010016	Rock Check Dam	X	-	-	X	EC	10-15-2012
S00606010017	Rock Check Dam	-	X	-	X	EC	10-15-2012
S00606010018	Rock Check Dam	-	X	-	X	EC	10-15-2012
S00606010031	Rock Check Dam	X	-	-	X	B	11-5-2014
S00606010032	Rock Check Dam	-	X	-	X	B	11-5-2014
S00606010033	Rock Check Dam	-	X	-	X	B	11-5-2014
S00607010007	Gabions	X	-	-	X	CB	6-1-2009
S00607010008	Gabions	X	-	-	X	CB	6-1-2009
S00607010026	Gabions	X	-	X	-	B	4-26-2013
S00607020024	Gabion Blanket	X	-	X	-	B	4-26-2013
S00607020025	Gabion Blanket	X	-	X	-	B	4-26-2013

67.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at S-SMA-3.6 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 67-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 67-4.

Table 67-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93209[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-5-2022	10 9 3	Yes Yes Yes
BMP-94723[b]	7-27-2022 7-31-2022	1.24 0.32	8-5-2022	8 4	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 67-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93209	Removed and disposed of floatable garbage and debris at inspection.	7-5-2022	0 days	Maintenance conducted as soon as practicable.
BMP-94723	Removed and disposed of floatable garbage and debris at inspection.	8-5-2022	0 days	

67.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 28 and August 13, 2011. Analytical results from these samples yielded TAL exceedances for copper (10.9 µg/L and 40.5 µg/L), PCB concentrations (2 ng/L and 20 ng/L), and zinc (70.7 µg/L and 147 µg/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-3.6, corrective action stormwater samples were collected on June 14 and July 2, 2013. Analytical results from these corrective action monitoring samples yielded TAL exceedances for copper (15.4 µg/L and 20.8 µg/L), PCB concentrations (2 ng/L and 7 ng/L), and zinc (108 µg/L and 135 µg/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at S-SMA-3.6 in 2022 under the 2010 IP requirements.

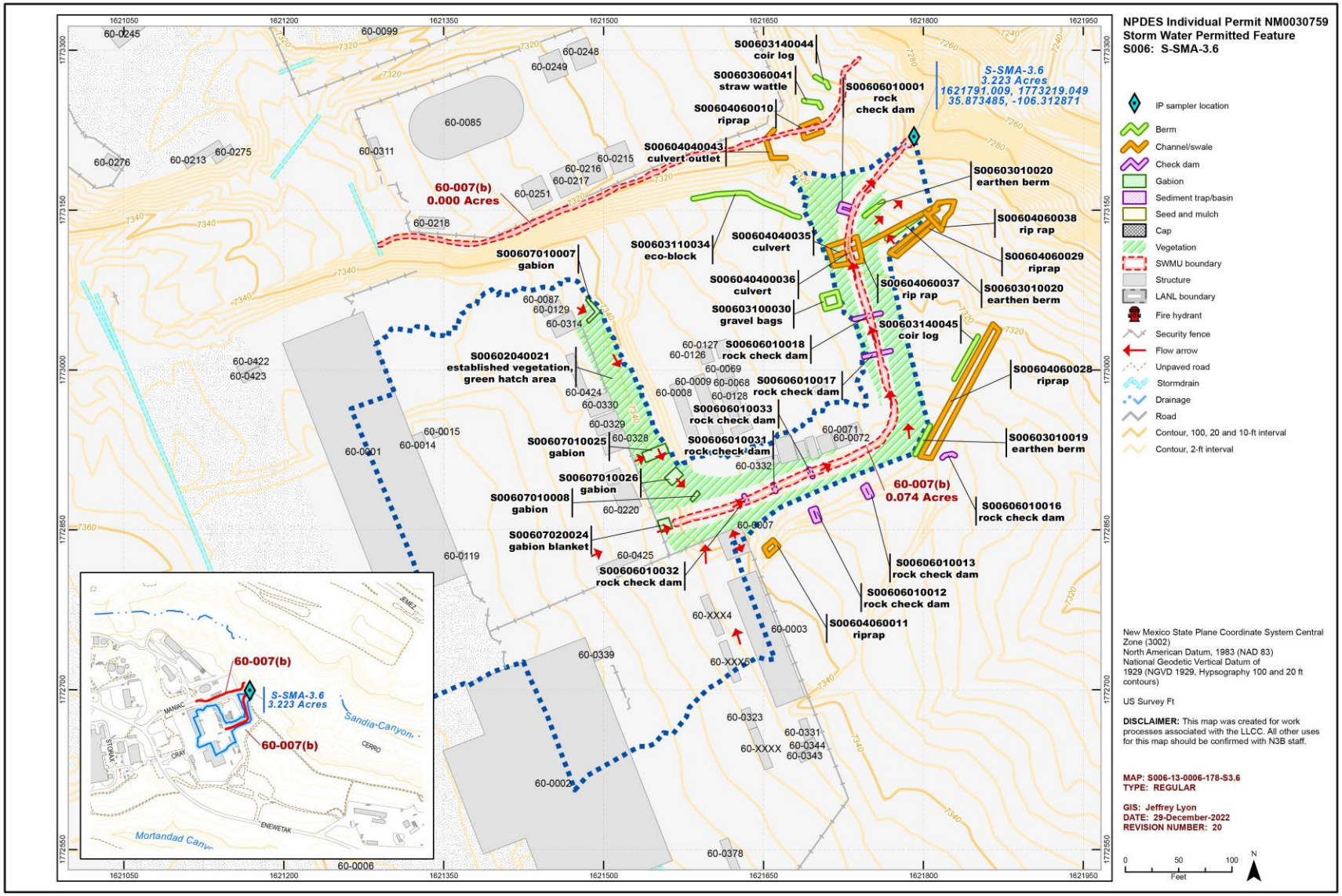


Figure 67-1 S-SMA-3.6 location map

68.0 S-SMA-3.61: AOC 60-004(f)

One historical industrial activity area, Site 60-004(f), is associated with S-SMA-3.61 (permitted feature S006B). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

68.1 Site Descriptions

60-004(f) (1/13/2017)

AOC 60-004(f) consists of two former unpaved, bermed storage pads, Pad 2 and Pad 3, located at TA-60 southeast of building 60-2. Pad 2 measured 12 ft × 65 ft, and Pad 3 measured 12 ft × 40 ft. Both pads were used to store 55-gal. product containers that dispensed Stoddard solvent, antifreeze, motor oil, grease, transmission fluid, and window-washing fluid. The pads were constructed in 1978 when the maintenance warehouse (building 60-2) was built. In 1985, 6-in. asphalt berms were built at the open ends of both pads to mitigate rainfall run-on and runoff. In 1990, all containers were removed from the pads. Stained soil with a petroleum odor was observed within the bermed pads.

AOC 60-004(f) was formerly identified as AOC C-60-005; however, the designation was changed to AOC 60-004(f) in the December 1993 response to the OU 1114 RFI work plan Notice of Deficiency.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 68-1.

Table 68-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
60-004(f)	Storage area	Organic chemicals

68.2 Control Measures

S-SMA-3.61 is a new SMA. The control measures list is under development and will be included in future updates of this SDPPP.

68.3 Inspections and Maintenance

S-SMA-3.61 is a new SMA and no inspection or maintenance activities have been performed as of the date of this SDPPP. Inspection and maintenance information will be provided in future updates of this SDPPP.

68.4 Stormwater Monitoring

Stormwater monitoring was not conducted at S-SMA-3.61 under the 2010 IP requirements.

S-SMA-3.61 is a new SMA. The draft sampler coordinates and SMA drainage area that were proposed in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759," (N3B 2023, 702608) are presented on the project map (Figure 68-1) located at the end of this SMA update. Upon approval of the SIP, control measure installations will be completed as necessary, and monitoring under the 2022 IP requirements will begin.

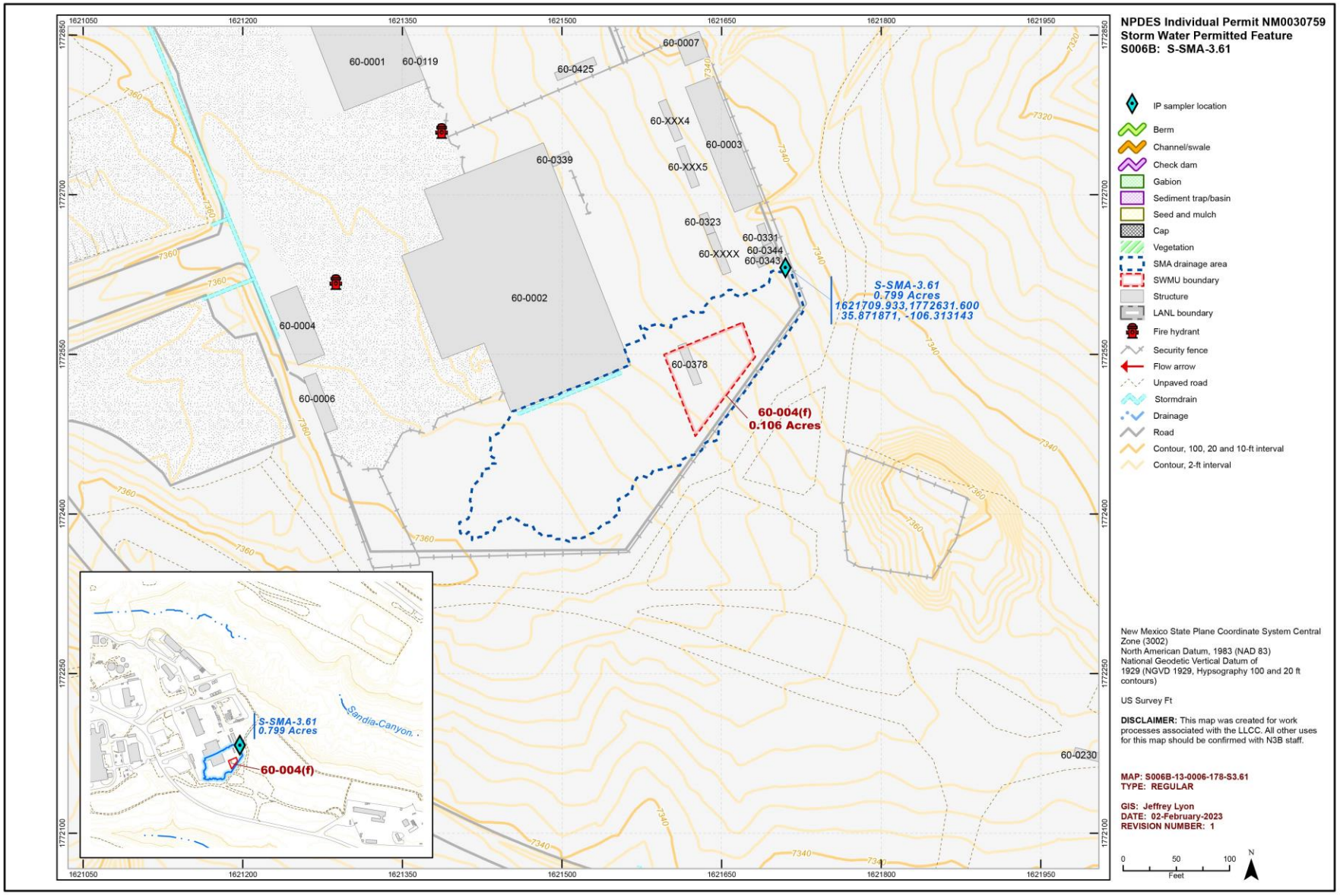


Figure 68-1 S-SMA-3.61 location map

69.0 S-SMA-3.62: SWMU 60-002

One historical industrial activity area, Site 60-002, is associated with S-SMA-3.62 (permitted feature S006C). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

69.1 Site Descriptions

60-002 (1/12/2017)

SWMU 60-002 consists of three former storage areas (designated as West, Central, and East) on Sigma Mesa at TA-60.

The former western storage area measures approximately 150 ft × 300 ft, and is located approximately 300 ft southeast of building 60-2, on the north side of the unimproved portion of Eniwetok Drive that traverses the mesa. Historically, piles of concrete blocks, wooden poles, tuff, fill, and cables were stored at this location. A large mound of fill, with pieces of cured asphalt and concrete, was situated in the northern portion of the site.

The central storage area was located approximately 50 ft north of the Roads and Grounds salt and sand storage facility (building 60-178), and consisted of a 50-ft-diameter mound of fill, approximately 10 ft high, with construction debris, including concrete fence post supports, pipe, metal strips, and wood.

The eastern storage area is on the south side of the unimproved portion of Eniwetok Drive, about 300 ft west of SWMU 60-007(a) near the east end of Sigma Mesa. This area was used to stage piles of broken cured asphalt removed from roadways and parking lots around the Laboratory for recycling. The eastern storage area location is currently the site of the Laboratory's asphalt batch plant.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 69-1.

Table 69-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
60-002	Storage area	Metals, organic chemicals

69.2 Control Measures

S-SMA-3.62 is a new SMA. The control measures list is under development and will be included in future updates of this SDPPP.

69.3 Inspections and Maintenance

S-SMA-3.62 is a new SMA and no inspection or maintenance activities have been performed as of the date of this SDPPP. Inspection and maintenance information will be provided in future updates of this SDPPP.

69.4 Stormwater Monitoring

Stormwater monitoring was not conducted at S-SMA-3.62 under the 2010 IP requirements. Monitoring under the 2022 IP requirements will begin in 2023 as described in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608).

S-SMA-3.61 is a new SMA. The draft sampler coordinates and SMA drainage area, which were proposed in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759," (N3B 2023, 702608) are presented on the project map (Figure 69-1) located at the end of this SMA update. Upon approval of the SIP, control measure installations will be completed as necessary, and monitoring under the 2022 IP requirements will begin.

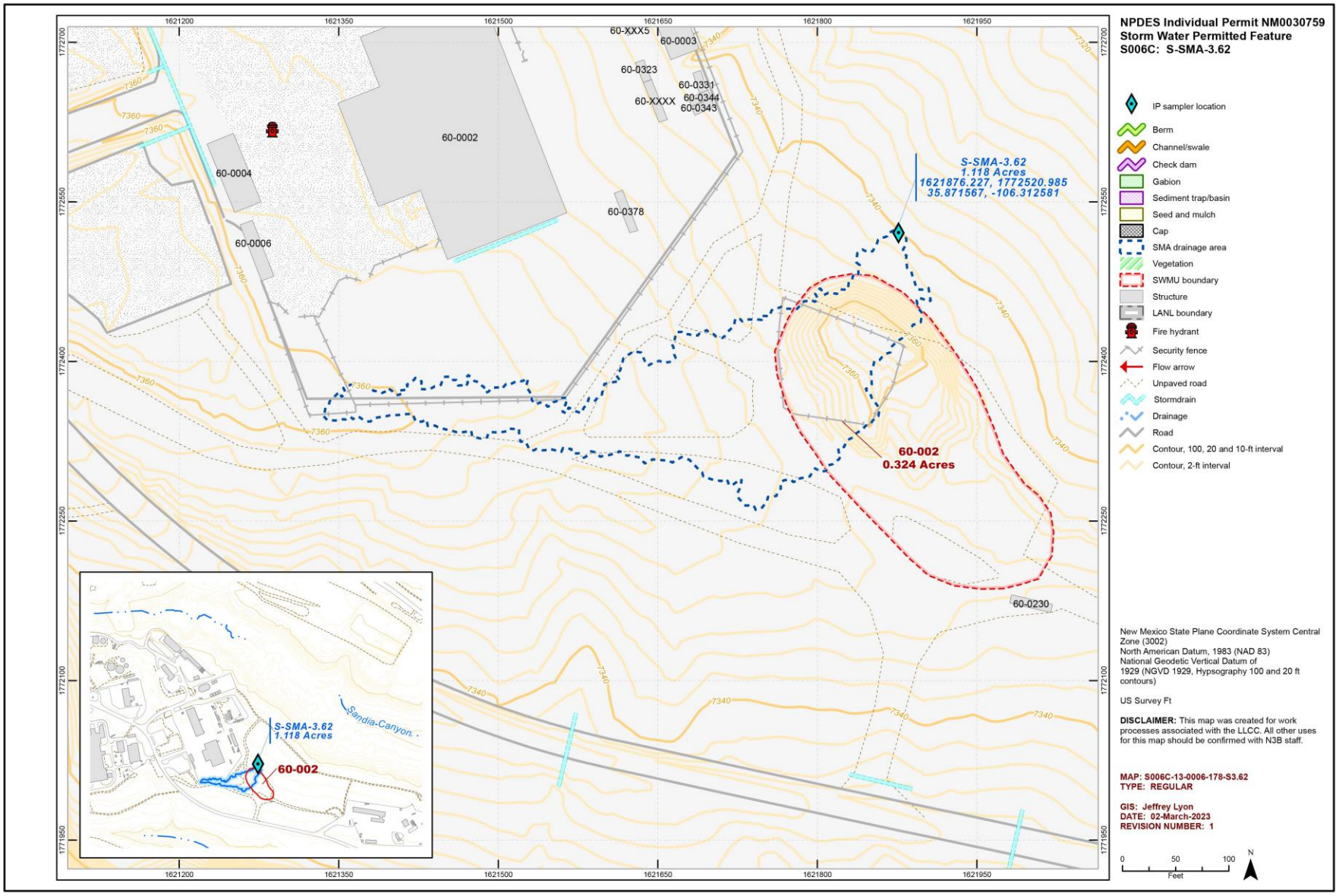


Figure 69-1 S-SMA-3.62 location map

70.0 S-SMA-3.7: AOC 53-012(e)

One historical industrial activity area, Site 53-012(e), is associated with S-SMA-3.7 (permitted feature S007). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

70.1 Site Descriptions

53-012(e) (9/29/2021)

AOC 53-012(e) is a former outfall and associated drainline which served the TA-53 equipment test laboratory (building 53-2). The drainline runs southwest under an asphalt parking lot, approximately 110 ft from the southwest corner of building 53-2, and then changes direction, running northwest approximately 100 ft to the outfall near the edge of Sandia Canyon. The outfall discharged effluent from a drainline attached to 12 trench drains, 2 sink drains, and a floor drain in building 53-2. The primary source of the wastewater was blowdown from the building 53-2 cooling tower, which was discharged to one of the trench drains.

Historically, chemicals added to the cooling water included sodium molybdate and hydroxyethylidene diphosphonic acid as corrosion inhibitors; 1-bromo-3-chloro-5,5-dimethylhydantoin as a microbicide; and sodium bisulfite as an oxygen scavenger. The trench drains also received wastewater from equipment flushing and floor washing. Discharges to this outfall began in approximately 1968 when building 53-2 went into service. This outfall was included in the LANL NPDES permit as Outfall 03A114. Discharges to this outfall ceased, and the outfall was removed from the NPDES permit on July 11, 1995. The drainline is still in place, but the outfall has been plugged.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 70-1.

Table 70-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
53-012(e)	Outfall from building 53-2	Metals, inorganic chemicals, organic chemicals, PCBs, radionuclides

70.2 Control Measures

All active control measures in use at S-SMA-3.7 are listed in Table 70-2 and their locations are shown on the project map (Figure 70-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 70-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00702040006	Established Vegetation	-	X	X	-	B	4-26-2013
S00703120004	Rock Berm	X	-	-	X	CB	8-16-2010
S00703120005	Rock Berm	-	X	-	X	CB	6-11-2010
S00704030003	Rock Channel/Swale	X	-	X	-	CB	8-16-2010

70.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at S-SMA-3.7 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 70-3. All other control-measure inspections conducted at the SMA are summarized in Table 70-4, and maintenance activities conducted at the SMA are summarized in Table 70-5.

Table 70-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93252[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-7-2022	12 10	Yes Yes
BMP-94103	7-14-2022	0.29	7-19-2022	5	Yes
BMP-94512[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95406[b]	8-11-2022 8-16-2022	0.63 0.66	8-17-2022	6 1	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 70-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance inspection for S-SMA-3.7. MEX sample collected 7/30/22. Copper (21x), Total PCBs (60x), (Zinc 4.6x).	COMP-96398	12-6-2022	No action recommended.

Table 70-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95406	Removed needle cast debris from Rock Channel/Swale S00704030003 at inspection	8-17-2022	0 days	Maintenance was performed as soon as practicable.

70.4 Stormwater Monitoring

Stormwater monitoring was conducted at S-SMA-3.7 under the 2010 IP requirements from March 16 through November 1, 2022, resulting in a monitoring season of 231 days. Nine inspections were performed during the monitoring season and are summarized in Table 70-6. RG203 recorded 31 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A baseline confirmation-monitoring sample was collected on July 30, 2022. Analytical results from this sample yielded TAL exceedances for copper (127 µg/L), PCB concentration (38.1 ng/L), and zinc (342 µg/L). Complete analytical results from this sample are presented in Appendix B of the Overview. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD. No other sampler operability issues were encountered.

Table 70-6 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91536	3-16-2022	No	None	None
SMPLR-91576	4-7-2022	No	None	None
SMPLR-91940	5-3-2022	No	None	None
SMPLR-92294	6-7-2022	No	None	None
SMPLR-92767	7-7-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.07/0.3 0.1/0.21 0.11/0.35 0.1/0.18 0.1/0.67 0.38/1.65 0.19/1.33 0.31/0.37 0.24/0.59 0.1/0.18

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93900	8-17-2022	Yes	7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022[c] 8-6-2022[c] 8-11-2022[c] 8-16-2022[c]	0.29/0.3 0.14/0.26 0.59/1.19 1/1.15 0.09/0.27 0.78/1.25 0.3/0.59 0.43/0.49 0.63/0.67 0.66/0.98
SMPLR-95523	9-23-2022	No	8-18-2022 8-19-2022 8-20-2022 8-23-2022 9-9-2022 9-22-2022	0.07/0.1 0.13/0.23 0.05/0.31 0.48/0.49 0.11/0.19 0.1/0.25
SMPLR-96092	10-5-2022	No	10-2-2022 10-3-2022 10-4-2022	0.07/0.26 0.25/0.35 0.1/0.21
SMPLR-96282	11-1-2022	No	10-15-2022 10-16-2022	0.13/0.71 0.05/0.16

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

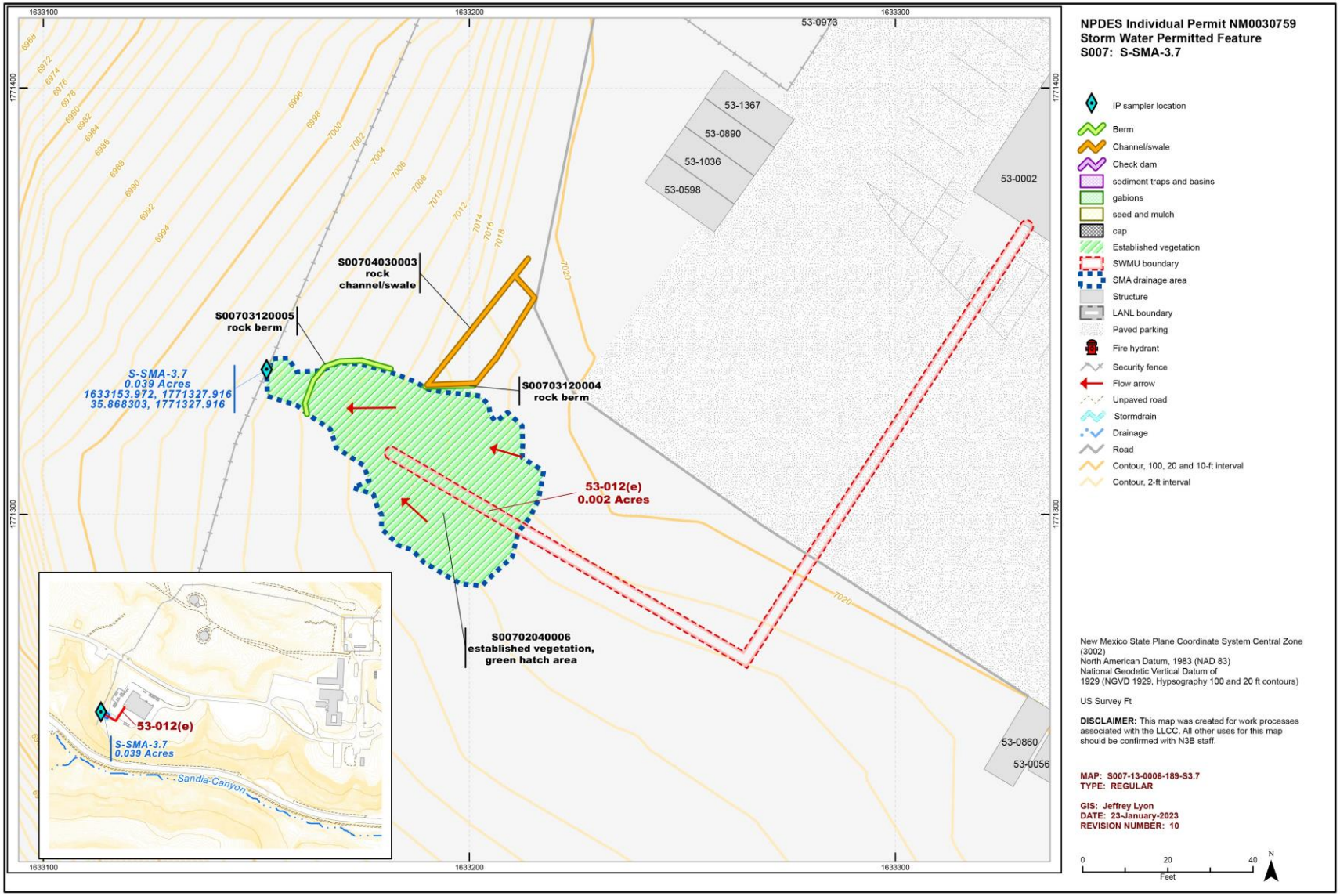


Figure 70-1 S-SMA-3.7 location map

71.0 S-SMA-3.71: SWMU 53-001(a)

One historical industrial activity area, Site 53-001(a), is associated with S-SMA-3.71 (permitted feature S008). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

71.1 Site Descriptions

53-001(a) (9/30/2021)

SWMU 53-001(a) is an outdoor storage area located on the north side of the TA-53 equipment test laboratory (building 53-2) at TA-53. This storage area consists of a covered concrete pad currently serving as a drum storage area for building 53-2. This area was also formerly used as a SAA for hazardous waste. Non-PCB dielectric oil is currently stored on the concrete pad. The pad is surrounded by a concrete curb to provide secondary containment. A drain valve located in the northwest corner of the curbed area was previously used to release accumulated rainwater, but is now plugged.

The storage area is believed to have been first used in 1968 when operations at building 53-2 began. A 1989 photograph of the area shows the site looked much as it does today. By 1992, the site was no longer being used as an SAA. A Laboratory listing of waste accumulation areas dated April 1993 notes that the SAA on the north side of building 53-2 was removed. The site was inspected in 1993 and no evidence of staining or releases was observed.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 71-1.

Table 71-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
53-001(a)	Storage area	Metals, PCBs, organic chemicals

71.2 Control Measures

All active control measures in use at S-SMA-3.71 are listed in Table 71-2 and their locations are shown on the project map (Figure 71-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 71-2 Active Control Measures-

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00802040015	Established Vegetation	-	X	X	-	B	4-26-2013
S00803010013	Earthen Berm	X	-	-	X	B	7-22-2011
S00803010014	Earthen Berm	-	X	-	X	B	7-22-2011
S00804020002	Concrete/Asphalt Channel/Swale	-	X	X	-	CB	4-1-2009
S00806010008	Rock Check Dam	-	X	-	X	CB	6-10-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00806010009	Rock Check Dam	-	X	-	X	CB	6-10-2010
S00806010010	Rock Check Dam	-	X	-	X	CB	6-10-2010
S00806010011	Rock Check Dam	-	X	-	X	CB	6-10-2010
S00807010001	Gabions	X	-	-	X	CB	4-1-2009

71.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at S-SMA-3.71 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 71-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 71-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93253[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-7-2022	12 10	Yes Yes
BMP-94104	7-14-2022	0.29	7-19-2022	5	Yes
BMP-94513[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95407[b]	8-11-2022 8-16-2022	0.63 0.66	8-17-2022	6 1	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

71.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at S-SMA-3.71. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at S-SMA-3.71 under the 2010 IP requirements from March 18 through November 1, 2022, resulting in a monitoring season of 229 days. Nine inspections were performed during the monitoring season and are summarized in Table 71-4. RG203 recorded 31 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 71-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91565	4-7-2022	No	None	None
SMPLR-91914	5-3-2022	No	None	None
SMPLR-92289	6-7-2022	No	None	None
SMPLR-92760	7-7-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.07/0.3 0.1/0.21 0.11/0.35 0.1/0.18 0.1/0.67 0.38/1.65 0.19/1.33 0.31/0.37 0.24/0.59 0.1/0.18
SMPLR-93895	8-17-2022	No	7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022	0.29/0.3 0.14/0.26 0.59/1.19 1/1.15 0.09/0.27 0.78/1.25 0.3/0.59 0.43/0.49 0.63/0.67 0.66/0.98
SMPLR-95520	9-13-2022	No	8-18-2022 8-19-2022 8-20-2022 8-23-2022 9-9-2022	0.07/0.1 0.13/0.23 0.05/0.31 0.48/0.49 0.11/0.19
SMPLR-95890	9-29-2022	No	9-22-2022	0.1/0.25
SMPLR-96181	10-5-2022	No	10-2-2022 10-3-2022 10-4-2022	0.07/0.26 0.25/0.35 0.1/0.21
SMPLR-96277	11-1-2022	No	10-15-2022 10-16-2022	0.13/0.71 0.05/0.16

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

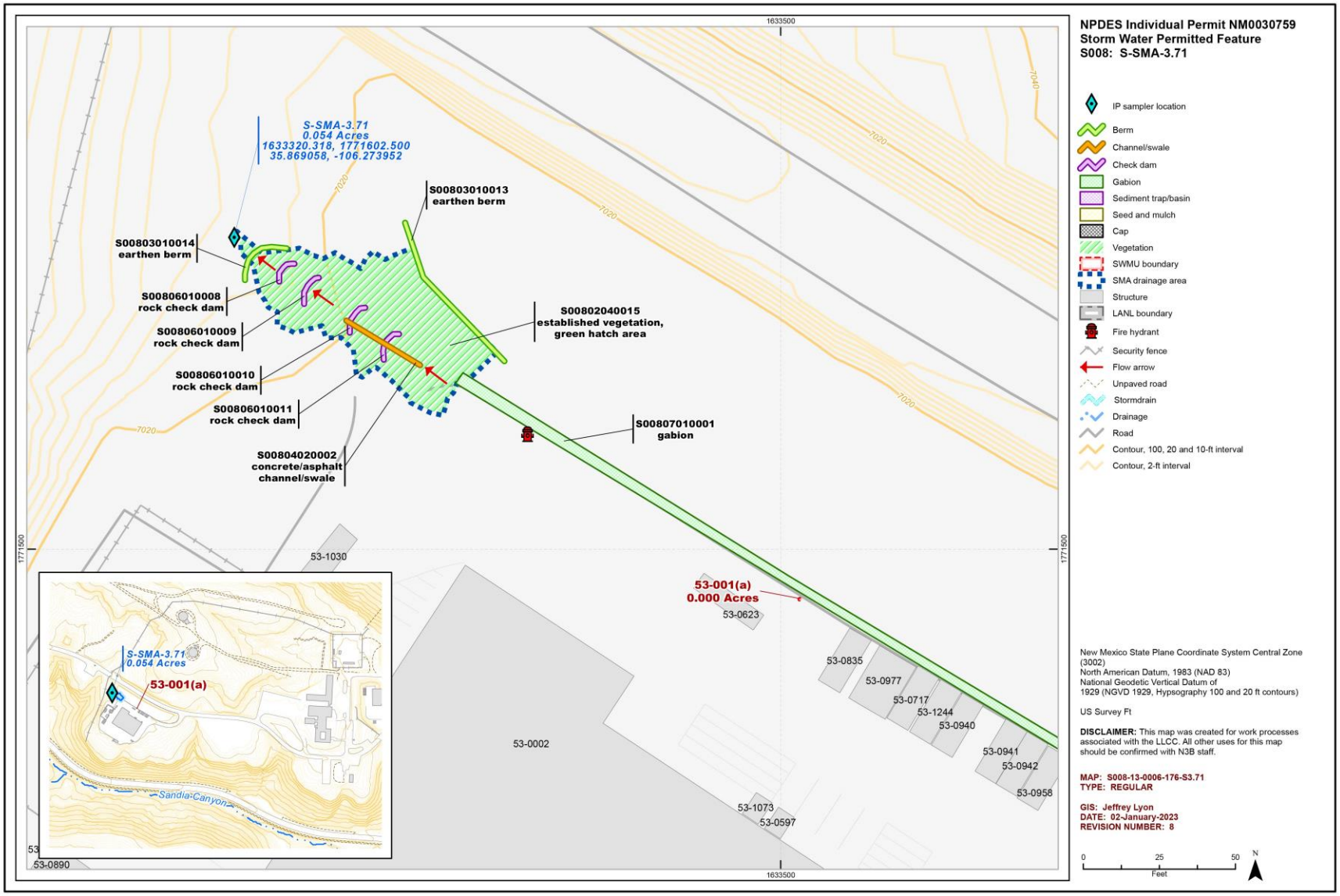


Figure 71-1 S-SMA-3.71 location map

72.0 S-SMA-3.72: SWMU 53-001(b)

One historical industrial activity area, Site 53-001(b), is associated with S-SMA-3.72 (permitted feature S009). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

72.1 Site Descriptions

53-001(b) (7/31/2017)

SWMU 53-001(b) is an outdoor storage area located on a concrete pad that rests on the asphalt parking lot on the south side of the TA-53 equipment test laboratory (building 53-2). Before 1990, this area consisted of racks used to store drums of products and wastes associated with maintenance activities, including spent TCE, Freon, other solvents, and acidic waste. Engineering drawings show that the storage area was constructed in 1971. A 1989 photograph shows drums in the storage area, some of which were product and some of which were marked with hazardous waste labels. The photograph identifies no staining, indicating no spills or leakage had occurred.

In 1990, the drum racks were removed and replaced with four lockable flammable-material storage cabinets. The site was inspected in 1993, and again no evidence of staining or releases was noted. The Laboratory's current waste-site database indicates that this storage location also contained a less-than-90-day waste storage area that had been taken out of service in 1998. The site currently contains flammable material storage cabinets used only for product storage.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 72-1.

Table 72-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
53-001(b)	Outdoor storage area	Copper, lead, SVOCs

72.2 Control Measures

All active control measures in use at S-SMA-3.72 are listed in Table 72-2 and their locations are shown on the project map (Figure 72-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 72-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00902040011	Established Vegetation	-	X	X	-	B	4-26-2013
S00903010009	Earthen Berm	X	-	-	X	B	7-28-2011
S00903010010	Earthen Berm	-	X	-	X	B	7-28-2011
S00903120003	Rock Berm	X	-	-	X	CB	6-11-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S00906010005	Rock Check Dam	-	X	-	X	CB	6-11-2010
S00906010006	Rock Check Dam	-	X	-	X	CB	6-11-2010
S00906010007	Rock Check Dam	-	X	-	X	CB	6-11-2010

72.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at S-SMA-3.72 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 72-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 72-4.

Table 72-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93254[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-7-2022	12 10	Yes Yes
BMP-94105	7-14-2022	0.29	7-19-2022	5	Yes
BMP-94514[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-1-2022	6 5 2 1	Yes Yes Yes Yes
BMP-95408[b]	8-11-2022 8-16-2022	0.63 0.66	8-17-2022	6 1	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 72-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94356 (follow up to BMP-94105)	Added more material to Rock Check Dam S00906010006.	8-17-2022	29 days	Maintenance was performed as soon as practicable.

72.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 20, 2015. Analytical results from this sample yielded TAL exceedances for copper (4.59 µg/L) and PCB concentration (69.9 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2015, NPDES Permit No. NM0030759" (LANL 2016, 601240).

Stormwater monitoring was not conducted at S-SMA-3.72 in 2022 under the 2010 IP requirements.

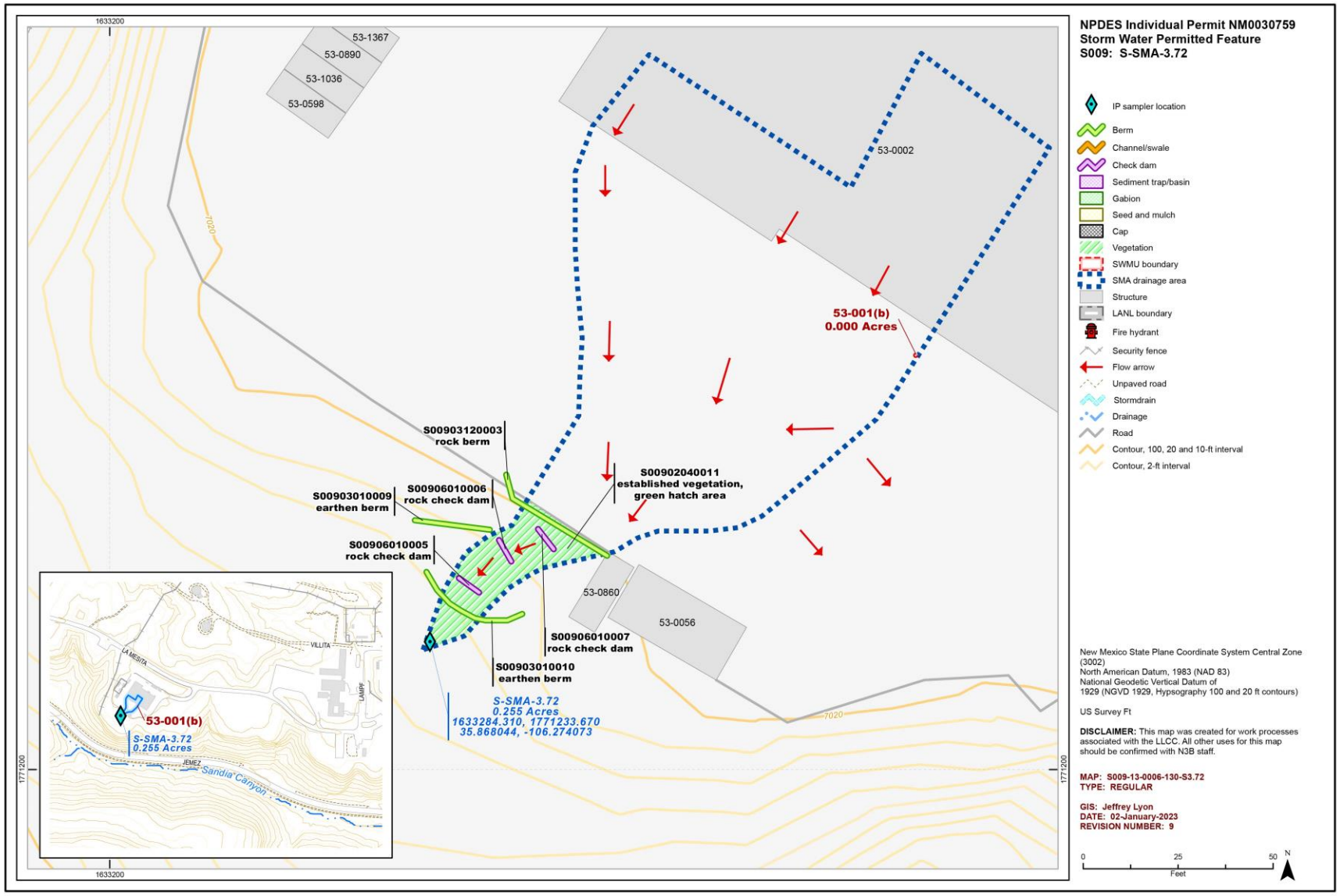


Figure 72-1 S-SMA-3.72 location map

73.0 S-SMA-3.95: SWMU 20-002(a)

One historical industrial activity area, Site 20-002(a), is associated with S-SMA-3.95 (permitted feature S010). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

73.1 Site Descriptions

20-002(a) (9/30/2021)

SWMU 20-002(a) is the location of a former firing pit (former structure 20-6), located at the far west end of former TA-20, south of East Jemez Road. The steel-lined pit was constructed following the failure of the Dumbo, a containment firing vessel [see description of SWMU 20-002(b)] and was used from 1945 to 1948 to conduct initiator tests. The firing pit had interior dimensions of 14 ft 8 in. × 14 ft 8 in. × 12 ft deep. The walls and floor of the pit consisted of 0.75-in.-thick steel plate backed by 12-in. × 12-in. timbers. The pit was covered by a steel framework, overlain by a mat of 0.25-in.-diameter steel rods spaced 1 in. apart. According to a 1947 report, the framework and mat, presumably installed to contain shot debris, failed after the first few shots. Laboratory facility engineering records indicate that the pit was removed in April 1948. A memorandum dated April 20, 1948, describing cleanup efforts in Lower Sandia Canyon, notes that one "cage" was excavated and the "interior checked negative" after clearing. The SWMU 20-002(a) firing pit is presumed to be the cage referred to in the memorandum.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 73-1.

Table 73-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
20-002(a)	Former firing site	Metals, beryllium, nickel, HE, strontium-90, uranium

73.2 Control Measures

All active control measures in use at S-SMA-3.95 are listed in Table 73-2 and their locations are shown on the project map (Figure 73-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 73-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01002040007	Established Vegetation	-	X	X	-	B	5-2-2013
S01003060006	Straw Wattle	-	X	-	X	B	10-24-2012
S01004010009	Earthen Channel/Swale	X	-	-	X	B	11-7-2014

73.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at S-SMA-3.95 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 73-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 73-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93256[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-8-2022	13 11	Yes Yes
BMP-94107	7-14-2022	0.29	7-15-2022	1	Yes
BMP-94516[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95409[b]	8-11-2022 8-16-2022	0.63 0.66	8-23-2022	12 7	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

73.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (15.4 pCi/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759 (LANL 2014, 254067).

Stormwater monitoring was not conducted at S-SMA-3.95 in 2022 under the 2010 IP requirements.

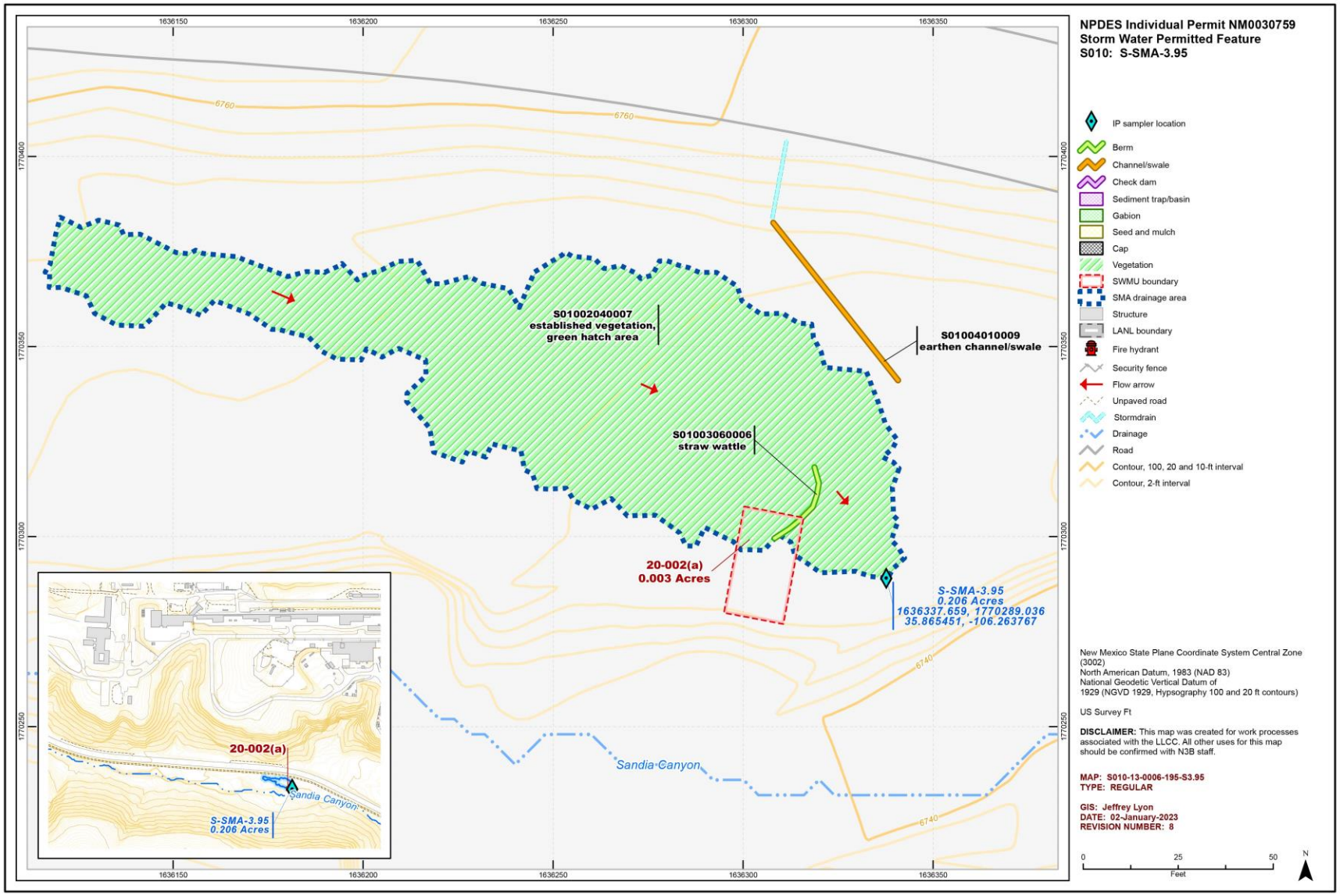


Figure 73-1 S-SMA-3.95 location map

74.0 S-SMA-4.1: AOC 53-014

One historical industrial activity area, Site 53-014, is associated with S-SMA-4.1 (permitted feature S011). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

74.1 Site Descriptions

53-014 (7/31/2017)

SWMU 53-014 is a lead spill site located at a paved storage area in TA-53 west of building 53-18. Lead shot was spilled on the paved surface, and stormwater washed the lead into an asphalt-lined channel that joins a drainage below a NPDES-permitted outfall (03A113). The lead shot was observed at a number of locations in the channel, but was not seen below a large catchment approximately 50 ft below the canyon rim. This site was not originally identified in the 1990 SWMU Report but was discovered only after the RFI work plan for OU 1100 had been prepared.

This site was originally reported as a SWMU in the 1996 notification letter to the NMED, and is listed as such in Attachment K of the RCRA permit and in the 2005 and 2016 Consent Orders. However, the site is identified as an AOC in recent reports and NMED correspondence.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 74-1.

Table 74-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
53-014	Soil contamination, lead storage site	Lead

74.2 Control Measures

All active control measures in use at S-SMA-4.1 are listed in Table 74-2 and their locations are shown on the project map (Figure 74-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 74-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01101010007	Seed and Wood Mulch	-	-	X	-	EC	9-6-2012
S01103060013	Straw Wattle	-	X	-	X	B	2-18-2014
S01103090005	Curbing	X	-	-	X	EC	9-6-2012
S01103120008	Rock Berm	-	X	-	X	EC	9-6-2012
S01103160014	Wood Chip Wattle	-	X	-	X	B	8-18-2022
S01104020006	Concrete/Asphalt Channel/Swale	X	-	X	-	EC	9-6-2012

74.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at S-SMA-4.1 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 74-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 74-4.

Table 74-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93327[a,b]	6-26-2022 6-27-2022 7-1-2022	0.28 0.29 0.3	7-11-2022	15 14 10	Yes Yes Yes
BMP-94093	7-14-2022	0.25	7-19-2022	5	Yes
BMP-94300[b]	7-20-2022 7-26-2022 7-27-2022	0.38 0.84 0.48	7-27-2022	7 1 0[c]	Yes Yes Yes
BMP-95140[b]	7-30-2022 7-31-2022	0.33 0.39	8-1-2022	2 1	Yes Yes
BMP-95396	8-11-2022	0.74	8-25-2022	14	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

[c] Inspection was conducted on same day of storm event after 30 min max intensity was recorded.

Table 74-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94355 (follow up to BMP-94093)	Installed Wood Chip Wattle S01103160014 as a replacement for Straw Wattle S01103060012.	8-18-2022	30 days	Maintenance was performed as soon as practicable.

74.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on August 2 and September 1, 2011. Analytical results from these samples yielded TAL exceedances for PCB concentrations (1 ng/L and 4 ng/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at S-SMA-4.1, one corrective action investigation stormwater sample was collected on September 13, 2013. Analytical results from this investigation sample will not be used for corrective-action monitoring purposes under the 2010 IP requirements.

Stormwater monitoring was not conducted at S-SMA-4.1 in 2022 under the 2010 IP requirements.

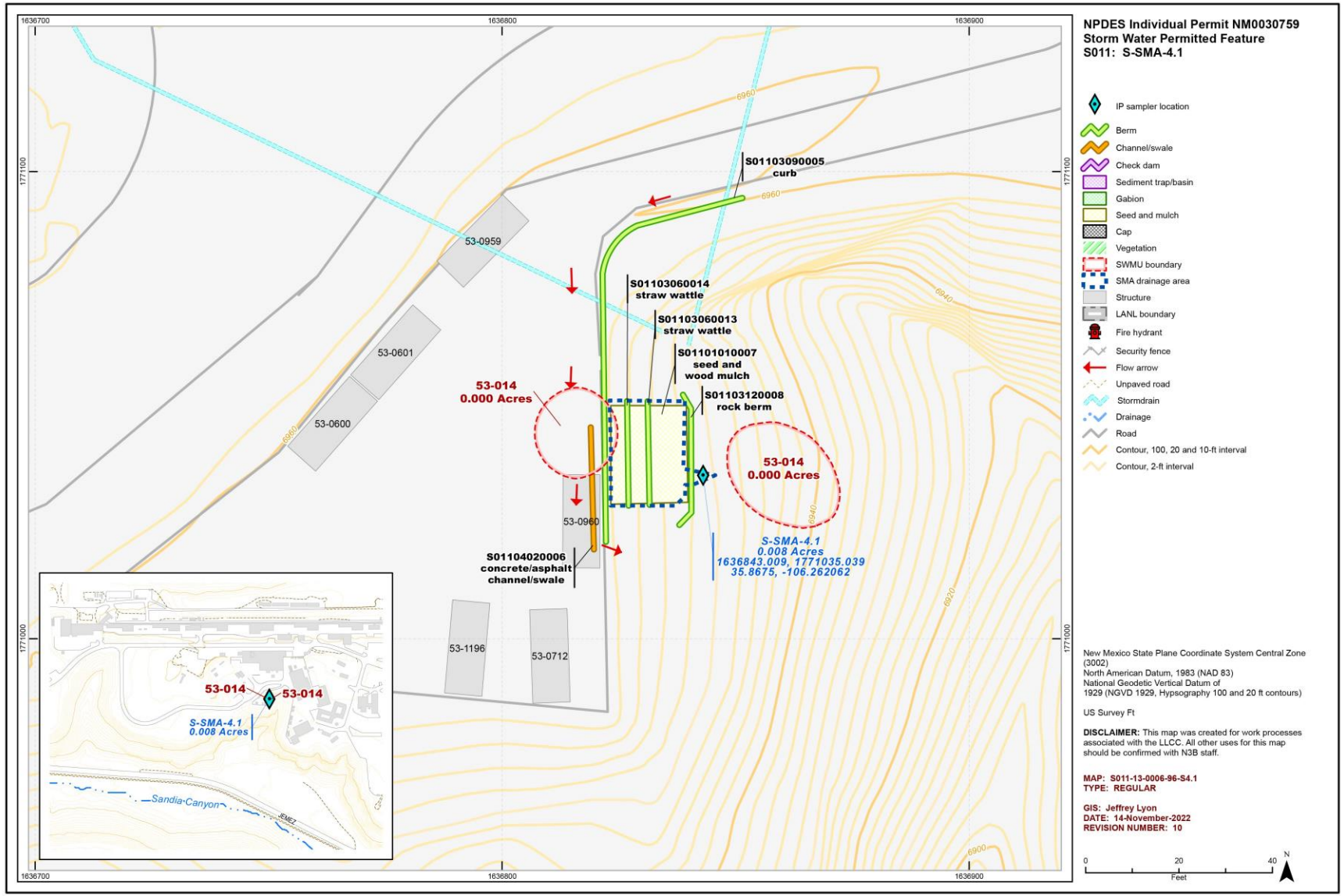


Figure 74-1 S-SMA-4.1 location map

75.0 S-SMA-5: SWMU 20-002(c)

One historical industrial activity area, Site 20-002(c), is associated with, S-SMA-5 (permitted feature S013). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

75.1 Site Descriptions

20-002(c) (9/30/2021)

SWMU 20-002(c) is a former firing point located near the southern edge of TA-53, close to the boundary of TA-72. This firing point was used for tests with explosive charges of up to 50 lb at former TA-20. The firing point is depicted in engineering drawing ENG-C 1778, Revision 1, as a pad bordered on three sides by an earthen berm. Engineering records indicate that the structure associated with this firing point (former structure 20-9) was removed in April 1948. A memorandum dated April 20, 1948, describing cleanup efforts in Sandia Canyon, notes that seven shot areas were excavated and the ground checked negative after removal. The SWMU 20-002(c) firing point likely is one of the seven shot areas referenced in that memorandum. The north side of this site is currently covered by the road embankment for East Jemez Road.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 75-1.

Table 75-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
20-002(c)	Firing site	HE

75.2 Control Measures

All active control measures in use at S-SMA-5 are listed in Table 75-2 and their locations are shown on the project map (Figure 75-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 75-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01302040011	Established Vegetation	-	X	X	-	B	10-22-2014
S01303030009	Log Berm	X	-	-	X	B	3-14-2014
S01303060010	Straw Wattle	-	X	-	X	B	11-20-2022
S01304060003	Riprap	X	-	X	-	CB	8-24-2005

75.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at S-SMA-5 during the 2022 season, requiring six post-storm inspections, which are summarized in Table 75-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 75-4.

Table 75-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93328[a,b]	6-26-2022 6-27-2022	0.28 0.29	6-29-2022	3 2	Yes Yes
BMP-93684	7-1-2022	0.3	7-14-2022	13	Yes
BMP-94094	7-14-2022	0.25	7-15-2022	1	Yes
BMP-94301	7-20-2022	0.38	7-26-2022	6	Yes
BMP-94502[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95397	8-11-2022	0.74	8-23-2022	12	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 75-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-96569 (follow up to SMPLR-96352)	Installed Straw Wattle S01303060013 as a replacement for Straw Wattle S01303060010.	11-10-2022	2 days	Maintenance was performed as soon as practicable.

75.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at S-SMA-5. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at S-SMA-5 under the 2010 IP requirements from March 18 through November 8, 2022, resulting in a monitoring season of 236 days. Ten inspections were performed during the monitoring season and are summarized in Table 75-5. RG-TA-53 recorded 32 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022.

Table 75-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91570	4-7-2022	No	None	None
SMPLR-91921	4-29-2022	No	None	None
SMPLR-92258	5-31-2022	No	None	None
SMPLR-92662	6-22-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022	0.06/0.25 0.06/0.14 0.12/0.29 0.08/0.16
SMPLR-92973	6-29-2022	No	6-22-2022 6-25-2022[c] 6-26-2022[c] 6-27-2022[c]	0.08/0.55 0.21/1.22 0.28/1.26 0.29/0.33
SMPLR-93517	8-10-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.3/0.53 0.04/0.12 0.25/0.29 0.38/0.39 0.84/1.44 0.48/0.54 0.09/0.21 0.33/0.57 0.39/0.78 0.4/0.45
SMPLR-95336	9-13-2022	No	8-11-2022 8-16-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 8-28-2022 9-9-2022	0.74/0.76 0.16/0.38 0.06/0.13 0.06/0.14 0.09/0.15 0.14/0.14 0.11/0.13 0.12/0.18
SMPLR-95891	9-29-2022	No	9-22-2022	0.11/0.24
SMPLR-96184	10-17-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.08/0.25 0.1/0.26 0.04/0.13 0.13/0.69 0.04/0.19
SMPLR-96352	11-8-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

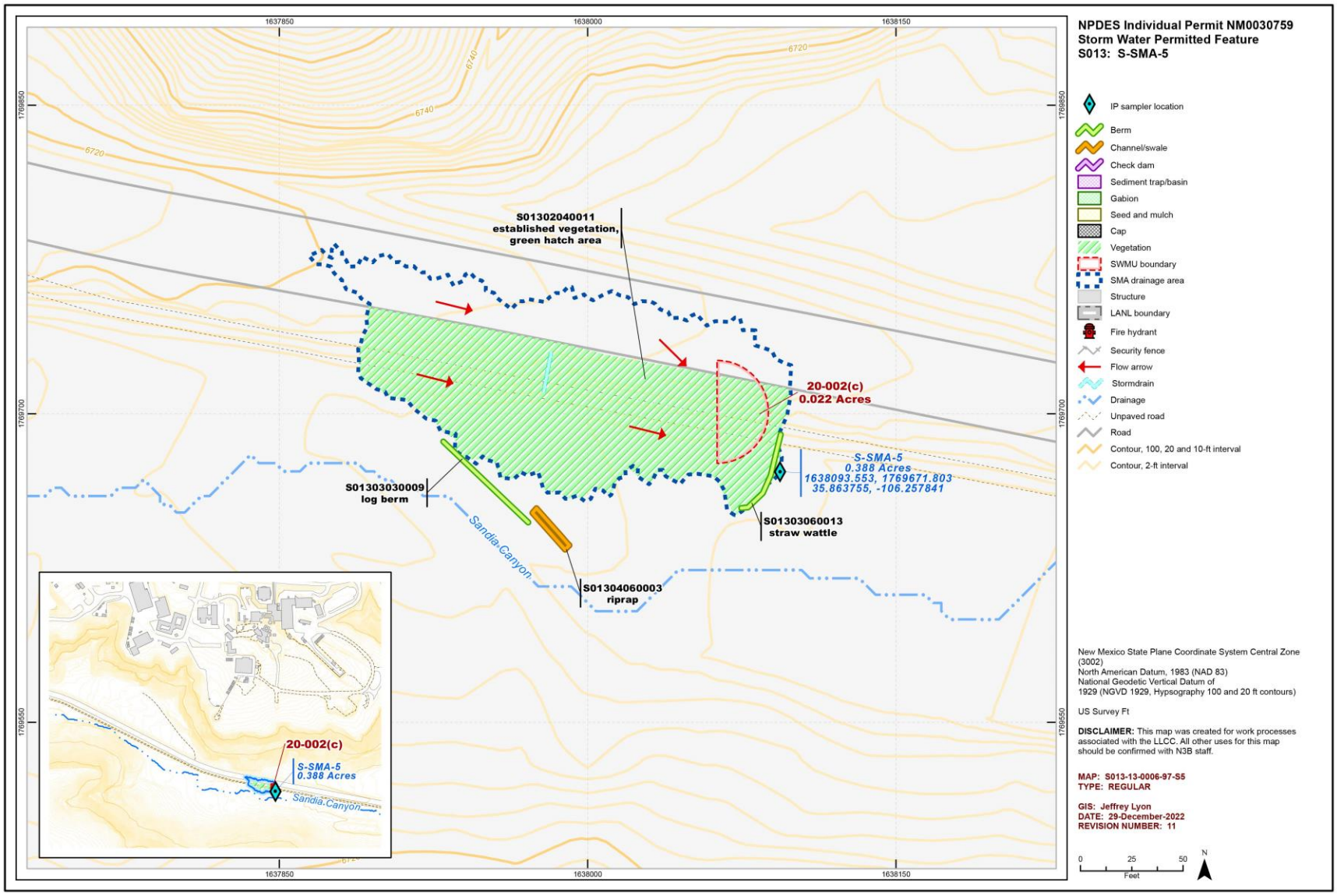


Figure 75-1 S-SMA-5 location map

76.0 S-SMA-5.2: AOC 20-003(c)

One historical industrial activity area, Site 20-003(c), is associated with S-SMA-5.2 (permitted feature S014). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

76.1 Site Descriptions

20-003(c) (9/30/2021)

AOC 20-003(c) is the site of a former U.S. Navy gun mount, located approximately 90 ft north of East Jemez Road in Sandia Canyon in former TA-20. The site is now located within TA-53.

The former gun site was used between 1945 and 1948. A 10-ft × 10-ft concrete pad with a steel-plate surface (former structure 20-16) was used as a mount for the gun. Engineering drawing ENG-C 1778 shows a 30-ft-long, earth-bermed, timber-frame bin filled with tamped earth (former structure 20-10) located near the gun and on the slope at the toe of the canyon wall. At the end nearest the gun, the timber frame was 12 ft wide and 10 ft high, and at the far end, it was 20 ft wide and 5 ft high.

The gun was fired into the earth-filled bin so that the projectile could be recovered. Laboratory engineering records show that in April 1948, structure 20-10 was removed and structure 20-28 (a conduit manhole) was left in place along with the concrete pad with anchor bolts (structure 20-16). The disposition of the soil from the timber-bin frame is not known.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 76-1.

Table 76-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
20-003(c)	Former firing site	Metals, radium, strontium-90

76.2 Control Measures

All active control measures in use at S-SMA-5.2 are listed in Table 76-2 and their locations are shown on the project map (Figure 76-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 76-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01402040016	Established Vegetation	-	X	X	-	B	5-2-2013
S01403120017	Rock Berm	-	X	-	X	B	11-7-2014
S01404060011	Riprap	X	-	X	-	CB	6-9-2010
S01406010006	Rock Check Dam	X	-	-	X	CB	6-9-2010
S01406010008	Rock Check Dam	X	-	-	X	CB	6-9-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01406010009	Rock Check Dam	X	-	-	X	CB	6-9-2010
S01406010010	Rock Check Dam	X	-	-	X	CB	6-9-2010
S01406010018	Rock Check Dam	-	X	-	X	B	11-7-2014
S01406010019	Rock Check Dam	-	X	-	X	B	11-7-2014

76.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at S-SMA-5.2 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 76-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 76-4.

Table 76-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93329[a,b]	6-26-2022 6-27-2022 7-1-2022	0.28 0.29 0.3	7-11-2022	15 14 10	Yes Yes Yes
BMP-94095[b]	7-14-2022 7-20-2022	0.25 0.38	7-26-2022	12 6	Yes Yes
BMP-94503[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95398	8-11-2022	0.74	8-25-2022	14	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 76-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95398	Removed sediment accumulation and repositioned rock material in Rock Check Dam S01406010018. Built up and repositioned rock material in Rock Check Dam S01406010019.	8-25-2022	0 days	Maintenance was performed as soon as practicable.

76.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 26, 2019. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (347 pCi/L) and PCB concentration (2.8 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019" (N3B 2020, 700767).

Stormwater monitoring was not conducted at S-SMA-5.2 in 2022 under the 2010 IP requirements.

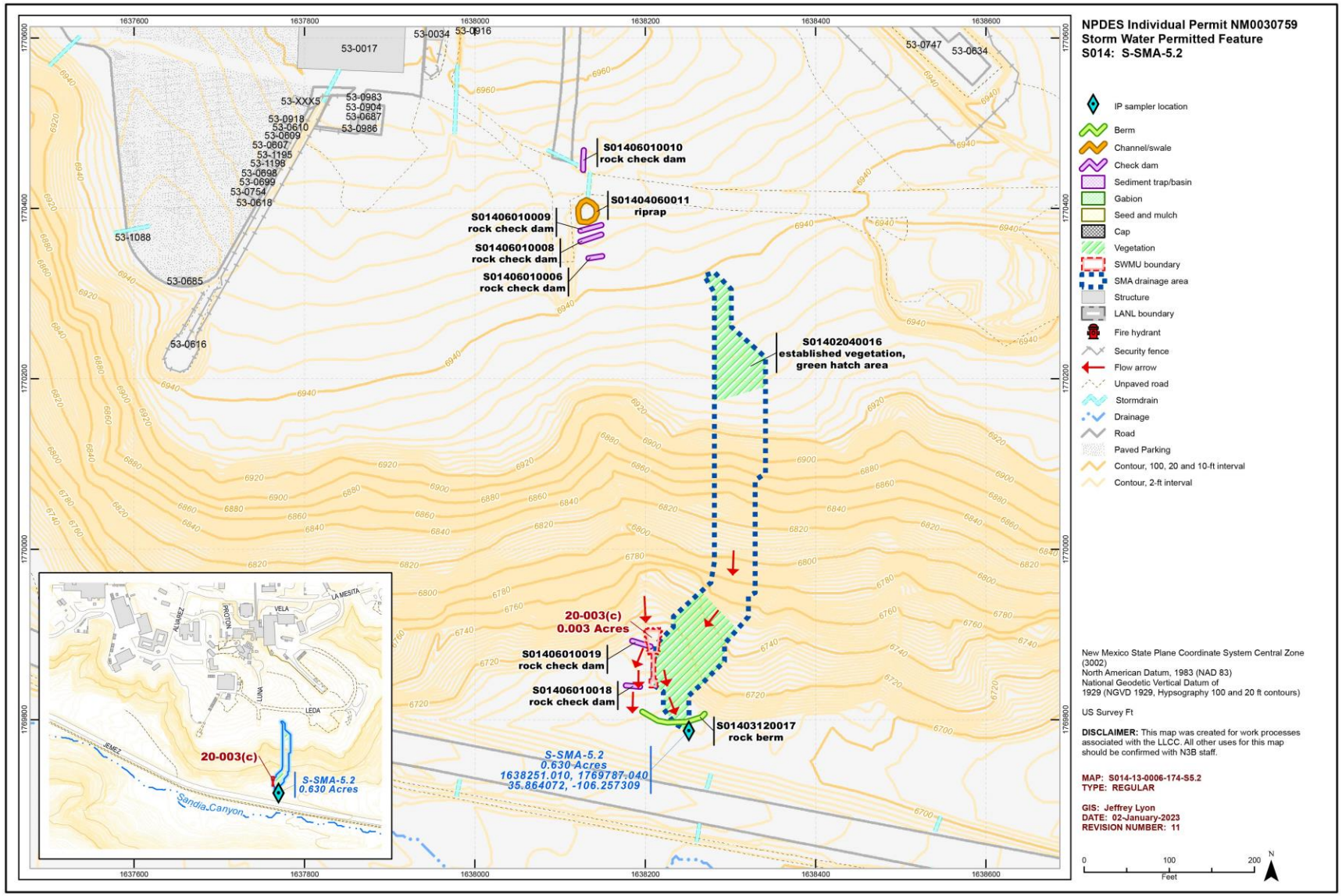


Figure 76-1 S-SMA-5.2 location map

77.0 S-SMA-5.5: SWMU 20-005

One historical industrial activity area, Site 20-005, is associated with S-SMA-5.5 (permitted feature S015). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

77.1 Site Descriptions

20-005 (9/29/2021)

SWMU 20-005 is a former septic system (septic tank and drainlines) that was located south of East Jemez Road in former TA-20. The site is now located within TA-72.

The system served a toilet, restroom sink, and darkroom sink in former building 20-1. The system was constructed in 1945, and its use was discontinued in 1948. Engineering drawings show the tank (former structure 20-27) as having 6-in.-thick concrete walls with interior dimensions of 3 ft × 6 ft × 5 ft deep, and a capacity of 540 gal. The discharge point of the tank is not known. The septic system could not be located during a 1985 program conducted by the Laboratory to remove existing structures from Lower Sandia Canyon. Although the tank could not be located, a pit-like depression was noted in the tuff in the area where the tank was believed to have been located. According to the 1985 report, excavation surrounding the area of the "pit" turned up no evidence of the tank or associated drainlines.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 77-1.

Table 77-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
20-005	Septic tank	Silver, inorganic chemicals, cyanide, organic chemicals

77.2 Control Measures

All active control measures in use at S-SMA-5.5 are listed in Table 77-2 and their locations are shown on the project map (Figure 77-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 77-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01502040005	Established Vegetation	-	X	X	-	B	5-2-2013
S01503010004	Earthen Berm	-	X	-	X	CB	2-24-2011

77.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at S-SMA-5.5 during the 2022 season, requiring six post-storm inspections, which are summarized in Table 77-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 77-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93330[a,b]	6-26-2022 6-27-2022	0.28 0.29	6-29-2022	3 2	Yes Yes
BMP-93686	7-1-2022	0.3	7-14-2022	13	Yes
BMP-94096	7-14-2022	0.25	7-15-2022	1	Yes
BMP-94303	7-20-2022	0.38	7-26-2022	6	Yes
BMP-94504[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-10-2022	15 14 11 10	Yes Yes Yes Yes
BMP-95399	8-11-2022	0.74	8-23-2022	12	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

77.4 Stormwater Monitoring

SWMU 20-005 is monitored within S-SMA-5.5. Following the installation of baseline control measures, a baseline stormwater sample was collected on July 31, 2014. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (91 pCi/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759 (LANL 2015, 600241).

Stormwater monitoring was not conducted at S-SMA-5.5 in 2022 under the 2010 IP requirements.

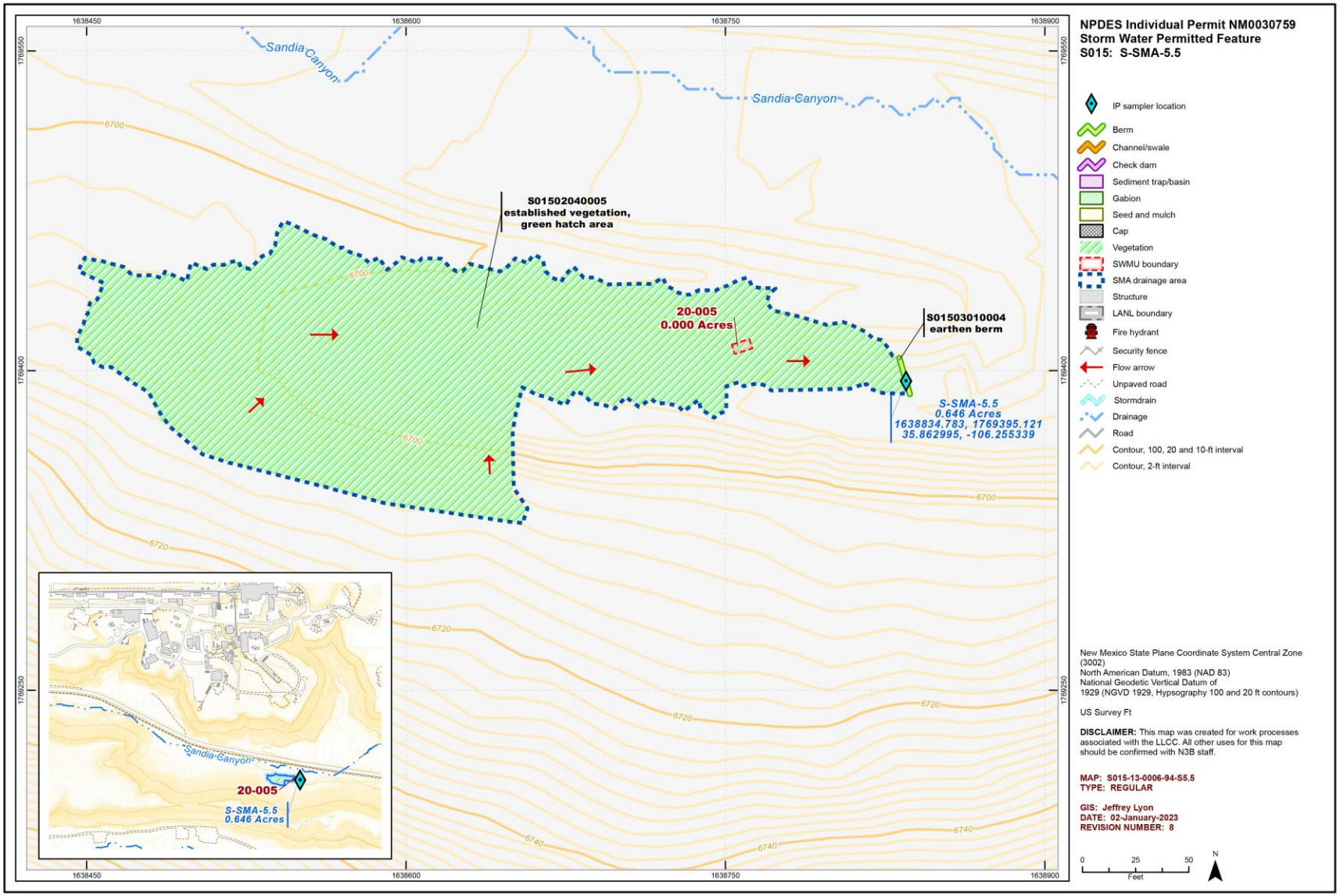


Figure 77-1 S-SMA-5.5 location map

78.0 S-SMA-6: AOC 72-001

One historical industrial activity area, Site 72-001, is associated with S-SMA-6 (permitted feature S016). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

78.1 Site Descriptions

72-001 (7/31/2017)

AOC 72-001 consists of an active small-arms firing and training range used by the Laboratory's security force. The firing range is located in Sandia Canyon at the west end of TA-72 and has been operational since 1966. It includes a 175-ft × 250-ft firing range surrounded by earthen berms, an adjacent skeet-shooting range, and administrative buildings. The drainage channel and flood plain of Sandia Canyon run through the middle of the firing range.

Structures at this site include an office building (building 72-8, a former guard station), range house (building 72-9), scoring area (building 72-10), firing station (building 72-11), weapons-cleaning area (building 72-12), storage buildings (72-13 and 72-14), and canopies 3 and 4 (buildings 72-15 and 72-16). Lead is present within the firing range because bullets are scattered at the base of the berms and cliffs, and lead shot from skeet shooting is visible on the ground.

During the 1995 VCA conducted at SWMU 00-016 (an inactive small-arms firing range), the NMED concurred with the Laboratory's request to move lead-contaminated soil from the inactive range to the active AOC 72-001 firing range. During the second phase of the VCA implemented at SWMU 00-016 in 1996 and 1997, lead was removed from soil stockpiled from berms at the former firing range using dry sieving. Approximately 4,660 yd^3 of sieved soil from SWMU 00-016 was transported to TA-72 and placed on the berms located along the north side of the AOC 72-001 firing range and along the berm located between, and north of, canopies 3 and 4.

Potential POCs and Sources Associated with the Site

The potential POCs known to be managed or potentially used at the Site are listed in Table 78-1.

Table 78-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
72-001	Firing site	Copper, lead

78.2 Control Measures

All active control measures in use at S-SMA-6 are listed in Table 78-2 and their locations are shown on the project map (Figure 78-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 78-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
S01602040012	Established Vegetation	-	X	X	-	B	5-8-2013
S01603010006	Earthen Berm	X	-	-	X	CB	4-27-2011
S01603010018	Earthen Berm	-	X	-	X	EC	9-24-2020
S01603140019	Coir Log	-	X	X	-	EC	9-24-2020
S01604060014	Riprap	X	-	-	X	B	11-29-2014
S01606010013	Rock Check Dam	X	-	-	X	B	11-29-2014

78.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at S-SMA-6 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 78-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 78-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93331[a,b]	6-26-2022 6-27-2022	0.28 0.29	6-29-2022	3 2	Yes Yes
BMP-93687	7-1-2022	0.3	7-14-2022	13	Yes
BMP-94097	7-14-2022 7-20-2022	0.25 0.38	7-26-2022	12 6	Yes Yes
BMP-94505[b]	7-26-2022 7-27-2022	0.84 0.48	7-29-2022	3 2	Yes Yes
BMP-95962[b]	7-30-2022 7-31-2022 8-11-2022	0.33 0.39 0.74	8-12-2022	13 12 1	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

78.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 30 and August 19, 2011. Analytical results from these samples yielded TAL exceedances for aluminum (1470 µg/L), copper (6.1 µg/L and 8.6 µg/L), cyanide (0.0058 mg/L and 0.0179 mg/L), gross-alpha activity (867 pCi/L and 6140 pCi/L), PCB concentrations (1050 ng/L and 4590 ng/L), and radium-226 and radium-228 activity (44.3 pCi/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Enhanced control confirmation-monitoring samples were collected on July 26 and September 29, 2017. Analytical results from these samples yielded TAL exceedances for aluminum (1070 µg/L), copper (65.3 µg/L and 9.73 µg/L), gross-alpha activity (116 pCi/L), lead (129 µg/L and 36.5 µg/L), and PCB concentrations (4.14 ng/L and 2.41 ng/L). Complete analytical results from these samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2017, NPDES Permit No. NM0030759" (LANL 2018, 602910).

Following the 2020 installation of enhanced control measures at S-SMA-6, a corrective-action stormwater sample was collected on October 4, 2021 (Figure 83-2). Analytical results from this sample yielded TAL exceedances for copper (33.1 µg/L), gross-alpha activity (156 pCi/L), and lead (42.1 µg/L). Complete analytical results from this sample are presented in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2022, 701895).

Stormwater monitoring was conducted at S-SMA-6 under the 2010 IP requirements from March 22 through July 29, 2022, resulting in a monitoring season of 130 days. Five inspections were performed during the monitoring season and are summarized in Table 78-4. RG-TA-53 recorded 14 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. A confirmation-monitoring sample was collected on July 26, 2022. Analytical results from this sample yielded TAL exceedances for copper (30.2 µg/L), gross-alpha activity (30.5 pCi/L) and lead (42.3 µg/L). Complete analytical results from this sample are presented in Appendix B of the Overview. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 78-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91638	5-3-2022	No	None	None
SMPLR-92288	6-6-2022	No	None	None
SMPLR-92759	6-21-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022	0.06/0.25 0.06/0.14 0.12/0.29 0.08/0.16
SMPLR-92942	6-28-2022	No	6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.08/0.55 0.21/1.22 0.28/1.26 0.29/0.33
SMPLR-93457	7-29-2022	Yes	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022[c]	0.3/0.53 0.04/0.12 0.25/0.29 0.38/0.39 0.84/1.44 0.48/0.54

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

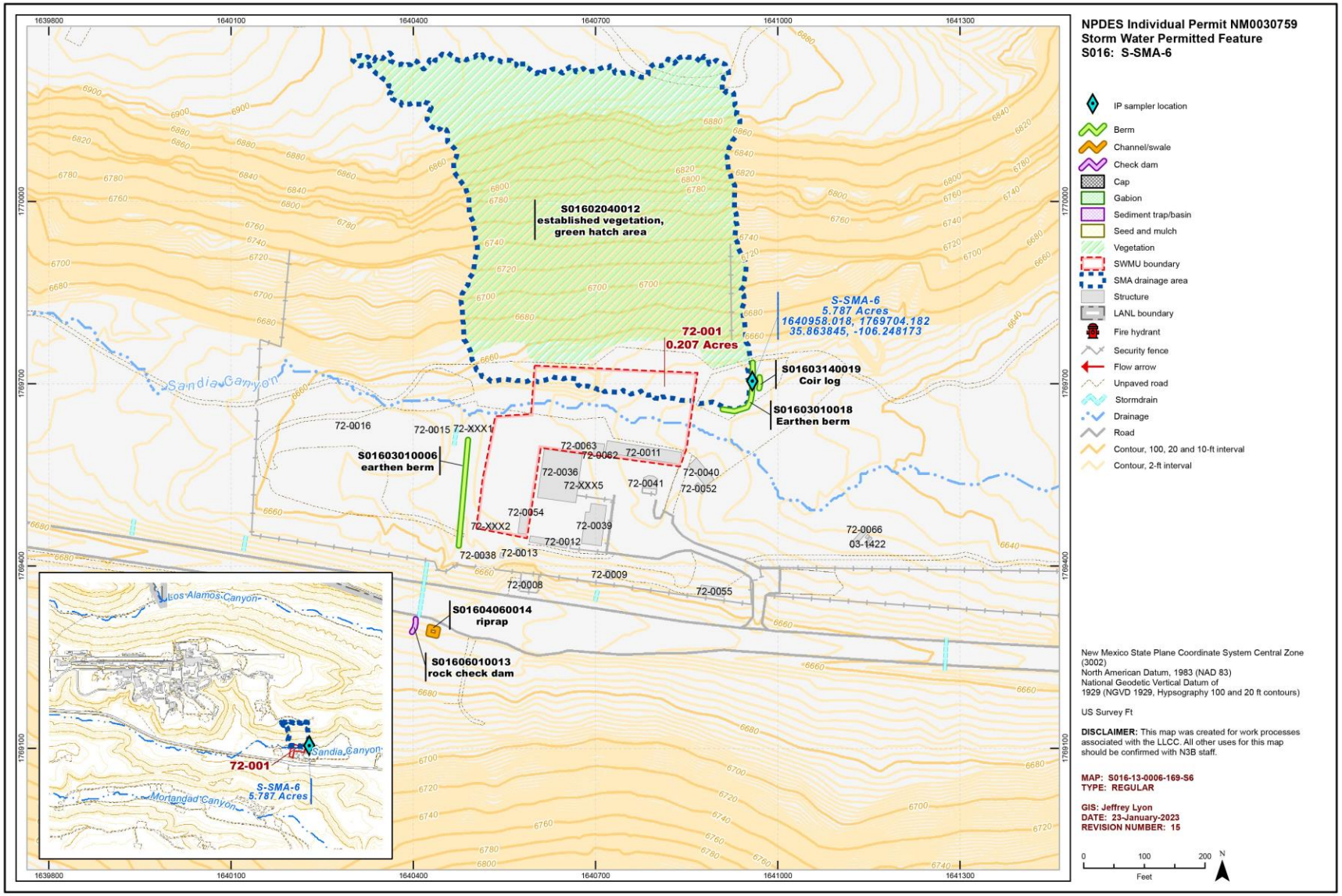


Figure 78-1 S-SMA-6 location map

79.0 CDB-SMA-0.15: SWMU 04-003(a) and AOC 04-004

Two historical industrial activity areas, Sites 04-003(a) and 04-004, are associated with CDB-SMA-0.15 (permitted feature C001). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

79.1 Site Descriptions

04-003(a) (2/18/2021)

SWMU 04-003(a) is an outfall located approximately 15 ft southeast of former building 04-7 at former TA-04 (now TA-52). Former building 04-7, which operated from 1948 to 1955, housed a darkroom and photoprocessing laboratory. Discharges from 04-7 to the outfall flowed to a trench that eventually discharged into Upper Cañada del Buey. Portions of the trench have since been covered by buildings 52-114 and 52-115 and an asphalt parking lot.

Beta activity was detected in the darkroom in 1955, and portions of the floor were removed in an attempt to remediate the contamination. It is not known whether the drainlines were removed when former building 04-7 was dismantled in 1956.

04-004 (2/18/2021)

AOC 04-004 is an area of potential soil contamination associated with the footprint of former building 04-7 at former TA-04 (now TA-52). The former building, which measured approximately 16 ft × 43 ft, housed a darkroom and photoprocessing laboratory. The building was used to develop film from 1948 to 1955 and was dismantled in 1956. A radiation survey in the early 1940s detected activity in the darkroom of building 04-7, and parts of the floor were removed. A resurvey found the floor free of radioactive contamination in 1955. AOC 04-004 has also been referred to as SWMU 04-004 in historical documents.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 79-1.

Table 79-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
04-003(a)	Inactive outfall and associated drainline from former building 04-7	Silver, cyanide, uranium
04-004	Soil contamination from former photoprocessing building 04-7	Silver, cyanide, uranium

79.2 Control Measures

All active control measures in use at CDB-SMA-0.15 are listed in Table 79-2 and their locations are shown on the project map (Figure 79-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 79-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00102040015	Established Vegetation	-	X	X	-	B	5-2-2013
C00103010013	Earthen Berm	-	X	-	X	B	8-15-2011
C00103060020	Straw Wattle	X	-	-	X	B	11-4-2014
C00103060021	Straw Wattle	X	-	-	X	B	11-4-2014
C00103120009	Rock Berm	X	-	-	X	CB	8-19-2010
C00106030003	Juniper Bales	X	-	-	X	CB	10-8-2009
C00106030005	Juniper Bales	-	X	-	X	CB	10-8-2009
C00106030006	Juniper Bales	-	X	-	X	CB	10-8-2009
C00106030007	Juniper Bales	-	X	-	X	CB	10-8-2009

79.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at CDB-SMA-0.15 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 79-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 79-4.

Table 79-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93091[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94226[b]	7-20-2022	0.36	8-3-2022	14	Yes
	7-21-2022	0.3		13	Yes
	7-27-2022	0.98		7	Yes
	7-30-2022	0.74		4	Yes
	7-31-2022	0.26		3	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 79-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94354 (follow up from 93091)	Removed accumulation of loose asphalt from top of Rock Berm C00103120009.	8-19-2022	72 days	Maintenance was delayed. Control was operating effectively in interim. Maintenance was originally targeted for August 4, 2022, but was rescheduled for August 19 because of prioritization of sample retrieval and post-storm inspections resulting from multiple storms.

79.4 Stormwater Monitoring

As part of extended baseline monitoring, a baseline stormwater sample was collected on July 20, 2015. Analytical results from this sample yielded TAL exceedances for aluminum (1900 µg/L) and copper (6.66 µg/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2015, NPDES Permit No. NM0030759" (LANL 2016, 601240).

Stormwater monitoring was not conducted at CDB-SMA-0.15 in 2022 under the 2010 IP requirements.

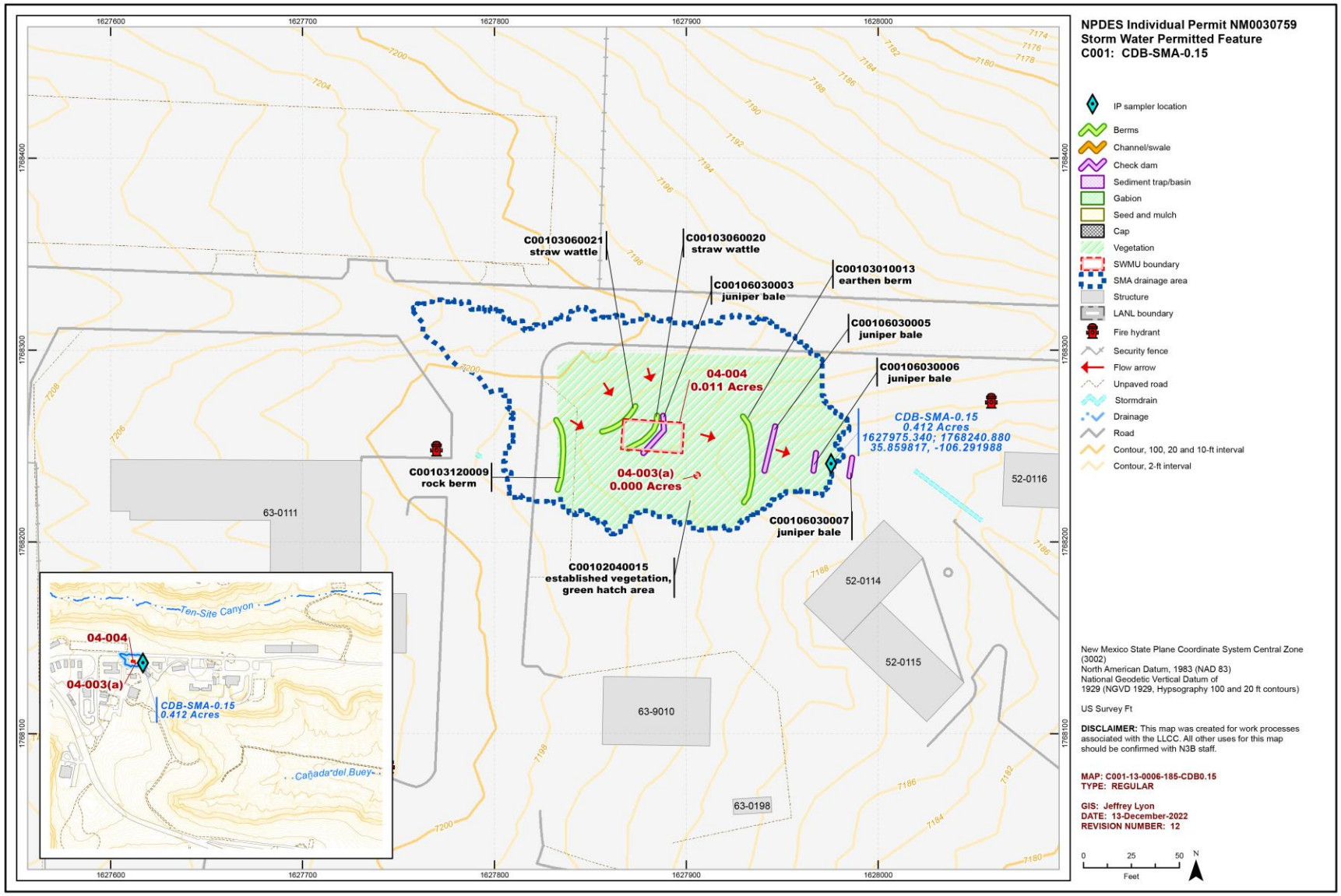


Figure 79-1 CDB-SMA-0.15 location map

80.0 CDB-SMA-0.25: SWMU 46-004(c2) and AOC 46-004(e2)

Two historical industrial activity areas, Sites 46-004(c2) and 46-004(e2), are associated with CDB-SMA-0.25 (permitted feature C002). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

80.1 Site Descriptions

46-004(c2) (2/18/2021)

SWMU 46-004(c2) is a former NPDES-permitted outfall (EPA 03A042) and an industrial drainline in building 46-1 at TA-46. Building 46-1 housed offices, two assembly bays, a machine shop, several laboratories for the assembly and checkout of electrical components, general laboratories, and a uranium-polishing area in support of the Rover Program. The outfall consists of a 4-in.-diameter CI pipe that discharged effluent from floor drains in the north equipment room of building 46-1 to a ditch approximately 50 ft northwest of building 46-1, and then to a storm drain culvert that discharged into Cañada del Buey. In 1997, the floor drains that discharged to the SWMU 46-004(c2) outfall either were removed from service or were rerouted to the SWSC plant at TA-46. The outfall was removed from the NPDES permit effective March 10, 1998.

46-004(e2) (2/18/2021)

AOC 46-004(e2) is the outfall from roof, floor, and sink drains in building 46-42 at TA-46. The outfall consists of a 4-in.-diameter pipe located approximately 50 ft northeast of building 46-42 at the head of a drainage ditch associated with SWMU 46-006(a). The outfall is located approximately 3 ft below the level of the asphalt pavement. Building 46-42 was constructed as an equipment checkout facility and contains electronics and robotics laboratories. In the mid-1990s, the floor and sink drains that discharged to this outfall either were removed from service or were rerouted to the sanitary sewer system. The outfall currently receives stormwater from building 46-42 roof drains only.

Potential POCs and Sources Associated with the Sites

The potential POCs known to be managed or potentially used at the Sites are listed in Table 80-1.

Table 80-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
46-004(c2)	Outfall from building 46-1	Zinc, uranium
46-004(e2)	Outfall from building 46-42	Metals

80.2 Control Measures

All active control measures in use at CDB-SMA-0.25 are listed in Table 80-2 and their locations are shown on the project map (Figure 80-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 80-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00202040019	Established Vegetation	-	X	X	-	B	5-2-2013
C00203010013	Earthen Berm	-	X	-	X	CB	10-15-2009
C00203010017	Earthen Berm	-	X	-	X	EC	5-31-2012
C00203010018	Earthen Berm	-	X	-	X	EC	5-31-2012
C00204060009	Riprap	X	-	X	-	CB	6-1-2009

80.3 Inspections and Maintenance

Rain gage RG245.5 recorded six storm events at CDB-SMA-0.25 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 80-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 80-4.

Table 80-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93093[a]	6-25-2022	0.33	7-7-2022	12	Yes
BMP-94461[b]	7-26-2022 7-27-2022 7-30-2022	0.29 0.74 0.58	8-10-2022	15 14 11	Yes Yes Yes
BMP-95371[b]	8-11-2022 8-16-2022	0.54 0.5	8-22-2022	11 6	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 80-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93093	Removed and disposed of floatable garbage and debris at inspection.	7-7-2022	0 days	Maintenance conducted as soon as practicable.
BMP-94025 (follow up to BMP-93093)	Began moving pine needle debris from over area identified as eroding in prior inspection. Found a culvert under the debris. Removed needle debris and mulch to uncover culvert inlet. Cleaned out pine needle debris and mulch from eastern end of Riprap at culvert inlet.	8-19-2022	43 days	Maintenance was delayed. Maintenance was originally targeted for July 29, 2022, but was rescheduled for August 19 because of prioritization of sample retrieval and post-storm inspections resulting from multiple storms.

80.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 1, 2011. Analytical results from this sample yielded TAL exceedances for aluminum (2310 µg/L), copper (11.2 µg/L), and PCB concentration (6 ng/L). Complete analytical results from that sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures, corrective action stormwater samples were collected on July 26 and September 10, 2013. Analytical results from these corrective action monitoring samples yielded TAL exceedances for copper (15.2 µg/L and 15.2 µg/L) and PCB concentrations (3 ng/L and 5 ng/L). Complete analytical results from those samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at CDB-SMA-0.25 in 2022 under the 2010 IP requirements.

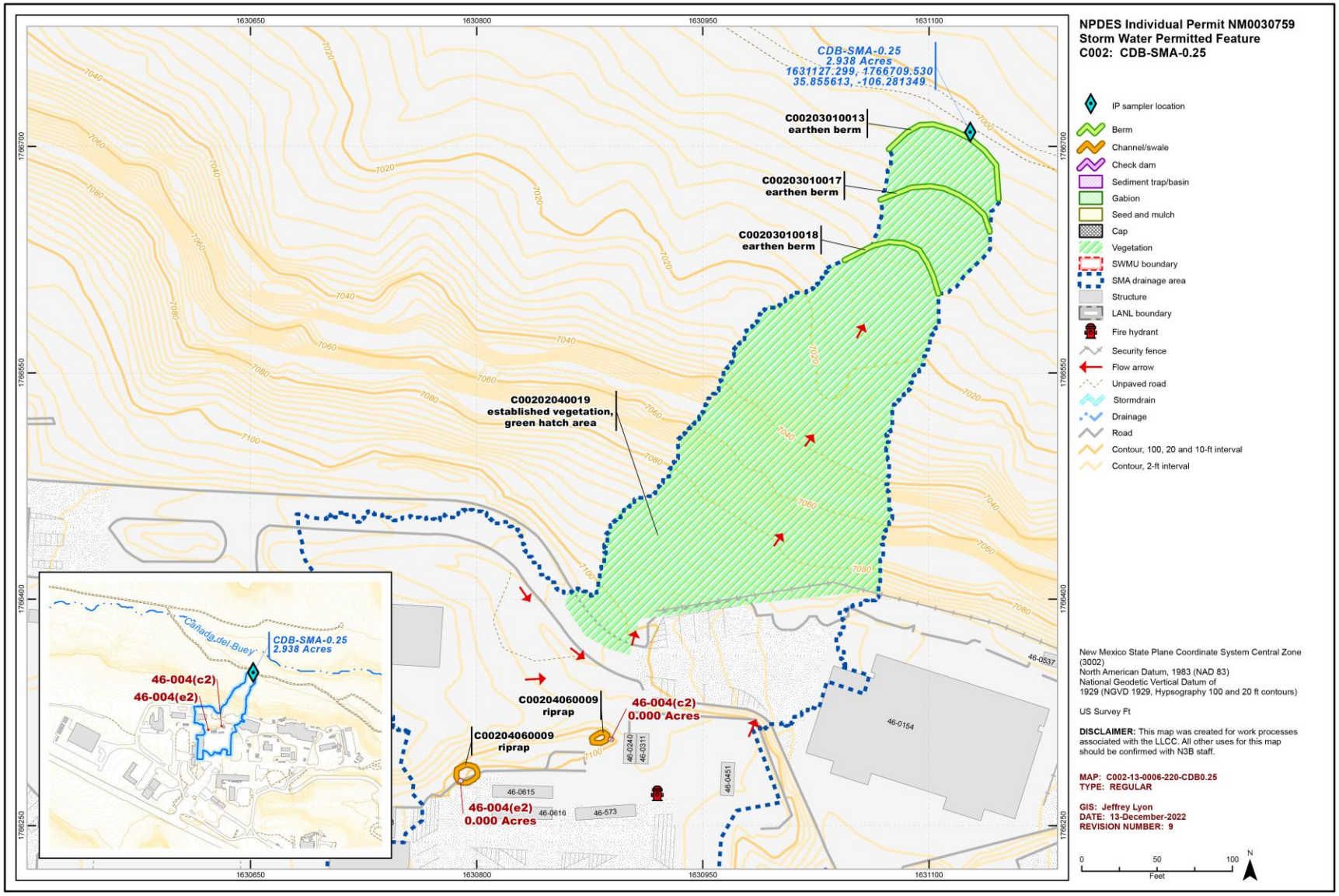


Figure 80-1 CDB-SMA-0.25 location map

81.0 CDB-SMA-0.55: SWMUs 46-004(g), 46-004(m), 46-004(s), and 46-006(f)

Four historical industrial activity areas, Sites 46-004(g), 46-004(m), 46-004(s), and 46-006(f), are associated with CDB-SMA-0.55 (permitted feature C003). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

81.1 Site Descriptions

46-004(g) (2/18/2021)

SWMU 46-004(g) consists of an area of potential surface soil contamination associated with the deposition of contaminants in exhaust emissions from stacks on building 46-1, and from a former outfall from an industrial drainline in building 46-1 at TA-46. The work in building 46-1 that generated exhaust emissions involved the baking and high-temperature testing of radioactive fuel rods. The outfall component of SWMU 46-004(g) consists of a 12-in.-diameter VCP industrial drainline that received effluent from floor drains and roof drains within the central portion of building 46-1, and discharged into Cañada del Buey north of building 46-154. Building 46-1 housed offices, two assembly bays, a machine shop, several laboratories for the assembly and checkout of electrical components, general laboratories, and a uranium-polishing area. In 1996 and 1997, the floor drains that discharged to this outfall either were removed from service or were rerouted to the SWSC plant at TA-46. Roof drains from building 46-1 that discharged to this outfall were rerouted to the stormwater drain system in 1996.

46-004(m) (no date)

SWMU 46-004(m) consists of a former NPDES-permitted outfall (04A013), located approximately 60 ft north of building 46-30. The outfall protrudes from a 10-ft-deep bank on the hillside north of building 46-30. The outfall discharged effluent from an industrial drainline in building 46-30 to a ditch at the foot of the bank. The ditch channeled wastewater to a storm drain culvert that discharges into Cañada del Buey. Engineering drawings show that this industrial drainline received effluent from the roof drains, laboratory sinks, and floor drains in building 46-30m a hydraulics laboratory and machine shop. In December 1995, after all discharges to the outfall from building 46-30 had ceased, the outfall was removed from the NPDES permit.

The Cerro Grande fire of 2000 burned moderately to severely in the vicinity of this SWMU, and the vegetative ground cover and canopy were mostly destroyed. To dissipate stormwater run-on from upslope locations in the burn area, wattles were installed on slopes within the drainages, and rock check dams were placed in the main drainages. The lower portion of the sloped area was hand raked, re-seeded with native grasses, and mulched with straw. The upper portion of the sloped area was hydromulched. An earthen base-course berm was installed along the fire road at the toe of the slope to provide additional protection from sediment migration.

46-004(s) (2/18/2021)

SWMU 46-004(s) is an outfall located approximately 20 ft south of building 46-1 at TA-46. The outfall consists of a 4-in.-diameter CI pipe that discharged to a drainage ditch (SWMU 46-007) on the south side of building 46-1. The drainage ditch leads to a storm drain culvert that discharges into Cañada del Buey. The outfall received effluent from floor and roof drains of the south high bay in building 46-1, which housed offices, two assembly bays, a machine shop, several laboratories for the assembly and checkout of electrical components, general laboratories, and a uranium-polishing area. In 1995, all floor drains in

the south high bay of building 46-1 either were plugged or were rerouted to the SWSC plant at TA-46. Currently, roof drains from the south high bay discharge to the storm drainage system and/or daylight near building 46-1.

46-006(f) (2/18/2021)

SWMU 46-006(f) is a storage shed (building 46-36) located approximately 50 ft east of building 46-1 at TA-46. The 20-ft × 30-ft metal storage shed was constructed in 1955. The floor of the storage shed is paved and sits approximately 6 to 8 in. below grade. The area surrounding the storage shed was used as a storage area, as a staging area for equipment and materials awaiting disposal, and as an unloading area for new equipment. The areas on the west and south sides of the storage shed are paved; the areas on the north and east sides of the shed are unpaved.

Stored materials may have included oils [possibly containing PCBs], alkali metals, asbestos-containing products, beryllium alloys, potassium dichromate, lead bricks, lead shot, and mercury. Because the floor of building 46-36 is below grade, frequent flooding of the storage shed occurs during the rainy season. The surrounding area slopes north to a storm drain culvert that discharges into Cañada del Buey.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 81-1.

Table 81-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
46-004(g)	Drains and exhaust system	Metals, mercury, SVOCs
46-004(m)	Outfall from building 46-30	No known POCs
46-004(s)	Outfall associated with building 46-1	Metals, mercury, SVOCs
46-006(f)	Storage area	Beryllium, hexavalent chromium, lead, mercury, asbestos, PCBs

81.2 Control Measures

All active control measures in use at CDB-SMA-0.55 are listed in Table 81-2 and their locations are shown on the project map (Figure 81-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 81-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00302040021	Established Vegetation	-	X	X	-	B	5-2-2013
C00303010011	Earthen Berm	-	X	-	X	CB	10-15-2009
C00306010006	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010013	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010015	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010016	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010017	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010018	Rock Check Dam	X	-	-	X	CB	6-9-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00306010019	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00306010020	Rock Check Dam	X	-	-	X	CB	6-9-2010

81.3 Inspections and Maintenance

Rain gage RG245.5 recorded six storm events at CDB-SMA-0.55 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 81-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 81-4.

Table 81-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93094[a]	6-25-2022	0.33	7-7-2022	12	Yes
BMP-94462[b]	7-26-2022 7-27-2022 7-30-2022	0.29 0.74 0.58	8-10-2022	15 14 11	Yes Yes Yes
BMP-95372[b]	8-11-2022 8-16-2022	0.54 0.5	8-22-2022	11 6	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 81-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93094	Removed and disposed of floatable garbage and debris at inspection.	7-7-2022	0 days	Maintenance was performed as soon as practicable.
BMP-94026 (follow up to BMP-93904)	Built up and repositioned displaced rock material in Rock Check Dams C00306010015.	8-10-2022	34 days	Maintenance was delayed. Control was operating effectively in interim. Maintenance was originally targeted for July 29, 2022, but was rescheduled for August 10 because of prioritization of sample retrieval and post-storm inspections resulting from multiple storms.

81.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded TAL exceedances for copper (16.3 µg/L) and PCB concentration (0.7 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at CDB-SMA-0.55 in 2022 under the 2010 IP requirements.

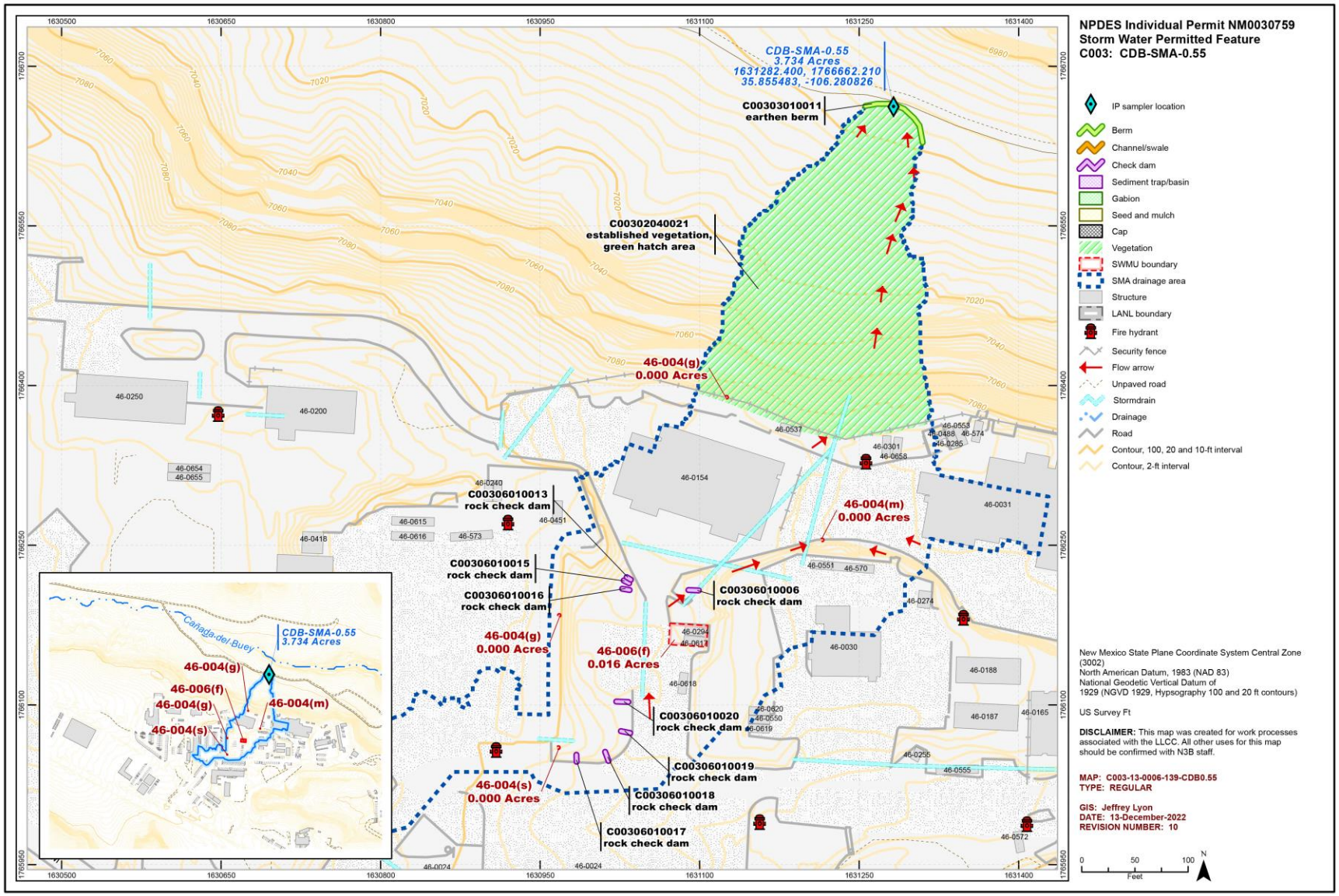


Figure 81-1 CDB-SMA-0.55 location map

82.0 CDB-SMA-1: SWMUs 46-003(c), 46-004(d2), 46-004(f), 46-004(t), 46-004(w), 46-008(g), and 46-009(a)

Seven historical industrial activity areas, Sites 46-003(c), 46-004(d2), 46-004(f), 46-004(t), 46-004(w), 46-008(g), and 46-009(a), are associated with CDB-SMA-1 (permitted feature C004). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

82.1 Site Descriptions

46-003(c) (2/18/2021)

SWMU 46-003(c) is an inactive septic system, approximately 80 ft southeast of building 46-76 at TA-46. The septic system consisted of a septic tank (structure 46-49), a distribution box (structure 46-50), associated inlet and outlet drainlines, a drain field, and an outfall located southeast of building 46-76, beneath an asphalt road outside the security fence at TA-46. This septic system was installed in 1956 and served the restroom facilities, floor drains, roof drains, sinks, and acid sinks in building 46-24, which housed offices, a machine shop, electrical laboratories, and chemical laboratories where fuel rods were handled. In 1958, an acid dry well, located in room B22 of building 46-24, was connected into the SWMU 46-003(c) system; this well drained to the septic tank for less than 1 yr.

The drain field associated with this septic system was removed from service sometime before 1968, and septic tank 46-49 was rerouted to the drain field associated with SWMU 46-003(f). In the 1970s, sanitary waste drainlines that previously discharged to septic tank 46-49 were rerouted to the SWMU 46-002 surface impoundment system, and septic tank 46-49 was reportedly removed from service, emptied, filled, and left in place. No evidence of the septic tank was found during the geophysical survey conducted during the 2010 Phase I Consent Order investigation, indicating that the tank has been removed.

46-004(d2) (2/18/2021)

SWMU 46-004(d2) is an area of potential soil contamination associated with exhaust emissions from stacks on building 46-24 at TA-46. Building 46-24 housed laboratories and offices. During 1960 and 1961, experiments conducted in building 46-24 used, and may have released, beryllium and beryllium oxide from stacks on the building.

46-004(f) (2/18/2021)

SWMU 46-004(f) is an inactive outfall from an industrial drainline that served rooms 101 through 134 of building 46-24 at TA-46. The outfall consists of a 6-in.-diameter VCP that received discharges from a sump, acid sink, several floor and sink drains, and cooling water system. The outfall pipe discharged to a drain approximately 50 ft east of building 46-24. This drain is part of a network of drains that discharge to SWSC Canyon at former NPDES-permitted outfall 04A018. Building 46-24 housed offices, a machine shop, electrical laboratories, and chemical laboratories where fuel rods were handled. All discharges to the outfall from building 46-24 had ceased before the outfall was removed from the NPDES permit in 1995.

46-004(t) (2/18/2021)

SWMU 46-004(t) is a former NPDES-permitted outfall (EPA 04A014) located approximately 60 ft southeast of building 46-76 at TA-46. The outfall is a 4-in.-diameter VCP drainline that received effluent from sink drains in rooms 101 and 102, and from all floor drains in room 104 and the high bay of building 46-88. The drainline discharged at a point approximately 250 ft northeast of building 46-88 on the west side of SWSC Road. Effluent from the outfall flowed to a storm drain culvert under the road and discharged to SWSC Canyon.

Building 46-88 housed a structural laboratory for testing pressure vessels associated with the Rover Program. The building was later used for process chemistry work to isolate nonradioactive isotopes of carbon, oxygen, and nitrogen. All discharges from building 46-88 had ceased before the outfall was removed from the NPDES permit in July 1995.

46-004(w) (2/18/2021)

SWMU 46-004(w) is a former NPDES-permitted outfall located approximately 70 ft south of building 46-24 at TA-46. The outfall is a 2-in.-diameter CI pipe that discharged to a drain south of building 46-24, near the northwest corner of a laser laboratory (building 46-76). The outfall served a sink drain in building 46-59.

SWMU 46-004(w) also received effluent from the SWMU 46-004(r) outfall, and was part of a network of drains that discharged to SWSC Canyon from a former NPDES-permitted outfall (EPA 04A018). Building 46-59 was used for hydraulic and structural testing of components in support of the Rover Program. The outfall was removed from the NPDES permit in December 1995. Before the outfall was removed from the NPDES permit, all discharges to the outfall from building 46-59 ceased.

46-008(g) (6/3/2021)

SWMU 46-008(g) is a former unpaved storage area located south of a laser laboratory (building 46-76) at TA-46. In 1990, 20 drums containing dielectric oil were reported to be stored directly on the ground at this location. The site is a level area bisected by a drainage that flows east into SWSC Canyon through a storm drain culvert.

46-009(a) (6/3/2021)

SWMU 46-009(a) is a surface disposal area located at the head of SWSC Canyon near the southeastern corner of TA-46. The surface disposal area covers approximately 5000 yd^3, extending from the canyon rim to the floor of SWSC Canyon. The disposal area contains a variety of material, including asphalt, concrete, plywood, pipe, and other construction materials. The dates when material was disposed of at the site are not known. Aerial photographs of TA-46 taken in 1958 show the surface disposal area, confirming that disposal had started by at least 1958.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 82-1.

Table 82-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
46-003(c)	Septic system	Metals, organic chemicals, PCBs, radionuclides
46-004(d2)	Soil contamination from stack emissions	Beryllium
46-004(f)	Drain associated with building 46-24	Metals, mercury, PCBs, SVOCs, uranium
46-004(t)	Outfall from building 46-88	No applicable POCs
46-004(w)	Outfall from building 46-59	PCBs, SVOCs
46-008(g)	Storage area	PCBs, SVOCs
46-009(a)	Landfill	Metals, asbestos, PCBs, SVOCs, radionuclides

82.2 Control Measures

All active control measures in use at CDB-SMA-1 are listed in Table 82-2 and their locations are shown on the project map (Figure 82-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 82-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00402040015	Established Vegetation	-	X	X	-	B	5-2-2013
C00403010016	Earthen Berm	-	X	-	X	EC	7-21-2015
C00403010017	Earthen Berm	-	X	-	X	EC	7-21-2015
C00404060006	Riprap	X	-	X	-	CB	10-15-2009
C00404060008	Riprap	-	X	-	X	CB	6-9-2010
C00404060009	Riprap	X	-	-	X	CB	6-9-2010
C00406010010	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00406010011	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00406010012	Rock Check Dam	X	-	-	X	CB	6-9-2010
C00406010013	Rock Check Dam	-	X	-	X	CB	6-9-2010
C00406010018	Rock Check Dam	-	X	-	X	B	9-21-2020

82.3 Inspections and Maintenance

Rain gage RG245.5 recorded six storm events at CDB-SMA-1 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 82-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 82-4.

Table 82-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93092[a]	6-25-2022	0.33	7-7-2022	12	Yes
BMP-94460[b]	7-26-2022 7-27-2022 7-30-2022	0.29 0.74 0.58	8-4-2022	9 8 5	Yes Yes Yes
BMP-95370[b]	8-11-2022 8-16-2022	0.54 0.5	8-22-2022	11 6	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 82-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93092	Removed and disposed of floatable garbage and debris at inspection.	7-7-2022	0 days	Maintenance was performed as soon as practicable.
BMP-95370	Cleared sediment accumulation from Riprap C00404060009 at inspection.	8-22-2022	0 days	

82.4 Stormwater Monitoring

Following the installation of baseline control measures at CDB-SMA-1, a baseline stormwater sample was collected on September 7, 2011. Analytical results from this sample yielded TAL exceedances for aluminum (1120 µg/L), copper (8 µg/L), gross-alpha activity (15.2 pCi/L), and PCB concentration (23 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the 2012 installation of enhanced control measures at CDB-SMA-1, a corrective-action stormwater sample was collected on September 13, 2013. Analytical results from this corrective-action monitoring sample yielded TAL exceedances for gross-alpha activity (71.5 pCi/L) and PCB concentration (72 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following the 2015 installation of enhanced control measures at CDB-SMA-1, a corrective-action stormwater sample was collected on August 3, 2021 (Figure 87-2). Analytical results from this corrective-action monitoring sample yielded TAL exceedances for aluminum (1010 µg/L), copper (11.4 µg/L), gross-alpha activity (151 pCi/L), and PCB concentration (3.27 ng/L). Complete analytical results from this sample are presented in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2022, 701895).

Stormwater monitoring was conducted at CDB-SMA-1 under the 2010 IP requirements from March 29 through October 31, 2022, resulting in a monitoring season of 217 days. Nine inspections were performed during the monitoring season and are summarized in Table 82-5. Rain gage RG245.5 recorded 35 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022.

Table 82-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91712	4-28-2022	No	None	None
SMPLR-92243	5-23-2022	No	None	None
SMPLR-92605	6-16-2022	No	None	None
SMPLR-92879	7-6-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.08/0.33 0.1/0.21 0.07/0.28 0.08/0.17 0.12/0.63 0.33/1.54 0.14/1.15 0.08/0.15 0.16/0.4 0.23/0.38
SMPLR-93859	7-28-2022	No	7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022	0.19/0.2 0.19/0.21 0.09/0.14 0.29/0.62 0.74/0.93
SMPLR-94788	9-9-2022	No	7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-7-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.07/0.24 0.58/0.91 0.14/0.32 0.32/0.38 0.1/0.11 0.54/0.56 0.5/0.97 0.05/0.1 0.14/0.23 0.05/0.29 0.1/0.12 0.3/0.3
SMPLR-95846	9-20-2022	No	9-9-2022[c]	0.11/0.17

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-96007	10-7-2022	No	9-22-2022 10-2-2022 10-3-2022 10-4-2022	0.14/0.24 0.07/0.21 0.04/0.12 0.04/0.17
SMPLR-96291	10-31-2022	No	0.13/0.73 0.04/0.15 0.04/0.1	0.13/0.73 0.04/0.15 0.04/0.1

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

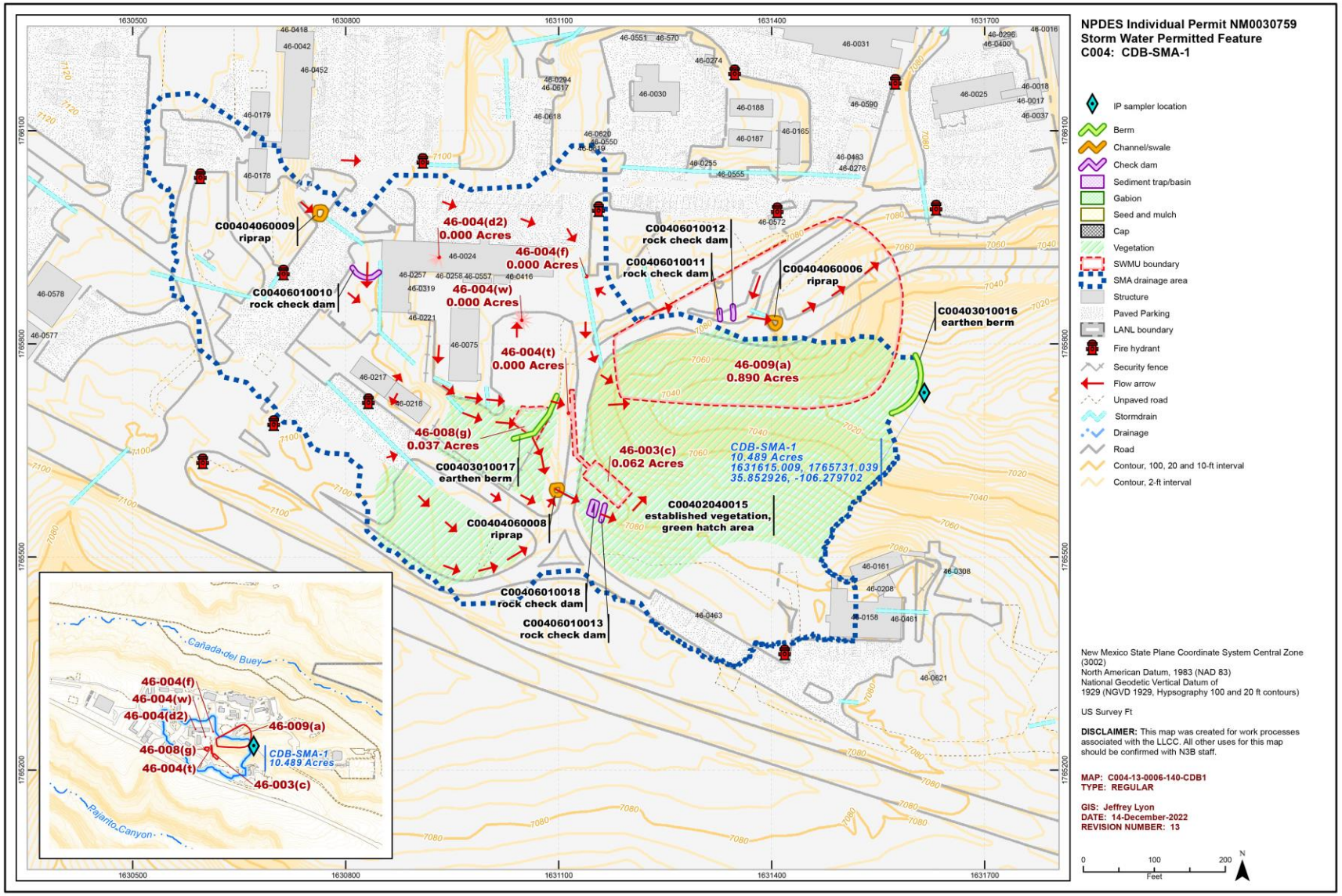


Figure 82-1 CDB-SMA-1 location map

83.0 CDB-SMA-1.15: SWMUs 46-004(b), 46-004(y), 46-004(z), and 46-006(d)

Four historical industrial activity areas, Sites 46-004(b), 46-004(y), 46-004(z), and 46-006(d), are associated with CDB-SMA-1.15 (permitted feature C005). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

83.1 Site Descriptions

46-004(b) (2/18/2021)

SWMU 46-004(b) is a former alkali-metal cleaning tank (structure 46-81) at Technical Area TA-46. The steel tank measured approximately 4 ft × 8 ft × 6 ft tall, and was located on asphalt pavement within 20 ft of the northwest corner of building 46-31, within the boundary of the SWMU 46-006(d). The tank outlet was plumbed to the SWMU 46-004(c) dry well. The tank was used in the late 1950s and early 1960s to douse laboratory equipment from cesium-plasma diode experiments before the equipment was reused or disposed of. Butanol or kerosene was used on the equipment to dissolve naturally occurring alkali isotopes of cesium and lithium. The tank was removed in 1973. The 1990 SWMU report incorrectly described the tank as being constructed of concrete.

46-004(y) (2/18/2021)

SWMU 46-004(y) is a former NPDES-permitted outfall (EPA 03A043) located approximately 40 ft north of building 46-31 at TA-46. This outfall consisted of a 6-in.-diameter CI pipe that received blowdown from a cooling tower in building 46-31 and effluent from floor drains, roof drains, and laboratory sinks from the building. The outfall pipe discharged into Cañada del Buey.

Building 46-31 housed test cells with electrical furnaces for thermal testing of graphite and uranium-235/uranium-238 fuel rods in support of the Rover Program. Welding experiments involving thorium were also conducted in building 46-31. An historical evaluation of chemicals used in cooling towers indicated that chromium had not been used in the TA-46 cooling towers.

The outfall pipe to the canyon was removed before 1996, the roof drains were rerouted to new storm drains that discharge to the north side of building 46-31, and all floor and sink drains discharging to this outfall were rerouted to the SWSC plant at TA-46. In July 1996, the outfall was removed from the NPDES permit.

46-004(z) (2/18/2021)

SWMU 46-004(z) is an inactive outfall located approximately 60 ft northwest of building 46-31 at TA-46. This outfall consists of a 6-in.-diameter CI pipe that receives stormwater from two roof drains on building 46-31 and discharges into Cañada del Buey. Previously, the outfall also served the floor drains in rooms 160 through 172 of building 46-31. Building 46-31 housed test cells with electrical furnaces for thermal testing of graphite and uranium-235/uranium-238 fuel rods in support of the Rover Program, as well as welding experiments involving thorium. The floor drains leading to this outfall were rerouted to the TA-46 SWSC plant before 1993.

46-006(d) (2/18/2021)

SWMU 46-006(d) is an area of potential soil contamination located on the north side of building 46-31 at TA-46. The area is approximately 50 ft × 300 ft, is paved with asphalt, and is level near building 46-31, but drops steeply towards the northern perimeter fence of TA-46 and into Cañada del Buey. Oils and possibly other materials spilled in the area. Engineering drawings show that a drain from room 111A also discharged to this SWMU. During a 1986 site visit, 55-gal. drums, cans, rusty chemical storage containers, and a thick layer of oil were observed on the northern slope of the site.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 83-1.

Table 83-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
46-004(b)	Soil contamination associated with former tank	No applicable POCs
46-004(y)	Outfall from building 46-31	Metals, arsenic, mercury, PCBs, SVOCs, uranium
46-004(z)	Outfall from building 46-31	Metals, mercury, PCBs, SVOCs, uranium
46-006(d)	Operational release	Metals, mercury, PCBs, SVOCs, plutonium, uranium

83.2 Control Measures

All active control measures in use at CDB-SMA-1.15 are listed in Table 83-2 and their locations are shown on the project map (Figure 83-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 83-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C00502040011	Established Vegetation	-	X	X	-	B	5-2-2013
C00503010012	Earthen Berm	-	X	-	X	B	12-4-2017
C00504060007	Riprap	X	-	X	-	CB	10-19-2009
C00504060008	Riprap	X	-	X	-	CB	10-19-2009

83.3 Inspections and Maintenance

Rain gage RG245.5 recorded six storm events at CDB-SMA-1.15 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 83-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 83-4.

Table 83-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93095[a]	6-25-2022	0.33	7-8-2022	13	Yes
BMP-94463[b]	7-26-2022 7-27-2022 7-30-2022	0.29 0.74 0.58	8-10-2022	15 14 11	Yes Yes Yes
BMP-95373[b]	8-11-2022 8-16-2022	0.54 0.5	8-22-2022	11 6	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 83-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94463 (follow up from BMP094463)	Added material to Riprap C00504060007.	8-18-2022	8 days	Maintenance was performed as soon as practicable.

83.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at CDB-SMA-1.15.

Stormwater monitoring was conducted at CDB-SMA-1.15 under the 2010 IP requirements from March 31 through November 3, 2022, resulting in a monitoring season of 228 days. Seven inspections were performed during the monitoring season and are summarized in Table 83-5. Rain gage RG245.5 recorded 35 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 83-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91751	5-2-2022	No	None	None
SMPLR-92270	6-7-2022	No	None	None
SMPLR-92764	7-6-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.08/0.33 0.1/0.21 0.07/0.28 0.08/0.17 0.12/0.63 0.33/1.54 0.14/1.15 0.08/0.15 0.16/0.4 0.23/0.38

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93869	8-22-2022	No	7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-7-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022	0.19/0.2 0.19/0.21 0.09/0.14 0.29/0.62 0.74/0.93 0.07/0.24 0.58/0.91 0.14/0.32 0.32/0.38 0.1/0.11 0.54/0.56 0.5/0.97 0.05/0.1 0.14/0.23 0.05/0.29 0.1/0.12
SMPLR-95550	9-23-2022	No	8-23-2022 9-9-2022 9-22-2022	0.3/0.3 0.11/0.17 0.14/0.24
SMPLR-96084	10-7-2022	No	10-2-2022 10-3-2022 10-4-2022	0.07/0.21 0.04/0.12 0.04/0.17
SMPLR-96295	11-7-2022	No	10-15-2022 10-16-2022 10-17-2022	0.13/0.73 0.04/0.15 0.04/0.1

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

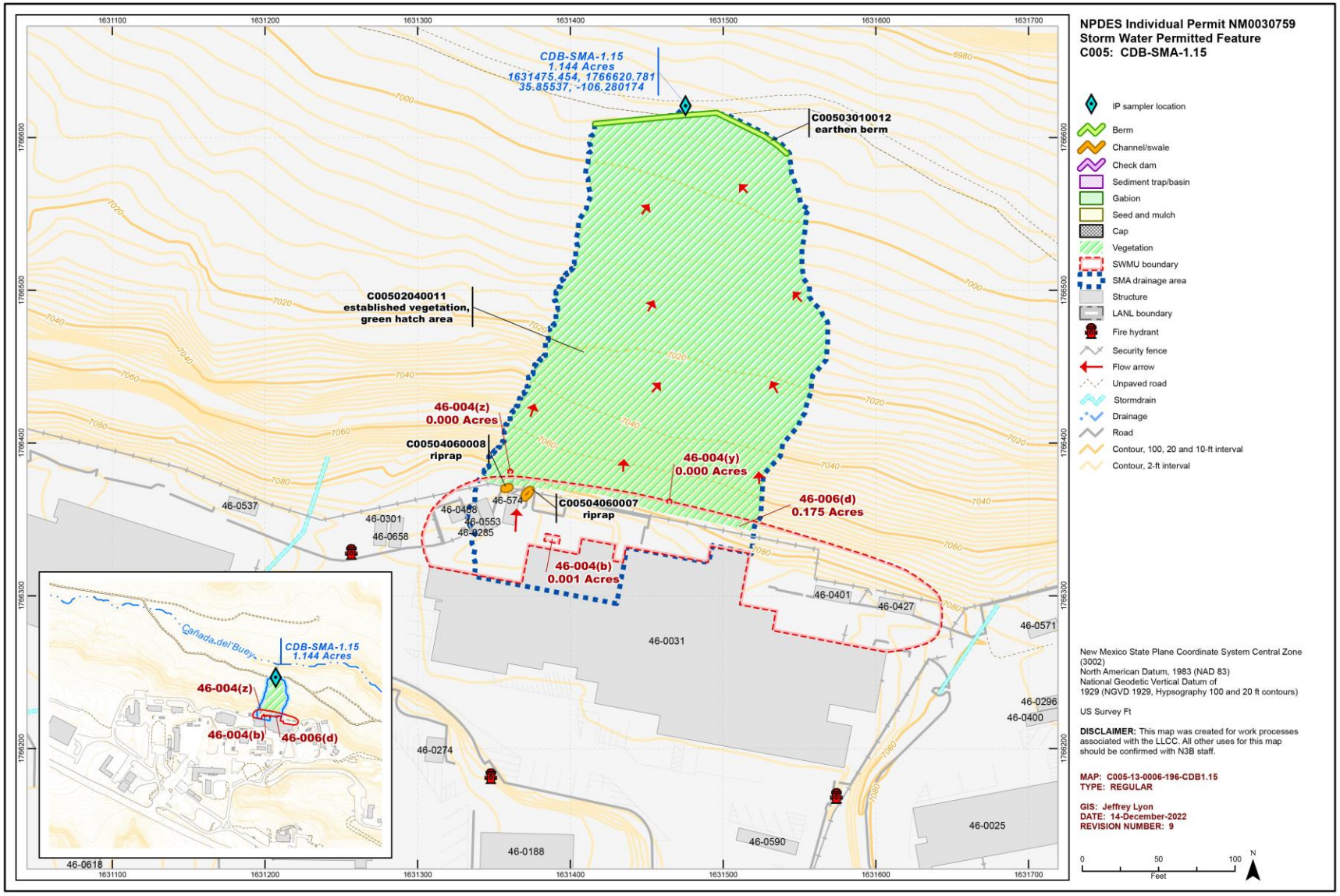


Figure 83-1 CDB-SMA-1.15 location map

84.0 CDB-SMA-4: SWMUs 54-017, 54-018, and 54-020

Three historical industrial activity areas, Sites 54-017, 54-018, and 54-020, are associated with CDB-SMA-4 (permitted feature C010). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

84.1 Site Descriptions

54-017 (7/18/2019)

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24, located in Area G at TA-54. These pits were operational between 1959 and 1980, and received LLW, MLLW, and non-retrievable TRU waste in the form of wing tanks, dry boxes, building debris, sludge drums, lab waste, contaminated soil, D&D waste, filter plenums, and uranium. The pits are located in the eastern portion of Area G, with volumes ranging from 1371 to 56,759 yd^3. When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil, and reseeded with native grasses. SWMU 54-017 is part of MDA G, which consists of the subsurface disposal units within Area G that are subject to the Consent Order.

54-018 (7/18/2019)

SWMU 54-018 consists of inactive disposal pits 25 through 33 and 35 through 37, located in Area G at TA-54. Only Pit 29 (although no longer in use) is considered a RCRA-regulated unit until RCRA closure is certified and approved by the NMED.

- Pits 25 through 28, 30 through 33, and 34 through 36 received LLW, MLLW, and TRU waste in the form of reactor control rods, D&D waste, contaminated soil, transformers, glove boxes, asbestos, and lab waste. They range in volume from 20,957 to 59,930 yd^3.
- Pit 29 operated until 1986, after which the surface was used to store retrievable TRU waste in cement-filled sections of CMP [SWMU 54-015(k)].
- Pit 37 operated from 1990 to 1997, and primarily received circuit boards and contaminated soil.

When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil, and reseeded with native grasses. SWMU 54-018 is part of MDA G, which consists of the subsurface disposal units within Area G that are subject to the Consent Order.

54-020 (7/18/2019)

SWMU 54-020 consists of 68 disposal shafts (shafts C1 through C10, C12, C13, 22, 35 through 37, 93 through 95, 99 through 108, 114, 115, 118 through 136, 138 through 140, 151 through 160, 189 through 192, and 196) located in Area G at TA-54. These shafts were operational between 1970 and the early 1990s.

Shafts 189 and 192 are described in the 1990 SWMU Report as being "triplet shafts," where three shafts are associated with one shaft number, and shaft 191 is a "doublet shaft" where two shafts are associated with one shaft number. Only Shaft 124 (although no longer in use) is considered a RCRA regulated unit until RCRA closure is certified and approved by the NMED.

The shafts contain one or a combination of the following waste types: PCB residues, LLW hazardous, and MLLW. The shafts range in size from 1 ft to 8 ft in diameter and 25 ft to 65 ft deep, and are located throughout the eastern portion of Area G. Most shafts are unlined, although a few are lined with cement or CMP. The shafts are separated by a minimum distance of 7.5 ft (the distance between doublet and triplet shafts is unknown).

The shafts have 0.5-ft-thick layers of crushed tuff between the waste layers. Disposal shafts were typically filled with waste to within 3 ft of the ground surface, backfilled with crushed tuff, and covered with a concrete dome. SWMU 54-020 is part of MDA G, which consists of the subsurface disposal units within Area G that are subject to the Consent Order.

Potential POCs and Sources Associated with the Sites

The potential POCs known to be managed or potentially used at the Sites are listed in Table 84.1-1.

Table 84.1-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
54-017	Inactive disposal pits at MDA G	Metals, asbestos, PCBs, fission products, plutonium, uranium
54-018	Inactive disposal pits at MDA G	Metals, asbestos, PCBs, fission products, plutonium, uranium
54-020	Inactive disposal shafts at MDA G	Metals, asbestos, PCBs, fission products, plutonium, uranium

84.2 Control Measures

All active control measures in use at CDB-SMA-4 are listed in Table 84-2 and their locations are shown on the project map (Figure 84-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 84-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
C01002040012	Established Vegetation	-	X	X	-	B	5-16-2013
C01004020005	Concrete/Asphalt Channel/Swale	-	X	X	-	CB	6-1-2009
C01004060007	Riprap	-	X	X	-	CB	6-1-2009
C01005010004	Sediment Trap	-	X	-	X	CB	6-1-2009
C01006010006	Rock Check Dam	-	X	-	X	CB	6-1-2009
C01006010008	Rock Check Dam	X	-	-	X	CB	5-25-2010
C01006010009	Rock Check Dam	X	-	-	X	CB	5-25-2010
C01006010010	Rock Check Dam	X	-	-	X	CB	5-25-2010
C01006010011	Rock Check Dam	X	-	-	X	CB	5-25-2010

84.3 Inspections and Maintenance

Rain gage RG-TA-54 recorded four storm events at CDB-SMA-4 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 84-3.

Table 84-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-94042[a]	7-14-2022	0.26	7-25-2022	11	Yes
BMP-94467[b]	7-26-2022 7-27-2022 7-30-2022	0.27 0.3 0.45	8-4-2022	9 8 5	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

84.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from this sample yielded TAL exceedances for copper (8.14 µg/L), gross-alpha activity (54.8 pCi/L), and PCB concentration (4 ng/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was conducted at CDB-SMA-4 under the 2010 IP requirements from March 21 through November 10, 2022, resulting in a monitoring season of 235 days. Ten inspections were performed during the monitoring season and are summarized in Table 84-4. Rain gage RG-TA-54 recorded 30 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 84-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91573	4-4-2022	No	None	None
SMPLR-91788	5-5-2022	No	None	None
SMPLR-92368	5-23-2022	No	None	None
SMPLR-92511	6-16-2022	No	None	None
SMPLR-92883	6-20-2022	No	6-17-2022 6-18-2022 6-19-2022	0.06/0.25 0.05/0.12 0.03/0.12
SMPLR-92915	6-30-2022	No	6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.08/0.16 0.09/0.66 0.16/1.23 0.13/0.82 0.06/0.12

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93560	8-11-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022 7-14-2022 7-24-2022 7-26-2022 7-27-2022 7-28-2022 7-30-2022	0.15/0.29 0.04/0.11 0.2/0.39 0.11/0.14 0.26/0.27 0.12/0.16 0.27/0.36 0.3/0.42 0.09/0.12 0.45/0.81
SMPLR-95358	9-20-2022	No	8-11-2022 8-16-2022 8-19-2022 8-20-2022 8-28-2022 9-9-2022	0.43/0.43 0.33/0.56 0.12/0.19 0.06/0.17 0.14/0.14 0.09/0.27
SMPLR-96013	10-20-2022	No	9-20-2022 9-22-2022 10-2-2022 10-4-2022 10-15-2022 10-16-2022	0.13/0.16 0.05/0.11 0.06/0.13 0.03/0.18 0.12/0.58 0.02/0.1
SMPLR-96420	11-10-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

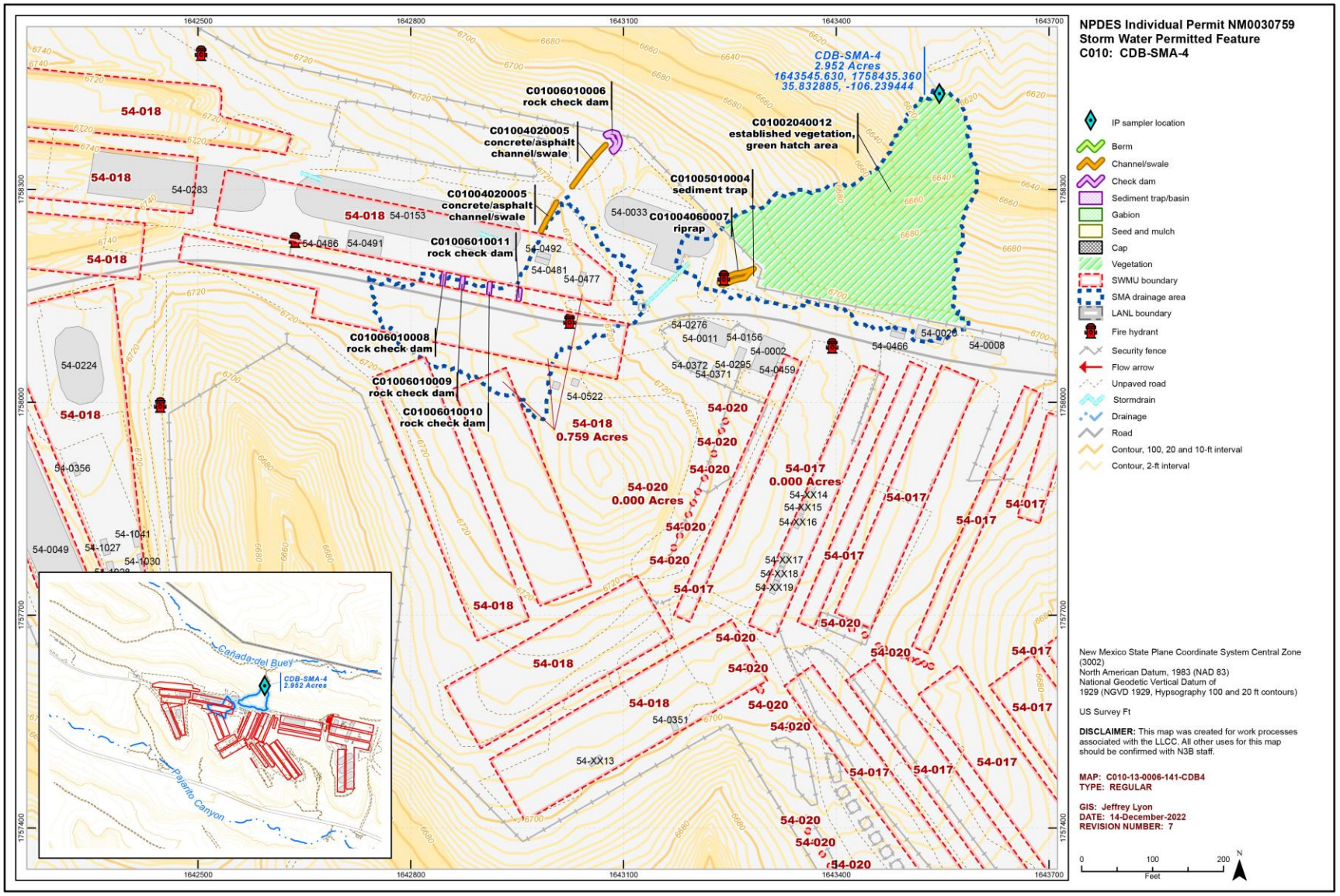


Figure 84-1 CDB-SMA-4 location map

85.0 M-SMA-1: SWMUs 03-050(a) and 03-054(e)

Two historical industrial activity areas, Sites 03-050(a) and 03-054(e), are associated with M-SMA-1 (permitted feature M001). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

85.1 Site Descriptions

03-050(a) (8/31/2017)

SWMU 03-050(a) is an area of potential soil contamination from exhaust emissions from the 24 stacks on the roof of building 03-29, the CMR facility at TA-03. The CMR facility was built in 1961 and consists of 550,000 ft^2, including an administrative wing, an office wing, six laboratory wings, and one area that includes hot cells which provide heavy shielding and remote-handling capabilities for work on highly-radioactive materials. The facility also houses analytical chemistry operations involving uranium, plutonium, iodine, mixed fission products, and tritium. HEPA, Aerosolve 95, and charcoal filters are used to remove radioactive particulates from stack effluent gas. Three wings of the CMR facility are in various stages of shutdown, including D&D.

03-054(e) (3/2/2017)

SWMU 03-054(e) is a former NPDES outfall (EPA 03A021), located in upper Mortandad Canyon, that was established to handle effluent originating from several sources at the CMR Building (03-29). These sources included CMR cooling systems, roof drains from the west wing where the towers vent filtered exhaust (air washers), and surface water runoff from the asphalt area around the building, including the dumpster areas identified as SWMUs 03-004(c and d). The outfall typically discharged a steady, low-volume flow of effluent.

The industrial discharges to the outfall ceased in 2010. Air washers were removed from Wings 5 and 7, and the remaining air washers (Wings 1, 2, 3, 4 and 9) operate in a closed-loop (no blowdown) mode. Discharges from the CMR cooling systems were rerouted from the outfall to the Laboratory's TA-46 sanitary WWTP for emergency use. The outfall was removed from the NPDES permit in 2011, and continues to receive stormwater runoff from roof drains on the CMR Building and from asphalt areas around the building.

SWMU 03-054(e) received effluent from an unintentional one-time release from an industrial waste manhole [AOC C-03-006] in 1974. The overflow resulted from a plug in the industrial waste line and was estimated to be between 500 and 1000 gal. of RLW. The overflow spilled to the surrounding paved area, traveled north along Diamond Drive, flowed into the storm sewer through a storm drain grate, and ultimately discharged into upper Mortandad Canyon through the SWMU 03-054(e) outfall. A small dam was built in the streambed at the base of the canyon to contain the effluent. Subsequent cleanup activities, based on residual radioactive contamination cleanup levels of 25 pCi/g, resulted in the removal of approximately 142 ft^3 of contaminated soil from Mortandad Canyon.

Potential POCs and Sources Associated with the Sites

The potential POCs known to be managed or potentially used at the Sites are listed in Table 85-1.

Table 85-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
03-050(a)	Potential soil contamination from stack emissions	Beryllium, mercury, fission products, iodine isotopes, plutonium, tritium, uranium
03-054(e)	Outfall	Metals, PCBs, SVOCs, radionuclides, fission products, iodine isotopes, plutonium, tritium, uranium

85.2 Control Measures

All active control measures in use at M-SMA-1 are listed in Table 85-2 and their locations are shown on the project map (Figure 85-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 85-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00102040009	Established Vegetation	-	X	X	-	B	4-4-2013
M00107010001	Gabions	X	-	-	X	CB	1-1-2000
M00107010006	Gabions	-	X	-	X	CB	1-1-2009
M00107010008	Gabions	-	X	-	X	EC	10-10-2012

85.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at M-SMA-1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 85-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 85-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93148[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-8-2022	13 12 6	Yes Yes Yes
BMP-94654[b]	7-27-2022 7-31-2022	1.24 0.32	8-4-2022	8 4	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

85.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on August 19 and September 7, 2011. Analytical results from these samples yielded TAL exceedances for gross-alpha activity (18.1 pCi/L) and PCB concentration (28 ng/L). Complete analytical results from those samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at M-SMA-1, corrective-action stormwater samples were collected on June 14, 2013, and July 2, 2013. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for copper (9.66 µg/L and 31.2 µg/L), gross-alpha activity (32.5 pCi/L), PCB concentrations (10 ng/L and 11 ng/L), and zinc (53.4 µg/L and 264 µg/L. Complete analytical results from those samples are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at M-SMA-1 in 2022 under the 2010 IP requirements.

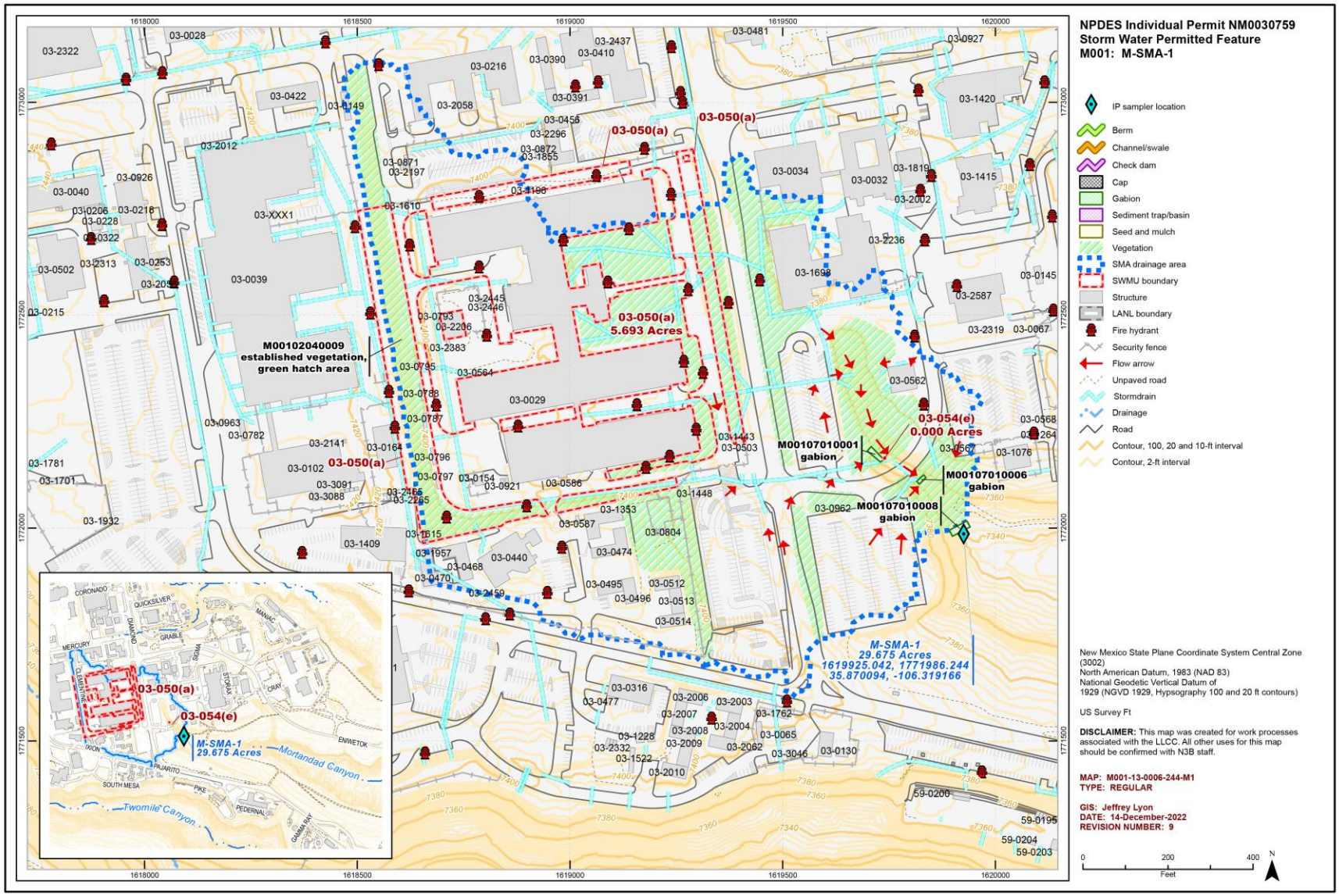


Figure 85-1 M-SMA-1 location map

86.0 M-SMA-1.2: SWMU 03-049(a)

One historical industrial activity area, Site 03-049(a), is associated with M-SMA-1.2 (permitted feature M002). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

86.1 Site Description

03-049(a) (11/23/2020)

SWMU 03-049(a) is an active NPDES-permitted outfall (03A022) located south of the Sigma Building (03-66) at TA-03. The outfall formerly discharged treated cooling water from a former cooling tower (former structure 03-127), which served the Sigma Building, and continues to discharge runoff from six roof drains on the Sigma Building.

The cooling tower operated from 1960 to 1999. From 1984 to 1990, the outfall also received discharge from rinse tanks associated with the former electroplating operation in the Sigma Building. The tanks contained the final rinse from electroplating and surface-finishing experimental components. Although the rinse tanks were flushed continually with tap water to reduce contaminant buildup, trace amounts of metals, acids, cyanide, and DU were introduced into the rinse water.

The NPDES permit allowed discharge of 4680 gpd of treated cooling water and 24,000 gpd of electroplating rinse water. The outfall predated the CWA and NPDES and was likely permitted in the mid-1970s; permit monitoring requirements are not available. Discharges of treated cooling water to the outfall ceased by 1999. The outfall in Upper Mortandad Canyon continues to receive stormwater discharges from the roof drains on the southern portion of building 03-66.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 86-1.

Table 86-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-049(a)	NPDES-permitted outfall from cooling tower	Metals, hexavalent chromium, cyanide, DU

86.2 Control Measures

All active control measures in use at M-SMA-1.2 are listed in Table 86-2 and their locations are shown on the project map (Figure 86-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 86-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00202040009	Established Vegetation	-	X	X	-	B	4-4-2013
M00203060012	Straw Wattle	X	-	-	X	B	9-18-2014
M00203140011	Coir Log	-	X	-	X	EC	9-18-2014
M00204060008	Riprap	X	-	X	-	CB	8-17-2010
M00205020010	Sediment Basin	-	X	-	X	EC	9-18-2014
M00206010003	Rock Check Dam	-	X	-	X	CB	6-23-2010
M00206010004	Rock Check Dam	-	X	-	X	CB	6-23-2010

86.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at M-SMA-1.2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 86-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 86-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93149[a,b]	6-25-2022	0.49	7-8-2022	13	Yes
	6-26-2022	0.32		12	Yes
	7-2-2022	0.32		6	Yes
BMP-94655[b]	7-27-2022	1.24	8-4-2022	8	Yes
	7-31-2022	0.32		4	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

86.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded TAL exceedances for arsenic (10.6 µg/L) and copper (38.4 µg/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following certification of enhanced control measure installation, a corrective action confirmation monitoring stormwater sample was collected on September 29, 2017 (Figure 95-2). Analytical results from this sample yielded a TAL exceedance for copper (55 µg/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2017, NPDES Permit No. NM0030759" (LANL 2018, 602910).

Stormwater monitoring was not conducted at M-SMA-1.2 in 2022 under the 2010 IP requirements.

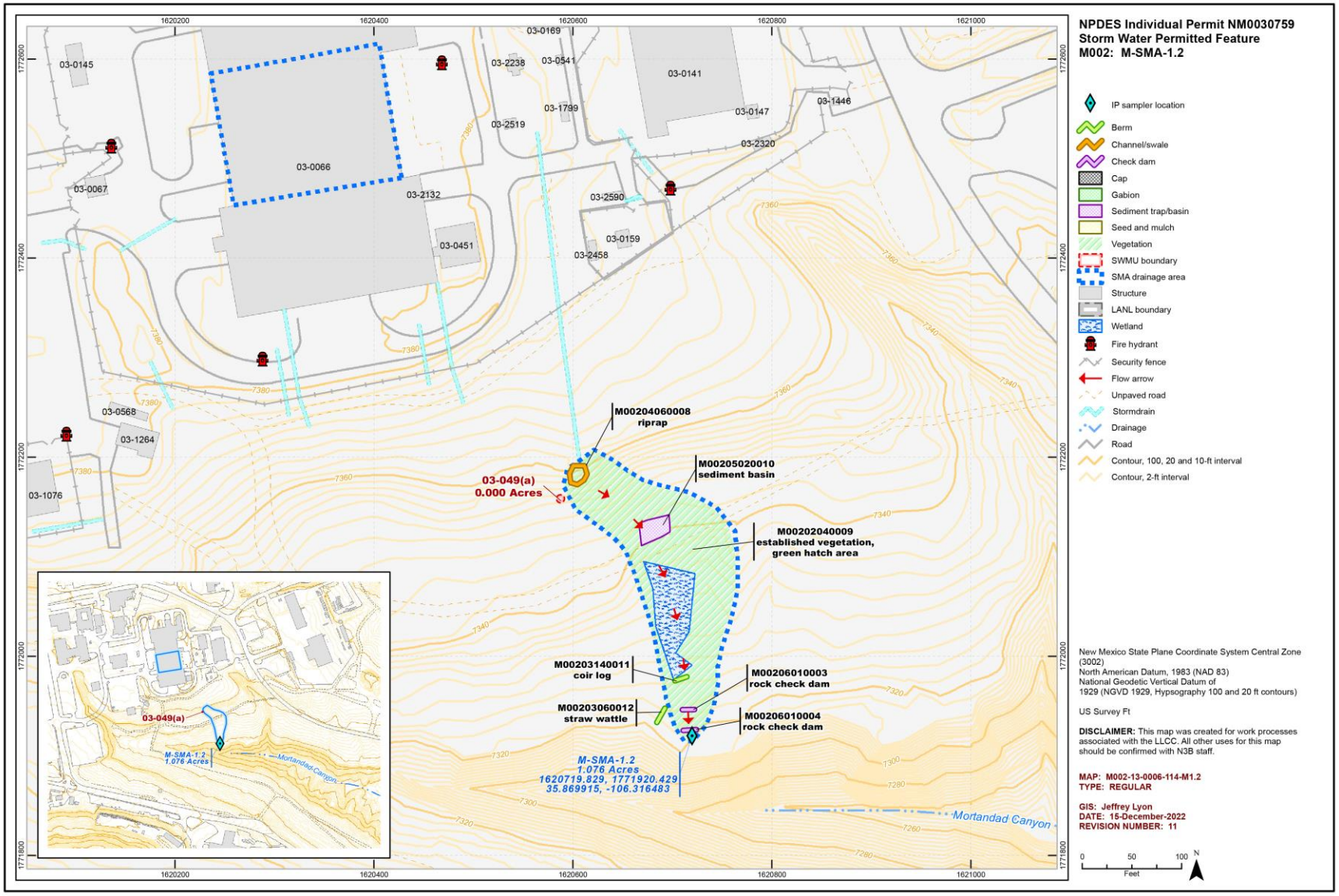


Figure 86-1 M-SMA-1.2 location map

87.0 M-SMA-1.21: SWMU 03-049(e)

One historical industrial activity area, Site 03-049(e), is associated with M-SMA-1.21 (permitted feature M002A). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

87.1 Site Descriptions

03-049(e) (11/23/2020)

SWMU 03-049(e) is an outfall for roof drains on the Sigma Building (building 03-66) in the southeast corner of TA-03. SWMU 03-049(e) is identified in the 1990 SWMU report as an area of potential soil contamination south of the Sigma Building (building 03-66) from an outfall pipe of unknown origin. The 1990 SWMU report also states that the outfall discharged to Mortandad Canyon. Subsequent investigation at the Sigma Building determined that three of the building roof drains connect to a single drainline that discharges to the SWMU 03-049(e) outfall southeast of the building.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 87-1.

Table 87-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-049(e)	Former outfall	Metals

87.2 Control Measures

All active control measures in use at M-SMA-1.21 are listed in Table 87-2 and their locations are shown on the project map (Figure 87-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 87-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M002A02040007	Established Vegetation	-	X	X	-	B	4-4-2013
M002A03010006	Earthen Berm	-	X	-	X	B	8-5-2011
M002A03020002	Base Course Berm	X	-	-	X	CB	6-23-2010
M002A03120005	Rock Berm	-	X	-	X	CB	6-23-2010
M002A04060003	Riprap	-	X	X	-	CB	6-23-2010
M002A06010004	Rock Check Dam	-	X	-	X	CB	6-23-2010

87.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at M-SMA-1.21 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 87-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 87-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93157[a,b]	6-25-2022	0.49	7-8-2022	13	Yes
	6-26-2022	0.32		12	Yes
	7-2-2022	0.32		6	Yes
BMP-94663[b]	7-27-2022	1.24	8-4-2022	8	Yes
	7-31-2022	0.32		4	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

87.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on October 24, 2018. Analytical results from this sample yielded a TAL exceedance for copper (4.39 µg/L). Complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was not conducted at M-SMA-1.21 in 2022 under the 2010 IP requirements.

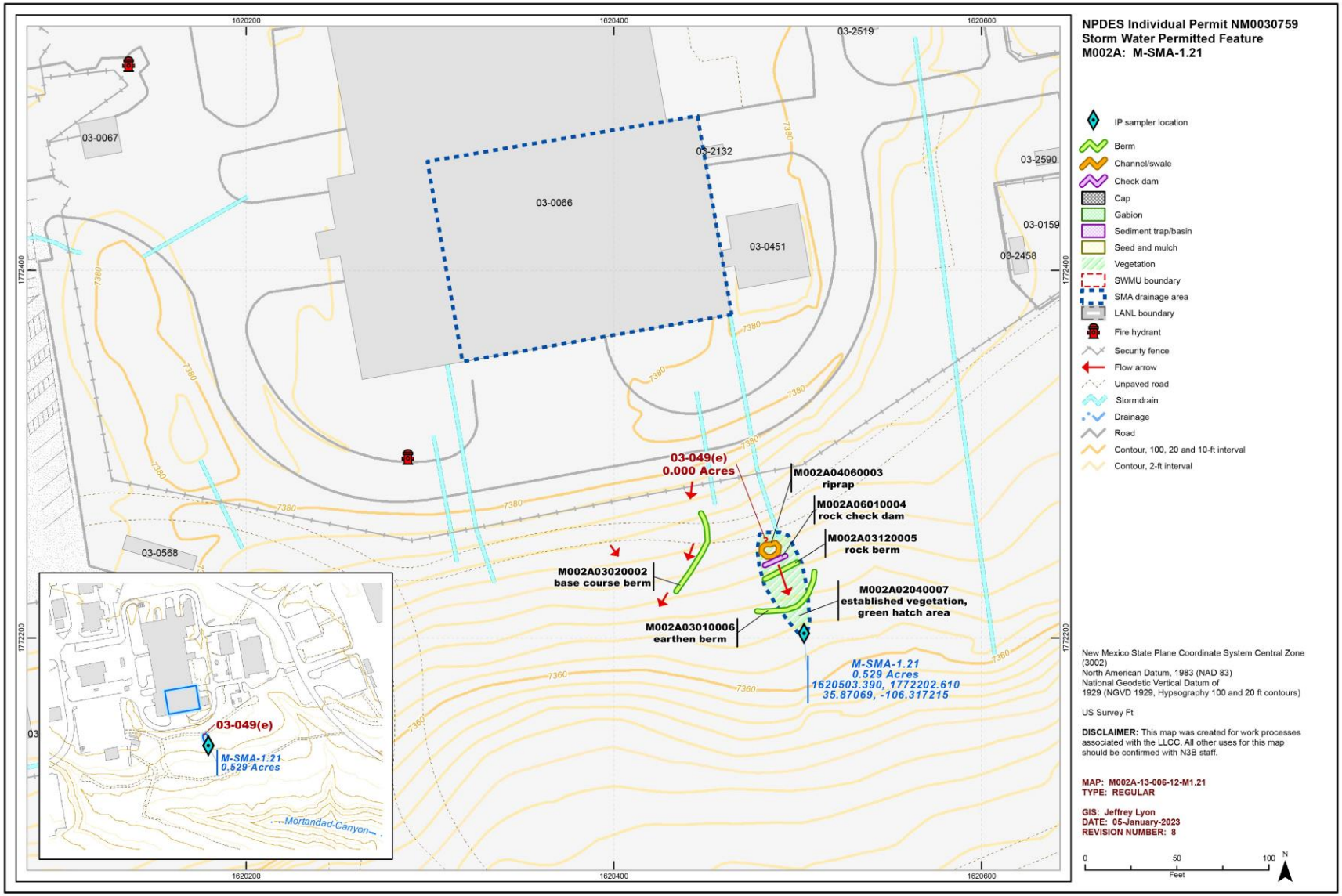


Figure 87-1 M-SMA-1.21 location map

88.0 M-SMA-1.22: SWMU 03-045(h)

One historical industrial activity area, Site 03-045(h), is associated with M-SMA-1.22 (permitted feature M002B). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

88.1 Site Descriptions

03-045(h) (11/23/2020)

SWMU 03-045(h) is a former NPDES-permitted outfall (EPA 03A024) located at the north perimeter of the Sigma Complex security fence, approximately 50 ft north of a cooling tower (structure 03-187) at TA-03. The outfall was formerly permitted for the discharge of treated cooling water and stormwater. Routine treatment of cooling water began in 1968, and included biocides and fungicides to reduce algae growth, and chelating agents, such as ethylenediaminetetraacetic acid, to inhibit corrosion.

The SWMU 03-045(h) outfall served the former cooling tower from 1953 until the late 1980s, when the cooling tower became inactive. The cooling tower remained inactive until early 1995, when it was reactivated. In 1997, the cooling tower was removed and the outlet drainline from the former cooling tower was plugged. The outfall was removed from the LANL NPDES permit in 2007 since discharges from the cooling tower had ceased.

The area directly downgradient of the outfall measures approximately 3 ft wide × 6 ft long. Effluent drained into a CMP that trends northeast and east of former structure 03-187, where it combined with stormwater runoff from surrounding areas. The drainage channel continues south, joins a storm drainage channel north of Eniwetok Drive, and ultimately discharges into Sandia Canyon. The drainage channel still receives stormwater runoff. The potential soil contamination, resulting from the northward flow of the discharges from the cooling tower outlet drainline into Sandia Canyon, was part of the Upper Sandia Canyon Aggregate Area investigation.

In addition, it is possible that the buried CMP storm drainline into which the cooling tower outlet drainline discharged could not handle the large flow of stormwater from sporadic and heavy storm events. Should this type of event have occurred, the overflow would have drained due south of former structure 03-187 across asphalt pavement to a drainage located southwest of building 03-66. This drainage discharges into upper Mortandad Canyon and was investigated as part of the Upper Mortandad Canyon Aggregate Area investigation.

Potential POCs and Sources Associated with the Site

The POCs known to be managed or potentially used at the Site are listed in Table 88-1.

Table 88-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-045(h)	Outfall	Naturally occurring metals concentrated by evaporation

88.2 Control Measures

All active control measures in use at M-SMA-1.22 are listed in Table 88-2. Their locations are shown on the project map (Figure 88-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 88-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M002B02040014	Established Vegetation	-	X	X	-	B	4-4-2013
M002B03010010	Earthen Berm	-	X	-	X	EC	3-1-2013
M002B03010011	Earthen Berm	-	X	-	X	EC	3-1-2013
M002B03010012	Earthen Berm	-	X	-	X	EC	3-1-2013
M002B04050002	Water Bar	X	-	X	-	CB	6-22-2010
M002B05030013	Sand Filter	-	X	-	X	EC	3-1-2013
M002B06010008	Rock Check Dam	-	X	-	X	CB	11-18-2010
M002B06010009	Rock Check Dam	-	X	-	X	CB	11-18-2010

88.3 Inspections and Maintenance

RG121.9 recorded five storm events at M-SMA-1.22 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 88-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 88-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93158[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-8-2022	13 12 6	Yes Yes Yes
BMP-94664[b]	7-27-2022 7-31-2022	1.24 0.32	8-4-2022	8 4	Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

88.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 15, 2011. Analytical results from this sample yielded TAL exceedances for aluminum (904 µg/L) and copper (6 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at M-SMA-1.22, corrective action stormwater samples were collected on September 12, 2013, and July 29, 2014. Analytical results from these corrective action monitoring samples yielded a TAL exceedance for copper (5.96 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067) and "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Stormwater monitoring was not conducted at M-SMA-1.22 in 2022 under the 2010 IP requirements.

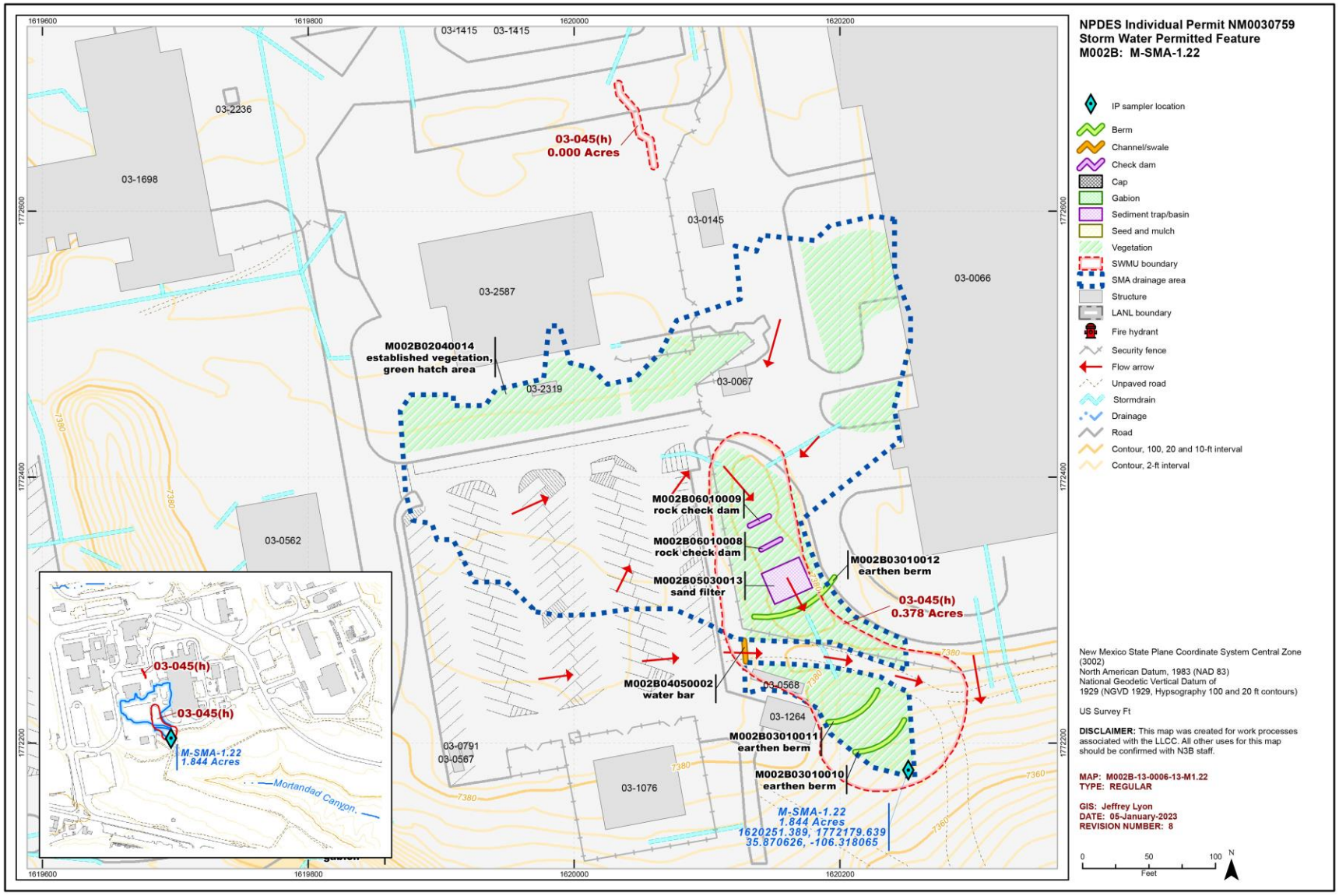


Figure 88-1 M-SMA-1.22 location map

89.0 M-SMA-3: SWMUs 48-005 and 48-007(c) and AOC 48-001

Three historical industrial activity areas, Sites 48-001, 48-005, and 48-007(c), are associated with M-SMA-3 (permitted feature M003). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

89.1 Site Descriptions

48-001 (11/23/2020)

AOC 48-001 consists of the air-exhaust system at the main radiochemistry laboratory in building 48-1, and surface soil potentially impacted by the deposition from historical stack emissions at TA-48. The radiochemistry laboratory in building 48-1 was constructed in 1957 to analyze samples collected from nuclear weapons tests. Additional radiochemical analyses were conducted in building 48-1 to support a variety of Laboratory programs.

The building 48-1 exhaust system consists of nine stacks:

- three stacks emitted unfiltered exhaust from chemical hoods,
- three stacks are associated with combustion boilers,
- one stack emits exhaust from individually filtered gloveboxes,
- one stack emitted exhaust-filtered air from former hot cell laboratories, and
- one stack exhausts air from welding and degreasing booths.

Of these stacks, only five are related to radiochemical laboratory activities in building 48-1. The stacks associated with the combustion boilers and the welding and degreasing booths are not part of AOC 48-001 as they are facility-related (i.e., they supply heat to the occupants and building infrastructure) or are related to operations other than radiochemistry (i.e., welding and degreasing). Emissions from the chemical hoods were not filtered because the chemicals used in the hoods (e.g., perchloric acid) would degrade the filters. However, these hoods were equipped with wet scrubbers.

The glovebox stack (stack FE54) was permitted and monitored under the NESHAP Program of the Clean Air Act. According to the RFI work plan, historical monitoring data are available for stack FE54 beginning in 1967 for plutonium, and beginning in 1974 for uranium and fission products. These data indicate releases of plutonium, uranium, and fission products, principally cesium-137, cerium-144, and strontium-90.

48-005 (no date)

SWMU 48-005 consists of inactive RLW lines and an associated outfall at TA-48. From 1957 to 1965, these waste lines were part of the system used to convey RLW from TA-48 to the treatment plant at TA-45 (Consolidated Unit 45-001-00). Beginning in 1963, new waste lines were installed to carry wastes to the new treatment facilities at TA-50. By 1967, the waste lines leading to TA-45 were considered to have been decommissioned. Some of the waste lines were removed in two campaigns conducted in 1981 and 1984.

SWMU 48-005 contains the remaining portions of waste lines, which are all inside the TA-48 security fence. The remaining waste lines are all 3-in.-diameter CI pipe, and consist of a 200-ft section of line 34 running westward from building 48-1, a 300-ft section of line 36 that runs southward from the north wing of building 48-1 to line 36, and a 50-ft section of line 38 that runs southward from building 48-1. These lines are located at depths of 10 to 11 ft and were not removed because they are beneath structures, roadways, or utilities.

The remaining sections of lines 34 and 36 were surveyed during the line removal activities. Line 34 was found to have low levels of alpha activity, and line 36 had no detectable activity. The remaining portion of line 38 was not surveyed.

SWMU 48-005 also includes an outfall, on the edge of Mortandad Canyon north of building 48-1 that was the discharge point of line 37. Line 37 was connected to sumps in the north basement of building 48-1 and was completely removed in 1981.

48-007(c) (11/23/2020)

SWMU 48-007(c) is an outfall that previously received discharges from nine floor drains, a trench drain, and six roof drains at building 48-1 in TA-48. This outfall is located north of building 48-1 and discharges into Mortandad Canyon. Former sources of discharge to the floor drains included floor washings, backflow preventers, drainage and condensate from a vacuum pump, steam condensate, a boiler drain, a fire drain, and a water heater pressure relief valve. This outfall previously operated as an NPDES-permitted outfall (EPA 04A131), but was removed from the NPDES permit on January 14, 1998, because industrial wastewater discharges were discontinued. Currently, this outfall receives only stormwater.

Potential POCs and Sources Associated with the Sites

The POCs known to be managed or potentially used at the Sites are listed in Table 89-1.

Table 89-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
48-001	Operational release	Fission products, americium-241, cerium-144, cesium-137, plutonium, uranium, strontium-90
48-005	Inactive RLW lines	Heavy metals, organic chemicals, radionuclides
48-007(c)	Floor drain outfall	Naturally occurring metals concentrated by evaporation, radionuclides

89.2 Control Measures

All active control measures in use at M-SMA-3 are listed in Table 89-2. Their locations are shown on the project map (Figure 89-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 89-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00304050005	Water Bar	X	-	X	-	CB	6-22-2010
M00304060001	Riprap	-	X	X	-	CB	5-17-2004
M00304060008	Riprap	X	-	X	-	CB	10-19-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00304060014	Riprap	-	X	X	-	B	11-4-2014
M00304060018	Riprap	-	X	-	X	EC	9-15-2015
M00304080017	TRM-Lined Swale	-	X	-	X	EC	9-15-2015
M00305020015	Sediment Basin	-	X	-	X	EC	9-15-2015
M00305060016	Infiltration Basin	-	X	-	X	EC	9-15-2015
M00306010022	Rock Check Dam	X	-	X	X	B	9-1-2022
M00306010019	Rock Check Dam	X	-	X	X	B	9-1-2022
M00306010020	Rock Check Dam	X	-	X	X	B	9-1-2022
M00306010021	Rock Check Dam	X	-	X	X	B	9-1-2022

89.3 Inspections and Maintenance

RG-TA-06 recorded seven storm events at M-SMA-3 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 89-3. All other control-measure inspections conducted at the SMA are summarized in Table 89-4, and maintenance activities conducted at the SMA are summarized in Table 89-5.

Table 89-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93160[a,b]	6-25-2022 6-26-2022	0.48 0.3	7-1-2022	6 5	Yes Yes
BMP-93755	7-4-2022	0.26	7-14-2022	10	Yes
BMP-94267[b]	7-20-2022 7-27-2022 7-30-2022 7-31-2022	0.3 1.77 0.45 0.45	8-1-2022	12 5 2 1	Yes Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 89-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance inspection for M-SMA-3. CAM5 Sample 1 collected 7/27/22. Total Aluminum (2.8x), Total PCBs (1.1x).	COMP-96394	12-6-2022	No action recommended.

Table 89-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95212 (follow up from BMP-94267)	Added material to Water Bar M00304050005. Installed Rock Check Dams M00306010019 - M00306010022 to address area of erosion forming southwest of Riprap M00304060014.	9-1-2022	31 days	Maintenance was delayed. Maintenance originally targeted for August 17, 2022 but was rescheduled for September 1, 2022 because of delays in delivery of materials from vendor.

89.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 12, 2013. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (25.4 pCi/L) and PCB concentration (18 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was conducted at M-SMA-3 under the 2010 IP requirements from March 25 through November 4, 2022, resulting in a monitoring season of 225 days. 10 inspections were performed during the monitoring period and are summarized in Table 89-6. Rain gage RG-TA-06 recorded 35 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A corrective-action confirmation-monitoring sample was collected on July 27, 2022. Analytical results from this sample yielded a TAL exceedance PCB concentration (15.2 ng/L) and are presented in Appendix B of the Overview. Additional samples collected on July 30 and July 31, 2022 had insufficient volume for analysis under 2010 IP requirements. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 89-6 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91676	4-6-2022	No	None	None
SMPLR-91903	4-26-2022	No	None	None
SMPLR-92199	6-15-2022	No	None[c]	None
SMPLR-92873	7-1-2022	No	6-17-2022[c] 6-18-2022[c] 6-19-2022[c] 6-21-2022[c] 6-22-2022[c] 6-25-2022[c] 6-26-2022[c]	0.07/0.32 0.06/0.17 0.05/0.17 0.06/0.14 0.1/0.6 0.48/1.34 0.3/1.87

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93623	7-28-2022	Yes	7-1-2022 7-2-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022	0.16/0.64 0.06/0.15 0.26/0.39 0.13/0.17 0.3/0.4 0.12/0.21 0.09/0.12 0.09/0.27 1.77/1.86
SMPLR-94805	8-1-2022	No	7-29-2022 7-30-2022 7-31-2022	0.09/0.18 0.45/0.75 0.45/0.99
SMPLR-95166	8-26-2022	No	8-1-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022	0.1/0.14 0.23/0.66 0.15/0.19 0.07/0.21 0.03/0.16 0.09/0.22 0.06/0.11
SMPLR-95680	9-23-2022	No	9-9-2022 9-20-2022 9-22-2022	0.12/0.15 0.07/0.11 0.19/0.21
SMPLR-96093	10-20-2022	No	10-2-2022 10-3-2022 10-4-2022 10-7-2022 10-15-2022 10-16-2022	0.09/0.31 0.16/0.2 0.02/0.12 0.06/0.1 0.17/0.86 0.04/0.18
SMPLR-96436	11-4-2022	No	None	None

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

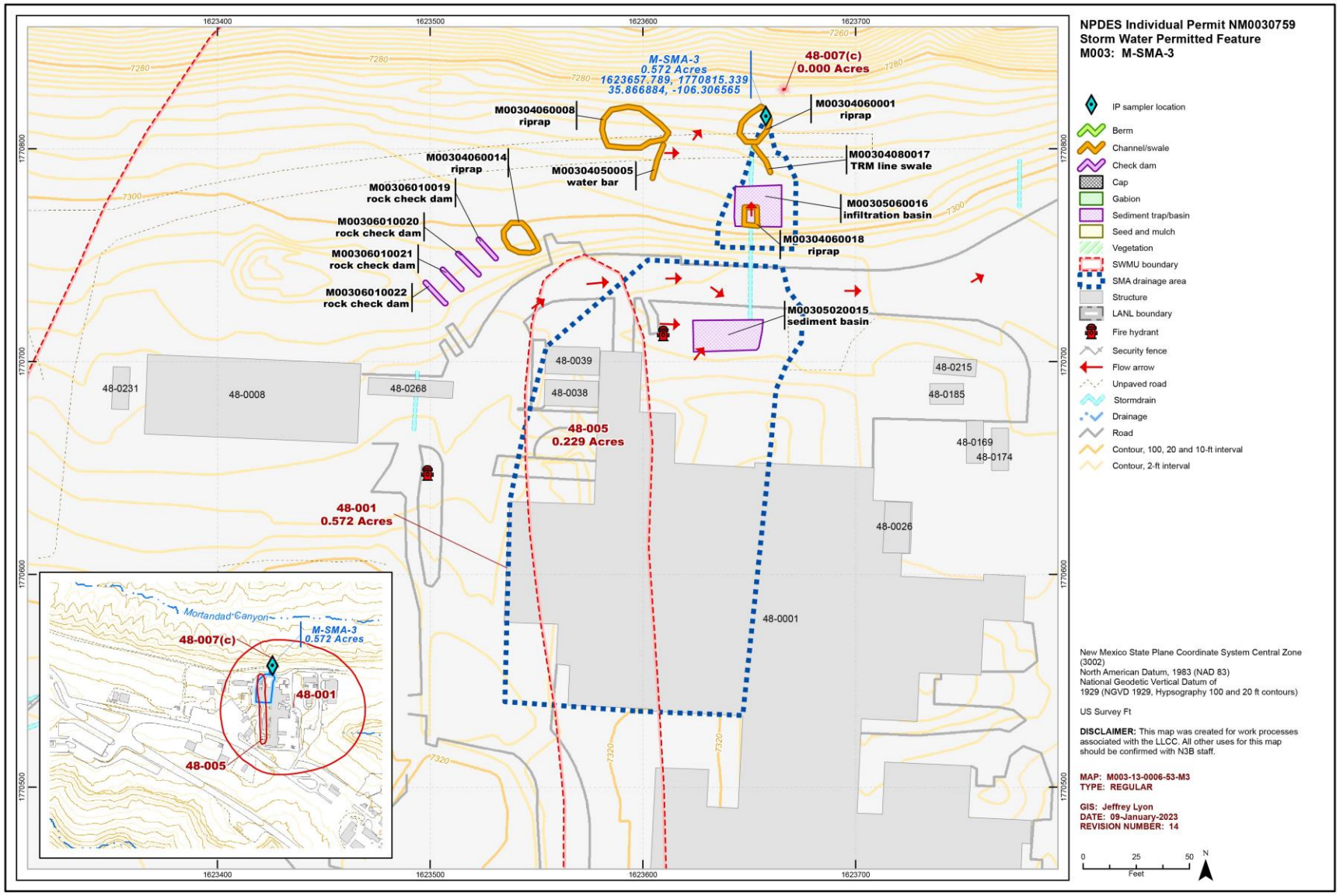


Figure 89-1 M-SMA-3 location map

90.0 M-SMA-3.1: SWMU 48-007(b) and AOC 48-001

Two historical industrial activity areas, Sites 48-001 and 48-007(b), are associated with M-SMA-3.1 (permitted feature M004). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

90.1 Site Descriptions

48-001 (11/23/2020)

AOC 48-001 consists of the air-exhaust system at the main radiochemistry laboratory in building 48-1, and surface soil potentially impacted by the deposition from historical stack emissions at TA-48. The radiochemistry laboratory in building 48-1 was constructed in 1957 to analyze samples collected from nuclear weapons tests. Additional radiochemical analyses were conducted in building 48-1 to support a variety of Laboratory programs.

The building 48-1 exhaust system consists of nine stacks:

- three stacks emitted unfiltered exhaust from chemical hoods,
- three stacks are associated with combustion boilers,
- one stack emits exhaust from individually filtered gloveboxes,
- one stack emitted exhaust-filtered air from former hot cell laboratories, and
- one stack exhausts air from welding and degreasing booths.

Of these stacks, only five are related to radiochemical laboratory activities in building 48-1. The stacks associated with the combustion boilers and the welding and degreasing booths are not part of AOC 48-001 as they are facility-related (i.e., they supply heat to the occupants and building infrastructure) or are related to operations other than radiochemistry (i.e., welding and degreasing). Emissions from the chemical hoods were not filtered because the chemicals used in the hoods (e.g., perchloric acid) would degrade the filters. However, these hoods were equipped with wet scrubbers.

The glovebox stack (stack FE54) was permitted and monitored under the NESHAP Program of the Clean Air Act. According to the RFI work plan, historical monitoring data are available for stack FE54 beginning in 1967 for plutonium, and beginning in 1974 for uranium and fission products. These data indicate releases of plutonium, uranium, and fission products, principally cesium-137, cerium-144, and strontium-90.

48-007(b) (11/23/2020)

SWMU 48-007(b) is an outfall that formerly discharged noncontact cooling water used to cool a magnet and laser that were housed in the main radiochemistry laboratory in building 48-1 at TA-48. This outfall is located north of building 48-1, and previously discharged up to 4300 gpd of cooling water. Water discharged from the outfall flows into Mortandad Canyon. The outfall previously operated as a NPDES-permitted outfall (EPA 04A016) but was removed from the NPDES permit on September 19, 1997, because industrial wastewater discharges were discontinued. Presently, the outfall receives only stormwater.

Potential POCs and Sources Associated with the Sites

The POCs known to be managed or potentially used at the Sites are listed in Table 90-1.

Table 90-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
48-001	Operational release	Fission products, americium-241, cerium-144, cesium-137, plutonium, strontium-90, uranium
48-007(b)	Outfall from building 48-1	Naturally occurring metals concentrated by evaporation, radionuclides

90.2 Control Measures

All active control measures in use at M-SMA-3.1 are listed in Table 90-2. Their locations are shown on the project map (Figure 90-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 90-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00402040007	Established Vegetation	-	X	X	-	B	4-29-2013
M00403040006	Asphalt Berm	X	-	-	X	CB	8-18-2010
M00403100008	Gravel Bags	X	-	-	X	B	7-5-2017
M00404060005	Riprap	-	X	X	-	CB	6-22-2010

90.3 Inspections and Maintenance

RG-TA-06 recorded seven storm events at M-SMA-3.1 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 90-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 90-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93161[a,b]	6-25-2022 6-26-2022	0.48 0.3	7-1-2022	6 5	Yes Yes
BMP-93756	7-4-2022	0.26	7-14-2022	10	Yes
BMP-94268[b]	7-20-2022 7-27-2022 7-30-2022 7-31-2022	0.3 1.77 0.45 0.45	8-1-2022	12 5 2 1	Yes Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

90.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at M-SMA-3.1. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at M-SMA-3.1 under the 2010 IP requirements from March 18 through October 27, 2022, resulting in a monitoring season of 224 days. 8 inspections were performed during the monitoring period and are summarized in Table 90-4. Rain gage RG-TA-06 recorded 35 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022.

Table 90-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91562	4-6-2022	No	None	None
SMPLR-91901	4-26-2022	No	None[c]	None
SMPLR-92196	6-13-2022	No	None	None
SMPLR-92820	7-1-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.07/0.32 0.06/0.17 0.05/0.17 0.06/0.14 0.1/0.6 0.48/1.34 0.3/1.87
SMPLR-93603	8-15-2022	No	7-1-2022 7-2-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.16/0.64 0.06/0.15 0.26/0.39 0.13/0.17 0.3/0.4 0.12/0.21 0.09/0.12 0.09/0.27 1.77/1.86 0.45/0.75 0.45/0.99
SMPLR-95446	9-9-2022	No	8-1-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022	0.1/0.14 0.23/0.66 0.15/0.19 0.07/0.21 0.03/0.16 0.09/0.22 0.06/0.11
SMPLR-95848	9-29-2022	No	9-9-2022 9-20-2022 9-22-2022	0.12/0.15 0.07/0.11 0.19/0.21

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-96179	10-27-2022	No	10-2-2022 10-3-2022 10-4-2022 10-7-2022 10-15-2022 10-16-2022	0.09/0.31 0.16/0.2 0.02/0.12 0.06/0.1 0.17/0.86 0.04/0.18

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

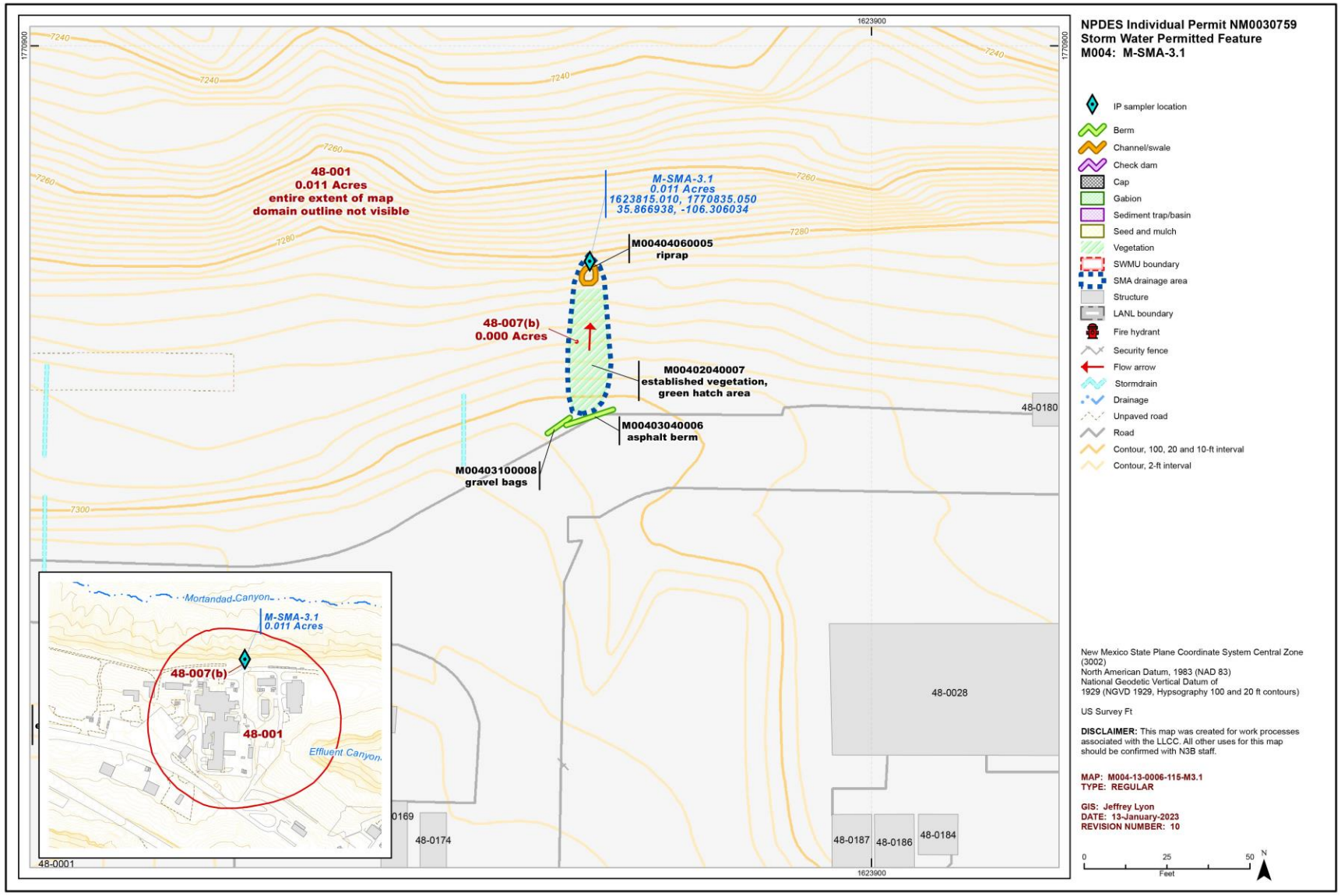


Figure 90-1 M-SMA-3.1 location map

91.0 M-SMA-3.5: SWMU 48-003 and AOC 48-001

Two historical industrial activity areas, Sites 48-001 and 48-003, are associated with M-SMA-3.5 (permitted feature M005). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

91.1 Site Descriptions

48-001 (11/23/2020)

AOC 48-001 consists of the air-exhaust system at the main radiochemistry laboratory in building 48-1, and surface soil potentially impacted by the deposition from historical stack emissions at TA-48. The radiochemistry laboratory in building 48-1 was constructed in 1957 to analyze samples collected from nuclear weapons tests. Additional radiochemical analyses were conducted in building 48-1 to support a variety of Laboratory programs.

The building 48-1 exhaust system consists of nine stacks:

- three stacks emitted unfiltered exhaust from chemical hoods,
- three stacks are associated with combustion boilers,
- one stack emits exhaust from individually filtered gloveboxes,
- one stack emitted exhaust-filtered air from former hot cell laboratories, and
- one stack exhausts air from welding and degreasing booths.

Of these stacks, only five are related to radiochemical laboratory activities in building 48-1. The stacks associated with the combustion boilers and the welding and degreasing booths are not part of AOC 48-001 as they are facility-related (i.e., they supply heat to the occupants and building infrastructure) or are related to operations other than radiochemistry (i.e., welding and degreasing). Emissions from the chemical hoods were not filtered because the chemicals used in the hoods (e.g., perchloric acid) would degrade the filters. However, these hoods were equipped with wet scrubbers.

The glovebox stack (stack FE54) was permitted and monitored under the NESHAP Program of the Clean Air Act. According to the RFI work plan, historical monitoring data are available for stack FE54 beginning in 1967 for plutonium, and beginning in 1974 for uranium and fission products. These data indicate releases of plutonium, uranium, and fission products, principally cesium-137, cerium-144, and strontium-90.

48-003 (11/23/2020)

SWMU 48-003 consists of a former septic system that served building 48-1, at TA-48, from 1957 to 1986. This septic system consisted of a septic tank (structure 48-5), a dosing chamber, a filter bed (structure 48-6), and an outfall that discharged into Mortandad Canyon. The septic tank and dosing chamber were 21 ft 7 in. long, and the filter bed measured 81 ft 2 in. long × 40 ft 7 in. wide. The septic system operated until 1986, at which time the septic tank and filter bed were decommissioned and removed and the drainlines were abandoned in place. A laboratory and diagnostics facility (building 48-45) was constructed over the site of the septic tank and filter bed.

After the septic system was decommissioned, sanitary wastewater previously handled by the septic system was discharged to the sanitary lagoons at TA-35 and later to the SWSC plant, located at TA-46. Although this septic system primarily received sanitary wastewater from building 48-1, the system potentially received hazardous and radioactive materials through accidental discharges.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 91-1.

Table 91-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
48-001	Operational release	Fission products, americium-241, cerium-144, cesium-137, plutonium, strontium-90, uranium
48-003	Former septic system	Metals, organic chemicals, radionuclides

91.2 Control Measures

All active control measures in use at M-SMA-3.5 are listed in Table 91-2. Their locations are shown on the project map (Figure 91-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 91-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00502040018	Established Vegetation	-	X	X	-	B	4-29-2013
M00503010015	Earthen Berm	-	X	-	X	CB	5-6-2011
M00503010016	Earthen Berm	-	X	-	X	CB	5-6-2011
M00503120009	Rock Berm	-	X	-	X	CB	6-22-2010
M00503120010	Rock Berm	-	X	-	X	CB	6-22-2010
M00503120013	Rock Berm	X	-	-	X	CB	3-8-2011
M00503120014	Rock Berm	X	-	-	X	CB	3-8-2011
M00504060011	Riprap	X	-	X	-	CB	3-8-2011
M00504060012	Riprap	X	-	X	-	CB	3-8-2011
M00504060019	Riprap	-	X	X	-	B	10-30-2014
M00506010004	Rock Check Dam	X	-	-	X	CB	6-22-2010
M00506010005	Rock Check Dam	X	-	-	X	CB	6-22-2010
M00506010020	Rock Check Dam	-	X	X	X	B	8-19-2022
M00506010021	Rock Check Dam	-	X	X	X	B	8-19-2022

91.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-3.5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 91-3. All other control-measure inspections conducted at the SMA are summarized in Table 91-4.

At the beginning of 2022, SWPP team members continued conducting weekly inspections to assess potential impacts to Triad-managed construction activities that were planned in the area. No construction activities were observed during 2022, but team members proactively continued to inspect the SMA through October 28, 2022. Maintenance activities conducted at the SMA are summarized in Table 91-5.

Table 91-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93162[a,b]	6-25-2022	0.31	7-1-2022	6	Yes
	6-27-2022	0.43		4	Yes
BMP-94269[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 91-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Remediation Construction Activity Inspection	COMP-90576	1-6-2022	No active construction events observed.
Remediation Construction Activity Inspection	COMP-90630	1-11-2022	No active construction events observed. Fallen tree covering Earthen Berm M00503010015 is noted. Control is operational, continue to monitor.
	COMP-90660	1-19-2022	
	COMP-90885	1-25-2022	
	COMP-90989	2-1-2022	
	COMP-91047	2-8-2022	
	COMP-91082	2-15-2022	
	COMP-91148	2-22-2022	
	COMP-91200	3-1-2022	
	COMP-91262	3-8-2022	
	COMP-91296	3-15-2022	
	COMP-91507	3-22-2022	
	COMP-91616	3-30-2022	
	COMP-91730	4-5-2022	
	COMP-91891	4-12-2022	
	COMP-91978	4-20-2022	
	COMP-92103	4-26-2022	
	COMP-92208	5-3-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Remediation Construction Activity Inspection	COMP-92428	5-20-2022	No active construction events observed. Fallen tree covering Earthen Berm M00503010015 is noted. Control is operational, continue to monitor.
	COMP-92451	5-24-2022	
	COMP-92543	5-31-2022	
	COMP-92683	6-7-2022	
	COMP-92772	6-14-2022	
	COMP-92851	6-21-2022	
	COMP-92954	6-28-2022	
	COMP-93489	7-5-2022	
	COMP-93845	7-12-2022	
	COMP-93957	7-19-2022	
	COMP-94187	7-26-2022	
	COMP-94521	8-2-2022	
	COMP-95217	8-9-2022	
	COMP-95315	8-16-2022	
	COMP-95503	8-23-2022	
	COMP-95620	8-30-2022	
	COMP-95744	9-6-2022	
	COMP-95809	9-13-2022	
	COMP-95899	9-20-2022	
	COMP-96034	9-27-2022	
	COMP-96134	10-6-2022	
	COMP-96257	10-13-2022	
Remediation Construction Activity Inspection	COMP-96306	10-18-2022	No active construction events observed. Fallen tree covering Earthen Berm M00503010015 is noted. Control is operational, continue to monitor. This is the closeout inspection until SWPP team is notified that construction has commenced.

Table 91-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94111 (follow up to BMP-93162)	Installed Rock Check Dams M00506010020 and M00506010021 to address erosion potential identified in drainage between M-SMA-3.5 and M-SMA-4.	8-19-2022	49 day(s)	Maintenance was delayed.

91.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at M-SMA-3.5. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at M-SMA-3.5 under the 2010 IP requirements from March 18 through October 27, 2022, resulting in a monitoring season of 224 days. Nine inspections were performed during the monitoring period and are summarized in Table 91-6.

Rain gage RG200.5 recorded 28 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 91-6 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91563	4-6-2022	No	None	None
SMPLR-91902	5-4-2022	No	None	None
SMPLR-92332	5-31-2022	No	None	None
SMPLR-92660	6-22-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022	0.05/0.14 0.09/0.21 0.24/0.74 0.07/0.14
SMPLR-92970	7-1-2022	No	6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.1/0.71 0.31/1.38 0.18/1.34 0.43/0.48
SMPLR-93604	8-15-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022	0.19/0.19 0.07/0.17 0.14/0.15 0.36/0.44 0.3/0.4 0.07/0.23 0.98/1.11 0.11/0.19 0.74/1.56 0.26/0.67 0.2/0.2 0.13/0.13
SMPLR-95447	9-9-2022	No	8-16-2022 8-20-2022 8-23-2022	0.22/0.26 0.07/0.37 0.3/0.3
SMPLR-95849	9-29-2022	No	None	None

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-96180	10-27-2022	No	10-3-2022 10-8-2022 10-15-2022 10-16-2022 10-17-2022	0.16/0.17 0.11/0.11 0.08/0.33 0.04/0.2 0.07/0.15

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

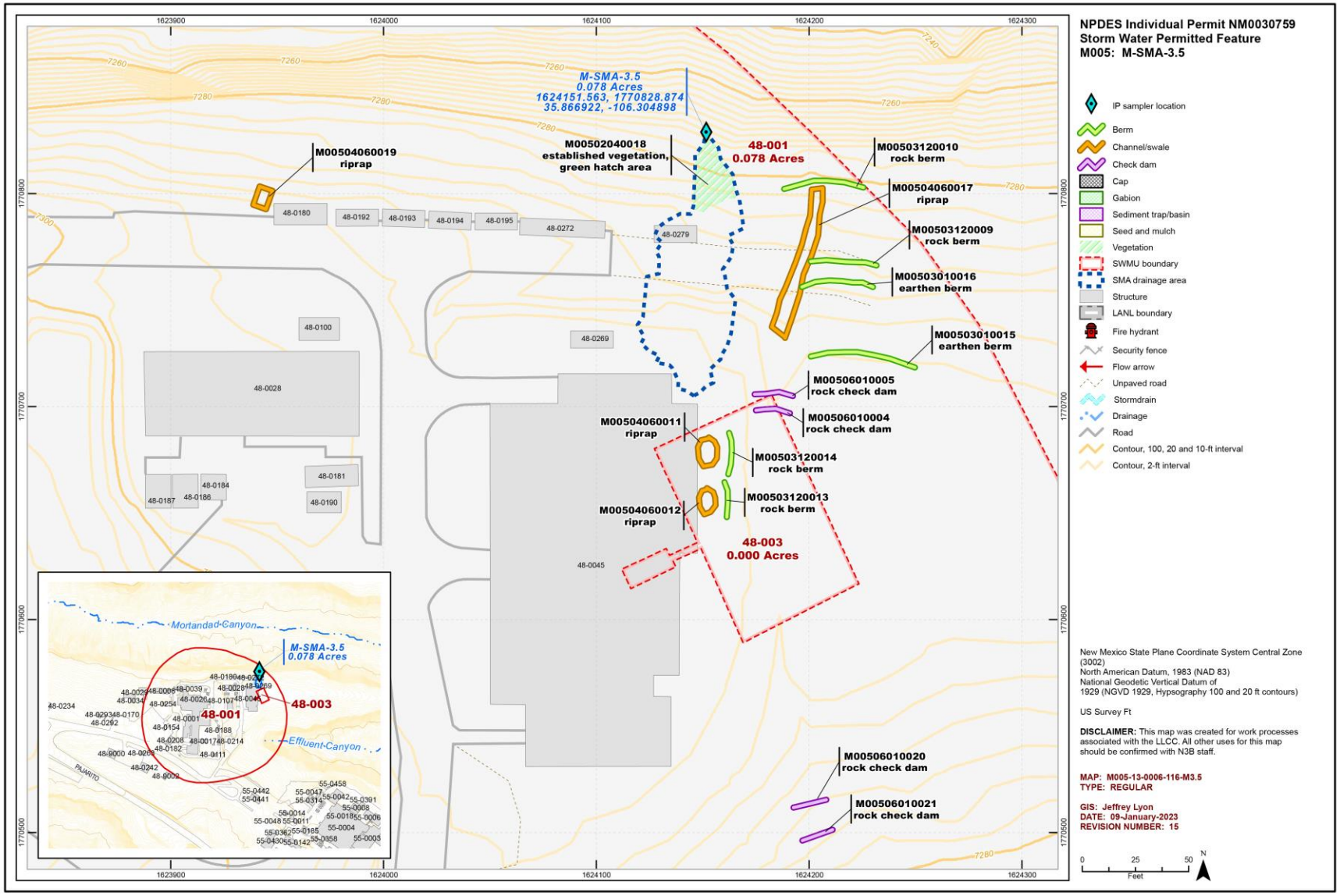


Figure 91-1 M-SMA-3.5 location map

92.0 M-SMA-4: SWMUs 48-005, 48-007(a), 48-007(d), and 48-010 and AOC 48-001

Five historical industrial activity areas, Sites 48-001, 48-005, 48-007(a), 48-007(d), and 48-010, are associated with M-SMA-4 (permitted feature M006). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

92.1 Site Descriptions

48-001 (11/23/2020)

AOC 48-001 consists of the air-exhaust system at the main radiochemistry laboratory in building 48-1, and surface soil potentially impacted by the deposition from historical stack emissions at TA-48. The radiochemistry laboratory in building 48-1 was constructed in 1957 to analyze samples collected from nuclear weapons tests. Additional radiochemical analyses were conducted in building 48-1 to support a variety of Laboratory programs.

The building 48-1 exhaust system consists of nine stacks:

- three stacks emitted unfiltered exhaust from chemical hoods,
- three stacks are associated with combustion boilers,
- one stack emits exhaust from individually filtered gloveboxes,
- one stack emitted exhaust-filtered air from former hot cell laboratories, and
- one stack exhausts air from welding and degreasing booths.

Of these stacks, only five are related to radiochemical laboratory activities in building 48-1. The stacks associated with the combustion boilers and the welding and degreasing booths are not part of AOC 48-001 as they are facility-related (i.e., they supply heat to the occupants and building infrastructure) or are related to operations other than radiochemistry (i.e., welding and degreasing). Emissions from the chemical hoods were not filtered because the chemicals used in the hoods (e.g., perchloric acid) would degrade the filters. However, these hoods were equipped with wet scrubbers.

The glovebox stack (stack FE54) was permitted and monitored under the NESHAP Program of the Clean Air Act. According to the RFI work plan, historical monitoring data are available for stack FE54 beginning in 1967 for plutonium, and beginning in 1974 for uranium and fission products. These data indicate releases of plutonium, uranium, and fission products, principally cesium-137, cerium-144, and strontium-90.

48-005 (no date)

SWMU 48-005 consists of inactive RLW lines and an associated outfall at TA-48. From 1957 to 1965, these waste lines were part of the system used to convey RLW from TA-48 to the treatment plant at TA-45 (Consolidated Unit 45-001-00). Beginning in 1963, new waste lines were installed to carry wastes to the new treatment facilities at TA-50. By 1967, the waste lines leading to TA-45 were considered to have been decommissioned. Some of the waste lines were removed in two campaigns conducted in 1981 and 1984.

SWMU 48-005 contains the remaining portions of waste lines, which are all inside the TA-48 security fence. The remaining waste lines are all 3-in.-diameter CI pipe and consist of a 200-ft section of line 34 running westward from building 48-1, a 300-ft section of line 36 that runs southward from the north wing of building 48-1 to line 36, and a 50-ft section of line 38 that runs southward from building 48-1. These lines are located at depths of 10 to 11 ft, and were not removed because they are beneath structures, roadways, or utilities.

The remaining sections of lines 34 and 36 were surveyed during the line removal activities. Line 34 was found to have low levels of alpha activity, and line 36 had no detectable activity. The remaining portion of line 38 was not surveyed.

SWMU 48-005 also includes an outfall on the edge of Mortandad Canyon north of building 48-1 that was the discharge point of line 37. Line 37 was connected to sumps in the north basement of building 48-1 and was completely removed in 1981.

48-007(a) (no date)

SWMU 48-007(a) is an outfall, formerly used to discharge treated cooling tower blowdown from two cooling towers located on the roof of building 48-1. This outfall is located in TA-48 east of building 48-1. Up to 750 gal./hr of cooling tower blowdown were discharged from the outfall. The discharge from this outfall flowed to an unlined surface impoundment, SWMU 48-010. The water used in these cooling towers was treated to control scale, corrosion, and biological growth. Additives used include Garratt Callahan (G. C.) Formula 227 L, a corrosion and scaling inhibitor; and G. C. Formula 314-T, a biocide. The date that this outfall began operation is not known, but building 48-1 was constructed in 1957, so discharges would not have preceded this date.

This outfall formerly operated as an NPDES-permitted outfall (045/046 EPA 03A), but was removed from the permit on December 6, 1999, because industrial wastewater discharges to the outfall had been discontinued earlier in the year. Currently, the outfall discharges only stormwater.

48-007(d) (no date)

SWMU 48-007(d) is an outfall formerly used to discharge noncontact cooling water from a vacuum pump housed in the south end of building 48-1. This outfall is located east of building 48-1. The date the outfall began operation is not known, but building 48-1 was constructed in 1957, so discharges would not have preceded this date. Up to 4000 gpd of cooling water was discharged from the outfall. Discharge from this outfall flowed to SWMU 48-010.

This outfall formerly operated as an NPDES-permitted outfall (153 EPA 04A), but was removed from the permit on July 20, 1998, because industrial wastewater discharges to the outfall had been discontinued earlier in the year. Stormwater continues to flow through the outfall.

48-010 (no date)

SWMU 48-010 is an unlined surface impoundment, located approximately 300 ft east of building 48-1 and 150 ft south of building 48-45, constructed in 1978 by excavating directly into the tuff. The surface impoundment formerly received cooling tower blowdown discharged from SWMU 48-007(a), noncontact cooling water discharged from SWMU 48-007(d), and stormwater runoff from the parking lot for building 48-45. Currently, the impoundment receives only stormwater from the parking lot. A wetland has developed around the impoundment. The impoundment and surrounding wetland cover approximately 100 ft × 150 ft. SWMU 48-010 discharges to the east into a side canyon that is a tributary to Mortandad Canyon.

Potential POCs and Sources Associated with the Sites

The POCs known to be managed or potentially used at the Sites are listed in Table 92-1.

Table 92-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
48-001	Operational release	Fission products, americium-241, cerium-144, cesium-137, plutonium, strontium-90, uranium
48-005	Inactive RLW lines	Heavy metals, organic chemicals, radionuclides
48-007(a)	Outfall	Arsenic, chromium, hexavalent chromium, chlorine
48-007(d)	Outfall	Naturally occurring metals concentrated by evaporation, arsenic, chromium, hexavalent chromium, inorganic and organic chemicals, radionuclides
48-010	Outfall	Naturally occurring metals concentrated by evaporation, arsenic, chromium, hexavalent chromium, inorganic and organic chemicals, radionuclides

92.2 Control Measures

All active control measures in use at M-SMA-4 are listed in Table 92-2. Their locations are shown on the project map (Figure 92-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 92-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00602040014	Established Vegetation	-	X	X	-	B	4-29-2013
M00603120015	Rock Berm	-	X	-	X	B	11-4-2014
M00603120019	Rock Berm	X	X	X	X	B	8-30-2022
M00604060002	Riprap	-	X	X	-	CB	1-23-2006
M00604060012	Riprap	X	-	X	-	CB	6-1-2009
M00606010005	Rock Check Dam	X	-	-	X	CB	6-1-2009
M00606010013	Rock Check Dam	X	-	-	X	B	11-3-2011
M00606010016	Rock Check Dam	-	X	-	X	B	11-4-2014
M00606010017	Rock Check Dam	-	X	-	X	B	11-4-2014
M00606010018	Rock Check Dam	-	X	-	X	B	11-4-2014
M00607010006	Gabions	X	-	X	-	CB	6-3-2009

92.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-4 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 92-3. All other control-measure inspections conducted at the SMA are summarized in Table 92-4.

At the beginning of 2022, SWPP team members continued conducting weekly inspections to assess potential impacts to Triad-managed construction activities that were planned in the area. No construction activities were observed during 2022, but team members proactively continued to inspect the SMA through October 28, 2022. Maintenance activities conducted at the SMA are summarized in Table 92-5.

Table 92-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93163[a,b]	6-25-2022	0.31	7-1-2022	6	Yes
	6-27-2022	0.43		4	Yes
BMP-94270[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 92-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Remediation Construction Activity Inspection	COMP-90581	1-6-2022	No active construction events observed.
	COMP-90635	1-11-2022	
	COMP-90665	1-19-2022	
	COMP-90890	1-25-2022	
	COMP-90994	2-1-2022	
	COMP-91052	2-8-2022	
	COMP-91087	2-15-2022	
	COMP-91153	2-22-2022	
	COMP-91205	3-1-2022	
	COMP-91268	3-8-2022	
	COMP-91301	3-15-2022	
	COMP-91512	3-22-2022	
	COMP-91624	3-30-2022	
	COMP-91735	4-5-2022	
	COMP-91896	4-12-2022	
	COMP-91983	4-20-2022	
	COMP-92108	4-26-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Remediation Construction Activity Inspection	COMP-92213	5-3-2022	No active construction events observed. The presence of trash in the flow path is noted. (Trash was removed on 6-9-2022).
	COMP-92433	5-20-2022	
	COMP-92458	5-24-2022	
	COMP-92548	5-31-2022	
Remediation Construction Activity Inspection	COMP-92688	6-7-2022	No active construction events observed.
	COMP-92777	6-14-2022	
Remediation Construction Activity Inspection	COMP-92856	6-21-2022	No active construction events observed. The presence of trash in the flow path is noted. (Trash was removed on 7-1-2022).
Remediation Construction Activity Inspection	COMP-92958	6-28-2022	
Remediation Construction Activity Inspection	COMP-93493	7-5-2022	No active construction events observed.
	COMP-93849	7-12-2022	
	COMP-93961	7-19-2022	
	COMP-94191	7-26-2022	
	COMP-94526	8-2-2022	
	COMP-95221	8-9-2022	
	COMP-95318	8-16-2022	
	COMP-95506	8-23-2022	
	COMP-95624	8-30-2022	
	COMP-95747	9-6-2022	
	COMP-95812	9-13-2022	
	COMP-95902	9-20-2022	
	COMP-96037	9-27-2022	
	COMP-96137	10-6-2022	
	COMP-96260	10-13-2022	
Remediation Construction Activity Inspection	COMP-96309	10-18-2022	No active construction events observed. This is the closeout inspection until SWPP team is notified that construction has commenced.

Table 92-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-92768 (follow up to COMP-92458)	Removed and disposed of floatable garbage.	6-9-2022	9 days	Maintenance was conducted as soon as practicable.
BMP-93163	Removed and disposed of floatable garbage that was present at inspection.	7-1-2022	0 days	Maintenance was conducted as soon as practicable.

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94111 (follow up to BMP-93163)	Installed Rock Check Dams M00506010020 and M00506010021 to address erosion potential identified in drainage between M-SMA-3.5 and M-SMA-4. Note, controls will not be tracked at M-SMA-4.	8-19-2022	49 days	Maintenance was delayed.
BMP-95214 (follow up to BMP-94270)	Installed Rock Berm M00603120019 next to Gabion M00607010006 to address a flow path identified at the southeast end of the structure. The Gabion will continue to be monitored.	8-30-2022	29 days	Maintenance was conducted as soon as practicable.

92.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 19, 2011. Analytical results from this sample yielded TAL exceedances for copper (6 µg/L), radium-226 and radium-228 activity (70.3 pCi/L) and PCB concentration (50 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following certification of control measures installed to totally eliminate exposure of pollutants to stormwater at 48-005, a corrective-action investigation sample was collected on June 4, 2016. Analytical results from this sample were submitted to EPA in the "NPDES Permit No. NM0030759 – Analytical Results Following Completion of Corrective Action by Certification of a No Exposure Condition at Site 48-005 in M-SMA-4" (LANL 2016, 601918).

Stormwater monitoring was not conducted at M-SMA-4 in 2022 under the 2010 IP requirements.

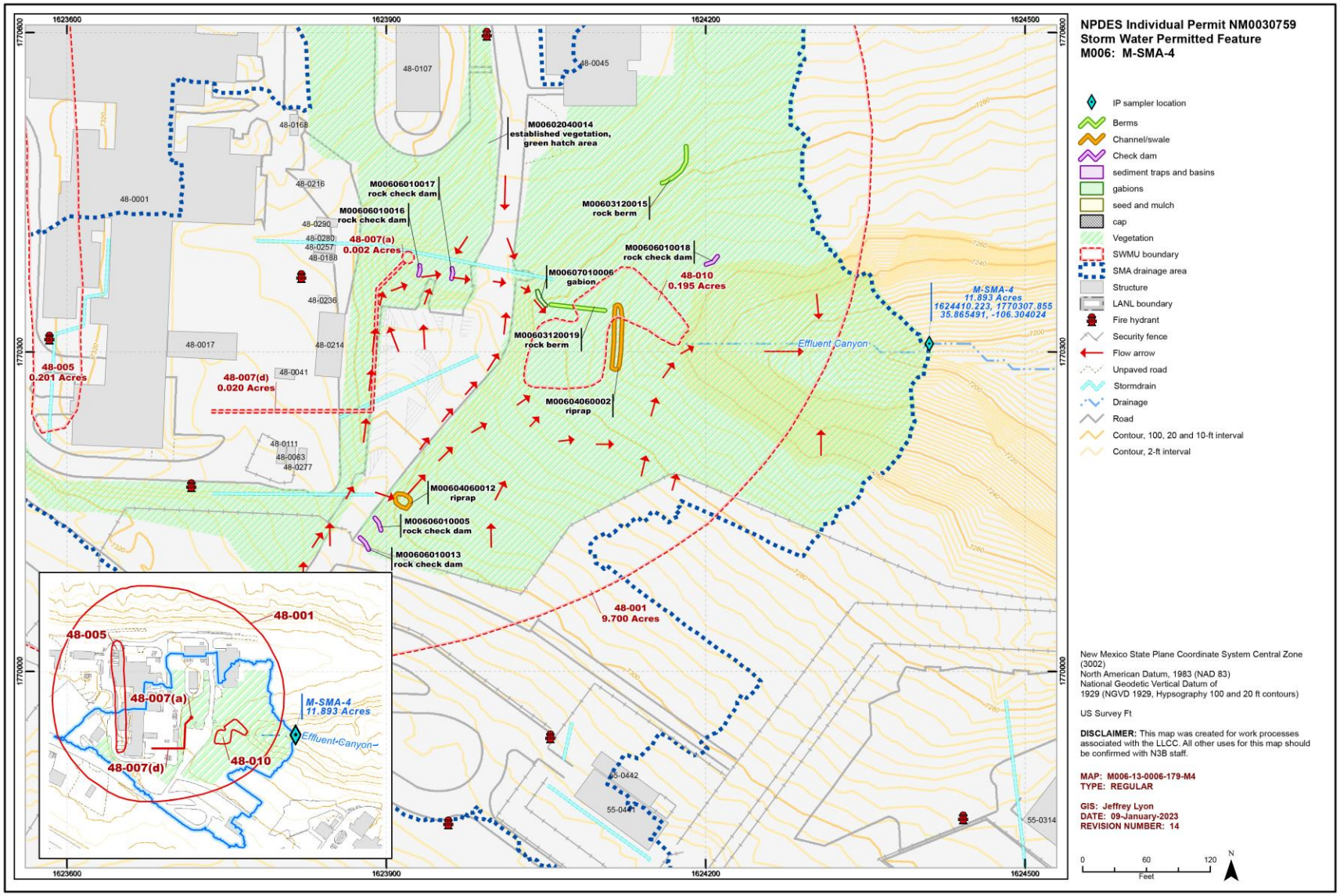


Figure 92-1 M-SMA-4 location map

93.0 M-SMA-5: SWMUs 42-001(a), 42-001(b), 42-001(c), and 42-002(b) and AOC 42-002(a)

Five historical industrial activity areas, Sites 42-001(a), 42-001(b), 42-001(c), 42-002(a), and 42-002(b), are associated with M-SMA-5 (permitted feature M007). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

93.1 Site Descriptions

42-001(a) (11/23/2020)

SWMU 42-001(a) is a former radioactive-waste incinerator that was located adjacent to the interior north wall in former building 42-1 at former TA-42, within the northern boundary of TA-55. Construction of the incinerator and building 42-1 was completed in 1951. Building 42-1 was a 2000-ft^2, steel-frame structure with a corrugated-metal roof. In addition to the incinerator, building 42-1 housed the feed port and operational systems for the incinerator.

The incinerator unit was designed to burn radioactive-contaminated waste in a cylindrical chamber with a throughput of between 45.5 and 90.8 kg per hour. Combustion products passed through an off-gas treatment system before being released to the atmosphere through an exhaust stack. The off-gas system consisted of a Venturi scrubber, a filter bank, and an ash separator. Ash trapped in the off-gas system and incinerator was transported by underground drainlines to two former holding tanks [SWMUs 42-001(b) and 42-001(c)], located immediately north of the incinerator.

LLW generated at the Laboratory was to be incinerated in this unit; however, due to the poor performance of the incinerator and operational problems with the off-gas treatment system, very little waste was actually incinerated. The incinerator operated for little more than one year between 1951 and 1952; sporadic additional attempts to use the incinerator were made until 1954. Pressure excursions in the incinerator resulted in releases of radionuclides within and adjacent to building 42-1.

From 1957 to 1969, building 42-1 was used to store and decontaminate radioactively-contaminated equipment [SWMU 42-002(a)]. In 1969, an unsuccessful attempt was made to reactivate the incinerator to burn uncontaminated classified wastes. By 1970, all operations were discontinued and all combustibles were removed from building 42-1. The entire facility underwent D&D between 1975 and 1978.

42-001(b) and 42-001(c) (11/23/2020)

SWMUs 42-001(b) and 42-001(c) are the historical locations of two former aboveground ash-holding tanks (former structures 42-2 and 42-3) and inlet ash drainlines associated with the former incinerator complex [former building 42-1, SWMU 42-001(a)] at former TA-42, which is located within the northern boundary of TA-55. The tanks were built in 1951 and removed in 1978. Each tank was 22 ft in diameter and approximately 13 ft high, with a volume of 37,000 gal. Ash trapped in the incinerator's off-gas system and in the incinerator was transported by underground drainlines to the two former holding tanks [SWMUs 42-001(b) and 42-001(c)], located immediately north of the incinerator.

When the holding tanks were decommissioned in 1978, the contents were assayed and analyzed for plutonium. Contaminated sludge was removed, mixed with cement, and taken to MDA G for storage. The tanks were excavated and disposed of at Area G at TA-54. The tank drainlines were filled with hot asphalt to contain radioactive contamination. It is not known if the drainlines were removed.

42-002(a) (11/23/2020)

AOC 42-002(a) is the former location of an indoor storage and decontamination area that was located in former building 42-1 at former TA-42, which is located within the northern boundary of TA-55. Building 42-1 was a 2000-ft^2, steel-frame structure covered with corrugated metal that housed the waste incinerator [SWMU 42-001(a)]. Incinerator operations had basically ceased by 1954. Between 1956 and 1969, the main floor of former building 42-1 was used to store and decontaminate contaminated equipment [AOC 42-002(a)]. During decontamination activities, a vacublaster was used to remove radionuclides and other contaminants from various pieces of equipment. The process generated wastes, some of which are believed to have been discharged to the septic system for the building [SWMU 42-003]. It is believed that wastes from AOC 42-002(a), in the form of fine solid residues, were bagged and disposed of at MDA G at TA-54. The entire facility underwent D&D between 1975 and 1978.

42-002(b) (11/23/2020)

SWMU 42-002(b) is the location of an outdoor decontamination area at former TA-42. Former TA-42 is located within the northern boundary of TA-55. Building 42-1 was a 2000-ft^2, steel-frame structure covered with corrugated metal that housed the [SWMU 42-001(a)] waste incinerator. Incinerator operations had basically ceased by 1954. Between 1956 and 1969, the main floor of former building 42-1 was used to store and decontaminate contaminated equipment [AOC 42-002(a)].

During D&D in 1978, a vacublaster removed radionuclides and other contaminants from various pieces of equipment. Objects such as vehicles that were too large to take inside the building were decontaminated at the end of the asphalt driveway, located west and north of building 42-1 [SWMU 42-002(b)]. Wash water from this activity flowed down an embankment on the northwest side of the parking lot. Potentially contaminated soil in that area was not addressed during the D&D activities. The process generated wastes, some of which are believed to have been discharged to the septic system for the building (SWMU 42-003). It is believed that wastes from SWMU 42-002(b) in the form of fine solid residues were bagged and disposed of at MDA G at TA-54.

Potential POCs and Sources Associated with the Sites

The POCs known to be managed or potentially used at the Sites are listed in Table 93-1.

Table 93-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
42-001(a)	Former incinerator	Metals, dioxins/furans, radionuclides, lanthanum-140, plutonium
42-001(b)	Former ash tank	Metals, dioxins/furans, radionuclides, lanthanum-140, plutonium
42-001(c)	Former ash tank	Metals, dioxins/furans, radionuclides, lanthanum-140, plutonium
42-002(a)	Former indoor storage and decontamination area	Metals, lanthanum-140, plutonium
42-002(b)	Former indoor storage and decontamination area	Metals, lanthanum-140, plutonium

93.2 Control Measures

All active control measures in use at M-SMA-5 are listed in Table 93-2. Their locations are shown on the project map (Figure 93-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 93-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00702040016	Established Vegetation	-	X	X	-	B	5-15-2013
M00703060017	Straw Wattle	X	-	-	X	CB	7-18-2022
M00704020012	Concrete/Asphalt Channel/Swale	X	-	X	-	CB	6-1-2009
M00704060001	Riprap	-	X	X	-	CB	2-27-2006
M00704060008	Riprap	X	-	X	-	CB	6-1-2009
M00706010002	Rock Check Dam	-	X	-	X	CB	2-27-2006
M00706010007	Rock Check Dam	X	-	-	X	CB	6-1-2009

93.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 93-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 93-4.

Table 93-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93164[a,b]	6-25-2022	0.31	7-1-2022	6	Yes
	6-27-2022	0.43		4	Yes
BMP-94271[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 93-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93841 (follow up to BMP-93164)	Installed Straw Wattle M00703060017 as a replacement for baseline certified Straw Wattle M00703060015.	7-18-2022	18 days	Maintenance was conducted as soon as practicable.

93.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at M-SMA-5. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at M-SMA-5 under the 2010 IP requirements March 21 through November 8, 2022, resulting in a monitoring season of 233 days. Seven inspections were performed during the monitoring period and are summarized in Table 93-5. Rain gage RG200.5 recorded 28 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 93-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91960	4-12-2022	No	None	None
SMPLR-92016	5-5-2022	No	None	None
SMPLR-92393	5-20-2022	No	None	None
SMPLR-92505	7-1-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.05/0.14 0.09/0.21 0.24/0.74 0.07/0.14 0.1/0.71 0.31/1.38 0.18/1.34 0.43/0.48
SMPLR-93614	8-10-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.19/0.19 0.07/0.17 0.14/0.15 0.36/0.44 0.3/0.4 0.07/0.23 0.98/1.11 0.11/0.19 0.74/1.56 0.26/0.67 0.2/0.2
SMPLR-95335	9-23-2022	No	8-11-2022 8-16-2022 8-20-2022 8-23-2022	0.13/0.13 0.22/0.26 0.07/0.37 0.3/0.3
SMPLR-96082	11-8-2022	No	10-3-2022 10-8-2022 10-15-2022 10-16-2022 10-17-2022	0.16/0.17 0.11/0.11 0.08/0.33 0.04/0.2 0.07/0.15

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

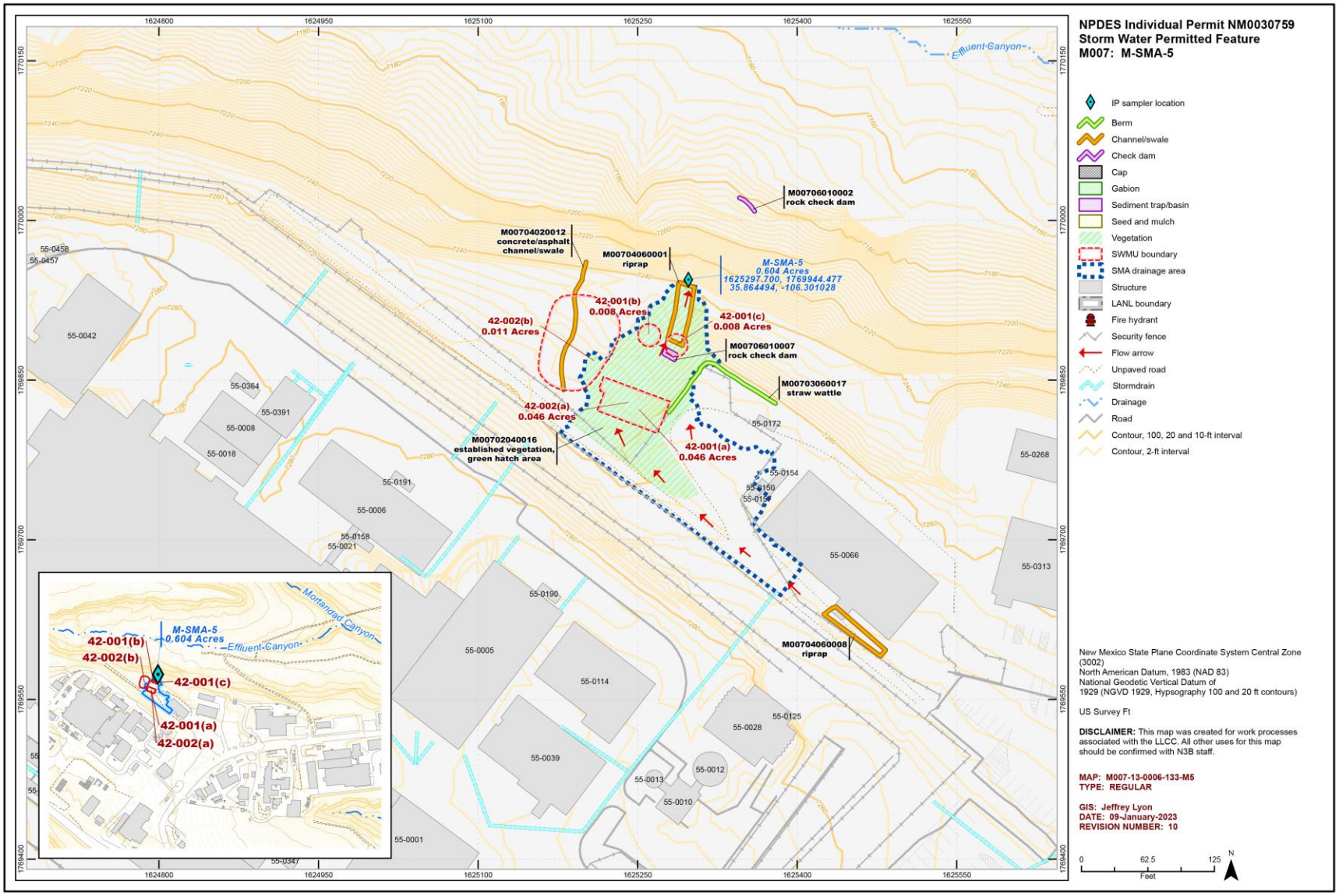


Figure 93-1 M-SMA-5 location map

94.0 M-SMA-6: AOC 35-016(h)

One historical industrial activity area, Site 35-016(h), is associated with M-SMA-6 (permitted feature M008). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

94.1 Site Descriptions

35-016(h) (11/23/2020)

AOC 35-016(h) consists of outfalls from three storm drains located north of building 35-213 at TA-35. The storm drains were installed in 1979 to handle stormwater runoff from roof drains on building 213, runoff from the nearby parking lot, and brine from a water deionizer in building 35-213. The deionizer brine was rerouted to the RLW drain system in the mid-1990s. The storm drain that handles the runoff from roof drains is located on the north side of building 35-213.

The storm drain that formerly handled discharge from the water deionizer is located on the northeast side of building 35-213. This storm drain currently handles only stormwater runoff from the area around building 35-213. The third storm drain, which handles stormwater from the nearby parking lot, is located northwest of building 35-213. All three storm drains discharge into Mortandad Canyon.

Potential POCs and Sources Associated with the Site

The POCs known to be managed or potentially used at the Site are listed in Table 94-1.

Table 94-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(h)	Storm drains and outfall associated with building 35-213	Metals, tritium

94.2 Control Measures

All active control measures in use at M-SMA-6 are listed in table 94-2. Their locations are shown on the project map (Figure 94-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 94-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00802040024	Established Vegetation	-	X	X	-	B	4-30-2013
M00803010049	Earthen Berm	X	-	-	X	B	3-18-2020
M00803060034	Straw Wattle	X	-	X	-	B	8-19-2015
M00803060035	Straw Wattle	X	-	X	-	B	8-19-2015
M00803060036	Straw Wattle	X	-	X	-	B	8-19-2015
M00803120031	Rock Berm	X	-	-	X	B	8-28-2014
M00804060001	Riprap	X	-	X	-	CB	1-1-2000

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00804060014	Riprap	-	-	X	-	CB	9-20-2010
M00804060025	Riprap	X	-	X	-	B	4-30-2013
M00805020016	Sediment Basin	X	-	-	X	CB	9-20-2010
M00806010007	Rock Check Dam	X	-	-	X	CB	6-15-2010
M00806010017	Rock Check Dam	-	X	-	X	B	4-11-2011
M00806010020	Rock Check Dam	X	-	-	X	B	4-11-2011
M00806010027	Rock Check Dam	X	-	-	X	B	12-17-2013
M00806010028	Rock Check Dam	X	-	-	X	B	2-17-2013
M00806010032	Rock Check Dam	-	X	-	X	B	8-28-2014
M00806010042	Rock Check Dam	X	-	-	X	B	10-27-2015
M00806010044	Rock Check Dam	-	X	-	X	B	10-27-2015
M00807020013	Gabion Blanket	X	-	X	-	CB	8-12-2010
M00808030002	Concrete/Asphalt Cap	X	-	X	-	CB	1-1-2000

94.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-6 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 94-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 94-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93165[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94272[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

94.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on October 12, 2012. Analytical results from this sample yielded TAL exceedances for copper (13 µg/L), gross-alpha activity (168 pCi/L), and PCB concentration (30 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012, NPDES Permit No. NM0030759" (LANL 2013, 237680).

Stormwater monitoring was not conducted at M-SMA-6 in 2022 under the 2010 IP requirements.

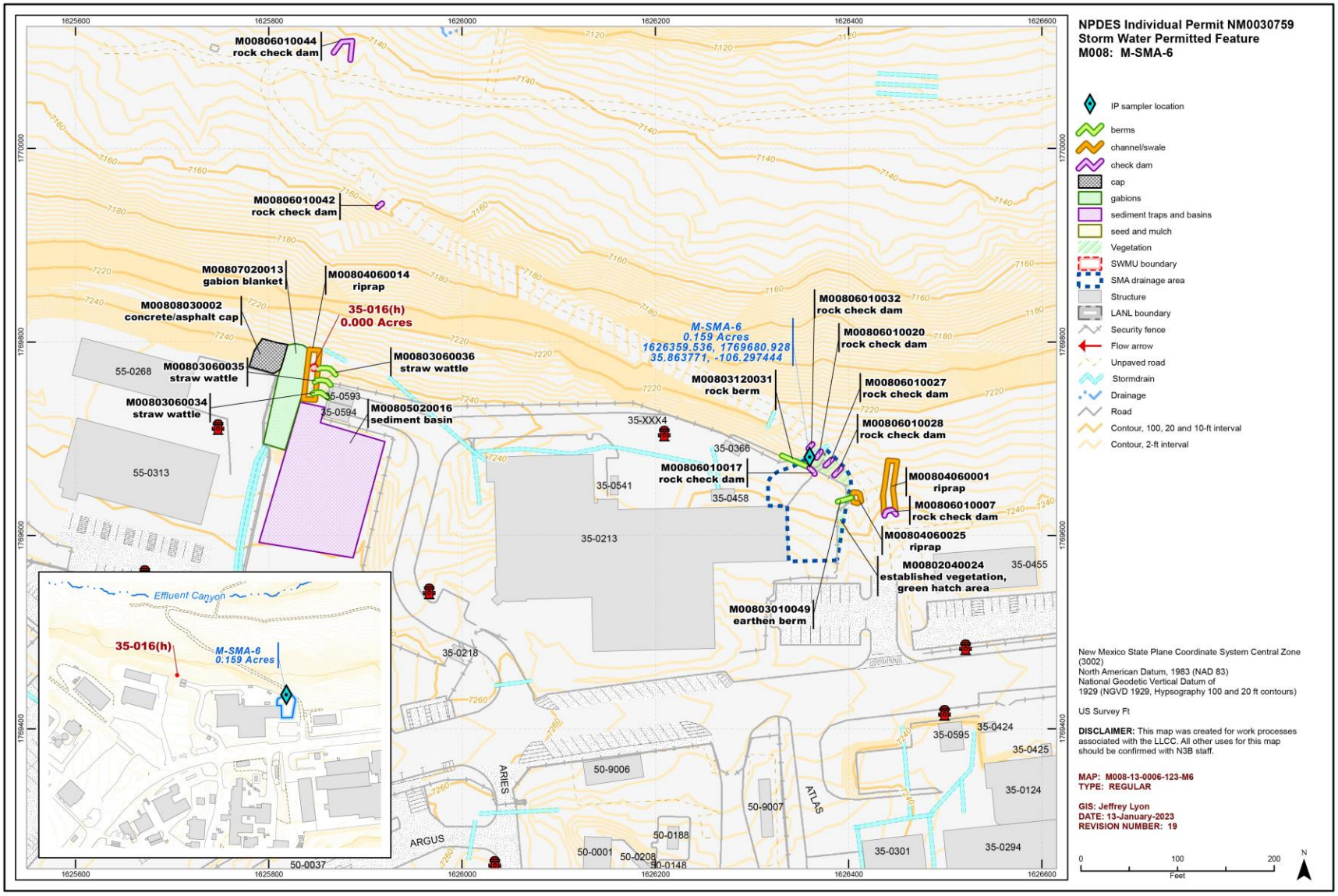


Figure 94-1 M-SMA-6 location map

95.0 M-SMA-7: AOC 35-016(g)

One historical industrial activity area, Site 35-016(g), is associated with M-SMA-7 (permitted feature M009). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

95.1 Site Descriptions

35-016(g) (11/23/2020)

AOC 35-016(g) consists of a former NPDES-permitted outfall and the CMP culvert at TA-35, which collected reject water from a reverse-osmosis plant and cooling tower blowdown from room 29 in building 35-213, the Target Fabrication Facility, as well as stormwater runoff from the building roof and parking lot. The cooling tower blowdown may have contained chemicals added to the cooling water to prevent corrosion, scaling, and algal growth. The outfall was removed from the LANL NPDES permit in 1997, after non-stormwater discharges from the outfall ceased. Stormwater runoff from the roof and parking lot is still collected in the CMP and discharged to the outfall.

Potential POCs and Sources Associated with the Site

The POCs known to be managed or potentially used at the Site are listed in Table 95-1.

Table 95-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(g)	Drain and outfall from building 35-213	Metals, tritium

95.2 Control Measures

All active control measures in use at M-SMA-7 are listed in Table 95-2. Their locations are shown on the project map (Figure 95-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 95-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M00902040009	Established Vegetation	-	X	X	-	B	4-30-2013
M00903140012	Coir Log	X	-	-	X	B	7-25-2017
M00906010003	Rock Check Dam	-	X	-	X	CB	6-1-2009

95.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-7 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 95-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 95-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93166[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94273[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

95.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 7, 2012. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (46.3 pCi/L) and zinc (60.6 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012, NPDES Permit No. NM0030759" (LANL 2013, 237680).

Stormwater monitoring was not conducted at M-SMA-7 in 2022 under the 2010 IP requirements.

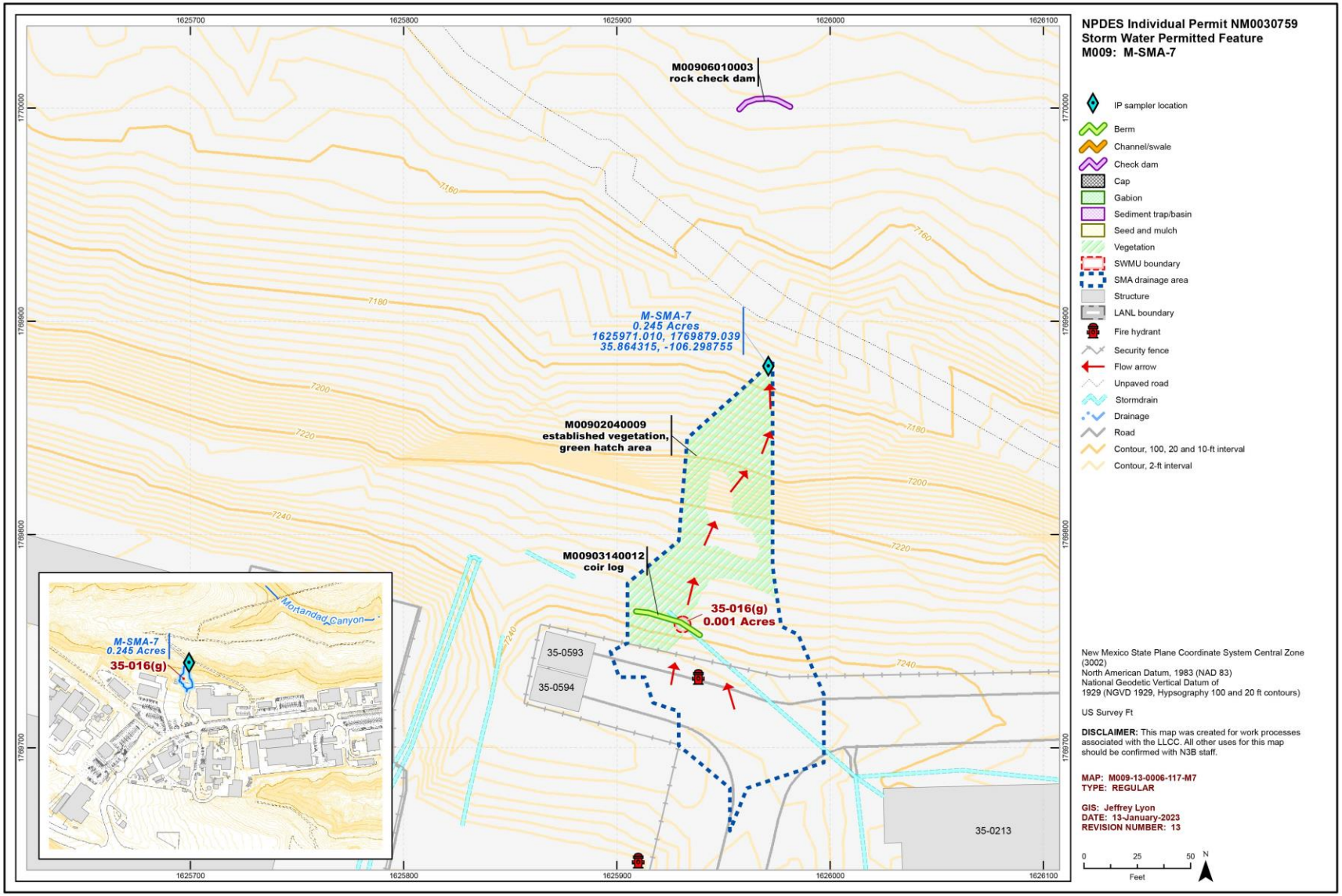


Figure 95-1 M-SMA-7 location map

96.0 M-SMA-7.9: SWMU 50-006(d)

One historical industrial activity area, Site 50-006(d), is associated with M-SMA-7.9 (permitted feature M010). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

96.1 Site Descriptions

50-006 (d) (4/6/2017)

SWMU 50-006(d) was identified in the 1990 SWMU Report as an ongoing operational release of treated effluent from the TA-50 RLWTF (building 50-1), and from an associated drainline (structure 50-64) and associated NPDES-permitted Outfall 051, to Effluent Canyon, a tributary of Mortandad Canyon. Data from effluent samples collected in the early 1980s showed inorganic chemical and radionuclides present above background levels.

Structure 50-64 is a 6-in.-diameter iron discharge pipe that was rerouted in 1983 to accommodate construction of the TA-35 target fabrication facility (building 35-213). In 1985, the U.S. EPA Region 6 issued an administrative order to the DOE requiring modification of the outfall to mitigate ongoing stream-bank erosion caused by the discharge pipe ending 25 ft short of the Mortandad Canyon stream channel. DOE extended the pipe into the stream channel, and EPA Region 6 closed the order in 1986.

No discharges to Outfall 051 have occurred since November 2010; the effluent is currently evaporated using a mechanical evaporator. However, the outfall is still permitted under the LANL's NPDES industrial and sanitary Permit, NM0028355 and may be used in the future to discharge treated effluent.

Potential POCs and Sources Associated with the Site

The POCs known to be managed or potentially used at the Site are listed in Table 96-1.

Table 96-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
50-006(d)	Drainline and outfall	Metals, radionuclides

96.2 Control Measures

All active control measures in use at M-SMA-7.9 are listed in Table 96-2. Their locations are shown on the project map (Figure 96-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 96-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01002040013	Established Vegetation	-	X	X	-	B	4-30-2013
M01003010004	Earthen Berm	X	-	-	X	CB	11-24-2009
M01003010010	Earthen Berm	X	-	-	X	CB	6-15-2010

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01003010011	Earthen Berm	X	-	-	X	CB	8-18-2010
M01003010012	Earthen Berm	-	X	-	X	B	5-6-2011
M01003060014	Straw Wattle	X	-	-	X	B	8-22-2014
M01003060015	Straw Wattle	X	-	-	X	B	8-22-2014
M01003120005	Rock Berm	X	-	-	X	CB	11-24-2009
M01003120006	Rock Berm	X	-	-	X	CB	11-24-2009
M01003120016	Rock Berm	X	-	-	X	B	8-22-2014

96.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-7.9 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 96-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 96-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93171[a],[b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94274[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

96.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (51.4 pCi/L) and PCB concentration (2 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at M-SMA-7.9 in 2022 under the 2010 IP requirements.

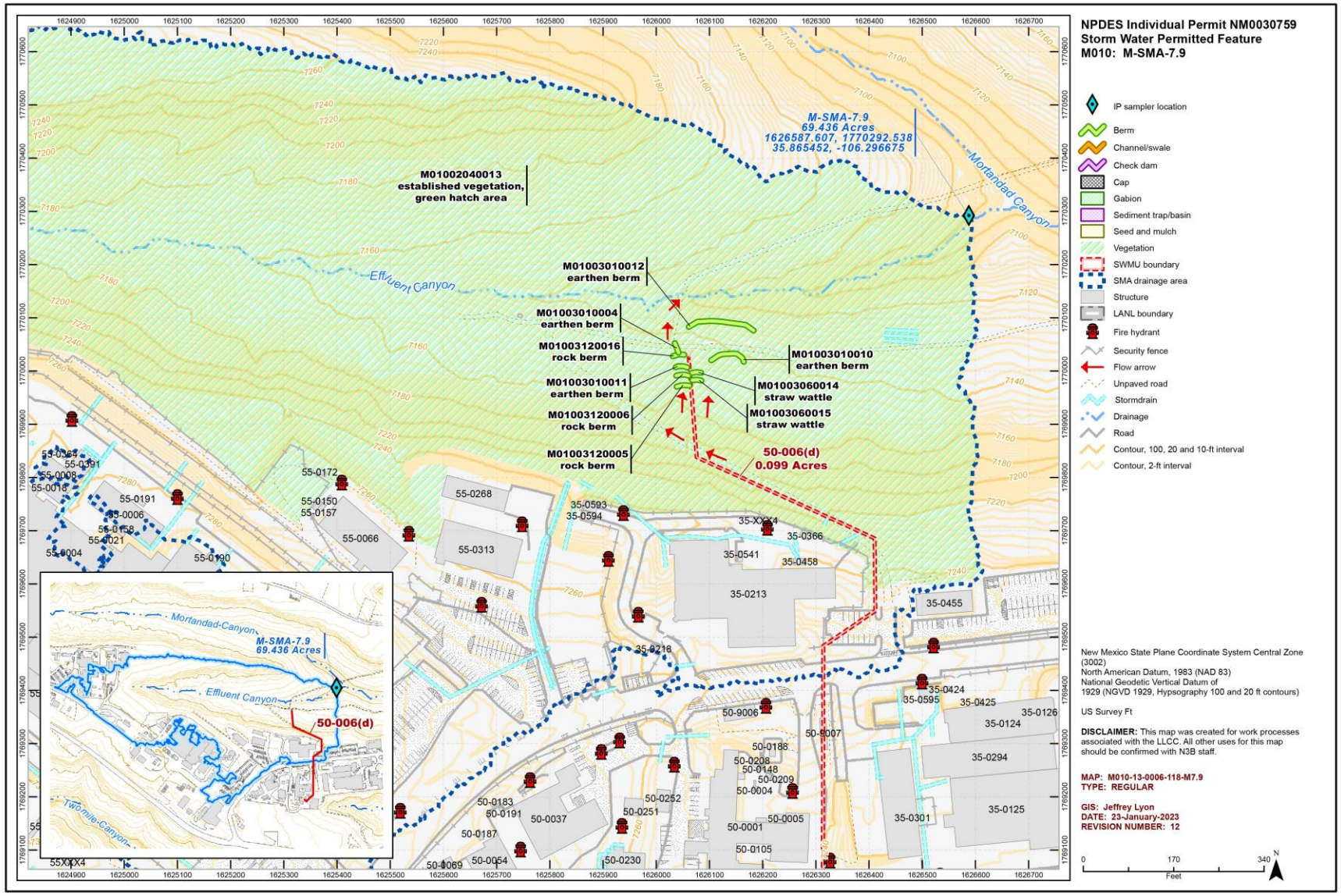


Figure 96-1 M-SMA-7.9 location map

97.0 M-SMA-10: SWMUs 35-008 and 35-014(e)

Two historical industrial activity areas, Sites 35-008 and 35-014(e), are associated with M-SMA-10 (permitted feature M012). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

97.1 Site Descriptions

35-008 (no date)

SWMU 35-008 is the location of an inactive surface-disposal area, located north of building 35-85 on the edge of Mortandad Canyon. The surface disposal area has likely been in existence since 1977 when the nearby Chemical Laser Facility (building 35-85) was constructed. Debris at the site consists of construction debris, including scrap metal and pipe, paint cans, a 55-gal. drum, and miscellaneous building-materials refuse, such as a large concrete slab, conduits, asphalt, pipe, and reinforcing rods.

During a site inspection in 1991, only a small amount of debris, including tubing, scrap metal, and soda cans, was observed at the site. Debris associated with SWMU 35-008 extends from the canyon rim to the canyon floor. Some of the dielectric oil associated with SWMU 35-014(e) flowed northward to the mesa edge, and partially down the mesa slope over portions of the SWMU 35-008 disposal area.

35-014(e) (no date)

SWMU 35-014(e) is an area of oil-stained soil on the northern edge of Ten Site Mesa, directly north of building 35-85. The 1990 SWMU report described SWMU 35-014(e) as three dielectric-oil spill areas associated with building 35-85; however, the 1992 RFI work plan described each spill area as a separate SWMU.

The stained soil associated with SWMU 35-014(e) may have been a result of a non-PCB (<50 mg/kg) dielectric-oil spill that occurred east of building 35-188 when a forklift punctured an aboveground oil-storage tank. The oil-storage tank was removed before 1992. The non-PCB dielectric oil was used in laser experiments conducted in building 35-85. The volume of oil released is not known. However, it was reported that oil from the release flowed northward to the mesa edge and partially down the mesa slope over portions of the SWMU 35-008 disposal area. A 1984 photograph shows that the spill did flow down the side of the mesa. Reports also suggest that oil-stained soil may have been pushed over the mesa during the cleanup of the spill (the spill cleanup is not documented).

After the oil spill, an extension to building 35-85 was constructed between building 35-188 and the edge of the mesa to house laser experiments. The building extension covers a portion of the area of the reported oil spill. The construction of this extension may have included site leveling, soil stabilization, and extension and stabilization of the mesa edge by backfilling with soil and riprap materials. During a site visit in 1997, stained soil was visible on the slope near the edge of the mesa; the stain covered an area measuring approximately 15 ft × 10 ft. No stained soils or odors were apparent on the mesa top north of building 35-85.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 97-1.

Table 97-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-008	Surface disposal area	Metals, organic chemicals
35-014(e)	Operational release	PCBs, organic chemicals

97.2 Control Measures

All active control measures in use at M-SMA-10 are listed in Table 97-2. Their locations are shown on the project map (Figure 97-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 97-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01202040012	Established Vegetation	-	X	X	-	B	4-30-2013
M01204060004	Riprap	X	-	X	-	CB	6-15-2010
M01204060007	Riprap	-	X	X	-	CB	8-19-2009
M01206010001	Rock Check Dam	-	X	-	X	CB	5-18-2005
M01206010005	Rock Check Dam	-	X	-	X	CB	5-18-2005
M01206010006	Rock Check Dam	-	X	-	X	CB	8-19-2009
M01206010009	Rock Check Dam	-	X	-	X	CB	8-19-2009
M01206010010	Rock Check Dam	-	X	-	X	CB	8-19-2009

97.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-10 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 97-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 97-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93150[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94262[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

97.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on June 30, 2013. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (32.2 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at M-SMA-10 in 2022 under the 2010 IP requirements.

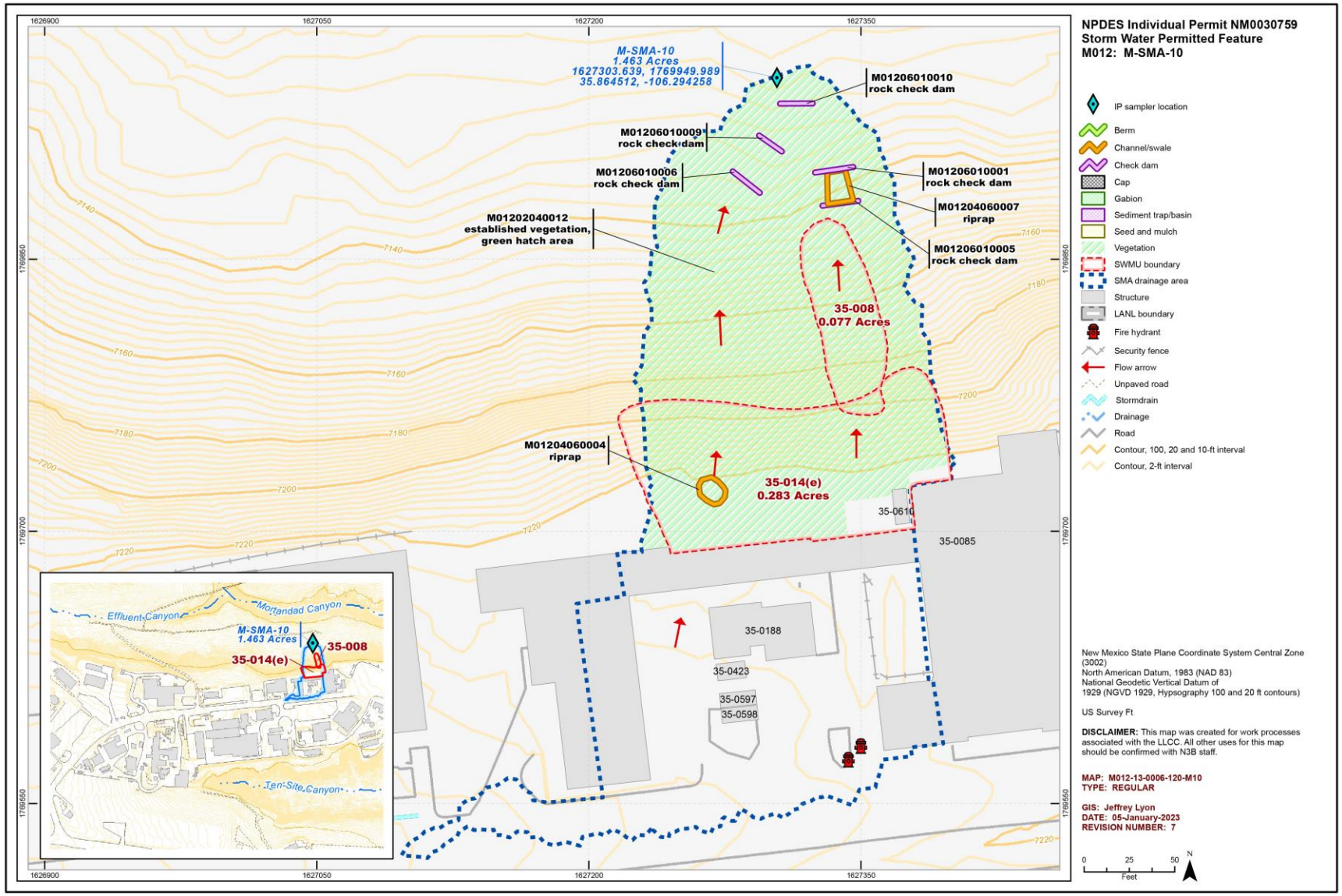


Figure 97-1 M-SMA-10 location map

98.0 M-SMA-10.01: AOC 35-016(e)

One historical industrial activity area, Site 35-016(e), is associated with M-SMA-10.01 (permitted feature M012A). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

98.1 Site Descriptions

35-016(e) (no date)

AOC 35-016(e) is a former NPDES-permitted outfall established in 1977 to discharge only noncontact cooling water from the chemical laser facility (building 35-85). The outfall consists of two adjacent 2-in.-diameter steel pipes, insulated with fiberglass and wrapped with protective aluminum coating, that originate from cooling towers on the roof of building 35-85. The outfall is located north of building 35-85 on the rim of Mortandad Canyon. The volume of water released is not documented, but significant erosion was evident below the outfall. The outfall was deleted from the NPDES permit in April 1987 and decommissioned in 1992.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 98-1.

Table 98-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(e)	Drainlines and outfall from building 35-85	No known POCs

98.2 Control Measures

All active control measures in use at M-SMA-10.01 are listed in Table 98-2. Their locations are shown on the project map (Figure 98-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 98-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M012A02040008	Established Vegetation	-	X	X	-	B	4-30-2013
M012A03010006	Earthen Berm	-	X	-	X	EC	8-21-2012
M012A03010007	Earthen Berm	-	X	-	X	EC	8-21-2012
M012A06010003	Rock Check Dam	-	X	-	X	CB	6-18-2010

98.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-10.01 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 98-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 98-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93159[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94266[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

98.4 Stormwater Monitoring

SWMU 35-016(e) was monitored within M-SMA-10.01. Following the installation of baseline control measures, baseline stormwater samples were collected on August 27, 2011 and September 15, 2011. Analytical results from these samples yielded TAL exceedances for copper (6.5 µg/L and 16 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at M-SMA-10.01, a corrective-action stormwater sample was collected on October 12, 2012. The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012, NPDES Permit No. NM0030759" (LANL 2013, 237680).

Stormwater monitoring was not conducted at M-SMA-10.01 in 2022 under the 2010 IP requirements.

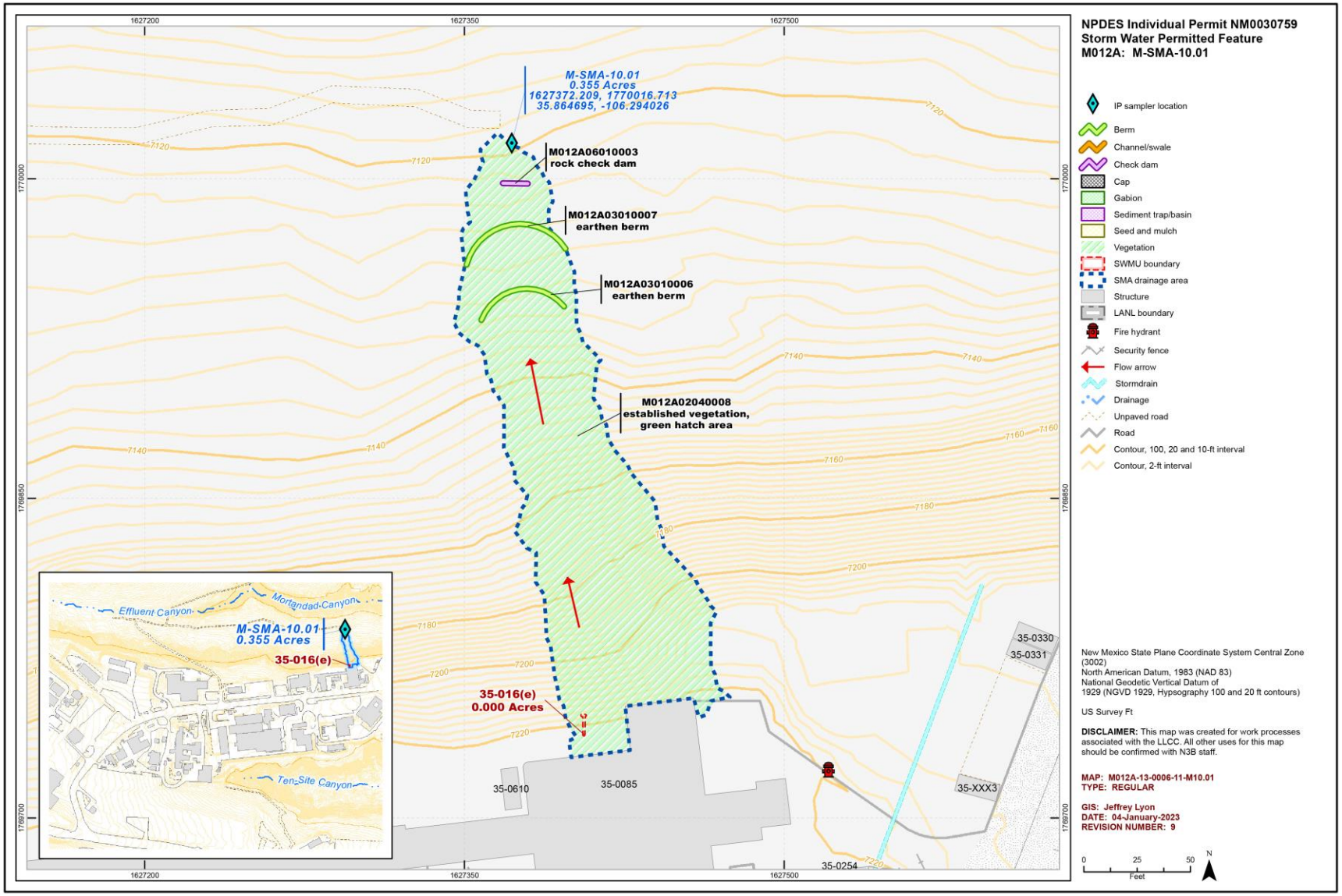


Figure 98-1 M-SMA-10.01 location map

99.0 M-SMA-10.3: SWMU 35-016(i) and AOC 35-014(e2)

Two historical industrial activity areas, Sites 35-016(i) and 35-014(e2), are associated with M-SMA-10.3 (permitted feature M013). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

99.1 Site Descriptions

35-014(e2) (no date)

AOC 35-014(e2) is the site of a former oil spill at TA-35, which originated from overflows of a gunite-lined, surface waste-oil impoundment used to store waste dielectric oil in the early 1980s. When the impoundment was operative, the oil was periodically pumped out of the impoundment and recycled. The impoundment was drained in 1988 and decommissioned in 1989. Documented releases from the impoundment consisted of oil spills. Soil samples from oil-stained areas showed detectable PCB concentrations.

35-016(i) (no date)

SWMU 35-016(i) is a stormwater outfall that originates from stormwater drains south of building 35-85 along Pecos Drive. This outfall consists of an 18-in. CMP that discharges to Mortandad Canyon and was installed around 1977 when building 35-85 was constructed. The area below the outfall also receives surface runoff from AOC 35-014(e2), and may have provided a pathway for oil spills associated with the former waste-oil impoundment.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 99-1.

Table 99-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-014(e2)	Soil contamination associated with overflows from waste oil impoundment	PCBs
35-016(i)	Storm drain and outfall	No known POCs

99.2 Control Measures

All active control measures in use at M-SMA-10.3 are listed in Table 99-2. Their locations are shown on the project map (Figure 99-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 99-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01302040014	Established Vegetation	-	X	X	-	B	4-30-2013
M01303010012	Earthen Berm	-	X	-	X	CB	3-23-2011
M01303100013	Gravel Bags	X	-	-	X	CB	4-4-2011
M01306010017	Rock Check Dam	-	X	-	X	B	8-25-2014
M01306010018	Rock Check Dam	-	X	-	X	B	8-25-2014
M01306010020	Rock Check Dam	-	X	-	X	B	8-26-2019
M01306010021	Rock Check Dam	-	X	-	X	B	8-26-2019
M01308020019	Rock Cap	X	-	X	-	B	7-12-2017

99.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-10.3 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 99-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 99-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93151[a,b]	6-25-2022	0.31	6-29-2022	4	Yes
	6-27-2022	0.43		2	Yes
BMP-94263[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

99.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 30 and August 19, 2011. Analytical results from these samples yielded TAL exceedances for aluminum (2500 µg/L and 873 µg/L), copper (4.7 µg/L), gross-alpha activity (27.4 µg/L), PCB concentrations (2 ng/L and 10 ng/L), and zinc (55 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Stormwater monitoring was not conducted at M-SMA-10.3 in 2022 under the 2010 IP requirements.

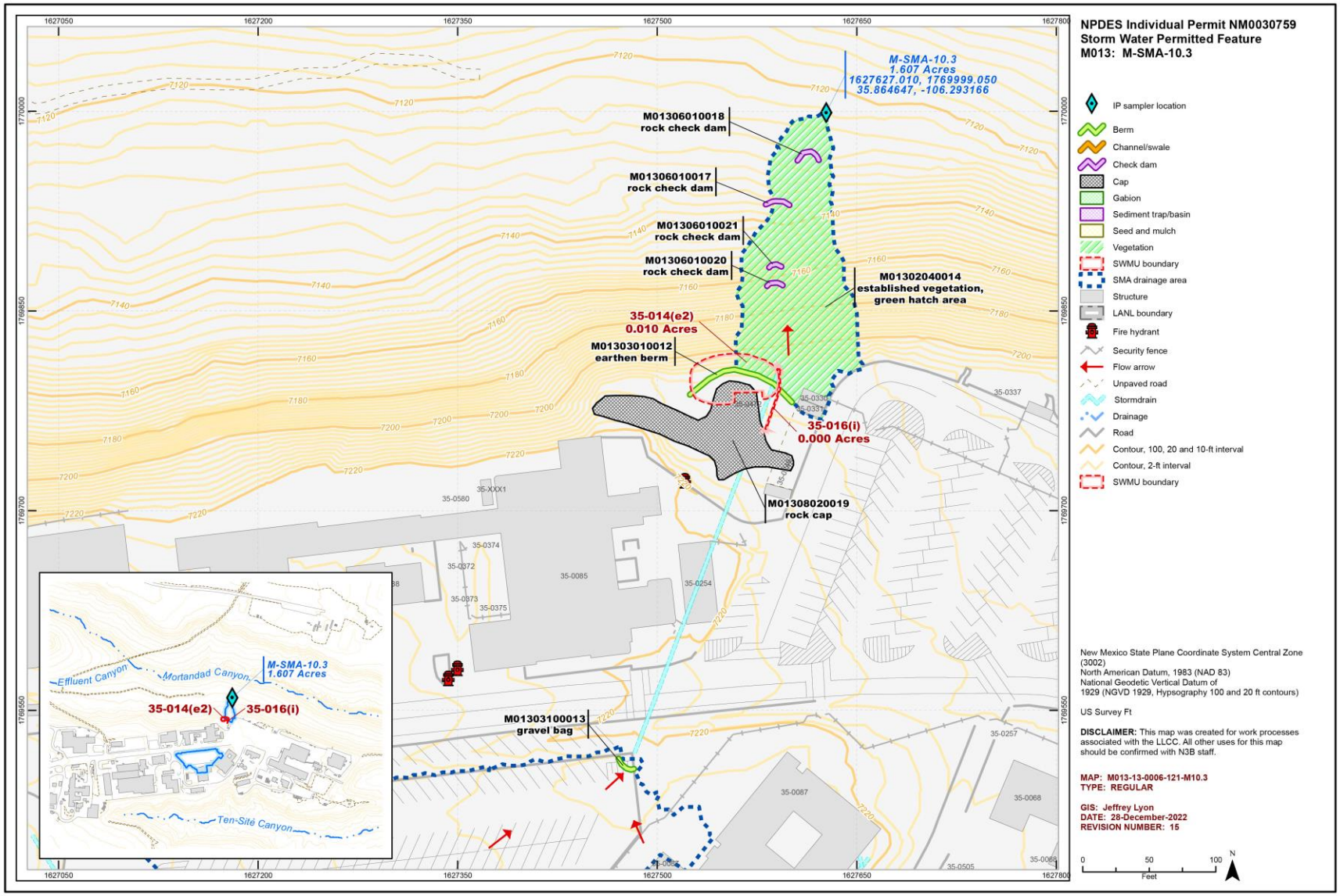


Figure 99-1 M-SMA-10.3 location map

100.0 M-SMA-11.1: SWMU 35-016(o)

One historical industrial activity area, Site 35-016(o), is associated with M-SMA-11.1 (permitted feature M014). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

100.1 Site Descriptions

35-016(o) (no date)

SWMU 35-016(o) is an active stormwater system established in 1951 to collect and manage stormwater runoff from the first laboratory and office building (35-02) constructed at TA-35. The three CI storm drainlines channel stormwater to three outfalls located on the east side of the mesa, and discharge to the south slope of Mortandad Canyon, approximately 20 ft below the mesa edge. Effluent from floor drains in building 35-2 may have been discharged to this storm drain system.

In addition, overflow from the septic system designated as SWMU 35-009(c) was discharged into Mortandad Canyon from two outfalls, located at the east and west ends of septic system leach fields; the outfall at the east end of the leach field coincides with one of the SWMU 35-016(o) drainage channels. The associated septic system [SWMU 35-009(c)] was decommissioned in 1992 and underwent a VCA in 1996.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 100-1.

Table 100-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(o)	Storm drains and outfalls	PCBs, inorganic and organic chemicals, radionuclides

100.2 Control Measures

All active control measures in use at M-SMA-11.1 are listed in Table 100-2. Their locations are shown on the project map (Figure 100-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 100-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01402040008	Established Vegetation	-	X	X	-	B	4-30-2013
M01403090005	Curbing	X	-	-	X	CB	6-1-2009
M01403100010	Gravel Bags	X	-	-	X	B	10-20-2015
M01404060001	Riprap	X	-	X	-	CB	1-1-2000
M01406020006	Log Check Dam	-	X	-	X	CB	6-15-2010

100.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-11.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 100-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 100-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93152[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94264[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

100.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at M-SMA-11.1. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at M-SMA-11.1 under the 2010 IP requirements from March 25 through November 3, 2022, resulting in a monitoring season of 224 days. Five inspections were performed during the monitoring period and are summarized in Table 100-4.

Rain gage RG200.5 recorded 28 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 100-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91671	4-18-2022	No	None	None
SMPLR-92059	6-29-2022	No	6-17-2022	0.05/0.14
			6-18-2022	0.09/0.21
			6-19-2022	0.24/0.74
			6-21-2022	0.07/0.14
			6-22-2022	0.1/0.71
			6-25-2022	0.31/1.38
			6-26-2022	0.18/1.34
			6-27-2022	0.43/0.48

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93507	8-12-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022	0.19/0.19 0.07/0.17 0.14/0.15 0.36/0.44 0.3/0.4 0.07/0.23 0.98/1.11 0.11/0.19 0.74/1.56 0.26/0.67 0.2/0.2 0.13/0.13
SMPLR-95424	9-23-2022	No	8-16-2022 8-20-2022 8-23-2022	0.22/0.26 0.07/0.37 0.3/0.3
SMPLR-96079	11-3-2022	No	10-3-2022 10-8-2022 10-15-2022 10-16-2022 10-17-2022	0.16/0.17 0.11/0.11 0.08/0.33 0.04/0.2 0.07/0.15

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

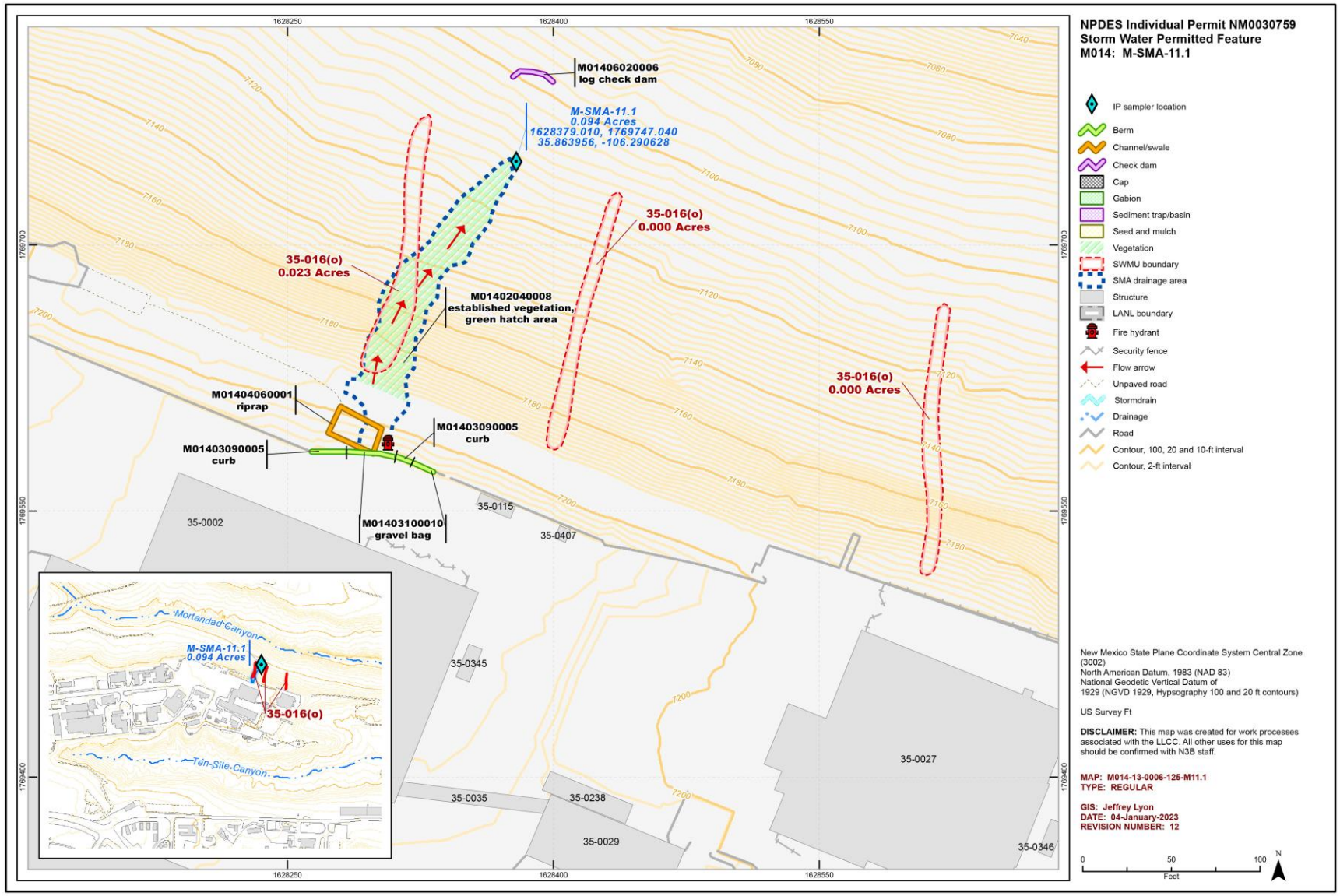


Figure 100-1 M-SMA-11.1 location map

101.0 M-SMA-12: SWMU 35-016(p)

One historical industrial activity area, Site 35-016(p) is associated with M-SMA-12 (permitted feature M015). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

101.1 Site Descriptions

35-016(p) (no date)

SWMU 35-016(p) is an active stormwater system that has handled stormwater runoff from the roof of the Nuclear Safeguards Research Building (35-27) since it was constructed in 1964. The north and east sides of building 35-27 are equipped with 6-in.-diameter roof leaders that direct roof runoff into CMP storm drains. The storm drains connect to a storm-drain manhole located approximately 25 ft northeast of the northeast corner of building 35-27. An 18-in. CMP storm drain originates at this manhole and extends northward toward the edge of Ten Site Mesa. The outfall is located 40 ft below the mesa edge on the south slope of Mortandad Canyon, approximately 60 ft north of the security fence around building 35-27.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 101-1.

Table 101-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(p)	Outfall from building 35-27	No known POCs

101.2 Control Measures

All active control measures in use at M-SMA-12 are listed in Table 101-2. Their locations are shown on the project map (Figure 101-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 101-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01502040008	Established Vegetation	-	X	X	-	B	4-30-2013
M01503090010	Curbing	X	-	-	X	B	12-4-2017
M01506020001	Log Check Dam	-	X	-	X	CB	2-27-2006
M01506020006	Log Check Dam	-	X	-	X	CB	2-23-2011
M01506020007	Log Check Dam	-	X	-	X	CB	2-23-2011

101.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at M-SMA-12 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 101-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 101-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93153[a,b]	6-25-2022	0.31	7-8-2022	13	Yes
	6-27-2022	0.43		11	Yes
BMP-94265[b]	7-20-2022	0.36	8-1-2022	12	Yes
	7-21-2022	0.3		11	Yes
	7-27-2022	0.98		5	Yes
	7-30-2022	0.74		2	Yes
	7-31-2022	0.26		1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

101.4 Stormwater Monitoring

Following installation of baseline controls, a baseline stormwater sample was collected on July 7, 2015. Analytical results from this sample yielded TAL exceedances for aluminum (1510 µg/L) and PCB concentration (4.27 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2015, NPDES Permit No. NM0030759" (LANL 2016, 601240).

Stormwater monitoring was not conducted at M-SMA-12 in 2022 under the 2010 IP requirements.

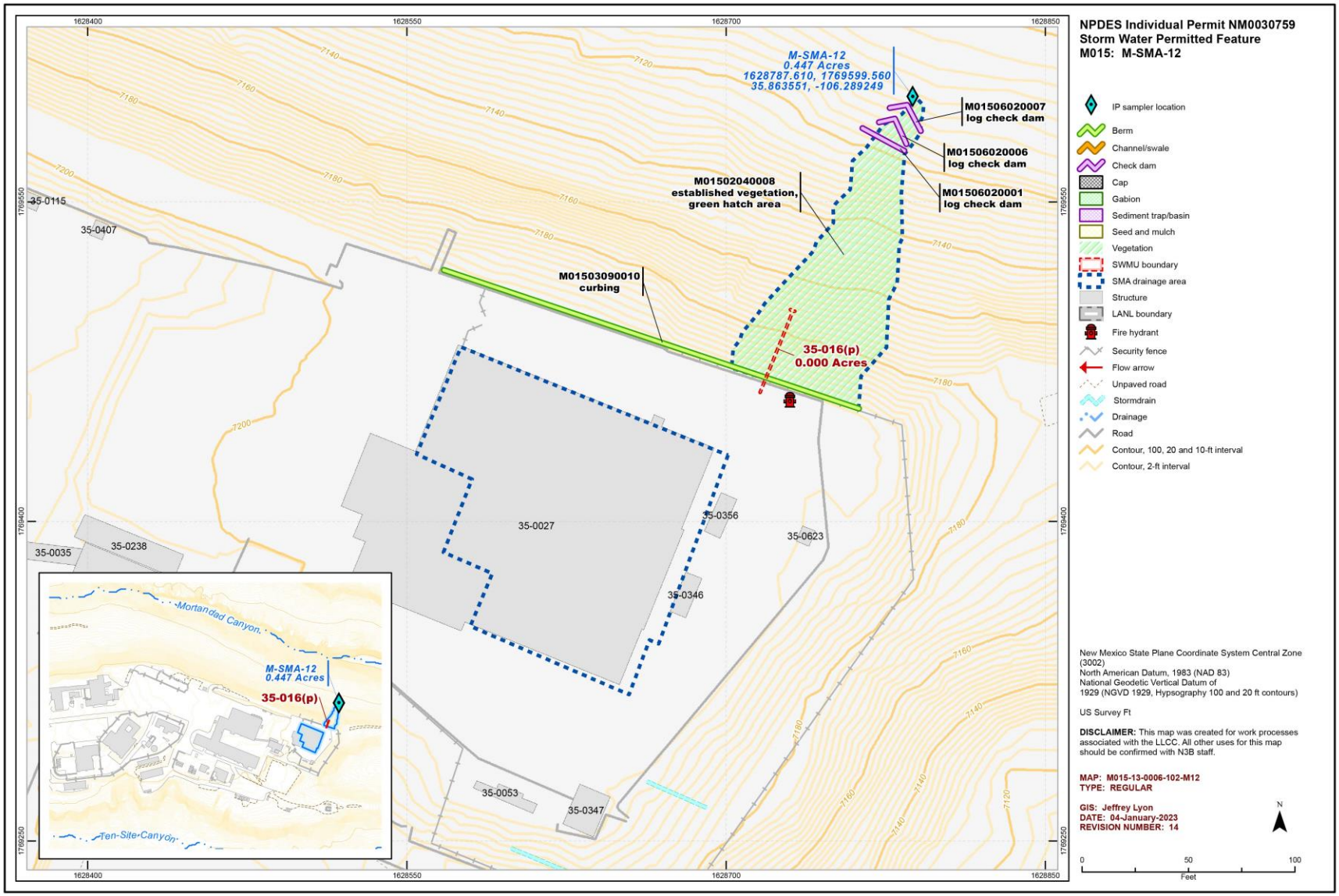


Figure 101-1 M-SMA-12 location map

102.0 M-SMA-12.5: SWMUs 05-005(b) and 05-006(c)

Two historical industrial activity areas, Sites 05-005(b) and 05-006(c), are associated with M-SMA-12.5 (permitted feature M016). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

102.1 Site Descriptions

05-005(b) (6/5/2019)

SWMU 05-005(b) is a former outfall and associated outlet drainline that served former building 05-05 [SWMU 05-006(c)] at TA-05. The outfall was located on the edge of the canyon, approximately 80 ft south of building 05-05. Former building 05-05 [SWMU 05-006(c) was used as a shop, a calibration facility, and as a photographic darkroom from 1944 to 1947, to process photographs of experiments conducted at the TA-05 firing sites. In 1952, building 05-05 was used to calibrate high-range radiation meters. A 1959 memorandum indicates that this structure was contaminated with HE, as does a 1959 list generated by the H-3 Group. Potential soil contamination associated with SWMU 05-006(c) was reported to also include uranium. The building was operational from about 1944 to 1959, and was destroyed by intentional burning in May 1960.

The outfall was identified during a 1987 ER Program site reconnaissance, when a capped drainline was found at the former location of building 05-05 [SWMU 05-006(c)]. The drainline, measuring about 18 in. long, was removed along with building debris at SWMU 05-006(c). A drainage channel that collects most of the runoff from the site is present at the edge of the mesa.

05-006(c) (6/5/2019)

SWMU 05-006(c) is an area of potentially-contaminated soil associated with the location of former building 05-05 at TA-05. The shop area in former building 05-05 was a 16-ft^2 structure with a 6-ft-wide × 9-ft-long darkroom. The building was operational from about 1944 to 1959. The structure was originally used to support firing-site activities, including processing photographs of experiments conducted at the TA-05 firing sites. In 1952, J Division temporarily used the building to calibrate high-range radiation meters. A 1959 memorandum indicates that this structure was contaminated with HE, as does a 1959 list generated by the H-3 Group. Potential soil contamination associated with SWMU 05-006(c) was reported to also include uranium. Building 05-05 was destroyed by intentional burning on March 5, 1960.

During the 2011 investigation activities, a small amount of burned debris (charred wood, melted glass, and metal) was removed from the former location of building 05-05. An 18-in.-long capped pipe potentially associated with SWMU 05-005(b) was also removed.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 102-1.

Table 102-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
05-005(b)	Former outfall	Silver, cyanide
05-006(c)	Area of potential soil contamination	Silver, cyanide, HE, uranium

102.2 Control Measures

All active control measures in use at M-SMA-12.5 are listed in Table 102-2. Their locations are shown on the project map (Figure 102-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 102-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01601010011	Seed and Wood Mulch	-	-	X	-	B	6-15-2011
M01602040012	Established Vegetation	-	X	X	-	B	5-1-2013
M01603010009	Earthen Berm	X	-	-	X	B	6-15-2011
M01603010010	Earthen Berm	-	X	-	X	B	6-15-2011
M01603100013	Gravel Bags	X	-	-	X	B	8-28-2017

102.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-12.5 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 102-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 102-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93154[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94067	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94475[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95378	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95483	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

102.4 Stormwater Monitoring

Following installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2019. Analytical results from this sample yielded exceedances for gross-alpha activity (217 pCi/L) and selenium (12.2 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019" (N3B 2020, 700767).

Stormwater monitoring was not conducted at M-SMA-12.5 in 2022 under the 2010 IP requirements.

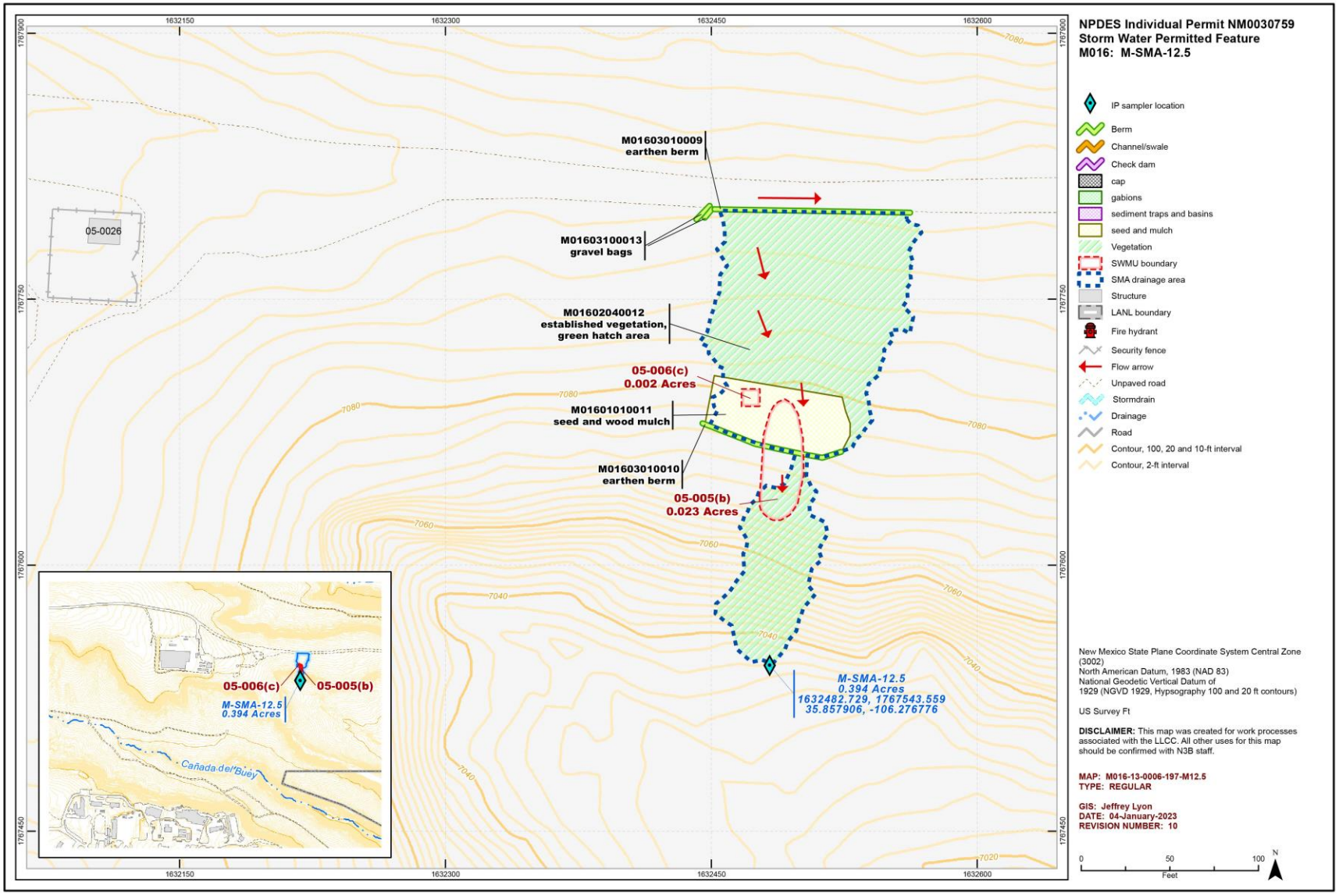


Figure 102-1 M-SMA-12.5 location map

103.0 M-SMA-12.6: SWMU 05-004

One historical industrial activity area, Site 05-004, is associated with M-SMA-12.6 (permitted feature M017). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

103.1 Site Descriptions

05-004 (6/5/2019)

SWMU 05-004 is a former industrial septic system that served former building 05-01 at the west end of TA-05 near the edge of Mortandad Canyon. The septic system consisted of a reinforced concrete septic tank (former structure 05-13) that measured 5 ft × 5 ft × 7 ft deep, associated inlet and outlet drainlines, and an outfall discharging south into an unnamed tributary of Mortandad Canyon. The system was installed in May 1948 to serve building 05-01 (a former laboratory), and received industrial waste from laboratory building 05-01 until 1949. A 1952 memorandum states that the septic system was no longer needed to support use of building 05-01, and the structure was being returned to Engineering Division for disposition. The septic system was decommissioned and abandoned in place in December 1959. The types of materials used in building 05-01 are not known, but the septic tank was suspected of being contaminated with acid.

During the 1985 LASCP, building 05-01 was removed. The septic tank and associated drainlines had been removed prior to the 1985 LASCP activities, which was confirmed during re-excavation of the area. The outfall area is a 2-ft-wide by 1-ft-deep trench cut into the tuff located at the edge of the mesa.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 103-1.

Table 103-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
05-004	Former septic system	Metals and organic chemicals

103.2 Control Measures

All active control measures in use at M-SMA-12.6 are listed in Table 103-2. Their locations are shown on the project map (Figure 103-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 103-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01701010013	Seed and Wood Mulch	-	-	X	-	B	8-15-2012
M01702040014	Established Vegetation	-	X	X	-	B	5-1-2013
M01703010010	Earthen Berm	X	-	-	X	B	6-15-2011

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01703020005	Base Course Berm	X	-	-	X	CB	6-8-2010
M01703020006	Base Course Berm	X	-	-	X	CB	6-8-2010
M01703020007	Base Course Berm	X	-	-	X	CB	6-8-2010
M01703060016	Straw Wattle	-	X	-	X	B	9-25-2019
M01706010008	Rock Check Dam	-	X	-	X	CB	6-8-2010

103.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-12.6 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 103-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 103-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93155[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94068	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94476[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95379	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95484	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

103.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (19.2 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at M-SMA-12.6 in 2022 under the 2010 IP requirements.

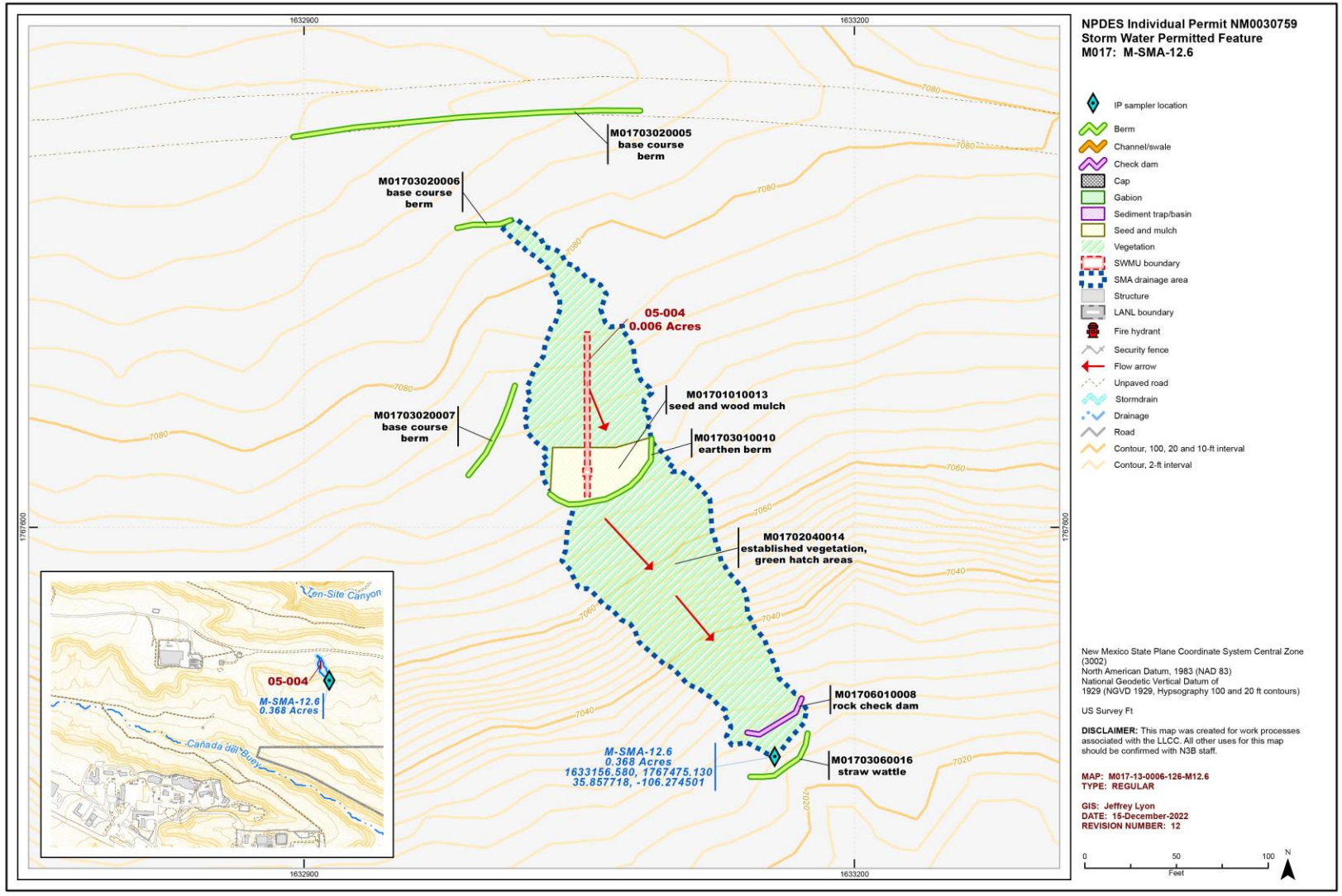


Figure 103-1 M-SMA-12.6 location map

104.0 M-SMA-12.7: SWMUs 05-002, 05-005(a), 05-006(b), and 05-006(e)

Four historical industrial activity areas, Sites 05-002, 05-005(a), 05-006(b), and 05-006(e), are associated with M-SMA-12.7 (permitted feature M018). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

104.1 Site Descriptions

05-002 (no date)

SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h) are associated with the historical Beta Site, established in 1944 as an adjunct test-firing site to Alpha Site [SWMUs 04-001, 04-002, and 04-003(b)] for Manhattan Project personnel. SWMU 05-002 is a canyon-side disposal site associated with firing pits 1 and 2 [SWMUs 05-001(a) and 05-001(b)]. This Site was used extensively for 3 yr. As debris from experimental shots at the firing pits accumulated, a bulldozer was used to push the debris northward to the edge of Mortandad Canyon. The debris zone extended to the canyon bottom.

A 1976 radiation study showed contamination at this Site. During 1985 LASCP activities, visible surface shot debris was removed. Waste potentially disposed of at this Site included shot debris, cables, wire, and trace amounts of lead, uranium, beryllium, cadmium, and uranium-contaminated aluminum or steel. During the 1985 LASCP cleanup effort, all debris present at the Site was removed from SWMU 05-002.

SWMUs 05-001(a), 05-001(b) and 05-002 were investigated together during the 1995 Phase I RFI, and later in 2004. Based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist for the residential scenario at SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h), and no potential ecological risk was found for any receptor.

05-005(a) (no date)

SWMUs 05-005(a), 05-006(b), and 05-006(e) are associated with the historical Beta Site, established in 1944 as an adjunct test-firing site to Alpha Site [SWMUs 04-001, 04-002, and 04-003(b)] for Manhattan Project personnel. SWMU 05-005(a) was a French drain that ran north from the firing site control building (05-4) toward Mortandad Canyon. The drain was constructed in 1945 and became inactive along with the control building in 1959. The control building was removed in 1960; however, the drainline was not removed until 1985 during the LASCP.

Radioactive contamination associated with building 05-4 was detected during the 1985 LASCP; there is no record of a release of radionuclides or chemicals to the drainline. The entire area was razed when building 05-4 was removed in 1985. The associated SWMUs are no longer individually distinguishable.

After firing activities at Beta Site were halted in the late 1940s, other LANL groups used the site for various experiments involving radiation. In 1959, the experimental reactors Little Eva and Godiva operated at Beta Site. Beta Site officially ceased operations in 1959 but was used for periodic testing until the 1970s. Most of the 1985 D&D work revolved around a central area where DU contamination was detected. The area encompassed building 05-9, structures 05-7 and 05-15, and a platform.

05-006(b) (no date)

SWMUs 05-005(a), 05-006(b), and 05-006(e) are associated with the historical Beta Site, established in 1944 as an adjunct test-firing site to Alpha Site [SWMUs 04-001, 04-002, and 04-003(b)] for Manhattan Project personnel. SWMU 05-006(b) is an area of potentially contaminated soil at the location of former control building 05-4. After firing activities were halted in the late 1940s, other LANL groups used the Site for various experiments involving radiation. In 1959, the experimental reactors Little Eva and Godiva operated at Beta Site. Beta Site officially ceased operations in 1959 but was used for periodic testing until the 1970s.

During 1985 LASCP D&D activities at TA-05, uranium-contaminated soil was encountered at the former site of building 05-4. The entire area was razed when building 05-4 was removed in 1985. As a consequence, the associated SWMUs are no longer individually distinguishable. Most of the 1985 D&D work revolved around a central area where DU contamination was detected. The area encompassed building 05-9, structures 05-7 and 05-15, and a platform.

05-006(e) (no date)

SWMUs 05-005(a), 05-006(b), and 05-006(e) are associated with the historical Beta Site, established in 1944 as an adjunct test-firing site to Alpha Site [SWMUs 04-001, 04-002, and 04-003(b)] for Manhattan Project personnel. SWMU 05-006(e) is an area of potentially contaminated soil at TA-05 associated with a former platform (structure 05-19) next to building 05-04. The platform was a 6-ft × 6-ft wood structure that was mounted 26 ft above the ground on two 45-ft-tall wood poles. It was built in about 1953 and left in place when the site ceased operations in 1959.

After firing activities were halted in the late 1940s, other LANL groups used the site for various experiments involving radiation. In 1959, the experimental reactors Little Eva and Godiva operated at Beta Site. Beta Site officially ceased operations in 1959 but was used for periodic testing until the 1970s. The entire area was razed when building 05-04 was removed in 1985. As a consequence, the associated SWMUs are no longer individually distinguishable.

Most of the 1985 D&D work revolved around a central area where DU contamination was detected. The area encompassed building 05-9, structures 05 7 and 05-15, and a platform not included in these SWMUs. TA-05 is currently used as a security buffer zone and contains physical support facilities, such as an electrical substation, test wells, several archeological sites, and environmental monitoring areas.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 104-1.

Table 104-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
05-002	Surface disposal area	Aluminum, beryllium, cadmium, copper, lead, HE, uranium, DU
05-005(a)	Surface disposal area	Uranium, DU
05-006(b)	Potential soil contamination from former control building	Uranium, DU
05-006(e)	Area of potential soil contamination	Uranium, DU

104.2 Control Measures

All active control measures in use at M-SMA-12.7 are listed in Table 104-2. Their locations are shown on the project map (Figure 104-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 104-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01802040012	Established Vegetation	-	X	X	-	B	5-1-2013
M01803120017	Rock Berm	X	-	-	X	B	12-20-2016
M01803140014	Coir Log	X	-	-	X	B	12-20-2016
M01803140015	Coir Log	X	-	-	X	B	12-20-2016
M01803140016	Coir Log	X	-	-	X	B	12-20-2016
M01803160013	Wood Chip Wattle	X	-	-	X	B	7-14-2015
M01806020009	Log Check Dam	-	X	-	X	CB	6-8-2010

104.3 Inspections and Maintenance

RG203 recorded nine storm events at M-SMA-12.7 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 104-3. All other control-measure inspections conducted at the SMA are summarized in Table 104-4. No maintenance activities or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 104-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93156[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94069	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94477[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95380	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95485	8-16-2022	0.66	8-17-2022	1	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 104-4 Maintenance Activities Conducted During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance inspection for M-SMA-12.7. MEX sample collected 8/16/22. Total Aluminum (43x), Gross Alpha (18x), Mercury (1.4x), Hexachlorobenzene (4x).	COMP-96393	12-6-2022	No immediate actions needed. Enhanced control measure installation is planned for Spring 2023.

104.4 Stormwater Monitoring

Stormwater monitoring was conducted at M-SMA-12.7 under the 2010 IP requirements from March 21 through November 9, 2022, resulting in a monitoring season of 234 days. Nine inspections were performed during the monitoring period and are summarized in Table 104-5. Rain gage RG203 recorded 31 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A baseline confirmation-monitoring sample was collected on August 16, 2022. Analytical results under the 2010 permit requirements from this sample yielded TAL exceedances for gross-alpha activity (264 pCi/L) and mercury (1.04 µg/L). Complete analytical results from that sample are presented in Appendix B of the Overview.

The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 104-5 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91586	4-15-2022	No	None	None
SMPLR-92027	5-20-2022	No	None	None
SMPLR-92504	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.3 0.1/0.21 0.11/0.35 0.1/0.18 0.1/0.67 0.38/1.65 0.19/1.33 0.31/0.37
SMPLR-93505	7-29-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022[c]	0.24/0.59 0.1/0.18 0.29/0.3 0.14/0.26 0.59/1.19 1/1.15
SMPLR-94829	8-16-2022	No	7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022	0.09/0.27 0.78/1.25 0.3/0.59 0.43/0.49 0.63/0.67

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-95467	8-17-2022	Yes	8-16-2022	0.66/0.98
SMPLR-95518	9-12-2022	No	8-18-2022 8-19-2022 8-20-2022 8-23-2022 9-9-2022	0.07/0.01 0.13/0.23 0.05/0.31 0.48/0.49 0.11/0.19
SMPLR-95863	10-5-2022	No	9-22-2022 10-2-2022 10-3-2022 10-4-2022	0.1/0.25 0.07/0.26 0.25/0.35 0.1/0.21
SMPLR-96276	11-9-2022	No	10-15-2022 10-16-2022	0.13/0.71 0.05/0.16

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

[c] The sampler had period(s) of inoperability since previous inspection. See CSR comment in the SDPPP Overview Appendix E for more details.

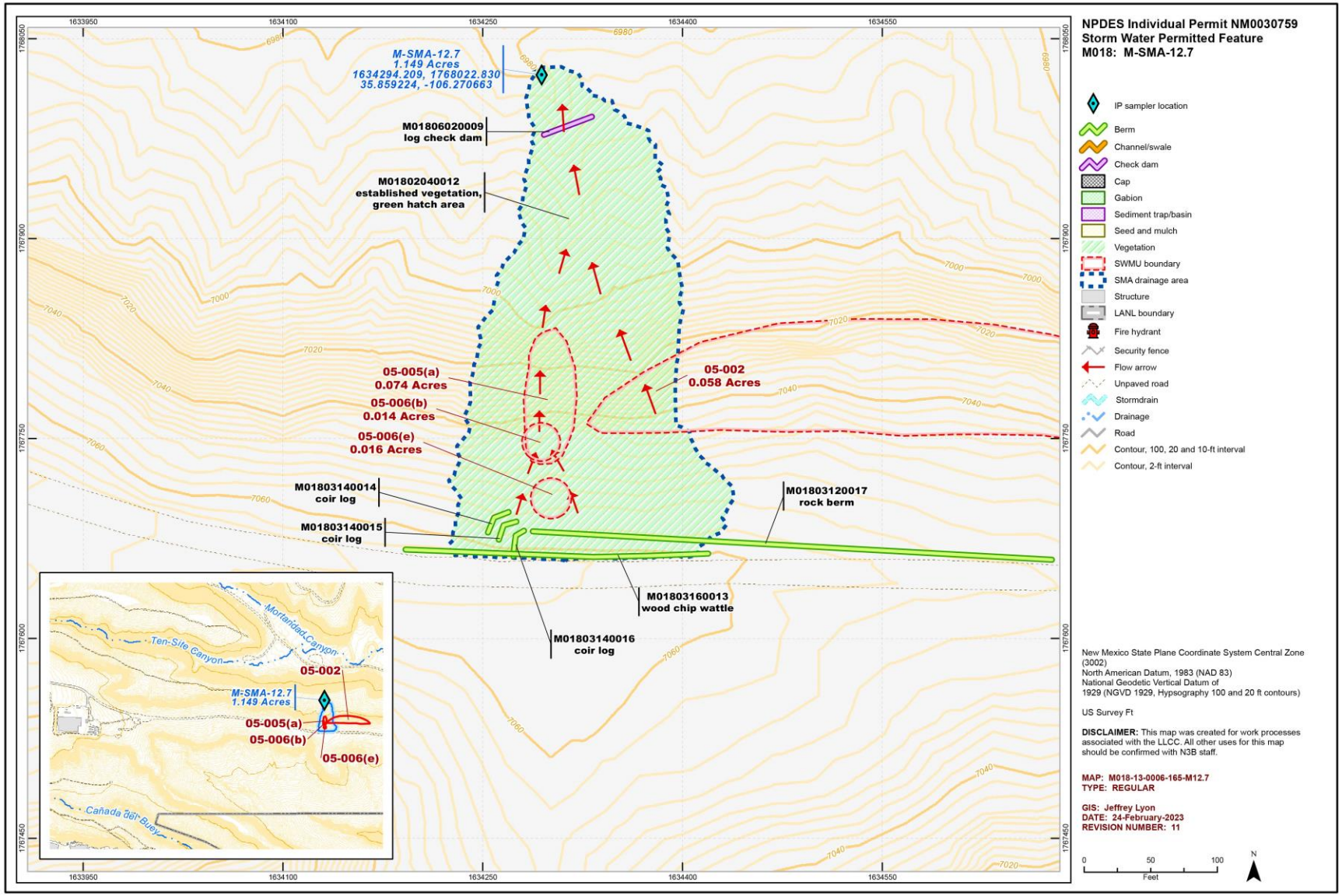


Figure 104-1 M-SMA-12.7 location map

105.0 M-SMA-12.8: SWMUs 05-001(a) and 05-002

Two historical industrial activity areas, Sites 05-001(a) and 05-002, are associated with M-SMA-12.8 (permitted feature M019). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

105.1 Site Descriptions

05-001(a) (no date)

SWMU 05-001(a) is a former steel barricade firing pit, designated No. 1 (structure 05-07). The site was used for implosion tests from 1944 to 1947. During the 1985 LASCP cleanup effort at structure 05-07, steel plates around the pit, a control box, and a wood platform were removed. No contamination was detected on the surface of the structures or in the soil directly beneath the firing pit. The soil in the area was contaminated in several spots; consequently, structure 05-7 and other material were taken to TA-54 for disposal. The pit was cleaned of all debris and backfilled.

SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h) are associated with the historical Beta Site. SWMUs 05-001(a), 05-001(b), and 05-002 were investigated together during the 1995 Phase I RFI, and later in 2004. Based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist for the residential scenario at SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h), and no potential ecological risk was found for any receptor.

05-002 (no date)

SWMU 05-002 is a canyon-side disposal site associated with firing pits 1 and 2 [SWMUs 05-001(a) and 05-001(b)]. This Site was used extensively for 3 yr. As debris from experimental shots at the firing pits accumulated, a bulldozer was used to push the debris northward to the edge of Mortandad Canyon. The debris zone extended to the canyon bottom.

A 1976 radiation study showed contamination at this Site. Waste potentially disposed of at this Site included shot debris, cables, wire, and trace amounts of lead, uranium, beryllium, cadmium, and uranium-contaminated aluminum or steel. During the 1985 LASCP cleanup effort, all debris present at the Site was removed from SWMU 05-002.

SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h) are associated with the historical Beta Site. SWMUs 05-001(a), 05-001(b) and 05-002 were investigated together during the 1995 Phase I RFI, and later in 2004. Based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist for the residential scenario at SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h), and no potential ecological risk was found for any receptor.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 105-1.

Table 105-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
05-001(a)	Firing pit	Aluminum, beryllium, cadmium, copper, lead, HE, uranium, DU
05-002	Surface disposal area	Aluminum, beryllium, cadmium, copper, lead, HE, uranium, DU

105.2 Control Measures

All active control measures in use at M-SMA-12.8 are listed in Table 105-2. Their locations are shown on the project map (Figure 105-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 105-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M01902040010	Established Vegetation	-	X	X	-	B	5-1-2013
M01903060009	Straw Wattle	-	X	-	X	B	8-13-2012
M01903120012	Rock Berm	X	-	-	X	B	12-20-2016
M01903140013	Coir Log	-	X	-	X	B	9-25-2019
M01903160011	Wood Chip Wattle	X	-	-	X	B	7-14-2015

105.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-12.8 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 105-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 105-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93167[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94070	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94478[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95381	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95486	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

105.4 Stormwater Monitoring

Following installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2019. Analytical results from this sample yielded exceedances for aluminum (849 µg/L), gross-alpha activity (338 pCi/L), and selenium (7.07 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019" (N3B 2020, 700767).

Stormwater monitoring was not conducted at M-SMA-12.8 in 2022 under the 2010 IP requirements.

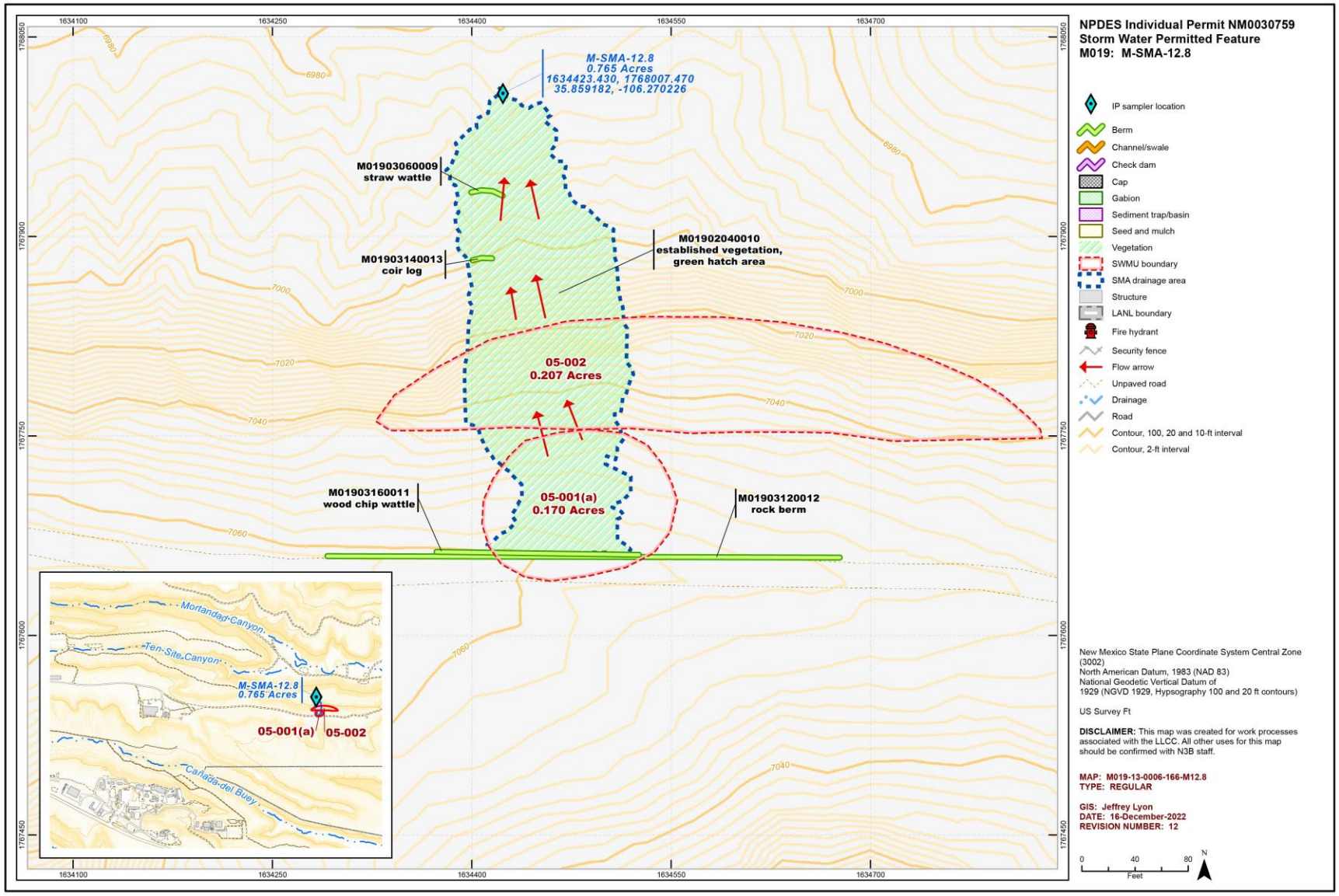


Figure 105-1 M-SMA-12.8 location map

106.0 M-SMA-12.9: SWMUs 05-001(b) and 05-002

Two historical industrial activity areas, Sites 05-001(b) and 05-002, are associated with M-SMA-12.9 (permitted feature M020). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

106.1 Site Descriptions

05-001(b) (no date)

SWMU 05-001(b) is a former steel barricade firing pit, designated No.2 (structure 05-15). The pit was constructed in 1944 and was taken out of service in 1959. Experimental shots were set up at the site and fired on open ground. As debris accumulated, a bulldozer cleared the pit area by pushing scrap and debris north to the edge of Mortandad Canyon. The shrapnel zone included the canyon sides, canyon bottom, and about 200 ft around the firing pits.

During 1985 D&D activities, the firing pit was removed, and uranium contamination was found in the soil to a depth of 15 ft. The area was decontaminated and backfilled with clean soil.

SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h) are associated with the historical Beta Site at TA-05. SWMUs 05-001(a), 05-001(b), and 05-002 were investigated together during the 1995 Phase I RFI, and later in 2004. Based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist for the residential scenario at SWMUs 05-001(a), 05-001(b), 05-002, and 05 006(h), and no potential ecological risk was found for any receptor.

05-002 (no date)

SWMU 05-002 is a canyon-side disposal site associated with firing pits 1 and 2 [SWMUs 05-001(a) and 05-001(b)]. This Site was used extensively for 3 yrs. As debris from experimental shots at the firing pits accumulated, a bulldozer was used to push the debris northward to the edge of Mortandad Canyon. The debris zone extended to the canyon bottom.

Waste potentially disposed of at this Site included shot debris, cables, wire, and trace amounts of lead, uranium, beryllium, cadmium, and uranium-contaminated aluminum or steel. A 1976 radiation study showed contamination. During the 1985 LASCP cleanup effort, all debris present at the Site was removed from SWMU 05-002.

SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h) are associated with the historical Beta Site. SWMUs 05-001(a), 05-001(b) and 05-002 were investigated together during the 1995 Phase I RFI and later in 2004. Based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist for the residential scenario at SWMUs 05-001(a), 05-001(b), 05-002, and 05-006(h), and no potential ecological risk was found for any receptor.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 106-1.

Table 106-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
05-001(b)	Firing pit	Aluminum, beryllium, cadmium, copper, lead, HE, uranium, DU
05-002	Surface disposal area	Aluminum, beryllium, cadmium, copper, lead, HE, uranium, DU

106.2 Control Measures

All active control measures in use at M-SMA-12.9 are listed in Table 106-2. Their locations are shown on the project map (Figure 106-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 106-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M02002040012	Established Vegetation	-	X	X	-	B	5-1-2013
M02003010008	Earthen Berm	X	-	-	X	B	7-29-2011
M02003120019	Rock Berm	X	-	-	X	B	4-22-2016
M02003140022	Coir Log	-	X	-	X	B	11-2-2017
M02003160014	Wood Chip Wattle	X	-	-	X	B	7-14-2015
M02006020013	Log Check Dam	-	X	X	-	B	5-1-2013

106.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-12.9 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 106-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 106-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93168[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94071	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94479[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95382	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95487	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

106.4 Stormwater Monitoring

Following installation of baseline control measures, a baseline stormwater sample was collected on July 20, 2015. Analytical results from this sample yielded TAL exceedances for copper (25.1 µg/L) and gross-alpha activity (276 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2015, NPDES Permit No. NM0030759" (LANL 2016, 601240).

Stormwater monitoring was not conducted at M-SMA-12.9 in 2022 under the 2010 IP requirements.

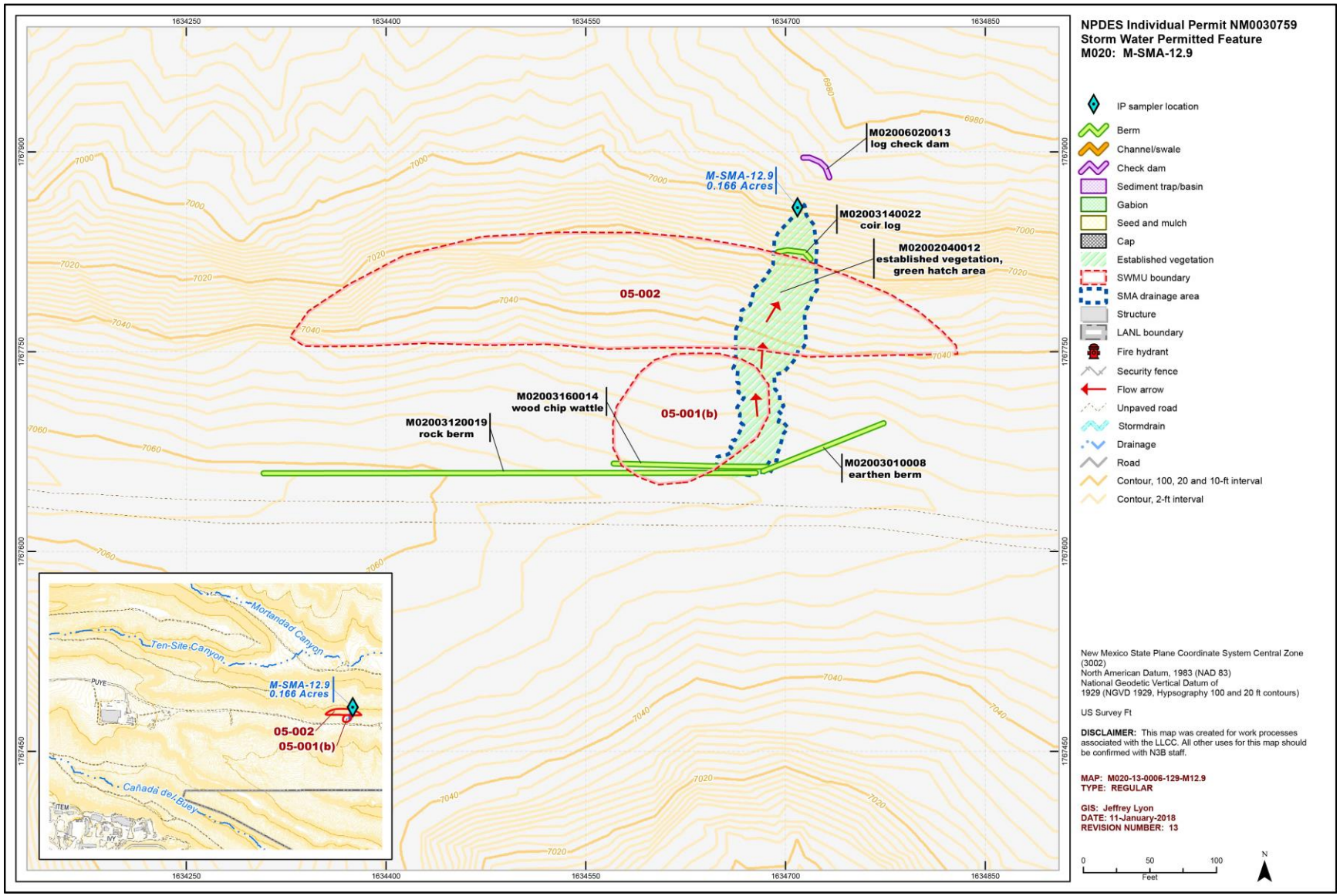


Figure 106-1 M-SMA-12.9 location map

107.0 M-SMA-12.92: SWMU 00-001

One historical industrial activity area, Site 00-001, is associated with M-SMA-12.92 (permitted feature M021). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

107.1 Site Descriptions

00-001 (no date)

SWMU 00-001 is the area of the historical and current sediment traps in Mortandad Canyon. The site is approximately 900 ft long × 200 ft wide within the Mortandad Canyon stream channel, downstream from and east of the confluence of Mortandad and Ten Site Canyons. The two original traps were built in 1976 with a capacity of approximately 20,000 gal. each. In 1980, a third trap was built with a capacity of approximately 225,000 gal.

Currently, trap 1, the most upstream, has a capacity of approximately 286,000 gal. Trap 2, the next trap downstream, has a current capacity of 628,000 gal., and trap 3, the downstream trap, has a current capacity of 287,000 gal. The sediment traps are approximately 1.5 mi downstream from the TA-50 RLWTF outfall, and about 1.4 mi upstream from, and west of, the LANL boundary.

The three traps were re-excavated in 1992 after they were filled following several storms. The excavated sediment was stockpiled next to the traps. Major maintenance of the sediment traps was performed as part of the post-Cerro Grande fire recovery work.

- Excavation of sediment trap 1 was conducted in July 2000. Approximately 384 yd^3 of soil from sediment trap 1 was excavated.
- Excavation of the soil piles north and adjacent to sediment trap 1 was completed in August 2000. Approximately 1308 yd^3 of soil from the piles were excavated.
- Excavation of sediment trap 3 was conducted in August 2000. Approximately 5040 yd^3 of soil from sediment trap 3 was excavated.

All soil excavated during the 2000 maintenance was transported to, and disposed of at, TA 54, Area G.

In July 2002, LANL requested and obtained NMED concurrence that the environmental media generated during this routine maintenance does not warrant management as F-listed hazardous wastes.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 107-1.

Table 107-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-001	Sediment traps	Metals, organic chemicals, radionuclides

107.2 Control Measures

All active control measures in use at M-SMA-12.92 are listed in Table 107-2. Their locations are shown on the project map (Figure 107-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 107-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M02102040005	Established Vegetation	-	X	X	-	B	5-1-2013
M02104060006	Riprap	X	-	X	-	B	1-9-2017
M02105010001	Sediment Trap	-	X	-	X	CB	4-1-2009
M02105010003	Sediment Trap	-	X	-	X	CB	4-1-2009
M02105010004	Sediment Trap	X	-	-	X	CB	4-1-2009
M02107010007	Gabion	X	-	-	X	B	1-9-2017

107.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-12.92 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 107-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 107-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93169[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-1-2022	6 4	Yes Yes
BMP-94072	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94480[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95383	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95488	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

107.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at M-SMA-12.92.

Stormwater monitoring was conducted at M-SMA-12.92 under the 2010 IP requirements from March 21 through November 9, 2022, resulting in a monitoring season of 234 days. Seven inspections were performed during the monitoring period and are summarized in Table 107-4. Rain gage R203 recorded 31 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 107-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91589	4-15-2022	No	None	None
SMPLR-92034	5-20-2022	No	None	None
SMPLR-92506	7-1-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.3 0.1/0.21 0.11/0.35 0.1/0.18 0.1/0.67 0.38/1.65 0.19/1.33 0.31/0.37
SMPLR-93621	8-15-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022	0.24/0.59 0.1/0.18 0.29/0.3 0.14/0.26 0.59/1.19 1/1.15 0.09/0.27 0.78/1.25 0.3/0.59 0.43/0.49 0.63/0.67
SMPLR-95461	9-27-2022	No	8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-23-2022 9-9-2022 9-22-2022	0.66/0.98 0.07/0.01 0.13/0.23 0.05/0.31 0.48/0.49 0.11/0.19 0.1/0.25
SMPLR-96168	10-5-2022	No	10-2-2022 10-3-2022 10-4-2022	0.07/0.26 0.25/0.35 0.1/0.21
SMPLR-96281	11-9-2022	No	10-15-2022 10-16-2022	0.13/0.71 0.05/0.16

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

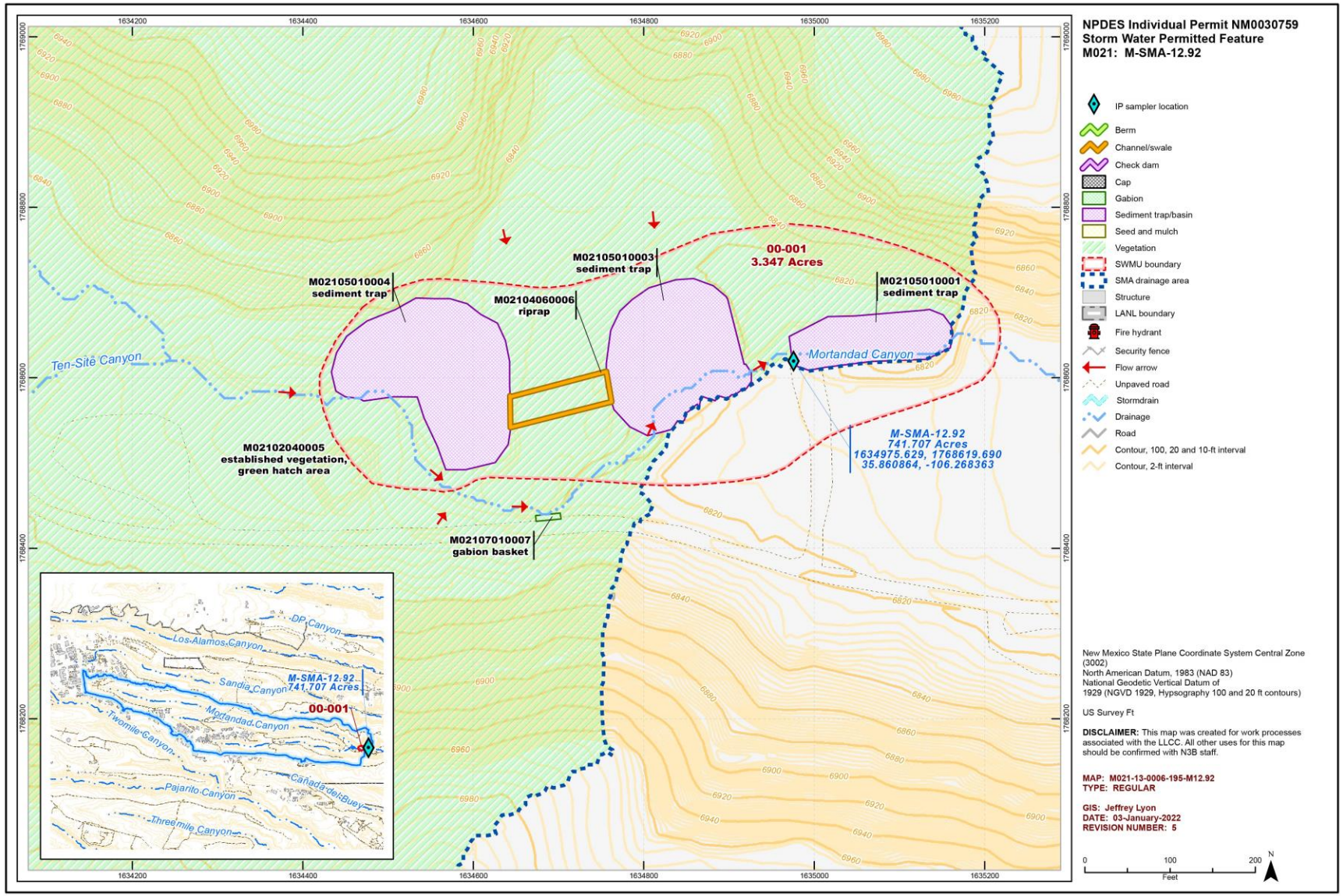


Figure 107-1 M-SMA-12.92 location map

108.0 M-SMA-13: AOC 05-001(c)

One historical industrial activity area, Site 05-001(c), is associated with M-SMA-13 (permitted feature M022). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

108.1 Site Descriptions

05-001(c) (no date)

AOC 05-001(c) is a former firing point designated as the larger Beta Far Point Site at TA-05, and is known only by references on maps and memoranda. It reportedly was located several hundred feet east of SWMU 05-001(b) [now part of Consolidated Unit 05-001(a)-99], but as reported in the 1990 SWMU Report, its exact location, dates of operation, and types of potential releases are not known.

Ultimately, Beta Far Point Site is believed to have been located 600 to 700 ft south-southeast of Firing Points 1 [SWMU 05-001(a)] and 2 [SWMU 05-001(b)], in Cañada del Buey off the toe of the south mesa, 20 to 30 ft below the mesa top. Two or three 2500-lb shots were detonated at the site during its period of operation. Shot debris consisted of cabling, tuballoy, steel, aluminum, and wood. The shot debris radius was estimated to be 100 to 200 yd from the firing point.

AOC 05-001(c) was investigated in 1995, and later as part of the Middle Mortandad/Ten Site Aggregate Area investigation in 2004 and 2005. The approved 2010 investigation report concluded that, based on the human-health risk-screening assessment results, no potential unacceptable risks or doses from COPCs exist at AOC 05-001(c). Additionally, no potential ecological risk was found for any receptor. All detected chemicals concentrations and radionuclides activities were below residential SSLs and SALs.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 108-1.

Table 108-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
05-001(c)	Firing site	Aluminum, barium, copper, iron, lead, HE, uranium

108.2 Control Measures

All active control measures in use at M-SMA-13 are listed in Table 108-2. Their locations are shown on the project map (Figure 108-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 108-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M02202040014	Established Vegetation	-	X	X	-	B	5-1-2013
M02203010013	Earthen Berm	X	-	-	X	B	7-28-2011
M02203020018	Base Course Berm	X	-	X	X	B	10-22-2020

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
M02204060019	Riprap	X	-	X	-	B	10-22-2020
M02206010008	Rock Check Dam	X	-	-	X	CB	11-30-2009
M02206010009	Rock Check Dam	X	-	-	X	CB	11-30-2009
M02206010010	Rock Check Dam	X	-	-	X	CB	11-30-2009
M02206020001	Log Check Dam	-	X	-	X	CB	2-27-2006
M02206020003	Log Check Dam	-	X	-	X	CB	10-15-2009
M02206020015	Log Check Dam	-	X	-	X	B	8-28-2017

108.3 Inspections and Maintenance

Rain gage RG203 recorded nine storm events at M-SMA-13 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 108-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 108-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93170[a,b]	6-25-2022 6-27-2022	0.38 0.31	7-6-2022	11 9	Yes Yes
BMP-94073	7-14-2022	0.29	7-26-2022	12	Yes
BMP-94481[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.59 1 0.78 0.3	8-8-2022	13 12 9 8	Yes Yes Yes Yes
BMP-95384	8-11-2022	0.63	8-16-2022	5	Yes
BMP-95489	8-16-2022	0.66	8-23-2022	7	Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

108.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded no TAL exceedances and the complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following resumption of baseline monitoring in 2020, a second baseline stormwater sample was collected on August 26, 2021. Analytical results from this sample yielded TAL exceedances for aluminum (890 µg/L), copper (9.21 µg/L), and gross-alpha activity (177 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2021" (N3B 2022, 701895).

Stormwater monitoring was not conducted at M-SMA-13 in 2022 under the 2010 IP requirements.

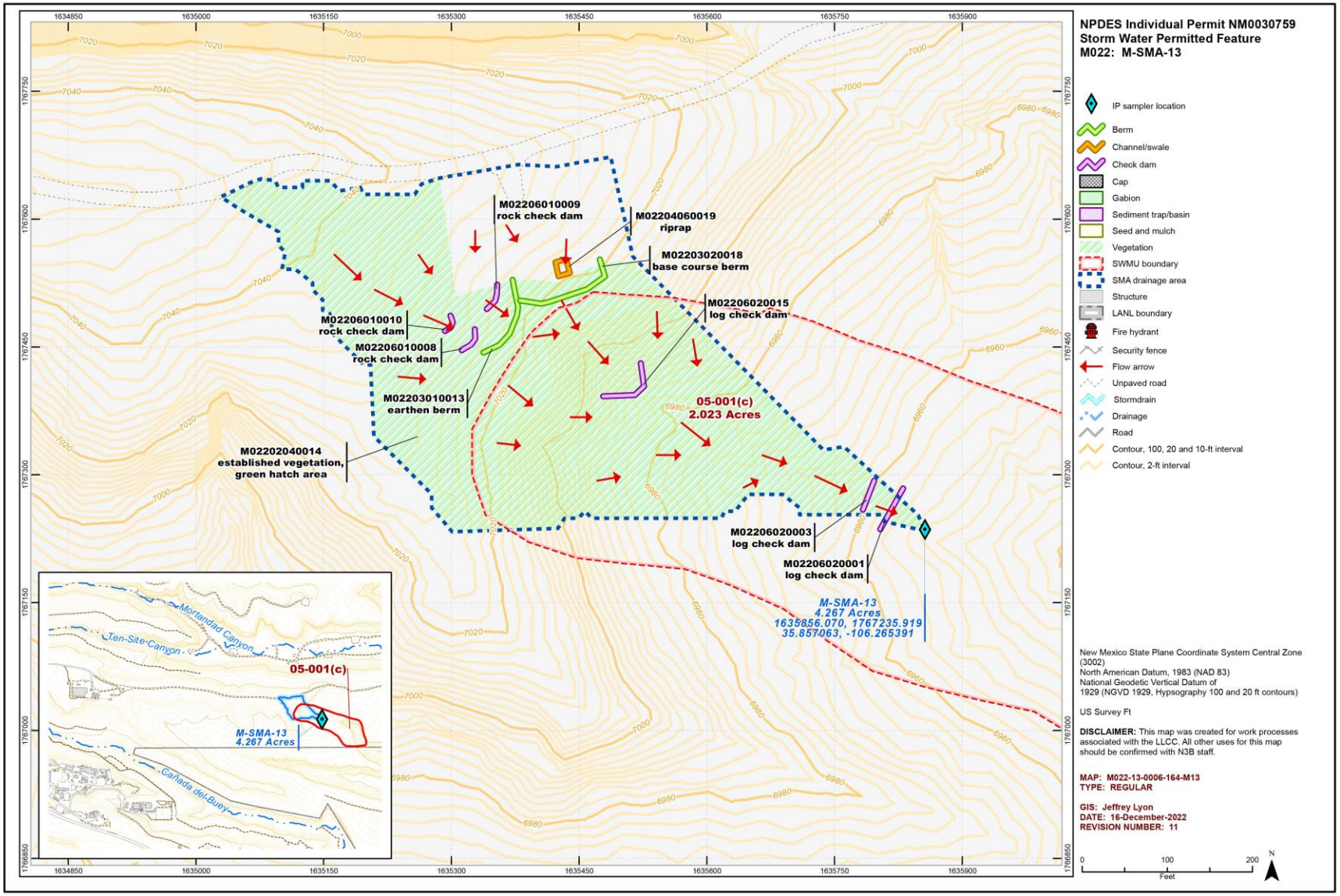


Figure 108-1 M-SMA-13 location map

109.0 Pratt-SMA-1.05: SWMUs 35-003(h), 35-003(p), 35-009(d), 35-014(b), 35-015(b), and AOCs 35-003(r), 35-016(l), and 35-018(a)

Eight historical industrial activity areas, Sites 35-003(h), 35-003(p), 35-003(r), 35-009(d), 35-014(b), 35-015(b), 35-016(l), and 35-018(a), are associated with Pratt-SMA-1.05 (permitted feature T001). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

109.1 Site Descriptions

35-003(h) (no date)

SWMU 35-003(h) is the former location of a concrete retention tank that was added to the TA-35 WWTP in 1961. The retention tank had dimensions of 8 ft × 12 ft × 10 ft deep, and was connected to buildings 35-10 and 35-41 by 4-in.-diameter stainless-steel underground pipes. The retention tank and associated piping were removed in February 1985 during LANL's RLW treatment consolidation project. During decommissioning, no leaks or discharges from the tank were documented. The tank and excavated soil were field-screened for radioactivity during removal; no radioactivity above background levels was detected.

35-003(p) (no date)

SWMU 35-003(p) is the location of the former air filter building (35-7). Radioactively-contaminated air from work areas in building 35-2 was filtered in building 35-7. The air filters were cleaned with tap water or wastewater from the TA-35 WWTP tank farm [SWMUs 35-003(a–c, e–h, m–o) and AOC 35-003(misc.)]; the wastewater was contaminated with strontium-89 and strontium-90, which are beta emitters. Buildup of isotopic strontium in the air filters required increased filter washings, which produced more radioactive wastewater. The large volumes of wastewater exceeded the storage capacity of the system, leading to unplanned spills and overflows to Pratt Canyon. The air filter building was decommissioned in 1980 and removed in 1996.

35-003(r) (no date)

AOC 35-003(r) is the location of a former outfall for liquid sludge effluent associated with the former Tank Farm 35-10 holding tanks, SWMU 35-003(d), and the former TA-35 WWTP. This site is located in Pratt Canyon and extends from the eastern edge of Ten Site Mesa (the headwall of Pratt Canyon) to the confluence of Pratt and Ten Site Canyons.

The former TA-35 WWTP received and processed air and liquid wastes from radiochemistry laboratories and from the operation of radioactive lanthanum-140 hot cells located in building 35-2, where kilocurie sources of lanthanum-140 were prepared during the 1950s. The liquid wastes from the building 35-2 laboratories were acidic and included beta emitters barium-140, lanthanum-140, strontium-89, strontium-90, and yttrium-90. From 1951 to 1955, the treated wastewater was stored in four concrete tanks (Tank Farm 35-10) for approximately 6 months to allow the lanthanum-140 to decay. The water was either allowed to evaporate or used to wash air-cleaning filters from the filter building.

If the incoming waste volumes were greater than losses through evaporation, the stored water was released to Pratt Canyon, a small side canyon east of the TA-35 WWTP. Because the Tank Farm 35-10 holding tanks did not have a gravity drainline to the canyon, all contents were pumped through building 35-7 (the air filter building) for treatment and discharged through a daylight diversion channel into Pratt Canyon. Several reports mention that the 35-10 holding tanks occasionally overfilled and

spilled contaminated liquids directly into Pratt Canyon. These spills were the only discharges that did not flow through the daylight diversion channel.

The TA-35 WWTP operated from 1951 to 1963, when the new RLWTF came on line at TA-50. All buildings, foundations, and structures associated with SWMUs 35-003(d, l, and q) were removed during D&D activities in 1981 and 1985. After the 1985 removal, the area was backfilled with clean fill material and native tuff.

35-009(d) (no date)

SWMU 35-009(d) is an inactive septic system that comprises a 1600-gal. septic tank (structure 35-65), a cleanout manhole (structure 35-64), and an associated leach field. The septic system is located east of the northeast corner of building 35-27. An outfall from the east end of the septic system discharged to the south into Pratt Canyon. The leach field covers an area of approximately 1800 ft^2 and consists of fine- to coarse-grained sandstone and cobble filter bed material. Consolidated tuff is reached at depths of 8 to 10 ft bgs in the leach field.

This septic system served the Nuclear Safeguards Research Building (35-27) and other laboratory buildings at TA-35 from 1966 to 1990 when it was taken out of service. The tank was reportedly pumped on a weekly basis. The septic tank may have received laboratory wastes in addition to sanitary wastes. During the 1996 VCA conducted at SWMU 35-009(d), the contents of the septic tank were removed and disposed of off-site, and the tank and manhole were filled with concrete.

35-014(b) (no date)

SWMU 35-014(b) is the former site of a leaking barrel of dielectric oil southeast of building 35-2 at TA-35. The barrel was a 55-gal. drum containing PCBs at a concentration of 50.4 µg/g and labeled "DIALA AX, S03287, Shell Oil," which was discovered to be leaking in 1985. The drum was removed and the site was remediated by Laboratory group HSE-7. The site was backfilled in 1988 or 1989 with clean soil material and covered with asphalt to create a parking area.

35-015(b) (6/6/2018)

SWMU 35-015(b**)** is the former site of an oil-handling facility located on the southwest side of building 35-29 at TA-35. The facility was installed in 1974 and used to treat oil from the Gemini gas laser. This facility was found to be leaking dielectric oil in 1988 and was removed in 1989 or 1990. The volume of the leak is not documented, and there is no documentation of a cleanup effort after the leak was discovered. The site was covered with clean fill material and paved with asphalt to create a parking area.

35-016(l) (no date)

AOC 35-016(l) consists of active stormwater drainage channels established in 1961 to handle runoff from building 35-29 and sterilized water leaks from an ultraviolet water sterilizer in room 001A of building 35-29 in TA-35. The drainages flow eastward to a 24-in. CMP outfall located on the north side of the security fence for building 35-27, discharging to the same channel as SWMU 35-016(k) into Pratt Canyon. A concrete catch basin located at the head of the drainage channels collects and detains stormwater runoff before discharging to the drainage channels. Stained areas from past dielectric oil spills are present in the source areas for these channels. One of the areas at the head of the channel is the site of a transformer near the southwest corner of building 35-29 that leaked transformer oil. A VCA conducted at the Site removed soil contaminated with PCBs and PAHs.

35-018(a) (1/17/2020)

AOC 35-018(a) is the site of a former electrical transformer (ID No. 5024) located at Substation 35-32 near the southwest corner of building 35-29 in TA-35. Substation 35-32 was installed in 1961 and is still operating. The transformer (PCB ID No. 5024) formerly contained oil with PCB concentrations greater than 500 parts per million.

During a survey of the transformer in 1985, it was reported that the transformer was dripping coolant fluid containing PCBs onto a concrete pad that had no spill containment and no drip pan. The extent of the release to the underlying pad was not documented. The transformer was added to a daily transformer inspection list in 1987. During a subsequent site inspection in August 1991, no evidence of past or present leakage was observed. The PCB-containing dielectric oil coolant was removed from the transformer in 1994, and the equipment was replaced with a non-PCB-containing coolant.

During the 1995 RFI, site inspections did not find oil staining on the concrete pad, although some oil-stained soil was located adjacent to the pad. The site was cleaned up during a 1996 VCA; 9 yd^3 of PCB-contaminated waste was removed.

AOC 35-018(a) has been referred to as SWMU 35-018(a) in historical documents.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 109-1.

Table 109-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-003(h)	Former concrete retention tank	Metals, organic chemicals, plutonium, strontium-90, uranium
35-003(p)	Former air-filter building	Metals, organic chemicals, plutonium, strontium-90, uranium
35-003(r)	Former air-filter building	Metals, organic chemicals, plutonium, strontium-90, uranium
35-009(d)	Inactive septic tank	Metals, organic chemicals
35-014(b)	Operational release from former building 35-7	PCBs
35-015(b)	Soil contamination from former waste oil treatment facility	PCBs
35-016(l)	Storm drain	PCBs
35-018(a)	Former transformer	PCBs, PAHs

109.2 Control Measures

All active control measures in use at Pratt-SMA-1.05 are listed in Table 109-2. Their locations are shown on the project map (Figure 109-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 109-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00102040020	Established Vegetation	-	X	X	-	B	4-30-2013
T00103010022	Earthen Berm	-	X	-	X	EC	2-13-2014
T00103010023	Earthen Berm	-	X	-	X	EC	4-17-2014
T00103020013	Base Course Berm	X	-	-	X	CB	6-21-2020
T00103020014	Base Course Berm	X	-	-	X	CB	6-21-2020
T00103020015	Base Course Berm	X	-	-	X	CB	6-21-2020
T00103020016	Base Course Berm	X	-	-	X	CB	6-21-2020
T00103020024	Base Course Berm	X	-	-	X	EC	4-17-2014
T00103120008	Rock Berm	-	X	-	X	CB	4-1-2009
T00108020005	Rock Cap	X	-	X	-	CB	1-1-2000

109.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at Pratt-SMA-1.05 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 109-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 109-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93228[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94319[b]	7-20-2022 7-21-2022 7-27-2022	0.36 0.3 0.98	7-29-2022	9 8 2	Yes Yes Yes
BMP-94973[b]	7-30-2022 7-31-2022	0.74 0.26	12-14-2022	138 137	No No

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Because of an administrative error, the post storm inspection for the July 30 and July 31, 2022 storm events were not conducted within 15 days of the storm date. There were no findings of deficiency or recommendations for maintenance when the next inspection was conducted on December 14, 2022.

109.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded TAL exceedances for aluminum (943 µg/L), gross-alpha activity (96.5 pCi/L), mercury (0.91 µg/L), and PCB concentration (447 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at PRATT-SMA-1.05 in 2022 under the 2010 IP requirements.

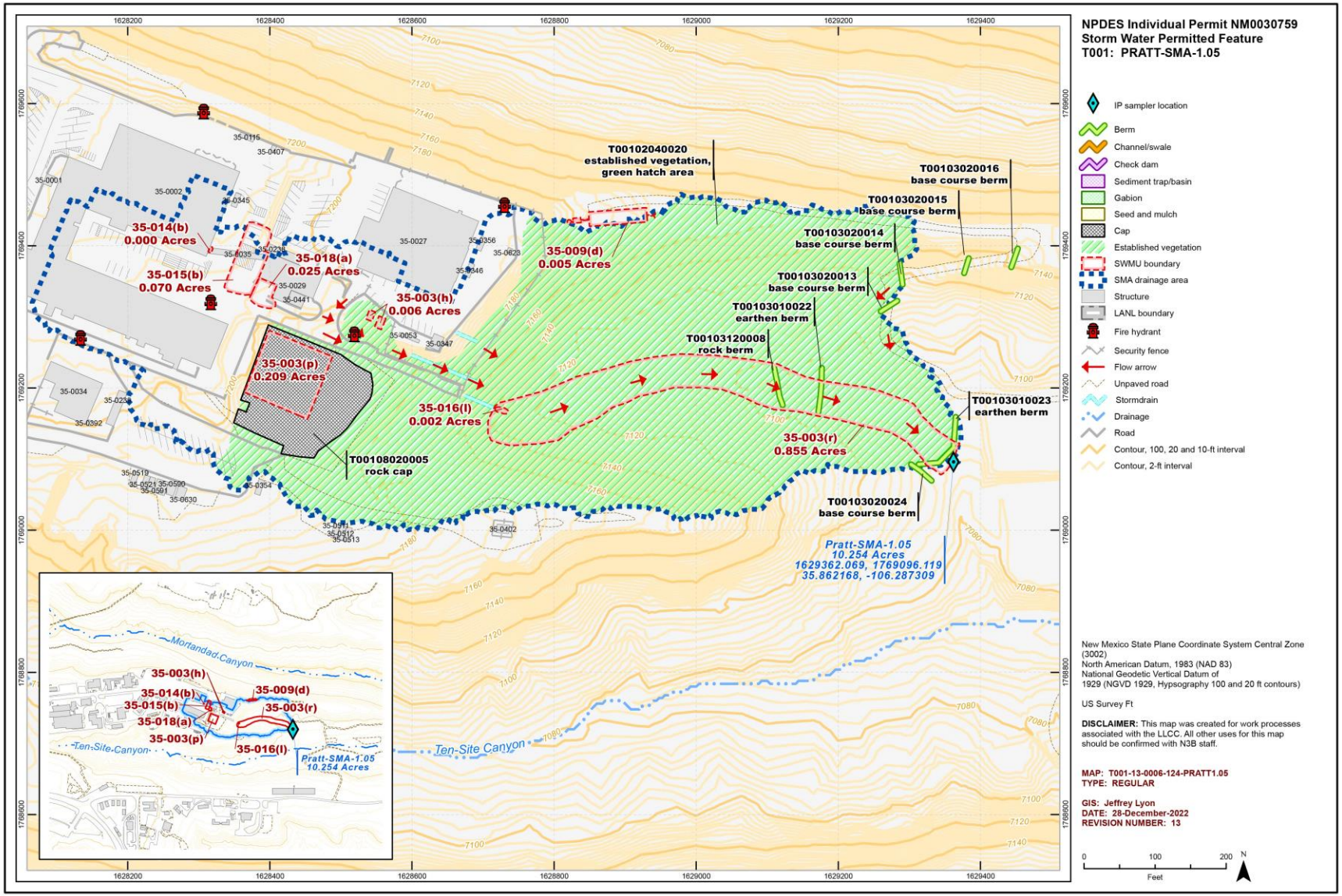


Figure 109-1 Pratt-SMA-1.05 location map

110.0 T-SMA-1: SWMUs 50-006(a) and 50-009

Two historical industrial activity areas, Sites 50-006(a) and 50-009, are associated with T-SMA-1 (permitted feature T002). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

110.1 Site Descriptions

50-006(a) (11/23/2020)

SWMU 50-006(a) is a former outfall area at the head of Ten Site Canyon which was impacted by two accidental operational releases of RLW when a sump in a pumping station (building 50-2) overflowed, causing untreated RLW to be released to waste lines 55 and 67 (the waste lines for treated effluent from the RLWTF) and discharged to the head of Ten Site Canyon at TA-50. The releases occurred in July and September 1974.

In February 1975, waste line 67 was plugged at the outfall; results from a soil sample collected within the outfall area when waste line 67 was plugged showed elevated levels of gross-alpha radioactivity. Analysis of additional soil samples collected below the waste line 67 outfall in September 1976 showed elevated levels of gross-alpha radioactivity extending 984 ft downgradient of the outfall into Ten Site Canyon. In 1981, both waste lines 55 and 67 were completely removed. During waste line removal, elevated levels of radionuclides, including plutonium-239, ruthenium-106, cesium-137, strontium-89, and yttrium-90, were detected. As a result, the outfall area was partially remediated by the removal of 70 m^3 of contaminated soil from the outfall location, and the excavated area was backfilled with clean fill.

50-009 (no date)

SWMU 50-009 is an inactive, 11.8-acre landfill known as MDA C, consisting of 7 disposal pits and 108 shafts. Solid waste containing hazardous constituents as well as radioactive waste was disposed of in the landfill between 1948 and 1974. The depths of the 7 pits at MDA C range from 12 to 25 ft below the original ground surface, and the depths of the 108 shafts range from 10 to 25 ft below the original ground surface (the surface beneath the cover that was placed over the site in 1984).

The pits and shafts are constructed in the Tshirege Member of the Bandelier Tuff. The topography of MDA C is relatively flat, although the slope descends to the north where the northeast corner of MDA C abuts the south wall of Ten Site Canyon. The pits were subsequently covered with varying amounts of crushed tuff and fill material. The shafts were sealed by filling with crushed tuff followed by concrete. The surface of the Site is covered with native grasses. The dimensions and operation dates of the pits and shafts are listed in the historical investigation report for MDA C.

Wastes routinely disposed of in the pits consisted of boxes and bags of trash from chemistry laboratories, and containerized sludge from WWTPs. The general operating procedure at MDA C was to deposit a single layer of waste over the course of several days, and then cover the waste with crushed tuff. Another layer of waste would be emplaced, covered, and the process repeated until the capacity of the pit was reached. The crushed tuff acted as a temporary cover to prevent exposure of workers to the waste. Placement of all waste in the pit below the original land surface ensured that the waste was contained within the disposal pit and prevented exposure to stormwater runoff during the operational life of each pit.

When MDA C was decommissioned in 1974, most of the surface was covered with crushed tuff and fill, and the new surface was recontoured and seeded. In 1984, approximately 1.5 ft of crushed tuff, followed by 0.5 to 3 ft of topsoil, was placed over the surface of the pits. The above-mentioned original ground surface consists of the base of this 1984 fill layer. The thickness of the fill was verified by reviewing borehole logs from Consent Order investigations conducted at MDA C in 2004–2007 and 2008–2009.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 110-1.

Table 110-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
50-006(a)	Outfall	Cesium-137, plutonium-239, ruthenium-160, strontium-89, yttrium-90
50-009	MDA C	Metals, radionuclides

110.2 Control Measures

All active control measures in use at T-SMA-1 are listed in Table 110-2. Their locations are shown on the project map (Figure 110-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 110-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00203010013	Earthen Berm	X	-	-	X	EC	5-28-2013
T00203010014	Earthen Berm	X	-	-	X	EC	5-28-2013
T00203010015	Earthen Berm	-	X	-	X	EC	5-28-2013
T00203060020	Straw Wattle	-	X	-	X	B	11-17-2014
T00204020016	Concrete/Asphalt Channel/Swale	X	-	X	-	EC	5-28-2013
T00204040017	Culvert	X	-	X	-	EC	5-28-2013
T00204040018	Culvert	X	-	X	-	EC	5-28-2013
T00206010024	Rock Check Dam	-	X	-	X	B	11-17-2014
T00206010025	Rock Check Dam	-	X	-	X	B	11-17-2014
T00206010026	Rock Check Dam	-	X	-	X	B	11-17-2014
T00206010027	Rock Check Dam	-	X	-	X	B	11-17-2014
T00208010001	Earth Cap	X	-	X	-	CB	1-1-2000
T00208010019	Earth Cap	X	-	X	-	EC	5-28-2013

110.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-1 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 110-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 110-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93217[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94308[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	9 8	Yes Yes
BMP-94733[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

110.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 30, 2011, and August 15, 2011. Analytical results from these samples yielded TAL exceedances for copper (12.6 µg/L and 21.2 µg/L), PCB concentrations (10 ng/L and 60 ng/L), and zinc (103 µg/L and 324 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following certification of control measures installed to totally eliminate exposure of pollutants to stormwater at SWMU 50-009, a corrective-action investigation stormwater sample was collected on August 26, 2021. Analytical results from this sample were submitted to EPA on November 30, 2022, and the complete results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2021" (N3B 2022, 701895).

Stormwater monitoring was not conducted at T-SMA-1 in 2022 under the 2010 IP requirements. After completion of the 2022 monitoring season, the drainage area and monitoring location for T-SMA-1 was modified to a more representative location as proposed in the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759," (N3B 2023, 702608). The sampler coordinates and the SMA drainage area have been updated to reflect the modified monitoring location on the project map (Figure 110-1) located at the end of this SMA update. Upon approval of the SIP, monitoring will begin at this location in 2023 and additional control measure installations will be completed as necessary.

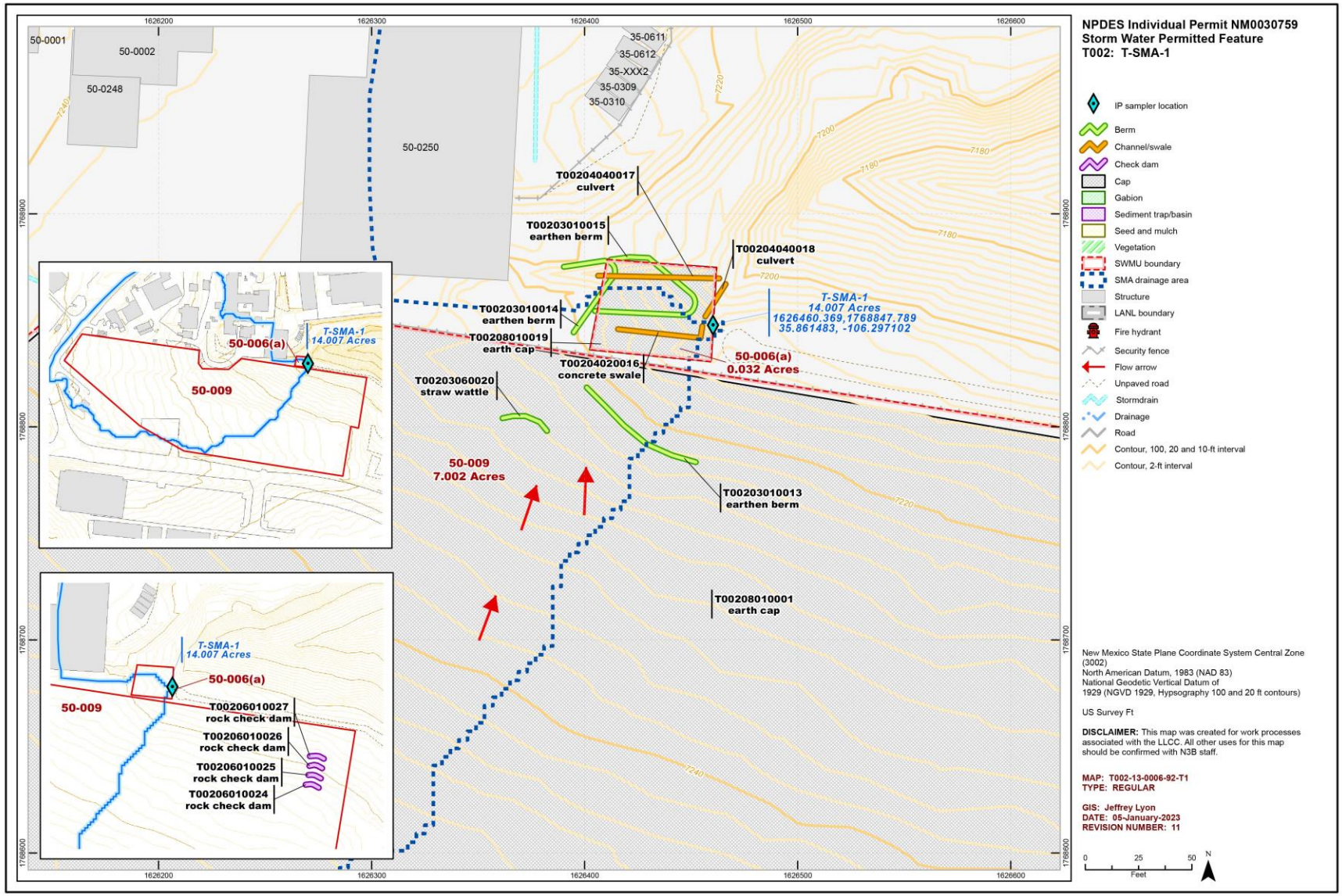


Figure 110-1 T-SMA-1 location map

111.0 T-SMA-2.5: AOC 35-014(g3)

One historical industrial activity area, Site 35-014(g3), is associated with T-SMA-2.5 (permitted feature T003). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

111.1 Site Descriptions

35-014(g3) (no date)

AOC 35-014(g3) is an oil-stained area resulting from an oil spill that occurred in 1984 near the former tank farm [(SWMU) 35-015(a)] on the west side of the CO2 laser building (35-86). The source of the spill was an oil tanker truck; however, the quantity of oil released is not documented. The spill flowed southward through a culvert under the road on the south side of building 35-86, across the parking lot west of building 35-207, and south through a natural drainage channel [AOC 35-016(n)] into Ten Site Canyon. Staining from the spill is clearly visible in a 1986 aerial photograph. The stained area was observed during an August 1991 site visit. At that time, vegetation in the path of the spill was dead, and a petroleum hydrocarbon odor was evident. During the 2004, Consent Order investigation, no petroleum hydrocarbon odor was evident, and no staining was visible in the drainage.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 111-1.

Table 111-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-014(g3)	Spill/non-intentional release	PAHs

111.2 Control Measures

All active control measures in use at T-SMA-2.5 are listed in Table 111-2. Their locations are shown on the project map (Figure 111-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 111-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00304010002	Earthen Channel/Swale	X	-	X	-	CB	4-1-2009
T00306010003	Rock Check Dam	-	X	-	X	CB	6-16-2010
T00306010004	Rock Check Dam	-	X	-	X	CB	6-16-2010
T00306010005	Rock Check Dam	-	X	-	X	CB	6-16-2010
T00308020001	Rock Cap	-	X	X	-	CB	4-1-2009

111.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-2.5 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 111-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 111-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93218[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94309[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	6 5	Yes Yes
BMP-94734[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

111.4 Stormwater Monitoring

Following installation of baseline control measures, a baseline stormwater sample was collected on July 26, 2019. Analytical results from this sample yielded exceedances for gross-alpha activity (369 pCi/L) and selenium (8.79 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019" (N3B 2020, 700767).

Stormwater monitoring was not conducted at T-SMA-2.5 in 2022 under the 2010 IP requirements.

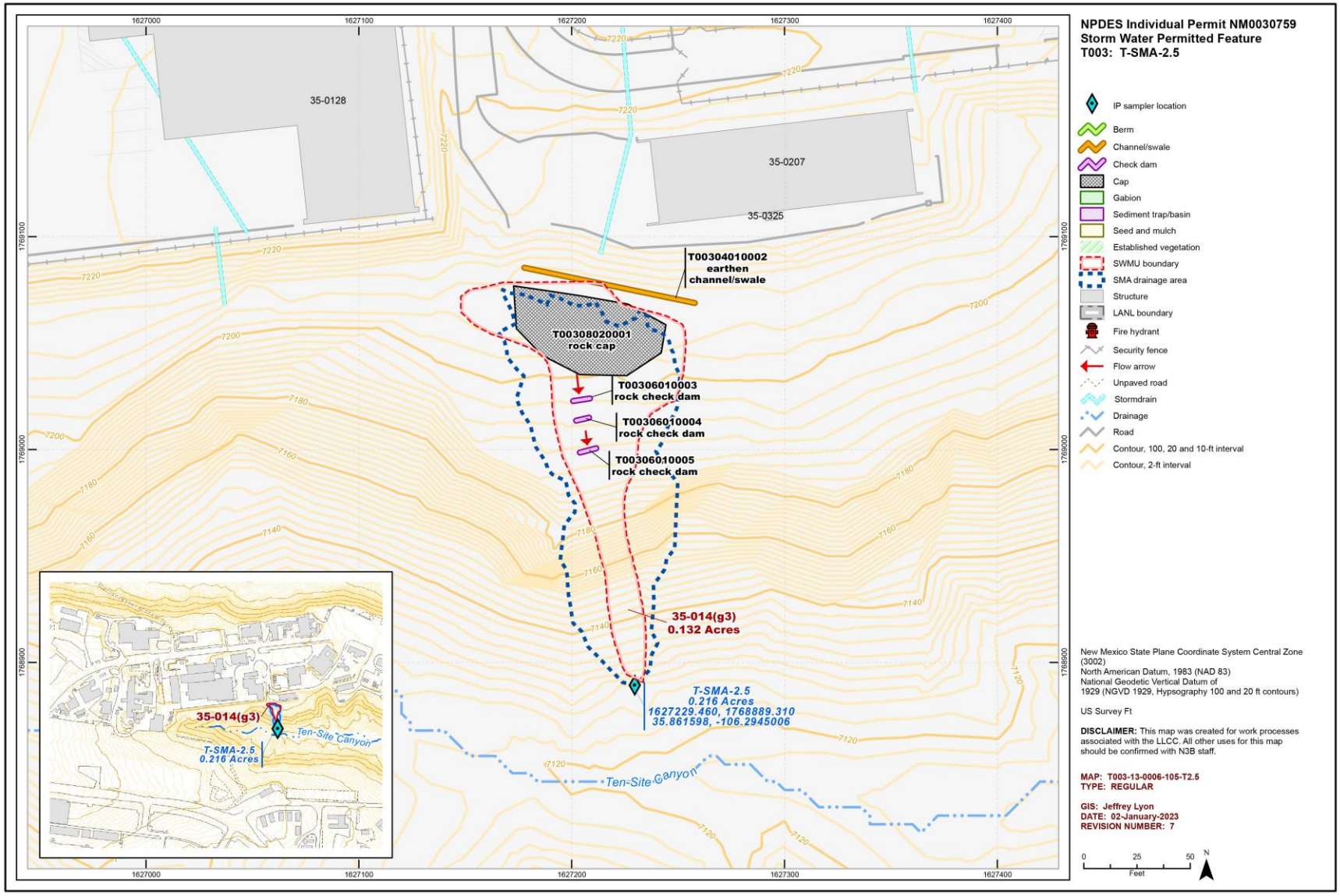


Figure 111-1 T-SMA-2.5 location map

112.0 T-SMA-2.85: SWMU 35-014(g) and AOC 35-016(n)

Two historical industrial activity areas, Sites 35-014(g) and 35-016(n), are associated with T-SMA-2.85 (permitted feature T004). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

112.1 Site Descriptions

35-014(g) (no date)

SWMU 35-014(g) is stained concrete next to an asphalt-paved catchment basin, located at the northeast corner of an experimental support laboratory (building 35-207). The concrete is stained as a result of a former oil spill. A catchment basin directs stormwater flow to a CMP outfall and daylight drainage channel [AOC 35-016(n)].

The origin and date of the spill are not known, but it was reportedly cleaned up in the late 1980s during the D&D of the former tank farm and waste-oil treatment facility. A small oil stain remains visible on the concrete. However, no obvious oil staining is apparent in the catchment basin or the outfall. There is currently no visible sign of the spill or any sign of continued releases at the CMP outfall.

35-016(n) (no date)

AOC 35-016(n) consists of a 10-in.-diameter CMP outfall and natural daylight drainage channel that received stormwater runoff from the roof of the CO2 laser building (35-86); a paved area south of the laser building; and a grassy slope adjacent to an experimental support laboratory (building 35-207). The source of the outfall is a daylight drainage channel that leads to an asphalt-paved catchment basin. The outfall receives flow from the catchment basin through an intake grate. Because the decommissioned tank farm and waste-oil treatment facility [SWMU 35-015(a)] was formerly located west of building 35-86, recycled, separated water was also discharged into Ten Site Canyon through a storm sewer that leads to AOC 35-016(n). The tank farm and treatment facility were decommissioned and removed in late 1988 or 1989.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 112-1.

Table 112-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-014(g)	Spill/non-intentional release	PAHs
35-016(n)	Storm drains and outfall associated with Building 35-86	No applicable POCs

112.2 Control Measures

All active control measures in use at T-SMA-2.85 are listed in Table 112-2. Their locations are shown on the project map (Figure 112-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 112-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00402040007	Established Vegetation	-	X	X	-	B	4-30-2013
T00403090004	Curbing	X	-	-	X	CB	6-1-2009
T00406010005	Rock Check Dam	-	X	-	X	CB	6-16-2010
T00406010006	Rock Check Dam	X	-	X	-	CB	6-16-2010
T00406010008	Rock Check Dam	-	X	-	X	B	10-27-2014
T00406010009	Rock Check Dam	-	X	-	X	B	10-27-2014
T00406010010	Rock Check Dam	-	X	-	X	B	10-27-2014
T00406010011	Rock Check Dam	-	X	-	X	B	10-27-2014

112.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-2.85 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 112-3. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022. Maintenance activities conducted at the SMA are summarized in Table 112-4.

Table 112-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93226[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94317[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	6 5	Yes Yes
BMP-94741[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Table 112-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93226	Removed topmost layer of needle cast and decaying matter from Rock Check Dam T00406010011 at inspection.	7-8-2022	0 days	Maintenance was performed as soon as practicable.
BMP-94185 (follow up from BMP-93226)	Removed needle cast and decaying matter from Rock Check Dam T00406010006 and additional needle cast and decaying matter T00406010011.	7-21-2022	13 days	Maintenance was performed as soon as practicable.

112.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 12, 2013. Analytical results from this sample yielded TAL exceedances for copper (5.64 µg/L) and gross-alpha activity (36.6 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067)

Stormwater monitoring was not conducted at T-SMA-2.85 in 2022 under the 2010 IP requirements.

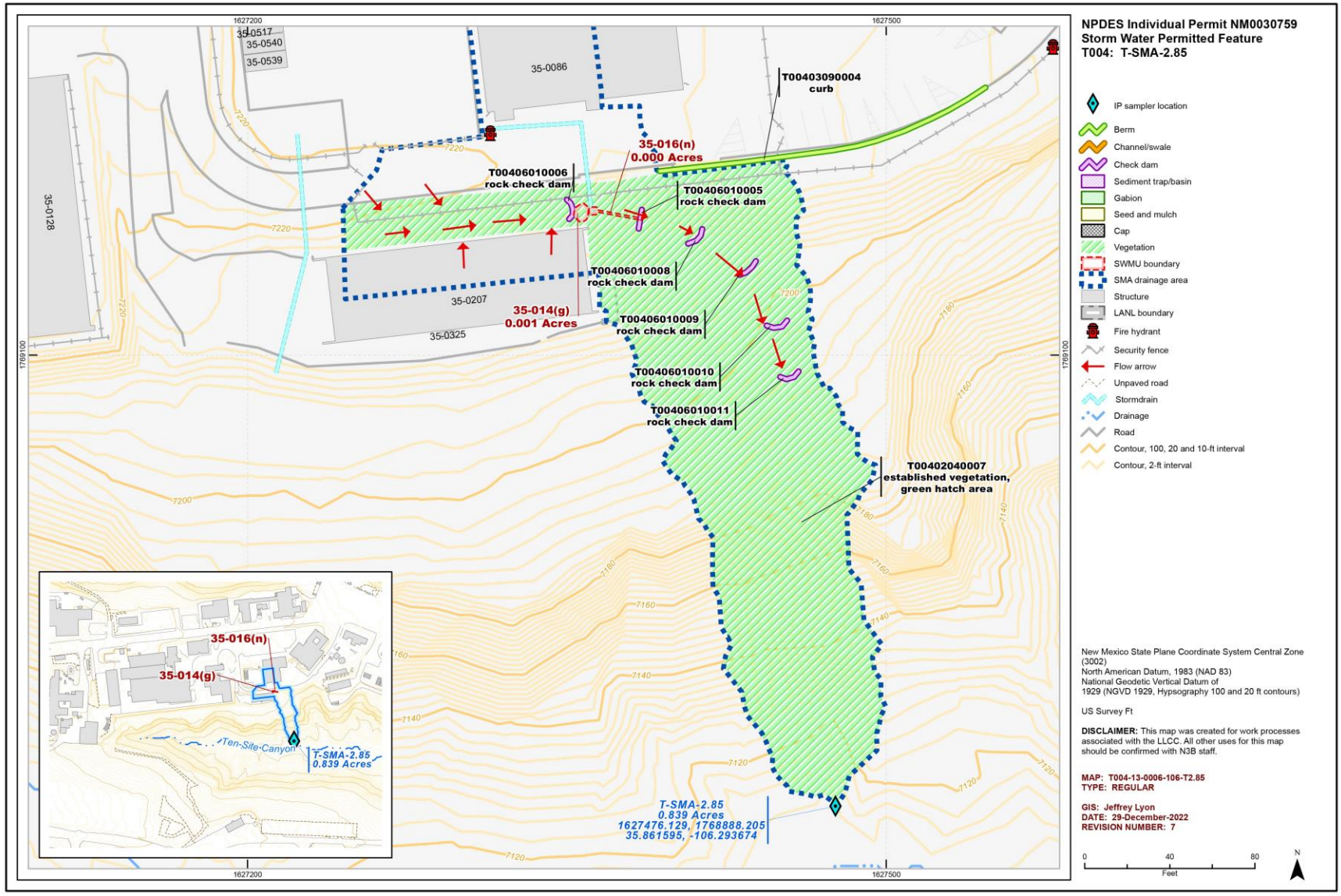


Figure 112-1 T-SMA-2.85 location map

113.0 T-SMA-3: AOC 35-016(b)

One historical industrial activity area, Site 35-016(b), is associated with T-SMA-3 (permitted feature T005). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

113.1 Site Descriptions

35-016(b)

AOC 35-016(b) is an outfall in Ten Site Canyon that formerly served roof, floor, and sink drains in building 35-87. Previously, the effluent discharge volume, limited to 3000 gpd, was released to Ten Site Canyon. Photographic solutions were historically processed through a silver- and cyanide-recovery process and released through this outfall. By 1992, the three photographic laboratory floor waste drains formerly routed to this outfall were plugged, while the three sink drains were rerouted to the sanitary sewer system.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 113-1.

Table 113-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-016(b)	Drain and outfall from building 35-87	Silver, cyanide

113.2 Control Measures

All active control measures in use at T-SMA-3 are listed in Table 113-2. Their locations are shown on the project map (Figure 113-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 113-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00502040012	Established Vegetation	-	X	X	-	B	4-30-2013
T00504060001	Riprap	X	-	X	-	CB	4-1-2009
T00506020010	Log Check Dam	-	X	-	X	B	5-23-2012
T00506020011	Log Check Dam	-	X	-	X	B	8-30-2012

113.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-3 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 113-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 113-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93219[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94310[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	6 5	Yes Yes
BMP-94735[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

113.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 10, 2012. Analytical results from this sample yielded TAL exceedances for copper (13.4 µg/L) and gross-alpha activity (34.4 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012, NPDES Permit No. NM0030759" (LANL 2013, 237680).

Stormwater monitoring was not conducted at T-SMA-3 in 2022 under the 2010 IP requirements.

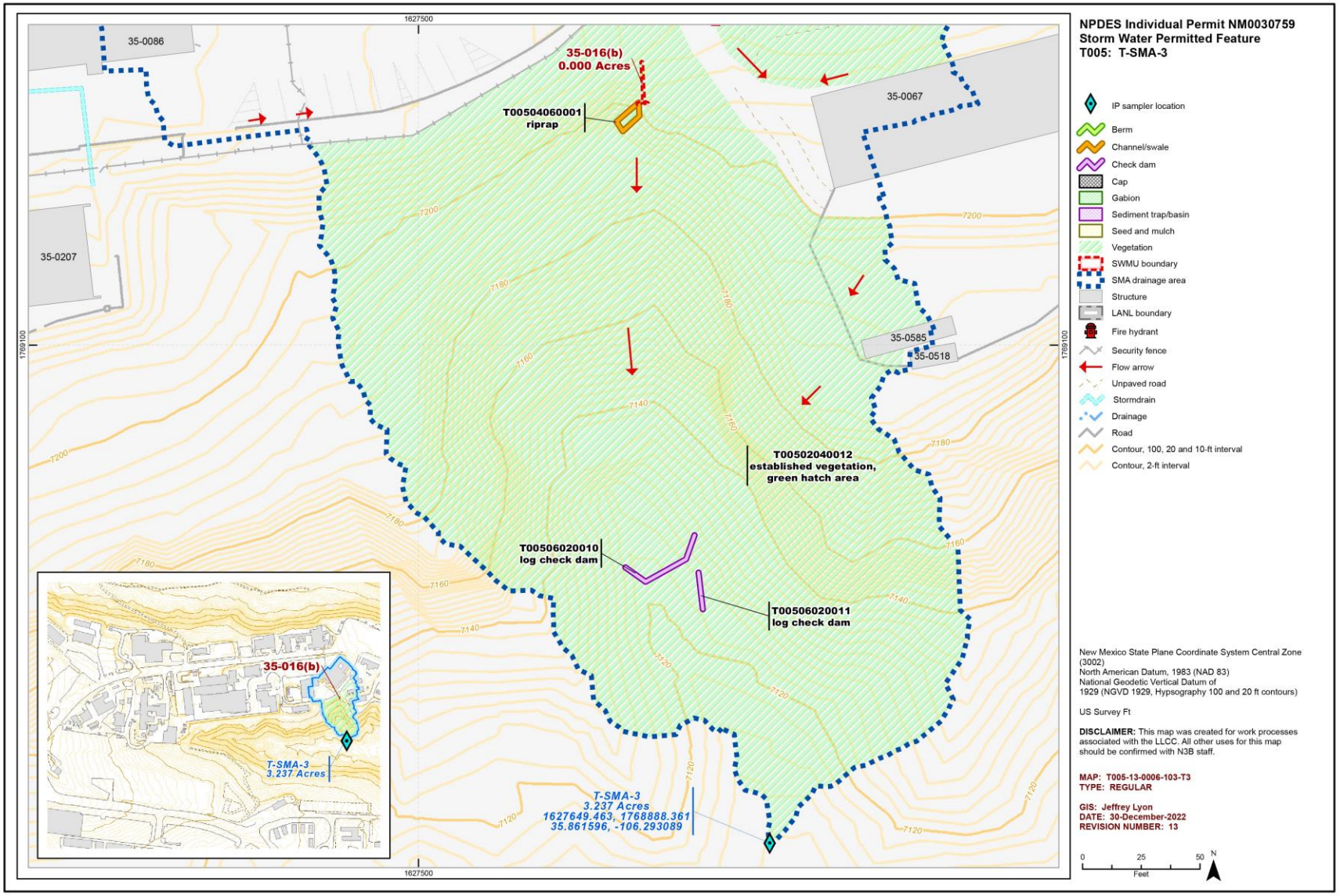


Figure 113-1 T-SMA-3 location map

114.0 T-SMA-4: SWMUs 35-004(a), 35-009(a), 35-009(b), 35-016(c), and 35-016(d)

Five historical industrial activity areas, Sites 35-004(a), 35-009(a), 35-009(b), 35-016(c), and 35-016(d), are associated with T-SMA-4 (permitted feature T006). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

114.1 Site Descriptions

35-004(a) (no date)

SWMU 35-004(a) consists of a former outdoor SAA located on asphalt adjacent to the southeast corner of building 35-25. Waste that was accumulated in the SAA reportedly included small quantities of waste oils and solvents. Staining was observed at the site during a 1988 reconnaissance and during a 1990 inspection, but they were reportedly cleaned up before the 1992 RFI work plan was completed. A temporary, metal, flammable storage structure (35-386) was placed at the site in 1990 and used as the SAA. According to the LANL RCRA database, the SWMU 35-004(a) SAA was taken out of service for hazardous-waste accumulation in April 1997; however, structure 35-386 remains at the site for hazardous-materials storage.

35-009(a) (no date)

SWMU 35-009(a) is an inactive septic system that served building 35-2 from 1951 to 1975. The septic system is located near the southwest corner of building 35-4, and consists of a septic tank (structure 35-14), dosing chamber (structure 35-15), distribution box (structure 35-16), clean out, associated drainline, and a leach field located on the south-facing slope of Ten Site Canyon. The septic tank is approximately 4 ft bgs and measures 10 ft long × 4 ft wide × 5 ft deep, with a capacity of 1500 gal. The location of the drainline is not known.

The septic system received sanitary wastes from building 35-2. Historical operations at building 35-2 involved the use of lanthanum-140. In addition, two nuclear reactors were housed in building 35-2, as well as plutonium laboratories and lithium titride operations. A 1968 memorandum indicates that the leach field was plugged and the system was daylighted. In 1975, the remainder of the septic system was taken out of service but left in place. Portions of the leach field were excavated when the new sanitary sewer lines were routed to the sewage lagoons [Consolidated Unit 35-010(a)-99] located east of TA-35 in Ten Site Canyon.

35-009(b) (5/31/2018)

SWMU 35-009(b) is an abandoned, inactive sanitary septic system located about 30 ft south of a warehouse (building 35-67), near the southern edge of Ten Site Mesa at TA-35. The septic system included a septic tank (structure 35-76), dosing chamber and distribution box (structure 35-77), and associated leach field. The septic tank was a steel or steel-lined concrete tank (4 ft × 4 ft × 4 ft), with the base about 10 ft bgs. The dimensions of the dosing chamber are not documented but the bottom of the chamber is also 10 ft bgs. The distribution box, located about 20 ft west of the dosing chamber, is a 15-ft deep manhole lined with corrugated metal pipe. The leach field is located southwest of the septic tank and at a lower ground surface, and drained southward toward Ten Site Canyon.

The septic system operated from 1966 to 1975. It received sanitary wastes may have received industrial wastes including radionuclides. Specific waste streams and the volumes of discharge are not documented, however potential contaminants include radionuclides, VOCs, SVOCs and inorganics.

No sign of the leach field is apparent as far back as 1996, but the results of drilling and subsurface sampling confirmed its location. No outfall pipes were found during the engineering surveys, and it is not known if outfall pipes were part of the leach field design. A VCA conducted in 1996 included removal and disposal of the tank contents and filling the tank with concrete. The site was covered will clean fill material.

35-016(c) (no date)

SWMU 35-016(c) consists of two former NPDES-permitted outfalls, established in 1964 to discharge noncontact cooling water from building 35-67. Building 35-67 housed offices, and heating and cooling systems in support of other TA-35 buildings. The drainline to one outfall ran about 75 ft southward to its point of discharge into Ten Site Canyon. The other outfall, deactivated in 1987, ran about 125 ft from building 35-67 to its point of discharge into Ten Site Canyon. The two outfalls were combined by 1985. The noncontact cooling water was from building cooling systems and was not process-related specific.

35-016(d)

SWMU 35-016(d) is a former NPDES-permitted outfall constructed in 1962 to handle noncontact cooling water from the reactor components development building (35-46). Building 35-46 housed offices, and heating and cooling systems in support of other TA-35 buildings. The drainline runs about 50 ft southward to its point of discharge into Ten Site Canyon. By 1990, this outfall had been removed from the NPDES permit. The noncontact cooling water was from building cooling systems and was not process-related.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 114-1.

Table 114-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-004(a)	Container storage area	No applicable POCs
35-009(a)	Outfall from building 35-27	Inorganic chemicals, organic chemicals, radionuclides
35-009(b)	Septic system	Inorganic chemicals, SVOCs, radionuclides
35-016(c)	Drain and outfall from building 35-67	No known POCs
35-016(d)	Drain and outfall from building 35-46	No known POCs

114.2 Control Measures

All active control measures in use at T-SMA-4 are listed in Table 114-2. Their locations are shown on the project map (Figure 114-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 114-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00602040011	Established Vegetation	-	X	X	-	B	4-30-2013
T00603010019	Earthen Berm	X	-	-	X	EC	8-26-2015
T00603090012	Curbing	X	-	-	-	EC	8-26-2015
T00603110013	Eco-Block	X	-	-	X	EC	8-26-2015
T00603120015	Rock Berm	X	-	-	X	EC	8-26-2015
T00603120016	Rock Berm	X	-	-	X	EC	8-26-2015
T00603120017	Rock Berm	X	-	-	X	EC	8-26-2015
T00603120018	Rock Berm	X	-	-	X	EC	8-26-2015
T00604060014	Riprap	X	-	X	-	EC	8-26-2015
T00604060022	Riprap	-	X	X	-	EC	8-26-2015
T00606010007	Rock Check Dam	X	-	-	X	CB	6-16-2010
T00606010008	Rock Check Dam	X	-	-	X	CB	6-16-2010

114.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-4 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 114-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 114-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93220[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94311[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	6 5	Yes Yes
BMP-94736[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

114.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 13, 2013. Analytical results from this sample yielded TAL exceedances for copper (6.61 µg/L), gross-alpha activity (94.8 pCi/L), and mercury (2.14 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at T-SMA-4 in 2022 under the 2010 IP requirements.

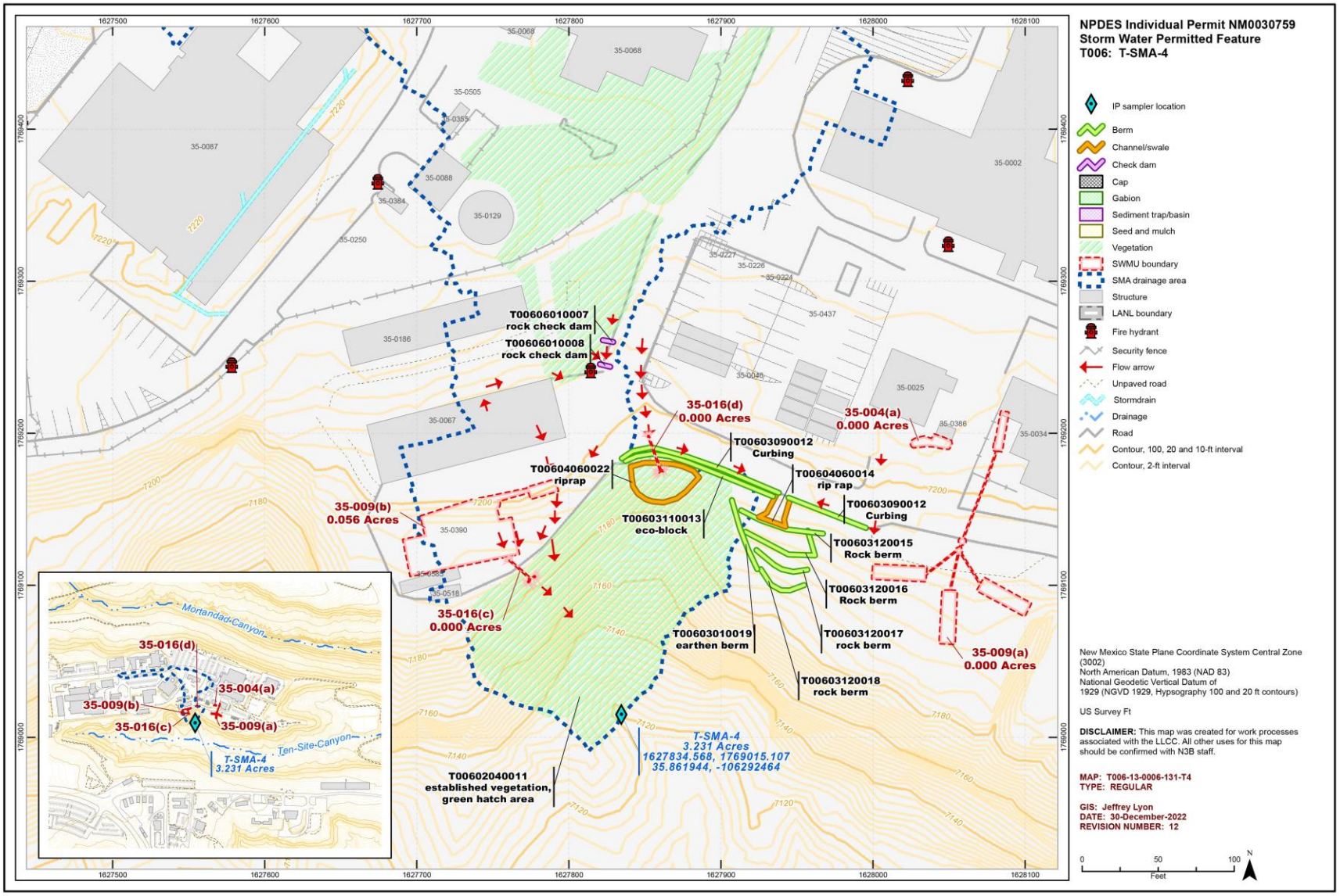


Figure 114-1 T-SMA-4 location map

115.0 T-SMA-5: SWMUs 35-004(a), 35-009(a), 35-016(a), and 35-016(q)

Four historical industrial activity areas, Sites 35-004(a), 35-009(a), 35-016(a), and 35-016(q), are associated with T-SMA-5 (permitted feature T007). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

115.1 Site Descriptions

35-004(a) (no date)

SWMU 35-004(a) consists of a former outdoor SAA, located on asphalt adjacent to the southeast corner of building 35-25. Waste that was accumulated in the SAA reportedly included small quantities of waste oils and solvents. Staining was observed at the site during a 1988 reconnaissance and during a 1990 inspection, but they were reportedly cleaned up before the 1992 RFI work plan was completed. A temporary, metal, flammable storage structure (35-386) was placed at the site in 1990 and used as the SAA. According to the LANL RCRA database, the SWMU 35-004(a) SAA was taken out of service for hazardous waste accumulation in April 1997; however, structure 35-386 remains at the site for hazardous materials storage.

35-009(a) (no date)

SWMU 35-009(a) is an inactive septic system that served building 35-2 from 1951 to 1975. The septic system is located near the southwest corner of building 35-4 and consists of a septic tank (structure 35-14), dosing chamber (structure 35-15), distribution box (structure 35-16), clean out, associated drainline, and a leach field located on the south-facing slope of Ten Site Canyon. The septic tank is approximately 4 ft bgs and measures 10 ft long × 4 ft wide × 5 ft deep with a capacity of 1500 gal. The location of the drainline is not known.

The septic system received sanitary wastes from building 35-2. Historical operations at building 35-2 involved the use of lanthanum-140. In addition, two nuclear reactors were housed in building 35-2, as well as plutonium laboratories and lithium titride operations. A 1968 memorandum indicates that the leach field was plugged and the system was daylighted. In 1975, the remainder of the septic system was taken out of service but left in place. Portions of the leach field were excavated when the new sanitary sewer lines were routed to the sewage lagoons [CU 35-010(a)-99] located east of TA-35 in Ten Site Canyon.

35-016(a) (no date)

SWMU 35-016(a) is a former NPDES-permitted outfall that originally consisted of an 8-in.-diameter metal pipe with a valve and a 6-in. VCP placed in a trench cut into the tuff that discharged into Ten Site Canyon. The outfall was established in 1958 to handle noncontact cooling water from the sodium testing building (35-34). SWMU 35-016(a) discharges to the same location as the SWMU 35-016(q) stormwater outfall in Ten Site Canyon

Aerial photographs from 1965 show a diagonal trench extending from the north end of SWMU 35-016(a) in a southeasterly direction that appears to connect with the north end of SWMU 35-016(q). Aerial photographs from 1974 show that the diagonal trench and approximately two-thirds of the northern portion of the SWMU were no longer present and may have been backfilled. The drainlines were decommissioned and removed in 1987; the remaining section of the trench now serves as a stormwater collection channel for a small area on the south side of Ten Site Mesa at TA-35. The mid-90s aerial

photographs show this site to be much the same as it appeared in 1974. The outfall was eliminated from the NPDES permit in 1985 when discharges to the outfall ceased.

35-016(q) (no date)

SWMU 35-016(q) consists of a stormwater trench cut into the tuff, parallel to and about 60 ft east of SWMU 35-016(a). Constructed in 1958, the trench includes several active stormwater collection basins located between building 35-34 and the edge of Ten Site Canyon. The trench discharges stormwater to the same area in Ten Site Canyon as SWMU 35-016(a).

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 115-1.

Table 115-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
35-004(a)	Container storage area	No applicable POCs
35-009(a)	Outfall from building 35-27	Inorganic and organic chemical, radionuclides
35-016(a)	Drain and outfall from building 35-34	No known POCs
35-016(q)	Stormwater collection trench	Inorganic and organic chemicals

115.2 Control Measures

All active control measures in use at T-SMA-5 are listed in Table 115-2. Their locations are shown on the project map (Figure 115-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 115-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00702040012	Established Vegetation	-	X	X	-	B	4-30-2013
T00703010008	Earthen Berm	X	-	-	X	CB	6-17-2010
T00704060016	Riprap	X	-	X	-	B	12-18-2019
T00705020015	Sediment Basin	X	-	-	X	B	9-20-2016
T00706010002	Rock Check Dam	-	X	-	X	CB	1-10-2006
T00706010004	Rock Check Dam	-	X	-	X	CB	12-12-2005
T00706010009	Rock Check Dam	X	-	-	X	CB	6-17-2010
T00706010011	Rock Check Dam	-	X	-	X	CB	8-23-2010
T00706010014	Rock Check Dam	-	X	-	X	B	10-30-201

115.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-5 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 115-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 115-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93221[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94312[b]	7-20-2022 7-21-2022	0.36 0.3	7-26-2022	6 5	Yes Yes
BMP-94737[b]	7-27-2022 7-30-2022 7-31-2022	0.98 0.74 0.26	8-9-2022	13 10 9	Yes Yes Yes

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

115.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at T-SMA-5. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at T-SMA-5 under the 2010 IP requirements from March 21 through November 8, 2022, resulting in a monitoring season of 233 days. Seven inspections were performed during the monitoring period and are summarized in Table 115-4. Rain gage RG200.5 recorded 28 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022 and no sampling operability issues were encountered.

Table 115-4 Sampler Inspections During 2022

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-91588	4-12-2022	No	None	None
SMPLR-91962	5-6-2022	No	None	None
SMPLR-92395	5-23-2022	No	None	None
SMPLR-92614	7-5-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.05/0.14 0.09/0.21 0.24/0.74 0.07/0.14 0.1/0.71 0.31/1.38 0.18/1.34 0.43/0.48 0.19/0.19 0.07/0.17

Inspection Reference	Inspection Date	Sample Retrieved?	Date(s) of Rain Events Exceeding 0.1 in. in 24 hr since previous inspection	Rainfall Intensity[a]/ Total[b] (in.)
SMPLR-93826	8-16-2022	No	7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022	0.14/0.15 0.36/0.44 0.3/0.4 0.07/0.23 0.98/1.11 0.11/0.19 0.74/1.56 0.26/0.67 0.2/0.2 0.13/0.13
SMPLR-95469	9-27-2022	No	8-16-2022 8-20-2022 8-23-2022	0.22/0.26 0.07/0.37 0.3/0.3
SMPLR-96161	11-8-2022	No	10-3-2022 10-8-2022 10-15-2022 10-16-2022 10-17-2022	0.16/0.17 0.11/0.11 0.08/0.33 0.04/0.2 0.07/0.15

[a] Intensity = Maximum amount of precipitation in any 30-min interval.

[b] Total = Total amount of precipitation in 24 hr.

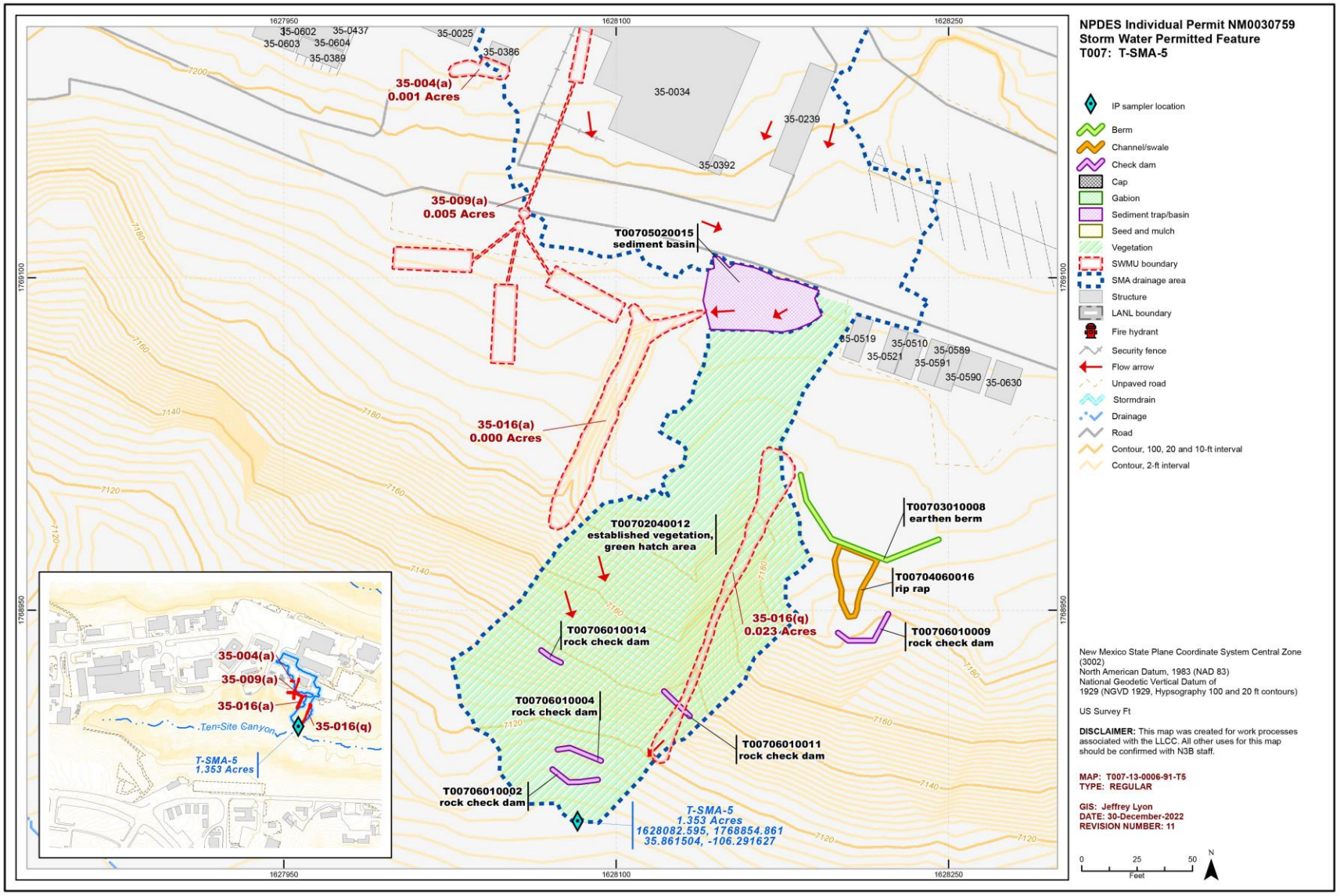


Figure 115-1 T-SMA-5 location map

116.0 T-SMA-6.8: AOC 35-010(e)

One historical industrial activity area, Site 35-010(e), is associated with T-SMA-6.8 (permitted feature T008). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

116.1 Site Descriptions

35-010(e) (no date)

AOC 35-010(e) is a former NPDES-permitted outfall that discharged from the SWMU 35-010(d) filter beds into Ten Site Canyon. A depth-recording gauge station is located at the outfall to measure the effluent level above a small v-shaped weir discharge point. A rock dissipater apron is emplaced below the discharge point. Compiled flow records of the outfall show that the average flow rate was approximately 45,000 gpd, exceeding the planned capacity of 12,000 gpd.

AOC 35-010(e) is a component of the former TA-35 WWTP, which was used for the biological treatment of liquid waste. It received sanitary and industrial wastewater from TA-35, TA-48, TA-50, and TA-55 from 1975 to 1992 when all discharges from the filters beds ceased.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 116-1.

Table 116-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
35-010(e)	Outfall associated with filter beds	Silver, inorganic chemicals, cyanide, organic chemicals, radionuclides

116.2 Control Measures

All active control measures in use at T-SMA-6.8 are listed in Table 116-2. Their locations are shown on the project map (Figure 116-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 116-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00802040008	Established Vegetation	-	-	X	-	B	7-7-2015
T00803100003	Gravel Bags	-	X	-	X	CB	6-17-2010
T00803140010	Coir Log	X	-	-	X	B	7-12-2021

116.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-6.8 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 116-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 116-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93222[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94313[b]	7-20-2022 7-21-2022 7-27-2022	0.36 0.3 0.98	7-29-2022	9 8 2	Yes Yes Yes
BMP-94968[b]	7-30-2022 7-31-2022	0.74 0.26	12-14-2022	138 137	No No

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Because of an administrative error, the post-storm inspection for the July 30 and July 31, 2022 storm events were not conducted within 15 days of the storm date. There were no findings of deficiency or recommendations for maintenance when the next inspection was conducted on December 14, 2022.

116.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 31, 2014. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (163 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Stormwater monitoring was not conducted at T-SMA-6.8 in 2022 under the 2010 IP requirements.

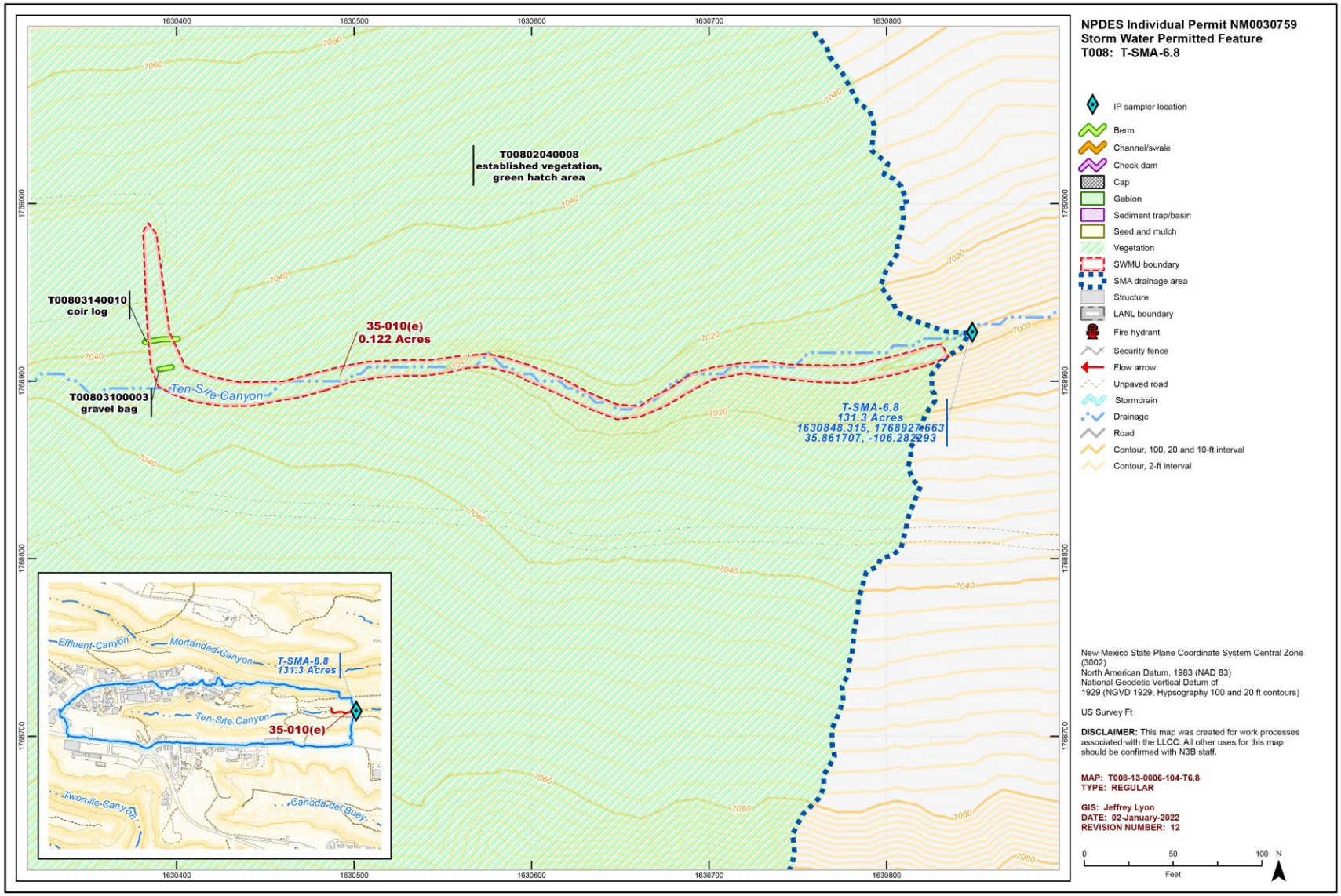


Figure 116-1 T-SMA-6.8 location map

117.0 T-SMA-7: SWMU 04-003(b)

One historical industrial activity area, Site 04-003(b), is associated with T-SMA-7 (permitted feature T009). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

117.1 Site Descriptions

04-003(b) (no date)

SWMU 04-003(b) is the former drainline and outfall from a former laboratory control building (04-3), located at former TA-04. The outfall discharged about 20 ft north of building 04-3 into Mortandad Canyon. No radioactivity was detected in a 1953 survey, and the building was demolished and partially removed in 1956. The concrete storm drain, electrical conduit, wood and other surface debris, and the drainpipe were removed during the 1985 LASCP cleanup effort. During the LASCP cleanup, no radioactive contamination was detected using a portable radiation monitor. In a 1988 survey, gamma radiation was detected at nearly twice the background level.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 117-1.

Table 117-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
04-003(b)	Former drainline and outfall	Metals, organic chemicals, radionuclides

117.2 Control Measures

All active control measures in use at T-SMA-7 are listed in Table 117-2. Their locations are shown on the project map (Figure 117-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 117-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T00902040011	Established Vegetation	-	X	X	-	B	5-1-2013
T00903010009	Earthen Berm	X	-	-	X	B	6-15-2011
T00903020008	Base Course Berm	X	-	-	X	CB	6-17-2010
T00906010002	Rock Check Dam	-	X	-	X	CB	6-1-2009
T00906010003	Rock Check Dam	-	X	-	X	CB	6-1-2009
T00906010006	Rock Check Dam	-	X	-	X	CB	11-20-2009
T00906010007	Rock Check Dam	-	X	-	X	CB	11-20-2009

117.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-7 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 117-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 117-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93223[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94314[b]	7-20-2022 7-21-2022 7-27-2022	0.36 0.3 0.98	7-29-2022	9 8 2	Yes Yes Yes
BMP-94969[b]	7-30-2022 7-31-2022	0.74 0.26	12-14-2022	138 137	No No

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Because of an administrative error, the post-storm inspection for the July 30 and July 31, 2022 storm events were not conducted within 15 days of the storm date. There were no findings of deficiency or recommendations for maintenance when the next inspection was conducted on December 14, 2022.

117.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 12, 2017. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (18.1 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2017, NPDES Permit No. NM0030759" (LANL 2018, 602910).

Stormwater monitoring was not conducted at T-SMA-7 in 2022 under the 2010 IP requirements.

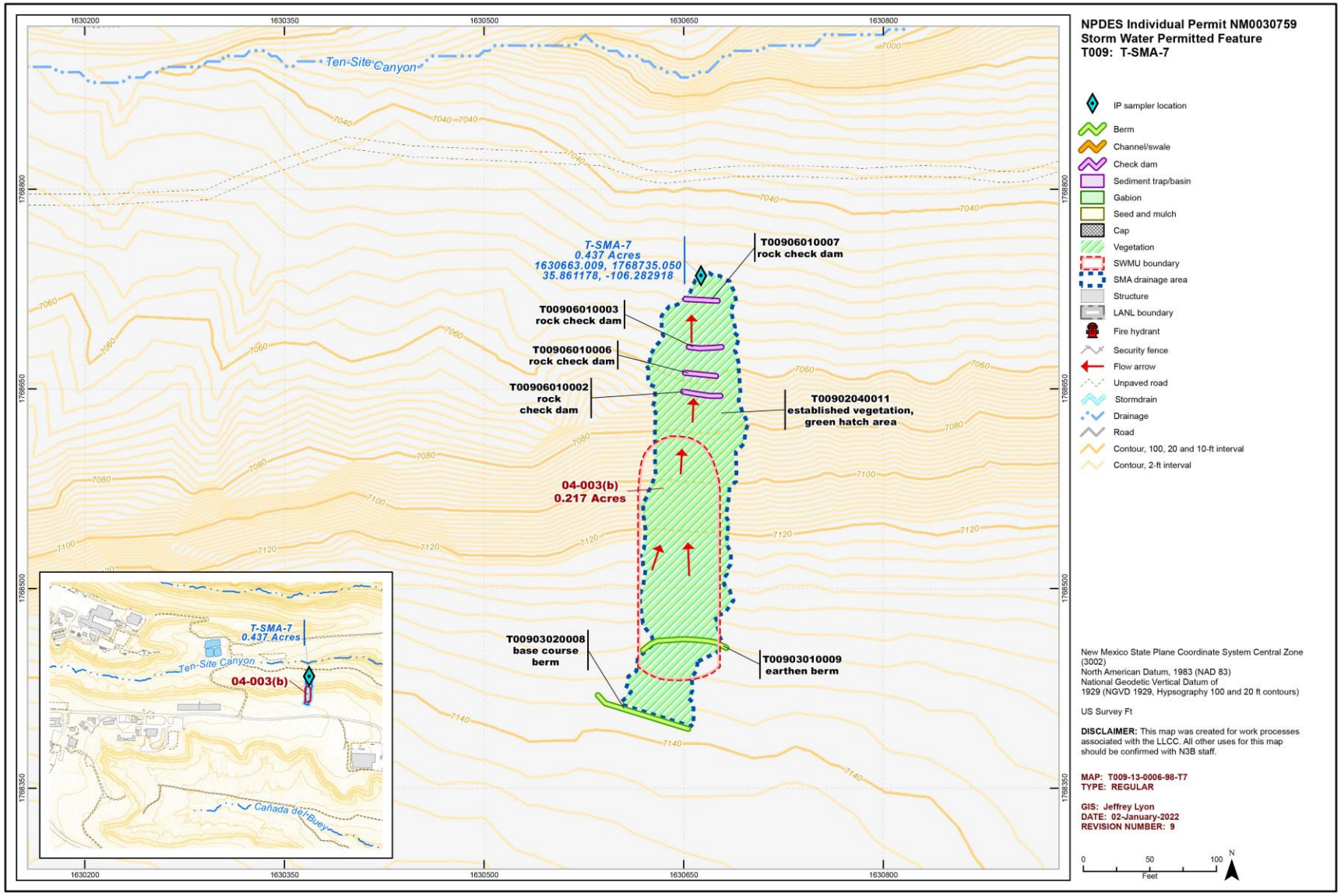


Figure 117-1 T-SMA-7 location map

118.0 T-SMA-7.1: SWMUs 04-001 and 04-002

Two historical industrial activity areas, Sites 04-001 and 04-002, are associated with T-SMA-7.1 (permitted feature T010). Summaries of all inspection, monitoring, and maintenance actions conducted in 2022 are provided below. Refer to the "2022 Sampling Implementation Plan, NPDES Permit No. NM0030759" (N3B 2023, 702608) for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

118.1 Site Descriptions

04-001 (no date)

SWMU04-001 was a 10-ft^2 firing pit constructed in 1945. Debris in the vicinity of the firing pit included wire and shrapnel. The energy source for the firing experiments was HE, and shot sizes ranged from 0.5 to 2000 lb of HE. Use of the pit ceased in 1946. The pit was cleaned of all debris, backfilled, and recontoured in 1985 during the LASCP cleanup effort.

04-002 (no date)

SWMU 04-002 is the 20-ft-wide canyon-side disposal site associated with 04-001. The Site is located on the north-facing slope of Mortandad Canyon, immediately north of SWMU 04-001. After a shot, residual material from the firing site was bulldozed over the edge of the canyon to the area designated as the surface disposal site. The shot debris consisted of cables, wires, and possibly small amounts of uranium, beryllium, lead, aluminum, and HE. The material was not covered, and this Site was not addressed during the 1985 LASCP.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 118-1.

Table 118-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
04-001	Firing site	Beryllium, copper, lead, HE, uranium isotopes, DU
04-002	Surface disposal area	Aluminum, beryllium, copper, lead, HE, uranium isotopes, DU

118.2 Control Measures

All active control measures in use at T-SMA-7.1 are listed in Table 118-2. Their locations are shown on the project map (Figure 118-1) located at the end of this SMA update. Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 118-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
T01002040009	Established Vegetation	-	X	X	-	B	5-1-2013
T01003010007	Earthen Berm	-	X	-	X	B	6-15-2011
T01003010008	Earthen Berm	-	X	-	X	B	6-15-2011
T01003020005	Base Course Berm	X	-	-	X	CB	6-17-2010
T01006020006	Log Check Dam	-	X	-	X	CB	6-17-2010

118.3 Inspections and Maintenance

Rain gage RG200.5 recorded seven storm events at T-SMA-7.1 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 118-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 118-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93349[a,b]	6-25-2022 6-27-2022	0.31 0.43	7-8-2022	13 11	Yes Yes
BMP-94315[b]	7-20-2022 7-21-2022 7-27-2022	0.36 0.3 0.98	7-29-2022	9 8 2	Yes Yes Yes
BMP-94970[b]	7-30-2022 7-31-2022	0.74 0.26	12-14-2022	138 137	No No

[a] Inspection also qualifies as the Annual Erosion Evaluation per 2010 IP Part I.G.1.

[b] Inspection qualifies for multiple Storm Dates per 2010 IP Part I.G.2 and 2022 IP Part I.B.8.b.

Because of an administrative error, the post-storm inspection for the July 30 and July 31, 2022 storm events were not conducted within 15 days of the storm date. There were no findings of deficiency or recommendations for maintenance when the next inspection was conducted on December 14, 2022.

118.4 Stormwater Monitoring

SWMUs 04-001 and 04-002 were monitored within T-SMA-7.1. As part of extended baseline monitoring, a baseline stormwater sample was collected on July 25, 2019. Analytical results from this sample yielded exceedances for copper (4.46 µg/L) and gross-alpha activity (42.5 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019" (N3B 2020, 700767).

Stormwater monitoring was not conducted at T-SMA-7.1 in 2022 under the 2010 IP requirements.

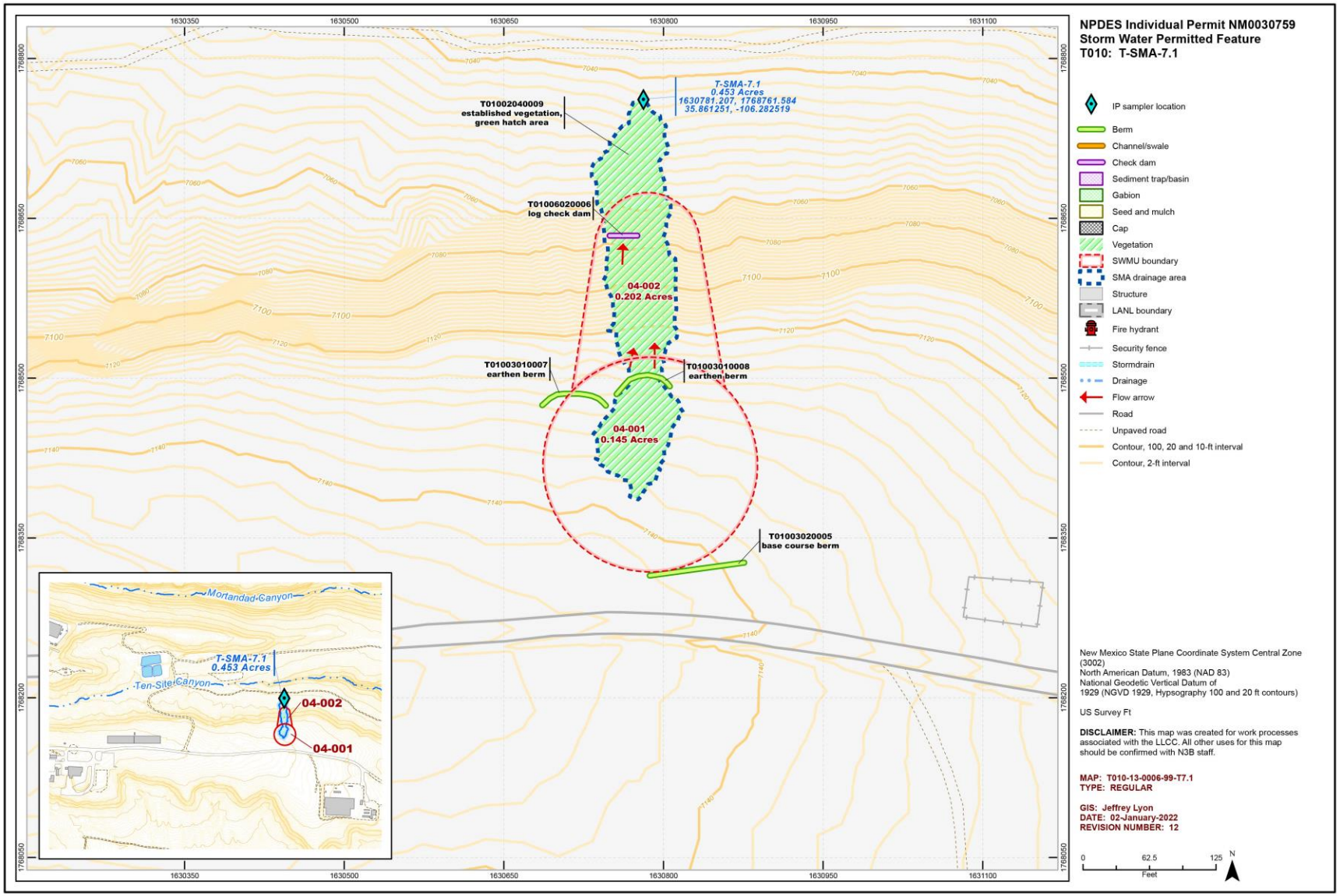


Figure 118-1 T-SMA-7.1 location map

Attachment 1
Amendments

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 2979	8/31/2022	CDB-SMA-1	Per issuance of 2022 IP, effective date 8/1/2022, please update all DB systems as necessary to: • Retire AOC C-46-001 (Spill/Non-Intentional release) as an IP site associated with CDB-SMA-1 in MainConn, SDE, and EIM, retire date 8/1/2022 • Produce new map revision without C-46-001, all other Sites associated with SMA should remain active.	T	CCN-93925
V.2 2980	8/31/2022	CDB-SMA-1	Site Boundary Change - Retire C-46-001	T	CCN-93925
V.2 2981	8/31/2022	CDB-SMA-1	Map Revision (12)	T	CCN-93925
V.2 2982	8/31/2022	S-SMA-2.01	Per issuance of 2022 IP, effective date 8/1/2022, please update all DB systems as necessary to: • Add AOC 03-056(K) (Container Storage Area) as an IP site associated with S-SMA-2.01 in MainConn, SDE, and EIM, effective date 8/1/2022. • Produce new map revision including 03-056(k).	T	CCN-93012
V.2 2983	8/31/2022	S-SMA-2.01	Site Boundary Change - Add 03-056(k)	T	CCN-93012
V.2 2984	8/31/2022	S-SMA-2.01	Map Revision (16)	T	CCN-93012
V.2 2985	8/31/2022	Pratt-SMA-1.05	Per issuance of 2022 IP, effective date 8/1/2022, please update all DB systems as necessary to: • Add SWMU 35-014(B) (Soil Contamination from Leaking Drum), SWMU 35-015(B) (Soil Contamination from Former Waste Oil Treatment Facility), and AOC 35-018(A) (Former Transformer) as IP sites associated with PRATT-SMA-1.05 in MainConn, SDE, and EIM, effective date 8/1/2022. • Retire SWMU 35-004(H) (Container Storage Area), SWMU 35-016(M) (Drainlines and Outfall Associated with Cooling Tower 35-33), and SWMU 35-016(K) (Drainline and Outfall from Building 35-29) as IP sites associated with PRATT-SMA-1.05 in MainConn SDE, and EIM. Retire date 8/1/2022. • Produce new map revision including new sites and removing retired sites.	T	CCN-93985

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 2986	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Retire 35-004(h)	T	CCN-93985
V.2 2987	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Retire 35-016(m)	T	CCN-93985
V.2 2988	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Retire 35-016(k)	T	CCN-93985
V.2 2989	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Add 35-014(b)	T	CCN-93985
V.2 2990	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Add 35-015(b)	T	CCN-93985
V.2 2991	8/31/2022	Pratt-SMA-1.05	Site Boundary Change - Add 35-018(a)	T	CCN-93985
V.2 2992	8/31/2022	Pratt-SMA-1.05	Map Revision (12)	T	CCN-93985
V.2 2993	10/13/2022	S-SMA-0.25	Per spatial PRS Database Change request CR2022-3007, approved 8/1/2022: • Generate new map revision showing updated spatial presentation of Site 03-013(a). Per spatial PRS Database Change request CR2022-3008, approved 8/1/2022: • Generate new map revision showing updated spatial presentation of Site 03-052(f).	T	CCN-96128
V.2 2994	10/13/2022	S-SMA-0.25	Site Boundary Change - 03-013(a)	T	CCN-96128
V.2 2995	10/13/2022	S-SMA-0.25	Map Revision (18)	T	CCN-96128
V.2 2996	10/14/2022	T-SMA-4	Per issuance of 2022 IP, effective date 8/1/2022, please update all DB systems as necessary to: • Add SWMU 35-009(b) (Septic System) as an IP site associated with T-SMA-4 in MainConn, SDE, and EIM, effective date 8/1/2022 • Produce new map revision including 35-009(b).	T	CCN-93926
V.2 2997	10/14/2022	T-SMA-4	Site Boundary Change - Add 35-009(b)	T	CCN-93926
V.2 2998	10/14/2022	T-SMA-4	Map Revision (11)	T	CCN-93926

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 2999	11/17/2022	S-SMA-4.1	Per control measure maintenance/installation WO BMP-94355, completed 8/18/2022, please update as necessary to: • Retire Straw Wattle S01103060012, retire date 8/18/2022-Add new Straw Wattle S01103060014 as a replacement runoff/sediment control for -0012, same map location. Install date 8/18/2022. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-95805
V.2 3000	11/17/2022	S-SMA-4.1	Retire Control - Damaged and/or Replaced-Control ID: S01103060012-Straw Wattles	T	CCN-95805
V.2 3001	11/17/2022	S-SMA-4.1	New Control - Replacement -Control ID: S01103060014-Straw Wattles	T	CCN-95805
V.2 3002	11/17/2022	S-SMA-4.1	Map Revision (10)	T	CCN-95805
V.2 3003	12/7/2022	CDB-SMA-1.35	Per 2021 SDPPP Attachment 4 verification, please update as necessary to: • Produce new map revision confirming acreage label is correct. Current map revision shows 0.597 acres whereas SDE data reports 0.648 acres. It is assumed second, southern area of SMA drainage area was not included in the label update for the current map revision.	T	CCN-89843
V.2 3004	12/7/2022	CDB-SMA-1.35	Map Revision (15)	T	CCN-89843
V.2 3005	1/9/2023	CDB-SMA-0.15	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96784
V.2 3006	1/9/2023	CDB-SMA-0.15	Map Revision (12)	T	CCN-96784

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3007	1/9/2023	CDB-SMA-0.25	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96706
V.2 3008	1/9/2023	CDB-SMA-0.25	Map Revision (9)	T	CCN-96706
V.2 3009	1/9/2023	CDB-SMA-0.55	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96783
V.2 3010	1/9/2023	CDB-SMA-0.55	Map Revision (10)	T	CCN-96783
V.2 3011	1/9/2023	CDB-SMA-1	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96705
V.2 3012	1/9/2023	CDB-SMA-1	Map Revision (13)	T	CCN-96705

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3013	1/9/2023	CDB-SMA-1.15	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96782
V.2 3014	1/9/2023	CDB-SMA-1.15	Map Revision (9)	T	CCN-96782
V.2 3015	1/9/2023	CDB-SMA-4	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96703
V.2 3016	1/9/2023	CDB-SMA-4	Map Revision (7)	T	CCN-96703
V.2 3017	1/11/2023	M-SMA-1	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96709
V.2 3018	1/11/2023	M-SMA-1	Map Revision (9)	T	CCN-96709

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3019	1/11/2023	M-SMA-1.2	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96787
V.2 3020	1/11/2023	M-SMA-1.2	Map Revision (11)	T	CCN-96787
V.2 3021	1/12/2023	M-SMA-1.21	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96708
V.2 3022	1/12/2023	M-SMA-1.21	Map Revision (8)	T	CCN-96708
V.2 3023	1/12/2023	M-SMA-3	Per control measure/installation WO BMP-95212, completed 9/1/2022, please update as necessary to: • Add 4 Rock Check Dams (M00306010019-0022) installed southwest of Riprap M00304060014 as additional run-on/erosion/sediment controls. Install date 9/1/2022. See attached map markup for locations. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision. Note: Site 48-007(c) updated on this revision to be consistent with location published in 2020 Upper Mortandad SIR, Revision 1.	T	CCN-96862

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3024	1/12/2023	M-SMA-3	New Control - Augmenting Existing/Baseline Control-Control ID: M00306010019-Rock Check Dam	T	CCN-96862
V.2 3025	1/12/2023	M-SMA-3	New Control - Augmenting Existing/Baseline Control-Control ID: M00306010020-Rock Check Dam	T	CCN-96862
V.2 3026	1/12/2023	M-SMA-3	New Control - Augmenting Existing/Baseline Control-Control ID: M00306010021-Rock Check Dam	T	CCN-96862
V.2 3027	1/12/2023	M-SMA-3	New Control - Augmenting Existing/Baseline Control-Control ID: M00306010022-Rock Check Dam	T	CCN-96862
V.2 3028	1/12/2023	M-SMA-3	Site Boundary Change - 48-007(c)	T	CCN-96862
V.2 3029	1/12/2023	M-SMA-3	Map Revision (14)	T	CCN-96862
V.2 3030	1/12/2023	M-SMA-12.9	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96710
V.2 3031	1/12/2023	M-SMA-12.9	Map Revision (14)	T	CCN-96710
V.2 3032	1/12/2023	S-SMA-0.25	Per BMP maintenance/installation WO BMP-94113, conducted 8/5/2022, please update as necessary to: • Retire gravel bag S00103100023, retire date 8/5/2022. • Add new gravel bag S00103100024 installed as a replacement run-on/sediment control for -0023. Install date 8/5/2022. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96686

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3033	1/12/2023	S-SMA-0.25	Retire Control - Damaged and/or Replaced-Control ID: S00103100023-Gravel Bags	T	CCN-96686
V.2 3034	1/12/2023	S-SMA-0.25	New Control - Replacement -Control ID: S00103100024-Gravel Bags	T	CCN-96686
V.2 3035	1/12/2023	S-SMA-0.25	Map Revision (19)	T	CCN-96686
V.2 3036	1/12/2023	S-SMA-2	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96688
V.2 3037	1/12/2023	S-SMA-2	Map Revision (15)	T	CCN-96688
V.2 3038	1/12/2023	S-SMA-2.01	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96691
V.2 3039	1/12/2023	S-SMA-2.01	Map Revision (17)	T	CCN-96691
V.2 3040	1/12/2023	S-SMA-2.8	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96692
V.2 3041	1/12/2023	S-SMA-2.8	Map Revision (16)	T	CCN-96692

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3042	1/12/2023	S-SMA-3.51	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96694
V.2 3043	1/12/2023	S-SMA-3.51	Map Revision (13)	T	CCN-96694
V.2 3044	1/12/2023	S-SMA-3.6	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96693
V.2 3045	1/12/2023	S-SMA-3.6	Map Revision (20)	T	CCN-96693
V.2 3046	1/12/2023	S-SMA-3.71	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96684
V.2 3047	1/12/2023	S-SMA-3.71	Map Revision (8)	T	CCN-96684

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3048	1/12/2023	S-SMA-3.72	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96685
V.2 3049	1/12/2023	S-SMA-3.72	Map Revision (9)	T	CCN-96685
V.2 3050	1/12/2023	S-SMA-3.95	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96779
V.2 3051	1/12/2023	S-SMA-3.95	Map Revision (8)	T	CCN-96779
V.2 3052	1/12/2023	S-SMA-5	Per control measure maintenance/installation WO BMP-96569 conducted 11/10/2022, please update as necessary to: • Retire straw wattle S01303060010, retire date 11/10/2022. • Add new straw wattle S01303060013 installed as a replacement runoff/sediment control for -0010. Same map location. Install date 11/10/2022. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96704
V.2 3053	1/12/2023	S-SMA-5	Retire Control - Damaged and/or Replaced-Control ID: S01303060010-Straw Wattles	T	CCN-96704

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3054	1/12/2023	S-SMA-5	New Control - Replacement -Control ID: S01303060013-Straw Wattles	T	CCN-96704
V.2 3055	1/12/2023	S-SMA-5	Map Revision (11)	T	CCN-96704
V.2 3056	1/12/2023	S-SMA-5.2	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96683
V.2 3057	1/12/2023	S-SMA-5.2	Map Revision (11)	T	CCN-96683
V.2 3058	1/12/2023	S-SMA-5.5	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96780
V.2 3059	1/12/2023	S-SMA-5.5	Map Revision (8)	T	CCN-96780
V.2 3060	1/12/2023	T-SMA-2.5	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96721
V.2 3061	1/12/2023	T-SMA-2.5	Map Revision (7)	T	CCN-96721

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3062	1/12/2023	T-SMA-7	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96714
V.2 3063	1/12/2023	T-SMA-7	Map Revision (9)	T	CCN-96714
V.2 3064	1/12/2023	M-SMA-1.22	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96786
V.2 3065	1/12/2023	M-SMA-1.22	Map Revision (8)	T	CCN-96786
V.2 3066	1/12/2023	M-SMA-3.5	Per control measure installation/maintenance WO BMP-94111, conducted 8/19/2022, please update as necessary to: • Add two rock check dams (M00506010020 and M00506010021) installed as additional erosion/sediment/runoff controls, install date 9/1/2022. See map markup attachment for locations. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96726
V.2 3067	1/12/2023	M-SMA-3.5	New Control - Augmenting Existing/Baseline Control-Control ID: M00506010020-Rock Check Dam	T	CCN-96726

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3068	1/12/2023	M-SMA-3.5	New Control - Augmenting Existing/Baseline Control-Control ID: M00506010021-Rock Check Dam	T	CCN-96726
V.2 3069	1/12/2023	M-SMA-3.5	Map Revision (15)	T	CCN-96726
V.2 3070	1/12/2023	M-SMA-4	Per control measure installation/maintenance WO BMP-95214, conducted 8/30/2022, please update as necessary to: • Add rock berm M00603120019 installed as additional erosion/sediment/run-on/runoff control, install date 8/30/2022. See map markup attachment for locations. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96728
V.2 3071	1/12/2023	M-SMA-4	New Control - Augmenting Existing/Baseline Control-Control ID: M00603120019-Rock Berm	T	CCN-96728
V.2 3072	1/12/2023	M-SMA-4	Map Revision (14)	T	CCN-96728
V.2 3073	1/12/2023	M-SMA-5	Per control measure installation/maintenance WO BMP-93841, conducted 7/19/2022, please update as necessary to: • Retire baseline certified Straw Wattle M00703060015, retire date 7/19/2022. • Add Straw Wattle M00703060017 installed as a replacement sediment/run-on control for -0015. Install date 7/19/2022. Same map location as M00703060015. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96729

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3074	1/12/2023	M-SMA-5	Retire Control - Damaged and/or Replaced-Control ID: M00703060015-Straw Wattle	T	CCN-96729
V.2 3075	1/12/2023	M-SMA-5	New Control - Replacement -Control ID: M00703060017 - Straw Wattle	T	CCN-96729
V.2 3076	1/12/2023	M-SMA-5	Map Revision (10)	T	CCN-96729
V.2 3077	1/12/2023	M-SMA-10.01	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96785
V.2 3078	1/12/2023	M-SMA-10.01	Map Revision (9)	T	CCN-96785
V.2 3079	1/12/2023	M-SMA-10.3	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96778
V.2 3080	1/12/2023	M-SMA-10.3	Map Revision (15)	T	CCN-96778
V.2 3081	1/12/2023	M-SMA-11.1	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96682
V.2 3082	1/12/2023	M-SMA-11.1	Map Revision (12)	T	CCN-96682

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3083	1/12/2023	M-SMA-12	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96781
V.2 3084	1/12/2023	M-SMA-12	Map Revision (14)	T	CCN-96781
V.2 3085	1/12/2023	M-SMA-12.5	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96790
V.2 3086	1/12/2023	M-SMA-12.5	Map Revision (10)	T	CCN-96790
V.2 3087	1/12/2023	M-SMA-12.6	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96711
V.2 3088	1/12/2023	M-SMA-12.6	Map Revision (12)	T	CCN-96711

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3089	1/12/2023	M-SMA-12.8	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96789
V.2 3090	1/12/2023	M-SMA-12.8	Map Revision (12)	T	CCN-96789
V.2 3091	1/12/2023	M-SMA-12.92	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96788
V.2 3092	1/12/2023	M-SMA-12.92	Map Revision (5)	T	CCN-96788
V.2 3093	1/12/2023	M-SMA-13	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96791
V.2 3094	1/12/2023	M-SMA-13	Map Revision (11)	T	CCN-96791

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3095	1/12/2023	Pratt-SMA-1.05	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96723
V.2 3096	1/12/2023	Pratt-SMA-1.05	Map Revision (13)	T	CCN-96723
V.2 3097	1/12/2023	T-SMA-1	Per 2022 SIP Decision made September 2022, sampler location under 2022 IP requirements will be resumed at original location ID SS093713. • Generate new map revision draft using this location (Object ID #372 in IP_Sampler_Location SDE files) and associated ~14 acre drainage area (Object ID #319 in Drainage_Area SDE files) to capture potential discharge from both permitted sites within the SMA. Current location ID SS193725 (Object ID #641) and associated SMA drainage area (Object ID #962) will be retired under this CCN. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96722
V.2 3098	1/12/2023	T-SMA-1	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 11.	T	CCN-96722
V.2 3099	1/12/2023	T-SMA-1	Map Revision (11)	T	CCN-96722

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3100	1/12/2023	T-SMA-2.85	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96720
V.2 3101	1/12/2023	T-SMA-2.85	Map Revision (7)	T	CCN-96720
V.2 3102	1/12/2023	T-SMA-3	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96719
V.2 3103	1/12/2023	T-SMA-3	Map Revision (13)	T	CCN-96719
V.2 3104	1/12/2023	T-SMA-4	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96718
V.2 3105	1/12/2023	T-SMA-4	Map Revision (12)	T	CCN-96718

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3106	1/12/2023	T-SMA-5	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96717
V.2 3107	1/12/2023	T-SMA-5	Map Revision (11)	T	CCN-96717
V.2 3108	1/12/2023	T-SMA-6.8	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96716
V.2 3109	1/12/2023	T-SMA-6.8	Map Revision (12)	T	CCN-96716
V.2 3110	1/12/2023	T-SMA-7.1	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96713
V.2 3111	1/12/2023	T-SMA-7.1	Map Revision (12)	T	CCN-96713

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3112	1/17/2023	M-SMA-3.1	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96730
V.2 3113	1/17/2023	M-SMA-3.1	Map Revision (10)	T	CCN-96730
V.2 3114	1/17/2023	M-SMA-10	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96707
V.2 3115	1/17/2023	M-SMA-10	Map Revision (7)	T	CCN-96707

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3116	3/2/2023	S-SMA-3.61	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate hydrologic modeling output of SMA drainage area using pour point coordinates 1621703.039, 1772693.746. This will be the draft monitoring location and drainage area for new SMA on 2022 IP. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision. 2/2/2023 modification. Per further site history reviews and future monitoring planning, the proposed sampler location has been modified. Re-draft map revision 1 with the new pourpoint and associated boundary shown in Map Revision 1 (amendment V.2 3138).	T	CCN-93444
V.2 3117	3/2/2023	S-SMA-3.61	SMA Boundary Modification, Updated Area in Map Revision 1 (amendment V.2 3138)	T	CCN-93444
V.2 3118	3/2/2023	S-SMA-3.61	Site Boundary Change - Add 60-004(f) Storage Area.	T	CCN-93444
V.2 3119	2/28/2023	S-SMA-1.1	Per FTL field verification of SMA drainage area please update as necessary to modify SMA drainage area. Use current monitoring location SS121634 as pour point location and see attached changes from Grayson Vogel. Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96687
V.2 3120	2/28/2023	S-SMA-1.1	SMA Boundary Modification, Updated Area in Map Revision	T	CCN-96687
V.2 3121	2/28/2023	S-SMA-1.1	Map Revision (16)	T	CCN-96687

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3122	3/2/2023	S-SMA-3.52	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96689
V.2 3123	3/2/2023	S-SMA-3.52	Map Revision (15)	T	CCN-96689
V.2 3124	1/30/2023	M-SMA-6	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96734
V.2 3125	1/30/2023	M-SMA-6	Map Revision (19)	T	CCN-96734
V.2 3126	1/23/2023	M-SMA-7.9	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97209
V.2 3127	1/23/2023	M-SMA-7.9	Map Revision (12)	T	CCN-97209

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3128	1/23/2023	M-SMA-7	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97210
V.2 3129	1/23/2023	M-SMA-7	Map Revision (13)	T	CCN-97210
V.2 3130	1/23/2023	S-SMA-3.53	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97250
V.2 3131	1/23/2023	S-SMA-3.53	Map Revision (16)	T	CCN-97250
V.2 3132	1/23/2023	S-SMA-3.7	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97251
V.2 3133	1/23/2023	S-SMA-3.7	Map Revision (10)	T	CCN-97251

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3134	3/2/2023	S-SMA-6	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97252
V.2 3135	3/2/2023	S-SMA-6	Map Revision (15)	T	CCN-97252
V.2 3136	2/28/2023	M-SMA-12.7	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96712
V.2 3137	2/28/2023	M-SMA-12.7	Map Revision (11)	T	CCN-96712
V.2 3138	3/2/2023	S-SMA-3.61	Map Revision (1)	T	CCN-93444
V.2 3139	10/13/2022	S-SMA-0.25	Site Boundary Change - 03-052(f)	T	CCN-96128

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3140	3/2/2023	S-SMA-3.62	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate hydrologic modeling outputs of two potential SMA drainage areas using pourpoint coordinates. After review, a final monitoring location will be selected: ❖ Option 1: Middle_South, 1.118 acres (northing 1772520.755, easting 1621876.589) ❖ Option 2: North, 1.384 acres (northing 1772482.940, easting 1622176.772). Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. 2/28/2023 addition. Option 1 has been selected. Produce project map revision 1 for S-SMA-3.62: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-93445
V.2 3141	3/2/2023	S-SMA-3.62	Site Boundary Change - 60-002 Storage Area. New IP Site.	T	CCN-93445
V.2 3142	3/2/2023	S-SMA-3.62	SMA Boundary Modification, Updated Area in Map Revision 1 (amendment V.2 3143)	T	CCN-93445
V.2 3143	3/2/2023	S-SMA-3.62	Map Revision (1)	T	CCN-93445
V.2 3144	2/6/2023	Volume 2	Per 2022 SDPPP Draft editorial decision, update Maintenance Connection and attribute tables in SDE as necessary to change Rip Rap to Riprap. Note: DB change only, all project maps produced under SMA-specific CCNs have been modified as applicable.	E	CCN-97380

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3145	3/2/2023	Volume 2 Attachment 2	Per 2022 IP, effective August 1, 2022, please update as necessary to: • Update Map number map_19-0004-07_mortandad_canyon_watershed.mxd. Per the 2022 IP, CDB-SMA-1.35, CDB-SMA-1.54, CDB-SMA-1.55, CDB-SMA-1.65, M-SMA-9.1, and S-SMA-4.5 should no longer be included on the map. • Update Map number map_19-0004-06_sandia_canyon_watershed.mxd to include new SMA locations for S-SMA-3.61 and S-SMA-3.62. These are new SMAs on the 2022 IP. Per the 2022 IP, S-SMA-4.5 should no longer be included on the map.	T	CCN-97026
V.2 3146	3/2/2023	Volume 2 Attachment 2	Vicinity Map Revision (map_19-0004-09_mortandad_canyon_watershed_2023.mxd)	T	CCN-97026
V.2 3147	3/2/2023	Volume 2 Attachment 2	Vicinity Map Revision (map_19-0004-10_sandia_canyon_watershed_2023.mxd)	T	CCN-97026

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3148	8/1/2022	Volume 2	Per the 2022 IP, effective August 1, 2022, Retire the following SMAs and associated Sites in the Mortandad and Sandia Watersheds. All active controls at these SMAs are also retired and have been abandoned in place. Decommission the associated monitoring location(s) as necessary: • CDB-SMA-1.35 (C006) and Sites 46-004(x), 46-004(v), 46-004(u), 46-008(f), 46-004(a2), and Site association with 46-006(d). Note: 46-006(d) is still active under the 2022 IP at other SMAs. Decommission SS091314. Retire controls C00603010006, C00602040010, and C00604060009. • CDB-SMA-1.54 (C007) and Sites 46-004(h), 46-004(q), and Site association with 46-006(d). Note: 46-006(d) is still active under the 2022 IP at other SMAs. Decommission SS091315. Retire controls C00703140025, C00703140026, C00703010007, C00703010008, C00703010009, C00703010019, C00702040020, and C00704050021. • CDB-SMA-1.55 (C008) and Site 46-003(e). Decommission SS091316. Retire controls C00803010010, C00802040012, and C00803120009. • CDB-SMA-1.56 (C009) and Site 46-003(b). Decommission SS091309. Retire controls C00903010004 and C00904060001. • M-SMA-9.1 (M011) and Site 35-016(f). Decommission SS101231. Retire controls M01102040007, M01103120008, M01106010005, and M01101020001. • S-SMA-4.5 (S012) and Site 22-002(d). Decommission SS101624. Retire controls S01203010005 and S01202040007.	T	CCN-96244
V.2 3149	8/1/2022	Volume 2	Site Boundary Change - Retire 22-002(d)	T	CCN-96244
V.2 3150	8/1/2022	Volume 2	Site Boundary Change - Retire 35-016(f)	T	CCN-96244
V.2 3151	8/1/2022	Volume 2	Site Boundary Change - Retire 46-003(b)	T	CCN-96244
V.2 3152	8/1/2022	Volume 2	Site Boundary Change - Retire 46-003(e)	T	CCN-96244
V.2 3153	8/1/2022	Volume 2	Site Boundary Change - Retire 46-006(a2)	T	CCN-96244
V.2 3154	8/1/2022	Volume 2	Site Boundary Change - Retire 46-004(h)	T	CCN-96244
V.2 3155	8/1/2022	Volume 2	Site Boundary Change - Retire 46-004(q)	T	CCN-96244
V.2 3156	8/1/2022	Volume 2	Site Boundary Change - Retire 46-004(u)	T	CCN-96244
V.2 3157	8/1/2022	Volume 2	Site Boundary Change - Retire 46-004(v)	T	CCN-96244

Attachment 1, Amendments (continued)

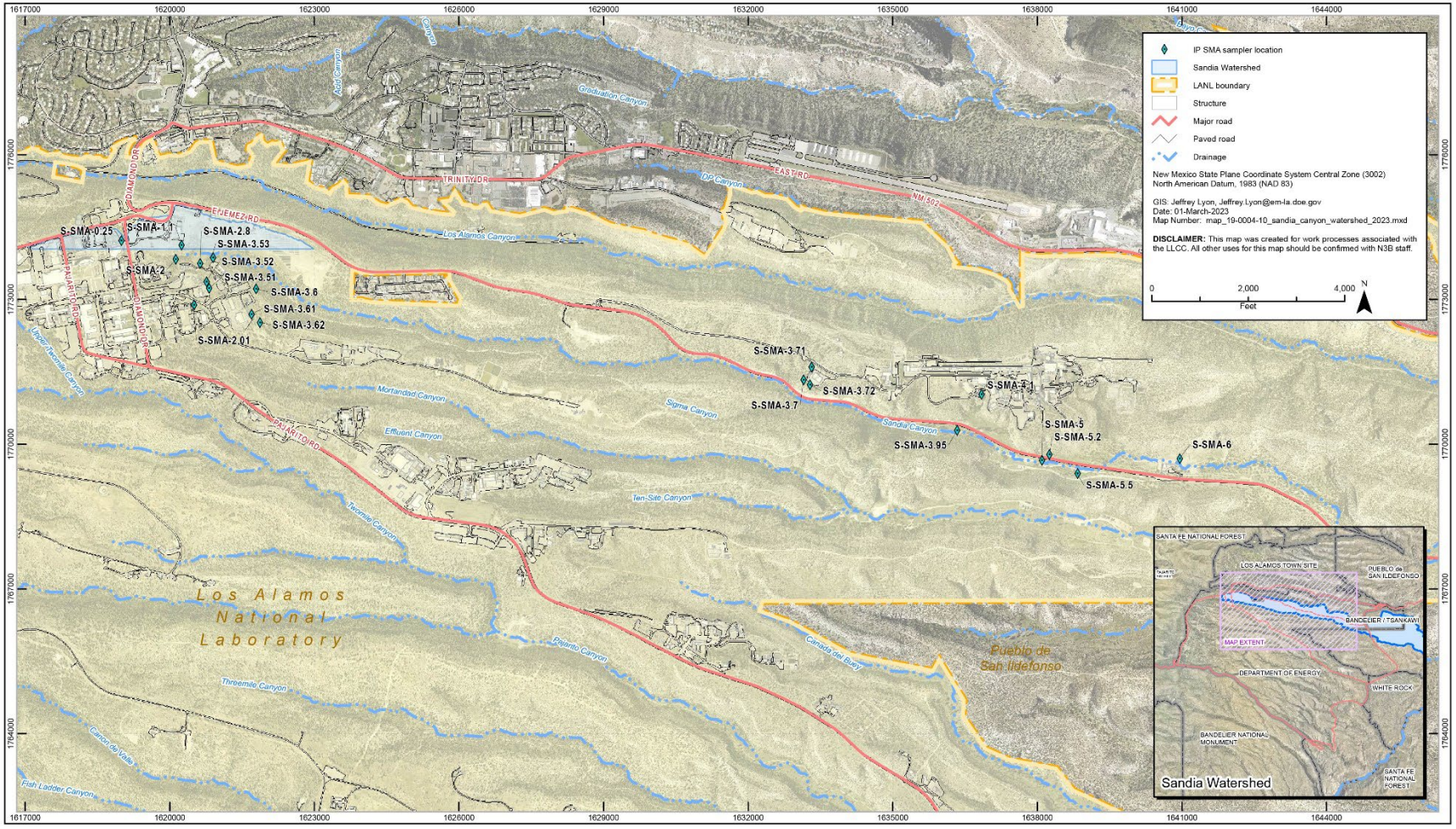
Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3158	8/1/2022	Volume 2	Site Boundary Change - Retire 46-004(x)	T	CCN-96244
V.2 3159	8/1/2022	Volume 2	Site Boundary Change - Retire 46-008(f)	T	CCN-96244
V.2 3160	8/1/2022	Volume 2	SMA Boundary Modification - Retire CDB-SMA-1.35	T	CCN-96244
V.2 3161	8/1/2022	Volume 2	SMA Boundary Modification - Retire CDB-SMA-1.54	T	CCN-96244
V.2 3162	8/1/2022	Volume 2	SMA Boundary Modification - Retire CDB-SMA-1.55	T	CCN-96244
V.2 3163	8/1/2022	Volume 2	SMA Boundary Modification - Retire CDB-SMA-1.56	T	CCN-96244
V.2 3164	8/1/2022	Volume 2	SMA Boundary Modification - Retire M-SMA-9.1	T	CCN-96244
V.2 3165	8/1/2022	Volume 2	SMA Boundary Modification - Retire S-SMA-4.5	T	CCN-96244
V.2 3166	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00603010006 - Earthen Berm	T	CCN-96244
V.2 3167	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00602040010 - Established Vegetation	T	CCN-96244
V.2 3168	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00604060009 - Riprap	T	CCN-96244
V.2 3169	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703140025 - Coir Log	T	CCN-96244
V.2 3170	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703140026 - Coir Log	T	CCN-96244
V.2 3171	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703010007 - Earthen Berm	T	CCN-96244
V.2 3172	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703010008 - Earthen Berm	T	CCN-96244
V.2 3173	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703010009 - Earthen Berm	T	CCN-96244
V.2 3174	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00703010019 - Earthen Berm	T	CCN-96244
V.2 3175	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00702040020 - Established Vegetation	T	CCN-96244
V.2 3176	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00704050021 - Water Bar	T	CCN-96244
V.2 3177	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00803010010 - Earthen Berm	T	CCN-96244
V.2 3178	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00802040012 - Established Vegetation	T	CCN-96244
V.2 3179	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00803120009 - Rock Berm	T	CCN-96244
V.2 3180	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00903010004 - Earthen Berm	T	CCN-96244

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.2 3181	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: C00904060001 - Riprap	T	CCN-96244
V.2 3182	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: M01102040007 - Established Vegetation	T	CCN-96244
V.2 3183	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: M01103120008 - Rock Berm	T	CCN-96244
V.2 3184	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: M01106010005 - Rock Check Dam	T	CCN-96244
V.2 3185	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: M01101020001 - Seed and Gravel Mulch	T	CCN-96244
V.2 3186	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: S01203010005 - Earthen Berm	T	CCN-96244
V.2 3187	8/1/2022	Volume 2	Retire Control - Life Cycle Ended -Control ID: S01202040007 - Established Vegetation	T	CCN-96244
V.2 3188	3/2/2023	S-SMA-3.62	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 1 (amendment V.2 3143)	T	CCN-93445
V.2 3189	3/2/2023	S-SMA-3.61	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 1 (amendment V.2 3138)	T	CCN-93444

*T = technical, E = errata

Attachment 2
Vicinity Map



Attachment 2, Vicinity Map (continued)