EMID-702682

N3B Los Alamos

2022 Update to the Site Discharge Pollution Prevention Plan

NPDES Permit No. NM0030759
May 1, 2023

Los Alamos/Pueblo Watershed

Receiving Waters:
Bayo Canyon, DP Canyon, Los Alamos Canyon, Pueblo Canyon, and Rendija Canyon

Volume 1

CONTENTS

Attachments

1.0 R-SMA-1: AOC C-00-041

One historical industrial activity area, Site C-00-041, is associated with R-SMA-1 (permitted feature R002). 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.

1.1 Site Descriptions

C-00-041 (12/21/2021)

AOC C-00-041 is the site of a former asphalt batch plant in a 600-ft-long portion of a side slope and drainage channel that flows into Rendija Canyon on USFS land. Aerial photographs confirm that the asphalt plant operated from the late 1940s to 1958. After the plant was removed, a portion of the land was transferred from the U.S. AEC to Los Alamos County in 1965, and another portion was transferred from the AEC to the USFS in 1969 to manage as public land. Currently, the site is undeveloped, and is located in a grassy open meadow bisected south to north by an ephemeral stream. A hiking trail, the Dot Grant Trail, is located to the east of AOC C-00-041, and another hiking trail, Perimeter Trail, and Guaje Pines Cemetery, are located to the west.

Potential POCs and Sources Associated with the Site

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

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

Site	Potential POC Source	Potential POCs
C-00-041	Asphalt batch plant	SVOCs (PAHs)

1.2 Control Measures

All active control measures in use at R-SMA-1 are listed in Table 1-2. Their locations are shown on the project map (Figure 1-1) 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 1-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00202040008	Established Vegetation	-	X	X	-	B	5-6-2013
R00204060006	Riprap	X	-	X	-	CB	3-4-2011
R00204060007	Riprap	X	-	X	-	CB	3-4-2011
R00204060009	Riprap	X	-	X	-	B	10-30-2014
R00204060010	Riprap	X	-	X	-	B	10-30-2014
R00204060013	Riprap	X	-	X	-	B	5-3-2016
R00204060014	Riprap	X	-	X	-	B	5-3-2016
R00204060016	Riprap	X	-	X	-	B	5-3-2016
R00204060018	Riprap	X	-	X	-	B	5-3-2016

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00204080012	TRM-Lined Swale	X	-	X	-	B	5-3-2016
R00206010005	Rock Check Dam	-	X	-	X	CB	10-1-2009
R00206010015	Rock Check Dam	X	-	X	-	B	5-3-2016
R00206010017	Rock Check Dam	X	-	X	-	B	5-3-2016
R00207010002	Gabions	X	-	-	X	CB	5-16-2005

1.3 Inspections and Maintenance

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

Table 1-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93704[a]	7-2-2022	0.33	7-12-2022	10	Yes
BMP-94089	7-14-2022	0.33	7-22-2022	8	Yes
BMP-94715[b]	7-27-2022 8-5-2022	0.6 0.81	8-10-2022	14 2	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 1-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93992 (follow up to BMP-93704)	Removed accumulated sediment from TRM-Lined Channel/Swale R00204080012 to maintain the operability of the control. Built up southeastern side of Rock Check Dam R00206010015 to ensure the center of the control remains the spill point.	8-19-2022	38 days	Maintenance was delayed.

1.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on July 2 and August 19, 2011. Analytical results from these samples yielded TAL exceedances for aluminum (2010 µg/L), gross-alpha activity (21.1 pCi/L and 51.1 pCi/L), and zinc (45.3 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 R-SMA-1 in 2022 under the 2010 IP requirements.

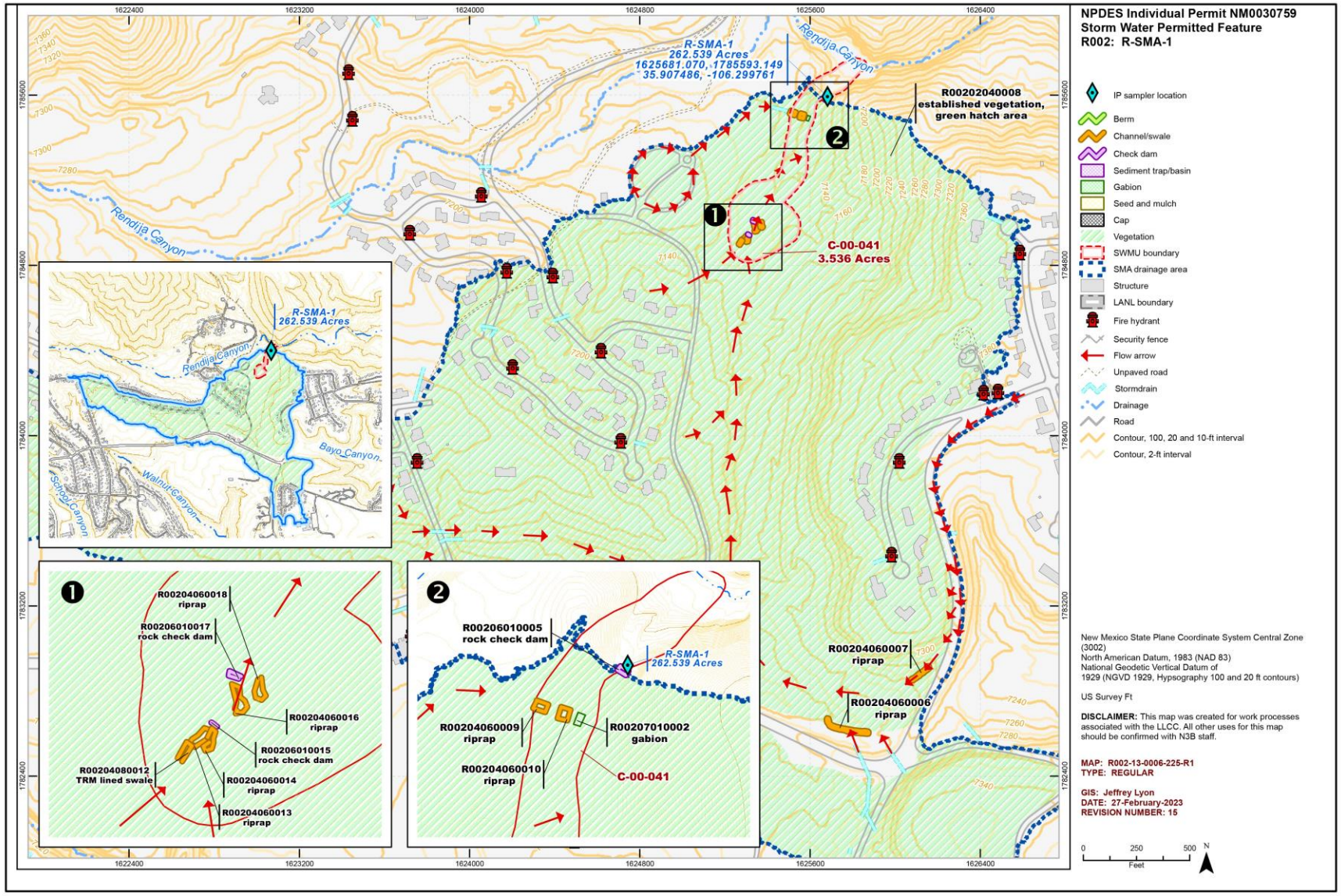

Figure 1-1 R-SMA-1 location map

2.0 R-SMA-1.95: AOC 00-015

One historical industrial activity area, Site 00-015, is associated with R-SMA-1.95 (permitted feature R003). 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.

2.1 Site Descriptions

00-015 (no date)

AOC 00-015 is the Los Alamos Sportsmen's Club, an active firing range located on GSA land leased from DOE in Rendija Canyon. The area covers approximately 30 acres. The firing range consists of several small-arms ranges and has operated since 1966. Lead is expected to be present in earthen berms and on the surface of the ranges. Shattered clay projectiles are present on the skeet and trap ranges.

Investigations under the Consent Order were not performed at AOC 00-015 as part of the Guaje/Barrancas/Rendija Canyons Aggregate Area investigation; the approved investigation work plan (LANL 2005, 089657) proposed delaying full characterization of this active firing range until operations cease. At that time, the nature and extent of contamination at AOC 00-015 will be determined, and any necessary corrective actions will be identified and implemented.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 2-1.

Table 2-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-015	Active firing site	Lead, copper

2.2 Control Measures

All active control measures in use at R-SMA-1.95 are listed in Table 2-2. Their locations are shown on the project map (Figure 2-1) 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 2-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00302040008	Established Vegetation	-	X	X	-	B	5-6-2013
R00303010021	Earthen Berm	-	X	-	X	EC	9-10-2014
R00303060005	Straw Wattle	-	X	-	X	CB	5-27-2010
R00303060024	Straw Wattle	-	X	-	X	B	9-30-2019
R00303140011	Coir Log	-	X	-	X	EC	8-20-2013
R00303140012	Coir Log	-	X	-	X	EC	8-20-2013
R00303140013	Coir Log	-	X	-	X	EC	8-20-2013
R00303140014	Coir Log	-	X	-	X	EC	8-20-2013

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00303140015	Coir Log	-	X	-	X	EC	8-20-2013
R00303140020	Coir Log	-	X	-	X	EC	9-4-2014
R00303140025	Coir Log	-	X	-	X	B	10-20-2020
R00303140026	Coir Log	-	X	-	X	B	9-1-2022
R00303140027	Coir Log	-	X	-	X	B	9-1-2022
R00303140028	Coir Log	-	X	-	X	B	9-1-2022
R00303140029	Coir Log	-	X	-	X	B	9-1-2022
R00303140030	Coir Log	-	X	-	X	B	9-9-2022
R00304010003	Earthen Channel/Swale	X	-	X	-	CB	6-1-2009

2.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at R-SMA-1.95 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 2-3. Maintenance activities conducted at the SMA are summarized in Table 2-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 2-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93204[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-7-2022	12 10 6	Yes Yes Yes
BMP-94092[b]	7-14-2022 7-20-2022	0.3 0.29	7-26-2022	12 6	Yes Yes
BMP-94718	7-27-2022	0.97	8-9-2022	13	Yes
BMP-95616	8-23-2022	0.67	9-1-2022	9	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 2-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95433 (follow up to BMP-94718)	Installed Coir Logs R00303140026 – R00303140029 as replacements for Coir Logs R003140009, R003140010, R003140017 and R0031400118.	9-1-2022	23 days	Maintenance was performed as soon as practicable.
BMP-95774 (follow up to BMP-95616)	Installed Coir Log R00303140030 as a replacement for Coir Log R003140016.	9-9-2022	8 days	Maintenance was performed as soon as practicable.

2.4 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 a TAL exceedance for gross-alpha activity (27.4 pCi/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 conducted at R-SMA-1.95 under the 2010 IP requirements from March 30 through October 26, 2022, resulting in a monitoring season of 211 days. Six inspections were performed during the monitoring period and are summarized in Table 2-5. Rain gage RG038 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 2-5 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-91739	5-5-2022	No	None	None
SMPLR-92365	6-13-2022	No	None	None
SMPLR-92821	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46
SMPLR-93508	8-17-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022	0.42/0.77 0.19/0.27 0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78

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-95519	9-28-2022	No	8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022 9-9-2022 9-22-2022	0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11 0.12/0.19 0.2/0.22
SMPLR-96157	10-26-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

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

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

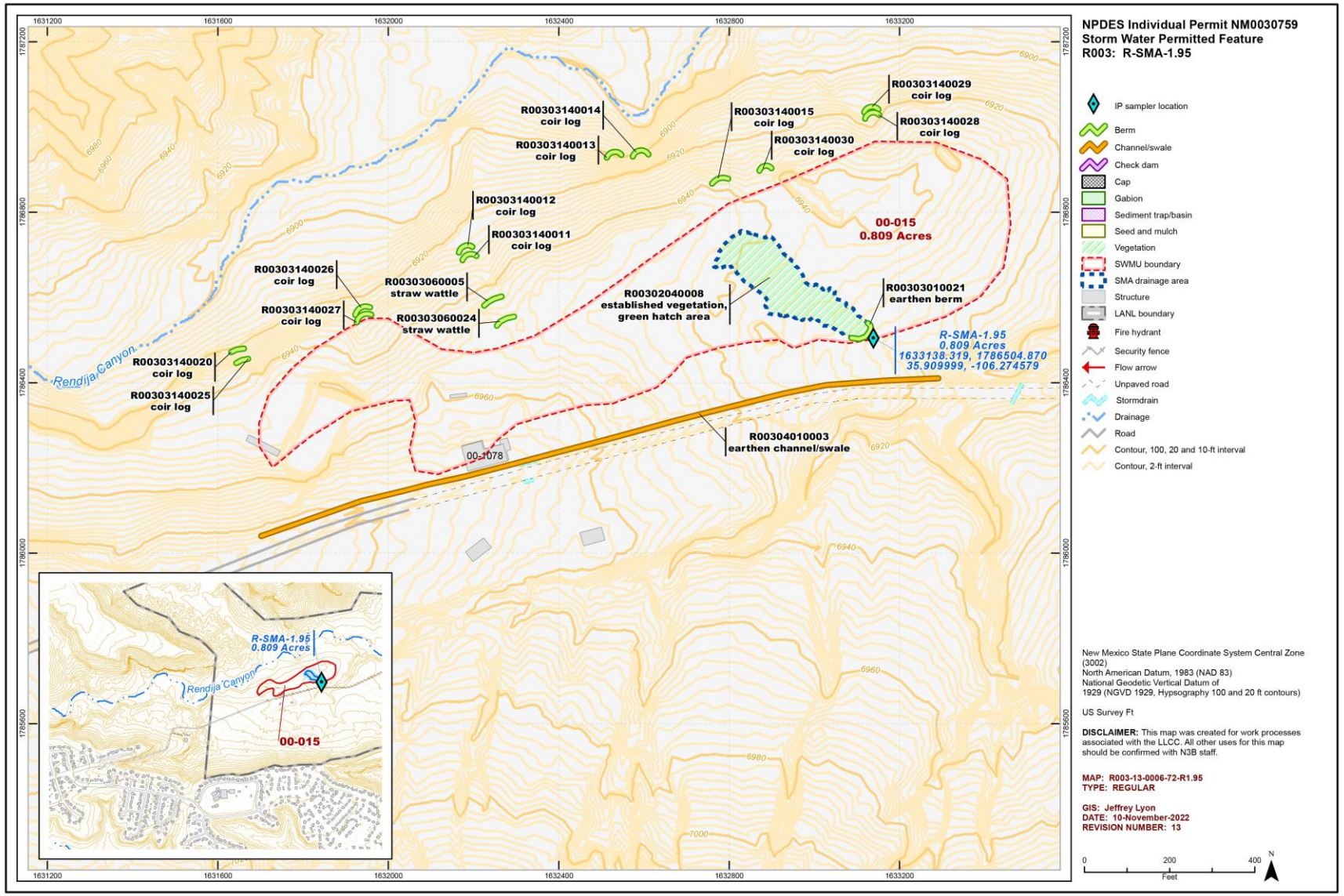

Figure 3-1 R-SMA-1.95 location map

3.0 R-SMA-2.3: SWMU 00-011(e)

One historical industrial activity area, Site 00-011(e), is associated with R-SMA-2.3 (permitted feature R005). 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.

3.1 Site Descriptions

00-011(e) (no date)

SWMU 00-011(e) is a former ammunition impact area located on USFS land, in a tributary of Rendija Canyon known as Thirty-Seven-Millimeter Canyon. The Site was used from the mid- to late 1940s for training U.S. Army personnel operating tanks firing 20- and 37-mm rounds. The impact area extends north along the tributary to the top of a cliff face.

SWMU 00-011(e) is located within a very steep natural amphitheater with numerous loose rocks and boulders. Vegetation at the site consists of thick weeds and small shrubs. The site is fenced with barbed wire and posted with "Explosives No Trespassing" signs. During the 1993 Phase I RFI conducted at SWMU 00-011(e), the site was surveyed for UXO and OEW. Materials recovered in the ordnance sweep included 37-mm rounds and fragments. Because it was not known if these rounds were HE or armor-piercing, they were all placed in shallow pits and detonated with explosives.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 3-1.

Table 3-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-011(e)	Former ammunition impact area	Copper, lead, iron, HE

3.2 Control Measures

All active control measures in use at R-SMA-2.3 are listed in Table 3-2. Their locations are shown on the project map (Figure 3-1) 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 3-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00502040004	Established Vegetation	-	X	X	-	B	5-6-2013
R00506010008	Rock Check Dam	-	X	-	X	B	9-3-2019
R00506010009	Rock Check Dam	-	X	-	X	B	9-3-2019

3.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at R-SMA-2.3 during the 2022 season, requiring six post-storm inspections, which are summarized in Table 3-3. Maintenance activities conducted at the SMA are summarized in Table 3-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 3-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93202[a,b]	6-25-2022 6-27-2022	0.3 0.41	6-29-2022	4 2	Yes Yes
BMP-93680	7-1-2022	0.42	7-1-2022	11	Yes
BMP-94090	7-14-2022	0.3	7-15-2022	1	Yes
BMP-94297	7-20-2022	0.29	7-26-2022	6	Yes
BMP-94716	7-27-2022	0.97	8-9-2022	13	Yes
BMP-95614	8-23-2022	0.67	9-1-2022	9	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 3-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95434 (follow up to BMP-94716)	Rebuilt Rock Check Dam R00506010008 and cleared accumulated sediment from Rock Check Dam R00506010009.	8-17-2022	8 days	Maintenance was performed as soon as practicable.

3.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on June 14, 2013. Analytical results from this sample yielded no TAL exceedances. 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 R-SMA-2.3 under the 2010 IP requirements from March through November 8, 2022, resulting in a monitoring season of 224 days. Six inspections were performed during the monitoring period and are summarized in Table 3-5. Rain gage RG038 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 3-5 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-91740	5-5-2022	No	None	None
SMPLR-92367	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46
SMPLR-93514	8-17-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022[c] 7-24-2022[c] 7-26-2022[c] 7-27-2022[c] 7-29-2022[c] 7-30-2022[c] 7-31-2022[c] 8-6-2022[c] 8-11-2022[c] 8-16-2022[c]	0.42/0.77 0.19/0.27 0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78
SMPLR-95521	9-23-2022	No	8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022 9-9-2022 9-22-2022	0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11 0.12/0.19 0.2/0.22
SMPLR-96083	10-12-2022	No	10-2-2022 10-3-2022 10-4-2022	0.09/0.36 0.13/0.24 0.02/0.11
SMPLR-96327	11-8-2022	No	10-15-2022 10-16-2022	0.15/0.86 0.05/0.25

[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.

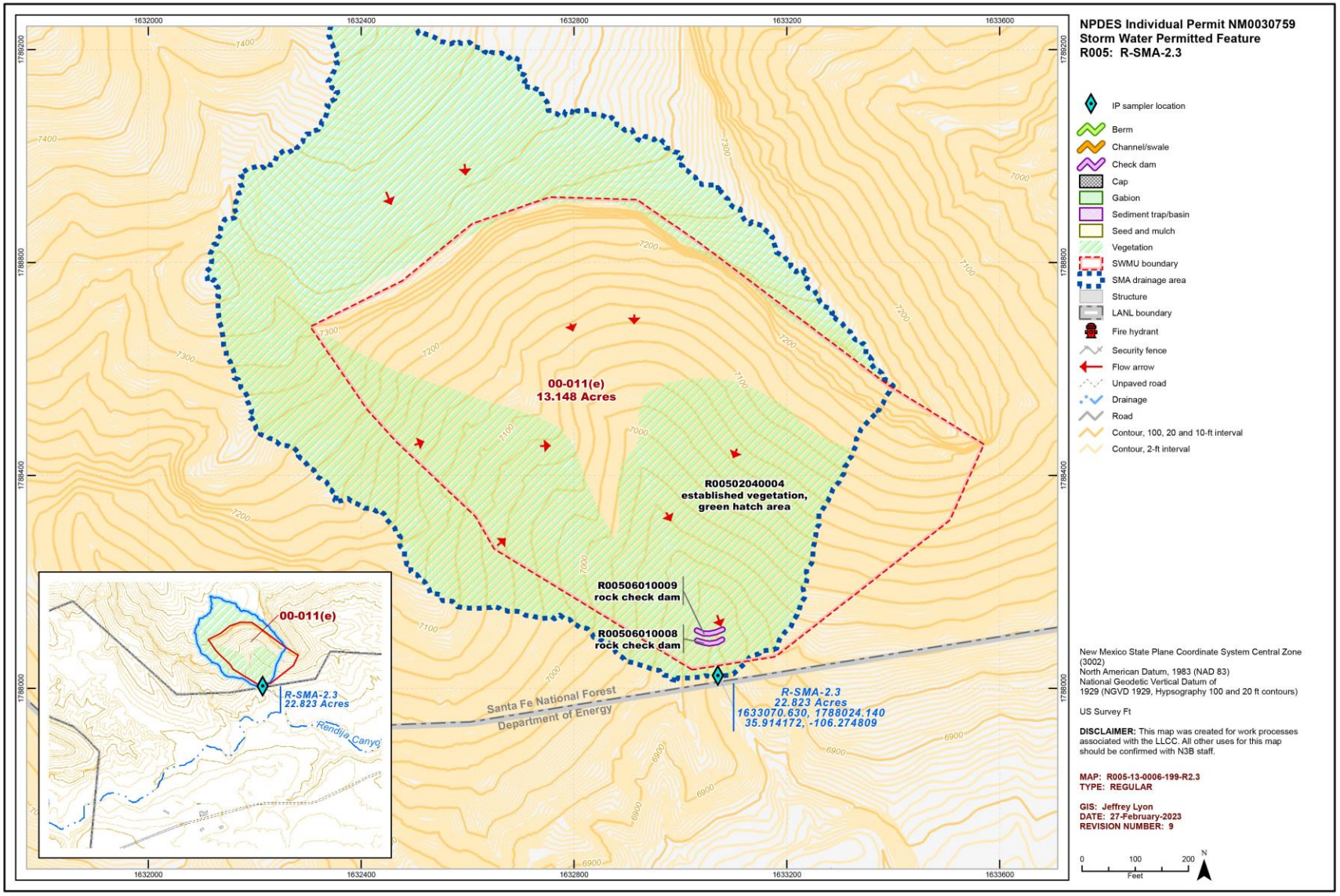

Figure 3-1 R-SMA-2.3 location map

4.0 R-SMA-2.5: SWMU 00-011(a)

One historical industrial activity area, Site 00-011(a), is associated with R-SMA-2.5 (permitted feature R006). 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.

4.1 Site Descriptions

00-011(a) (no date)

SWMU 00-011(a) is a 29-acre former mortar-impact area located on GSA land, about 0.4 mi east of the Sportsmen's Club small-arms firing range (AOC 00-015), in Rendija Canyon. The Site was a mortar-impact area in the mid-1940s for 60-mm and 82-mm rounds; operations ceased in the late 1940s.
SWMU 00-011(a) is located in a relatively flat open grassland with scattered shrubs and trees. The Site is bisected east to west by Rendija Road (unpaved). On the north side of the road, the Site has a gradual to steep slope to the ephemeral stream channel. The slope is covered by mulch consisting of downed trees that burned during the 2000 Cerro Grande fire.

Although the Site is fenced and posted with DOE "No Trespassing" signs, evidence indicates the Site is used for recreational activities such as dirt-biking and target practice. During the 1993 Phase I RFI conducted at SWMU 00-011(a), the Site was surveyed for UXO and OEW; two live mortar rounds were found and destroyed. Other materials recovered during the ordnance sweep included approximately 2400 pieces of ordnance fragments and three times as many pieces of scrap material. Geomorphic mapping was conducted including mapping of all drainage channels that drained the area enclosed within the boundaries of the Site, and the areas with high concentrations of ordnance fragments.
Two pits containing tires and UXO/MD were excavated and removed.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 4-1.

Table 4-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-011(a)	Former mortar impact area	Copper, lead, iron, HE

4.2 Control Measures

All active control measures in use at R-SMA-2.5 are listed in Table 4-2. Their locations are shown on the project map (Figure 4-1) 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 4-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
R00602040007	Established Vegetation	-	X	X	-	B	5-6-2013
R00604060004	Riprap	X	-	X	-	CB	5-24-2010
R00606010003	Rock Check Dam	-	X	-	X	CB	9-29-2009
R00606010005	Rock Check Dam	X	-	-	X	CB	5-24-2010
R00606010006	Rock Check Dam	X	-	-	X	CB	5-24-2010

4.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at R-SMA-2.5 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 4-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 4-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93203[a,b]	6-25-2022 6-27-2022	0.3 0.41	6-29-2022	4 2	Yes Yes
BMP-93681	7-1-2022	0.42	7-12-2022	11	Yes
BMP-94091[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes Yes
BMP-94717	7-27-2022	0.97	8-9-2022	13	Yes
BMP-95615	8-23-2022	0.67	9-1-2022	9	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.

4.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 8, 2019 (Figure 6-2). Analytical results from this sample yielded TAL exceedances for aluminum (1040 µg/L) and gross-alpha activity (74.7 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was not conducted at R-SMA-2.5 in 2022 under the 2010 IP requirements.

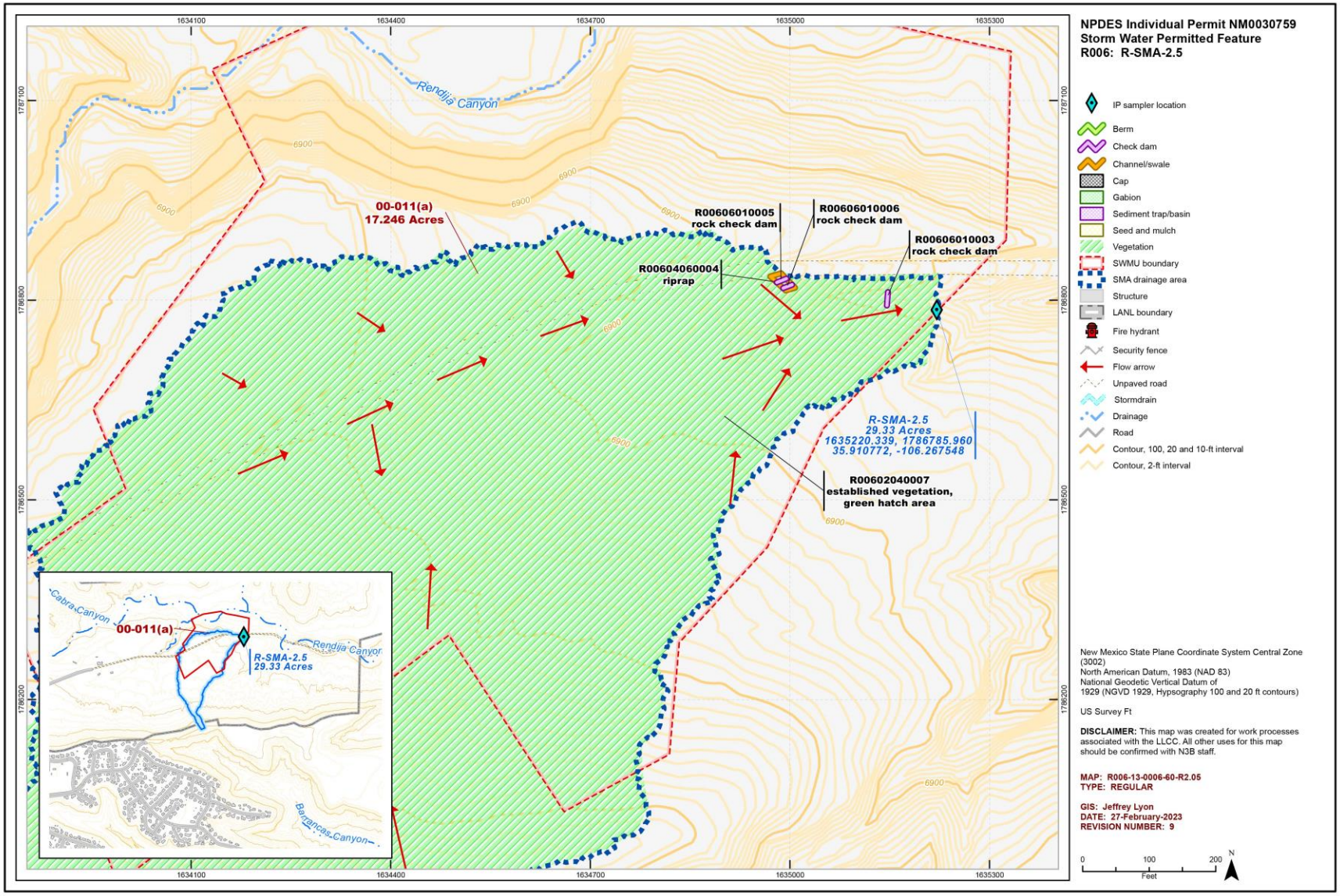

Figure 4-1 R-SMA-2.5 location map

5.0 B-SMA-0.5: SWMUs 10-001(a), 10-001(b), 10-001(c), 10-001(d), 10-004(a), and 10-004(b) and AOCs 10-008 and 10-009

Eight historical industrial activity areas, Sites 10-001(a), 10-001(b), 10-001(c), 10-001(d), 10-004(a), 10-004(b), 10-008, and 10-009, are associated with B-SMA-0.5 (permitted feature B001). 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.

5.1 Site Descriptions

10-001(a, b, c, d) (9/28/2021)

SWMU 10-001(a), known as former Firing Point 1, is one of four former firing sites [SWMUs 10-001(a-d)] (shot pads) that were located in the central-western portion of former TA-10 in Bayo Canyon. The firing site components included an x-unit chamber (former structure 10-22), an electronics chamber (former structure 10-23), a control chamber (former structure 10-13), a battery building (former structure 10-14), and an inspection building (former structure 10-8); the latter three were also associated with Firing Point 2 [SWMU 10-001(b)]. Recently-discovered engineering drawing A5-C-42 shows the former x-unit chamber measured approximately 7 ft 8 in. wide × 7 ft 8 in. long, and engineering drawing A5-C-47 shows the former electronics chamber measured approximately 6 ft 8 in. wide × 8 ft 4 in. long.

SWMU 10-001(b), known as former Firing Point 2, is one of four former firing sites [SWMUs 10-001(a-d)] (shot pads) that were located in the central-western portion of former TA-10 in Bayo Canyon. The firing site components included an x-unit chamber (former structure 10-24), an electronics chamber (former structure 10-25), a control chamber (former structure 10-13), a battery building (former structure 10-14), and an inspection building (former structure 10-8); the latter three were also associated with Firing Point 1 [SWMU 10-001(a)].

SWMU 10-001(c), known as former Firing Point 3, is one of four former firing sites [SWMUs 10-001(a-d)] (shot pads) that were located in the central-western portion of former TA-10 in Bayo Canyon. The 1992 RFI Work Plan describes Firing Point 3 as a former asphalt shot pad associated with the decommissioned northwestern firing site at former TA-10, as shown on engineering drawings ENG-R 125 (pg. 1 of 1), ENG-C 1856, and A5-R36. Firing Point 3 consisted of an x-unit chamber (former structure 10-26), an electronics chamber (former structure 10-27), a control chamber (former structure 10-15), a battery building (former structure 10-16), and an inspection building (former structure 10-8); the latter three were also associated with Firing Point 4 [SWMU 10-001(d)].

SWMU 10-001(d), known as former Firing Point 4, is one of four former firing sites [SWMUs 10-001(a-d)] (shot pads) that were located in the central-western portion of former TA-10 in Bayo Canyon. The 1992 RFI Work Plan describes Firing Point 4 as a former asphalt shot pad associated with the decommissioned northwestern firing site at former TA-10, as shown on engineering drawings ENG-R 125 (pg. 1 of 1), ENG-C 1856, and A5-R36. Firing Point 4 consisted of an x-unit chamber (former structure 10-26), an electronics chamber (former structure 10-27), a control chamber (former structure 10-15), a battery building (former structure 10-16), and an inspection building (former structure 10-8); the latter three were also associated with Firing Point 3 [SWMU 10-001(c)].

Experiments for nuclear weapons research conducted at the four firing sites from 1943 to 1960 used 500–600 lb shots of HE. The experimental shots usually contained a short-lived radioactive source such as lanthanum-140 for diagnostic purposes. Over the operational life of the four firing sites, the active components of the shots included a total of approximately 2000 kg of natural uranium, 3380 kg of uranium-238, 39.6 ci of strontium-90, lead, and possibly beryllium. Other materials used in the shots included aluminum, steel, cable, and electronics components. The lanthanum-120 used in the shots has since decayed to below detection levels. Because residual radioactive material remained at and around the pad after a shot, the Site could not be used again for approximately one month, so shots were rotated among the four firing sites. The firing pads were washed with water and swept after each shot; residual material from the shot pads was moved to the SWMU 10-005 disposal pit located northwest of the four firing sites. Wash water flowed into the Bayo Canyon stream channel [AOC C-00-004], located directly north of the former firing sites.

All explosives testing at former TA-10 ceased in 1960. Because of the proximity and overlapping dispersion areas of each firing site and common use of the SWMU 10-005 disposal pit, source terms cannot be separated by SWMU or AOC. Former TA-10 underwent extensive D&D, including the razing of all structures, from 1961 to 1963. In 1963, the area surrounding the firing sites, to a radius of approximately 760 meters, was swept, and 90 truckloads of debris, including the asphalt shot pads and soil, were transported to MDAs C and G at TA-54 for disposal. All excavations were backfilled and the ground surface was subsequently regraded. All concrete structures associated with each firing site were demolished using dynamite, and were disposed of in the SWMU 10-007 landfill. Former TA-10 and Bayo Canyon were conveyed to Los Alamos County in 1967, but remain under DOE administrative control, and are currently open to the public for recreational activities except where access is limited by a fence with posted “Caution —Do Not Enter” signs. A dirt road runs parallel to the former firing sites.

10-004(a) (9/28/2021)

SWMU 10-004(a) consists of a former septic system that served a former personnel building (building 10-21) from 1949 to 1961 in the northcentral portion of former TA-10 in Bayo Canyon. The septic system consisted of a 550-gal. reinforced-concrete septic tank (former structure 10-40), inlet and outlet drainlines, a disposal pit measuring 8 ft wide × 8 ft long × 12 ft deep located directly east of septic tank 10-40, and an outfall located in the Bayo Canyon drainage channel, approximately 200 ft directly north of former septic tank 10-40. The septic tank (former structure 10-40) received effluent via a 6-in.-diameter VCP inlet drainline from former building 10-21, and discharged to a 6-in.-diameter VCP outlet overflow drainline that discharged to an outfall north of the septic tank and into the Bayo Canyon drainage channel [AOC C-00-004], as shown in engineering drawing ENG-C 25683 (pg. 10 of 43). However, engineering drawing ENG-R 637 (pg. 2 of 3) indicates that, at one time, the septic tank discharged to the disposal pit.

Former TA-10 underwent extensive D&D, including the razing of all structures, from 1961 to 1963. During the D&D activities, the septic tank was excavated, removed, and disposed of at MDA G at TA-54; the excavation was backfilled with clean soil in 1963. There is no information available regarding the removal of the drainlines or soil/sediment at and downgradient of the outfall; however, a 2007 geophysical survey did not identify any subsurface anomalies, indicating that the inlet and outlet drainlines were likely removed during the 1961–1963 D&D activities.

Bayo Canyon was conveyed to Los Alamos County in 1967 but remains under U.S. DOE administrative control, and is currently open to the public for recreational activities except where access is limited by a fence with posted “Caution — Do Not Enter” signs.

10-004(b) (9/28/2021)

SWMU 10-004(b) is a former septic system that served the former radiochemistry laboratory (building 10-1) from 1944 to 1961 at former TA-10 in Bayo Canyon. The Task 15 CEARP Report for TA-10 describes SWMU 10-004(b) as an outfall from the SWMU 10-004(b) septic tank (former structure 10-38), that served former building 10-1 and discharged approximately 100 ft north-northeast into the Bayo Canyon drainage channel [AOC C-00-004]. The 1990 SWMU Report describes SWMU 10-004(b) as a decommissioned septic system that received sanitary, and likely laboratory, wastes from the radiochemistry laboratory housed in former building 10-1 in the southeastern portion of former TA-10. The septic system consisted of a 4-ft-wide × 10-ft-long × 4-ft-deep reinforced-concrete septic tank (former structure 10-38), inlet and outlet drainlines, and an overflow 4-in. VCP open joint drainline, identified as the SWMU 10-003(n) leach field located north of former building 10-1 in the Bayo Canyon drainage channel [AOC C-00-004] at former TA-10. The septic tank (former structure 10-38) received effluent via a 4-in.-diameter VCP inlet drainline, and discharged to a 4-in.-diameter VCP outlet overflow drainline that discharged to the SWMU 10-003(n) leach field located north of former building 10-1, as shown in engineering drawings ENG-C 1856 (Sheet U-1) and ENG-C 25683 (pg. 10 of 43). The SWMU 10-004(b) septic system was a component of the former liquid waste disposal complex, also known as the tank farm, which supported radiochemistry laboratory operations and handled sanitary waste from former building 10-1 in the southeastern portion of former TA-10. The exact dates of use for the septic system are unknown; however, it is estimated to have been used from 1944 to 1960.

Former TA-10 underwent extensive D&D, including the razing of all structures, from 1961 to 1963. In 1963, the liquid waste disposal complex, including the SWMU 10-004(b) septic system, was excavated to a depth of 20 ft bgs and disposed of at MDA G at TA-54. The excavation was partially backfilled with uncontaminated building debris from the D&D of site structures, and the remainder of the excavation was backfilled with clean soil. There is no information available regarding the removal of the drainlines or the leach field; however, a 2007 geophysical survey did not identify the presence of subsurface anomalies, indicating that the inlet and outlet drainlines were likely removed during the 1961–1963 D&D activities. The area was released to Los Alamos County in 1967 but remains under the U.S. DOE administrative control, and is currently open to the public for recreational activities except where access is limited by a fence with posted “Caution — Do Not Enter” signs.

10-008 (1/31/2017)

SWMU 10-008 is a former satellite firing site located approximately 1,400 ft northwest of the former primary firing sites [SWMUs 10-001(a-d)] at TA-10. During a 1994 IA, shrapnel was found embedded in the northwestern sides of trees in this area (opposite the known primary firing sites). Because of the proximity and overlapping dispersion areas of each firing site and use of the disposal pit, source terms cannot be separated by SWMU or AOC.

This Site has been listed as an AOC in historical documentation. However, it is listed as a SWMU in the Consent Order and in Appendix K of the RCRA Permit.

10-009 (1/31/2017)

SWMU 10-009 is a former landfill discovered during routine surface shrapnel characterization activities in Bayo Canyon, when a small depression was noted that contained materials, including asbestos siding, heavy-gauge and coaxial wire and cable, glass laboratory equipment, and other debris. A geophysical survey conducted in the area showed additional anomalies; interviews conducted with former area workers confirmed that the area had been used for disposal. EPA was notified of a new SWMU in May 1995. The Site was fenced in 1995, pending further investigation and/or remediation. AOC C-10-001,

which consists of two former radioactive (strontium-90) soil contamination areas, is located within the fenced area that encompasses SWMU 10-009.

This Site has been listed as an AOC in historical documentation. However, it is listed as a SWMU in the Consent Order and in Appendix K of the RCRA Permit.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 5-1.

Table 5-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
10-001(a)	Firing site	HE, natural uranium, uranium-238, strontium-90, lead, aluminum, and beryllium
10-001(b)		
10-001(c)		
10-001(d)		
10-004(a)	Septic system	Metals, organic chemicals, strontium-90, barium, and cadmium
10-004(b)		
10-008	Firing point	Metals
10-009	Former Bayo Canyon landfill	Asbestos, metals, organic chemicals, radionuclides

5.2 Control Measures

All active control measures in use at B-SMA-0.5 are listed in Table 5-2. Their locations are shown on the project map (Figure 5-1) 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 5-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
B00101060027	Erosion Control Blanket	X	-	X	-	B	8-9-2018
B00102040012	Established Vegetation	-	X	X	-	B	5-14-2013
B00103010006	Earthen Berm	X	-	-	X	CB	5-20-2010
B00103010007	Earthen Berm	-	X	-	X	CB	5-20-2010
B00103140016	Coir Log	-	X	-	X	B	10-3-2016
B00103140018	Coir Log	-	X	-	X	B	10-3-2016
B00103140019	Coir Log	-	X	-	X	B	10-3-2016
B00103140020	Coir Log	-	X	-	X	B	10-3-2016
B00103140024	Coir Log	X	-	-	X	B	10-3-2016
B00103140025	Coir Log	-	X	-	X	B	10-3-2016
B00104010005	Earthen Channel/Swale	X	-	X	-	CB	6-1-2009
B00104010026	Earthen Channel/Swale	X	-	X	-	B	10-3-2016
B00104040003	Culvert	X	-	X	-	CB	6-1-2009

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
B00104050015	Water Bar	-	X	X	-	B	10-3-2016
B00104060009	Riprap	X	-	X	-	B	8-27-2012
B00106010008	Rock Check Dam	-	X	-	X	CB	5-20-2010
B00106010021	Rock Check Dam	-	X	-	X	B	10-3-2016
B00106020022	Log Check Dam	X	-	-	X	B	10-3-2016
B00106020023	Log Check Dam	X	-	-	X	B	10-3-2016

5.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded 10 storm events at B-SMA-0.5 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 5-3. Maintenance activities conducted at the SMA are summarized in Table 5-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 5-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93284[a,b]	6-26-2022 6-27-2022 7-1-2022	0.28 0.29 0.3	7-7-2022	11 10 6	Yes Yes Yes
BMP-94041[b]	7-14-2022 7-20-2022	0.25 0.38	7-22-2022	8 2	Yes Yes
BMP-94459[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-9-2022	14 13 10 9	Yes Yes Yes Yes
BMP-95369	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 5-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95213 (follow up to BMP-94041)	Reinforced Coir Logs B00103140016 with additional material.	8-16-2022	25 days	Maintenance was performed as soon as practicable.
BMP-95369	Removed accumulated sediment and debris from Riprap B00104060009 at inspection	8-23-20222	0 days	

5.4 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 (486 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067).

Stormwater monitoring was not conducted at B-SMA-0.5 in 2022 under the 2010 IP requirements.

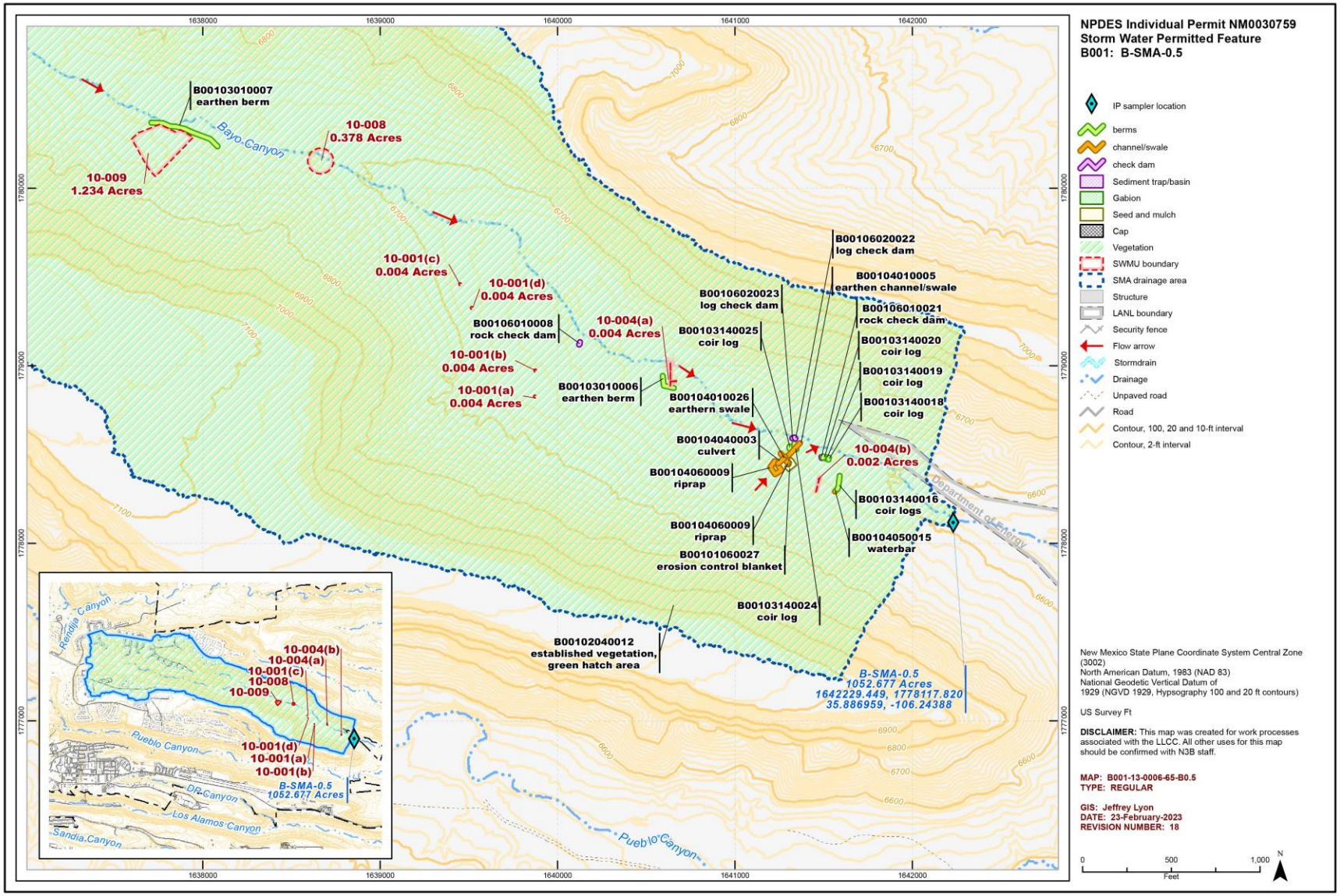

Figure 5-1 B-SMA-0.5 location map

6.0 B-SMA-1: SWMU 00-011(d)

One historical industrial activity area, Site 00-011(d), is associated with B-SMA-1 (permitted feature B002). 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.

6.1 Site Descriptions

00-011(d) (no date)

SWMU 00-011(d) is a former bazooka firing area, located on predominantly Los Alamos County land and a small section of private property, in a small north-trending tributary of Bayo Canyon. The Site, which operated between 1944 and 1948, is located northeast of the intersection of San Ildefonso Road and Diamond Drive. The 6-acre site is only partially fenced and is accessible to the public.

An investigation was conducted in 1992 to search for and remove UXO and OEW. OEW recovered from the site was found in the subsurface and was composed of about 0.5 yd^3 of tail-fin assemblies, motors, bullets, and other fragments from bazooka rockets. The 2007 Consent Order IR recommended the Site for corrective action complete without controls. The NMED approved the report with directions requiring biennial UXO surveys. NMED did not approve a request for COC without controls, but did approve a COC with controls for UXO. LANL requested that NMED rescind the COC with controls and reconsider the request for COC without controls, because the controls are not associated with requirements under the Consent Order.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 6-1.

Table 6-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-011(d)	Former bazooka firing area	Copper, lead, iron, HE

6.2 Control Measures

All active control measures in use at B-SMA-1 are listed in Table 6-2. Their locations are shown on the project map (Figure 6-1) 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 6-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
B00202040008	Established Vegetation	-	X	X	-	B	5-6-2013
B00203140009	Coir Log	X	-	-	X	B	10-28-2019
B00203140010	Coir Log	X	-	-	X	B	10-28-2019
B00206010003	Rock Check Dam	X	-	-	X	CB	9-25-2009
B00206010004	Rock Check Dam	X	-	-	X	CB	9-25-2009

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
B00206010005	Rock Check Dam	-	X	-	X	CB	9-25-2009
B00206010006	Rock Check Dam	-	X	-	X	CB	5-19-2010
B00206010007	Rock Check Dam	-	X	-	X	CB	5-19-2010

6.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at B-SMA-1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 6-3. Maintenance activities conducted at the SMA are summarized in Table 6-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 6-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93088[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-7-2022	12 11	Yes Yes
BMP-94591[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 6-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95346 (follow up from BMP-94591)	Reinforced Coir Logs B00203140009 and B00203140010 with additional material. Removed sediment accumulation from Rock Check Dam B00206010003.	8-26-2022	17 days	Maintenance was performed as soon as practicable.

6.4 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 (126 pCi/L). The complete analytical results are presented in “Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013” (LANL 2014, 254067).

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

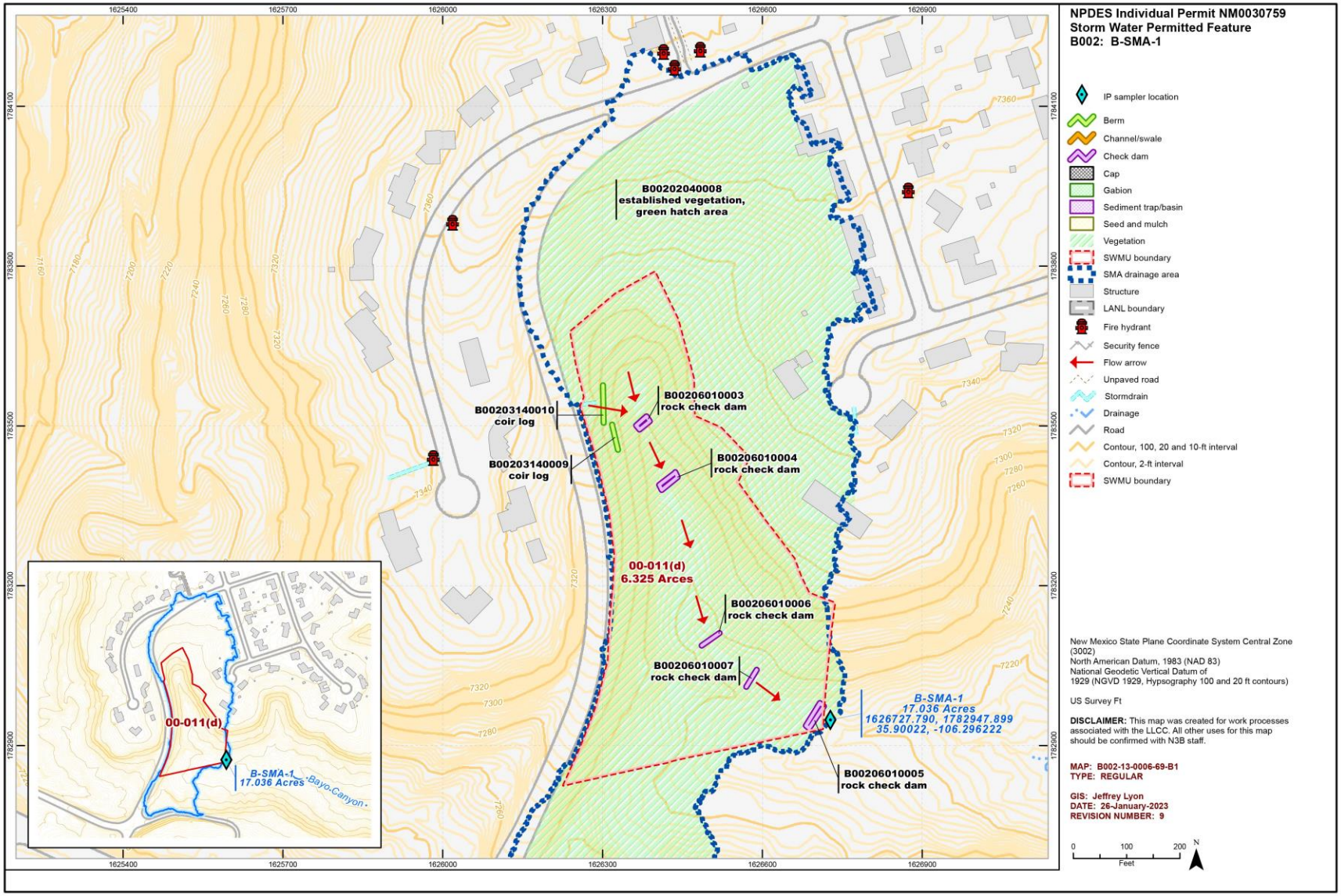

Figure 6-1 B-SMA-1 location map

7.0 ACID-SMA-1.05: SWMU 00-030(g)

One historical industrial activity area, Site 00-030(g), is associated with ACID-SMA-1.05 (permitted feature P001). 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.

7.1 Site Descriptions

00-030(g) (6/12/2017)

SWMU 00-030(g) was a sanitary septic system installed north of Canyon Road, west of the Canyon Road and Central Avenue Intersection, and directly east of the former Catholic Church (3200 Canyon Road) in former TA-00. The septic system consisted of a septic tank (referred to as Septic Tank #6), an inlet drainline, VCP outlet drainline, and an outfall that discharged to Acid Canyon.

The septic system was installed in the early 1940s and likely received sanitary waste from the original townsite and from early Laboratory operations at TA-001. Waste from TA-01 facilities may have included isotopic plutonium, polonium, uranium, and mercury. Septic Tank #6 consisted of reinforced concrete and measured 32 ft long × 22 ft wide × 6.5 ft deep. A center baffle separated the tank into east and west chambers. Effluent from the septic system discharged through an outfall to a drainage channel in Acid Canyon, a side canyon to Pueblo Canyon, in an area owned by Los Alamos County.

The septic system was decommissioned when the CWWTP (SWMU 00-019) came online in 1947. The septic tank and associated drainlines were removed in 1993; however, the inlet line was never discovered and may have been removed during the installation of a gas pipeline that crosses the Site. The former tank location is on private property that is currently used as an access driveway and parking lot for apartments. There were no known releases from this septic system other than the designed discharges of effluent to the outfall 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 7-1.

Table 7-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-030(g)	Septic System	Metals, mercury, organic chemicals, plutonium, uranium, polonium

7.2 Control Measures

All active control measures in use at ACID-SMA-1.05 are listed in Table 7-2. Their locations are shown on the project map (Figure 7-1) 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 7-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00102040007	Established Vegetation	-	-	X	-	B	12-31-2022
P00103010005	Earthen Berm	-	X	-	X	CB	10-1-2009
P00103090003	Curbing	X	-	-	X	CB	6-1-2009
P00104040004	Culvert	X	-	X	-	CB	6-1-2009

7.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at ACID-SMA-1.05 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 7-3. All other control-measure inspections conducted at the SMA are summarized in Table 7-4. No maintenance activities or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 7-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93066[a,b]	6-25-2022 6-26-2022	0.44 0.26	6-29-2022	4 3	Yes Yes
BMP-94562[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 7-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance inspection for ACID-SMA-1.05. MEX Partial collected 7/27/22. Gross Alpha (1.1x), pending PCB data.	COMP-96390	12-6-2022	Woody debris and presence of urban trash was noted. Maintenance will be addressed in January 2023.

7.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 21, 2011 with all results below the applicable MTAL or ATAL. 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).

Because the sampling location was moved in 2020, analytical results from the 2011 sample will no longer be used for confirmation-monitoring purposes. Since the relocation, stormwater flow has not been sufficient for full-volume sample collection at ACID-SMA-1.05.

Stormwater monitoring was conducted at ACID-SMA-1.05 under the 2010 IP requirements from March 25 through November 2, 2022, resulting in a monitoring season of 223 days. Seven inspections were performed during the monitoring period and are summarized in Table 7-5. Rain gage RG055.5 recorded 36 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A sample collected on July 27, 2022 had insufficient volume for analysis under the 2010 IP requirements. An additional sample was collected on October 16, 2022 but was ineligible for analysis under the 2010 IP because it was determined to have been collected more than one hour after the start of the rain event.

Table 7-5 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-91674	4-21-2022	No	None	None
SMPLR-92186	6-1-2022	No	None[c]	None
SMPLR-92710	6-29-2022	No	6-7-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3
SMPLR-93518	8-26-2022	Yes	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[c] 7-30-2022[c] 7-31-2022[c] 8-6-2022[c] 8-11-2022[c] 8-16-2022[c] 8-18-2022[c] 8-19-2022[c] 8-20-2022[c] 8-21-2022 8-22-2022[c] 8-23-2022[c]	0.1/0.44 0.24/0.33 0.12/0.29 0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1 0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45

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-95678	9-28-2022	No	9-5-2022 9-9-2022 9-22-2022	0.13/0.13 0.15/0.21 0.18/0.24
SMPLR-96160	10-12-2022	No	10-2-2022 10-3-2022 10-7-2022	0.1/0.27 0.09/0.23 0.28/0.31
SMPLR-96328	11-2-2022	No	10-15-2022 10-16-2022	0.16/0.97 0.07/0.25

[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.

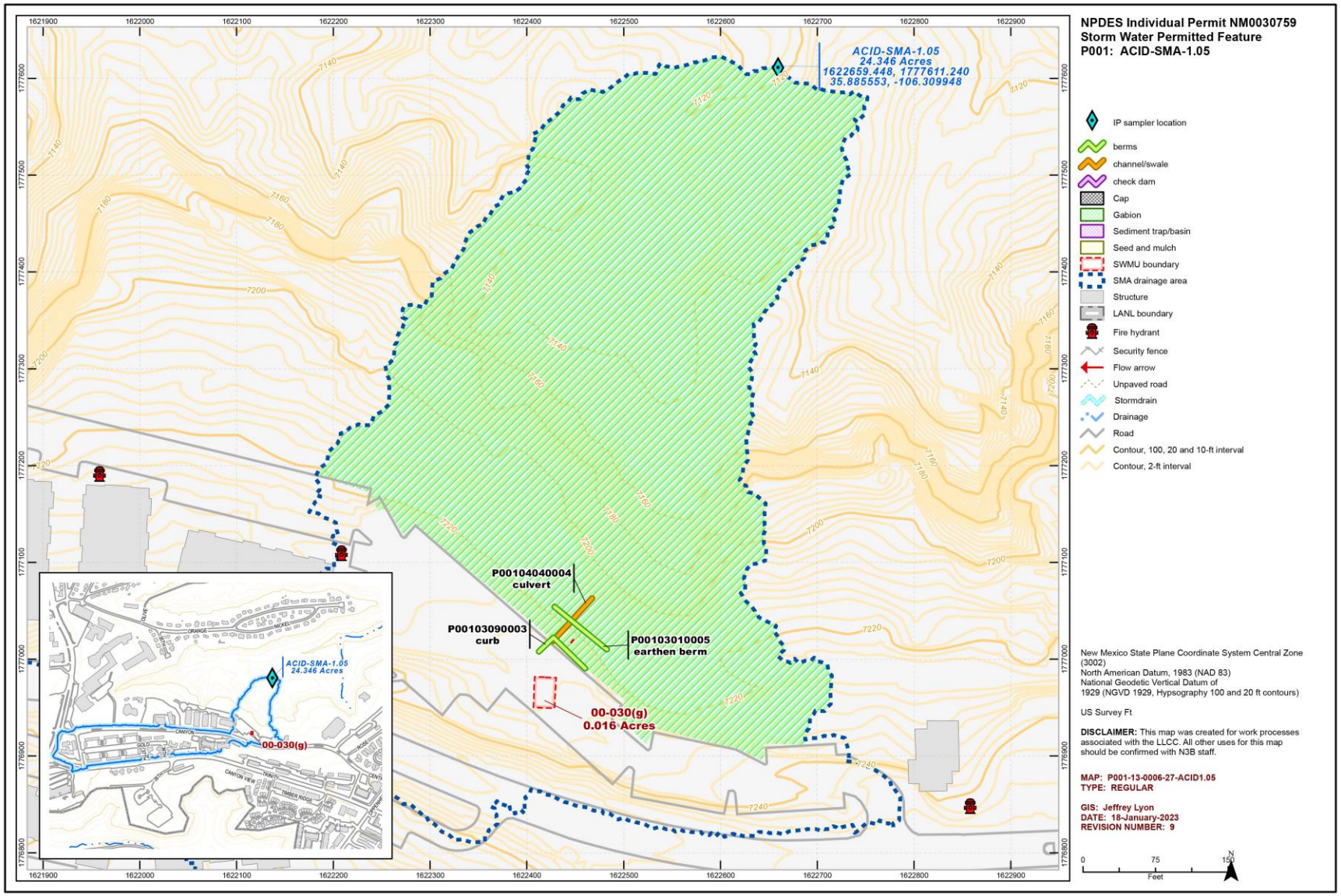

Figure 7-1 ACID-SMA-1.05 location map

8.0 ACID-SMA-2: SWMUs 01-002(b)-00, 45-001, 45-002, and 45-004

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

8.1 Site Descriptions

01-002(b)-00 (6/12/2017)

SWMU 01-002(b)-00 consists of a former TA -01 industrial waste line outfall and drainage area in Acid Canyon. The outfall was located within the boundaries of TA-45, at the head of a small branch of Acid Canyon known as the south fork of Acid Canyon. Untreated RLW generated in laboratories and research facilities in former TA-01 was discharged to this outfall from 1943 until 1951. Approximately 4.8 million gal./yr of untreated RLW were discharged to the SWMU 01-002(b)-00 outfall during this period. Average plutonium concentrations in the RLW ranged from 1000 to 10,000 pCi/L, resulting in a total estimated discharge of 1.9 g of plutonium. Discharges of untreated RLW ceased when the TA-45 RLW treatment plant began operation in 1951. However, releases of treated RLW continued until 1964.

In 1966, the SWMU 01-002(b)-00 outlet drainline, associated weir box, and contaminated tuff around the outfall and from the canyon cliff and drainage below the outfall were removed and disposed of at TA-54 as part of the D&D of the TA-45 RLW treatment plant. The TA-45 property was transferred to Los Alamos County in September 1967. In 1985, the last remnants of the industrial waste line between TA-01 and the SWMU 01-002(b)-00 outfall were removed and disposed of at TA-54. SWMU 01-002(b)-00 was part of SWMU 01-002, which was split into two units [SWMUs 01-002(a)-00 and 01-002(b)-00] in 2000.

45-001 (no date)

SWMU 45-001 consists of the former TA-45 liquid waste treatment plant and its two associated outfalls. The TA-45 liquid waste treatment plant (building 45-2) was the first such facility at LANL and was located near the current intersection of Canyon Road and Central Avenue in the Los Alamos townsite. The treatment plant began operation in 1951 and operated until 1961. The capacity of the plant was originally 90 gal./min but was expanded to 145 gal./min in 1957. The treatment plant included neutralization and storage tanks, flocculation tanks, sedimentation basins, vacuum filters, and granular media filters. Effluent from the plant discharged to Acid Canyon through outfalls located near the canyon rim. One outfall was used to discharge treated wastewater and the other was connected to floor drains in building 45-2.

Operation of the treatment plant ceased after the new RLW treatment facility was constructed at TA-50. D&D of SWMU 45-001 began in October 1966 and included demolition and removal of the treatment plant equipment, facilities, and waste lines, and excavation of contaminated soil. In September 1967, the TA-45 property was transferred to Los Alamos County.

45-002 (no date)

SWMU 45-002 consists of a former vehicle decontamination facility (former building 45-1), located adjacent to the TA-45 wastewater treatment plant, which was used to remove radioactive contamination from vehicles and large equipment, filters from the Sigma Building, trash dumpsters, and wing tanks from airplanes. SWMU 45-002 was located approximately 40 ft south of the TA-45 RLW

treatment plant (SWMU 45-001). Vehicles and other equipment were decontaminated by steam cleaning. Decontamination wastewater was initially discharged to Acid Canyon, and later routed to the RLW treatment plant. The decontamination facility began operation in 1952 and was operated approximately once per month. The facility was decommissioned in 1966.

45-004 (no date)

SWMU 45-004 consists of a former sanitary sewer outfall. This outfall was associated with the sanitary sewer system that was constructed at TA-45 in 1947 to serve the Los Alamos townsite. This sewer system included a sanitary sewer lift station (structure 45-3) and sanitary sewer manholes (structures 45-5 and 45-6). The outfall was located north of the lift station, approximately 100 ft north of the TA-45 treatment plant (SWMU 45-001), and was used for emergency discharge of overflow. The outfall discharged into a drainage channel leading into Acid Canyon. The sanitary sewer system was transferred to Los Alamos County in 1967.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 8-1.

Table 8-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-002(b)-00	Outfall associated with TA-01	Plutonium, uranium, americium, thorium, tritium, cesium-137, strontium-90, metals
45-001	Soil contamination from former RLW treatment plant	Plutonium, uranium, americium, thorium, tritium, cesium-137, strontium-90
45-002	Soil contamination from former decontamination facility	Radionuclides
45-004	Sanitary sewer outfall	Inorganic and organic chemicals

8.2 Control Measures

All active control measures in use at ACID-SMA-2 are listed in Table 8-2. Their locations are shown on the project map (Figure 8-1) 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 8-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00202040018	Established Vegetation	-	X	X	-	B	5-8-2013
P00206010014	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00206010015	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00206010016	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00206010019	Rock Check Dam	X	-	-	X	B	7-26-2017
P00206020020	Log Check Dam	-	X	-	X	B	8-1-2017
P00206020021	Log Check Dam	-	X	-	X	B	8-1-2017
P00206020022	Log Check Dam	-	X	-	X	B	8-1-2017
P00206020023	Log Check Dam	-	X	-	X	B	8-1-2017

8.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at ACID-SMA-2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 8-3. Maintenance activities conducted at the SMA are summarized in Table 8-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 8-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93089[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94592[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 8-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93089	Added rock to southern end of Rock Check Dam P00206010015 at inspection.	7-8-2022	0 days	Maintenance was performed as soon as practicable.
BMP-93997 (follow up to BMP-93089)	Built up southern end of and removed accumulated vegetative debris from Rock Check Dam P00206010014.	8-24-2022	47 days	Maintenance was delayed. Rock Check Dam P00206010015 is acting as backup control in interim.

8.4 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 aluminum (789 µg/L), gross-alpha activity (40.5 pCi/L), and PCB concentration (80 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 the installation of enhanced control measures, a corrective-action stormwater sample was collected on November 4, 2016. The complete analytical results from this sample are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2016, NPDES Permit No. NM0030759" (LANL 2017, 602194).Analytical results from the 2016 sample will no longer be used for confirmation-monitoring purposes because the monitoring location was moved in 2017.

After a 2017 sampler move to better characterize runoff from SWMU 01-002(b)-00, additional corrective-action stormwater samples were collected on July 8 and July 26, 2017. Analytical results from these samples yielded TAL exceedances for aluminum (798 µg/L), gross-alpha activity (236 pCi/L and 47.9 pCi/L), and PCB concentrations (57 ng/L and 105 ng/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 ACID-SMA-2 in 2022 under the 2010 IP requirements.

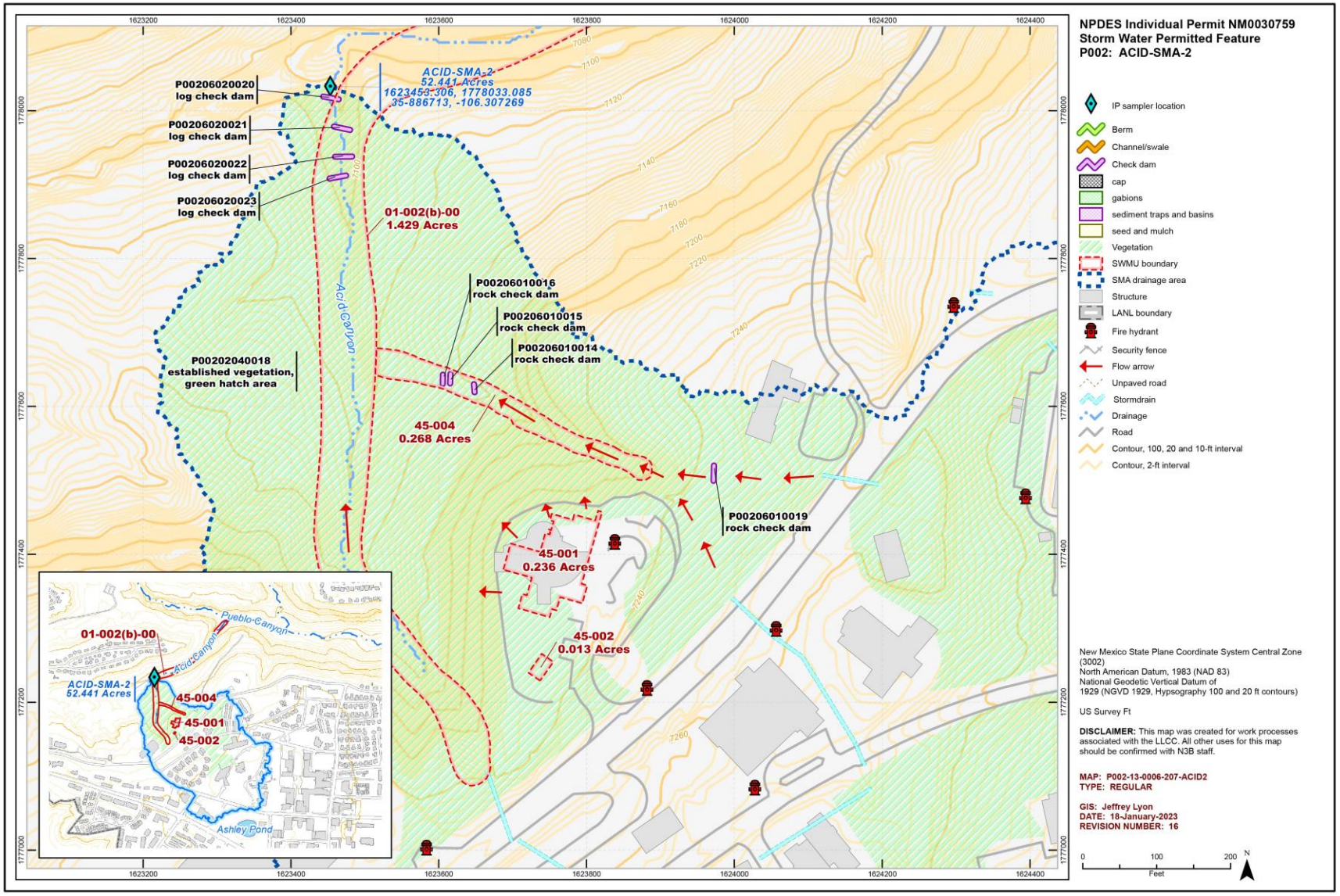

Figure 8-1 ACID-SMA-2 location map

9.0 ACID-SMA-2.01: AOC 00-030(f)

One historical industrial activity area, Site 00-030(f), is associated with ACID-SMA-2.01 (permitted feature P002A). 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.

9.1 Site Descriptions

00-030(f) (6/12/2017)

AOC 00-030(f) is a former septic system consisting of two parallel septic tanks of unequal size (also referred to as structure #5 in 1947 historical reports), located on private property south of Canyon Road and north of Rose Street, near the United Church school building in former TA-00. A 1943 engineering drawing labels the septic tanks "Septic Tank No. 2." The tanks connected with sewer inlet drainlines in the "Apartment Area," and received sanitary waste from a school, a post exchange, and some of the original Los Alamos Ranch School buildings; the septic system did not receive waste from former TA-01 operations. The outlet drainline ran to the north under Canyon Road and then to the northwest to an outfall in upper Acid Canyon. The septic system was decommissioned when the CWWTP [SWMU 00-019] became operational in 1947. The outfall was not located until 2009. Currently, the two septic tanks are still partially in place and are located beneath existing sidewalks and a retaining wall in a heavily developed area.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 9-1.

Table 9-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-030(f)	Septic System	Metals and organic chemicals

9.2 Control Measures

All active control measures in use at ACID-SMA-2.01 are listed in Table 9-2. Their locations are shown on the project map (Figure 9-1) 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 9-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P002A02040007	Established Vegetation	-	X	X	-	B	5-8-2013
P002A03010004	Earthen Berm	X	-	-	X	CB	8-25-2009
P002A03140010	Coir Log	-	X	-	X	B	8-2-2017
P002A04060002	Riprap	X	-	X	-	CB	9-30-2009

9.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at ACID-SMA-2.01 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 9-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 9-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93065[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-6-2022	11 10	Yes Yes
BMP-94561[b]	7-27-2022 7-31-2022	0.93 0.25	8-10-2022	14 10	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.

9.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at ACID-SMA-2.01. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at ACID-SMA-2.01 under the 2010 IP requirements from March 25 through November 2, 2022, resulting in a monitoring season of 223 days. Seven inspections were performed during the monitoring period and are summarized in Table 9-4. Rain gage RG055.5 recorded 36 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 9-4 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-91672	4-21-2022	No	None	None
SMPLR-92185	6-1-2022	No	None	None
SMPLR-92709	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29

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-93862	8-26-2022	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 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1 0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45
SMPLR-95674	9-28-2022	No	9-5-2022 9-9-2022 9-22-2022	0.13/0.13 0.15/0.21 0.18/0.24
SMPLR-96156	10-12-2022	No	10-2-2022 10-3-2022 10-7-2022	0.1/0.27 0.09/0.23 0.28/0.31
SMPLR-96323	11-2-2022	No	10-15-2022 10-16-2022	0.16/0.97 0.07/0.25

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

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

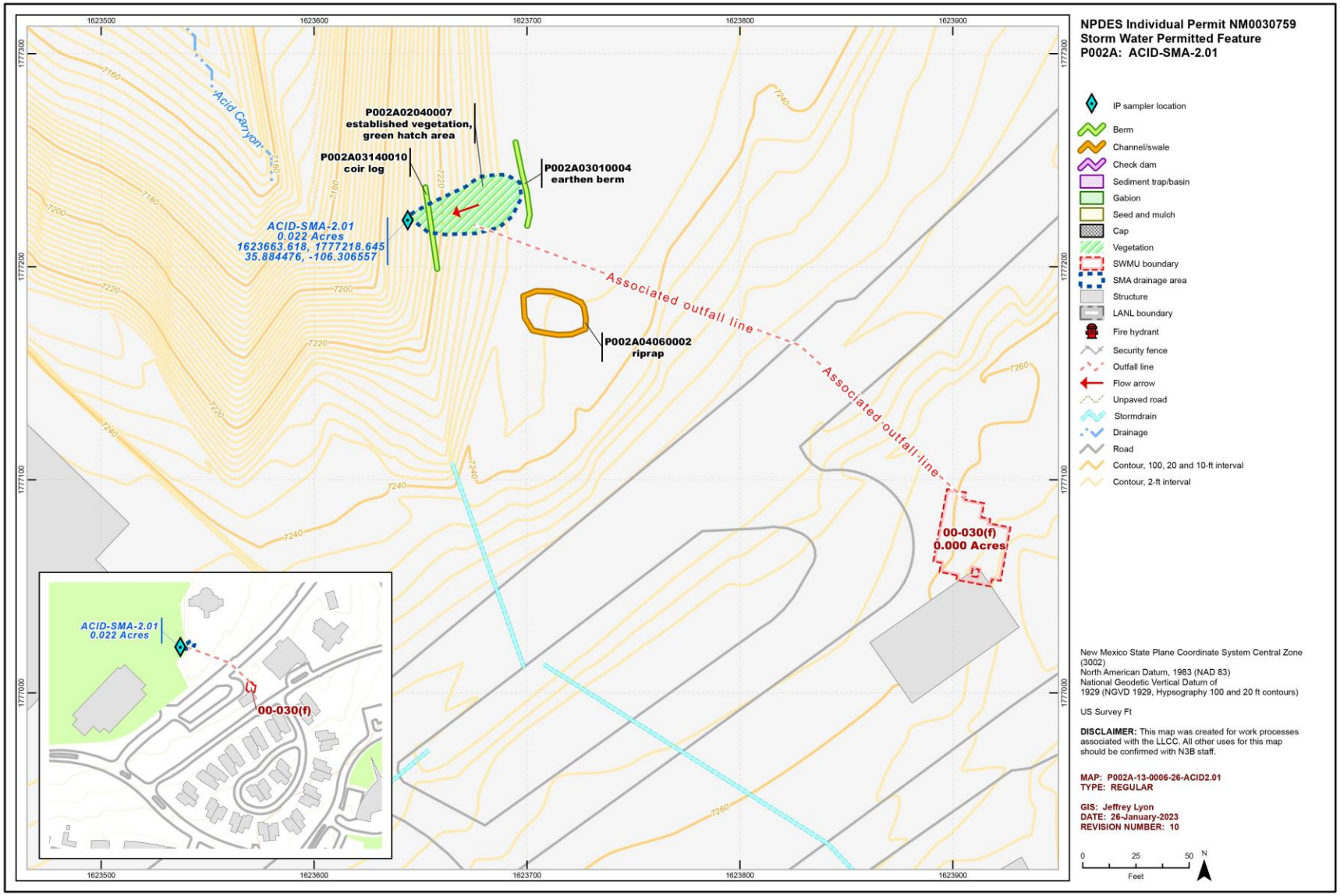

Figure 9-1 ACID-SMA-2.01 location map

10.0 ACID-SMA-2.1: SWMU 01-002(b)-00

One historical industrial activity area, Site 01-002(b)-00, is associated with ACID-SMA-2.1 (permitted feature P003). 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.

10.1 Site Descriptions

01-002(b)-00 (6/12/2017)

SWMU 01-002(b)-00 consists of a former TA-01 industrial waste line outfall and drainage area in Acid Canyon. The outfall was located within the boundaries of TA-45, at the head of a small branch of Acid Canyon known as the south fork of Acid Canyon. Untreated RLW generated in laboratories and research facilities in former TA-01 was discharged to this outfall from 1943 until 1951. During this time, approximately 4.8 million gal. of untreated RLW per yr were discharged to the SWMU 01-002(b)-00 outfall. Average plutonium concentrations in the RLW ranged from 1000 to 10,000 pCi/L, resulting in a total estimated discharge of 1.9 g of plutonium. Discharges of untreated RLW ceased when the TA-45 RLW treatment plant began operation in 1951. However, releases of treated RLW continued until 1964.

In 1966, the SWMU 01-002(b)-00 outlet drainline, associated weir box, and contaminated tuff around the outfall and from the canyon cliff and drainage below the outfall, were removed and disposed of at TA-54 as part of the decontamination and demolition of the TA-45 RLW treatment plant. The TA-45 property was transferred to Los Alamos County in September 1967. In 1985, the last remnants of the industrial waste line between TA-01 and the SWMU 01-002(b)-00 outfall were removed and disposed of at TA-54. SWMU 01-002(b)-00 was part of SWMU 01-002, which was split into two units, SWMUs 01-002(a)-00 and 01-002(b)-00, in 2000.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 10-1.

Table 10-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
01-002(b)-00	Outfall associated with TA-01	Plutonium, uranium, americium, thorium, tritium, cesium-137, strontium-90, metals

10.2 Control Measures

All active control measures in use at ACID-SMA-2.1 are listed in Table 10-2. Their locations are shown on the project map (Figure 10-1) 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 10-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00302030012	Permanent Vegetation Vegetative Buffer Strip	-	X	X	X	CB	12-2-2009
P00302040019	Established Vegetation	-	X	X	-	B	5-8-2013
P00303010009	Earthen Berm	X	-	-	X	CB	8-25-2009
P00304060011	Riprap	X	-	X	-	CB	9-30-2009
P00306010020	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00306010021	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00306010022	Rock Check Dam	-	X	-	X	EC	9-29-2016
P00306010027	Rock Check Dam	X	-	-	X	B	7-26-2017
P00306020023	Log Check Dam	-	X	-	X	EC	9-29-2016
P00306020025	Log Check Dam	-	X	-	X	EC	9-29-2016
P00306020026	Log Check Dam	-	X	-	X	EC	9-29-2016
P00306020028	Log Check Dam	-	X	-	X	B	9-22-2022

10.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at ACID-SMA-2.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 10-3. Maintenance activities conducted at the SMA are summarized in Table 10-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 10-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93090[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94593[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 10-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93090	Added rock to southern end of Rock Check Dam P00306010021 at inspection.	7-8-2022	0 days	Maintenance was performed as soon as practicable.
BMP-94024 (follow up to BMP-93090)	Built up southern end of, and removed accumulated vegetative debris from, Rock Check Dam P00306010020.	8-24-2022	47 days	Maintenance was delayed. #21 is backup
BMP-95348 (follow up to BMP-94593)	Built up Log Check Dam P00306020024 with material on site.	9-22-2022	44 days	Maintenance was delayed

10.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 3, 2012. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (24.8 pCi/L) and PCB concentration (20 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).

Following the installation of enhanced control measures, corrective-action stormwater samples were collected on November 5, 2016 and on August 7 and August 23, 2017. Analytical results from these samples yielded TAL exceedances for aluminum (818 µg/L and 906 µg/L), copper (5.36 µg/L and 4.69 µg/L), gross-alpha activity (66.1 pCi/L and 80.2 pCi/L), and PCB concentrations (11.2 ng/L, 39 ng/L, and 48 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2016" (LANL 2017, 602194) and "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2017" (LANL 2018, 602910).

Stormwater monitoring was not conducted at ACID-SMA-2.1 in 2022 under the 2010 IP requirements.

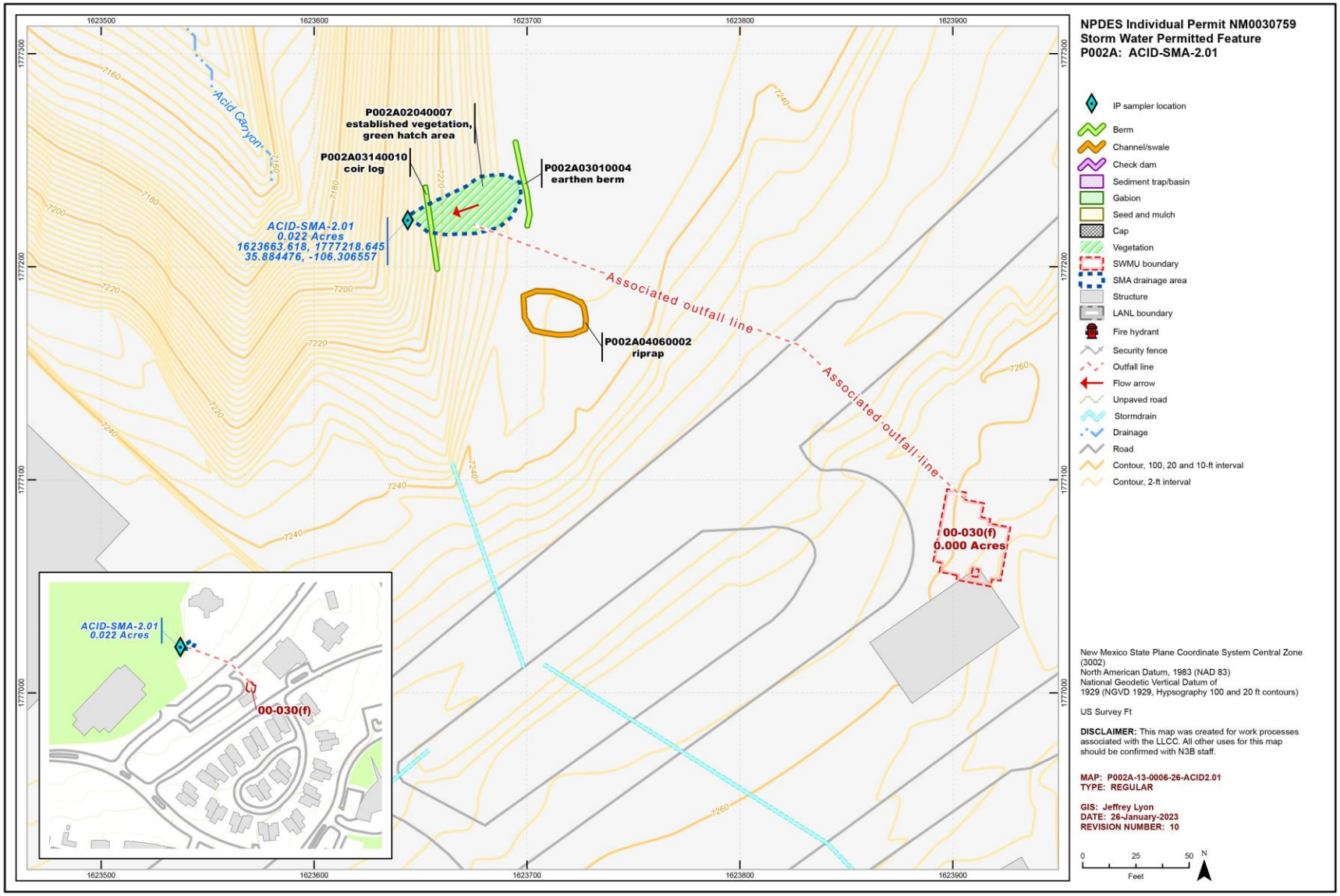

Figure 10-1 ACID-SMA-2.1 location map

11.0 P-SMA-0.3: AOC 00-018(b)

One historical industrial activity area, Site 00-018(b), is associated with P-SMA-0.3 (permitted feature P004). 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.

11.1 Site Descriptions

00-018(b) (no date)

AOC 00-018(b) is the former Bayo Canyon WWTP that was located at the intersection of Pueblo and Bayo Canyons. It was owned and operated by Los Alamos County, began operating in 1963, and was upgraded in 1966. The plant treated the sanitary waste stream that previously was routed to the former central WWTP (SWMU 00-019) and sanitary waste from residences on Barranca Mesa. Most wastes treated at the plant were from businesses and from eastern Los Alamos residences, and Barranca Mesa residences. After the Pueblo Canyon WWTP [SWMU 00-018(a)] was decommissioned in 1992, the remaining northern and western Los Alamos residential sanitary waste streams were routed to the Bayo Canyon WWTP. This plant was the primary supplier of effluent for irrigation at the Los Alamos golf course and recreational ball fields from 1992 until it was decommissioned in 2007. Mercury was historically used to seal and lubricate the hubs of trickling filters at the former WWTP. The Bayo WWTP was demolished by Los Alamos County in 2009 and 2010. Residual mercury was found to be present in the trickling filter seals during demolition.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 11-1.

Table 11-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-018(b)	Bayo Canyon WWTP	Beryllium, cadmium, lead, mercury, organic chemicals, uranium

11.2 Control Measures

All active control measures in use at P-SMA-0.3 are listed in Table 11-2. Their locations are shown on the project map (Figure 11-1) 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 11-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00402040008	Established Vegetation	-	X	X	-	B	5-7-2013
P00403010019	Earthen Berm	-	X	-	X	B	11-3-2015
P00403010020	Earthen Berm	-	X	-	X	B	11-3-2015
P00403140009	Coir Log	-	X	-	X	B	5-8-2014
P00403140023	Coir Log	-	X	-	X	B	8-9-2018
P00404050017	Water Bar	X	-	X	-	B	11-3-2015

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00404060022	Riprap	-	-	X	-	B	11-3-2015
P00406010012	Rock Check Dam	-	X	-	X	B	5-8-2014
P00406010013	Rock Check Dam	-	X	-	X	B	5-8-2014
P00406010014	Rock Check Dam	-	X	-	X	B	5-8-2014

11.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded 10 storm events at P-SMA-0.3 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 11-3. Maintenance activities conducted at the SMA are summarized in Table 11-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 11-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93310[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-94074[b]	7-14-2022 7-20-2022	0.25 0.38	7-22-2022	8 2	Yes Yes
BMP-94482[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-9-2022	14 13 10 9	Yes Yes Yes Yes
BMP-95385	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 11-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95385 (follow up to BMP-94482)	Built up and redefined Water Bar P00404050017.	8-23-2022	14 days	Maintenance was performed as soon as practicable, which was at the next post-storm inspection.

11.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from the samples yielded TAL exceedances for copper (9.01 µg/L), gross-alpha activity (28.6 pCi/L), mercury (39.3 µg/L), radium-226 and radium-228 activity (55.6 pCi/L), and selenium (10.7 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067).

Stormwater monitoring was not conducted at P-SMA-0.3 in 2022 under the 2010 IP requirements.

After completion of the 2022 monitoring season, the drainage area and monitoring location for P-SMA-0.3 was modified to a more representative location based on the 2016–2018 SIP reviews, 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 that monitoring location on the project map (Figure 11-1) 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.

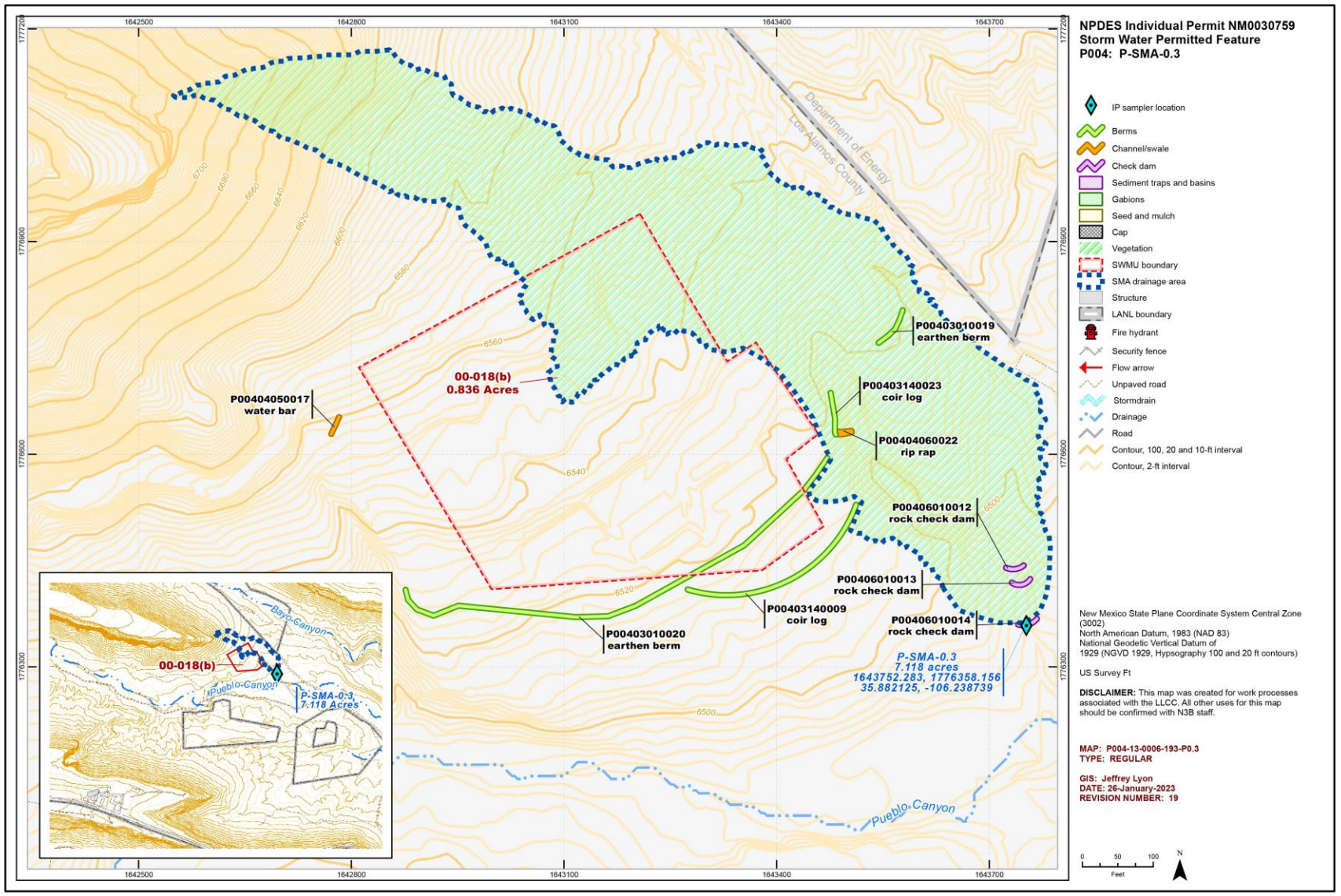

Figure 11-1 P-SMA-0.3 location map

12.0 P-SMA-1: SWMUs 73-001(a) and 73-004(d)

Two historical industrial activity areas, Sites 73-001(a) and 73-004(d), are associated with P-SMA-1 (permitted feature P005). 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.

12.1 Site Descriptions

73-001(a) (6/12/2017)

SWMU 73-001(a) is an inactive municipal landfill within TA-73. The main landfill covers a surface area of approximately 12 acres. This inactive landfill is located on Los Alamos County property at the Los Alamos County Airport. The mesa top has served as an airport facility since the late 1940s. Los Alamos County plans to maintain and operate this airport indefinitely.

The Airport Landfill received municipal waste from the Laboratory and Los Alamos townsite from 1943 until 1973. The landfill was located on the mesa top primarily because it was a secure and convenient location with easy access, and was in close proximity to the Los Alamos townsite with room to expand the landfill. Solid waste was collected twice weekly from the Laboratory and the townsite, and was burned on the edge of the hanging valley located adjacent to the airport runway. This intentional burning ceased in 1965, when Los Alamos County assumed operation of the landfill. Heavy equipment was used to push the burned residues and ash into whichever permanent disposal area within the landfill was being used at the time. Debris associated with this landfill spilled into at least four drainages leading from the mesa top area down toward the bottom of Pueblo Canyon. Debris found in these drainages along the side slopes of the south side of Pueblo Canyon was composed of tires, car bodies, pieces of concrete and asphalt, empty drums, galvanized steel trash cans, and other miscellaneous debris items.

As more capacity was required, trenches were excavated into the tuff. A hot-mix asphalt batch plant operated in the vicinity of the landfill from the mid-1940s until 1954. Ash and burn residues from an incinerator [SWMU 73-002] were also deposited in the landfill. LAC operated the landfill from 1965 until it closed in 1973. Between 1984 and 1986, the western portion of the landfill was excavated and moved to the debris disposal pit [SWMU 73-001(d)] to allow for the construction of airplane hangars and tie-down areas at the airport. Clean fill was used to backfill the excavated area.

The mesa top area inclusive of the landfill was transferred by the DOE to LAC in 2002. In 2006 and 2007, a MatCon asphalt cap was constructed over the landfill along with five concrete hangar pads. The MatCon cap was replaced with a new evapotranspiration cover system in 2015 and 2016. Los Alamos County operates the county municipal airport located between Los Alamos and Pueblo Canyons. However, maintenance of the landfill remains the responsibility of the DOE, including the maintenance of the landfill cover, stormwater control system, fencing, retaining wall, erosion and sediment control measures, site access, and routine monitoring and reporting of every aspect of the landfill for the foreseeable future.

SWMU 73-004(d) (6/13/2017)

SWMU 73-004(d) consists of a former septic system, installed in 1943, which was located approximately 20 ft northeast of the current Los Alamos County airport terminal building at TA-73. The septic system, which served the former landfill office, consisted of a septic tank, inlet and outlet drainlines, and a leach field. A 4 in.-diameter VCP connected the toilet in the building to the septic tank. The building and septic

tank were removed as part of the decommissioning activities implemented in 1973. The former septic system was located within the boundary of the SWMU 73-001(a) landfill, and is no longer identifiable as a discrete unit within the landfill.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 12-1.

Table 12-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
73-001(a)	Landfill	Metals, organic chemicals, PCBs, uranium, pesticides
73-004(d)	Soil Contamination from former Septic Tank	Metals, organic chemicals

12.2 Control Measures

All active control measures in use at P-SMA-1 are listed in Table 12-2. Their locations are shown on the project map (Figure 12-1) 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 12-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00501010053	Seed and Wood Mulch	-	X	X	-	B	6-17-2016
P00502040040	Established Vegetation	-	X	X	-	B	5-7-2013
P00503010050	Earthen Berm	-	X	-	X	B	6-17-2016
P00503080003	Retaining Wall	-	X	-	X	CB	6-1-2009
P00503080058	Retaining Wall	-	X	X	-	B	3-23-2017
P00503080059	Retaining Wall	-	X	X	-	B	3-23-2017
P00503090066	Curbing	X	-	-	X	B	3-23-2017
P00504030057	Rock Channel/Swale	-	X	X	-	B	3-23-2017
P00504030065	Rock Channel/Swale	-	X	X	-	B	3-23-2017
P00504060046	Riprap	-	X	X	-	B	4-17-2015
P00504060052	Riprap	-	X	X	-	B	6-17-2016
P00504080051	TRM-Lined Swale	-	X	X	-	B	6-17-2016
P00506010060	Rock Check Dam	-	X	-	X	B	3-23-2017
P00506010061	Rock Check Dam	-	X	-	X	B	3-23-2017
P00506010062	Rock Check Dam	-	X	-	X	B	3-23-2017
P00506010063	Rock Check Dam	-	X	-	X	B	3-23-2017
P00508010064	Earth Cap	X	X	X	-	B	3-23-2017
P00508030067	Concrete/Asphalt Cap	X	-	X	-	B	3-23-2017

12.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at P-SMA-1 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 12-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 12-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93173[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-7-2022	12 10 6	Yes Yes Yes
BMP-94075	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94227[b]	7-20-2022 7-27-2022	0.29 0.97	8-3-2022	14 7	Yes Yes
BMP-95610	8-23-2022	0.67	9-1-2022	9	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.

12.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at P-SMA-1. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at P-SMA-1 under the 2010 IP requirements from March 16 through November 2, 2022, resulting in a monitoring season of 232 days. Fifteen inspections were performed during the monitoring period and are summarized in Table 12-4. Rain gage RG038 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 12-4 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-91534	4-4-2022	No	None[c]	None
SMPLR-91785	4-19-2022	No	None	None
SMPLR-92061	6-20-2022	No	6-17-2022[c] 6-18-2022[c] 6-19-2022[c]	0.08/0.37 0.04/0.19 0.07/0.19
SMPLR-92914	7-7-2022	No	6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022[c] 7-1-2022[c] 7-4-2022[c]	0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93898	7-18-2022	No	7-14-2022	7-14-2022
SMPLR-94156	7-29-2022	No	7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022	0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16
SMPLR-94834	8-8-2022	No	7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32
SMPLR-95274	8-15-2022	No	8-11-2022	0.33/0.38
SMPLR-95451	9-12-2022	No	8-16-2022 8-18-2022 8-19-2022[c] 8-20-2022[c] 8-21-2022[c] 8-23-2022[c] 9-5-2022[c] 9-9-2022[c]	0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11 0.12/0.19
SMPLR-95867	9-15-2022	No	None[c]	None
SMPLR-95921	9-26-2022	No	9-22-2022	0.2/0.22
SMPLR-96117	10-3-2022	No	10-2-2022	0.09/0.36
SMPLR-96216	10-4-2022	No	10-3-2022	0.13/0.24
SMPLR-96236	10-19-2022	No	10-4-2022 10-15-2022[c] 10-16-2022[c]	0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96417	11-2-2020	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.

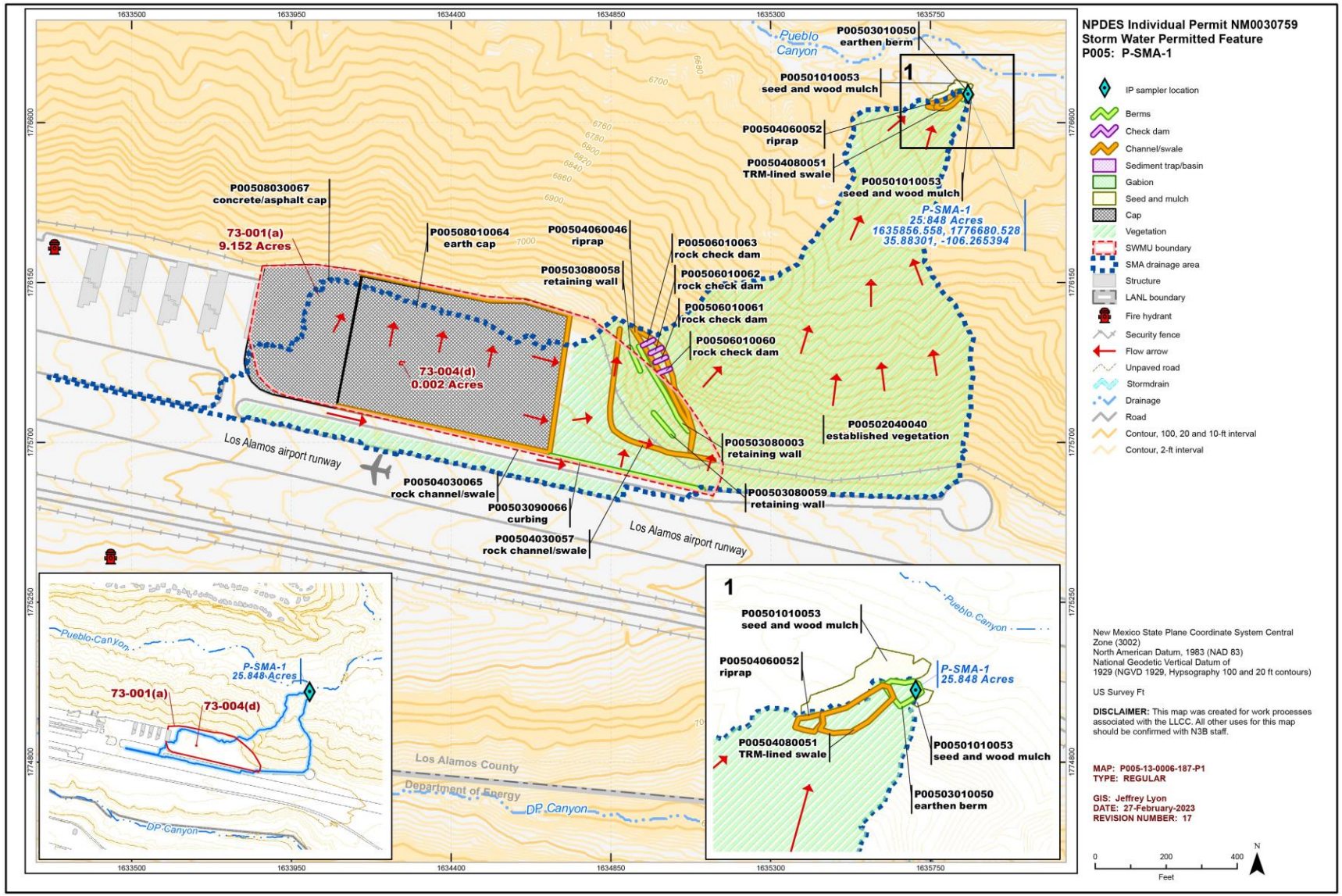

Figure 12-1 P-SMA-1 location map

13.0 P-SMA-2: SWMUs 73-002 and 73-006

Two historical industrial activity areas, Sites 73-002 and 73-006, are associated with P-SMA-2 (permitted feature P006). 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.

13.1 Site Descriptions

73-002 (no date)

SWMU 73-002 consists of a former inactive incinerator that was located in building 73-2, and a former associated ash pile located at TA-73, west of the Los Alamos Airport terminal and on the south rim of Pueblo Canyon. A 6-ft-diameter stack was located on the north side of the building. The incinerator was originally used to destroy classified documents from LANL; however, this practice was discontinued after a short period because combustion was incomplete. The incinerator was then used to burn municipal trash.

Ash and debris were deposited over the edge of the mesa, which resulted in an ash pile that was approximately 150 ft wide × 160 ft long and up to 8 ft deep. Incinerator operations ceased in 1973, and the incinerator equipment and stack were removed. The ash pile and the associated incinerator debris were removed between 2005 and 2007. Building 73-2 remains in place.

73-006 (no date)

SWMU 73-006 consists of two former CI drainlines that discharged to Pueblo Canyon from the former incinerator building (structure 73-2), located west of the airport terminal building at TA-73. The west drainline originated from two floor drains within the west side of the building, and the east drainline originated from drains located on the east side of the building. The drainlines discharged directly onto the ash pile (SWMU 73-002). The floor drains were plugged in 1973 when incinerator operations ceased. The west drainline was removed during the 1997 RFI; the east drainline could not be located.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 13-1.

Table 13-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
73-002	Incinerator surface disposal	Metals, tetrachlorodibenzodioxin[2,3,7,8-], PAHs, PCBs, radionuclides, pesticides
73-006	Airport building outfalls	Inorganic and organic chemicals, tetrachlorodibenzodioxin[2,3,7,8-]

13.2 Control Measures

All active control measures in use at P-SMA-2 are listed in Table 13-2. Their locations are shown on the project map (Figure 13-1) 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 13-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00602040011	Established Vegetation	-	X	X	-	B	5-7-2013
P00603120008	Rock Berm	-	X	-	X	CB	5-25-2010
P00604020006	Concrete/Asphalt Channel/Swale	X	-	X	-	CB	1-1-2000
P00604020017	Concrete/Asphalt Channel/Swale	X	-	X	-	B	8-4-2022
P00604060003	Riprap	X	-	X	-	CB	9-1-2007
P00606010016	Rock Check Dam	-	X	-	X	B	9-17-2019

13.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at P-SMA-2 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 13-3. All other control-measure inspections conducted at the SMA are summarized in Table 13-4. No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 13-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93174[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-8-2022	13 11 7	Yes Yes Yes
BMP-94076[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes
BMP-94681	7-27-2022	0.97	8-8-2022	12	Yes
BMP-95611	8-23-2022	0.67	9-1-2022	9	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 13-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Remediation Construction Compliance Inspection	COMP-91984	4-20-2022	Operations have not commenced. No action recommended.
Remediation Construction Compliance Inspection	COMP-92109	4-26-2022	Site unchanged from previous inspection.
Remediation Construction Compliance Inspection	COMP-96879	12-7-2022	Demolition activities underway. IP controls not impacted. No action recommended.
Remediation Construction Compliance Inspection	COMP-96893	12-14-2022	Demolition activities are completed. No impacts to controls, Sites, or SMA. Closeout inspection.

13.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 5, 2014. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (130 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014" (LANL 2015, 600241).

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

After completion of the 2022 monitoring season the drainage area and monitoring location for P-SMA-2 was modified to a more representative location based on the 2016–2018 SIP reviews, 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 that monitoring location on the project map (Figure 13-1) 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.

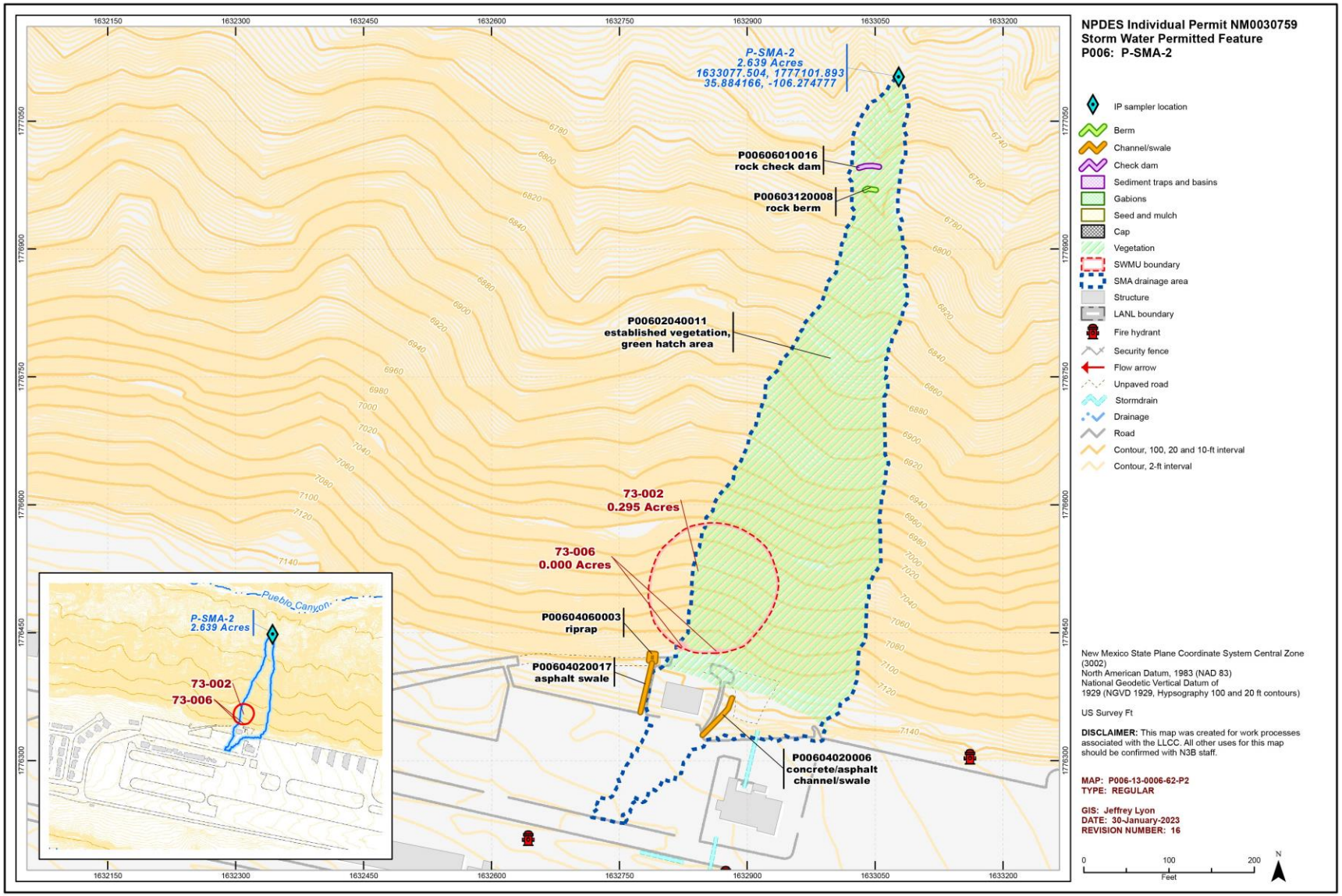

Figure 13-1 P-SMA-2 location map

14.0 P-SMA-2.15: SWMU 31-001

One historical industrial activity area, Sites 31-001, is associated with P-SMA-2.15 (permitted feature P007). 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.

14.1 Site Descriptions

31-001 (6/12/2017)

SWMU 31-001 is a former septic system located at TA-31 in what is now the eastern residential area of Los Alamos, immediately west of the Los Alamos County Airport. This system consisted of a septic tank (structure ULR-7 or 0-7), two sanitary sewer manholes (structures ULR-41 and -42), associated inlet and outlet drainline, and an outfall. TA-31 served as the receiving area for all truck shipments to the Laboratory from 1945 to 1954. In 1949, six hutments that made up warehouse 31-2 were removed to make room for a more permanent warehouse, building 31-7. The SWMU 31-001 septic system was installed at the same time to serve building 31-7.

The septic tank (structure 0-7) was constructed of reinforced concrete. It measured 4 ft × 3 ft and was several feet deep. The inlet line ran to the north from building 31-7 to the septic tank. The septic tank was located aboveground on a small bench above the rim of Pueblo Canyon, and discharged through a 4-in.-diameter outlet drainline to an outfall in Pueblo Canyon. The septic system operated until 1954, when TA-31 was abandoned and the buildings were removed. The septic system remained in place until its removal in 1988. The inlet and outlet drainlines were not encountered when the septic tank was removed in 1988.

Data from samples collected from the tank contents showed no detectable concentrations of hazardous constituents; the tank was disposed of at the Los Alamos County landfill.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 14-1.

Table 14-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
31-001	Soil contamination from former septic tank	Inorganic and organic chemicals

14.2 Control Measures

All active control measures in use at P-SMA-2.15 are listed in Table 14-2. Their locations are shown on the project map (Figure 14-1) 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 14-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00702040007	Established Vegetation	-	X	X	-	B	5-7-2013
P00704060003	Riprap	X	-	X	-	CB	5-21-2010
P00704060006	Riprap	-	X	X	-	CB	7-20-2010
P00706010004	Rock Check Dam	X	-	-	X	CB	5-21-2010
P00706010005	Rock Check Dam	-	X	-	X	CB	5-25-2010

14.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at P-SMA-2.15 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 14-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 14-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93177[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-7-2022	12 10 6	Yes Yes Yes
BMP-94077[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes
BMP-94684	7-27-2022	0.97	8-8-2022	12	Yes
BMP-95612	8-23-2022	0.67	9-1-2022	9	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.

14.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at P-SMA-2.15.

Stormwater monitoring was conducted at P-SMA-2.15 under the 2010 IP requirements from March 16 through October 25, 2022, resulting in a monitoring season of 224 days. Seven inspections were performed during the monitoring period and are summarized in Table 14-4. Rain gage RG038 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 14-4 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-91530	4-4-2022	No	None	None
SMPLR-91784	4-18-2022	No	None	None
SMPLR-92046	6-23-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79
SMPLR-93558	7-7-2022	No	6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93897	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68
SMPLR-95675	9-21-2022	No	9-5-2022[c] 9-9-2022[c]	0.11/0.11 0.12/0.19
SMPLR-96061	10-25-2022	No	9-22-2022 10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.2/0.22 0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

[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.

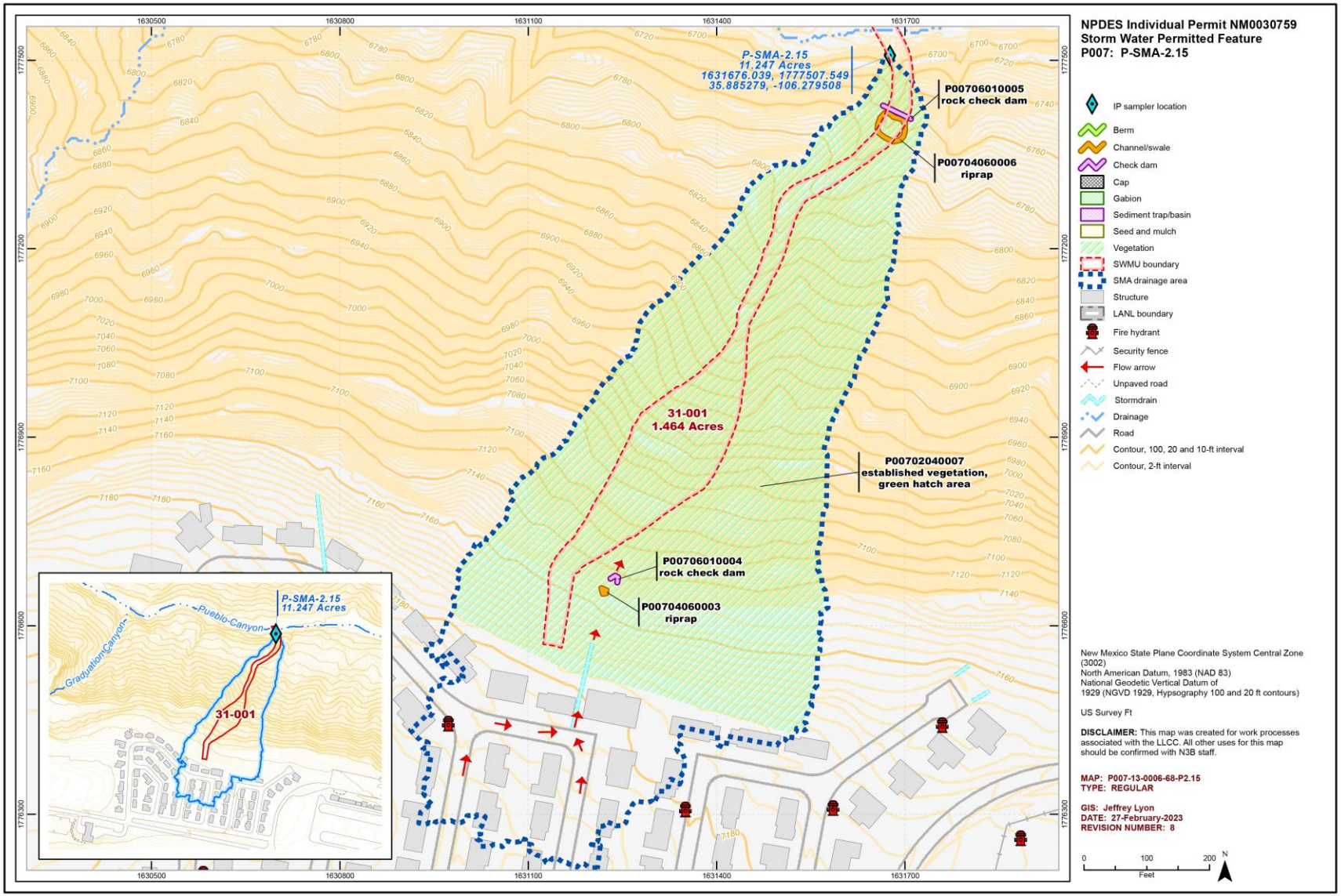

Figure 14-1 P-SMA-2.15 location map

15.0 P-SMA-2.2: SWMU 00-019

One historical industrial activity area, Site 00-019, is associated with P-SMA-2.2 (permitted feature P008). 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.

15.1 Site Descriptions

00-019 (6/12/2017)

SWMU 00-019 is the former CWWTP, which was first installed to replace a series of septic tanks serving original Laboratory facilities and some residential areas of the Los Alamos townsite in former TA-00. The Site is located in the eastern portion of the Los Alamos townsite at the current location of the Sombrillo assisted-living facility, at the northern edge of Townsite Mesa above Graduation Canyon, a hanging tributary canyon of Pueblo Canyon. The CWWTP used conventional wastewater treatment processes, including primary settling, activated sludge digestion, sludge drying beds, trickling filtration, final clarification, and chlorination. CWWTP components included a primary settling tank, sludge digestion tank, final settling tank, trickling filter, chlorine contact tank, clarifier, pump house, two sludge drying beds, two outfall areas, manholes, and associated underground piping.

The CWWTP was constructed and began operating in 1947. The plant was used to treat sanitary sewage from laboratory buildings and residential areas, including wastewater from sanitary drains at former TA-01 buildings, residences, and local businesses. The treated waste was discharged to the eastern outfall into Graduation Canyon. The Laboratory operated the CWWTP from 1947 to 1961. Beginning in 1948, the treated effluent was diverted via a pipeline along Canyon Road to the Los Alamos Golf Course. Beginning In 1951, most of the effluent from the CWWTP was used as makeup water for the cooling towers at TA-03, and was no longer discharged via the outfalls.

The pump house, which connected the primary settling tank to the sludge digestion tank, was built of cinder block and concrete, measured 22 ft × 28 ft wide × 15 ft high, and extended 30 ft bgs. Numerous other process lines, overflow lines, and drainlines, ranging from 4 to 16 in. diameter, connected the various former tanks.

The two CWWTP outfall discharge pipes employed gravity flow from the inlet manhole (western outfall) and the final chlorine contact tank (eastern outfall). The outfalls discharged at the north edge of the mesa into Graduation Canyon.

The western outfall drainline consisted of an 8-in. diameter VCP with a concrete discharge apron. The western outfall accommodated overflow from the inlet manhole, and may have discharged untreated sewage in the event of over-capacity flow events at the CWWTP.

The eastern outfall was located 170 ft east of the western outfall; a 12-in.-diameter VCP channeled effluent to an exposed section of corrugated metal pipe that discharged treated effluent. The eastern outfall initially discharged treated effluent from the final settling tank. Once the CWWTP was renovated to provide supplemental irrigation water for the Los Alamos golf course, the eastern outfall received overflow from the chlorine contact tank. A second 6-in.-diameter VCP also discharged to the eastern outfall; this drainline was connected to floor drains in the pump house. The eastern outfall may have discharged untreated and/or partially treated wastewater and/or sludge from the pump house in the event of leaks or pipe breaks in the pump house.

No records are available regarding wastewater volumes discharged to the CWWTP outfalls.

The CWWTP ceased operating, and was initially decommissioned, in 1961. In 1967, the site was transferred intact, but out of service, to Los Alamos County. Although Los Alamos County never operated the plant as a wastewater treatment plant, the site was used for various activities, and over time Los Alamos County removed portions of the former treatment plant structures. Los Alamos County used the mesa-top portion of the site for various maintenance-related activities, primarily to house the LAC roads and grounds headquarters and a storage area. As a result, the mesa top was heavily reworked by the County over more than 30 yr of ownership. Only the former pump house, outfalls, and an unknown portion of the underground drainlines were known to remain in the late 1990s. Construction of a senior-citizen assisted-living facility was completed in 2004 over the Site.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 15-1.

Table 15-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-019	Central WWTP	Inorganic and organic chemicals, radionuclides

15.2 Control Measures

All active control measures in use at P-SMA-2.2 are listed in Table 15-2. Their locations are shown on the project map (Figure 15-1) 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 15-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00802040025	Established Vegetation	-	X	X	-	B	5-7-2013
P00803010027	Earthen Berm	X	-	-	X	B	5-2-2014
P00803010028	Earthen Berm	-	X	-	X	B	5-2-2014
P00803010029	Earthen Berm	-	X	-	X	B	5-2-2014
P00803010030	Earthen Berm	-	X	-	X	B	5-2-2014
P00803010031	Earthen Berm	-	X	-	X	EC	10-15-2020
P00803020012	Base Course Berm	X	-	-	X	CB	5-19-2010
P00803100033	Gravel Bags	X	-	X	X	B	8-19-2022
P00803100034	Gravel Bags	X	-	X	X	B	8-19-2022
P00804020005	Concrete/Asphalt Channel/Swale	-	X	X	-	CB	6-1-2009
P00804060001	Riprap	X	-	X	-	CB	8-26-2005
P00804060032	Riprap	-	X	X	-	EC	10-15-2020
P00804080017	TRM-Lined Swale	X	-	X	-	CB	4-20-2011

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00806010019	Rock Check Dam	X	-	-	X	CB	4-20-2011
P00806010020	Rock Check Dam	X	-	-	X	CB	4-20-2011
P00806010021	Rock Check Dam	X	-	-	X	CB	4-20-2011
P00806010022	Rock Check Dam	X	-	-	X	CB	4-20-2011

15.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at P-SMA-2.2 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 15-3. Maintenance activities conducted at the SMA are summarized in Table 15-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 15-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93178[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-7-2022	12 10 6	Yes Yes Yes
BMP-94078[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes Yes
BMP-94685	7-27-2022	0.97	8-8-2022	12	Yes
BMP-95613	8-23-2022	0.67	8-31-2022	8	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 15-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93178	Removed and dispose of floatable garbage and debris at inspection.	8-19-2022	0 days	Maintenance was performed as soon as practicable.
BMP-94112 (follow up to BMP-93178)	Augmented Earthen Berm P00803010027 with gravel bags to address impacts from run-on flow contribution from parking lot.	8-11-2022	43 days	Maintenance was delayed

15.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline sample was collected on July 25, 2019. Analytical results from this sample yielded TAL exceedances for copper (14.8 µg/L), gross-alpha activity (667 pCi/L), mercury (9.28 µg/L), PCB concentration (3070 ng/L), and zinc (81.7 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 conducted at P-SMA-2.2 under the 2010 IP requirements from March 17 through November 2, 2022, resulting in a monitoring season of 227 days. Nine inspections were performed during the monitoring period and are summarized in Table 15-5. Rain gage RG038 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 15-5 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-91571	4-4-2022	No	None	None
SMPLR-91786	4-14-2022	No	None[c]	None
SMPLR-92017	6-23-2022	No	6-17-2022[c] 6-18-2022[c] 6-19-2022[c] 6-21-2022[c] 6-22-2022[c]	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79
SMPLR-93017	7-7-2022	No	6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-4-2022	0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93899	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68
SMPLR-95677	9-20-2022	No	9-5-2022 9-9-2022	0.11/0.11 0.12/0.19
SMPLR-96011	9-26-2022	No	9-22-2022	0.2/0.22

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-96118	10-19-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96419	11-2-20222	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.

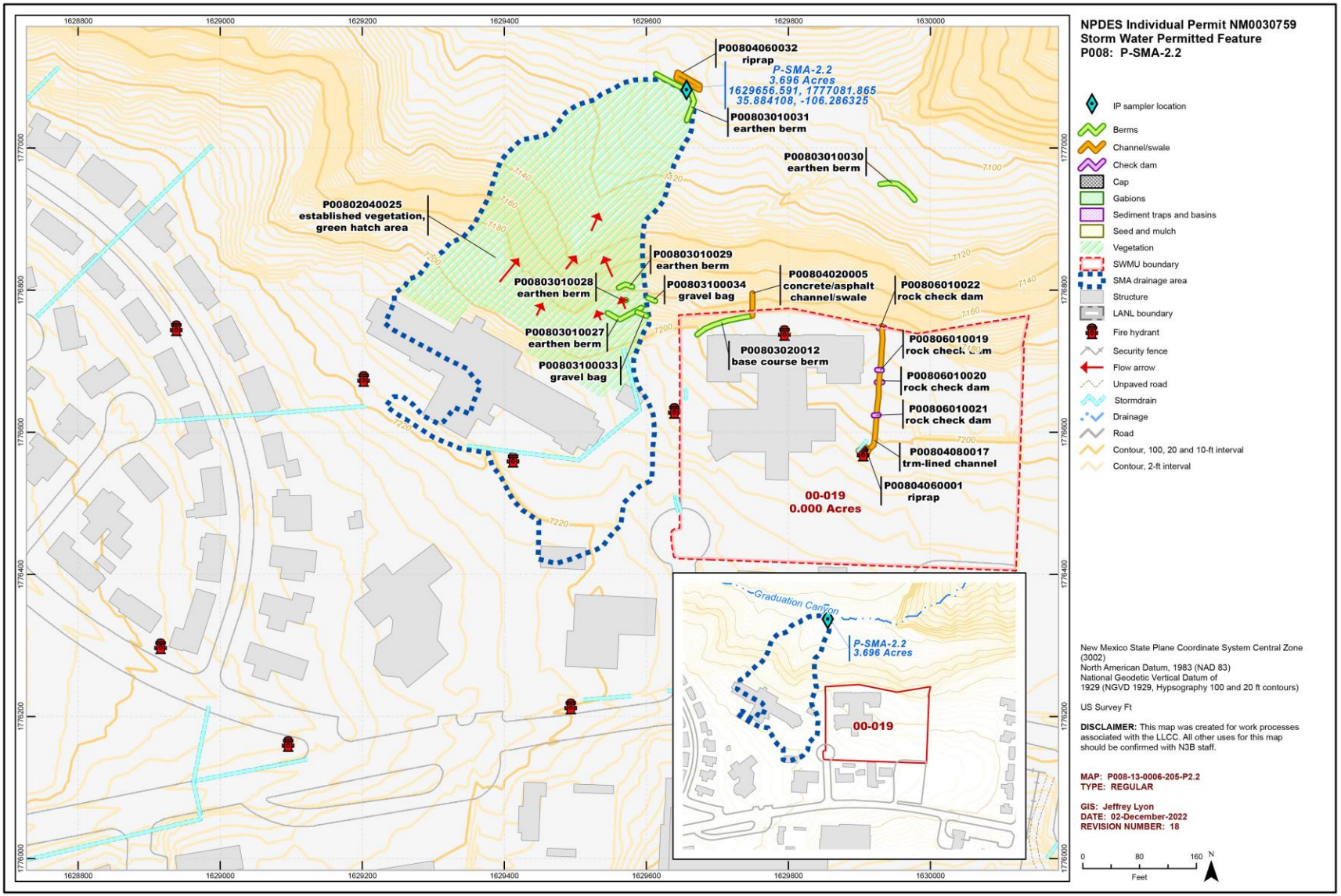

Figure 15-1 P-SMA-2.2 location map

16.0 P-SMA-3.05: SWMU 00-018(a)

One historical industrial activity areas, Site 00-018(a), is associated with P-SMA-3.05 (permitted feature P009). 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.

16.1 Site Descriptions

00-018(a) (no date)

SWMU 00-018(a) consists of the decommissioned Pueblo Canyon WWTP, located at the end of Olive Street in Pueblo Canyon on Los Alamos County property. The plant, which was built between 1946 and 1948, began operating in 1951 and received waste from HRL at TA-43 until 1983, and from Los Alamos business and residential customers until 1991. From 1983 to 1991, the plant received only sanitary waste from Los Alamos businesses and residences. The plant was the primary supplier of irrigation water for the Los Alamos golf course and recreational ball fields.

From 1953 to 1983, this WWTP received laboratory waste (less than 10 L/month) from the HRL at TA-43, the only known laboratory contributor to the waste stream at the plant. The HRL generated chemical and radioactive wastes, but LANL policy required that radioactive wastes not be discharged to the drains. In the early 1960s, Los Alamos County assumed control of the WWTP and decommissioned it 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 16-1.

Table 16-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-018(a)	Pueblo Canyon WWTP	Beryllium, cadmium, lead, mercury, organic chemicals, uranium

16.2 Control Measures

All active control measures in use at P-SMA-3.05 are listed in Table 16-2. Their locations are shown on the project map (Figure 16-1) 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 16-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00902040012	Established Vegetation	-	X	X	-	B	5-7-2013
P00903010008	Earthen Berm	-	X	-	X	CB	8-30-2010
P00903010009	Earthen Berm	-	X	-	X	CB	8-30-2010
P00903010010	Earthen Berm	-	X	-	X	B	5-18-2011
P00903010013	Earthen Berm	X	-	-	X	B	9-27-2016
P00903010015	Earthen Berm	X	-	-	X	B	9-27-2016

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
P00903140016	Coir Log	X	-	-	X	B	7-12-2021
P00904050005	Water Bar	X	-	X	-	CB	8-30-2010
P00904050006	Water Bar	X	-	X	-	CB	8-30-2010

16.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at P-SMA-3.05 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 16-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 16-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93062[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94556[b]	7-27-2022 7-31-2022	0.93 0.25	8-8-2022	12 8	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.

16.4 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 (5.2 µg/L) and PCB concentration (87 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067).

Stormwater monitoring was not conducted at P-SMA-3.05 in 2022 under the 2010 IP requirements.

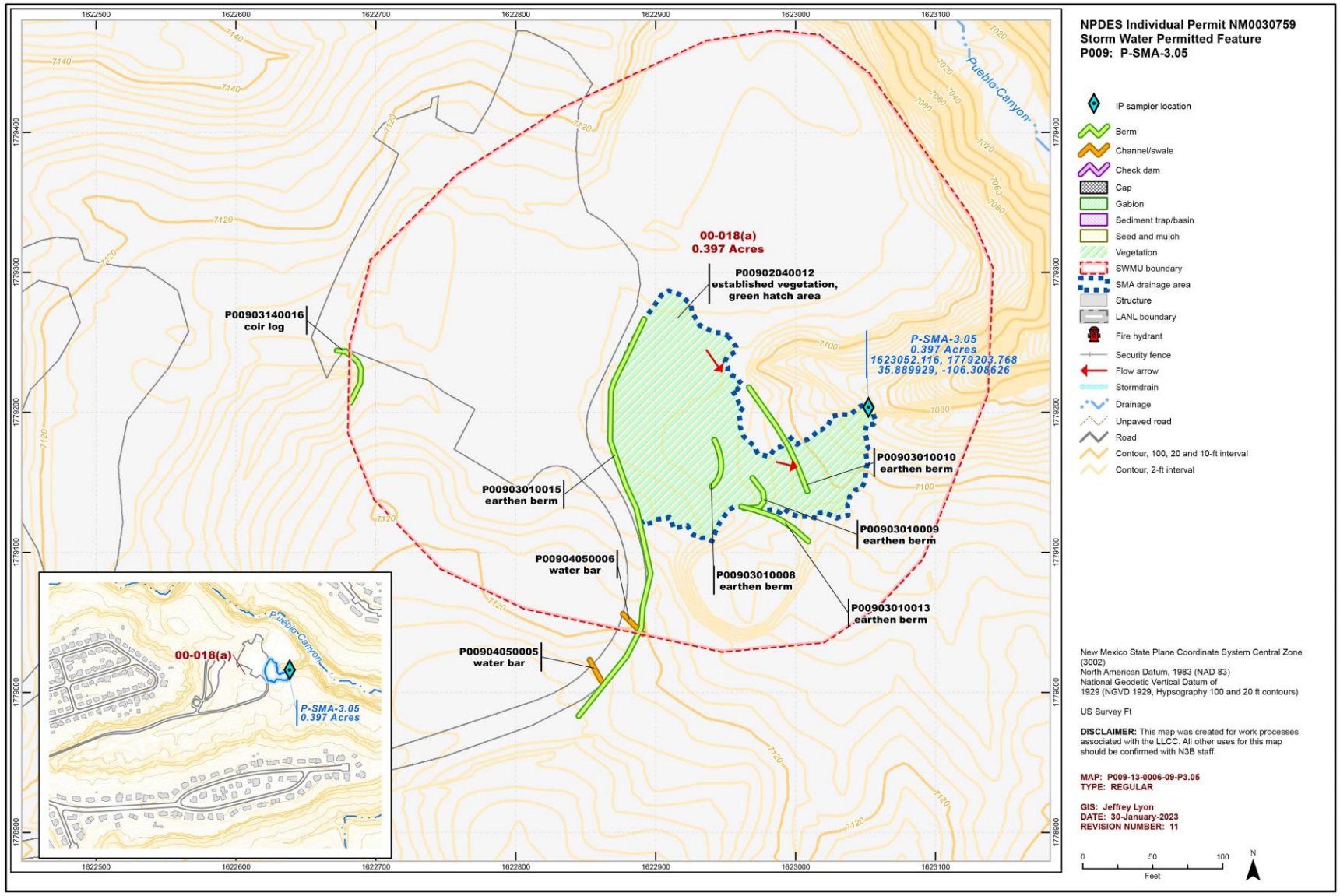

Figure 16-1 P-SMA-3.05 location map

17.0 LA-SMA-0.85: SWMU 03-055(c)

One historical industrial activity area, Site 03-055(c), is associated with LA-SMA-0.85 (permitted feature L001). 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.

17.1 Site Descriptions

03-055(c) (9/28/2021)

SWMU 03-055(c) is an outfall and associated storm drain located north of the fire station (building 03-41) in the northeast corner of TA-03. Stormwater is channeled toward Los Alamos Canyon through a galvanized CMP to the SWMU 03-055(c) outfall. From the early 1960s until 1991, floor drains in the fire station (building 03-41) were tied into the SWMU 03-055(c) storm drain. In 1992, the fire station floor drains were rerouted to the TA-03 sanitary sewer system. Currently, the storm drain collects and channels only stormwater runoff from parking lots located in the northern portion of TA-03 to the SWMU 03-055(c) outfall. The Site is currently an undeveloped wooded area north of fire station 03-41 on DOE property.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 17-1.

Table 17-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
03-055(c)	Outfall	Inorganic and organic chemicals

17.2 Control Measures

All active control measures in use at LA-SMA-0.85 are listed in Table 17-2. Their locations are shown on the project map (Figure 17-1) 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 17-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00102040009	Established Vegetation	-	X	X	-	B	5-9-2013
L00103010008	Earthen Berm	-	X	-	X	EC	9-27-2012
L00103090006	Curbing	X	-	-	X	CB	6-1-2009
L00106010010	Rock Check Dam	-	X	-	X	B	10-23-2015
L00107010004	Gabions	-	X	-	X	CB	6-1-2009

17.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at LA-SMA-0.85 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 17-3. Maintenance activities conducted at the SMA are summarized in Table 17-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 17-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93122[a,b]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93695	7-2-2022	0.32	7-14-2022	12	Yes
BMP-94628[b]	7-27-2022 7-31-202	1.24 0.32	8-8-2022	12 8	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 17-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94128 (follow up from BMP-93695)	Augmented Curbing L00103090006 with gravel bags in area on west that needed reinforcement.	8-11-2022	28 days	Maintenance was performed as soon as practicable.
BMP-95435 (follow up from BMP-94628)	Rebuilt and redefined Rock Check Dam L00106010010.	8-30-2022	22 days	Maintenance was performed as soon as practicable.

17.4 Stormwater Monitoring

Following the installation of baseline control measures, two baseline stormwater samples were collected on July 30 and August 14, 2011. Analytical results from these samples yielded TAL exceedances for aluminum (1310 µg/L and 4170 µg/L), copper (18.9 µg/L and 47.1 µg/L), lead (17.7 µg/L), and zinc (55.7 µg/L and 186 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011" (LANL 2012, 211408).

Following the installation of enhanced control measures at LA-SMA-0.85, corrective-action stormwater samples were collected on November 9, 2012, and May 15, 2013. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for copper (26.4 µg/L and 22.8 µg/L), gross-alpha activity (22.9 pCi/L), and zinc (56.1 µg/L and 78.2 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012" (LANL 2013, 237680) and "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067).

Stormwater monitoring was not conducted at LA-SMA-0.85 in 2022 under the 2010 IP requirements.

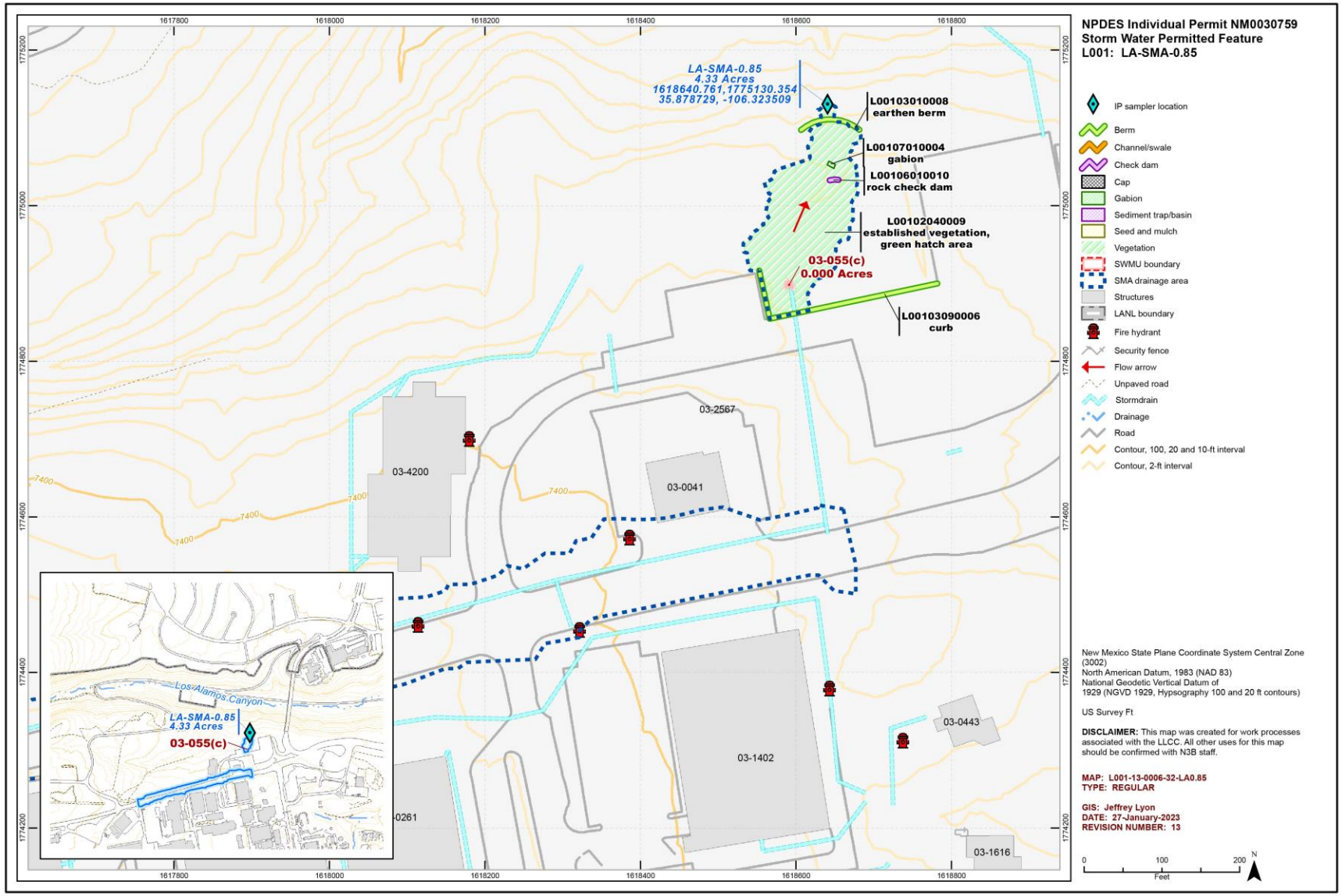

Figure 17-1 LA-SMA-0.85 location map

18.0 LA-SMA-0.9: SWMU 00-017 and AOC C-00-044

Two historical industrial activity areas, Sites 00-017 and C-00-044, are associated with LA-SMA-0.9 (permitted feature L002). 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.

18.1 Site Descriptions

00-017 (9/28/2021)

SWMU 00-017 consists of inactive industrial waste lines within the Los Alamos townsite that are not incorporated into other SWMUs and AOCs. The portion of SWMU 00-017 within Upper Los Alamos Canyon Aggregate Area includes former industrial waste line 167, former manhole ULR 33, and former industrial waste lines 170 and 171. Former waste line 167 and former manhole ULR-33 were removed before 1985, except for the concrete anchors and sections of drainline encased in the anchors. Lines 170 and 171 are the only sections of industrial waste line known to remain in Los Alamos townsite. The site of former waste line 167 and former manhole ULR-33 under the Omega Bridge in Los Alamos Canyon remains undeveloped. Nine concrete anchors and 3-ft-long sections of drainpipe encased in each of the anchors remain at the Site. Other portions of SWMU 00-017 are within Pueblo Canyon Aggregate Area.

The SWMU 00-017 waste lines received industrial waste from SWMUs 03-038(a) and 03-038(b), a former pump house with two concrete underground tanks and a former 28,500-gal. steel waste-holding tank, respectively. The estimated operation period for the majority of these waste lines was from the 1950s to the 1970s. Phased decommissioning and removal of the waste lines began in 1964, and various removal projects were completed through 1986.

Currently, the former location of line 167 on the canyon wall beneath the Omega Bridge is undeveloped. The location of line 170 is covered with asphalt parking lots and narrow landscaped areas in the parking lot medians. The location of line 171 is entirely covered by the parking lot and LAMC. Both remaining waste-line sections are 15 to 20 ft bgs.

C-00-044 (9/28/2021)

AOC C-00-044 consists of surface contamination resulting from the historical use of lead-based paint on the Omega Bridge. The bridge was constructed in 1951 and is located in both TA-00 and TA-03. This AOC was identified in 1999 during RFI activities conducted at SWMU 00-017. Elevated lead concentrations were detected in surface samples collected from locations in Los Alamos Canyon under the north and south ends of the Omega Bridge during the investigation of SWMU 00-017. The lead could not reasonably be attributed to SWMU 00-017, an inactive underground industrial waste line. Further research, and interviews with Los Alamos County and Laboratory maintenance staff, established that lead paint chips had been deposited beneath the bridge on the north and south slopes of Los Alamos Canyon as a result of periodic bridge maintenance activities, including scraping and chipping old lead-based paint before new paint was applied. The use of lead-based paint has been discontinued.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 18-1.

Table 18-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
00-017	Industrial waste lines (components of RLW)	Radionuclides
C-00-044	Surface contamination (lead paint on Omega Bridge)	Lead

18.2 Control Measures

All active control measures in use at LA-SMA-0.9 are listed in Table 18-2. Their locations are shown on the project map (Figure 18-1) 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 18-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00202040020	Established Vegetation	-	X	X	-	B	5-16-2013
L00203010023	Earthen Berm	-	X	-	X	B	6-4-2014
L00203010024	Earthen Berm	-	X	-	X	B	6-4-2014
L00203010027	Earthen Berm	X	-	-	X	B	10-23-2014
L00203090002	Curbing	X	-	-	X	CB	6-1-2009
L00203090003	Curbing	X	-	-	X	CB	6-1-2009
L00204040004	Culvert	X	-	X	-	CB	6-1-2009
L00204040026	Culvert	X	-	X	-	B	10-23-2014

18.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at LA-SMA-0.9 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 18-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 18-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93120[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-7-2022	12 11 5	Yes Yes Yes
BMP-94626[b]	7-27-2022 7-31-202	1.24 0.32	8-8-2022	12 8	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.

18.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-0.9. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-0.9 under the 2010 IP requirements from March 15 through October 31, 2022, resulting in a monitoring season of 231 days. Eight inspections were performed during the monitoring period and are summarized in Table 18-4. Rain gage 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 18-4 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-91969	4-20-2022	No	None	None
SMPLR-92122	5-17-2022	No	None	None
SMPLR-92493	6-27-2022	No	6-17-2022 6-18-2022 6-19-2022 6-20-2022 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
SMPLR-93456	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-95425	9-16-2022	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	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

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-95928	10-6-2022	No	9-22-2022 10-2-2022 10-3-2022 10-4-2022	0.22/0.26 0.1/0.26 0.06/0.11 0.02/0.11
SMPLR-96284	10-19-2022	No	10-7-2022	0.23/0.25
SMPLR-96412	10-31-2022	No	10-15-2022 10-16-2022	0.18/1.02 0.07/0.23

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

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

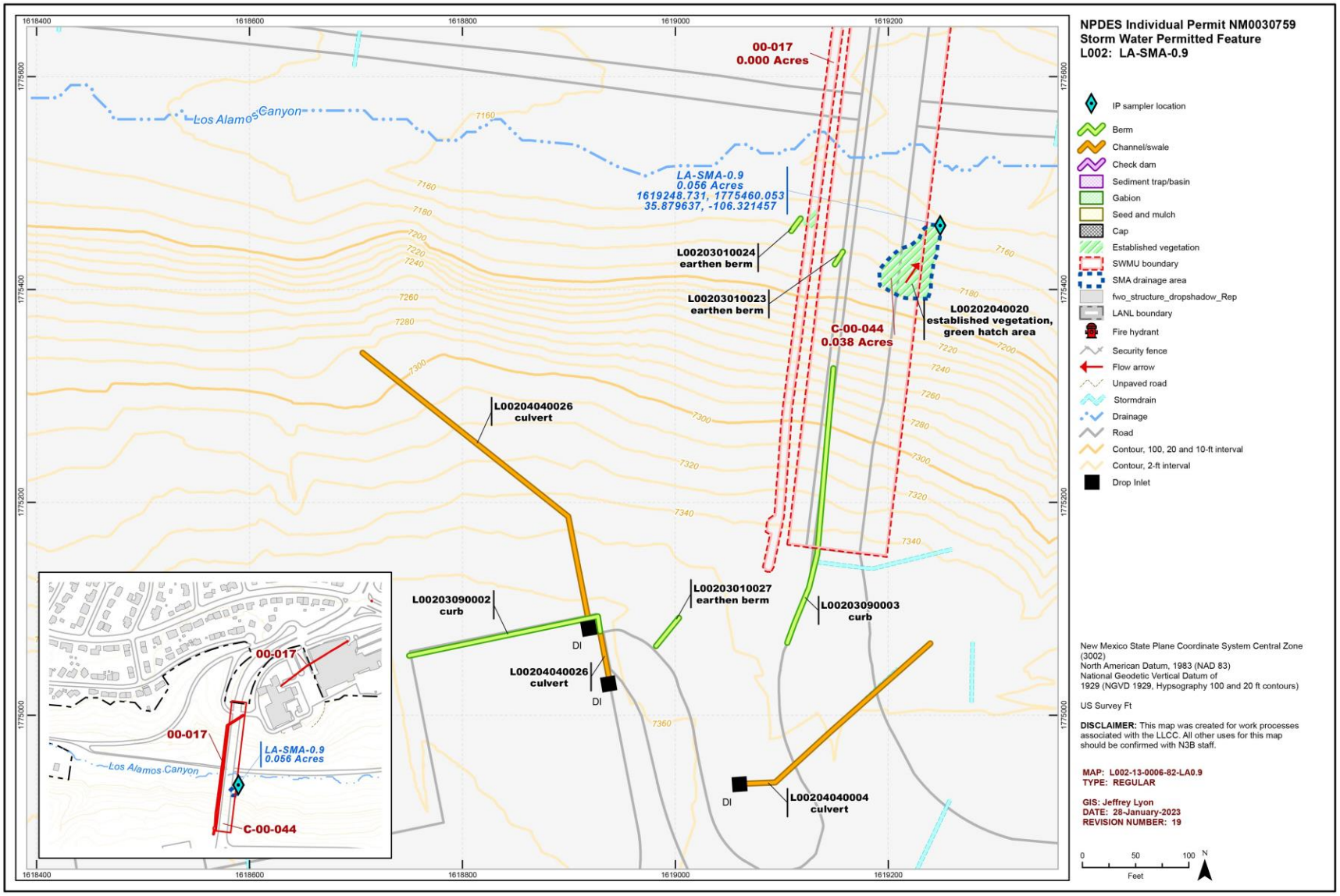

Figure 18-1 LA-SMA-0.9 location map

19.0 LA-SMA-1: SWMU 00-017 and AOC C-00-044

Two historical industrial activity areas, Sites 00-017 and C-00-044, are associated with LA-SMA-1 (permitted feature L003). 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.

19.1 Site Descriptions

00-017 (9/28/2021)

SWMU 00-017 consists of inactive industrial waste lines within the Los Alamos townsite that are not incorporated into other SWMUs and AOCs. The portion of SWMU 00-017 within Upper Los Alamos Canyon Aggregate Area includes former industrial waste line 167, former manhole ULR-33, and former industrial waste lines 170 and 171. Former waste line 167 and former manhole ULR-33 were removed before 1985, except for the concrete anchors and sections of drainline encased in the anchors. Lines 170 and 171 are the only sections of industrial waste line known to remain in Los Alamos townsite. The site of former waste line 167 and former manhole ULR-33 under the Omega Bridge in Los Alamos Canyon remains undeveloped. Nine concrete anchors and 3-ft-long sections of drainpipe encased in each of the anchors remain at the Site. Other portions of SWMU 00-017 are within Pueblo Canyon Aggregate Area.

The SWMU 00-017 waste lines received industrial waste from SWMUs 03-038(a) and 03-038(b), a former pump house with two concrete underground tanks and a former 28,500-gal. steel waste-holding tank, respectively. The estimated operation period for the majority of these waste lines was from the 1950s to the 1970s. Phased decommissioning and removal of the waste lines began in 1964, and various removal projects were completed through 1986.

Currently, the former location of line 167 on the canyon wall beneath the Omega Bridge is undeveloped. The location of line 170 is covered with asphalt parking lots and narrow landscaped areas in the parking lot medians. The location of line 171 is entirely covered by the parking lot and LAMC. Both remaining waste-line sections are 15 to 20 ft bgs.

C-00-044 (9/28/2021)

AOC C-00-044 consists of surface contamination resulting from the historical use of lead-based paint on the Omega Bridge. The bridge was constructed in 1951 and is located in both TA-00 and TA-03. This AOC was identified in 1999 during RFI activities conducted at SWMU 00-017. Elevated lead concentrations were detected in surface samples collected from locations in Los Alamos Canyon under the north and south ends of the Omega Bridge during the investigation of SWMU 00-017. The lead could not reasonably be attributed to SWMU 00-017, an inactive underground industrial waste line. Further research, and interviews with Los Alamos County and Laboratory maintenance staff, established that lead paint chips had been deposited beneath the bridge on the north and south slopes of Los Alamos Canyon as a result of periodic bridge maintenance activities, including scraping and chipping old lead-based paint before new paint was applied. The use of lead-based paint has been discontinued.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 19-1.

Table 19-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
00-017	Industrial waste lines (components of RLW)	Radionuclides
C-00-044	Surface contamination (lead paint on Omega Bridge)	Lead

19.2 Control Measures

All active control measures in use at LA-SMA-1 are listed in Table 19-2. Their locations are shown on the project map (Figure 19-1) 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 19-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00302040025	Established Vegetation	-	X	X	-	B	5-9-2013
L00303010019	Earthen Berm	-	X	-	X	EC	10-29-2012
L00303100015	Gravel Bags	X	-	-	X	B	5-15-2012
L00303120018	Rock Berm	-	X	-	X	B	8-2-2012
L00303120027	Rock Berm	-	X	-	X	B	6-30-2015
L00304020005	Concrete/Asphalt Channel/Swale	X	-	X	-	CB	6-1-2009
L00304030020	Rock Channel/Swale	X	-	X	-	EC	10-29-2012
L00304040004	Culvert	X	-	X	-	CB	6-1-2009
L00304040021	Culvert	X	-	X	-	EC	10-29-2012
L00304060022	Riprap	X	-	X	-	EC	10-29-2012
L00304060023	Riprap	X	-	X	-	B	10-31-2012
L00304060024	Riprap	X	-	X	-	B	10-31-2012

19.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at LA-SMA-1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 19-3. Maintenance activities conducted at the SMA are summarized in Table 19-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 19-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93121[a,b]	6-25-2022 6-26-2022 7-2-2022	0.49 0.32 0.32	7-7-2022	12 11 5	Yes Yes Yes
BMP-94627[b]	7-27-2022 7-31-202	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 19-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93906 (follow up from BMP-93121)	Removed and disposed of floatable garbage from the SMA.	7-15-2022	8 days	Maintenance was performed as soon as practicable.
BMP-95344 (follow up from BMP-94627)	Removed accumulated sediment from Rock Berm L00303120018.	8-24-2022	19 days	Maintenance was performed as soon as practicable.
BMP-94627	Removed and disposed of floatable garbage from the SMA.	8-11-2022	5 days	Maintenance was performed as soon as practicable during FTL review of inspection recommendations.

19.4 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 aluminum (6510 µg/L), copper (7.8 µg/L), lead (42.1 µg/L), and gross-alpha activity (1800 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011" (LANL 2012, 211408).

Following the installation of enhanced control measures at LA-SMA-1, corrective-action stormwater samples were collected on September 13, 2013, and July 29, 2014. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for aluminum (800 µg/L), gross-alpha activity (434 pCi/L and 73.3 pCi/L), and PCB concentrations (18 ng/L and 31 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067) and "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014" (LANL 2015, 600241).

A no-exposure investigation sample was collected on July 26, 2017, following certification of control measures installed to totally eliminate exposure of pollutants to stormwater at SWMU 00-017. Analytical results from this sample were submitted to EPA on November 21, 2017. The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2017" (LANL 2018, 602910).

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

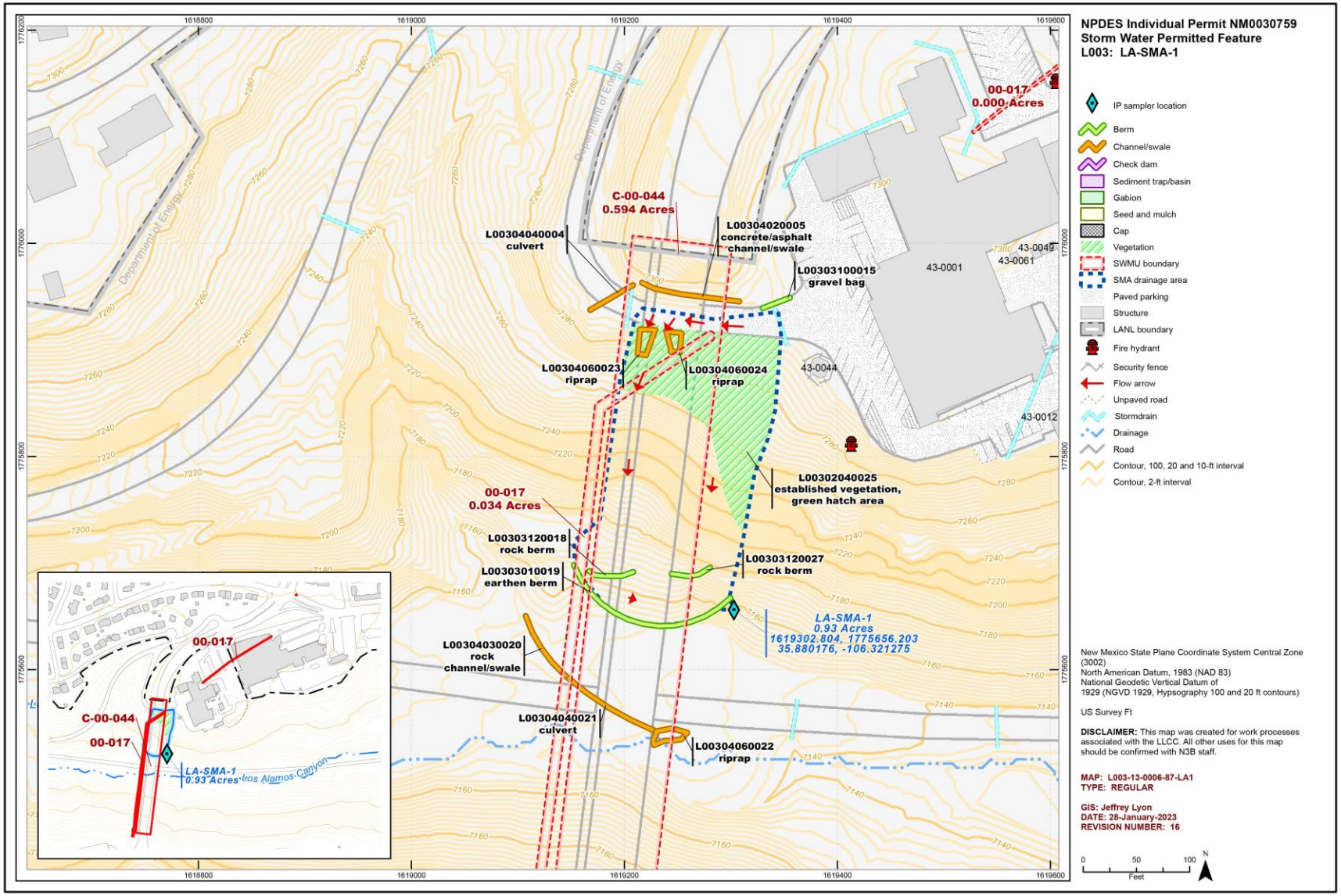

Figure 19-1 LA-SMA-1 location map

20.0 LA-SMA-1.1: AOC 43-001(b2)

One historical industrial activity area, Sites 43-001(b2), is associated with LA-SMA-1.1 (permitted feature L004). 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.

20.1 Site Descriptions

43-001(b2) (3/28/2022)

AOC 43-001(b2) is a storm drain outfall and associated outlet drainline that served the HRL (building 43-1) at TA-43. The outfall received effluent from 6 floor drains in the subbasement of building 43-1, blowdown from an evaporative cooler, and stormwater from 13 roof drains on the west side of HRL. The effluent was discharged west of HRL through a 130-ft-long, 12 in.-diameter CMP to Los Alamos Canyon. The outfall was permitted in the mid-to-late 1970s under the LANL NPDES permit as EPA 03A040.

Discharges from the evaporative cooler ceased and the floor drains were plugged in 1998; outfall EPA 03A040 was removed from the NPDES Permit on January 11, 1999. The outfall may have historically discharged radioactively-contaminated wastewater and/or once-through and treated cooling water. No historical quantitative information is available regarding potential residual contamination as a result of the discharges from this outfall. The outfall is located on the undeveloped slope west of HRL and still receives stormwater discharges from the building roof drains.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 20-1.

Table 20-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
43-001(b2)	Outfall	Radionuclides

20.2 Control Measures

All active control measures in use at LA-SMA-1.1 are listed in Table 20-2. Their locations are shown on the project map (Figure 20-1) 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 20-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00402040007	Established Vegetation	-	X	X	-	B	5-9-2013
L00404060003	Riprap	-	X	X	-	CB	9-23-2009
L00404060005	Riprap	X	-	X	-	B	9-29-2011
L00406010004	Rock Check Dam	-	X	-	X	CB	5-27-2010

20.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at LA-SMA-1.1 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 20-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 20-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93123[a,b]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93696	7-2-2022	0.32	7-12-2022	10	Yes
BMP-94629[b]	7-27-2022 7-31-202	1.24 0.32	8-8-2022	12 8	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.

20.4 Stormwater Monitoring

Following the installation of baseline control measures, two baseline stormwater samples were collected on July 28 and August 19, 2011. Analytical results from these samples yielded TAL exceedances for copper (26.6 µg/L and 6.3 µg/L), gross-alpha activity (32.6 pCi/L and 21 pCi/L), and zinc (162 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011" (LANL 2012, 211408).

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

After completion of the 2022 monitoring season the drainage area and monitoring location for LA-SMA-1.1 was modified to a more representative location based on the 2016–2018 SIP reviews, 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 that monitoring location on the project map (Figure 20-1) 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.

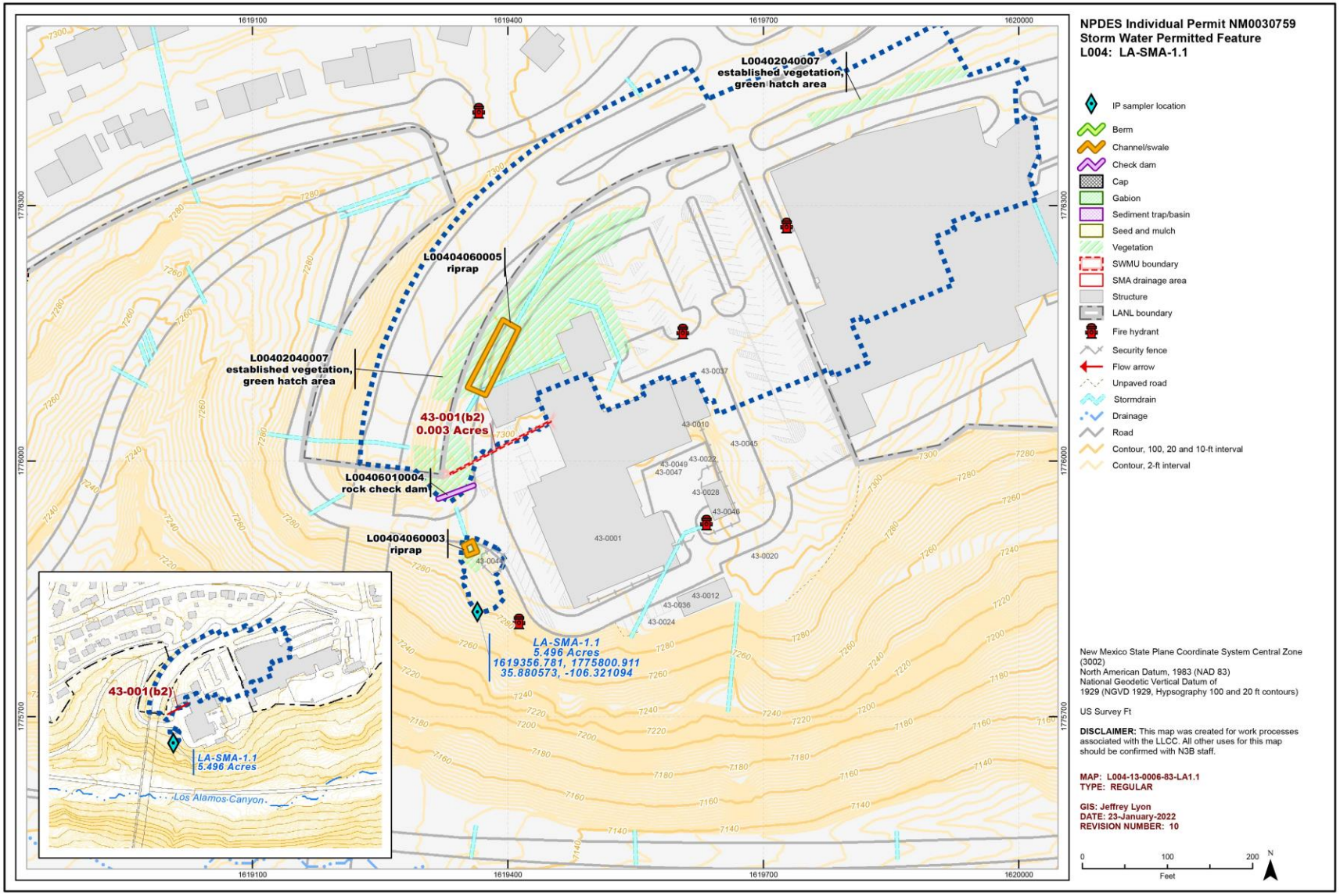

Figure 20-1 LA-SMA-1.1 location map

21.0 LA-SMA-1.25: AOC C-43-001

One historical industrial activity area, Sites C-43-001, is associated with LA-SMA-1.25 (permitted feature L005). 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.

21.1 Site Descriptions

C-43-001 (9/28/2021)

AOC C-43-001 is a storm drain system and outfall that discharges to Los Alamos Canyon in TA-43. The storm drain system collects stormwater runoff from the HRL (building 43-1) loading dock and also functions as the overflow for a sanitary lift station (structure 43-10). The overflow line is an 8-in.-diameter VCP that extends from structure 43-10 130 ft south to a manhole. A 12-in.-diameter CMP, which receives stormwater from two storm drains and any effluent from the overflow, flows southwest for 160 ft and discharges into Los Alamos Canyon south of the HRL. The sanitary waste lines for the HRL [SWMU 43-001(a1) and AOC 43-001(a2)] may have become clogged on occasion, causing an overflow at the lift station. Any sanitary waste carried through the sewer lines could have discharged to the storm drain system. Although no documentation was found to confirm any routine releases to the storm drains, the outfall may have received radioactive, nonsanitary cooling water. Currently, the outfall is located on the undeveloped north slope of Los Alamos Canyon on DOE property.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 21-1.

Table 21-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
C-43-001	Outfall	Metals, radionuclides, tritium

21.2 Control Measures

All active control measures in use at LA-SMA-1.25 are listed in Table 21-2. Their locations are shown on the project map (Figure 21-1) 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 21-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00502040008	Established Vegetation	-	X	X	-	B	5-9-2013
L00503010007	Earthen Berm	-	X	-	X	EC	7-11-2012
L00503020001	Base Course Berm	X	-	-	X	CB	1-1-2000

21.3 Inspections and Maintenance

Rain gage RG121.9 recorded five storm events at LA-SMA-1.25 during the 2022 season, requiring three post-storm inspections, which are summarized in Table 21-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 21-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93129[a,b]	6-25-2022 6-26-2022	0.49 0.32	6-30-2022	5 4	Yes Yes
BMP-93697	7-2-2022	0.32	7-14-2022	12	Yes
BMP-946359[b]	7-27-2022 7-31-202	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.

21.4 Stormwater Monitoring

AOC C-43-001 is monitored within LA-SMA-1.25. Following the installation of baseline control measures, two baseline stormwater samples were collected on July 30 and August 28, 2011. Analytical results from these samples yielded TAL exceedances for copper (13.8 µg/L and 33.3 µg/L) and zinc (109 µg/L and 112 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 LA-SMA-1.25, two corrective-action - stormwater samples were collected on September 10 and October 12, 2012. Analytical results from these samples yielded TAL exceedances for copper (7.31 µg/L and 25 µg/L) and zinc (53.2 µg/L and 111 µg/L). Complete analytical results from these samples 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 LA-SMA-1.25 in 2022 under the 2010 IP requirements.

After completion of the 2022 monitoring season the drainage area and monitoring location for LA-SMA-1.25 was modified to a more representative location based on the 2016–2018 SIP reviews, 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 that monitoring location on the project map (Figure 20-1) 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.

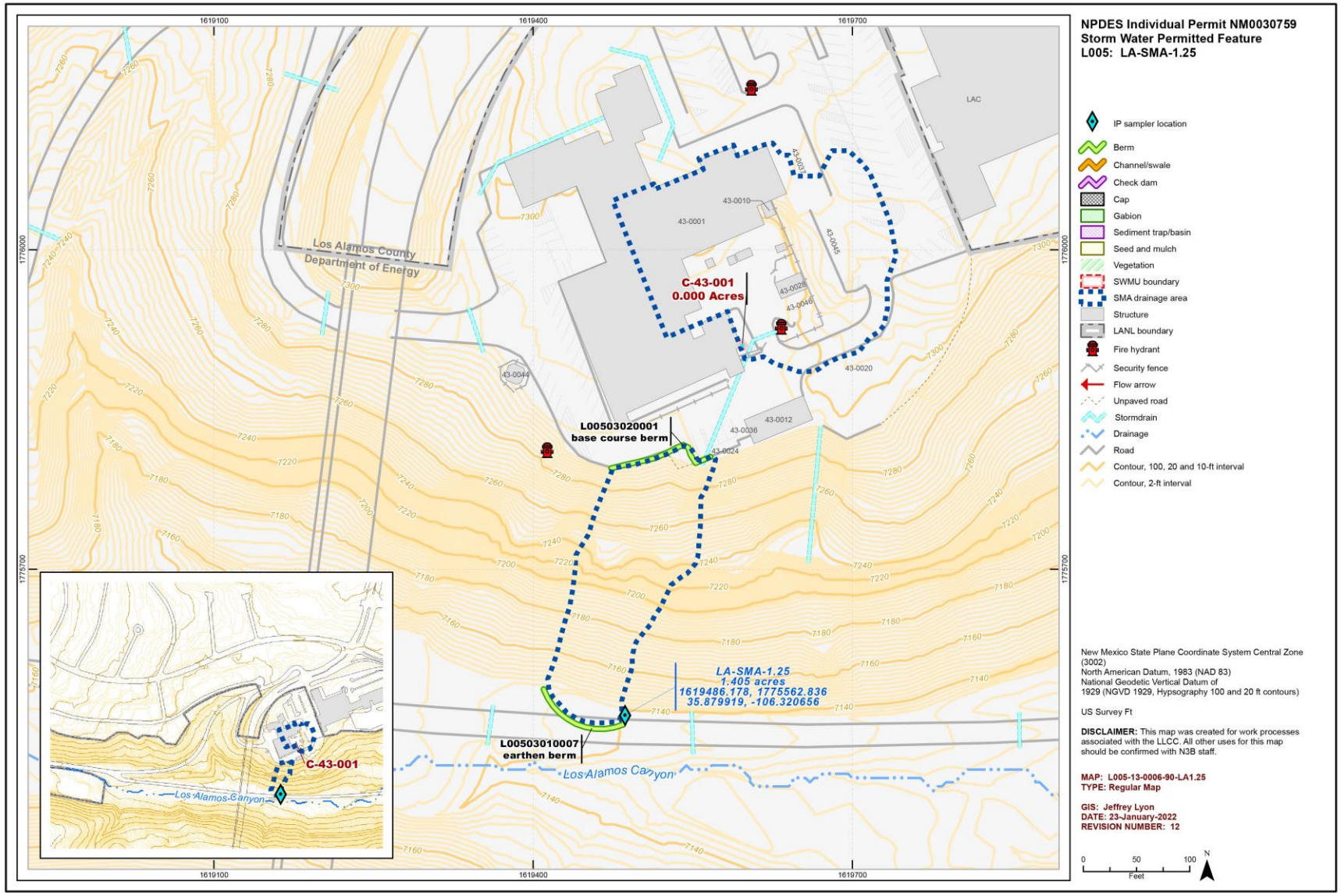

Figure 21-1 LA-SMA-1.25 location map

22.0 LA-SMA-2.1: SWMU 01-001(f)

One historical industrial activity area, Site 01-001(f), is associated with LA-SMA-2.1 (permitted feature L006). 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.

22.1 Site Descriptions

01-001(f) (9/28/2021)

SWMU 01-001(f) is the former location of septic tank 140 (former structure 01-140), its associated inlet and outlet drainlines, and a former outfall in former TA-01. Septic tank 140 measured approximately 5 ft × 10 ft × 6 ft deep, and was constructed of reinforced concrete in 1945. The tank was located west of former K-1 Building (building 01-98) and served HT Building (01-29) [SWMU 01-007(p)] and FP Building (01-20). The septic system outfall discharged into Los Alamos Canyon to an area later designated as Hillside 140, which is situated in TA-43 downslope from former TA-01. HT Building was used to heat-treat and machine natural and enriched uranium. FP Building was a foundry for nonradioactive and nonferrous metals and was not radiologically contaminated. The heat-treatment and machining operations likely resulted in discharges of radioactive waste to the tank and outfall, and the machining operations were likely the source of the PCBs found in the SWMU 01-001(f) outfall and drainage below.

In 1946, low levels of plutonium and polonium were detected in the drain to the waste line from HT Building. Buildings 01-98 and 01-29 were decommissioned and removed in 1965 as part of the relocation of all TA-01 activities to new Laboratory TAs south of the Los Alamos townsite. HT Building was found to be radioactively-contaminated during its D&D and was disposed of at an unspecified MDA. Use of the SWMU 01-001(f) septic system ceased in 1965 and the tank was removed in 1976.

During the 1975–1976 Ahlquist Radiological Survey conducted at SWMU 01-001(f), septic tank 140 was found to be filled with sludge with high levels of uranium activity. Both inlet and outlet lines were contaminated. The septic tank, all inlet and outlet drainlines, and approximately 351 yd^3 of contaminated soil were removed in 1976. Although the mesa-top portion of SWMU 01-001(f) was determined to be decontaminated, steep terrain prevented the removal of all known contamination on the hillside south and west of the outlet excavation.

Currently, the mesa-top area of SWMU 01-001(f) is developed; former drainline locations are under pavement and buildings in the Ridge Park Village residential development. The location of former septic tank 140 is partially covered by a building. The outfall location and the hillside drainage into which it discharged are located on undeveloped land owned by the DOE.

Two surface water retention basins were constructed at the bottom of the drainage in 2010. Installation of controls to divert run-on away from the SWMU 01-001(f) outfall, and stabilize the hillside drainage portion of the site, was completed in 2015. Stormwater runoff from the area above the drainage is currently being collected via a drop inlet and piping system, and discharged directly into the stream channel below 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 22-1.

Table 22-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
01-001(f)	Septic Tank 140	Metals, organic chemicals, radionuclides

22.2 Control Measures

All active control measures in use at LA-SMA-2.1 are listed in Table 22-2. Their locations are shown on the project map (Figure 22-1) 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 22-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00601060009	Erosion Control Blanket	-	-	X	-	B	6-5-2012
L00601060015	Erosion Control Blanket	-	-	X	-	EC	7-18-2014
L00602030017	Permanent Vegetation Vegetative Buffer Strip	-	X	X	X	EC	7-18-2014
L00602040011	Established Vegetation	-	X	X	-	B	5-13-2013
L00603080002	Retaining Wall	X	-	-	X	CB	6-1-2009
L00603140014	Coir Log	-	X	-	X	EC	7-18-2014
L00604010010	Earthen Channel/Swale	X	-	X	-	B	10-19-2012
L00604040018	Culvert	X	-	X	-	B	9-15-2016
L00604060006	Riprap	-	X	X	-	CB	11-18-2010
L00605020016	Sediment Basin	-	X	-	X	EC	7-18-2014

22.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-2.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 22-3. Maintenance activities conducted at the SMA are summarized in Table 22-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 22-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93130[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94636[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 22-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93130	Removed debris and sediment accumulation from Culvert L00604040018 inlet at inspection to return the control to operable status. Further cleanout is needed.	7-8-2022	0 days	Maintenance was performed as soon as practicable.
BMP-94154 (follow up to BMP-93130)	Removed additional debris and vegetative material from Culvert L00604040018 inlet.	7-21-2022	13 days	Maintenance was performed as soon as practicable.

22.4 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 (11.1 µg/L), gross-alpha activity (125 pCi/L), and PCB concentration (21,100 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013" (LANL 2014, 254067).

Stormwater monitoring was conducted at LA-SMA-2.1 under the 2010 IP requirements from March 15 through October 31, 2022, resulting in a monitoring season of 231 days. Eight inspections were performed during the monitoring period and are summarized in Table 22-5. Rain gage RG055.5 recorded 36 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 22-5 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-91965	4-14-2022	No	None[c]	None
SMPLR-92009	6-2-2022	No	None	None
SMPLR-92737	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.15/0.78 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29

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-93816	8-26-2022	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 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1 0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45
SMPLR-95672	9-19-2022	No	9-5-2022 9-9-2022	0.13/0.13 0.15/0.21
SMPLR-95959	10-7-2022	No	9-22-2022 10-2-2022 10-3-2022	0.18/0.24 0.1/0.27 0.09/0.23
SMPLR-96293	10-17-2022	No	10-7-2022 10-15-2022[c] 10-16-2022[c]	0.28/0.31 0.16/0.97 0.07/0.25
SMPLR-96346	10-31-2022	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.

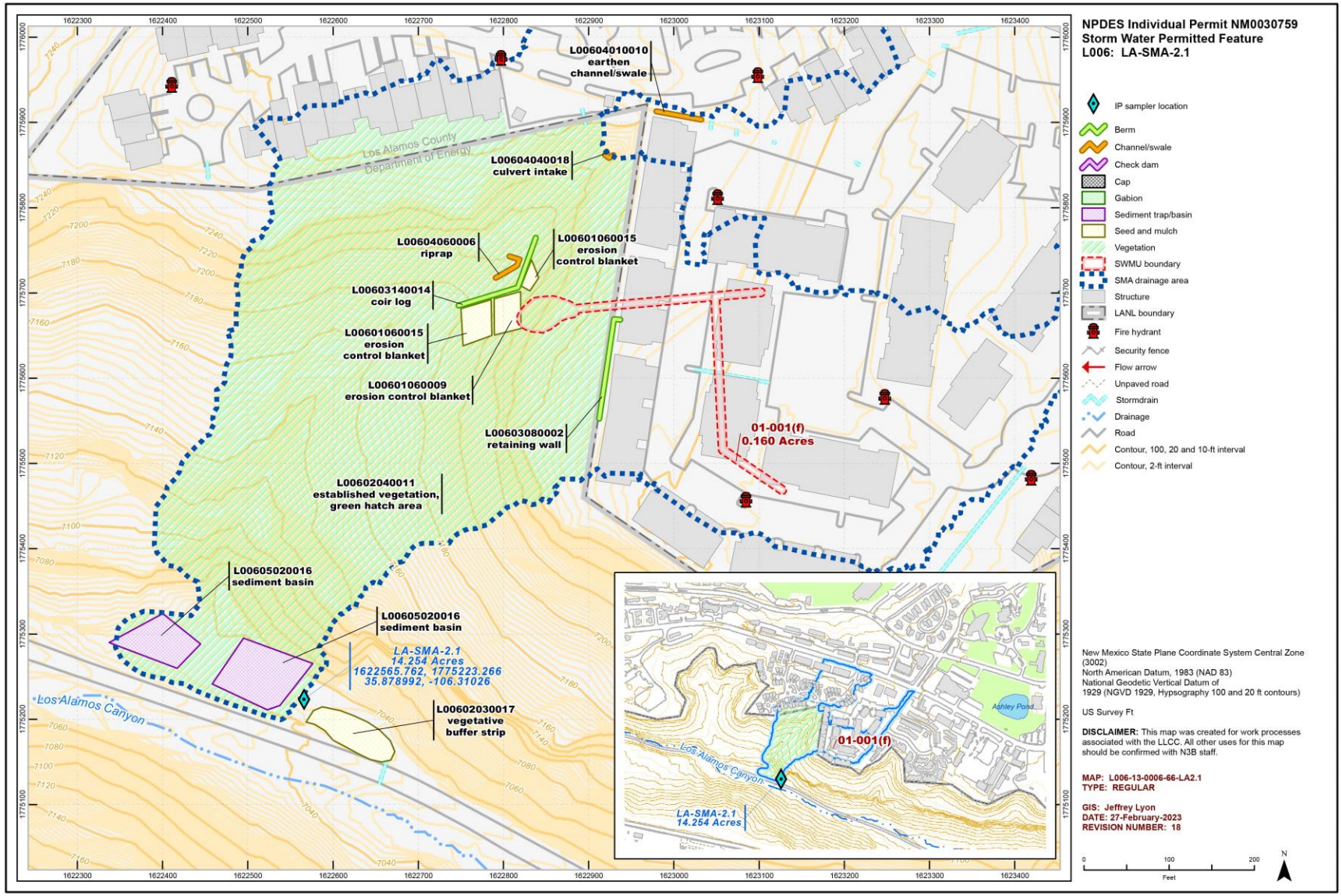

Figure 22-1 LA-SMA-2.1 location map

23.0 LA-SMA-2.3: SWMU 01-001(b)

One historical industrial activity areas, Site 01-001(b), is associated with LA-SMA-2.3 (permitted feature L007). 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.

23.1 Site Descriptions

01-001(b) (no date)

SWMU 01-001(b) is the location of a former septic tank (structure 01-135) southwest of Oppenheimer Drive in the Los Alamos townsite at former TA-01. The septic system served former FP and M-1 Buildings through a single sanitary waste line connection, and discharged to Los Alamos Canyon. Septic tank 01-135 measured 7 ft × 3.5 ft × 5 ft deep. It was installed in 1950 and removed in 1975 during the 1974–1976 radiological survey and D&D of TA-01; the inlet and outlet drainlines were left in place.

FP Building was constructed in November 1945 and was a foundry for nonradioactive and nonferrous metals. The building was determined to be free of radioactive contamination before D&D. M-1 Building was completed in June 1950 and originally was used to machine lithium and later to machine uranium-238. The building superstructure was determined to be free of contamination in 1964, but the floor drains were suspected to be radioactively contaminated from the uranium-238 machining conducted in M-1 Building. Currently, the locations of the inactive drainlines are under pavement and the buildings of Ridge Park Village.

Potential POCs and Sources Associated with the Site

POCs known to be managed or potentially used at the Site are listed in Table 23-1.

Table 23-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
01-001(b)	Septic Tank 135	Uranium-238, metals, inorganic and organic chemicals

23.2 Control Measures

All active control measures in use at LA-SMA-2.3 are listed in Table 23-2. Their locations are shown on the project map (Figure 23-1) 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 23-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00702040006	Established Vegetation	-	X	X	-	B	5-13-2013
L00703060010	Straw Wattle	-	X	-	X	B	9-21-2018
L00703080002	Retaining Wall	X	-	-	X	CB	6-1-2009

23.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-2.3 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 23-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 23-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93124[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94630[b]	7-27-2022 7-31-2022	0.93 0.25	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.

23.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 21, 2011. Analytical results from the sample yielded a TAL exceedance for gross-alpha activity (74.7 pCi/L) and the complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011" (LANL 2012, 211408).

Stormwater monitoring was not conducted at LA-SMA-2.3 in 2022 under the 2010 IP requirements.

After completion of the 2022 monitoring season the drainage area and monitoring location for LA-SMA-2.3 was modified to a more representative location based on the 2016–2018 SIP reviews, 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 that monitoring location on the project map (Figure 23-1) 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.

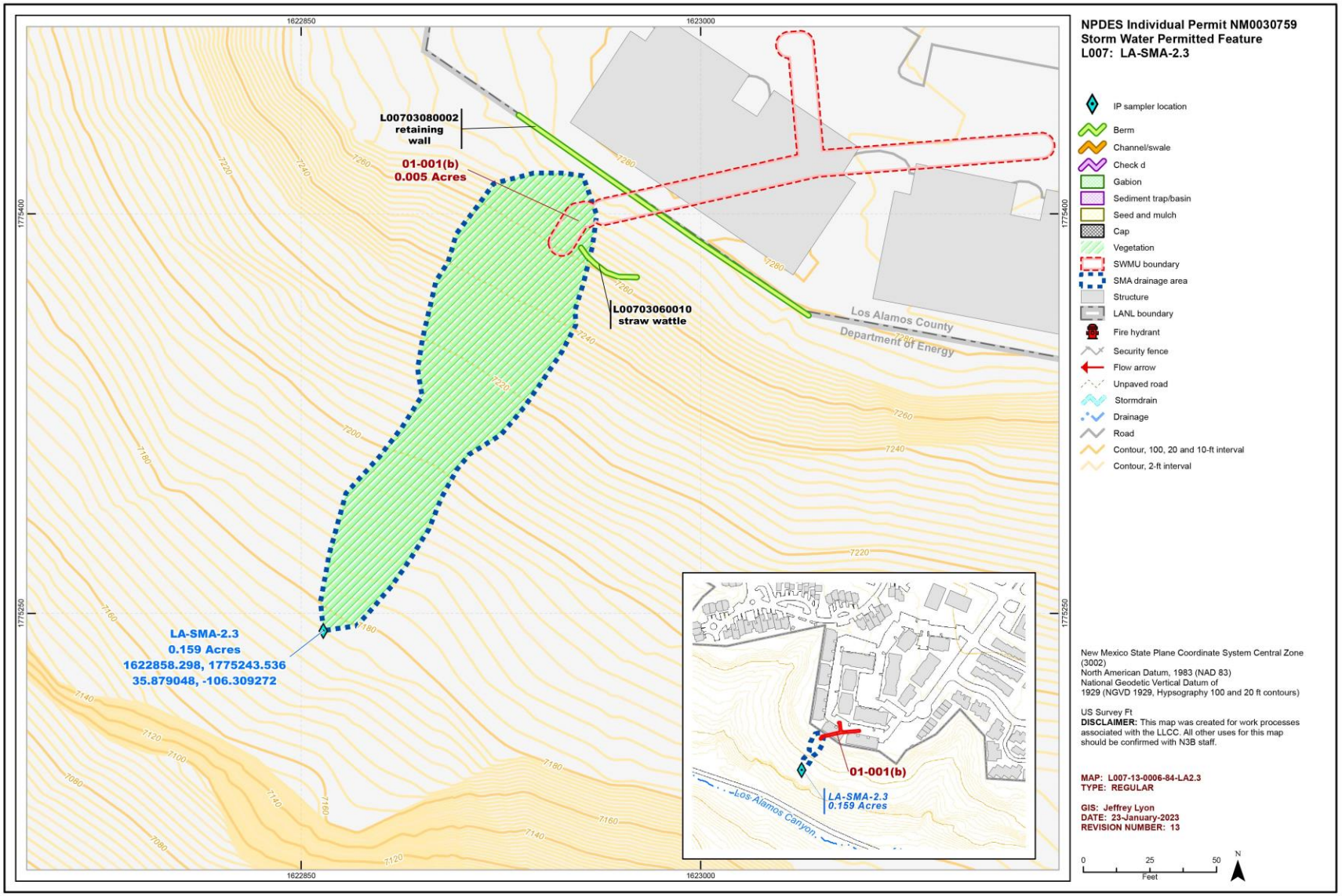

Figure 23-1 LA-SMA-2.3 location map

24.0 LA-SMA-3.1: SWMUs 01-001(e) and 01-003(a)

Two historical industrial activity areas, Sites 01-001(e) and 01-003(a), are associated with LA-SMA-3.1 (permitted feature L008). 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.

24.1 Site Descriptions

01-001(e) (3/28/2022)

SWMU 01-001(e) is the location of a former septic system that consisted of former septic tank 01-139, associated inlet and outlet drainlines, and a former outfall at former TA-01. The outfall discharged southeast of I Building and the D-5 Sigma vault, at the head of Bailey Bridge Canyon [SWMU 01-003(a)]. Septic tank 139 was constructed in 1944 of reinforced concrete and measured 3 ft × 6 ft × 5 ft deep and served the D-5 Sigma vault, I Building, and Delta Building. D-5 Sigma vault was used to store plutonium-239 and uranium-235. I Building was used to store and machine beryllium between 1947 and 1958. Delta Building was used as a meeting place and a laboratory where fission-product tracers were used. The septic system was reportedly decommissioned and abandoned in place in 1965. However, the septic tank was not found during the 1974–1976 radiological survey of TA-01, nor was it found when the area was developed for residential use. Currently, the SWMU location is on private property under Oppenheimer Drive, various residential buildings, and adjacent yards, driveways, and sidewalks.

01-003(a) (9/28/2021)

SWMU 01-003(a) is the inactive Bailey Bridge landfill located at the head of Bailey Bridge Canyon at former TA-01. Demolition debris from former TA-01 structures was placed on the hillsides in the drainage at the head of Bailey Bridge Canyon between 1959 and 1978. The area measured approximately 200 ft × 100 ft × 100 ft deep.

A September 1964 Zia Company memorandum regarding disposal of former TA-01 debris from demolition activities specified that concrete walls and flooring from the former Sigma Building (structure 01-56) with radioactivity levels below 2500 cpm of surface alpha contamination were to be broken up and disposed of in Bailey Bridge Canyon; the disposed concrete was covered with 4 ft of earthen fill. Demolition debris with less than 2500 cpm surface alpha contamination from several other buildings (the D-5 vault [01-11], HT [01-29], warehouse 19 [01-103], and the sheet metal shop [structure 01-104]) located in the western portion of former TA- 01 was also disposed of in Bailey Bridge Canyon and covered with soil. Additional fill was placed over the landfill and the area regraded before the area was developed for residential housing.

The debris and fill placed at the head of Bailey Bridge Canyon extended the canyon edge to the south by approximately 100 ft. The mesa-top portion of SWMU 01-003(a) is currently under pavement and one building of the Los Arboles townhouses. The area downslope of the landfill is undeveloped DOE land.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 24-1.

Table 24-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-001(e)	Septic Tank 139	Beryllium, fission tracers, uranium and plutonium
01-003(a)	Landfill	Metals, organic chemicals, radionuclides

24.2 Control Measures

All active control measures in use at LA-SMA-3.1 are listed in Table 24-2. Their locations are shown on the project map (Figure 24-1) 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 24-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00802040007	Established Vegetation	-	X	X	-	B	5-14-2013
L00803140010	Coir Log	-	X	-	X	B	12-18-2019
L00804040004	Culvert	X	-	X	-	CB	6-1-2009

24.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-3.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 24-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 24-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93125[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-6-2022	11 10	Yes Yes
BMP-94631[b]	7-27-2022 7-31-2022	0.93 0.25	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.

24.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on October 24, 2018. Analytical results from the sample collected yielded a TAL exceedance for PCB concentration (12.4 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was not conducted at LA-SMA-3.1 in 2022 under the 2010 IP requirements.

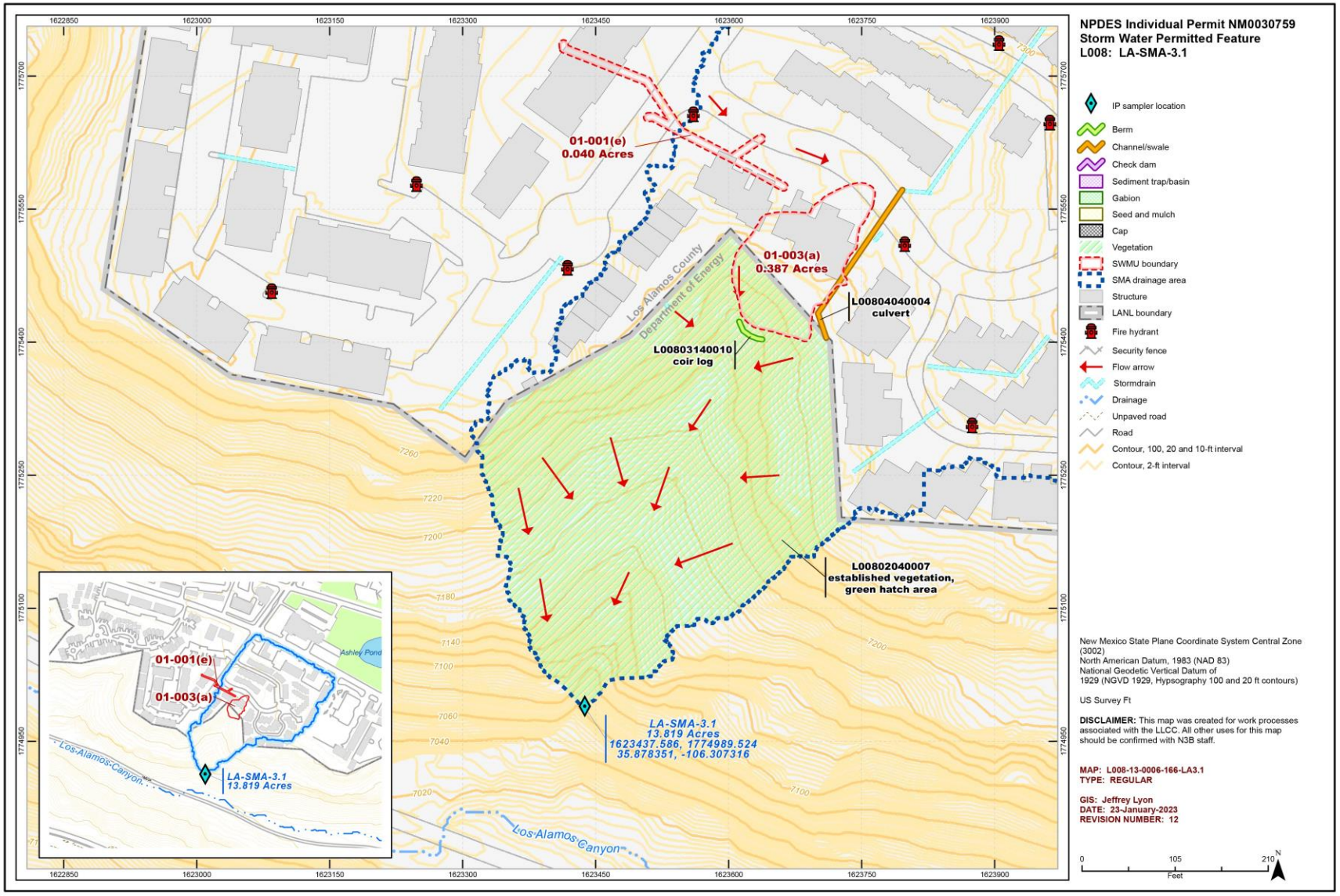

Figure 24-1 LA-SMA-3.1 location map

25.0 LA-SMA-3.9: SWMUs 01-001(g) and 01-006(a)

Two historical industrial activity areas, Sites 01-001(g) and 01-006(a), are associated with LA-SMA-3.9 (permitted feature L009). 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.

25.1 Site Descriptions

01-001(g) (9/28/2021)

SWMU 01-001(g) consists of a former sanitary septic system that included septic tank 141 (former structure 01-141), inlet and outlet drainlines and an outfall at former TA-01. Former septic tank 141 was a cylindrical steel tank, measuring approximately 4 ft in diameter and 4 ft deep, that was installed in 1943. The septic tank was located south of former X Building (former building 01-79), near the edge of Los Alamos Canyon, and received sanitary waste from former X Building through a single sanitary waste line. Former X Building housed a cyclotron (accelerator) in which radioactive targets were tested. Waste water from the septic tank flowed through an outlet line and discharged to an outfall on the rim of Los Alamos Canyon.

X Building was decommissioned and removed in 1954 as part of the relocation of all TA-01 activities to new Laboratory TAs south of the Los Alamos townsite. Use of the SWMU 01-001(g) septic system ceased in 1965 and septic tank 141 was removed during the Ahlquist Radiological Survey in 1975. The tank, its contents, and surrounding soil had no evidence of radiological contamination and were disposed of at an unnamed MDA. Currently, the location of the former inlet drainline is under one of the Los Arboles condominium buildings, and the outfall location is on undeveloped land owned by the DOE.

01-006(a) (9/28/2021)

SWMU 01-006(a) consists of a former drainline and outfall that served cooling tower 80 (former structure 01-80) at former TA-01. The drainline and outfall were located on the east side of former cooling tower 01-80 and south of X Building (former structure 01-79), near the north rim of Los Alamos Canyon. Cooling tower 01-80 was installed in 1944 and removed in 1954; the outlet drainline was left in place. Biocides containing chromium may have been added to the cooling tower, as was standard practice at the time.

Currently, the location of the former drainline is under one of the Los Arboles condominium buildings. Although no record can be found on the removal of the drainline, it was likely removed during the construction of the residential building.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 25-1.

Table 25-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-001(g)	Septic Tank 141	Metals, organic chemicals, radionuclides
01-006(a)	Drainlines and outfall	Metals

25.2 Active Control Measures

All active control measures in use at LA-SMA-3.9 are listed in Table 25-2. Their locations are shown on the project map (Figure 25-1) 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 25-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L00901060007	Erosion Control Blanket	-	X	-	X	B	9-7-2016
L00902040005	Established Vegetation	-	X	X	-	B	5-14-2013
L00904040002	Culvert	X	-	X	-	CB	6-1-2009
L00906020008	Log Check Dam	-	X	-	X	B	9-7-2016

25.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-3.9 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 25-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 25-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93126[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-6-2022	11 10	Yes Yes
BMP-94632[b]	7-27-2022 7-31-2022	0.93 0.25	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.

25.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-3.9. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-3.9 under the 2010 IP requirements from March 23 through November 4, 2022, resulting in a monitoring season of 227 days. Nine inspections were performed during the monitoring period and are summarized in Table 25-4. Rain gage RG055.5 recorded 36 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 25-4 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-91970	4-19-2022	No	None	None
SMPLR-92123	6-8-2022	No	None	None
SMPLR-92790	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29
SMPLR-93866	7-28-2022	No	7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1
SMPLR-94792	7-29-2022	No	None	None
SMPLR-94831	9-9-2022	No	7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022 9-5-2022	0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45 0.13/0.13
SMPLR-95850	10-3-2022	No	9-9-2022 9-22-2022 10-2-2022	0.15/0.21 0.18/0.24 0.1/0.27
SMPLR-96213	10-17-2022	No	10-3-2022 10-7-2022 10-15-2022 10-16-2022	0.09/0.23 0.28/0.31 0.16/0.97 0.07/0.25
SMPLR-96347	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.

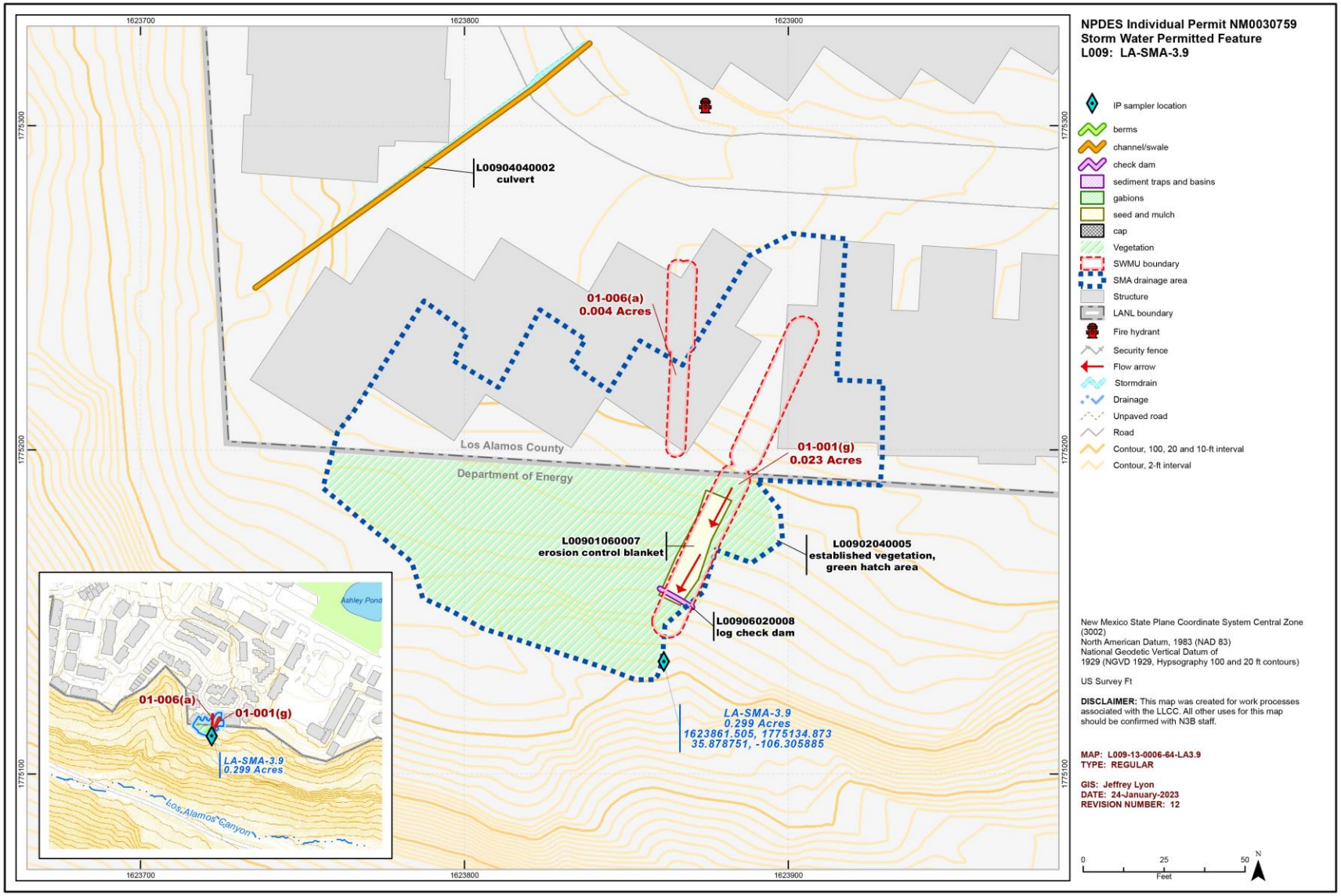

Figure 25-1 LA-SMA-3.9 location map

26.0 LA-SMA-4.1: SWMU 01-006(b) and AOC 01-003(b1) and 01-003(b2)

Three historical industrial activity areas, Sites 01-006(b), 01-003(b1), and 01-003(b2), are associated with LA-SMA-4.1 (permitted feature L010). 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.

26.1 Site Descriptions

01-003(b1) (5/22/2017)

AOC 01-003(b1) is the approximately 20 ft x 20 ft northeast portion of a suspected surface disposal site [former AOC 01-003(b)], reported to be located below the north rim of Los Alamos Canyon approximately 450 ft east of Bailey Bridge Canyon. AOC 01-003(b1) is the portion of the reported surface disposal area located within the southwest corner of the former Los Alamos Inn property. Evidence of the reported disposal area was not observed during several site visits conducted between the late 1980s and late 1990s. Several pieces of metal piping were found, a few objects were found scattered over more than an acre on the hillside, and the portable beta/gamma instruments used to screen each object registered only background radiation. Currently, the location of the area now designated as AOC 01-003(b1) is undeveloped.

AOC 01-003(b1) was originally part of AOC 01-003(b), which was split into AOCs 01-003(b1) and 01-003(b2) in a request for modification of the LANL Hazardous Waste Facility Permit approved by NMED on November 9, 2016. LANL proposed to split former AOC 01-003(b) into two newly designated AOCs because the components of the AOC are located on property owned by different entities.

01-003(b2) (9/28/2021)

AOC 01-003(b2) is the primary portion of a suspected surface disposal site [former AOC 01-003(b)], reported to be located below the north rim of Los Alamos Canyon, approximately 450 ft east of Bailey Bridge Canyon. AOC 01-003(b2) includes all of former AOC 01-003(b) located on DOE property, except the northeast area, now designated as AOC 01-003(b1), which is located within the southwest corner of the former Los Alamos Inn property. Evidence of the reported disposal area was not observed during several site visits conducted between the late 1980s and late 1990s. Several pieces of metal piping were found, a few objects were found scattered over more than an acre on the hillside, and the portable beta/gamma instruments used to screen each object registered only background radiation. Currently, the location of the area now designated as AOC 01-003(b2) is undeveloped.

AOC 01-003(b2) was originally part of former AOC 01-003(b), which was split into AOCs 01-003(b1) and 01-003(b2) in a request for modification of the LANL Hazardous Waste Facility Permit approved by the NMED on November 9, 2016. The Laboratory proposed to split former AOC 01-003(b) into two newly designated sites because the components of the AOC are located on property owned by different entities.

01-006(b) (9/3/2019)

SWMU 01-006(b) consists of a former drainline and outfall (01-6) that served former Building D, which housed plutonium and uranium processing operations at former TA-01. The drainline exited the southwest side of Building D, and extended southwest and then south before discharging into Los Alamos Canyon. The types and quantities of effluent discharged to this drainline and outfall are not known. Building D was removed in 1954. During the Ahlquist radiological survey, contaminated soil was

excavated in the areas of former Buildings D and D-2 in 1975–1976. Approximately 9,400 yd^3 of soil and tuff exhibiting elevated levels of radioactivity was removed from areas in and around former Buildings D and D-2, along with all drainlines including the SWMU 01-006(b) drainline. The excavated areas were backfilled with clean fill. Currently, this area is undeveloped. The former drainline and outfall of SWMU 01-006(b) are entirely within the boundary of SWMU 01-007(a).

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 26-1.

Table 26-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-003(b1) and 01-003(b2)	Surface disposal site	Metals, organic chemicals
01-006(b)	Drainlines and outfall	Radionuclides (plutonium), inorganic and organic chemicals

26.2 Control Measures

All active control measures in use at LA-SMA-4.1 are listed in Table 26-2. Their locations are shown on the project map (Figure 26-1) 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 26-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01001060011	Erosion Control Blanket	X	-	X	-	B	9-7-2016
L01002040010	Established Vegetation	-	X	X	-	B	4-2-2013
L01003060012	Straw Wattle	X	-	X	-	B	9-7-2016

26.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-4.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 26-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 26-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93127[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-7-2022	12 11	Yes Yes
BMP-94633[b]	7-27-2022 7-31-2022	0.93 0.25	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.

26.4 Stormwater Monitoring

Following the installation of baseline control measures, two baseline stormwater samples were collected on August 19 and September 4, 2011. Analytical results from these samples yielded TAL exceedances for copper (5.3 µg/L and 6.7 µg/L), gross-alpha activity (111 pCi/L), and PCB concentrations (8 ng/L and 60 ng/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011" (LANL 2012, 211408).

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

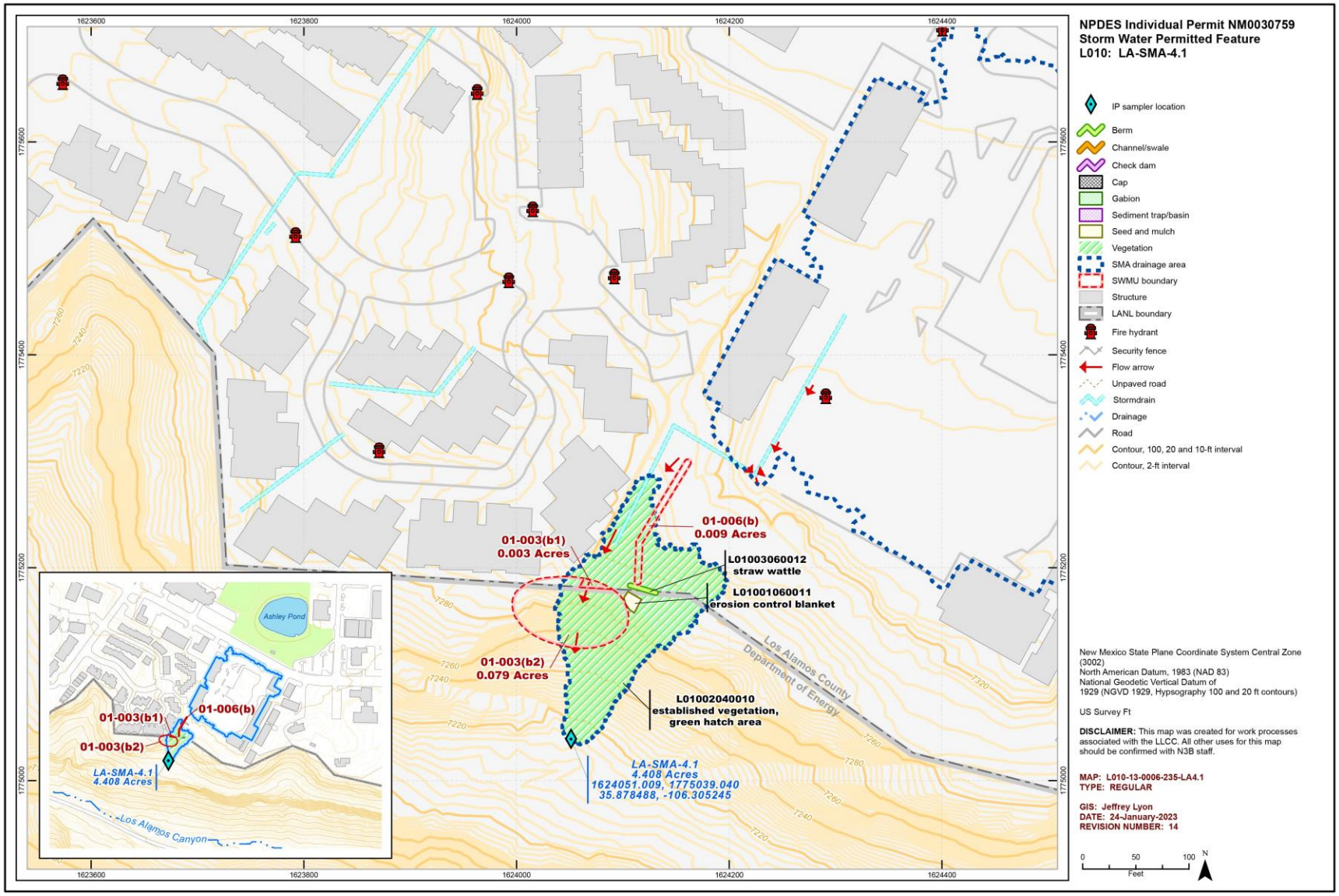

Figure 26-1 LA-SMA-4.1 location map

27.0 LA-SMA-4.2: SWMUs 01-001(c), 01-006(c), and 01-006(d)

Three historical industrial activity areas, Sites 01-001(c), 01-006(c), and 01-006(d), are associated with LA-SMA-4.2 (permitted feature L011). 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.

27.1 Site Descriptions

01-001(c) (3/8/2022)

SWMU 01-001(c) is the location of a former septic system that consisted of a septic tank (former structure 01-137), associated inlet and outlet drainlines, and an outfall at former TA-01. The cylindrical metal septic tank measured 3 ft diameter by 6 ft long by 5 ft deep. It was installed in 1945 and removed in 1975.

The septic system served former D-2 Building, which originally operated as a laundry for radioactively-contaminated clothing and recyclable equipment. The building was converted to an electronics shop after laundry operations were relocated to TA-21 in 1945. Septic tank 01-137 was identified as a potential source of plutonium contamination in the runoff area below the septic tank outfall pipe. The outfall discharged over the canyon rim and onto the canyon hillside now designated as Hillside 137 within Upper Los Alamos Canyon. Septic tank 01-137 and the inlet and outlet drainlines were removed in 1975 and disposed of at MDA G at TA-54. High levels of radiological activity were detected in the sidewalls of the septic tank excavation. Soil was removed from the excavation until gross-alpha activity levels were below 25 pCi/g. Clean soil was used to backfill the excavation.

01-006(c) (9/3/2019)

SWMU 01-006(c) consists of two former drainlines and outfalls that served former Building D-2 at former TA-01. Former Building D-2 served as the facility for laundering radioactively contaminated clothing and recyclable equipment for the entire TA from 1943 to 1945. Two drainlines and outfalls were shown on an engineering drawing at the southeast end of former Building D-2 and would have discharged directly onto Hillside 137 in Los Alamos Canyon.

Building D-2 was removed in 1953. During the Ahlquist radiological survey, contaminated soil was excavated in the areas of former Buildings D and D-2 in 1975–1976. Approximately 9,400 yd^3 of soil and tuff exhibiting elevated levels of radioactivity was removed from areas in and around former Buildings D and D-2, along with all drainlines. The two drainlines and outfalls shown on the engineering drawing at the southeast end of former Building D-2 were not located when trenching was conducted in the Building D-2 area. However, two drainlines and outfalls at the southwest end of the building were encountered during trenching and were removed. These drainlines would have discharged directly onto Hillside 137 in Los Alamos Canyon. The excavated areas were backfilled with clean fill. Currently, the site is covered with fill material and is undeveloped. SWMU 01-006(c) lies entirely within SWMU 01-007(b).

01-006(d) (3/28/2022)

SWMU 01-006(d) is a former outlet drainline and outfall that served former D-3 Building and discharged to Los Alamos Canyon hillside at the former TA-01. The outfall is located on Hillside 137, in the same area as the outfall from an outlet drainline from former Building D-2 [SWMU 01-006(c)]. Activities conducted at Building D-3 included counting radioactive filter papers from Building H-1. During the D&D of Buildings D and D-2, all drainlines were removed along with soil exhibiting areas of elevated

radioactivity. Because the main portion of the outlet drainline from Building D-3 was located in close proximity to Building D-2, this drainline was likely removed during the excavation of contaminated soils beneath and around Buildings D and D-2. Clean soil was used to backfill the excavations. Currently, the location of SWMU 01-006(d) is undeveloped and privately owned.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 27-1.

Table 27-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-001(c)	Septic Tank 137	Metals, organics, radionuclides (plutonium, tritium)
01-006(c)	Drainlines and outfall	Metals, organics, radionuclides
01-006(d)	Drainlines and outfall	Radionuclides

27.2 Control Measures

All active control measures in use at LA-SMA-4.2 are listed in Table 27-2. Their locations are shown on the project map (Figure 27-1) 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 27-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01102040008	Established Vegetation	-	X	X	-	B	4-2-2013
L01103140016	Coir Log	-	X	-	X	B	9-18-2019
L01103140018	Coir Log	-	X	-	X	B	8-22-2022
L01106010002	Rock Check Dam	-	X	-	X	CB	10-2-2009
L01106010005	Rock Check Dam	-	X	-	X	CB	10-2-2009

27.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-4.2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 27-3. Maintenance activities conducted at the SMA are summarized in Table 27-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 27-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93128[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-6-2022	11 10	Yes Yes
BMP-94634[b]	7-27-2022 7-31-2022	0.93 0.25	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 27-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95287 (follow up to BMP-94634)	Installed Coir Log L01103140018 as a replacement for Coir Log L01103140017.	8-22-2022	17 days	Maintenance was performed as soon as practicable.

27.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-4.2. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-4.2 under the 2010 IP requirements from March 28 through November 4, 2022, resulting in a monitoring season of 222 days. Nine inspections were performed during the monitoring period and are summarized in Table 27-5. Rain gage RG055.5 recorded 36 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new confirmation-monitoring samples were collected in 2022. A sample collected on July 27, 2022 had insufficient volume for analyses under the 2010 IP.

Table 27-5 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-91690	4-18-2022	No	None	None
SMPLR-92050	6-3-2022	No	None	None
SMPLR-92751	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29
SMPLR-93873	7-28-2022	No	7-14-2022 7-20-2022 7-21-2022 7-26-2022 7-27-2022	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1
SMPLR-94804	7-29-2022	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-94841	9-9-2022	No	7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022 9-5-2022	0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.26 0.33/0.45 0.13/0.13
SMPLR-95851	10-3-2022	No	9-9-2022 9-22-2022 10-2-2022	0.15/0.21 0.18/0.24 0.1/0.27
SMPLR-96218	10-17-2022	No	10-3-2022 10-7-2022 10-15-2022 10-16-2022	0.09/0.23 0.28/0.31 0.16/0.97 0.07/0.25
SMPLR-96355	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.

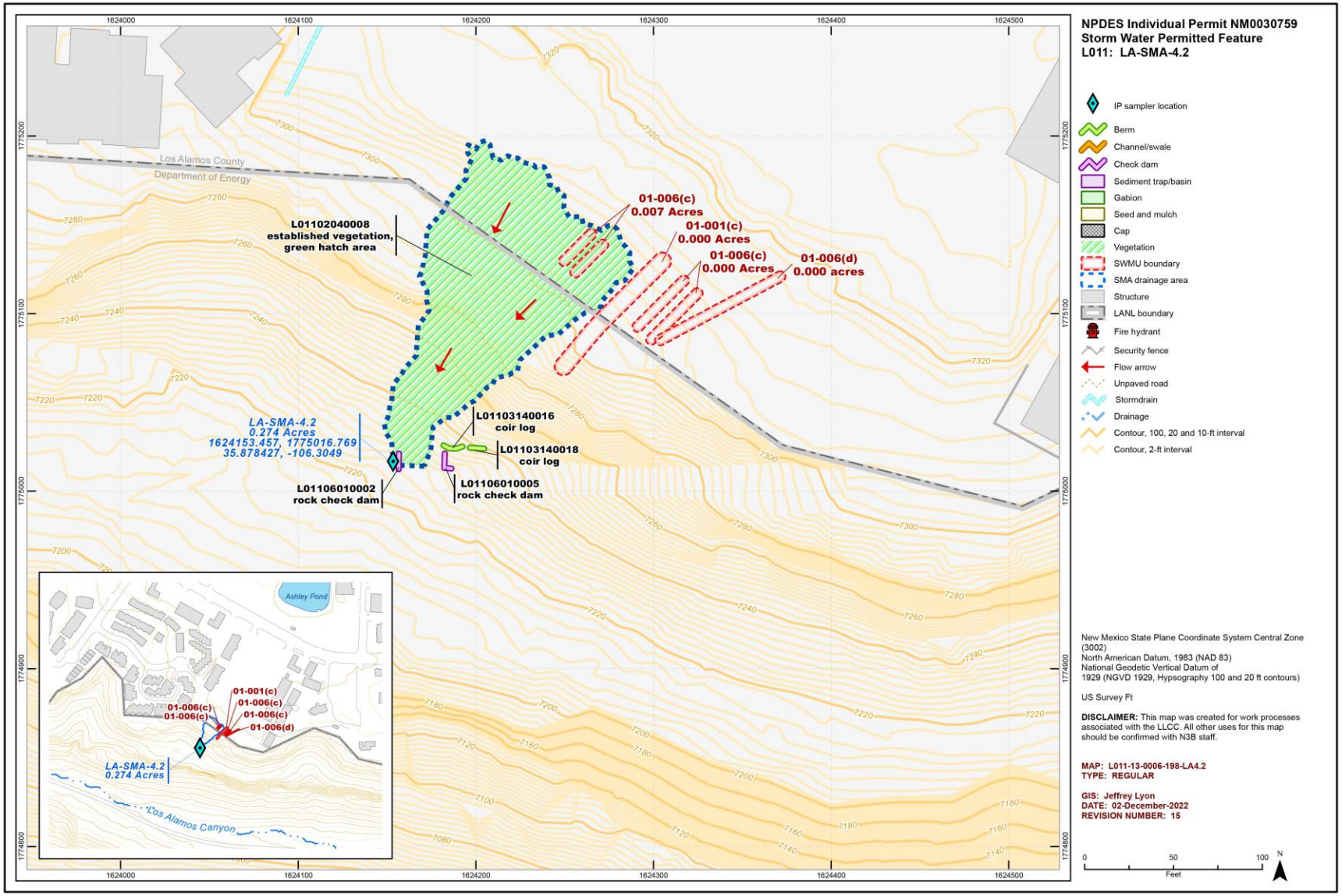

Figure 27-1 LA-SMA-4.2 location map

28.0 LA-SMA-5.01: SWMUs 01-001(d1), 01-001(d2), 01-001(d3), 01-006(h1), 01-006(h2), and 01-006(h3)

Six historical industrial activity areas, Sites 01-001(d1), 01-001(d2), 01-001(d3), 01-006(h1), 01-006(h2), and 01-006(h3), are associated with LA-SMA-5.01 (permitted feature L012). 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.

28.1 Site Descriptions

01-001(d1) (9/3/2019)

SWMU 01-001(d1) is the inactive sanitary waste line that connected former Buildings K, V, and Y to former septic tank 138 [SWMU 01-001(d2)] at former TA-01. Former septic tank 138 was installed in 1943 and located southeast of former Building Y. Building K was a chemical stock room that contained a still for repurifying mercury. Records indicate that mercury spills from the still occurred periodically. Building V housed the original Laboratory uranium and beryllium machine shop. Dry-grinding of boron was also conducted in Building V. Building Y housed a cryogenic and physics laboratory that handled tritium, uranium-238, and polonium-210.

In addition, a cooling tower (former structure 01-82) was associated with Building Y and was removed in June 1956. Because no drainline or outfall was directly associated with the former cooling tower, blowdown could have been discharged to septic tank 138 through an existing drainline [e.g., SWMU 01-001(d1)] associated with Building Y.

The SWMU 01-001(d1) sanitary waste line is currently located on private property and commercially-developed land with an asphalt parking lot. A portion of the waste line was located under commercial buildings, but is now accessible following removal of the buildings.

The SWMU 01-001(d2) septic tank and surrounding soil were removed during the Ahlquist radiological survey conducted at former TA-01 between 1974 and 1976. No radiological contamination was found in the septic tank, broken pipe shards from the inlet line, or in the outlet line; therefore, the section of the SWMU 01-001(d1) inlet line located beneath an office building was left in place. The septic tank outfall [new SWMU 01-001(d3)] was located east of former Building Y and discharged over the rim of Los Alamos Canyon. This outfall area is known as Hillside 138.

SWMU 01-001(d1) was originally part of former SWMU 01-001(d), which was split into SWMUs 01-001(d1), 01-001(d2), and 01-001(d3) in a request for modification of the LANL HWFP approved by the NMED on November 9, 2016. LANL proposed to split SWMU 01-001(d) into three newly designated SWMUs because the components of the SWMU are located on property owned by different entities.

01-001(d2) (9/28/2021)

SWMU 01-001(d2) consists of soil contamination associated with former septic tank 138 that was connected to former Buildings K, V, and Y by a sanitary waste line [SWMU 01-001(d1)] and the portion of the former outlet drainline located on private property directly north of DOE Property at TA-01. The septic tank was a cylindrical metal tank measuring 4 ft diameter × 4 ft high, installed in 1943, and located southeast of former Building Y. Building K was a chemical stock room that contained a still for re-purifying mercury. Records indicate that mercury spills from the still occurred periodically. Building V

housed the original uranium and beryllium machine shop. Dry-grinding of boron was also conducted in Building V. Building Y housed a cryogenics and physics laboratory that handled tritium, uranium-238, and polonium-210.

In addition, a cooling tower (former structure 01-82) was associated with Building Y and was removed in June 1956. Because no drainline or outfall was directly associated with the former cooling tower, blowdown could have been discharged to septic tank 138 through an existing drainline [e.g., new SWMU 01-001(d1)] associated with Building Y.

The former septic tank outfall was located east of former Building Y and discharged over the rim of Los Alamos Canyon. This outfall area and former location of the outlet drainline located on DOE property is known as Hillside 138 [new SWMU 01-001(d3)].

The SWMU 01-001(d2) septic tank and surrounding soil (approximately 1 ft around the entire tank) were removed in 1975 during the Ahlquist radiological survey conducted at TA-01. No radiological contamination was found in the septic tank, in the broken pipe shards from the inlet line, or in the outlet line; therefore, the section of the inlet line located beneath an office building was left in place. That portion of the waste line that was located under commercial buildings is now accessible following removal of the buildings.

SWMU 01-001(d2)] was originally part of former SWMU 01-001(d), which was split into SWMUs 01-001(d1), 01-001(d2), and 01-001(d3) in a request for modification of the LANL HWFP approved by the NMED on November 9, 2016. The Laboratory proposed to split SWMU 01-001(d) into three newly-designated SWMUs because the components of the SWMU are located on property owned by different entities. SWMU 01-001(d2) is beneath a structure on private property and is therefore currently inaccessible.

01-001(d3) (9/28/2021)

SWMU 01-001(d3) consists of a portion of the former outlet line from former septic tank 138 [new SWMU 01-001(d2)] and the outfall through which wastewater from the tank discharged onto the canyon rim and north slope of Los Alamos Canyon. This outfall area, known as Hillside 138, is located on DOE-owned property in TA-41. The septic tank was a cylindrical metal tank measuring 4 ft diameter × 4 ft high, installed in 1943, located southeast of former Building Y, and was connected to former Buildings K, V, and Y by a sanitary waste line [SWMU 01-001(d1)]. Building K was a chemical stock room that housed a mercury still. Building V housed the original uranium and beryllium machine shop. Dry-grinding of boron was also conducted in Building V. Building Y housed a physics laboratory that handled tritium, uranium-238, and polonium-210.

In addition, a cooling tower (former structure 01-82) was associated with Building Y and was removed in June 1956. Because no drainline or outfall was directly associated with the former cooling tower, blowdown could have been discharged to septic tank 138 through an existing drainline [e.g., SWMU 01-001(d1)] associated with Building Y. The corrective action for SWMU 01-001(d1) was completed in the investigation of the former Los Alamos Inn property.

The SWMU 01-001(d2) septic tank and surrounding soil were removed in 1975 during the Ahlquist radiological survey conducted at TA-01. No radiological contamination was found in the septic tank, broken pipe shards from the inlet line, or in the outlet line; therefore, the section of the SWMU 01-001(d1) inlet line located beneath an office building was left in place. That portion of the waste line located under commercial buildings is now accessible following removal of the buildings. The septic tank outfall [new SWMU 01-001(d3)] was located east of former Building Y and discharged over

the rim of Los Alamos Canyon. This outfall area is known as Hillside 138. Samples collected from Hillside 138 indicated elevated levels of plutonium-239 and cesium-137; however, the hillside was not decontaminated during the survey because it was inaccessible. The area was fenced to prevent public access from the mesa top.

SWMU 01-001(d3) was originally part of former SWMU 01-001(d), which was split into SWMUs 01-001(d1), 01-001(d2), and 01-001(d3) in a request for modification of the Los Alamos National Laboratory (LANL) Hazardous Waste Facility Permit approved by the New Mexico Environment Department (NMED) on November 9, 2016. The Laboratory proposed to split SWMU 01-001(d) into three newly designated SWMUs because the components of the SWMU are located on property owned by different entities.

01-006(h1) (5/18/2020)

SWMU 01-006(h1) is the middle section of the former stormwater drainage system and outfall that served the northwest side of former Building R and the east side of former Building Y at former TA-01. SWMU 01-006(h1) is the portion of the stormwater drainage system within the former LA Inn property boundary. Former Building R (former building 01-50) housed model, glass, carpentry, and plumbing shops. Former Building Y (former building 01-81) housed a physics laboratory that handled tritium, uranium-238, and polonium-210. The outfall for this stormwater drainage system was located 25 ft south of former Building Y on the north rim of Los Alamos Canyon. During the 1972–1974 Ahlquist radiological survey, no radioactivity was detected in and adjacent to components of the stormwater drainage areas near former Buildings R and Y; the drainlines were removed. Currently, the location of SWMU 01-006(h1) is on privately owned and commercially developed land.

SWMU 01-006(h1) was originally part of former SWMU 01-006(h), which was split into SWMUs 01-006(h1), 01-006(h2), and 01-006(h3) in a request for modification of the LANL HWFP approved by the NMED on November 9, 2016. LANL proposed to split SWMU 01-006(h) into three newly designated SWMUs because the components of former SWMU 01-006(h) are located on property owned by different entities.

01-006(h2) (9/28/2021)

SWMU 01-006(h2) is the southernmost section of the former stormwater drainage system, including the outfall at former TA-01, which discharged to Los Alamos Canyon. Former SWMU 01-006(h) is the former stormwater drainage system that served the northwest side of former Building R (01-50) and the east side of former Building Y (01-81). Former Building R housed model, glass, carpentry, and plumbing shops, and former Building Y housed a physics laboratory that handled tritium, uranium-238, and polonium-210. The drainage system discharged to an outfall [SWMU 01-006(h2)] located 25 ft south of former Building Y on the north rim of Los Alamos Canyon, immediately west of Hillside 138 [new SWMUs 01-001(d2) and 01-001(d3)]. During the 1972–1974 Ahlquist radiological survey, no radioactivity was detected in or adjacent to components of the stormwater drainage areas near former Buildings R and Y; the drainlines were removed.

Currently, the location of the southernmost section of the former stormwater drainage system, including the outfall [SWMU 01-006(h2)], is on privately-owned and commercially-developed land. SWMU 01-006(h2) is currently located beneath a building.

SWMU 01-006(h2) was originally part of former SWMU 01-006(h), which was split into SWMUs 01-006(h1), 01-006(h2), and 01-006(h3) in a request for modification of the LANL HWFP approved by the NMED on November 9, 2016. The Laboratory proposed to split SWMU 01-006(h) into

three newly-designated SWMUs because the components of the SWMU are located on property owned by different entities.

01-006(h3) (9/28/2021)

SWMU 01-006(h3) is the northernmost section of the former stormwater drainage system at former TA-01. Former SWMU 01-006(h) is the stormwater drainage system that served the northwest side of former Building R (01-50) and the east side of former Building Y (01-81). Former Building R housed model, glass, carpentry, and plumbing shops, and former Building Y housed a physics laboratory that handled tritium, uranium-238, and polonium-210. The drainage system discharged to an outfall located 25 ft south of former Building Y on the north rim of Los Alamos Canyon [new SWMU 01- 006(h2)], immediately west of Hillside 138 [new SWMUs 01-001(d2) and 01-001(d3)]. During the 1972–1974 Ahlquist radiological survey, no radioactivity was detected in or adjacent to components of the stormwater drainage areas near former Buildings R and Y.

Currently, the location of the northernmost section of the former stormwater drainage system is on privately-owned and commercially-developed land. SWMU 01-006(h3) is currently located beneath a building.

SWMU 01-006(h3) was originally part of former SWMU 01-006(h), which was split into SWMUs 01-006(h1), 01-006(h2), and 01-006(h3) in a request for modification of the LANL HWFP approved by the NMED on November 9, 2016. The Laboratory proposed to split SWMU 01-006(h) into three newly designated SWMUs because the components of the SWMU are located on property owned by different entities.

Potential POCs and Sources Associated with the Sites

POCs known to be managed or potentially used at the Sites are listed in Table 28-1.

Table 28-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
01-001(d1), 01-001(d2), 01-001(d3)	Septic Tank 138	Metals, organics, mercury, plutonium, uranium, beryllium, boron, tritium, polonium
01-006(h1), 01-006(h2), 01-006(h3)	Drainlines and outfall	No known POCs

28.2 Control Measures

All active control measures in use at LA-SMA-5.01 are listed in Table 28-2. Their locations are shown on the project map (Figure 28-1) 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 28-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01201060029	Erosion Control Blanket	X	-	X	-	B	6-19-2018
L01202040012	Established Vegetation	-	X	X	-	B	4-2-2013
L01203010004	Earthen Berm	-	X	-	X	CB	6-1-2009
L01203010007	Earthen Berm	X	-	-	X	CB	6-1-2009
L01203100023	Gravel Bags	X	-	-	X	B	8-4-2015
L01203120010	Rock Berm	X	-	-	X	CB	11-30-2010
L01203140030	Coir Log	X	-	-	X	B	10-1-2018
L01204050008	Water Bar	X	-	X	-	CB	11-30-2010
L01204060006	Riprap	-	X	X	-	CB	10-2-2009
L01204060028	Riprap	X	-	X	-	B	6-19-2018

28.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-5.01 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 28-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 28-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93132[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-7-2022	12 11	Yes Yes
BMP-94638[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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.

28.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-5.01. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-5.01 under the 2010 IP requirements from March 28 through November 4, 2022, resulting in a monitoring season of 222 days. Eight inspections were performed during the monitoring period and are summarized in Table 28-4. Rain gage RG055.5 recorded 36 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 28-4 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-91689	4-19-2022	No	None	None
SMPLR-92079	6-3-2022	No	None	None
SMPLR-92750	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29
SMPLR-93872	8-25-2022	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 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1 0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53 0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45
SMPLR-95670	9-19-2022	No	9-5-2022 9-9-2022	0.13/0.13 0.15/0.21
SMPLR-95970	10-7-2022	No	9-22-2022 10-2-2022 10-3-2022	0.18/0.24 0.1/0.27 0.09/0.31
SMPLR-96296	10-17-2022	No	10-7-2022 10-15-2022 10-16-2022	0.28/0.31 0.16/0.97 0.07/0.25
SMPLR-96354	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.

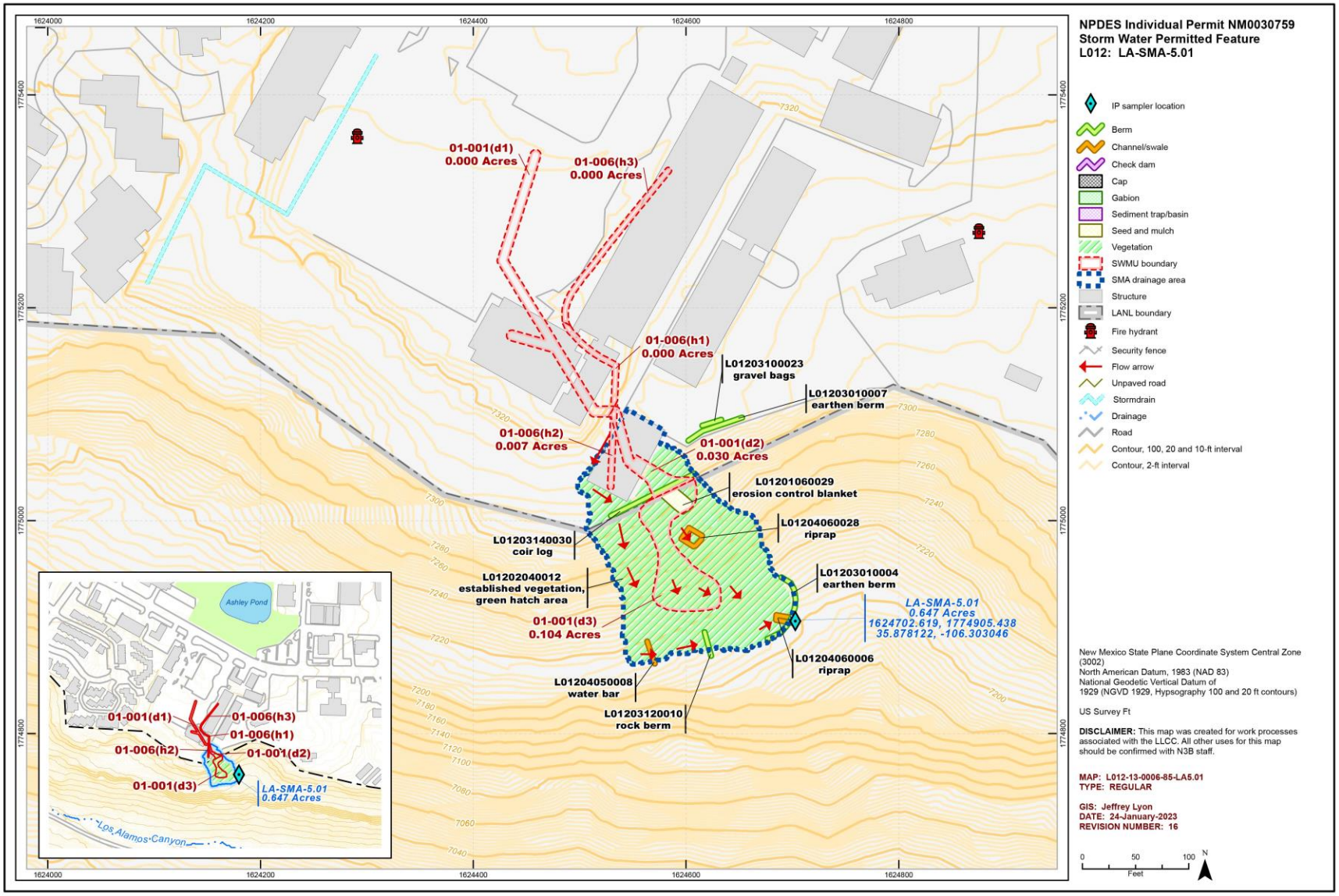

Figure 28-1 LA-SMA-5.01 location map

29.0 LA-SMA-5.02: SWMU 01-003(e)

One historical industrial activity area, Site 01-003(e), is associated with LA-SMA-5.02 (permitted feature L012A). 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.

29.1 Site Descriptions

01-003(e) (03/28/2022)

SWMU 01-003(e) was a surface disposal area located on the mesa top and on the north hillside of Los Alamos Canyon, southeast of the former Los Alamos Inn at former TA-01. Demolition debris from former TA-01 was placed at this site in the 1950s. Surface debris on the hillside of SWMU 01-003(e) consisted primarily of concrete construction debris, but also included utility boxes, piping, and other miscellaneous debris.

Review of historical aerial photographs from the 1950s and 1960s indicates that when the buildings in the eastern portion of former TA-01 underwent D&D in the 1950s, debris from the 1940s-era buildings was placed at the head of the canyon, and some of the debris was pushed down the hillside. Review of historical aerial photographs from the mid-1970s shows that additional fill was placed over the mesa-top portion of this SWMU by a private land owner to extend the canyon rim farther south during construction of the Los Alamos Inn. At this time, adjacent professional buildings and associated parking lots were also constructed. Currently, a major portion of this site is under the fill material, and the mesa-top portion of the Site is paved with asphalt and does not contain any of the previously discarded materials; the professional buildings remain in place.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 29-1.

Table 29-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
01-003(e)	Surface disposal site	Metals, SVOCs

29.2 Control Measures

All active control measures in use at LA-SMA-5.02 are listed in Table 29-2. Their locations are shown on the project map (Figure 29-1) 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 29-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L012A02040012	Established Vegetation	-	X	X	-	B	4-2-2013
L012A03090022	Curbing	X	-	-	X	B	11-3-2014
L012A03140029	Coir Log	-	X	-	X	B	9-18-2019

29.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-5.02 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 29-3. Maintenance activities conducted at the SMA are summarized in Table 29-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 29-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93133[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-7-2022	12 11	Yes Yes
BMP-94639[b]	7-27-2022 7-31-2022	0.93 0.25	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 29-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94110 (follow up to BMP-93133)	Added more material to eastern end of Coir Log L012A03140029 to increase sediment retention capacity.	8-25-2022	49 days	Maintenance was delayed.

29.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on August 3 and August 19, 2011. Analytical results from the samples yielded TAL exceedances for copper (4.9 µg/L), gross-alpha activity (19.7 pCi/L), and PCB concentrations (34 ng/L and 108 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).

Stormwater monitoring was not conducted at LA-SMA-5.02 in 2022 under the 2010 IP requirements.

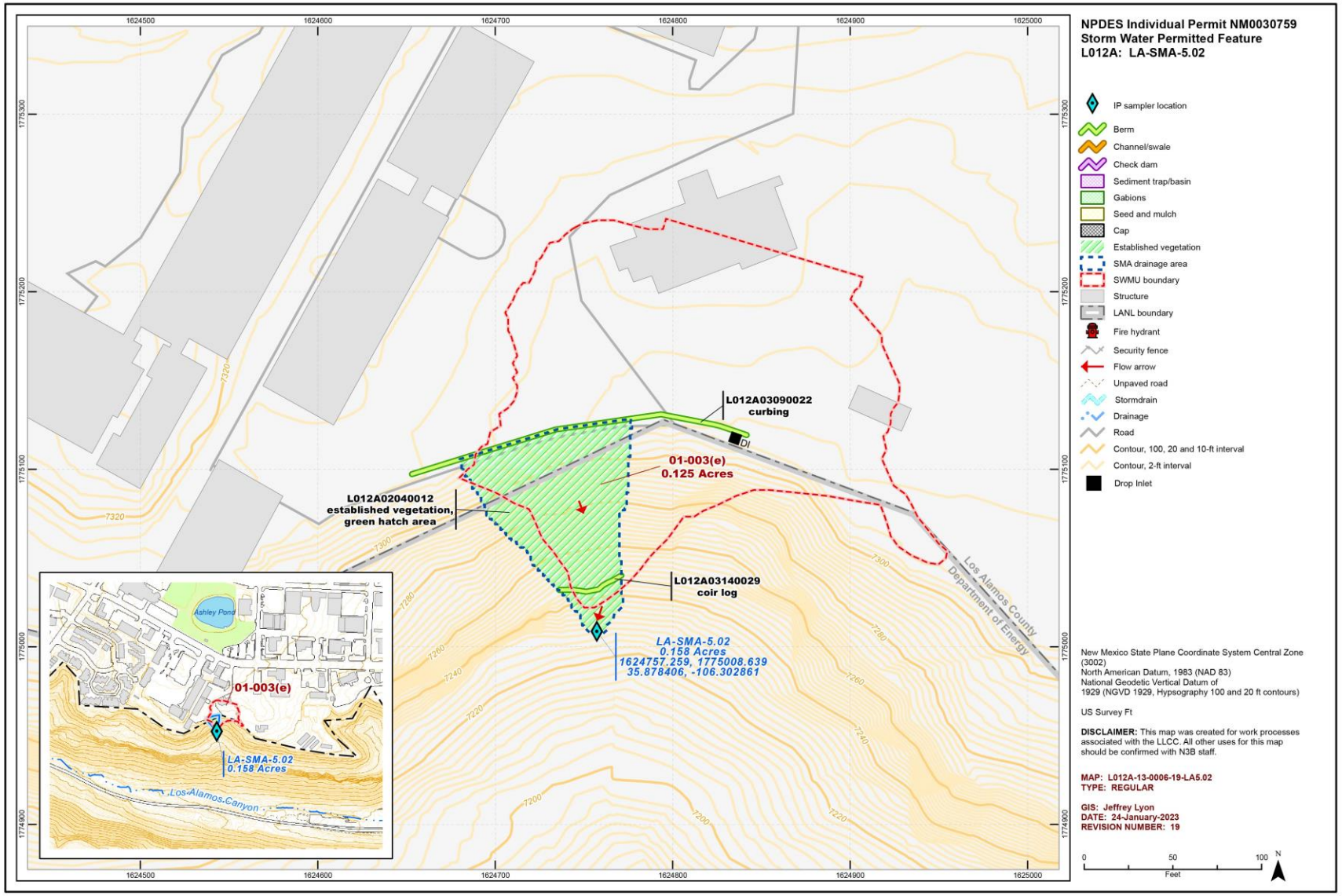

Figure 29-1 LA-SMA-5.02 location map

30.0 LA-SMA-5.2: SWMU 01-003(d)

One historical industrial activity area, Site 01-003(d), is associated with LA-SMA-5.2 (permitted feature L013). 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.

30.1 Site Descriptions

01-003(d) (9/28/2021)

SWMU 01-003(d), also known as the Can Dump Site, is located on the undeveloped hillside of Los Alamos Canyon south of the current CenturyLink communications building and Trinity Drive. It was used for the surface disposal of empty solvent and paint cans during Zia Company operations at former TA-01. The Zia Company operated several warehouses on the mesa top between Trinity Drive and Los Alamos Canyon from the early 1940s to the late 1950s, in support of TA-01 operations. The Zia Company warehouses formerly located in this area were used as paint, carpentry, furniture repair, and sign shops, and were likely the source of the waste at the former Can Dump Site. No radioactive materials were handled in these warehouses because they were outside the TA-01 security fence. Currently, the area is located on undeveloped DOE land.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 30-1.

Table 30-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
01-003(d)	Surface disposal site	Metals, lead

30.2 Control Measures

All active control measures in use at LA-SMA-5.2 are listed in Table 30-2. Their locations are shown on the project map (Figure 30-1) 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 30-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01302040005	Established Vegetation	-	X	X	-	B	5-16-2013
L01303140008	Coir Log	-	X	-	X	EC	3-29-2021
L01304060011	Riprap	-	X	-	X	EC	3-29-2021
L01306020007	Log Check Dam	-	X	-	X	B	5-29-2013
L01306020009	Log Check Dam	-	X	-	X	EC	3-29-2021
L01306020010	Log Check Dam	-	X	-	X	EC	3-29-2021

30.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-5.2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 30-3. Maintenance activities conducted at the SMA are summarized in Table 30-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 30-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93131[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94637[b]	7-27-2022 7-31-2022	0.93 0.25	8-9-2022	13 9	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 30-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94109 (follow up from BMP-93131)	Removed accumulated sediment from Coir Log L01303140008 to increase capacity of control.	8-25-2022	48 days	Maintenance was delayed.

30.4 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 arsenic (10.2 µg/L), gross-alpha activity (2320 pCi/L), radium-226 and radium-228 activity (33.7 µg/L), selenium (12.1 µg/L), and zinc (79.8 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was conducted at LA-SMA-5.2 under the 2010 IP requirements from March 21 through November 3, 2022, resulting in a monitoring season of 228 days. 9 inspections were performed during the monitoring period and are summarized in Table 30-5. Rain gage RG055.5 recorded 36 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 30-5 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-91633	4-15-2022	No	None[c]	None
SMPLR-92026	6-13-2022	No	None	None
SMPLR-92819	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 7-2-2022 7-4-2022	0.09/0.33 0.03/0.16 0.04/0.13 0.08/0.15 0.15/0.78 0.44/1.42 0.26/1.78 0.23/0.3 0.1/0.44 0.24/0.33 0.12/0.29
SMPLR-93815	8-11-2022	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	0.24/0.28 0.2/0.25 0.13/0.21 0.11/0.32 0.93/1.1 0.09/0.25 0.07/0.1 0.25/0.38 0.25/0.53
SMPLR-95421	9-15-2022	No	8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-22-2022 8-23-2022 9-5-2022 9-9-2022	0.3/0.32 0.07/0.19 0.1/0.19 0.08/0.17 0.05/0.26 0.11/0.13 0.05/0.1 0.33/0.45 0.13/0.13 0.15/0.21
SMPLR-95916	9-30-2022	No	9-22-2022	0.18/0.24
SMPLR-96200	10-12-2022	No	10-2-2022 10-3-2022 10-7-2022	0.1/0.27 0.09/0.23 0.28/0.31
SMPLR-96321	10-17-2022	No	10-15-2022 10-16-2022	0.16/0.97 0.07/0.25
SMPLR-96344	11-3-2022	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.

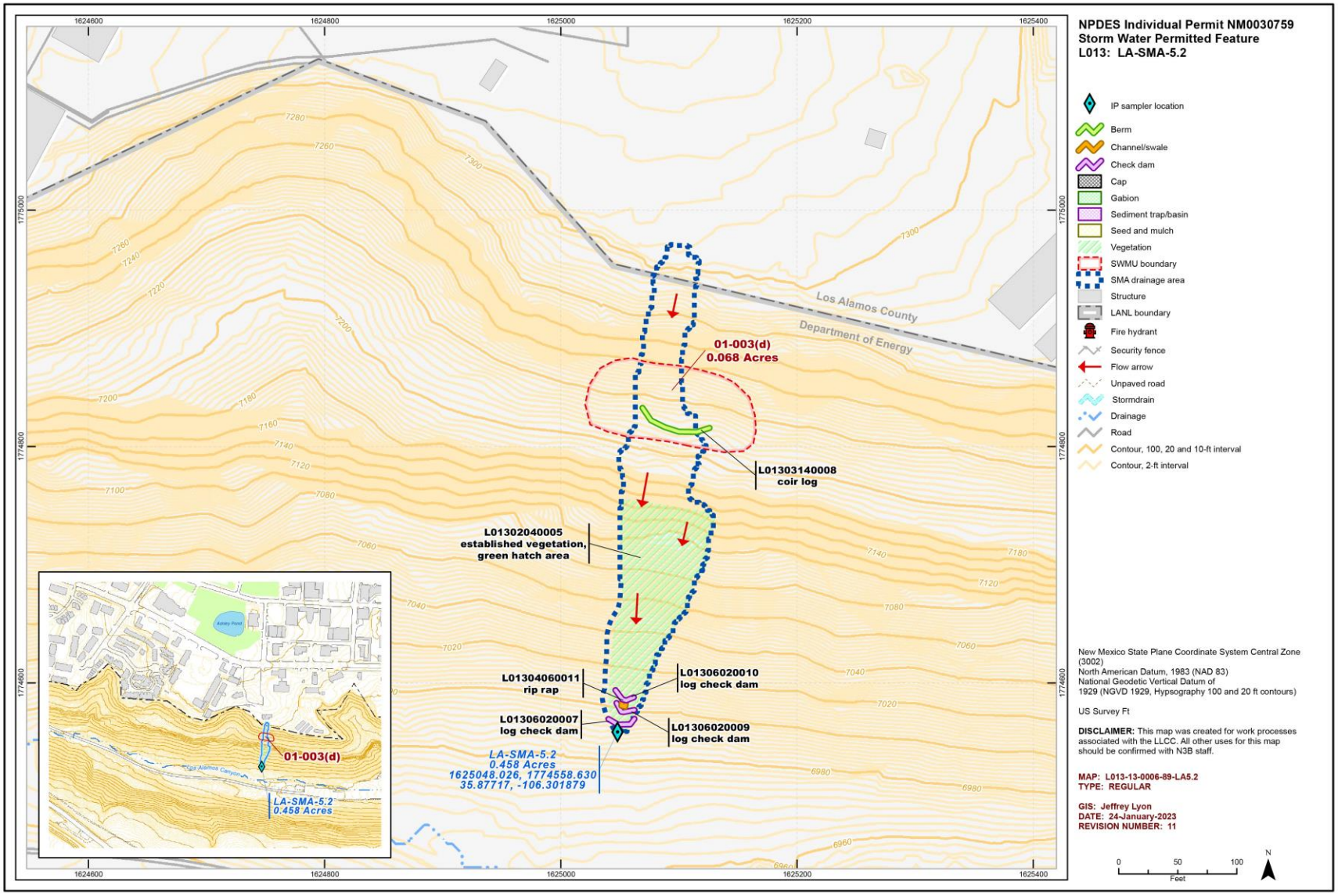

Figure 30-1 LA-SMA-5.2 location map

31.0 LA-SMA-5.31: SWMU 41-002(c)

One historical industrial activity area, Site 41-002(c), is associated with LA-SMA-5.31 (permitted feature L015). 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.

31.1 Site Descriptions

41-002(c) (5/24/2017)

SWMU 41-002(c) consists of an inactive sludge drying bed (41-9), a component of a small sanitary sewage treatment plant at TA-41 [along with SWMU 41-002(a)], an Imhoff tank and 10 ft × 8 ft × 10 ft chlorinator (structure 41-7), and SWMU 41-002(b), a chlorine contact tank (structure 41-8). These SWMUs are all components of the former treatment plant and are interconnected by a network of drainlines, and are completely inactive. The treatment plant was built in 1951 and received sanitary waste from TA-41 until 1987, and received sanitary waste from TA-02 from the early 1970s until 1987. Between 1987 and 1992, sanitary wastes were pumped to the TA-03 Sanitary WWTP for treatment. Beginning in 1992, all sanitary wastes were pumped to the TA-46 SWSC plant.

When operational, the TA-41 sanitary sewage treatment plant discharged treated effluent to Los Alamos Canyon via LANL NPDES-permitted outfall SSS06S (removed from the LANL NPDES permit effective December 14, 1990). After it was shut down, the TA-41 treatment plant was retained as a standby unit in the event of failure of the lift pump. Currently, the sewage treatment plant is located on DOE property behind locked gates. The SWMU 41-002(c) was abandoned in place.

TA-41 has been continuously used from the early 1940s for testing, monitoring, assembling, and storing nuclear weapon components, weapons subsystems and boosting systems development, and for long-term studies on weapons subsystems. Isotopic analyses were conducted on uranium and plutonium samples. Operations at TA-41 required the use of radioactive materials, toxic gases, metals, and organic chemicals.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 31-1.

Table 31-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
41-002(c)	Sludge drying bed	Inorganic and organic chemicals, metals, radionuclides

31.2 Control Measures

All active control measures in use at LA-SMA-5.31 are listed in Table 31-2. Their locations are shown on the project map (Figure 31-1) 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 31-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01501010016	Hydromulch	-	-	X	-	B	8-10-2022
L01503010012	Earthen Berm	X	-	-	X	B	11-27-2012
L01503120011	Rock Berm	-	X	-	X	EC	7-12-2012
L01504060017	Riprap	X	-	X	-	B	8-10-2022

31.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.31 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 31-3. All other control-measure inspections conducted at the SMA are summarized in Table 31-4.

During 2022 LANL managed D&D activities of structure 41-4, which is associated with historical activities at SWMU 41-002(c); soil disturbance activities may occur near or within the SMA. In 2022, the SWPP team members conducted weekly inspections of controls in areas of potential soil disturbance. Site disturbance activities impacting LA-SMA-5.31 were completed in July 2022, and the SWPP team members conducted a verification inspection to update the SMA, Site, and control measures after the facility modifications were complete.

Table 31-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93134[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-8-2022	13 11 7	Yes Yes Yes
BMP-94053[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94640	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95599	8-23-2022	0.67	9-2-2022	10	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 31-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Remediation Construction Compliance Inspection	COMP-90578	1-5-2022	Operations have not commenced. No action recommended.
Remediation Construction Compliance Inspection	COMP-90632	1-11-2022	
Remediation Construction Compliance Inspection	COMP-90662	1-19-2022	
Remediation Construction Compliance Inspection	COMP-90887	1-25-2022	
Remediation Construction Compliance Inspection	COMP-90991	2-1-2022	
Remediation Construction Compliance Inspection	COMP-91049	2-8-2022	
Remediation Construction Compliance Inspection	COMP-91084	2-15-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Remediation Construction Compliance Inspection	COMP-91150	2-22-2022	No action recommended. Temporary construction controls in place.
Remediation Construction Compliance Inspection	COMP-91202	3-1-2022	Riprap L01504060013 has been impacted by activity. No action recommended. Temporary construction controls in place.
Remediation Construction Compliance Inspection	COMP-91265	3-8-2022	
Remediation Construction Compliance Inspection	COMP-91298	3-15-2022	
Remediation Construction Compliance Inspection	COMP-91509	3-22-2022	
Remediation Construction Compliance Inspection	COMP-91621	3-30-2022	
Remediation Construction Compliance Inspection	COMP-91732	4-5-2022	
Remediation Construction Compliance Inspection	COMP-91893	4-12-2022	
Remediation Construction Compliance Inspection	COMP-91980	4-20-2022	
Remediation Construction Compliance Inspection	COMP-92105	4-26-2022	
Remediation Construction Compliance Inspection	COMP-92210	5-3-2022	
Remediation Construction Compliance Inspection	COMP-92430	5-19-2022	
Remediation Construction Compliance Inspection	COMP-92455	5-24-2022	
Remediation Construction Compliance Inspection	COMP-92545	5-31-2022	Riprap L01504060013 and Seed and Wood Mulch L01501010015 have been impacted by activity. No action recommended. Temporary construction controls in place.
Remediation Construction Compliance Inspection	COMP-92685	6-7-2022	
Remediation Construction Compliance Inspection	COMP-92774	6-14-2022	
Remediation Construction Compliance Inspection	COMP-92853	6-21-2022	
Remediation Construction Compliance Inspection	COMP-92955	6-28-2022	
Remediation Construction Compliance Inspection	COMP-93490	7-5-2022	
Remediation Construction Compliance Inspection	COMP-93846	7-12-2022	
Remediation Construction Compliance Inspection	COMP-93958	7-19-2022	
Remediation Construction Compliance Inspection	COMP-94188	7-27-2022	
Remediation Construction Compliance Inspection	COMP-94523	8-2-2022	Closeout inspection. Hydromulch and Gravel bags have been installed in area of SMA as site stabilization
BMP verification inspection after site disturbance activities at TA-41 D&D have been completed	BMP-95218	8-10-2022	Retire controls impacted by soil disturbance and accept construction installed stabilization controls as replacements.

31.4 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 (5.5 µg/L) and gross-alpha activity (86 pCi/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 conducted at LA-SMA-5.31 under the 2010 IP requirements, after the completion of LANL-managed soil disturbance was complete, from September 1 through October 28, 2022, resulting in a monitoring season of 58 days. Two inspections were performed during the monitoring period and are summarized in Table 31-5. Rain gage RG038 recorded eight 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 31-5 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-95917	9-30-2022	No	9-5-2022 9-9-2022 9-22-2022	0.11/0.11 0.12/0.19 0.2/0.22
SMPLR-96201	10-28-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

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

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

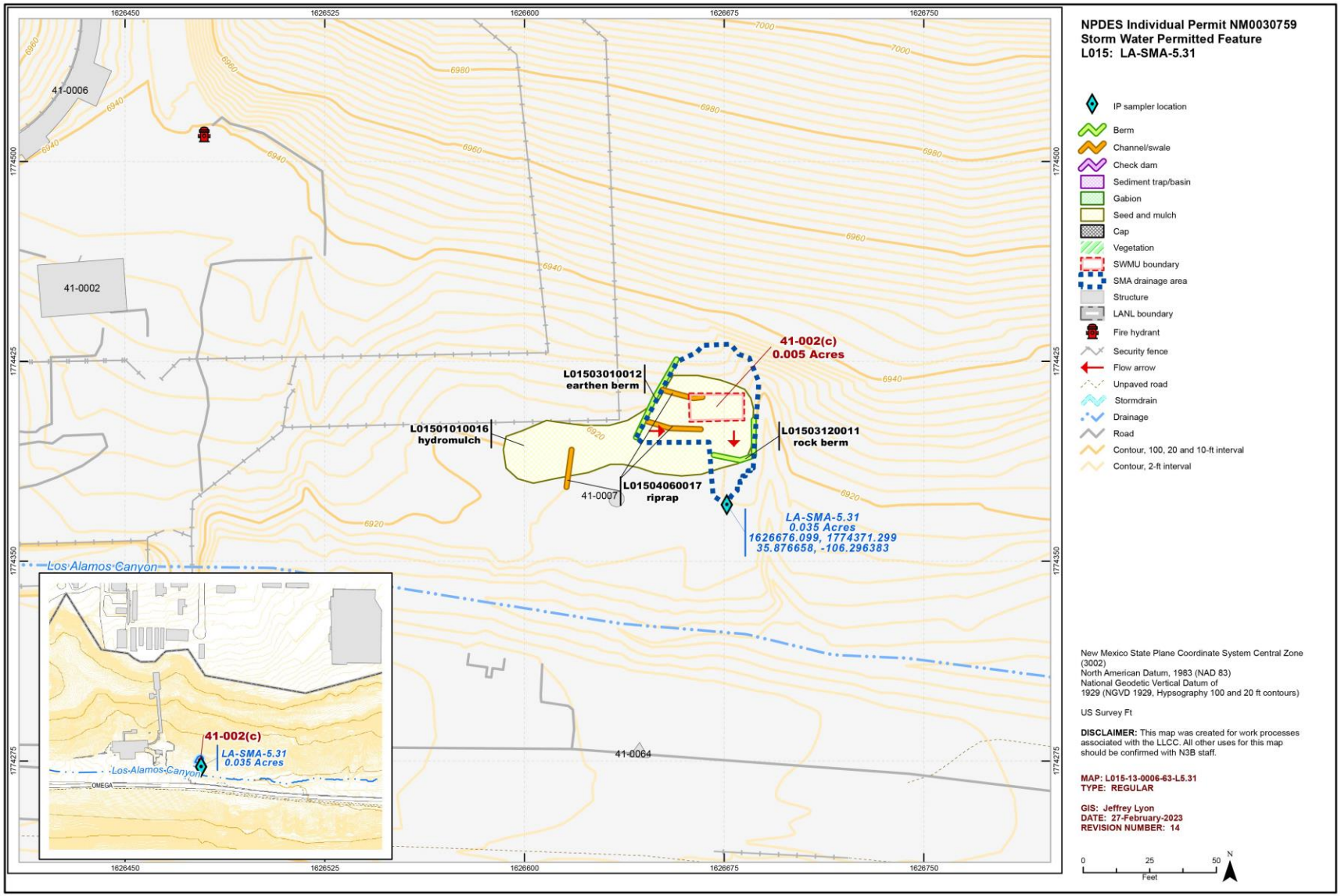

Figure 31-1 LA-SMA-5.31 location map

32.0 LA-SMA-5.33: AOC 32-004

One historical industrial activity area, Site 32-004, is associated with LA-SMA-5.33 (permitted feature L016). 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.

32.1 Site Descriptions

32-004 (3/28/2022)

AOC 32-004 consists of a former drainline and outfall that served former building 32-3 in former TA-32, and discharged to Upper Los Alamos Canyon. Building 32-3 was an office building that housed a vault room where a radioactive source was stored. The drainline at AOC 32-004 led directly to an outfall at the edge of the mesa without passing through a septic tank. Building 32-3 was removed when TA-32 was decommissioned in 1954.

During the 1996 Phase II RFI and VCA conducted at AOC 32-004, the 37.5-ft section of the drainline located on Los Alamos County property was removed. Because the drainline was found not to be contaminated, the portion of the drainline located on DOE property was left in place and grouted at both ends.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 32-1.

Table 32-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
32-004	Drainline and outfall	Radionuclides

32.2 Control Measures

All active control measures in use at LA-SMA-5.33 are listed in Table 32-2. Their locations are shown on the project map (Figure 32-1) 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 32-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01602040014	Established Vegetation	-	X	X	-	B	5-14-2013
L01603010009	Earthen Berm	X	-	-	X	EC	8-31-2011

32.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.33 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 32-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 32-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93135[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-5-2022	10 8 4	Yes Yes Yes
BMP-94054[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes Yes
BMP-94641	7-27-2022	0.97	8-5-2022	9	Yes
BMP-95600	8-23-2022	0.67	8-31-2022	8	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.

32.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 21, 2011. Analytical results from the sample yielded a TAL exceedance for gross-alpha activity (100 pCi/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 LA-SMA-5.33 in 2022 under the 2010 IP requirements.

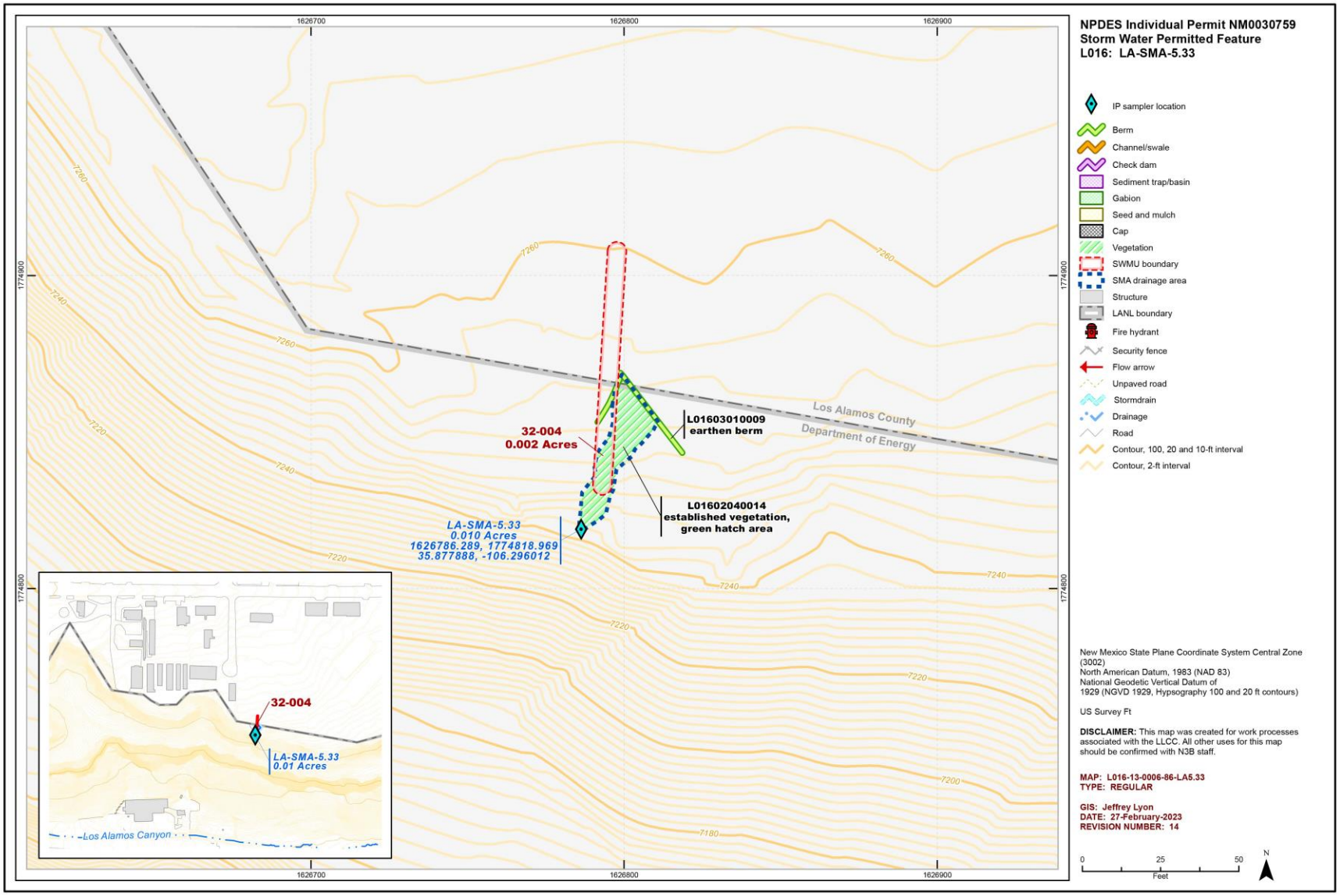

Figure 32-1 LA-SMA-5.33 location map

33.0 LA-SMA-5.35: AOC C-41-004

One historical industrial activity area, Site C-41-004, is associated with LA-SMA-5.35 (permitted feature L014). 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.

33.1 Site Descriptions

C-41-004 (5/24/2017)

AOC C-41-004 is the active storm drain system around laboratory building 41-4 at TA-41. The system consists of seven catchment basins and/or manholes (structures 41-22 through 41-28) and connecting drainlines that collect stormwater from paved areas around building 41-4 and discharge the stormwater through an outfall to the Los Alamos Canyon drainage channel. There are no indications of contaminant releases to the system; however, no monitoring of the storm drains or outfalls has been conducted. Deposition from historical stack emissions between building 41-4 and 41-30 (an office building) may have resulted in surface tritium contamination of the storm drain system. Building 41-4 is currently in use, and the catchment basins/manholes and connecting drainlines are located within and under the asphalt pavement around the building.

TA-41 has been continuously used from the early 1940s for testing, monitoring, assembling, and storing nuclear weapon components, development of weapons subsystems and boosting systems, and for long-term studies on weapons subsystems. Isotopic analyses were conducted on uranium and plutonium samples. Operations at TA-41 required the use of radioactive materials, toxic gases, metals, and organic chemicals.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 33-1.

Table 33-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
C-41-004	Storm drains	Tritium, uranium, plutonium, beryllium, lead, mercury

33.2 Control Measures

All active control measures in use at LA-SMA-5.35 are listed in Table 33-2. Their locations are shown on the project map (Figure 33-1) 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 33-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01408030010	Concrete/Asphalt Cap	X	-	X	-	EC	8-21-2012
L01408030014	Concrete/Asphalt Cap	-	X	X	-	EC	11-13-2012
L01408040011	Metal Cap	X	-	X	-	EC	8-21-2012

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01408040012	Metal Cap	X	-	X	-	EC	8-21-2012
L01408040013	Metal Cap	X	-	X	-	EC	8-21-2012

33.3 Inspections and Maintenance

Rain gage RG055.5 recorded four storm events at LA-SMA-5.35 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 33-3. All other control-measure inspections conducted at the SMA are summarized in Table 33-4.

During 2022, LANL completed D&D activities of structure 41-7, which was associated with historical activities at SWMU 41-002(c); soil disturbance activities may occur near or within the SMA. In 2022 the SWPP team members conducting weekly inspections of controls in areas of potential soil disturbance. Through the end of 2022, only equipment mobilization and material staging activities have occurred at LA-SMA-5.35.

Table 33-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93064[a,b]	6-25-2022 6-26-2022	0.44 0.26	7-8-2022	13 12	Yes Yes
BMP-94558[b]	7-27-2022 7-31-2022	0.93 0.25	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 33-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Remediation Construction Compliance Inspection	COMP-90579	1-6-2022	Operations have not commenced. No action recommended.
Remediation Construction Compliance Inspection	COMP-90633	1-11-2022	
Remediation Construction Compliance Inspection	COMP-90663	1-19-2022	
Remediation Construction Compliance Inspection	COMP-90888	1-25-2022	
Remediation Construction Compliance Inspection	COMP-90992	2-1-2022	
Remediation Construction Compliance Inspection	COMP-91050	2-8-2022	Interior D&D activities occurring. Associated materials staged in SMA and temporary construction controls are in place. No action recommended.

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Remediation Construction Compliance Inspection	COMP-91085	2-15-2022	Interior D&D activities occurring. Associated materials staged in SMA and temporary construction
Remediation Construction Compliance Inspection	COMP-91151	2-22-2022	
Remediation Construction Compliance Inspection	COMP-91203	3-1-2022	
Remediation Construction Compliance Inspection	COMP-91266	3-8-2022	
Remediation Construction Compliance Inspection	COMP-91299	3-15-2022	
Remediation Construction Compliance Inspection	COMP-91510	3-22-2022	
Remediation Construction Compliance Inspection	COMP-91622	3-30-2022	
Remediation Construction Compliance Inspection	COMP-91733	4-5-2022	
Remediation Construction Compliance Inspection	COMP-91894	4-12-2022	
Remediation Construction Compliance Inspection	COMP-91981	4-19-2022	
Remediation Construction Compliance Inspection	COMP-92106	4-26-2022	
Remediation Construction Compliance Inspection	COMP-92211	5-3-2022	
Remediation Construction Compliance Inspection	COMP-92431	5-19-2022	
Remediation Construction Compliance Inspection	COMP-92456	5-24-2022	
Remediation Construction Compliance Inspection	COMP-92546	5-31-2022	
Remediation Construction Compliance Inspection	COMP-92686	6-7-2022	
Remediation Construction Compliance Inspection	COMP-92775	6-14-2022	
Remediation Construction Compliance Inspection	COMP-92854	6-21-2022	
Remediation Construction Compliance Inspection	COMP-92956	6-28-2022	
Remediation Construction Compliance Inspection	COMP-93491	7-5-2022	
Remediation Construction Compliance Inspection	COMP-93847	7-12-2022	
Remediation Construction Compliance Inspection	COMP-93959	7-19-2022	
Remediation Construction Compliance Inspection	COMP-94189	7-27-2022	Interior D&D activities occurring. Associated materials staged in SMA and temporary construction controls are in place. No action recommended.
Remediation Construction Compliance Inspection	COMP-94524	8-2-2022	
Remediation Construction Compliance Inspection	COMP-95219	8-9-2022	
Remediation Construction Compliance Inspection	COMP-95316	8-16-2022	
Remediation Construction Compliance Inspection	COMP-95504	8-23-2022	
Remediation Construction Compliance Inspection	COMP-95622	8-30-2022	
Remediation Construction Compliance Inspection	COMP-95745	9-6-2022	
Remediation Construction Compliance Inspection	COMP-95810	9-13-2022	
Remediation Construction Compliance Inspection	COMP-95900	9-20-2022	
Remediation Construction Compliance Inspection	COMP-96035	9-27-2022	
Remediation Construction Compliance Inspection	COMP-96135	10-6-2022	
Remediation Construction Compliance Inspection	COMP-96258	10-13-2022	
Remediation Construction Compliance Inspection	COMP-96307	10-18-2022	
Remediation Construction Compliance Inspection	COMP-96377	10-25-2022	
Remediation Construction Compliance Inspection	COMP-96469	11-1-2022	
Remediation Construction Compliance Inspection	COMP-96536	1-8-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Remediation Construction Compliance Inspection	COMP-96576	11-15-2022	Interior D&D activities occurring. Associated materials staged in SMA and temporary construction controls are in place. No action recommended.
Remediation Construction Compliance Inspection	COMP-96676	11-23-2022	
Remediation Construction Compliance Inspection	COMP-96812	11-30-2022	
Remediation Construction Compliance Inspection	COMP-96857	12-6-2022	
Remediation Construction Compliance Inspection	COMP-96892	12-14-2022	
Remediation Construction Compliance Inspection	COMP-96933	12-20-2022	

33.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline stormwater samples were collected on August 4 and September 7, 2011. Analytical results from these samples yielded TAL exceedances for copper (5.9 µg/L) and gross-alpha activity (874 pCi/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 LA-SMA-5.35, corrective-action stormwater samples were collected on June 21 and July 19, 2014. Analytical results from the June 21, 2014, corrective-action monitoring sample yielded TAL exceedances for copper (11.3 µg/L) and gross-alpha activity (118 pCi/L). Analytical results from the July 19, 2014 sample yielded no TAL exceedances. 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 LA-SMA-5.35 in 2022 under the 2010 IP requirements.

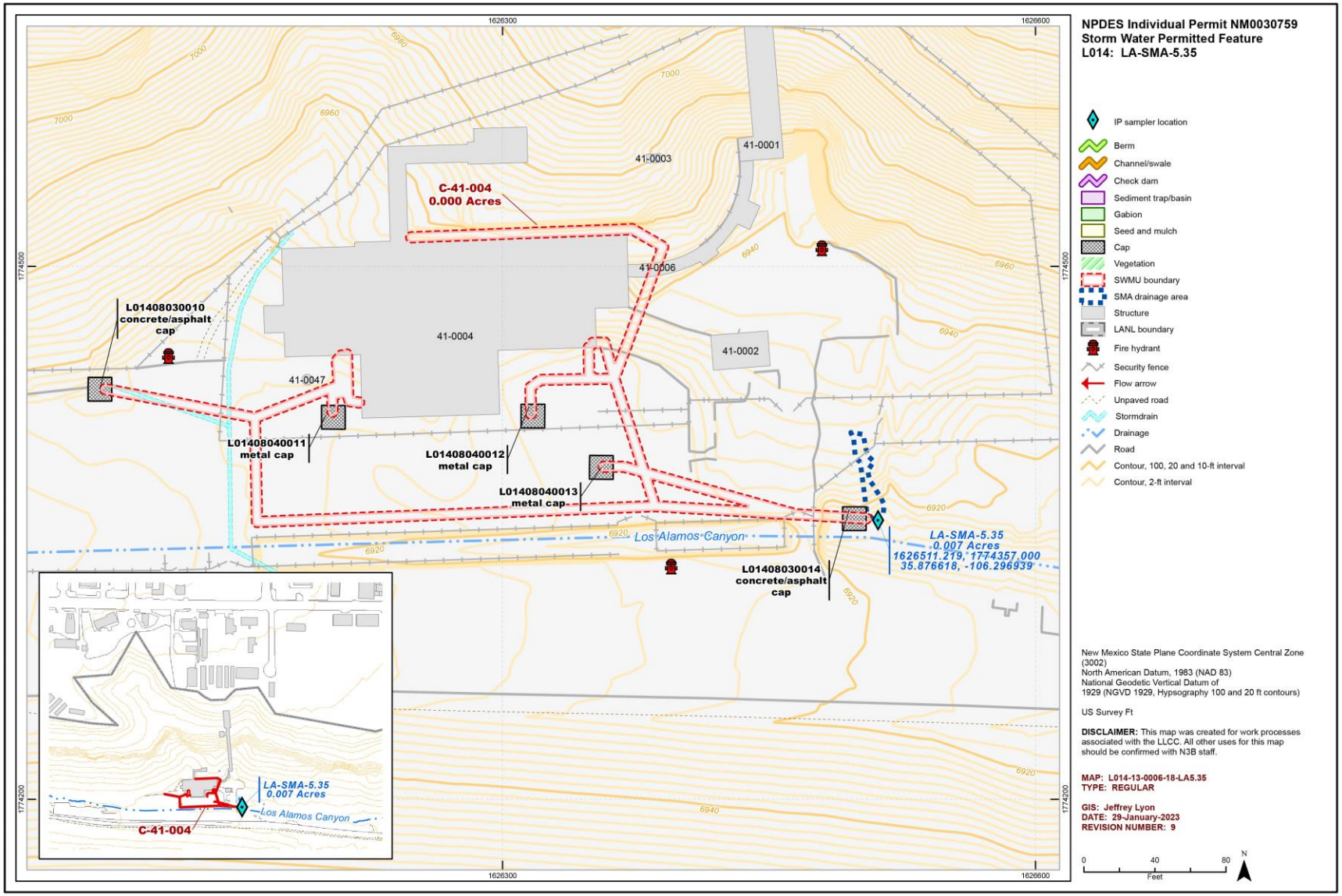

Figure 33-1 LA-SMA-5.35 location map

34.0 LA-SMA-5.361: SWMUs 32-002 (b1) and 32-002(b2)

Two historical industrial activity areas, Sites 32-002(b1) and 32-002(b2), are associated with LA-SMA-5.361 (permitted feature L017). 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.

34.1 Site Descriptions

32-002(b1) (3/28/2022)

Former SWMU 32-002(b) is a septic system that served former buildings 32-1 and 32-2 in former TA-32. It was split into separate new SWMUs 32-002(b1 and b2) in December 2012 to expedite completion of corrective actions on the portion of the site owned by the Los Alamos School Board. SWMU 32-002(b1) is the portion of the former septic system that is located on property currently owned by the Los Alamos School Board, while the remainder of the septic system, SWMU 32-002(b2), is located on property owned by the DOE. The septic system was installed directly northwest and slightly upgradient of the SWMU 32-002(a) septic tank, near the edge of Los Alamos Canyon, when the SWMU 32-002(a) septic system could no longer meet the usage requirement of the laboratory (building 32-1).

The inlet drainline from the SWMU 32-002(a) septic system was diverted to the SWMU 32-002(b) septic system, which also received effluent from building 32-2, the medical research annex. The former septic system consisted of a reinforced concrete tank (former structure 32-8) measuring 9 ft × 5 ft × 6 ft, with an outlet drainline that discharged to an outfall at the edge of Los Alamos Canyon, approximately 15 ft southwest of the SWMU 32-002(a) outfall.

Former building 32-1 operated as a research laboratory from 1944 to 1954. Research activities in former building 32-1 involved radionuclides along with inorganic and organic chemicals. Because no industrial waste line served former TA-32, chemical and radioactive wastes may have been disposed of in sinks and drains connected to the septic system at SWMU 32-002(b1).

TA-32 was decommissioned in 1954. The septic tank was removed in 1988 and disposed of at MDA G at TA-54, and the inlet drainline was removed during a VCA in 1996.

Former TA-32 is located within the Los Alamos townsite. Los Alamos County and the Los Alamos School Board own the mesa-top portion of former TA-32. The area was recently used by Los Alamos County to store equipment and materials for roadwork and maintenance. The County demolished all structures at the site in 2010 and is developing the area for commercial use. This site is currently under an asphalt parking lot.

32-002(b2) (9/28/2021)

Former SWMU 32-002(b), a former septic system located at the edge of Los Alamos Canyon that served former buildings 32-1 and 32-2, was split into two new SWMUs [SWMUs 32-002(b1) and 32-002(b2)] in December 2012 to expedite completion of corrective actions on the mesa-top portion of the site owned by Los Alamos Public Schools. SWMU 32-002(b1) is the portion of the former septic system that is located on property currently owned by Los Alamos Public Schools. The remainder of the septic system is located on property owned by DOE and is designated as SWMU 32-002(b2).

SWMU 32-002(b2) includes the section of a former septic system, located at the edge of Los Alamos Canyon that served former buildings 32-1 and 32-2, consisting of a former inlet pipe, former septic tank 32-8, and the former outlet drainline located on a high-angle slope south of the Smiths Marketplace parking lot on property owned by DOE in former TA-32.

The former SWMU 32-002(b) septic system was installed between 1948 and 1950, directly northwest and slightly upgradient of the SWMU 32-002(a) septic tank, near the edge of Los Alamos Canyon. The SWMU 32-002(b) septic system consisted of a reinforced concrete tank (former structure 32-8) measuring 9 ft × 5 ft × 6 ft, inlet drainlines from former buildings 32-1 and 32-2, and an outlet drainline that discharged to an outfall at the edge of Los Alamos Canyon. This system was installed when the SWMU 32-002(a) septic system could no longer meet the usage requirement of the laboratory in former building 32-1. The influent line from the SWMU 32-002(a) septic system was diverted to the former SWMU 32-002(b) septic system, which also received effluent from former building 32-2, the medical research annex. The outfall of SWMU 32-002(b) was located at the edge of Los Alamos Canyon, approximately 15 ft southwest of the SWMU 32-002(a) outfall. The septic tank was removed in 1988, and the influent drainline was removed in 1996 and disposed of at TA-54, MDA G.

Research activities in former building 32-1 involved radionuclides; inorganic and organic chemicals may also have been used. Because no industrial waste line served former TA-32, it is possible chemical and radioactive wastes may have been disposed of in sinks and drains connected to the former SWMU 32-002(b) septic system.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 34-1.

Table 34-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
32-002(b1)	Septic system	Inorganic and organic chemicals, radionuclides
32-002(b2)	Septic system	Inorganic and organic chemicals, radionuclides

34.2 Control Measures

All active control measures in use at LA-SMA-5.361 are listed in Table 34-2. Their locations are shown on the project map (Figure 34-1) 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 34-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01702040010	Established Vegetation	-	X	X	-	B	4-17-2013
L01703020012	Base Course Berm	X	-	-	X	B	6-10-2015
L01706010009	Rock Check Dam	-	X	-	X	B	7-1-2011
L01708020013	Rock Cap	-	-	X	-	B	6-10-2015

34.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.361 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 34-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 34-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93063[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-5-2022	10 8 4	Yes Yes Yes
BMP-94035	7-14-2022	0.3	7-20-2022	6	Yes
BMP-94207[b]	7-20-2022 7-27-2022	0.29 0.97	7-27-2022	7 0[c]	Yes Yes
BMP-95591	8-23-2022	0.67	8-31-2022	8	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 Date after 30 min max intensity was recorded.

34.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 7, 2019. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (325 pCi/L), and selenium (9.03 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was not conducted at LA-SMA-5.361 in 2022 under the 2010 IP requirements.

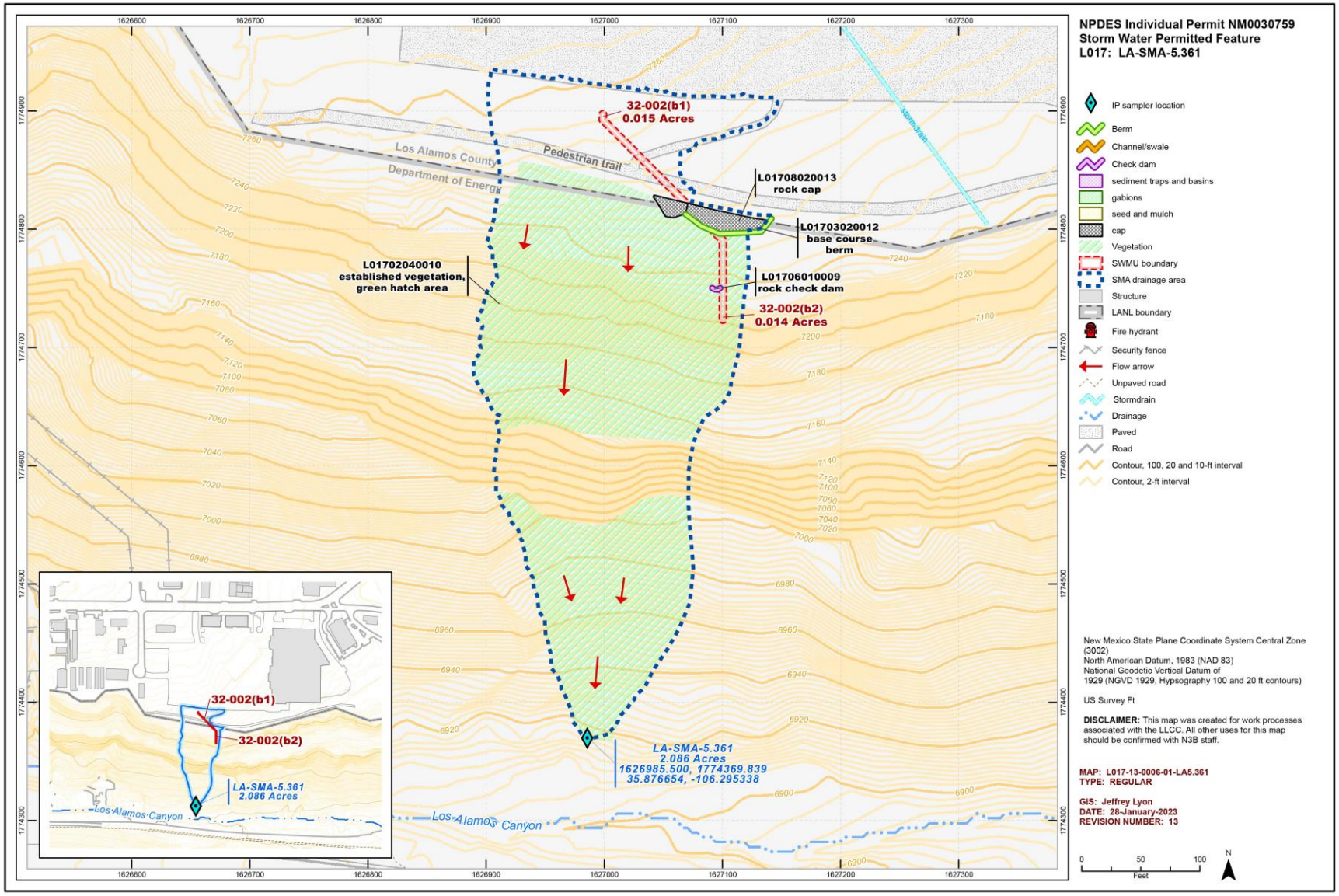

Figure 34-1 LA-SMA-5.361 location map

35.0 LA-SMA-5.362: AOC 32-003

One historical industrial activity area, Site 32-003, is associated with LA-SMA-5.362 (permitted feature L017A). 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.

35.1 Site Descriptions

32-003 (3/28/2022)

AOC 32-003 is the location of a former transformer station (former structure 32-10), which consisted of three transformers, suspended approximately 20 ft off the ground on poles, on a wooden platform at former TA-32. AOC 32-003 was discovered northwest of the former SWMU 32-002(b) septic tank and directly south of former building 32-1 during the 1993 Phase I RFI at former TA-32. The pile of wood debris at this location was initially thought to be the location of the SWMU 32-002(a) wood-frame septic tank, but was determined to be from the wooden transformer platform. Contaminated soil was excavated during a 1996 VCA and the Site was backfilled with clean soil.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 35-1.

Table 35-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
32-003	Transformer site (former location)	PCBs

35.2 Control Measures

All active control measures in use at LA-SMA-5.362 are listed in Table 35-2. Their locations are shown on the project map (Figure 35-1) 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 35-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L017A02040010	Established Vegetation	-	X	X	-	B	4-17-2013
L017A03020012	Base Course Berm	X	-	-	X	B	6-10-2015
L017A03100014	Gravel Bags	-	X	-	X	B	11-20-2018
L017A06010006	Rock Check Dam	-	X	-	X	CB	6-1-2010
L017A08020013	Rock Cap	-	-	X	-	B	6-10-2015

35.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.362 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 35-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 35-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93067[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-5-2022	10 8 4	Yes Yes Yes
BMP-94038	7-14-2022	0.3	7-20-2022	6	Yes
BMP-94210[b]	7-20-2022 7-27-2022	0.29 0.97	7-27-2022	7 0[c]	Yes Yes
BMP-95592	8-23-2022	0.67	8-31-2022	8	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 Date after 30 min max intensity was recorded.

35.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-5.362. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-5.362 under the 2010 IP requirements from March 3 through November 10, 2022, resulting in a monitoring season of 253 days. Five inspections were performed during the monitoring period and are summarized in Table 35-4. Rain gage RG038 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 35-4 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-91961	4-18-2022	No	None	None
SMPLR-92049	6-7-2022	No	None	None
SMPLR-92766	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93825	7-27-2022	No	7-14-2022	0.3/0.32
			7-20-2022	0.29/0.32
			7-21-2022	0.07/0.11
			7-24-2022	0.04/0.1
			7-26-2022	0.11/0.39
SMPLR-94799	11-10-2022	No	7-27-2022	0.97/1.16
			7-29-2022	0.08/0.24
			7-30-2022	0.11/0.31
			7-31-2022	0.15/0.4
			8-6-2022	0.12/0.32
			8-11-2022	0.33/0.38
			8-16-2022	0.46/0.78
			8-18-2022	0.07/0.1
			8-19-2022	0.11/0.2
			8-20-2022	0.05/0.31
			8-21-2022	0.09/0.12
			8-23-2022	0.67/0.68
			9-5-2022	0.11/0.11
			9-9-2022	0.12/0.19
			9-22-2022	0.2/0.22
			10-2-2022	0.09/0.36
			10-3-2022	0.13/0.24
			10-4-2022	0.02/0.11
			10-15-2022	0.15/0.86
			10-16-2022	0.05/0.25

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

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

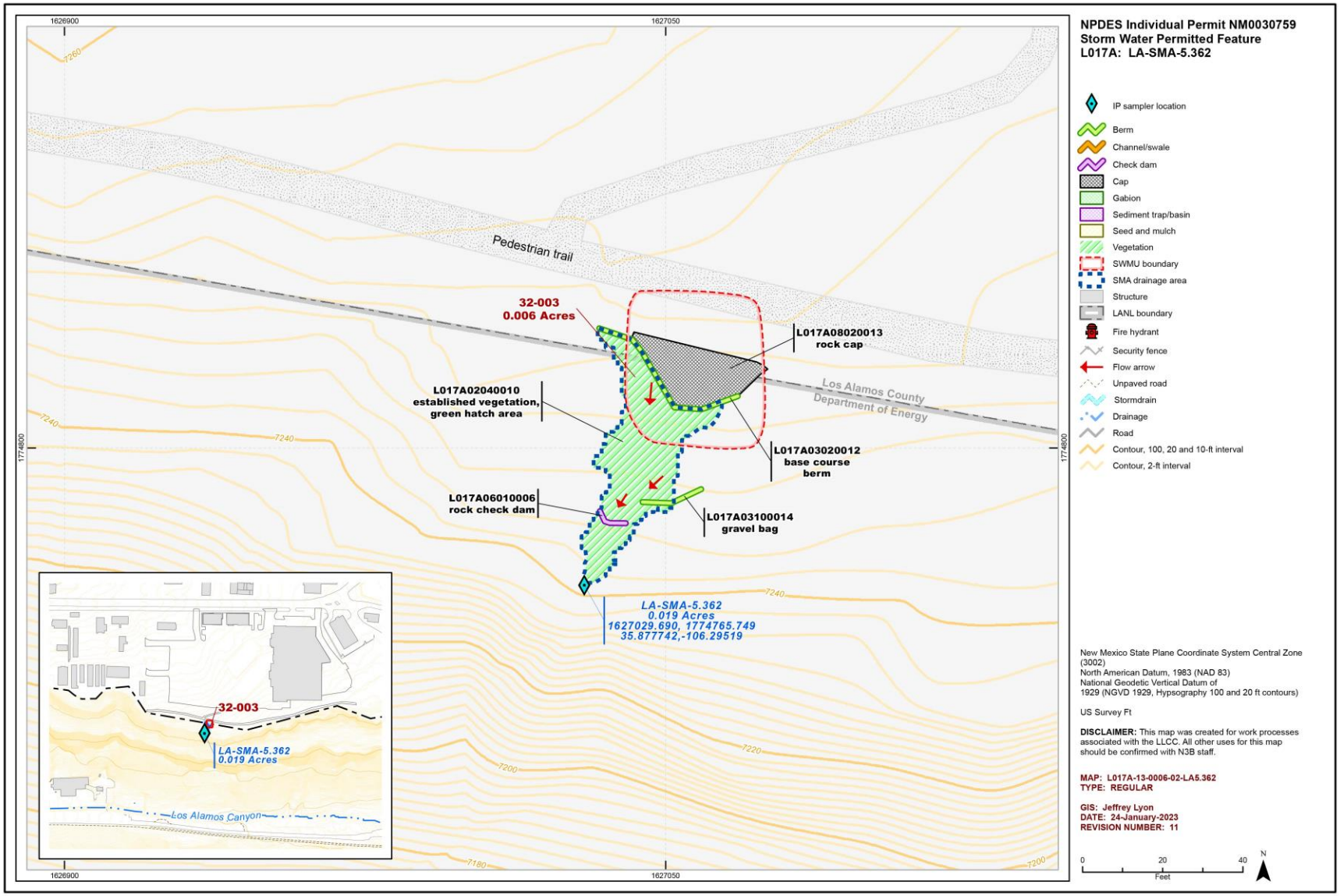

Figure 35-1 LA-SMA-5.362 location map

36.0 LA-SMA-5.51: SWMUs 02-005, 02-006(b), 02-008(a), 02-009(b), and 02-014, and AOCs 02-003(a), 02-003(e), 02-004(a), 02-006(c), 02-006(d), 02-006(e), 02-011(a), 02-011(b), 02-011(c), and 02-011(d)

Fifteen historical industrial activity areas, Sites 02-003(a), 02-003(e), 02-004(a), 02-005, 02-006(b), 02-006(c), 02-006(d), 02-006(e), 02-008(a), 02-009(b), 02-011(a), 02-011(b), 02-011(c), 02-011(d), 02-014, are associated with LA-SMA-5.51 (permitted feature L018). 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.

36.1 Site Descriptions

02-003(a) (9/3/2019)

AOC 02-003(a) was the site of the stack-gas valve house (former structure 02-19) and associated gaseous effluent vent lines (former lines 117, 118, and 119), as shown on engineering drawing C-1718. Line 117 was a 4-in. CI line through which three other lines passed. Line 118 was a smaller diameter stainless-steel line that served a temporary gas vent or sampling line. Line 119 was a 3-in. stainless-steel line which carried gaseous effluent from building 02-19 to the intersection with the Omega West Reactor vent line. This system was associated with the WBR, a homogeneous liquid-fueled reactor at TA-02 which was fueled by an enriched uranyl-salt compound. The stack-gas valve house and gaseous effluent vent lines were installed in 1944 and received off-gas from the WBR. The off-gas contained fission products, including cesium-137, strontium-90, technetium-99, and iodine-131.

The stack-gas valve house was primarily aboveground and was constructed of reinforced concrete, 11 ft x 9 ft x 10 ft high, with 18-in.-thick walls. From 1944 to 1948, gaseous effluent entered the stack-gas valve house from line 117 and was directed via line 118 to the southeast. Line 118 was used as a temporary gas vent until July 1948, when the condensate trap and line 119 [AOC 02-003(b)] became operational. Line 118 was left in place from 1948 until its removal in 1985. Lines 117 and 119, and the stack-gas valve house, remained in use until 1974 when they became inactive. They were removed and disposed of during D&D efforts in 1985 and 1986.

02-003(e) (9/3/2019)

AOC 02-003(e) is the former location of an Alloy 800-L holding tank (former structure 02-62) that was located near the former WBR at TA-02. The tank was installed in approximately 1944, adjacent to the stack-gas valve house (former structure 02-19), to collect reactor cooling water in the event of a cooling-coil breach.

The tank was housed in a 6 ft × 4 ft × 3 ft wooden shed and was operational until approximately 1974, when the WBR was placed in safe-shutdown mode. The holding tank was removed and disposed of during D&D activities in 1985 and 1986. During D&D, the tank reportedly showed no sign of having been used. However, reports of a "surge tank" overflowing indicate that an original tank may have been used and replaced during its active life.

02-004(a) (9/3/2019)

AOC 02-004(a) is the former OWR facility (building 02-01), and comprises the former OWR fuel handling area, cooling-liquid recirculating piping, gaseous effluent vent lines, the OWR material storage area, and the WBR at TA-02. The description of AOC 02-004(a) is divided into the following four areas: OWR, Fuel-Handling Area, Cooling-Liquid Recirculating Piping, and Gaseous Effluent Vent Line.

A 25-kilowatt fast-neutron research reactor, Clementine, was formerly located in the western third of building 02-01. The reactor was self-contained and operated from 1946 to 1953. Clementine was the precursor to the OWR and was dismantled in 1954. The OWR was built above the former Clementine Site in the western third of building 02-01. The OWR was an 8-megawatt water-cooled tank-type research reactor fueled by enriched solid uranium. It was put online in 1956 and operated until it was put on standby status in 1993. The reactor remained inactive until it was decommissioned, removed, and disposed of in 2003.

The OWR fuel-handing area consisted of a fuel pit and a closed recirculating system that serviced only the fuel pit. It was located adjacent to the OWR and was used for temporary storage of fuel rods before they were recycled.

The OWR operated with a cooling-liquid recirculating system that consisted of a series of closed-loop pipes in a 100-ft-long corridor that extended from the OWR west to the reactor facility equipment building [building 02-44, AOC 02-004(f)]. The water was routed through pumps, filters, and chillers in the reactor facility equipment building and returned to the reactor. The cooling tower (structure 02-49) was added in 1959 to supplement the building 02-44 chillers in this closed system. The recirculating system was active from 1956 to 1993, when it was put on standby status during the OWR shutdown.

Off-gas from the OWR was routed through the gaseous effluent vent line to a connection into line 119 on the east side of TA-02, where the effluent continued up to the mesa-top stack [structure 02-09, SWMU 02-006(a)]. The gaseous effluent vent line teed off from the piping corridor between the OWR and OWR equipment building (02-44), as shown on engineering drawing C-10473.

OWR Material Storage Area

Operation of the OWR included the temporary storage of material (isotope columns, through-put port metal sleeves, etc.) that became activated during contact in the reactor neutron flux field. The material was stored in a structure adjacent to the guard quarters (building 02-04), located south of the reactor, to await final disposition. The material storage structure was present in as-built engineering drawing R-391 in 1958 and was removed in 2000.

WBR

WBR was the name collectively used to describe a series of three small research reactors (LOPO, HYPO, and SUPO), each progressively stronger in power output, located in the eastern third of the OWR building (02-01). The reactors each consisted generally of a 1-ft-diameter sphere filled with liquid fuel, and each was surrounded with neutron-reflecting blocks on a graphite base. The LOPO reactor became functional in May 1944, and was dismantled, removed, and disposed of in September 1944. The HYPO reactor became operational in December 1944 and was later upgraded to SUPO, which became operational in 1951. The SUPO was decommissioned, removed, and disposed of in 1990.

The reactors were surrounded by a 15-ft × 15-ft × 11-ft concrete biological shield. A shallow sand pit and a utility trench beneath the reactor sphere were used to collect liquids and gases from the reactor and transport them to support structures on the east side of building 02-001. Six external concrete structures and 435 ft of contaminated underground piping associated with the gaseous effluent vent

line system were dismantled, removed, and disposed of in 1986. Cesium-137 contamination was found in the OWR building (02-01) near the sand pit and the utility trench during D&D activities. The soil was removed and disposed of during D&D activities.

At peak operation, the WBR generated approximately 0.25 L/min of excess gas containing some fission products. These gases were managed through the WBR gaseous effluent vent line system. Some radionuclides may have been deposited on the ground surface as gaseous effluent drifted from this system, and condensate from the gaseous effluent may have leaked from portions of the vent line system. These releases are identified as AOCs 02-003(a, b, c, and d).

The OWR experienced a cooling system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003.

02-005 (9/3/2019)

SWMU 02-005 consists of an area of potential soil contamination from airborne drift of potassium dichromate that was used to inhibit corrosion in the OWR cooling tower (former structure 02-49) at TA-02. SWMU 02-005 is located north and upgradient of all the former TA-02 structures. The cooling tower was installed and became operational in 1957. It was constructed with aluminum heat exchangers prone to corrosion, so potassium dichromate was added to the make-up water as a corrosion inhibitor. Stainless-steel heat exchangers were installed in 1975 to eliminate the use of potassium dichromate.

The cooling tower operated until the OWR was shut down in 1993; the cooling tower was decommissioned in 1995. In 2000, the cooling tower structure and equipment were removed and disposed of at TA-54. The remaining buried drainlines and drains were removed and disposed of at TA-54 or Envirocare in 2003.

02-006(b) (9/3/2019)

SWMU 02-006(b) was an acid-waste line that carried effluent from several laboratories in the center of the former OWR building (former building 02-01) south to an outfall in Los Alamos Creek at TA-02. Construction of the OWR building and associated laboratory rooms, sinks, and the acid-waste line [SWMU 02-006(b)] was completed in 1946 and became operational in 1956. The acid-waste line was a 95-ft long, 4-in. diameter Duriron pipe with Oakum fittings and lead joints. The outfall in Los Alamos Creek was covered with a 0.25-in. × 0.25-in. mesh rodent screen as shown in Engineering Drawings 4-C-701 and C-1750. The acid-waste line was reportedly taken out of service in the 1960s; however, there is no record of its removal at that time. The SWMU 02-006(b) waste line and all connecting lines were removed and disposed of during D&D activities in 2003.

A 1990 Environmental Safety and Health Division memorandum indicates that the OWR acid-waste line was proposed to be connected to the new RLW line that would connect the drains from south side of the OWR directly to the acid pit/transfer pump [former structure 02-53, AOC 02-004(e)] for transfer to the TA-50 RLWTF for treatment. There is no documentation confirming that this was done.

02-006(c) (9/3/2019)

AOC 02-006(c) was a sanitary sewer line that served office areas in the OWR building (former building 02-01) to the septic tank (structure 02-43, SWMU 02-007 at TA-02. The 1990 SWMU Report identified AOC 02-006(c) as a drainline that was connected to the chemical room in the OWR building (former building 02-01) and several OWR laboratories. This was incorrect; closer review of the available engineering drawings, including C-1703 and C-1750, showed that AOC 02-006(c) was the sanitary sewer line that served the office or central portion of the OWR building, 02-01 to the septic tank

(structure 02-43, SWMU 02-007 at TA-02. This drainline was separate from the OWR acid-waste line [SWMU 02-006(b)] that connected to the OWR laboratories.

The AOC 02-006(c) sanitary sewer line was a 6-in. clay drainline that received discharges from the evaporative cooler and drinking fountain associated with the control room, restrooms, office areas, and groundwater seepage from a sump in the building 02-01 basement, and discharged to the AOC 02-007 septic system west of the OWR building. In the mid-1970s, sanitary discharges associated with AOC 02-006(c) were tied into the TA-41 WWTP west of TA-02; however, the drainline continued to discharge groundwater seepage from the OWR building basement to the AOC 02-007 septic system.

During the Phase I D&D activities conducted at TA-02 in 1985 and 1986, the 6-in. clay drainline [AOC 02-006(c)] was disconnected from septic tank 02-43 (AOC 02-007) as the tank was being removed. The AOC 02-006(c) drainline was tied into a new 6-in. PVC outlet drainline and continued to discharge seepage from the OWR building basement to a new outfall into the Los Alamos Creek [AOC 02-008(c)(i)].

The OWR experienced a cooling-system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003. The AOC 02-006(c) sewer line was removed and disposed of during D&D activities in 2003.

02-006(d) (4/12/2017)

AOC 02-006(d) is a duplicate of 02-006(c).

02-006(e) (9/3/2019)

AOC 02-006(e) was a sump (former structure 02-26) and outlet drainline that received effluent from the OWR building (former building 02-01) reactor room floor drains and mezzanine and discharged to an outfall Los Alamos Creek at TA-02. The AOC 02-006(e) drainline became operational in 1944. A second collection sump (former structure 02-82) was added to the AOC 02-006(e) drainline in 1990, as shown on engineering drawing C-45924. A drainline from the structure 02-82 sump was connected directly to the AOC 02-004(e) acid pit/transfer sump (former structure 02-53), possibly replacing the AOC 02-006(e) direct discharge to Los Alamos Creek. The AOC 02-006(e) drainlines and sumps were located south of the OWR building, in close proximity to the AOC 02-011(a)(vii) drainline and outfall.

The OWR experienced a cooling-system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003. The original sump (former structure 02-26) and the original drainline remained in place until they were removed and disposed of during D&D activities in 2003. The second sump (former structure 02-82) and the drainline to former structure 02-53 [AOC 02-004(e)] were also removed during D&D activities in 2003.

02-008(a) (9/3/2019)

SWMU 02-008(a) is a former NPDES-permitted outfall (EPA 03A020) and associated drainline that discharged cooling water blowdown from the OWR cooling tower (structure 02-49) to an outfall [AOC 02-011(e)] in Los Alamos Creek at TA-02. Equipment building 02-44, which became operational in 1954, had floor drains that discharged to Los Alamos Creek through the SWMU 02-008(a) outfall. Modifications to the OWR cooling water system, with the addition of the cooling tower (former structure 02-49), were made in 1957, as shown on engineering drawing C-21327. The drain from the OWR equipment building was connected to the cooling tower outfall in 1959, as shown on engineering drawing C-48768. The outfalls in Los Alamos Creek were physically the same [location of SWMU 02-008(a)]. The cooling tower facility began use of potassium dichromate to control corrosion of aluminum heat exchangers in 1959. The aluminum heat exchangers were replaced by stainless-steel exchangers in 1975, eliminating the use of potassium dichromate. The shutdown of the OWR in 1993

placed the cooling tower on standby status; in 1995, all liquid waste was drained from the system. In 2000, the cooling tower structure and equipment were decommissioned and removed. In 2003, the remaining buried pipes and drains were removed. The outfall (EPA 03A020) was removed from the LANL NPDES permit in July 1990.

02-009(b) (9/3/2019)

SWMU 02-009(b) is an area of radioactively-contaminated soil (beta/gamma radiation) located north of the former stack-gas valve house (structure 02-19) and the east bridge at TA-02. SWMU 02-009(b) was identified during radiological surveys conducted across the area during the 1985–1986 D&D of the WBR and associated facilities. Detectable beta/gamma radioactivity was identified in the area used for truck staging during the D&D activities and within a fenced area north of former building 02-19.

02-011(a) (9/3/2019)

AOC 02-011(a) consists of 11 inactive drains, drainline segments, and associated former outfalls at TA-02. These drains and drainlines discharged either directly or indirectly to Los Alamos Creek, and were associated with former building 02-01, the former OWR facility. AOC 02-011(a) consists of the following subunits:

i. An approximately 50-ft-long concrete storm drain (also described as a concrete flume), located northwest of the former OWR (building 02-01), that drained into a drop inlet/catch basin (structure 02-36), as shown on engineering drawing R-5102, sheet 2 of 2. There is no information indicating that the drain handled anything but stormwater.

ii. A 24-in.-diameter, 8-ft-long underground CMP between catch basin 02-36 and catch basin 02-27. There is no information that this drain line handled anything but stormwater.

iii. An 85-ft-long concrete storm drain (e.g., concrete flume), located northwest of the former OWR (building 02-01), that drains into catch basin 02-27. The drain was reportedly used periodically for discharge of water from the fuel transfer pit. Contaminated aluminum shards were commonly discharged with the water and settled into the drain. The storm drain was reportedly cleaned out in 1970.

iv. A 15-in.-diameter, 15-ft-long concrete storm drain west of the former OWR (building 02-01) that drains into catch basin 02-28 (surface inlet). There is no information that the drain handled anything but stormwater.

v. A 24-in.-diameter, 30-ft-long concrete storm drain between catch basins 02-27 and 02-28. This drain may have handled the fuel transfer pit water coming from the concrete flume, with associated contaminated aluminum shards.

vi. A 30-in.-diameter, 75-ft-long CMP between a catch basin (structure 02-28) and Los Alamos Creek. This drainline may have handled the fuel transfer pit water coming from the concrete flume, with associated contaminated aluminum shards.

vii. AOC 02-011(a)(vii), a 6-in.-diameter, 18-ft-long pipe between the OWR building and the salvage basin (structure 02-026) and Los Alamos Creek, is a duplicate of AOC 02-006(e), as noted in the 1990 SWMU report.

viii. An 18-in.-diameter, 75-ft-long CMP between the former OWR (building 02-01) catch basin (unnumbered structure within building 02-01) and Los Alamos Creek. There is no information that this drainline handled anything but stormwater runoff. The AOC 02-011(a)(viii) storm drain was removed in 2003.

ix. A 3-in.-diameter, 75-ft-long drainline between the former OWR (building 02-01) and the outfall to Los Alamos Creek. Wastewater system design memoranda indicate that floor drains from the eastern side of the WBR area drained to this outfall before 1990. The AOC 02-011(a)(ix) drainline was removed in 2003.

x. A 12-in.-diameter, 30-ft-long concrete storm drain located northeast of the former OWR (building 02-01) that discharged to Los Alamos Creek through a series of concrete ditches and a CMP along the east side of the former OWR building. The total length of the drain and ditches to Los Alamos Creek is approximately 130 ft. There is no information that this rain handled anything but stormwater. The AOC 02-011(a)(x) storm drains and concrete ditches were removed in 2003

xi. AOC 02-011(a)(xi), a 4-in.-diameter, 95-ft-long drainline between the former OWR (building 02-01) and Los Alamos Creek, is a duplicate of the OWR acid-waste line [SWMU 02-006(b)].

The AOC 02-011(a) drains and drainlines date from approximately the time of construction of the reactor building in 1944. Drains and drainlines from operational areas of the facility may have received effluent until the 2003 decontamination and decommissioning (D&D) of the OWR facility; however, the reactor was inactive from 1993 to 2003. The AOC 02-011(a)(viii) drainline, (ix) drainline, and (x) storm drain were removed during 2003 D&D activities; the remaining storm drains, drainlines, or some portion of them, remain in place.

02-011(b) (9/3/2019)

AOC 02-011(b) consists of two drains, drainlines, and associated outfalls associated with the former stack-gas valve house [former structure 02-19 (AOC 02-003(a)] at TA-02. One drainline was a 9-ft-long × 15-in.-diameter CMP between the stack-gas valve house and the catch basin (structure 02-35). The other drainline was a 9-ft-long × 24-in.-diameter CMP that drained from the catch basin (structure 02-35) to Los Alamos Creek outside the east fence around the former facility. The drains, drainlines, and associated outfalls were presumably installed in 1944 when the stack-gas valve house [AOC 02-003(a)] was constructed. The stack-gas valve house operated through 1974 when it was deactivated; the structure was subsequently removed during 1985 D&D activities. The actual purpose of the drainlines and catch basin is not documented; however, there is no information to indicate these drains and drainlines handled anything but stormwater. The drains and drainlines were removed in 2003.

02-011(c) (9/3/2019)

AOC 02-011(c) consists of two drains, drainlines, and associated outfalls associated with the former stack-gas valve house [former structure 02-19 (AOC 02-003(a)] at TA-02. One drainline was a 9-ft-long × 15-in.-diameter CMP between the stack-gas valve house and the catch basin (structure 02-35). The second drain line was a 9-ft-long × 24-in.-diameter CMP that drained from the catch basin (structure 02-35) to Los Alamos Creek outside the east fence around the former facility. The drains, drainlines, and associated outfalls were presumably installed in 1944 when the stack-gas valve house [AOC 02-003(a)] was constructed. The stack-gas valve house operated through 1974 when it was deactivated; the structure was subsequently removed during 1985 D&D activities. The actual purpose of the drainlines and catch basin is not documented; however, there is no information to indicate these drains and drainlines handled anything but stormwater. The drains and drainlines were removed in 2003.

02-011(d) (9/3/2019)

AOC 02-011(d) is a former NPDES-permitted outfall and associated drainline that discharged effluent from the former OWR equipment building [former building 02-44, AOC 02-004(f)] to Los Alamos Creek at TA-02. The discharge consisted primarily of regenerate water from the ion-exchange system. The outfall

drainline ran from the equipment building south-southwest, past the west side of the cooling tower (former structure 02-49), to Los Alamos Creek. The outfall at AOC 02-011(d) became operational in 1949. The AOC 02-011(d) drainline was rerouted to discharge through the former OWR RLW storage tanks 02-53, 02-54, and 02-55 [AOCs 02-004(b,c,d)], which discharged to the liquid acid-waste line tied to the TA-50 RLWTF, beginning in 1963. The outfall was removed from the NPDES permit in 1995. The drainline was removed and disposed of offsite during the 2003 Omega West decommissioning project.

02-014 (6/3/2021)

SWMU 02-014 consists of three former electrical transformer stations (former structures 02-31, 02-45, and 02-51) that served buildings in TA-02. This Site was not identified as a SWMU or AOC in the 1990 SWMU Report, but was identified during efforts to discover the source of PCB contamination detected during Phase II Consent Order investigation sampling at AOC 02-011(a)(ii), a former storm drain. Notification of a Newly Discovered Solid Waste Management Unit was submitted to the NMED on April 26, 2018. Historical records, including engineering drawings and photographs, were reviewed, and three potential sources of PCBs were identified.

- Former structure 02-31 was an electrical transformer station located 40 ft behind former building 02-01. The transformer station was built in 1944 and removed in 1950.
- Former structure 02-45 was built in 1954 to serve former building 02-44, and consisted of three transformers approximately 14 ft above the ground, mounted across two telephone poles. The transformer station was replaced with another transformer station (former structure 02-51) in 1961.
- Former structure 02-51 was an electrical transformer station, located approximately 20 ft southwest of former structure 02-31 and 20 ft southeast of former structure 02-45. Historical records indicated that PCB-containing transformer oil was used in equipment at this former transformer station. Structure 02-51 was constructed in 1961 and demolished in 2003.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 36-1.

Table 36-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
02-003(a)	Valve house and gaseous effluent vent lines	Cesium-137, strontium-90, technetium-99, iodine-131
02-003(e)	Soil contamination associated with former holding tank	Sodium-24, manganese-86
02-004(a)	Omega West Reactor facility	Uranium, plutonium, tritium, mercury, metals, asbestos
02-005	Soil contamination from drift loss, cooling tower blowdown	Hexavalent chromium
02-006(b)	Former acid waste line	Radionuclides, inorganic and organic chemicals
02-006(c)	Drainline	Inorganic and organic chemicals
02-006(d)	Sanitary wastewater	Inorganic and organic chemicals
02-006(e)	Former sump	Radionuclides
02-008(a)	Former permitted outfall from structure 02-49	Hexavalent chromium, arsenic, aluminum

Site	Potential POC Source	Potential POCs
02-009(b)	Non-intentional release	Radionuclides
02-011(a)	Storm drain and outfall	Radionuclides, aluminum
02-011(b)	Former drains and associated potential soil contamination	No known POCs
02-011(c)	Former storm drain	No known POCs
02-011(d)	Outfall from building 02-44	Activation products (antimony-124, chromium-51, cobalt-60, manganese-56, sodium-24, zinc-65)
02-014	Former transformer stations	PCBs

36.2 Control Measures

All active control measures in use at LA-SMA-5.51 are listed in Table 36-2. Their locations are shown on the project map (Figure 36-1) 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 36-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01802040009	Established Vegetation	-	X	X	-	B	4-11-2013
L01803010010	Earthen Berm	-	X	-	X	EC	6-16-2014
L01803010011	Earthen Berm	-	X	-	X	EC	6-16-2014
L01803010012	Earthen Berm	-	X	-	X	EC	6-16-2014
L01807010003	Gabions	-	X	X	-	CB	4-1-2008

36.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SM-5.51 during the 2022 season, requiring six post-storm inspections, which are summarized in Table 36-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 36-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93058[a,b]	6-25-2022 6-27-2022	0.3 0.41	6-30-2022	5 3	Yes Yes
BMP-93354	7-1-2022	0.42	7-12-2022	11	Yes
BMP-93645	7-14-2022	0.3	7-19-2022	5	Yes
BMP-94030	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94203	7-27-2022	0.97	8-4-2022	8	Yes
BMP-94551	8-23-2022	0.67	8-30-2022	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.

36.4 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 (92.3 pCi/L), mercury (2.39 µg/L), and PCB concentration (59 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 LA-SMA-5.51 under the 2010 IP requirements from March 21 through November 3, 2022, resulting in a monitoring season of 228 days. Eight inspections were performed during the monitoring period and are summarized in Table 36-4. Rain gage RG038 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 36-4 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-91634	4-13-2022	No	None	None
SMPLR-91994	5-27-2022	No	None	None
SMPLR-92607	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93817	7-27-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39

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-94789	9-6-2022	No	7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022	0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11
SMPLR-95796	9-26-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96111	10-19-202	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96407	11-3-2022	No	None	None

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

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

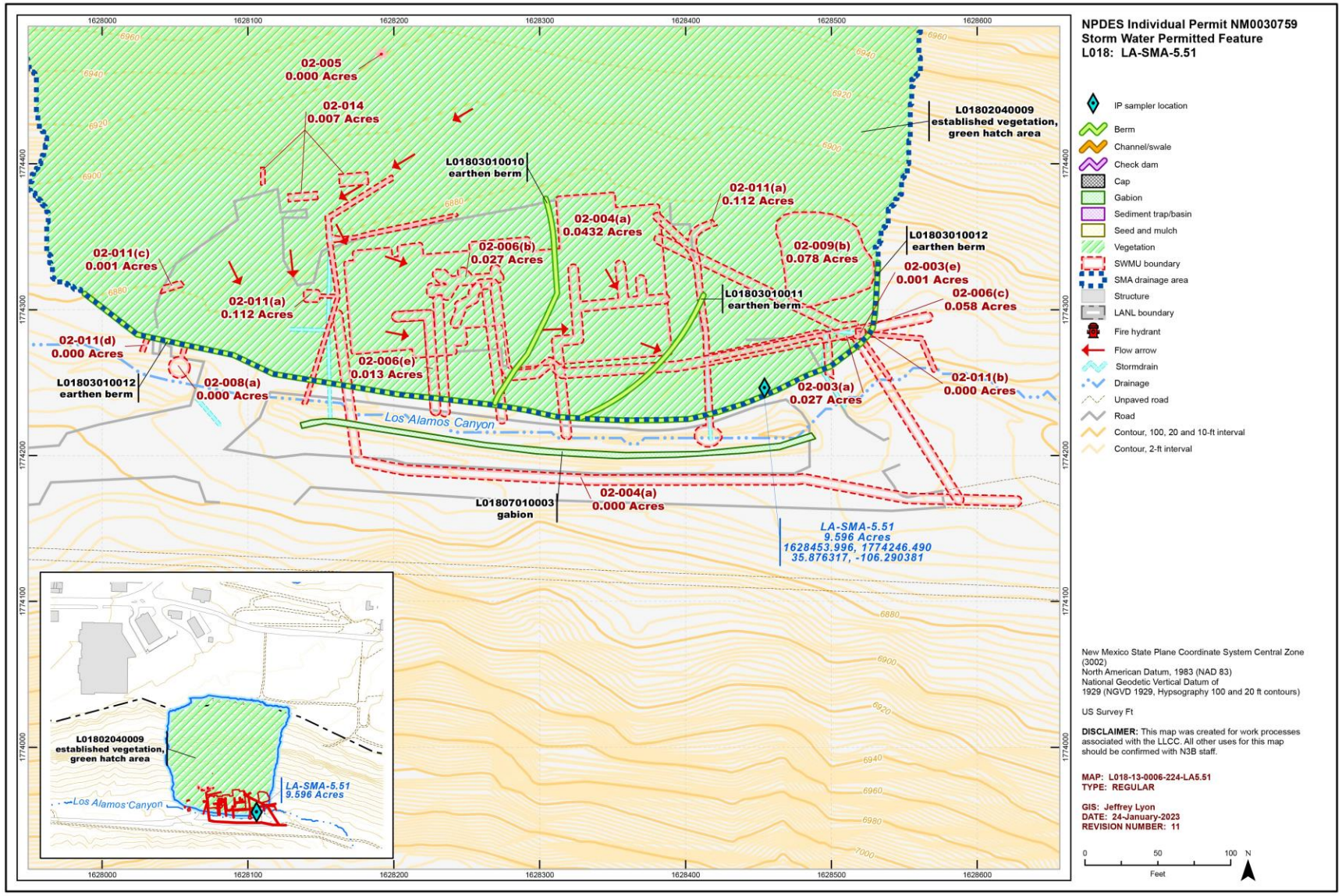

Figure 36-1 LA-SMA-5.51 location map

37.0 LA-SMA-5.52: SWMU 02-007 and AOCs 02-003(b) and 02-008(c)

Three historical industrial activity areas, Sites 02-003(b), 02-007, and 02-008(c), are associated with LA-SMA-5.52 (permitted feature L018A). 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.

37.1 Site Descriptions

02-003(b) (9/3/2019)

AOC 02-003(b) consists of the former condensate trap (structure 02-048) and an associated stainless-steel gaseous effluent vent line (line 119) that were part of the off-gas system for the WBR, a homogeneous liquid-fueled reactor fueled by an enriched uranyl-salt compound, at TA-02. The WBR off-gas system consisted of the stack-gas valve house (former structure 02-19), the condensate trap, a mesa-top vent stack located above TA-02 at TA-61, and associated stainless-steel gaseous effluent vent lines.

The condensate trap was a concrete-manhole superstructure and a small-diameter standpipe. It was located at the lowest point of line 119, between the stack-gas valve house [structure 02-19, AOC 02-003(a)] and the delay tanks [structure 02-131, AOC 02-003(c)], as shown on engineering drawing C-1718. Line 119 consisted of an approximately 78-ft-long 3-in. stainless steel line that ran east-west from the stack-gas valve house (structure 02-19) to the condensate trap, and another 205-ft-long section of 3-in. stainless-steel line that ran north-south from the condensate trap to the delay tanks.

Line 119 continued from the delay tanks to the junction with the main OWR gaseous effluent vent line and up to the mesa-top stack (structure 02-09) and French drain [SWMU 02-006(a)] located at TA-61. The upper portion of the gaseous effluent vent line (line 119) from the delay tanks to the mesa-top stack is addressed as AOC 02-003(d).

The stack-gas valve house and gaseous effluent vent lines were installed in 1944 and received off-gas from the WBR. The off-gas contained gaseous fission products, including cesium-137, strontium-90, technetium-99, and iodine-131.

The condensate trap and line 119 from the stack-gas valve house (structure 02-19) to the delay tanks remained in use through 1974. The units were inactive from 1974 to 1985, and were removed and disposed of during D&D efforts in 1985 and 1986.

02-007 (9/3/2019)

SWMU 02-007 is a former septic system that received effluent from drains in the OWR facility (former building 02-01) at TA-02. The septic system consisted of a septic tank (former structure 02-43), an inlet drainline, an overflow outlet drainline, a leach field [SWMU 02-009(c)], and an outfall in Los Alamos Creek. The septic tank (former structure 02-43) was constructed of reinforced concrete and measured 13 ft long × 8 ft wide × 6 ft deep. The SWMU 02-007 septic system was installed in 1944 and removed in 1985.

Overflow from the tank discharged to the stream channel through a 6-in.-diameter VCP. The actual outfall location is not known. Laboratory wastes were discharged to the septic system. In 1947, the chemical waste shack [former building 02-03, AOC 02-010] was connected to the septic system, and

remained connected until the structure was decommissioned in 1971. The septic tank, overflow outfall, and surrounding soils were removed and disposed of in 1986.

02-008(c) (9/3/2019)

AOC 02-008(c) consists of two former unpermitted outfalls and associated drainlines [AOC 02-008(c)(i) and AOC 02-008(c)(ii)] that received discharges of ground water seepage from the basement of the OWR building (former building 02-01) at TA-02.

During the Phase I D&D activities conducted at TA-02 in 1985 and 1986, the 6-in. clay drainline [AOC 02-006(c)] was disconnected from septic tank 02-43 (AOC 02-007) as the tank was being removed. The AOC 02-006(c) drainline was tied into a new 6-in. PVC outlet drainline, and continued to discharge groundwater seepage from the OWR building basement to a new outfall to the Los Alamos Creek [AOC 02-008(c)(i)].

In 1988, the AOC 02-008(c)(i) outfall drainline became plugged and was abandoned in place. A second drainline was installed to discharge groundwater seepage from the basement sump of the OWR building (02-01) to Los Alamos Creek; the AOC 02-008(c)(ii) outfall located 100 ft west of the AOC 02-008(c)(i) outfall.

The OWR experienced a cooling system water leak in January 1993. As a result, the reactor was put on standby status in 1993 and remained inactive until it was decommissioned in 2003. Both AOC 02-008(c) drainlines were removed in 2003 during D&D activities implemented at the Site.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 37-1.

Table 37-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
02-003(b)	Gaseous effluent condensate	Fission products, cesium-137, strontium-90, technetium-99, iodine-131
02-007	Septic system	Inorganic and organic chemicals, strontium-90, cesium-137, uranium
02-008(c)	Outfall from building 02-1	Chromium, mercury, uranium, plutonium, fission products

37.2 Active Control Measures

All active control measures in use at LA-SMA-5.52 are listed in Table 37-2. Their locations are shown on the project map (Figure 37-1) 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 37-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L018A01060021	Erosion Control Blanket	-	-	X	-	EC	9-30-2015
L018A02040007	Established Vegetation	-	X	X	-	B	4-11-2013
L018A03010009	Earthen Berm	-	X	-	X	EC	9-30-2015
L018A03140012	Coir Log	X	-	-	X	EC	9-30-2015

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L018A03140014	Coir Log	X	-	-	X	EC	9-30-2015
L018A03140018	Coir Log	X	-	-	X	EC	9-30-2015
L018A03140019	Coir Log	X	-	-	X	EC	9-30-2015
L018A03140022	Coir Log	X	-	-	X	B	9-15-2022
L018A04030008	Rock Channel/Swale	X	-	X	-	B	8-22-2014
L018A06010010	Rock Check Dam	-	X	-	X	EC	9-30-2015
L018A06010020	Rock Check Dam	X	-	-	X	EC	9-30-2015

37.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.52 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 37-3. Maintenance activities conducted at the SMA are summarized in Table 37-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 37-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93059[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-5-2022	10 8 4	Yes Yes Yes
BMP-94031	7-14-2022	0.3	7-19-2022	5	Yes
BMP-94204	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94552	7-27-2022	0.97	8-5-2022	9	Yes
BMP-95588	8-23-2022	0.67	8-30-2022	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.

Table 37-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94552	Removed sediment accumulation from Rock Check Dam L018A06010010 at inspection to increase capacity of control.	8-5-2022	0 days	Maintenance was conducted as soon as practicable.
BMP-95736 (follow up from BMP-93059)	Installed Coir Log L018A03140022 as a replacement for Coir Log L018A03140011.	9-15-2022	72 days	Maintenance was delayed.

37.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 29, 2014. Analytical results from this sample yielded TAL exceedances for aluminum (1070 µg/L), gross-alpha activity (171 pCi/L), mercury (0.994 µg/L), and PCB concentration (307 ng/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 conducted at LA-SMA-5.52 under the 2010 IP requirements from March 21 through November 3, 2022, resulting in a monitoring season of 228 days. Eight inspections were performed during the monitoring period and are summarized in Table 37-5. Rain gage RG038 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 37-5 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-91635	4-13-2022	No	None	None
SMPLR-91995	5-27-2022	No	None	None
SMPLR-92608	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93818	7-27-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39
SMPLR-94790	9-6-2022	No	7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68

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.)
			9-5-2022	0.11/0.11
SMPLR-95797	9-26-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96112	10-19-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96408	11-3-2022	No	None	None

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

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

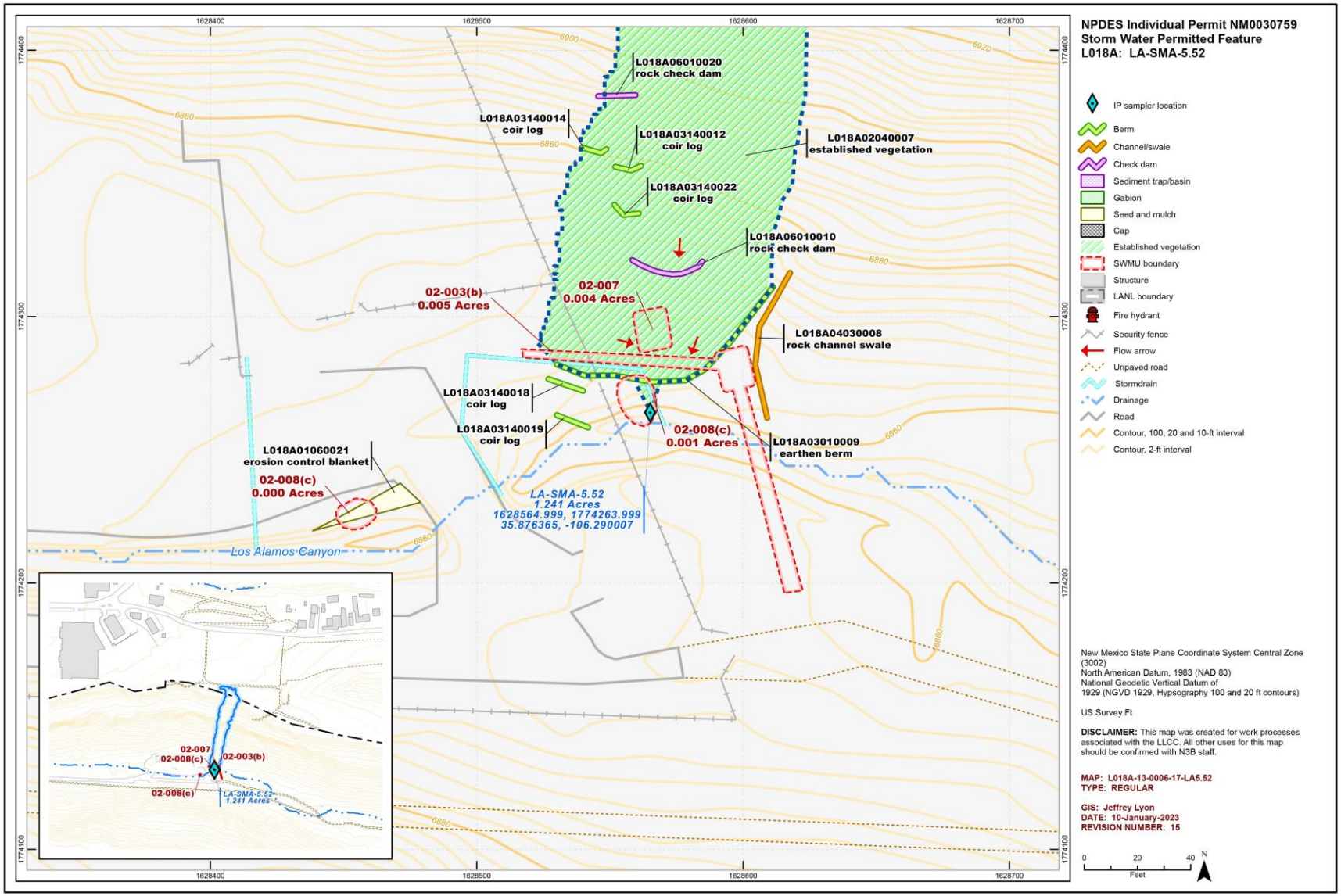

Figure 37-1 LA-SMA-5.52 location map

38.0 LA-SMA-5.53: SWMU 02-009(a)

One historical industrial activity area, Site 02-009(a), is associated with LA-SMA-5.53 (permitted feature L018B). 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.

38.1 Site Descriptions

02-009(a) (9/3/2019)

SWMU 02-009(a) consists of an area of radioactively-contaminated soil (beta/gamma radiation), located around a boulder south of the southeast fence corner, east of the former Omega-50 storage building (former building 02-50) at TA-02. SWMU 02-009(a) was identified during radiological surveys conducted during the 1985–1986 D&D of the WBR and associated facilities. No other information regarding the origin of contamination at this SWMU is available. A limited amount of contaminated soil was removed from the Site in 1986, and the remaining contaminated soil was removed in 2000.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 38-1.

Table 38-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
02-009(a)	Soil contamination associated with former water boiler reactor	Radionuclides

38.2 Control Measures

All active control measures in use at LA-SMA-5.53 are listed in Table 38-2. Their locations are shown on the project map (Figure 38-1) 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 38-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L018B02040007	Established Vegetation	-	X	X	-	B	4-11-2013
L018B03010002	Earthen Berm	-	X	-	X	CB	2-24-2011

38.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.53 during the 2022 season, requiring six post-storm inspections, which are summarized in Table 38-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 38-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93060[a,b]	6-25-2022 6-27-2022	0.3 0.41	6-30-2022	5 3	Yes Yes
BMP-93647	7-1-2022	0.42	7-12-2022	11	Yes
BMP-94032	7-14-2022	0.3	7-19-2022	5	Yes
BMP-94205	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94553	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95589	8-23-2022	0.67	8-30-2022	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.

38.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-5.53. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-5.53 under the 2010 IP requirements from March 21 through October 28, 2022, resulting in a monitoring season of 222 days. Seven inspections were performed during the monitoring period and are summarized in Table 38-4. Rain gage RG038 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 38-4 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-91636	4-13-2022	No	None	None
SMPLR-91996	5-27-2022	No	None	None
SMPLR-92609	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93819	7-27-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39

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-94791	9-6-2022	No	7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022	0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11
SMPLR-95798	9-26-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96113	10-28-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

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

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

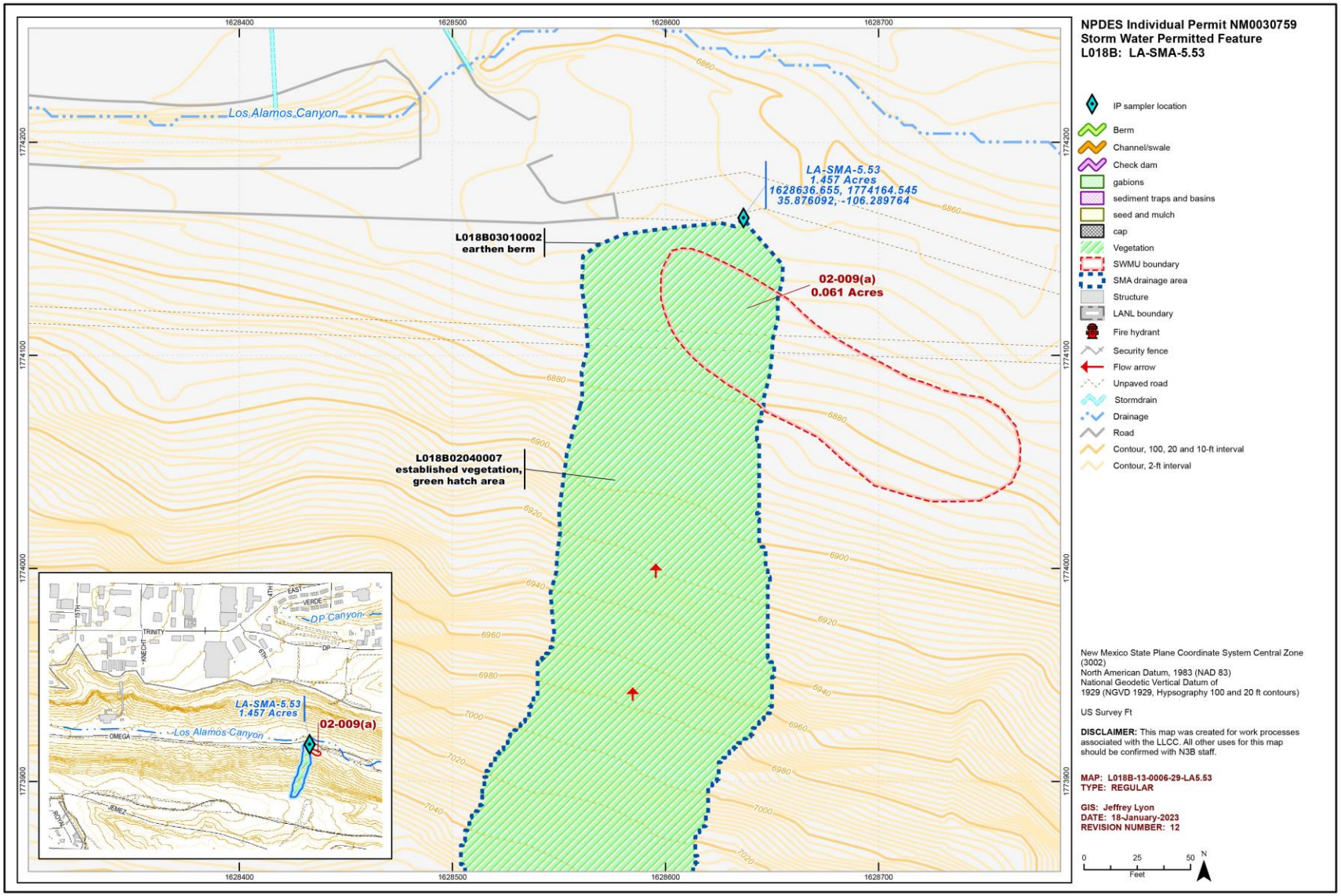

Figure 38-1 LA-SMA-5.53 location map

39.0 LA-SMA-5.54: SWMU 02-009(c)

One historical industrial activity area, Site 02-009(c), is associated with LA-SMA-5.54 (permitted feature L018C). 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.

39.1 Site Descriptions

02-009(c) (9/3/2019)

SWMU 02-009(c) consists of a former leach field and an area of radioactively-contaminated soil (beta/gamma radiation) located on the north and south sides of Los Alamos Creek, south of the former condensate trap [former structure 02-48, AOC 02-003(b)] at TA-02.

During removal of the condensate trap and the SWMU 02-007 septic tank (former structure 02-48) as part of the 1985–1986 D&D activities, remnants of a leach field were discovered. The leach field consisted of two parallel 6-in.-diameter VCP lengths running east from the condensate trap area, parallel to Los Alamos Creek. The pipes measured 34 ft and 20 ft long, and were lying in a sand- and crushed-rock bed, approximately 2 ft below the overflow drainpipe from the nearby septic tank (former structure 02-43, SWMU 02-007), at depths between 3–8 ft bgs. The SWMU 02-007 septic system received effluent from drains in the former WBR facility (former building 02-01). All structures, including the drainlines and adjacent contaminated soils down to the saturated zone, were removed during the 1985–1986 D&D activities.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 39-1.

Table 39-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
02-009(c)	Soil contamination associated with condensate trap and leach field	Radionuclides

39.2 Control Measures

All active control measures in use at LA-SMA-5.54 are listed in Table 39-2. Their locations are shown on the project map (Figure 39-1) 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 39-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L018C02040033	Established Vegetation	-	-	X	-	B	11-9-2015
L018C03010002	Earthen Berm	X	-	-	X	CB	2-24-2011
L018C03010014	Earthen Berm	-	X	-	X	EC	8-22-2014
L018C03010015	Earthen Berm	X	-	-	X	EC	8-22-2014
L018C03120024	Rock Berm	X	-	-	X	B	9-11-2014

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L018C03140020	Coir Log	X	-	-	X	B	8-7-2014
L018C03140021	Coir Log	X	-	-	X	B	8-7-2014
L018C03140022	Coir Log	X	-	-	X	B	8-7-2014
L018C03140026	Coir Log	-	X	-	X	EC	9-16-2014
L018C03140029	Coir Log	X	-	-	X	B	9-17-2014
L018C03140034	Coir Log	X	-	-	X	B	11-28-2018
L018C03140035	Coir Log	X	-	-	X	B	8-26-2019
L018C04030013	Rock Channel/Swale	X	-	X	-	EC	8-22-2014
L018C04080016	TRM-Lined Swale	X	-	X	-	B	8-22-2014
L018C06010017	Rock Check Dam	X	-	-	X	B	9-10-2014
L018C06010018	Rock Check Dam	X	-	-	X	B	9-10-2014
L018C06010019	Rock Check Dam	X	-	-	X	B	9-10-2014
L018C06010023	Rock Check Dam	X	-	-	X	B	9-10-2014
L018C06010036	Rock Check Dam	X	-	X	X	B	8-24-2022
L018C06010037	Rock Check Dam	X	-	X	X	B	8-24-2022

39.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.54 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 39-3. Maintenance activities conducted at the SMA are summarized in Table 39-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 39-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93061[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-5-2022	10 8 4	Yes Yes Yes
BMP-94033	7-14-2022	0.3	7-19-2022	5	Yes
BMP-94206	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94554	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95590	8-23-2022	0.67	8-30-2022	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.

Table 39-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95343 (follow up to BMP-94554)	Installed Rock Check Dams L018C06010036 and L018C06010037 down gradient of Rock Berm L018C03120024 to address erosion.	8-24-2022	20 days	Maintenance conducted as soon as practicable. Earthen Berms L018C03010014, L018C0301015, and TRM-Lined Swale L018C04080016 acted as backup controls in interim.
BMP-95590	Removed accumulated sediment from Coir Logs L018C03140020, L018C03140021, and L018C03140022 at inspection to increase capacity of controls.	8-30-2022	0 days	Maintenance conducted as soon as practicable.

39.4 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 (356 pCi/L) and PCB concentration (60 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 LA-SMA-5.54 under the 2010 IP requirements from March 21 through November 3, 2022, resulting in a monitoring season of 228 days. Eight inspections were performed during the monitoring period and are summarized in Table 39-5. Rain gage RG038 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 39-5 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-91637	4-13-2022	No	None	None
SMPLR-91997	5-27-2022	No	None	None
SMPLR-92610	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93820	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68
SMPLR-95673	9-6-2022	No	9-5-2022[c]	0.11/0.11
SMPLR-95799	9-26-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96114	10-19-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96409	11-3-2022	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.

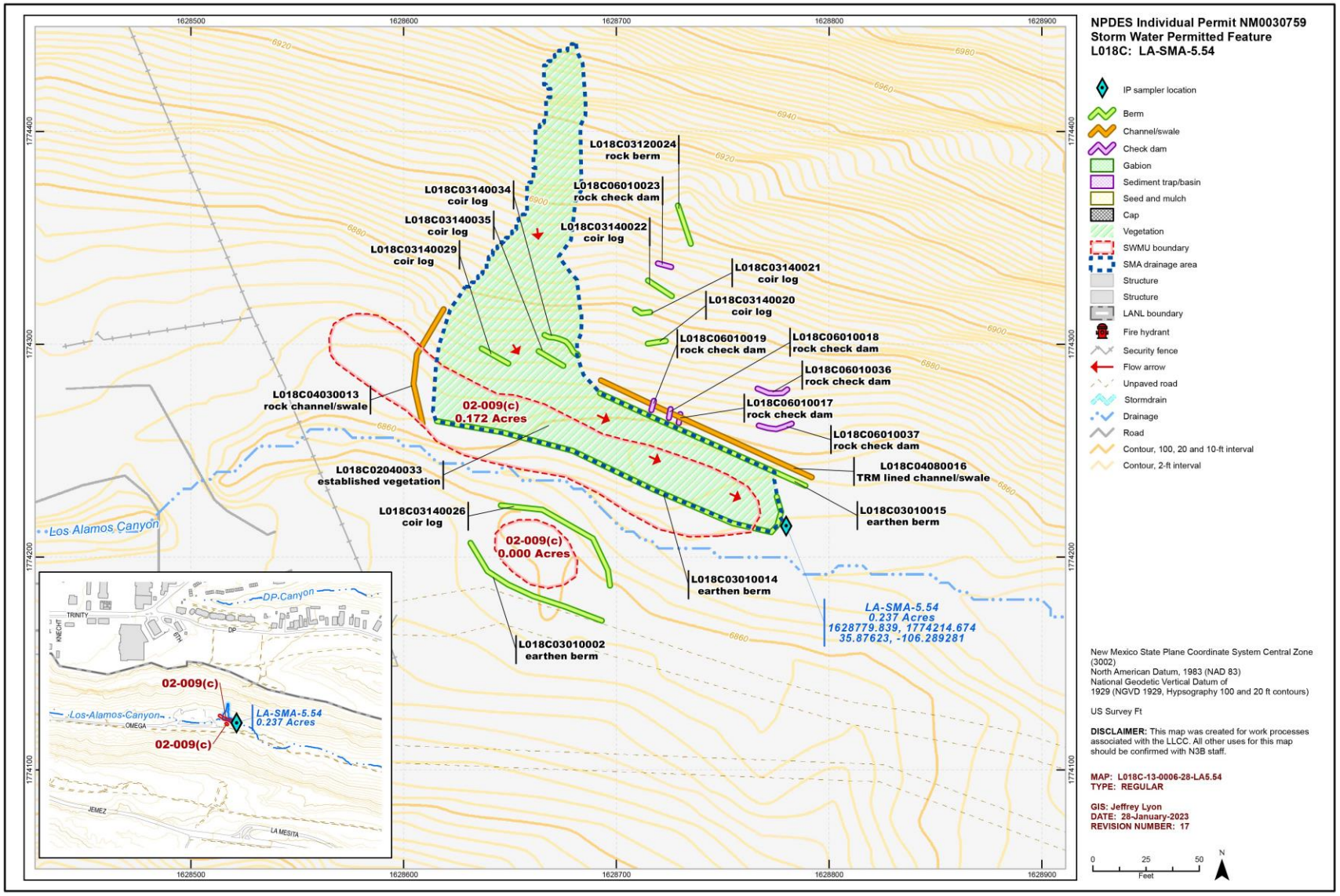

Figure 39-1 LA-SMA-5.54 location map

40.0 LA-SMA-5.91: SWMUs 21-021, 21-023(c), and 21-027(d) and AOC 21-009

Four historical industrial activity areas, Sites 21-009, 21-021, 21-023(c), and 21-027(d), are associated with LA-SMA-5.91 (permitted feature L019). 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.

40.1 Site Descriptions

21-009 (1/25/2022)

AOC 21-009 is a former waste treatment laboratory (former building 21-33) that was located in the western portion of DP West at TA-21. Former building 21-33 was built on concrete pillars in 1948, of wood-frame construction on a single level with a wooden floor, and measured 16 ft × 48 ft × 12 ft high. The former waste treatment laboratory operated until 1965 when it was destroyed by intentional burning.

Research into methods of recovering additional plutonium from liquid waste streams was conducted at building 21-33. Building components and laboratory furniture were reportedly contaminated with plutonium dust. Perchloric acid was used in research work and may have contaminated the former exhaust hoods. Laboratory waste was discharged to the SWMU 21-023(c) septic system south of the building.

AOC 21-009 has been referred to as a SWMU in historical documents and reports.

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination, resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21. TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006.

Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-023(c) (9/28/2021)

SWMU 21-023(c) is a former septic system that served the former waste treatment laboratory [former building 21-33; AOC 21-009] that was located directly west of former MDA V [SWMU 21-018(a)] in the southwest portion of DP West at TA-21. The septic system consisted of a septic tank (former structure 21-62), inlet and outlet lines, and an outfall. Former septic tank 21-62 was constructed of reinforced concrete and measured 3.5 ft wide × 7 ft long × 5.8 ft deep, with 4-in. diameter VCP inlet and outlet drainlines, and an outfall 40 ft southwest of the septic tank. The septic system was reportedly intended only for sanitary waste and served the former waste treatment laboratory (former building 21-33) from 1948 to 1965. Sewage was pumped from a sump in former building 21-33 through the septic tank and was discharged through an outlet drainline to an outfall 40 ft southwest of the septic

tank, approximately 30 ft north of the southern edge of BV Canyon, a tributary to Los Alamos Canyon. The volume of wastewater handled by the septic system is not known. The septic tank was removed in 1966 and disposed of at MDA G at TA-54. The date that the inlet/outlet drainlines were removed is not known; however, the 2005–2006 Site investigation activities confirmed that none of the septic system components remained in place at that time.

21-027(d) (4/26/2019)

SWMU 21-027(d) consists of a former outfall and associated outlet drainline from the former concrete secondary containment structure and sump for a former AST (structure 21-47, AOC C-21-028), located south of MDA B and southwest of MDA V in the southwest portion of TA-21. The AST was installed in 1945 on a 9-in.-thick concrete slab on the mesa top adjacent to DP Road, directly west of the former laundry building [building 21-20, SWMU 21-018(b)]. The former AST was installed to store No. 2 diesel fuel for the operation of the boiler in the DP laundry (former building 21-20). The boiler was reportedly diesel powered; however, former employees stated, and photographs show, that the DP laundry was tied to the DP steam plant via overhead steam lines. Therefore, the storage tank and boiler may have been used to provide power when the structure was built and remained in place as a backup source of power for the laundry. There are no records of the tank being serviced (i.e., filled with fuel).

A ditch originally drained stormwater away from the concrete slab and AST, and extended to the southwest toward BV Canyon south of MDAs B and V. In 1948, a concrete secondary containment structure was built around the former AST to contain any potential releases from the tank. A sump was constructed in the center of the south side of the containment, and a drainline [SWMU 21-027(d)] was installed in the drainage ditch from the tank containment. The first segment of the outlet drainline from the containment structure was a 4-in.-diameter steel pipe, approximately 5 ft in length, installed on the ground surface from the sump to a gate valve just outside the containment wall. At the gate valve, the drainline was changed to a VCP.

When the wastewater treatment laboratory (former building 21-33, SWMU 21-009) was constructed in 1948, the drainage ditch from the AST containment was rerouted around building 21-33 and south toward the south rim of DP Mesa. A new outlet drainline from the AST containment was then installed below ground. The outfall for the drainline was located near the mesa edge; any discharge from the containment would have flowed down the canyon hillside into BV Canyon. The AST and concrete containment were removed in 1960, and the SWMU 21-027(d) drainline was removed in March 1965.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 40-1.

Table 40-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-009	Waste treatment laboratory	Plutonium
21-021	Systematic release (sitewide)	Americium-241, plutonium-isotopes, strontium-90
21-023(c)	Septic system	Plutonium
21-027(d)	Soil contamination from former drainline	PAHs

40.2 Control Measures

All active control measures in use at LA-SMA-5.91 are listed in Table 40-2. Their locations are shown on the project map (Figure 40-1) 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 40-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L01902040010	Established Vegetation	-	X	X	-	B	5-14-2013
L01905020015	Sediment Basin	X	-	-	X	EC	12-13-2012
L01906020013	Log Check Dam	-	X	-	X	EC	12-13-2012
L01906020014	Log Check Dam	-	X	-	X	EC	12-13-2012

40.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.91 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 40-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 40-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93143[a,b]	6-25-2022	0.3		11	Yes
	6-27-2022	0.41		9	Yes
	7-1-2022	0.42	7-6-2022	5	Yes
BMP-94061[b]	7-14-2022	0.3	7-22-2022	8	Yes
	7-20-2022	0.29		2	Yes
BMP-94648	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95605	8-23-2022	0.67	8-25-2022	2	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.

40.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 7, 2011. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (92.6 pCi/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 LA-SMA-5.91, corrective-action stormwater samples were collected on September 12, 2013, and July 15, 2014. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for gross-alpha activity (15.7 pCi/L and 169 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) 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 LA-SMA-5.91 in 2022 under the 2010 IP requirements.

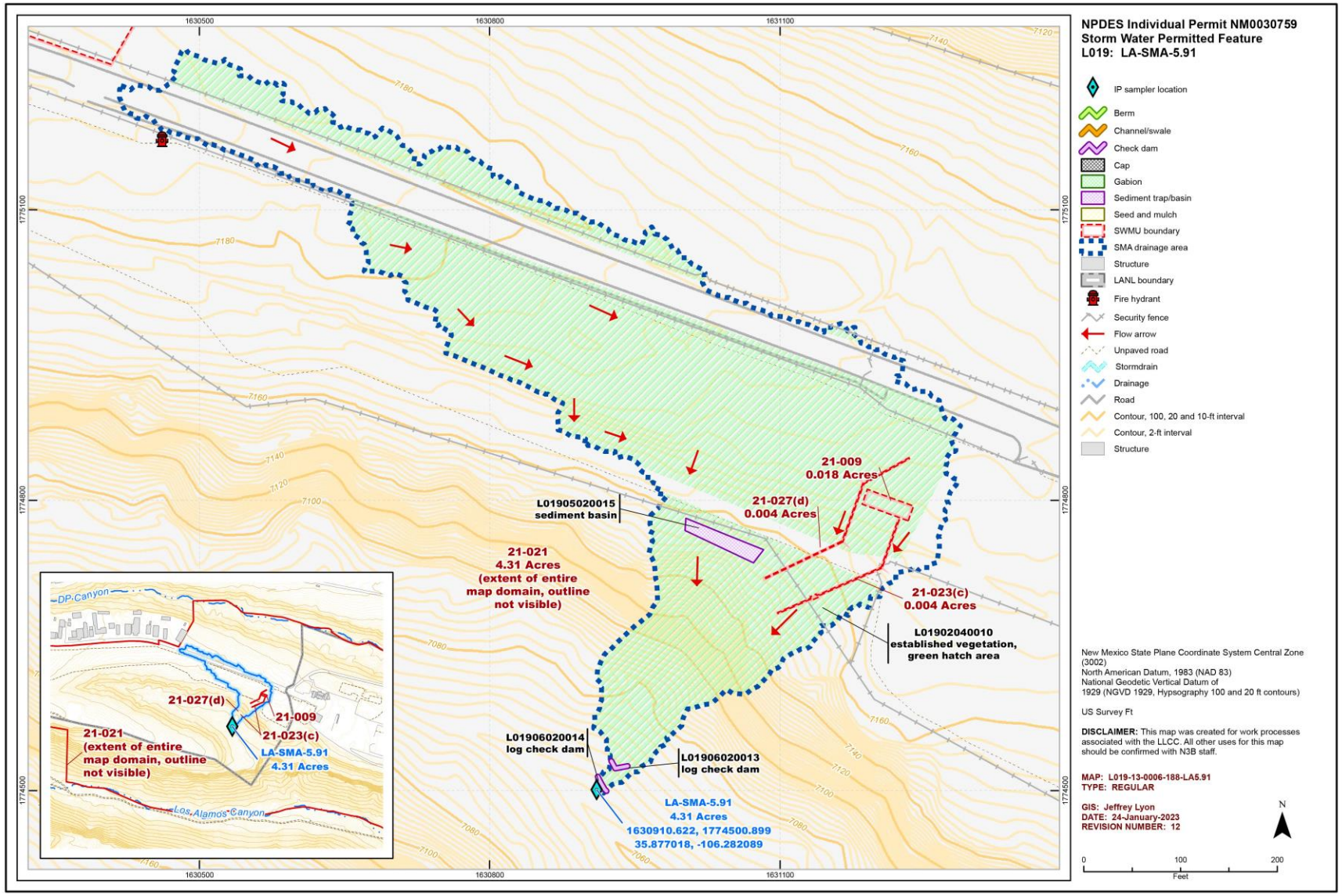

Figure 40-1 LA-SMA-5.91 location map

41.0 LA-SMA-5.92: SWMUs 21-013(b), 21-018(a), and 21-021 and AOC 21-013(g)

Four historical industrial activity areas, Sites 21-013(b), 21-013(g), 21-018(a), and 21-021, are associated with LA-SMA-5.92 (permitted feature L019A). 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.

41.1 Site Descriptions

21-013(b) (9/28/2021)

SWMU 21-013(b) is a former surface-disposal area that was located southwest of former MDA V on the south-facing slope of BV Canyon, in the southwest corner of DP West at TA-21. This area contained the external concrete piers, concrete building foundations, and other building debris derived from the 1965 demolition of the laundry facility [former building 21-20; SWMU 21-018(b)] and a waste treatment laboratory (former building 21-33; AOC 21-009). Other debris at the site included asphalt and concrete poured onto the slope before it solidified, broken asphalt, concrete, piping, and miscellaneous building materials. The origin of the additional debris is not documented.

A radiological survey of the former waste-treatment laboratory interior before demolition showed that various surfaces were contaminated with plutonium dust. It is not known if other materials were disposed of at SWMU 21-013(b) or how long this site received building debris; however, it did not receive wastes after 1994. All debris was removed and the entire site was re-graded as part of a VCA implemented in 2005.

21-013(g) (9/28/2021)

AOC 21-013(g) is a former surface disposal area used for the disposal of construction debris that was located directly south and downgradient of MDA V [SWMU 21-018(a)], on the south-facing slope of BV Canyon at the west end of DP West at TA-21. The disposal area consisted of discarded drainlines, concrete piers, concrete building foundations, and other building debris from the 1965 removal of the laundry facility [former building 21-20, SWMU 21-018(b)] and a waste treatment laboratory (former building 21-33, AOC 21-009), along with broken asphalt and other miscellaneous building debris. It is not known how long this site received building debris; however, it did not receive any waste after 1994. All debris was removed and the site was re-graded in 2005.

21-018(a) (9/28/2021)

SWMU 21-018(a) is the former MDA V. It consisted of three parallel interconnected RLW absorption beds that were located directly south of the former DP laundry facility [former building 21-20, SWMU 21-018(b)], within the southwest portion of DP West at TA-21. The three former cobble- and gravel-filled absorption beds, each measuring 25 ft wide × 220 ft long × 5 ft to 6 ft deep, were constructed to receive RLW from the former laundry facility [former building 21-20, SWMU 21-018(b)] and the former sump [AOC 21-030] in former waste laboratory building 21-45 (AOC C-21-015) that was occupied by the LANL Waste Studies Group. The laundry facility cleaned clothing from staff working in plutonium refinement operations at DP West, and the Waste Studies Group developed processes to recover plutonium, uranium, and other scarce metals from process waste streams. The absorption beds were designed to enhance liquid infiltration into the tuff.

The average discharge rate to MDA V was 6000 to 8,000 gal./day. Discharged RLW flowed into pit 1, which overflowed into pit 2 and then into pit 3, by means of a series of 4-in.-diameter iron overflow drainlines, and collection and distribution drainlines buried within the absorption beds. Historical evidence shows that the absorption beds were under-designed for the volume of wastewater discharged, resulting in overflow into adjacent drainages and BV Canyon.

The absorption beds were used continuously from 1945 to 1961 and remained on standby status until September 1963, when they were permanently removed from service. In 1984, a chain-link fence was constructed around the absorption bed area. A soil cover was placed over the site to repair erosion damage in 1985.

In 1999, a NTISV cold demonstration was performed near MDA V in preparation of a plan to vitrify a portion of one of the contaminated absorption beds at MDA V. In 2000, the NTISV hot demonstration was conducted in absorption bed 1 at MDA V. The SWMU 21-018(a) absorption beds, including all distribution lines and absorption bed material, were removed during remediation activities implemented at MDA V in 2005 and 2006. Following excavation, all three absorption beds were backfilled with clean fill material.

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21. TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006.

Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 41-1.

Table 41-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POCs Source	Potential POCs
21-013(b)	Surface disposal site	Plutonium
21-013(g)	Surface disposal site	Metals, radionuclides
21-018(a)	MDA V	Plutonium isotopes, uranium isotopes, americium-241, strontium-90, gamma-emitting isotopes, inorganic chemicals
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90

41.2 Control Measures

All active control measures in use at LA-SMA-5.92 are listed in Table 41-2. Their locations are shown on the project map (Figure 41-1) 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 41-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L019A02040007	Established Vegetation	-	X	X	-	B	5-14-2013
L019A03010020	Earthen Berm	X	X	-	X	EC	10-1-2015
L019A03020012	Base Course Berm	X	-	X	-	EC	10-1-2015
L019A03030021	Log Berm	-	X	-	X	EC	10-1-2015
L019A03030022	Log Berm	-	X	-	X	EC	10-1-2015
L019A03140023	Coir Log	X	-	-	X	B	9-22-2016
L019A04010019	Earthen Channel/Swale	X	-	X	-	EC	10-1-2015
L019A04060011	Riprap	-	X	X	-	EC	10-1-2015
L019A04060013	Riprap	-	X	X	-	EC	10-1-2015
L019A05020006	Sediment Basin	-	X	-	X	CB	9-20-2010
L019A06010014	Rock Check Dam	X	-	-	X	EC	10-1-2015
L019A06010015	Rock Check Dam	X	-	-	X	EC	10-1-2015
L019A06010016	Rock Check Dam	X	-	-	X	EC	10-1-2015
L019A06010017	Rock Check Dam	X	-	-	X	EC	10-1-2015
L019A06010018	Rock Check Dam	X	-	-	X	EC	10-1-2015
L019A06020009	Log Check Dam	-	X	-	X	B	1-29-2014
L019A06020010	Log Check Dam	-	X	-	X	B	1-29-2014

41.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-5.92 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 41-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 41-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93144[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94062[b]	7-14-2022 7-20-2022	0.3 0.29	7-22-2022	8 2	Yes Yes
BMP-94649	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95606	8-23-2022	0.67	8-25-2022	2	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.

41.4 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 (8.32 µg/L), gross-alpha activity (264 pCi/L), and mercury (2.89 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 conducted at LA-SMA-5.92 under the 2010 IP requirements from March 23 through October 31, 2022, resulting in a monitoring season of 223 days. Seven inspections were performed during the monitoring period and are summarized in Table 41-4. Rain gage RG038 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 41-4 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-91971	4-20-2022	No	None	None
SMPLR-92124	6-8-2022	No	None	None
SMPLR-92791	7-6-2022	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] 6-27-2022 7-1-2022[c] 7-4-2022[c]	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93868	8-25-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68

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-95666	9-19-2022	No	9-5-2022 9-9-2022	0.11/0.11 0.12/0.19
SMPLR-95960	10-3-2022	No	9-22-2022 10-2-2022	0.2/0.22 0.09/0.36
SMPLR-96215	10-31-2022	No	10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

[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.

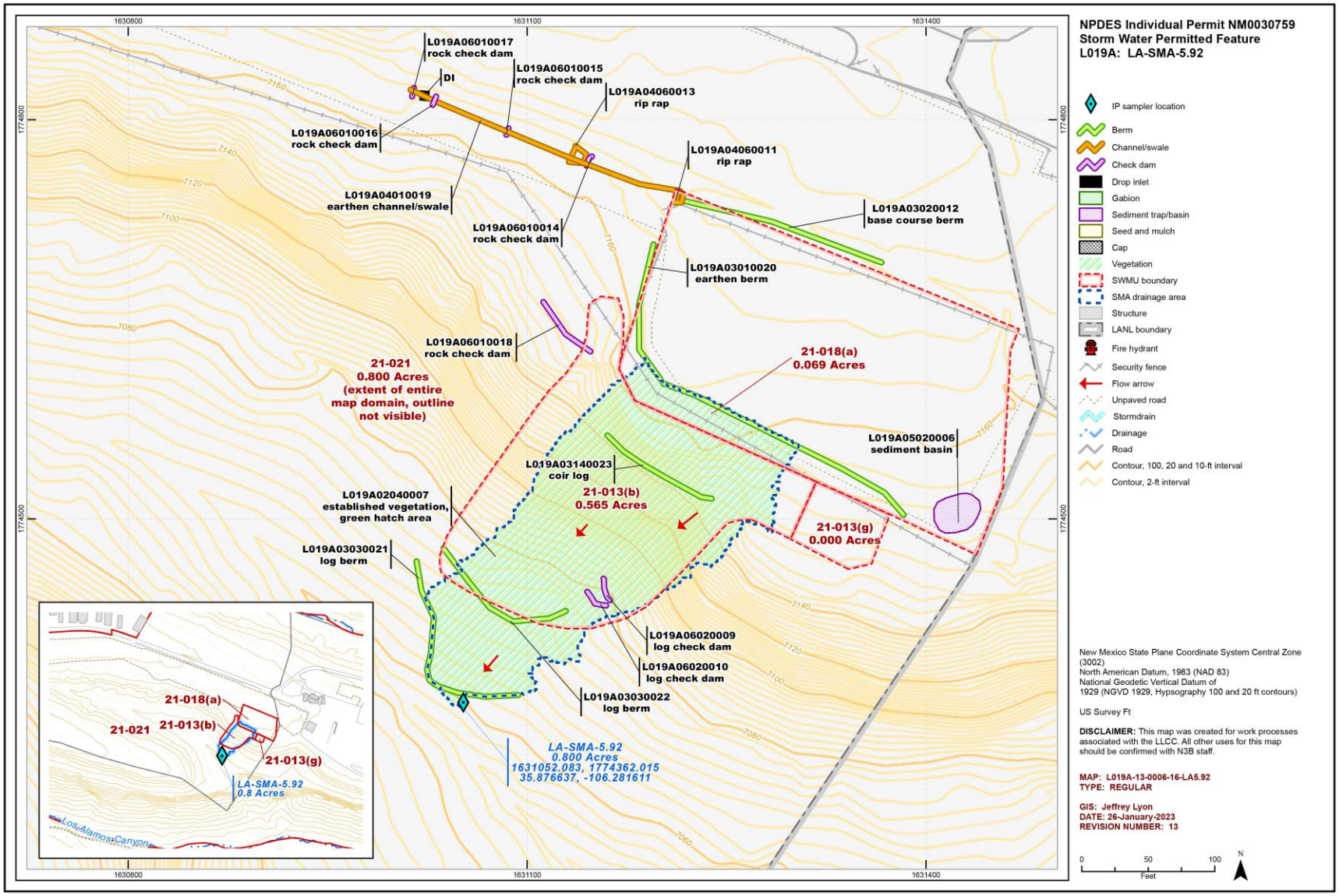

Figure 41-1 LA-SMA-5.92 location map

42.0 LA-SMA-6.25: SWMUs 21-021, 21-024(d), and 21-027(c)

Three historical industrial activity areas, Sites 21-021, 21-024(d), and 21-027(c), are associated with LA-SMA-6.25 (permitted feature L020). 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.

42.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21. TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006.

Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(d) (2/27/2019)

SWMU 21-024(d) is the former location of a sanitary septic system in the southwest portion of former DP West at Technical Area TA-21, which received sanitary waste from former building 21-001 from 1945 to the early 1960s. The septic system was located south of former building 21-001, and consisted of a reinforced concrete septic tank (former structure 21-106) measuring 17.5-ft × 9.5-ft × 8.83-ft deep, two 6-in. VCP inlet drainlines, a single outlet drainline, and an outfall on the south rim of DP Mesa above Los Alamos Canyon.

Building 21-001 was constructed as an office building in 1945. The sanitary sewer system routed sewage via 6-in. VCP lines through the septic tank and outlet drainline which discharged on the south rim of DP Mesa above Los Alamos Canyon. Building 21-001 was removed in the early 1960s and the septic system was abandoned. In 1995, the septic tank was filled with pea gravel and left in place; the inlet and outlet drainlines were grouted with concrete and left in place. During the 2007 Consent Order investigation, the inactive septic tank and all remaining inlet and outlet drainlines were removed.

21-027(c) (9/28/2021)

SWMU 21-027(c) is a former 4-in. VCP outlet drainline that exited former building 21-06 (a cafeteria and machine shop) and discharged to an outfall south of the building on the south rim of DP Mesa, within DP West at TA-21. Former building 21-6 was constructed in 1945 and was removed in 1966; the pipe was left in place. In 2007, the outlet drainline extending from former building 21-6 to the outfall was removed.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 42-1.

Table 42-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(d)	Septic system	Radionuclides, inorganic and organic chemicals
21-027(c)	Outfall from former building 21-6	PAHs

42.2 Control Measures

All active control measures in use at LA-SMA-6.25 are listed in Table 42-2. Their locations are shown on the project map (Figure 42-1) 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 42-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02002040007	Established Vegetation	-	X	X	-	B	4-17-2013
L02003040002	Asphalt Berm	X	-	-	X	CB	4-1-2008
L02003140015	Coir Log	-	X	-	X	B	8-29-2019
L02006010013	Rock Check Dam	-	X	-	X	B	8-12-2014

42.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.25 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 42-3. All other control-measure inspections conducted at the SMA are summarized in Table 42-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revision to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities. No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 42-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93136[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94055[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94642	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95601	8-23-2022	0.67	9-2-2022	10	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 42-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90501	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90681	2-10-2022	
Control Measure Verification Form	BMP-91107	3-10-2022	
Control Measure Verification Form	BMP-91324	4-7-2022	
Control Measure Verification Form	BMP-91929	5-5-2022	
Control Measure Verification Form	BMP-92376	6-2-2022	
Control Measure Verification Form	BMP-92724	6-30-2022	
Control Measure Verification Form	BMP-93569	7-27-2022	
Control Measure Verification Form	BMP-94545	8-24-2022	
Control Measure Verification Form	BMP-95643	9-22-2022	
Control Measure Verification Form	BMP-96076	11-3-2022	
Control Measure Verification Form	BMP-96552	12-1-2022	
Control Measure Verification Form	BMP-96871	12-15-2022	

42.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.25. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at LA-SMA-6.25 under the 2010 IP requirements from March 22 through October 28, 2022, resulting in a monitoring season of 220 days. Seven inspections were performed during the monitoring period and are summarized in Table 42-5. Rain gage RG038 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 42-5 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-91642	4-8-2022	No	None[c]	None
SMPLR-91943	5-4-2022	No	None	None
SMPLR-92335	6-7-2022	No	None	None
SMPLR-92761	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93823	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68
SMPLR-95676	9-28-2022	No	9-5-2022 9-9-2022 9-22-2022	0.11/0.11 0.12/0.19 0.2/0.22
SMPLR-96159	10-28-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

[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.

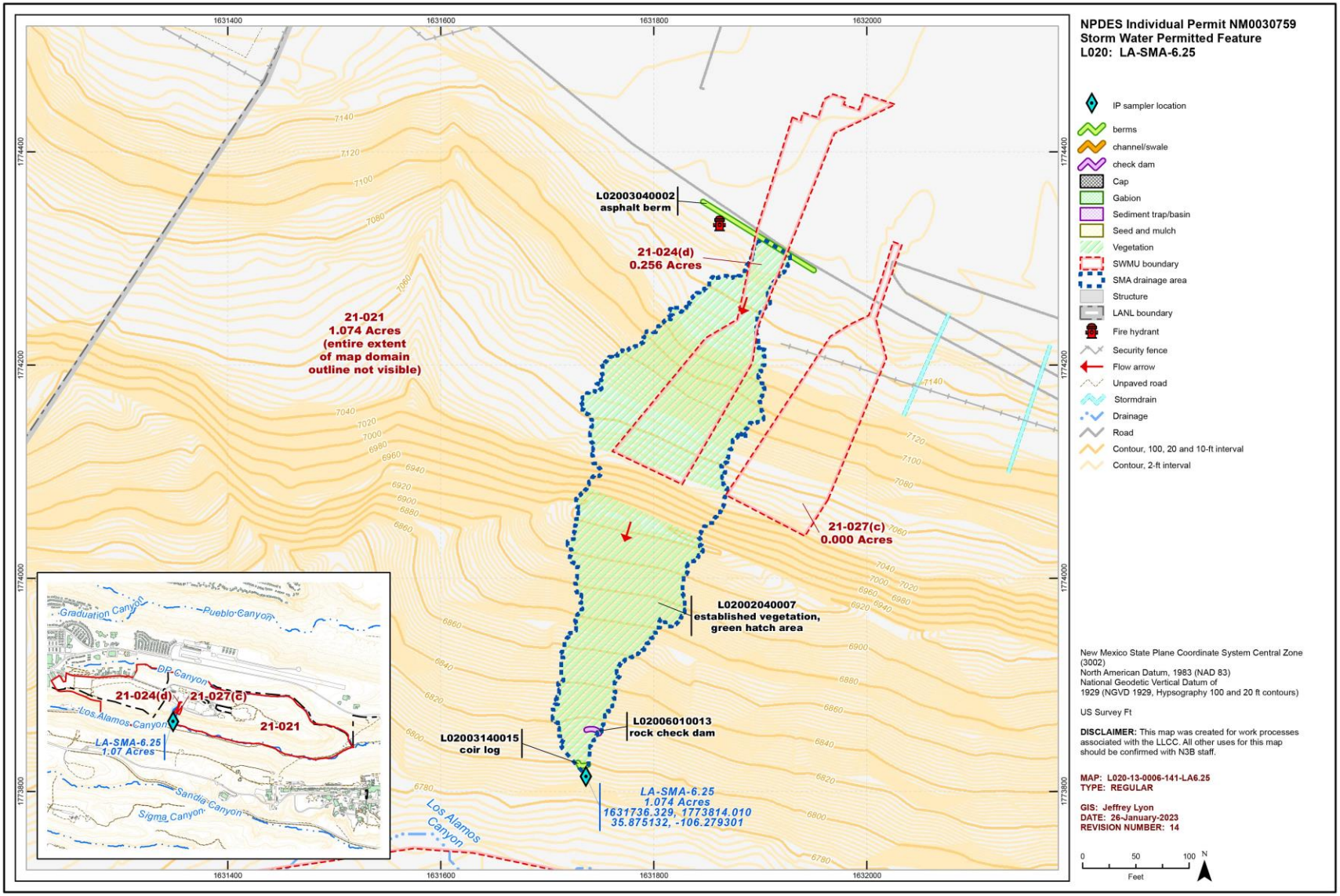

Figure 42-1 LA-SMA-6.25 location map

43.0 LA-SMA-6.3: SWMU 21-006(b)

One historical industrial activity area, Site 21-006(b), is associated with LA-SMA-6.3 (permitted feature L022). 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.

43.1 Site Descriptions

21-006(b) (2/22/2019)

SWMU 21-006(b) is an inactive seepage pit consisting of a brick manhole constructed in a trench (structure 21-118), an inlet acid drainline, an outlet vapor drainline, and an outfall in the southwest portion of TA-21. The brick seepage pit measures 13 ft × 4 ft × 6 ft deep with a wooden cover. The seepage pit and associated drainlines were installed during the construction of building 21-003 in 1945. A 3-in. Jennite-coated (coal tar sealer) CI inlet drainline exited the southeast side of former building 21-002, and extended approximately 160 ft southward to the seepage pit (structure 21-118). A 2-in. steel outlet drainline ran approximately 100 ft southward from the pit to an outfall approximately 8 ft above the bench surface below the mesa top above Los Alamos Canyon. The drainlines and seepage pit were installed to receive ether waste from the ethyl ether extraction process as part of the original TA-21 plutonium-purification process conducted in building 21-002.

The ether extraction process was discontinued in September of 1945. Documentation is not available to confirm that all discharges to the seepage pit also ceased in 1945. The location of the seepage pit and associated drainlines has not been conclusively identified. Plutonium processing work was moved to TA-55 in the late 1970s. Building 21-002 was decommissioned in the 1990s and demolished in 2010.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 43-1.

Table 43-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POC
21-006(b)	Disposal pit	Plutonium

43.2 Control Measures

All active control measures in use at LA-SMA-6.3 are listed in Table 43-2. Their locations are shown on the project map (Figure 43-1) 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 43-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02202040009	Established Vegetation	-	X	X	-	B	4-17-2013
L02203040005	Asphalt Berm	X	-	-	X	CB	6-1-2009
L02206010001	Rock Check Dam	-	X	-	X	CB	5-27-2010
L02206010010	Rock Check Dam	-	X	-	X	B	8-12-2014

43.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.3 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 43-3. All other control-measure inspections conducted at the SMA are summarized in Table 43-4, and maintenance activities conducted at the SMA are summarized in Table 43-5.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

Table 43-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93350[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94108[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94770	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95617	8-23-2022	0.67	9-2-2022	10	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 43-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90503	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90683	2-10-2022	
Control Measure Verification Form	BMP-91109	3-10-2022	
Control Measure Verification Form	BMP-91326	4-7-2022	
Control Measure Verification Form	BMP-91931	5-5-2022	
Control Measure Verification Form	BMP-92378	6-2-2022	
Control Measure Verification Form	BMP-92726	6-30-2022	
Control Measure Verification Form	BMP-93571	7-27-2022	
Control Measure Verification Form	BMP-94547	8-24-2022	
Control Measure Verification Form	BMP-95644	9-22-2022	
Control Measure Verification Form	BMP-96085	11-3-2022	
Control Measure Verification Form	BMP-96553	12-1-2022	
Control Measure Verification Form	BMP-96872	12-15-2022	Asphalt Berm L02203040005 has been damaged by vehicle operations. Maintenance activities to repair the control will be conducted at completion of activities.

Table 43-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94770	Removed accumulated sediment from Rock Check Dam L02206010010 at inspection to increase capacity of control.	8-4-2022	0 days	Maintenance conducted as soon as practicable.

43.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2019. Analytical results from this sample yielded TAL exceedances for aluminum (902 µg/L), gross-alpha activity (857 pCi/L), and selenium (5.66 µg/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was not conducted at LA-SMA-6.3 in 2022 under the 2010 IP requirements.

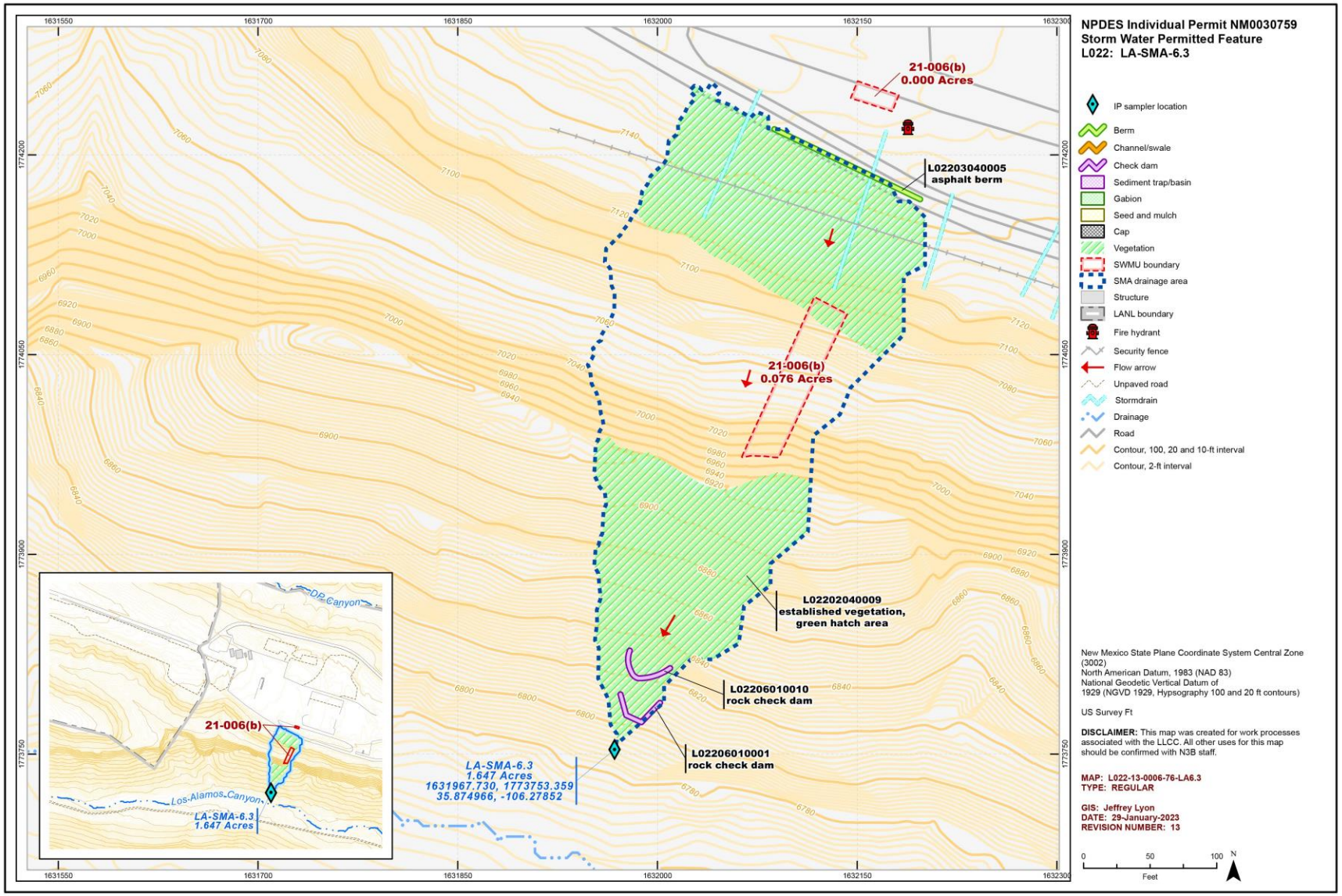

Figure 43-1 LA-SMA-6.3 location map

44.0 LA-SMA-6.31: SWMU 21-027(a)

One historical industrial activity area, Site 21-027(a), is associated with LA-SMA-6.31 (permitted feature L022A). 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.

44.1 Site Descriptions

21-027(a) (no date)

SWMU 21-027(a) consists of drainlines that received effluent from floor drains in former building 21-003, a surface storm drainage system, and a former NPDES-permitted outfall that discharges to the mesa edge and into Los Alamos Canyon in the southwest portion of DP West at TA-21. Building 21-003 was constructed in 1945 as part of original DP West plutonium processing facilities. A 4-in. VCP ran beneath a paved area south of the former building 21-03 footprint for about 30 ft and emptied into a storm drain. A 12-in. culvert ran from the storm drain underground for about 50 ft, emptying onto the ground at a ponding area on the southwest corner of the footprint of former cooling tower [former structure 21-143, AOC C-21-027]. From the cooling tower footprint, runoff flowed in an unlined ditch to a 24-in.-diameter CMP culvert that carried runoff beneath the south perimeter road to the mesa edge. The CMP extended about 3 ft over the mesa edge. The outfall was permitted as Outfall EPA03A031 under NPDES Permit No. NM0028355 in 1994.

Building 21-003, the drains and the outlet drainlines beneath the surface, and cooling tower 21-143 (AOC C-21-007) were removed during D&D activities in 1994–1995. The 4-in. drainline beneath the paved area was left in place, as was the storm drain that collects runoff from nearby parking lots. The outfall was removed from the LANL NPDES permit, effective July 11, 1995. During the 2007 DP Site Aggregate Area investigation, remaining drainlines were removed, along with the top foot of soil at the former ponding area. The section of drainline beneath the south TA-21 perimeter road was left in place because the road was active and continued to service DP East.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 44-1.

Table 44-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
21-027(a)	Industrial or sanitary wastewater treatment	Radionuclides, inorganic and organic chemicals

44.2 Control Measures

All active control measures in use at LA-SMA-6.31 are listed in Table 44-2. Their locations are shown on the project map (Figure 44-1) 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 44-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L022A02040008	Established Vegetation	-	X	X	-	B	4-17-2013
L022A03040002	Asphalt Berm	X	-	-	X	CB	6-1-2009
L022A06010005	Rock Check Dam	-	X	-	X	CB	5-27-2010

44.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.31 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 44-3. All other control-measure inspections conducted at the SMA are summarized in Table 44-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities. .

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 44-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93142[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94060[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94647	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95604	8-23-2022	0.67	9-2-2022	10	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 44-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90504	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90684	2-10-2022	
Control Measure Verification Form	BMP-91110	3-10-2022	
Control Measure Verification Form	BMP-91327	4-7-2022	
Control Measure Verification Form	BMP-91932	5-5-2022	
Control Measure Verification Form	BMP-92379	6-2-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-92727	6-30-2022	No action recommended
Control Measure Verification Form	BMP-93572	7-27-2022	
Control Measure Verification Form	BMP-95207	8-24-2022	
Control Measure Verification Form	BMP-95645	9-22-2022	
Control Measure Verification Form	BMP-96086	11-3-2022	
Control Measure Verification Form	BMP-96554	12-1-2022	
Control Measure Verification Form	BMP-96873	12-15-2022	Asphalt Berm L022A03040002 has been damaged by vehicle operations. Maintenance activities to repair the control will be conducted at completion of activities.

44.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.31.

Stormwater monitoring was conducted at LA-SMA-6.31 under the 2010 IP requirements from March 22 through November 7, 2022, resulting in a monitoring season of 231 days. Eight inspections were performed during the monitoring period and are summarized in Table 44-5. Rain gage RG038 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 44-5 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-91644	4-8-2022	No	None	None
SMPLR-91945	6-13-2022	No	None	None
SMPLR-92823	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 6-27-2022	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46

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-93559	8-11-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022	0.42/0.77 0.19/0.27 0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32
SMPLR-95428	9-7-2022	No	8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022	0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11
SMPLR-96062	9-26-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96116	10-19-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25
SMPLR-96416	11-7-2022	No	None	None

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

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

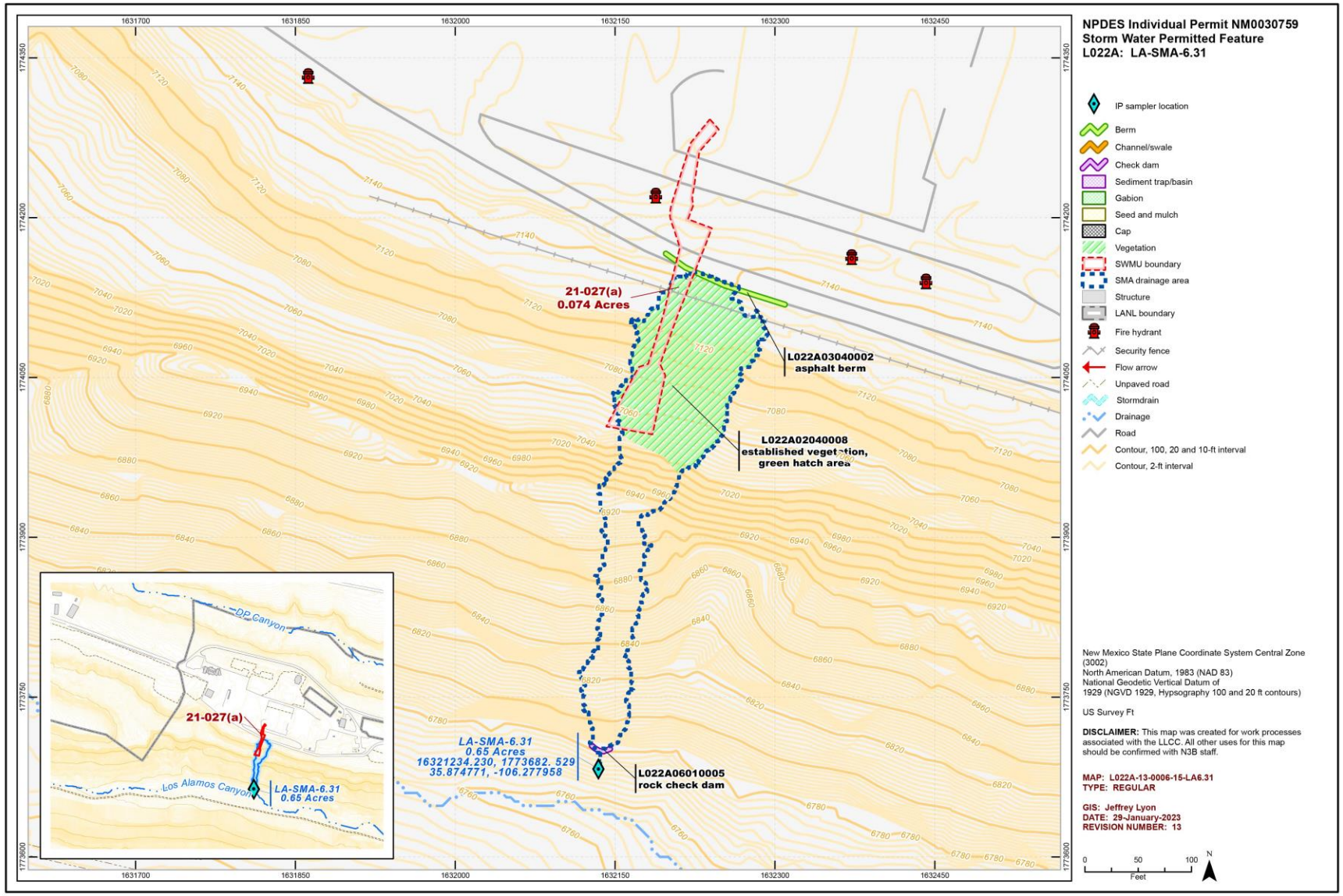

Figure 44-1 LA-SMA-6.31 location map

45.0 LA-SMA-6.32: SWMU 21-021

One historical industrial activity area, Site 21-021, is associated with LA-SMA-6.32 (permitted feature L023). 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.

45.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 45-1.

Table 45-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90

45.2 Control Measures

All active control measures in use at LA-SMA-6.32 are listed in Table 45-2. Their locations are shown on the project map (Figure 45-1) 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 45-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02302040006	Established Vegetation	-	X	X	-	B	4-17-2013
L02303040002	Asphalt Berm	X	-	-	X	CB	6-1-2009
L02303060008	Straw Wattle	-	X	-	X	B	9-13-2022
L02303060009	Straw Wattle	-	X	-	X	B	9-13-2022

45.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.32 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 45-3. All other control-measure inspections conducted at the SMA are summarized in Table 45-4, and maintenance activities conducted at the SMA are summarized in Table 45-5.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

Table 45-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93139[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94057	7-14-2022	0.3	7-20-2022	6	Yes
BMP-94252	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94644	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95602	8-23-2022	0.67	9-2-2022	10	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 45-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90505	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90685	2-10-2022	
Control Measure Verification Form	BMP-91111	3-10-2022	
Control Measure Verification Form	BMP-91328	4-7-2022	
Control Measure Verification Form	BMP-91933	5-5-2022	
Control Measure Verification Form	BMP-92380	6-2-2022	
Control Measure Verification Form	BMP-92728	6-30-2022	
Control Measure Verification Form	BMP-93573	7-27-2022	
Control Measure Verification Form	BMP-95275	8-24-2022	
Control Measure Verification Form	BMP-95646	9-22-2022	
Control Measure Verification Form	BMP-96087	11-3-2022	
Control Measure Verification Form	BMP-96555	12-1-2022	
Control Measure Verification Form	BMP-96874	12-15-2022	Asphalt Berm L02303040002 and Established Vegetation L02302020006 have been damaged by vehicle operations. Maintenance activities to repair the control will be conducted at completion of activities.

Table 45-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95779 (follow up from BMP-95602)	Installed Straw Wattles L02303060008 and L02303060009 as replacement controls for Straw Wattles L02303060005 and L02303060007.	9-13-2022	11 days	Maintenance conducted as soon as practicable.

45.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.32.

Stormwater monitoring was conducted at LA-SMA-6.32 under the 2010 IP requirements from March 31 through October 26, 2022, resulting in a monitoring season of 210 days. Seven inspections were performed during the monitoring period and are summarized in Table 45-6. Rain gage RG038 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 45-6 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-91759	4-8-2022	No	None	None
SMPLR-91948	5-5-2022	No	None	None
SMPLR-92387	6-8-2022	No	None	None
SMPLR-92792	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93874	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68
SMPLR-95679	9-16-2022	No	9-5-2022 9-9-2022	0.11/0.11 0.12/0.19
SMPLR-95931	10-26-2022	No	9-22-2022 10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.2/0.22 0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

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

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

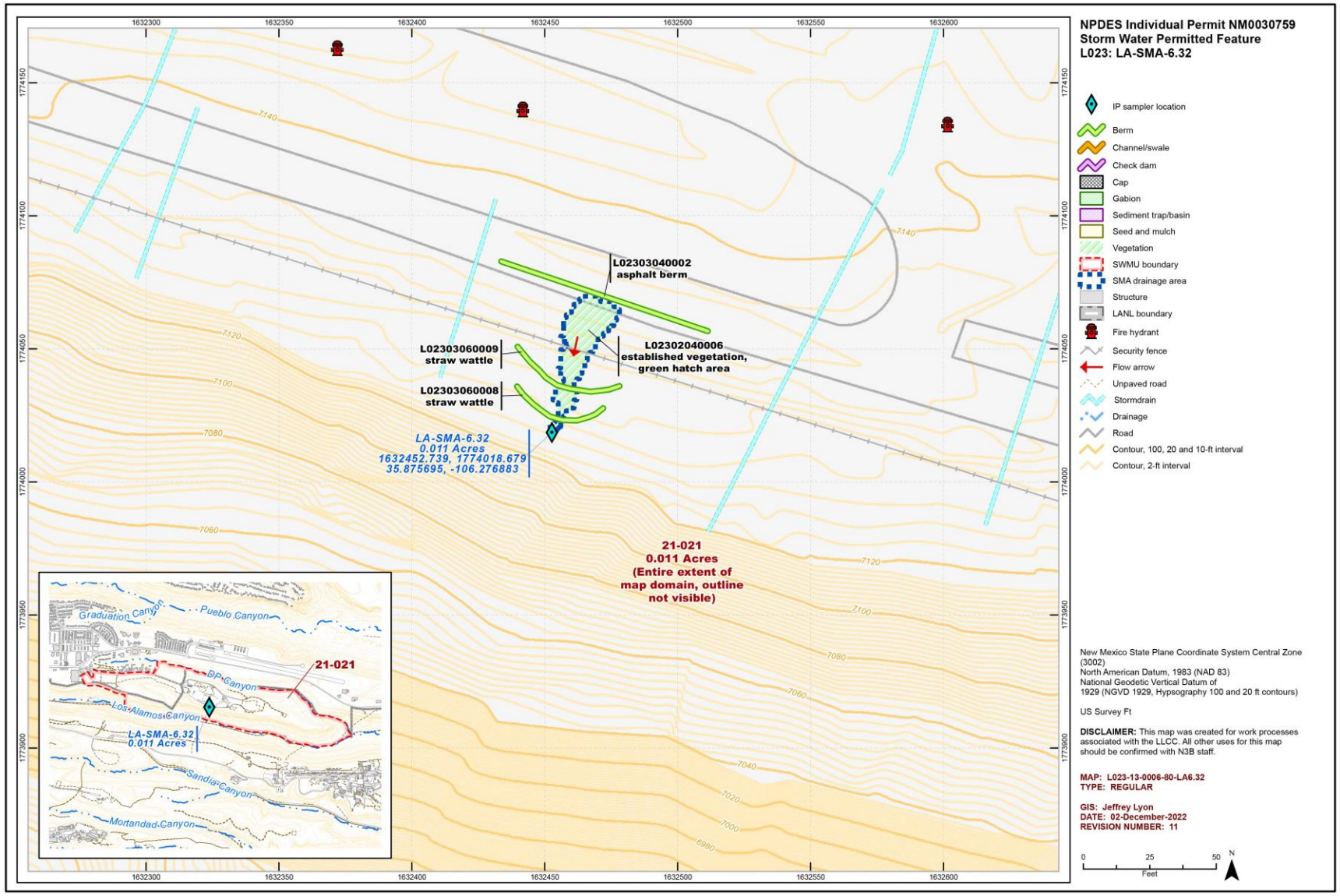

Figure 45-1 LA-SMA-6.32 location map

46.0 LA-SMA-6.34: SWMUs 21-021 and 21-022(h)

Two historical industrial activity areas, Sites 21-021 and 21-022(h), are associated with LA-SMA-6.34 (permitted feature L024). 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.

46.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-022(h) (9/3/2019)

SWMU 21-022(h) consists of a former sump (former structure 21-202), inlet and outlet drainlines, and a former NPDES-permitted outfall (EPA 03A032), south of former building 21-150 in the south-central portion of TA-21. Building 21-150 was constructed in 1963 as a plutonium-fuels development building, including the development of plutonium-238 heat sources for space electric-power applications. Building 21-150 became operational in 1963.

Former structure 21-202 consisted of a 36-in.-diameter CMP designed to receive industrial wastewater from the building 21-150 basement floor and roof drains, and route effluent through a 150-ft-long, 6-in.-diameter drainline that discharged to an outfall in Los Alamos Canyon. Releases of plutonium-238 occurred in several rooms in former building 21-150, resulting in contamination on soil adjacent to, and the roof above, room 605A, and in the basement from leaks in vacuum pump leaks. Building 21-150 was decontaminated between 1978 and 1981 to allow continued occupancy for non-plutonium research operations. All plutonium processing equipment was removed along with the building roof and soil contamination outside room 605A. The circulating chilled-water system was decontaminated and left place for continued use.

The LANL Inorganic and Structural Chemistry Group (CNC-4) began operating former building 21-150 as a molecular-chemistry laboratory with offices in the early 1980s. By 1991, the 6-in. outlet drain line had been replaced with a 24-in. drainline and only treated cooling water was being discharged to the SWMU 21-022(h) sump system and outfall. Building 21-150 was subsequently decommissioned in the early 1990s.

The SWMU 21-022(h) sump (structure 21-202) and associated inlet and outlet drainlines were removed in 2007. The section of the outlet drainline located beneath the southern branch of DP Road was left in place because the road was, and remains, active to access DP East. Building 21-150 was demolished down to the concrete slab in November 2010.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 46-1.

Table 46-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-022(h)	Waste lines	Plutonium, inorganic and organic chemicals, radionuclides

46.2 Control Measures

All active control measures in use at LA-SMA-6.34 are listed in Table 46-2. Their locations are shown on the project map (Figure 46-1) 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 46-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02402040006	Established Vegetation	-	X	X	-	B	4-17-2013
L02403040003	Asphalt Berm	X	-	-	X	CB	8-27-2009
L02406010005	Rock Check Dam	-	X	-	X	CB	5-27-2010

46.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.34 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 46-3. All other control-measure inspections conducted at the SMA are summarized in Table 46-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities. No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 46-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93140[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	 7-6-2022	11 9 5	Yes Yes Yes
BMP-94058[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94645	7-27-2022	0.97	8-4-2022	8	Yes
BMP-95603	8-23-2022	0.67	9-2-2022	10	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 46-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90506	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90686	2-10-2022	
Control Measure Verification Form	BMP-91112	3-10-2022	
Control Measure Verification Form	BMP-91329	4-7-2022	
Control Measure Verification Form	BMP-91934	5-5-2022	
Control Measure Verification Form	BMP-92381	6-2-2022	
Control Measure Verification Form	BMP-92729	6-30-2022	An engineering stake in Asphalt Berm L02403040003 has potential to create erosion. Repair recommended once activities are complete.
Control Measure Verification Form	BMP-93574	7-27-2022	Engineering stake not present at inspection. Asphalt Berm L02403040003 continues to be impacted by activity and will be addressed upon completion of activities.
Control Measure Verification Form	BMP-95276	8-24-2022	No action recommended.
Control Measure Verification Form	BMP-95647	9-22-2022	
Control Measure Verification Form	BMP-96088	11-3-2022	
Control Measure Verification Form	BMP-96556	12-1-2022	
Control Measure Verification Form	BMP-96875	12-15-2022	Asphalt Berm L02403040003 been damaged by vehicle operations. Maintenance activities to repair the control will be conducted at completion of activities.

46.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.34.

Stormwater monitoring was conducted at LA-SMA-6.34, under the 2010 IP requirements, from March 24 through October 28, 2022, resulting in a monitoring season of 219 days. Five inspections were performed during the monitoring period and are summarized in Table 46-5. Rain gage RG038 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 46-5 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-91656	4-14-2022	No	None	None
SMPLR-92008	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27
SMPLR-93858	8-26-2022	No	7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 7-31-2022 8-6-2022 8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022	0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32 0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68

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-95671	9-30-2022	No	9-5-2022 9-9-2022 9-22-2022	0.11/0.11 0.12/0.19 0.2/0.22
SMPLR-96199	10-28-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

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

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

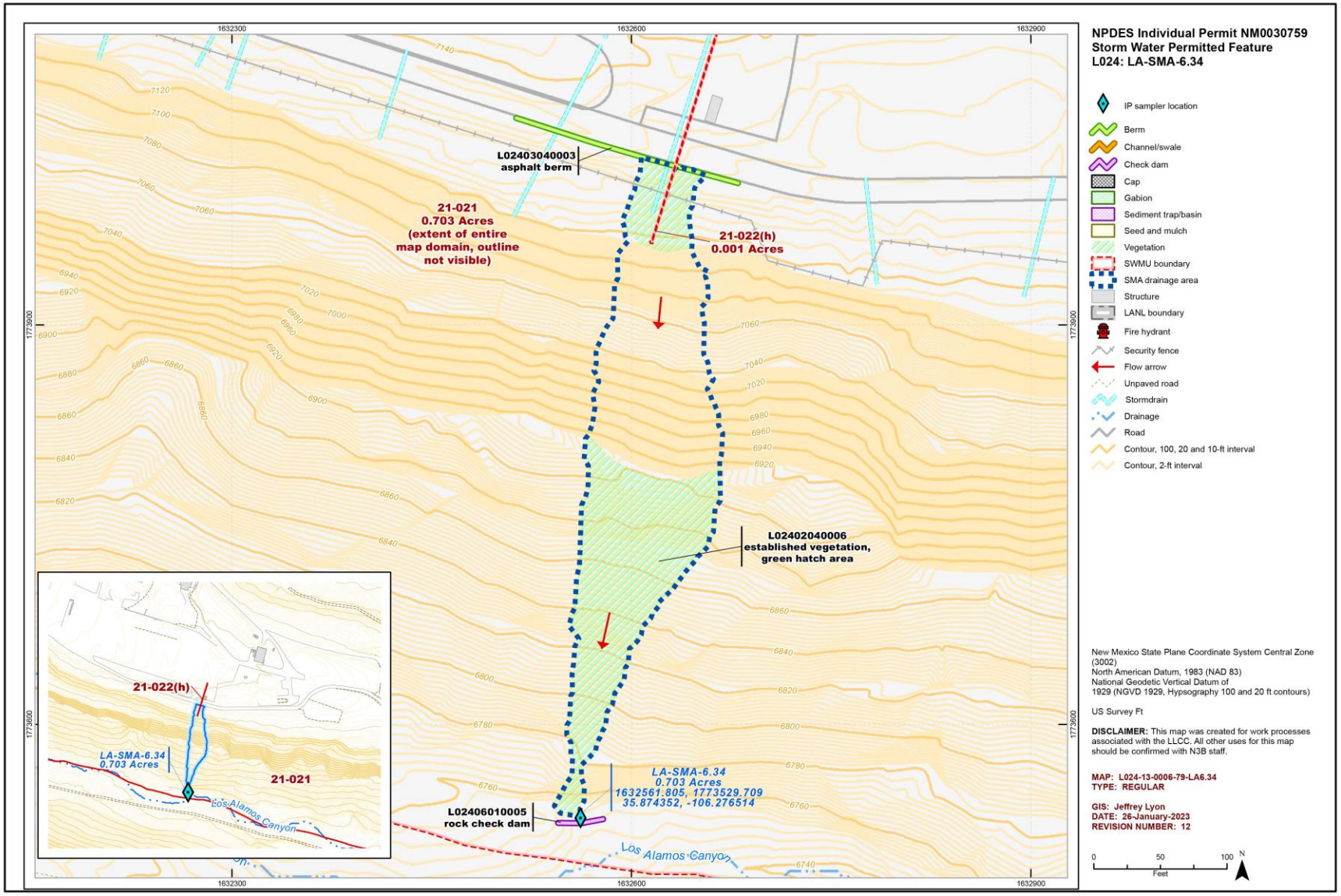

Figure 46-1 LA-SMA-6.34 location map

47.0 LA-SMA-6.38: SWMUs 21-021 and 21-024(c)

Two historical industrial activity areas, Sites 21-021 and 21-024(c), are associated with LA-SMA-6.38 (permitted feature L026). 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.

47.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(c) (2/22/2019)

SWMU 21-024(c) is an inactive septic system that served former buildings 21-054 and 21-061 in the southwest portion of TA-21. The septic system consisted of a septic tank (former structure 21-056), inlet drainlines from former buildings 21-054 and 21-061, an outlet drainline, and an outfall on the south rim of Los Alamos Canyon. The reinforced concrete septic tank (former structure 21-056) measured 4.0 ft long × 8.0 ft wide × approximately 5.0 ft deep, and was located 6.0 ft bgs. The inlet and outlet drainlines were 4-in.-diameter VCPs.

Building 21-054 was constructed in 1945 and housed a machine shop and warehouse. The septic system was installed in 1945 to route sewage from building 21-054. Building 21-061 was constructed in 1950 to house a laboratory to support classified plutonium research. The building and the unpaved area east of the building, along with the container storage area (SWMU 21-003), were ultimately used for the storage of PCB-containing capacitors and transformers, PCB-contaminated pumps and drums containing PCB-contaminated oil, solvents, and trash. The building was connected to the SWMU 21-024(c) septic system in 1950. In 1966, use of the septic system ceased and the system was abandoned in place.

Building 21-054 was demolished in 1969. PCB waste storage was moved from SWMU 21-003 to TA-54 in 1989; building 21-061 was decommissioned and the interior of the building was decontaminated in accordance with the TSCA 40 CFR 761. Building 21-061 was demolished in 2002. The SWMU 21-024(c) septic tank and inlet and outlet drainlines were removed in 2006, along with PCB-contaminated soil and tuff from SWMU 21-003. Additional PCB-contaminated soil and tuff associated with SWMU 21-003 were removed in 2009.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 47-1.

Table 47-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(c)	Septic system	Radionuclides, inorganic and organic chemicals, PCBs

47.2 Control Measures

All active control measures in use at LA-SMA-6.38 are listed in Table 47-2. Their locations are shown on the project map (Figure 47-1) 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 47-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02602040011	Established Vegetation	-	X	X	-	B	4-17-2013
L02603060013	Straw Wattle	-	X	-	X	B	9-18-2019
L02604060006	Riprap	X	-	X	-	CB	5-26-2010

47.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.38 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 47-3. All other control-measure inspections conducted at the SMA are summarized in Table 47-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge, were conducted at the SMA in 2022.

Table 47-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93145[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94063	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94258	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94650	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95607	8-23-2022	0.67	9-2-2022	10	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 46-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90508	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90688	2-10-2022	
Control Measure Verification Form	BMP-91114	3-10-2022	
Control Measure Verification Form	BMP-91331	4-7-2022	
Control Measure Verification Form	BMP-91936	5-5-2022	
Control Measure Verification Form	BMP-92383	6-2-2022	
Control Measure Verification Form	BMP-92730	6-30-2022	
Control Measure Verification Form	BMP-93576	7-27-2022	
Control Measure Verification Form	BMP-95277	8-24-2022	
Control Measure Verification Form	BMP-95648	9-22-2022	
Control Measure Verification Form	BMP-96089	11-3-2022	
Control Measure Verification Form	BMP-96557	12-1-2022	
Control Measure Verification Form	BMP-96876	12-15-2022	

47.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.38.

Stormwater monitoring was conducted at LA-SMA-6.38 under the 2010 IP requirements from March 24 through November 1, 2022, resulting in a monitoring season of 223 days. Six inspections were performed during the monitoring period and are summarized in Table 47-5. Rain gage RG038 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 47-5 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.)
1.5	4-15-2022	No	None	None
SMPLR-92030	6-27-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 6-22-2022 6-25-2022 6-26-2022
SMPLR-93464	8-11-2022	No	6-27-2022 7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022	0.41/0.46 0.42/0.77 0.19/0.27 0.3/0.32 0.29/0.32 0.07/0.11

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.)
			7-24-2022	0.04/0.1
			7-26-2022	0.11/0.39
			7-27-2022	0.97/1.16
			7-29-2022	0.08/0.24
			7-30-2022	0.11/0.31
			7-31-2022	0.15/0.4
			8-6-2022	0.12/0.32
SMPLR-95430	9-7-2022	No	8-11-2022	0.33/0.38
			8-16-2022	0.46/0.78
			8-18-2022	0.07/0.1
			8-19-2022	0.11/0.2
			8-20-2022	0.05/0.31
			8-21-2022	0.09/0.12
			8-23-2022	0.67/0.68
			9-5-2022	0.11/0.11
SMPLR-96063	9-30-2022	No	9-9-2022	0.12/0.19
			9-22-2022	0.2/0.22
SMPLR-96202	11-1-2022	No	10-2-2022	0.09/0.36
			10-3-2022	0.13/0.24
			10-4-2022	0.02/0.11
			10-15-2022	0.15/0.86
			10-16-2022	0.05/0.25

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

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

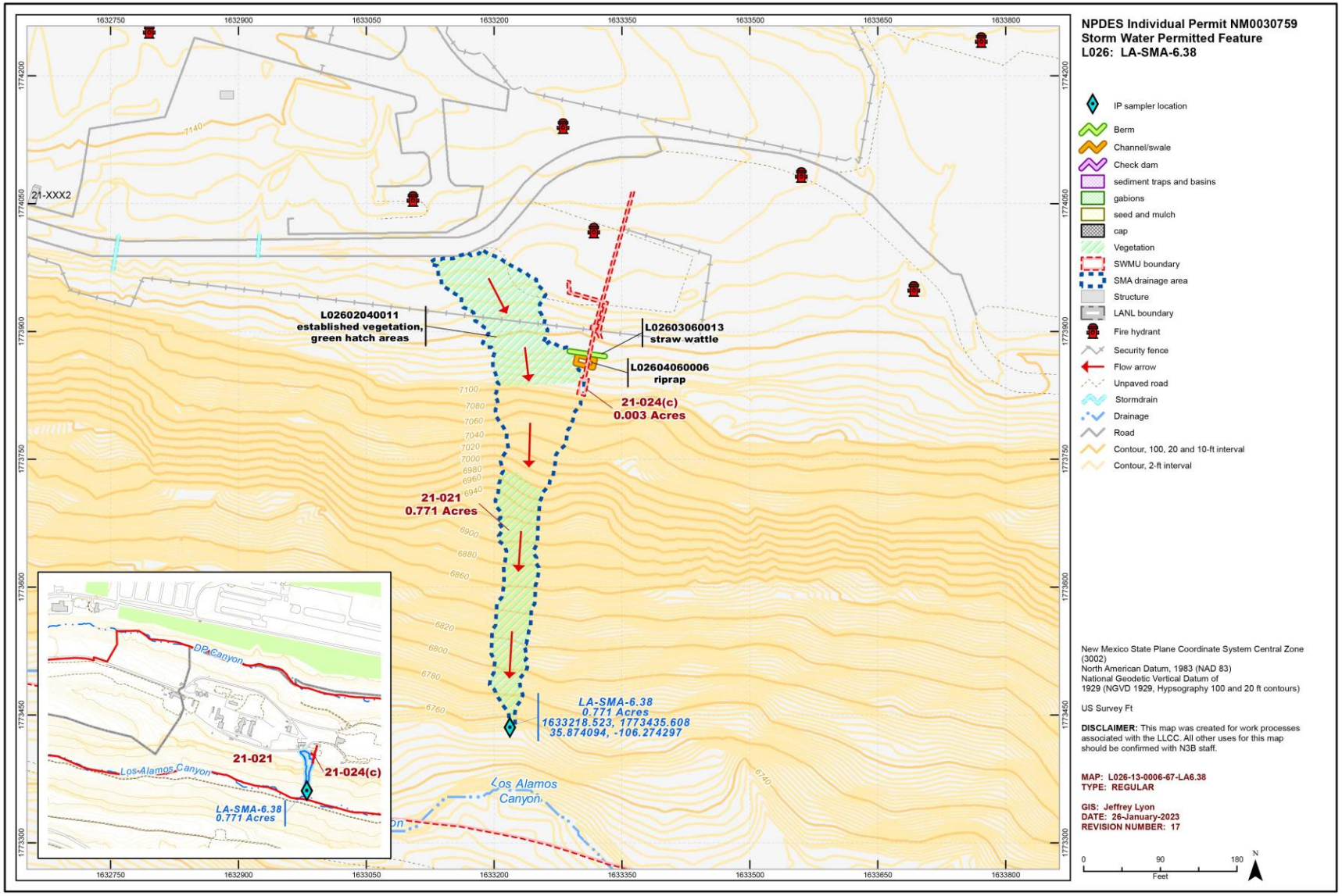

Figure 47-1 LA-SMA-6.38 location map

48.0 LA-SMA-6.395: SWMUs 21-021 and 21-024(j)

Two historical industrial activity areas, Sites 21-021 and 21-024(j), are associated with LA-SMA-6.395 (permitted feature L027). 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.

48.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(j) (9/28/2021)

SWMU 21-024(j) is a former septic system that served former building 21-155, a warehouse and laboratory within the northeast portion of DP East at TA-21. The septic system was constructed in 1961 and consisted of a reinforced concrete septic tank (former structure 21-194) that measured 5 ft × 3 ft × 6 ft deep; 4-in. VCP inlet and outlet drainlines; and an outfall that discharged to the south rim of DP Mesa, above Los Alamos Canyon. The septic tank was located adjacent to the southwest corner of building 21-155 near the southern DP Mesa perimeter road. The septic tank was decommissioned in 1966, pumped out, filled with earth, and abandoned in place. The septic tank, along with the associated inlet and outlet drainlines, were removed in 2007.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 48-1.

Table 48-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(j)	Septic system	Radionuclides, inorganic and organic chemicals

48.2 Control Measures

All active control measures in use at LA-SMA-6.395 are listed in Table 48-2. Their locations are shown on the project map (Figure 48-1) 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 48-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02702040008	Established Vegetation	-	X	X	-	B	4-17-2013
L02703010004	Earthen Berm	-	X	-	X	CB	6-2-2010
L02703010005	Earthen Berm	X	-	-	X	CB	6-2-2010

48.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.395 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 48-3. All other control-measure inspections conducted at the SMA are summarized in Table 48-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 48-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93147[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94066[b]	7-14-2022 7-20-2022	0.3 0.29	7-25-2022	11 5	Yes Yes
BMP-94653	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95609	8-23-2022	0.67	9-2-2022	10	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 48-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90509	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90689	2-10-2022	
Control Measure Verification Form	BMP-91115	3-10-2022	
Control Measure Verification Form	BMP-91332	4-7-2022	
Control Measure Verification Form	BMP-91937	5-5-2022	
Control Measure Verification Form	BMP-92384	6-2-2022	

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-92731	6-30-2022	No action recommended
Control Measure Verification Form	BMP-93577	7-27-2022	
Control Measure Verification Form	BMP-95278	8-24-2022	
Control Measure Verification Form	BMP-95649	9-22-2022	
Control Measure Verification Form	BMP-96090	11-3-2022	
Control Measure Verification Form	BMP-96558	12-1-2022	
Control Measure Verification Form	BMP-96877	12-15-2022	

48.4 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 (300 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 LA-SMA-6.395 in 2022 under the 2010 IP requirements.

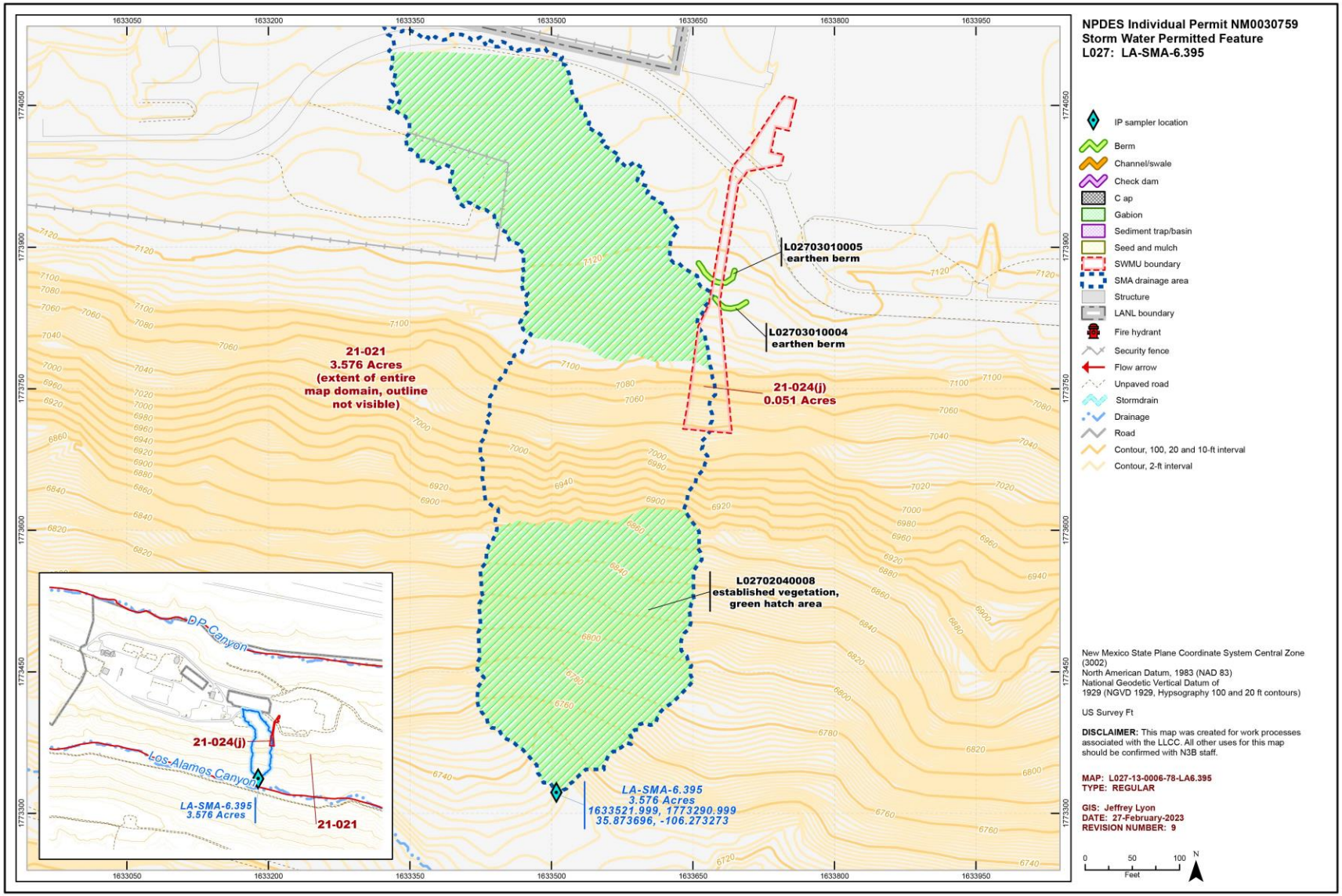

Figure 48-1 LA-SMA-6.395 location map

49.0 LA-SMA-6.5: SWMUs 21-021 and 21-024(i)

Two historical industrial activity areas, Sites 21-021 and 21-024(i), are associated with LA-SMA-6.5 (permitted feature L028). 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.

49.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(i) (9/28/2021)

SWMU 21-024(i) consists of a former septic system that served the former polonium research/processing laboratory (former building 21-152) and two former cooling towers (former structures 21-166 and 21-167), all located within DP East at TA-21. The 1990 SWMU Report describes SWMU 21-024(i) as a septic system consisting of a 5-ft × 10-ft × 7-ft-9-in. inactive septic tank (former structure 21-181); an inlet drainline serving former building 21-152 and former structures 21-166 and 21-167; a sump (former structure 21-175); an outlet drainline; and an outfall that discharged to the southeast rim of DP Mesa, above Los Alamos Canyon.

Engineering drawings ENG-R 1196 (pg. 8 of 8) and ENG-C 2213 show that the septic system received discharges from building 21-152 via 6-in.-diameter VCP inlet drainline, through a sump (structure 21-175) to the reinforced concrete septic tank (former structure 21-181, shown as 6-ft × 10-ft × 8-ft-deep on this drawing). Blowdown drainlines from two cooling towers (former structures 21-166 and 21-167) were also connected to sump 21-175 and septic tank 21-181. Effluent was routed via 6-in.-diameter VCP outlet line to the surface in a broad open area with a gentle slope extending approximately 30 ft to the southeastern edge of DP Mesa above Los Alamos Canyon. The sump and portions of the pipe currently lie under building 21-209.

The septic system received effluent from 21-152 and floor drain effluent from cooling towers 21-166 and 21-167 from 1945 to 1964. A portion of the inlet line, the tank and its contents, and the outlet line were left in place following deactivation in 1964 when building 21-209 was built on top of the existing inlet lines from building 21-152, structure 21-166, and structure 21-167. New blowdown pipelines from structures 21-166 and 21-167 were connected into the SWMU 21-024(k) septic system.

Former building 21-209 was situated over a section of the inlet drainline that previously connected to the sump (former structure 21-175). The portion of the inlet line from the fence to the septic tank, the septic tank, and the outlet drainline to the outfall were removed in 2001 as part of an IA, and the remaining portion of the inlet line was removed in 2007. Building 21-209 and both cooling towers were removed in 2010.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 49-1.

Table 49.1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(i)	Septic system	Radionuclides, inorganic and organic chemicals

49.2 Control Measures

All active control measures in use at LA-SMA-6.5 are listed in Table 49-2. Their locations are shown on the project map (Figure 49-1) 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 49-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02802040008	Established Vegetation	-	X	X	-	B	4-17-2013
L02803010004	Earthen Berm	X	-	-	X	CB	6-2-2010
L02803010006	Earthen Berm	X	-	-	X	CB	11-9-2010
L02806010002	Rock Check Dam	-	X	-	X	CB	6-2-2010

49.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at LA-SMA-6.5 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 49-3. All other control-measure inspections conducted at the SMA are summarized in Table 49-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

Maintenance activities conducted at the SMA are summarized in Table 49-5.

Table 49-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93146[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94064	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94259	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94651	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95608	8-23-2022	0.67	9-2-2022	10	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 49-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90510	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90690	2-10-2022	
Control Measure Verification Form	BMP-91116	3-10-2022	
Control Measure Verification Form	BMP-91333	4-7-2022	
Control Measure Verification Form	BMP-91938	5-5-2022	
Control Measure Verification Form	BMP-92385	6-2-2022	
Control Measure Verification Form	BMP-92732	6-30-2022	
Control Measure Verification Form	BMP-93578	7-27-2022	
Control Measure Verification Form	BMP-95279	8-24-2022	
Control Measure Verification Form	BMP-95650	9-22-2022	
Control Measure Verification Form	BMP-96091	11-3-2022	
Control Measure Verification Form	BMP-96559	12-1-2022	
Control Measure Verification Form	BMP-96878	12-15-2022	

Table 49-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95608	Reset rock material and re-defined Rock Check Dam L02806010002 at inspection to return to full capacity.	9-2-2022	0 days	Maintenance conducted as soon as practicable.

49.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at LA-SMA-6.5.

Stormwater monitoring was conducted at LA-SMA-6.5, under the 2010 IP requirements, from March 24 through November 1, 2022, resulting in a monitoring season of 223 days. Six inspections were performed during the monitoring period and are summarized in Table 49-6. Rain gage RG038 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. A sample of insufficient volume for analysis under the 2010 IP was collected on July 27, 2022.

Table 49-6 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-91654	4-29-2022	No	None	None
SMPLR-92256	6-27-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48
SMPLR-93450	8-11-2022	No	6-27-2022 7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-21-2022 7-24-2022 7-26-2022 7-27-2022 7-29-2022[c] 7-30-2022[c] 7-31-2022[c] 8-6-2022[c]	0.41/0.46 0.42/0.77 0.19/0.27 0.3/0.32 0.29/0.32 0.07/0.11 0.04/0.1 0.11/0.39 0.97/1.16 0.08/0.24 0.11/0.31 0.15/0.4 0.12/0.32
SMPLR-95422	9-7-2022	No	8-11-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022 8-23-2022 9-5-2022	0.33/0.38 0.46/0.78 0.07/0.1 0.11/0.2 0.05/0.31 0.09/0.12 0.67/0.68 0.11/0.11

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-96060	9-28-2022	No	9-9-2022 9-22-2022	0.12/0.19 0.2/0.22
SMPLR-96155	11-1-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.09/0.36 0.13/0.24 0.02/0.11 0.15/0.86 0.05/0.25

[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.

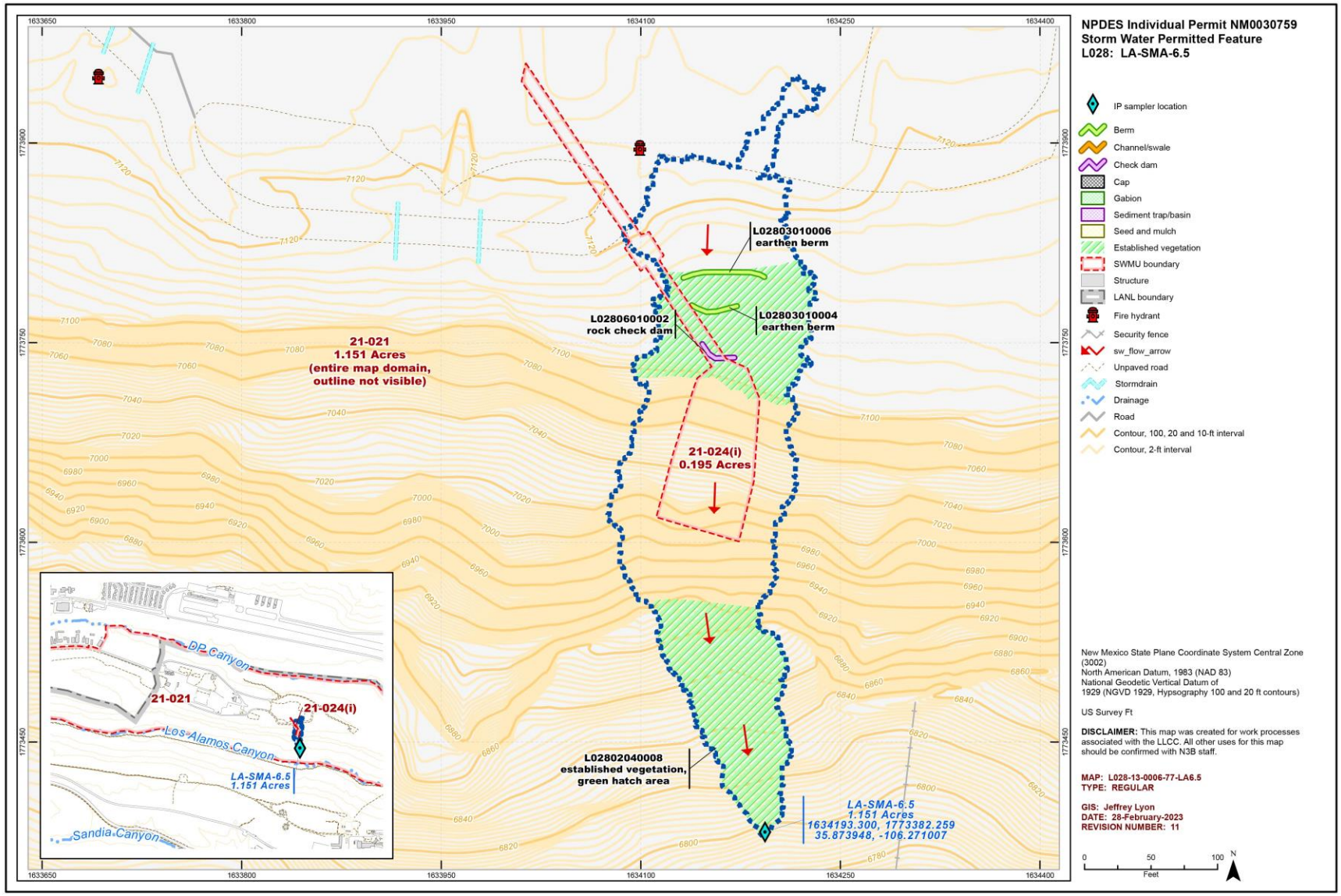

Figure 49-1 LA-SMA-6.5 location map

50.0 LA-SMA-9: SWMUs 26-001, 26-002(a), 26-002(b), and 26-003

Four historical industrial activity areas, Sites 26-001, 26-002(a), 26-002(b), and 26-003, are associated with LA-SMA-9 (permitted feature L029). 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.

50.1 Site Descriptions

26-001 (9/3/2019)

SWMU 26-001 is an inactive surface disposal area on the south-facing slope of Los Alamos Canyon that contains debris from a former five-room concrete storage vault (former structure 26-01) at former TA-26, formerly known as D-Site. D-Site was established for the Los Alamos Scientific Laboratory Chemistry and Metallurgical Research division, for the purpose of storing radioactive materials. The vault was constructed in 1946 and was decommissioned and dismantled in 1966.

Although the vault was constructed for storing radioactive materials, documentation describing the specific type and quantity of radioactive materials stored is not available. One documents states that the vault "stored friable containers which now contain, or have contained radioactive material." The vault was later used for storing HE.

Before the vault was dismantled in 1966, all contaminated contents that could be removed, including shelving, a drainage system [SWMU 26-002(b)], a sump [SWMU 26-002(a)], and duct work, were removed and disposed of at MDA C. The remaining portions of the vault, including concrete walls and foundation, were bulldozed over the edge of the mesa top onto the south-facing slope of Los Alamos Canyon. When all rubble had been pushed over the edge of the mesa top, soil was pushed over the side to cover the rubble to a minimum depth of 3 ft.

In the 1970s, most of the vault debris was observed on the bench below the mesa top; however, some debris may have fallen as far as the canyon floor. Former TA-26 is currently located within the boundary of TA-73.

26-002(a) (9/3/2019)

SWMU 26-002(a) is the former acid sump system that served the concrete storage vault at former building 26-1, known as the East Gate vault, within the former D-Site at TA-26. D-Site was established for the Los Alamos Scientific Laboratory Chemistry and Metallurgical Research division for the purpose of storing radioactive materials. The former acid sump system consisted of a 6-in.-diameter VCP floor drain in the south center room of the vault, connected to a collection sump (former structure 26-6) via an inlet drainline; the sump discharged through an outlet drainline to an outfall into Los Alamos Canyon.

Engineering records describe the sump as having an internal diameter of 4 ft and a depth of 10 ft. The collection sump (former structure 26-6) was located outside and directly south of the vault (former building 26-1). The vault and its associated structures were constructed in 1946 and decommissioned and demolished in 1966. The sump and its drainlines were removed before demolition of the storage vault and disposed of at MDA C. Former TA-26 is currently located within the boundary of TA-73.

26-002(b) (9/3/2019)

SWMU 26-002(b) is the former equipment room drainage system constructed in 1946 for the concrete storage vault (former structure 26-1) at TA-26, formerly known as D-Site. D-Site was established for the Los Alamos Scientific Laboratory Chemistry and Metallurgical Research division for the purpose of storing radioactive materials. The drainage system was installed during construction of the storage vault in 1946. It carried effluent that likely included wash water and minor spills from the former equipment room through a 4-in.-diameter VCP floor drain that discharged directly to the south-facing slope of Los Alamos Canyon. The former drainline was not connected to the SWMU 26-002(a) sump system or the SWMU 26-003 septic system. The former drainline ran south from structure 26-1, parallel to the SWMU 26-003 septic system drainlines, and discharged at a point near the septic system outfall, directly above the SWMU 26-001 surface disposal area. The drainlines were removed before demolition of the vault structure in 1966. All removable material, including the drainlines, was disposed of at MDA C. Former TA-26 is currently located within the boundary of TA-73.

26-003 (9/3/2019)

SWMU 26-003 is the former septic system that served sanitary facilities in the east room of the concrete storage vault (former structure 26-1) at former TA-26, formerly known as D-Site. D-Site was established for the Los Alamos Scientific Laboratory Chemistry and Metallurgical Research division for the purpose of storing radioactive materials. The septic system consisted of a 4-in.-diameter VCP inlet drainline connected to the 250-gal. steel septic tank (former structure 26-50), and an overflow outlet drainline that discharged to an outfall on the south-facing slope of Los Alamos Canyon below the mesa top. The septic system was installed in August 1948 south of building 26-1.

It was assumed that the septic system was free from radioactive contamination because the system served only the toilet and sink in the least contaminated room of the storage vault. However, because radioactive contamination was found in the vault, it is possible that contaminants were introduced into the septic system. The former SWMU 26-002(b) drainline ran south from the storage vault (former building 26-1), parallel to the SWMU 26-003 septic system drainlines, and discharged at a point near the septic system outfall.

The SWMU 26-003 septic system may have been removed at the same time as the sump system [SWMU 26-002(a)] and other removable components associated with the vault were removed in 1966, but no clear documentation is available. The drainlines were removed before demolition of the vault structure in 1966. All removable material, including the drainlines, was disposed of at MDA C. Former TA-26 is currently located within the boundary of TA-73.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 50-1.

Table 50-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
26-001	Surface disposal site	Radionuclides, HE
26-002(a)	Soil contamination from former acid sump system	Uranium, tritium
26-002(b)	Drainline associated with Vault 26-01	Uranium, tritium
26-003	Septic system	Uranium, tritium, inorganic and organic chemicals

50.2 Control Measures

All active control measures in use at LA-SMA-9 are listed in Table 50-2. Their locations are shown on the project map (Figure 50-1) 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 50-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L02902040015	Established Vegetation	-	X	X	-	B	5-14-2013
L02903010014	Earthen Berm	-	X	-	X	CB	12-15-2010
L02903020019	Base Course Berm	X	-	-	X	B	10-30-2015
L02903020021	Base Course Berm	-	X	-	X	B	10-30-2015
L02903120018	Rock Berm	X	-	-	X	B	10-30-2015
L02904050009	Water Bar	X	-	X	-	CB	8-28-2009
L02904050010	Water Bar	X	-	X	-	CB	8-28-2009

50.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at LA-SMA-9 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 50-3. Maintenance activities conducted at the SMA are summarized in Table 50-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 50-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93303[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-94065[b]	7-14-2022 7-20-2022	0.25 0.38	7-22-2022	8 2	Yes Yes
BMP-94474[b]	7-26-2022 7-27-2022 7-30-2022 7-31-2022	0.84 0.48 0.33 0.39	8-2-2022	7 6 3 2	Yes Yes Yes Yes
BMP-95377	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 50-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95215 (follow up from BMP-94474)	Added more material to Water Bar L02904050010 to increase capacity.	8-23-2022	21 days	Maintenance conducted as soon as practicable.

50.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 10, 2014 .Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (208 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 LA-SMA-9 in 2022 under the 2010 IP requirements.

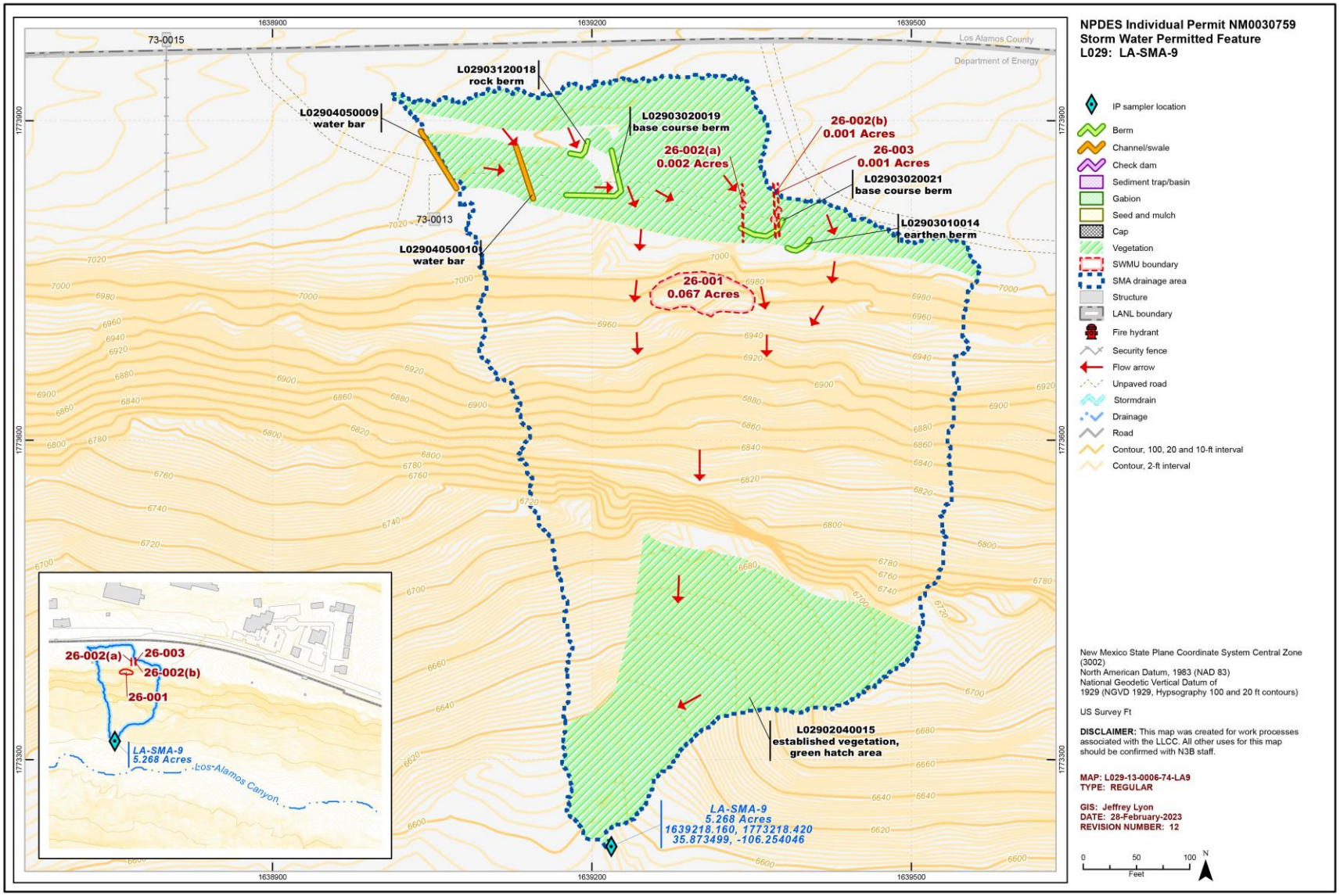

Figure 50-1 LA-SMA-9 location map

51.0 LA-SMA-10.12: AOC 53-008

One historical industrial activity area, Site 53-008, is associated with LA-SMA-10.12 (permitted feature L030A). 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.

51.1 Site Descriptions

53-008 9/29/2021

AOC 53-008 is an unpaved open area (referred to as a "boneyard") used to store used materials and equipment associated with experiments conducted at TA-53. This storage area, approximately 3 to 4 acres in size, is irregularly shaped, and located east and south of the former TA-53 surface impoundments [former Consolidated Unit 53-002(a)-99]. Most of the storage area is vegetated with grasses, shrubs, and juniper trees, and several dirt trails also run through it.

Materials shown to be present at the Site in 1989 photographs include vacuum pumps, metal ducting, concrete shielding blocks, empty overpack drums, and drums containing steel bearings. The Site was inspected in September 1993 and was found to contain shielding blocks (magnetite concrete and steel), concrete, steel, other metallic debris, and other miscellaneous items. No hazardous materials or chemicals were observed, with the exception of lead stored in a shed (structure 53-621) at the south end of the Site.

This area has been used for storage from approximately 1972 to the present. Currently, much of the material previously stored at the Site has been removed.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 51-1.

Table 51-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
53-008	Storage area	Metals, radionuclides

51.2 Control Measures

All active control measures in use at LA-SMA-10.12 are listed in Table 51-2. Their locations are shown on the project map (Figure 51-1) 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 51-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L030A02040032	Established Vegetation	-	X	X	-	B	4-26-2013
L030A03010025	Earthen Berm	-	X	-	X	B	8-15-2011
L030A03010026	Earthen Berm	X	-	-	X	EC	11-19-2012
L030A03010027	Earthen Berm	-	X	-	X	EC	11-19-2012

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
L030A03060028	Straw Wattle	X	-	-	X	EC	11-19-2012
L030A03060034	Straw Wattle	-	X	-	X	B	8-16-2016
L030A03060035	Straw Wattle	-	X	-	X	B	8-16-2016
L030A03060036	Straw Wattle	-	X	-	X	B	8-16-2016
L030A03060037	Straw Wattle	X	-	-	X	B	8-11-2021
L030A03060038	Straw Wattle	-	X	-	X	B	10-26-2021
L030A03120005	Rock Berm	X	-	-	X	CB	9-28-2009
L030A03120006	Rock Berm	X	-	-	X	CB	9-28-2009
L030A03120009	Rock Berm	-	X	-	X	CB	6-11-2010
L030A03120012	Rock Berm	X	-	-	X	CB	12-15-2010
L030A03120015	Rock Berm	-	X	-	X	CB	12-15-2010
L030A03120016	Rock Berm	-	X	-	X	CB	12-15-2010
L030A03120017	Rock Berm	X	-	-	X	CB	12-15-2010
L030A03120019	Rock Berm	X	-	-	X	CB	12-15-2010
L030A03120020	Rock Berm	-	X	-	X	CB	12-15-2010
L030A03120021	Rock Berm	-	X	-	X	CB	12-15-2010
L030A03120030	Rock Berm	-	X	-	X	EC	11-19-2012
L030A04060007	Riprap	-	X	X	-	CB	9-28-2009
L030A06010001	Rock Check Dam	X	-	-	X	CB	6-1-2009
L030A06010002	Rock Check Dam	X	-	-	X	CB	9-28-2009
L030A06010003	Rock Check Dam	-	X	-	X	CB	9-28-2009
L030A06010008	Rock Check Dam	X	-	-	X	CB	6-11-2010
L030A06010011	Rock Check Dam	-	X	-	X	CB	6-11-2010

51.3 Inspections and Maintenance

Rain gage RG-TA-53 recorded ten storm events at LA-SMA-10.12 during the 2022 season, requiring four post-storm inspections, which are summarized in Table 51-3. Maintenance activities conducted at the SMA are summarized in Table 51-4. No other control-measure inspections or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 51-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93266[a,b]	6-26-2022	0.28		15	Yes
	6-27-2022	0.29		14	Yes
	7-1-2022	0.3	7-11-2022	10	Yes
BMP-94037	7-14-2022	0.25	7-19-2022	5	Yes
BMP-94209[b]	7-20-2022	0.38		7	Yes
	7-26-2022	0.84		1	Yes
	7-27-2022	0.48	7-27-2022	0[c]	Yes
BMP-94847[b]	7-30-2022	0.33		13	Yes
	7-31-2022	0.39		12	Yes
	8-11-2022	0.74	8-12-2022	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

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

Table 51-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95240 (follow up from BMP-94209)	Repaired and built up side of Earthen Berm L030A03010026 crossing unpaved road that may have been impacted by vehicular traffic.	9-2-2022	37 days	Maintenance was delayed.

51.4 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 a TAL exceedance for gross-alpha activity (23 pCi/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 LA-SMA-10.12, corrective-action stormwater samples were collected on September 12, 2013, and July 20, 2015. Analytical results from these samples yielded no TAL exceedances. 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, 2015, NPDES Permit No. NM0030759" (LANL 2016, 601240).

Stormwater monitoring was not conducted at LA-SMA-10.12 in 2022 under the 2010 IP requirements.

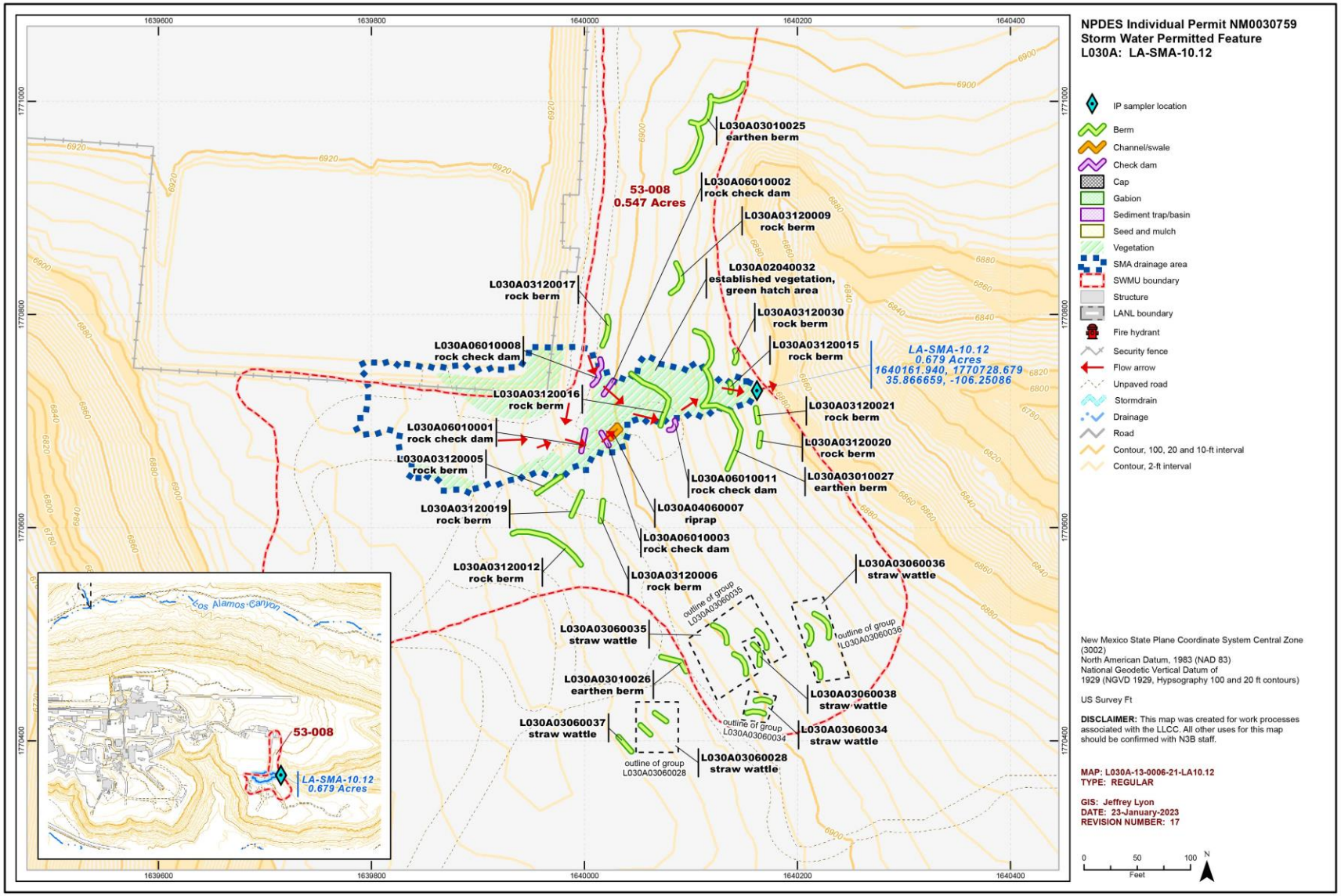

Figure 51-1 LA-SMA-10.12 location map

52.0 DP-SMA-0.3: SWMU 21-029

One historical industrial activity area, Site 21-029, is associated with DP-SMA-0.3 (permitted feature D001). 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.

52.1 Site Descriptions

21-029 (9/28/2021)

SWMU 21-029 is the former DP Tank Farm, located entirely on the mesa top within the very western portion of DP West and TA-21. DP Tank Farm consisted of 15 ASTs and USTs that contained various petroleum hydrocarbon products, and two fill stations (East and West) that were located just inside the earthen berm along the northern perimeter of the tank farm, on a 3.5-acre site between the eastern boundary of the Knights of Columbus property line and the western boundary of the Los Alamos County Fire and Training Station. Structures at the site included fuel tanks, fill ports, valve boxes, the East and West Fill Stations, access roads, and a large earthen berm on the north side of the Site, extending from just east of the West Fill Station to the east end of the Site. Other structures included two CMPs that previously discharged stormwater runoff from DP Road into DP Canyon (AOC C-00-021) and the western portion of the facility access road.

DP Tank Farm was the primary fueling station supporting LASL operations until the late 1970s, when some of the fuel storage and distribution operations were moved to TA-03. The tank farm remained operational until February 1985. Thirteen of the tanks were installed belowground, and two were installed aboveground. The approximate tank capacities reportedly ranged from 21,000 gal. to 51,000 gal. To contain any petroleum hydrocarbon releases, an earthen berm was constructed along the northern perimeter of the Site sometime between 1974 and 1986. The berm was approximately 397 ft long × 4 ft high.

All storage tanks and structures (including piping, two fill stations, and valve boxes) were decommissioned and removed in 1988. The excavation for each UST was backfilled with the soil that had covered the tanks. During decommissioning activities, one tank (structure-21-ATF-10) had a leaking gasket, and 4 yd^3 of soil were removed. Approximately 75 yd^3 of soil were also removed from the areas around the two fill stations, where the soil was stained with petroleum hydrocarbons. The remaining tanks were reportedly in excellent condition, as documented during corrosion inspections conducted in 1980. Minor spills and leaks during the 39 yr of day-to-day operations at the Site resulted in the release of diesel fuel, kerosene, ethanol/alcohol, No. 2 diesel fuel oil, and leaded gasoline into the environment at the tank farm, including two petroleum hydrocarbon seeps in DP Canyon (AOC C-00-021).

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 52-1.

Table 52-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
21-029	Former DP Tank Farm	PAHs, lead

52.2 Control Measures

All active control measures in use at DP-SMA-0.3 are listed in Table 52-2. Their locations are shown on the project map (Figure 52-1) 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 52-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00104010026	Earthen Channel/Swale	X	-	X	-	B	7-21-2017
D00106010018	Rock Check Dam	-	X	-	X	EC	10-30-2012
D00106010019	Rock Check Dam	-	X	-	X	EC	10-30-2012

52.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-0.3 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 52-3. All other control-measure inspections conducted at the SMA are summarized in Table 52-4.

SWMU 21-029 is located in Land Conveyance Tracts A-9 and A-10 of the DP Road Site land transfer to Los Alamos County. Construction of a new apartment complex was completed in 2022 within DP-SMA-0.3. The SMA drainage area was updated in 2022 to reflect the current condition of the Site and SMA; the updated drainage area is shown in Figure 52-1. There was no change to the monitoring location due to the construction activities, and no maintenance activities were conducted at the SMA in 2022.

Table 52-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93114[a,b]	6-25-2022	0.3		12	Yes
	6-27-2022	0.41		10	Yes
	7-1-2022	0.42	7-7-2022	6	Yes
BMP-94046	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94241	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94618	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95593	8-23-2022	0.67	9-1-2022	9	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 52-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
DP-SMA-0.3 FTL Assessment of Canyon Walk Apartments	BMP-91274	3-16-2022	Established Vegetation D00102040015 has been removed.

52.4 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 gross-alpha activity (65.5 pCi/L) and radium-226 and -228 activity (68.3 pCi/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 DP-SMA-0.3, corrective-action stormwater samples were collected on July 12 and September 13, 2013. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for gross-alpha activity (87.8 pCi/L and 68.7 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 DP-SMA-0.3 in 2022 under the 2010 IP requirements.

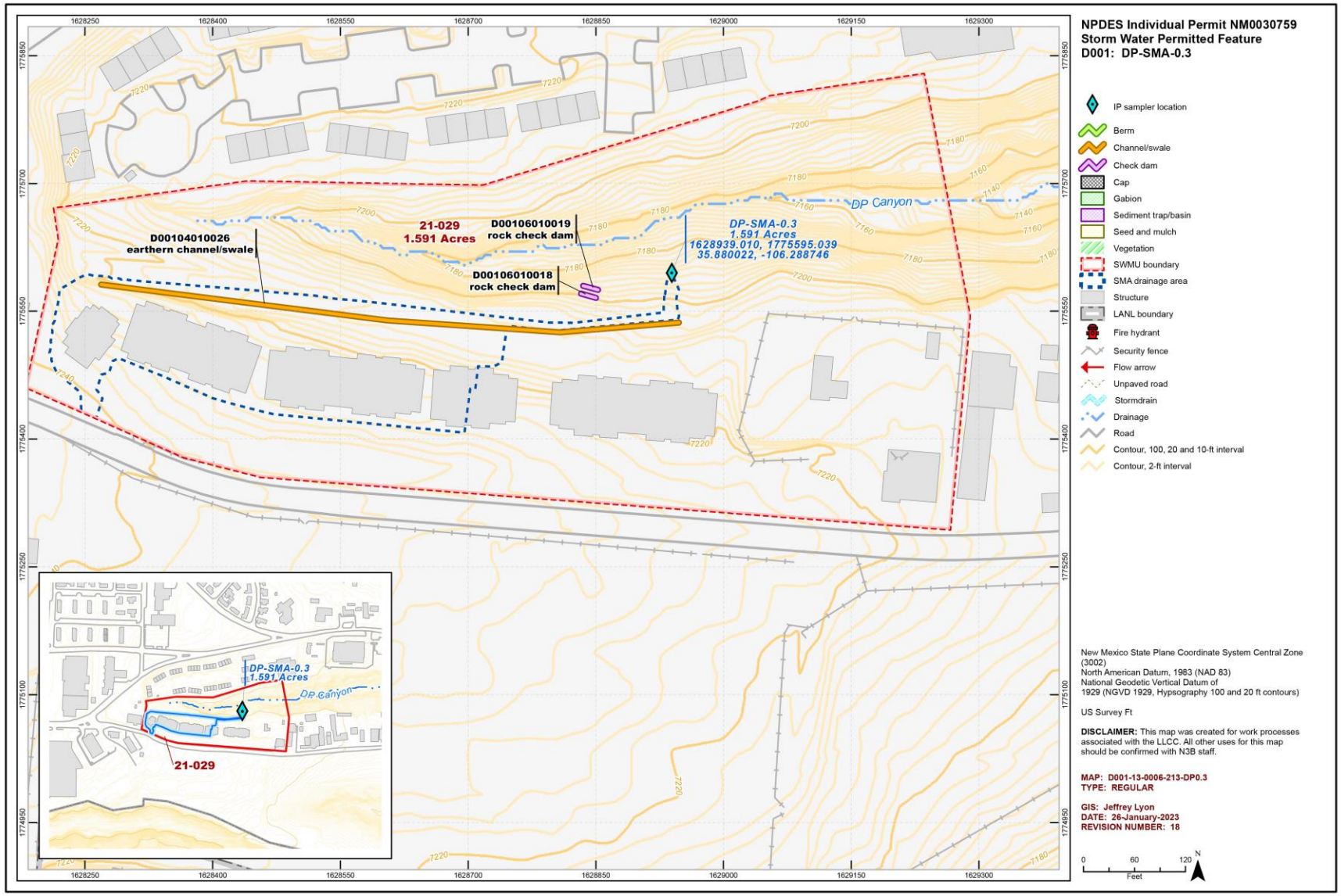

Figure 52-1 DP-SMA-0.3 location map

53.0 DP-SMA-0.4: SWMU 21-021

One historical industrial activity area, Site 21-021, is associated with DP-SMA-0.4 (permitted feature D002). 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.

53.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 53-1.

Table 53-1 POCs Known or Suspected to be Used Historically at the Site

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90

53.2 Control Measures

All active control measures in use at DP-SMA-0.4 are listed in Table 53-2. Their locations are shown on the project map (Figure 53-1) 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 53-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00202040009	Established Vegetation	-	X	X	-	B	4-17-2013
D00203060010	Straw Wattle	X	-	-	X	B	8-5-2015
D00203060012	Straw Wattle	-	X	-	X	B	5-30-2019
D00204040003	Culvert	X	-	X	-	CB	6-1-209
D00204060006	Riprap	X	-	-	X	CB	5-27-2010
D00204060011	Riprap	X	-	-	X	B	5-30-2019

53.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-0.4 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 53-3. All other control-measure inspections conducted at the SMA are summarized in Table 53-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge, were conducted at the SMA in 2022.

Table 53-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93115[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94047	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94242	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94619	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95594	8-23-2022	0.67	9-2-2022	10	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 53-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90494	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90674	2-10-2022	
Control Measure Verification Form	BMP-91100	3-10-2022	
Control Measure Verification Form	BMP-91317	4-7-2022	
Control Measure Verification Form	BMP-91922	5-5-2022	
Control Measure Verification Form	BMP-92369	6-2-2022	
Control Measure Verification Form	BMP-92719	6-30-2022	
Control Measure Verification Form	BMP-93562	7-27-2022	
Control Measure Verification Form	BMP-94538	8-24-2022	
Control Measure Verification Form	BMP-95637	9-22-2022	
Control Measure Verification Form	BMP-96070	11-3-2022	
Control Measure Verification Form	BMP-96546	12-1-2022	
Control Measure Verification Form	BMP-96865	12-15-2022	

53.4 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 (3540 µg/L) and copper (10.7 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 DP-SMA-0.4 in 2022 under the 2010 IP requirements.

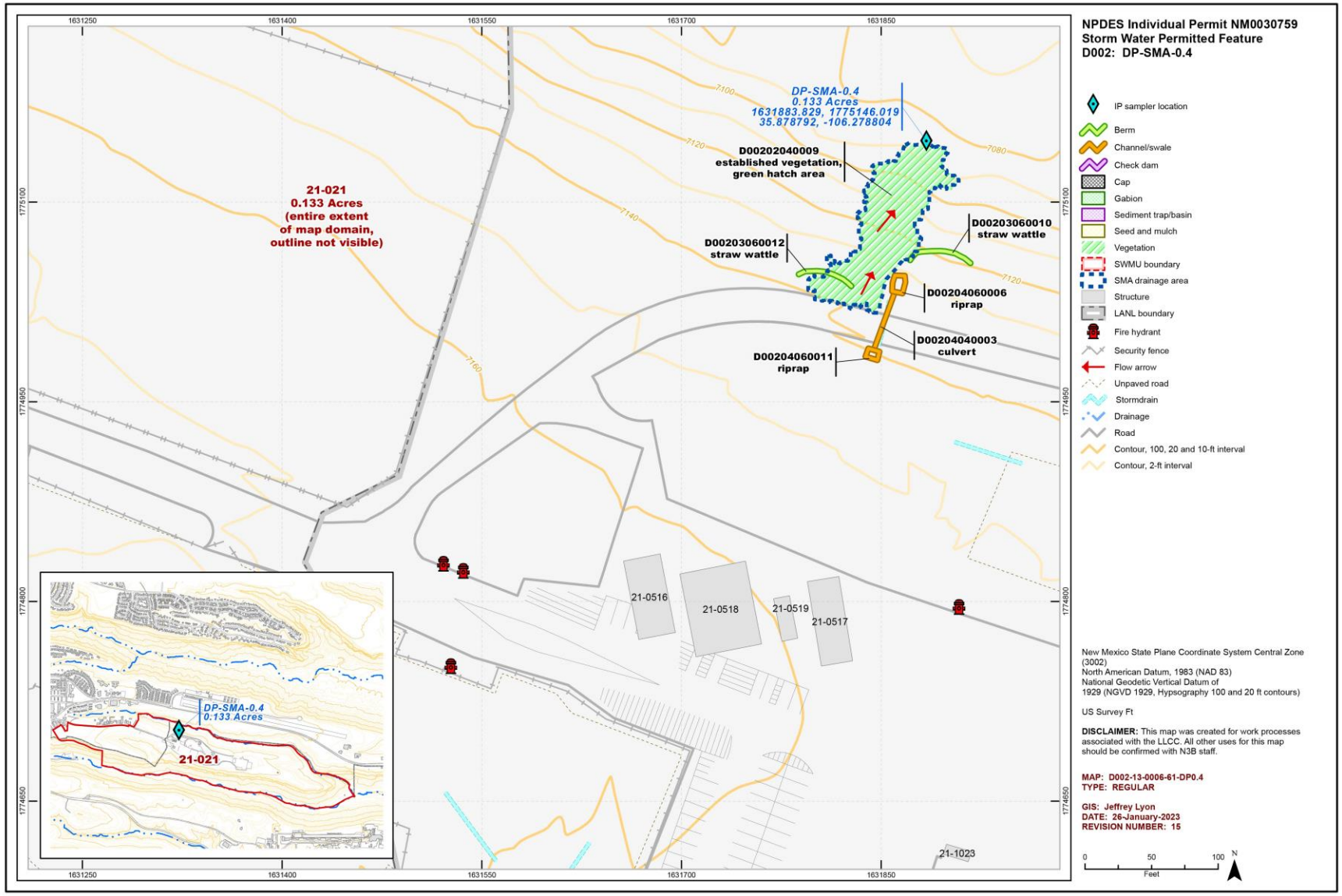

Figure 53-1 DP-SMA-0.4 location map

54.0 DP-SMA-0.6: SWMUs 21-021 and 21-024(l)

Two historical industrial activity areas, Sites 21-021 and 21-024(l), are associated with DP-SMA-0.6 (permitted feature D003). 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.

54.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(l) (2/27/2019)

SWMU 21-024(l) consists of a former outfall that received liquid waste from the floor drain in the building 21-021 mechanical room via a 3-in. CI drainline. Building 21-021 was constructed in 1946 at TA-21 and was used as a secure vault to store special fissile material, including uranium and plutonium metal. Building 21-021 was decommissioned in 1978 and remained vacant until it was demolished. The SWMU 21-024(l) drainline was removed during the 2006–2007 Consent Order Phase I investigation.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 54-1.

Table 54-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(l)	Outfall from building 21-21	Plutonium, uranium

54.2 Control Measures

All active control measures in use at DP-SMA-0.6 are listed in Table 54-2. Their locations are shown on the project map (Figure 54-1) 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 54-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00302040015	Established Vegetation	-	X	X	-	B	4-17-2013
D00303010013	Earthen Berm	-	X	-	X	CB	2-25-2011
D00303010014	Earthen Berm	-	X	-	X	CB	2-25-2011
D00303020011	Base Course Berm	X	-	-	X	CB	2-16-2011
D00304010004	Earthen Channel/Swale	X	-	X	-	CB	6-1-2009
D00305020010	Sediment Basin	-	X	-	X	CB	2-16-2011
D00308020012	Rock Cap	-	-	X	-	CB	2-16-2011

54.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-0.6 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 54-3. All other control-measure inspections conducted at the SMA are summarized in Table 54-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 54-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93116[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	 7-6-2022	11 9 5	Yes Yes Yes
BMP-94048	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94243	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94620	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95595	8-23-2022	0.67	9-2-2022	10	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 54-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90495	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90675	2-10-2022	
Control Measure Verification Form	BMP-91101	3-10-2022	
Control Measure Verification Form	BMP-91318	4-7-2022	
Control Measure Verification Form	BMP-91923	5-5-2022	
Control Measure Verification Form	BMP-92370	6-2-2022	
Control Measure Verification Form	BMP-92720	6-30-2022	
Control Measure Verification Form	BMP-93563	7-27-2022	
Control Measure Verification Form	BMP-94539	8-24-2022	
Control Measure Verification Form	BMP-95638	9-22-2022	
Control Measure Verification Form	BMP-96071	11-3-2022	
Control Measure Verification Form	BMP-96547	12-1-2022	
Control Measure Verification Form	BMP-96866	12-15-2022	

54.4 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 (199 pCi/L). The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was not conducted at DP-SMA-0.6 in 2022 under the 2010 IP requirements.

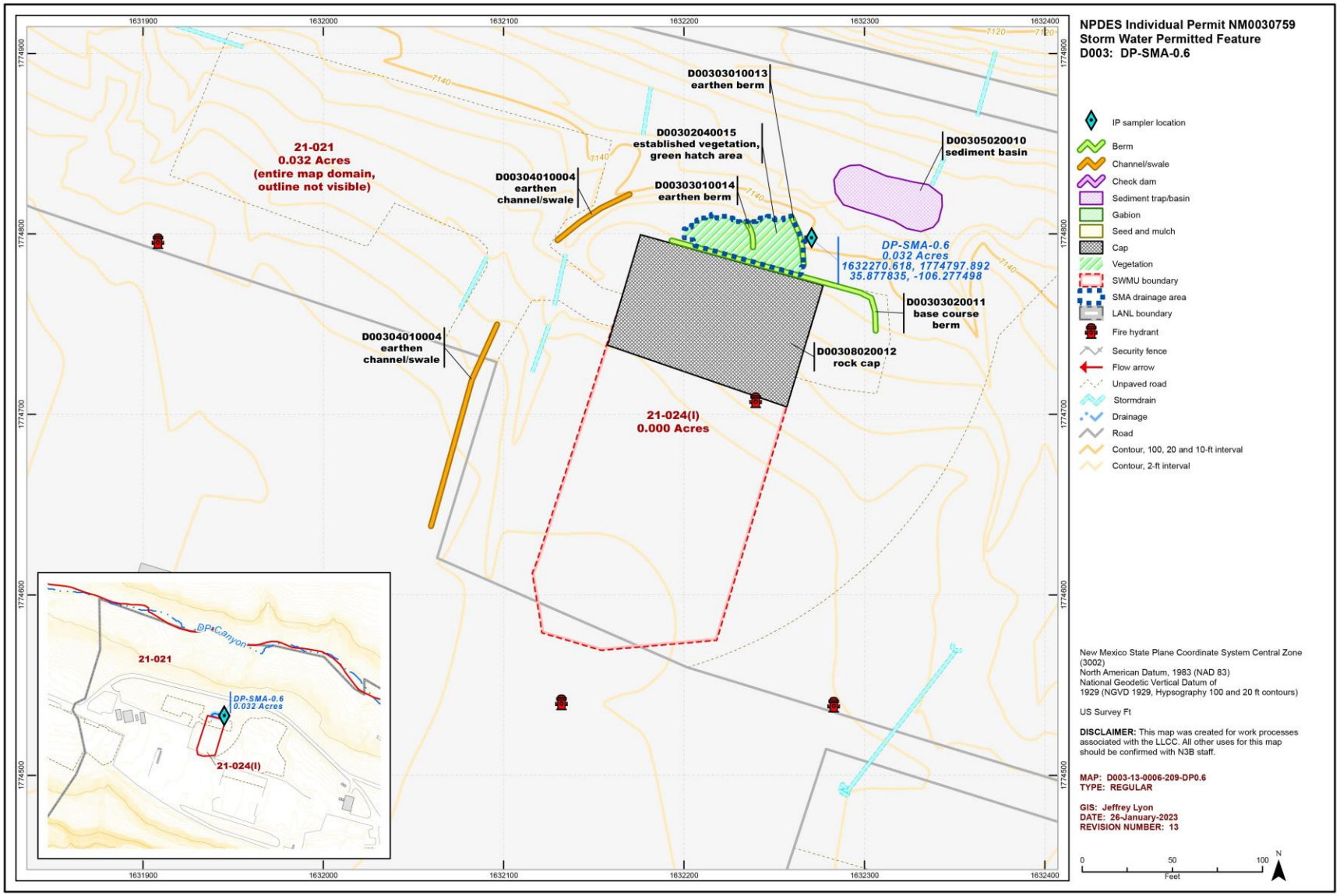

Figure 54-1 DP-SMA-0.6 location map

55.0 DP-SMA-1: SWMUs 21-011(k) and 21-021

Two historical industrial activity areas, Sites 21-011(k) and 21-021, are associated with DP-SMA-1 (permitted feature D004). 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.

55.1 Site Descriptions

21-011(k) (4/26/2019)

SWMU 21-011(k) was the NPDES-permitted outfall (EPA 050050) for treated industrial wastewater from the former RLWTF in building 21-257 [SWMU 21-011(a)] at the north boundary of MDA T at TA-21. Prior to being permitted, the outfall also received treated industrial wastewater from the former RLWTF in former building 21-35 [SWMU 21-010(a)]. The SWMU consisted of a drainline from two holding tanks containing treated wastewater [structures 21-112 and -113, SWMUs 21-011(f and g)] and an outfall area on the north-facing slope of DP Canyon. The original drainline from tanks 21-112 and -113 consisted of a 4-in. VCP that discharged to an outfall ditch excavated into soil and tuff. The VCP was replaced in 1976 with a 4-in. CI drainline that was installed within the same trench as the original drainline. The discharge end of the 4-in. CI drainline was located approximately 80 ft north of the TA-21 perimeter road. The former outfall drainline terminated at a gently sloping, rocky surface extending approximately 30 ft to the south rim of DP Canyon.

TA-21 is the former plutonium processing facility at the Laboratory. The first RLWTF in former building 21-35, [SWMU 21-010(a)] was activated in 1952, and operated until 1967 when the new industrial RLWTF in Building 21-257 [SWMU 21-011(a)] came online. Both facilities treated RLW from DP West and DP East, consisting of liquids remaining after plutonium extraction and processing of radioactive materials for nuclear weapons and aeronautical research projects. Treatment did not fully neutralize the wastewater but raised the pH to the then current acceptable discharge levels for the SWMU 21-011(k) outfall. The treatment system effluent was piped northeast toward DP Canyon and discharged to an outfall on the north side of DP Mesa [SWMU 21-011(k)]. This effluent contained a variety of radionuclides and chemicals, primarily inorganic chemicals.

Discharges of treated wastewater to the outfall were discontinued in July 1986. Building 21-257 was used between 1986 and 2006 for the treatment of tritiated wastewater from the TSTA (Building 21-155). The treated wastewater was stored in holding tanks 21-112 and 21-113 [SWMUs 21-011(f and g)], and was routinely transported by tanker truck to the RLWTF at TA-50.

In January 2001, approximately 55 gal. of partially treated tritiated wastewater were unintentionally released from holding tank 21-113 through the SWMU 21-011(k) drainline when a faulty gauge caused the tank to overfill. The wastewater in the tank originated from the TSTA facility. The released wastewater infiltrated into the ground within 50 ft of the end of the drainline within the outfall area of SWMU 21-011(k). The Release/Discharge Notification submitted to NMED and EPA Region 6 indicates that the wastewater did not reach a watercourse. The area impacted was approximately 2 ft × 50 ft and was covered with snow at the time of the release. The outlet drainline from holding tanks 21-112 and -113 was permanently plugged in January 2001 as part of the release response, and was subsequently removed during the 2003 VCM conducted at the Site. SWMU 21-011(k) is located directly northeast of the MDA T NES boundary.

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 55-1.

Table 55-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-011(k)	Former outfall from building 21-257	Anericium-241, cesium-137, plutonium isotopes, thorium isotopes, strontium-90, uranium isotopes, metals, inorganic chemicals, tritium
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90

55.2 Control Measures

All active control measures in use at DP-SMA-1 are listed in Table 55-2. Their locations are shown on the project map (Figure 55-1) 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 55-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00402040015	Established Vegetation	-	X	X	-	B	4-17-2013
D00403010002	Earthen Berm	X	-	-	X	CB	4-1-2009
D00403010011	Earthen Berm	-	X	-	X	B	5-18-2011
D00403010017	Earthen Berm	-	X	-	X	B	2-8-2017
D00403020014	Base Course Berm	X	-	-	X	B	8-4-2011
D00403120009	Rock Berm	-	X	-	X	CB	5-27-2010
D00403120012	Rock Berm	-	X	-	X	B	5-18-2011
D00404060016	Riprap	X	-	X	-	B	5-1-2014
D00406030006	Juniper Bales	-	X	-	X	CB	10-2-2009

55.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-1 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 55-3. All other control-measure inspections conducted at the SMA are summarized in Table 55-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 55-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93117[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94049	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94244	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94621	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95596	8-23-2022	0.67	9-2-2022	10	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 55-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90496	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90676	2-10-2022	
Control Measure Verification Form	BMP-91102	3-10-2022	
Control Measure Verification Form	BMP-91319	4-7-2022	
Control Measure Verification Form	BMP-91924	5-5-2022	
Control Measure Verification Form	BMP-92371	6-2-2022	
Control Measure Verification Form	BMP-92721	6-30-2022	
Control Measure Verification Form	BMP-93564	7-27-2022	
Control Measure Verification Form	BMP-94540	8-24-2022	
Control Measure Verification Form	BMP-95639	9-22-2022	
Control Measure Verification Form	BMP-96072	11-3-2022	
Control Measure Verification Form	BMP-96548	12-1-2022	
Control Measure Verification Form	BMP-96867	12-15-2022	

55.4 Stormwater Monitoring

Stormwater monitoring was conducted at DP-SMA-1 under the 2010 IP requirements from March 28 through July 6, 2022, resulting in a monitoring season of 101 days. Three inspections were performed during the monitoring period and are summarized in Table 55-5. Rain gage RG038 recorded 10 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A baseline confirmation-monitoring sample was collected on June 26, 2022. Analytical results for this sample yielded a TAL exceedance for copper (9.86 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 55-5 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-91682	4-11-2022	No	None	None
SMPLR-91966	6-2-2022	No	None	None
SMPLR-92738	7-6-2022	Yes	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022[c] 7-1-2022[c] 7-4-2022[c]	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

[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.

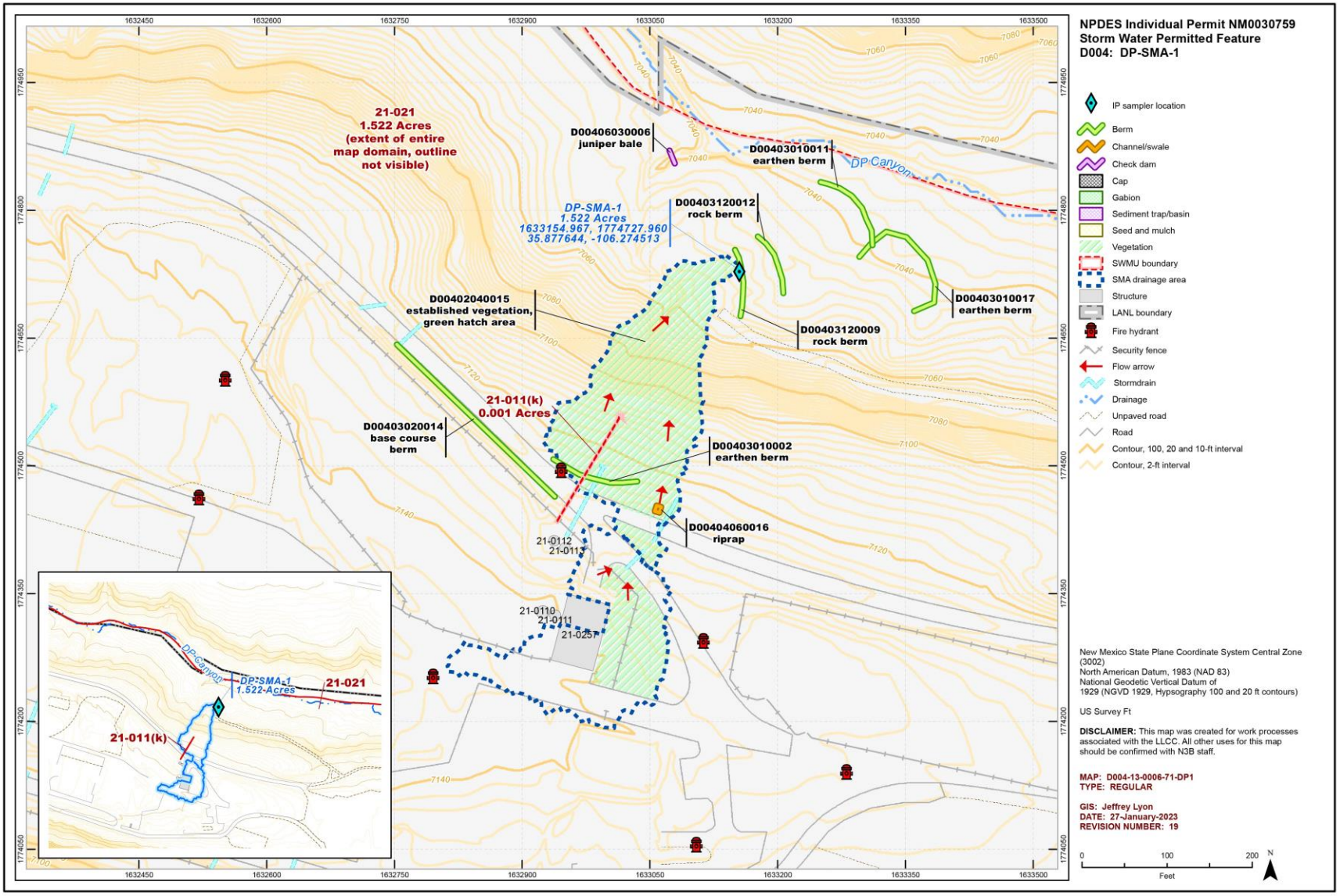

Figure 55-1 DP-SMA-1 location map

56.0 DP-SMA-2: SWMUs 21-021 and 21-024(h)

Two historical industrial activity areas, Sites 21-021 and 21-024(h), are associated with DP-SMA-2 (permitted feature D005). 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.

56.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(h) (9/28/2021)

SWMU 21-024(h) is a former septic system associated with former administration building and shop (former building 21-151) and a former polonium-processing and high-temperature laboratory (former building 21-152), within the northeast portion of DP East at TA-21. The former septic system consisted of a reinforced-concrete septic tank (former structure 21-163) that measured 11.33 ft × 6.33 ft × 8.67 ft deep, 6-in.-diameter VCP inlet and outlet drainlines, and an outfall that discharged to the surface of the north rim of DP Mesa above DP Canyon. The septic system was constructed in 1945 at the same time as building 21-151. Building 21-151 was removed in the early 1960s, and in 1965, the building 21-152 septic system was tied into the existing septic tank (former structure 21-163). The septic system was decommissioned in 1966 and was abandoned in place. The septic tank and inlet and outlet drainlines were subsequently removed in 2007. Building 21-152 was removed in 2010.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 56-1.

Table 56-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(h)	Septic system	Radionuclides, polonium, tritium, inorganic and organic chemicals

56.2 Control Measures

All active control measures in use at DP-SMA-2 are listed in Table 56-2. Their locations are shown on the project map (Figure 56-1) 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 56-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00502040012	Established Vegetation	-	X	X	-	B	4-17-2013
D00503010011	Earthen Berm	-	X	-	X	B	5-18-2011
D00503020003	Base Course Berm	X	-	-	X	CB	10-2-2009
D00506030007	Juniper Bales	-	X	-	X	CB	11-24-2009
D00506030009	Juniper Bales	-	X	-	X	CB	11-24-2009

56.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-2 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 56-3. All other control-measure inspections conducted at the SMA are summarized in Table 56-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities. No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 56-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93118[a,b]	6-25-2022 6-27-2022 7-1-2022	0.3 0.41 0.42	7-6-2022	11 9 5	Yes Yes Yes
BMP-94050	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94245	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94622	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95597	8-23-2022	0.67	9-2-2022	10	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 56-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90497	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90677	2-10-2022	
Control Measure Verification Form	BMP-91103	3-10-2022	
Control Measure Verification Form	BMP-91320	4-7-2022	
Control Measure Verification Form	BMP-91925	5-5-2022	
Control Measure Verification Form	BMP-92372	6-2-2022	
Control Measure Verification Form	BMP-92722	6-30-2022	
Control Measure Verification Form	BMP-93565	7-27-2022	
Control Measure Verification Form	BMP-94541	8-24-2022	
Control Measure Verification Form	BMP-95640	9-22-2022	
Control Measure Verification Form	BMP-96073	11-3-2022	
Control Measure Verification Form	BMP-96549	12-1-2022	
Control Measure Verification Form	BMP-96868	12-15-2022	

56.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at DP-SMA-2.

Stormwater monitoring was conducted at DP-SMA-2 under the 2010 IP requirements from March 28 through October 25, 2022, resulting in a monitoring season of 212 days. Six inspections were performed during the monitoring period and are summarized in Table 56-5. Rain gage RG038 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 56-5 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-91683	4-11-2022	No	None	None
SMPLR-91967	6-2-2022	No	None	None
SMPLR-92739	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	0.08/0.37 0.04/0.19 0.07/0.19 0.09/0.16 0.11/0.79 0.3/1.42 0.18/1.48 0.41/0.46 0.42/0.77 0.19/0.27

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-93864	8-25-2022		7-14-2022	0.3/0.32
			7-20-2022[c]	0.29/0.32
			7-21-2022[c]	0.07/0.11
			7-24-2022	0.04/0.1
			7-26-2022	0.11/0.39
			7-27-2022	0.97/1.16
			7-29-2022	0.08/0.24
			7-30-2022	0.11/0.31
			7-31-2022	0.15/0.4
			8-6-2022[c]	0.12/0.32
			8-11-2022[c]	0.33/0.38
			8-16-2022[c]	0.46/0.78
			8-18-2022[c]	0.07/0.1
			8-19-2022[c]	0.11/0.2
			8-20-2022[c]	0.05/0.31
			8-21-2022[c]	0.09/0.12
			8-23-2022[c]	0.67/0.68
SMPLR-95665	9-16-2022	No	9-5-2022	0.11/0.11
			9-9-2022	0.12/0.19
SMPLR-95927	10-25-2022	No	9-22-2022	0.2/0.22
			10-2-2022	0.09/0.36
			10-3-2022	0.13/0.24
			10-4-2022	0.02/0.11
			10-15-2022	0.15/0.86
			10-16-2022	0.05/0.25

[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.

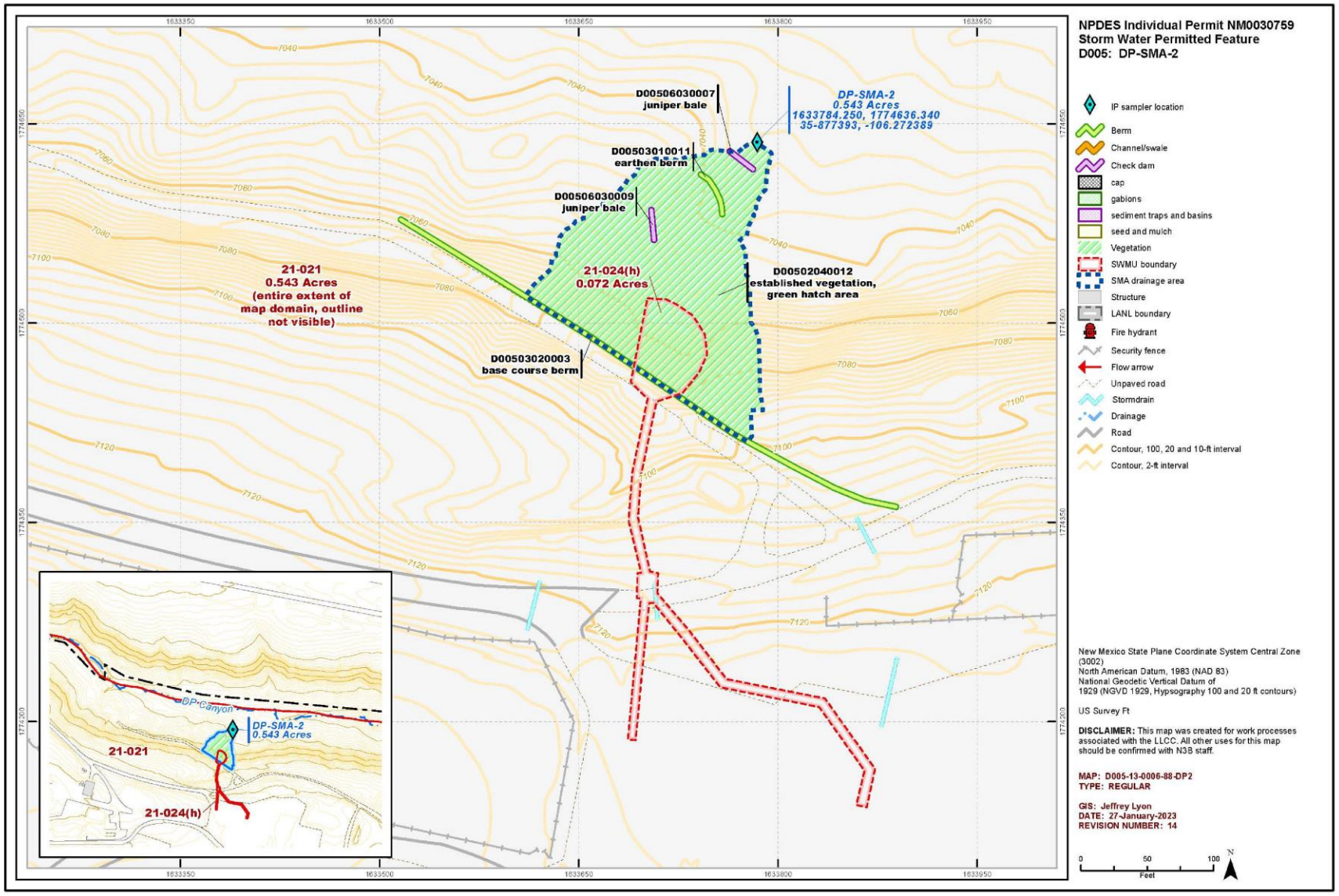

Figure 56-1 DP-SMA-2 location map

57.0 DP-SMA-2.35: SWMUs 21-021 and 21-024(n)

Two historical industrial activity areas, Sites 21-021 and 21-024(n), are associated with DP-SMA-2.35 (permitted feature D006). 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.

57.1 Site Descriptions

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

21-024(n) (2/27/2019)

SWMU 21-024(n) was identified in the 1990 SWMU Report as a CMP that exited a concrete bulkhead on the north side of former building 21-155 and discharged to an outfall north of former building 21-213, directly south of the DP Mesa perimeter road, and west of MDA U (SWMU 21-017) in the northeast portion of TA-21. From the outfall, the effluent flowed north to a ditch paralleling the north DP Mesa perimeter road, and then east to a culvert that passed under the northern DP Mesa perimeter road and into DP Canyon.

Building 21-155 was constructed in 1949 and housed a warehouse and laboratory. Engineering drawings and results from the 2004 geophysical survey identified three additional drainlines originating from former building 21-155 (or next to former building 21-155), that followed a parallel path to, and west of, the original SWMU 21-024(n) drainline. Each of these parallel drainlines discharged to an outfall on the same hillside as the original SWMU 21-024(n) outfall. Effluent from all four former outfalls flowed downslope, via the ditch on the south side of the DP Mesa perimeter road, to one of two culverts (one to the east and one to the west) that crossed under the perimeter road, and emptied on the surface and into DP Canyon. All four drainlines were removed in 2007 except sections of drainlines under former building 21-213, which were inaccessible.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 57-1.

Table 57-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90
21-024(n)	Drainline	Zinc, plutonium, tritium, PAHs

57.2 Control Measures

All active control measures in use at DP-SMA-2.35 are listed in Table 57-2. Their locations are shown on the project map (Figure 57-1) 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 57-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00602040007	Established Vegetation	-	X	X	-	B	4-17-2013
D00603020002	Base Course Berm	-	X	-	X	CB	10-1-2009
D00604060004	Riprap	-	X	X	-	CB	5-27-2010

57.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-2.35 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 57-3. All other control-measure inspections conducted at the SMA are summarized in Table 57-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 57-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93057[a,b]	6-25-2022	0.3		11	Yes
	6-27-2022	0.41		9	Yes
	7-1-2022	0.42	7-6-2022	5	Yes
BMP-94029	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94202	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94550	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95586	8-23-2022	0.67	9-2-2022	10	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 57-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90498	1-13-2022	No action recommended.
Control Measure Verification Form	BMP-90678	2-10-2022	
Control Measure Verification Form	BMP-91104	3-10-2022	
Control Measure Verification Form	BMP-91321	4-7-2022	
Control Measure Verification Form	BMP-91926	5-5-2022	
Control Measure Verification Form	BMP-92373	6-2-2022	
Control Measure Verification Form	BMP-92723	6-30-2022	
Control Measure Verification Form	BMP-93566	7-27-2022	
Control Measure Verification Form	BMP-94542	8-24-2022	
Control Measure Verification Form	BMP-95641	9-22-2022	
Control Measure Verification Form	BMP-96074	11-3-2022	
Control Measure Verification Form	BMP-96550	12-1-2022	
Control Measure Verification Form	BMP-96869	12-15-2022	

57.4 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 (25 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 DP-SMA-2.35 in 2022 under the 2010 IP requirements.

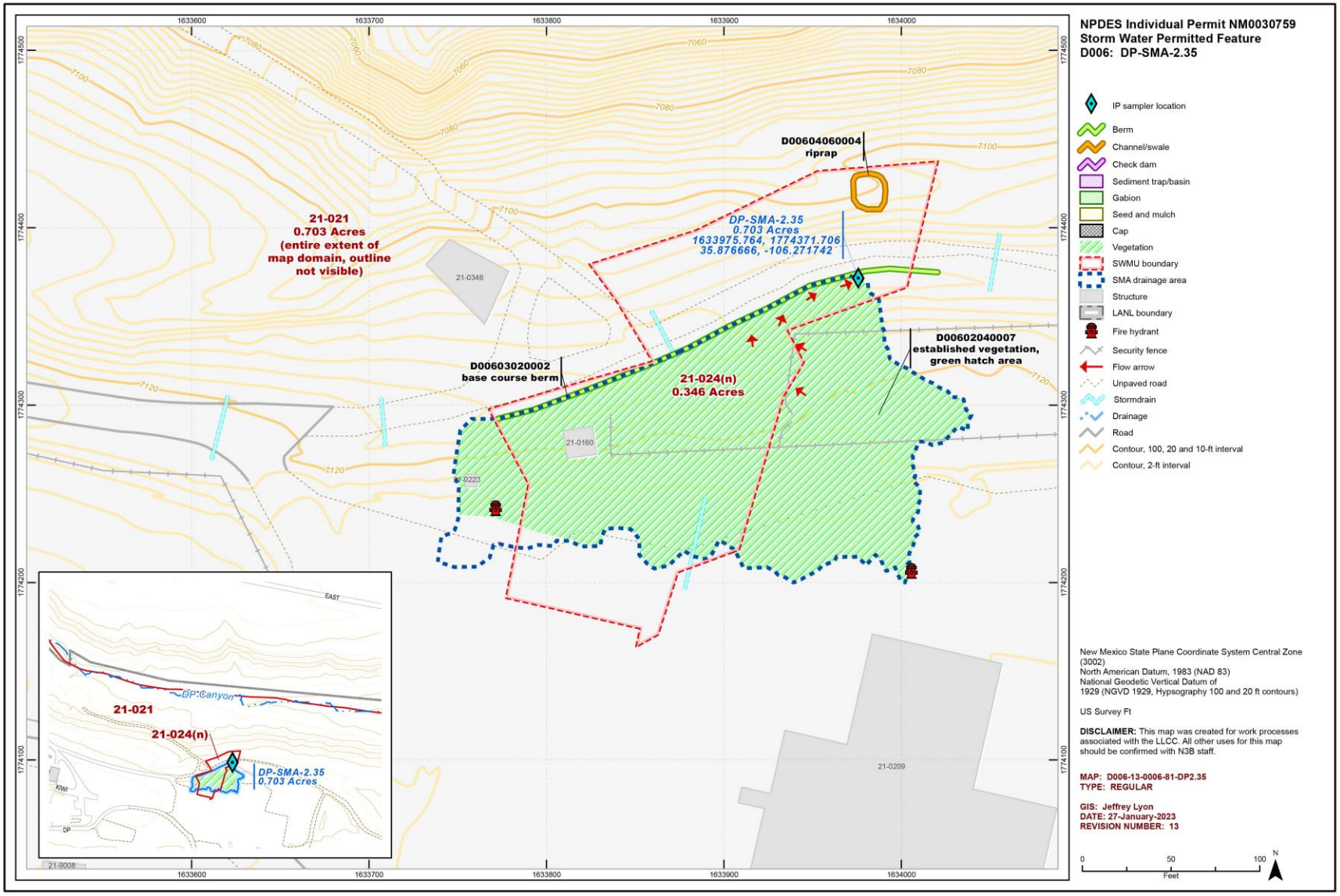

Figure 57-1 DP-SMA-2.35 location map

58.0 DP-SMA-3: SWMUs 21-013(c) and 21-021

Two historical industrial activity areas, Sites 21-013(c) and 21-021, are associated with DP-SMA-3 (permitted feature D007). 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.

58.1 Site Descriptions

21-013(c) (9/28/2021)

SWMU 21-013(c) is a former surface disposal area that was located northeast of the High Temperature Chemistry Building (former building 21-209), at the eastern end of DP Mesa at TA-21. The Site consisted of mounds of earth; an excavated trench; and an earthen berm that contained scattered concrete, asphalt, and metal debris. Four large concrete pylons and several piles of soil, asphalt, and concrete also were located at the Site. Other surface debris included glass, scrap metal, wood, cans, paper, and plastic. The Site had been disturbed in the past and appeared to contain only construction materials. It is not known when the materials were disposed of at this Site. All debris was removed from SWMU 21-013(c) during the 1995 VCA implemented at the Site, and the berm surface was recontoured.

21-021 (11/23/2020)

SWMU 21-021 consists of potential surface soil contamination resulting from the deposition of historical airborne releases of radionuclides from incinerators, stacks, and filter houses previously located throughout TA-21. The estimated area of potential soil contamination is approximately 300,000 m^2, and overlaps all of TA-21 and portions of DP Canyon north of TA-21.

TA-21 was used primarily for plutonium research and metal production and related activities from 1945 to 1978. After the major plutonium research and metal production activities at TA-21 ceased in 1978, subsequent unrelated office and small-scale research activities continued until approximately 2006. Historical airborne releases of radionuclides from stacks at TA-21 were documented from 1951 to 1971 and from 1973 to 1989. A minimum of approximately 2 Ci/yr of plutonium-239/240 was released from all TA-21 stacks in the 1950s. There is no documentation of nonradioactive chemical releases associated with the historical TA-21 stack emissions.

Known or Potential Use of POCs

POCs known to be managed or potentially used at the Sites are listed in Table 58-1.

Table 58-1 POCs Known or Suspected to be Used Historically at the Sites

Site	Potential POC Source	Potential POCs
21-013(c)	Surface disposal site	Metals, PAHs, phthalates
21-021	Systematic release (sitewide)	Americium-241, plutonium isotopes, strontium-90

58.2 Control Measures

All active control measures in use at DP-SMA-3 are listed in Table 58-2. Their locations are shown on the project map (Figure 58-1) 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 58-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
D00702040023	Established Vegetation	-	X	X	-	B	4-17-2013
D00703010016	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010017	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010018	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010019	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010020	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010021	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703010022	Earthen Berm	-	X	-	X	EC	6-7-2012
D00703120015	Rock Berm	-	X	-	X	CB	11-5-2010
D00706010008	Rock Check Dam	-	X	-	X	CB	11-5-2010
D00706010009	Rock Check Dam	-	X	-	X	CB	11-5-2010
D00706010010	Rock Check Dam	-	X	-	X	CB	11-5-2010
D00706010011	Rock Check Dam	-	X	-	X	CB	11-5-2010
D00706010012	Rock Check Dam	-	X	-	X	CB	11-5-2010

58.3 Inspections and Maintenance

Rain gage RG038 recorded seven storm events at DP-SMA-3 during the 2022 season, requiring five post-storm inspections, which are summarized in Table 58-3. All other control-measure inspections conducted at the SMA are summarized in Table 58-4.

Consent Order field activities in support of the TA-21 D&D and Cleanup Campaign were not conducted in 2022 and are still pending revisions to the safety-basis documentation. However, as a preventive measure, SWPP team members performed monthly inspections of controls in areas of potential soil disturbance associated with remaining planned activities.

No maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 58-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93119[a,b]	6-25-2022	0.3		11	Yes
	6-27-2022	0.41		9	Yes
	7-1-2022	0.42	7-6-2022	5	Yes
BMP-94051	7-14-2022	0.3	7-18-2022	4	Yes
BMP-94246	7-20-2022	0.29	7-25-2022	5	Yes
BMP-94623	7-27-2022	0.97	8-2-2022	6	Yes
BMP-95598	8-23-2022	0.67	9-2-2022	10	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 58-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of Findings
Control Measure Verification Form	BMP-90499	1-13-2022	No actions recommended.
Control Measure Verification Form	BMP-90679	2-10-2022	
Control Measure Verification Form	BMP-91105	3-10-2022	
Control Measure Verification Form	BMP-91322	4-7-2022	
Control Measure Verification Form	BMP-91927	5-5-2022	
Control Measure Verification Form	BMP-92374	6-3-2022	
Control Measure Verification Form	BMP-92747	6-30-2022	
Control Measure Verification Form	BMP-93567	7-27-2022	
Control Measure Verification Form	BMP-94543	8-24-2022	
Control Measure Verification Form	BMP-95642	9-22-2022	
Control Measure Verification Form	BMP-96075	11-3-2022	
Control Measure Verification Form	BMP-96551	12-1-2022	
Control Measure Verification Form	BMP-96870	12-15-2022	

58.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 29, 2011. Analytical results from this sample yielded TAL exceedances for aluminum (1870 µg/L), copper (5.5 µg/L), and gross-alpha activity (174 pCi/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 DP-SMA-3, corrective-action stormwater samples were collected on July 25 and August 9, 2019. Analytical results from these samples yielded TAL exceedances for gross-alpha activity (66.5 pCi/L and 164 pCi/L). Selenium exceeded the TAL (6 µg/L) in the August 9, 2019 sample, but not in the July 25, 2019 sample, and the geometric mean of both results is below the TAL. Therefore, there is no TAL exceedance for selenium in the 2019 corrective-action samples. The complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was not conducted at DP-SMA-3 in 2022 under the 2010 IP requirements.

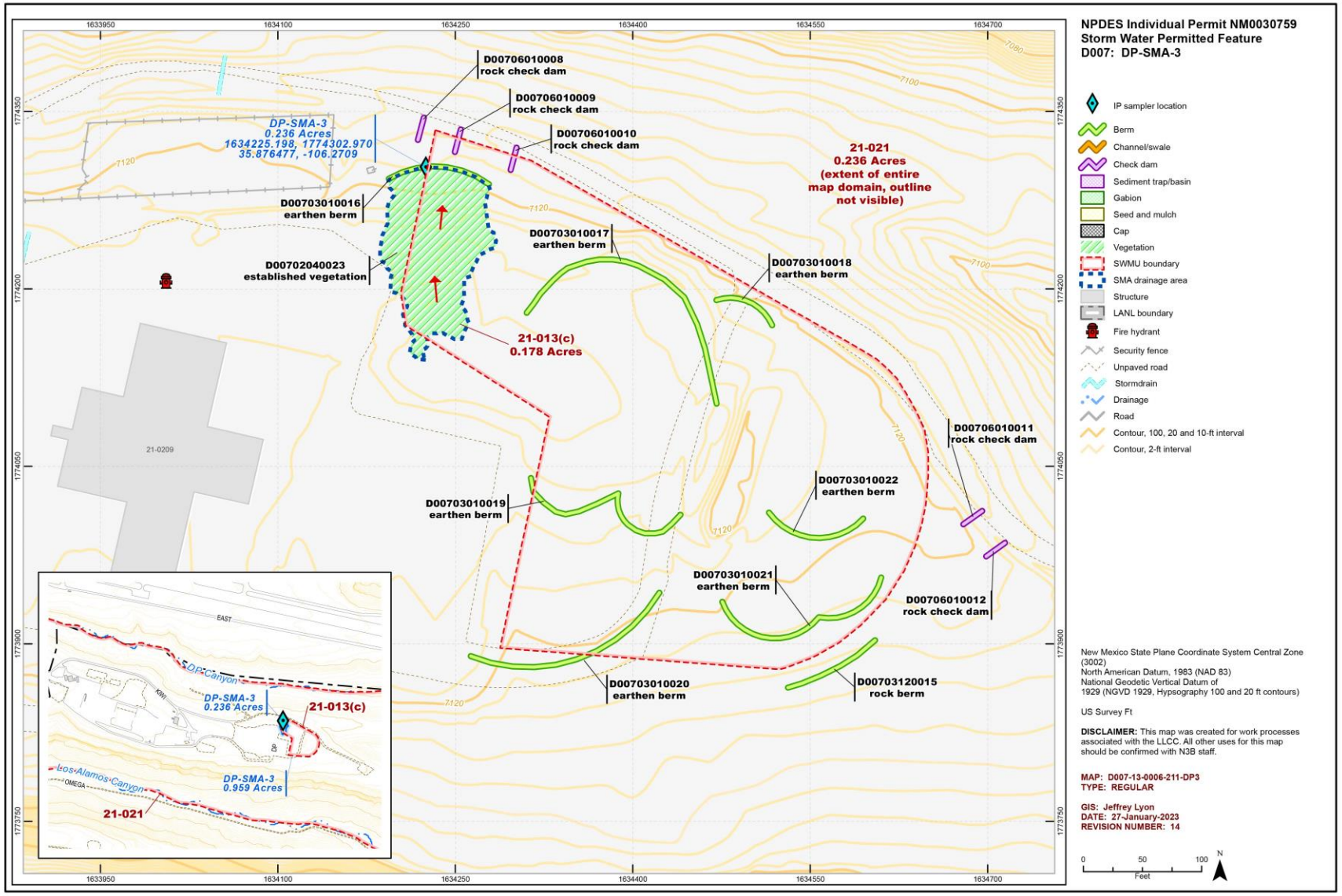

Figure 58-1 DP-SMA-3 location map

Attachment 1
Amendments

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3556	8/22/2022	LA-SMA-2.3	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS221056 and associated drainage area identified in 2016 SIP reviews. The sampler coordinates and draft SMA drainage area are shown on the signed SIP Map File. 13_06_SIP_sign_01-001(b) and should be available for export into current SDE files. Also may exist in SDE as Object Ids 582 in the IP_Sampler_Location table and 44 in the Drainage_Area table. * Note, these objects should stay in proposed status in SDE until the 2022 IP is implemented. Until that time, SS081024 and its associated SMA drainage area are still active under the 2010 IP.	T	CCN-93437
V.1 3557	8/22/2022	LA-SMA-2.3	SMA Boundary Modification, Updated Area in Map Revision.	T	CCN-93437
V.1 3558	8/22/2022	LA-SMA-2.3	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 13 (amendment V.1 3653).	T	CCN-93437
V.1 3559	8/22/2022	LA-SMA-2.3	Map Revision (12)	T	CCN-93437
V.1 3560	8/22/2022	LA-SMA-1.25	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS221055 and associated drainage area identified in 2016 SIP reviews. The sampler coordinates and draft SMA drainage area are existing in SDE as Object Ids 580 in the IP_Sampler_Location table and 587 in the Drainage_Area table. There will be a slight sampler location move based on the June 2022 field verifications of current site conditions. Update coordinates to spillway of berm L00503010007 (1,619,486.411 1,775,561.642) * Note, these objects should stay in proposed status in SDE until the 2022 IP is implemented. Until that time, SS091011 and its associated SMA drainage area are still active under the 2010 IP.	T	CCN-93434
V.1 3561	8/22/2022	LA-SMA-1.25	SMA Boundary Modification, Updated Area in Map Revision	T	CCN-93434
V.1 3562	8/22/2022	LA-SMA-1.25	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 12 (amendment V.1 3649).	T	CCN-93434

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3563	8/22/2022	LA-SMA-1.25	Map Revision (11)	T	CCN-93434
V.1 3564	8/22/2022	LA-SMA-1.1	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS221054 and associated drainage area identified in 2016 SIP reviews. The sampler coordinates and draft SMA drainage area are existing in SDE as Object Ids 579 in the IP_Sampler_Location table and 576 in the Drainage_Area table. * Note, these objects should stay in proposed status in SDE until the 2022 IP is implemented. Until that time, SS081004 and its associated SMA drainage area are still active under the 2010 IP.	T	CCN-93433
V.1 3565	8/22/2022	LA-SMA-1.1	SMA Boundary Modification, Updated Area in Map Revision.	T	CCN-93433
V.1 3566	8/22/2022	LA-SMA-1.1	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 10 (amendment V.1 3647).	T	CCN-93433
V.1 3567	8/22/2022	LA-SMA-1.1	Map Revision (9)	T	CCN-93433
V.1 3568	8/22/2022	P-SMA-0.3	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS220809 and associated drainage area identified in 2016 SIP reviews. The sampler coordinates and draft SMA drainage area are existing in SDE as Object Ids 543 in the IP_Sampler_Location table and 563 in the Drainage_Area table. There will be a slight sampler location move based on the June 2022 field verifications of current site conditions. Update coordinates to spillway of rock check dam P00406010014 (1,643,752.049 1,776,357.914). • Note, these objects should stay in proposed status in SDE until the 2022 IP is implemented. Until that time, SS080801 and its associated SMA drainage area are still active under the 2010 IP.	T	CCN-93630
V.1 3569	8/22/2022	P-SMA-0.3	SMA Boundary Modification, Updated Area in Map Revision.	T	CCN-93630
V.1 3570	8/22/2022	P-SMA-0.3	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 19 (amendment V.1 3714).	T	CCN-93630
V.1 3571	8/22/2022	P-SMA-0.3	Map Revision (18)	T	CCN-93630

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3572	10/14/2022	DP-SMA-0.3	After completion of Canyon Walk Apartments and related ancillary construction in area, please update as necessary to: • Modify SMA boundary to reflect new drainage conditions. • Retire Established Vegetation D00102040025, has been replaced by new apartment buildings. Retire date 10/11/2022. • Update structure, road, fencing, and utility layers as necessary to reflect changes in Site conditions. * Note, the 2016–2018 SIP exercise recommended a sampler move to the north of the current location. Multiple field walkdowns and desktop reviews conducted in 2022 determined that the current sampling location is representative of the Site and SMA, therefore the sampler will not be moved.	T	CCN-96248
V.1 3573	10/14/2022	DP-SMA-0.3	Retire Control - Damaged and/or Replaced-Control ID: D00102040025 - Established Vegetation.	T	CCN-96248
V.1 3574	10/14/2022	DP-SMA-0.3	SMA Boundary Modification, Updated Area in Map Revision.	T	CCN-96248
V.1 3575	10/14/2022	DP-SMA-0.3	Map Revision (17)	T	CCN-96248
V.1 3576	10/27/2022	P-SMA-2	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS220810 and associated drainage area identified in 2016 SIP reviews. The sampler coordinates and draft SMA drainage area are existing in SDE as Object Ids 406 in the IP_Sampler_Location table and 421 in the Drainage_Area table. * Note, these objects should stay in proposed status in SDE until the 2022 IP is implemented. Until that time, SS057 and its associated SMA drainage area are still active under the 2010 IP. Additional changes requested after field verification review of 8/4/2022: • Retire baseline certified run-on/erosion controls Earthen Channel/Swale P0060401001 and Riprap P00604060002. Controls have been replaced by LAC. installed BMP that will be accepted as an IP control. Retire date 8/4/2022. • Add Asphalt swale installed by LAC as a run-on/erosion control that has replaced baseline IP controls. Accept date 8/4/2022.	T	CCN-93438

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3576 (cont.)	10/27/2022	P-SMA-2	Per rain event inspection WO BMP-93174 conducted on 7/8/2022, please update as necessary to: • Retire Base Course Berm P00603020009. • Retire Base Course Berm P00603020010. • Retire Gravel Bags P00603100015.	T	CCN-93438
V.1 3577	10/27/2022	P-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: P0060401001 - Earthen Channel/Swale	T	CCN-93438
V.1 3578	10/27/2022	P-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: P00604060002 - Riprap	T	CCN-93438
V.1 3579	10/27/2022	P-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: P00603020009 - Base Course Berm	T	CCN-93438
V.1 3580	10/27/2022	P-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: P00603020010 - Base Course Berm	T	CCN-93438
V.1 3581	10/27/2022	P-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: P00603100015 - Gravel Bags	T	CCN-93438
V.1 3582	10/27/2022	P-SMA-2	New Control - Replacement -Control ID: P00604020017 - Concrete/Asphalt Channel/Swale	T	CCN-93438
V.1 3583	10/27/2022	P-SMA-2	SMA Boundary Modification, Updated Area in Map Revision	T	CCN-93438
V.1 3584	10/27/2022	P-SMA-2	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 16 (amendment V.1 3719).	T	CCN-93438
V.1 3585	10/27/2022	P-SMA-2	Map Revision (15)	T	CCN-93438

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3586	11/17/2022	R-SMA-1.95	Per control measure installation/maintenance WOs BMP-95433 and BMP-95774, completed 9/1/2022 and 9/9/2022, please update as necessary to: • Retire enhanced Coir Logs R00303140009, -0010, -0017, and -0018. Retire date 9/1/2022. • Add new Coir Logs R00303140026 through R00303140029 as replacement runoff/sediment controls for -0009, -0010, -0017, and -0018, same map locations. Install date 9/1/2022. • Retire enhanced Coir Log R00303140016 retire date 9/9/2022. • Add new Coir Log R00303140030 as replacement runoff/sediment control for -0016, same map location. Install date 9/9/2022. 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-95273
V.1 3587	11/17/2022	R-SMA-1.95	Retire Control - Damaged and/or Replaced-Control ID: R00303140009 - Coir Log	T	CCN-95273
V.1 3588	11/17/2022	R-SMA-1.95	Retire Control - Damaged and/or Replaced-Control ID: R00303140010 - Coir Log	T	CCN-95273
V.1 3589	11/17/2022	R-SMA-1.95	Retire Control - Damaged and/or Replaced-Control ID: R00303140016 - Coir Log	T	CCN-95273
V.1 3590	11/17/2022	R-SMA-1.95	Retire Control - Damaged and/or Replaced-Control ID: R00303140017 - Coir Log	T	CCN-95273
V.1 3591	11/17/2022	R-SMA-1.95	Retire Control - Damaged and/or Replaced-Control ID: R00303140018 - Coir Log	T	CCN-95273
V.1 3592	11/17/2022	R-SMA-1.95	New Control - Replacement -Control ID: R00303140026 - Coir Log	T	CCN-95273
V.1 3593	11/17/2022	R-SMA-1.95	New Control - Replacement -Control ID: R00303140027 - Coir Log	T	CCN-95273
V.1 3594	11/17/2022	R-SMA-1.95	New Control - Replacement -Control ID: R00303140028 - Coir Log	T	CCN-95273
V.1 3595	11/17/2022	R-SMA-1.95	New Control - Replacement -Control ID: R00303140029 - Coir Log	T	CCN-95273
V.1 3596	11/17/2022	R-SMA-1.95	New Control - Replacement -Control ID: R00303140030 - Coir Log	T	CCN-95273
V.1 3597	11/17/2022	R-SMA-1.95	Map Revision (13)	T	CCN-95273

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3598	11/17/2022	ACID-SMA-2.1	Per control measure/installation WO BMP-95348, completed 9/22/2022, please update as necessary to: • Retire additional Log Check Dam P00306020024. Retire date 9/22/2022. Add new Log Check Dam P00306020028 as a replacement runoff/sediment control for -0024, same map location. Install date 9/22/2022. * Note, maintenance conducted on rock check dam P00306010020 on 8/24/2022 (BMP-94024). No map update needed. 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-96250
V.1 3599	11/17/2022	ACID-SMA-2.1	Retire Control - Damaged and/or Replaced-Control ID: P00306020024 - Log Check Dam	T	CCN-96250
V.1 3600	11/17/2022	ACID-SMA-2.1	New Control - Replacement -Control ID: P00306020028 - Log Check Dam	T	CCN-96250
V.1 3601	11/17/2022	ACID-SMA-2.1	Map Revision (15)	T	CCN-96250
V.1 3602	12/6/2022	LA-SMA-6.32	Per control measure/installation WO BMP-95779, completed 9/13/2022, please update as necessary to: • Retire Straw Wattles L02303060005 and L02303060007, retire date 9/13/2022-Add new Straw Wattles L02303060008 and L02303060009 as a replacement runoff/sediment controls for -0005 and -0007, same map location. Install date 9/13/2022. 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-96378
V.1 3603	12/6/2022	LA-SMA-6.32	Retire Control - Damaged and/or Replaced-Control ID: L02303060005 - Straw Wattle	T	CCN-96378

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3604	12/6/2022	LA-SMA-6.32	Retire Control - Damaged and/or Replaced-Control ID: L02303060007 - Straw Wattle	T	CCN-96378
V.1 3605	12/6/2022	LA-SMA-6.32	New Control - Replacement -Control ID: L02303060008 - Straw Wattle	T	CCN-96378
V.1 3606	12/6/2022	LA-SMA-6.32	New Control - Replacement -Control ID: L02303060009 - Straw Wattle	T	CCN-96378
V.1 3607	12/6/2022	LA-SMA-6.32	Map Revision (11)	T	CCN-96378
V.1 3608	12/8/2022	LA-SMA-4.2	Per control measure/installation WO BMP-95287, completed 8/22/2022, please update as necessary to: • Retire Coir Log L01103140017, retire date 8/22/2022. • Add new Coir Log L01103140018 as a replacement runoff/sediment control for -0017, same map location. Install date 8/22/2022. 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-96255
V.1 3609	12/8/2022	LA-SMA-4.2	Retire Control - Damaged and/or Replaced-Control ID: L01103140017 - Coir Log	T	CCN-96255
V.1 3610	12/8/2022	LA-SMA-4.2	New Control - Replacement -Control ID: L01103140018 - Coir Log	T	CCN-96255
V.1 3611	12/8/2022	LA-SMA-4.2	Map Revision (15)	T	CCN-96255
V.1 3612	12/8/2022	P-SMA-2.2	Per control measure/installation WO BMP-94112, completed 8/19/2022, please update as necessary to: • Add Gravel Bags P00803100033 and P0080310034 as additional run-on/sediment/erosion controls for SMA, see attached map for locations. Install date 8/19/2022. 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-96379

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3613	12/8/2022	P-SMA-2.2	New Control - Augmenting Existing/Baseline Control-Control ID: P00803100033 - Gravel Bags	T	CCN-96379
V.1 3614	12/8/2022	P-SMA-2.2	New Control - Augmenting Existing/Baseline Control-Control ID: P00803100034 - Gravel Bags	T	CCN-96379
V.1 3615	12/8/2022	P-SMA-2.2	Map Revision (18)	T	CCN-96379
V.1 3616	2/28/2023	ACID-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 the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision. Per 2022 SDPPP author decision, please update as necessary to: • Add area of Established Vegetation P00102040007 as an existing erosion control to areas of SMA downgradient of paved roads. This was omitted during updates after 2020 sampler move. Accept date of 12/31/2022.	T	CCN-96764
V.1 3617	2/28/2023	ACID-SMA-1.05	Map Revision (9)	T	CCN-96764
V.1 3618	1/30/2023	ACID-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 the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96770
V.1 3619	1/30/2023	ACID-SMA-2	Map Revision (16)	T	CCN-96770

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3620	3/1/2023	ACID-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-96771
V.1 3621	3/1/2023	ACID-SMA-2.01	Map Revision (10)	T	CCN-96771
V.1 3622	2/27/2023	B-SMA-0.5	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. Per spatial PRS Database Change request CR2021-2144, approved 7/29/2021: Include updated spatial presentation of Site 10-004(a) in this map revision. This update was originally identified on CCN-87361 (Map revision 17) but was not included on map.	T	CCN-96752
V.1 3623	2/27/2023	B-SMA-0.5	Map Revision (18)	T	CCN-96752
V.1 3624	3/1/2023	B-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-96751
V.1 3625	3/1/2023	B-SMA-1	Map Revision (9)	T	CCN-96751

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3626	3/1/2023	DP-SMA-0.3	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-96759
V.1 3627	3/1/2023	DP-SMA-0.3	Map Revision (18)	T	CCN-96759
V.1 3628	3/1/2023	DP-SMA-0.4	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-96758
V.1 3629	3/1/2023	DP-SMA-0.4	Map Revision (15)	T	CCN-96758
V.1 3630	1/30/2023	DP-SMA-0.6	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-96757
V.1 3631	1/30/2023	DP-SMA-0.6	Map Revision (13)	T	CCN-96757
V.1 3632	2/27/2023	DP-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-96756

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3633	2/27/2023	DP-SMA-1	Map Revision (19)	T	CCN-96756
V.1 3634	1/30/2023	DP-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-96755
V.1 3635	1/30/2023	DP-SMA-2	Map Revision (14)	T	CCN-96755
V.1 3636	1/30/2023	DP-SMA-2.35	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-96754
V.1 3637	1/30/2023	DP-SMA-2.35	Map Revision (13)	T	CCN-96754
V.1 3638	1/30/2023	DP-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-96753
V.1 3639	1/30/2023	DP-SMA-3	Map Revision (14)	T	CCN-96753

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3640	1/30/2023	LA-SMA-0.85	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-96736
V.1 3641	1/30/2023	LA-SMA-0.85	Map Revision (13)	T	CCN-96736
V.1 3642	1/30/2023	LA-SMA-0.9	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-96748
V.1 3643	1/30/2023	LA-SMA-0.9	Map Revision (19)	T	CCN-96748
V.1 3644	1/30/2023	LA-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-96749
V.1 3645	1/30/2023	LA-SMA-1	Map Revision (16)	T	CCN-96749
V.1 3646	1/30/2023	LA-SMA-1.1	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-96746

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3647	1/30/2023	LA-SMA-1.1	Map Revision (10)	T	CCN-96746
V.1 3648	1/30/2023	LA-SMA-1.25	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-96745
V.1 3649	1/30/2023	LA-SMA-1.25	Map Revision (12)	T	CCN-96745
V.1 3650	1/30/2023	LA-SMA-10.12	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-96763
V.1 3651	1/30/2023	LA-SMA-10.12	Map Revision (17)	T	CCN-96763
V.1 3652	1/30/2023	LA-SMA-2.3	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-96743
V.1 3653	1/30/2023	LA-SMA-2.3	Map Revision (13)	T	CCN-96743

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3654	1/30/2023	LA-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-96742
V.1 3655	1/30/2023	LA-SMA-3.1	Map Revision (12)	T	CCN-96742
V.1 3656	3/2/2023	LA-SMA-3.9	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-96741
V.1 3657	3/2/2023	LA-SMA-3.9	Map Revision (12)	T	CCN-96741
V.1 3658	3/1/2023	LA-SMA-4.1	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-96739
V.1 3659	3/1/2023	LA-SMA-4.1	Map Revision (14)	T	CCN-96739
V.1 3660	3/1/2023	LA-SMA-5.01	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-96738

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3661	3/1/2023	LA-SMA-5.01	Map Revision (16)	T	CCN-96738
V.1 3662	1/30/2023	LA-SMA-5.02	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-96737
V.1 3663	1/30/2023	LA-SMA-5.02	Map Revision (19)	T	CCN-96737
V.1 3664	1/30/2023	LA-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-96747
V.1 3665	1/30/2023	LA-SMA-5.2	Map Revision (11)	T	CCN-96747

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3666	2/28/2023	LA-SMA-5.31	Per control measure verification after soil disturbance, BMP-95218 conducted 8/10/2022, please update as necessary to: • Retire Seed and Wood Mulch L01501030015. Removed by D&D activities. Retire date 8/10/2022. • Add Hydromulch L015010100016 installed by D&D activities as replacement erosion control for -0015. Accept date 8/10/2022. See attached map markup for location. • Retire Riprap L01504060013. Removed by D&D activities. Retire date 8/10/2022. • Add Riprap L01504060017 (total of 3 sections) installed by D&D activities as replacement erosion/run-on control for -0013. Also functioning as runoff control. Accept date 8/10/2022. See attached map markup for location. 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-96271
V.1 3667	2/28/2023	LA-SMA-5.31	Retire Control - Damaged and/or Replaced-Control ID: L01501030015 - Seed and Wood Mulch	T	CCN-96271
V.1 3668	2/28/2023	LA-SMA-5.31	Retire Control - Damaged and/or Replaced-Control ID: L01504060013 - Riprap	T	CCN-96271
V.1 3669	2/28/2023	LA-SMA-5.31	New Control - Replacement -Control ID: L015010100016 - Hydromulch	T	CCN-96271
V.1 3670	2/28/2023	LA-SMA-5.31	New Control - Replacement -Control ID: L01504060017 - Riprap	T	CCN-96271
V.1 3671	2/28/2023	LA-SMA-5.31	Map Revision (14)	T	CCN-96271
V.1 3672	2/28/2023	LA-SMA-5.33	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-96934

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3673	2/28/2023	LA-SMA-5.33	Map Revision (14)	T	CCN-96934
V.1 3674	3/1/2023	LA-SMA-5.35	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-97249
V.1 3675	3/1/2023	LA-SMA-5.35	Map Revision (9)	T	CCN-97249
V.1 3676	1/30/2023	LA-SMA-5.361	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-96863
V.1 3677	1/30/2023	LA-SMA-5.361	Map Revision (13)	T	CCN-96863
V.1 3678	3/2/2023	LA-SMA-5.362	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-97060
V.1 3679	3/2/2023	LA-SMA-5.362	Map Revision (11)	T	CCN-97060

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3680	1/30/2023	LA-SMA-5.51	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-96278
V.1 3681	1/30/2023	LA-SMA-5.51	Map Revision (11)	T	CCN-96278
V.1 3682	3/1/2023	LA-SMA-5.52	Per control measure/installation WO BMP-95736 completed 9/15/2022, please update as necessary to: • Retire enhanced Coir Log L018A03140011, retire date 9/15/2022. • Add new Coir Log L018A03140022 as a replacement run-on/sediment control for -0011, same map location. Install date 9/15/2022. • Retire enhanced Coir Log L018A03140013, retire date 12/8/2022. Per FTL recommendation made 7/15/2022 as part of FTL review for BMP-93059 and additional walkdown conducted December 12/5, control does not need to be replaced and should be retired in place. 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-94022
V.1 3683	3/1/2023	LA-SMA-5.52	Retire Control - Damaged and/or Replaced-Control ID: L018A03140011 - Coir Log	T	CCN-94022
V.1 3684	3/1/2023	LA-SMA-5.52	Retire Control - Damaged and/or Replaced-Control ID: L018A03140013 - Coir Log	T	CCN-94022
V.1 3685	3/1/2023	LA-SMA-5.52	New Control - Replacement -Control ID: L018A03140022 - Coir Log	T	CCN-94022
V.1 3686	3/1/2023	LA-SMA-5.52	Map Revision (15)	T	CCN-94022

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3687	1/30/2023	LA-SMA-5.53	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-97028
V.1 3688	1/30/2023	LA-SMA-5.53	Map Revision (12)	T	CCN-97028
V.1 3689	1/30/2023	LA-SMA-5.54	Per control measure/installation WO BMP-95343, completed 8/24/2022, please update as necessary to: • Add two Rock Check Dams installed downgradient of Rock Berm L018C03120024 as additional run-on/erosion/sediment controls. Install date 8/24/2022. 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.	T	CCN-96376
V.1 3690	1/30/2023	LA-SMA-5.54	New Control - Augmenting Existing/Baseline Control-Control ID: L018C06010036 - Rock Check Dam	T	CCN-96376
V.1 3691	1/30/2023	LA-SMA-5.54	New Control - Augmenting Existing/Baseline Control-Control ID: L018C06010037 - Rock Check Dam	T	CCN-96376
V.1 3692	1/30/2023	LA-SMA-5.54	Map Revision (17)	T	CCN-96376

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3693	1/30/2023	LA-SMA-5.91	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-96769
V.1 3694	1/30/2023	LA-SMA-5.91	Map Revision (12)	T	CCN-96769
V.1 3695	3/1/2023	LA-SMA-5.92	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-96768
V.1 3696	3/1/2023	LA-SMA-5.92	Map Revision (13)	T	CCN-96768
V.1 3697	1/30/2023	LA-SMA-6.25	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-96767
V.1 3698	1/30/2023	LA-SMA-6.25	Map Revision (14)	T	CCN-96767
V.1 3699	1/30/2023	LA-SMA-6.3	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-96766

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3700	1/30/2023	LA-SMA-6.3	Map Revision (13)	T	CCN-96766
V.1 3701	1/30/2023	LA-SMA-6.31	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-96765
V.1 3702	1/30/2023	LA-SMA-6.31	Map Revision (13)	T	CCN-96765
V.1 3703	3/1/2023	LA-SMA-6.34	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-96760
V.1 3704	3/1/2023	LA-SMA-6.34	Map Revision (12)	T	CCN-96760
V.1 3705	1/30/2023	LA-SMA-6.38	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-96750
V.1 3706	1/30/2023	LA-SMA-6.38	Map Revision (17)	T	CCN-96750

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3707	2/28/2023	LA-SMA-6.395	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-96735
V.1 3708	2/28/2023	LA-SMA-6.395	Map Revision (9)	T	CCN-96735
V.1 3709	2/28/2023	LA-SMA-6.5	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-96761
V.1 3710	2/28/2023	LA-SMA-6.5	Map Revision (11)	T	CCN-96761
V.1 3711	2/28/2023	LA-SMA-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-96762
V.1 3712	2/28/2023	LA-SMA-9	Map Revision (12)	T	CCN-96762
V.1 3713	1/30/2023	P-SMA-0.3	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-96772

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3714	1/30/2023	P-SMA-0.3	Map Revision (19)	T	CCN-96772
V.1 3715	3/6/2023	P-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-96773
V.1 3716	3/6/2023	P-SMA-1	Map Revision (17)	T	CCN-96773
V.1 3717	3/6/2023	P-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. • Remove Rock Check dam P00606010017 from map. Control does not exist in MainConn.	T	CCN-96774
V.1 3718	3/6/2023	P-SMA-2	Remove Feature in SDE- Control ID : P00606010017 - Rock Check Dam	E	CCN-96774
V.1 3719	3/6/2023	P-SMA-2	Map Revision (16)	T	CCN-96774
V.1 3720	2/28/2023	P-SMA-2.15	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-96775
V.1 3721	2/28/2023	P-SMA-2.15	Map Revision (8)	T	CCN-96775

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3722	2/6/2023	P-SMA-3.05	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-96776
V.1 3723	2/6/2023	P-SMA-3.05	Map Revision (11)	T	CCN-96776
V.1 3724	3/2/2023	R-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-96731
V.1 3725	3/2/2023	R-SMA-1	Map Revision (15)	T	CCN-96731
V.1 3726	2/28/2023	R-SMA-2.3	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-96733
V.1 3727	2/28/2023	R-SMA-2.3	Map Revision (9)	T	CCN-96733

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3728	2/28/2023	R-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-96732
V.1 3729	2/28/2023	R-SMA-2.5	Map Revision (9)	T	CCN-96732
V.1 3730	2/27/2023	B-SMA-0.5	Site Boundary Change - 10-004(a). Updated location in Map Revision 18 (amendment V.1 3623)	T	CCN-96752
V.1 3731	2/27/2023	LA-SMA-2.1	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 the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96744
V.1 3732	2/27/2023	LA-SMA-2.1	Map Revision (18)	T	CCN-96744
V.1 3733	2/6/2023	Volume 1 Attachment 2	Per 2022 IP, effective August 1, 2022, please update as necessary to: • Update Map number map_19-0004-05_los_alamos_canyon_watershed.mxd to include new SMA location for PJ-SMA_9.2. This is a new SMA on the 2022 IP. Per the 2022 IP, PJ-SMA-13 and PJ-SMA-14 should no longer be included on the map.	T	CCN-97026
V.1 3734	3/2/2023	Volume 1 Attachment 2	Vicinity Map Revision (map_19-0004-08_los_alamos_canyon_watershed_2023.mxd)	T	CCN-97026
V.1 3735	2/6/2023	Volume 1	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.1 3736	8/1/2022	Volume 1	Per the 2022 IP, effective August 1, 2022, retire the following SMAs and associated Sites in the Los Alamos/Pueblo Watershed. All active controls at these SMAs are also retired and have been abandoned in place. Decommission the associated monitoring location(s) as necessary: • DP-SMA-4 (D008) and Site association with 21-021. Note, 21-021 is still active under the 2022 IP at other SMAs. Decommission SS081905. Retire controls D00803010007, D00802040009, D00804060013, D00808020012, D00806010008, and D00804050014. • LA-SMA-6.27 (L021) and Site associations with 21-027(c) and 21-021. Note, 21-027(c) and 21-021 are still active under the 2022 IP at other SMAs. Decommission SS081016. Retire controls L02103040001, L02102040011, L02106010015, L02106010016, L02106010017, L02103060021, and L02103060022. • LA-SMA-6.36 (L025), Site 21-024(a), and Site association with 21-021. Note, 21-021 is still active under the 2022 IP at other SMAs. Decommission SS081019. Retire controls L02503010008, L02503010009, L02502040010, and L02504050012. • LA-SMA-10.11 (L030) and Site 53-002(a). Decommission SS091001. Retire controls L03004060003, L03004060009, and L03006010001. • R-SMA-0.5 (R001) and Site C-00-020. Decommission SS082701. Retire controls R00102040025 and R00103030006. • R-SMA-2.05 (R004) and Site 00-011(c). Decommission SS092702. Retire controls R00402040005, R00406030002, and R00406030003.	T	CCN-96244
V.1 3737	8/1/2022	Volume 1	Site Boundary Change - Retire 21-024(a)	T	CCN-96244
V.1 3738	8/1/2022	Volume 1	Site Boundary Change - Retire 53-002(a)	T	CCN-96244
V.1 3739	8/1/2022	Volume 1	Site Boundary Change - Retire C-00-020	T	CCN-96244
V.1 3740	8/1/2022	Volume 1	Site Boundary Change - Retire 00-011(c)	T	CCN-96244
V.1 3741	8/1/2022	Volume 1	SMA Boundary Modification - Retire DP-SMA-4	T	CCN-96244
V.1 3742	8/1/2022	Volume 1	SMA Boundary Modification - Retire LA-SMA-6.27	T	CCN-96244
V.1 3743	8/1/2022	Volume 1	SMA Boundary Modification - Retire LA-SMA-6.36	T	CCN-96244
V.1 3744	8/1/2022	Volume 1	SMA Boundary Modification - Retire LA-SMA-10.11	T	CCN-96244
V.1 3745	8/1/2022	Volume 1	SMA Boundary Modification - Retire R-SMA-0.5	T	CCN-96244
V.1 3746	8/1/2022	Volume 1	SMA Boundary Modification - Retire R-SMA-2.05	T	CCN-96244

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3747	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00803010007 - Earthen Berm	T	CCN-96244
V.1 3748	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00802040009 - Established Vegetation	T	CCN-96244
V.1 3749	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00804060013 - Riprap	T	CCN-96244
V.1 3750	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00808020012 - Rock Cap	T	CCN-96244
V.1 3751	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00806010008 - Rock Check Dam	T	CCN-96244
V.1 3752	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: D00804050014 - Water Bar	T	CCN-96244
V.1 3753	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02103040001 - Asphalt Berm	T	CCN-96244
V.1 3754	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02102040011 - Established Vegetation	T	CCN-96244
V.1 3755	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02106010015 - Rock Check Dam	T	CCN-96244
V.1 3756	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02106010016 - Rock Check Dam	T	CCN-96244
V.1 3757	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02106010017 - Rock Check Dam	T	CCN-96244
V.1 3758	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02103060021 - Straw Wattle	T	CCN-96244
V.1 3759	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02103060022 - Straw Wattle	T	CCN-96244
V.1 3760	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02503010008 - Earthen Berm	T	CCN-96244
V.1 3761	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02503010009 - Earthen Berm	T	CCN-96244
V.1 3762	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02502040010 - Established Vegetation	T	CCN-96244
V.1 3763	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L02504050012 - Water Bar	T	CCN-96244
V.1 3764	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L03004060003 - Riprap	T	CCN-96244
V.1 3765	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L03004060009 - Riprap	T	CCN-96244
V.1 3766	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: L03006010001 - Rock Check Dam	T	CCN-96244
V.1 3767	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: R00102040025 - Established Vegetation	T	CCN-96244
V.1 3768	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: R00103030006 - Log Berm	T	CCN-96244
V.1 3769	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: R00402040005 - Established Vegetation	T	CCN-96244
V.1 3770	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: R00406030002 - Juniper Bales	T	CCN-96244
V.1 3771	8/1/2022	Volume 1	Retire Control - Life Cycle Ended -Control ID: R00406030003 - Juniper Bales	T	CCN-96244

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.1 3772	2/28/2023	ACID-SMA-1.05	New Control - Augmenting Existing/Baseline Control-Control ID: P00102040007 - Established Vegetation	T	CCN-96764
V.1 3773	2/27/2023	DP-SMA-1	Site Boundary Change - 21-011(k). Updated location in Map Revision 19 (amendment V.1 3633)	T	CCN-96756

*T = Technical, E = Errata.

Attachment 2
Vicinity Map