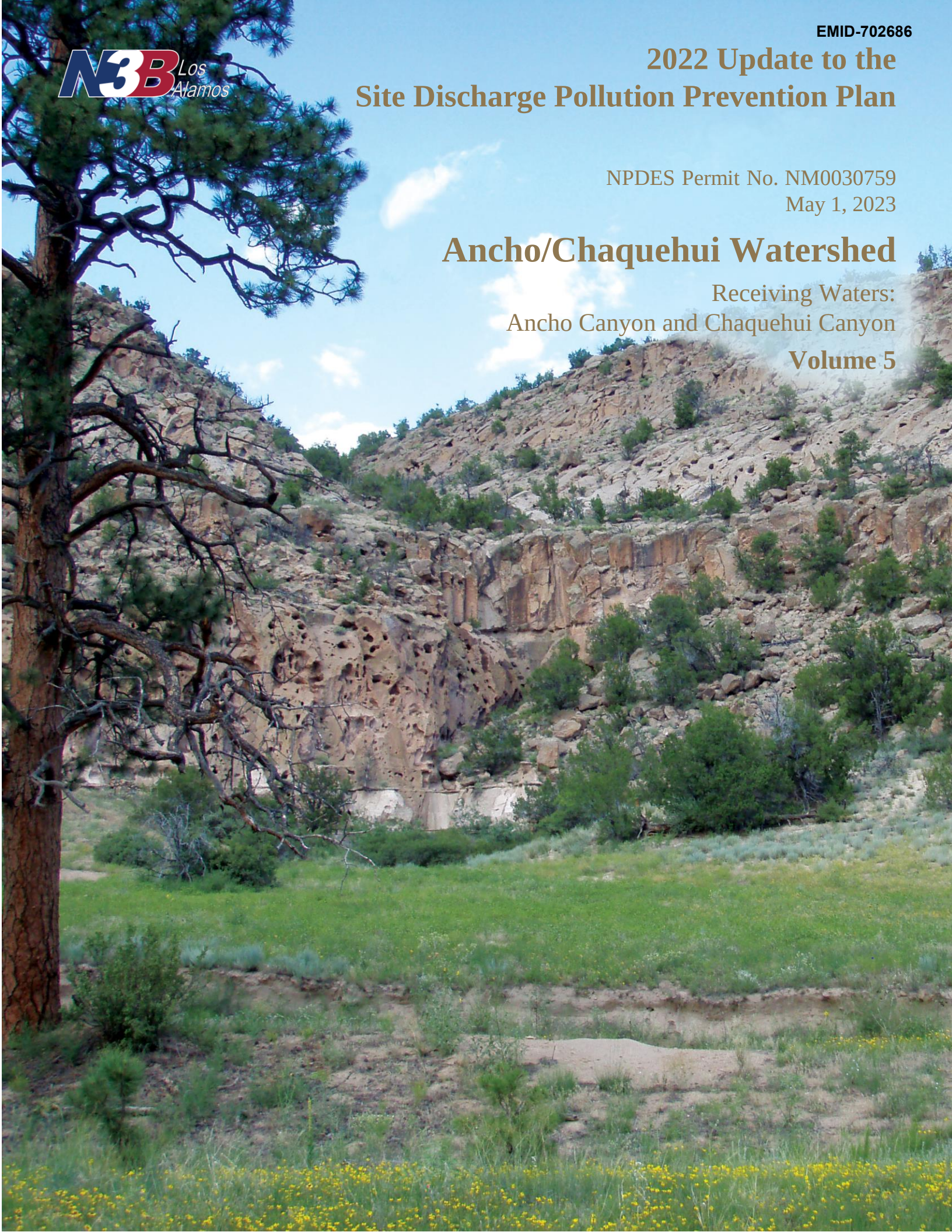

EMID-702686

2022 Update to the Site Discharge Pollution Prevention Plan

NPDES Permit No. NM0030759
May 1, 2023

Ancho/Chaquehui Watershed

Receiving Waters:
Ancho Canyon and Chaquehui Canyon

Volume 5

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219.0 A-SMA-1.1: SWMUs 39-004(a) and 39-004(d)

Two historical industrial activity areas, Sites 39-004(a) and 39-004(d), are associated with A-SMA-1.1 (permitted feature A001). 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 decision-level soil investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

219.1 Site Descriptions

39-004(a) (8/25/2017)

SWMU 39-004(a) is a firing site (structure 39-7) at TA-39. This site was constructed in 1953 as a remote test firing facility to test materials. The experiments conducted at this firing site are designed to expend all the HE contained in the device. If a shot fails such that not all of the HE is spent, an effort is made to pick up and destroy the unexploded HE. A typical shot carries 10 lb to 100 lb of explosives, but on occasion, up to 1,000 lb may be used.

Signs of impact are generally noticeable only within a 200-ft radius around the firing pad. This firing site is within the fall zone of a high cliff that erodes when explosives experiments are conducted at the site. SWMU 39-004(a) is currently inactive, but firing site activities may begin at any time. SWMU 39-004(d), another remote test-firing facility, is located near SWMU 39-004(a) and is currently active. Both SWMUs 39-004(a) and 39-004(d) are located along the northern tributary of the upper reach of Ancho Canyon. The firing pads are located in the canyon bottom between a diverted ephemeral stream and the canyon wall.

39-004(d) (8/25/2017)

SWMU 39-004(d) is an active firing site (structure 39-57) at TA-39 This site was constructed in 1953 as a remote firing test-firing facility to test materials. The experiments conducted at this firing site are designed to expend all the HE contained in the device. If a shot fails such that not all of the HE is spent, an effort is made to pick up and destroy the unexploded HE. A typical shot carries 10 lb to 100 lb of explosives, but on occasion, up to 1000 lb may be used.

Signs of impact are generally noticeable only within a 200-ft radius around the firing pad. This firing site is within the fall zone of a high cliff that erodes when explosives experiments are conducted at the site. SWMU 39-004(a), another remote test-firing facility, is located near SWMU 39-004(d) and is currently inactive. Both SWMUs 39-004(a) and 39-004(d) are located along the northern tributary of the upper reach of Ancho Canyon. The firing pads are located in the canyon bottom between a diverted ephemeral stream and the canyon wall.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 219-1.

Table 219-1 POCs Known or Suspected to Have Been Used Historically at the Sites

Site	Potential POC Source	Potential POCs
39-004(a)	Firing site	Aluminum, beryllium, cadmium, chromium, copper, lead, mercury, thallium, PCBs, HE, uranium
39-004(d)	Firing site 39-57 (open detonation) RCRA Unit (active)	Aluminum, beryllium, cadmium, chromium, copper, lead, mercury, thallium, HE, uranium

219.2 Control Measures

All active control measures in use at A-SMA-1.1 are listed in Table 219-2. Their locations are shown on the project map (Figure 219-1) 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 219-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00102040006	Established Vegetation	-	X	X	-	B	5-13-2013
A00103010005	Earthen Berm	X	-	-	X	CB	6-1-2009
A00104060010	Riprap	-	X	-	X	EC	8-25-2021
A00106010007	Rock Check Dam	-	X	-	X	EC	8-25-2021
A00106010008	Rock Check Dam	-	X	-	X	EC	8-25-2021
A00106010009	Rock Check Dam	-	X	-	X	EC	8-25-2021

219.3 Inspections and Maintenance

Rain gage RG267.4 recorded four storm events at A-SMA-1.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 219-3. No other control measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 219-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93734[a]	7-4-2022	0.48	7-14-2022	10	Yes
BMP-94452[b]	7-26-2022	0.30	8-3-2022	8	Yes
	7-27-2022	0.63		7	Yes
	7-30-2022	0.72		4	Yes

[a] Inspection also qualifies as the annual erosion evaluation per 2010 IP Part I.G.1.

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

219.4 Stormwater Monitoring

Following the installation of baseline controls, a baseline stormwater sample was collected on August 10, 2018. Analytical results from this sample yielded TAL exceedances for aluminum (807 µg/L), gross-alpha activity (333 pCi/L), mercury (1.08 µg/L), and selenium (7.88 µg/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 conducted at A-SMA-1.1, under the 2010 IP requirements, from March 22 through November 3, 2022, resulting in a monitoring season of 227 days. Six inspections were performed during the monitoring period and are summarized in Table 219-4. Rain gage RG267.4 recorded 27 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 219-4 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-91647	4-15-2022	No	None	None
SMPLR-92032	6-1-2022	No	None	None
SMPLR-92717	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.32 0.1/0.19 0.11/0.3 0.08/0.18 0.12/0.62 0.24/1.46 0.17/1.09 0.04/0.14
SMPLR-93522	8-12-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 8-11-2022	0.07/0.27 0.48/0.75 0.16/0.17 0.14/0.17 0.3/0.5 0.63/0.75 0.23/0.32 0.72/0.88 0.42/0.42
SMPLR-95431	9-26-2022	No	8-16-2022 8-19-2022 8-20-2022 9-9-2022 9-22-2022	0.19/0.43 0.14/0.28 0.05/0.27 0.12/0.16 0.15/0.22
SMPLR-96120	11-3-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.07/0.18 0.04/0.11 0.03/0.14 0.13/0.69 0.04/0.14

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

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

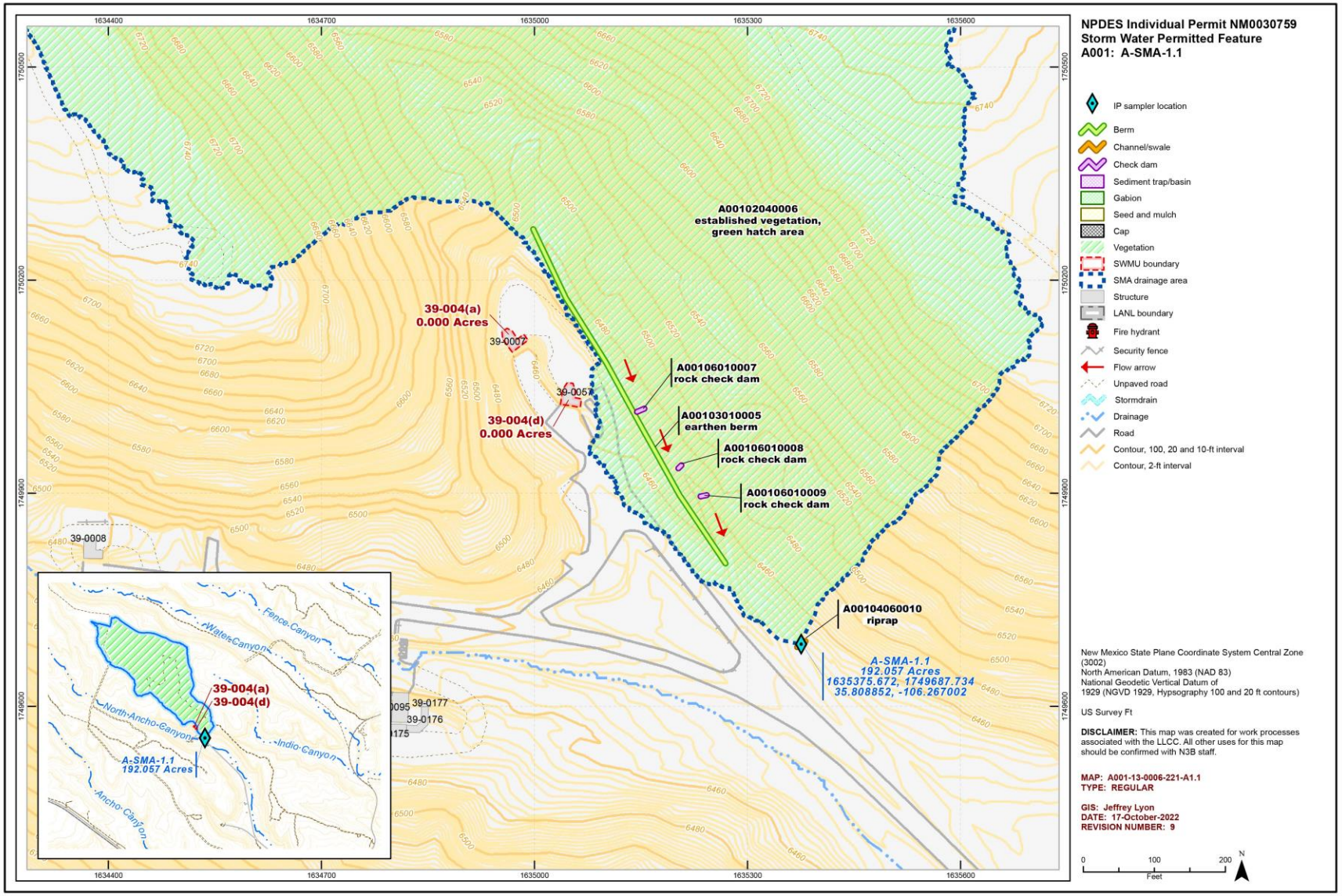


Figure 219-1 A-SMA-1.1 location map

220.0 A-SMA-2: SWMUs 39-004(b) and 39-004(e)

Two historical industrial activity areas, 39-004(b) and 39-004(e), are associated with A-SMA-2 (permitted feature A002). 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 decision-level soil investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

220.1 Site Descriptions

39-004(b) (8/25/2017)

SWMU 39-004(b) is an inactive firing site (structure 39-8) located at TA-39. The SWMU 39-004(b) firing site is located in the western tributary of the upper reach of Ancho Canyon. The firing pad is located in the canyon bottom between an ephemeral stream and the northern canyon wall. This site had been used to test materials from the time TA-39 was established as a remote test firing facility in 1953. The experiments conducted at this firing site were designed to expend all HE in the device. Signs of impact are generally noticeable only within a 200-ft radius around the firing pad. The SWMU 39-004(b) firing site is located in the western tributary of the upper reach of Ancho Canyon within the same tributary as the SWMU 39-004(e) firing site.

Activities at this site were discontinued in 1980 because of the constant hazard of falling debris from the nearby cliff.

39-004(e) (8/25/2017)

SWMU 39-004(e) is a firing site (structure 39-88) located at TA-39. This site was constructed in 1978 as a remote test firing facility to test materials, and has been in use since that time. The SWMU 39-004(e) firing site is located in the western tributary of the upper reach of Ancho Canyon within the same tributary as the SWMU 39-004(b) firing site. The experiments conducted at this firing site are designed to expend all HE in the device. Signs of impact are generally noticeable only within a 200-ft radius around the firing pad.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 220-1.

Table 220-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
39-004(b)	Firing site	Aluminum, beryllium, cadmium, chromium, copper, lead, mercury, thallium, HE, uranium
39-004(e)	Firing site	Aluminum, beryllium, cadmium, chromium, copper, lead, mercury, thallium, PCBs, HE, uranium

220.2 Control Measures

All active control measures in use at A-SMA-2 are listed in Table 220-2, and their locations are shown on the project map (Figure 220-1) 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.

Enhanced controls were certified on March 9, 2022, and submitted to EPA on March 16, 2022 as part of corrective action, as described in "NPDES Permit No. NM0030759 - Certification of Installation of Enhanced Control Measures for A-SMA-2" (N3B 2022, 701927). Photographs of the enhanced controls are available at https://ext.em-la.doe.gov/IPS/Home/ConstructionCertifications.

Table 220-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00202040017	Established Vegetation	-	X	X	-	B	5-13-2013
A00203010041	Earthen Berm	-	X	-	X	EC	12-16-2014
A00203010042	Earthen Berm	X	-	-	X	EC	12-16-2014
A00203010043	Earthen Berm	-	X	-	X	EC	12-16-2014
A00203010056	Earthen Berm	-	X	X	-	EC	1-3-2022
A00203020051	Base Course Berm	-	X	-	X	EC	12-16-2014
A00203150047	Redi-Rock Berm	X	-	-	X	EC	12-16-2014
A00203150054	Redi-Rock Berm	-	X	X	-	EC	1-3-2022
A00204040049	Culvert	X	-	X	-	EC	12-16-2014
A00204050053	Water Bar	-	X	X	-	EC	12-16-2014
A00204060004	Riprap	-	X	X	-	CB	6-1-2009
A00204080045	TRM-Lined Swale	X	-	X	-	EC	12-16-2014
A00204080048	TRM-Lined Swale	X	-	X	-	EC	12-16-2014
A00204080052	TRM-Lined Swale	-	X	X	-	EC	12-16-2014
A00204080055	TRM-Lined Swale	-	X	X	-	EC	1-3-2022
A00205020050	Sediment Basin	X	-	-	X	EC	12-16-2014

220.3 Inspections and Maintenance

Rain gage RG267.4 recorded four storm events at A-SMA-2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 220-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 220-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93739[a]	7-4-2022	0.48	7-14-2022	10	Yes
BMP-94458[b]	7-26-2022	0.30	8-3-2022	8	Yes
	7-27-2022	0.63		7	Yes
	7-30-2022	0.72		4	Yes

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

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

220.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on September 12, 2013. Analytical results from this sample yielded TAL exceedances for aluminum (1310 µg/L), copper (23.9 µg/L), and gross-alpha activity (23.7 pCi/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following installation of enhanced control measures, two corrective-action stormwater samples were collected, on July 25 and October 4, 2019. Analytical results from these corrective-action monitoring samples yielded TAL exceedances for copper (18.1 µg/L and 29.6 µg/L) and gross-alpha activity (67.6 pCi/L and 596 pCi/L). Complete results from these samples are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2019, NPDES Permit No. NM0030759" (N3B 2020, 700767).

Stormwater monitoring was conducted at A-SMA-2, under the 2010 IP requirements, from March 22 through November 3, 2022, resulting in a monitoring season of 227 days. Six inspections were performed during the monitoring season and are summarized in Table 220-4. Rain gage RG267.4 recorded 27 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 220-4 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-91632	4-15-2022	No	None	None
SMPLR-92024	6-1-2022	No	None	None
SMPLR-92712	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.32 0.1/0.19 0.11/0.3 0.08/0.18 0.12/0.62 0.24/1.46 0.17/1.09 0.04/0.14
SMPLR-93502	8-12-2022	No	7-1-2022 7-4-2022 7-14-2022 7-20-2022 7-26-2022 7-27-2022 7-29-2022 7-30-2022 8-11-2022	0.07/0.27 0.48/0.75 0.16/0.17 0.14/0.17 0.3/0.5 0.63/0.75 0.23/0.32 0.72/0.88 0.42/0.42

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-95420	9-26-2022	No	8-16-2022 8-19-2022 8-20-2022 9-9-2022 9-22-2022	0.19/0.43 0.14/0.28 0.05/0.27 0.12/0.16 0.15/0.22
SMPLR-96109	11-3-2022	No	10-2-2022 10-3-2022 10-4-2022 10-15-2022 10-16-2022	0.07/0.18 0.04/0.11 0.03/0.14 0.13/0.69 0.04/0.14

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

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

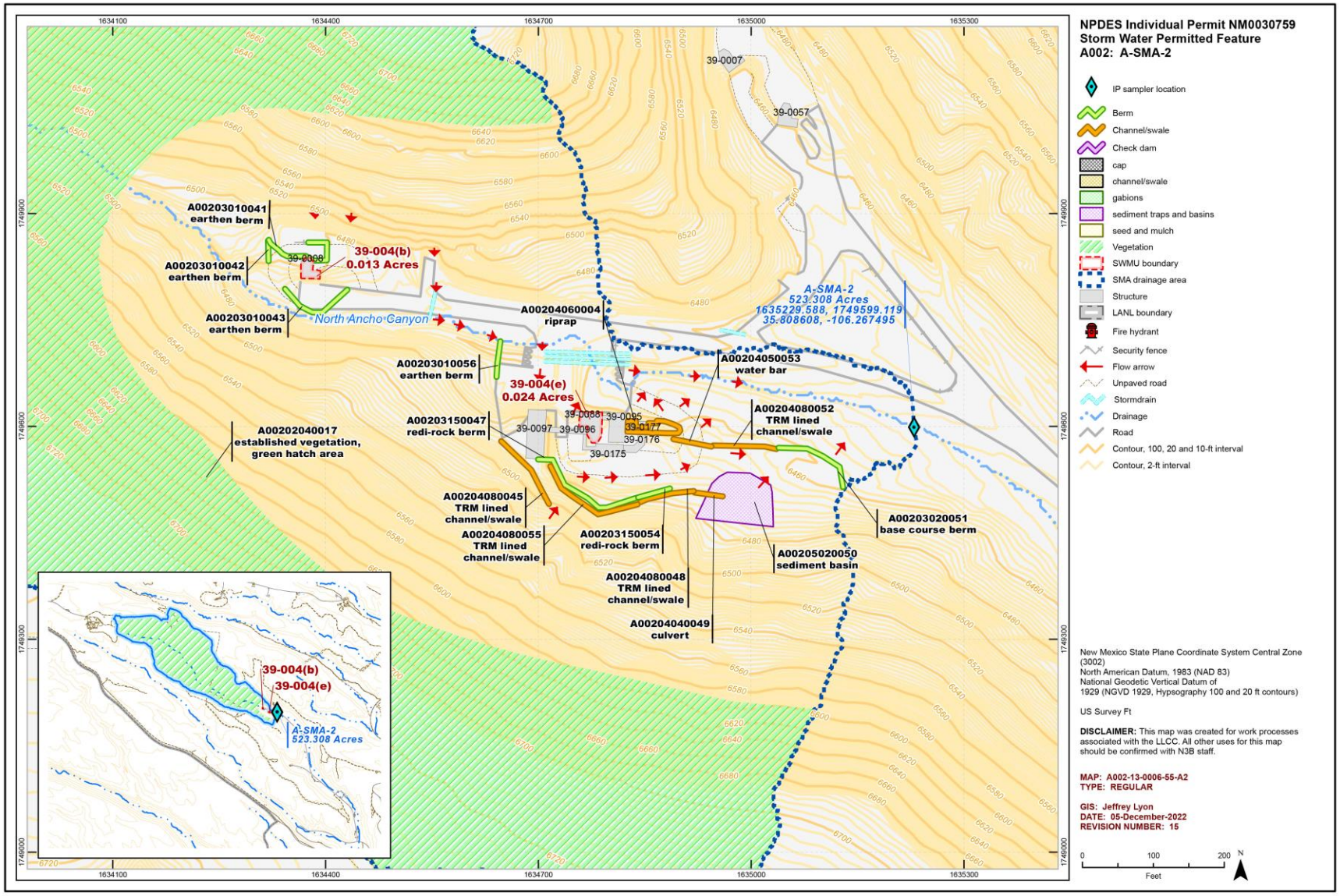


Figure 220-1 A-SMA-2 location map

221.0 A-SMA-2.5: SWMU 39-010

One historical industrial activity area, 39-010, is associated with A-SMA-2.5 (permitted feature A003). 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.

221.1 Site Descriptions

39-010 (8/28/2017)

SWMU 39-010 is an area that was used for staging soil excavated during the 1978 construction of a firing site [SWMU 39-004(e)] at TA-39. This soil staging area is located in the central portion of TA-39 along the North Ancho Canyon stream channel. During construction of the firing site, large quantities of soil were removed and deposited in the canyon east of the firing site, forming SWMU 39-010. This soil dump, covering approximately 76,200 ft^2, was not identified in the 1990 SWMU Report. However, it was noted in the RFI work plan and described in a letter notification to NMED designating a new SWMU.

Data are not available concerning potential contaminants associated with the excavated soil that was placed at this site, but potential contaminants at this site are expected to be similar to those at SWMU 39-004(e) (i.e., HE, radionuclides, and inorganic chemicals).

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 221-1.

Table 221-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
39-010	Excavated soil dump	Aluminum, beryllium, copper, iron, lead, mercury, PCBs, HE, uranium

221.2 Control Measures

All active control measures in use at A-SMA-2.5 are listed in Table 221-2, and their locations are shown on the project map (Figure 221-1) 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 221-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00302040007	Established Vegetation	-	X	X	-	B	5-13-2013
A00303010003	Earthen Berm	-	X	-	X	CB	4-13-2010
A00303010010	Earthen Berm	X	-	X	-	B	5-17-2017
A00303060008	Straw Wattle	X	-	-	X	B	7-19-2013
A00303060009	Straw Wattle	X	-	-	X	B	7-19-2013
A00304060014	Riprap	X	-	X	-	B	5-17-2017
A00304080015	TRM-Lined Swale	X	-	X	-	B	5-17-2017

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00307010012	Gabion	X	-	-	X	B	5-17-2017
A00307010013	Gabion	X	-	X	-	B	5-17-2017
A00307020011	Gabion Blanket	X	-	X	-	B	5-17-2017

221.3 Inspections and Maintenance

Rain gage RG265 recorded three storm events at A-SMA-2.5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 221-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 221-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93931[a]	7-12-2022	0.38	7-18-2022	6	Yes
BMP-94586[b]	07-27-2022 07-30-2022	0.38 0.29	8-3-2022	7 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.

221.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at A-SMA-2.5. Baseline monitoring is ongoing until one confirmation sample is collected from this SMA.

Stormwater monitoring was conducted at A-SMA-2.5, under the 2010 IP requirements, from March 22 through November 3, 2022, resulting in a monitoring season of 227 days. Six inspections were performed during the monitoring season and are summarized in Table 221-4. Rain gage RG265 recorded 33 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 221-4 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-91645	4-15-2022	No	None	None
SMPLR-92029	6-1-2022	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-92714	7-14-2022	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 7-12-2022	0.06/0.27 0.06/0.2 0.03/0.15 0.11/0.23 0.09/0.64 0.18/1.29 0.15/0.83 0.04/0.12 0.22/0.48 0.06/0.11 0.1/0.28 0.38/0.6
SMPLR-94018	8-24-2022	No	7-14-2022 7-20-2022 7-24-2022 7-26-2022 7-27-2022 7-28-2022 7-30-2022 8-16-2022 8-18-2022 8-19-2022 8-20-2022 8-21-2022	0.13/0.14 0.18/0.19 0.09/0.12 0.09/0.1 0.38/0.47 0.16/0.16 0.29/0.54 0.42/0.72 0.19/0.2 0.14/0.24 0.05/0.27 0.14/0.16
SMPLR-95636	10-4-2022	No	9-9-2022[c] 9-20-2022[c] 9-22-2022[c] 10-3-2022[c]	0.08/0.28 0.13/0.15 0.06/0.11 0.04/0.1
SMPLR-96237	11-3-2022	No	10-4-2022 10-8-2022 10-15-2022 10-16-2022 10-17-2022	0.04/0.18 0.04/0.12 0.13/0.59 0.02/0.12 0.04/0.1

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

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

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

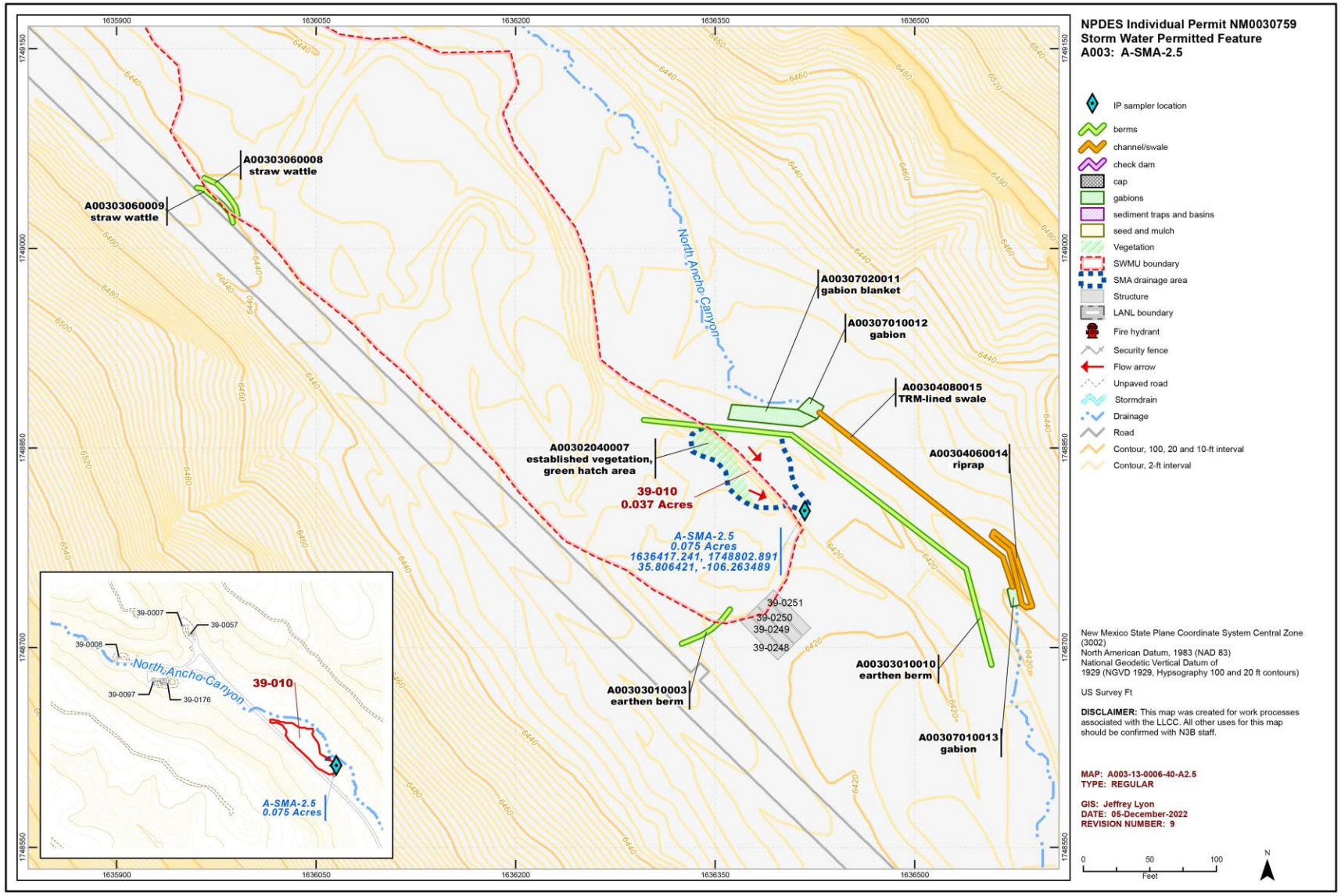


Figure 221-1 A-SMA-2.5 location map

222.0 A-SMA-2.7: AOC 39-002(c) and SWMU 39-008

Two historical industrial activity areas, 39-002(c) and 39-008, are associated with A-SMA-2.7 (permitted feature A004). 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.

222.1 Site Descriptions

39-002(c) (8/25/2017)

AOC 39-002(c) is a former outdoor SAA that was located on an asphalt-paved area next to the southwest corner of the gas-gun support structure (structure 39-56) at TA-39. In accordance with RCRA, SAA provisions allow generators to accumulate up to 55 gal. of hazardous waste (or 1 quart of acute hazardous waste) in containers, as long as those containers are (a) at or near any point of generation, (b) under the control of the operator, and (c) kept closed except when adding or removing waste.

Waste paper, solvent-contaminated rags (ethanol, acetone, and trichloroethane), and vacuum grease were stored in a 55-gal. drum at the AOC 39-002(c) SAA. It is not known if this area was used for storage before it was registered as an SAA. According to the LANL RCRA storage area database dated July 2017, the AOC 39-002(c) SAA was removed in February 1994. No known or documented releases are associated with this SAA.

39-008 (8/28/2017)

SWMU 39-008 is an area of potential soil contamination from a gas-gun firing site near a Morgan shed (building 39-137) that houses a single-stage gas-gun with a 6-in.-diameter barrel. The gas gun is used for outdoor experiments; gas is used as a propellant to fire DU projectiles at targets on the cliff face. Testing at this site was conducted from 1960 to 1975, suspended for 13 yr, and then resumed in 1988.

Most of the debris from the gas-gun firings is scattered over the area just west of the building, but occasionally projectiles and target fragments hit the cliff face, which is situated approximately 200 ft west of another building associated with this experimental gun (building 39-56). Photographic evidence shows that the area between the buildings and the cliff has been leveled, and the removed surface materials were pushed into a mound on the south side of the test area.

The gas gun is currently used for experimental purposes. Further investigation of SWMU 39-008 is deferred per Appendix A of the 2016 Consent Order because the site is impacted by continuing Site operations.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 222-1.

Table 222-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
39-002(c)	Storage area	Lead, PCBs, DU
39-008	Area of potential soil contamination	Aluminum, beryllium, lead, DU

222.2 Control Measures

All active control measures in use at A-SMA-2.7 are listed in Table 222-2, and their locations are shown on the project map (Figure 222-1) 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 222-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00402040017	Established Vegetation	-	X	X	-	B	5-13-2013
A00403010013	Earthen Berm	-	X	-	X	EC	5-31-2012
A00403010014	Earthen Berm	-	X	-	X	EC	5-31-2012
A00403010015	Earthen Berm	-	X	-	X	EC	5-31-2012
A00403010016	Earthen Berm	-	X	-	X	EC	5-31-2012

222.3 Inspections and Maintenance

Rain gage RG265 recorded three storm events at A-SMA-2.7 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 222-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 222-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93932[a]	7-12-2022	0.38	7-18-2022	6	Yes
BMP-94587[b]	7-27-2022 7-30-2022	0.38 0.29	8-3-2022	7 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.

222.4 Stormwater Monitoring

Following the installation of baseline control measures, baseline confirmation samples were collected on July 24 and September 4, 2011. Analytical results from these samples yielded TAL exceedances for copper (5.4 µg/L and 6.2 µg/L) and gross-alpha activity (25.4 pCi/L and 31.8 pCi/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the installation of enhanced control measures at A-SMA-2.7, a corrective-action stormwater sample was collected on September 13, 2013. Analytical results from this corrective-action monitoring sample yielded a TAL exceedance for gross-alpha activity (175 pCi/L). The complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was conducted under the 2010 IP requirements at A-SMA-2.7 from March 23 through August 12, 2022, resulting in a monitoring season of 143 days. Four inspections were performed during the monitoring season and are summarized in Table 222-4. Monitoring was suspended in August 2022 due to Consent Order-driven well plug-and-abandonment activities near the monitoring location and within the SMA, and will be resumed at the end of those activities. Rain gage RG265 recorded 19 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 222-4 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-91648	4-15-2022	No	None	None
SMPLR-92033	6-1-2022	No	None	None
SMPLR-92734	7-14-2022	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 7-12-2022	0.06/0.27 0.06/0.2 0.03/0.15 0.11/0.23 0.09/0.64 0.18/1.29 0.15/0.83 0.04/0.12 0.22/0.48 0.06/0.11 0.1/0.28 0.38/0.6
SMPLR-95238	8-12-2022	No	7-14-2022 7-20-2022 7-24-2022 7-26-2022 7-27-2022 7-28-2022 7-30-2022	0.13/0.14 0.18/0.19 0.09/0.12 0.09/0.1 0.38/0.47 0.16/0.16 0.29/0.54

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

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

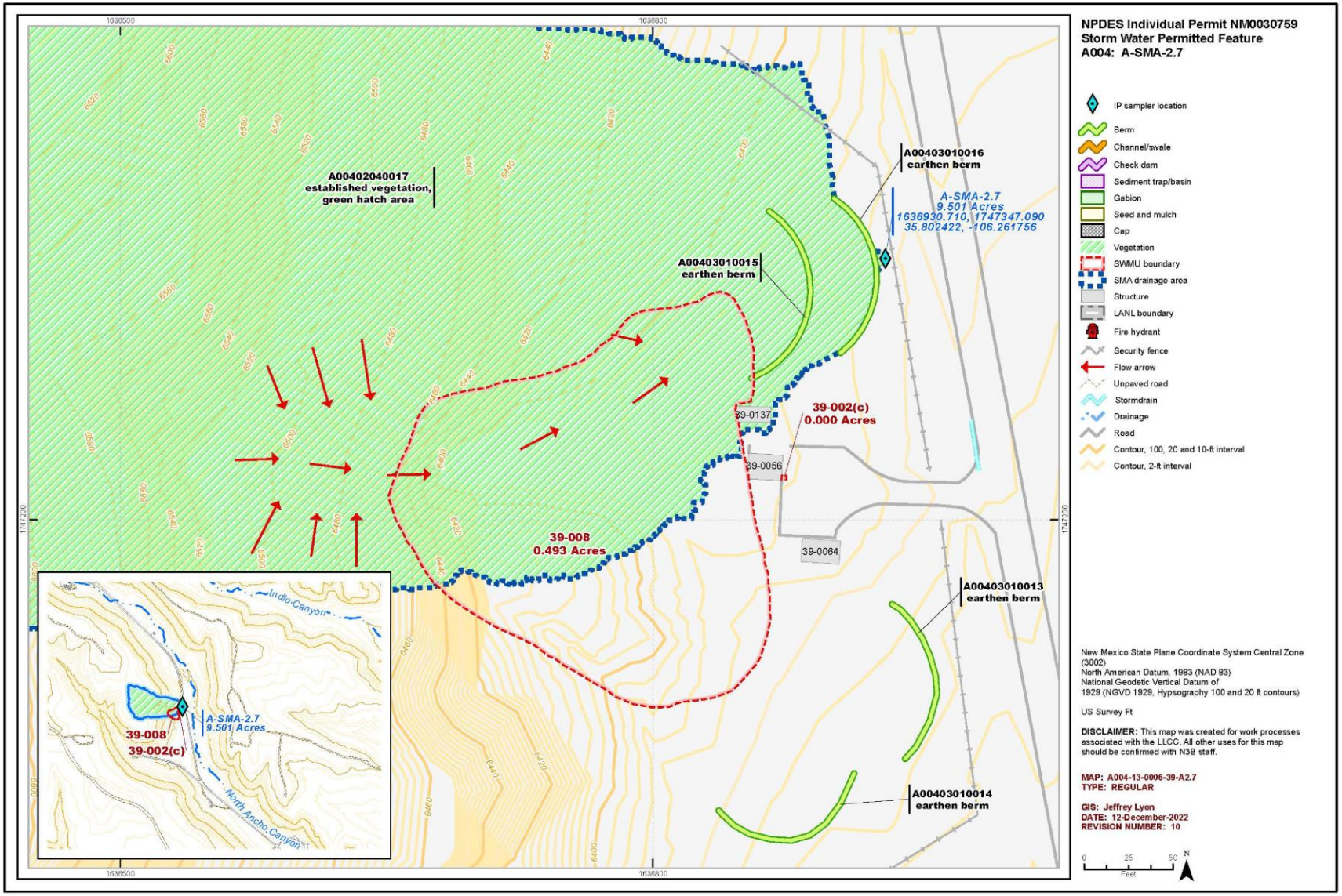


Figure 222-1 A-SMA-2.7 location map

223.0 A-SMA-2.8: SWMU 39-001(b)

One historical industrial activity area, Site 39-001(b), is associated with A-SMA-2.8 (permitted feature A005). 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.

223.1 Site Descriptions

39-001(b) (7/20/2017)

SWMU 39-001(b) is a former landfill that was located east of Ancho Road and structure 39-56 in North Ancho Canyon at TA-39. The 1990 SWMU Report identified the site as consisting of four trenches used in succession. Only the original trench, known as MDA Y, appears in engineering drawings, with dimensions of 148 ft × 20 ft × 12 ft deep. According to the 1990 SWMU Report, the second trench was excavated in parallel with, and west of, MDA Y, with the same dimensions, and a third trench was excavated directly south of MDA Y with dimensions of 150 ft × 40 ft × 10 ft deep. Although a fourth trench was described in the 1990 SWMU Report, it never appeared in any site photographs or engineering drawings, and the reported location of the fourth trench, east of trench 3, is in the Ancho Canyon stream channel.

The 1990 SWMU Report indicated that MDA Y was excavated in the late 1960s; however, engineering drawings indicate that trench 1 was surveyed and excavated in 1973 and used until 1976. Trench 2 was used from approximately 1976 to 1986, and trench 3 was used from 1986 to 1989. All three disposal trenches were backfilled and covered over by May 1989; historical photographs indicate trench 3 was only half full when it was backfilled in 1989.

Wastes disposed of in this landfill included firing-site debris consisting of metal, cabling, and wire, empty chemical containers, glass, wood, plastics, Styrofoam, concrete, and office waste. Waste disposed of in disposal trench 1 prior to 1976 may have included heavy metals, PCB-containing oils, HE, thorium isotopes, natural and DU, and solvents.

Based on the results of the 1993 geophysical survey, the 1997 RFI concluded that this landfill was more amorphous than the three distinct disposal trenches that had been previously reported. Excavation activities associated with the 2009 Phase I Consent Order field investigation confirmed a solitary, irregularly shaped disposal trench coincident with the anomalies identified by the 1997 RFI geophysical survey. SWMU 39-001(b) was completely excavated during the 2009 Phase I Consent Order investigation.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 223-1.

Table 223-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
39-001(b)	MDA Y	Beryllium, lead, mercury, PCBs, HE, uranium

223.2 Control Measures

All active control measures in use at A-SMA-2.8 are listed in Table 223-2, and their locations are shown on the project map (Figure 223-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 223-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00502040006	Established Vegetation	-	-	X	-	B	12-22-2022
A00503010002	Earthen Berm	-	X	-	X	CB	11-4-2010
A00508020005	Rock Cap	-	X	X	-	B	10-14-2014

223.3 Inspections and Maintenance

RG265 recorded three storm events at A-SMA-2.8 during the 2022 season, requiring two post-storm inspections which are summarized in Table 223-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 223-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93933[a]	7-12-2022	0.38	7-18-2022	6	Yes
BMP-94588[b]	7-27-2022 7-30-2022	0.38 0.29	8-3-2022	7 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.

223.4 Stormwater Monitoring

Stormwater monitoring was conducted at A-SMA-2.8, under the 2010 IP requirements, from March 31 through August 12, 2022, resulting in a monitoring season of 135 days. Four inspections were performed during the monitoring season and are summarized in Table 223-4. Monitoring was suspended in August 2022 due to Consent Order-driven well plug-and-abandonment activities near the monitoring location and within the SMA, and will be resumed at the end of those activities. RG265 recorded 19 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A baseline confirmation-monitoring sample was collected on July 27, 2022. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (669 pCi/L) and selenium (21.6 µg/L). The complete analytical results are presented in Appendix B of the SDPPP Overview. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 223-4 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-91646	4-18-2022	No	None	None
SMPLR-92047	6-2-2022	No	None	None
SMPLR-92715	7-14-2022	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 7-12-2022	0.06/0.27 0.06/0.2 0.03/0.15 0.11/0.23 0.09/0.64 0.18/1.29 0.15/0.83 0.04/0.12 0.22/0.48 0.06/0.11 0.1/0.28 0.38/0.6
SMPLR-94019	8-12-2022	Yes	7-14-2022 7-20-2022 7-24-2022 7-26-2022 7-27-2022 7-28-2022[c] 7-30-2022[c]	0.13/0.14 0.18/0.19 0.09/0.12 0.09/0.1 0.38/0.47 0.16/0.16 0.29/0.54

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

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

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

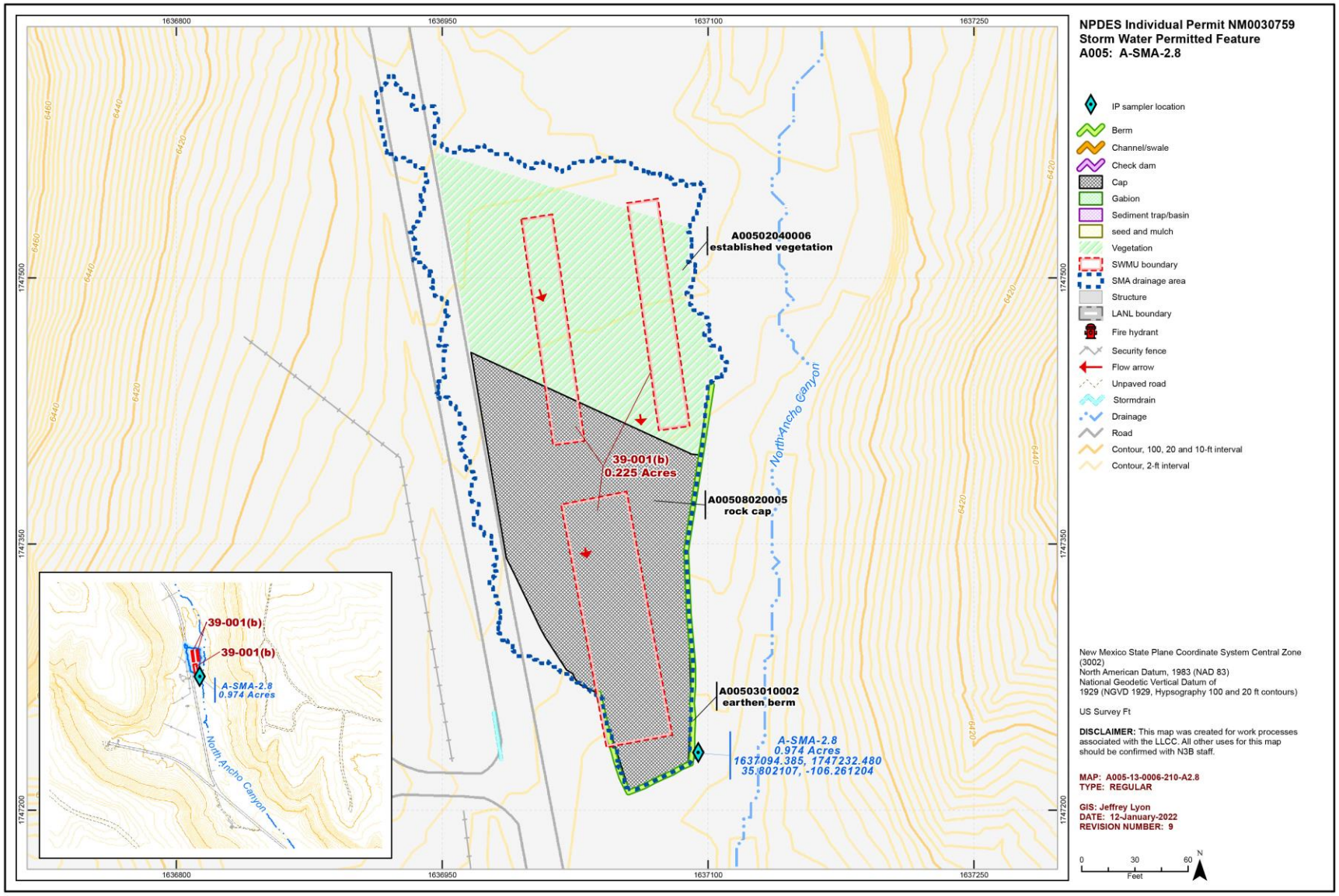


Figure 223-1 A-SMA-2.8 location map

224.0 A-SMA-3: AOC 39-002(b) and SWMU 39-004(c)

Two historical industrial activity areas, Sites 39-002(b) and 39-004(c), are associated with A-SMA-3 (permitted feature A006). 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.

224.1 Site Descriptions

39-002(b) (8/25/2017)

AOC 39-002(b) is a former SAA that was located on a 5-ft × 5-ft concrete pad adjacent to a firing site support building (structure 39-6) [SWMU 39-004(c)] at TA-39. In accordance with RCRA, SAA provisions allow generators to accumulate up to 55 gal. of hazardous waste (or 1 quart of acute hazardous waste) in containers, as long as those containers are (a) at or near any point of generation, (b) under the control of the operator, and (c) kept closed except when adding or removing waste.

Beginning in 1953, the area was used to store small quantities of paper contaminated with waste solvents (ethanol, acetone, and trichloroethane), copper sulfate, transformer oil, vacuum pump grease, and photographic waste. The date when the SAA was established is not known; however, the SAA was removed from service in 1993. The concrete pad is intact; no staining is visible on the pad. AOC 39-002(b) is located within the blast radius of active firing site [SWMU 39-004(c)].

39-004(c) (8/25/2017)

SWMU 39-004(c) is an active firing site and active operating RCRA OD Site (structure 39-6), subject to RCRA closure requirements. The site is located in the southernmost western tributary of Ancho Canyon in the canyon bottom, between an ephemeral stream and steep hill slopes to both the north and south. The site is used for explosives experiments and for treating reactive hazardous waste by OD. The experiments conducted at this firing site are designed to expend all HE in the device.

Use of this site as a test-firing site began when TA-39 was established in 1953. Materials used in significant quantities at the TA-39 firing sites over the years include beryllium, mercury, natural and DU, lead, aluminum, copper, brass, iron, stainless steel, and various types of HE. Other materials used at TA-39 firing sites in lesser quantities include thallium, cadmium, chromium, and thorium (as naturally-occurring thorium-232). In addition, firing assemblies were covered with dielectric oil (about 100 gal. per shot), much of which ended up in the soil of the firing pad. This oil may have contained PCBs.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 224-1.

Table 224-1 POCs Known or Suspected to Have Been Used Historically at the Sites

Site	Potential POC Source	Potential POCs
39-002(b)	Storage area	Silver, cyanide, PCBs
39-004(c)	Firing site	Aluminum, beryllium, cadmium, chromium, copper, lead, mercury, thallium, PCBs, HE, uranium

224.2 Control Measures

All active control measures in use at A-SMA-3 are listed in Table 224-2, and their locations are shown on the project map (Figure 235-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 224-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00602040018	Established Vegetation	X	-	X	-	B	5-13-2013
A00603020023	Base Course Berm	X	-	X	-	EC	5-28-2015
A00603120017	Rock Berm	-	X	-	X	B	5-23-2012
A00603140037	Coir Log	X	-	X	-	B	8-29-2018
A00603150027	Redi-Rock Berm	-	X	-	X	EC	5-28-2015
A00603150035	Redi-Rock Berm	X	-	-	X	B	5-30-2017
A00604010022	Earthen Channel/Swale	X	-	X	-	EC	5-28-2015
A00604030025	Rock Channel/Swale	-	X	X	-	EC	5-28-2015
A00604060024	Riprap	X	-	X	-	EC	5-28-2015
A00606010010	Rock Check Dam	X	-	-	X	CB	4-5-2010
A00606010011	Rock Check Dam	X	-	-	X	CB	4-5-2010
A00606010019	Rock Check Dam	X	-	-	X	B	11-26-2013
A00606010031	Rock Check Dam	X	-	-	X	B	5-30-2017
A00606010032	Rock Check Dam	X	-	-	X	B	5-30-2017
A00606010033	Rock Check Dam	X	-	-	X	B	5-30-2017
A00606010034	Rock Check Dam	X	-	-	X	B	5-30-2017
A00606010038	Rock Check Dam	-	X	-	X	EC	8-25-2021
A00608020029	Rock Cap	-	-	X	-	EC	5-28-2015
A00608020030	Rock Cap	-	X	X	-	B	8-9-2016
A00608020036	Rock Cap	X	-	X	-	B	5-30-2017

224.3 Inspections and Maintenance

RG265 recorded three storm events at A-SMA-3 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 224-3. Maintenance activities conducted at the SMA are summarized in Table 224-4. No other control-measure inspections were conducted at the SMA in 2022.

Table 224-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93934[a]	7-12-2022	0.38	7-18-2022	6	Yes
BMP-94589[b]	7-27-2022 7-30-2022	0.38 0.29	8-3-2022	7 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 224-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95347, (follow up from BMP-94589)	Additional material was added to Rock Check Dam A00606010038 to replace rock that had migrated downstream.	8-19-2022	16 day(s)	Maintenance was conducted as soon as practicable.

224.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from this sample yielded TAL exceedances for aluminum (997 µg/L), copper (245 µg/L), gross-alpha activity (136 pCi/L), mercury (9.04 µg/L), PCB concentrations (3060 ng/L), and selenium (12.1 µg/L). Complete analytical results are presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following the installation of enhanced control measures at A-SMA-3, a corrective-action stormwater sample was collected on August 10, 2018. Analytical results from this sample yielded TAL exceedances for copper (50.2 µg/L), gross-alpha activity (90.8 pCi/L), and PCB concentrations (3400 ng/L). Complete analytical results are presented in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was conducted at A-SMA-3, under the 2010 IP requirements, from March 22 through August 19, 2022, resulting in a monitoring season of 151 days. Five inspections were performed during the monitoring season and are summarized in Table 224-5. RG265 recorded 21 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. Monitoring was suspended in August 2022 due to Consent Order-driven well plug-and-abandonment activities near the monitoring location and within the SMA, and will be resumed at the end of those activities. No new confirmation-monitoring samples were collected in 2022, and no sampling operability issues were encountered.

Table 224-5 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-91631	4-18-2022	No	None	None
SMPLR-92045	6-2-2022	No	None	None
SMPLR-92711	6-20-2022	No	6-17-2022 6-18-2022 6-19-2022	0.06/0.27 0.06/0.2 0.03/0.15
SMPLR-92913	7-5-2022	No	6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-2-2022 7-4-2022	0.11/0.23 0.09/0.64 0.18/1.29 0.15/0.83 0.04/0.12 0.22/0.48 0.06/0.11 0.1/0.28
SMPLR-93813	8-19-2022	No	7-12-2022 7-14-2022 7-20-2022 7-24-2022 7-26-2022 7-27-2022 7-28-2022 7-30-2022 8-16-2022 8-18-2022	0.38/0.6 0.13/0.14 0.18/0.19 0.09/0.12 0.09/0.1 0.38/0.47 0.16/0.16 0.29/0.54 0.42/0.72 0.19/0.2

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

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

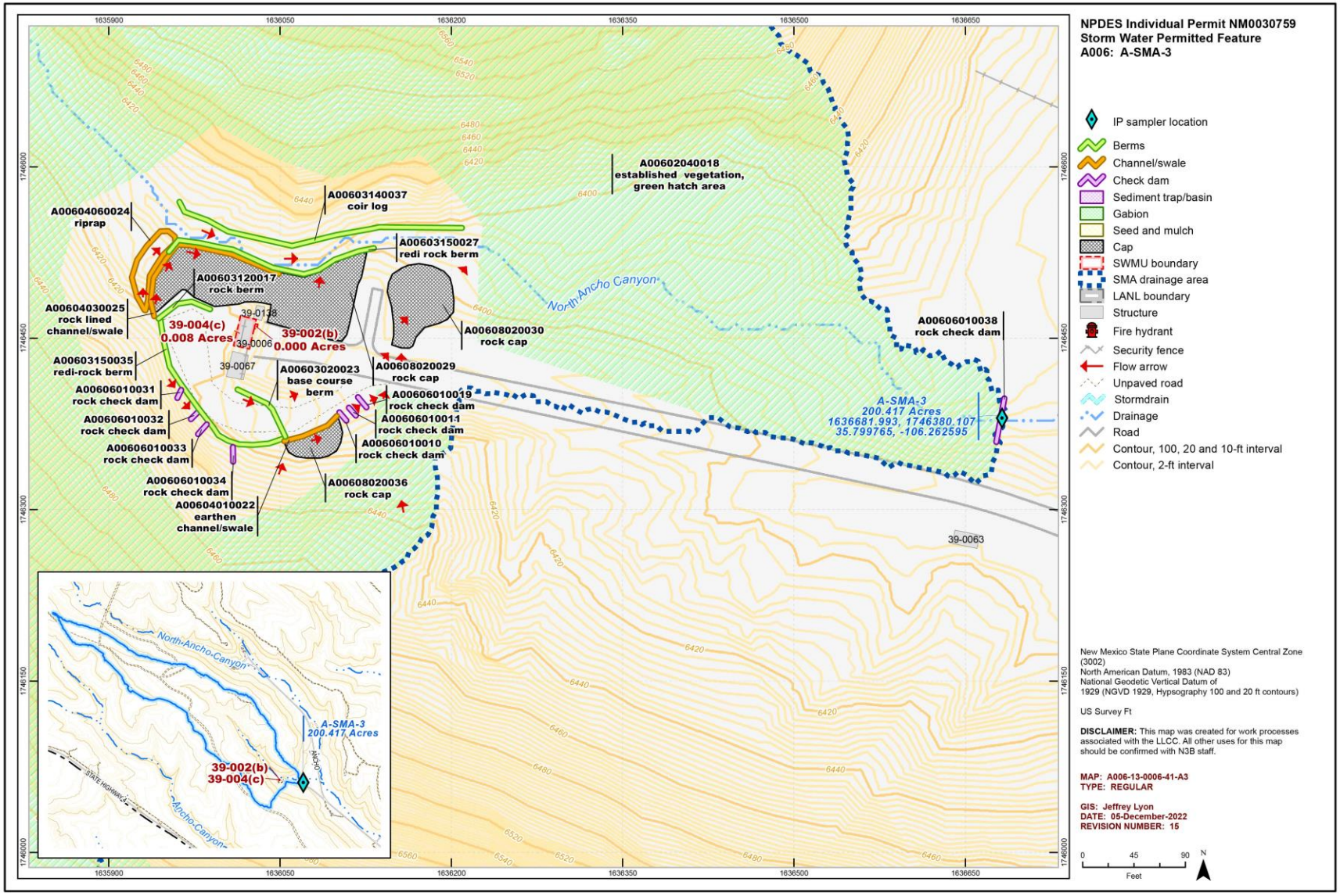


Figure 224-1 A-SMA-3 location map

225.0 A-SMA-3.5: SWMU 39-006(a)

One historical industrial activity area, Site 39-006(a), is associated with A-SMA-3.5 (permitted feature A007). 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.

225.1 Site Descriptions

39-006(a) (12/21/2021)

SWMU 39-006(a) consists of a septic system with inactive and active components, located east and south of former building 39-2 at TA-39. The 1990 SWMU Report describes SWMU 39-006(a) as an active septic system consisting of a septic tank (structure 39-104), a former septic tank (former structure 39-12), inlet and outlet drainlines, a siphon box, distribution boxes, a subsurface sand filter, and a former outfall that served as a sanitary waste system for former building 39-2.

The original/inactive portion of the septic system was constructed in 1952. It consisted of a septic tank (former structure 39-12) measuring approximately 12 ft long × 7 ft wide × 6 ft deep, 4-in.- and 6-in.-diameter VCP inlet and outlet drainlines, a subsurface sand filter, three manholes (structures 39-85, 39-86, and 39-87), and an outfall located approximately 225 ft south of the original subsurface sand filter. The septic tank was located 100 ft east of former building 39-2 and was connected to a sand filter north of NM State Road 4. The sand filter discharged to an outfall south of NM State Road 4 in North Ancho Canyon.

The system received discharges from building 39-2, as shown in as-constructed drawing ENG-C 42762 (p. 17 of 18) and engineering drawing ENG-R 1437 (p. 15 of 15). Photographic-processing chemicals from former building 39-2 were routinely discharged to former septic tank 39-12, eventually causing the septic tank to malfunction. To correct the problem, a chemical seepage pit was installed directly north of former septic tank 39-12 in 1973 to manage the photographic-processing chemicals. The chemical seepage pit consisted of an open pit approximately 12 ft deep and filled with cobble as shown in engineering drawing ENG-C 44331 (p. 2 of 4). A CMP approximately 1 ft in diameter runs vertically through the center of the seepage pit. The seepage pit handled approximately 75 gal./yr until 1992.

In 1973, the entire septic system was upgraded when the septic tank (former structure 39-12) was enlarged to an 1860-gal. capacity, and a new subsurface sand filter and outfall were installed on the south side of NM State Road 4; use of the original subsurface sand filter and outfall were discontinued at that time. The 1975 Zia Company Drawing for TA-39 (Sheet S-7), as-constructed drawing ENG-C 42762 (p. 17 of 18), and the 1991 orthographic photo show the upgraded septic system, consisting of the expanded septic tank (former structure 39-12), 4-in. and 6-in. VCP inlet and outlet drainlines, siphon box, two distribution boxes, a new subsurface sand filter, three manholes (structures 39-85, 39-86, and 39-87), and a new outfall located south of NM State Road 4.

In 1984, the original septic tank (former structure 39-12) was abandoned and a new 2400-gal.-capacity septic tank (structure 39-104) was installed, as shown on engineering drawings ENG-C 44331 (p. 2 of 4), ENG-C 45423 (p. 3 of 23), ENG-C 45423 (p. 14 of 23), the 1993 RFI Work Plan (Figure 5-17), and the LANL KSL Utility GIS layer. The newly installed septic tank served former buildings 39-2, 39-100, 39-103, 39-107, and 39-101, and buildings 39-62 and 39-98, and discharged to the subsurface sand filter and the outfall located south of NM State Road 4.

Septic tank 39-104, the new sand filter south of NM State Road 4, and the still-active drainlines are part of the SWMU 39-006(a) active components. In 1989, the 6-in. VCP outlet from the new sand filter was plugged, eliminating the discharge to the outfall. Buildings 39-2, 39-100, 39-101, 39-103, and 39-107 underwent D&D and were removed from TA-39 at various dates. Buildings 39-62 and 39-98 remain in place. The original/inactive septic tank (former structure 39-12), inactive chemical seepage pit, and the original subsurface sand filter were removed during 2009 Phase I Consent Order investigation field activities.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 225-1.

Table 225-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
39-006(a)	Septic system	Silver, inorganic and organic chemicals, cyanide

225.2 Control Measures

All active control measures in use at A-SMA-3.5 are listed in Table 225-2, and their locations are shown on the project map (Figure 225-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 225-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00702040003	Established Vegetation	-	X	X	-	B	5-13-2013
A00703060007	Straw Wattle	X	-	-	X	B	12-21-2020
A00703060008	Straw Wattle	-	X	-	X	B	12-21-2020

225.3 Inspections and Maintenance

RG340 recorded three storm events at A-SMA-3.5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 225-3. All other inspections conducted at the SMA are summarized in Table 225-4. No maintenance activities or facility modifications affecting discharge were conducted at A-SMA-3.5 in 2022.

Table 225-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93935[a]	7-12-2022	1.35	7-18-2022	6	Yes
BMP-94812[b]	7-28-2022 7-30-2022	0.42 0.45	8-3-2022	6 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 225-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance	COMP-93989	8-17-2022	No deficiency noted

225.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from this sample yielded no TAL exceedances and were presented in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was conducted at A-SMA-3.5, under the 2010 IP requirements, from April 1 through July 13, 2022, resulting in a monitoring season of 104 days. Four inspections were performed during the monitoring season and are summarized in Table 225-5. RG340 recorded 12 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. A second baseline-confirmation sample was collected on July 12, 2022. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (272 pCi/L) and PCB concentrations (1.555 ng/L). Complete analytical results from that sample are presented in Appendix B of the SDPPP Overview. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 225-5 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-91787	4-18-2022	No	None	None
SMPLR-92048	5-23-2022	No	None	None
SMPLR-92510	6-2-2022	No	None	None
SMPLR-92716	7-13-2022	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 7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16 0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46

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

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

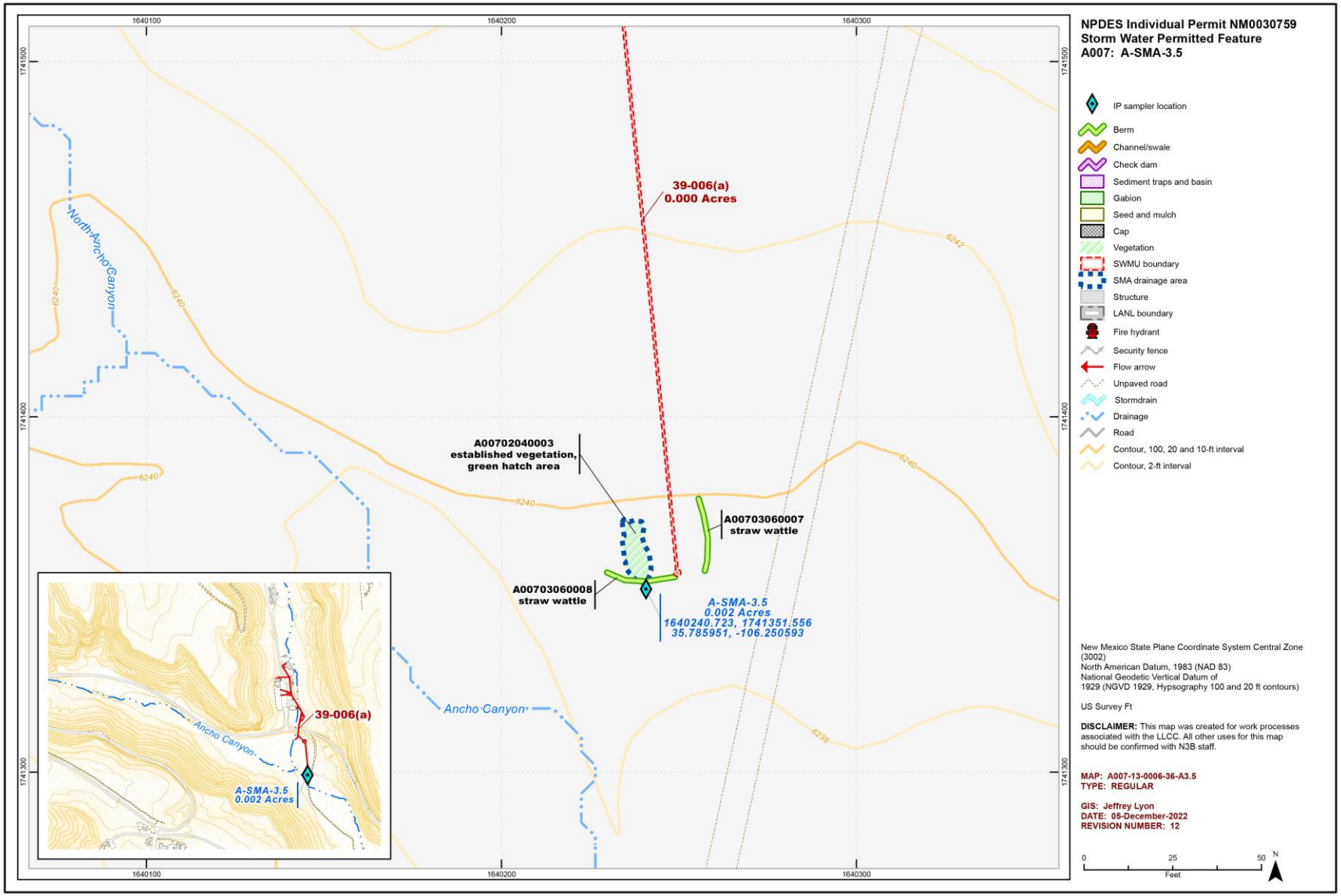


Figure 225-1 A-SMA-3.5 location map

226.0 A-SMA-4: SWMU 33-010(d)

One historical industrial activity area, Site 33-010(d), is associated with A-SMA-4 (permitted feature A008). 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.

226.1 Site Descriptions

33-010(d) (12/21/2021)

SWMU 33-010(d) is a former canyon-side disposal area situated in the northeastern portion of East Site at TA-33. This site is an area formerly scattered with debris from East Site firing sites, and is located on a steep slope directly north of the former gun-firing site berms [SWMU 33-006(b)]. Debris scattered along the canyon rim and in a small drainage leading to Ancho Canyon consisted of concrete blocks, empty glass specimen vials, pieces of foam, cable, and metal cans. The date this debris was deposited at the site is not known; however, operations at East Site occurred between 1948 and 1972. Much of the debris was removed from SWMU 33-010(d) during the 1984 surface cleanup of East Site.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Sites are listed in Table 226-1.

Table 226-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-010(d)	Surface disposal site	Metals, organic chemicals, radionuclides

226.2 Control Measures

All active control measures in use at A-SMA-4 are listed in Table 226-2, and their locations are shown on the project map (Figure 226-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 226-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00802040010	Established Vegetation	-	X	X	-	B	5-6-2013
A00803010007	Earthen Berm	X	-	-	-	CB	4-12-2010
A00803010009	Earthen Berm	-	X	-	X	B	5-20-2011
A00806010003	Rock Check Dam	X	-	-	X	CB	4-7-2010
A00806010004	Rock Check Dam	-	X	-	X	CB	4-7-2010

226.3 Inspections and Maintenance

RG340 recorded three storm events at A-SMA-4 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 226-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 226-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93936[a]	7-12-2022	1.35	7-22-2-22	10	Yes
BMP-94813[b]	7-28-2022 7-30-2022	0.42 0.45	8-3-2022	6 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.

226.4 Stormwater Monitoring

SWMU 33-010(d) is monitored within A-SMA-4. A baseline stormwater sample was collected on July 23, 2018 (Figure 237-2). Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (122 pCi/L) and are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

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

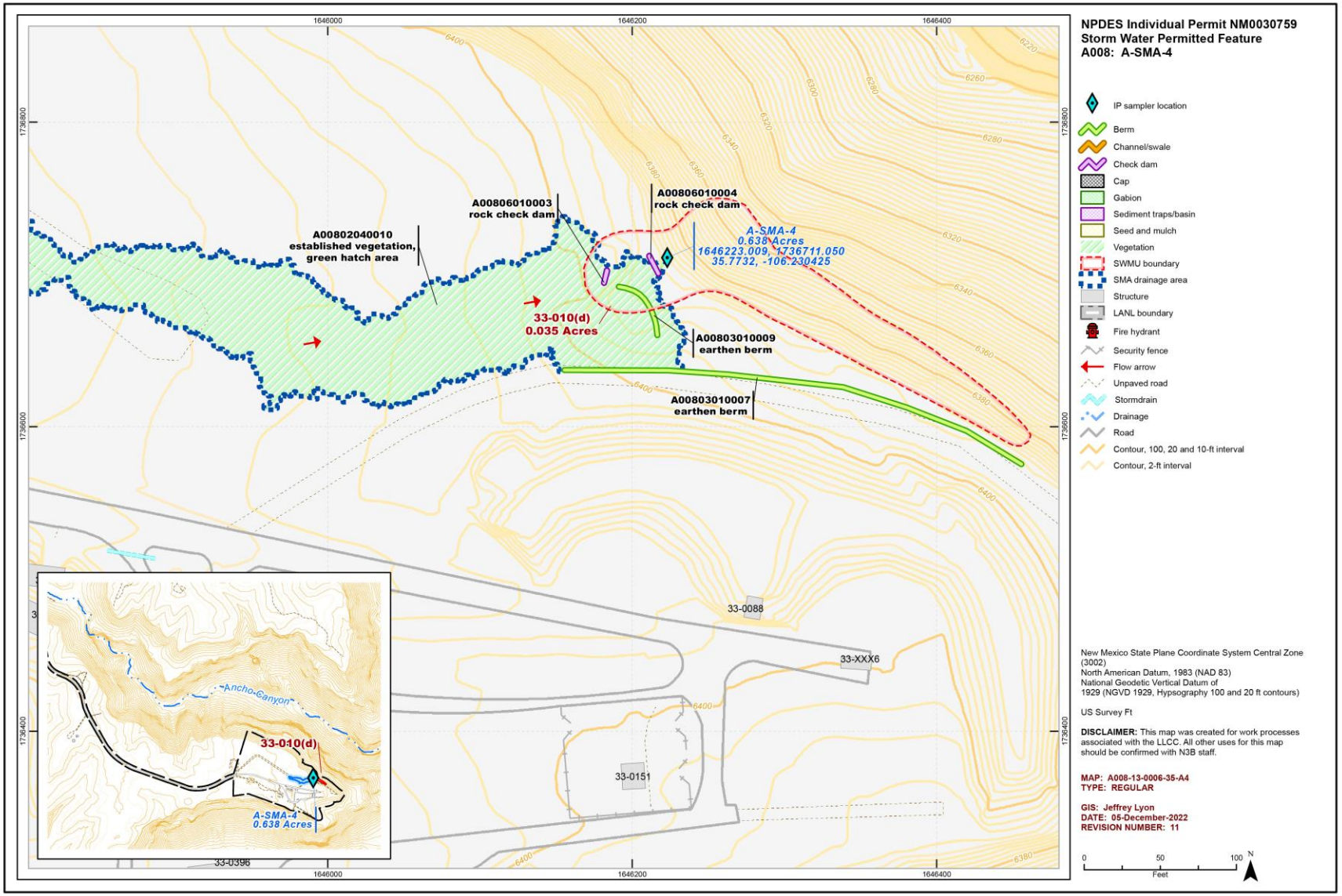


Figure 226-1 A-SMA-4 location map

227.0 A-SMA-6: SWMUs 33-004(k), 33-007(a), 33-010(a), and 33-010(b)

Four historical industrial activity areas, Sites 33-004(k), 33-007(a), 33-010(a), and 33-010(b), are associated with A-SMA-6 (permitted feature A009). 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.

227.1 Site Descriptions

33-004(k) (12/21/2021)

SWMU 33-004(k) is described in the 1990 SWMU Report as two parallel drainlines, exiting control bunker 33-87, that merged and discharged to a single outfall located near former gun mount 33-116 [SWMU 33-007(a)] within East Site at TA-33. Control bunker 33-87 was constructed in 1955 as a bunkered concrete structure covered on all sides and the roof with earthen fill to support firing site tests that were conducted until the early 1970s. The outfall reportedly received discharges from a toilet, sink, floor drains, and an electrical water cooler within the control bunker.

Engineering drawing C-3304, sheet 3 (stamped "As Built" in 1955) for structure 33-87 depicts a perforated CMP drainline along the entire south side of the bunker that ties into a single CMP at the southeast corner of structure 33-87 and extends approximately 125 ft southeast of the bunker to an inactive outfall. Engineering drawing C34651-00001, from 1967, shows the planned extension of the 8-in. CMP to a ditch and outfall southeast of the bunker. There is no documented use of hazardous or radioactive materials within control bunker 33-87.

Attempts to locate the drainline and outfall in 1994 and 1995, using geophysics and test trenches, were unsuccessful. An inspection of the control bunker in 1996 revealed that no floor drains existed within the structure. The sink and toilet in the bunker discharged to septic tank 33-96 [SWMU 33-004(c)], located north of the building.

33-007(a) (12/21/2021)

SWMU 33-007(a) is a former gun-firing site consisting of three gun mounts (structures 33-116 and 33-135 and former structure 33-117), two former catcher boxes (former structures 33-118 and 33-136), and a former recoil box, within East Site at TA-33. Concrete gun mounts 33-116 and 33-135 were located at the west end of the site, former gun mount 33-117 was located in the center of the site, and the former catcher boxes were located at the east end of the site. A sandbag barricade was located east of the catcher boxes. The recoil box was located immediately west of gun mount 33-116. The only remaining structures associated with SWMU 33-007(a) are concrete pads 33-116 and 33-135.

Firing-site activities began at East Site in the early-1950s, and included firing projectiles from large cannons into the catcher boxes filled with vermiculite and sand. Other activities included experiments using scintillation fluids and x-rays. Cobalt-60 was used in some projectiles to aid in recovery of projectiles from the catcher boxes. During a test firing on June 4, 1962, a projectile disintegrated in a gun barrel; the cobalt-60 vial and 30 kg of DU in the projectile were never recovered.

Firing-site activities ceased in 1972. During the 1984 cleanup of selected portions of East Site, radioactively-contaminated material was transported to TA-54 for disposal, and non-radioactively-contaminated material, including the catcher boxes and their contents, were removed and disposed of in a landfill [SWMU 33-008(b)] created west of structure 33-151 in the south-central portion of the site.

33-010(a) (12/21/2021)

SWMU 33-010(a) is an inactive surface disposal site located southeast of structure 33-151 on the slope at the eastern edge of East Site at TA-33. Much of the debris disposed of at this site was associated with the initial clearing of East Site, and included dead tree trunks, rocks, and scraped earth. Other debris, such as metal scrap, timber, and plastic foam, is associated with firing-site operations conducted from 1955 to 1972. Debris was scattered at the rim of White Rock Canyon.

33-010(b) (12/21/2021)

SWMU 33-010(b) is a former canyon-side disposal site that was located on a narrow ledge in the middle of a 60-ft cliff at the southern edge of East Site at TA-33. This disposal area consisted of a large pile of metal turnings, strapping strips, timbers, and asbestos boards. The debris was likely disposed of between 1947 and 1972. The ledge is approximately 10 ft to 15 ft wide. At the base of the cliff, a succession of steep slopes and cliffs extend into White Rock Canyon.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 227-1.

Table 227-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-004(k)	Drainline and outfall associated with building 33-87	No known POCs
33-007(a)	Firing range (inactive)	Beryllium, cadmium, lead, HE, tritium, uranium
33-010(a)	Surface disposal site	Metals, beryllium, lead, organic chemicals, radionuclides
33-010(b)	Surface disposal site	Metals, asbestos, radionuclides

227.2 Control Measures

All active control measures in use at A-SMA-6 are listed in Table 227-2, and their locations are shown on the project map (Figure 227-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 227-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00902040023	Established Vegetation	-	X	X	-	B	5-6-2013
A00903010021	Earthen Berm	-	X	-	X	CB	4-8-2010
A00904020007	Concrete/Asphalt Channel/Swale	-	X	X	-	CB	6-1-2009
A00904060005	Riprap	-	X	X	-	CB	4-1-2009
A00906010008	Rock Check Dam	-	X	-	X	CB	6-1-2009
A00906010009	Rock Check Dam	-	X	-	X	CB	6-1-2009
A00906010010	Rock Check Dam	-	X	-	X	CB	6-1-2009
A00906010011	Rock Check Dam	-	X	-	X	CB	6-1-2009

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
A00906010012	Rock Check Dam	-	X	-	X	CB	6-1-2009
A00906010013	Rock Check Dam	X	-	-	X	CB	4-7-2010
A00906010014	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010015	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010016	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010017	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010018	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010019	Rock Check Dam	-	X	-	X	CB	4-7-2010
A00906010020	Rock Check Dam	-	X	-	X	CB	4-7-2010

227.3 Inspections and Maintenance

RG340 recorded three storm events at A-SMA-6 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 227-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 227-3 Post-Storm Inspections in 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93937[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94814[b]	7-28-2022 7-30-2022	0.42 0.45	8-3-2022	6 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.

227.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 4, 2013. Analytical results from this sample yielded TAL exceedances for copper (5.86 µg/L) and gross-alpha activity (29.6 pCi/L). Complete analytical results from those samples are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

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

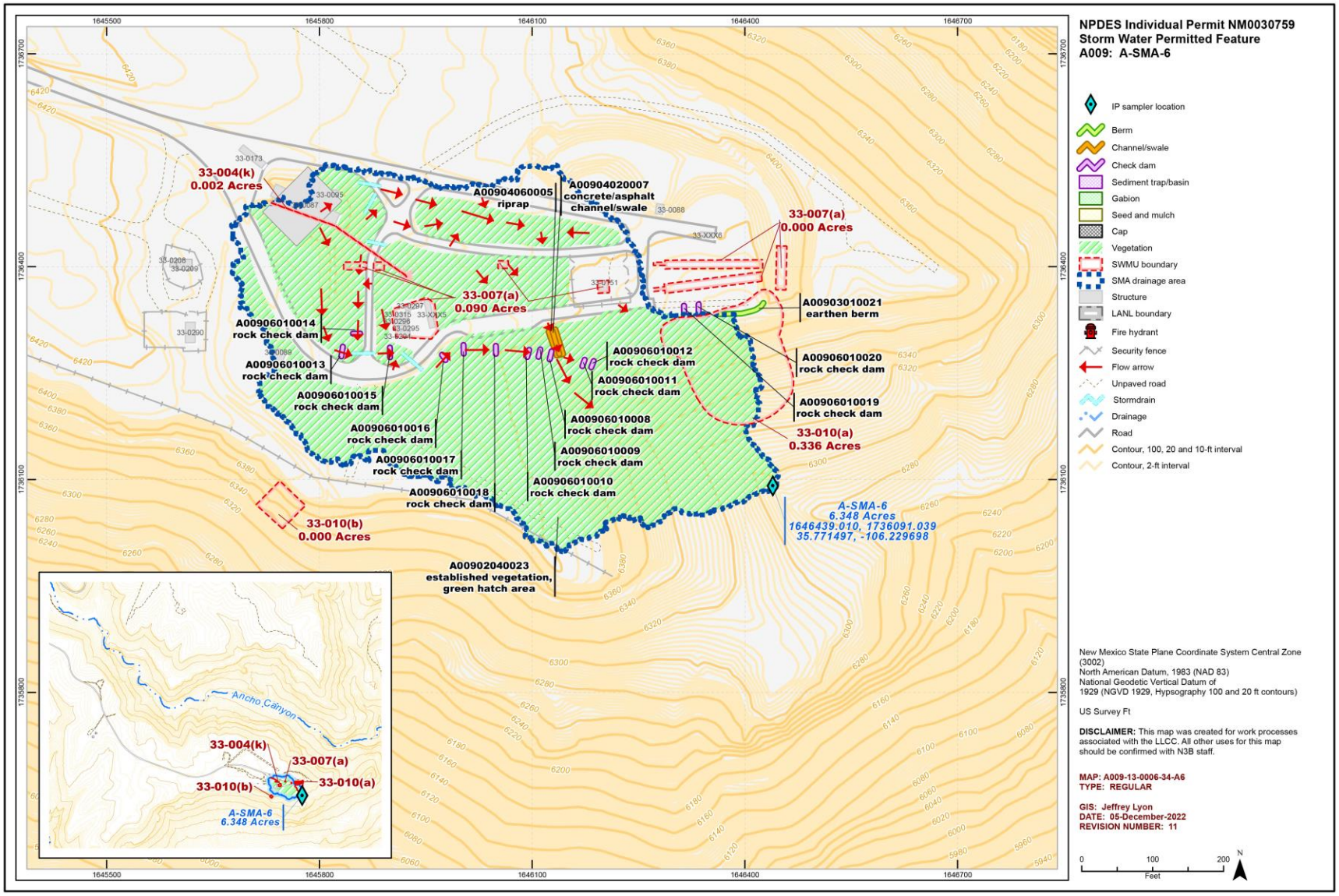


Figure 227-1 A-SMA-6 location map

228.0 CHQ-SMA-0.5: SWMUs 33-004(g), 33-007(c), and 33-009

Three historical industrial activity areas, Sites 33-004(g), 33-007(c), and 33-009, are associated with CHQ-SMA-0.5 (permitted feature Q001). 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.

228.1 Site Descriptions

33-004(g) (2/18/2021)

SWMU 33-004(g) is an inactive drainline and outfall that discharged wastewater from building 33-16 at Area 6 in TA-33. The outfall is located at the end of a VCP that runs west approximately 50 ft from the northwest corner of building 33-16 and daylights at the edge of a level area above a drainage channel that leads to a tributary of Chaquehui Canyon. The ground surface below the outfall slopes steeply down to the tributary channel, which is approximately 70 ft lower than the outfall. A culvert under a roadway, approximately 60 ft southwest of the outfall, receives runoff from most of the paved portion of Area 6.

Building 33-16 was constructed in 1949 as a gun building for initiator tests. It housed a gas gun that was used to fire projectiles, as well as electronic equipment used to measure neutron production. Large-bore (2-in. to 5-in.) guns were also mounted on concrete pads around building 33-16 and used to fire projectiles containing initiator test assemblies. These activities continued until 1955.

Photographs may have been developed in building 33-16 or in a small trailer parked next to the drainage from the site. In 1956, building 33-16 was used to make and machine laminating materials that contained barium, lead, titanium, and zinc. Toxic fumes from curing epoxy resins were reportedly released from a fume hood in the building. Building 33-16 later was used as a library and storage building and has been empty since 1991.

According to the 1990 SWMU Report, building 33-16 was originally built for office space and was converted to the gun-firing building in 1961. A long-time TA-33 staff member reported that the drainline from building 33-16 also served two trailers that were parked on the pad north of the building when Area 6 was occupied. One trailer was used for assembly and the other contained a darkroom.

In 1992, a study of drains and discharges at TA-33 was conducted to identify all sources of discharges from buildings throughout TA-33. This study identified no discharges from building 33-16. Thus, the source of the reported discharges from the SWMU 33-004(g) outfall is not known.

33-007(c) (1/25/2022)

SWMU 33-007(c) consists of two abandoned gun-firing areas associated with the initiator tests conducted at Area 6 in the west-central portion of TA-33.

The first gun-firing area included a gun building (former structure 33-16), a gun mount (structure 33-64), and an earthen berm (structure 33-60). Structure 33-16 was completed in 1949 and housed an air gun, and then electronic equipment, to measure neutron production in gun-type initiators containing beryllium and polonium-210. Gun sizes with bore diameters ranging from 4-in. to 8-in. fired projectiles into berms where two 6-ft × 6-ft catcher boxes constructed of wood timbers were embedded in the north end of berm structure 33-60. Each catcher box contained soil, wood chips, and vermiculite. The second gun-firing area included a large gun (structure 33-65), a hillside embankment (structure 33-61), and two barricades (structures 33-62 and 33-72), located north and east of the gun.

One concrete firing pad, on which a large bore gun was mounted, was located immediately west of structure 33-16. The pad measured 6 ft × 10 ft and was surrounded by a concrete apron. The other two concrete firing pads were located in a level area excavated into a basaltic cinder cone, approximately 100 ft southwest of structure 33-16. Two wooden barricades constructed of 8-in. × 8-in. timbers are located north and east of the shot pads. This area was used to test nuclear gun mockups. A 4-in. to 5-in. bore gun was used to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the site was used.

The two catcher boxes were located approximately 20 ft south of structure 33-16 and measured approximately 6 ft × 6 ft, were constructed of timber, and were filled with soil, wood chips, and vermiculite. Guns with a 2-in. to 5-in. bore diameter were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination.

A 1951 memorandum describes a test at Area 6 that resulted in a release of radioactive material from a projectile. The site was cleaned up using a bulldozer to scrape away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels, removing loose material and leaving impregnated spots as high as 1 million cpm. Contaminated surface soil was bulldozed from the shot area into the adjacent canyon.

Shots were discontinued at Area 6 by 1955. In 1956, structure 33-16 was used to make and machine laminating materials containing barium, titanium, lead, and zinc, using epoxy resins. An exhaust blower and stack were installed along with an emissions stack. The buildings in Area 6 have been vacant since the late 1950s.

The cinder cone has been further excavated. Currently, an aluminum tower (structure 33-192) is used for atmospheric physics monitoring within the excavated portion of the cinder cone.

33-009 (2/18/2021)

SWMU 33-009 consists of an inactive surface disposal area located at Area 6 in the northwest portion of TA-33. The disposal site measures approximately 100 ft long × 75 ft wide and was leveled into the side of a natural basaltic cinder cone. It includes an area that extends approximately 80 ft down the slope of the cinder cone, continuing below the disposal site until it reaches a tributary of Chaquehui Canyon.

The debris within this surface disposal area is believed to be associated with the activities at a nearby former gun-firing site [SWMU 33-007(c)] which operated from 1949 to 1955. When the firing area became contaminated as a result of firing activities, contaminated soil and debris was bulldozed over the edge of the canyon. SWMU 33-009 also received various types of debris from general operations at TA-33, including metal wastes, light bulbs, tires, and drums. In 1960, the site received uranium turnings from the building 33-113 machine shop. In addition, from 1967 until 1972, the site served as a storage and disposal site for defective electrical capacitors from the Sherwood Project. These capacitors had an average weight of 300 lb with an approximately 4- to 6-ft^3 volume for dielectric fluid. Disposal of the capacitors at this site ceased in 1972.

In December 1974, the site was partially cleaned up as part of general cleanup activities conducted at TA-33. Several truckloads of debris were disposed of at MDA G at TA-54. Debris removed from the site included pieces of DU, electrical capacitors, metal turnings, old tires, and fluorescent light tubes. A radiation survey of the area was performed after the cleanup, at intervals of about 10 ft across the slope and 16 ft up and down the slope. Radiation above background was not detected.

Broken glass and chunks of metal were still present at the site when the Phase I RFI was conducted at the site in 1993. An empty capacitor containing small amounts of PCB-contaminated oil was also discovered partially buried on the site in 1994, and was removed.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 228-1.

Table 228-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-004(g)	Drainline and outfall associated with building 33-16	Barium, lead, silver, zinc, cyanide
33-007(c)	Firing site	Beryllium, copper, lead, polonium-210, uranium
33-009	Surface disposal site	Metals, beryllium, copper, lead, organic chemicals, PCBs, polonium-210, uranium

228.2 Control Measures

All active control measures in use at CHQ-SMA-0.5 are listed in Table 228-2, and their locations are shown on the project map (Figure 2328-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 228-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00102040008	Established Vegetation	-	X	X	-	B	5-9-2013
Q00103010010	Earthen Berm	-	X	-	X	EC	9-23-2015
Q00103010011	Earthen Berm	-	X	-	X	EC	9-23-2015
Q00103140009	Coir Log	-	X	-	X	EC	9-23-2015
Q00104050006	Water Bar	X	-	-	X	CB	4-19-2010
Q00104050007	Water Bar	X	-	-	X	CB	4-19-2010
Q00106010003	Rock Check Dam	X	-	-	X	CB	4-19-2010
Q00106010004	Rock Check Dam	X	-	-	X	CB	4-19-2010
Q00106010005	Rock Check Dam	X	-	-	X	CB	4-19-2010

228.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-0.5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 228-3. Maintenance activities conducted at the SMA are summarized in Table 228-4. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 228-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93938[a]	7-12-2022	1.35	7-19-2022	7	Yes
BMP-94815[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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 228-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-90102 (follow up from COMP-89541)	Additional base course material was added to Water Bars Q00104050006 and Q00104050007 to ensure runoff from road is directed to the northeast, away from the SMA drainage area.	1-24-2022	87 days	Maintenance was delayed. The maintenance request was initially identified during the TAL Exceedance inspection for samples collected in 2021, conducted on October 24, 2021. Maintenance alternatives were assessed and the work order to conduct maintenance was issued on November 18, 2021. The facility restricted access to the area throughout December 2021, and winter weather conditions were encountered in early January 2022.

228.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 23, 2014. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (88.3 pCi/L) and PCB concentrations (12 ng/L). Complete analytical results from this sample are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2014, NPDES Permit No. NM0030759" (LANL 2015, 600241).

Following the installation of enhanced control measures, a corrective-action stormwater sample was collected on August 3, 2021. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (312 pCi/L) and PCB concentration (5.82 ng/L). Complete analytical results from this sample are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2021, NPDES Permit No. NM0030759" (N3B 2022, 701895).

Stormwater monitoring was conducted at CHQ-SMA-0.5, under the 2010 IP requirements, from March 21 through November 10, 2022, resulting in a monitoring season of 235 days. Nine inspections were performed during the monitoring season and are summarized in Table 228-5. RG340 recorded 29 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. A sample collected on July 12, 2022 had insufficient volume for analysis under 2010 IP or for investigation purposes under 2022 IP requirements. No other sampling operability issues were encountered.

Table 228-5 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-91569	4-7-2022	No	None	None
SMPLR-91918	5-5-2022	No	None	None
SMPLR-92366	5-25-2022	No	None	None
SMPLR-92573	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16
SMPLR-93511	7-13-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46
SMPLR-93975	8-1-2022	No	7-14-2022 7-19-2022 7-27-2022 7-28-2022 7-30-2022 7-31-2022[c]	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21
SMPLR-95161	9-6-2022	No	8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95800	10-12-2022	No	9-9-2022 10-3-2022 10-4-2022 10-7-2022 10-8-2022	0.09/0.29 0.17/0.45 0.05/0.22 0.06/0.1 0.03/0.11
SMPLR-96324	11-10-2022	No	10-15-2022 10-16-2022	0.12/0.63 0.03/0.16

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

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

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

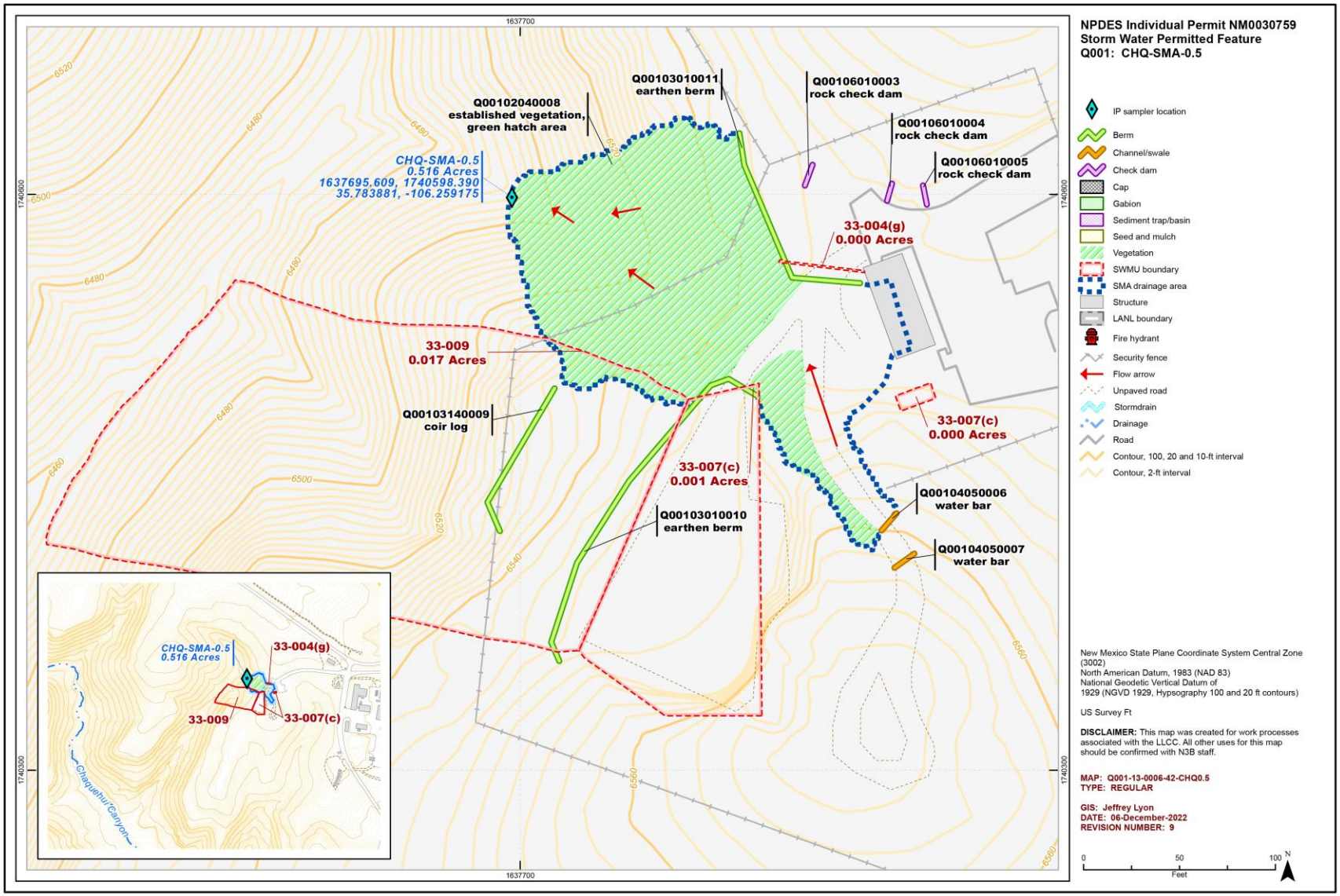


Figure 228-1 CHQ-SMA-0.5 location map

229.0 CHQ-SMA-1.01: SWMU 33-002(d)

One historical industrial activity area, Site 33-002(d), is associated with CHQ-SMA-1.01 (permitted feature Q002). 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.

229.1 Site Descriptions

33-002(d) (12/21/2021)

SWMU 33-002(d) is a former outfall and associated 90-ft outlet drainline that discharged noncontact cooling water from former building 33-86, the Tritium Facility, at TA-33. This outfall was created when the SWMU 33-002(c) seepage pit was deactivated and disconnected from the inlet drainline at building 33-86 to the sump in 1959. At that time, a 4-in. VCP outlet drainline was attached to the inactive CI inlet to former sump 33-133 [SWMU 33-002(c)], and was extended 90 ft to the east of former sump 33-133 to create an outfall for the discharge of noncontact cooling water from building 33-86. Tritium and metals were potential contaminants in the noncontact cooling water.

The outfall operated under the LANL NPDES permit (Outfall 04A147) until July 11, 1995, when it was removed from the permit following the D&D of the former building 33-86. The 90-ft outlet drainline that discharged to the outfall was removed during the 2005 VCA.

SWMU 33-002(d) is a component of MDA K, which consists of the former locations of a septic system and two seepage pits with drainlines and outfalls that served the former building 33-86 and a former surface disposal area. MDA K is located in the southeast area of Main Site at TA- 33.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 229-1.

Table 229-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-002(d)	Drainline and outfall from former building 33-86	Metals, tritium

229.2 Control Measures

All active control measures in use at CHQ-SMA-1.01 are listed in Table 229-2, and their locations are shown on the project map (Figure 229-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 229-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00202040008	Established Vegetation	-	X	X	-	B	5-6-2013
Q00203060011	Straw Wattle	X	-	-	X	B	11-22-2013
Q00203060012	Straw Wattle	-	X	-	X	B	10-16-2014
Q00203060013	Straw Wattle	-	X	-	X	B	10-16-2014

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00203060015	Straw Wattle	X	-	-	X	B	5-21-2019
Q00203060016	Straw Wattle	X	-	-	X	B	5-21-2019

229.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-1.01 during the 2022 season requiring two post-storm inspections, which are summarized in Table 229-3. All other control-measure inspections conducted at the SMA are summarized in Table 229-4, and maintenance activities conducted at the SMA are summarized in Table 229-5.

Table 229-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93941[a]	7-12-2022	1.35	7-21-2022	9	Yes
BMP-94818[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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 229-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
TAL Exceedance	COMP-93990	8-19-2022	Maintenance recommended. See Table 229-3

Table 229-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-96880 (follow up from BMP-93941/ COMP-93990)	Additional material was added to Straw Wattles Q00203060012 and Q00203060016 to increase capacity of controls and to ensure stormwater cannot go around controls.	12-12-2022	116 day(s)	Maintenance was delayed. The maintenance request for Straw Wattle Q00203060012 was initially made on July 21, 2022. The control was noted as functional at that time, and the FTL decision of the maintenance request was to continue to monitor the control. The maintenance request was not repeated on the August 8, 2022 inspection, and the control was noted as functional at that time. During the TAL exceedance inspection the control was noted as functional. After completing the alternatives analysis process for the TAL exceedances, BMP-96880 was issued on December 5, 2022.

229.4 Stormwater Monitoring

Stormwater monitoring was conducted at CHQ-SMA-1.01, under the 2010 IP requirements, from March 18 through July 13, 2022, resulting in a monitoring season of 118 days. Five inspections were performed during the monitoring season and are summarized in Table 229-6. Rain gage RG340 recorded 12 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A sample was collected July 12, 2022. Analytical results from this sample yielded TAL exceedances for copper (20.0 µg/L), gross-alpha activity (169 pCi/L), mercury (151 µg/L), selenium (16.5 µg/L), and PCB concentrations (474 ng/L). Complete analytical results from this sample are presented in Appendix B of the SDPPP Overview. The SIP will be updated in 2023 to update the SSD and planned sampling with the inclusion of 2022 analytical results.

Table 229-6 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-91567	4-6-2022	No	None	None
SMPLR-91916	5-4-2022	No	None	None
SMPLR-92333	5-25-2022	No	None	None
SMPLR-92571	7-7-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-2-2022 7-4-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16 0.15/0.51 0.09/0.11 0.22/0.25
SMPLR-93885	7-13-2022	Yes	7-12-2022	1.35/1.46

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

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

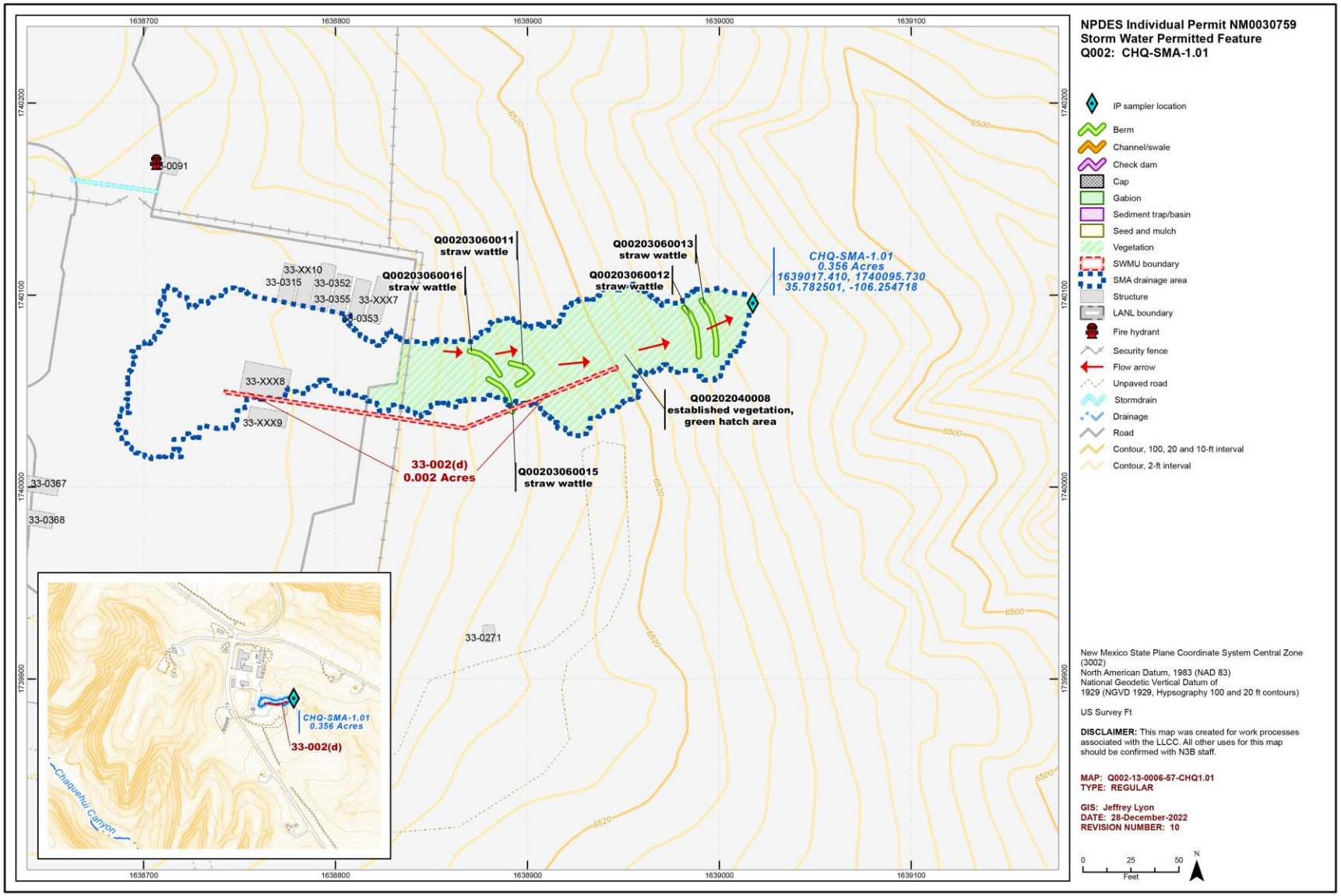


Figure 229-1 CHQ-SMA-1.01 location map

230.0 CHQ-SMA-1.02: SWMUs 33-004(h), 33-008(c), 33-011(d), and 33-015

Four historical industrial activity areas, Sites 33-004(h), 33-008(c), 33-011(d), and 33-015, are associated with CHQ-SMA-1.02 (permitted feature Q002A). 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 2022, 702502for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

230.1 Site Descriptions

33-004(h) (2/18/2021)

SWMU 33-004(h) reportedly consists of an inactive drainline and outfall associated with a warehouse (building 33-20) located at the south end of Main Site at TA-33. The warehouse was constructed in 1950 and used from 1952 to 1972 to store materials associated with initiator tests, including beryllium and uranium. The building subsequently was cleaned and used by other groups as a light laboratory and for general storage.

The RFI work plan for OU 1122 states that historical engineering drawings show an 8-in.- VCP drain, which reportedly discharged to an outfall, exiting the southeast corner of the building. A study of building drains at TA-33 identified two floor drains in building 33-20 but could not locate an outfall. The study also noted that there was no source of water in the building.

33-008(c) (1/25/2022)

SWMU 33-008(c) is a former surface disposal area located east of Main Site buildings 33-39 and 33-113 outside of the Main Site security fence at TA-33. This former disposal site consists of one area near a culvert outfall directly east of building 33-39 where glass bottles and other debris were discovered, and another area consisting of surface debris situated north of the culvert. The culvert receives stormwater runoff from Main Site and is located in a drainage channel that leads to a tributary of Chaquehui Canyon. Debris observed at the site included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert.

The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area and a partially full bottle was present on the ground surface. In 1999, a BMP was performed at the site, during which all visible debris was removed from the watercourse. Residual debris was removed from SWMU 33-008(c) during the 2019–2020 investigation.

This site was originally reported as a SWMU in the 1996 notification letter to NMED and is listed as such in Attachment K-1 of the RCRA permit and in the 2005 and 2016 Consent Orders. However, the site is identified as an AOC in recent reports and NMED correspondence.

33-011(d) (1/25/2022)

SWMU 33-011(d) consists of a former storage area that was located on an asphalt pad around a warehouse (building 33-20) in the southwest corner of Main Site at TA-33. Beryllium and uranium were stored in and outside of building 33-20 from 1950 until 1972. In addition, recovered scrap from shots containing uranium, beryllium, and tungsten was stored on the asphalt south of building 33-20. The amount of uranium stored at this site is reported to have been tons. Much of the material stored at the site was salvaged for use elsewhere. A 1987 site survey found no materials remaining in storage at this location.

33-015 (2/18/2021)

SWMU 33-015 is the location of an inactive incinerator (structure 33-110) located approximately 50 ft southeast of building 33-39 on a hillside that slopes to a side wash of Chaquehui Canyon in the southeast corner of Main Site at TA-33. The incinerator measured approximately 4 ft × 4 ft × 6 ft high and was mounted on a concrete base. The incinerator was used to burn uncontaminated office trash and was first used in 1955. The date the incinerator ceased to be used is not known; however, it was no longer in use during the 1993 Phase I RFI. The incinerator (structure 33-110) and the associated concrete base were removed during the 2019–2020 Consent Order investigation.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 230-1.

Table 230-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-004(h)	Drainline and outfall associated with building 33-20	Beryllium, uranium
33-008(c)	Landfill	Metals, inorganic and organic chemicals, PAHs
33-011(d)	Storage Area	Beryllium, uranium
33-015	Incinerator	Metals, dioxins/furans, PAHs, uranium

230.2 Control Measures

All active control measures in use at CHQ-SMA-1.02 are listed in Table 230-2, and their locations are shown on the project map (Figure 230-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 230-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q002A02040018	Established Vegetation	-	X	X	-	B	5-6-2013
Q002A03010010	Earthen Berm	-	X	-	X	EC	8-22-2012
Q002A03010011	Earthen Berm	-	X	-	X	EC	8-22-2012
Q002A03010012	Earthen Berm	-	X	-	X	EC	8-22-2012
Q002A03010013	Earthen Berm	X	-	-	X	EC	8-22-2012
Q002A03150014	Redi-Rock Berm	-	X	-	X	EC	2-4-2015
Q002A06010002	Rock Check Dam	-	X	-	X	CB	10-23-2009
Q002A06010003	Rock Check Dam	-	X	-	X	CB	10-23-2009
Q002A06010007	Rock Check Dam	X	-	-	X	CB	4-20-2010
Q002A06010009	Rock Check Dam	-	X	-	X	CB	10-12-2010
Q002A06010015	Rock Check Dam	-	X	-	X	EC	2-9-2021
Q002A06010016	Rock Check Dam	-	X	-	X	EC	2-9-2021
Q002A06010017	Rock Check Dam	-	X	-	X	EC	2-9-2021
Q002A08030004	Concrete/Asphalt Cap	-	-	X	-	CB	6-1-2009

230.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-1.02 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 230-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 230-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93942[a]	7-12-2022	1.35	7-21-2022	9	Yes
BMP-94819[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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.

230.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on August 21, 2011. Analytical results from this sample yielded TAL exceedances for copper (8 µg/L) and PCB concentrations (9.22 ng/L). Complete analytical results from that sample are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2011, NPDES Permit No. NM0030759" (LANL 2012, 211408).

Following the 2012 installation of enhanced control measures at CHQ-SMA-1.02, corrective-action stormwater samples were collected on July 25, 2013, and September 15, 2013. Analytical results from this corrective-action monitoring sample yielded TAL exceedances for copper (4.46 µg/L) and PCB concentrations (7 ng/L and 16 ng/L). Complete analytical results from that sample are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Following the 2015 installation of enhanced control measures, corrective-action stormwater samples were collected on July 23, 2018, and August 10, 2018. Analytical results from these corrective-action monitoring samples yielded a TAL exceedance for copper (6.79 µg/L). Complete analytical results from that sample are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Following the 2021 installation of enhanced control measures, corrective-action stormwater samples were collected on May 31 and August 3, 2021. Analytical results from these samples yielded TAL exceedances for copper (5.2 µg/L and 8.5 µg/L), gross-alpha concentrations (24.8 pCi/L and 50.2 pCi/L), and PCB concentrations (14.3 ng/L and 19.4 ng/L). Complete analytical results from that sample are presented in the 2021 Storm Water Individual Permit Annual Report (N3B 2022, 701895).

Stormwater monitoring was not conducted at CHQ-SMA-1.02 in 2022 under the 2010 IP requirements. Installation of enhanced controls as a corrective action pathway after the 2021 TAL exceedances is planned for completion in 2023.

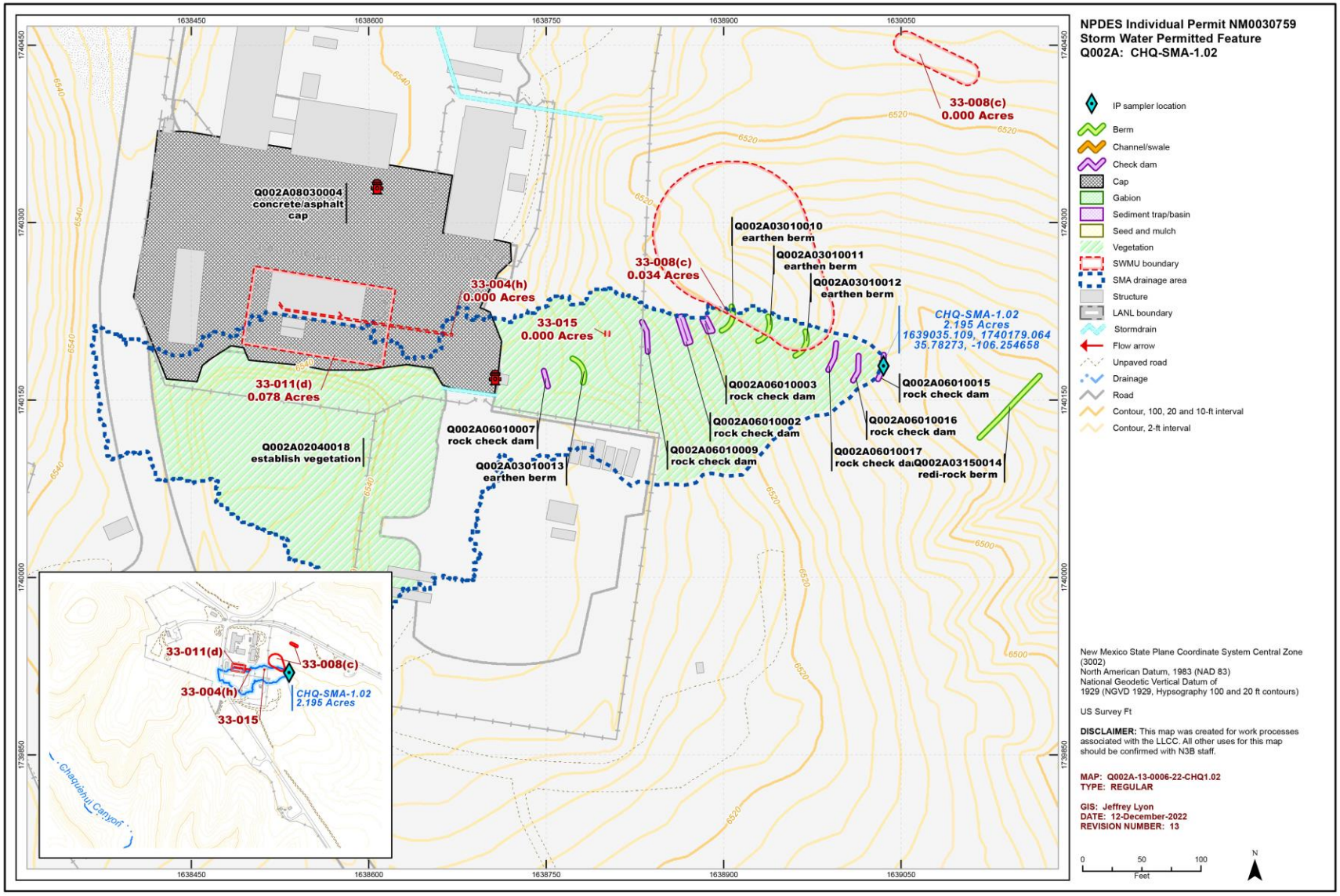


Figure 230-1 CHQ-SMA-1.02 location map

231.0 CHQ-SMA-1.03: SWMUs 33-008(c), 33-012(a), and 33-017 and AOCs C-33-001 and C-33-003

Five historical industrial activity areas, 33-008(c), 33-012(a), 33-017, C-33-001, and C-33-003, are associated with CHQ-SMA-1.03 (permitted feature Q002B). 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 2022, 702502for more information on Consent Order investigation activities, the SSD, and planned stormwater monitoring at the SMA for future monitoring seasons.

231.1 Site Descriptions

33-008(c) (1/25/2022)

SWMU 33-008(c) is a former surface disposal area located east of Main Site buildings 33-39 and 33-113, outside the Main Site security fence at TA-33. This former disposal site consists of two areas, one near a culvert outfall directly east of building 33-39, where glass bottles and other debris were discovered, and the other consisting of surface debris situated north of the culvert. The culvert receives stormwater runoff from Main Site, and is located in a drainage channel that leads to a tributary of Chaquehui Canyon. Debris observed at the site included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert.

The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area, and a partially full bottle was present on the ground surface. In 1999, a BMP was performed at the site, during which all visible debris was removed from the watercourse. Residual debris was removed from SWMU 33-008(c) during the 2019–2020 investigation.

This site was originally reported as a SWMU in the 1996 notification letter to NMED, and is listed as such in Attachment K-1 of the RCRA permit and in the 2005 and 2016 Consent Orders. However, the site is identified as an AOC in recent reports and NMED correspondence.

33-012(a) (1/25/2022)

SWMU 33-012(a) is a former SAA for a former machine shop in building 33-39 at Main Site, in the northern portion of TA-33. This SAA was located on an asphalt pad (approximately 20 ft wide × 20 ft long) on the east side of building 33-39, between the building and a storage shed. The area was used to accumulate spent solvents and solvent-contaminated oil, in one 55-gal. drum at a time, in accordance with RCRA requirements (40 CFR 262, Standards Applicable to Generators of Hazardous Waste). Each drum was placed on a pallet or directly on the asphalt pad. Drums containing PCB-contaminated oil and used oil with heavy metals may have also been stored on the asphalt pad. The SAA was established in the mid-1980s and was deactivated by 1992 and moved to the interior of building 33-39.

SAAs and less-than-ninety-day storage areas at the Laboratory are regulated under 40 CFR 262 and 20.4.1 NMAC, Hazardous Waste Management Regulations, and are managed under the LANL SPCC plan when operational. The Laboratory conducts training classes for the operation of these areas, and inspects them, and has institutional controls governing their closure. The NMED also performs annual inspections of a subset of all active SAAs and less-than-ninety-day storage areas. Because any releases will be cleaned up immediately, these units do not have the potential to become historical release sites. Therefore, these areas will continue to be regulated under 3004(a) of RCRA, rather than 3004(u), HSWA.

The 1990 SWMU Report noted the presence of multiple oil stains at this site. However, the 1992 RFI work plan states that no evidence of oil staining was observed.

33-017 (1/25/2022)

SWMU 33-017 consists of areas potentially impacted by operational releases from former operations within Main Site at TA-33. SWMU 33-017 is located at the northern and eastern edges of Main Site, and is approximately 600 ft long × 100 to 600 ft wide. The site generally slopes downward to the east and is located at the head of a small drainage tributary of Chaquehui Canyon. SWMU 33-017 is potentially impacted by runoff from the paved areas of the Main Site complex, by deposition from airborne releases from TA-33 Main Site facilities, and by operational releases from an area east of building 33-39 previously used for vehicle maintenance.

Operations conducted within Main Site included uranium processing and machining, cadmium and silver welding and soldering, lead melting and casting, cadmium and beryllium machining, and tritium processing and decontamination. Additional materials handled at Main Site facilities included mercury and organic solvents. Operations at Main Site began in 1949 and continued until 1972. When these operations ceased, some of the facilities were used for offices and electronics laboratories, and remain active.

C-33-001 (1/25/2022)

AOC C-33-001 consists of a former PCB transformer (former structure 33-124) adjacent to the northeast corner of building 33-114, in the northern portion of the Main Site at TA-33. The transformer was mounted on a 15-ft-long × 50-ft-wide concrete pad next to the northeast wall of building 33-114, and was bounded by asphalt to the north, east, and south. The pad was enclosed by a fence and accessible only through a locked gate.

The transformer (former structure 33-124) was placed into service in the 1950s, and the mineral oil in the transformer contained PCBs. Oil stains were observed on the concrete pad, and leaks from the transformer were observed, during routine inspections conducted between September 1985 and March 1992.

In 1992, the transformer was removed and replaced with a non-PCB transformer as part of the DOE program to remove all PCB-containing electrical equipment. The stained areas on the concrete pad were double-washed and double-rinsed; however, post-cleanup sampling was not conducted to verify the completion of cleanup as required by the TSCA PCB-spill cleanup requirements [40 CFR 761.130]. Sampling conducted during the transformer replacement was limited to the area where the old transformer had been placed temporarily during removal.

C-33-003 (2/18/2021)

AOC C-33-003 consists of two fill areas located at the Main Site area at the northern end of TA-33. This fill was used to level sites for two portable trailers. One of the trailers (former structure 33-169) was installed next to the Main Site water tower. The area filled to accommodate trailer 33-169 is approximately 100 ft × 100 ft × 4 ft deep. The other trailer (former structure 33-170) was installed north of building 33-114. The area filled to accommodate trailer 33-170 is approximately 70 ft × 90 ft × 7 ft deep.

Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these sites.

Three projectiles, one of which contained uranium, were discovered in the fill area next to the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material that had been obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 231-1.

Table 231-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-008(c)	Landfill	Metals, inorganic and organic chemicals, PAHs
33-012(a)	Drum storage area	Metals, PCBs
33-017	Operational release	Beryllium, cadmium, lead, mercury, silver, PCBs, polonium, tritium, DU and enriched uranium, pesticides
C-33-001	Former transformer	PCBs
C-33-003	Soil contamination	Metals, uranium

231.2 Control Measures

All active control measures in use at CHQ-SMA-1.03 are listed in Table 231-2, and their locations are shown on the project map (Figure 231-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 231-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q002B02040012	Established Vegetation	-	X	X	-	B	5-6-2013
Q002B03150013	Redi-Rock Berm	-	X	-	X	EC	4-9-2014
Q002B04060006	Riprap	X	-	X	-	CB	4-20-2010
Q002B04060007	Riprap	-	X	X	-	CB	6-14-2010
Q002B04060010	Riprap	-	X	X	-	CB	7-27-2010
Q002B06010004	Rock Check Dam	-	X	-	X	CB	3-14-2006
Q002B06010008	Rock Check Dam	-	X	-	X	CB	7-27-2010
Q002B06010011	Rock Check Dam	-	X	-	X	CB	8-17-2010
Q002B08030003	Concrete/Asphalt Cap	-	X	X	-	CB	6-1-2009

231.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-1.03 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 231-3. All other inspections conducted at the SMA are summarized in Table 231-4, and maintenance activities conducted at the SMA are summarized in Table 231-5.

Table 231-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93943[a]	7-12-2022	1.35	7-21-2022	9	Yes
BMP-94820[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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 231-4 Other Control-Measure Inspections During 2022

Maintenance Reference	Inspection Reason	Inspection Date	Inspection Findings
BMP-93953	FTL assessment of site condition after 7/12/2022 rain event and non-confirmation-monitoring sample collection.	8-19-2022	Maintenance conducted on 1 control, rilling and erosion identified between riprap areas 7 and 10 and at outlet of storm drain located upstream of riprap area 6 noted and will be addressed as part of upcoming enhanced control measure installations.

Table 231-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-93953	Toe of Rock Check Dam Q002B06010004 was repaired at inspection to address scour hole that had developed.	07-14-2022	0 day(s)	Maintenance was conducted at inspection.

231.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 4, 2012. Analytical results from this sample yielded TAL exceedances for copper (14.4 µg/L), gross-alpha activity (63.5 pCi/L), and PCB concentrations (16 ng/L) and are reported in "Storm Water 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 at CHQ-SMA-1.03, a corrective-action stormwater sample was collected on August 10, 2018. Analytical results from this corrective-action monitoring sample yielded TAL exceedances for copper (4.6 µg/L), gross-alpha activity (16.2 pCi/L), and PCB concentrations (0.86 ng/L). Complete analytical results from this sample are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was conducted under the 2010 IP requirements at CHQ-SMA-1.03 from March 18 through October 28, 2022, resulting in a monitoring season of 225 days. Seven inspections were performed during the monitoring season; these inspections are summarized in Table 231-6. Rain gage RG340 recorded 29 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. A sample was collected on July 12, 2022. It was later discovered that the sample collection began

more than one hour after the storm event; therefore, the sample was deemed ineligible for confirmation monitoring per the 2010 IP Part I.D.3. No other sampler operability issues were encountered.

Table 231-6 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-91558	4-6-2022	No	None	None
SMPLR-91912	5-5-2022	No	None	None
SMPLR-92364	5-25-2022	No	None	None
SMPLR-92570	7-7-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022 7-1-2022 7-2-2022 7-4-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16 0.15/0.51 0.09/0.11 0.22/0.25
SMPLR-93883	7-13-2022	Yes	7-12-2022	1.35/1.46
SMPLR-94403	9-1-2022	No	7-14-2022[c] 7-19-2022[c] 7-27-2022 7-28-2022 7-30-2022 7-31-2022 8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95761	10-28-2022	No	9-9-2022 10-3-2022 10-4-2022 10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.09/0.29 0.17/0.45 0.05/0.22 0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

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

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

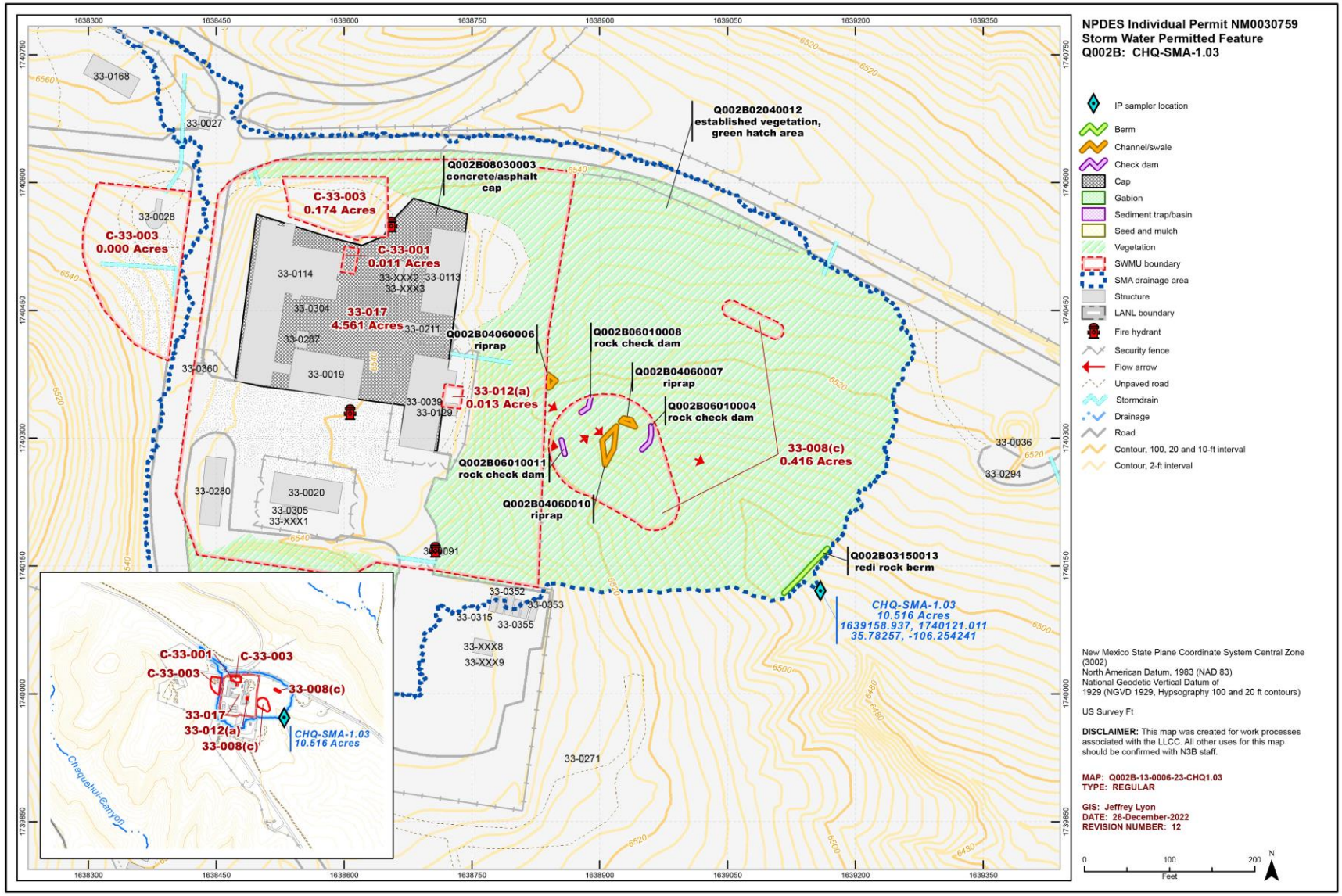


Figure 231-1 CHQ-SMA-1.03 location map

232.0 CHQ-SMA-2: SWMUs 33-004(d) and 33-007(c) and AOC C-33-003

Three historical industrial activity areas, Sites 33-004(d), 33-007(c), and C-33-003, are associated with CHQ-SMA-2 (permitted feature Q003). 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.

232.1 Site Descriptions

33-004(d) (2/18/2021)

SWMU 33-004(d) is an abandoned septic system consisting of a septic tank (structure 33-121), inlet and outlet drainlines, an outfall, and an associated tile drain field located at Area 6 in TA-33.
Septic tank 33-121 is located approximately 100 ft east of building 33-16 in the northwest portion of TA-33. The septic tank is constructed of corrugated iron and has a capacity of 500 gal.

Septic tank 33-121 received wastewater from a toilet and sink in former laboratory building 33-01. Building 33-01 and an associated machine shop (former building 33-02) were constructed on skids and moved on-site in 1946 or 1947. Use of building 33-01 was discontinued in 1991 and the building was removed in 1994; the septic system was abandoned in place. While building 33-01 was occupied, effluent was discharged from the septic tank to a drain field located approximately 20 ft east of the tank.

Building 33-01 was used from 1948 to 1955 to support nonexplosive initiator tests conducted at Area 6. In 1958, the building was used to grow crystals of potassium niobate, and possibly other types of crystals (aluminates, titanates, tungstates, etc.). Silver plating was also reportedly performed in this building. Later, building 33-01 was used as office space and for storage, until use of the building was discontinued in 1991. A 1993 study of drains and discharges at TA-33 determined that the only discharges to the septic system were from a lavatory, toilet, and sink drain.

The 1992 RFI work plan identifies a small drain field 20 ft east of the tank and a 4-in. PVC pipe that drained to a buried outfall in a side wash of Chaquehui Canyon. The 1995 RFI report describes the septic tank as a 500-gal. corrugated iron tank located 50 ft southeast of building 33-01, associated with 4-in. inlet and outlet drainlines, and a single line of vitrified clay tiles at the end of the outlet line, laid in gravel and terminating at the outfall 5 ft below grade. Land surface at the tank location slopes east approximately 200 ft to a shallow drainage eroded into the bedrock that flows south. The septic system components were uncovered during the 1993 RFI.

The septic tank (structure 33-121) was removed during the 2019–2020 Consent Order investigation. The inlet and outlet were plugged but the drainlines and drain field remain in place.

33-007(c) (1/25/2022)

SWMU 33-007(c) consists of two abandoned gun-firing areas associated with the initiator tests conducted at Area 6 in the west-central portion of TA-33. The first gun-firing area included a gun building (former structure 33-16), a gun mount (structure 33-64), and an earthen berm (structure 33-60). Structure 33-16 was completed in 1949 and housed an air gun, and then electronic equipment, to measure neutron production in gun-type initiators containing beryllium and polonium-210. The concrete firing pad, on which the gun was mounted, was located immediately west of structure 33-16. The pad measured 6 ft × 10 ft and was surrounded by a concrete apron. Guns with bore diameters ranging from 4-in. to 8-in. fired projectiles into berms where two 6-ft × 6-ft catcher boxes constructed of wood timbers were

embedded in the north end of berm structure 33-60. The two catcher boxes were located approximately 20 ft south of structure 33-16 and contained soil, wood chips, and vermiculite.

The second gun-firing area included a large gun (structure 33-65), a hillside embankment (structure 33-61), and two barricades (structures 33-62 and 33-72) located north and east of the gun. The two concrete firing pads were located in a level area excavated into a basaltic cinder cone, approximately 100 ft southwest of structure 33-16. Guns with bore diameters ranging from 2 in. to 5 in. were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210.

Two wooden barricades constructed of 8-in. × 8-in. timbers are located north and east of the shot pads. This area was used to test nuclear gun mockups. A gun with a 4-in. to 5-in. bore was used to fire projectiles into the back of the excavation, which currently extends about 75 ft farther back than when the site was used. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination.

A 1951 memorandum describes a test at Area 6 that resulted in a release of radioactive material from a projectile. The site was cleaned up using a bulldozer to scrape away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels by removing loose material, leaving impregnated spots as high as 1 million cpm. Contaminated surface soil was bulldozed from the shot area into the adjacent canyon. Shots were discontinued at Area 6 by 1955. In 1956, structure 33-16 was used to make and machine laminating materials containing barium, titanium, lead, and zinc using epoxy resins. An exhaust blower and stack were installed along with an emissions stack.

The buildings in Area 6 have been vacant since the late 1950s. The cinder cone has been further excavated. Currently, an aluminum tower (structure 33-192) is used for atmospheric physics monitoring within the excavated portion of the cinder cone.

C-33-003 (2/18/2021)

AOC C-33-003 consists of two fill areas located at the Main Site area at the northern end of TA-33. This fill was used to level sites for two portable trailers. One of the trailers (former structure 33-169) was installed next to the Main Site water tower. The area filled to accommodate trailer 33-169 is approximately 100 ft × 100 ft × 4 ft deep. The other trailer (former structure 33-170) was installed north of building 33-114. The area filled to accommodate trailer 33-170 is approximately 70 ft × 90 ft × 7 ft deep.

Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these sites. Three projectiles, one of which contained uranium, were discovered in the fill area next to the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material that had been obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 232-1.

Table 232-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-004(d)	Septic system	Metals, aluminum, iron, beryllium, silver, cyanide, organic chemicals, natural uranium
33-007(c)	Firing site	Beryllium, barium, copper, lead, polonium-210, uranium, zinc
C-33-003	Soil contamination	Metals, uranium

232.2 Control Measures

All active control measures in use at CHQ-SMA-2 are listed in Table 232-2, and their locations are shown on the project map (Figure 232-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 232-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00302040023	Established Vegetation	-	X	X	-	B	5-9-2013
Q00303010030	Earthen Berm	X	-	-	X	EC	10-8-2015
Q00303020028	Base Course Berm	-	X	-	X	EC	10-8-2015
Q00303020029	Base Course Berm	-	X	-	X	EC	10-8-2015
Q00303020053	Base Course Berm	X	-	-	X	EC	10-8-2015
Q00303020054	Base Course Berm	X	-	-	X	EC	10-8-2015
Q00303040015	Asphalt Berm	X	-	-	X	CB	4-19-2010
Q00303060060	Straw Wattle	-	X	-	X	EC	2-4-2021
Q00303060061	Straw Wattle	-	X	-	X	EC	2-4-2021
Q00303140062	Coir Log	-	X	-	X	B	8-8-2022
Q00306010035	Rock Check Dam	X	-	-	X	EC	10-8-2015
Q00306010036	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010037	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010038	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010039	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010040	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010041	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010042	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010043	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010044	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010045	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010046	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010047	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010048	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010049	Rock Check Dam	-	X	-	X	B	10-8-2015

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00306010050	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010051	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010052	Rock Check Dam	-	X	-	X	EC	10-8-2015
Q00306010055	Rock Check Dam	-	X	-	X	B	10-23-2019
Q00306010056	Rock Check Dam	-	X	-	X	B	10-23-2019
Q00306010057	Rock Check Dam	-	X	-	X	EC	2-4-2021
Q00306010058	Rock Check Dam	-	X	-	X	EC	2-4-2021

232.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-2 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 232-3. Maintenance activities conducted at the SMA are summarized in Table 232-4. No other control-measure inspection were conducted at the SMA in 2022.

Table 232-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93939[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94816[b]	7-28-2022	0.42	8-8-2022	11	Yes
	7-30-2022	0.45		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 232-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-94519 (follow up to BMP-93939)	Replaced Coir Log Q00303140059 with Coir Log Q0030314 0062. Repaired Rock Check Dams Q00306010047, Q00306010048, Q00306010049, Q00306010050, Q00306010051, Q00306010055, Q00306010056, Q00306010057, and Q00306010058.	8-8-2022	18 day(s)	Maintenance was conducted as soon as practicable. Rock Check Dam Q00306010052 acted as a backup control in the interim.

232.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 4, 2012. Analytical results from this sample yielded TAL exceedances for aluminum (967 µg/L), copper (6.75 µg/L), and gross-alpha activity (91.2 pCi/L). The complete analytical results are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2012, NPDES Permit No. NM0030759" (LANL 2013, 237680).

Two corrective-action stormwater samples were collected on July 23 and August 15, 2018. Analytical results from the corrective-action monitoring samples yielded TAL exceedances for copper (4.82 µg/L), and gross-alpha activity (36.8 and 99.7 pCi/L) and are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was conducted at CHQ-SMA-2, under the 2010 IP requirements, from March 18 through November 10, 2022, resulting in a monitoring season of 238 days. Eight inspections were performed during the monitoring season and are summarized in Table 232-5. Rain gage RG340 recorded 29 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. A sample collected on July 30, 2022 had insufficient volume for analysis under 2010 IP requirements. No other sampler operability issues were encountered. The SIP will be updated in 2023 to update the SSD and planned sampling with the inclusion of 2022 analytical results under the 2022 IP requirements.

Table 232-5 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-91559	4-7-2022	No	None	None
SMPLR-91913	5-4-2022	No	None	None
SMPLR-92330	6-1-2022	No	None	None
SMPLR-92708	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16
SMPLR-93503	7-13-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46
SMPLR-93971	8-25-2022	Yes	7-14-2022 7-19-2022 7-27-2022 7-28-2022 7-30-2022 7-31-2022[c] 8-16-2022[c] 8-19-2022[c] 8-20-2022[c] 8-21-2022[c]	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11

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-95664	10-6-2022	No	9-9-2022 10-3-2022 10-4-2022	0.09/0.29 0.17/0.45 0.05/0.22
SMPLR-96283	11-10-2022	No	10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

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

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

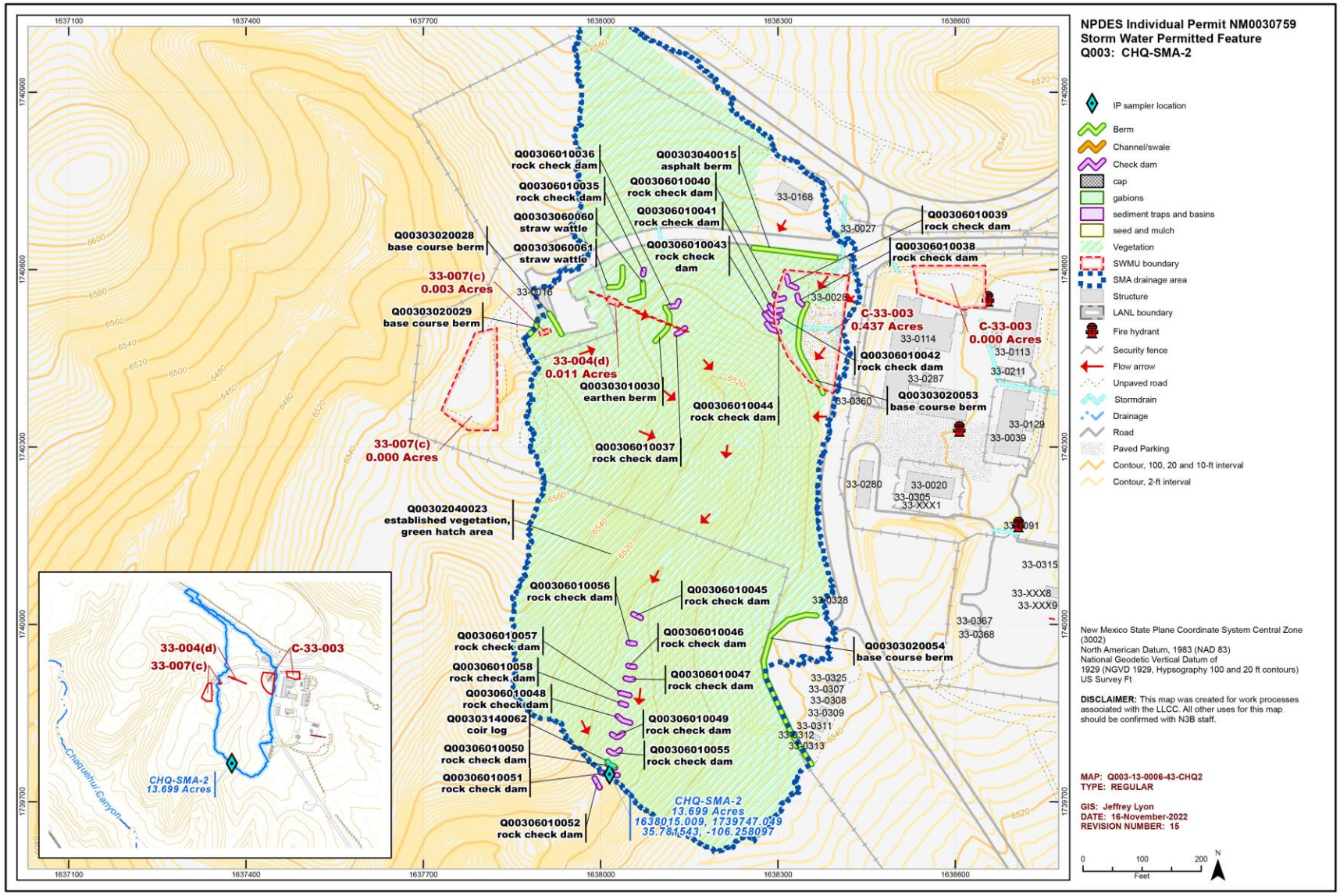


Figure 232-1 CHQ-SMA-2 location map

233.0 CHQ-SMA-3.05: SWMU 33-010(f)

One historical industrial activity area, Site 33-010(f), is associated with CHQ-SMA-3.05 (permitted feature Q004). 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.

233.1 Site Descriptions

33-010(f) (12/21/2021)

SWMU 33-010(f) is a reported surface disposal area consisting of two small surface disposal areas, located 300 ft southeast of former building 33-86 and approximately 50 ft apart at Main Site at TA-33. The history of the site and the origins of the wastes are not known.

The 1990 SWMU Report states that the SWMU was identified during a 1987 ER Project reconnaissance, and describes the site as concrete, cans, and metal pieces that littered the area east of the former Tritium Facility (former building 33-86). The 1995 RFI report describes this SWMU as consisting of two small surface disposal areas, located 300 ft southeast of former building 33-86 and approximately 50 ft apart. One of the areas is described as approximately 15 ft^2 and the other as approximately 10 ft × 20 ft. Materials at the site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other miscellaneous construction debris. Although the source of these materials is not known, some were believed to be associated with roadwork activities. During the 2005 VCA conducted at SWMUs 33-002(a-e) directly north and east of SWMU 33-010(f), only small piles of soil and a few pieces of concrete were observed to be present at the site. Residual debris was removed from SWMU 33-010(f) during the 2019–2020 Consent Order investigation.

SWMU 33-010(f) is a component of MDA K, which consists of the former locations of a septic system and two seepage pits with drainlines and outfalls that served building 33-86, and a former surface disposal area. MDA K is in the southeast area of Main Site at TA-33.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 233-1.

Table 233-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-010(f)	Surface disposal site	Iron, PAHs

233.2 Control Measures

All active control measures in use at CHQ-SMA-3.05 are listed in Table 233-2, and their locations are shown on the project map (Figure 233-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 233-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00402040009	Established Vegetation	-	X	X	-	B	5-9-2013
Q00403010015	Earthen Berm	-	X	-	X	EC	6-9-2015
Q00403120014	Rock Berm	-	X	-	X	EC	6-9-2015
Q00403140010	Coir Log	X	-	-	X	EC	6-9-2015
Q00403140011	Coir Log	-	X	-	X	EC	6-9-2015
Q00403140012	Coir Log	X	-	-	X	EC	6-9-2015
Q00403140013	Coir Log	-	X	-	X	EC	6-9-2015
Q00403140017	Coir Log	X	-	-	X	B	8-22-2022

233.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-3.05 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 233-3. Maintenance activities conducted at the SMA are summarized in Table 233-4. No other control-measure inspections were conducted at the SMA in 2022.

Table 233-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93944[a]	7-12-2022	1.35	7-21-2022	9	Yes
BMP-94821[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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 233-4 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-95288 (follow up to BMP-94821)	Replaced Straw Wattle Q00403060002 with Coir Log Q00403140017.	08-22-2022	15 day(s)	Maintenance was conducted as soon as practicable. The control was noted as functional in the interim.

233.4 Stormwater Monitoring

SWMU 33-010(f) is monitored within CHQ-SMA-3.05. Following the installation of baseline control measures, a baseline stormwater sample was collected on September 10, 2013. Analytical results from this sample yielded TAL exceedances for gross-alpha activity (60.3 pCi/L) and PCB concentrations (0.9 ng/L). The complete analytical results are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL, 254067).

Stormwater monitoring was conducted at CHQ-SMA-3.05, under the 2010 IP requirements, from March 18 through November 7, 2022, resulting in a monitoring season of 235 days. Eight inspections were performed during the monitoring season and are summarized in Table 233-5. Rain gage RG340 recorded 29 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 233-5 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-91568	4-6-2022	No	None	None
SMPLR-91917	5-4-2022	No	None	None
SMPLR-92334	5-25-2022	No	None	None
SMPLR-92572	6-29-2022	No	6-17-2022 6-18-2022 6-19-2022 6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16
SMPLR-93510	7-13-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46
SMPLR-93974	8-22-2022	No	7-14-2022 7-19-2022 7-27-2022 7-28-2022 7-30-2022 7-31-2022 8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95549	10-5-2022	No	9-9-2022 10-3-2022 10-4-2022	0.09/0.29 0.17/0.45 0.05/0.22
SMPLR-96279	11-7-2022	No	10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

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

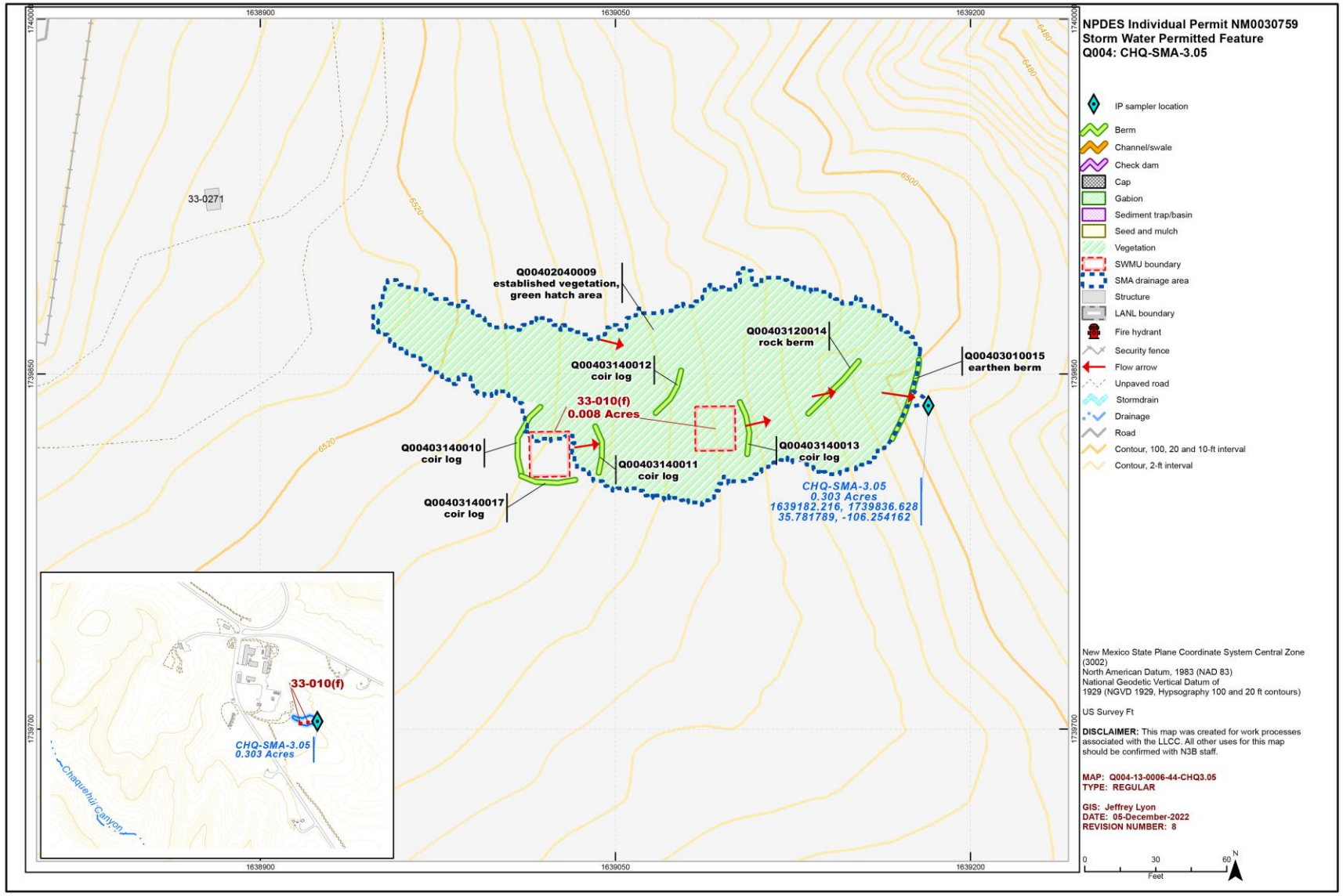


Figure 233-1 CHQ-SMA-3.05 location map

234.0 CHQ-SMA-4: SWMU 33-011(e)

One historical industrial activity area, Site 33-011(e), is associated with CHQ-SMA-4 (permitted feature Q005). 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.

234.1 Site Descriptions

33-011(e) (2/8/2021)

SWMU 33-011(e) is a former drum-storage area located south of Main Site at TA-33. The storage area was reportedly a 20-ft × 100-ft area located approximately 30 ft northwest of building 33-22, a former HE storage magazine. The area is unpaved and gradually slopes to the southwest.

Drums containing unknown materials were previously stored on the ground at this area. The date the materials were first stored at this site is not known.

During the 1987 DOE Environmental Survey conducted in support of the 1990 SWMU Report, all drums had been removed from the site; however, stained soil was observed in the former storage area. The site is currently inactive.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 234-1.

Table 234-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-011(e)	Storage area	Uranium

234.2 Control Measures

All active control measures in use at CHQ-SMA-4 are listed in Table 234-2, and their locations are shown on the project map (Figure 234-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 234-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00502040019	Established Vegetation	-	X	X	-	B	5-9-2013
Q00503010020	Earthen Berm	-	X	-	X	B	11-13-2013
Q00503010023	Earthen Berm	X	-	-	X	EC	7-27-2021
Q00503010024	Earthen Berm	-	X	-	X	EC	7-27-2021
Q00504060025	Riprap	-	X	X	-	EC	7-27-2021
Q00506010003	Rock Check Dam	-	X	-	X	CB	4-20-2010
Q00506010004	Rock Check Dam	-	X	-	X	CB	4-20-2010
Q00506010005	Rock Check Dam	-	X	-	X	CB	4-20-2010

234.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-4 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 234-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 234-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93940[a]	7-12-2022	1.35	7-25-2022	13	Yes
BMP-94817[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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.

234.4 Stormwater Monitoring

A baseline stormwater sample was collected on July 23, 2018 (Figure 245-2). Analytical results from this sample yielded TAL exceedances for gross-alpha activity (978 pCi/L), PCB concentrations (635 ng/L), and selenium (16 µg/L). The complete analytical results are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was conducted at CHQ-SMA-4, under the 2010 IP requirements, from March 18 through November 7, 2022, resulting in a monitoring season of 235 days. Eight inspections were performed during the monitoring season; these inspections are summarized in Table 234-4. Rain gage RG340 recorded 29 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 234-4 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-91560	4-5-2022	No	None	None
SMPLR-91851	5-3-2022	No	None	None
SMPLR-92287	5-24-2022	No	None	None
SMPLR-92528	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 6-27-2022	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16

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-93352	7-13-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46
SMPLR-93972	8-25-2022	No	7-14-2022 7-19-2022 7-27-2022 7-28-2022 7-30-2022 7-31-2022 8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95663	10-7-2022	No	9-9-2022 10-3-2022 10-4-2022	0.09/0.29 0.17/0.45 0.05/0.22
SMPLR-96290	11-7-2022	No	10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

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

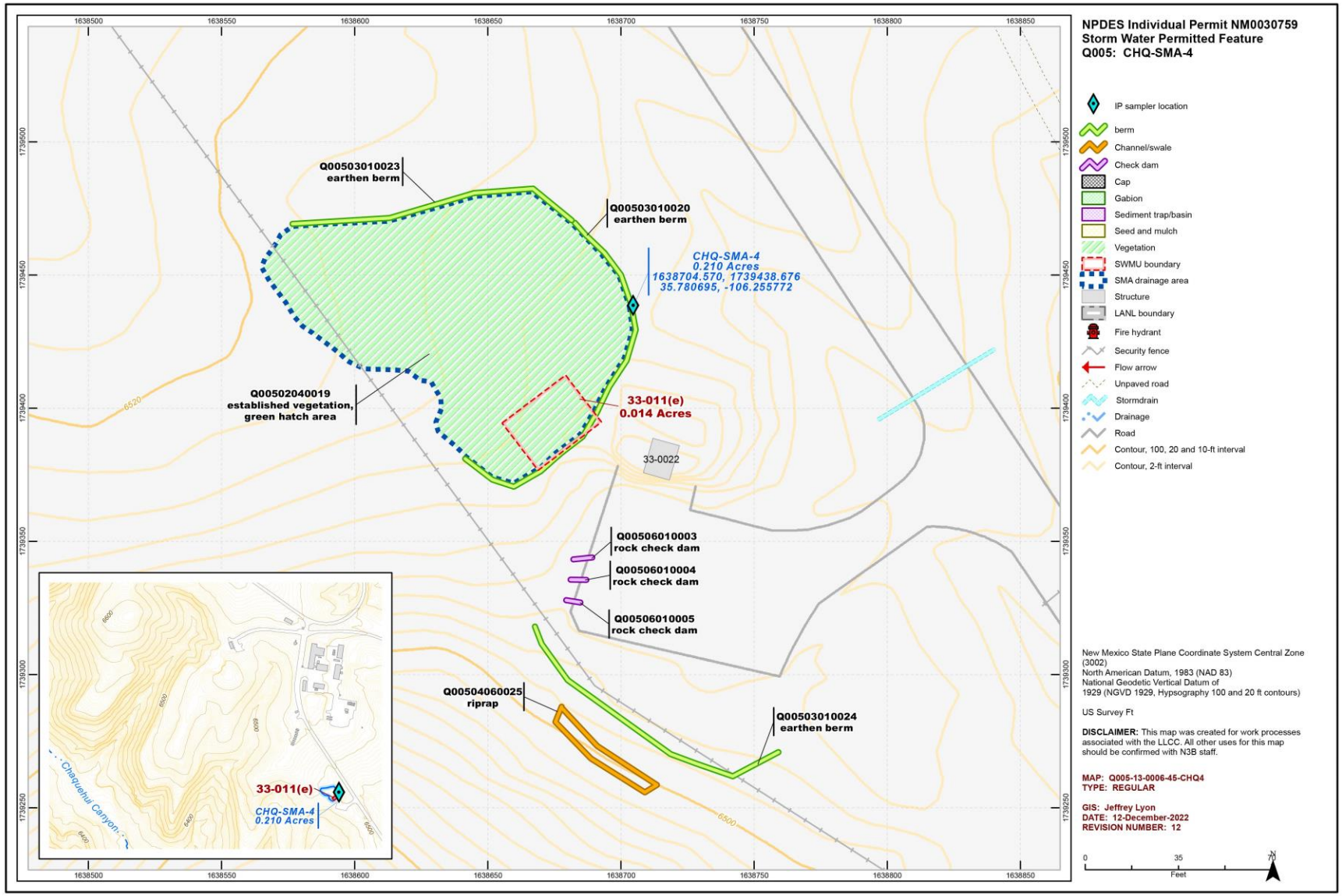


Figure 234-1 CHQ-SMA-4 location map

235.0 CHQ-SMA-4.1: SWMU 33-016

One historical industrial activity area, Site 33-016, is associated with CHQ-SMA-4.1 (permitted feature Q006). 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.

235.1 Site Descriptions

33-016 (2/18/2021)

SWMU 33-016 is an inactive HE sump, outlet drainline, and outfall that served inactive HE processing bunker 33-23, directly south of Main Site at TA-33. The 1990 SWMU Report describes SWMU 33-016 as a sump with approximate dimensions of 3 ft long × 2 ft wide × 2 ft deep, located next to the northwest corner of the exterior wall of the bunker, near the door that discharged to an outfall approximately 150 ft west of the building in Chaquehui Canyon. The 1995 RFI report correctly identified the concrete sump dimensions as 5 ft long × 2.5 ft wide × 7 ft deep; these dimensions were confirmed during the 2020 Chaquehui Aggregate Area investigation. Engineering drawing ENG-C 11644 shows the sump located adjacent to the western outside wall of building 33-23, and the outlet drainline extending directly from the sump to an outfall approximately 150 ft west of the sump, to a side canyon of Chaquehui Canyon.

The sump was connected to a sink and floor drain in the bunker, which was constructed in 1950. From 1950 to 1972, the bunker was used as a trim building to prepare propellant charges for gun tests conducted at South Site. Structure 33-23 was subsequently used until 1994 to store lithologic cores from the Hot Dry Rock Program. In addition to the sink and floor drain, the sump also may have received rainwater and snowmelt.

The sump was decommissioned during a VCA implemented at the Site in 1995.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 235-1.

Table 235-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-016	Sump	PAHs, SVOCs, HE

235.2 Control Measures

All active control measures in use at CHQ-SMA-4.1 are listed in Table 235-2, and their locations are shown on the project map (Figure 246-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 235-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00602040008	Established Vegetation	-	X	X	-	B	5-9-2013
Q00603060009	Straw Wattle	X	-	-	X	B	10-20-2014
Q00603060010	Straw Wattle	X	-	-	X	B	10-20-2014
Q00606010002	Rock Check Dam	-	X	-	X	CB	4-19-2010
Q00606010003	Rock Check Dam	-	X	-	X	CB	4-19-2010

235.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-4.1 during the 2022 season, requiring two post-storm inspections which are summarized in Table 235-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 235-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93945[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94822[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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.

235.4 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 (34.5 pCi/L) and are reported in "Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759" (LANL 2014, 254067).

Stormwater monitoring was not conducted at CHQ-SMA-4.1 in 2022 under the 2010 IP requirements. After completion of the 2022 monitoring season, the drainage area and monitoring location for CHQ-SMA-4.1 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 131-1) 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.

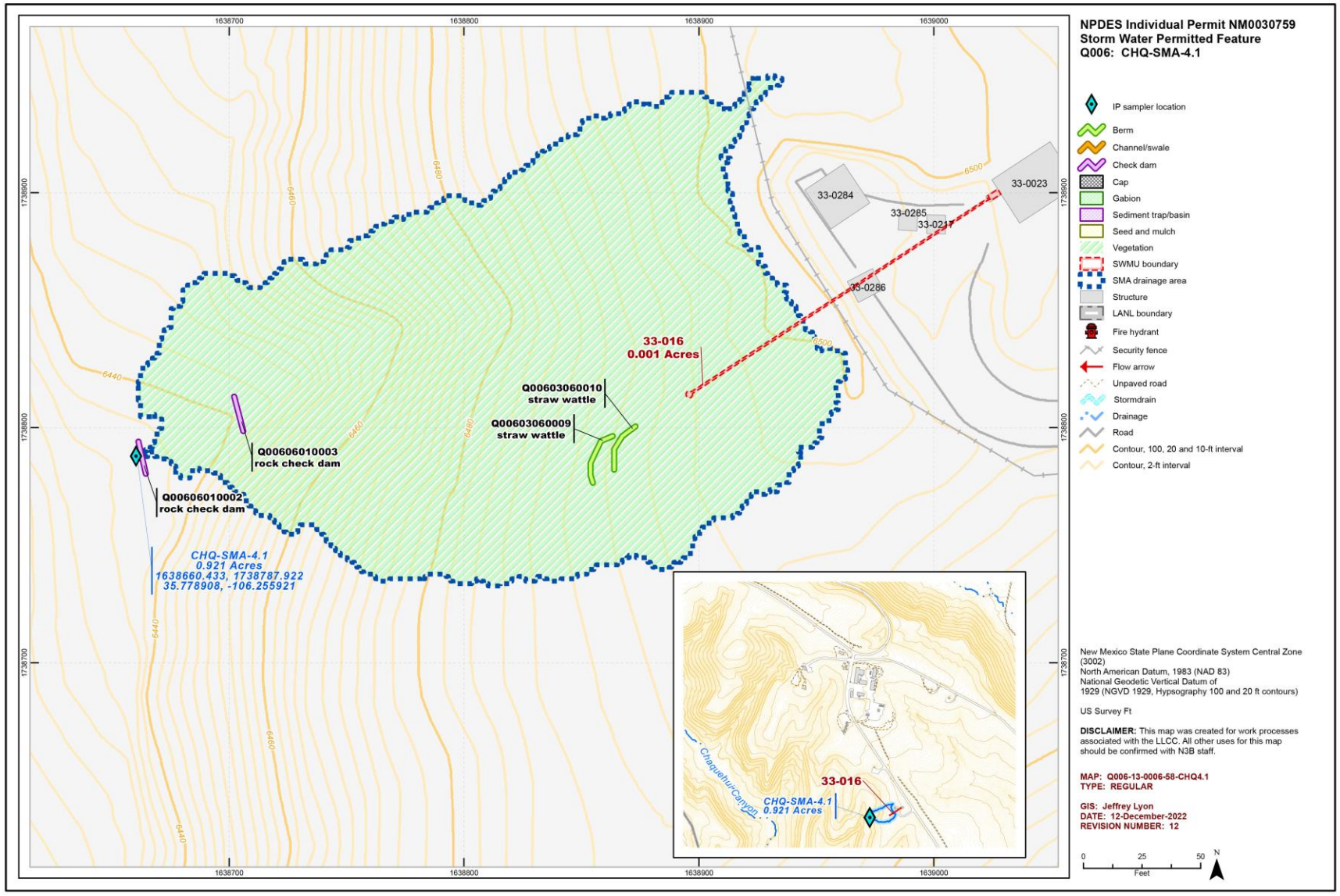


Figure 235-1 CHQ-SMA-4.1 location map

236.0 CHQ-SMA-4.5: AOC 33-011(b)

One historical industrial activity area, Site 33-011(b), is associated with CHQ-SMA-4.5 (permitted feature Q007). 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.

236.1 Site Descriptions

33-011(b) (2/18/2021)

AOC 33-011(b) is a former storage area located directly west of the National Radio Astronomy Observatory Site in the eastern portion of TA-33. This storage area was approximately 300 ft wide × 600 ft long. The storage area was established in 1948 around the former elevator building (building 33-3), and was used to store equipment used at the TA-33 firing sites. The equipment was stored until a sufficient quantity was accumulated to allow a strategic materials recovery program to recover materials including tungsten, uranium, and beryllium. HE from firing site equipment may have also been present at the site.

The storage area was cleaned up in 1984. Most materials and debris were removed at that time, although some scrap iron and a large, insulated tank remained on-site. All remaining debris was removed from the site during the 1996 VCA. Approximately 75% of the storage area had been scraped and leveled to or near the tuff bedrock, and the area remains vacant. AOC 33-011(b) has been referred to as SWMU 33-011(b) in historical documents.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 236-1.

Table 236-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-011(b)	Storage area	Metals, beryllium, organic chemicals, HE, uranium

236.2 Control Measures

All active control measures in use at CHQ-SMA-4.5 are listed in Table 236-2 and their locations are shown on the project map (Figure 236-1) 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 236-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00702040010	Established Vegetation	-	X	X	-	B	5-6-2013
Q00703010009	Earthen Berm	-	X	-	X	B	7-18-2011
Q00703060022	Straw Wattle	-	-	-	-	B	5-21-2019
Q00703140018	Coir Log	-	X	-	X	B	9-25-2014
Q00703140020	Coir Log	-	X	-	X	B	8-30-2018
Q00703140021	Coir Log	-	X	-	X	B	8-30-2018
Q00706010002	Rock Check Dam	-	X	-	X	CB	4-20-2010
Q00706010003	Rock Check Dam	-	X	-	X	CB	4-20-2010

236.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-4.5 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 236-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 236-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93946[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94823[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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.

236.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from this sample yielded a TAL exceedance for gross-alpha activity (103 pCi/L). Complete analytical reports from this sample are reported in “Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759” (LANL 2014, 254067).

Stormwater sampling was not conducted at CHQ-SMA-4.5 in 2022 under the 2010 IP requirements.

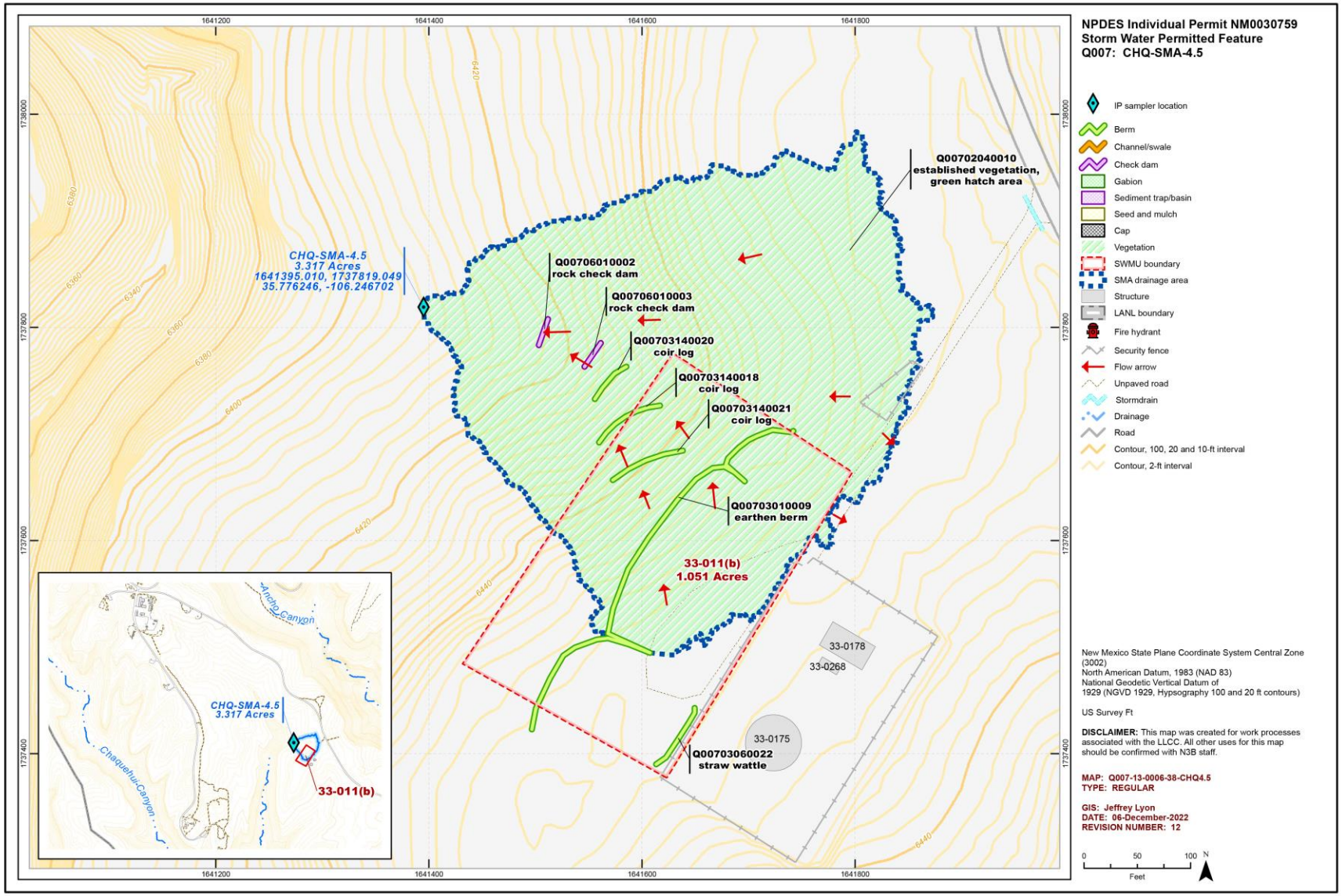


Figure 236-1 CHQ-SMA-4.5 location map

237.0 CHQ-SMA-5.05: SWMU 33-007(b)

One historical industrial activity area, Site 33-007(b), is associated with CHQ-SMA-5.05 (permitted feature Q008). 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.

237.1 Site Descriptions

33-007(b) (2/18/2021)

SWMU 33-007(b) consists of two former gun-firing sites located within what was known as the tower area at South Site at the southern end of TA-33. The first (northern) gun-firing site consisted of a 6-ft × 6-ft concrete pad and gun mount (former structure 33-85), a U-shaped soil berm (structure 33-43), and a catcher box. The U-shaped berm measured approximately 50 ft wide and 10 ft high, with an inner diameter of approximately 125 ft. The former catcher box was located in the soil embankment northeast of the gun mount.

The berm and catcher box were constructed in August 1950, and the concrete pad and gun mount were constructed in June 1952. This gun site was used to test free-recoil weapons, tests which involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings

The second (southern) gun-firing site included a gun building (structure 33-25) and a soil barricade (former structure 33-63). Both structures were built in 1950. The gun building housed 2-in. to 4-in.-bore guns that were used to fire projectiles into berm 33-63. The projectiles used at this site contained uranium, beryllium, and tungsten. Components of both former gun sites are shown in engineering drawings AB1114 (2 of 7) and ENG-R-4461, and a 1958 aerial photograph of the site.

Firing-site activities at SWMU 33-007(b) were discontinued in the late 1950s. The area was used to support atmospheric physics measurements during the late 1980s and early 1990s. Structures associated with these activities included a tower (former structure 33-203) constructed in 1987 and two trailers (former structures 33-201 and 33-202). All structures have been removed.

During the 1999 VCA performed at the structure 33-63 barricade, the berm was removed and treated to remove radioactively-contaminated soil and debris exceeding dose-based cleanup levels, as well as any projectiles. Treated soil was returned to the location of the former berm. The site was graded, compacted, and reseeded. Approximately 1 to 2 ft of engineered fill was placed over the location of the former berm when building 33-25 was renovated in 2005 and 2006.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 237-1.

Table 237-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-007(b)	Firing site	Beryllium, iron, tritium, uranium

237.2 Control Measures

All active control measures in use at CHQ-SMA-5.05 are listed in Table 237-2, and their locations are shown on the project map (Figure 237-1) 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 237-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00802040008	Established Vegetation	-	X	X	-	B	5-9-2013
Q00803020006	Base Course Berm	-	X	-	X	CB	6-1-2009
Q00804060002	Riprap	-	X	X	-	CB	3-14-2006
Q00804060005	Riprap	X	-	X	-	CB	6-1-2009
Q00804060007	Riprap	-	X	X	-	CB	6-1-2009
Q00806010003	Rock Check Dam	-	X	-	X	CB	8-23-2006

237.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-5.05 during the 2022 season, requiring two post-storm inspections. Post-storm inspections conducted at the SMA are summarized in Table 237-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 237-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93949[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94826[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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.

237.4 Stormwater Monitoring

Through calendar year 2022, stormwater flow has not been sufficient for full-volume sample collection at CHQ-SMA-5.05.

Stormwater monitoring was conducted at CHQ-SMA-5.05, under the 2010 IP requirements, from March 21 through November 7, 2022, resulting in a monitoring season of 232 days. Nine inspections were performed during the monitoring season and are summarized in Table 237-4. Rain gage RG340 recorded 29 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active. No new monitoring samples were collected in 2022 and no sampler operability issues were encountered.

Table 237-4 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-91575	4-5-2022	No	None	None
SMPLR-91853	5-3-2022	No	None	None
SMPLR-92293	5-24-2022	No	None	None
SMPLR-92531	6-21-2022	No	6-17-2022 6-18-2022 6-19-2022	0.07/0.29 0.21/0.36 0.06/0.18
SMPLR-92949	6-29-2022	No	6-21-2022 6-22-2022 6-25-2022 6-26-2022 6-27-2022	0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82 0.05/0.16
SMPLR-93523	7-13-2022	No	7-1-2022 7-2-2022 7-4-2022 7-12-2022	0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46
SMPLR-93978	8-22-2022	No	7-14-2022 7-19-2022 7-27-2022 7-28-2022 7-30-2022 7-31-2022 8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95553	10-5-2022	No	9-9-2022 10-3-2022 10-4-2022	0.09/0.29 0.17/0.45 0.05/0.22
SMPLR-96280	11-7-2022	No	10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

[b] Total amount of precipitation in 24 hr.

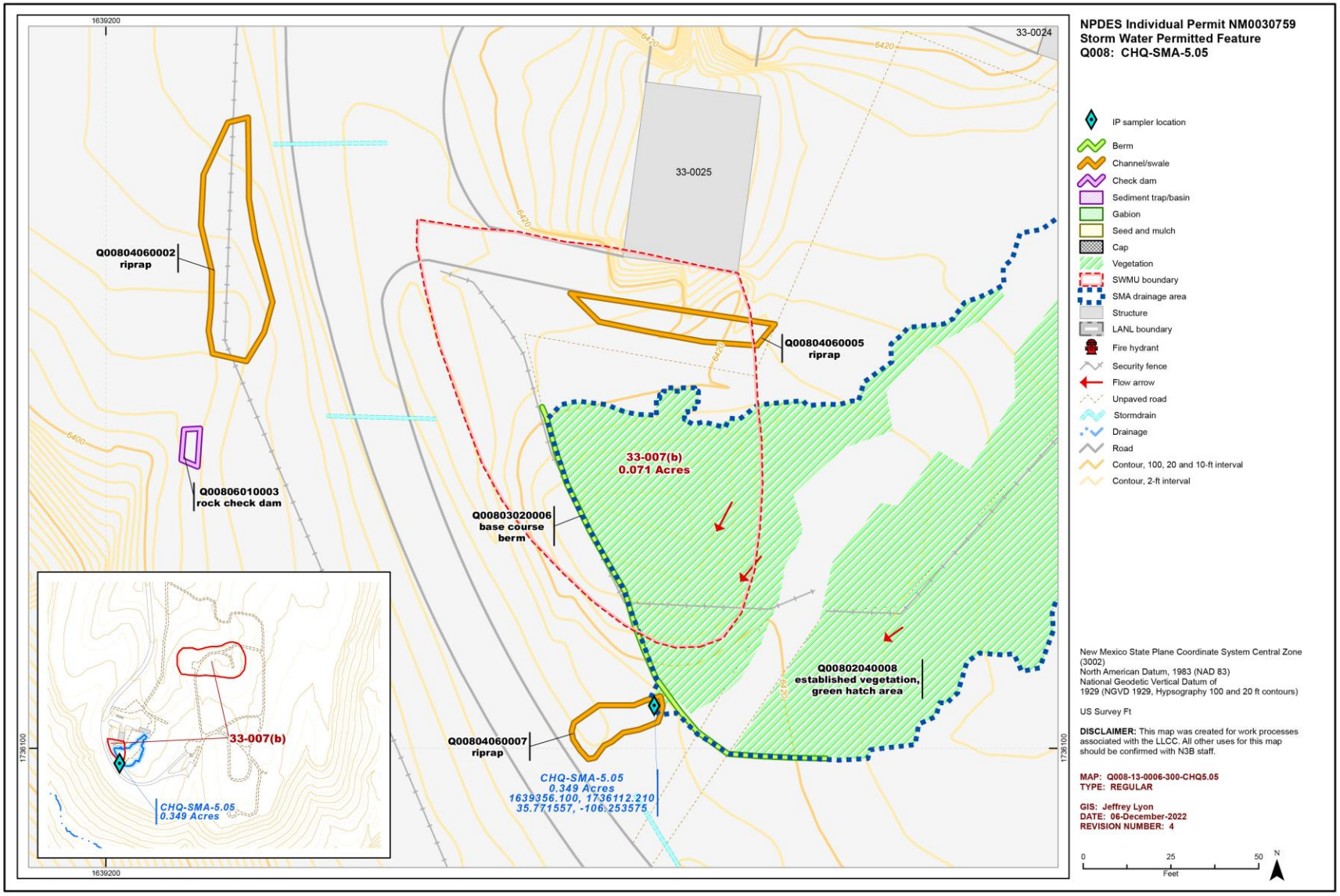


Figure 237-1 CHQ-SMA-5.05 location map

238.0 CHQ-SMA-6: SWMUs 33-004(j), 33-006(a), 33-007(b), 33-010(c), 33-010(g), 33-010(h), and 33-014

Seven historical industrial activity areas, Sites 33-004(j), 33-006(a), 33-007(b), 33-010(c), 33-010(g), 33-010(h), and 33-014, are associated with CHQ-SMA-6 (permitted feature Q009). 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.

238.1 Site Descriptions

33-004(j) (2/18/2021)

SWMU 33-004(j) consists of a 4-in. steel stormwater drainline and outfall that drained the entrance to the South Site x-unit vault (structure 33-26) at South Site in the southern portion of TA-33. The drainline is connected to a drain located on the concrete pad at the entrance to structure 33-26. The storm drainline extends 75 ft southeast to the outfall that discharged to an open drainage channel that empties into Chaquehui Canyon. A stormwater culvert situated beneath the unpaved portion of the road that extends beyond structure 33-26 also discharges to the open drainage channel below the SWMU 33-004(j) outfall. At the upper portion of the drainage channel, both the SWMU 33-004(j) storm drainline and the culvert discharge have been cut into the tuff. The 1990 SWMU report describes SWMU 33-004(j) as an inactive outfall system from structure 33-26. The outfall system includes an outlet drainline coming off the east side of building 33-26, a channel cut into the tuff, a culvert, and an arroyo draining into Chaquehui Canyon. However, review of engineering drawing AB26 and a 1958 aerial photograph of South Site confirmed the unit boundary should include only the storm drain at the entrance of structure 33-26, the 75-ft long storm drainline, and the outfall discharge point at the end of the drainline.

Structure 33-26 stored electronic devices used to detonate initiators for experiments conducted on the shot pad [SWMU 33-006(a)] located directly above the structure. The SWMU 33-006(a) shot pad was built in 1948, and the associated support building known as an x-unit vault (structure 33-26) was constructed in 1950. Use of the site ceased in 1956 and structure 33-26 has remained vacant since then. The shots conducted at the SWMU 33-006(a) shot pad spread debris over much of South Site including the drainage channel below the SWMU 33-004(j) outfall.

33-006(a) (1/25/2022)

SWMU 33-006(a) is an inactive shot pad at South Site, where implosion tests were conducted at the southern end of TA-33. The shot pad consists of a 50-ft-diameter circular area located immediately north of and next to the roof of structure 33-26, which is an x-unit chamber (i.e., a control chamber that housed a firing voltage distribution system used for the remote detonation of test firings). The shot pad was constructed in 1950. Implosion tests performed at the shot pad contained up to 5,000 lb of HE covered in wooden boxes.

The detonations conducted at the SWMU 33-006(a) shot pad scattered debris, shrapnel, and wood fragments over the mesa top of South Site and into Chaquehui Canyon. Shrapnel has been found at distances up to a mile away from the shot pad. Use of the site ceased in 1956, and structure 33-26 has remained vacant since then.

Firing site shrapnel and debris were removed from mesa-top areas and drainages along the southern rim of Chaquehui Canyon within Bandelier National Monument, from drainage channels along the northern rim of Chaquehui Canyon, and from the canyon bottom during an IA conducted in 1996. Residual debris was removed from SWMU 33-006(a) during the 2019–2020 Phase I Consent Order investigation. Currently, the pad is covered with a foot or more of sand.

33-007(b) (2/18/2021)

SWMU 33-007(b) consists of two former gun-firing sites located within what was known as the tower area at South Site at the southern end of TA-33. The first (northern) gun-firing site consisted of a 6-ft × 6-ft concrete pad and gun mount (former structure 33-85), a U-shaped soil berm (structure 33-43), and a catcher box. The U-shaped berm measured approximately 50 ft wide and 10 ft high, with an inner diameter of approximately 125 ft, and the former catcher box was located in the soil embankment northeast of the gun mount.

The berm and catcher box were constructed in August 1950, and the concrete pad and gun mount were constructed in June 1952. This gun site was used to test free-recoil weapons. Tests involved firing projectiles containing uranium, beryllium, titanium, and tritium, housed inside steel casings, into the berm and the catcher box.

The second (southern) gun-firing site included a gun building (structure 33-25) and a soil barricade (former structure 33-63). Both structures were built in 1950. The gun building housed 2-in. to 4-in. guns that were used to fire projectiles, containing uranium, beryllium, and tungsten, into berm 33-63. Components of both former gun sites are shown in engineering drawings AB1114 (2 of 7) and ENG-R-4461, and in a 1958 aerial photograph of the site. Firing site activities at SWMU 33-007(b) were discontinued in the late 1950s.

During the late 1980s and early 1990s, this area was used to support atmospheric physics measurements. Structures associated with these activities include a tower (former structure 33-203) constructed in 1987 and two trailers (former structures 33-201 and 33-202). All structures have been removed.

During the 1999 VCA performed at the structure 33-63 barricade, the berm was removed and treated to remove radioactively-contaminated soil and debris exceeding dose-based cleanup levels, and any projectiles. Treated soil was returned to the location of the former berm. The site was graded, compacted, and reseeded. Approximately 1 to 2 ft of engineered fill was placed over the location of the former berm when building 33-25 was renovated in 2005 and 2006.

33-010(c) (2/18/2021)

SWMU 33-010(c) is a former surface disposal area located at South Site on the northern rim of Chaquehui Canyon at the southern end of TA- 33. The disposal area measured approximately 50 ft x 30 ft x 2-ft to 4-ft deep and was approximately 230 ft south of structure 33-26 [SWMU 33-006(a)] along the western edge of the main South Site drainage channel. From approximately 1950 to 1955, this site was used to dispose of debris from the implosion tests conducted at SWMU 33-006(a). Debris disposed of at the site included copper and aluminum shrapnel, pieces of electronic cable, sand and soil with residual HE, and wood. Between shots, the shot pad and surrounding area were scraped and the debris bulldozed over the canyon edge and onto the hillside below. During the VCA performed at the site in 1999, all debris was removed from the site. Residual debris was removed from SWMU 33-010(c) during the 2019–2020 Consent Order investigation.

33-010(g) (2/18/2021)

SWMU 33-010(g) is a former surface disposal area, located on the northern rim of Chaquehui Canyon at South Site at the southern end of TA-33. Debris was scattered along the rim and upper walls of the canyon east and south of MDA E. Chaquehui Canyon is about 200 ft wide at this point, with a 40-ft cliff at the canyon rim. A three-strand barbed-wire fence ran along the east side of the unimproved road adjacent to MDA E, separating SWMU 33-010(g) from the rest of South Site.

Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) appears to have originated from the initial clearing of South Site in the 1940s. Other debris, including shrapnel, cables, and burnt wood, likely originated from shot pad and gun firing activities. The period of operation for this disposal site is not known, but firing-site operations associated with initiator testing at South Site were conducted from 1950 to 1956. The debris was removed and disposed of off-site during the 1995 VCA. Residual debris was removed from SWMU 33-010(g) during the 2019–2020 investigation.

33-010(h) (2/18/2021)

SWMU 33-010(h) is a surface disposal area located approximately 450 ft northeast of structure 33-26 [SWMU 33-006(a)] and immediately south of berm 33-43 [SWMU 33-007(b)], in the northeast portion of South Site at the southern end of TA-33. The disposal area consists of a mound of dirt and firing-site debris, including metal, wood, cable, and shrapnel, scattered on the soil surface. The area is approximately 100 ft × 100 ft. There is no documentation regarding the history of the disposal area. The main drainage for South Site bounds the disposal area on the west, and an unimproved road is located to the east. Residual debris was removed from SWMU 33-010(h) during the 2019–2020 Consent Order investigation.

33-014 (2/18/2021)

SWMU 33-014 is the former location of an open burn site located approximately 300 ft north of the fence surrounding MDA E [SWMUs 33-001(a-e)] at South Site, at the south end of TA-33. The soil at the burn site has been scraped to bedrock, and some bedrock is blackened from burning. This burn area was believed to have been established in 1950 when operations at South Site began, and may have served all of TA-33 for a few years. Materials burned at this site included construction debris, timber, and sawdust used in the firing berms at TA-33. These materials contained DU, beryllium black powder, propellant powders, and residual HE. It is not known when burning operations were discontinued at this site, but operations at the site were likely discontinued before 1960.

Potential POCs and Sources Associated with the Sites

The potential POCs and sources associated with the Sites are listed in Table 238-1.

Table 238-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-004(j)	Drainline and outfall from building 33-26	No known POCs
33-006(a)	Firing site	Metals, aluminum, copper, iron, lead, HE, uranium
33-007(b)	Firing site	Beryllium, iron, tritium, uranium
33-010(c)	Surface disposal site	Aluminum, copper
33-010(g)	Surface disposal site	Metals, beryllium, copper, HE, uranium
33-010(h)	Surface disposal site	Metals
33-014	Burn site	Metals, beryllium, dioxins/furans, HE, DU

238.2 Control Measures

All active control measures in use at CHQ-SMA-6 are listed in Table 238-2, and their locations are shown on the project map (Figure 238-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Enhanced controls were certified on June 6, 2022, and submitted to EPA on June 27, 2022 as part of corrective action, as described in "NPDES Permit No. NM0030759 - Certification of Installation of Enhanced Control Measures for CHQ-SMA-6, PJ-SMA-3.05, and PJ-SMA-11" (N3B 2022, 702165). Photographs of the enhanced controls are available at https://ext.em-la.doe.gov/IPS/Home/ConstructionCertifications.

Table 238-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q00902040036	Established Vegetation	-	X	X	-	B	5-9-2013
Q00903010017	Earthen Berm	-	X	-	X	CB	4-14-2010
Q00903010041	Earthen Berm	-	X	-	X	EC	5-28-2015
Q00903060045	Straw Wattle	-	X	-	X	B	7-14-2021
Q00903060046	Straw Wattle	-	X	-	X	B	7-14-2021
Q00903120030	Rock Berm	X	-	-	X	B	10-17-2011
Q00903120031	Rock Berm	X	-	-	X	B	10-17-2011
Q00903120032	Rock Berm	X	-	-	X	B	10-17-2011
Q00903140049	Coir Log	-	X	-	X	EC	3-15-2022
Q00903140050	Coir Log	-	X	-	X	EC	3-15-2022
Q00903150043	Redi-Rock Berm	X	-	-	X	EC	5-28-2015
Q00906010001	Rock Check Dam	-	X	-	X	CB	8-31-2005
Q00906010007	Rock Check Dam	-	X	-	X	CB	10-23-2009
Q00906010008	Rock Check Dam	-	X	-	X	CB	10-23-2009
Q00906010011	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010018	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010021	Rock Check Dam	-	X	-	X	CB	4-14-2010
Q00906010022	Rock Check Dam	-	X	-	X	CB	4-14-2010
Q00906010023	Rock Check Dam	-	X	-	X	CB	4-14-2010
Q00906010024	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010025	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010026	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010027	Rock Check Dam	X	-	-	X	CB	4-14-2010
Q00906010037	Rock Check Dam	X	-	-	X	B	5-8-2014
Q00906010038	Rock Check Dam	X	-	-	X	B	5-8-2014
Q00906010039	Rock Check Dam	X	-	-	X	B	5-8-2014
Q00906010042	Rock Check Dam	X	-	-	X	EC	5-28-2015
Q00906010047	Rock Check Dam	-	X	-	X	EC	3-15-2022
Q00906010048	Rock Check Dam	-	X	-	X	EC	3-15-2022

238.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-6 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 238-3. All other control-measure inspections are summarized in Table 238-4, and maintenance activities conducted at the SMA are summarized in Table 238-5.

Table 238-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93947[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94824[b]	7-28-2022 7-30-2022	0.42 0.45	8-8-2022	11 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 238-4 Other Control-Measure Inspections During 2022

Inspection Type	Inspection Reference	Inspection Date	Summary of findings
Verification of enhanced control installation	BMP-89032	3-15-2022	Field activities related to installation of enhanced controls is complete. Proceed with certification of installation.
TAL Exceedance	COMP-93991	8-19-2022	Maintenance recommended on multiple controls, see Table 229.3-3

Table 238-5 Maintenance Activities Conducted During 2022

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-96881 (follow up to BMP-94824 and COMP-93991)	Added rock media to Rock check Dams Q00906010001, Q00906010047, and Q00906010048 to ensure controls are performing correctly.	12/13/2022	116 days	The maintenance request for Rock Check Dam Q00906010048 was initially made on August 8, 2022. The control was noted as functional at that time and the FTL decision of the maintenance request was to continue to monitor the control. During the TAL exceedance inspection the control was noted as functional. After completing the alternatives analysis process for the TAL exceedances, BMP-96880 was issued on December 5, 2022.

238.4 Stormwater Monitoring

Following the installation of baseline control measures, a baseline stormwater sample was collected on July 25, 2013. Analytical results from this sample yielded TAL exceedances for copper (87.6 µg/L) and gross-alpha activity (157 pCi/L). Complete analytical results are reported in “Storm Water Individual Permit Annual Report, Reporting Period: January 1–December 31, 2013, NPDES Permit No. NM0030759” (LANL 2014, 254067).

Following the installation of enhanced control measures, corrective-action stormwater samples were collected on May 31, 2021, and July 25, 2021. Analytical results from these samples yielded TAL exceedances for copper (38.9 µg/L and 39.5 µg/L) and gross-alpha activity (15.9 pCi/L and 30.1 pCi/L). Complete analytical results are reported in the 2021 Storm Water Individual Permit Annual Report (N3B 2022, 701895).

Following the 2022 certification of enhanced controls, stormwater monitoring was conducted at CHQ-SMA-6, under the 2010 IP requirements, from July 7 through November 18, 2022, resulting in a monitoring season of 135 days. Two inspections were performed during the monitoring season and are summarized in Table 238-6. Rain gage RG340 recorded 18 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A corrective-action confirmation-monitoring sample was collected on July 12, 2022. Analytical results from this sample yielded TAL exceedances for copper (35.5 µg/L) and gross-alpha activity (211 pCi/L) and are presented in Appendix B of the SDPPP Overview. The SIP will be updated in 2023 with the inclusion of 2022 analytical results into the SSD.

Table 238-6 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-93915	7-13-2022	Yes	7-12-2022	1.35/1.46
SMPLR-96727	11-18-2022	No	7-14-2022[c] 7-19-2022[c] 7-27-2022[c] 7-28-2022[c] 7-30-2022[c] 7-31-2022[c] 8-16-2022 8-19-2022 8-20-2022 8-21-2022 9-9-2022 10-3-2022 10-4-2022 10-7-2022 10-8-2022 10-15-2022 10-16-2022	0.11/0.12 0.11/0.11 0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11 0.09/0.29 0.17/0.45 0.05/0.22 0.06/0.1 0.03/0.11 0.12/0.63 0.03/0.16

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

[b] 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.

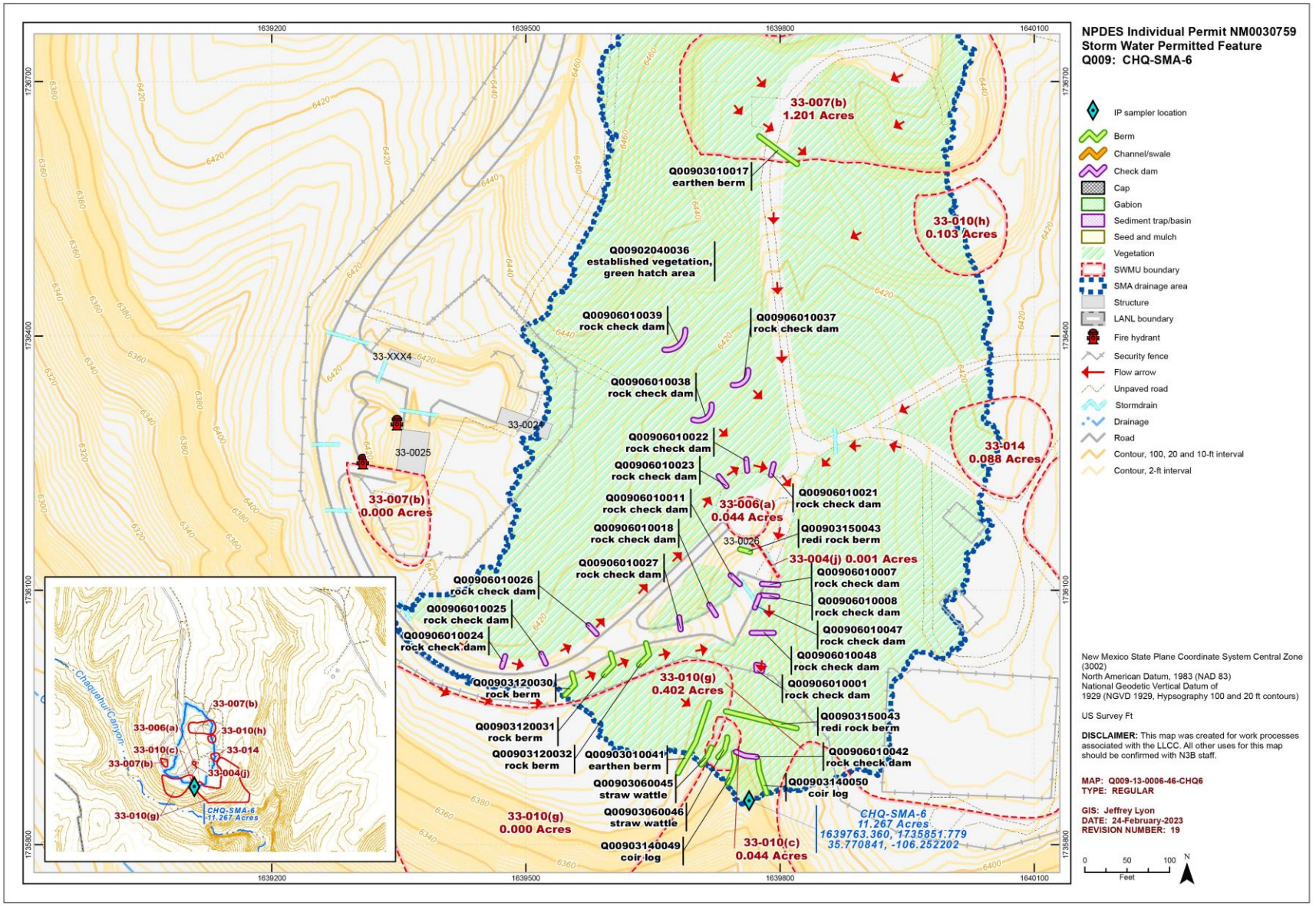


Figure 238-1 CHQ-SMA-6 location map

239.0 CHQ-SMA-7.1: SWMU 33-010(g)

One historical industrial activity area, Site 33-010(g), is associated with CHQ-SMA-7.1 (permitted feature Q010). 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.

239.1 Site Descriptions

33-010(g) (2/18/2021)

SWMU 33-010(g) is a former surface disposal area located on the northern rim of Chaquehui Canyon at South Site, at the southern end of TA-33. Debris was scattered along the rim and upper walls of the canyon east and south of MDA E. Chaquehui Canyon is about 200 ft wide at this point, with a 40-ft cliff at the canyon rim. A three-strand barbed-wire fence ran along the east side of the unimproved road adjacent to MDA E, separating SWMU 33-010(g) from the rest of South Site.

Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) appears to have originated from the initial clearing of South Site in the 1940s. Other debris, including shrapnel, cables, and burnt wood, likely originated from shot-pad and gun-firing activities. The period of operation for this disposal site is not known, but firing-site operations associated with initiator testing at South Site were conducted from 1950 to 1956. The debris was removed and disposed of off-site during the 1995 VCA. Residual debris was removed from SWMU 33-010(g) during the 2019–2020 investigation.

Potential POCs and Sources Associated with the Site

The potential POCs and sources associated with the Site are listed in Table 239-1.

Table 239-1 POCs Known or Suspected to Have Been Used Historically at the Site

Site	Potential POC Source	Potential POCs
33-010(g)	Surface disposal site	Metals, beryllium, copper, HE, uranium

239.2 Control Measures

All active control measures in use at CHQ-SMA-7.1 are listed in Table 239-2, and their locations are shown on the project map (Figure 239-1). Future map updates will be posted on the IP website: https://ext.em-la.doe.gov/ips/Home/SiteMonitoringAreaMaps.

Table 239-2 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q01002040012	Established Vegetation	-	X	X	-	B	5-9-2013
Q01003010010	Earthen Berm	X	-	-	X	B	7-18-2011
Q01003010011	Earthen Berm	X	-	-	X	B	7-18-2011
Q01003140013	Coir Log	-	X	-	X	EC	2-4-2021

Control ID	Control Name	Purpose of Control				Control Status	Install Date
		Run-On	Runoff	Erosion	Sediment		
Q01003140014	Coir Log	-	X	-	X	EC	2-4-2021
Q01006010003	Rock Check Dam	-	X	-	X	CB	10-23-2009

239.3 Inspections and Maintenance

RG340 recorded three storm events at CHQ-SMA-7.1 during the 2022 season, requiring two post-storm inspections, which are summarized in Table 239-3. No other control-measure inspections, maintenance activities, or facility modifications affecting discharge were conducted at the SMA in 2022.

Table 239-3 Post-Storm Inspections During 2022

Inspection Reference	Storm Date	30-Minute Maximum Intensity (in.)	Inspection Date	Days to Inspection	Inspected within 15 days?
BMP-93948[a]	7-12-2022	1.35	7-22-2022	10	Yes
BMP-94825[b]	7-28-2022	0.42	8-8-2022	11	Yes
	7-30-2022	0.45		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

239.4 Stormwater Monitoring

A baseline stormwater sample was collected on July 23, 2018 (Figure 250-2). Analytical results from this sample yielded TAL exceedances for aluminum (944 µg/L), copper (8.25 µg/L), and gross-alpha activity (75.1 pCi/L) and are reported in "Stormwater Individual Permit Annual Report, Reporting Period: January 1–December 31, 2018" (N3B 2019, 700320).

Stormwater monitoring was conducted at CHQ-SMA-7.1, under the 2010 IP requirements, from March 21 through November 7, 2022, resulting in a monitoring season of 232 days. Eight inspections were performed during the monitoring season and are summarized in Table 239-4. Rain gage RG340 recorded 29 rain events exceeding 0.1 in. in 24 hours while the sampling equipment was active.

A sample collected on July 12, 2022, was not submitted for analysis because of exceedance of hold time for HE. No new confirmation-monitoring samples were collected in 2022.

Table 239-4 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-91561	4-5-2022	No	None	None
SMPLR-91850	5-3-2022	No	None	None
SMPLR-92286	5-24-2022	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-92526	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	0.07/0.29 0.21/0.36 0.06/0.18 0.14/0.27 0.09/0.61 0.17/1.26 0.16/0.82
SMPLR-93351	7-22-2022	No	6-27-2022 7-1-2022 7-2-2022 7-4-2022 7-12-2022 7-14-2022[c] 7-19-2022[c]	0.05/0.16 0.15/0.51 0.09/0.11 0.22/0.25 1.35/1.46 0.11/0.12 0.11/0.11
SMPLR-94400	9-6-2022	No	7-27-2022[c] 7-28-2022[c] 7-30-2022[c] 7-31-2022[c] 8-16-2022 8-19-2022 8-20-2022 8-21-2022	0.04/0.11 0.42/0.42 0.45/0.55 0.11/0.21 0.16/0.25 0.08/0.23 0.04/0.26 0.1/0.11
SMPLR-95795	10-12-2022	No	9-9-2022 10-3-2022 10-4-2022 10-7-2022 10-8-2022	0.29 0.45 0.22 0.10 0.11
SMPLR-96322	11-7-2022	No	10-15-2022 10-16-2022	0.63 0.16

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

[b] 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

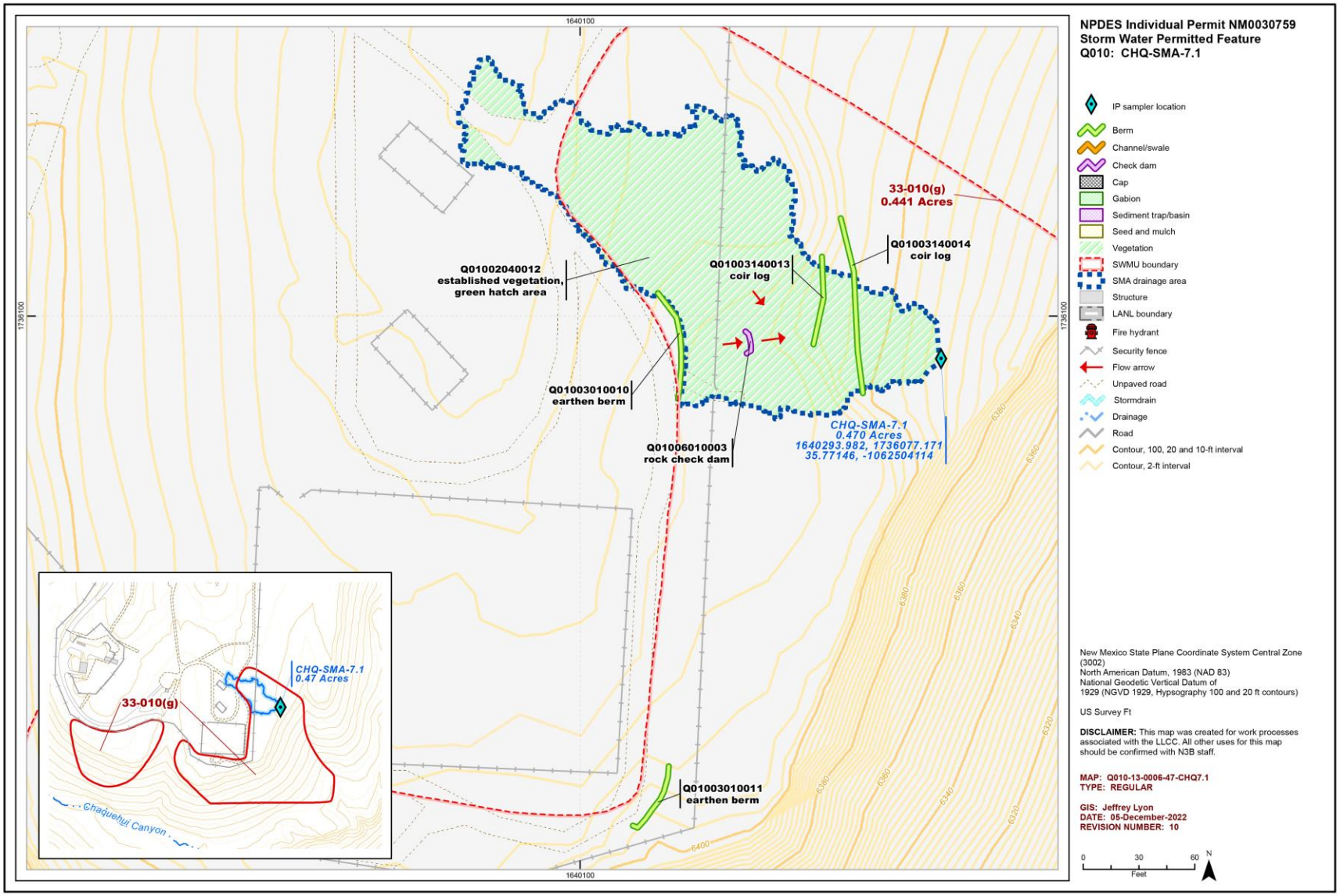


Figure 239-1 CHQ-SMA-7.1 location map

Attachment 1
Amendments

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1338	4/13/2022	CHQ-SMA-6	Per control measure verification BMP-89032 conducted 3/15/2022, please update as necessary to: • Add one Rock Check Dam Q00906010047 installed as an enhanced runoff and sediment control. Install date 3/15/2022. • Add one Rock Check Dam Q00906010048 installed as an enhanced runoff and sediment control. Install date 3/15/2022. • Add Coir Log Q00903140049 installed as an enhanced runoff and sediment control. Install date 3/15/2022. • Add Coir Log Q00903140050 installed as an enhanced runoff and sediment control. Install date 3/15/2022.	T	CCN-91773
V.5 1339	4/13/2022	CHQ-SMA-6	New Control - Corrective Action Control-Control ID: Q00906010047 - Rock Check Dam	T	CCN-91773
V.5 1340	4/13/2022	CHQ-SMA-6	New Control - Corrective Action Control-Control ID: Q00906010048 - Rock Check Dam	T	CCN-91773
V.5 1341	4/13/2022	CHQ-SMA-6	New Control - Corrective Action Control-Control ID: Q00903140049 - Coir Log	T	CCN-91773
V.5 1342	4/13/2022	CHQ-SMA-6	New Control - Corrective Action Control-Control ID: Q00903140050 - Coir Log	T	CCN-91773
V.5 1343	4/13/2022	CHQ-SMA-6	Map Revision (18)	T	CCN-91773
V.5 1344	8/22/2022	CHQ-SMA-4.1	Per preparations for implementation of new 2022 Individual Permit, please update as necessary to: • Generate draft project map for SMA using proposed monitoring location SS220623 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, SS100617 and the associated SMA drainage area are still active under the 2010 IP.	T	CCN-93440

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1345	8/22/2022	CHQ-SMA-4.1	SMA Boundary Modification, Updated Area in Map Revision	T	CCN-93440
V.5 1346	8/22/2022	CHQ-SMA-4.1	Minor Sampler Adjustment, Updated location with coordinates in Map Revision 12 (amendment V.5 1381)	T	CCN-93440
V.5 1347	8/22/2022	CHQ-SMA-4.1	Map Revision (11)	T	CCN-93440
V.5 1348	8/22/2022	A-SMA-6	Per issuance of 2022 IP, effective date 8/1/2022, please update all DB systems as necessary to: • Add SWMU 33-010(B) (Surface Disposal Site) as an IP site associated with A-SMA-6 in MainConn, SDE, and EIM, effective date 8/1/2022 • Produce new map revision including 33-010(b).	T	CCN-93014
V.5 1349	8/22/2022	A-SMA-6	Site Boundary Change - 03-010(b) (Surface Disposal Site). New IP Site. Updated location in Map Revision 10	T	CCN-93014
V.5 1350	8/22/2022	A-SMA-6	Map Revision (10)	T	CCN-93014
V.5 1351	11/17/2022	A-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-96249
V.5 1352	11/17/2022	A-SMA-1.1	Map Revision (9)	T	CCN-96249
V.5 1353	11/17/2022	CHQ-SMA-2	Per control measure/installation WO BMP-94519, completed 8/8/2022, please update as necessary to: • Retire enhanced control Coir Log Q00303140059, retire date 8/8/2022. • Add new Straw Wattle Q00303140062 as a replacement runoff/sediment control for -0059, same map location. Install date 8/8/2022. • Note, maintenance conducted on RCDs 47-51 and 55-58 on 8/8/2022, no map/asset ID changes needed.	T	CCN-96252

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1353 (cont.)	11/17/2022	CHQ-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-96252
V.5 1354	11/17/2022	CHQ-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: Q00303140059-Coir Log	T	CCN-96252
V.5 1355	11/17/2022	CHQ-SMA-2	New Control - Replacement -Control ID: Q00303140062 - Straw Wattle	T	CCN-96252
V.5 1356	11/17/2022	CHQ-SMA-2	Map Revision (15)	T	CCN-96252
V.5 1357	12/6/2022	CHQ-SMA-3.05	Per control measure/installation WO BMP-95288, completed 8/22/2022, please update as necessary to: • Retire baseline certified Straw Wattle Q00403060002, retire date 8/22/2022. • Add new Coir Log Q00403140017 as a replacement run-on/sediment control for 0002, 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-96253
V.5 1358	12/6/2022	CHQ-SMA-3.05	Retire Control - Damaged and/or Replaced-Control ID: Q00403060002-Straw Wattle	T	CCN-96253
V.5 1359	12/6/2022	CHQ-SMA-3.05	New Control - Replacement -Control ID: Q00403140017-Coir Log	T	CCN-96253
V.5 1360	12/6/2022	CHQ-SMA-3.05	Map Revision (8)	T	CCN-96253

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1361	12/6/2022	A-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-96697
V.5 1362	12/6/2022	A-SMA-2	Map Revision (15)	T	CCN-96697
V.5 1363	12/6/2022	A-SMA-4	Per new 2022 IP map reporting requirements please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96690
V.5 1364	12/6/2022	A-SMA-4	Map Revision (11)	T	CCN-96690
V.5 1365	12/6/2022	A-SMA-3.5	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-96681
V.5 1366	12/6/2022	A-SMA-3.5	Map Revision (12)	T	CCN-96681
V.5 1367	12/7/2022	A-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-96700

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1368	12/7/2022	A-SMA-3	Map Revision (15)	T	CCN-96700
V.5 1369	12/7/2022	CHQ-SMA-7.1	Per new 2022 IP map reporting requirements please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96696
V.5 1370	12/7/2022	CHQ-SMA-7.1	Map Revision (10)	T	CCN-96696
V.5 1371	12/7/2022	CHQ-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.	T	CCN-96702
V.5 1372	12/7/2022	CHQ-SMA-0.5	Map Revision (9)	T	CCN-96702
V.5 1373	12/7/2022	CHQ-SMA-5.05	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-96695
V.5 1374	12/7/2022	CHQ-SMA-5.05	Map Revision (4)	T	CCN-96695

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1375	12/8/2022	CHQ-SMA-4.5	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-96793
V.5 1376	12/8/2022	CHQ-SMA-4.5	Map Revision (12)	T	CCN-96793
V.5 1377	12/8/2022	A-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-96698
V.5 1378	12/8/2022	A-SMA-2.5	Map Revision (9)	T	CCN-96698
V.5 1379	12/8/2022	A-SMA-6	Per new 2022 IP map reporting requirements please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96701
V.5 1380	12/8/2022	A-SMA-6	Map Revision (11)	T	CCN-96701
V.5 1381	12/22/2022	CHQ-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-96794

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1382	12/22/2022	CHQ-SMA-4.1	Map Revision (12)	T	CCN-96794
V.5 1383	12/22/2022	CHQ-SMA-4	Per new 2022 IP map reporting requirements please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96796
V.5 1384	12/22/2022	CHQ-SMA-4	Map Revision (12)	T	CCN-96796
V.5 1385	12/22/2022	CHQ-SMA-1.02	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-96777
V.5 1386	12/22/2022	CHQ-SMA-1.02	Map Revision (13)	T	CCN-96777
V.5 1387	12/23/2022	A-SMA-2.7	Per new 2022 IP map reporting requirements please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-96699
V.5 1388	12/23/2022	A-SMA-2.7	Map Revision (10)	T	CCN-96699

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1389	1/10/2023	CHQ-SMA-1.01	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-96725
V.5 1390	1/10/2023	CHQ-SMA-1.01	Map Revision (10)	T	CCN-96725
V.5 1391	1/10/2023	CHQ-SMA-1.03	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-96724
V.5 1392	1/10/2023	CHQ-SMA-1.03	Map Revision (12)	T	CCN-96724
V.5 1393	1/12/2023	A-SMA-2.8	Per TAL Exceedance Inspection COMP-96394, conducted 12/22/2022, please update as necesary to: • Retire Seed and Wood Mulch A00501010004, has become established vegetation. • Retire date 12/22/2022-Add Established Vegetation A00502040006 as an erosion control replacement for Seed and Wood Mulch 4. Install Date 12/22/2022. Use same boundaries of Seed and Wood Mulch -0004 that are within the SMA drainage area. 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-96740
V.5 1394	1/12/2023	A-SMA-2.8	Retire Control - Expired Life Cycle-Control ID: A00501010004-Seed and Wood Mulch	T	CCN-96740

Attachment 1, Amendments (continued)

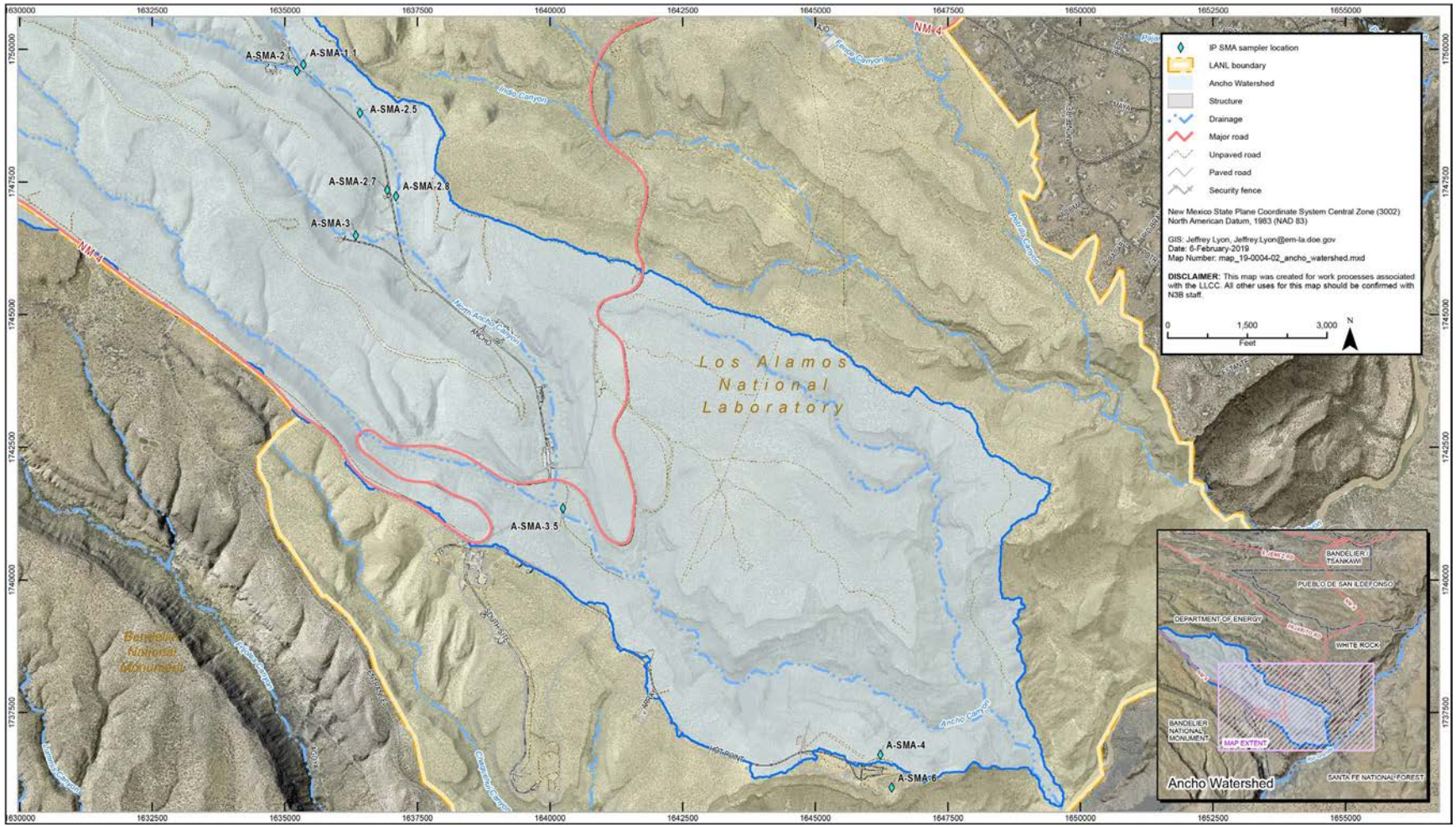
Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1395	1/12/2023	A-SMA-2.8	New Control - Augmenting Existing/Baseline Control-Control ID: A00502040006-Established Vegetation	T	CCN-96740
V.5 1396	1/12/2023	A-SMA-2.8	Map Revision (9)	T	CCN-96740
V.5 1397	2/6/2023	Volume 5	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
V.5 1398	2/28/2023	CHQ-SMA-6	Per new 2022 IP map reporting requirements, please update as necessary to: • Update SMA label on maps to include the sampling location coordinates (lat/long and northing/easting). • Update Site labels on maps to include area (in acres) of site boundary that is within SMA boundary. • Ensure that the most current infrastructure (e.g., roads, structures, utilities, etc.) layers available at this time are used for this map revision.	T	CCN-97557
V.5 1399	2/28/2023	CHQ-SMA-6	Map Revision (19)	T	CCN-97557
V.5 1400	1/21/2022	A-SMA-2	Per control measure verification BMP-89845 conducted 12/22/2021 with controls accepted 1/3/2022, please update as necessary to: • Add Redi-Rock Berm A00203150054, TRM-Lined Swale A00204080055, and Earthen Berm A00203010056 installed as enhanced erosion and runoff controls. Install date 1/3/2022. • Remove Culvert A00204040046. Control has been removed. Retire date 1/3/2022. • Review northern end of watershed. W-SMA-11.7 should not be included in this SMA.	T	CCN-90588
V.5 1401	1/21/2022	A-SMA-2	Retire Control - Damaged and/or Replaced-Control ID: A00204040046 - Culvert.	T	CCN-90588
V.5 1402	1/21/2022	A-SMA-2	New Control - Corrective Action Control-Control ID: A00203010056 - Earthen Berm	T	CCN-90588
V.5 1403	1/21/2022	A-SMA-2	New Control - Corrective Action Control-Control ID: A00203150054 - Redi-Rock Berm	T	CCN-90588
V.5 1404	1/21/2022	A-SMA-2	New Control - Corrective Action Control-Control ID: A00204080055 - TRM-Lined Swale	T	CCN-90588
V.5 1405	1/21/2022	A-SMA-2	SMA Boundary Modification, Updated Area in Map Revision	T	CCN-90588

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change*	Reference
V.5 1406	1/21/2022	A-SMA-2	Map Revision (14)	T	CCN-90588

*T = Technical, E = Errata

Attachment 2
Vicinity Map



Attachment 2, Vicinity Map (continued)