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2014 Update to the Site Discharge Pollution Prevention Plan, Revision 1

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Pajarito Watershed

Receiving Waters:
Pajarito Canyon, Twomile Canyon, and Threemile Canyon

Volume 3

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129.0 2M-SMA-1: SWMU 03-010(a)

129.1 Site Descriptions

One historical industrial activity area is associated with E001, 2M-SMA-1: Site 03-010(a).

SWMU 03-010(a) is the former outfall area from a former vacuum repair shop at TA-03. The outfall area is located on a steep slope on the rim of Twomile Canyon about 30 ft west of a general warehouse (building 03-30). The outfall received discharges of waste oil containing mercury between 1950 and 1957. Former workers estimated that more than 100 lb of mercury was disposed of at this Site. SWMU 03-010(a) was investigated and remediated between 1992 and 2010. The 1994 Phase II RFI confirmed that the contaminants of concern (mercury, petroleum hydrocarbons, and VOCs) in surface soil were no longer present above applicable SSLs.

RFI and remediation activities were completed for SWMU 03-010(a) before the Consent Order went into effect in 2005. Groundwater monitoring was conducted in accordance with the Consent Order and is complete. SWMU 03-010(a) was investigated concurrently with AOC 03-001(e), the former vacuum repair shop in building 03-0030. Residual contamination associated with AOC 03-001(e) may be detected beneath building 03-0030. Therefore, further characterization and investigation of AOC 03-001(e) are delayed until the demolition of building 03-0030. As a result, a COC has not been requested for SWMU 03-010(a).

The project map (Figure 129-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

129.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 129-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

2M-SMA-1, Rip Rap, E00104060010, (photo ID 7516-5)

Table 129-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00102040026	Established Vegetation	-	X	X	-	B
E00103010014	Earthen Berm	X	-	-	X	EC
E00103040027	Asphalt Berm	X	-	-	X	B
E00104060010	Rip Rap	X	-	X	-	CB
E00104060011	Rip Rap	X	-	X	-	CB
E00105020013	Sediment Basin	X	-	-	X	EC
E00106010007	Rock Check Dam	X	-	-	X	CB
E00106010008	Rock Check Dam	X	-	-	X	CB
E00106010009	Rock Check Dam	X	-	-	X	CB
E00106010016	Rock Check Dam	X	-	-	X	EC
E00106010017	Rock Check Dam	X	-	-	X	EC
E00106010018	Rock Check Dam	X	-	-	X	EC
E00106010019	Rock Check Dam	X	-	-	X	EC
E00106010020	Rock Check Dam	X	-	-	X	EC
E00106010021	Rock Check Dam	X	-	-	X	EC
E00106010022	Rock Check Dam	X	-	-	X	EC
E00106010023	Rock Check Dam	X	-	-	X	EC
E00106010024	Rock Check Dam	X	-	-	X	EC
E00106010025	Rock Check Dam	X	-	-	X	EC
E00107010003	Gabion	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

129.3 Storm Water Monitoring

SWMU 03-010(a) is monitored within 2M-SMA-1. Following the installation of baseline control measures, two baseline storm water samples were collected on August 4, 2011, and August 20, 2011 (Figure 129-2). Analytical results from these baseline monitoring samples yielded the following TAL exceedances:

- Aluminum concentration of 1200 µg/L (MTAL is 750 µg/L) and
- Gross-alpha activity of 18.3 pCi/L (ATAL is 15 pCi/L).

Following the installation of enhanced control measures, two corrective action storm water samples were collected on July 25, 2012, and September 12, 2012 (Figure 129-2). Analytical results from these corrective action monitoring samples yielded the following TAL exceedance:

- Aluminum concentration of 1430 µg/L (MTAL is 750 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 03-010(a):

- Aluminum is not known to have been associated with industrial materials historically managed at this Site. Aluminum was not detected above soil, sediment, or tuff BVs in shallow (i.e., less than 3 ft bgs) RFI samples.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 129-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 129-2.

2M-SMA-1, Rock Check Dam, E00106010007 (photo ID 24312-7)

Monitoring location 2M-SMA-1 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Metals, including aluminum, are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum results from both 2011 and 2012 are between these values.

All the analytical results for these samples are reported in the 2011 and 2012 Annual Reports.

129.4 Inspections and Maintenance

RG121.9 recorded four storm events at 2M-SMA-1 during the 2014 season. These rain events triggered two post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 129-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39791	7-21-2014
Storm Rain Event	BMP-41204	8-12-2014
Annual Erosion Evaluation	COMP-43678	10-21-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 129-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37315	Repaired breach in natural bank next to rock check dam E00106010017. Removed rock and used sediment from channel upgradient of the rock check dam. Applied seed and TRM to repaired area. Added angular rock to armor repaired bank area. Repaired slope below Ecoblock E00103110015. Pushed gravel upgradient of earthen berm E00103010014 back to toe of slope. Added clean fill over eroded area(s) of slope and compacted. Stabilized with seed and TRM. Repositioned Ecoblock E00103110015. Installed a new angular rock check dam E00106010016. Lowered center of spillway E00106010017 approximately 1 rock height (approximately 4-6 in.). Repaired rock check dam E00106010022 by rearranging rock to create a spillway. Added angular rock to increase height and extend both ends of rock check dam E00106010024.	4-3-2014	191 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-41204	Moved Ecoblock E00103110015 back into place at inspection.	8-12-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-40888	Removed needle cast from gabions E00107010003 and E00107010004 and rock check dams E00106010007, E00106010008, E00106010009, E00106010017, E00106010021, E00106010022, E00106010023, E00106010024, and E00106010025 and placed outside channel. Removed sediment from check dam E00106010016 and place outside channel. Stabilized with seed and coconut matting. Rebuilt northern section of berm E0010301000014. Applied seed and TRM. Armored channel side of berm with angular rock.	8-13-2014	23 day(s)	Maintenance conducted as soon as practicable.
BMP-42158	Removed needle cast from check dams E00106010003, E00106010007, E00106010023, and E00106010024 and placed outside channel.	8-26-2014	14 day(s)	Maintenance conducted as soon as practicable.
BMP-42178	Replaced Ecoblock E00103110015 with an asphalt curb to direct parking lot runoff into sediment basin E00105020013.	9-18-2014	59 day(s)	Maintenance delayed.

129.5 Compliance Status

The Site associated with 2M-SMA-1 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 129-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 03-010(a)	Corrective Action Initiated after second TAL exceedance	Corrective Action Initiated after second TAL exceedance	Second initiation on 10-19-2012. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

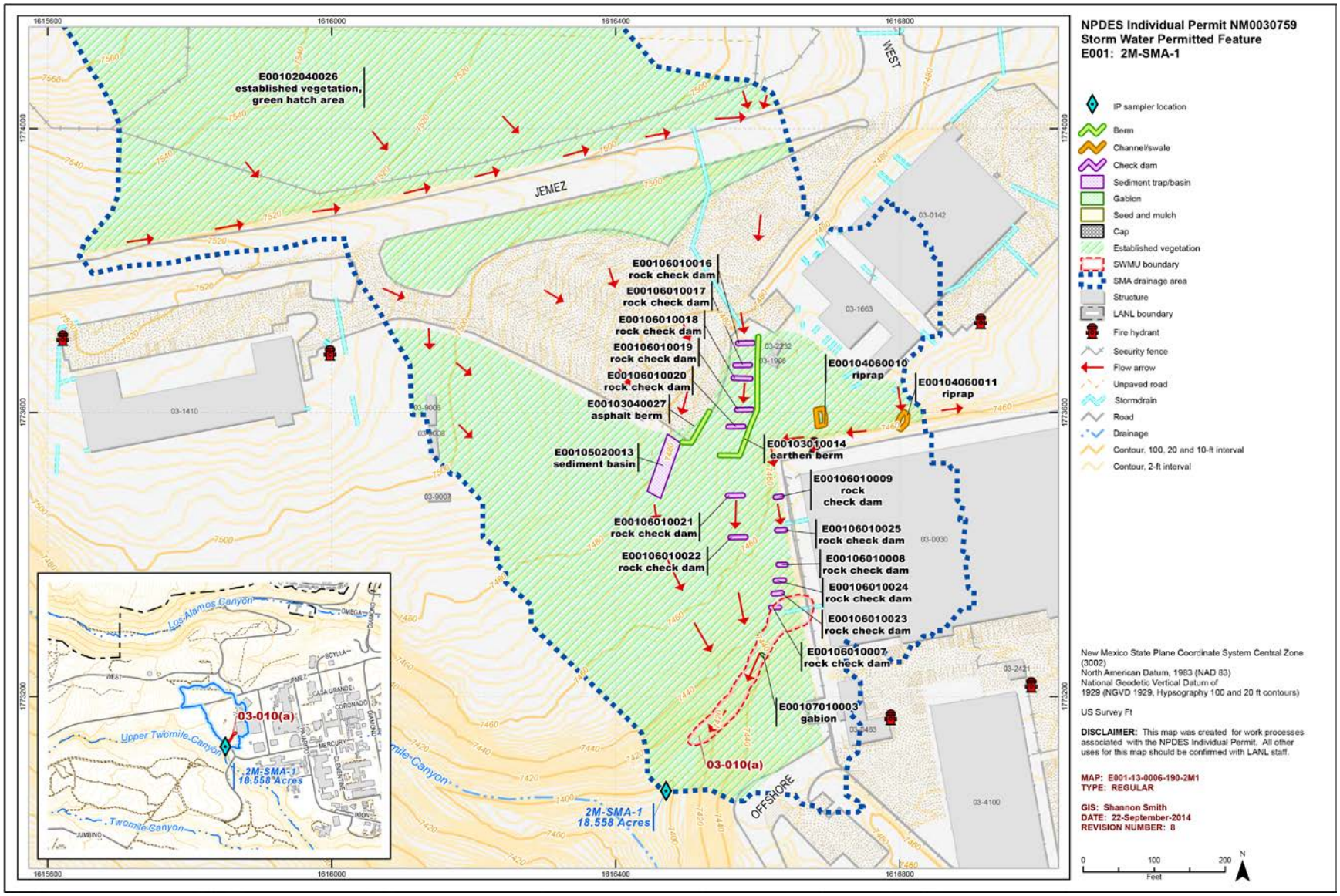
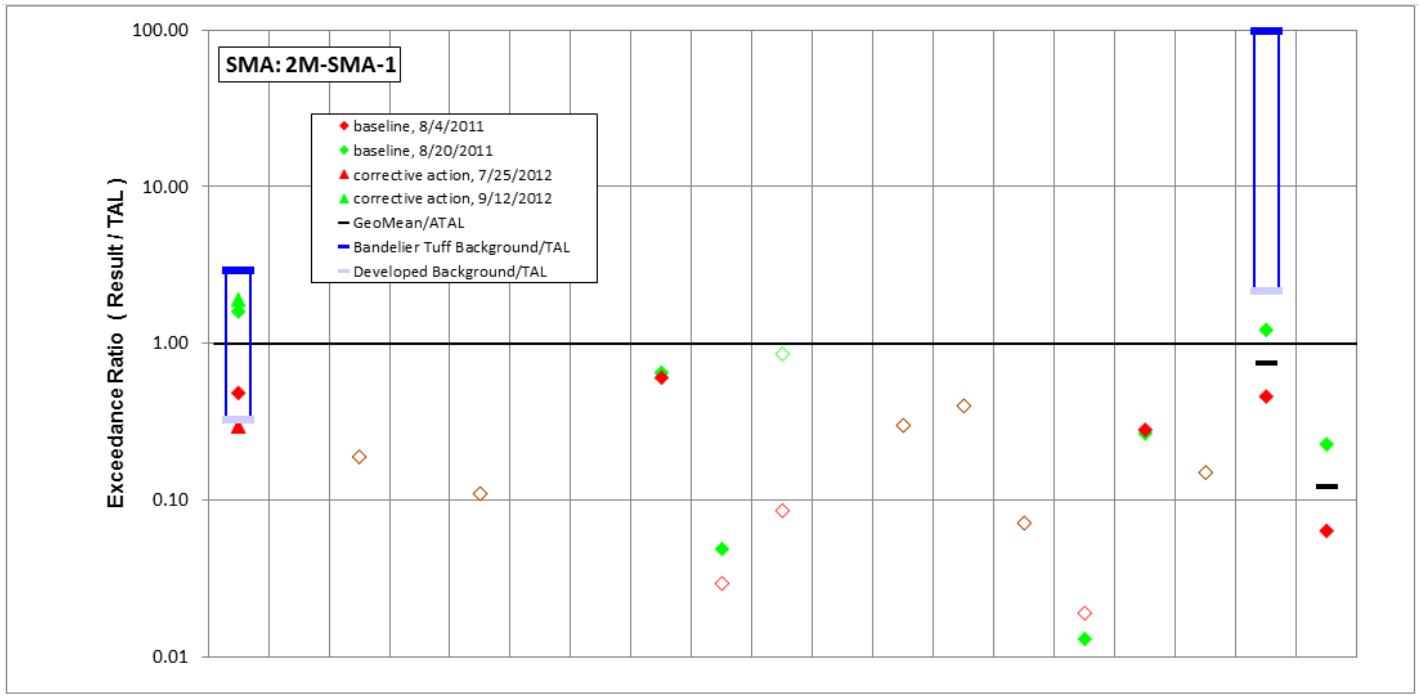


Figure 129-1 2M-SMA-1 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/12/2012 result	**1430**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
result / TAL	**1.9**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7/25/2012 result	222	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
result / TAL	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8/20/2011 result	**1200**	*1*	*1.7*	16.7	*0.11*	*2*	3.4	2.8	0.83	*0.66*	1.3	*1.5*	*0.2*	*0.45*	1.3	11.2	*0.002*	**18.3**	6.82
result / TAL	**1.6**	*0.002*	*0.19*	0.0033	*0.11*	*0.01*	0.0034	0.65	0.049	*0.86*	0.0076	*0.3*	*0.4*	*0.071*	0.013	0.27	*0.15*	**1.2**	0.23
8/4/2011 result	362	*1*	*1.7*	*15*	*0.11*	*2*	*1*	2.6	*0.5*	*0.066*	0.55	*1.5*	*0.2*	*0.45*	*1.9*	11.8	*0.002*	6.88	1.91
result / TAL	0.48	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	*0.001*	0.6	*0.029*	*0.086*	0.0032	*0.3*	*0.4*	*0.071*	*0.019*	0.28	*0.15*	0.46	0.064

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 129-2 Inorganic analytical results summary plot for 2M-SMA-1

130.0 2M-SMA-1.42: SWMU 06-001(a)

130.1 Site Descriptions

One historical industrial activity area is associated with E002, 2M-SMA-1.42: Site 06-001(a).

SWMU 06-001 (a) is an inactive septic tank (structure 06-40) with a volume of approximately 840 gal. (the precise volume is not known) and the associated outfall area. The septic tank system served buildings 06-1 and 06-3 (currently a storage building). The septic tank is located approximately 400 ft north of Twomile Mesa Road and about 100 ft north of building 06-3. Building 06-1 included a laboratory and a carpenter shop. The laboratory was used in 1944 to develop analytical procedures for nonradioactive cobalt-tracer shots. Although no further information exists on the use of the laboratory, the carpenter shop may have later expanded into the laboratory space. In the late 1950s, silver soldering may have been done in the shop. The building was not used after the carpenter shop closed in the early 1980s. Building 06-3 contained a restroom, a darkroom, and a laboratory with a lead-lined sink. Building 06-3 was first used as a control bunker for explosives shots; it was remodeled in 1944 with explosion-proof fixtures. From 1945 to 1948, the building housed offices, and from 1948 to the early 1950s, the building had a firing control panel and a bridgewire-testing laboratory. In 1972, the building was remodeled into a printed-circuit shop, and it was later used as a silk-screen facility until the mid-1980s. Since the mid-1980s, building 06-3 has been used for storage.

The septic system outfall drained to Tributary A of Twomile Canyon. The system ceased to be used in December 1986, and its drainline was plugged in 1988. During a reconnaissance visit in 1992, the tank was located and found to be empty. Buildings 06-1 and 06-3 were demolished and removed in 2004. The septic system was left in place.

Consent Order investigations have not been performed at SWMU 06-001(a), and no decision-level data are available for this Site. Screening-level data are available from an RFI performed in 1994.

The project map (Figure 130-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

130.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 130-1).

2M-SMA-1.42, Earthen Berm, E00203010011 (photo ID 23499-1)

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 130-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00201010013	Seed and Wood Mulch	-	-	X	-	EC
E00202040015	Established Vegetation	-	X	X	-	B
E00203010011	Earthen Berm	-	X	-	X	EC
E00203010012	Earthen Berm	X	-	-	X	EC
E00203010014	Earthen Berm	X	-	-	X	EC
E00203120003	Rock Berm	X	-	-	X	CB
E00206010006	Rock Check Dam	X	-	-	X	CB
E00206010007	Rock Check Dam	X	-	-	X	CB
E00206010008	Rock Check Dam	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

130.3 Storm Water Monitoring

SWMU 06-001(a) is monitored within 2M-SMA-1.42. Following the installation of baseline control measures, two baseline storm water samples were collected on August 21, 2011, and September 15, 2012 (Figure 130-2). Analytical results from these samples yielded the following TAL exceedances:

- Aluminum concentration of 794 µg/L (MTAL is 750 µg/L) and
- Gross-alpha activity of 51.8 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 06-001(a):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected above BVs in shallow soil and sediment samples collected during the 1994 RFI.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected during the 1994 RFI were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because these constituents are not associated with historical site activities.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figure 130-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figure 130-2.

Monitoring location 2M-SMA-1.42 is located on Bandelier Tuff, and no run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from locations containing sediment derived from Bandelier Tuff were compared with aluminum and gross-alpha MTAL and ATAL exceedances. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals. Aluminum is associated with minerals in the Bandelier Tuff as well.

- Aluminum—The aluminum UTL for background storm water containing sediment from Bandelier Tuff is 2210 µg/L; the result from 2011 is less than this value.
- Gross-alpha—The gross alpha UTL for background storm water containing sediment from Bandelier Tuff is 1490 pCi/L; the result from 2011 is less than this value

All the analytical results for these samples are reported in the 2011 Annual Report.

130.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.42 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 130-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38662	6-4-2014
Storm Rain Event	BMP-39390	6-26-2014
Storm Rain Event	BMP-39756	7-14-2014
Storm Rain Event	BMP-40305	7-24-2014
Storm Rain Event	BMP-41011	8-7-2014
Storm Rain Event	BMP-43443	10-20-2014
Annual Erosion Evaluation	COMP-43297	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 130-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36340	Added rock to rock check dam E00206010006 to raise height and extend both ends.	3-31-2014	192 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.

130.5 Compliance Status

The Site associated with 2M-SMA-1.42 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 130-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 06-001(a)	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 06-27-2012.

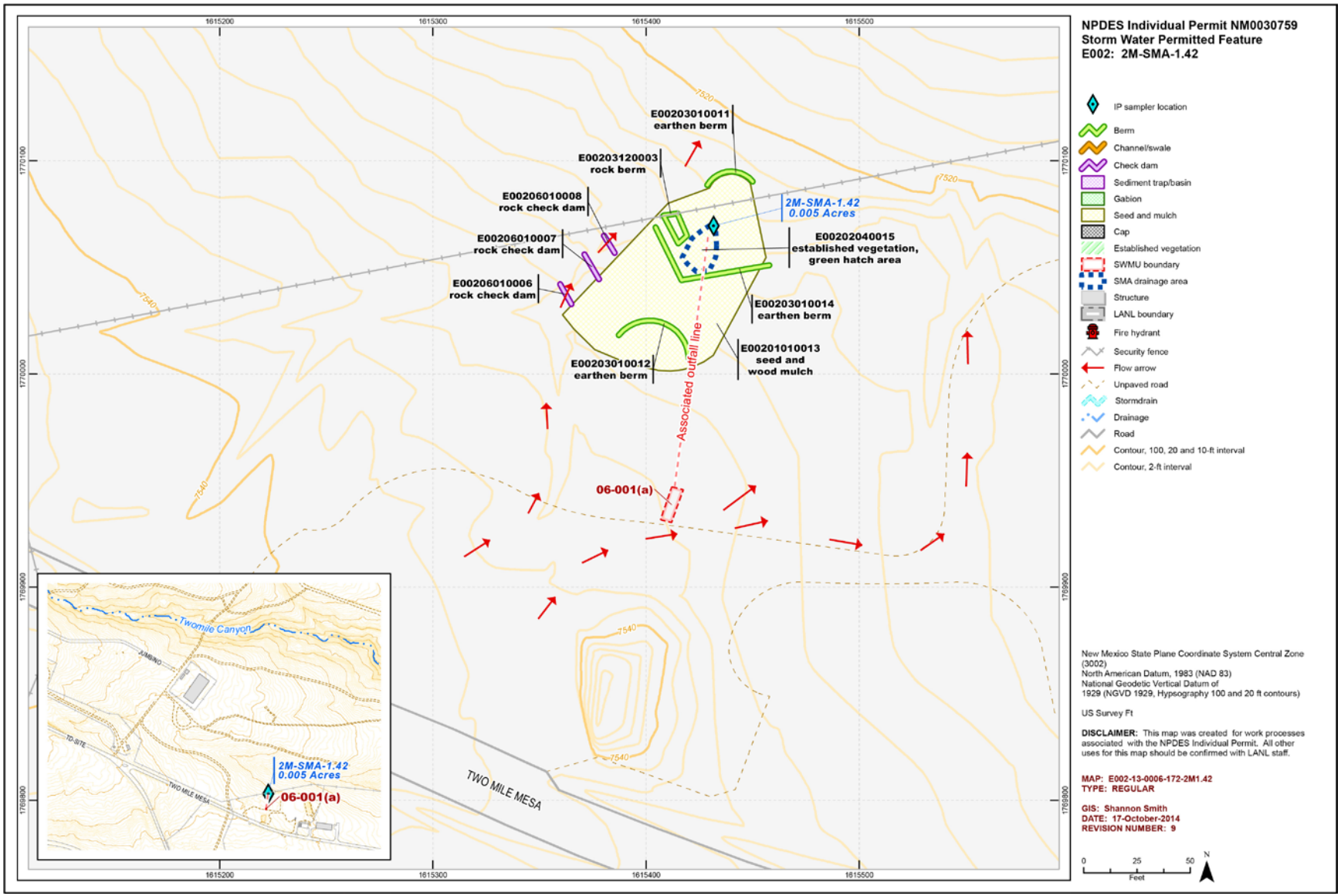
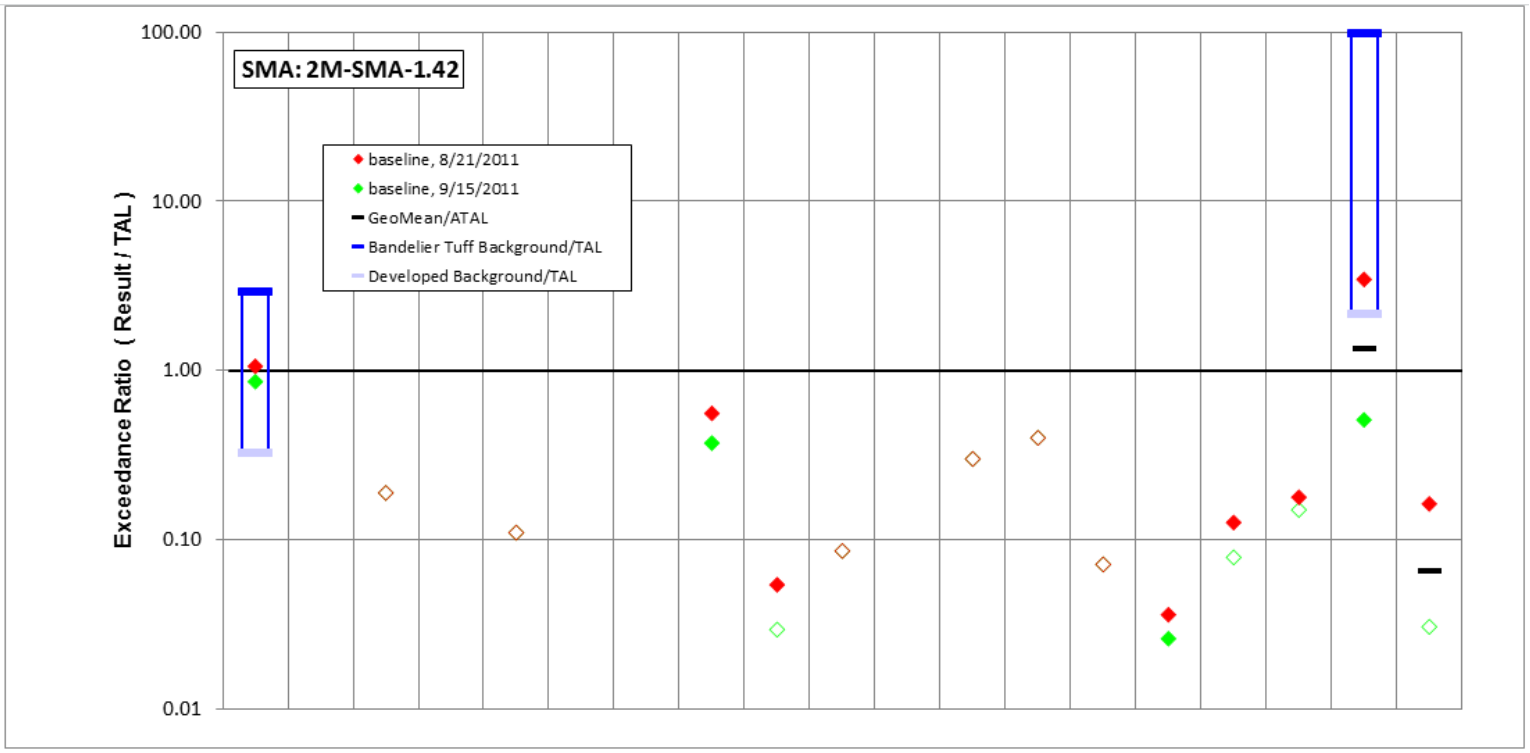


Figure 130-1 2M-SMA-1.42 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/15/2011 result	644	*1*	*1.7*	*15*	*0.11*	*2*	*2.9*	1.6	*0.5*	*0.066*	0.69	*1.5*	*0.2*	*0.45*	2.6	*3.3*	*0.002*	7.66	*0.916*
result / TAL	0.86	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	*0.003*	0.37	*0.029*	*0.086*	0.0041	*0.3*	*0.4*	*0.071*	0.026	*0.079*	*0.15*	0.51	*0.031*
8/21/2011 result	**794**	*1*	*1.7*	*15*	*0.11*	*2*	3.5	2.4	0.92	*0.066*	1.6	*1.5*	*0.2*	*0.45*	3.6	5.3	0.0018	**51.8**	4.88
result / TAL	**1.1**	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.0035	0.56	0.054	*0.086*	0.0094	*0.3*	*0.4*	*0.071*	0.036	0.13	0.18	**3.5**	0.16

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 130-2 Inorganic analytical results summary plot for 2M-SMA-1.42

131.0 2M-SMA-1.43: SWMUs 22-014(a) and 22-015(a)

131.1 Site Descriptions

Two historical industrial activity areas are associated with E003, 2M-SMA-1.43: Sites 22-014(a), and 22-015(a).

SWMU 22-014(a) consists of an active HE sump, an associated inactive drainline, and an inactive seepage pit. The sump is located immediately south of building 22-0093. The sump is constructed of concrete containing an inset aluminum tank and measures approximately 4 ft deep × 9 ft long × 3 ft wide. The sump system began operations in 1985 and receives rinse water from a washing facility for parts and clothing from explosives compacting operations in rooms C112 and C114 in building 22-0093. Before 1995, the sump discharged approximately 100 gal. of wastewater each week through a drainline to a seepage pit located 150 ft south of the sump in the upper part of Tributary B of Twomile Canyon. The seepage pit is 4 ft in diameter and 40 ft deep. In 1995, the drainline from the sump was capped, rendering the sump drainlines and seepage pit inactive. Operations in building 22-0093 continue to discharge wastewater to the sump, where the effluent is retained and suspended solids settle out as sludge. The sump contents are periodically removed for disposal at approved facilities at TA-16. The sump is equipped with a level monitor and an alarm that are monitored remotely in a manager's office.

Consent Order investigations have not been performed at SWMU 22-014(a); no decision-level data are available for this Site.

SWMU 22-015(a), situated on Twomile Mesa in the central-east area of TA-22, consists of two inactive seepage pits (Pits A and B), located east of building 22-91 in an open, grass-covered area. Each pit had an outside diameter of 4 ft and is filled with crushed gravel with a central 4-in. polypropylene perforated pipe vented to the surface. Pit A was 26 ft deep, and Pit B was 20 ft deep. The pits served rooms B102, B107, B121, B123, 8145, and B160 of building 22-91, which housed printed circuit-board etching operations. From 1985 to 1987, waste from the etching operations in building 22-91 was discharged through a 6-in.-diameter PVC drainpipe to the seepage pits. Before discharge, waste material was pretreated to remove contaminants. However, small quantities of dissolved contaminants and fine particulates may have been carried as effluent into the pits. The seepage pits were intended to allow liquids to percolate into the surrounding soils and tuff, while retaining potential contaminants in the seepage pit sediments and immediate (surrounding) soil matrix. The system failed because the effluent production rate exceeded the infiltration rate of liquid into the tuff, resulting in seepage pit overflow. In 1987, the pits were disconnected from their drainlines and left in place. After the pits were disconnected, effluent was allowed to daylight for only a few months before the drainlines were tied into the TA-16 WWTP.

Consent Order investigations have not been performed at Site 22-015(a), and no decision-level data are available for this Site.

The project map (Figure 131-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

131.2 Control Measures

Most of the potential run-on to this Permitted Feature is controlled by the drop inlets and the culvert that discharges to the north of the SMA. This potential run-on source is completely diverted around the

SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 131-1).

Table 131-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00302040005	Established Vegetation	-	X	X	-	B
E00304060004	Rip Rap	-	X	X	-	B
E00306010003	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

131.3 Storm Water Monitoring

SWMUs 22-014(a) and 22-015(a) are monitored within 2M-SMA-1.43. Following the installation of baseline control measures, a baseline storm water sample was collected on July 12, 2013 (Figure 131-2). Analytical results from this sample yielded two TAL exceedances:

- Aluminum concentration of 1500 µg/L (MTAL is 750 µg/L) and
- Gross-alpha activity of 52 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 22-014(a):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Shallow (i.e., less than 3 ft bgs) soil samples collected during the 1994 RFI at the Site were not analyzed for inorganic chemicals because these constituents are not associated with historical Site activities.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected during the 1994 were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because these constituents are not associated with historical site activities.

SWMU 22-015(a):

- Aluminum may potentially be associated with industrial materials historically managed at the Site. Aluminum was not, however, detected above the BV in any of the three shallow 1994 RFI soil samples collected at the Site. Shallow samples were not collected during the 1997 RFI.
- Alpha-emitting radionuclides are not associated with historical site activities. Shallow soil samples collected during the 1994 RFI were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides since these constituents are not associated with historical site activities.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as

UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 131-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 131-2.

The SMA receives runoff from an asphalt road, grassy areas, and undeveloped areas potentially impacted by surface releases from SWMU 22-015(a).

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; the aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum result from 2013 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

131.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.43 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 131-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38663	5-29-2014
Storm Rain Event	BMP-39391	6-26-2014
Storm Rain Event	BMP-39757	7-14-2014
Storm Rain Event	BMP-40306	7-24-2014
Storm Rain Event	BMP-41012	8-8-2014
Storm Rain Event	BMP-43444	10-20-2014
Annual Erosion Evaluation	COMP-43246	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 131-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-38540	Installed a grout plug in the inlet pipe located inside the SWMU 22-014(a) sump and grouted the inlet box located inside the sump. Grouted the exterior portion of the sump where the eastern exterior wall meets the cement walkway.	8-5-2014	15 day(s)	Maintenance conducted as soon as practicable.
BMP-41012	Debris removed from rock check dam E00306010003 and from Site during inspection.	8-8-2014	0 day(s)	Maintenance conducted as soon as practicable.

131.5 Compliance Status

The Sites associated with 2M-SMA-1.43 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 131-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 22-014(a)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-21-2013. Permit screening process for corrective action recommendation: Submit certification of no exposure to EPA.
SWMU 22-015(a)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-21-2013. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

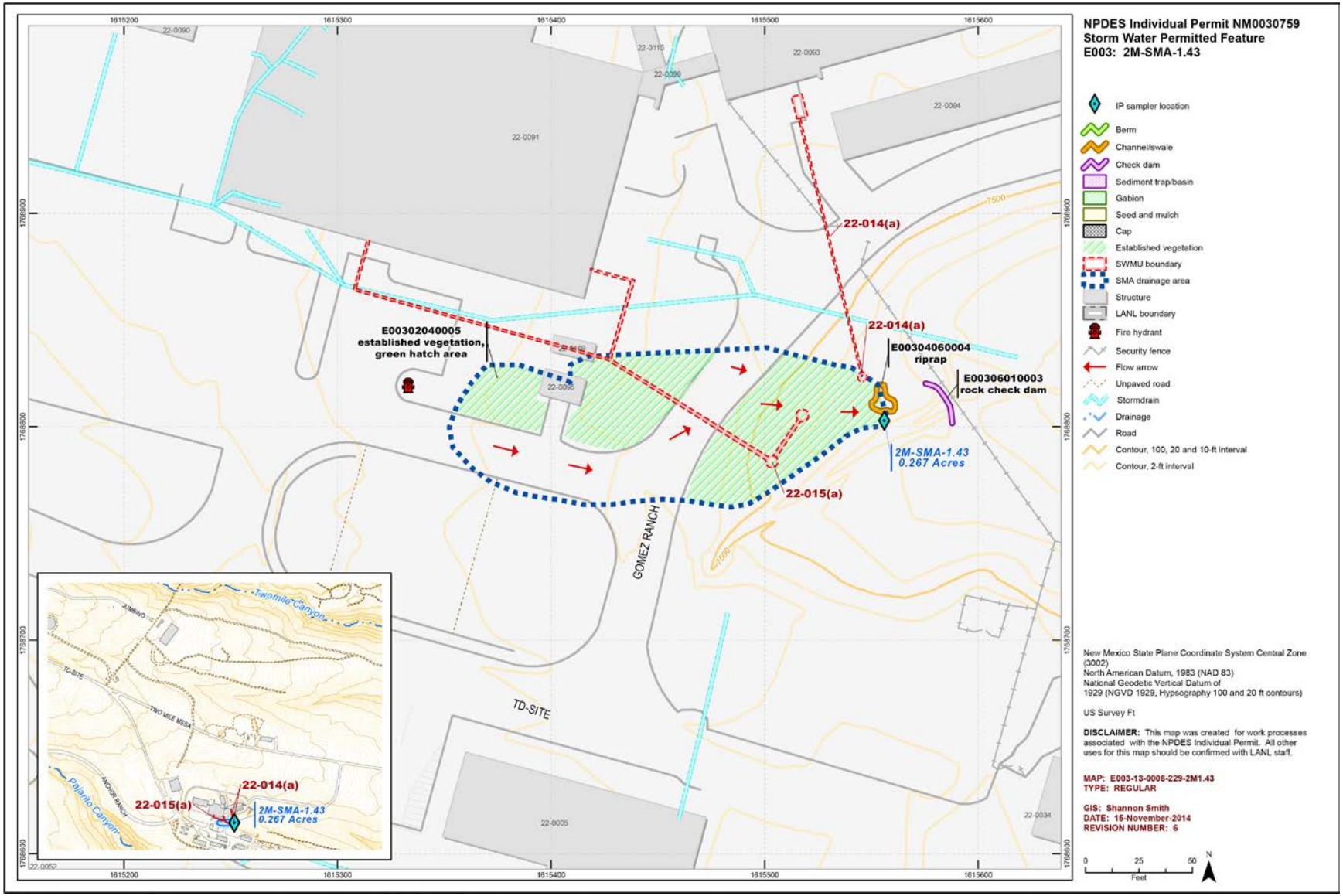
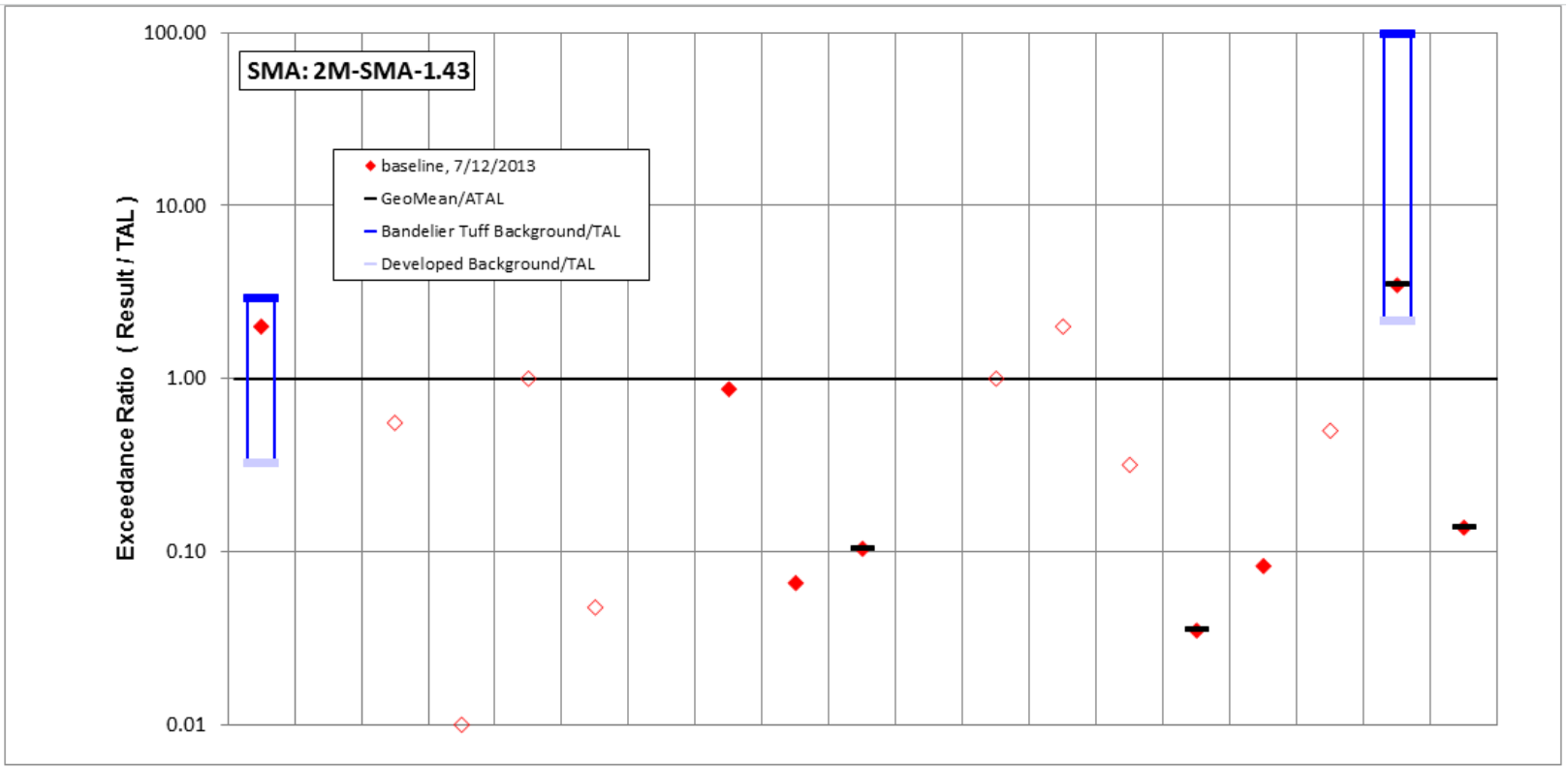


Figure 131-1 2M-SMA-1.43 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/12/2013 result	**1500**	*3*	*5*	*50*	*1*	*10*	4.46	3.74	1.12	0.08	1.25	*5*	***1***	*2*	3.5	3.47	*0.005*	**52**	4.13
result / TAL	**2**	*0.005*	*0.56*	*0.01*	*1*	*0.048*	0.0045	0.87	0.066	0.1	0.0074	*1*	***2***	*0.32*	0.035	0.083	*0.5*	**3.5**	0.14

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 131-2 Inorganic analytical results summary plot for 2M-SMA-1.43

132.0 2M-SMA-1.44: SWMU 06-001(b)

132.1 Site Descriptions

One historical industrial activity area is associated with E004, 2M-SMA-1.44: Site 06-001(b).

SWMU 06-001(b) consists of a 960-gal.-capacity septic tank (structure 06-43) and associated drainlines, distribution box, filter trench, and outfall located approximately 200 ft north of former building 06-6. The septic system served former building 06-6 and operated from 1945 to the 1980s. Former building 06-6 originally housed laboratory operations related to detonator assembly, an electronics work room, a chemistry laboratory, two darkrooms, restrooms, and a sink. The sink drain received rinsate containing copper, brass, and steel parts dipped in nitric acid to remove silver solder flux and oxidized metals. Solvents were also used to degrease metal. Tin and lead soldering using paste and aqueous zinc/aluminum chloride fluxes was performed on electrical circuits. Manometric apparatuses containing liquid mercury were serviced in the building. Ionizing radiation, in the form of electrically generated x-rays, was used through the 1950s to about 1965. By 1961, the darkrooms, assembly room, and a storage area had been converted to offices. In the 1970s, former building 06-6 was used as a cable shop where acetone, alcohol, and dilute acids may have been used. In the early 1980s, former building 06-6 was used for printed circuit production. Effluent from the septic tank discharged north to a distribution box and then to a filter trench consisting of two parallel trenches with perforated pipe surrounded by sand and covered with gravel. Overflow from the filter trench went north to an outfall that drained into Tributary A of Twomile Canyon. In 1989, the drainline was cut and capped. Building 06-6 was demolished and removed in 2004; however, the septic tank, drainlines, distribution box, and filter trenches were left in place.

The 1993 RFI work plan for OU 1111 and the 1997 RFI report state that plumbing in buildings 06-5 and 06-8 also drained to SWMU 06-001(b). However, engineering drawings for these two buildings show no drains or points of discharge. In addition, an engineering drawing of the sanitary sewer system at TA-06 shows no waste lines coming from either building. Thus, engineering records indicate the information in the 1993 RFI work plan and 1997 report concerning discharges from these buildings to SWMU 06-001(b) is incorrect.

Consent Order investigations have not been performed at SWMU 06-001(b), and no decision-level data are available for this Site. Screening-level data are available from an RFI conducted in 1994.

The project map (Figure 132-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

132.2 Control Measures

Run-on from bare areas above the SMA is evident; however, there is no evidence of run-on to the outfall and outfall discharge area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 132-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 132-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00401010007	Seed and Wood Mulch	-	-	X	-	EC
E00402040008	Established Vegetation	-	X	X	-	B
E00403010006	Earthen Berm	X	-	-	X	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

132.3 Storm Water Monitoring

SWMU 06-001(b) is monitored within 2M-SMA-1.44. Following the installation of baseline control measures, a baseline storm water sample was collected on August 21, 2011 (Figure 132-2). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentration of 31.5 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 21.1 pCi/L (ATAL is 15 pCi/L).

Following the installation of enhanced control measures at 2M-SMA-1.44, corrective action storm water samples were was collected on September 12, 2013, and July 31, 2014 (Figure 132-2). Analytical results from this corrective action monitoring sample yielded the following TAL exceedances:

- Copper concentrations of 39.5 µg/L and 27.5 µg/L (MTAL is 4.3 µg/L),

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 06-001(b):

- Copper is known to be associated with industrial materials historically managed at the Site. Solutions containing copper were discharged to the septic system. Copper was detected above BVs in 5 of 15 shallow samples collected during the 1994 RFI at a maximum concentration 2 times the soil BV.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figure 132-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figure 132-2.

Monitoring location 2M-SMA-1.44 is located on Bandelier Tuff and no run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from locations containing sediment derived from Bandelier Tuff were compared with copper and gross-alpha MTAL and ATAL exceedances. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals. Copper is associated with trace minerals in the Bandelier Tuff as well.

- Copper—The copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43; the results from 2011, 2013, and 2014 are greater than this value.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L; the result from 2011 is less than this value.

All the analytical results for these samples are reported in the 2011, 2013 and 2014 Annual Reports.

132.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.44 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 132-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38664	5-30-2014
Storm Rain Event	BMP-39392	6-26-2014
Storm Rain Event	BMP-39758	7-18-2014
Storm Rain Event	BMP-40756	7-24-2014
Storm Rain Event	BMP-41013	8-7-2014
Storm Rain Event	BMP-43445	10-20-2014
Annual Erosion Evaluation	COMP-43247	10-7-2014
TAL Exceedance	COMP-44019	10-7-2014

No maintenance activities or facility modifications affecting discharge were conducted at 2M-SMA-1.44 in 2014.

132.5 Compliance Status

The Site associated with 2M-SMA-1.44 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 132-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 06-001(b)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after second TAL exceedance	Second initiation on 10-20-14. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 09-17-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

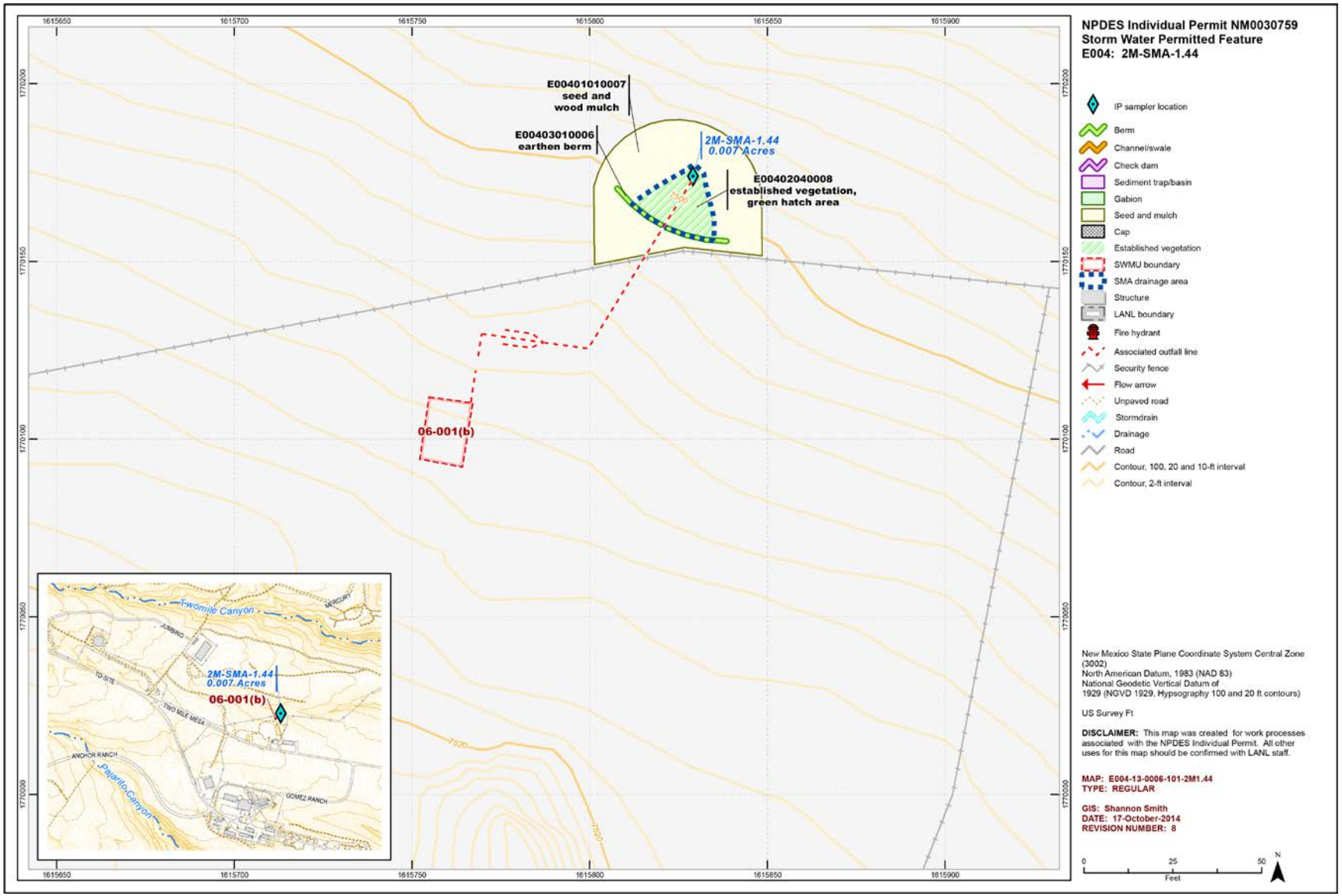
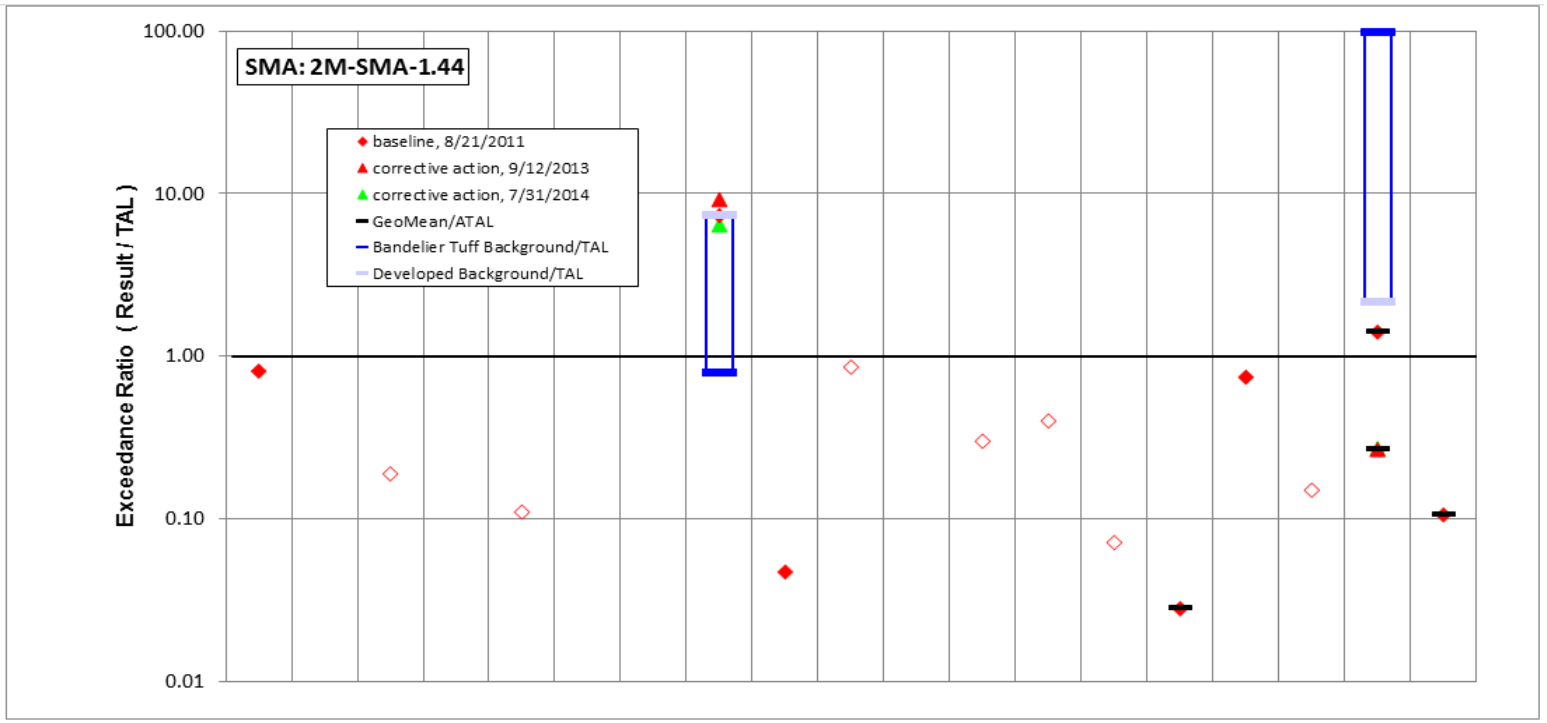


Figure 132-1 2M-SMA-1.44 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/31/2014 result	-	-	-	-	-	-	-	**27.6**	-	-	-	-	-	-	-	-	-	4.06	-
result / TAL	-	-	-	-	-	-	-	**6.4**	-	-	-	-	-	-	-	-	-	0.27	-
9/12/2013 result	-	-	-	-	-	-	-	**39.5**	-	-	-	-	-	-	-	-	-	4	-
result / TAL	-	-	-	-	-	-	-	**9.2**	-	-	-	-	-	-	-	-	-	0.27	-
8/21/2011 result	607	*1*	*1.7*	25.3	*0.11*	*2*	2.4	**31.5**	0.8	*0.66*	1.1	*1.5*	*0.2*	*0.45*	2.8	31.2	*0.002*	**21.1**	3.17
result / TAL	0.81	*0.002*	*0.19*	0.0051	*0.11*	*0.01*	0.0024	**7.3**	0.047	*0.86*	0.0065	*0.3*	*0.4*	*0.071*	0.028	0.74	*0.15*	**1.4**	0.11

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 132-2 Inorganic analytical results summary plot for 2M-SMA-1.44

133.0 2M-SMA-1.45: SWMU 06-006

133.1 Site Descriptions

One historical industrial activity area is associated with E005, 2M-SMA-1.45: Site 06-006.

SWMU 06-006 includes a 300- × 20-ft concrete pad and an asphalt parking lot between former buildings 06-5 and 06-6. Containers and electrical equipment were stored at this Site during the 1980s. The containers and equipment are no longer present, but stains were observed on the asphalt and nearby soil during the 1988 field survey. SWMU 06-006 drains into Tributary A of Twomile Canyon.

Consent Order investigations have not been performed at SWMU 06-006, and no decision-level data are available for this Site. Screening-level data are available from an RFI conducted in 1994.

The project map (Figure 133-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

133.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 133-1).

Enhanced controls were installed and certified on August 27, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 133-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00502040018	Established Vegetation	-	X	X	-	B
E00503010014	Earthen Berm	-	X	-	X	B
E00503010015	Earthen Berm	X	-	-	X	B
E00503010016	Earthen Berm	-	X	-	X	EC
E00503010017	Earthen Berm	-	X	-	X	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

133.3 Storm Water Monitoring

SWMU 06-006 is monitored within 2M-SMA-1.45. Following the installation of baseline control measures, a baseline storm water sample was collected on September 7, 2011 (Figure 133-2). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 398 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 06-006:

- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected during the 1994 RFI were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because these constituents are not associated with historical site activities.

Monitoring location 2M-SMA-1.45 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2011 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2011 Annual Report.

133.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.45 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 133-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38665	6-4-2014
Storm Rain Event	BMP-39393	6-26-2014
Storm Rain Event	BMP-39759	7-14-2014
Storm Rain Event	BMP-40308	7-24-2014
Storm Rain Event	BMP-41014	8-7-2014
Storm Rain Event	BMP-43446	10-20-2014
Annual Erosion Evaluation	COMP-43298	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 133-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-38665	Debris removed from Site at inspection.	6-4-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-39393	Debris removed from Site at inspection.	6-26-2014	0 day(s)	Maintenance conducted as soon as practicable.

133.5 Compliance Status

The Site associated with 2M-SMA-1.45 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 133-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 06-006	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 08-21-2012.

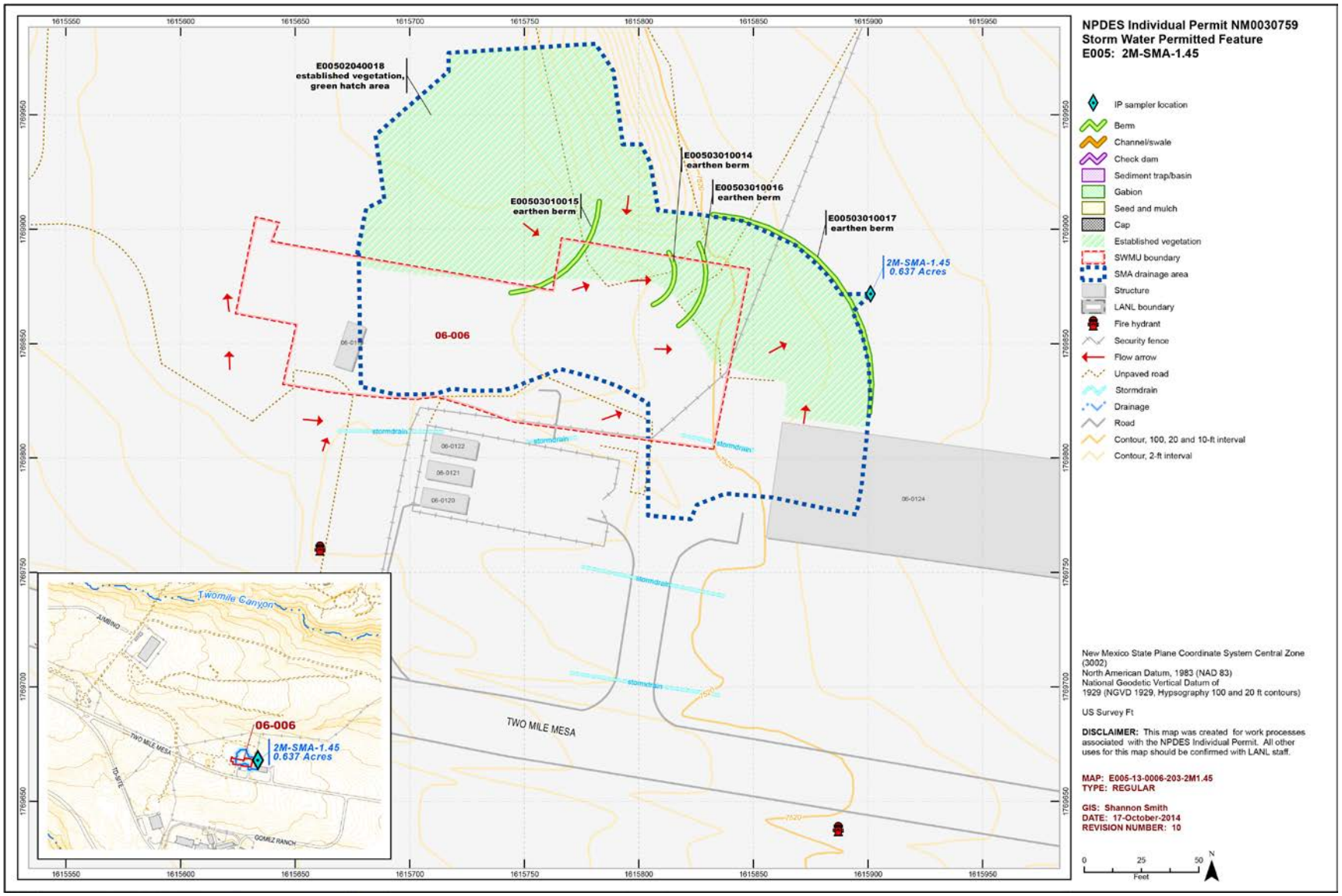
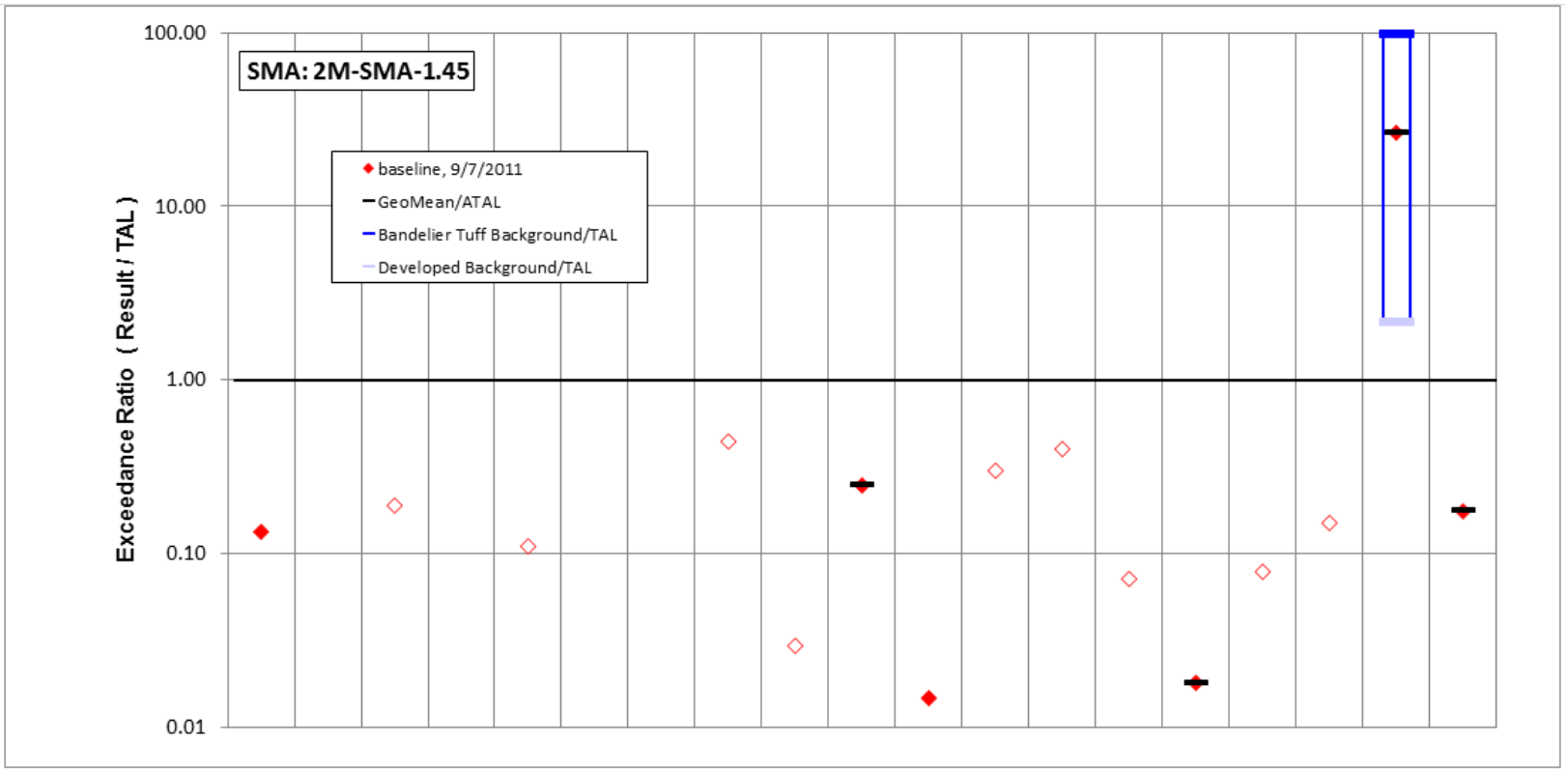


Figure 133-1 2M-SMA-1.45 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/7/2011 result	100	*1*	*1.7*	43.2	*0.11*	*2*	4.3	*1.9*	*0.5*	0.19	2.5	*1.5*	*0.2*	*0.45*	1.8	*3.3*	*0.002*	**398**	5.25
result / TAL	0.13	*0.002*	*0.19*	0.0086	*0.11*	*0.01*	0.0043	*0.44*	*0.029*	0.25	0.015	*0.3*	*0.4*	*0.071*	0.018	*0.079*	*0.15*	**27**	0.18

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 133-2 Inorganic analytical results summary plot for 2M-SMA-1.45

134.0 2M-SMA-1.5: SWMU 22-014(b)

134.1 Site Descriptions

One historical industrial activity area is associated with E006, 2M-SMA-1.5: Site 22-014(b).

SWMU 22-014(b) consists of an inactive explosives sump and outfall that serves rooms 101 through 113 in laser laboratory building 22-0034 at TA-22. The concrete sump is located on the northeast corner of building 22-0034 and is 4 × 2 × 3 ft deep with an inset aluminum tank. Building 22-0034 was completed in 1953 and previously housed a chemistry laboratory, an explosives laboratory, and a photographic laboratory. The sump effluent drained north to an outfall located in a marshy area in the upper part of Tributary B of Twomile Canyon until 1994 when the sump outlet was plugged. The sump has not been used since 1994.

Consent Order investigations have not been performed at SWMU 22-014(b); no decision-level data are available for this Site.

The project map (Figure 134-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

134.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 134-1).

Table 134-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00602040005	Established Vegetation	-	X	X	-	B
E00603060006	Straw Wattle	X	-	-	X	B
E00604040002	Culvert	X	-	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

134.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at 2M-SMA-1.5. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

134.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.5 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 134-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38666	5-29-2014
Storm Rain Event	BMP-39394	6-26-2014
Storm Rain Event	BMP-39760	7-17-2014
Storm Rain Event	BMP-40758	7-24-2014
Storm Rain Event	BMP-41015	8-8-2014
Storm Rain Event	BMP-43447	10-20-2014
Annual Erosion Evaluation	COMP-43299	10-17-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 134-3 Maintenance during 2014

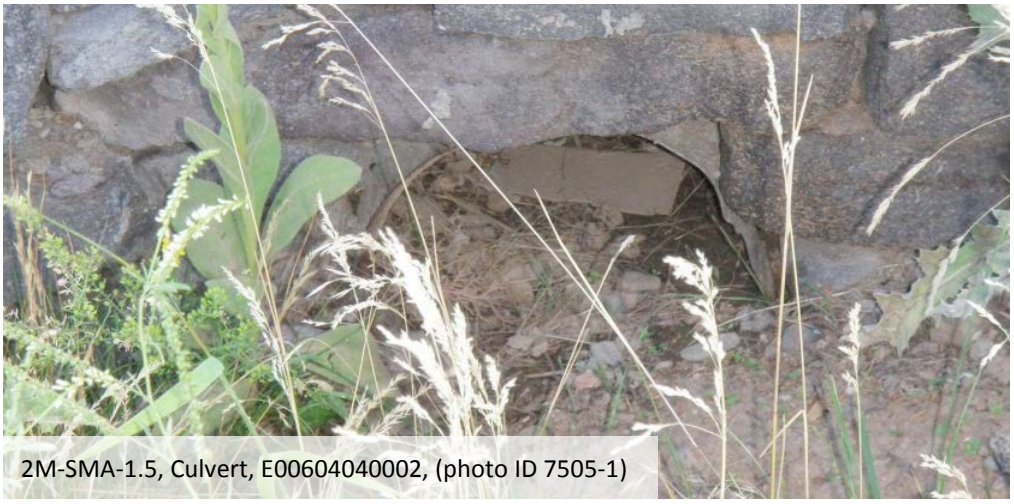
Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39394	Debris removed from Site during inspection.	6-26-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-43938	Installed new wattle directly upgradient of existing wattle E00603060004 as a replacement.	11-5-2014	19 day(s)	Maintenance conducted as soon as practicable.

134.5 Compliance Status

The Site associated with 2M-SMA-1.5 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 134-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 22-014(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



2M-SMA-1.5, Culvert, E00604040002, (photo ID 7505-1)

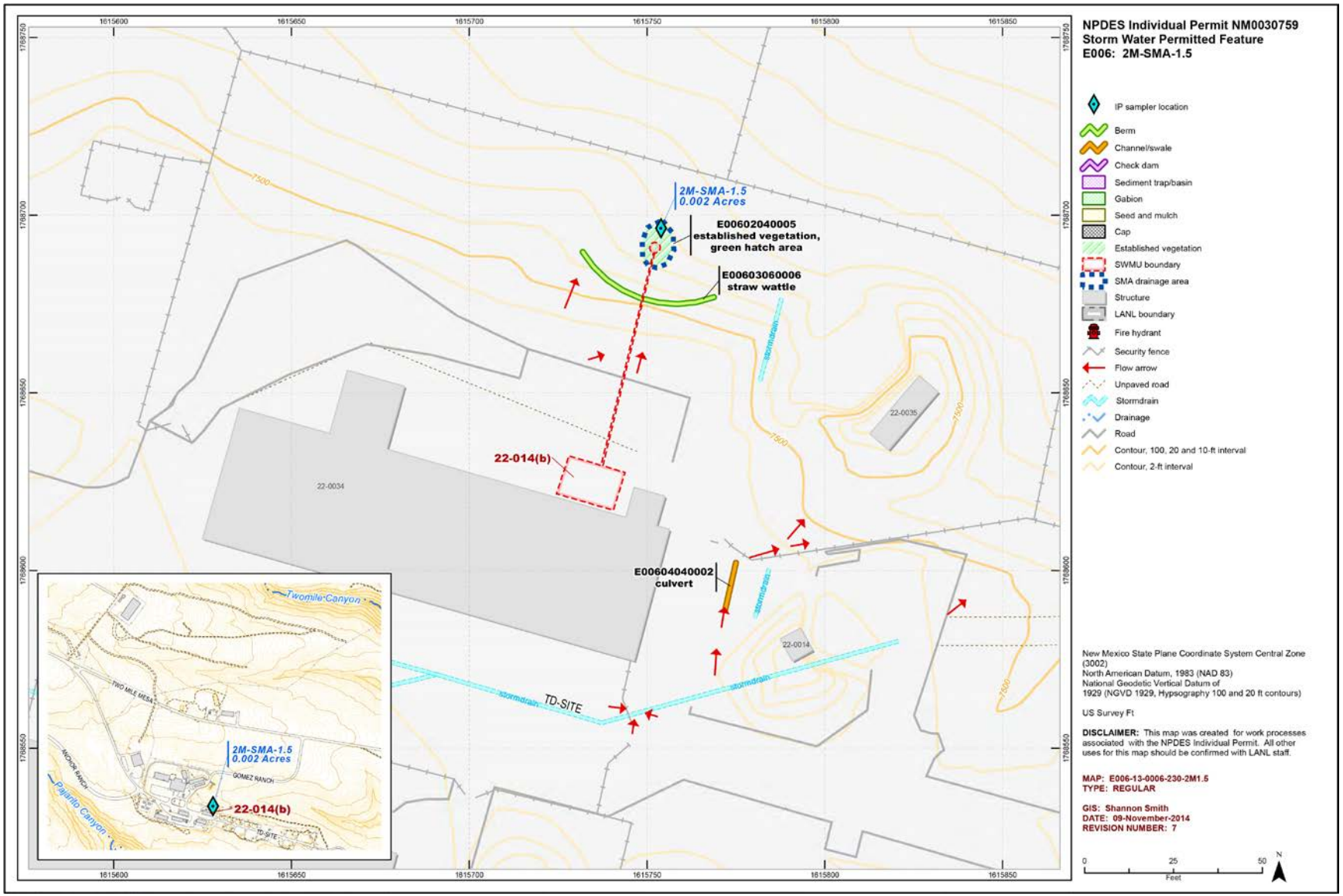


Figure 134-1 2M-SMA-1.5 location map

135.0 2M-SMA-1.65: SWMU 40-005

135.1 Site Descriptions

One historical industrial activity area is associated with E007, 2M-SMA-1.65: Site 40-005.

SWMU 40-005 is an inactive sump (structure 22-0075), located at the northwest corner of building 40-41 (formerly building 22-41), and the associated drainline and outfall. Building 40-41 was constructed in 1952 and was used to perform explosives-grinding operations. Before it was incorporated into TA-40, building 40-41 and the sump were part of TA-22. Currently, the building is used to prepare for explosive tests conducted at TA-40. The sump, built in 1961, is 4 ft 6 in. × 6 ft 4 in. × 5 ft deep and constructed of concrete with an inset aluminum baffle tank. Wastewater from a single sink drain discharged to the sump. Originally, the sump discharged via a drainline to a former NPDES-permitted outfall (EPA 05A 154) that flowed into Tributary B of Twomile Canyon. In 1994, the sump outlet port was capped, and in December 1995 the outfall was removed from the NPDES permit. The sump has been removed from service and filled with concrete. Possible contaminants in the system were explosives and solvents.

Consent Order investigations have not been performed at SWMU 40-005, but RFIs were performed in 1994 and 1996. Data from the 1994 RFI are screening-level data, and data from the 1996 RFI are decision-level data.

The project map (Figure 135-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

135.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 135-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 135-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00702040011	Established Vegetation	-	X	X	-	B
E00703010004	Earthen Berm	X	-	-	X	CB
E00703010005	Earthen Berm	-	X	-	X	CB
E00703010010	Earthen Berm	X	-	-	X	EC
E00703060012	Straw Wattle	-	X	-	X	B
E00706010006	Rock Check Dam	X	-	-	X	EC
E00706010007	Rock Check Dam	X	-	-	X	EC
E00706010008	Rock Check Dam	X	-	-	X	EC
E00706010009	Rock Check Dam	X	-	-	X	EC

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

135.3 Storm Water Monitoring

SWMU 40-005 is monitored within 2M-SMA-1.65. Following the installation of baseline control measures, a baseline storm water sample was collected on August 21, 2011 (Figure 135-2). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 220 pCi/L (ATAL is 15 pCi/L).

Following the installation of enhanced control measures at 2M-SMA-1.65, a corrective action storm water sample was collected on September 2, 2013 (Figure 135-2). Analytical results from this corrective action monitoring sample yielded the following TAL exceedances:

- Gross-alpha activity of 22.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 40-005:

- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected during the 1994 and 1996 RFIs were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides since these constituents are not associated with historical site activities.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 135-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 135-2.

2M-SMA-1.65, Earthen Berm, E00703010004 (photo ID 23591-1)

Monitoring location 2M-SMA-1.65 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2011 gross-alpha result is between these two values, while the result from 2013 is below both values.

All the analytical results for these samples are reported in the 2011 and 2013 Annual Reports.

135.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.65 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 135-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38667	5-29-2014
Storm Rain Event	BMP-39395	6-30-2014
Storm Rain Event	BMP-39761	7-15-2014
Storm Rain Event	BMP-40310	7-28-2014
Storm Rain Event	BMP-41402	8-14-2014
Storm Rain Event	BMP-43448	10-22-2014
Annual Erosion Evaluation	COMP-43196	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 135-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-34692	Repaired berm E00703010004 by adding clean fill to raise height approx. 6 in. and compacting. Applied seed and matting.	4-1-2014	260 day(s)	Maintenance was scheduled to be completed in late summer of 2013 and was delayed by staffing resource limitations. Site conditions changed as a result of the September 2013 1000-yr rain event, and maintenance was delayed by the Federal Government shutdown and the onset of winter weather conditions.
BMP-40135	Added straw wattle to east end of berm E00703010005 to extend berm end 5 ft.	7-18-2014	18 day(s)	Maintenance conducted as soon as practicable.
BMP-41348	Repaired wattle near berm E00703010005.	8-7-2014	10 day(s)	Maintenance conducted as soon as practicable.

135.5 Compliance Status

The Site associated with 2M-SMA-1.65 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 135-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-005	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 07-20-2012.

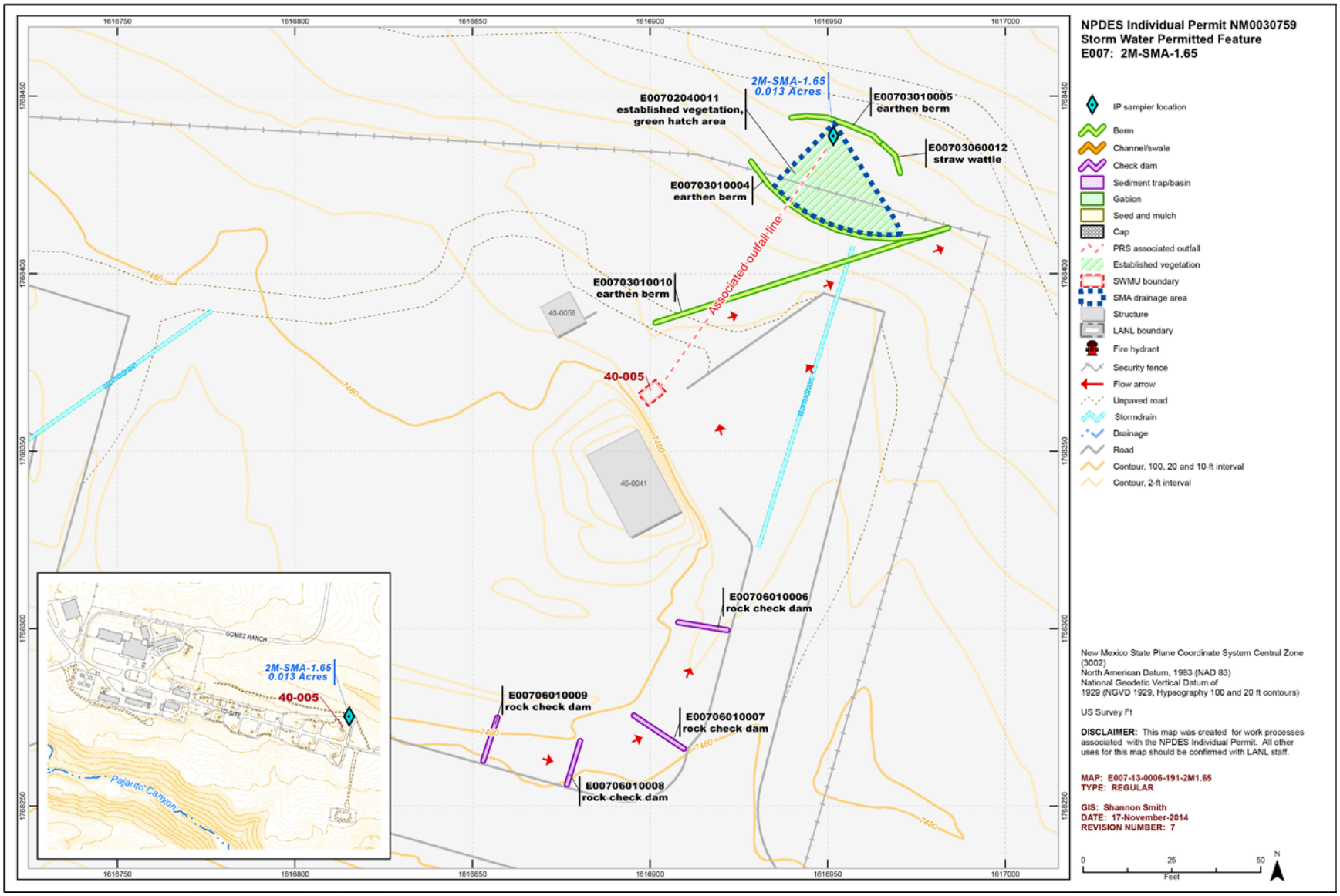
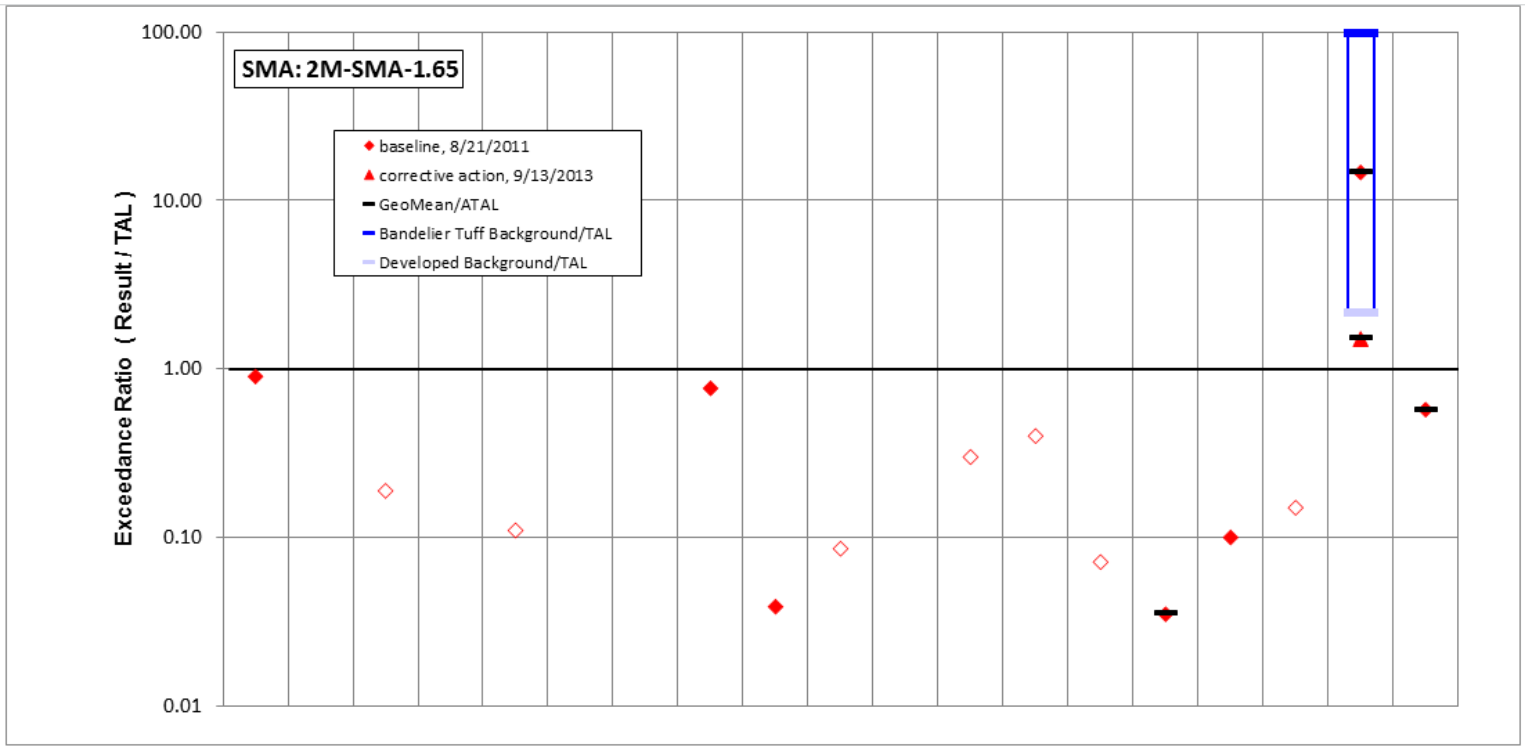


Figure 135-1 2M-SMA-1.65 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**22.6**	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**1.5**	-
8/21/2011 result	676	*1*	*1.7*	*15*	*0.11*	*2*	1	3.3	0.66	*0.066*	0.96	*1.5*	*0.2*	*0.45*	3.5	4.2	*0.002*	**220**	17.2
result / TAL	0.9	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.001	0.77	0.039	*0.086*	0.0056	*0.3*	*0.4*	*0.071*	0.035	0.1	*0.15*	**15**	0.57

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 135-2 Inorganic analytical results summary plot for 2M-SMA-1.65

136.0 2M-SMA-1.67: SWMU 06-003(h)

136.1 Site Descriptions

One historical industrial activity area is associated with E008, 2M-SMA-1.67: Site 06-003(h).

SWMU 06-003(h) is a former firing site located north of Twomile Mesa Road at TA-06 where defective explosive lenses manufactured for use in the Fat Man implosion weapon were destroyed by detonation in 1945. Some of the lenses were described as consisting of the explosive Baratol, which contains barium and TNT. This Site was identified as distinct from MDA F and was added as a separate Site to the Laboratory's hazardous waste permit in 1994.

This SWMU was investigated during a 1994 RFI; however, no sampling has been conducted under the Consent Order, and no decision-level data are available.

The project map (Figure 136-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

136.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 136-1).

Table 136-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00801010006	Seed and Wood Mulch	-	-	X	-	CB
E00802040016	Established Vegetation	-	X	X	-	B
E00803010014	Earthen Berm	-	X	-	X	B
E00803010015	Earthen Berm	-	X	-	X	B
E00803060009	Straw Wattle	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

136.3 Storm Water Monitoring

SWMU 06-003(h) is monitored within 2M-SMA-1.67. Following the installation of baseline control measures, a baseline storm water sample was collected on September 15, 2011 (Figures 136-2 and 136-3). Analytical results from this sample yielded no TAL exceedances. The HE sample collected on September 15, 2011, was extracted or analyzed beyond the appropriate holding time and thus may have a low bias and potentially under report the concentration of HE in this sample. Consequently, the results for this analysis cannot be used to confirm that no pollutants of concern are present at concentrations greater than the applicable TAL values. Therefore, 2M-SMA-1.67 will remain in the baseline monitoring extended phase until a viable baseline confirmation monitoring sample can be collected and analyzed with fully usable results.

136.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.67 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 136-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38668	6-4-2014
Storm Rain Event	BMP-39396	6-26-2014
Storm Rain Event	BMP-39762	7-14-2014
Storm Rain Event	BMP-40311	7-24-2014
Storm Rain Event	BMP-41017	8-7-2014
Storm Rain Event	BMP-43449	10-20-2014
Annual Erosion Evaluation	COMP-43300	10-7-2014

No maintenance activities or facility modifications affecting discharge were conducted at 2M-SMA-1.67 in 2014.

136.5 Compliance Status

The Site associated with 2M-SMA-1.67 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 136-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 06-003(h)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

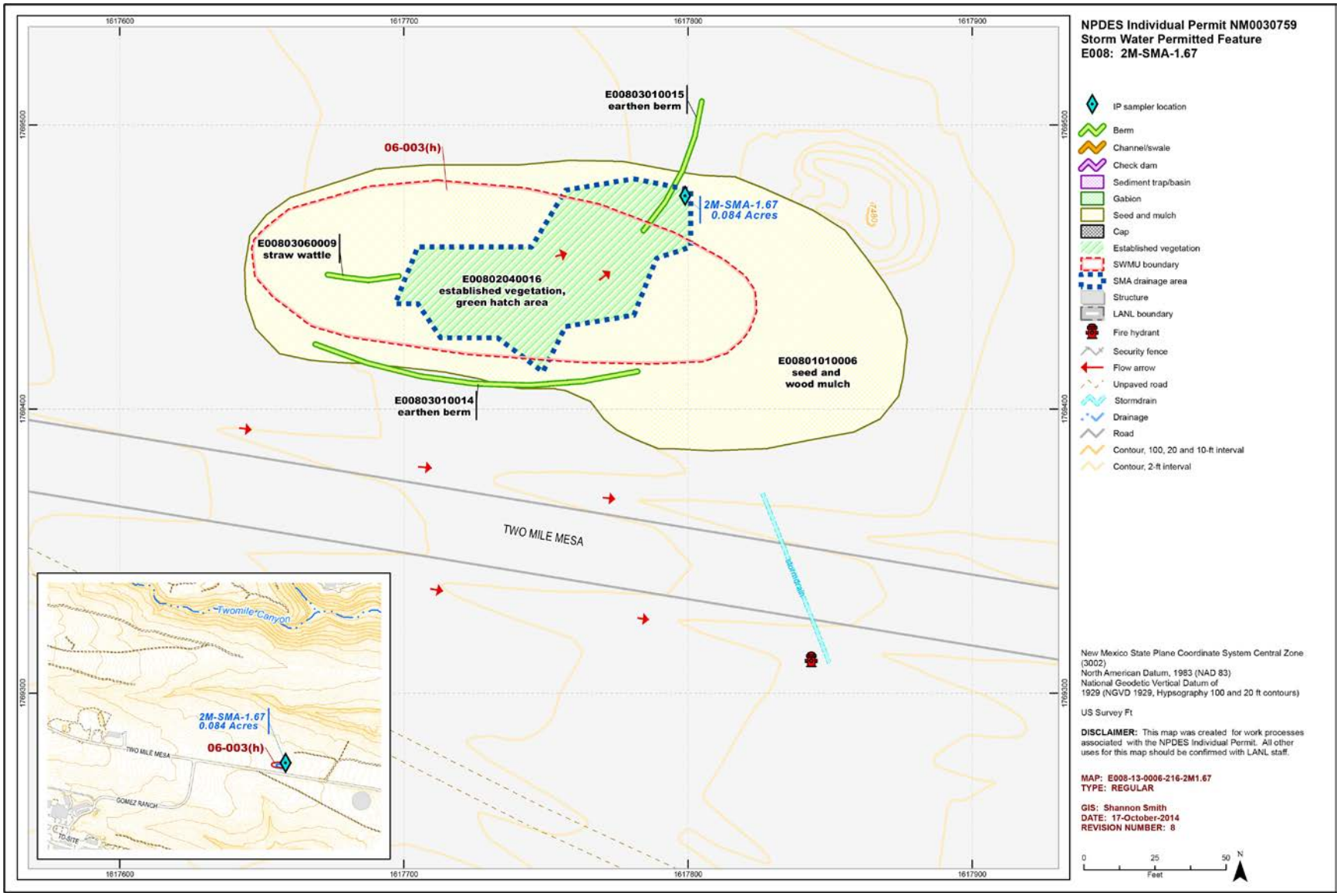
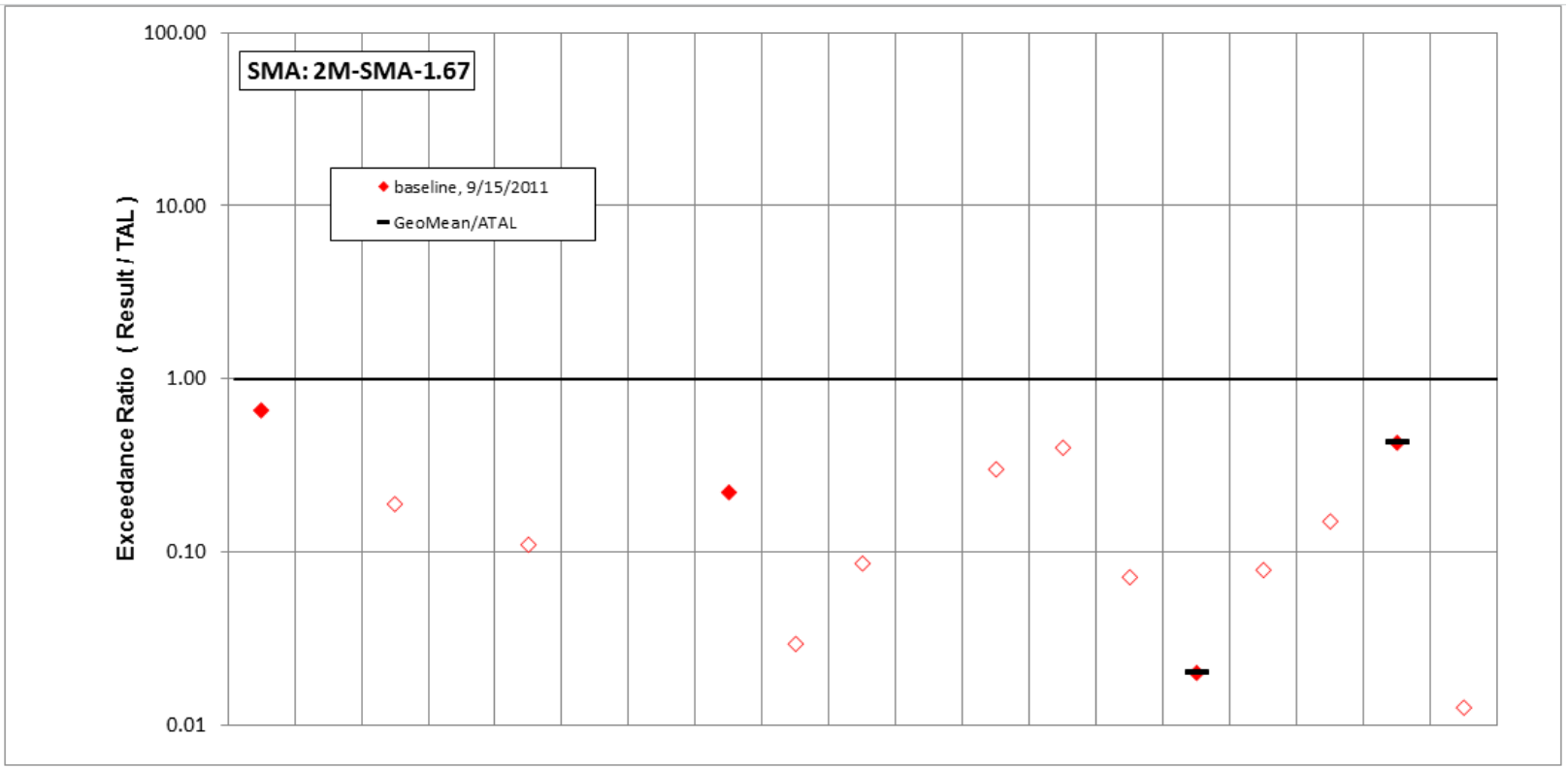


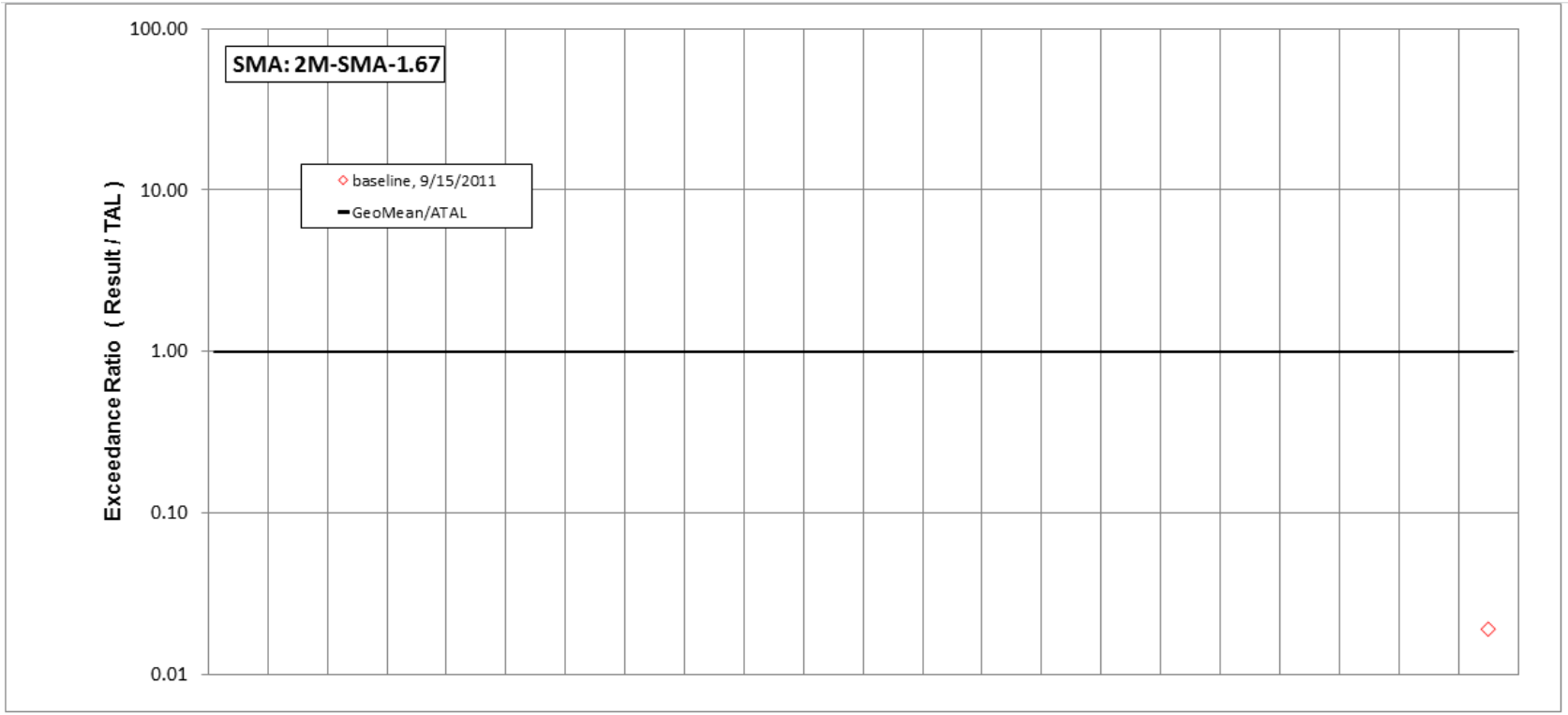
Figure 136-1 2M-SMA-1.67 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/15/2011 result	493	*1*	*1.7*	*15*	*0.11*	*2*	*3.1*	0.95	*0.5*	*0.066*	0.77	*1.5*	*0.2*	*0.45*	2	*3.3*	*0.002*	6.41	*0.378*
result / TAL	0.66	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	*0.003*	0.22	*0.029*	*0.086*	0.0045	*0.3*	*0.4*	*0.071*	0.02	*0.079*	*0.15*	0.43	*0.013*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 136-2 Inorganic analytical results summary plot for 2M-SMA-1.67



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-	-	ATAL
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
9/15/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.381*	-	-	-	*0.381*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.002*	-	-	-	*0.019*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 136-3 Organic analytical results summary plot for 2M-SMA-1.67

137.0 2M-SMA-1.7: SWMU 03-055(a)

137.1 Site Descriptions

One historical industrial activity area is associated with E009, 2M-SMA-1.7: Site 03-055(a).

SWMU 03-055(a) is an outfall located approximately 50 ft south of the Van de Graaff facility (building 03-16). Roof drains and one floor drain in a generator room (room 68) discharged to the outfall, which is located at the edge of the mesa into Twomile Canyon. The outfall currently receives only storm water from Van de Graaff building roof drains. The Van de Graaff facility was constructed in 1952. The facility has been inactive since the late 1990s; radiological D&D activities began in 2005.

Consent Order or other environmental investigations have not been performed at SWMU 03-055(a), and no investigation data are available for this Site.

The project map (Figure 137-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

137.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 137-1).

Enhanced controls were installed and certified on August 27, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 137-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E00902040009	Established Vegetation	-	X	X	-	B
E00903010008	Earthen Berm	X	-	-	X	EC
E00903120005	Rock Berm	-	X	-	X	CB

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

137.3 Storm Water Monitoring

SWMU 03-055(a) is monitored within 2M-SMA-1.7. Following the installation of baseline control measures, two baseline storm water samples were collected on August 3, 2011, and September 9, 2011 (Figure 137-2). Analytical results from these samples yielded the following TAL exceedance:

- Copper concentration of 11.4 µg/L (MTAL is 4.3 µg/L).

Following the installation of enhanced control measures at 2M-SMA-1.7, corrective action storm water samples were collected on July 8, 2014, and August 26, 2014 (Figure 137-2). Analytical results from the July 8, 2014, corrective action monitoring sample yielded the following TAL exceedance:

- Copper concentrations of 4.6 µg/L (MTAL is 4.3 µg/L),

These exceedances were evaluated by comparing the results from soil samples collected at the Sites during Consent Order investigations with the storm water TAL exceedances to determine whether the exceedance may be related to historical industrial activities. The discussion is organized by Site and analyte.

SWMU 03-055(a):

- Copper is not known to be associated with industrial materials historically managed at the Site.

2M-SMA-1.7, Rock Berm, E00903120005 (photo ID 7517-2)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 137-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 137-2.

Monitoring location 2M-SMA-1.7 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 and 2014 are between these values.

All the analytical results for these samples are reported in the 2011 and 2014 Annual Reports.

137.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.7 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 137-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38669	5-30-2014
Storm Rain Event	BMP-39397	6-30-2014
Storm Rain Event	BMP-39763	7-15-2014
Storm Rain Event	BMP-40312	7-28-2014
Storm Rain Event	BMP-41404	8-12-2014
Storm Rain Event	BMP-43450	10-20-2014
Annual Erosion Evaluation	COMP-43679	10-21-2014
TAL Exceedance	COMP-43195	10-21-2014

No maintenance activities or facility modifications affecting discharge were conducted at 2M-SMA-1.7 in 2014.

137.5 Compliance Status

The Site associated with 2M-SMA-1.7 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 137-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 03-055(a)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after second TAL exceedance	Second initiation on 9-29-2014. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

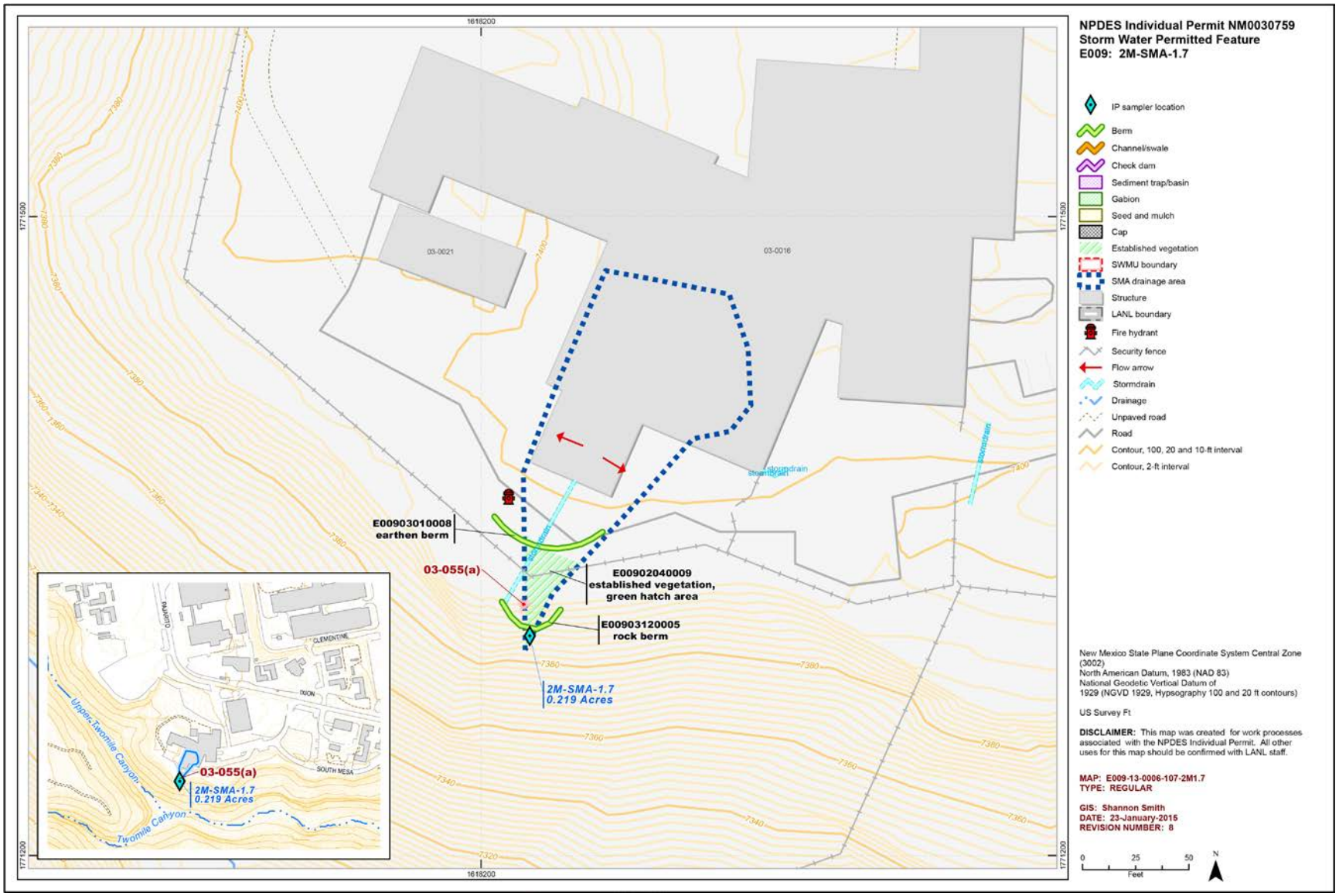
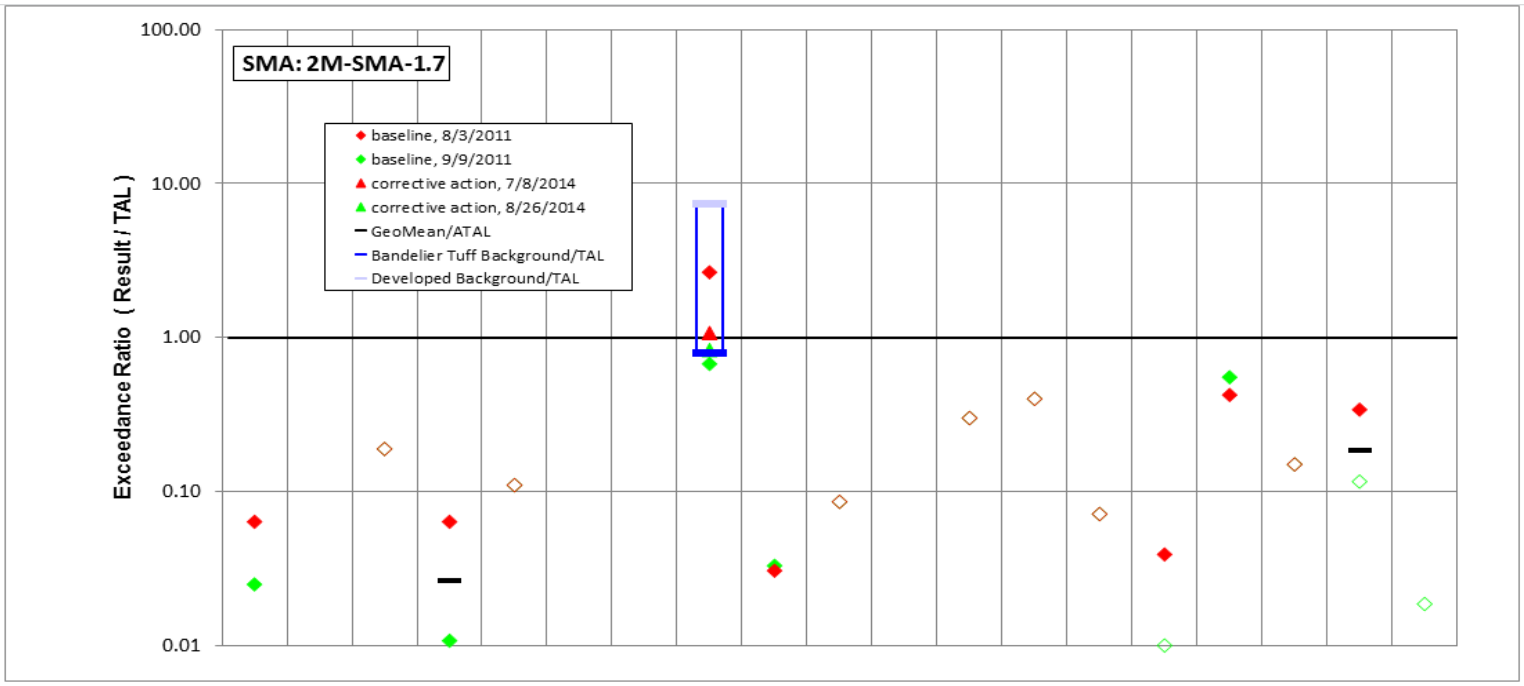


Figure 137-1 2M-SMA-1.7 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/26/2014 result	-	-	-	-	-	-	-	3.57	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	0.83	-	-	-	-	-	-	-	-	-	-	-
7/8/2014 result	-	-	-	-	-	-	-	**4.6**	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	**1.1**	-	-	-	-	-	-	-	-	-	-	-
9/9/2011 result	18.7	*1*	*1.7*	53.7	*0.11*	*2*	2	2.9	0.56	*0.066*	*0.5*	*1.5*	*0.2*	*0.45*	*1*	23.2	*0.002*	*1.74*	*0.558*
result / TAL	0.025	*0.002*	*0.19*	0.011	*0.11*	*0.01*	0.002	0.67	0.033	*0.086*	*0.003*	*0.3*	*0.4*	*0.071*	*0.01*	0.55	*0.15*	*0.12*	*0.019*
8/3/2011 result	47.7	*1*	*1.7*	318	*0.11*	*2*	*1*	**11.4**	0.52	*0.066*	1.6	*1.5*	*0.2*	*0.45*	3.9	17.8	*0.002*	5.1	*0.037*
result / TAL	0.064	*0.002*	*0.19*	0.064	*0.11*	*0.01*	*0.001*	**2.7**	0.031	*0.086*	0.0094	*0.3*	*0.4*	*0.071*	0.039	0.42	*0.15*	0.34	*0.001*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 137-2 Inorganic analytical results summary plot for 2M-SMA-1.7

138.0 2M-SMA-1.8: SWMU 03-001(k)

138.1 Site Descriptions

One historical industrial activity area is associated with E010, 2M-SMA-1.8: Site 03-001(k).

SWMU 03-001(k) is the location of a former less-than-90-day hazardous waste accumulation area located on the south side of building 03-16, the inactive Van de Graaff Building. SWMU 03-001(k) consists of two level asphalt areas, each measuring approximately 20 × 30 ft. The areas are located next to the doors on the south side of the building. Concrete pads located in front of each doorway are bounded by asphalt paving on three sides. SWMU 03-001(k) was used primarily as a storage yard for electrical equipment designated for salvage. Drums of vacuum oil, tritium-contaminated waste, and used solvents from experiments conducted in the building were also stored in this area. A 1986 field inspection of SWMU 03-001(k) noted oily unmarked drums where new vacuum oil for experiments was stored. Asphalt chip samples collected in 1989 indicated the presence of PCBs at a concentration of 7.8 mg/kg. A 1993 inspection found no stains on the asphalt and concrete pad.

Consent Order investigations have not been performed at SWMU 03-001(k), and no decision-level data are available for this Site. Soil and asphalt-chip sampling was performed in 2001 to support a previous request for NFA status for this Site. Data from the 2001 sampling are screening-level data.

The project map (Figure 138-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

138.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 138-1).

Table 138-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01002040010	Established Vegetation	-	X	X	-	B
E01003040003	Asphalt Berm	X	-	-	X	CB
E01006010004	Rock Check Dam	-	X	-	X	CB
E01006010005	Rock Check Dam	-	X	-	X	CB
E01006010006	Rock Check Dam	-	X	-	X	CB
E01006010007	Rock Check Dam	-	X	-	X	CB
E01008030008	Concrete/Asphalt Cap	X	-	X	-	EC
E01008030009	Concrete/Asphalt Cap	X	-	X	-	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

138.3 Storm Water Monitoring

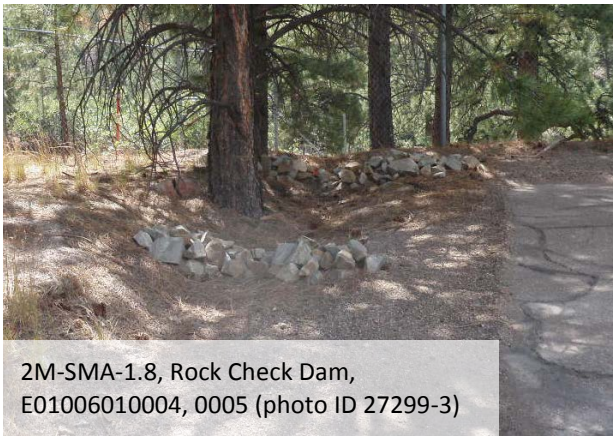
SWMU 03-001(k) is monitored within 2M-SMA-1.8. Following the installation of baseline control measures, two baseline storm water samples were collected on August 4, 2011, and September 9, 2011 (Figure 138-2). Analytical results from these samples yielded the following TAL exceedances:

- Copper concentrations of 6.6 µg/L and 13.2 µg/L (MTAL is 4.3 µg/L) and
- Zinc concentration of 71.8 µg/L (MTAL is 42 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 03-001(k):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was detected above BV in 1 of 4 shallow soil samples collected at the Site in 2001 with a maximum concentration 2 times the soil BV.
- Zinc is not known to be associated with industrial materials historically managed at the Site. Zinc was detected above BV in 1 of 4 shallow soil samples collected at the Site in 2001 with a maximum concentration 1.2 times the soil BV.



2M-SMA-1.8, Rock Check Dam, E01006010004, 0005 (photo ID 27299-3)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 138-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 138-2.

Monitoring location 2M-SMA-1.8 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Metals including copper and zinc are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 are between these values.
- Zinc—The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediment derived from Bandelier Tuff is 109 µg/L. The zinc result from 2011 is less than both of these values.

All the analytical results for these samples are reported in the 2011 Annual Report.

138.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-1.8 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 138-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38670	5-30-2014
Storm Rain Event	BMP-39398	6-30-2014
Storm Rain Event	BMP-39764	7-15-2014
Storm Rain Event	BMP-40313	7-28-2014
Storm Rain Event	BMP-41405	8-12-2014
Storm Rain Event	BMP-43451	10-20-2014
Annual Erosion Evaluation	COMP-43680	10-21-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 138-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39894	Removed needle cast from all rock check dams. Placed needle cast outside channel.	7-15-2014	15 day(s)	Maintenance conducted as soon as practicable.

138.5 Compliance Status

The Site associated with 2M-SMA-1.8 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 138-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 03-001(k)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

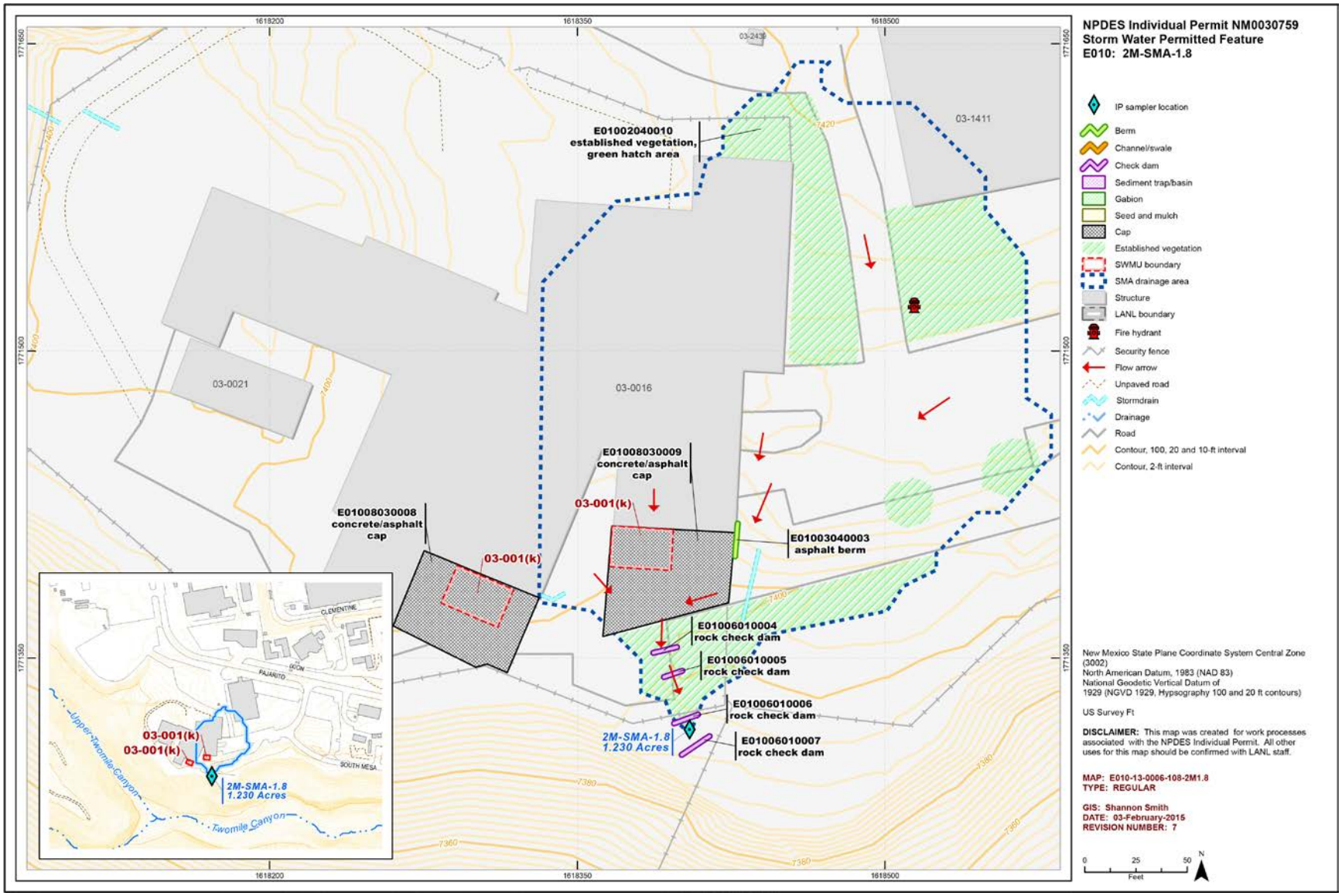
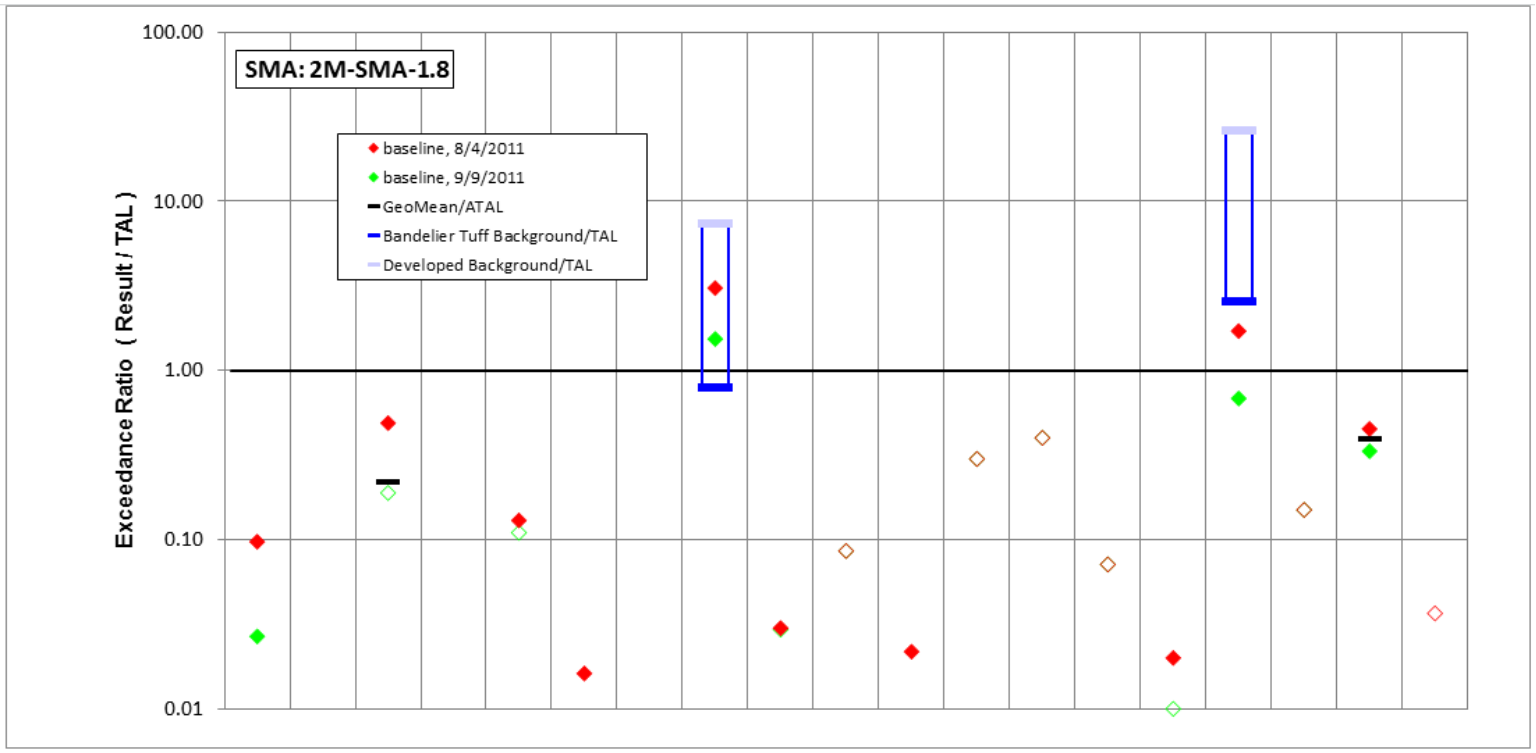


Figure 138-1 2M-SMA-1.8 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	**Zinc**	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/9/2011 result	20.1	*1*	*1.7*	*15*	*0.11*	*2*	2.3	**6.6**	*0.5*	*0.066*	1.2	*1.5*	*0.2*	*0.45*	*1*	28.7	*0.002*	5	*0.175*
result / TAL	0.027	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.0023	**1.5**	*0.029*	*0.086*	0.0071	*0.3*	*0.4*	*0.071*	*0.01*	0.68	*0.15*	0.33	*0.006*
8/4/2011 result	72.9	*1*	4.4	*15*	0.13	3.4	*1*	**13.2**	0.51	*0.066*	3.7	*1.5*	*0.2*	*0.45*	2	**71.8**	*0.002*	6.77	*1.1*
result / TAL	0.097	*0.002*	0.49	*0.003*	0.13	0.016	*0.001*	**3.1**	0.03	*0.086*	0.022	*0.3*	*0.4*	*0.071*	0.02	**1.7**	*0.15*	0.45	*0.037*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 138-2 Inorganic analytical results summary plot for 2M-SMA-1.8

139.0 2M-SMA-1.9: SWMU 03-003(a)

139.1 Site Descriptions

One historical industrial activity area is associated with E011, 2M-SMA-1.9: Site 03-003(a).

SWMU 03-003(a) is a former outdoor storage area used for temporary storage of electrical equipment destined for salvage, some of which contained oil. The storage area was located on the north and west sides of building 03-0218. The northern portion of the storage area consisted of the asphalt paving next to the north side of building 03-0218. The western portion of the storage area consisted of a 44-ft-long × 27-ft-wide concrete pad surrounded by an 18- to 20-in.-high concrete curb. The concrete pad and curb are bounded on three sides by soil covered with gravel. A 30-ft-wide × 60-ft-long area of asphalt paving abuts the south end of the concrete curb. During the 1986 CEARP survey, six 55-gal. drums were observed stored next to capacitors on asphalt in the storage area on the north side of building 03-0218; staining was visible on the asphalt beneath the drums. Capacitors and transformers labeled as containing less than 50 ppm PCBs were stored in the west portion of the former storage area. During a 1989 inspection, leaking capacitors, drums of epoxy, one or two batteries, and vacuum pumps were observed in the western portion of the storage area. In the early 1990s, a small area of oil-stained asphalt was excavated to a depth of 3 in. around the storm drain located in the western portion of SWMU 03-003(a). Use of the SWMU 03-003(a) storage area ceased in the early 1990s.

Consent Order sampling has not yet been conducted at SWMU 03-003(a); no decision-level data are available for this Site.

The project map (Figure 139-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

139.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 139-1).

Table 139-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01103090001	Curbing	X	-	-	X	CB
E01103100003	Gravel Bags	-	X	-	X	CB
E01103100004	Gravel Bags	X	-	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

139.3 Storm Water Monitoring

SWMU 03-003(a) is monitored within 2M-SMA-1.9. Following the installation of baseline control measures, a baseline storm water sample was collected on July 11, 2012 (Figure 139-2). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentration of 24.9 µg/L (MTAL is 4.3 µg/L) and
- Zinc concentration of 314 µg/L (MTAL is 42 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 03-003(a):

- Copper is not known to have been associated with industrial materials historically managed at this Site. Copper was not detected above the soil BV in shallow 1994 RFI soil samples; the 1994 RFI data are screening level only.
- Zinc is not known to be associated with industrial materials historically managed at the Site. Zinc was detected above the soil BV in 1 of 2 shallow soil samples with a maximum concentration 1.1 times the soil BV but less than the maximum soil background concentration. The 1994 RFI data are screening level only.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 139-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 139-2.

Monitoring location 2M-SMA-1.9 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediments derived from Bandelier Tuff. Metals including copper and zinc are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2012 is greater than both of these values.
- Zinc—The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediments derived from Bandelier Tuff is 109 µg/L. The zinc result from 2012 is between these values.

All the analytical results for these samples are reported in the 2012 Annual Report.

139.4 Inspections and Maintenance

RG121.9 recorded four storm events at 2M-SMA-1.9 during the 2014 season. These rain events triggered two post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 139-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39779	7-21-2014
Storm Rain Event	BMP-41192	8-12-2014
Annual Erosion Evaluation	COMP-43681	10-21-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 139-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-43877	Replaced missing gravel bags in E01103100002.	10-27-2014	6 day(s)	Maintenance conducted as soon as practicable.

139.5 Compliance Status

The Site associated with 2M-SMA-1.9 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 139-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 03-003(a)	Corrective Action Initiated	Corrective Action Initiated	Initiated 08-23-2012. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

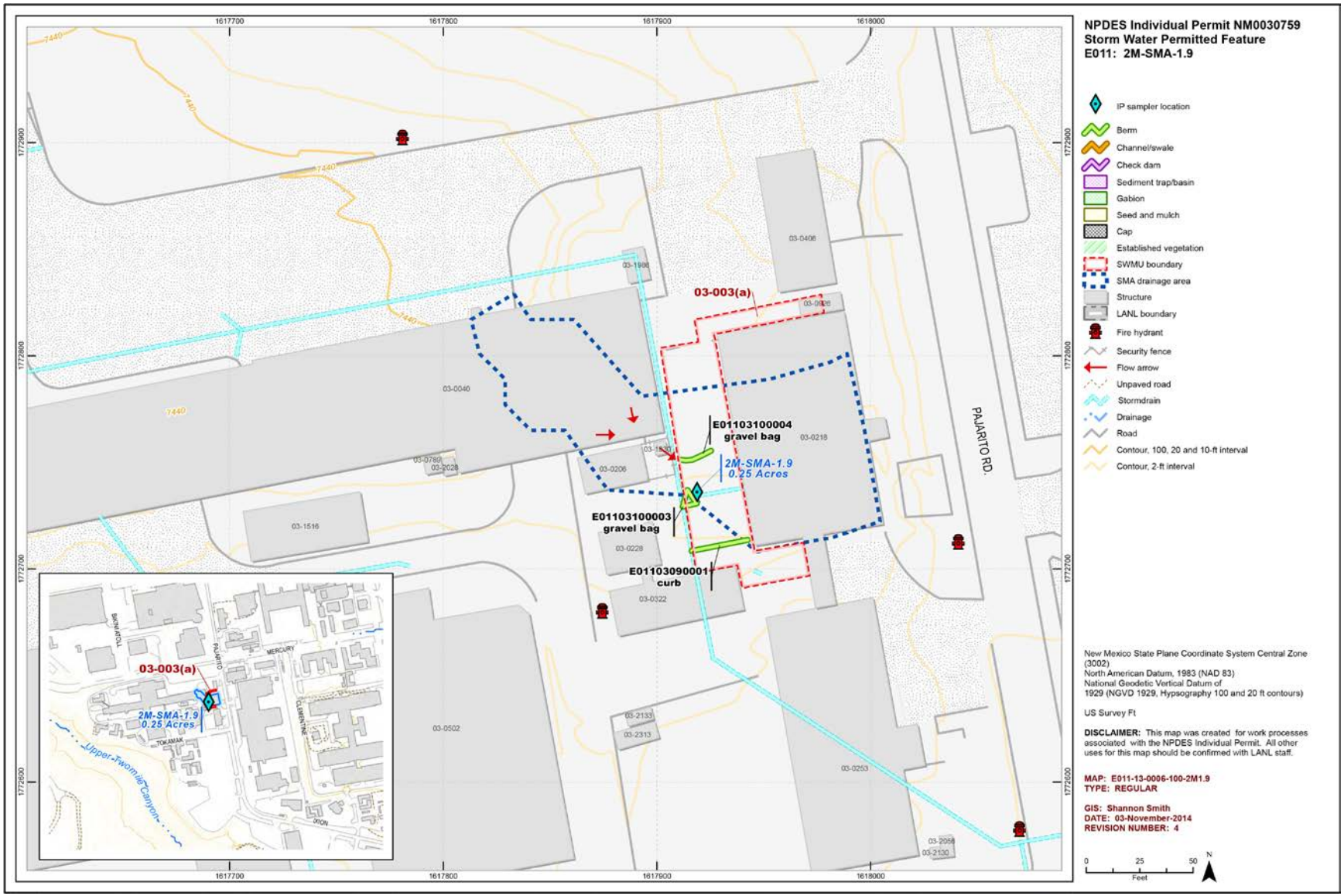
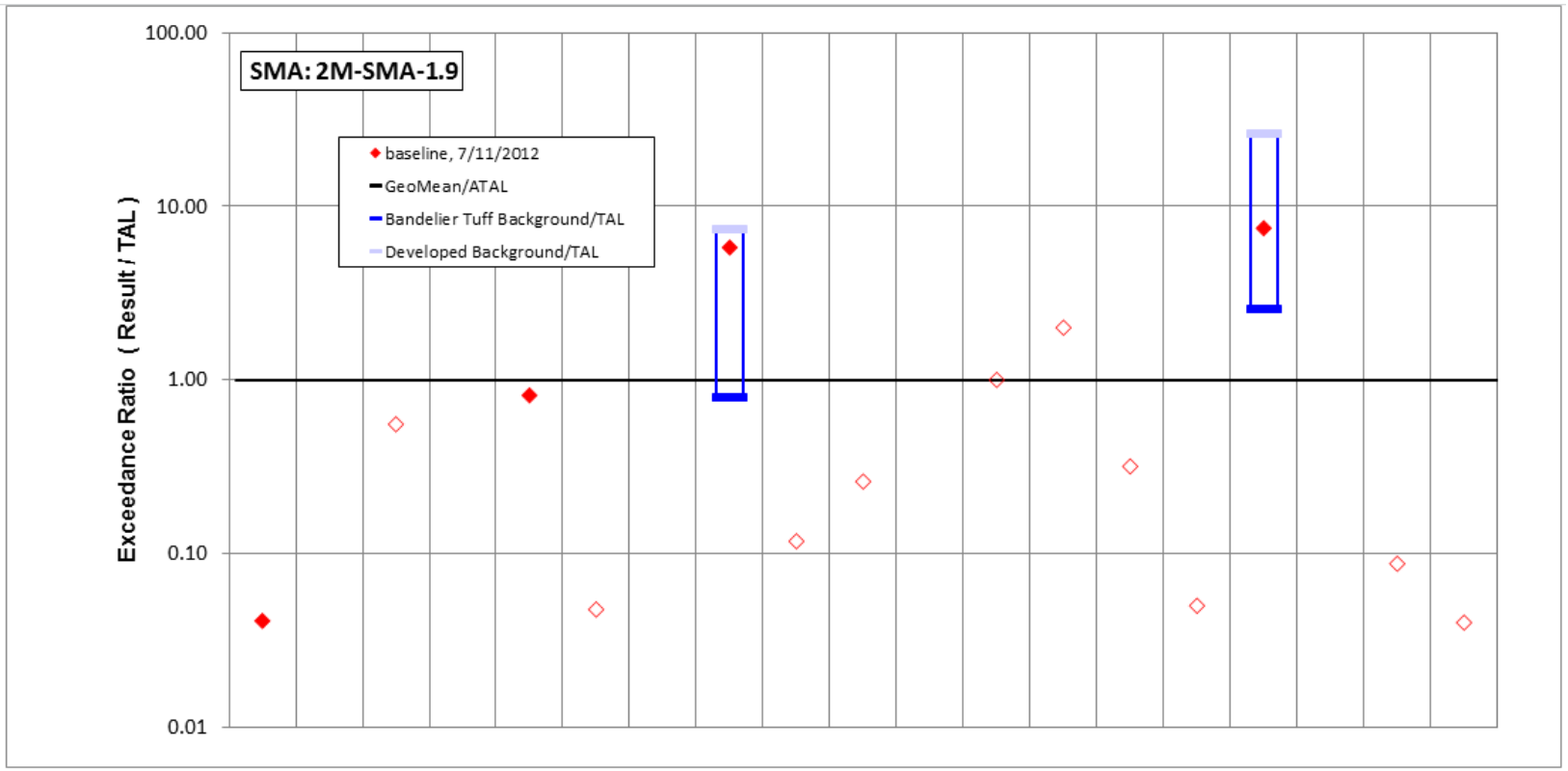


Figure 139-1 2M-SMA-1.9 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	**Zinc**	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	-	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	-	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/11/2012 result	30.7	1.78	*5*	16.8	0.815	*10*	*5*	**24.9**	*2*	*0.2*	1.38	*5*	***1***	*2*	*5*	**314**	-	*1.31*	*1.2*
result / TAL	0.041	0.0028	*0.56*	0.0034	0.82	*0.048*	*0.005*	**5.8**	*0.12*	*0.26*	0.0081	*1*	***2***	*0.32*	*0.05*	**7.5**	-	*0.087*	*0.04*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 139-2 Inorganic analytical results summary plot for 2M-SMA-1.9

140.0 2M-SMA-2: SWMUs 03-050(d) and 03-054(b)

140.1 Site Descriptions

Two historical industrial activity areas are associated with E012, 2M-SMA-2: Sites 03-050(d) and 03-054(b).

SWMU 03-050(d) consists of potential soil contamination from historical emissions of particulates possibly released from the former air-pollution control device on the exhaust system at the south side of the tech shops addition (building 03-102). The device was a shaker-type baghouse located on a concrete pad. Building 03-102 was built in 1957 for machining radioactive materials. Machined items included those with uranium-235 and -238, lithium hydride, and small quantities of other inorganic chemicals. The baghouse was the primary air-pollution-control device to remove lithium hydride particulates in the gas stream to the stack. The baghouse was also used as a secondary air-pollution-control device to remove uranium graphite particulates in the gas stream to the stack. The bag house ceased operating in 1992 because of failure in the dioctyl phthalate penetration test, which measures the efficiency of the collection system. All ventilation ducts associated with machining operations then were diverted to a high-flow-rate ventilation system connected to an operational baghouse located immediately east of the inoperative baghouse. Radionuclide air emissions at the inoperative baghouse were monitored from the beginning of its use in 1957. Release of radioactive uranium particulates to the concrete pad through the inoperative baghouse fabric filter also was documented. The concrete pad was painted in 1993 to immobilize any existing uranium particulates. Radiological survey results after the pad was painted showed no detectable activity on the pad or in the soil around the pad.

No Consent Order or other investigations have been conducted at SWMU 03-050(d).

SWMU 03-054(b) is an outfall at TA-03 that discharges into Twomile Canyon. This outfall, located southeast of building 03-1411 and southwest of building 03-1316, was formerly permitted as NPDES 03A009 to receive discharge water from the cooling tower effluent blowdown and noncontact cooling water from building 03-0102. This discharge was rerouted to the TA-46 sanitary WWTP in 1993, and the outfall is no longer on the NPDES permit.

Two active storm drain inlets [SWMUs 03-052(a) and 03-052(e)] are connected to a drainline that goes to the outfall. Storm water runoff from surface areas surrounding 26 buildings and 94 roof drains in TA-03 currently discharge to this outfall.

No Consent Order investigations have been conducted at SWMU 03-054(b). Decision-level data are available from sampling performed in 2002 before construction activities were performed at the Site.

The project map (Figure 140-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

140.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 140-1).

Enhanced controls were installed and certified on June 4, 2013, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 140-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01202040015	Established Vegetation	-	X	X	-	B
E01203090006	Curbing	X	-	-	X	CB
E01205020014	Sediment Basin	-	X	-	X	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

140.3 Storm Water Monitoring

SWMUs 03-050(d) and 03-054(b) are monitored within 2M-SMA-2. Following the installation of baseline control measures, two baseline storm water samples were collected on July 28, 2011, and September 4, 2011 (Figures 140-2 and 140-3). Analytical results from these samples yielded the following TAL exceedances:

- Copper concentrations of 5.5 µg/L and 14.9 µg/L (MTAL is 4.3 µg/L),
- Zinc concentrations of 72.3 µg/L and 140 µg/L (MTAL is 42 µg/L), and
- PCB concentration of 65 ng/L (ATAL is 0.6 ng/L).

Following the installation of enhanced control measures at 2M-SMA-2, corrective action storm water samples were collected on June 1, 2013, and September 4, 2013 (Figures 140-2 and 140-3). Analytical results from this corrective action monitoring sample yielded the following TAL exceedances:

- Copper concentrations of 18.5 µg/L and 19.9 µg/L (MTAL is 4.3 µg/L),
- Zinc concentration of 102 µg/L and 123 µg/L (MTAL is 42 µg/L), and
- PCB concentration of 50 ng/L and 15 ng/L (ATAL is 0.6 ng/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 03-050(d):

Copper, zinc, and PCBs are not known to be associated with industrial materials historically managed at this Site.

SWMU 03-054(b):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was detected above the soil BV in shallow (i.e., less than 3 ft bgs) site characterization samples collected in 2002 before construction activities began near the Site. Copper was detected above BV in 17 of 18 shallow samples with a maximum concentration 17 times the soil BV.
- Zinc is not known to be associated with industrial materials historically managed at the Site. Zinc was detected above the soil BV in shallow samples collected in 2002 before construction activities began near the Site. Zinc was detected above BV in 18 of 18 shallow samples with a maximum concentration 17 times the soil BV.

- PCBs are not known to be associated with industrial materials historically managed at the Site. Samples collected at the Site in 2002 were not analyzed for PCBs because they were not identified as a potential contaminant at this Site.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 140-2 and 140-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 140-2 and 140-3.

Monitoring location 2M-SMA-2 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediments derived from Bandelier Tuff. Metals including copper and zinc are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. PCBs are associated with building materials including paint, caulking, asphalt, solvents, transformers, and cutting oils.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 and 2013 are between these values.
- Zinc—The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediments derived from Bandelier Tuff is 109 µg/L. One of the zinc results from 2011 and 2013 is less than both of these values, and the other result from both 2011 and 2013 is between them.
- PCB—The PCB UTL from developed urban landscape storm water run-on is 98 ng/L; the PCB UTL for background storm water containing sediments derived from Bandelier Tuff is 11.7 ng/L. The PCB results from 2011 and 2013 are between these values.

All the analytical results for these samples are reported in the 2011 and 2013 Annual Reports.

140.4 Inspections and Maintenance

RG121.9 recorded four storm events at 2M-SMA-2 during the 2014 season. These rain events triggered two post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 140-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39780	7-21-2014
Storm Rain Event	BMP-41193	8-12-2014
Annual Erosion Evaluation	COMP-43682	10-21-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 140-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36913	Repaired rills and gullies on berm of sediment basin E01205020014. Removed TRM, added clean fill, and compacted. Applied seed and TRM to berm. Replaced caps on stand pipes.	3-6-2014	163 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-41337	Temporarily removed debris screen from riser pipes of sediment basin E01205020014. Modified screens as directed and replaced screens.	9-30-2014	60 day(s)	Maintenance delayed.
BMP-43878	Added angular rock to small rill on the downgradient side of the northeast sediment basin berm E01205020014.	11-5-2014	15 day(s)	Maintenance conducted as soon as practicable.

140.5 Compliance Status

The Sites associated with 2M-SMA-2 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 140-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 03-050(d)	Corrective Action Initiated after second TAL exceedance	Corrective Action Initiated after second TAL exceedance	Second initiation on 9-23-2013. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.
SWMU 03-054(b)	Corrective Action Initiated after second TAL exceedance	Corrective Action Initiated after second TAL exceedance	Second initiation on 9-23-2013. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

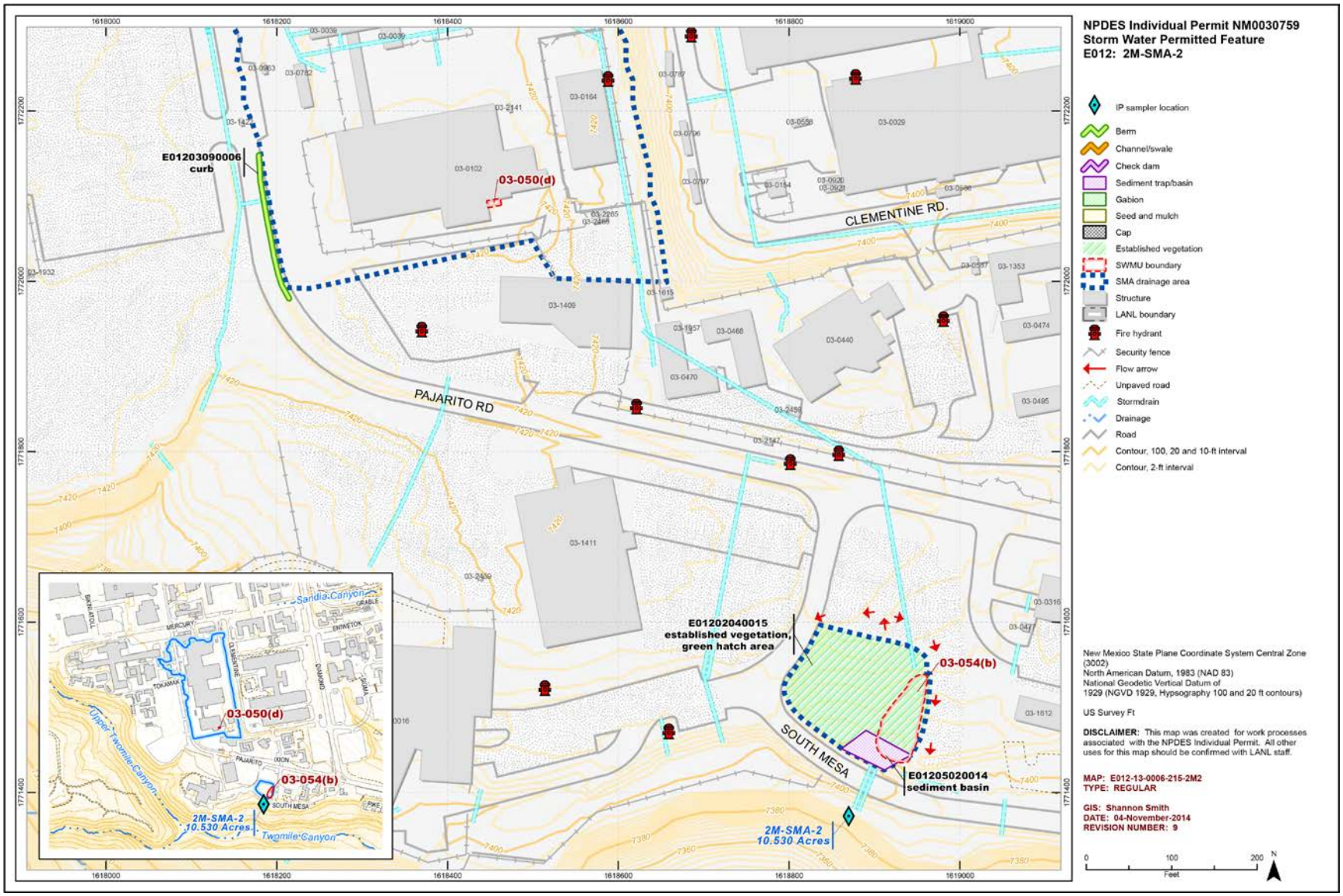
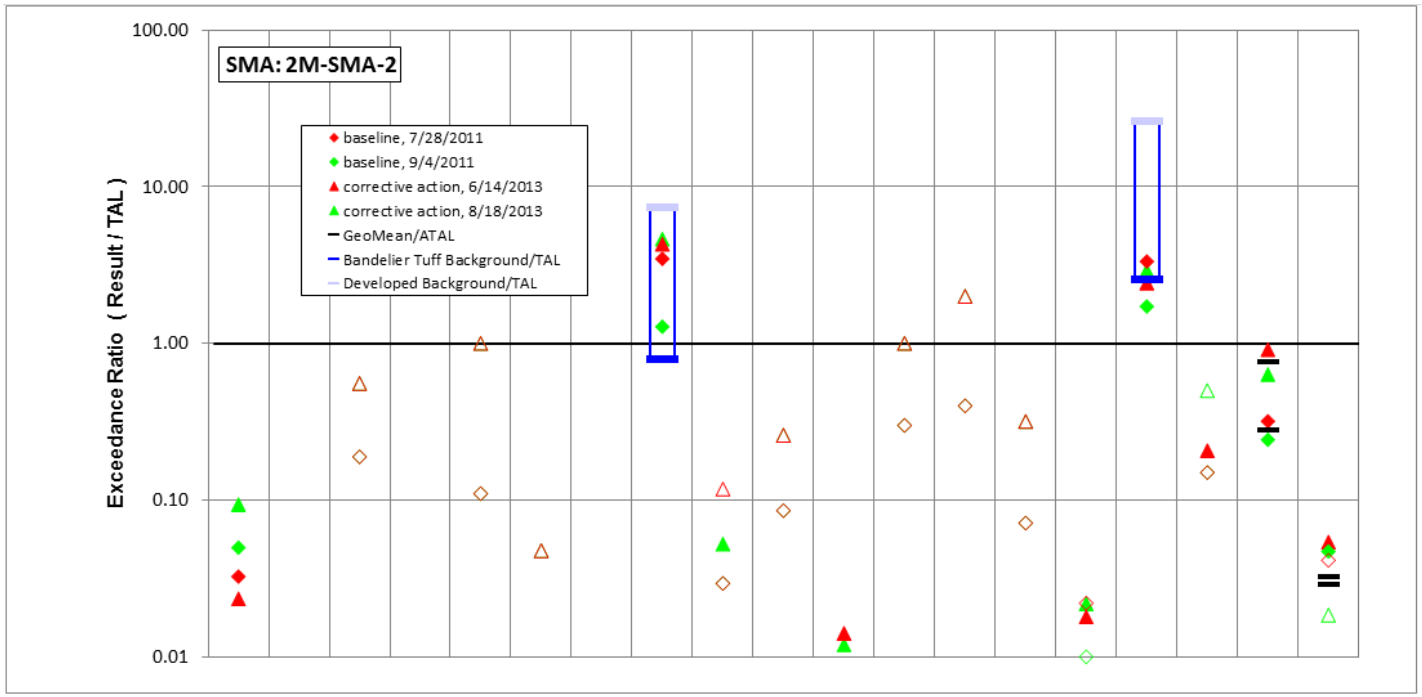


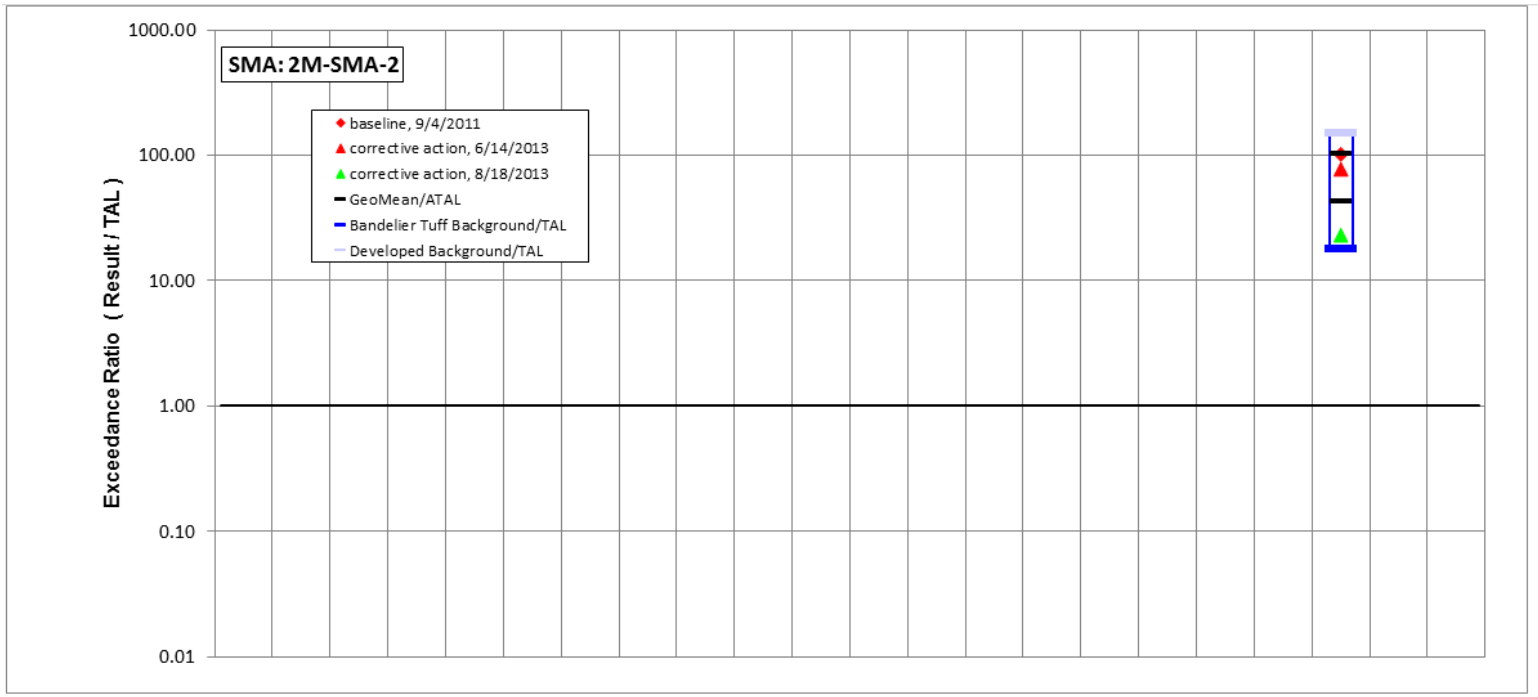
Figure 140-1 2M-SMA-2 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	**Zinc**	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/18/2013 result	70.2	1.25	*5*	29.5	*1*	*10*	*5*	**19.9**	0.891	*0.2*	2.03	*5*	***1***	*2*	2.18	**123**	*0.005*	9.51	*0.554*
result / TAL	0.094	0.002	*0.56*	0.0059	*1*	*0.048*	*0.005*	**4.6**	0.052	*0.26*	0.012	*1*	***2***	*0.32*	0.022	**2.9**	*0.5*	0.63	*0.018*
6/14/2013 result	17.6	1.84	*5*	36.1	*1*	*10*	2.43	**18.5**	*2*	*0.2*	2.4	*5*	***1***	*2*	1.8	**102**	0.0021	13.7	1.62
result / TAL	0.023	0.0029	*0.56*	0.0072	*1*	*0.048*	0.0024	**4.3**	*0.12*	*0.26*	0.014	*1*	***2***	*0.32*	0.018	**2.4**	0.21	0.91	0.054
9/4/2011 result	37.3	*1.8*	*1.7*	*15*	*0.11*	*2*	2.7	**5.5**	*0.5*	*0.066*	0.55	*1.5*	*0.2*	*0.45*	*1*	**72.3**	*0.002*	3.64	1.41
result / TAL	0.05	*0.003*	*0.19*	*0.003*	*0.11*	*0.01*	0.0027	**1.3**	*0.029*	*0.086*	0.0032	*0.3*	*0.4*	*0.071*	*0.01*	**1.7**	*0.15*	0.24	0.047
7/28/2011 result	24.4	6.2	*1.7*	18.2	*0.11*	*2*	*1.6*	**14.9**	*0.5*	*0.066*	1.3	*1.5*	*0.2*	*0.45*	*2.2*	**140**	*0.002*	4.78	*1.24*
result / TAL	0.033	0.0097	*0.19*	0.0036	*0.11*	*0.01*	*0.002*	**3.5**	*0.029*	*0.086*	0.0076	*0.3*	*0.4*	*0.071*	*0.022*	**3.3**	*0.15*	0.32	*0.041*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 140-2 Inorganic analytical results summary plot for 2M-SMA-2



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
8/18/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.015**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**23**	-	-
6/14/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.05**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**78**	-	-
9/4/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.065**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**100**	-	-
7/28/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 140-3 Organic analytical results summary plot for 2M-SMA-2

141.0 2M-SMA-2.2: AOC 03-003(k)

141.1 Site Descriptions

One historical industrial activity area is associated with E013, 2M-SMA-2.2: Site 03-003(k).

AOC 03-003(k) is an area of potential soil contamination associated with the location of a former non-PCB transformer (less than 50 ppm PCB), reportedly staged on the east side of building 03-0316. No additional information is available for this Site.

Consent Order or other environmental investigations have not been performed at AOC 03-003(k); there are no investigation data for this Site.

The project map (Figure 141-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

141.2 Control Measures

Curbing is located on the northern side of building 03-2006 and diverts run-on from the paved areas away from the Permitted Feature. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 141-1).

Table 141-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01303090002	Curbing	X	-	-	-	CB
E01304020003	Concrete/Asphalt Channel/Swale	-	X	X	-	CB
E01306010004	Rock Check Dam	-	X	-	X	CB
E01306010005	Rock Check Dam	-	X	-	X	CB
E01308030006	Concrete/Asphalt Cap	X	-	X	-	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

141.3 Storm Water Monitoring

AOC 03-003(k) is monitored within 2M-SMA-2.2. Following the installation of baseline control measures, two baseline storm water samples were collected on August 13, 2011, and September 4, 2011 (Figures 141-2 and 141-3). Analytical results from these samples yielded the following TAL exceedances:

- Copper concentrations of 10.1 µg/L and 16.4 µg/L (MTAL is 4.3 µg/L),
- Zinc concentrations of 90.1 µg/L and 97.2 µg/L (MTAL is 42 µg/L), and
- PCB concentrations of 7 ng/L and 10 ng/L (ATAL is 0.6 ng/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

AOC 03-003(k):

- Copper is not known to be associated with industrial materials historically managed at the Site. No investigation data are available for AOC 03-003(k).
- Zinc is not known to be associated with industrial materials historically managed at the Site. No investigation data are available for AOC 03-003(k).
- PCBs are known to be associated with industrial materials historically managed at the Site. No investigation data are available for AOC 03-003(k).

2M-SMA-2.2, Rock Check Dam, E01306010005 (photo ID 27300-1)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 141-2 and 141-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 141-2 and 141-3.

Monitoring location 2M-SMA-2.2 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediments derived from Bandelier Tuff. Metals including copper and zinc are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. PCBs are associated with building materials including paint, caulking, asphalt, solvents, transformers, and cutting oils.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 are between these values.
- Zinc—The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediments derived from Bandelier Tuff is 109 µg/L. The zinc results from 2011 are less than both of these values.
- PCB—The PCB UTL from developed urban landscape storm water run-on is 98 ng/L; the PCB UTL for background storm water containing sediments derived from Bandelier Tuff is 11.7 ng/L. The PCB results from 2011 are less than both of these values.

All the analytical results for these samples are reported in the 2011 Annual Report.

141.4 Inspections and Maintenance

RG121.9 recorded four storm events at 2M-SMA-2.2 during the 2014 season. These rain events triggered two post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 141-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39781	7-21-2014
Storm Rain Event	BMP-41194	8-12-2014
Annual Erosion Evaluation	COMP-43683	10-21-2014

Table 141-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-40878	Removed needle cast from check dams E01306010004 and E01306010005 and placed outside channel.	7-24-2014	3 day(s)	Maintenance conducted as soon as practicable.
BMP-42156	Removed debris from SMA.	8-21-2014	9 day(s)	Maintenance conducted as soon as practicable.

141.5 Compliance Status

The Site associated with 2M-SMA-2.2 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 141-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
AOC 03-003(k)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

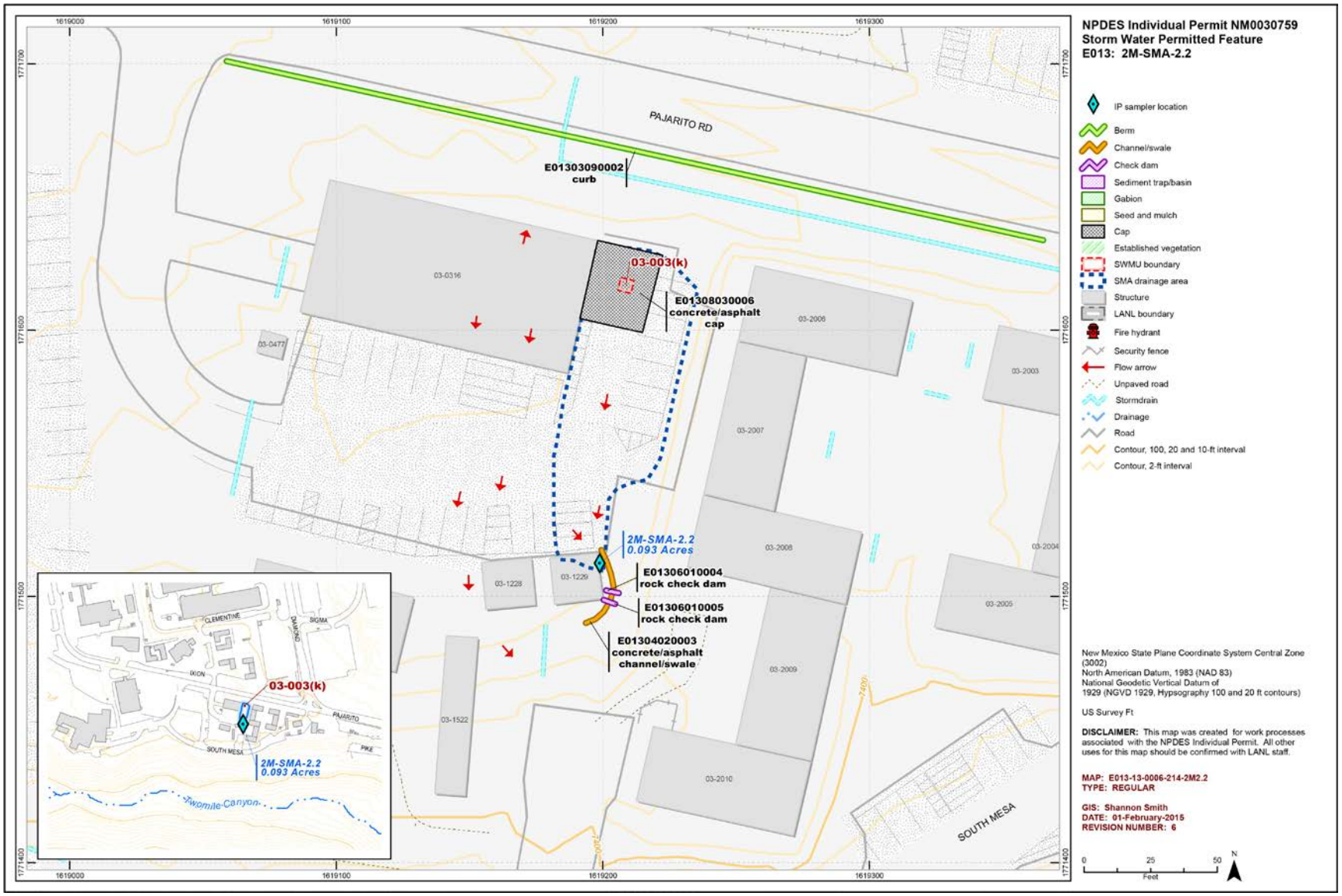
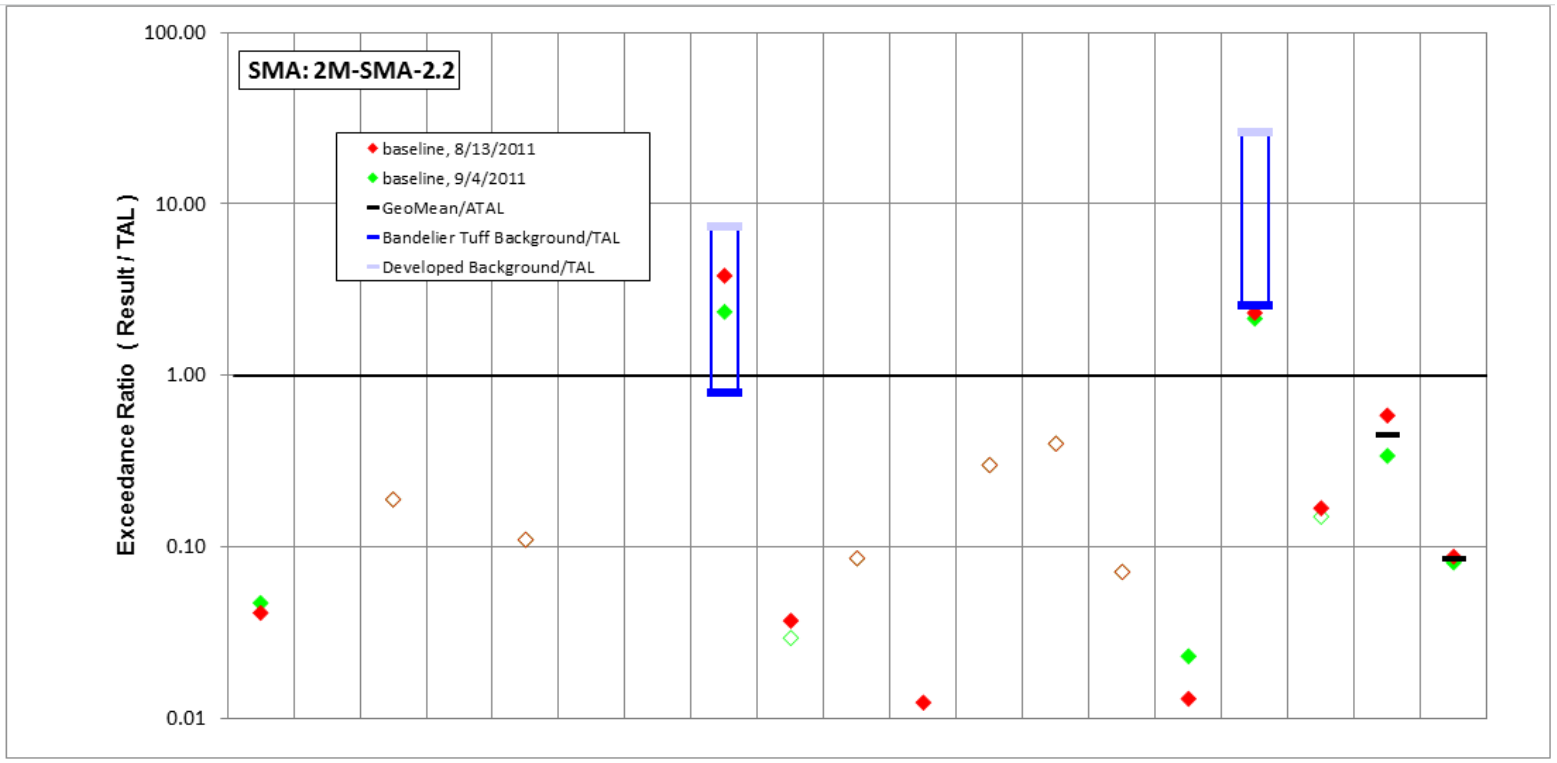


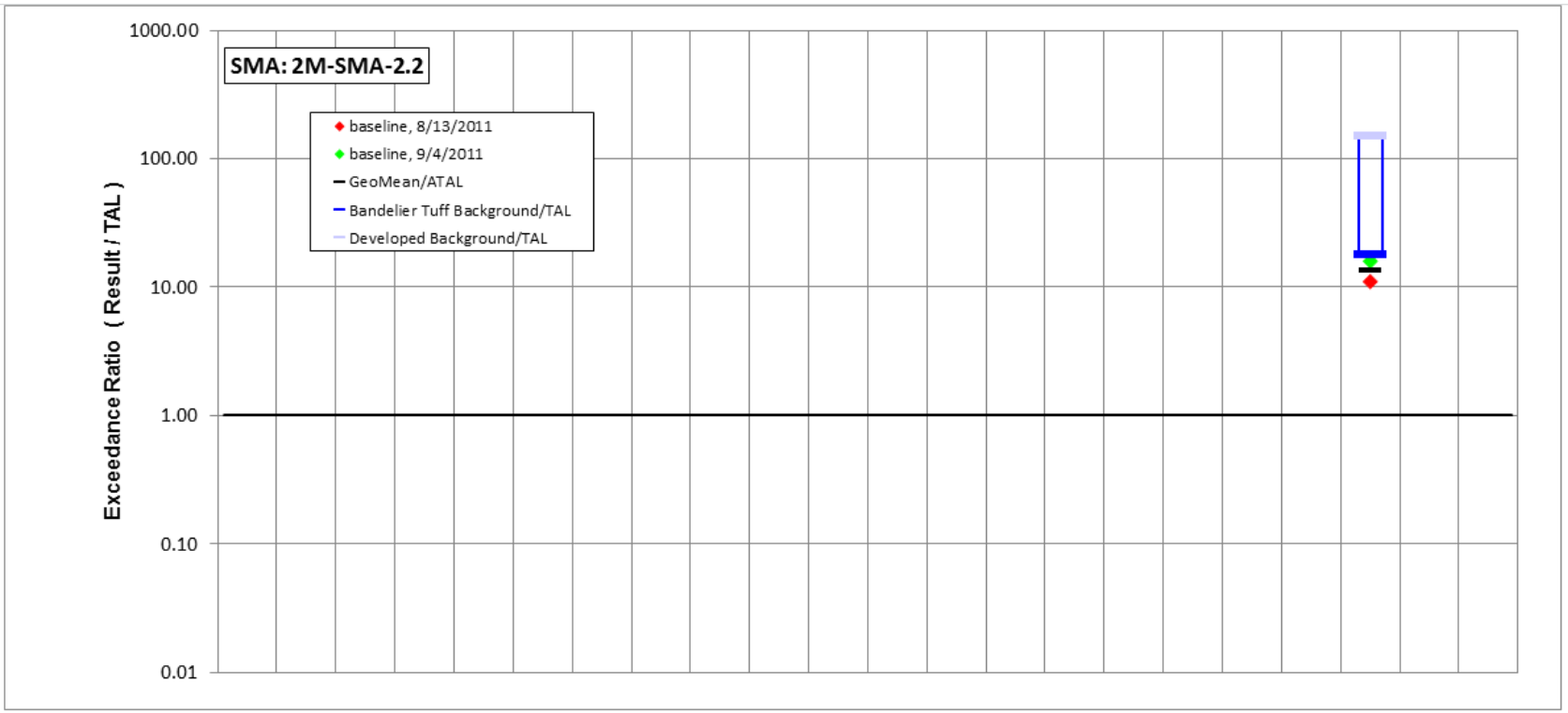
Figure 141-1 2M-SMA-2.2 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	**Zinc**	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/4/2011 result	35.3	*1*	*1.7*	*15*	*0.11*	*2*	2	**10.1**	*0.5*	*0.066*	1.2	*1.5*	*0.2*	*0.45*	2.3	**90.1**	*0.002*	5.09	2.43
result / TAL	0.047	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.002	**2.3**	*0.029*	*0.086*	0.0071	*0.3*	*0.4*	*0.071*	0.023	**2.1**	*0.15*	0.34	0.081
8/13/2011 result	30.9	*1*	*1.7*	19.3	*0.11*	*2*	2.1	**16.4**	0.63	*0.066*	2.1	*1.5*	*0.2*	*0.45*	1.3	**97.2**	0.0017	8.76	2.63
result / TAL	0.041	*0.002*	*0.19*	0.0039	*0.11*	*0.01*	0.0021	**3.8**	0.037	*0.086*	0.012	*0.3*	*0.4*	*0.071*	0.013	**2.3**	0.17	0.58	0.088

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 141-2 Inorganic analytical results summary plot for 2M-SMA-2.2



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
9/4/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.01**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**16**	-	-
8/13/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.007**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**11**	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 141-3 Organic analytical results summary plot for 2M-SMA-2.2

142.0 2M-SMA-2.5: SWMU 40-001(c)

142.1 Site Descriptions

One historical industrial activity area is associated with E015, 2M-SMA-2.5: Site 40-001(c).

SWMU 40-001(c) is a septic tank (structure 40-0025) located at TA-40 approximately 25 ft east of building 40-0011. Constructed of reinforced concrete, the septic tank measures 4 ft wide × 7 ft long × 6 ft deep and has a capacity of 540 gal. The septic tank was installed in 1950 and serves building 40-0011, which houses changing rooms and restrooms. Originally, the septic tank discharged northeast into Twomile Canyon. In 1951, the drainline was rerouted to discharge south to Pajarito Canyon. In 1988, the septic tank outlet was again rerouted, this time to discharge to a leach field constructed south of the septic tank.

This SWMU was investigated during a 1994 RFI; however, no sampling has been conducted under the Consent Order, and no decision-level data are available.

The project map (Figure 142-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

142.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 142-1).

Table 142-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01502040006	Established Vegetation	-	X	X	-	B
E01503010004	Earthen Berm	X	-	-	X	CB
E01503010005	Earthen Berm	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

142.3 Storm Water Monitoring

SWMU 40-001(c) is monitored within 2M-SMA-2.5. Following the installation of baseline control measures, a baseline storm water sample was collected on September 9, 2012 (Figure 142-2). Analytical results from this sample yielded no TAL exceedances. Baseline confirmation is complete for 2M-SMA-2.5 and the associated SWMU 40-001(c) because all applicable sampling results are below the applicable MTAL or ATAL. No further sampling is required for 2M-SMA-2.5 for the duration of the IP.

142.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-2.5 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 142-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38671	6-5-2014
Storm Rain Event	BMP-39399	6-30-2014
Storm Rain Event	BMP-39765	7-14-2014
Storm Rain Event	BMP-40314	7-28-2014
Storm Rain Event	BMP-41406	8-14-2014
Storm Rain Event	BMP-43452	10-22-2014
Annual Erosion Evaluation	COMP-43197	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 142-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39084	Repaired damage to east end of berm E01503010004 with berm fill. Reapplied seed and coconut matting. Raked and seeded areas disturbed by maintenance activities.	6-24-2014	19 day(s)	Maintenance conducted as soon as practicable.

142.5 Compliance Status

The Site associated with 2M-SMA-2.5 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 142-4 Compliance Status during 2014s

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-001(c)	Baseline Confirmation Complete	Baseline Confirmation Complete	No Comment

2M-SMA-2.5, Earthen Berm, E01503010005 (photo ID 8534-1)

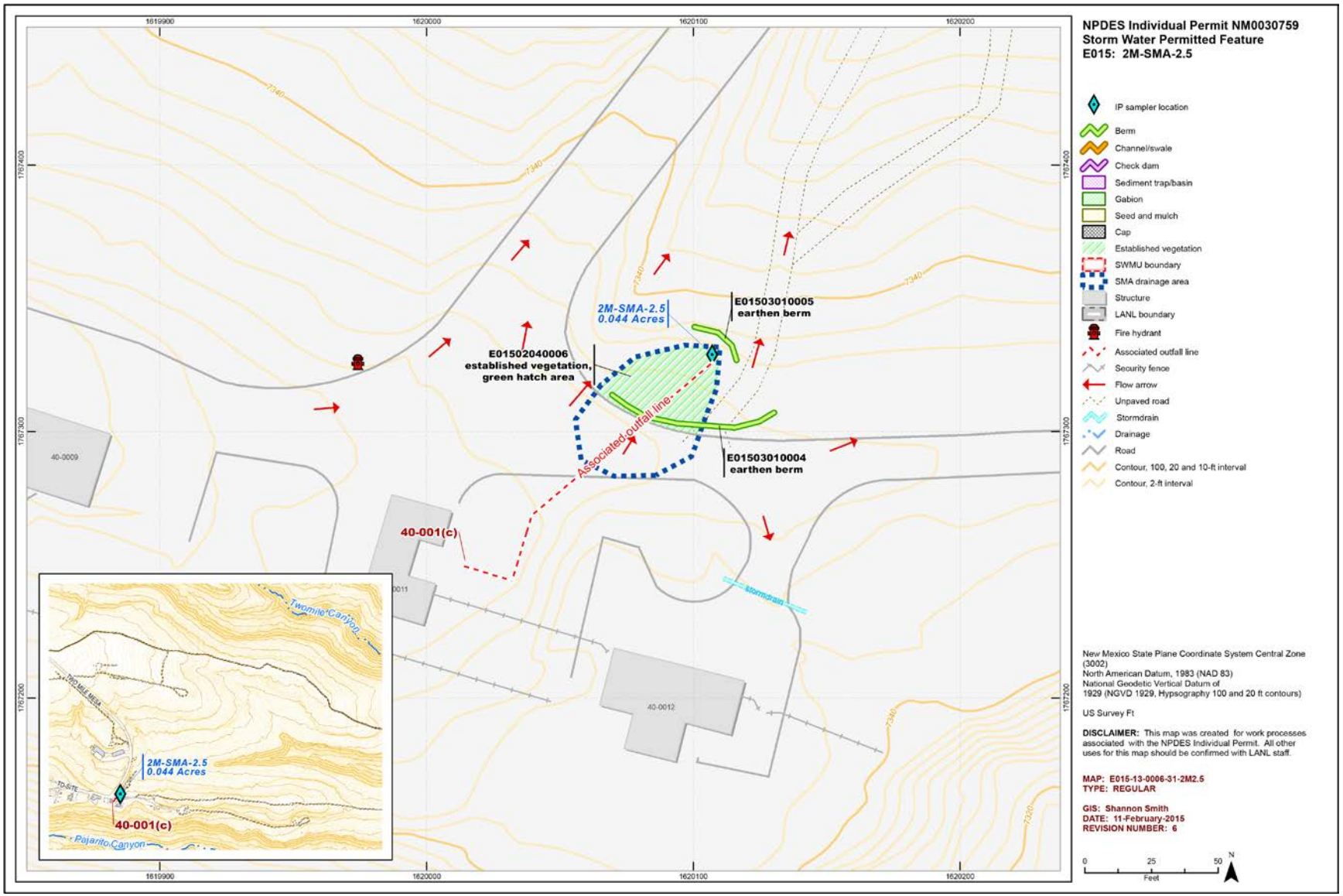
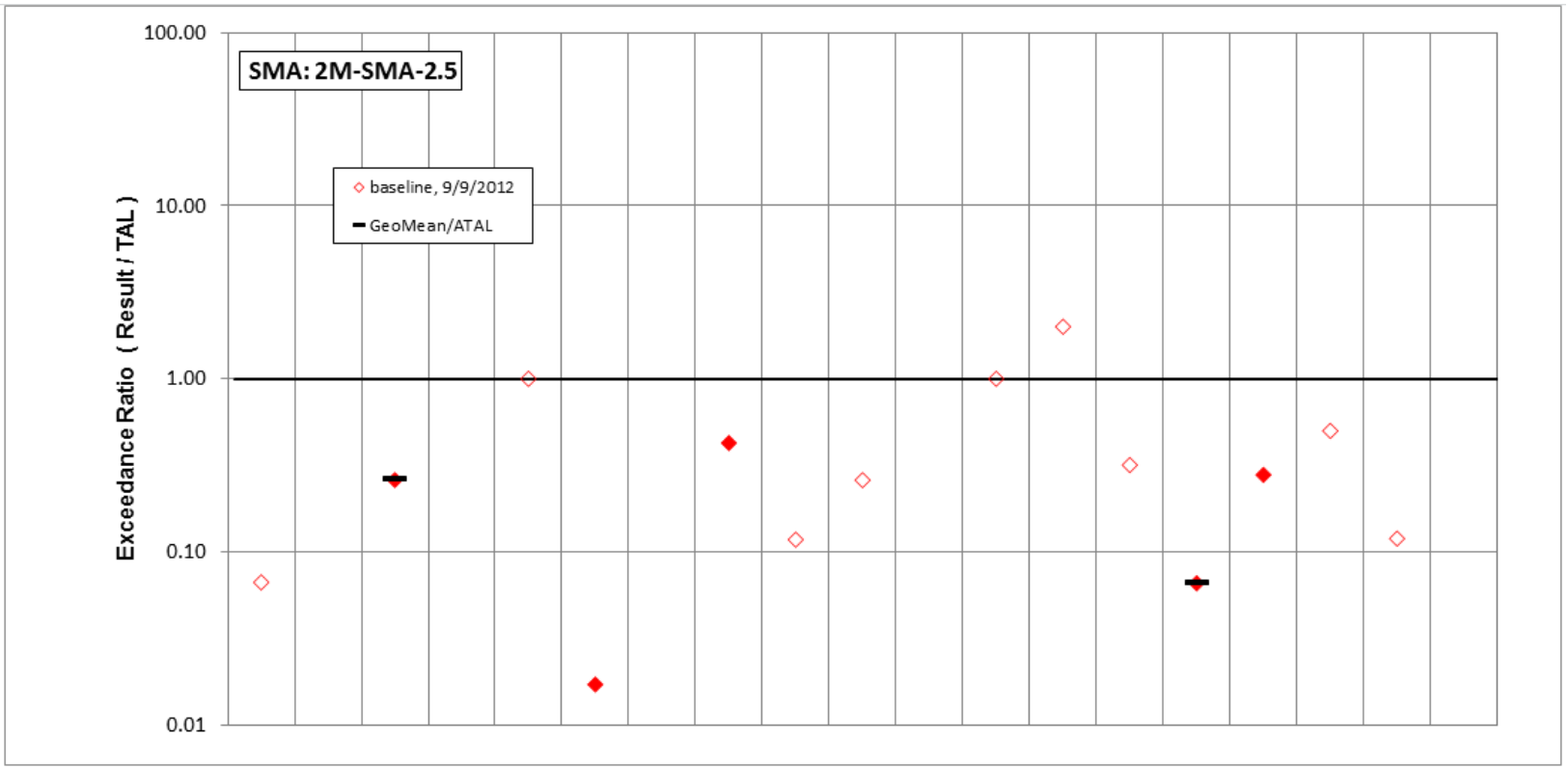


Figure 142-1 2M-SMA-2.5 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/9/2012 result	*50*	*3*	2.34	20.5	*1*	3.6	1.32	1.83	*2*	*0.2*	0.532	*5*	***1***	*2*	6.59	11.7	*0.005*	*1.79*	*0.202*
result / TAL	*0.067*	*0.005*	0.26	0.0041	*1*	0.017	0.0013	0.43	*0.12*	*0.26*	0.0031	*1*	***2***	*0.32*	0.066	0.28	*0.5*	*0.12*	*0.007*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 142-2 Inorganic analytical results summary plot for 2M-SMA-2.5

143.0 2M-SMA-3: SWMUs 07-001(a), 07-001(b), 07-001(c), and 07-001(d)

143.1 Site Descriptions

Four historical industrial activity areas are associated with E014, 2M-SMA-3: Sites 07-001(a), 07-001(b), 07-001(c), and 07-001(d).

SWMU 07-001(a) is an inactive firing pit located near the east end of TA-06. The Site consists of a circular depression surrounded by an annular berm about 4 ft high and approximately 30 ft in diameter. The firing pit was used in the 1950s to destroy scrap detonators and explosives. Materials to be destroyed were mixed with Composition B scraps or flaked TNT and the mixture was detonated. A 1959 memorandum states this method was very effective for destroying detonators, with no intact detonators thrown out of a pit and no undestroyed detonators found during a site survey, although pellets of unexploded PBX were found in post-firing debris. Small amounts of lead or mercury compounds may have been present in the blasting caps used to set off the HE used to destroy the detonators. This method of destroying detonators was discontinued at this Site in 1959.

The original IP Site narrative stated that beryllium and DU may have been released at this Site. A thorough review of Site records did not identify the use of either beryllium or DU.

Consent Order investigations have not been performed at SWMU 07-001(a), and no decision-level data are available for this Site. An RFI was conducted at the Site in 1994. The RFI data are screening level only.

SWMU 07-001(b) is an inactive firing pit located near the east end of TA-06. The Site consists of a circular depression surrounded by an annular berm about 4 ft high and approximately 30 ft in diameter. The firing pit was used in the 1950s to destroy scrap detonators and explosives. Materials to be destroyed were mixed with Composition B scraps or flaked TNT and the mixture was detonated. A 1959 memorandum states this method was very effective in destroying detonators, with no intact detonators thrown out of a pit and no undestroyed detonators found during a site survey, although pellets of unexploded PBX were found. This method of destroying detonators was discontinued at this Site in 1959.

Consent Order investigations have not been performed at SWMU 07-001(b), and no decision-level data are available for this Site. An RFI was conducted at the Site in 1994. The RFI data are screening level only.

SWMU 07-001(c) is in an inactive amphitheater-shaped firing site, approximately 50 × 50 ft, located near the eastern boundary of TA-06. Soft metal disks imbedded with bullets have been found at this Site. Little is known about this Site's history, but it may have been used briefly to study ballistic initiation of critical mass through the study of projectiles fired at lead plates.

Consent Order investigations have not been performed at SWMU 07-001(c), and no decision-level data are available for this Site. An RFI was conducted at the Site in 1994. The RFI data are screening level only.

SWMU 07-001(d) is an inactive firing site located near the eastern boundary of TA-06. The Site is an approximately 20-ft-diameter × 3-ft-deep crater. Detonator parts have been found near the crater. Little is known about this Site's operating history, but it is believed to be the location of a one-time "celebratory shot" fired in 1945 after the Japanese surrender at the end of World War II. No debris is visible at or around the Site.

Consent Order investigations have not been performed at SWMU 07-001(d), and no decision-level data are available for this Site. An RFI was conducted at the Site in 1994. The RFI data are screening level only.

The project map (Figure 143-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

143.2 Control Measures

There is minimal potential for run-on at this SMA. The Site is flat on the eastern end and run-on flow to other areas is sheet flow from natural areas. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 143-1).

Table 143-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01402040013	Established Vegetation	-	X	X	-	B
E01403060011	Straw Wattle	-	X	-	X	B
E01403060012	Straw Wattle	-	X	-	X	B
E01403060017	Straw Wattle	-	X	-	X	B
E01403060019	Straw Wattle	X	-	-	X	B
E01403060020	Straw Wattle	-	X	-	X	B
E01403060021	Straw Wattle	X	-	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

143.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at 2M-SMA-3. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

SWMUs 07-001(a), 07-001(b), 07-001(c), and 07-001(d) are monitored within 2M-SMA-3. Following the installation of baseline control measures, a baseline storm water sample was collected on July 12, 2013 (Figures 143-2 and 143-3). Analytical results from this sample yielded the following TAL exceedances:

- Aluminum concentration of 3750 µg/L (MTAL is 750 µg/L) and
- Copper concentrations of 6.05 µg/L (MTAL is 4.3 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 07-001(a):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected above the soil BV in any of the 11 shallow (i.e., less than 3 ft bgs) soil samples collected during the 1994 RFI at the Site.
- Copper was likely associated with industrial materials historically managed at the Site. Copper was not detected above the soil BV in any of the 11 shallow (i.e., less than 3 ft bgs) soil samples collected during the 1994 RFI at the Site.

SWMU 07-001(b):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected above the soil BV in any of the 12 shallow 1994 RFI soil samples collected at the Site.
- Copper was likely associated with industrial materials historically managed at the Site. Copper was detected above the soil BV 8 of 12 shallow 1994 RFI soil samples collected at the Site.

SWMU 07-001(c):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected above the soil BV in any of the three shallow 1994 RFI soil samples.
- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not detected above the soil BV in any of the three shallow 1994 RFI soil samples.

SWMU 07-001(d):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected above the soil BV in any of the 13 shallow 1994 RFI soil samples.
- Copper was likely associated with industrial materials historically managed at the Site. Copper was detected above the soil BV in 7 of 13 shallow 1994 RFI soil samples at a maximum concentration 5.3 times the soil BV.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 143-2 and 143-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 143-2 and 143-3.

Monitoring location 2M-SMA-3 receives storm water run-on from landscapes containing sediment derived from Bandelier Tuff. Metals including aluminum are found at low concentrations in the Bandelier Tuff.

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; the aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum result from 2013 is greater than both of these values.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

143.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 2M-SMA-3 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 143-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38672	6-5-2014
Storm Rain Event	BMP-39400	6-26-2014
Storm Rain Event	BMP-39766	7-15-2014
Storm Rain Event	BMP-40315	7-28-2014
Storm Rain Event	BMP-41407	8-12-2014
Storm Rain Event	BMP-43453	10-22-2014
Annual Erosion Evaluation	COMP-43301	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 143-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39766	Repaired undercutting of wattles E01403060011, E01403060015, and E01403060017 during inspection.	7-15-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-41321	Installed new straw wattles directly upgradient of existing wattles E01403060015 and E01403060018 as replacements. Installed new straw wattle on the upgradient side of E01403060014 to bridge space between existing wattles. Repaired undercut of wattle E01403060017.	8-12-2014	15 day(s)	Maintenance conducted as soon as practicable.

143.5 Compliance Status

The Sites associated with 2M-SMA-3 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 143-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 07-001(a)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-16-2013. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 10-11-2015.
SWMU 07-001(b)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-16-2013. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 10-11-2015.
SWMU 07-001(c)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-16-2013. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 10-11-2015.
SWMU 07-001(d)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-16-2013. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 10-11-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

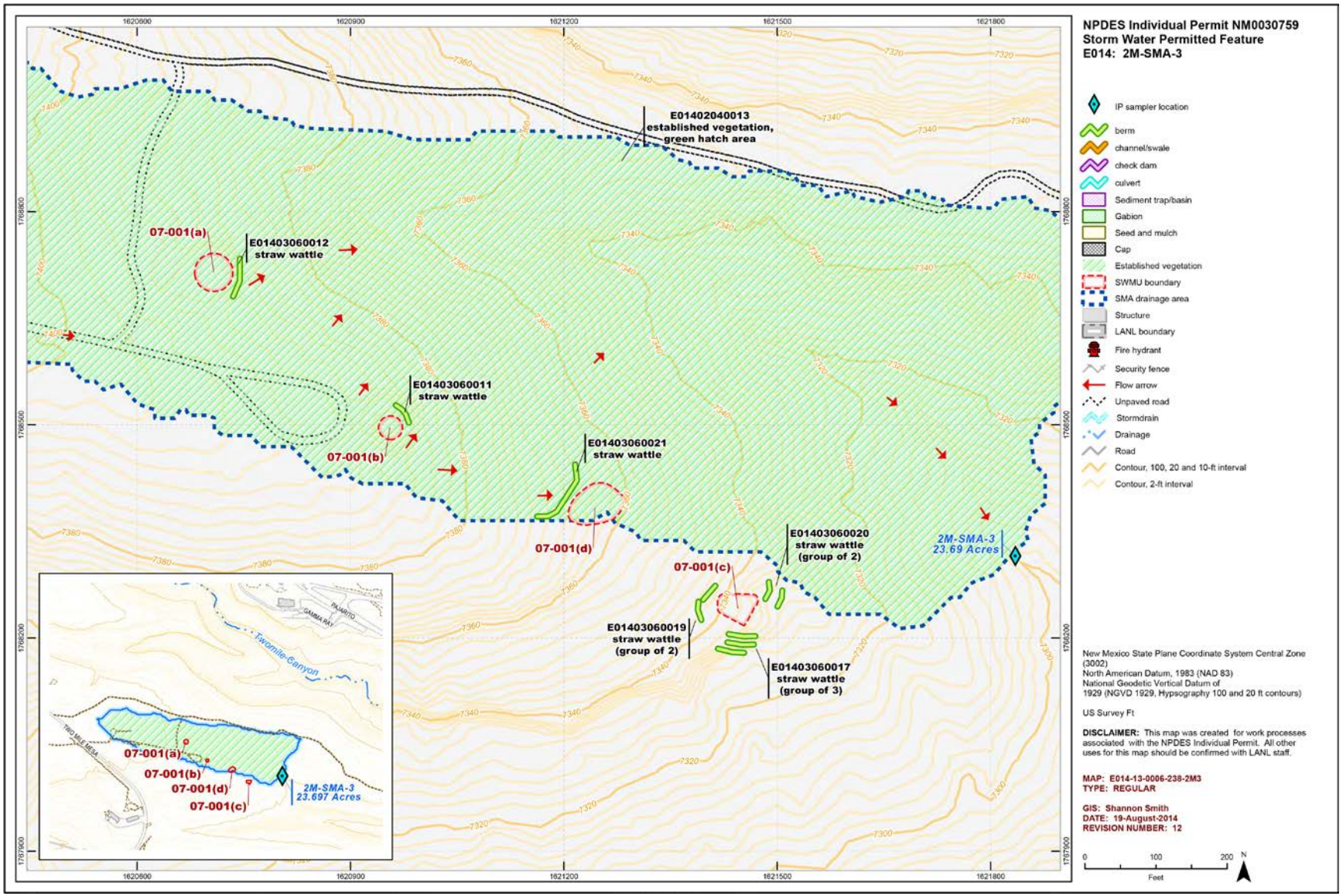
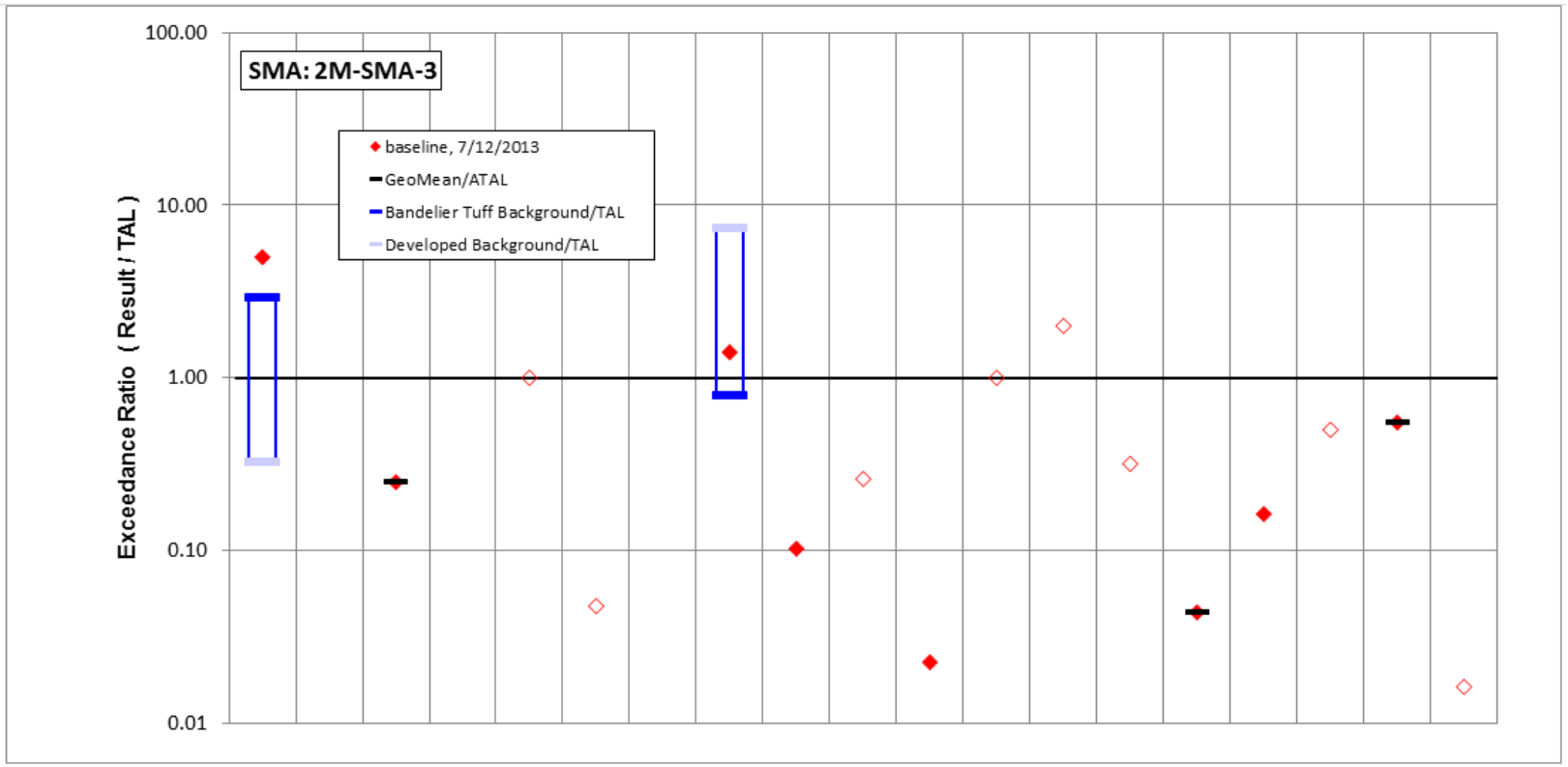


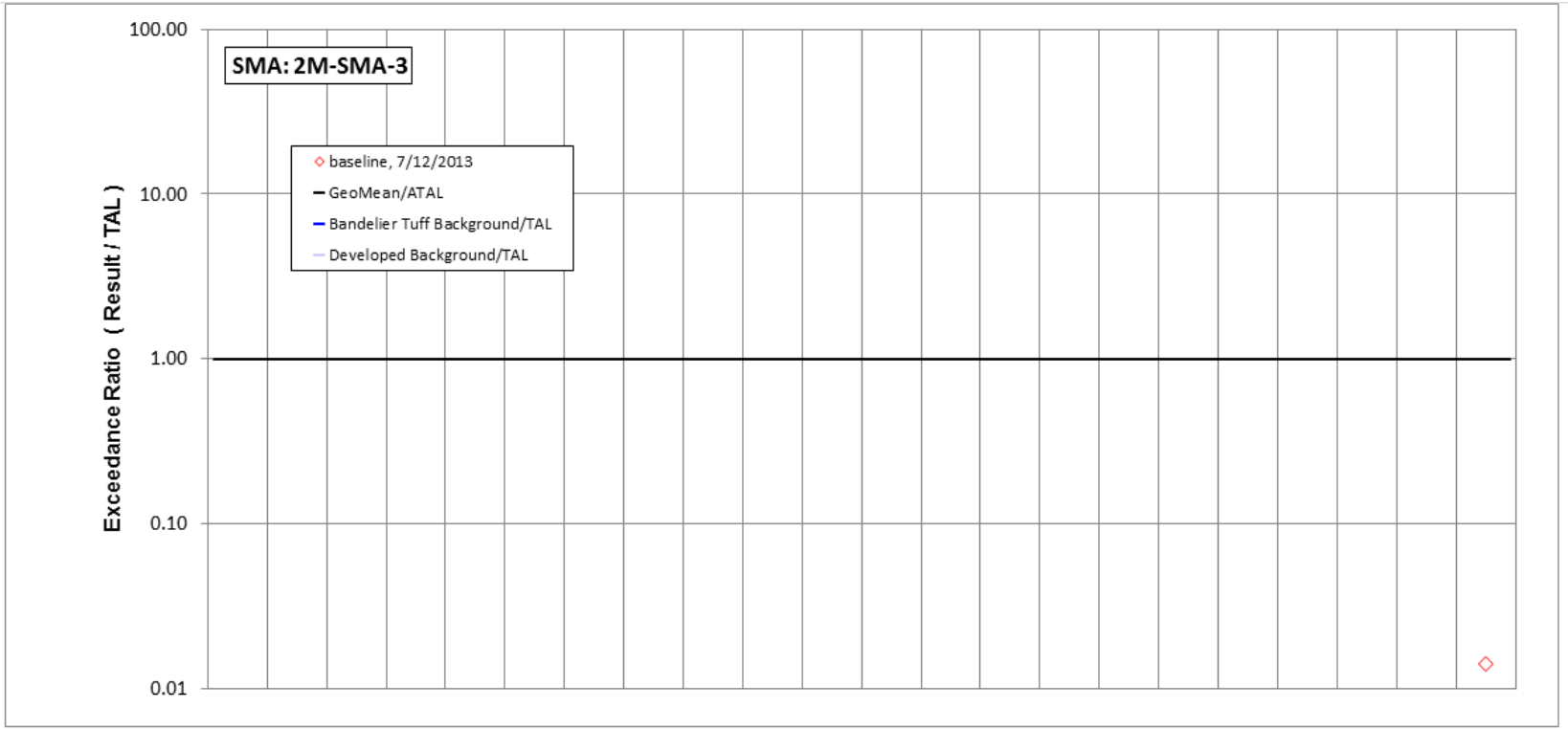
Figure 143-1 2M-SMA-3 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/12/2013 result	**3750**	*3*	2.24	25.1	*1*	*10*	*4.06*	**6.05**	1.74	*0.2*	3.83	*5*	***1***	*2*	4.38	6.83	*0.005*	8.27	*0.487*
result / TAL	**5**	*0.005*	0.25	0.005	*1*	*0.048*	*0.004*	**1.4**	0.1	*0.26*	0.023	*1*	***2***	*0.32*	0.044	0.16	*0.5*	0.55	*0.016*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 143-2 Inorganic analytical results summary plot for 2M-SMA-3



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-	-	ATAL
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/12/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.282*	-	-	-	*0.282*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.001*	-	-	-	*0.014*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 143-3 Organic analytical results summary plot for 2M-SMA-3

144.0 3M-SMA-0.2: SWMU 15-010(b)

144.1 Site Descriptions

One historical industrial activity area is associated with H001, 3M-SMA-0.2: Site 15-010(b).

SWMU 15-010(b) is a settling tank (structure 15-147) located in the northwest corner of TA-15 near former shop building 15-8. The tank, constructed in 1947 of concrete, measures 5 × 5 × 5.5 ft with an approximate capacity of 900 gal. The tank was originally designed to be a septic tank; however, subsequent engineering records confirm the tank was used as an HE settling tank. The settling tank served former building 15-8, which housed HE-machining operations during the 1950s, and discharged to an outfall at the edge of Threemile Canyon. The tank is no longer in operation; however, the date it ceased to be used is not known. The investigation work plan proposed removing the tank. However, facility restrictions on the handling of HE prevented removing the tank, which was found to contain liquid, until the contents were characterized. The liquid content was sampled for waste characterization purposes, was found to be nonhazardous and nonradioactive, and was removed. The facility closed the tank in place and filled it with concrete in 2012.

Phase I Consent Order sampling is complete for SWMU 15-010(b); the Site meets residential risk levels. Nature and extent will be reevaluated under the supplemental investigation report for Threemile Canyon Aggregate Area, scheduled to be submitted to NMED in 2015. It is anticipated this Site will be recommended for corrective action complete and will be eligible for a COC upon approval of the report by NMED.

The project map (Figure 144-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

144.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 144-1).

Table 144-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00102040006	Established Vegetation	-	X	X	-	B
H00103010005	Earthen Berm	X	-	-	X	B
H00106010002	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

144.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-0.2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

144.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at 3M-SMA-0.2 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 144-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38673	6-2-2014
Storm Rain Event	BMP-39401	6-30-2014
Storm Rain Event	BMP-39767	7-21-2014
Storm Rain Event	BMP-41022	8-8-2014
Storm Rain Event	BMP-43454	10-20-2014
Annual Erosion Evaluation	COMP-43302	10-7-2014

No maintenance activities or facility modifications affecting discharge were conducted at 3M-SMA-0.2 in 2014.

144.5 Compliance Status

The Site associated with 3M-SMA-0.2 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 144-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 15-010(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

3M-SMA-0.2, Rock Check Dam, H00106010002 (photo ID 7515-2)

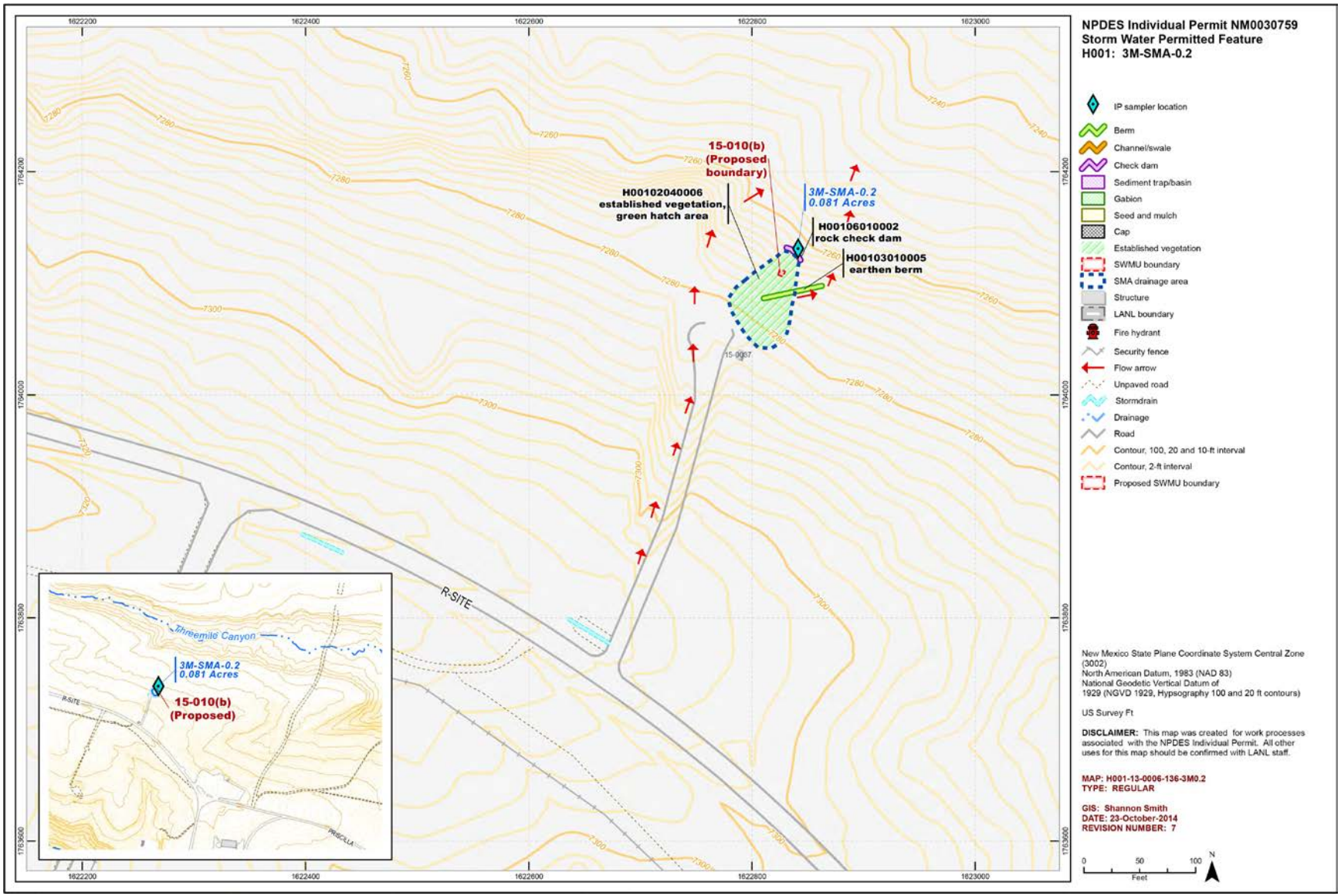


Figure 144-1 3M-SMA-0.2 location map

145.0 3M-SMA-0.4: SWMU 15-006(b)

145.1 Site Descriptions

One historical industrial activity area is associated with H002, 3M-SMA-0.4: Site 15-006(b).

SWMU 15-006(b) is the Ector firing site. Located along the eastern side of TA-15, the firing site was used for dynamic radiography of explosion-driven weapons components. It was originally established in 1973 and was used periodically until 1982. The Ector radiography machine was constructed at this Site, and the Site has operated with this machine from the mid-1980s to the present. Structures associated with the firing site are the firing point chamber (structure 15-276), the multidiagnostic hydrotest (building 15-306), and the blast-protection structure (15-319).

Investigation of SWMU 15-006(b) is deferred per Table IV-2 of the Consent Order. The NMED-approved investigation work plan proposed no sampling for this Site.

The project map (Figure 145-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

145.2 Control Measures

There are no significant run-on sources at this SMA. Engineered controls are associated with the paved access road and are working to divert storm water from the roads away from the Permitted Feature. The Permitted Feature is flat and without a significant run-on source. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 145-1).

Table 145-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00202040005	Established Vegetation	-	X	X	-	B
H00203010003	Earthen Berm	-	X	-	X	CB
H00203010004	Earthen Berm	-	X	-	X	B
H00203120008	Rock Berm	X	-	-	X	B
H00203120009	Rock Berm	X	-	-	X	B
H00203120010	Rock Berm	X	-	-	X	B
H00203120011	Rock Berm	X	-	-	X	B
H00203120012	Rock Berm	-	X	-	X	B
H00203120013	Rock Berm	-	X	-	X	B
H00205020007	Sediment Basin	-	X	-	X	B
H00208020006	Rock Cap	-	-	X	-	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

145.3 Storm Water Monitoring

SWMU 15-006(b) is monitored within 3M-SMA-0.4. Following the installation of baseline control measures, a baseline storm water sample was collected on July 12, 2013 (Figures 145-2 and 145-3). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 120 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 15-006(b):

- Alpha-emitting radionuclides are not known to be associated with industrial materials managed at this Site. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity. TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 145-2 and 145-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 145-2 and 145-3.

Monitoring location 3M-SMA-0.4 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

3M-SMA-0.4, Earthen Berm, H00203010003 (photo ID 8517-1)

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

145.4 Inspections and Maintenance

RG262.4 recorded twelve storm events at 3M-SMA-0.4 during the 2014 season. These rain events triggered eight post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 145-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38714	6-4-2014
Storm Rain Event	BMP-39064	6-16-2014
Storm Rain Event	BMP-39347	6-30-2014
Storm Rain Event	BMP-40077	7-22-2014
Storm Rain Event	BMP-41069	8-7-2014
Storm Rain Event	BMP-42043	8-18-2014
Storm Rain Event	BMP-42650	9-17-2014
Storm Rain Event	BMP-43140	10-8-2014
Annual Erosion Evaluation	COMP-43198	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 145-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-34635	Repaired berm H00203010003 by removing existing matting and rock. Added clean fill to damaged/degraded/eroded areas and compacted. Applied nonwoven geotextile fabric and angular rock on spillway. Applied seed and matting on berm. Applied seed and mulch to disturbed areas.	3-24-2014	231 day(s)	Maintenance was scheduled to be completed in late summer of 2013 and was delayed by staffing resource limitations. Site conditions changed as a result of the September 2013 1000-yr rain event, and maintenance was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-42082	Removed mulch from berm H00203010003 spillway and redistributed upgradient.	8-18-2014	11 day(s)	Maintenance conducted as soon as practicable.

145.5 Compliance Status

The Site associated with 3M-SMA-0.4 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 145-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 15-006(b)	Corrective Action Initiated	Corrective Action Initiated	Initiated 8-27-2013. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

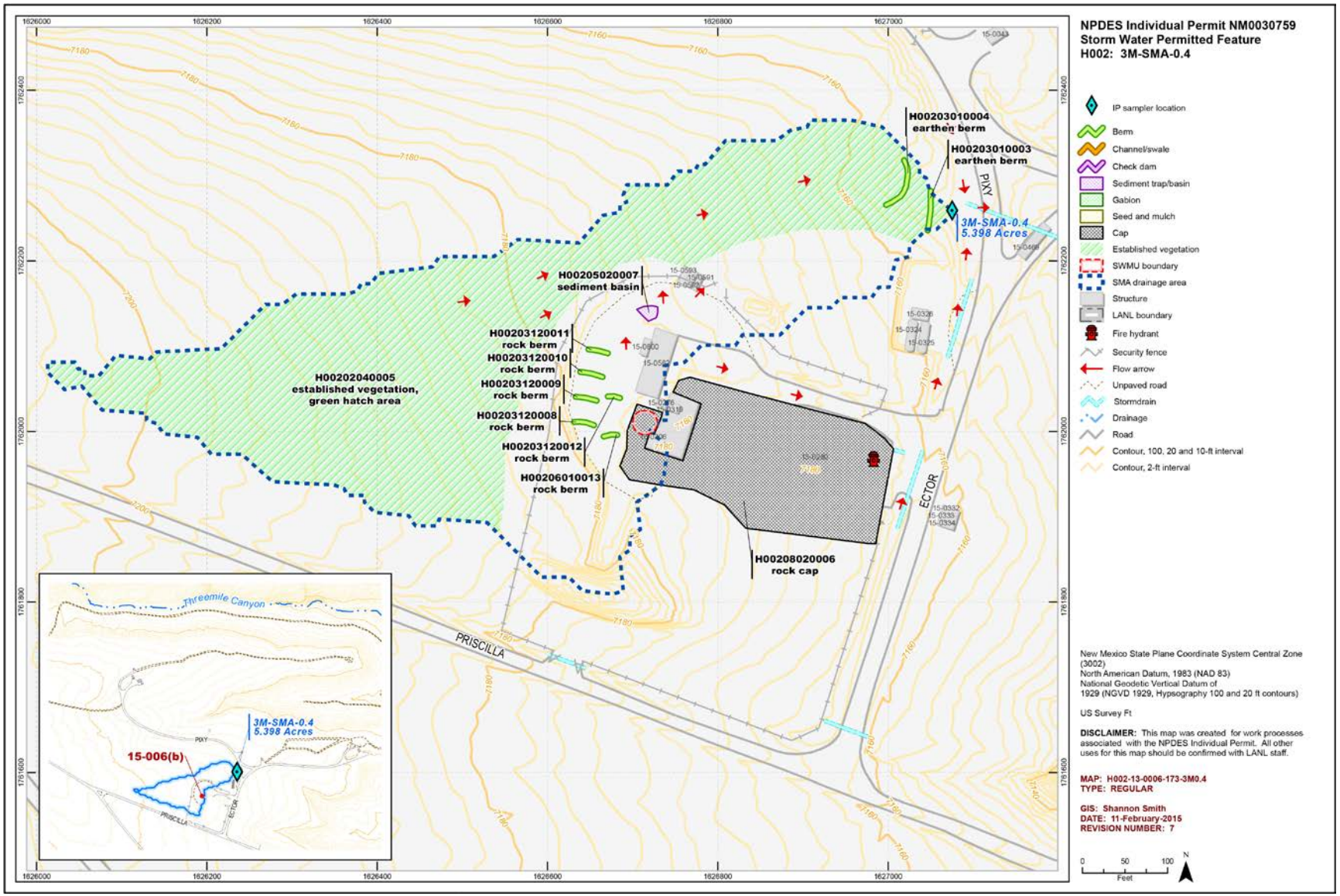
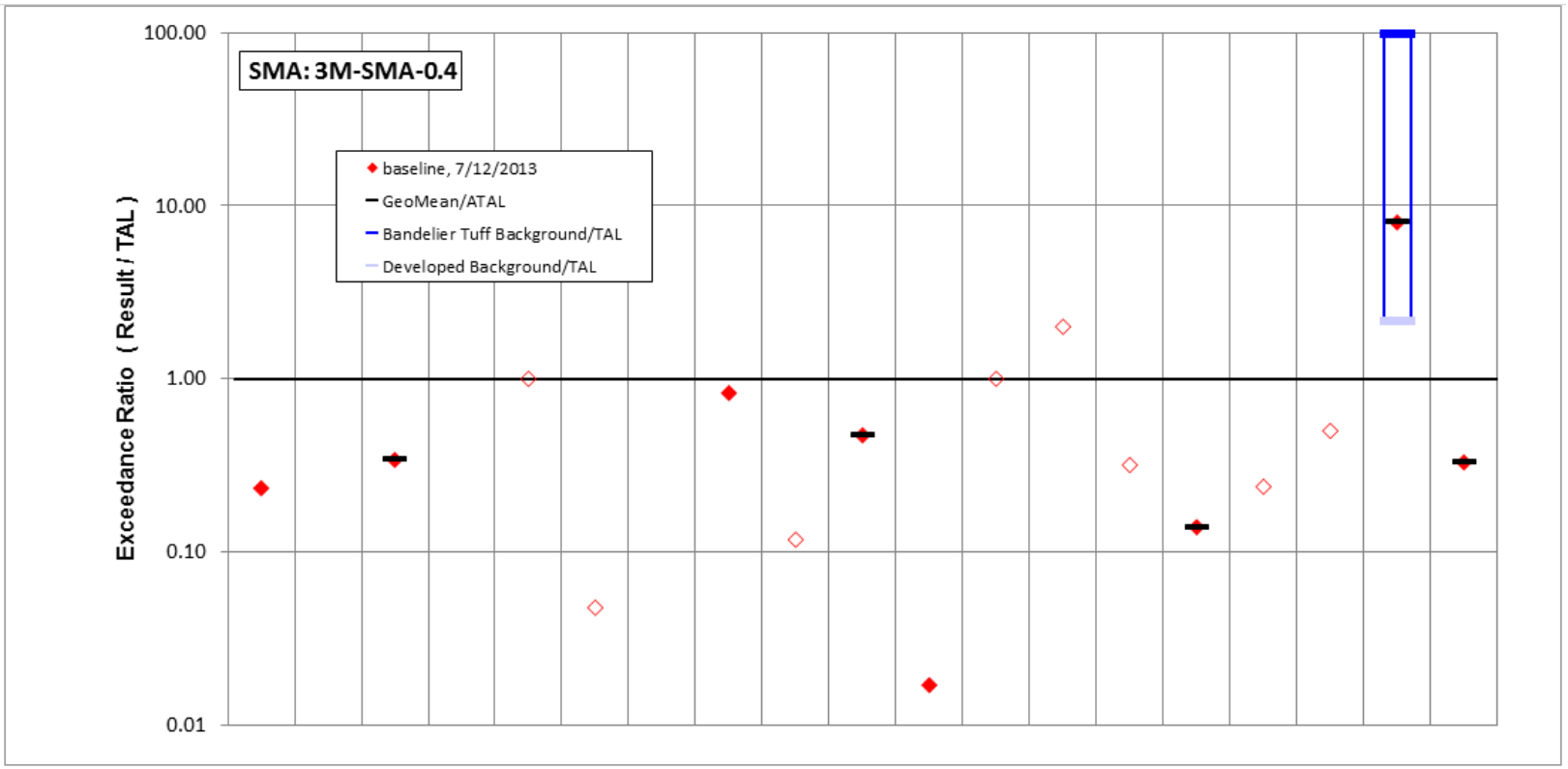


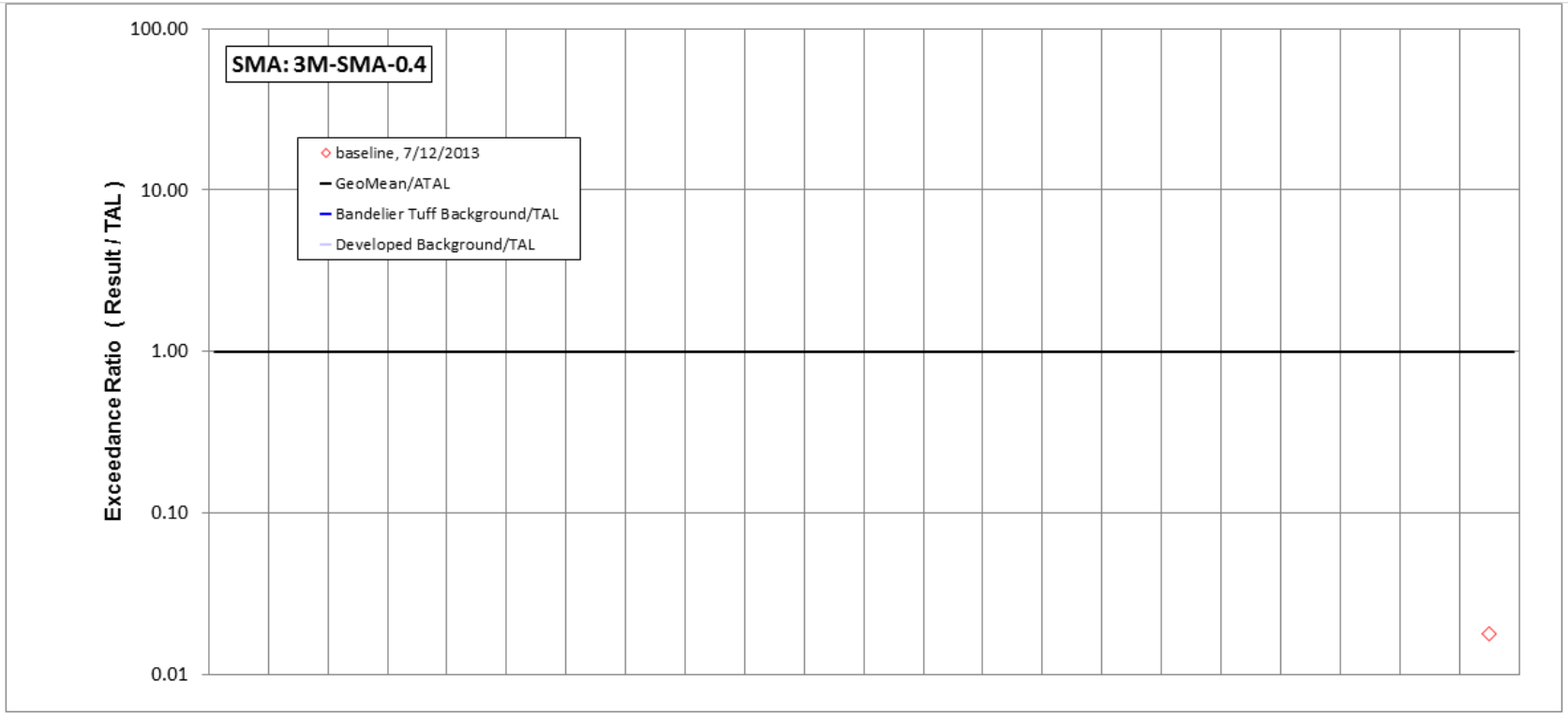
Figure 145-1 3M-SMA-0.4 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/12/2013 result	175	*3*	3.06	32.3	*1*	*10*	1.46	3.56	*2*	0.363	2.89	*5*	***1***	*2*	13.9	*10*	*0.005*	**120**	9.86
result / TAL	0.23	*0.005*	0.34	0.0065	*1*	*0.048*	0.0015	0.83	*0.12*	0.47	0.017	*1*	***2***	*0.32*	0.14	*0.24*	*0.5*	**8**	0.33

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 145-2 Inorganic analytical results summary plot for 3M-SMA-0.4



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-	-	ATAL
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/12/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.357*	-	-	-	*0.357*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.002*	-	-	-	*0.018*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 145-3 Organic analytical results summary plot for 3M-SMA-0.4

146.0 3M-SMA-0.5: SWMUs 15-006(c) and 15-009(c)

146.1 Site Descriptions

Two historical industrial activity areas are associated with H003, 3M-SMA-0.5: Sites 15-006(c) and 15-009(c).

SWMU 15-006(c) is the inactive firing site R-44. This firing site, located along the eastern side of TA-15, was originally constructed in 1951 and was used extensively from 1956 to 1978 for diagnostic tests of weapons components. After the PHERMEX and Ector firing sites became operational, firing site R-44 was used only for small experiments. Firing site R-44 was last used in 1992. Materials used in the tests included uranium, tritium, beryllium, lead, and HE. This firing site is located on a flat open area on a narrow mesa that overlooks Threemile Canyon. Debris from explosives tests has scattered onto the slope and into the canyon.

SWMU 15-006(c) is deferred per Table IV-2 of the Consent Order; therefore, Consent Order sampling has not been conducted at the Site, and no decision-level data are available for SWMU 15-006(c). Screening-level data from the 1995 RFI showed numerous inorganic chemicals detected above residential SSLs, several inorganic chemicals detected above industrial SSLs, and the HE RDX detected above residential and industrial SSLs; HMX was not detected above the residential SSL, and tritium was not detected above the residential SAL.

SWMU 15-009(c) is a septic system located at Firing Site R 44 at TA-15. The septic system consisted of a septic tank (former structure 15-62), associated drainlines, and an outfall. The septic tank was constructed in 1951 of reinforced concrete with a 540-gal. capacity. The system received effluent from restroom facilities in the firing site control building 15-44. The drainlines are constructed of cast iron and discharged to an outfall into the south fork of Threemile Canyon. The outfall is located approximately 25 ft downgradient of the tank. A 2003 engineering drawing shows the outfall has been plugged and the septic tank was removed during the 2009 and 2010 site investigation, but the drainlines remain in place.

A Phase I investigation was conducted in 2010. Based on the 2010 data and data from a 1998 interim action RFI, no chemical or radionuclide constituents were detected above residential SSLs or SALs.

Nature and extent will be reevaluated under the supplemental investigation report for Threemile Canyon Aggregate Area, scheduled to be submitted to NMED in 2015. It is anticipated this Site will be recommended for corrective action complete and will be eligible for a COC upon approval of the report by NMED.

The project map (Figure 146-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

146.2 Control Measures

Run-on associated with paved and bare areas is present. The existing controls serve to direct and control portions of the run-on source associated with paved areas. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 146-1).

Table 146-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00302040017	Established Vegetation	-	X	X	-	B
H00303010014	Earthen Berm	-	X	-	X	CB
H00304060001	Rip Rap	-	X	X	-	CB
H00304060004	Rip Rap	-	X	X	-	CB
H00306010002	Rock Check Dam	-	X	-	X	CB
H00306010005	Rock Check Dam	X	-	-	X	CB
H00306010006	Rock Check Dam	X	-	-	X	CB
H00306010007	Rock Check Dam	X	-	-	X	CB
H00306010008	Rock Check Dam	X	-	-	X	CB
H00306010009	Rock Check Dam	X	-	-	X	CB
H00306010010	Rock Check Dam	X	-	-	X	CB
H00306010011	Rock Check Dam	X	-	-	X	CB
H00306010012	Rock Check Dam	X	-	-	X	CB
H00306010013	Rock Check Dam	-	X	-	X	CB
H00306010016	Rock Check Dam	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

146.3 Storm Water Monitoring

SWMUs 15-006(c) and 15-009(c) are monitored within 3M-SMA-0.5. Following the installation of baseline control measures, a baseline storm water sample was collected on July 9, 2014 (Figures 146-2 and 146-3). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentrations of 4.35 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 29.5 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 15-006(c):

- Copper is not known to be associated with industrial materials historically managed at the Site. Consent Order sampling has not been performed at the Site. Copper was not detected above preliminary remediation goals or identified as a contaminant of concern in the RFI performed at this Site in 1995 and 1996. Data from the RFI are screening level.
- Alpha-emitting radionuclides (uranium isotopes) are known to be associated with industrial materials historically managed at the Site. Consent Order sampling has not been performed at this Site. RFI samples were not analyzed for alpha-emitting radionuclides but were analyzed for

uranium. Uranium was detected above preliminary remediation goals and identified as a contaminant of concern in the RFI. Data from the RFI are screening level. Uranium is excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 15-009(c):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not detected above BVs in any of the 39 shallow (i.e., less than 3 ft bgs) soil, sediment and tuff samples collected at the Site in 1998 and 2010.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 146-2 and 146-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 146-2 and 146-3.

Monitoring location 3M-SMA-0.5 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2014 is between these two values.
- Gross alpha—Gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2014 gross-alpha result is less than both of these values.

All the analytical results for these samples are reported in the 2014 Annual Report.

The monitoring station for 3M-SMA-0.5 has been relocated. The new location of the sampler is positioned below all controls and will provide a more representative sample of storm water discharge from the SMA. Sampler coordinates and the SMA drainage area are updated in Attachment 4.

146.4 Inspections and Maintenance

RG262.4 recorded 12 storm events at 3M-SMA-0.5 during the 2014 season. These rain events triggered eight post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 146-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38715	5-29-2014
Storm Rain Event	BMP-39065	6-16-2014
Storm Rain Event	BMP-39348	6-30-2014
Storm Rain Event	BMP-40078	7-16-2014
Storm Rain Event	BMP-41070	8-7-2014
Storm Rain Event	BMP-42044	8-18-2014
Storm Rain Event	BMP-42651	9-17-2014
Storm Rain Event	BMP-43141	10-8-2014
Annual Erosion Evaluation	COMP-43199	10-6-2014
TAL Exceedance	COMP-42711	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 146-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36901	Added angular rock to rock check dams H00306010005 and H00306010016 to extend north ends. Added angular rock to rock check dams H00306010010 and H00306010011 to increase height and extend ends.	5-14-2014	176 day(s)	Maintenance was initiated as a result of inspections conducted during winter weather conditions.
BMP-38942	Removed needle cast from rock check dam H00306010016. Placed needle cast on the channel banks.	6-9-2014	11 day(s)	Maintenance conducted as soon as practicable.
BMP-40711	Removed needle cast from rock check dam H00306010002 and placed out of channel.	7-21-2014	5 day(s)	Maintenance conducted as soon as practicable.
BMP-42083	Removed needle cast and debris from check dam H00306010002 and placed outside channel.	8-18-2014	11 day(s)	Maintenance conducted as soon as practicable.

146.5 Compliance Status

The Sites associated with 3M-SMA-0.5 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 146-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 15-006(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-18-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 11-01-2015.
SWMU 15-009(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-18-2014. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA. The proposed date of compliance certification is 11-01-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

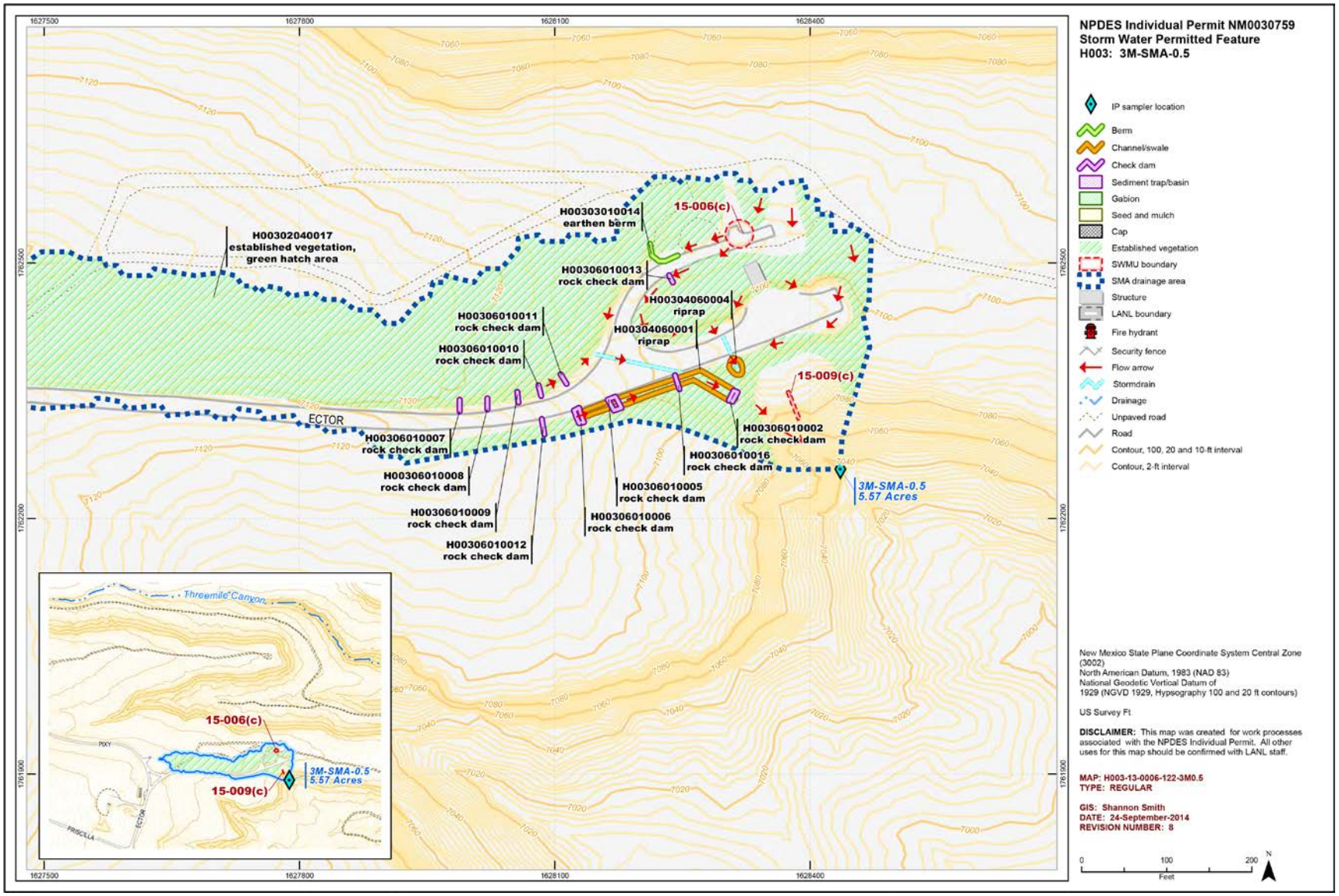
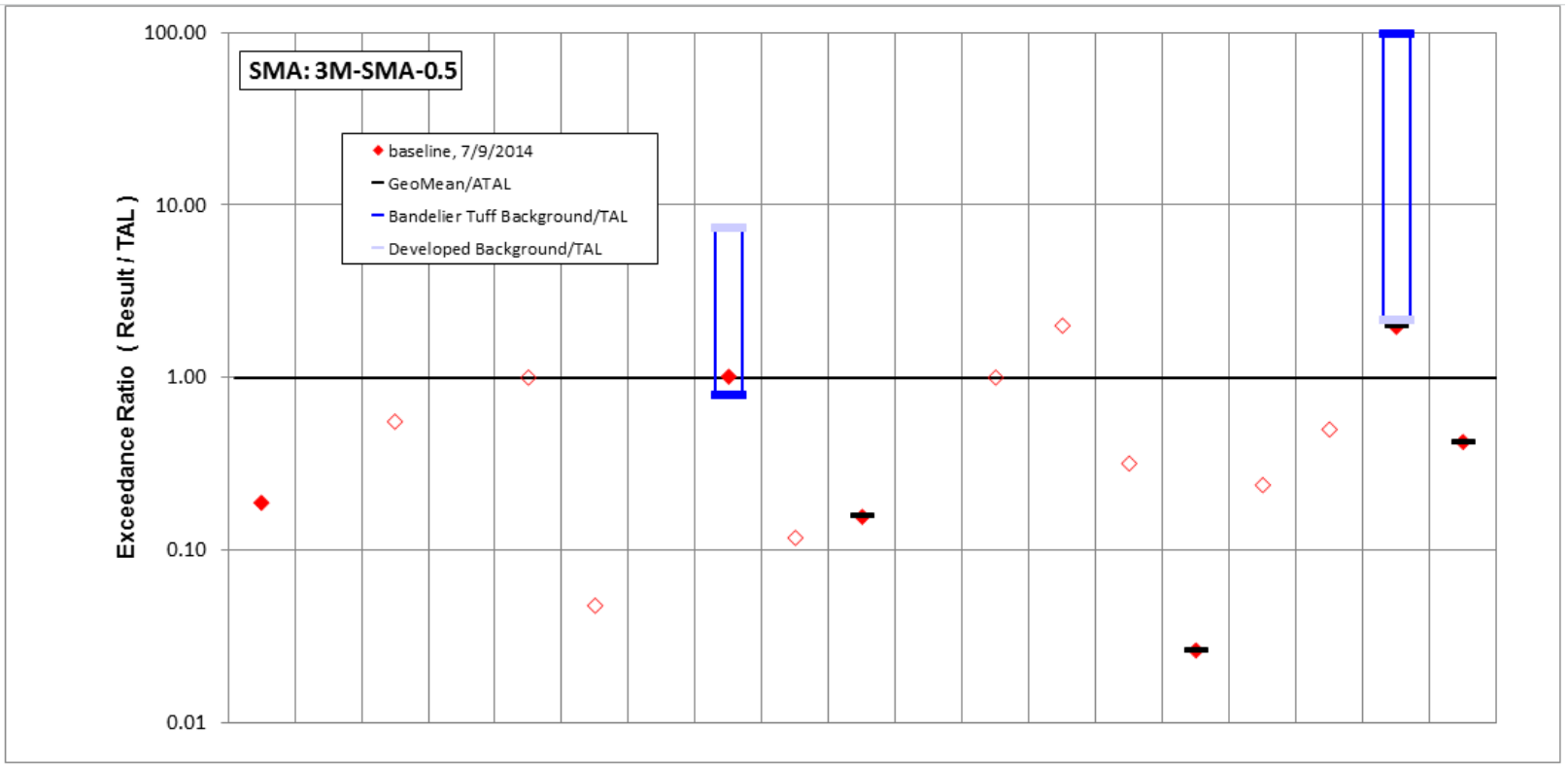


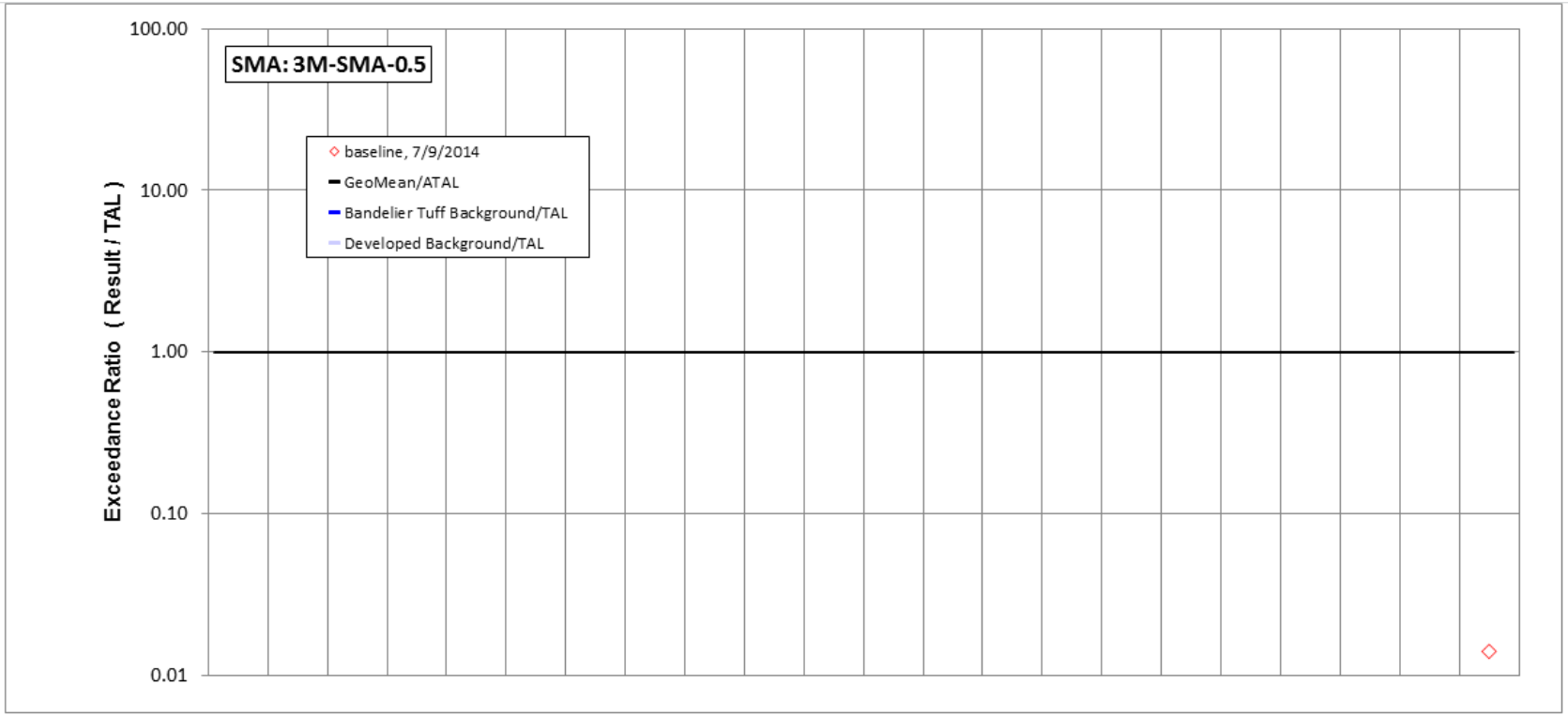
Figure 146-1 3M-SMA-0.5 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/9/2014 result	141	*3*	*5*	16.5	*1*	*10*	*5*	**4.35**	*2*	0.12	1.39	*5*	***1***	*2*	2.62	*10*	*0.005*	**29.5**	12.7
result / TAL	0.19	*0.005*	*0.56*	0.0033	*1*	*0.048*	*0.005*	**1**	*0.12*	0.16	0.0082	*1*	***2***	*0.32*	0.026	*0.24*	*0.5*	**2**	0.42

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 146-2 Inorganic analytical results summary plot for 3M-SMA-0.5



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-	-	ATAL
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/9/2014 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.281*	-	-	-	*0.281*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.001*	-	-	-	*0.014*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 146-3 Organic analytical results summary plot for 3M-SMA-0.5

147.0 3M-SMA-0.6: SWMU 15-008(b)

147.1 Site Descriptions

One historical industrial activity area is associated with H004, 3M-SMA-0.6: Site 15-008(b).

SWMU 15-008(b) is a surface disposal area at TA-15, located north of firing site R-44 [SWMU 15-006(c)] and extending along the edge of the mesa and downslope into Threemile Canyon. The surface disposal area covers approximately 8.5 acres. Firing Site R-44 was built in 1951 for diagnostic tests of weapons components and used extensively until 1978 and sporadically until 1992. Soil and debris from the firing site activities were disposed of at SWMU 15-008(b). An expedited cleanup was performed in July 2000 after the Cerro Grande fire, which included removing 20 yd^3 of firing site debris from the SWMU and surrounding area and installing erosion-control features, such as straw wattles, rock check dams, and silt fencing to control run-on and runoff.

Soil samples were analyzed for TAL metals, explosive compounds, PCBs, and radionuclides from investigations in 1994 and 2010. Aluminum, antimony, arsenic, copper, lead, and uranium were detected above residential SSLs in 1 to 12 samples but well below industrial SSLs; lead concentrations exceed the industrial SSL at 3 locations. All detected organic chemicals are below residential SSLs. All detected radionuclides were below residential SALs, except uranium-238, which was detected above the residential SAL in 10 samples but below the industrial SAL.

Remediation and additional characterization sampling are expected to be required as part of the Phase II investigation for Threemile Canyon Aggregate Area.

The project map (Figure 147-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

147.2 Control Measures

There is minor run-on from the storage area above the Site. An unpaved road above the northern boundary of the Site also contributes run-on to the area. Extensive sheet flow across the area results in concentrated flow discharges. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 147-1).

Table 147-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00402040029	Established Vegetation	-	X	X	-	B
H00403060002	Straw Wattle	X	-	-	X	CB
H00403060003	Straw Wattle	X	-	-	X	CB
H00403060006	Straw Wattle	X	-	-	X	CB
H00403060008	Straw Wattle	X	-	-	X	CB
H00403060010	Straw Wattle	X	-	-	X	CB
H00403060011	Straw Wattle	-	X	-	X	CB
H00403060012	Straw Wattle	-	X	-	X	CB
H00403060015	Straw Wattle	X	-	-	X	CB
H00403060017	Straw Wattle	-	X	-	X	CB
H00403060018	Straw Wattle	-	X	-	X	CB
H00403060019	Straw Wattle	-	X	-	X	CB
H00403060021	Straw Wattle	-	X	-	X	CB
H00403060022	Straw Wattle	X	-	-	X	CB
H00403060027	Straw Wattle	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

147.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-0.6. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

147.4 Inspections and Maintenance

RG245.5 recorded ten storm events at 3M-SMA-0.6 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 147-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39045	6-16-2014
Storm Rain Event	BMP-39328	6-30-2014
Storm Rain Event	BMP-39658	7-16-2014
Storm Rain Event	BMP-41050	8-7-2014
Storm Rain Event	BMP-42358	9-9-2014
Storm Rain Event	BMP-43121	10-8-2014
Annual Erosion Evaluation	COMP-43200	10-6-2014

No maintenance activities or facility modifications affecting discharge were conducted at 3M-SMA-0.6 in 2014.

147.5 Compliance Status

The Site associated with 3M-SMA-0.6 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 147-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 15-008(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

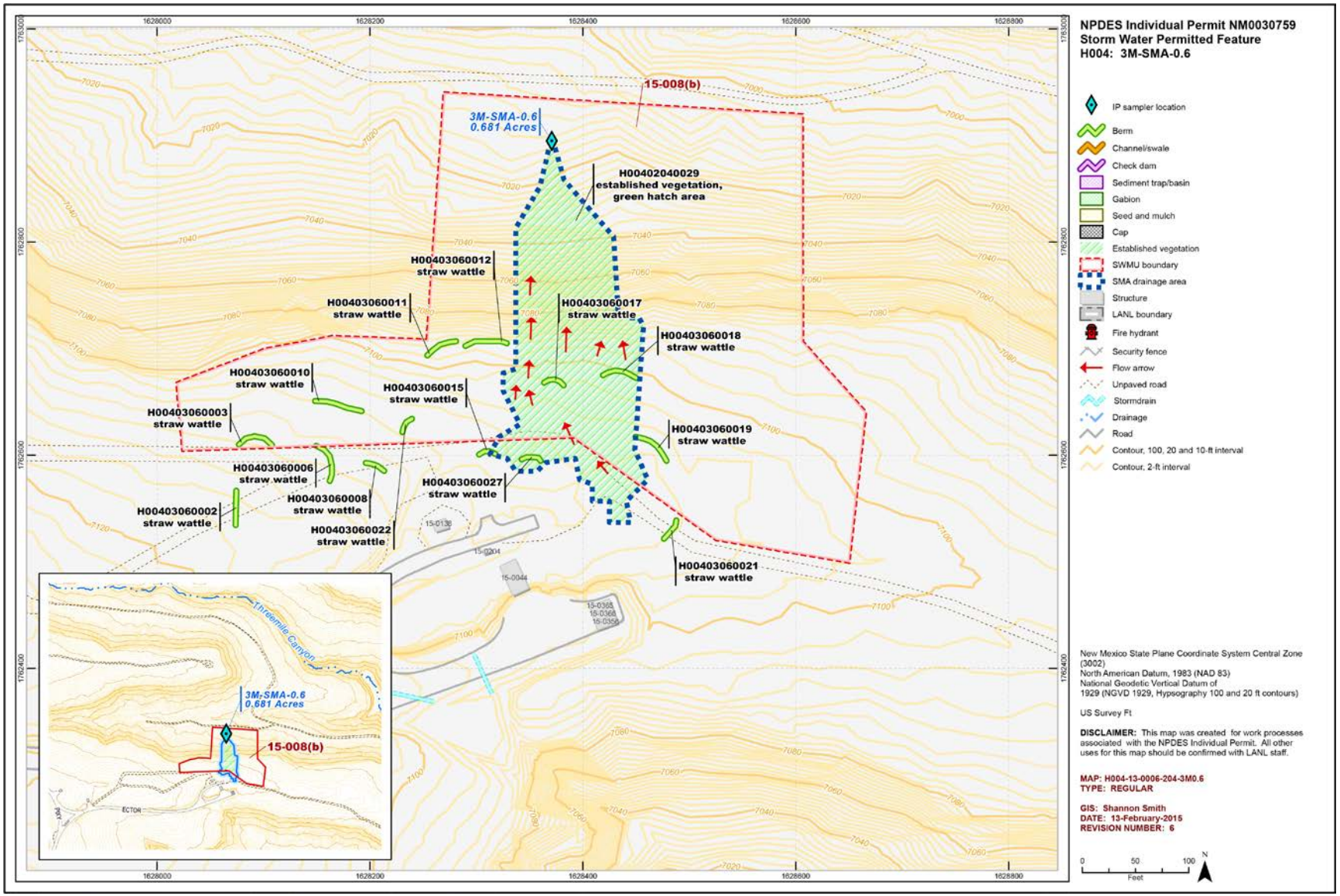


Figure 147-1 3M-SMA-0.6 location map

148.0 3M-SMA-2.6: SWMUs 36-008 and C-36-003

148.1 Site Descriptions

Two historical industrial activity areas are associated with H005, 3M-SMA-2.6: Sites 36-008 and C-36-003.

SWMU 36-008 is a surface disposal area located at TA-36 on the south rim of Threemile Canyon behind building 36-1. The disposal area covers an estimated 1 to 2 acres and extends below the building over the steeply sloping edge of the mesa. The dates the Site was used for disposal are not known, but the Site appears to be associated with building 36-1 (an office and laboratory), which was constructed in 1949. Materials disposed of at the Site included laboratory glassware, metal cans, metal pipe, miscellaneous metal pieces, and other debris. This disposal area was revealed in June 2000 after the Cerro Grande fire burned the vegetation surrounding the site. As part of the emergency response actions associated with the fire, approximately 5 yd^3 of debris was collected from the Site, segregated, and staged for disposal, and storm water BMPs were installed to prevent erosion.

Phase I sampling was conducted in 2009 and 2010. Two inorganic chemicals, copper and mercury, were detected above residential SSLs, and several PAHs were detected above residential and industrial SSLs. All other detected chemicals and radionuclides were below residential SSLs and SALs, respectively.

Nature and extent and risk will be reevaluated under the supplemental investigation report for Threemile Canyon Aggregate Area, scheduled to be submitted to NMED in 2015, to determine whether additional characterization or remediation is needed.

SWMU C-36-003 is a former NPDES-permitted outfall (EPA06A106) located at TA-36 on the south rim of Threemile Canyon, north of office and laboratory building 36-1. The outfall became operational in the 1950s and served the sink and floor drains on the first floor of the building and the floor, sink, and equipment drains in the photoprocessing laboratories on the second floor of the building. In 1993, the floor and sink drains were rerouted to the SWSC plant. The outfall was removed from the NPDES permit in 2001.

An RFI was conducted in 1994. Decision-level data were collected during a Phase I investigation in 2010: one PAH was detected above residential and industrial SSLs, and all other detected chemicals and radionuclides were below residential SSLs and SALs, respectively.

Nature and extent and risk will be reevaluated under the supplemental investigation report for Threemile Canyon Aggregate Area, scheduled to be submitted to NMED in 2015, to determine whether additional characterization or remediation is needed."

The project map (Figure 148-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

148.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 148-1).

Table 148-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00502040007	Established Vegetation	-	X	X	-	B
H00503120005	Rock Berm	X	-	-	X	CB
H00504040003	Culvert	X	-	-	-	CB
H00506010006	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

148.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-2.6. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

148.4 Inspections and Maintenance

RG245.5 recorded ten storm events at 3M-SMA-2.6 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 148-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39046	6-10-2014
Storm Rain Event	BMP-39329	6-30-2014
Storm Rain Event	BMP-39659	7-15-2014
Storm Rain Event	BMP-40447	7-24-2014
Storm Rain Event	BMP-41051	8-7-2014
Storm Rain Event	BMP-42359	9-2-2014
Storm Rain Event	BMP-43122	10-8-2014
Annual Erosion Evaluation	COMP-43684	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at 3M-SMA-2.6 in 2014.

148.5 Compliance Status

The Sites associated with 3M-SMA-2.6 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 148-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 36-008	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU C-36-003	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

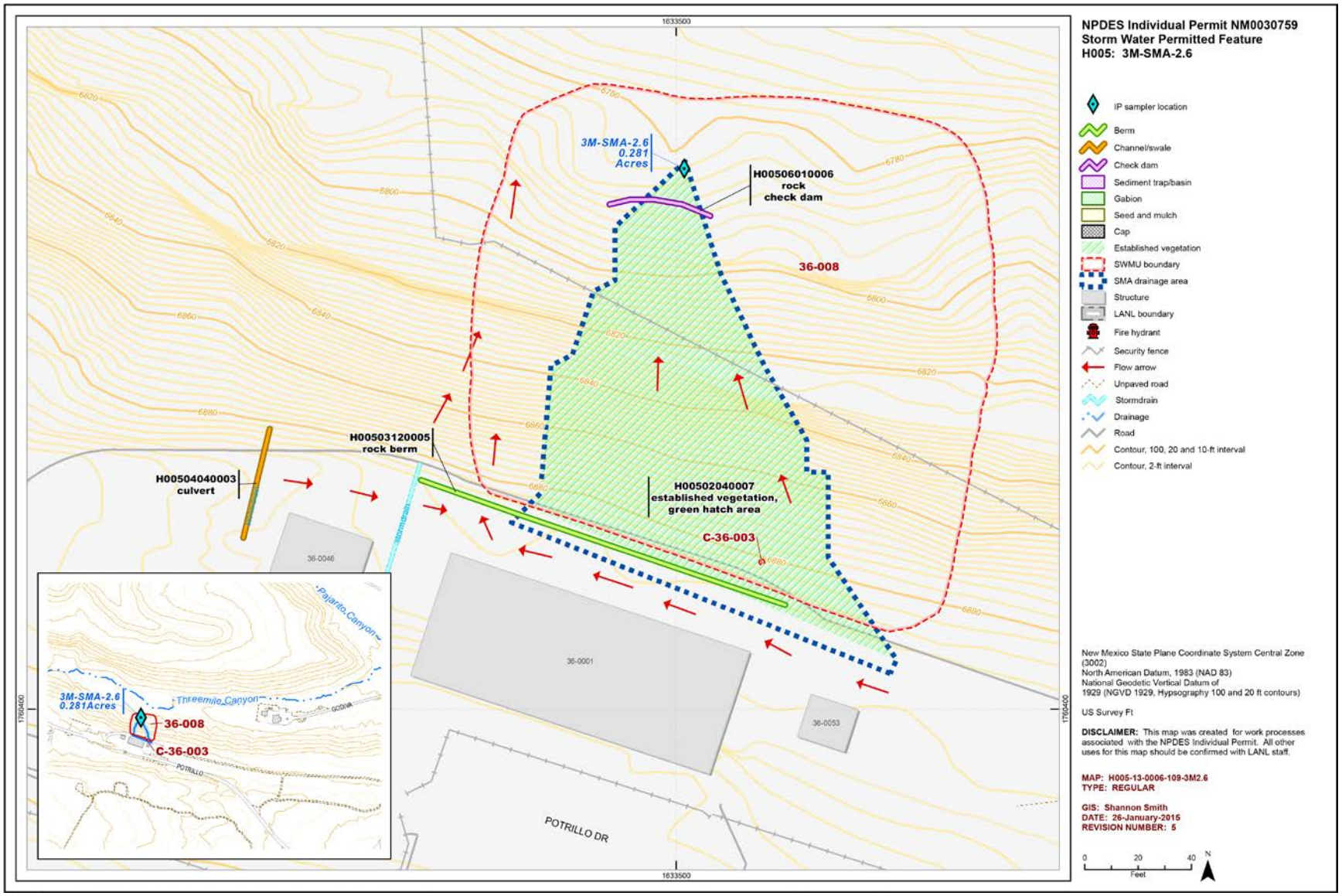


Figure 148-1 3M-SMA-2.6 location map

149.0 3M-SMA-4: SWMUs 18-002(b) and 18-003(c) and AOC 18-010(f)

149.1 Site Descriptions

Three historical industrial activity areas are associated with H006, 3M-SMA-4: Sites 18-002(b), 18-003(c), and 18-010(f).

SWMU 18-002(b) is the former location of a firing points at TA-18 in Threemile Canyon near the former location of former building 18-32. The firing site was used from 1944 to 1945. The Site consisted of a 2-ft-long × 2-ft-wide × 2-ft-deep firing chamber (former structure 18-04) constructed from 1-in.-thick steel and an aboveground armored bunker (structure 18-05), commonly called a "battleship," used to protect shot instrumentation. The top of the firing chamber was open and set flush with the ground west of structure 18-05. A ground-level wooden structure (former structure 18-06), located east of structure 18-05, was the battery building for the firing site cable conduit system and contained racks of lead-acid batteries. Structure 18-04 was removed in 1945, structure 18-06 was dismantled in 1951, and structure 18-05 underwent D&D in 2011 and 2012. Three additional former firing points that were located upcanyon and west of the first former firing point are associated with SWMU 18-002(b). Firing Point C (beneath former building 18-0032) and Firing Point G (located at the southeast corner of the former storage building 18-0122) were used in firing operations involving smaller charges, while the third firing point, Medium Firing Point, was built to handle HE charges of up to 2 tons. A flat, graded area west of former building 18-32 marks the location of this former firing point. The firing points were removed in the late 1940s, before the construction of former building 18-32.

SWMU 18-002(b) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet been started. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 18-002(b).

SWMU 18-003(c) is an inactive septic system at TA-18 that received sanitary waste from former building 18-32 (a former critical assembly building) from 1952 to 1995. The system includes an inlet line, a reinforced concrete septic tank (structure 18-42), a discharge line, a drain field, and an outfall. The septic tank is located approximately 15 ft east of former building 18-128 and approximately 90 ft northeast of former building 18-32. The tank had a capacity of 650 gal. The inlet line leading to the tank is approximately 130 ft in length, and the total length of the outlet line is approximately 115 ft. The drain field begins approximately 60 ft east of the septic tank and extends east 55 ft. The drain field consists of four drainlines spaced approximately 10 ft apart. Each drainline is approximately 75 ft long. An outfall, located at the distal end of the drain field, discharged into the stream channel in Threemile Canyon. During the 1996 IA conducted at the Site, the septic tank content were removed and disposed of off-site and the tank was pressure-washed. In addition, the floor drains in former building 18-32 were sealed by fastening a gasket and metal plate over the drain opening; water service to the building was shut off. During the 2000 VCM conducted at the Site, samples were collected from the tank interior and from subsurface soils around and beneath the tank; the tank was filled with pea gravel and closed in place. Buildings 18-32 and 18-128 underwent D&D in 2011 and 2012.

SWMU 18-003(c) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet been started. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010.

AOC 18-010(f) is a former outfall at TA-18 that received discharges from the roof and floor drains associated with former building 18-32. Roof and floor drains associated with former building 18-32

discharged to a drainline that was located at the northeast corner of the building. The drainline ran under the pavement and discharged to an outfall located approximately 100 ft north of former building 18-32, on the south side of the stream channel in Threemile Canyon. Building 18-32 was built in 1951 and used for nuclear critical assembly work. The date this outfall became operational is not known, but it is likely that the outfall has operated from the time building 18-0032 was constructed in 1951. Building 18-32 was decommissioned in 2008 and underwent D&D in 2011 and 2012; the storm drainline was cut and capped at the foundation of former building 18-32 during D&D activities.

AOC 18-010(f) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for AOC 18-010(f).

The project map (Figure 149-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

149.2 Control Measures

This SMA is located in a canyon floodplain. A discrete drainage channel runs north of the Permitted Feature. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 149-1).

Table 149-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00602040010	Established Vegetation	-	X	X	-	B
H00603010007	Earthen Berm	-	X	-	X	CB
H00603010008	Earthen Berm	-	X	-	X	CB
H00604020009	Concrete/Asphalt Channel/Swale	X	-	X	-	CB
H00604060005	Rip Rap	X	-	X	-	CB
H00604060006	Rip Rap	-	X	X	-	CB
H00607010002	Gabions	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

149.3 Storm Water Monitoring

SWMUs 18-002(b) and 18-003(c) and AOC 18-010(f) are monitored within 3M-SMA-4. Following the installation of baseline control measures, a baseline storm water sample was collected on July 29, 2014 (Figure 149-2). Analytical results from this sample yielded the following target action level (TAL) exceedances:

- Copper concentrations of 4.72 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 259 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 18-002(b):

- Copper is likely associated with industrial materials historically managed at the Site. No investigation data are available for SWMU 18-002(b).
- Alpha-emitting radionuclides are likely associated with industrial materials historically managed at the Site. No investigation data are available for SWMU 18-002(b). Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 18-003(c):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not detected above the BV in the single shallow (i.e., less than 3 ft bgs) 1997 VCM soil sample.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

AOC 18-010(f):

- Copper is not known to be associated with industrial materials historically managed at the Site. No investigation data are available for AOC 18-010(f).
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 149-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 149-2.

Monitoring location 3M-SMA-4 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2014 is between these two values.
- Gross alpha—Gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2014 gross-alpha result is greater than both of these values.

All the analytical results for these samples are reported in the 2014 Annual Report.

149.4 Inspections and Maintenance

RG245.5 recorded ten storm events at 3M-SMA-4 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 149-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39047	6-10-2014
Storm Rain Event	BMP-39330	6-30-2014
Storm Rain Event	BMP-39660	7-15-2014
Storm Rain Event	BMP-40448	7-24-2014
Storm Rain Event	BMP-41052	8-7-2014
Storm Rain Event	BMP-42360	9-4-2014
Storm Rain Event	BMP-43123	10-14-2014
Annual Erosion Evaluation	COMP-43685	10-29-2014
TAL Exceedance	COMP-44021	10-29-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 149-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36915	Added angular rock to scour hole on east end of lower gabion tier and the scour hole on west end of lower gabion tier of gabions H00607010002. Removed 2 areas of sediment deposition from channel H00604020009 with hand tools. Placed sediment below channel, raked out, and seeded. Replaced H00604060006 by installing new angular rock to area indicated on map as 'Rip Rap H00604060006'.	4-14-2014	207 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.

149.5 Compliance Status

The Sites associated with 3M-SMA-4 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 149-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 18-002(b)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-20-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 11-08-2015.
SWMU 18-003(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-20-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 11-08-2015.
AOC 18-010(f)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-20-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 11-08-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

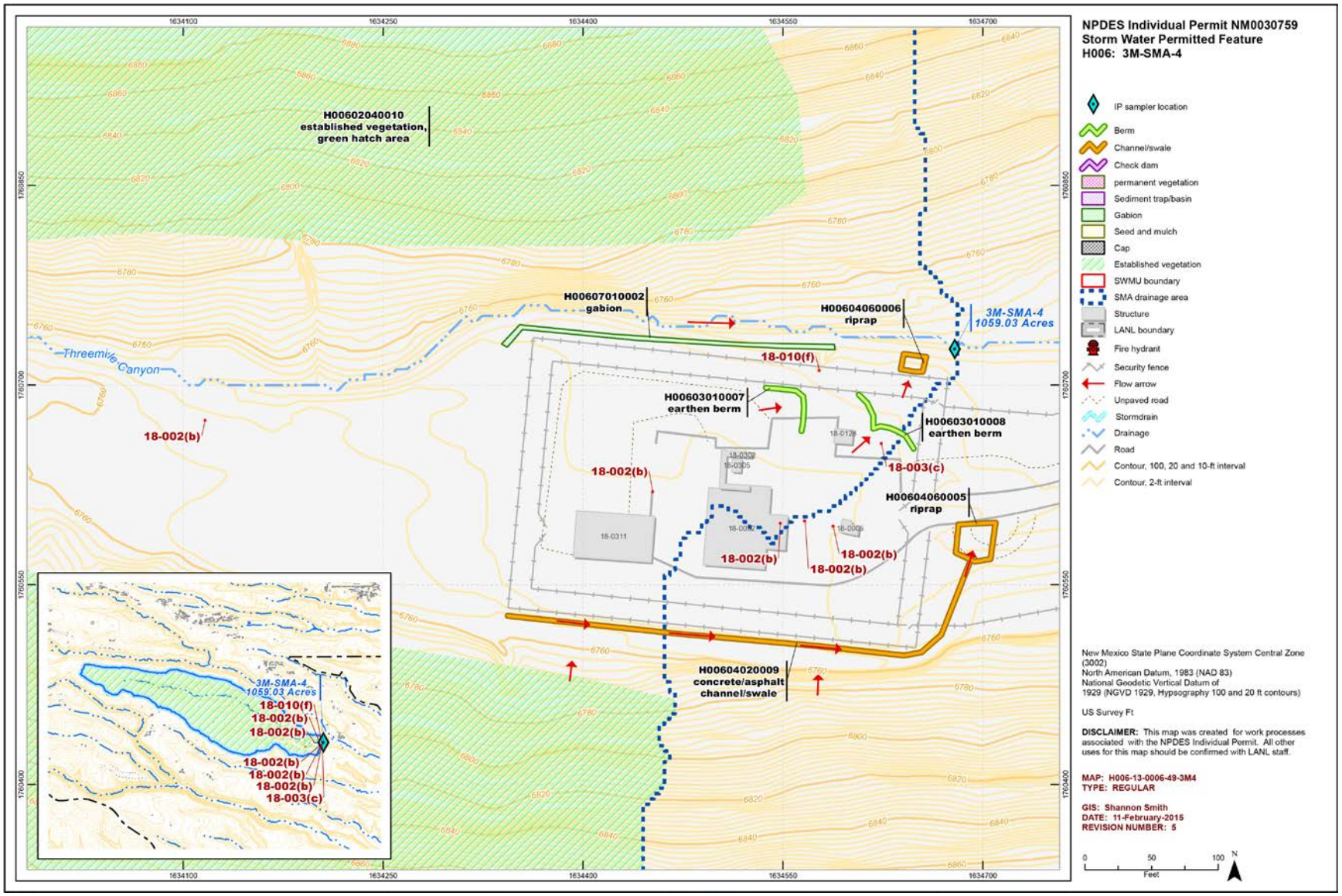


Figure 149-1 3M-SMA-4 location map

150.0 PJ-SMA-1.05: SWMU 09-013

150.1 Site Descriptions

One historical industrial activity area is associated with J001, PJ-SMA-1.05: Site 09-013.

SWMU 09-013 is MDA M, which consists of two surface disposal areas at TA-09, a main area and a smaller satellite area. The main area occupies about 3.2 acres and is located approximately 1600 ft southwest of building 22-120. The 150-ft-wide × 260-ft-long satellite area is located approximately 750 ft northwest of the main area. MDA M was created during the demolition of the Old Anchor Ranch East and West sites. Structures were flash burned to remove any HE residue and deposited over the MDA surface. Debris from the construction of current TA 08 and TA 09 facilities (1949–1965) and other sites (1960 to 1965) were also deposited at MDA M. Materials present at the MDA included metal debris, wood debris, laboratory appliances and fixtures, and metal and glass containers. The main disposal area was surrounded by an earth berm that eroded through by surface-water runoff. MDA M has been inactive since 1965. All debris and contaminated soil were removed from MDA M during an expedited cleanup conducted in 1995 to 1996.

A Consent Order investigation has not been performed at SWMU 09-013, and no decision-level soil sampling data are available for this Site. Sampling was performed at the Site during a 1994 RFI and the 1995 and 1996 expedited cleanup.

The project map (Figure 150-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

150.2 Control Measures

This Permitted Feature is gently sloped although there is evidence of minor run-on from the unpaved access road that bisects the Site. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 150-1).

Table 150-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00101010015	Seed and Wood Mulch	-	-	X	-	B
J00102040019	Established Vegetation	-	X	X	-	B
J00103010017	Earthen Berm	-	X	-	X	B
J00103010018	Earthen Berm	-	X	-	X	B
J00104050008	Water Bar	-	X	X	-	CB
J00104050009	Water Bar	X	-	X	-	CB
J00104050012	Water Bar	X	-	X	-	B
J00104050013	Water Bar	X	-	X	-	B
J00104050014	Water Bar	X	-	X	-	B
J00104060011	Rip Rap	-	X	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

150.3 Storm Water Monitoring

SWMU 09-013 is monitored within PJ-SMA-1.05. Following the installation of baseline control measures, a baseline storm water sample was collected on September 13, 2013 (Figures 150-2 and 150-3). Analytical results from this sample yielded the following TAL exceedance:

- PCB concentration of 9 ng/L (ATAL is 0.6 ng/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 09-013:

- Based on descriptions of the wastes present at MDA M, PCBs are known to have been associated with industrial materials historically managed at this Site. PCBs were detected in RFI samples with Aroclor-1254 being detected above the 1 mg/kg SAL in 2 samples, both collected within the main (i.e., southern) area. The maximum concentration of Aroclor-1254 is 2.3 times the residential SSL. The PCB hotspots identified during the RFI were removed during the expedited cleanup, and confirmation samples were collected from grids. Three PCB mixtures (Aroclor-1248, Aroclor-1254, and Aroclor-1260) were detected in shallow (i.e., 0 to 3 ft bgs) expedited cleanup confirmation samples. Aroclor-1248 was detected in 5 of 11 shallow samples collected within the main area and was not detected in 2 shallow samples from the satellite area. The maximum concentration was 3% of the residential SSL. Aroclor-1254 was detected in 4 of 11 shallow samples collected within the main area and 1 of 2 shallow samples from the satellite area. The maximum concentration was 3% of the residential SSL. Aroclor-1260 was detected in 4 of 11 shallow samples collected within the main area and 1 of 2 shallow samples from the satellite area. The maximum concentration was 1% of the residential SSL. The RFI and expedited cleanup data are screening-level data.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 150-2 and 150-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figures 150-2 and 150-3.

Monitoring location PJ-SMA-1.05 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff.

- PCBs—The PCB UTL from developed urban landscape storm water run-on is 98 ng/L; the PCB UTL for background storm water containing sediment derived from Bandelier Tuff is 11.7 ng/L. The PCB result from 2013 is below both of these values.

All the analytical results for these samples are reported in the 2013 Annual Report.

150.4 Inspections and Maintenance

RG240 recorded six storm events at PJ-SMA-1.05 during the 2014 season. These rain events triggered three post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 150-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39817	7-14-2014
Storm Rain Event	BMP-40777	7-30-2014
Storm Rain Event	BMP-41544	8-12-2014
Annual Erosion Evaluation	COMP-43306	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 150-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36199	Repaired breach southeast of spillway on berm J00103010017. Increased height of berm by approximately 8 in. from the southeast edge of the spillway for approx. 15 ft. Applied seed and matting to berm. Redistributed some rock in middle of spillway to the sides of the spillway. Applied seed and mulch to disturbed areas.	3-6-2014	170 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.

150.5 Compliance Status

The Sites associated with PJ-SMA-1.05 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 150-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-013	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-3-2013.Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA. The proposed date of compliance certification is 10-11-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

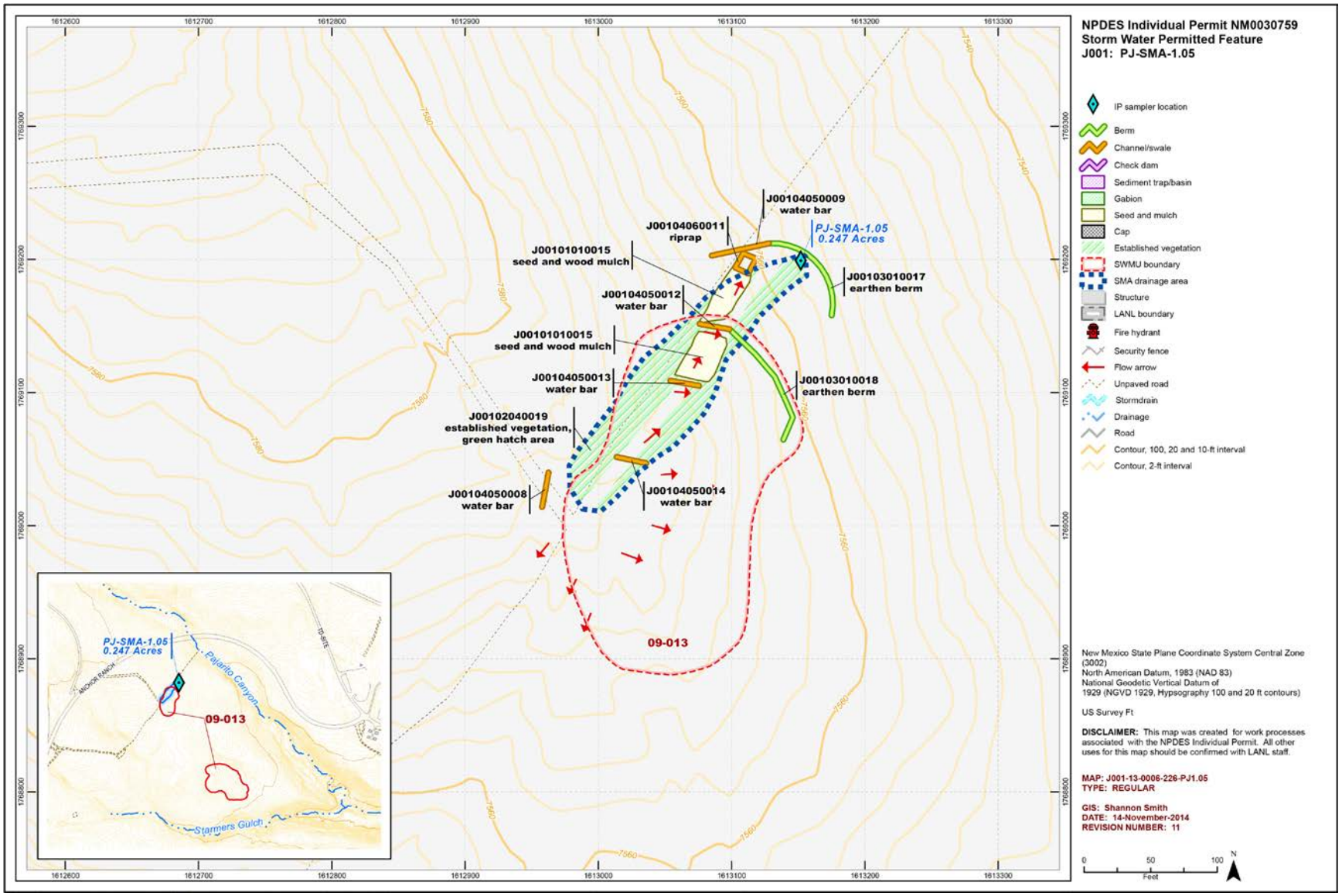
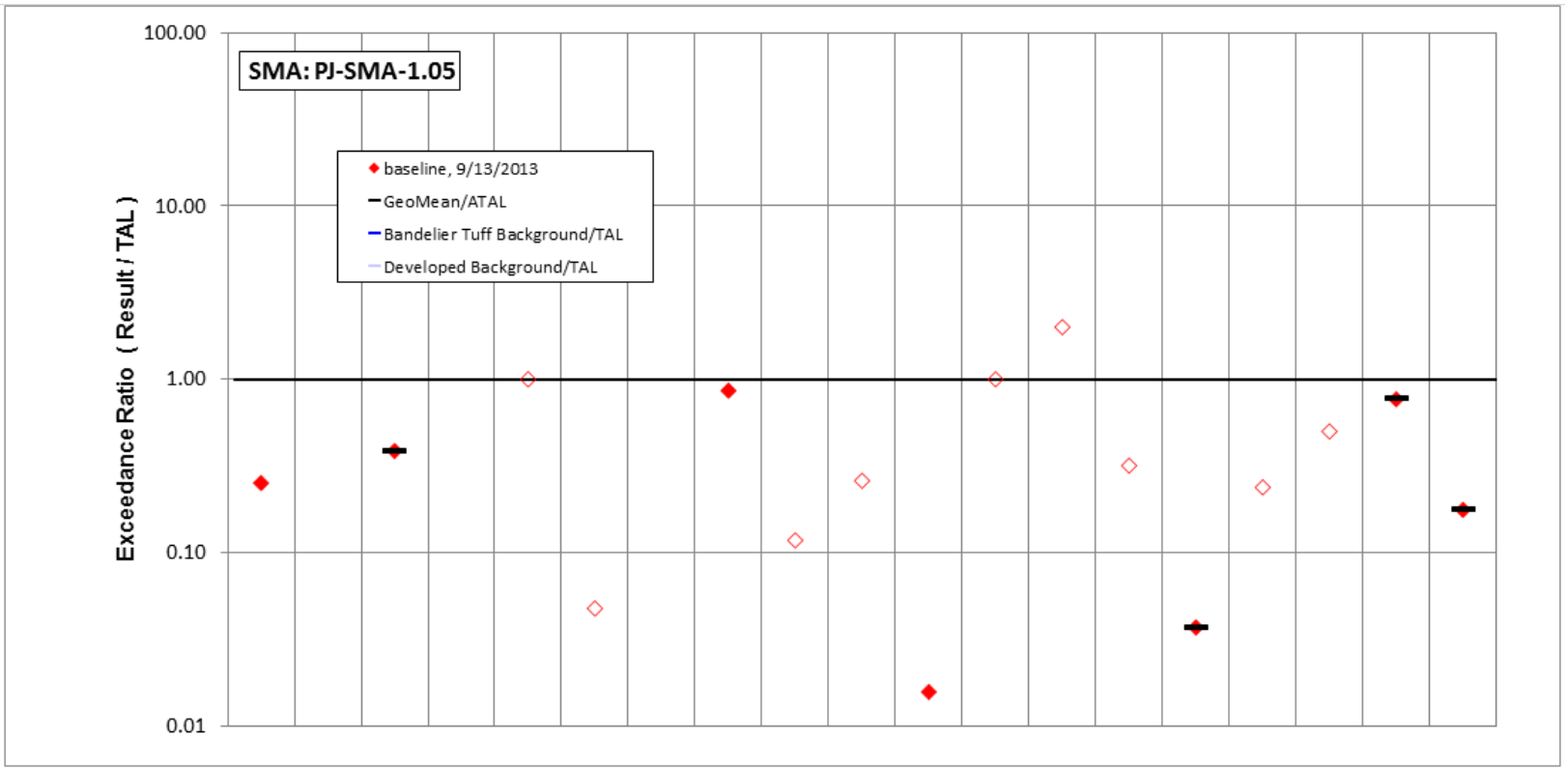


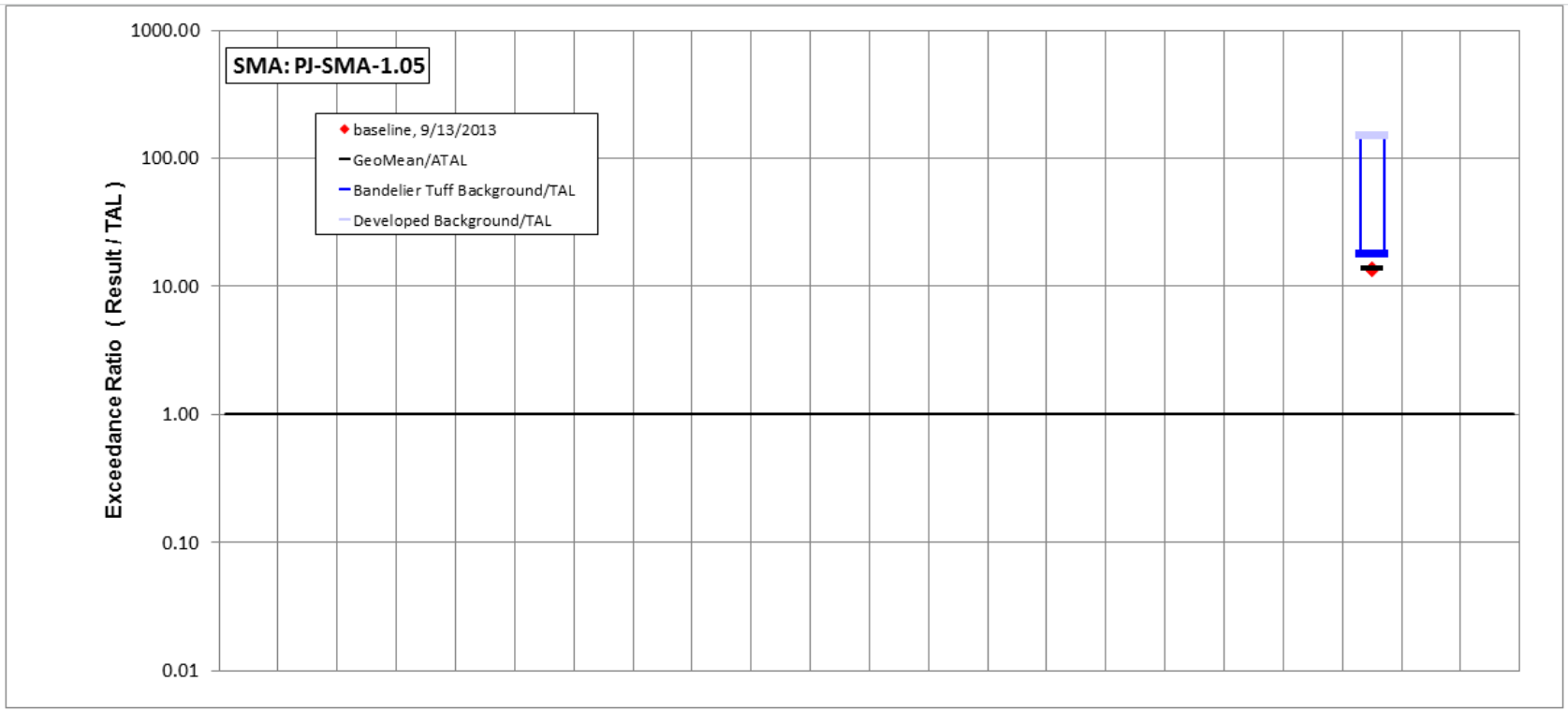
Figure 150-1 PJ-SMA-1.05 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	189	1.18	3.47	38.2	*1*	*10*	1.99	3.7	*2*	*0.2*	2.67	*5*	***1***	*2*	3.7	*10*	*0.005*	11.5	5.29
result / TAL	0.25	0.0018	0.39	0.0076	*1*	*0.048*	0.002	0.86	*0.12*	*0.26*	0.016	*1*	***2***	*0.32*	0.037	*0.24*	*0.5*	0.77	0.18

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 150-2 Inorganic analytical results summary plot for PJ-SMA-1.05



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
9/13/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.009**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**14**	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 150-3 Organic analytical results summary plot for PJ-SMA-1.05

151.0 PJ-SMA-2: SWMU 09-009

151.1 Site Descriptions

One historical industrial activity area is associated with J002, PJ-SMA-2: Site 09-009.

SWMU 09-009 consists of a decommissioned surface impoundment (structure 09-218) and two associated decommissioned sand filters at TA-09. The surface impoundment is located approximately 120 ft northeast of building 09-40, and the associated sand filters are approximately 120 ft northeast of the surface impoundment. The surface impoundment is 32 ft wide × 60 ft long × 7 ft deep; the sides are constructed of concrete and the bottom of bentonite. The two sand filters, which cover a total area of 33 ft wide × 60 ft long and approximately 4 ft deep, have a flexible membrane liner (butyl rubber) and are surrounded by a concrete curb. The surface impoundment was constructed in 1961 to treat sanitary waste from buildings 09-20, 09-21, 09-28, 09-29, 09-32, 09-33, 09-34, 09-35, 09-37, and 09-38 and discharged to an outfall approximately 300 ft to the northwest. After the sand filters were installed in 1974, the surface impoundment discharged effluent to the sand filters. After flowing through the sand filters, effluent discharged to a former NPDES-permitted outfall (55502S). In 1986, the sewer lines from TA-08 were connected to the surface impoundment, including the sewer line from building 08-24, where a strontium-90 spill occurred in 1954. The surface impoundment and sand filter system were decommissioned when the SWSC came online in 1992. All active buildings previously connected to the impoundment continue to discharge sanitary wastewater to the SWSC.

SWMU 09-009 is included in the Consent Order as part of the Starmer/Upper Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Starmer/Upper Pajarito Canyon Aggregate Area was approved in March 2011. Decision-level data are not available for SWMU 09-009.

The project map (Figure 151-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

151.2 Control Measures

Run-on is possible from concentrated flow generated from the unpaved access road southeast of the SWMU and the hillside, south of the fence and south of the SWMU. Existing controls are in place to divert this run-on source to the east and to provide additional sediment capture in runoff from the area.

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 151-1).

Table 151-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00202040022	Established Vegetation	-	X	X	-	B
J00203010006	Earthen Berm	X	-	-	X	CB
J00203010007	Earthen Berm	X	-	-	X	CB
J00203010008	Earthen Berm	X	-	-	X	CB
J00203010009	Earthen Berm	X	-	-	X	CB
J00203010015	Earthen Berm	X	-	-	X	B
J00206010014	Rock Check Dam	-	X	-	X	CB
J00206010019	Rock Check Dam	X	-	-	X	B
J00206010020	Rock Check Dam	X	-	-	X	B
J00206010021	Rock Check Dam	X	-	-	X	B
J00206010023	Rock Check Dam	X	-	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

151.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

151.4 Inspections and Maintenance

RG253 recorded two storm events at PJ-SMA-2 during the 2014 season. These rain events triggered two post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 151-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-40782	7-30-2014
Storm Rain Event	BMP-41338	8-13-2014
Annual Erosion Evaluation	COMP-43339	10-8-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 151-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36918	Added angular rock to rock check dams J00206010019 and J00206010019 to build up height and extend both ends. Added angular rock to rock check dam J00206010021 to build up height and extend both ends. Added angular rock to create a riprap apron on the downstream side of check dam J00206010021.	4-7-2014	196 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-41373	Removed sediment accumulation from check dams J00206010020 and J00206010021, placed on south road bank, and stabilized with seed. Added native angular rock to build up and extend ends of check dams as necessary.	8-19-2014	20 day(s)	Maintenance conducted as soon as practicable.

151.5 Compliance Status

The Site associated with PJ-SMA-2 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 151-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-009	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

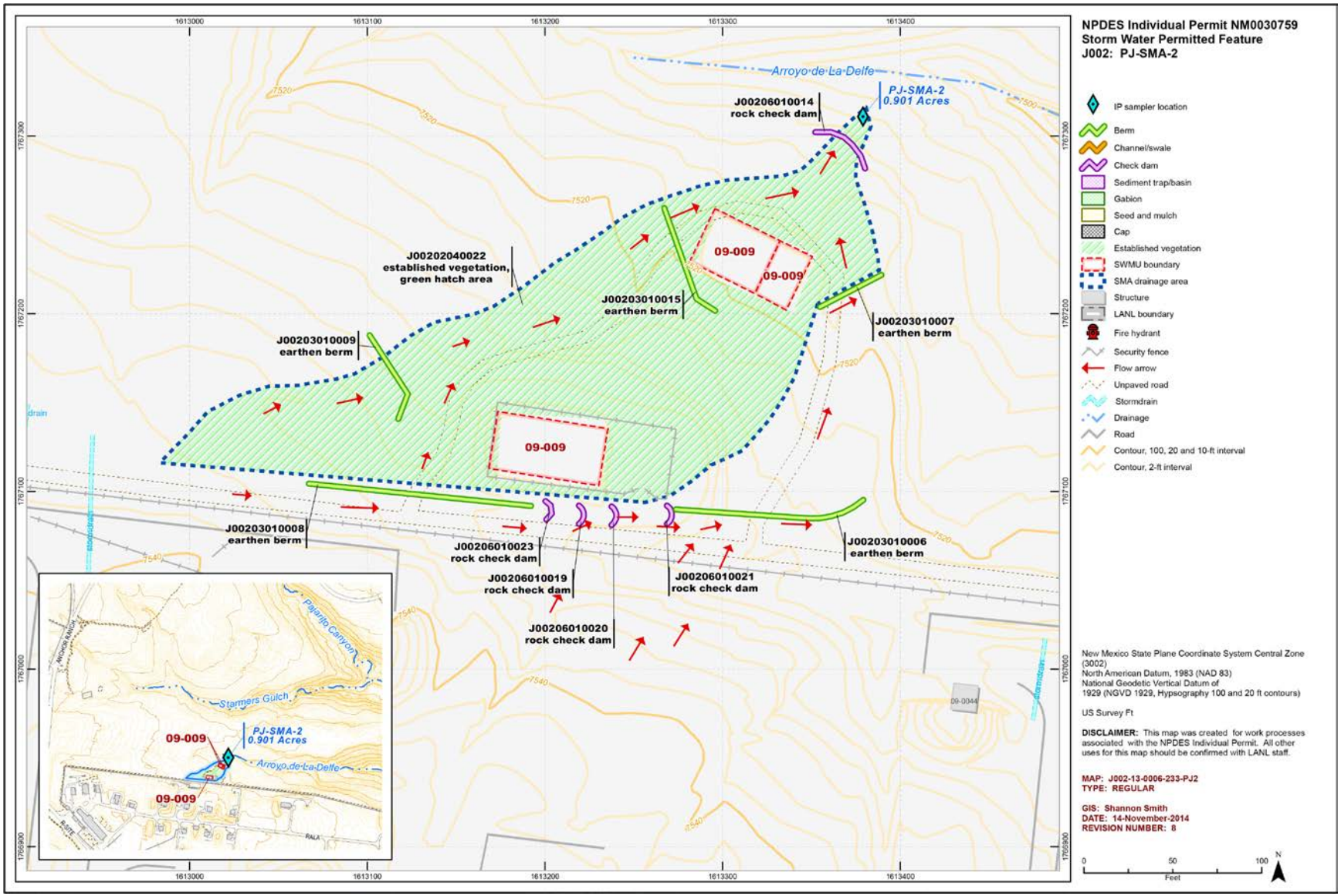


Figure 151-1 PJ-SMA-2 location map

152.0 PJ-SMA-3.05: SWMU 09-004(o)

152.1 Site Descriptions

One historical industrial activity area is associated with J003, PJ-SMA-3.05: Site 09-004(o).

SWMU 09-004(o) is an active sump (structure 09-198) that receives industrial waste from an HE machining building (09-48) at TA-09. The sump, installed between 1950 and 1952, is made of aluminum-lined reinforced concrete, and receives industrial waste from building 09-48. Activities in the building involve HE machining. The belowgrade sump collects settled HE particles that are not filtered out by the building's waste system. Originally, effluent from the sump was discharged to an NPDES-permitted outfall (EPA 05A068). The sump outlet was plugged and the outfall was removed from the Permit in the 1990s. The sump is now periodically cleaned by pumping to a specially equipped truck, which transports the wastewater to a treatment facility. The sump is equipped with an overfill alarm and is regularly inspected.

Consent Order investigations have not been performed at SWMU 09-004(o). Decision-level data are available from an RFI performed in 1999. RFI samples, however, were analyzed only for HE.

The project map (Figure 152-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

152.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 152-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 152-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00302040012	Established Vegetation	-	X	X	-	B
J00303010010	Earthen Berm	X	-	-	X	EC
J00303010011	Earthen Berm	-	X	-	X	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

152.3 Storm Water Monitoring

SWMU 09-004(o) is monitored within PJ-SMA-3.05. Following the installation of baseline control measures, a baseline storm water sample was collected on August 19, 2011 (Figure 152-2). Analytical results from this sample yielded the following TAL exceedances:

- Weak acid dissociable cyanide concentration of 0.02 mg/L (MTAL is 0.01 mg/L) and
- Gross-alpha activity of 65.9 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 09-004(o):

- Cyanide is not known to be associated with industrial materials historically managed at the Site.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

PJ-SMA-3.05 is located on Bandelier Tuff and no run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from locations containing sediment derived from Bandelier Tuff were compared with weak acid dissociable cyanide and gross-alpha MTAL and ATAL exceedances. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L; the result from 2011 is less than this value.
- Cyanide—The weak acid dissociable cyanide UTLs for storm water run-on containing sediment derived from Bandelier Tuff were not calculated because samples collected from these areas were not analyzed for weak acid dissociable cyanide. Therefore, a comparison to background weak acid dissociable cyanide UTLs could not be made.

All the analytical results for these samples are reported in the 2011 Annual Report.

152.4 Inspections and Maintenance

RG257 recorded six storm events at PJ-SMA-3.05 during the 2014 season. These rain events triggered four post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 152-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38697	5-29-2014
Storm Rain Event	BMP-39834	7-14-2014
Storm Rain Event	BMP-40803	7-30-2014
Storm Rain Event	BMP-41580	8-13-2014
Annual Erosion Evaluation	COMP-43340	10-8-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-3.05 in 2014.

152.5 Compliance Status

The Site associated with PJ-SMA-3.05 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 152-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-004(o)	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 07-18-2012

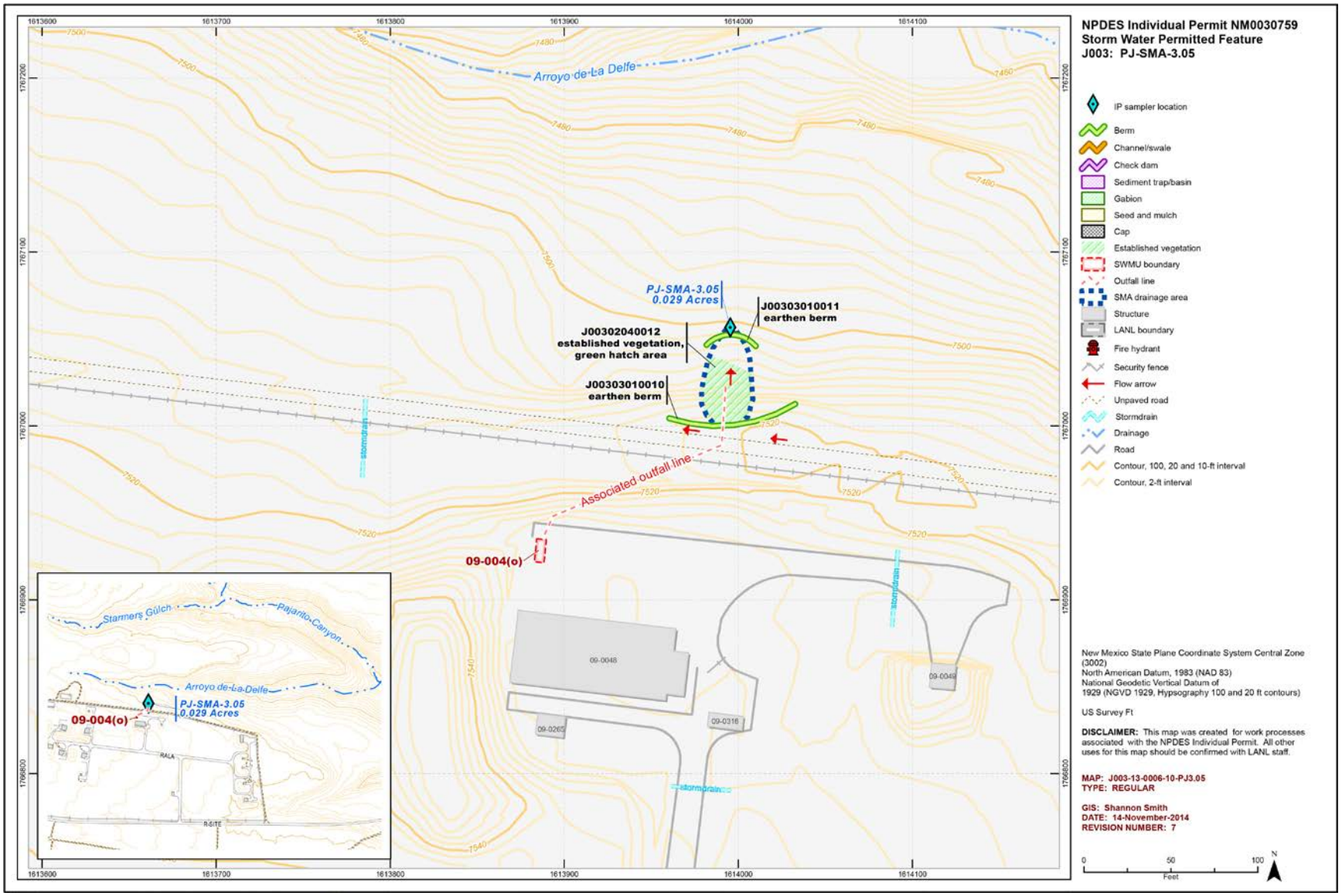
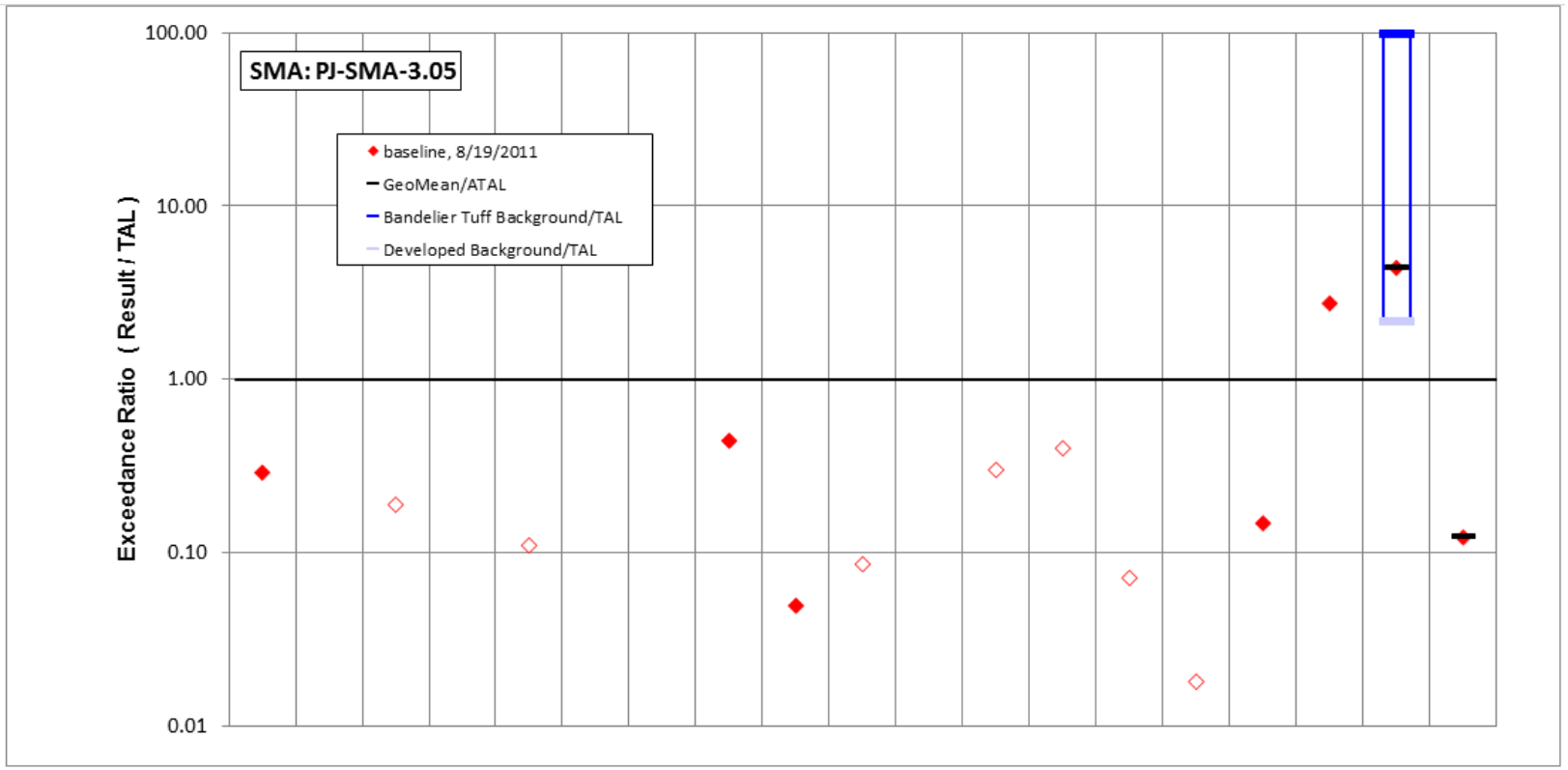


Figure 152-1 PJ-SMA-3.05 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	**Cyanide, weak acid dissociable**	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/19/2011 result	217	*1*	*1.7*	*15*	*0.11*	*2*	*1.8*	1.9	0.84	*0.066*	0.61	*1.5*	*0.2*	*0.45*	*1.8*	6.2	**0.0274**	**65.9**	3.67
result / TAL	0.29	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	*0.002*	0.44	0.049	*0.086*	0.0036	*0.3*	*0.4*	*0.071*	*0.018*	0.15	**2.7**	**4.4**	0.12

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 152-2 Inorganic analytical results summary plot for PJ-SMA-3.05

153.0 PJ-SMA-4.05: SWMU 09-004(g)

153.1 Site Descriptions

One historical industrial activity area is associated with J004, PJ-SMA-4.05: Site 09-004(g).

SWMU 09-004(g) is the decommissioned sump (structure 09-190) located at TA-09 on the east side of building 09-50 (a shipping and receiving building). The original IP Site narrative described the SWMU as a settling tank, but the structure is a sump. The sump, installed between 1950 and 1952, is made of reinforced concrete and formerly received industrial waste from building 09-50. Activities in the building involved shipping, receiving, short-term storage of HE, and small-scale laser experiments. Since 1993, building 09-50 has been used for storage only. The sump collected settling HE particles that were not filtered out by the building's waste system and discharged effluent to a former NPDES-permitted outfall (EPA 04A155), which is part of SWMU 09-005(g), a septic system that formerly received sanitary wastewater from building 09-50. Periodically, the sump was inspected, debris was removed using specially equipped trucks, and the sump was cleaned. In October 2006, the sump was removed.

No Consent Order investigation, RFI, or other investigations have been conducted at SWMU 09-004(g).

The project map (Figure 153-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

153.2 Control Measures

Run-on contributions to the area are primarily from paved areas in proximity to the monitored area. Existing controls are designed to provide runoff controls and retain sediment. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 153-1).

Table 153-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00402040008	Established Vegetation	-	X	X	-	B
J00403010007	Earthen Berm	X	-	-	X	B
J00406010006	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

153.3 Storm Water Monitoring

SWMU 09-004(g) is monitored within PJ-SMA-4.05. Following the installation of baseline control measures, a baseline storm water sample was collected on September 13, 2013 (Figure 153-2). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 47.2 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 09-004(g):

- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 153-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 153-2.

Monitoring location PJ-SMA-4.05 receives storm water run-on from landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L. The 2013 gross-alpha result is below this value.

All the analytical results for these samples are reported in the 2013 Annual Report.

153.4 Inspections and Maintenance

RG257 recorded six storm events at PJ-SMA-4.05 during the 2014 season. These rain events triggered four post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 153-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38696	5-29-2014
Storm Rain Event	BMP-39833	7-14-2014
Storm Rain Event	BMP-40802	7-30-2014
Storm Rain Event	BMP-41579	8-13-2014
Annual Erosion Evaluation	COMP-43341	10-8-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 153-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36924	Repaired check dam J00406010006 by adding angular rock to build up height 1–2 ft and extended south end. Repaired berm on the north side of spillway by removing matting. Added clean fill and compacted. Applied seed and matting to repaired areas of berm. Relocated spillway rock to lower center of spillway approximately 1 layer or rock. Straw wattle taken apart below spillway and scattered straw over the SMA	3-18-2014	176 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-40706	Moved displaced rock back to spillway of berm J00403010007.	7-21-2014	7 day(s)	Maintenance conducted as soon as practicable.
BMP-42128	Removed needle cast from berm J00403010007 and placed outside channel.	8-27-2014	14 day(s)	Maintenance conducted as soon as practicable.
BMP-41372	Added angular rock to berm J00403010007 spillway to ensure proper coverage.	8-29-2014	30 day(s)	Maintenance conducted as soon as practicable.

153.5 Compliance Status

The Site associated with PJ-SMA-4.05 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 153-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-004(g)	Corrective Action Initiated	Corrective Action Initiated	Initiated 10-30-2013. Permit screening process for corrective action recommendation: Submit certification of no exposure to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

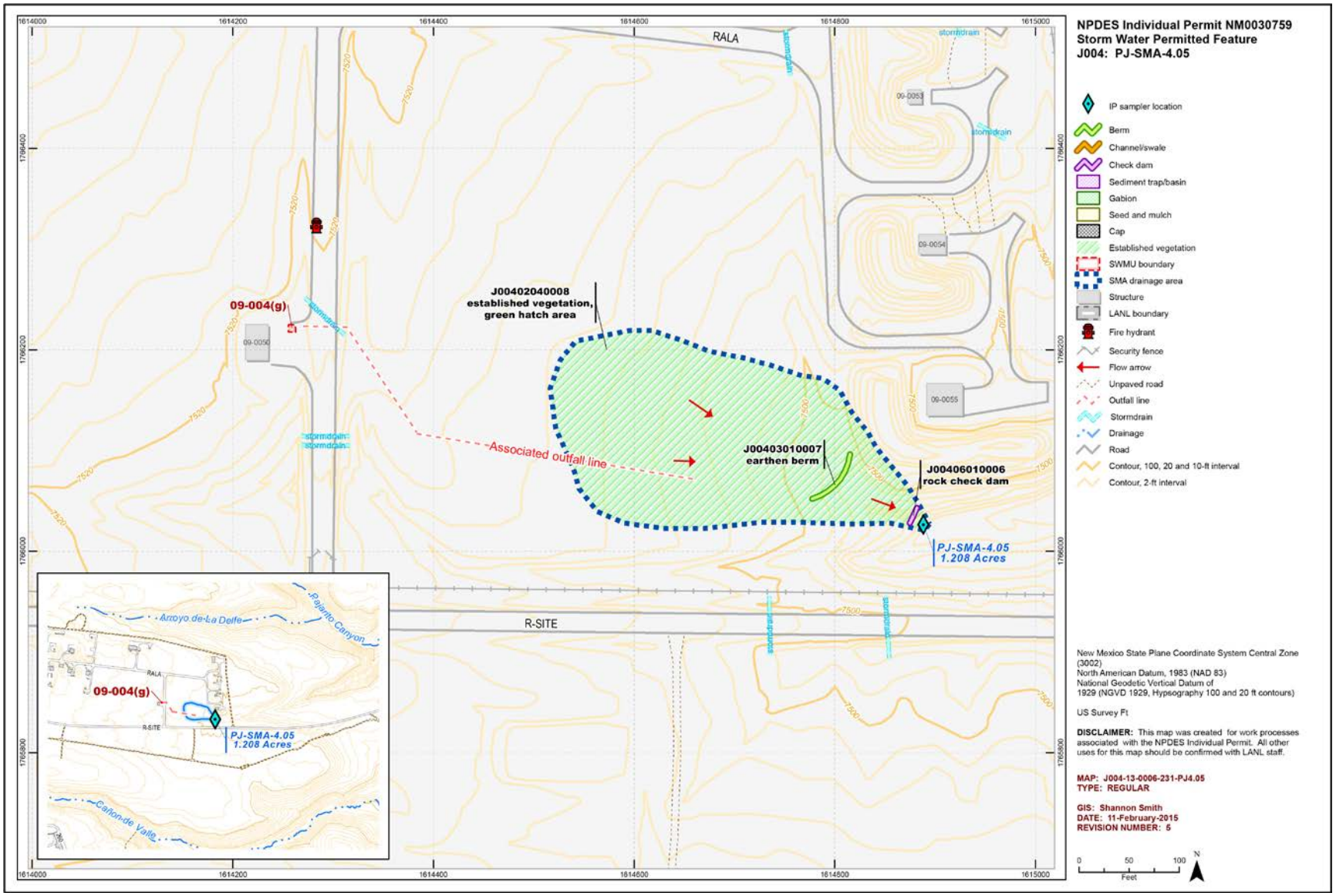
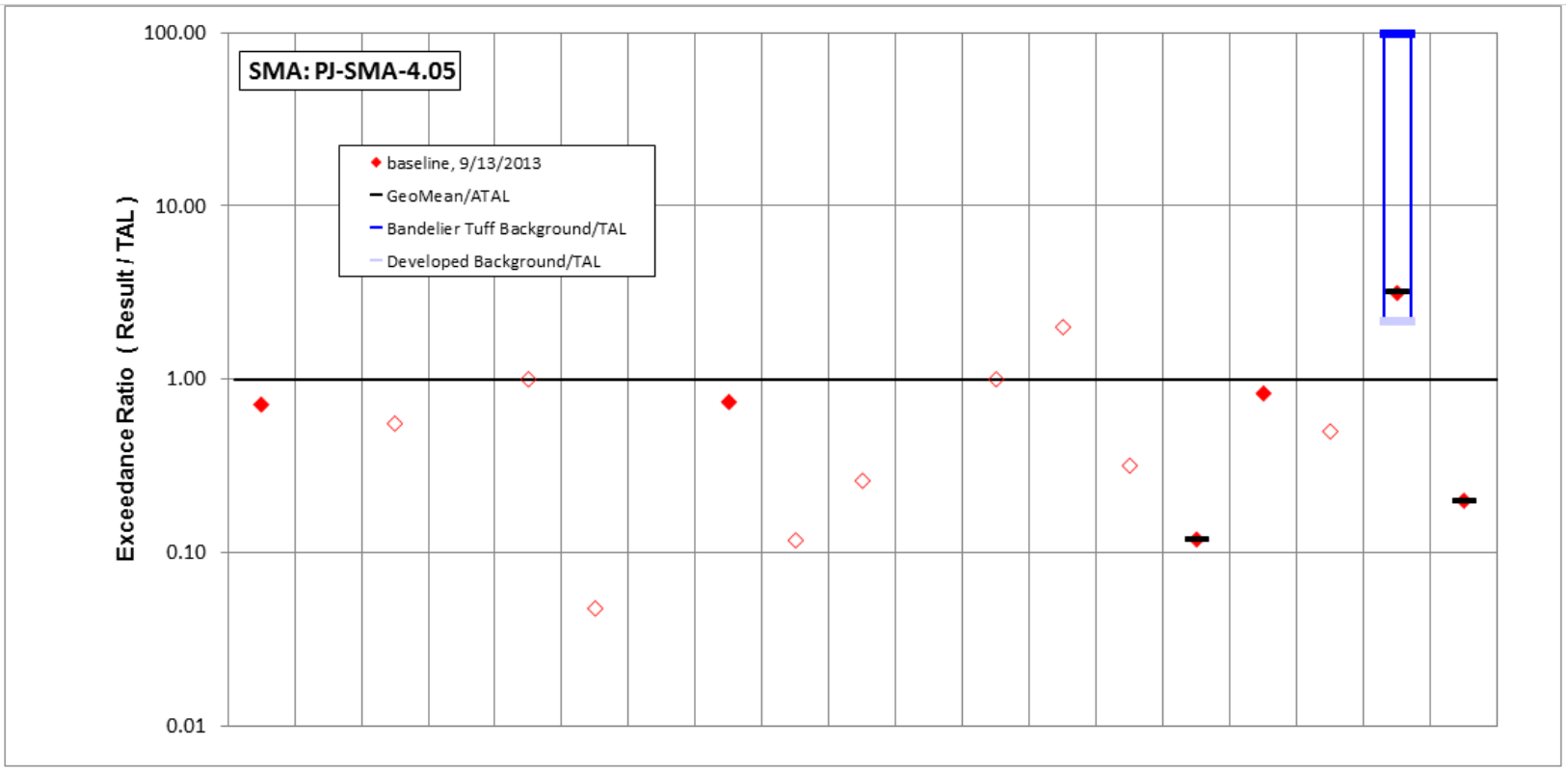


Figure 153-1 PJ-SMA-4.05 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	536	*3*	*5*	38.2	*1*	*10*	1.26	3.18	*2*	*0.2*	1.27	*5*	***1***	*2*	11.9	34.8	*0.005*	**47.2**	5.98
result / TAL	0.71	*0.005*	*0.56*	0.0076	*1*	*0.048*	0.0013	0.74	*0.12*	*0.26*	0.0075	*1*	***2***	*0.32*	0.12	0.83	*0.5*	**3.1**	0.2

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 153-2 Inorganic analytical results summary plot for PJ-SMA-4.05

154.0 PJ-SMA-5: SWMU 22-015(c)

154.1 Site Descriptions

One historical industrial activity area is associated with J005, PJ-SMA-5: Site 22-015(c).

SWMU 22-015(c) consists of a former NPDES-permitted outfall (06A077) located at TA-22 approximately 80 ft south of building 22-52. The outfall received discharge from the floor drains in building 22-52, which were connected to the outfall via a 6-in.-diameter VCP drainline. The outfall daylighted in a channel that drained to a pond located near the edge of the mesa. Drainage from the pond eventually discharged into Pajarito Canyon. Beginning in 1952, building 22-52 was used as a plating laboratory and was later converted into a printed-circuit etching laboratory. Although most waste from the plating and etching operations at building 22-52 was collected manually, effluent from the rinse tanks overflowed to the floor drains. Discharge to the outfall was discontinued in 1977, when all liquid wastes were collected in drums and sent off-site for treatment. During the 1995 expedited cleanup of SWMU 22-015(c), 260 yd^3 of contaminated soil was excavated from the drainage below the outfall and disposed of off-site.

Consent Order investigations have not been performed at SWMU 22-015(c). Decision-level data are available from the 1995 expedited cleanup.

The project map (Figure 154-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

154.2 Control Measures

Most of the potential run-on to this SMA originates on the paved areas and access road north of the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 154-1).

Table 154-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00502040015	Established Vegetation	-	X	X	-	B
J00503060013	Straw Wattle	X	-	-	X	B
J00503060014	Straw Wattle	X	-	-	X	B
J00504010003	Earthen Channel/Swale	X	-	X	-	CB
J00506010008	Rock Check Dam	X	-	-	X	CB
J00506010009	Rock Check Dam	X	-	-	X	CB
J00506010010	Rock Check Dam	X	-	-	X	CB
J00506010011	Rock Check Dam	-	X	-	X	CB
J00506010012	Rock Check Dam	-	X	-	X	CB
J00506030004	Juniper Bales	X	-	-	X	CB
J00506030007	Juniper Bales	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Installation of enhanced controls began in December 2014 with completion and certification scheduled for 2015.

154.3 Storm Water Monitoring

SWMU 22-015(c) is monitored within PJ-SMA-5. Following the installation of baseline control measures, a baseline storm water sample was collected on October 12, 2012 (Figures 154-2 and 154-3). Analytical results from this sample yielded the following TAL exceedance:

- Copper concentration of 75.5 µg/L (MTAL is 4.3 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 22-015(c):

- Copper was associated with industrial materials historically managed at the Site. Copper was detected above soil and tuff BVs in shallow (i.e., less than 3 ft bgs) RFI and expedited cleanup confirmation samples. Copper was detected above BV in 11 of 11 shallow samples with a maximum concentration 7800 times the soil BV.

PJ-SMA-5, Rock Check Dam, J00506010011, 012 (photo ID 7506-5)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 154-2 and 154-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 154-2 and 154-3.

Monitoring location PJ-SMA-5 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediments derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2012 is greater than both of these values.

All the analytical results for these samples are reported in the 2012 Annual Report.

154.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-5 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 154-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38679	5-29-2014
Storm Rain Event	BMP-39407	6-30-2014
Storm Rain Event	BMP-39773	7-14-2014
Storm Rain Event	BMP-40322	7-28-2014
Storm Rain Event	BMP-41414	8-12-2014
Storm Rain Event	BMP-43460	10-20-2014
Annual Erosion Evaluation	COMP-43307	10-7-2014
Enhanced Control installation	COMP-32970	12-18-2014
Enhanced Control installation	COMP-44537	12-10-2014
Enhanced Control installation	COMP-44557	12-22-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 154-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39407	Debris removed from Site during inspection.	6-30-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-40705	Removed needle cast from rock check dams J00506010008 and J00506010009 and placed out of channel.	7-21-2014	7 day(s)	Maintenance conducted as soon as practicable.
BMP-41336	Used native rock to extend east end of check dam J00506010009.	8-12-2014	15 day(s)	Maintenance conducted as soon as practicable.
BMP-42185	Repaired undercut in wattle J00503060014. Relocated downed tree with potential to reroute flow into the SMA. Removed debris from channel.	8-26-2014	14 day(s)	Maintenance conducted as soon as practicable.

154.5 Compliance Status

The Site associated with PJ-SMA-5 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 154-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 22-015(c)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-15-2012. Alternatives analysis has determined the corrective action plan is to build enhanced controls.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

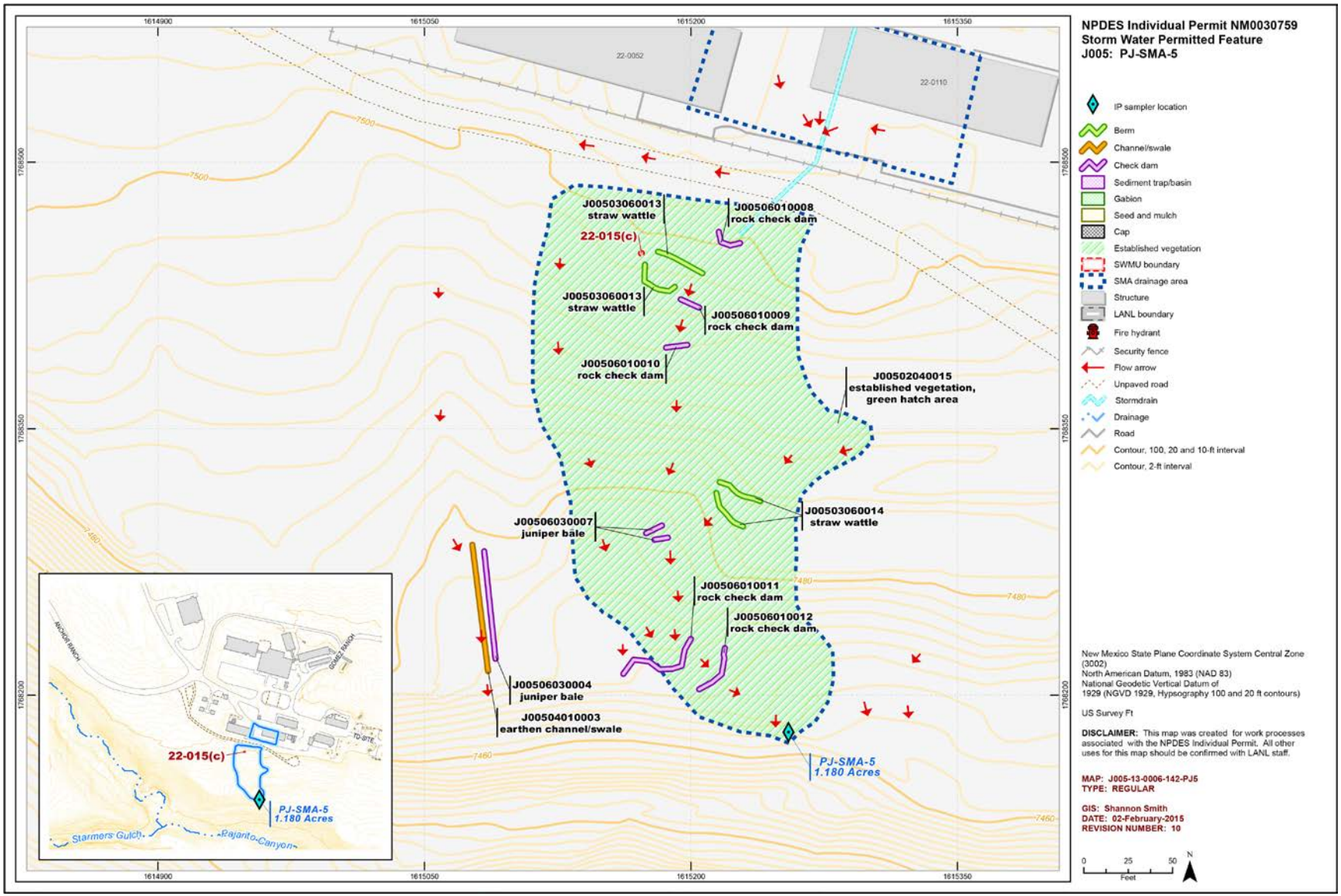
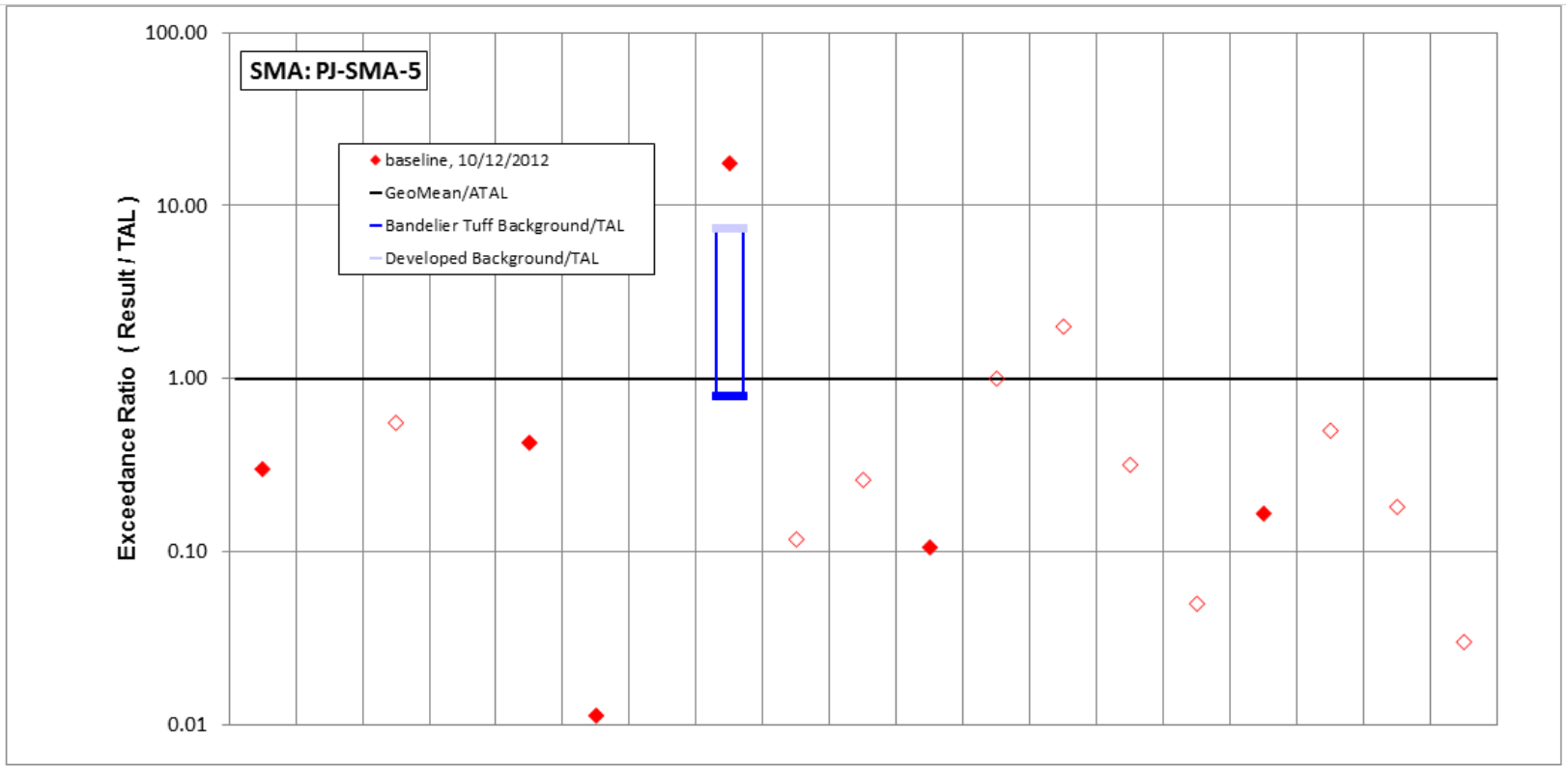


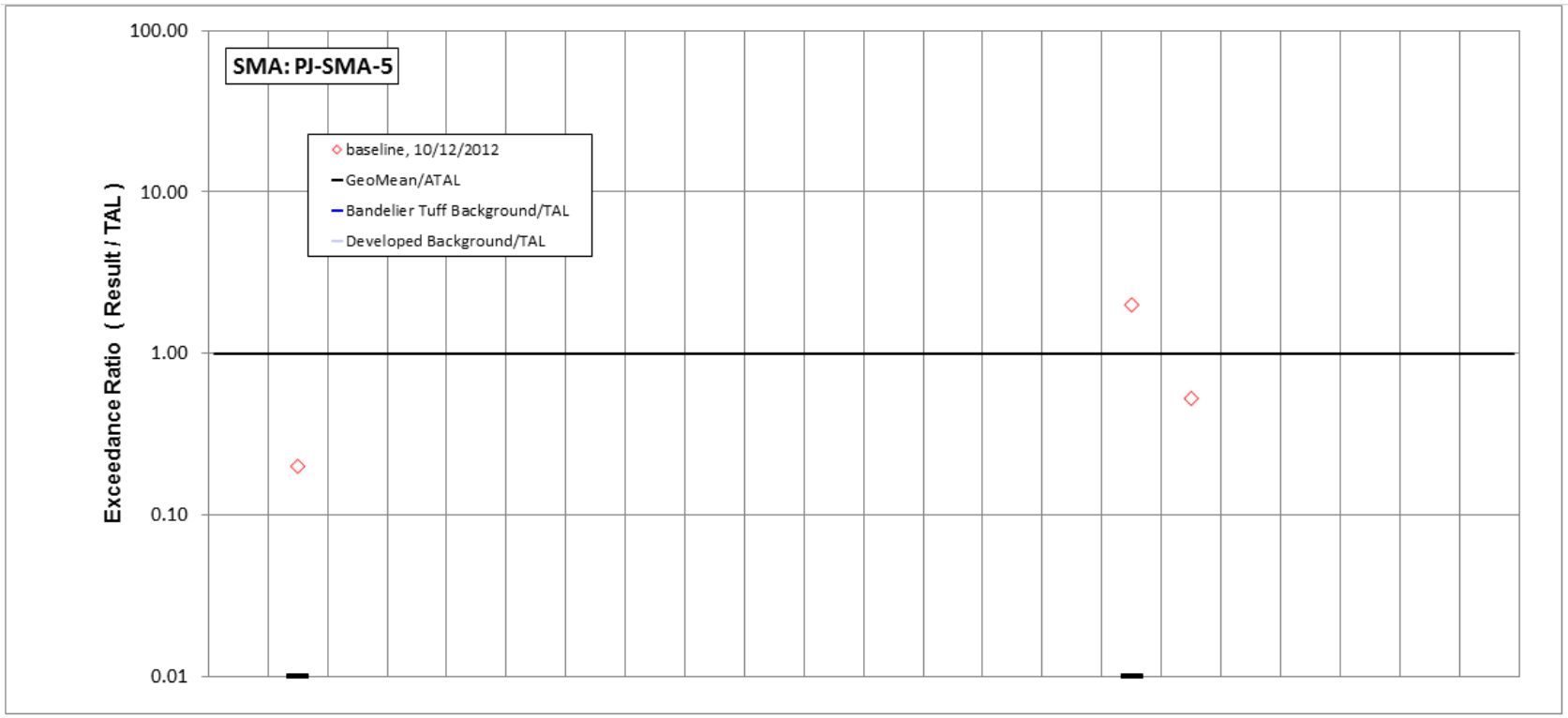
Figure 154-1 PJ-SMA-5 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
10/12/2012 result	225	*3*	*5*	17.8	0.426	2.37	1.65	**75.5**	*2*	*0.2*	18	*5*	***1***	*2*	*5*	6.97	*0.005*	*2.72*	*0.901*
result / TAL	0.3	*0.005*	*0.56*	0.0036	0.43	0.011	0.0016	**18**	*0.12*	*0.26*	0.11	*1*	***2***	*0.32*	*0.05*	0.17	*0.5*	*0.18*	*0.03*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 154-2 Inorganic analytical results summary plot for PJ-SMA-5



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	**Hexachlorobenzene**	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	MQL	-	-	-	-	-	-	-	-	-	-	-	-	-	MQL	MTAL	-	-	-	-	-
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	-	-	-	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
10/12/2012 resul	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	-	-	-	-	-
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	-	-	-	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 154-3 Organic analytical results summary plot for PJ-SMA-5

155.0 PJ-SMA-5.1: SWMU 22-010(b) and 22-016

155.1 Site Descriptions

Two historical industrial activity areas are associated with J006, PJ-SMA-5.1: Sites 22-010(b) and 22-016. However, only Site 22-016 is currently regulated by the Individual Permit. The Permittees are evaluating and reporting on Site 22-010(b) because it is the outfall that discharged from the Site 22-016 septic tank. The Site 22-016 septic tank is below ground and not exposed to storm water. The information and evaluation of Site 22-010(b) provided below and in other sections of this SDPPP update are for informational purposes only. The Permittees recommend that Site 22-010(b) be considered for addition to the Permit during renewal.

SWMU 22-016 is a decommissioned septic tank (structure 22-0042) located approximately 120 ft south of building 22-0001. The septic tank was constructed of reinforced concrete and measured approximately 9 ft long × 6 ft wide × 5 ft deep, with a capacity of 1365 gal. The tank served building 22-0001 (an assembly building) and former building 22-0004 (an office and fabrication building) and was active from 1945 to 1948, when it was replaced by a new septic tank (structure 22-0051), SWMU 22-010(b). Potential contaminants associated with industrial materials historically managed at this Site are explosive compounds and VOCs.

Consent Order or other environmental investigations have not been performed at SWMU 22-016, and no investigation data are available for this Site.

SWMU 22-010(b) is an inactive septic system located at TA-22 approximately 90 ft south of building 22-0001. The septic system consists of a septic tank (structure 22-0051), drainlines, a leach field, sand filter, and outfall. The septic tank was installed in 1948 and originally served buildings 22-0001 (an assembly building), 22-0004 (an office and fabrication building), and 22-0005 (a shop and laboratory building). In the 1950s, buildings 22-0032 (a guard shack) and 22-0052 (a plating and circuit-etching shop) were constructed and added to the septic system. In 1984, buildings 22-0090 (an office building), 22-0091 (an assembly building), and 22-0093 (a detonator development building) were constructed and added to the system. In 1973, a sand filter was constructed (east of the leach field) to replace the leach field. The sand filter discharged through a 6-in.-diameter VCP that extended south 120 ft before terminating at an outfall. The sand filter operated until the 1990s when it was rerouted to the SWSC.

Consent Order or other environmental investigations have not been performed at SWMU 22-010(b), and no investigation data are available for this Site.

The project map (Figure 155-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

155.2 Control Measures

Significant run-on enters this Permitted Feature from paved areas to the north. Culvert run-on is controlled and diverted to the west of the SMA via the earthen channel. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 155-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 155-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00602040010	Established Vegetation	-	X	X	-	B
J00603010009	Earthen Berm	-	X	-	X	EC
J00603010011	Earthen Berm	X	-	-	X	B
J00604010004	Earthen Channel/Swale	X	-	X	-	CB
J00606010007	Rock Check Dam	-	X	-	X	CB
J00608030012	Concrete/Asphalt Cap	-	X	X	-	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

155.3 Storm Water Monitoring

SWMUs 22-010(b) and 22-016 are monitored within PJ-SMA-5.1. Following the installation of baseline control measures, two baseline storm water samples were collected on August 21, 2011, and September 7, 2011 (Figure 155-2). Analytical results from these samples yielded the following TAL exceedances:

- Copper concentrations of 8.2 µg/L and 11.1 µg/L (MTAL is 4.3 µg/L),
- Zinc concentrations of 50.6 µg/L and 59.4 µg/L (MTAL is 42 µg/L), and
- Gross-alpha activities of 38.4 pCi/L and 43.5 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 22-010(b):

- Copper is known to be associated with industrial materials historically managed at the Site.
- Zinc may have been known to be associated with industrial materials historically managed at the Site.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

SWMU 22-016:

- Copper is known to be associated with industrial materials historically managed at this Site.
- Zinc may have been associated with industrial materials historically managed at this Site.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 155-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 155-2.

PJ-SMA-5.1, Rock Check Dam, J00606010007 (photo ID 24186-1)

Monitoring location PJ-SMA-5.1 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Metals including copper and zinc are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 are between these values.
- Zinc—The zinc UTL from developed urban landscape storm water run-on is 1120 µg/L; the zinc UTL for background storm water containing sediments derived from Bandelier Tuff is 109 µg/L. The zinc results from 2011 are less than these values.
- Gross alpha—The gross-alpha background UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2011 gross-alpha results are between these values.

All the analytical results for these samples are reported in the 2011 Annual Report.

155.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-5.1 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 155-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38680	5-29-2014
Storm Rain Event	BMP-39408	6-30-2014
Storm Rain Event	BMP-39774	7-14-2014
Storm Rain Event	BMP-40323	7-28-2014
Storm Rain Event	BMP-41415	8-12-2014
Storm Rain Event	BMP-43461	10-20-2014
Annual Erosion Evaluation	COMP-43308	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 155-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39893	Removed debris from channel. Placed needle cast etc., outside channel.	7-14-2014	14 day(s)	Maintenance conducted as soon as practicable.

155.5 Compliance Status

The Site associated with PJ-SMA-5.1 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 155-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 22-010(b)	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 7-18-2012.
SWMU 22-016	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 7-18-2012.

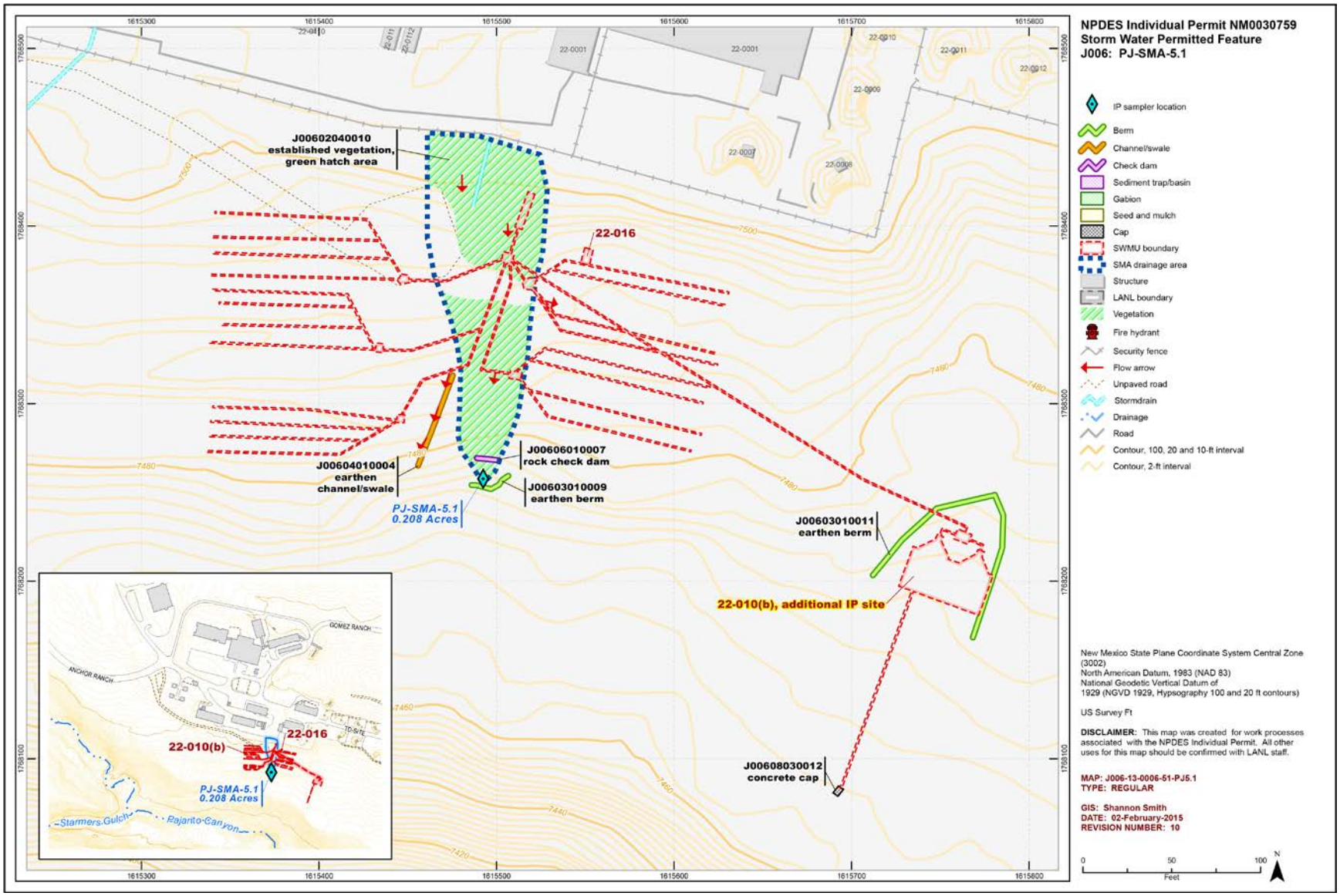
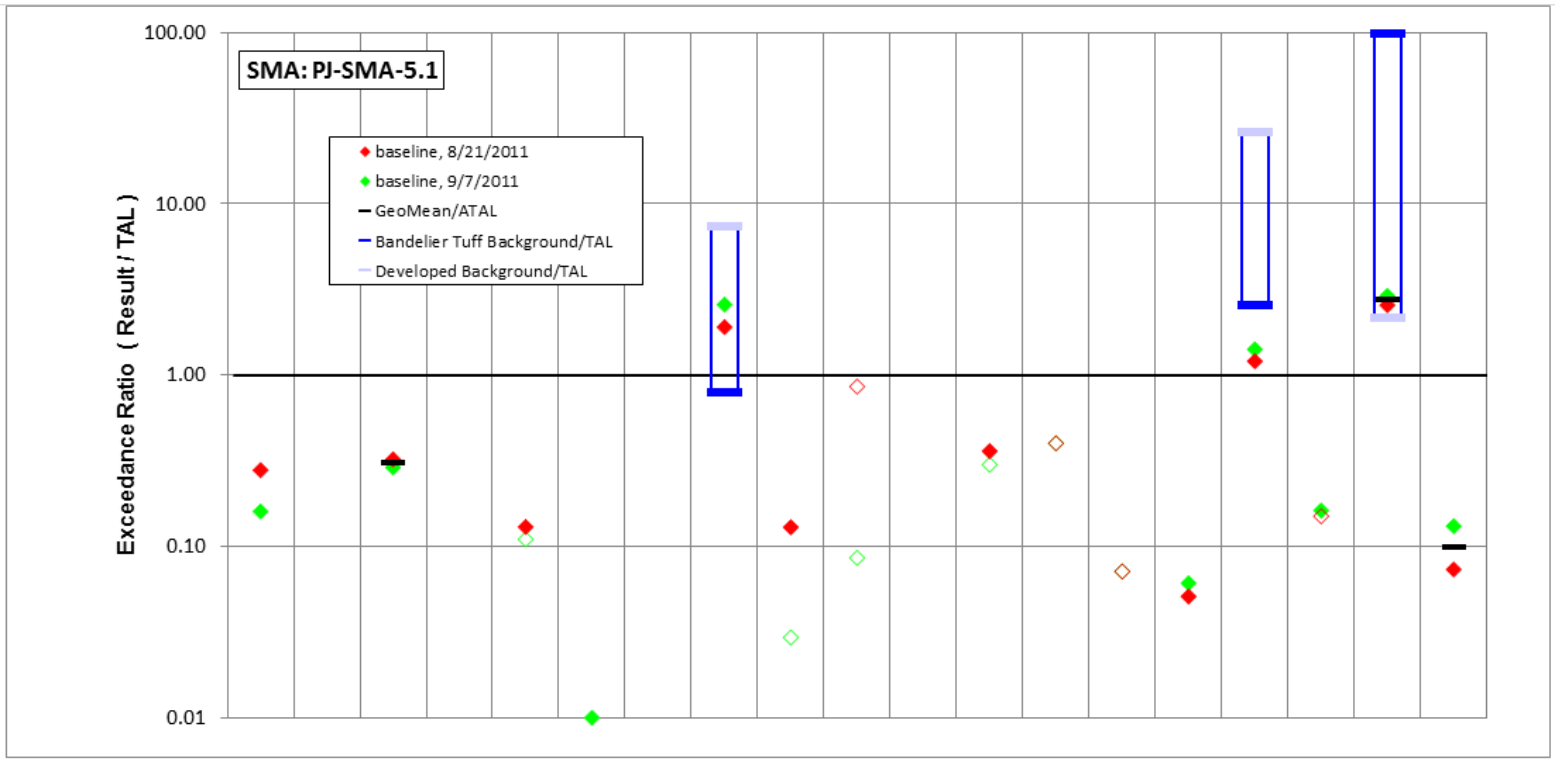


Figure 155-1 PJ-SMA-5.1 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	**Zinc**	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/7/2011 result	120	*1*	2.6	36.6	*0.11*	2.1	2.7	**11.1**	*0.5*	*0.066*	1.4	*1.5*	*0.2*	*0.45*	6.1	**59.4**	0.0016	**43.5**	3.94
result / TAL	0.16	*0.002*	0.29	0.0073	*0.11*	0.01	0.0027	**2.6**	*0.029*	*0.086*	0.0082	*0.3*	*0.4*	*0.071*	0.061	**1.4**	0.16	**2.9**	0.13
8/21/2011 result	209	*1*	2.9	42.3	0.13	*2*	3.3	**8.2**	2.2	*0.66*	1.5	1.8	*0.2*	*0.45*	5.1	**50.6**	*0.002*	**38.4**	2.2
result / TAL	0.28	*0.002*	0.32	0.0085	0.13	*0.01*	0.0033	**1.9**	0.13	*0.86*	0.0088	0.36	*0.4*	*0.071*	0.051	**1.2**	*0.15*	**2.6**	0.073

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 155-2 Inorganic analytical results summary plot for PJ-SMA-5.1

156.0 PJ-SMA-6: SWMU 40-010

156.1 Site Descriptions

One historical industrial activity area is associated with J007, PJ-SMA-6: Site 40-010.

SWMU 40-010 is a surface disposal area located at TA-40 on the edge of Pajarito Canyon, approximately 200 ft south of former building 40-72. The surface disposal area extends about 150 ft along the canyon edge and 140 ft down the canyon side. The area contained various types of debris, including twenty 30-gal. drums. This area also contains debris from farm and home implements that predate Manhattan Project activities. Post–Cerro Grande fire activities removed all the drums and exposed debris, with the exception of the pre–Manhattan Project debris, which is considered to be of archaeological importance and therefore cannot be removed. BMPs were installed at SWMU 40-010 in 2000 as part of the post–Cerro Grande fire recovery. The fire damage exposed the surface disposal area. Straw wattles were installed upgradient of the surface disposal area to provide run-on diversion. The area was raked, reseeded, and mulched. Surface debris near the edge was removed and disposed of as solid wastes.

SWMU 40-010 is included in the Consent Order as part of the Starmer/Upper Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Starmer/Upper Pajarito Canyon Aggregate Area was approved in March 2011 Decision-level data are not available for SWMU 40-010.

The project map (Figure 156-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

156.2 Control Measures

There are no run-on contributions from developed areas at this SMA. There is concentrated flow associated with a natural channel west of the SMA. This natural channel is less defined along the mesa edge. Installed controls are designed to fortify sediment retention within this channel. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 156-1).

Table 156-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00702040018	Established Vegetation	-	X	X	-	B
J00703010009	Earthen Berm	-	X	-	X	B
J00703010010	Earthen Berm	-	X	-	X	B
J00703010011	Earthen Berm	-	X	-	X	B
J00703060013	Straw Wattle	X	-	-	X	B
J00703060014	Straw Wattle	X	-	-	X	B
J00703060015	Straw Wattle	X	-	-	X	B
J00703060016	Straw Wattle	X	-	-	X	B
J00703120012	Rock Berm	X	-	-	X	B
J00706010002	Rock Check Dam	X	-	-	X	CB
J00706010003	Rock Check Dam	X	-	-	X	CB
J00706010004	Rock Check Dam	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

156.3 Storm Water Monitoring

SWMU 40-010 is monitored within PJ-SMA-6. Following the installation of baseline control measures, a baseline storm water sample was collected on July 8, 2014 (Figure 156-2). Analytical results from this sample yielded the following target action level (TAL) exceedance:

- Gross-alpha activity of 81.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 40-010:

- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figure 156-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figure 156-2.

Monitoring location PJ-SMA-6 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—Gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2014 gross-alpha result is between these values.

All the analytical results for these samples are reported in the 2014 Annual Report.

156.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-6 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 156-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38681	5-29-2014
Storm Rain Event	BMP-39409	6-30-2014
Storm Rain Event	BMP-39775	7-15-2014
Storm Rain Event	BMP-40324	7-28-2014
Storm Rain Event	BMP-41416	8-14-2014
Storm Rain Event	BMP-43462	10-22-2014
Annual Erosion Evaluation	COMP-43203	10-6-2014
TAL Exceedance	COMP-42718	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 156-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37014	Removed debris from behind berm J00703010009. Repaired erosion around both spillways and increased berm height approximately 8 in. with fill and compact. Applied nonwoven geotextile fabric and rock to spillway. Applied seed and matting to berm. Repaired erosion on berm J00703010010 and J00703010011. Added clean fill to damaged area(s) and compact. Extended east end approximately 10 ft. Lowered spillway height approx. 4 in. Applied nonwoven geotextile fabric and angular rock to spillway. Extended rock out to 2 ft below berm. Applied seed and matting to berm.	5-19-2014	236 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-40709	Reseeded area J00701010017 and raked displaced mulch over seed. Removed displaced mulch from spillway of berms J00703010009, J00703010010, and J00703010011 and returned to previous locations.	7-22-2014	7 day(s)	Maintenance conducted as soon as practicable.
BMP-42162	Removed mulch from berms J00703010009 and J00703010010 and redistributed over bare areas.	8-26-2014	12 day(s)	Maintenance conducted as soon as practicable.

156.5 Compliance Status

The Site associated with PJ-SMA-6 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 156-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-010	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-18-2014. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

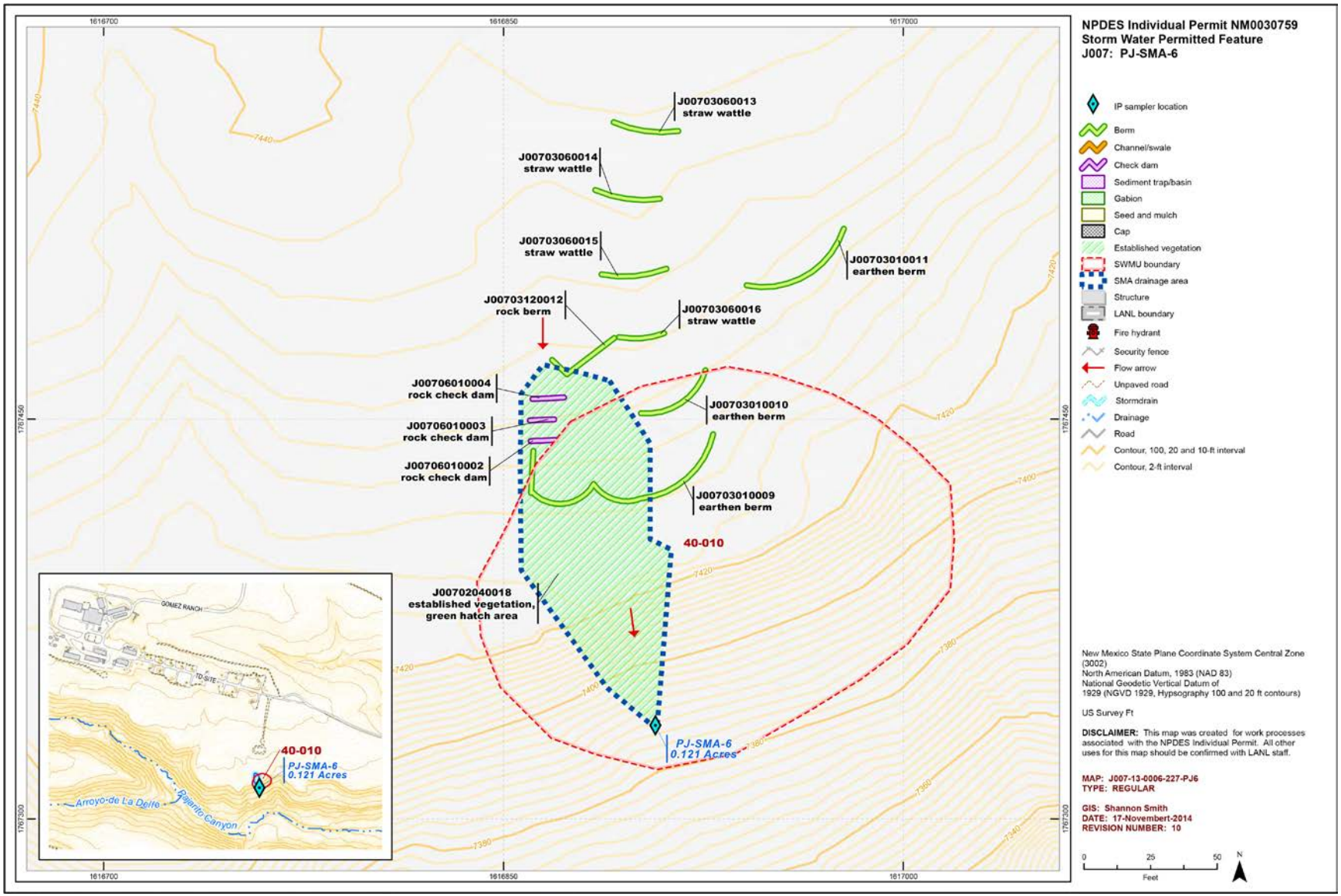
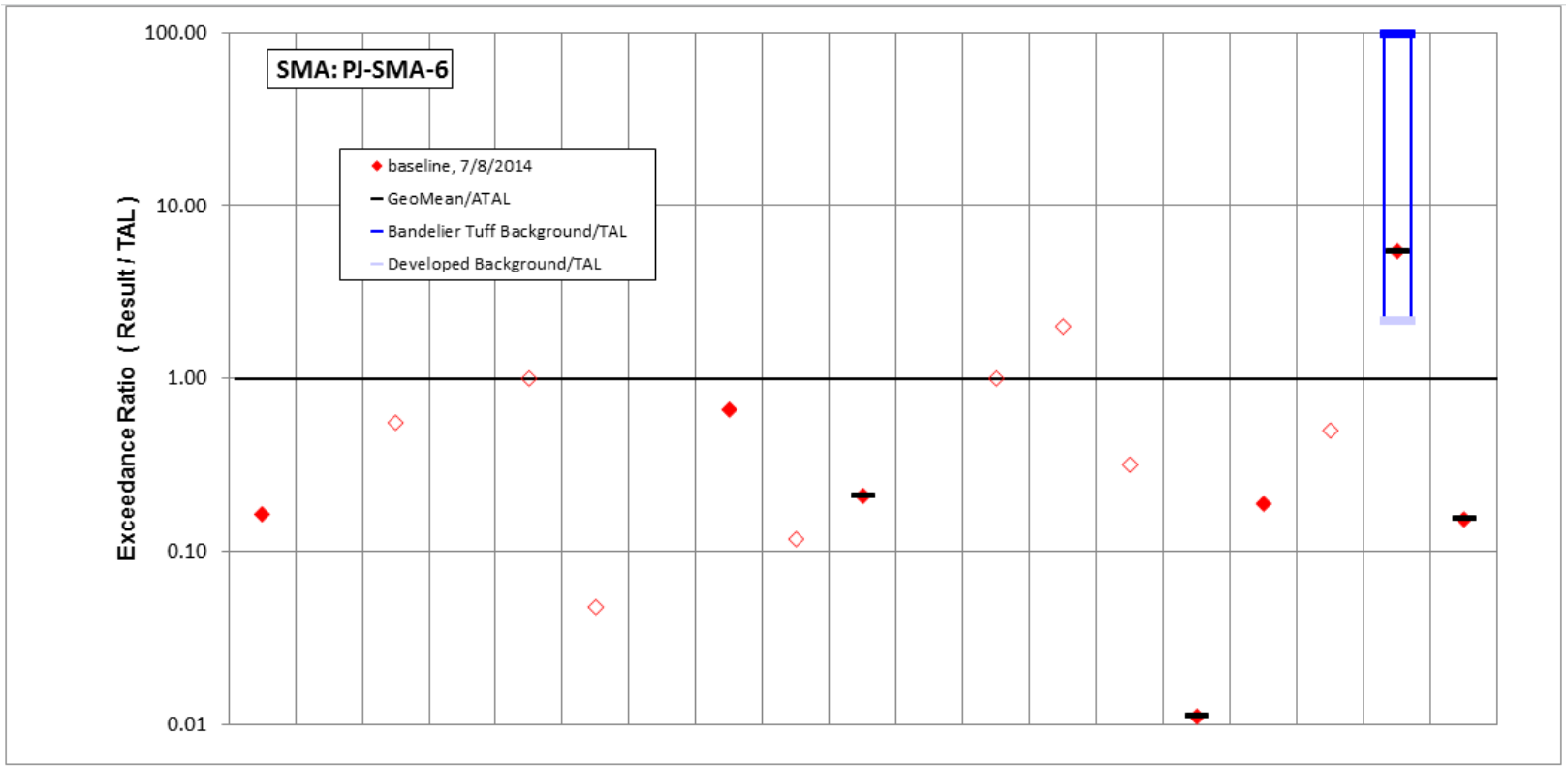


Figure 156-1 PJ-SMA-6 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/8/2014 result	123	*3*	*5*	18.9	*1*	*10*	*5*	2.84	*2*	0.161	0.842	*5*	***1***	*2*	1.11	7.92	*0.005*	**81.6**	4.59
result / TAL	0.16	*0.005*	*0.56*	0.0038	*1*	*0.048*	*0.005*	0.66	*0.12*	0.21	0.005	*1*	***2***	*0.32*	0.011	0.19	*0.5*	**5.4**	0.15

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 156-2 Inorganic analytical results summary plot for PJ-SMA-6

157.0 PJ-SMA-7: SWMU 40-006(c)

157.1 Site Descriptions

One historical industrial activity area is associated with J008, PJ-SMA-7: Site 40-006(c).

SWMU 40-006(c) is an active firing site (structure 40-5) located at TA-40 on the north edge of Pajarito Canyon at the west end of TD Site Rd. The SWMU 40-006(c) firing site consists of a reinforced concrete and steel building that allows observation of test shots and a partially protected area on the south side of the building where shots are prepared. Since 1950, this firing site has been used to test detonators. Historically, the firing site included an open firing pad connected to the south of the building where the larger shots (up to 50 lb) were fired. In the past, after each shot, large pieces of debris were removed and disposed of, and sand and debris were pushed to the edge of the canyon. This practice has created a soil berm near the canyon edge. The firing site is now used only to test and develop small explosive devices.

SWMU 40-006(c) is listed in Table IV-2 of the Consent Order (Deferred Sites in Testing Hazard Zones); investigation of this Site is deferred per Section IV.A.5.b and Table IV-2 of the Consent Order. Decision-level data are not available for SWMU 40-006(c).

The project map (Figure 157-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

157.2 Control Measures

Potential run-on contributions to this SMA originate from the paved area south of building 40-005 and the related roof drainage. Paved roads and the parking area north of the SMA are diverted to the east of the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 157-1).

Table 157-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00802040006	Established Vegetation	-	X	X	-	B
J00803010004	Earthen Berm	-	X	-	X	CB
J00803040007	Asphalt Berm	X	-	-	X	B
J00804010002	Earthen Channel/Swale	X	-	X	-	CB
J00804040003	Culvert	X	-	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

157.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-7. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

157.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-7 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 157-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38682	5-29-2014
Storm Rain Event	BMP-39410	6-30-2014
Storm Rain Event	BMP-39776	7-18-2014
Storm Rain Event	BMP-40774	7-30-2014
Storm Rain Event	BMP-41417	8-15-2014
Storm Rain Event	BMP-43463	10-22-2014
Annual Erosion Evaluation	COMP-43204	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 157-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-33828	Repaired east section and built up and extended northeast section of earthen berm J00803010004. Added clean fill to damaged/degraded areas of berm, compacted new fill. Applied seed and matting to repaired/new sections of berm.	3-21-2014	249 day(s)	Maintenance was scheduled to be completed in late summer of 2013 and was delayed by staffing resource limitations. Site conditions changed as a result of the September 2013 1000-yr rain event, and maintenance was delayed by the Federal Government shutdown and the onset of winter weather conditions.
BMP-34378	Installed a low asphalt storm water run-on diversion.	4-22-2014	281 day(s)	Maintenance was scheduled to be completed in late summer of 2013 and was delayed by staffing resource limitations. Site conditions changed as a result of the September 2013 1000-yr rain event, and maintenance was delayed by the Federal Government shutdown and the onset of winter weather conditions.
BMP-38943	Removed needle cast and debris from swale J00804010002. Placed debris on channel banks.	6-12-2014	14 day(s)	Maintenance conducted as soon as practicable.
BMP-39410	Debris removed from Site during inspection.	6-30-2014	0 day(s)	Maintenance conducted as soon as practicable.

157.5 Compliance Status

The Site associated with PJ-SMA-7 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 157-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-006(c)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

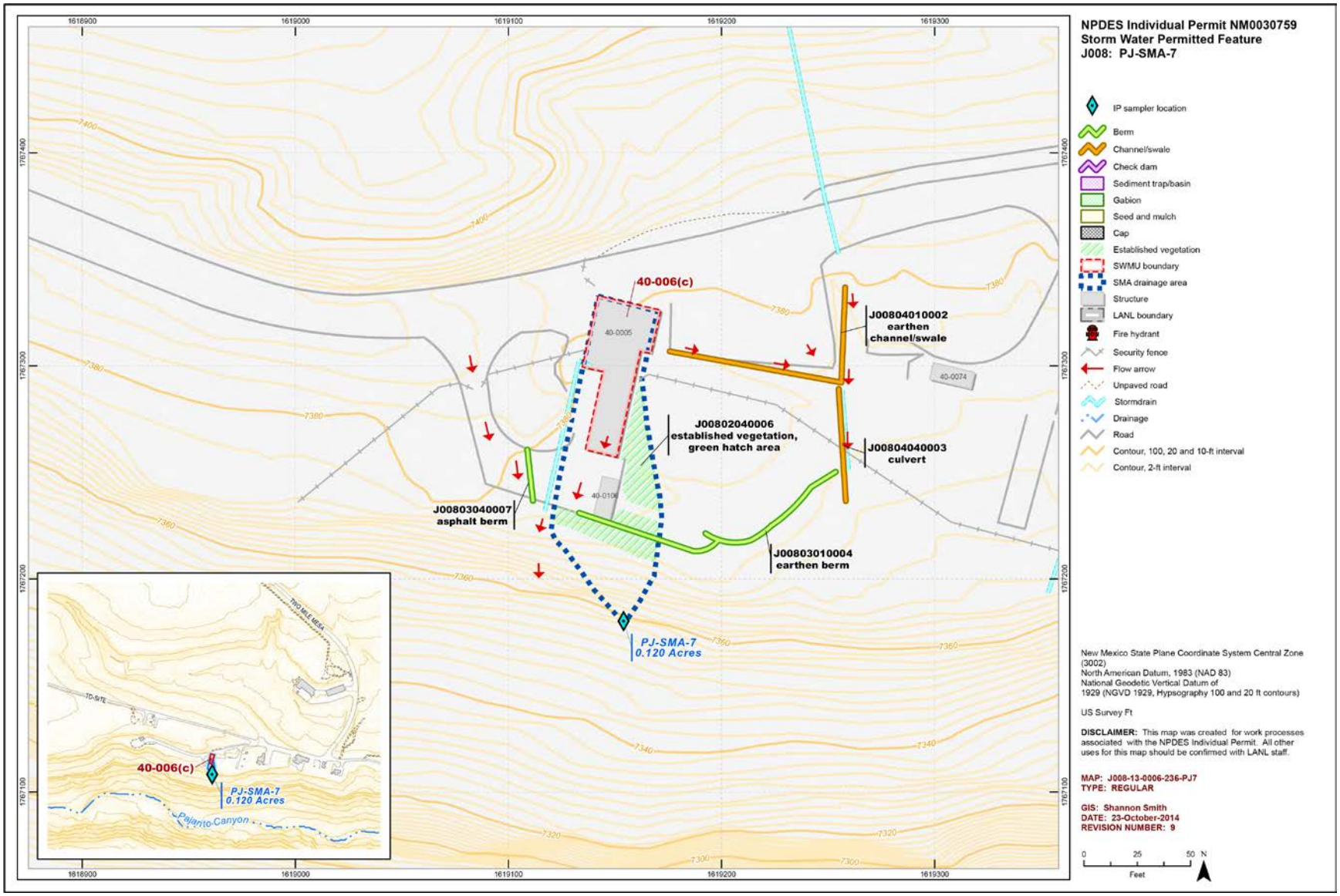


Figure 157-1 PJ-SMA-7 location map

158.0 PJ-SMA-8: SWMU 40-006(b)

158.1 Site Descriptions

One historical industrial activity area is associated with J009, PJ-SMA-8: Site 40-006(b).

SWMU 40-006(b) is an active firing site (structure 40-8) located at TA-40 on the northern rim of Pajarito Canyon, at the west end of TD Site Road. The SWMU 40-006(b) firing site consists of a reinforced concrete and steel building that allows observation of the test shots and a partially protected area on the south side of the building where shots are prepared. Since 1950, this firing site has been used to test detonators. Historically, the firing site included an open firing pad connected to the south of the building where the larger shots (up to 85 lb) were fired. In the past, after each shot, large pieces of debris were removed and disposed of off-site, and sand and debris were pushed to the edge of the canyon. This practice created a soil berm near the canyon edge. In 1992, the firing site was modified. The firing pad and the top 6 in. of soil were removed, and a containment system consisting of a large vessel with a high-efficiency particulate filtration system was installed. The firing site is now used only to test and develop small explosive devices.

SWMU 40-006(b) is listed in Table IV-2 of the Consent Order (Deferred Sites in Testing Hazard Zones); investigation of this Site is deferred per Section IV.A.5.b and Table IV-2 of the Consent Order. Decision-level data are not available for SWMU 40-006(b).

The project map (Figure 158-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

158.2 Control Measures

Run-on contributions at this SMA originate from roof drainage associated with building 40-0008. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 158-1).

Table 158-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00902040010	Established Vegetation	-	X	X	-	B
J00903010006	Earthen Berm	-	X	-	X	CB
J00903010009	Earthen Berm	-	X	-	X	CB
J00904020005	Concrete/Asphalt Channel/Swale	X	-	X	-	CB
J00906010002	Rock Check Dam	X	-	-	X	CB
J00906010004	Rock Check Dam	X	-	-	X	CB
J00906010011	Rock Check Dam	X	-	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

158.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-8. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

158.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-8 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 158-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38683	5-29-2014
Storm Rain Event	BMP-39411	6-30-2014
Storm Rain Event	BMP-39777	7-15-2014
Storm Rain Event	BMP-40326	7-28-2014
Storm Rain Event	BMP-41418	8-15-2014
Storm Rain Event	BMP-43464	10-22-2014
Annual Erosion Evaluation	COMP-43205	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 158-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39411	Debris removed from Site during inspection.	6-30-2014	0 day(s)	Maintenance conducted as soon as practicable.
BMP-40708	Removed needle cast from rock check dams J00906010002 and J00906010004 and placed out of channel.	7-21-2014	6 day(s)	Maintenance conducted as soon as practicable.

158.5 Compliance Status

The Site associated with PJ-SMA-8 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 158-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-006(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

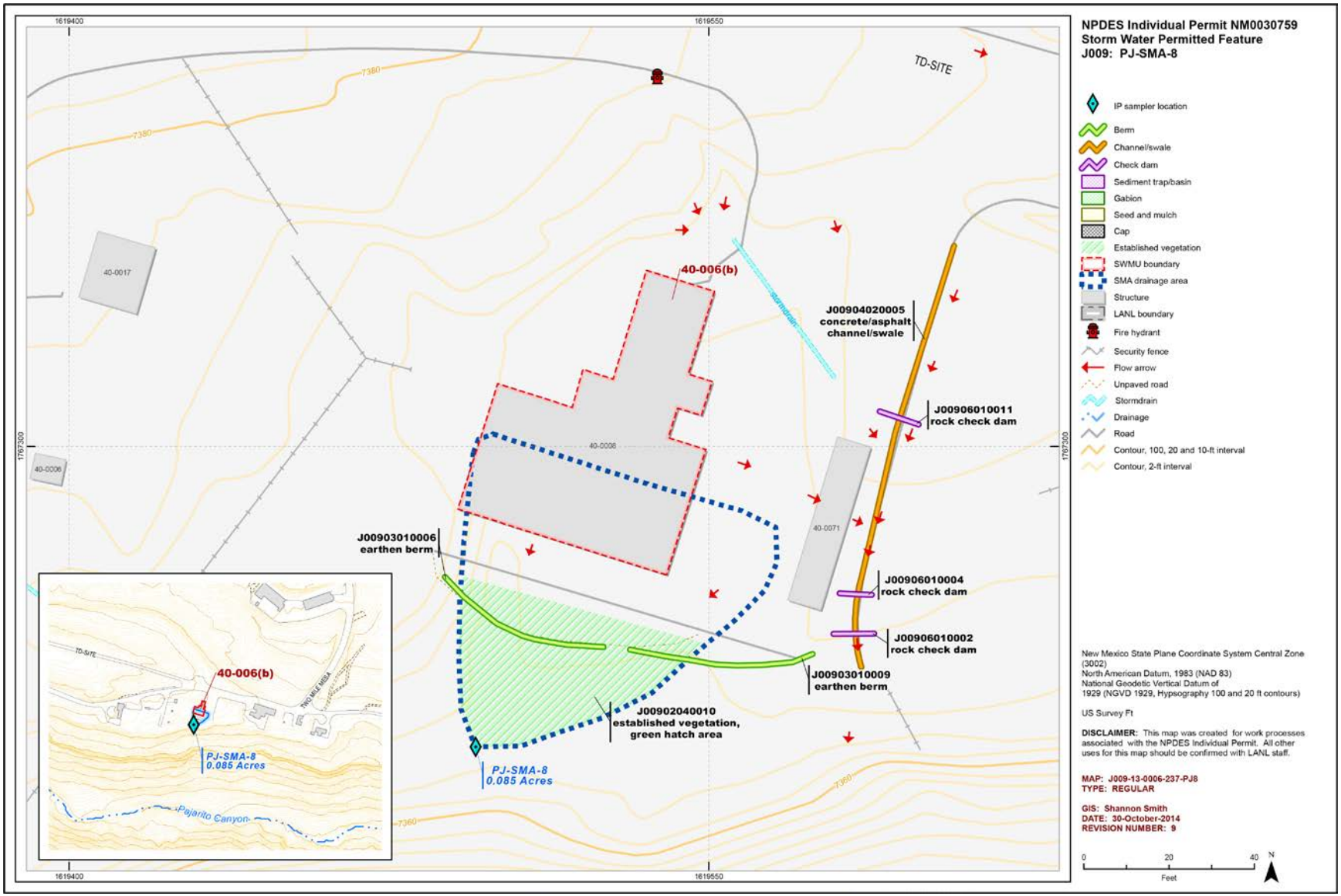


Figure 158-1 PJ-SMA-8 location map

159.0 PJ-SMA-9: SWMU 40-009

159.1 Site Descriptions

One historical industrial activity area is associated with J010, PJ-SMA-9: Site 40-009.

SWMU 40-009 is a landfill located at TA-40 south of building 40-9. The 1990 SWMU report states that the landfill resulted from a decommissioning effort undertaken at TA-15 in 1967. The SWMU report provides only a vague location and no estimate of the size or depth for the landfill, stating that debris from TA-15 was taken to TA-40 and disposed of in the canyon between buildings 40-5 and 40-15. The 1995 RFI field team walked the canyon area between the two buildings and found two prominent earthen berms on the steep hillside directly south of building 40-9. The field team suspected the berms to be the landfill. BMPs were installed at SWMU 40-009 in 2000 as part of the post–Cerro Grande fire recovery. Straw wattles were installed along the mesa edge to divert run-on from the slope. Rock check dams constructed using on-site materials were installed to dissipate flow within the drainage channels on both the east and west ends of the Site.

SWMU 40-009 is included in the Consent Order as part of the Starmer/Upper Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Starmer/Upper Pajarito Canyon Aggregate Area was approved in March 2011. Decision-level data are available for SWMU 40-009 from the 1995 RFI.

The project map (Figure 159-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

159.2 Control Measures

This SMA is influenced by run-on contributions from paved areas and roof drains associated with building 40-0009. A channel to the west of building 40-0009 may also contribute to run-on at this Permitted Feature. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 159-1).

Table 159-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01002040010	Established Vegetation	-	X	X	-	B
J01003010002	Earthen Berm	-	X	-	X	CB
J01003060013	Straw Wattle	-	X	-	X	B
J01003060014	Straw Wattle	-	X	-	x	B
J01003060015	Straw Wattle	-	X	-	X	B
J01004060001	Rip Rap	X	-	X	-	CB
J01006010006	Rock Check Dam	-	X	-	X	CB
J01006010007	Rock Check Dam	X	-	-	X	CB
J01006010008	Rock Check Dam	X	-	-	X	CB
J01006010009	Rock Check Dam	X	-	-	X	CB

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

159.3 Storm Water Monitoring

SWMU 40-009 is monitored within PJ-SMA-9. Following the installation of baseline control measures, a baseline storm water sample was collected on June 2014 (Figures 159-2 and 159-3). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentrations of 7.76 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 41.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 40-009:

- Copper is likely associated with industrial materials historically managed at the Site. Copper was detected above BVs in 5 of 15 shallow (i.e., less than 3 ft bgs) 1995 RFI soil and sediment samples at a maximum concentration 180 times the soil BV. Only 1 RFI sample location is within the PJ-SMA-9; copper was not detected above BVs at this location.
- Alpha-emitting radionuclides are likely associated with industrial materials historically managed at the Site. Shallow RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium, which contains alpha-emitting radionuclides. Uranium was detected above BVs in 5 of 15 shallow RFI soil and sediment samples with a maximum concentration 2.2 times the tuff BV. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 159-2 and 159-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figures 159-2 and 159-3.

Monitoring location PJ-SMA-9 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2014 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2014 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2014 Annual Report.

159.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-9 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 159-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38684	5-29-2014
Storm Rain Event	BMP-39412	6-30-2014
Storm Rain Event	BMP-39778	7-15-2014
Storm Rain Event	BMP-40327	7-28-2014
Storm Rain Event	BMP-41419	8-11-2014
Storm Rain Event	BMP-43465	10-22-2014
Annual Erosion Evaluation	COMP-43206	10-6-2014
TAL Exceedance	COMP-42719	10-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 159-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-39892	Repaired area of erosion with hand tools (e.g., rake out rills, fill in gullies) east of rock check dam J01006010006. Installed a series of straw wattles above in the middle of and below area of erosion. Added seed in the area of erosion and raked in.	7-15-2014	15 day(s)	Maintenance conducted as soon as practicable.
BMP-40853	Added angular rock to northeast side of check dam J01006010007 to extend end to earthen berm J01003010002 and to build up height of entire check dam. Ensured check dam spillway discharges to riprap area J01004060001.	7-24-2014	9 day(s)	Maintenance conducted as soon as practicable.
BMP-41118	Removed needle cast and debris from check dams J01006010006, J01006010007, J01006010008, and J01006010009 and placed out of flow path.	8-11-2014	14 day(s)	Maintenance conducted as soon as practicable.
BMP-43910	Installed new straw wattles directly upgradient of existing wattles J01003060011 and J01003060012 as replacements.	11-4-2014	29 day(s)	Maintenance conducted as soon as practicable.

159.5 Compliance Status

The Site associated with PJ-SMA-9 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 159-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-009	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-4-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 09-13-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

PJ-SMA-9, Rock Check Dam, J01006010008, 009 (photo ID 7511-1)

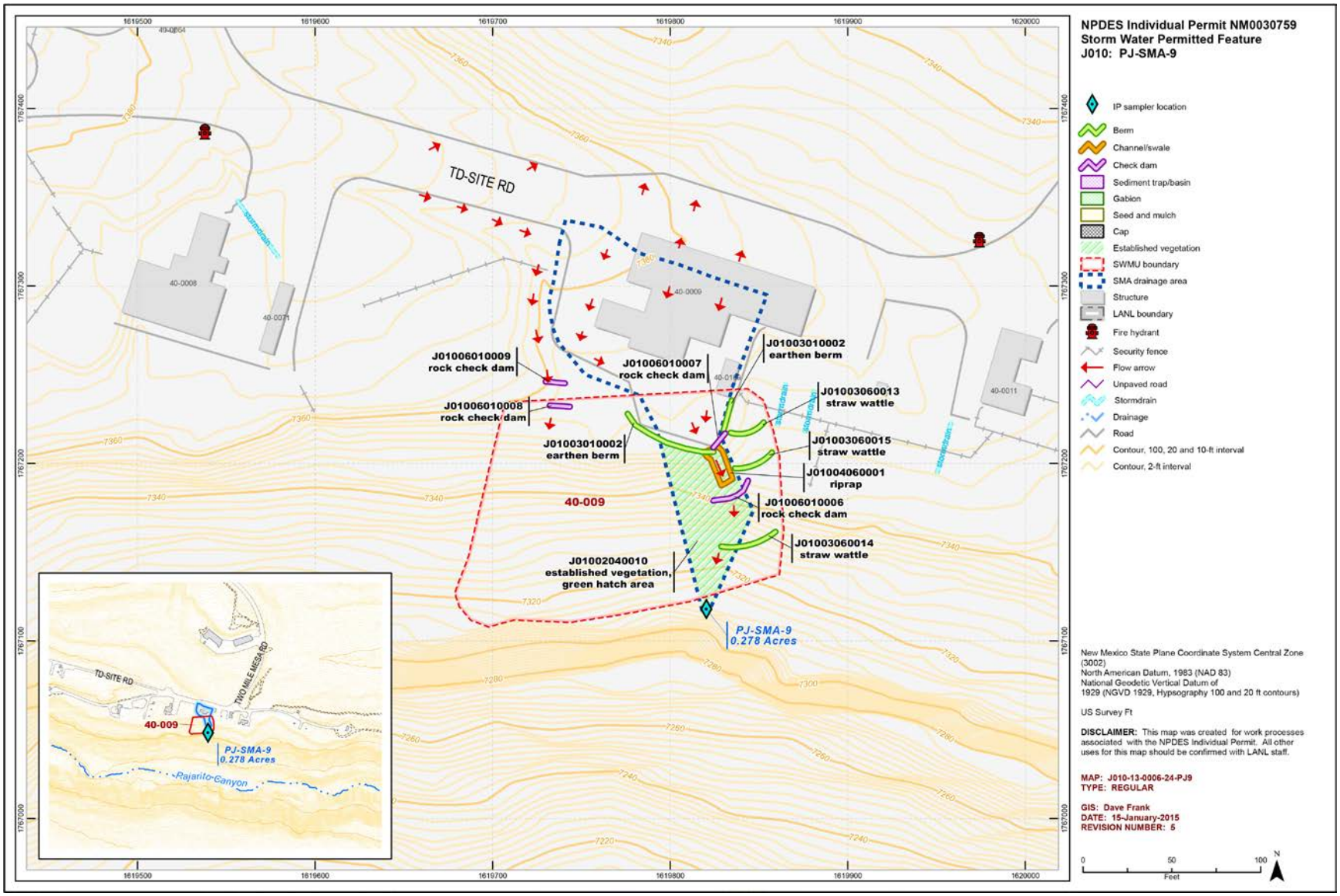
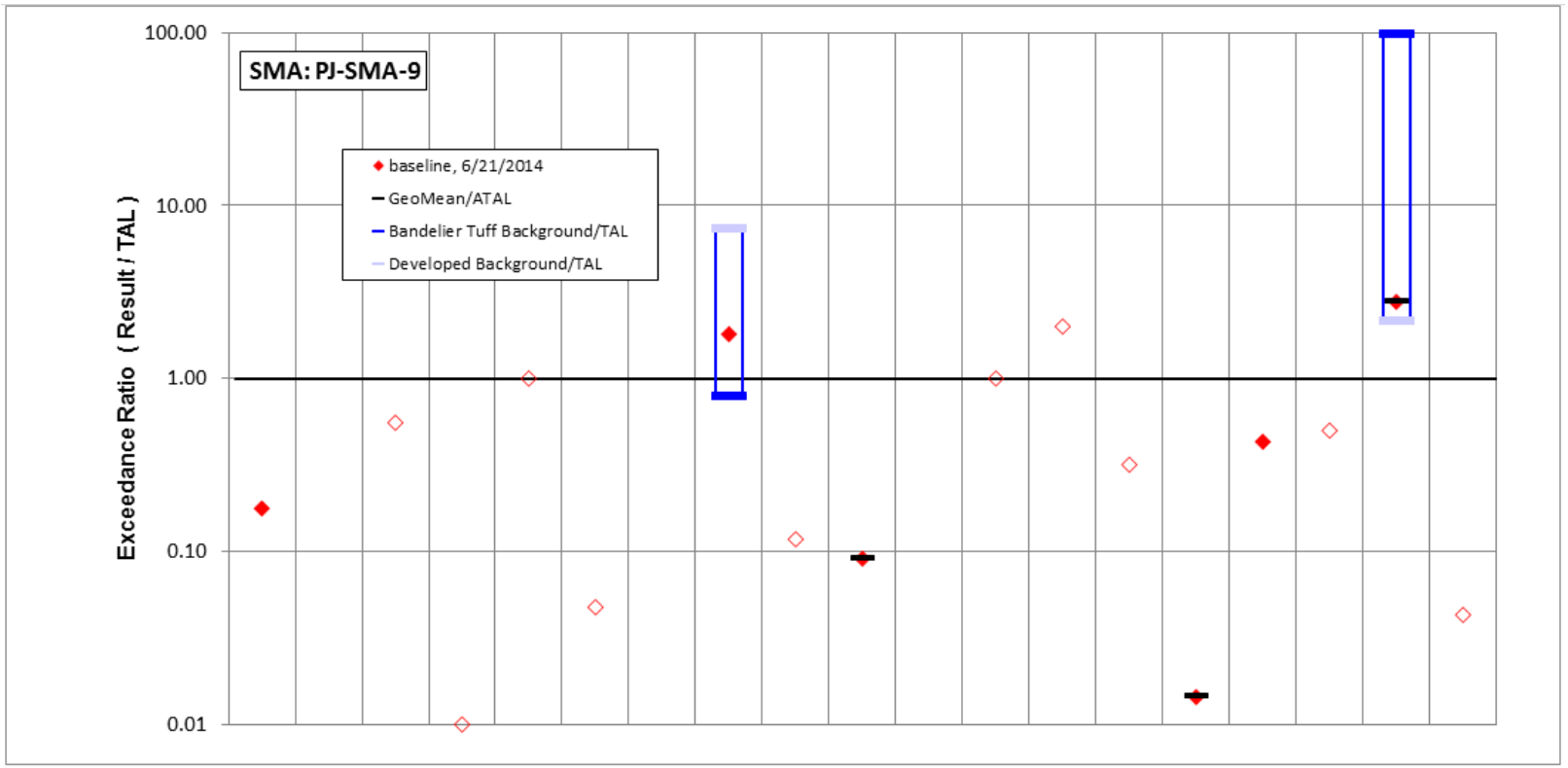


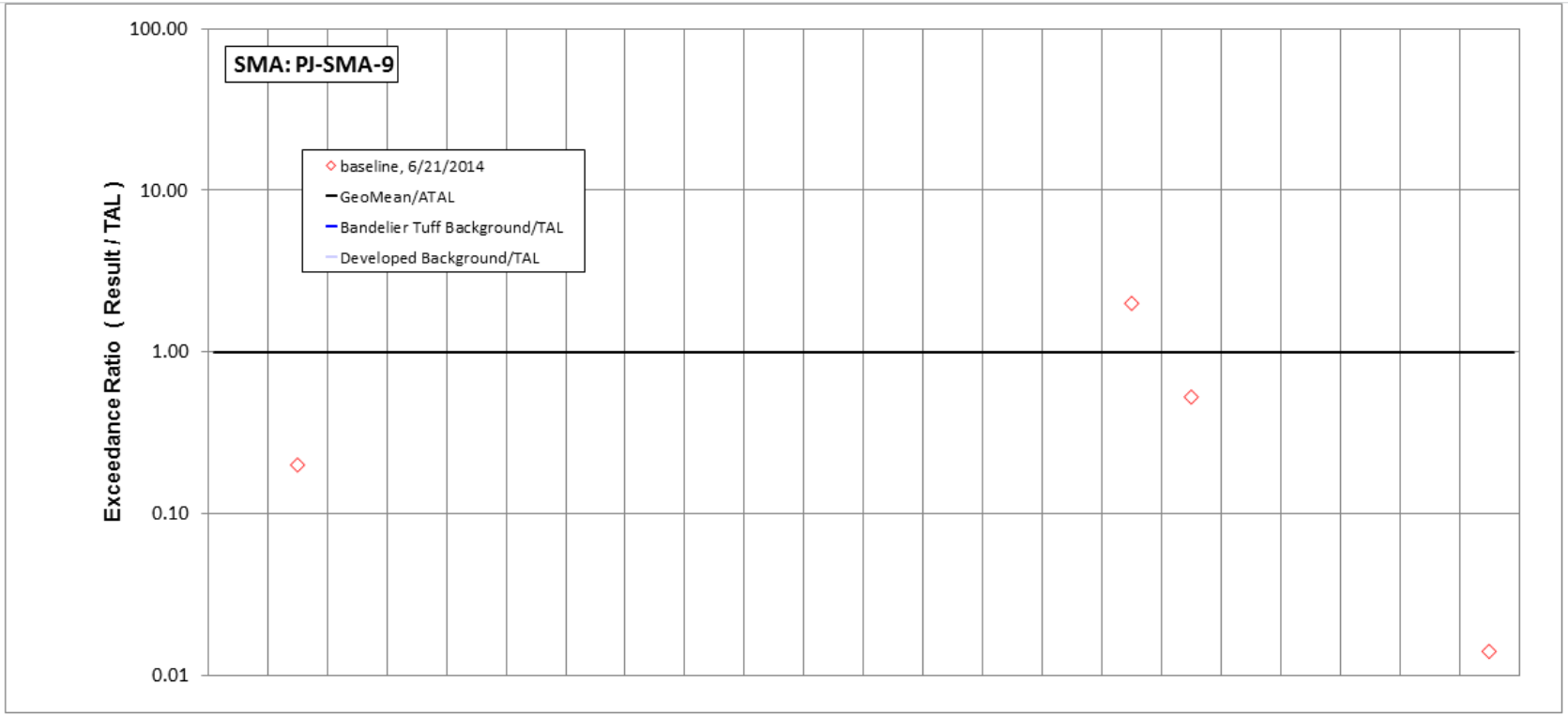
Figure 159-1 PJ-SMA-9 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
6/21/2014 result	133	*3*	*5*	*50*	*1*	*10*	2.22	**7.76**	*2*	0.07	0.773	*5*	***1***	*2*	1.44	18.1	*0.005*	**41.6**	*1.29*
result / TAL	0.18	*0.005*	*0.56*	*0.01*	*1*	*0.048*	0.0022	**1.8**	*0.12*	0.091	0.0045	*1*	***2***	*0.32*	0.014	0.43	*0.5*	**2.8**	*0.043*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 159-2 Inorganic analytical results summary plot for PJ-SMA-9



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	**Hexachlorobenzene**	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	MQL	-	-	-	-	-	-	-	-	-	-	-	-	-	MQL	MTAL	ATAL	-	-	-	ATAL
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
6/21/2014 result	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	*0.281*	-	-	-	*0.281*
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	*0.001*	-	-	-	*0.014*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 159-3 Organic analytical results summary plot for PJ-SMA-9

160.0 PJ-SMA-10: SWMU 40-006(a)

160.1 Site Descriptions

One historical industrial activity area is associated with J012, PJ-SMA-10: Site 40-006(a).

SWMU 40-006(a) is an active firing site (structure 40-15) located at TA-40 on the northern rim of Pajarito Canyon, at the east end of TD Site Road. The SWMU 40-006(a) firing site consists of a reinforced concrete and steel building that allows observation of the test shots, a partially protected area on the south side of the building where shots are prepared, and an open firing pad connected to the south of the building where larger shots are fired. Since 1950, this firing site has been used to test and develop detonators. Tests conducted at this Site have included detonator booster tests, which use 2 lb of explosives, and large open-air shots, which can use up to 50 lb of explosives. After each shot, large pieces of debris are removed and disposed of off-site; the open area is graded, and the sand and debris are pushed to the edge of the canyon, creating a sand berm near the canyon edge.

SWMU 40-006(a) is listed in Table IV-2 of the Consent Order (Deferred Sites in Testing Hazard Zones); investigation of this Site is deferred per Section IV.A.5.b and Table IV-2 of the Consent Order. Decision-level data are not available for SWMU 40-006(a).

The project map (Figure 160-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

160.2 Control Measures

Run-on contributions to this SMA originate from bare areas, structures, and an access road south of the developed area. These run-on sources are managed by an existing berm. This monitored area is flat, but the hill slope south of the berm is steep with minimal vegetation. Flow is generated south, or below, the berm on the hill slope. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 160-1).

Table 160-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01203020001	Base Course Berm	X	-	-	X	CB
J01204060004	Rip Rap	-	X	X	-	CB
J01206010008	Rock Check Dam	-	X	-	X	B

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

160.3 Storm Water Monitoring

SWMU 40-006(a) is monitored within PJ-SMA-10. Following the installation of baseline control measures, a baseline storm water sample was collected on July 7, 2014 (Figures 160-2 and 160-3). Analytical results from this sample yielded the following target action level (TAL) exceedances:

- Copper concentrations of 16.8 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 280 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 40-006(a):

- Copper is likely associated with industrial materials historically managed at the Site. Copper was detected above BVs in 53 of 92 shallow (i.e., less than 3 ft bgs) 1995 RFI soil, tuff, and sediment samples at a maximum concentration 1048 times the soil BV.
- Alpha-emitting radionuclides are likely associated with industrial materials historically managed at the Site. Shallow RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium, which contains alpha-emitting radionuclides. Uranium was detected above BVs in 74 of 92 shallow RFI soil, sediment, and tuff samples with a maximum concentration 7.5 times the tuff BV. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 160-2 and 160-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 160-2 and 160-3.

Monitoring location PJ-SMA-10 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2014 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2014 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2014 Annual Report.

160.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-10 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 160-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38676	5-29-2014
Storm Rain Event	BMP-39404	6-30-2014
Storm Rain Event	BMP-39770	7-14-2014
Storm Rain Event	BMP-40319	7-28-2014
Storm Rain Event	BMP-41411	8-11-2014
Storm Rain Event	BMP-43457	10-22-2014
Annual Erosion Evaluation	COMP-43207	10-6-2014
TAL Exceedance	COMP-42716	10-6-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-10 in 2014.

160.5 Compliance Status

The Site associated with PJ-SMA-10 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 160-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-006(a)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-11-2014. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 08-30-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

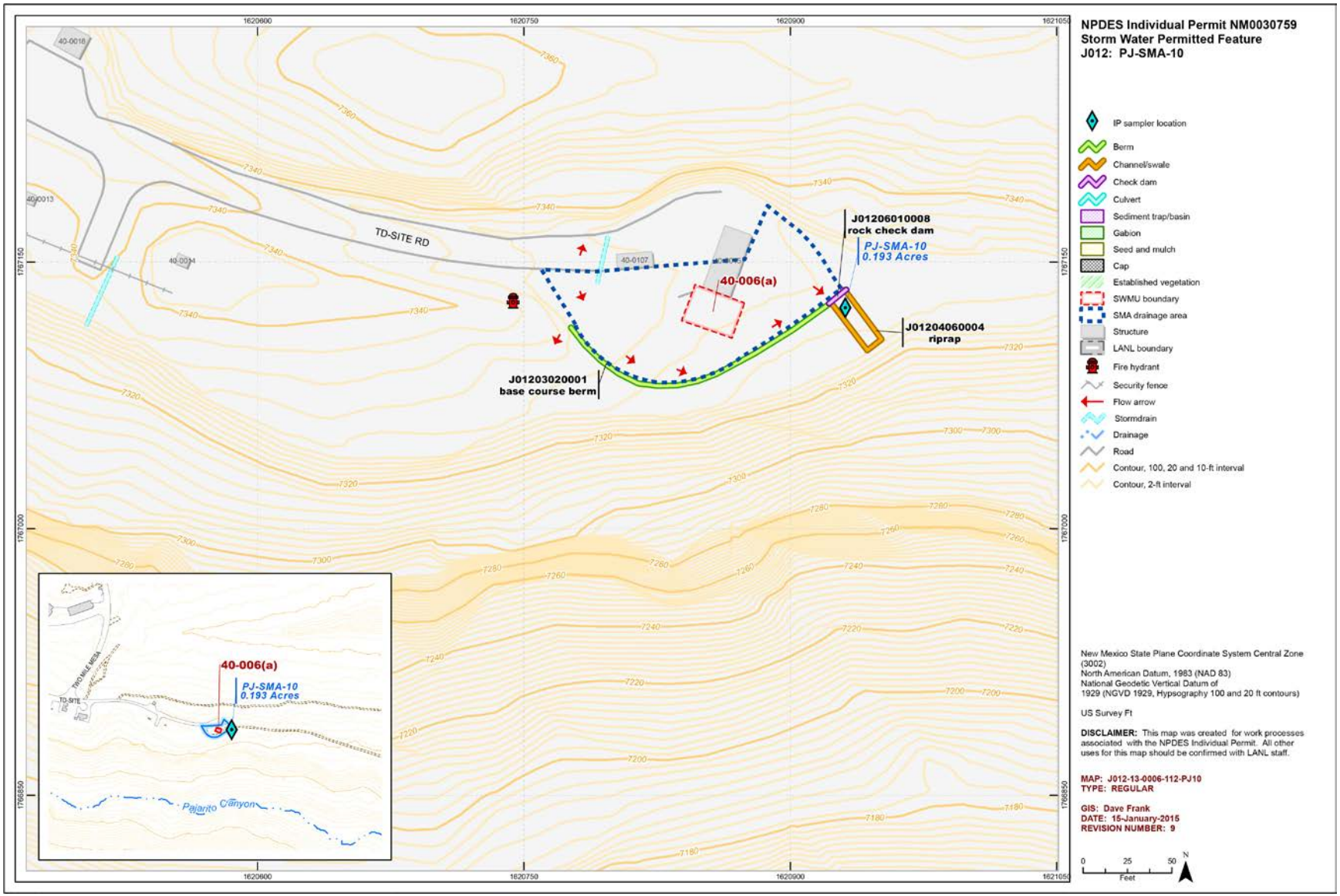
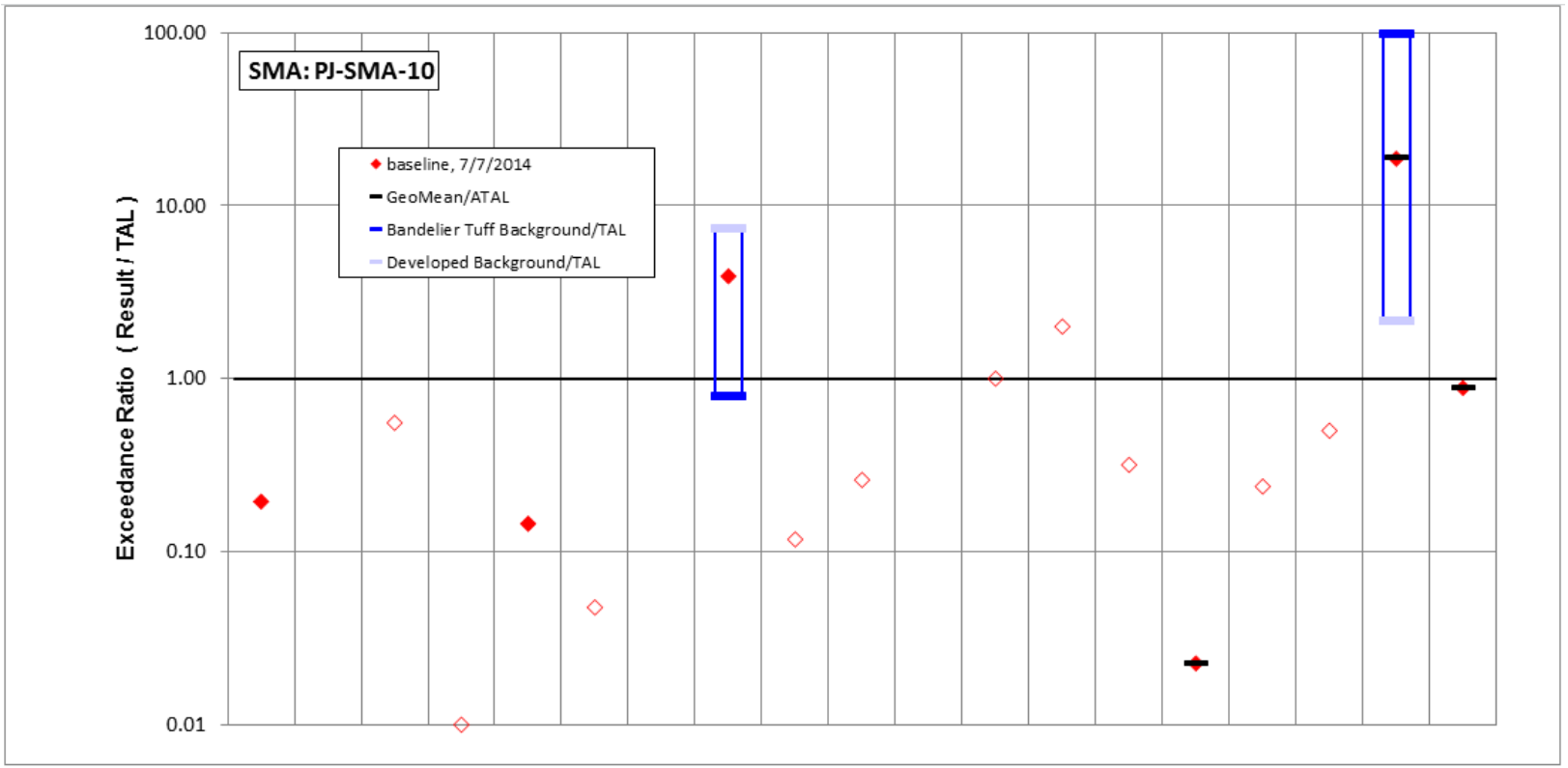


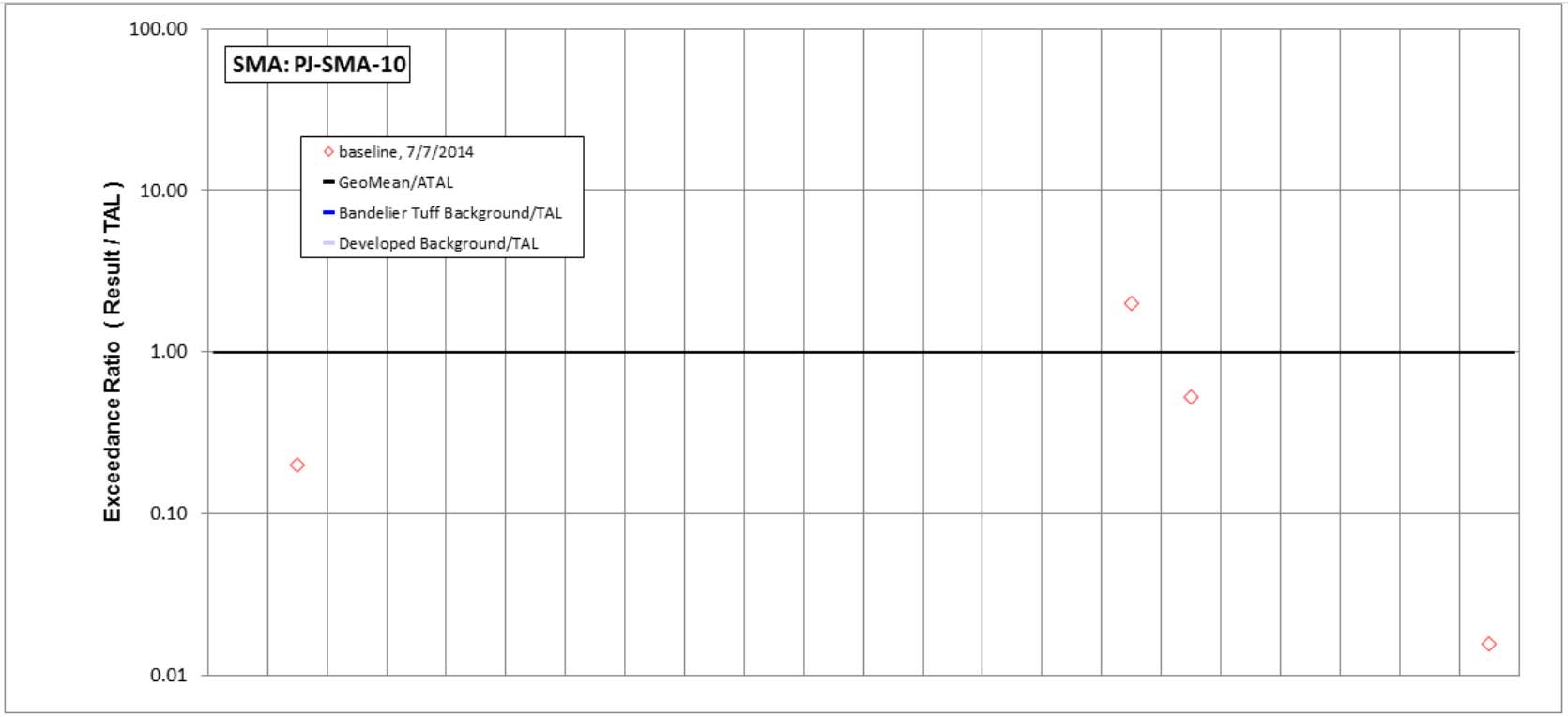
Figure 160-1 PJ-SMA-10 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/7/2014 result	146	*3*	*5*	*50*	0.145	*10*	*5*	**16.8**	*2*	*0.2*	1.14	*5*	***1***	*2*	2.26	*10*	*0.005*	**280**	26.5
result / TAL	0.19	*0.005*	*0.56*	*0.01*	0.14	*0.048*	*0.005*	**3.9**	*0.12*	*0.26*	0.0067	*1*	***2***	*0.32*	0.023	*0.24*	*0.5*	**19**	0.88

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 160-2 Inorganic analytical results summary plot for PJ-SMA-10



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	**Hexachlorobenzene**	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	MQL	-	-	-	-	-	-	-	-	-	-	-	-	-	MQL	MTAL	ATAL	-	-	-	ATAL
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/7/2014 result	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	0.171	-	-	-	*0.313*
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	9E-04	-	-	-	*0.016*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 160-3 Organic analytical results summary plot for PJ-SMA-10

161.0 PJ-SMA-11: SWMU 40-003(a)

161.1 Site Descriptions

One historical industrial activity area is associated with J013, PJ-SMA-11: Site 40-003(a).

SWMU 40-003(a) consists of two former detonation areas located at TA-40. The first area was located 450 ft east of structure 40-15. The detonation area is roughly circular and approximately 30 ft in diameter. Use of the area began in the early 1950s, and detonations were remotely controlled from structure 40-15. In 1958, several instances occurred where intact detonators and pieces of HE were discharged during detonations. Efforts to recover all the scattered detonators and HE were unsuccessful. Detonation activities at this first location ceased in the early 1960s when a second open detonation area was developed at a location farther to the east. This second area is approximately 1300 ft east of structure 40-15, within a natural amphitheater at the end of an unnamed dirt road. At the second area, scrap explosive materials were detonated and controlled remotely from structure 40-15. The detonation area is approximately 90 ft (east-west) by 110 ft (north-south). After each detonation, scattered debris was picked up and transported to an appropriate waste disposal site. Rock rubble and crushed tuff that sloughed from the amphitheater wall was pushed to the south, creating an area of fill that extended nearly to the edge of Pajarito Canyon. The second detonation area was later operated under RCRA interim status. All detonation operations ceased in 1985. The interim status open detonation area underwent RCRA closure from 1992 to 1994. The closure report was approved by NMED in August 1995.

A Consent Order investigation has not been performed at SWMU 40-003(a), and no decision-level soil sampling data are available for this Site. Confirmation samples were collected during the RCRA closure but were not analyzed for copper or gross-alpha radioactivity.

The project map (Figure 161-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

161.2 Control Measures

Potential run-on contributions to this monitored area originate from an access road and bare areas on the northern portion of the SWMU. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 161-1).

Table 161-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01301010020	Seed and Wood Mulch	-	-	X	-	B
J01302040018	Established Vegetation	-	X	X	-	B
J01303010003	Earthen Berm	-	X	-	X	CB
J01303010004	Earthen Berm	X	-	-	X	CB
J01303060012	Straw Wattle	-	X	-	X	CB
J01303060016	Straw Wattle	-	X	-	X	B
J01303060017	Straw Wattle	-	X	-	X	B
J01303060019	Straw Wattle	X	X	-	X	B
J01303060021	Straw Wattle	-	X	-	X	B
J01303060022	Straw Wattle	-	X	-	X	B
J01303060023	Straw Wattle	-	X	-	X	B
J01306010005	Rock Check Dam	-	X	-	X	CB
J01306010006	Rock Check Dam	-	X	-	X	CB
J01306010007	Rock Check Dam	-	X	-	X	CB
J01306010008	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Installation of enhanced controls began in December 2014 with completion and certification scheduled for 2015.

161.3 Storm Water Monitoring

SWMU 40-003(a) is monitored within PJ-SMA-11. Following the installation of baseline control measures, a baseline storm water sample was collected on September 13, 2013 (Figure 161-2). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentrations of 42.9 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 65.4 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 40-003(a):

- Copper and alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 161-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 161-2.

Monitoring location PJ-SMA-11 receives storm water run-on from landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is above both of these values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

161.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-11 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 161-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38677	5-29-2014
Storm Rain Event	BMP-39405	6-26-2014
Storm Rain Event	BMP-39771	7-14-2014
Storm Rain Event	BMP-40320	7-28-2014
Storm Rain Event	BMP-41412	8-11-2014
Storm Rain Event	BMP-43458	10-22-2014
Annual Erosion Evaluation	COMP-43208	10-7-2014
Enhanced Control installation	COMP-44377	12-23-2014
Enhanced Control installation	COMP-44556	12-18-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 161-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37059	Added a straw wattle northwest of existing wattle J01303060019.	1-9-2014	112 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-37060	Installed straw wattles J01303010003 at berm breach as temporary control. Added native rock to build up height of rock check dam J01306010006, J01306010007, and J01306010008. Modified rock check dam J01306010005 by adding native rock to extend east end to meet berm J01303010003.	4-28-2014	221 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-39564	Installed straw wattles as a temporary repair to berm J01303010003.	7-14-2014	18 day(s)	Maintenance conducted as soon as practicable.
BMP-40710	Installed new straw wattle directly upgradient of existing wattle J01303060010 as a replacement.	7-22-2014	8 day(s)	Maintenance conducted as soon as practicable.
BMP-41375	Repaired gopher hole in berm J01303010003 and compacted repair using hand tools. Installed new straw wattle to replace existing wattle J01303060013. Repaired undercut in wattle J01303060013 and compacted repair using hand tools. Added native rock to rock check dams J01306010006, J01306010007, and J01306010008 to build up height and extend both ends.	8-11-2014	14 day(s)	Maintenance conducted as soon as practicable.

161.5 Compliance Status

The Site associated with PJ-SMA-11 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 161-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 40-003(a)	Corrective Action Initiated	Corrective Action Initiated	Alternatives analysis has determined the corrective action plan is to build enhanced controls.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

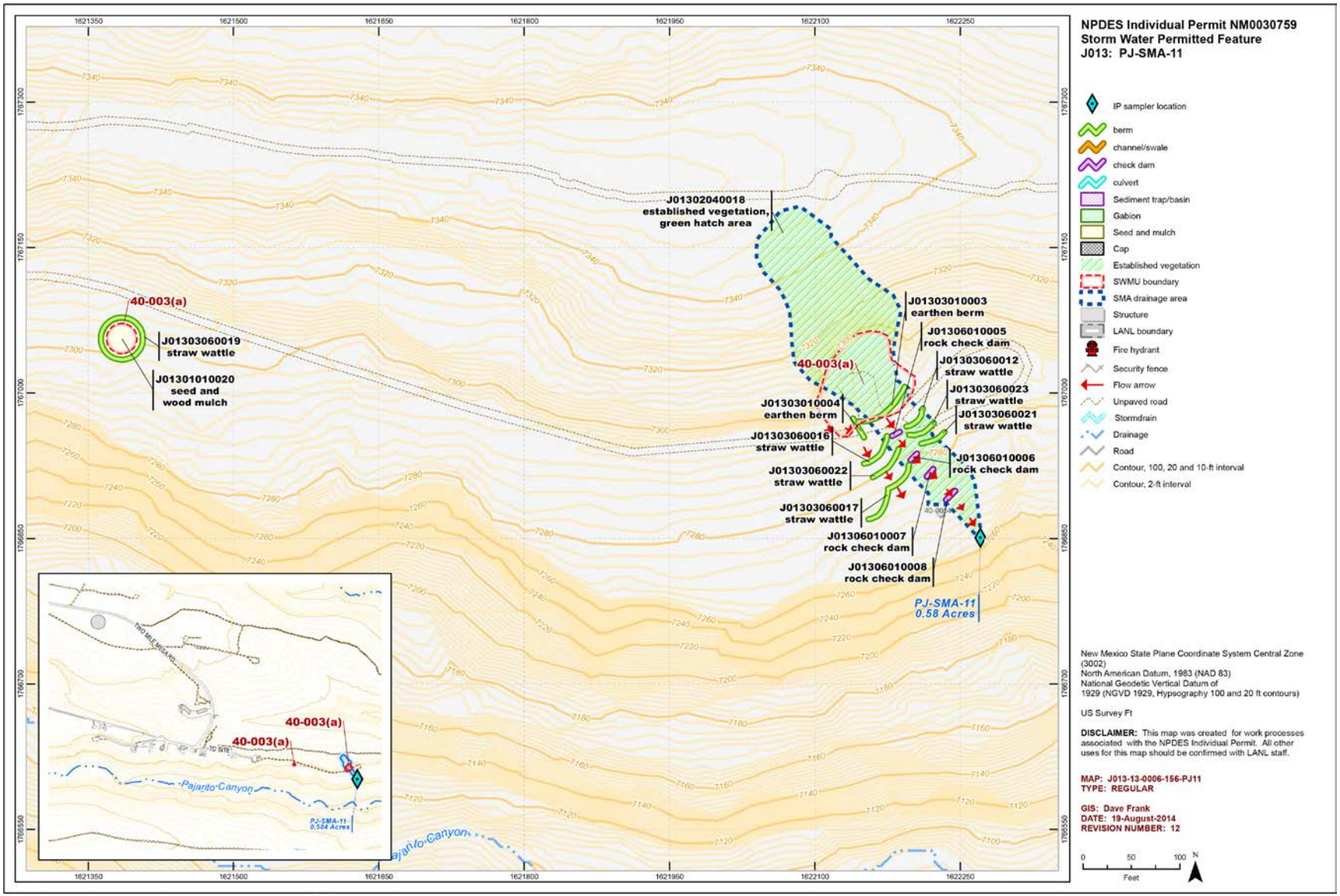
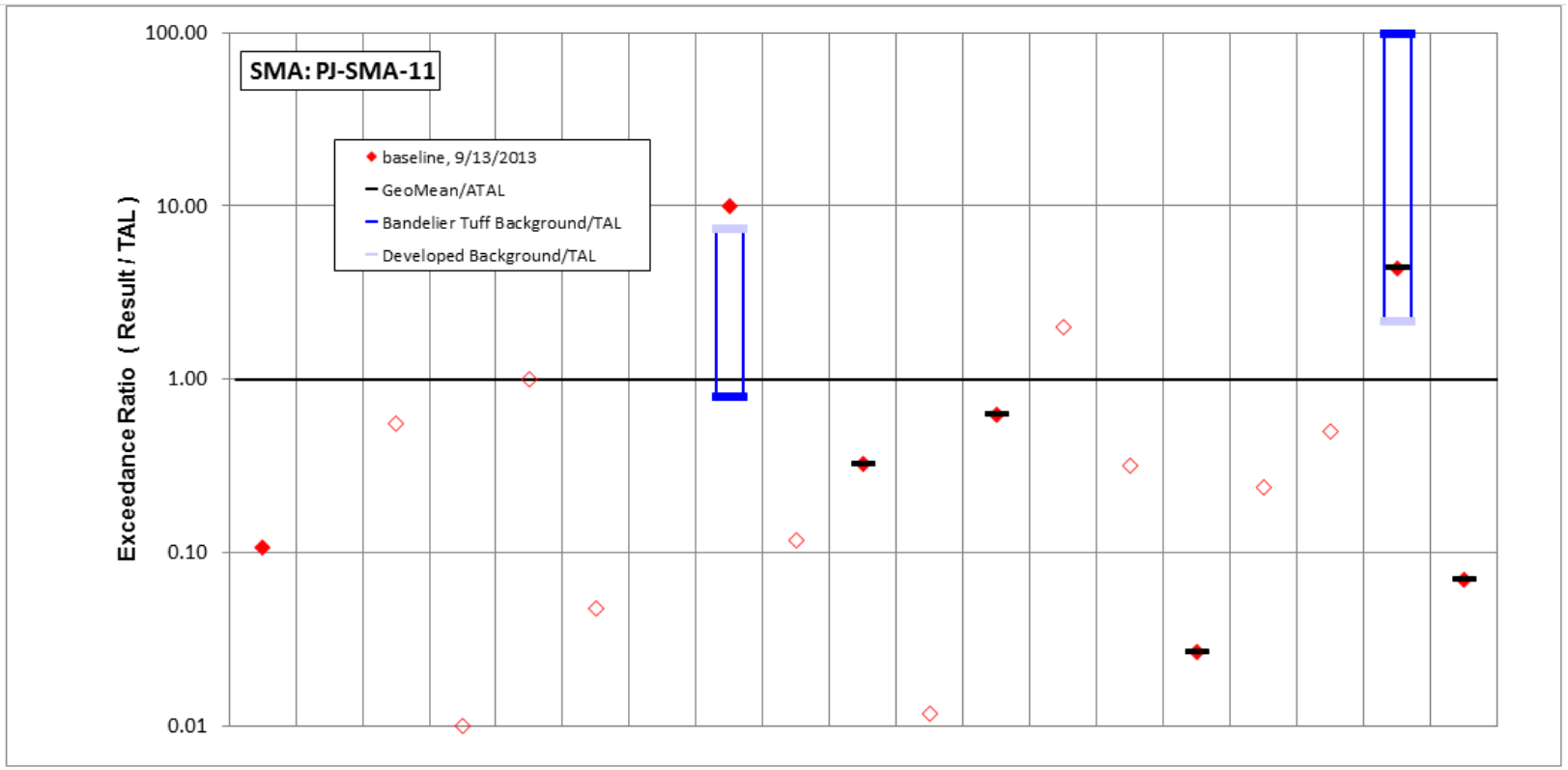


Figure 161-1 PJ-SMA-11 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	80.3	*3*	*5*	*50*	*1*	*10*	*5*	**42.9**	*2*	0.25	*2*	3.12	***1***	*2*	2.67	*10*	*0.005*	**65.4**	2.09
result / TAL	0.11	*0.005*	*0.56*	*0.01*	*1*	*0.048*	*0.005*	**10**	*0.12*	0.32	*0.012*	0.62	***2***	*0.32*	0.027	*0.24*	*0.5*	**4.4**	0.07

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 161-2 Inorganic analytical results summary plot for PJ-SMA-11

162.0 PJ-SMA-11.1: AOC 40-003(b)

162.1 Site Descriptions

One historical industrial activity area is associated with J014, PJ-SMA-11.1: Site 40-003(b).

AOC 40-003(b) is a former burn site located at TA-40 approximately 1400 ft east of building 40-15, next to the open detonation area [SWMU 40-003(a)]. The burn site consists of three small burning areas (burn cage locations) and a burn pit. Materials burned consisted of explosives-contaminated combustibles, including rags, paper, wood, and glassware. From 1960 to 1985, a wire burn cage (4 ft wide × 4 ft long × 5 ft high) with a steel-plate floor was used at three different locations. The burn cage was used to contain burning materials and to prevent wastes from being windblown before and during burning activities. Kerosene was poured over the stacked waste, and burning was initiated using explosive detonators fired remotely. The burn cage locations operated as a hazardous waste thermal treatment unit RCRA interim status until operations ceased in 1985.

The burn pit was located between the two northern locations of the burn cage and measured approximately 12 ft wide × 50 ft long × 12 ft deep. Burn pit operations began in 1961 and ceased sometime before 1977.

The burn cage locations underwent RCRA closure from 1992 to 1994. The closure report was approved by NMED in August 1995. Aerial photographs showed that the entire area, including the burn pit, was backfilled and covered by 1976. The burn pit was omitted from the RCRA closure because its period of use occurred before 1980 and therefore before RCRA regulation.

A Consent Order investigation has not been performed at AOC 40-003(b), and no decision-level soil sampling data are available for this Site.

The project map (Figure 162-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

162.2 Control Measures

There is no concentrated run-on from developed areas at this SMA. Any runoff from this SMA originates from bare areas located in the northern reaches of the SMA. This overland flow has resulted in concentrated flow channels. Installed controls are designed to further stabilize bare areas in the upper reach of the SMA and to fortify sediment retention associated with runoff controls. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 162-1).

Table 162-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01402040015	Established Vegetation	-	X	X	-	B
J01403010003	Earthen Berm	X	-	-	X	CB
J01403060016	Straw Wattle	-	X	-	X	B
J01403060017	Straw Wattle	X	-	-	X	B
J01403060018	Straw Wattle	-	X	-	X	B
J01403060019	Straw Wattle	-	X	-	X	B
J01406010004	Rock Check Dam	-	X	-	X	CB
J01406010006	Rock Check Dam	-	X	-	X	CB
J01406010007	Rock Check Dam	-	X	-	X	CB
J01406010008	Rock Check Dam	-	X	-	X	CB
J01406010009	Rock Check Dam	-	X	-	X	CB
J01406010010	Rock Check Dam	-	X	-	X	CB
J01406010011	Rock Check Dam	-	X	-	X	CB
J01406010012	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Installation of enhanced controls began in December 2014 with completion and certification scheduled for 2015.

162.3 Storm Water Monitoring

AOC 40-003(b) is monitored within PJ-SMA-11.1. Following the installation of baseline control measures, a baseline storm water sample was collected on September 13, 2013 (Figure 162-2). Analytical results from this sample yielded the following TAL exceedances:

- Aluminum concentration of 1040 µg/L (MTAL is 750 µg/L),
- Copper concentrations of 20.9 µg/L (MTAL is 4.3 µg/L), and
- Gross-alpha activity of 89.4 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

AOC 40-003(b):

- Confirmation samples were collected during the RCRA closure but were not analyzed for aluminum, copper, or gross-alpha radioactivity. Based on site history, however, the Site is an unlikely source of the TAL exceedances.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as

UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 162-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 162-2.

Monitoring location PJ-SMA-11.1 receives storm water run-on from landscapes containing sediment derived from Bandelier Tuff. Metals including aluminum are found at low concentrations in the Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; the aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum result from 2013 is between these two values.
- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

162.4 Inspections and Maintenance

RG-TA-06 recorded nine storm events at PJ-SMA-11.1 during the 2014 season. These rain events triggered six post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 162-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38678	5-29-2014
Storm Rain Event	BMP-39406	6-26-2014
Storm Rain Event	BMP-39772	7-14-2014
Storm Rain Event	BMP-40321	7-28-2014
Storm Rain Event	BMP-41413	8-11-2014
Storm Rain Event	BMP-43459	10-22-2014
Annual Erosion Evaluation	COMP-43209	10-7-2014
Enhanced Control installation	COMP-44513	12-23-2014
Enhanced Control installation	COMP-44572	12-18-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 162-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37100	Installed at least 2 lines of wattles on hillslope southwest of check dams J01406010004, J01406010005, and J01406010006. Applied seed and mulch between wattles. Installed straw wattle J01403010003 as temporary repair of berm. Added native rock to increase height and extend both ends of J01406010006, J01406010009, J01406010010, J01406010011, and J01406010012.	4-28-2014	221 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.
BMP-41374	Removed needle cast from rock check dams J01406010010 and J01406010011 and placed outside channel. Added native angular rock to rock check dams J01406010004, J01406010007, and J01006010008 to build up height and extend both ends. Modified wattle J01403060018 by installing a new straw wattle to extend the east side of the existing northwest wattle.	8-11-2014	14 day(s)	Maintenance conducted as soon as practicable.

162.5 Compliance Status

The Site associated with PJ-SMA-11.1 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 162-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
AOC 40-003(b)	Corrective Action Initiated	Corrective Action Initiated	Alternatives analysis has determined the corrective action plan is to build enhanced controls.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

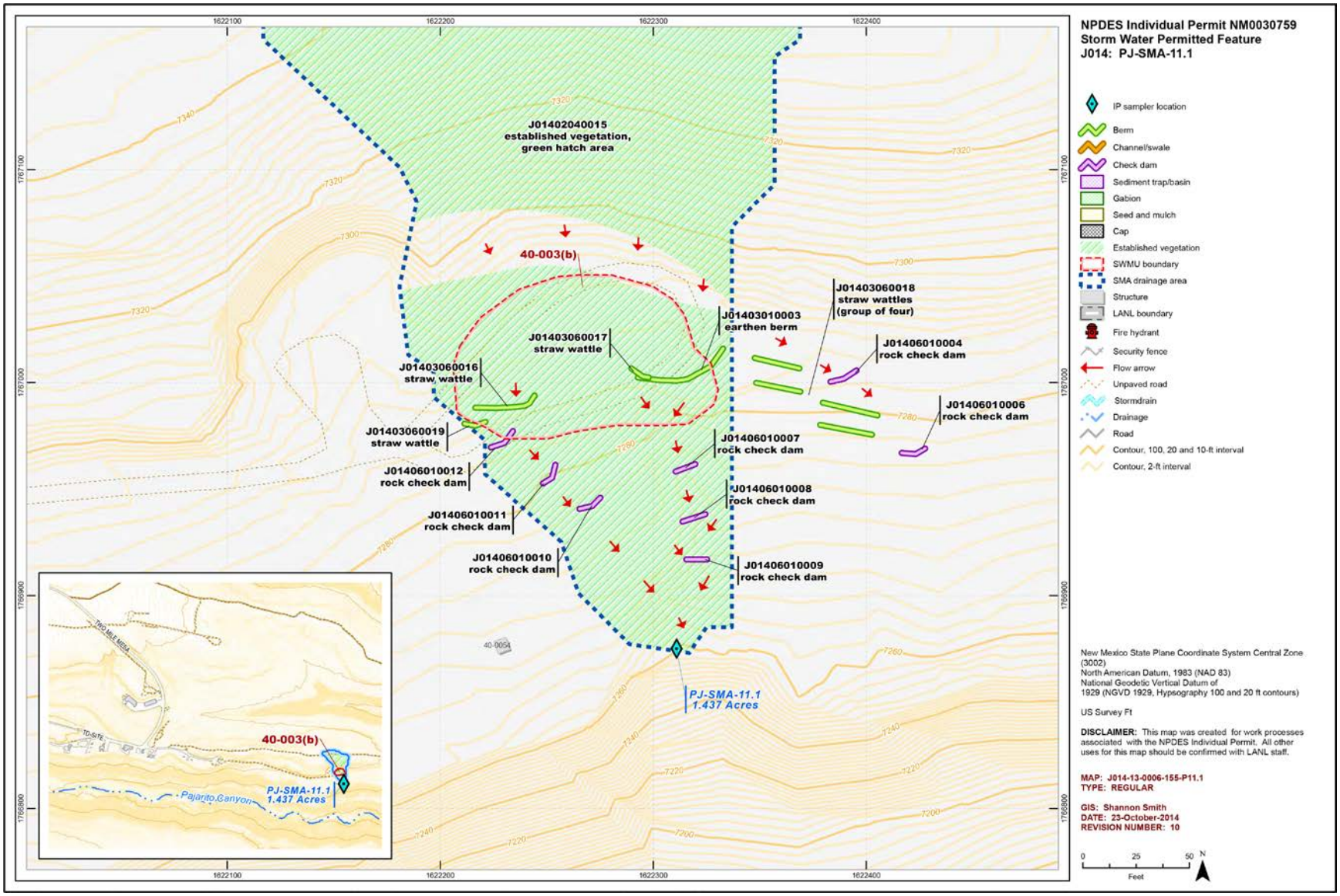
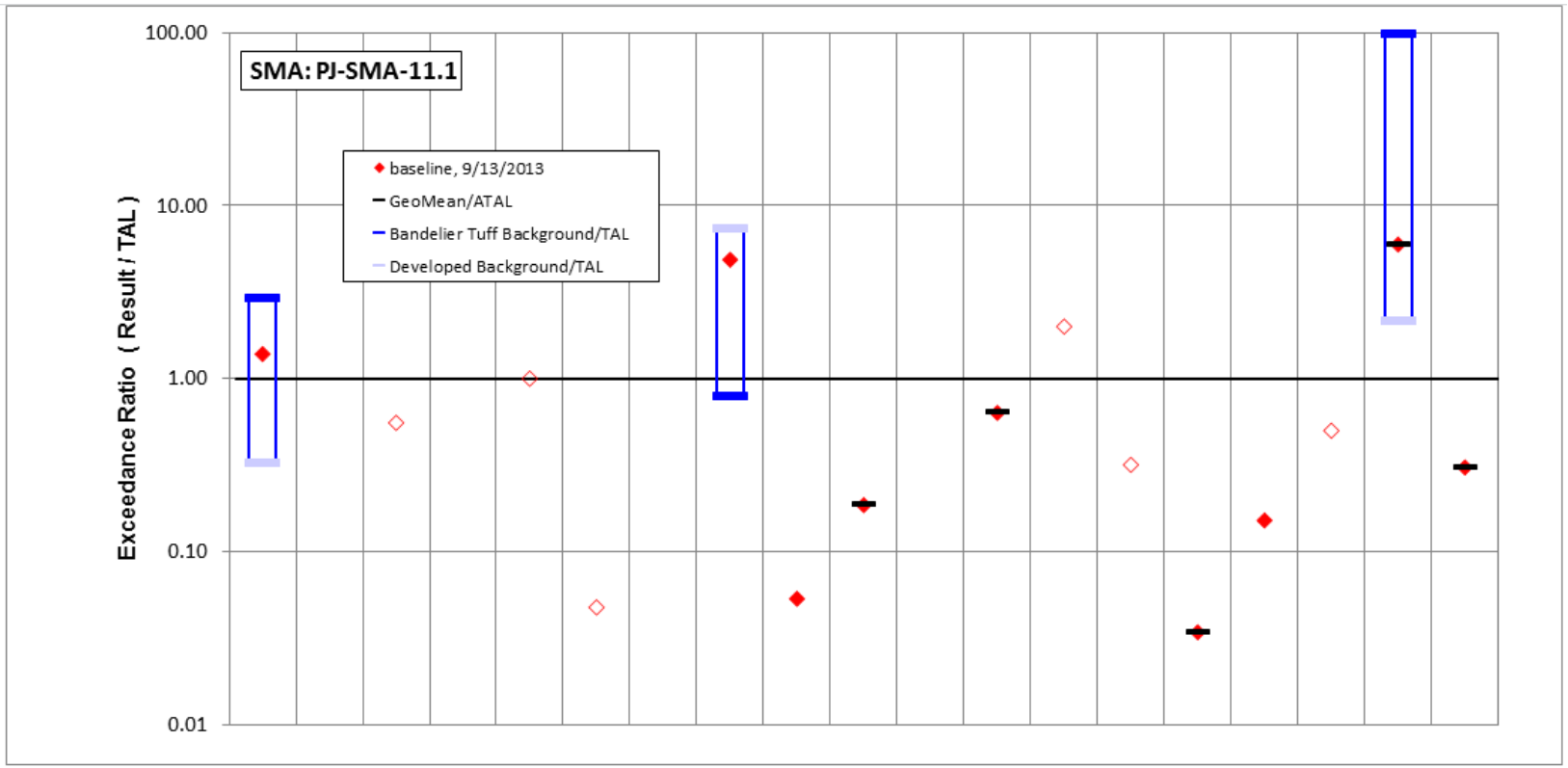


Figure 162-1 PJ-SMA-11.1 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	**1040**	*3*	*5*	16.2	*1*	*10*	1.83	**20.9**	0.908	0.143	0.832	3.17	***1***	*2*	3.42	6.36	*0.005*	**89.4**	9.2
result / TAL	**1.4**	*0.005*	*0.56*	0.0032	*1*	*0.048*	0.0018	**4.9**	0.053	0.19	0.0049	0.63	***2***	*0.32*	0.034	0.15	*0.5*	**6**	0.31

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 162-2 Inorganic analytical results summary plot for PJ-SMA-11.1

163.0 PJ-SMA-13: SWMU 18-002(a)

163.1 Site Descriptions

One historical industrial activity area is associated with J015, PJ-SMA-13: Site 18-002(a).

SWMU 18-002(a) consists of an inactive HE firing site at TA-18 in Pajarito Canyon south of the present location of building 18-0023 (Kiva 1). The firing site was used from 1944 to 1945 and consisted of two structures: former structure 18-0003, a firing chamber 2 ft wide × 2 ft long × 2.2 ft deep constructed from 1-in.-thick steel, and former structure 18-0002, an aboveground armored bunker, commonly called a "battleship," used to protect shot instrumentation. The firing chamber was open on the top and set flush with the ground west of the bunker, which was designated as storage for HE in the historical TA-18 structure log. Structure 18-0003 was removed in 1945, and structure 18-0002 is no longer in use.

SWMU 18-002(a) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 18-002(a).

The project map (Figure 163-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

163.2 Control Measures

There is minor run-on contribution from paved areas at this SMA. Run-on is also generated in the natural area southeast of the fence. Installed controls are designed to fortify sediment retention in the runoff from the area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 163-1).

Table 163-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01502040005	Established Vegetation	-	X	X	-	B
J01503010002	Earthen Berm	X	-	-	X	CB
J01503010003	Earthen Berm	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

163.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-13. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

163.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-13 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 163-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39056	6-10-2014
Storm Rain Event	BMP-39339	7-1-2014
Storm Rain Event	BMP-39669	7-14-2014
Storm Rain Event	BMP-40457	7-24-2014
Storm Rain Event	BMP-41061	8-7-2014
Storm Rain Event	BMP-42369	9-2-2014
Storm Rain Event	BMP-43132	10-14-2014
Annual Erosion Evaluation	COMP-43738	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-13 in 2014.

163.5 Compliance Status

The Site associated with PJ-SMA-13 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 163-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 18-002(a)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

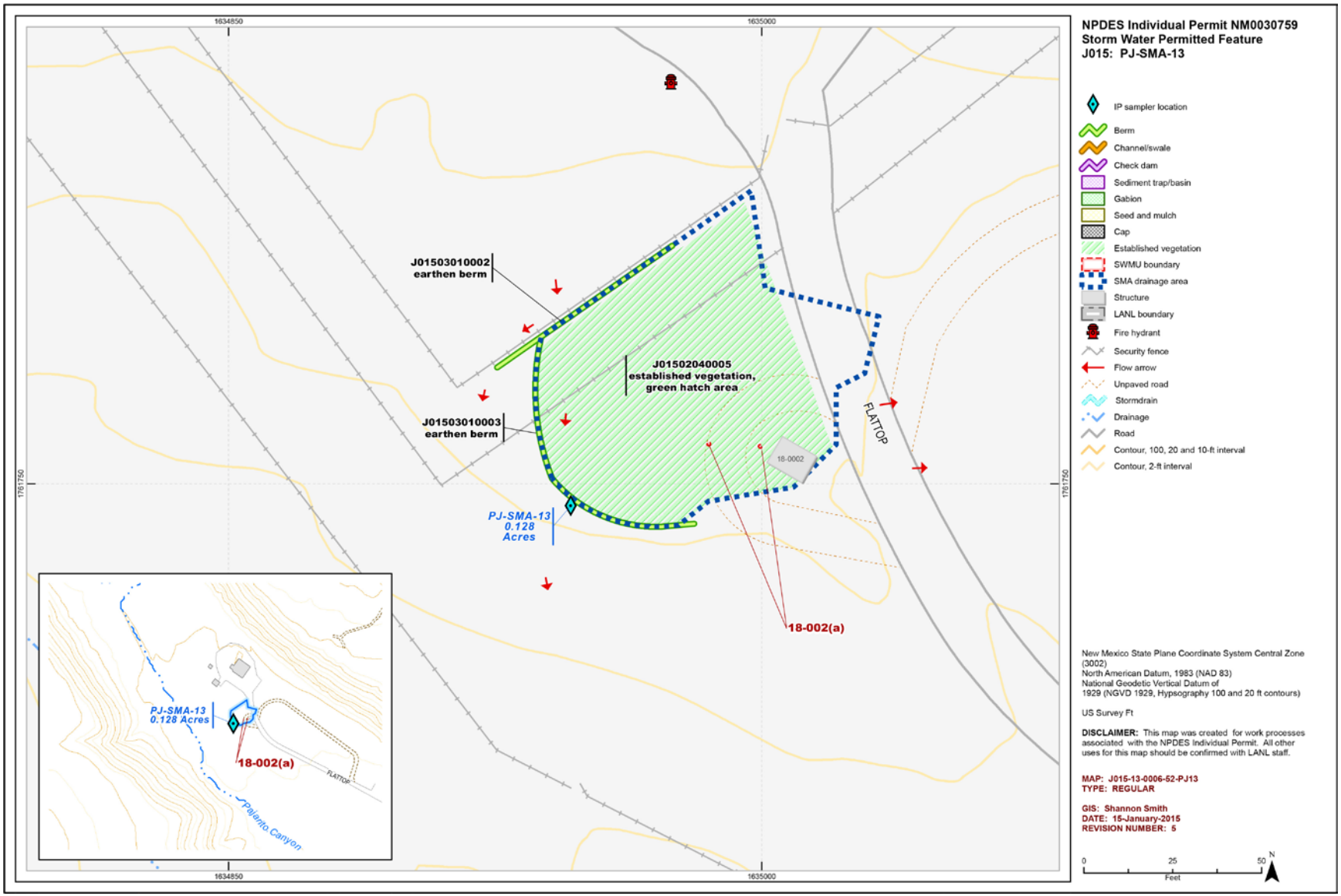


Figure 163-1 PJ-SMA-13 location map

164.0 PJ-SMA-13.7: AOC 18-010(b)

164.1 Site Descriptions

One historical industrial activity area is associated with J016, PJ-SMA-13.7: Site 18-010(b).

AOC 18-010(b) consists of an active outfall that receives storm water from a drainage ditch running southward along the west side of the paved area west of the former main laboratory and office building at TA-18 (former building 18-30). The outfall discharges to a flat, grassy area at the fence southwest of former building 18-30. This discharge point is approximately 25 ft north of the stream channel in Pajarito Canyon. The storm water discharged to this area from AOC 18-010(b) generally infiltrates the ground a short distance from the outfall, although heavy flow may reach the stream channel. The date this outfall became operational is not known, but building 18-30 was constructed in 1951. The RFI work plan describes a 1988 photograph that showed spillage from a former refueling platform at structure 18-110 into the drainage ditch. Building 18-30 and most of the other TA-18 structures were demolished in 2010 and 2011.

Consent Order investigations have not been performed at AOC 18-010(b), and no decision-level data are available for this Site. Screening-level data are available from an RFI performed in 1994.

The project map (Figure 164-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

164.2 Control Measures

The SMA is impacted by paved areas north and west of building 18-0030 as well as from roof drains associated with the building. Flow is routed to the channel just east of the fence. The channel feeds a culvert inlet/outlet that discharges at the SWMU. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 164-1).

Enhanced controls were installed and certified on July 9, 2013, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 164-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01602040011	Established Vegetation	-	X	X	-	B
J01605020008	Sediment Basin	-	X	-	X	EC
J01605020009	Sediment Basin	-	X	-	X	EC
J01606010007	Rock Check Dam	X	-	-	X	CB
J01607010002	Gabions	-	X	X	-	CB
J01608030010	Concrete/Asphalt Cap	-	X	-	-	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

164.3 Storm Water Monitoring

AOC 18-010(b) is monitored within PJ-SMA-13.7. Following the installation of baseline control measures, a baseline storm water sample was collected on September 1, 2011 (Figure 164-2). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 52.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

AOC 18-010(b):

- Alpha-emitting radionuclides, including isotopes of uranium and plutonium, are known to be associated with industrial materials historically managed at TA-18; these materials were handled only inside structures and were not exposed to storm water. Shallow soil samples collected during the 1994 RFI were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides but were analyzed for total uranium, which has alpha-emitting isotopes. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity. Total uranium was detected above BV in 7 of 8 shallow RFI soil and sediment samples with a maximum concentration 5.7 times the maximum value in the background data set. Data collected during the 1994 RFI are screening-level data.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 164-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 164-2.

PJ-SMA-13.7, Gabions, J01607010002 (photo ID 30474-3)

Monitoring location PJ-SMA-13.7 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha background UTL for undisturbed Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2011 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2011 Annual Report.

164.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-13.7 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 164-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39057	6-12-2014
Storm Rain Event	BMP-39340	7-1-2014
Storm Rain Event	BMP-39670	7-14-2014
Storm Rain Event	BMP-40458	7-24-2014
Storm Rain Event	BMP-41062	8-7-2014
Storm Rain Event	BMP-42370	9-4-2014
Storm Rain Event	BMP-43133	10-14-2014
Annual Erosion Evaluation	COMP-43739	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-13.7 in 2014.

164.5 Compliance Status

The Site associated with PJ-SMA-13.7 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 164-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
18-010(b)	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Monitoring following installation of enhanced control measures at SMAs associated with Moderate Priority Sites.

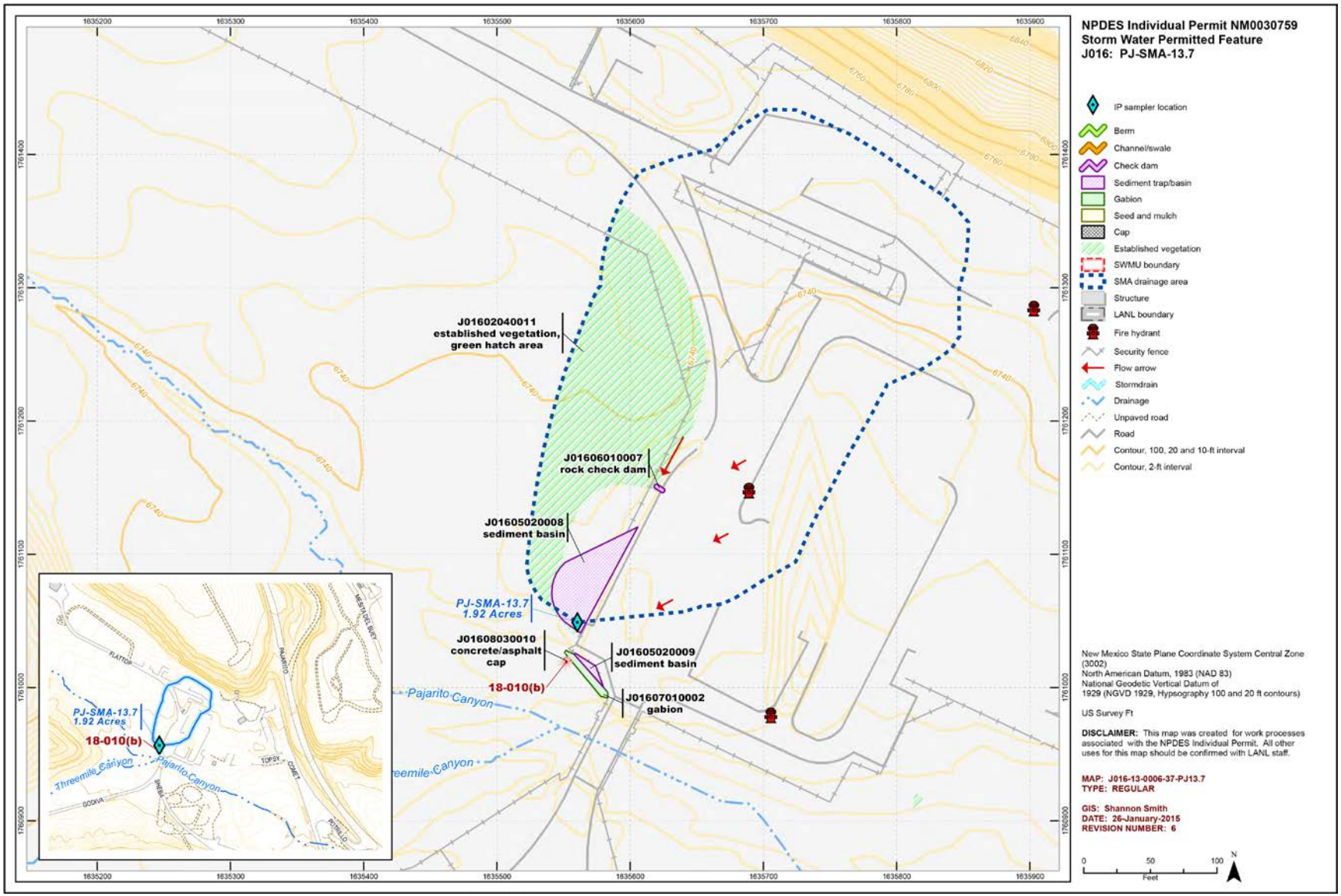
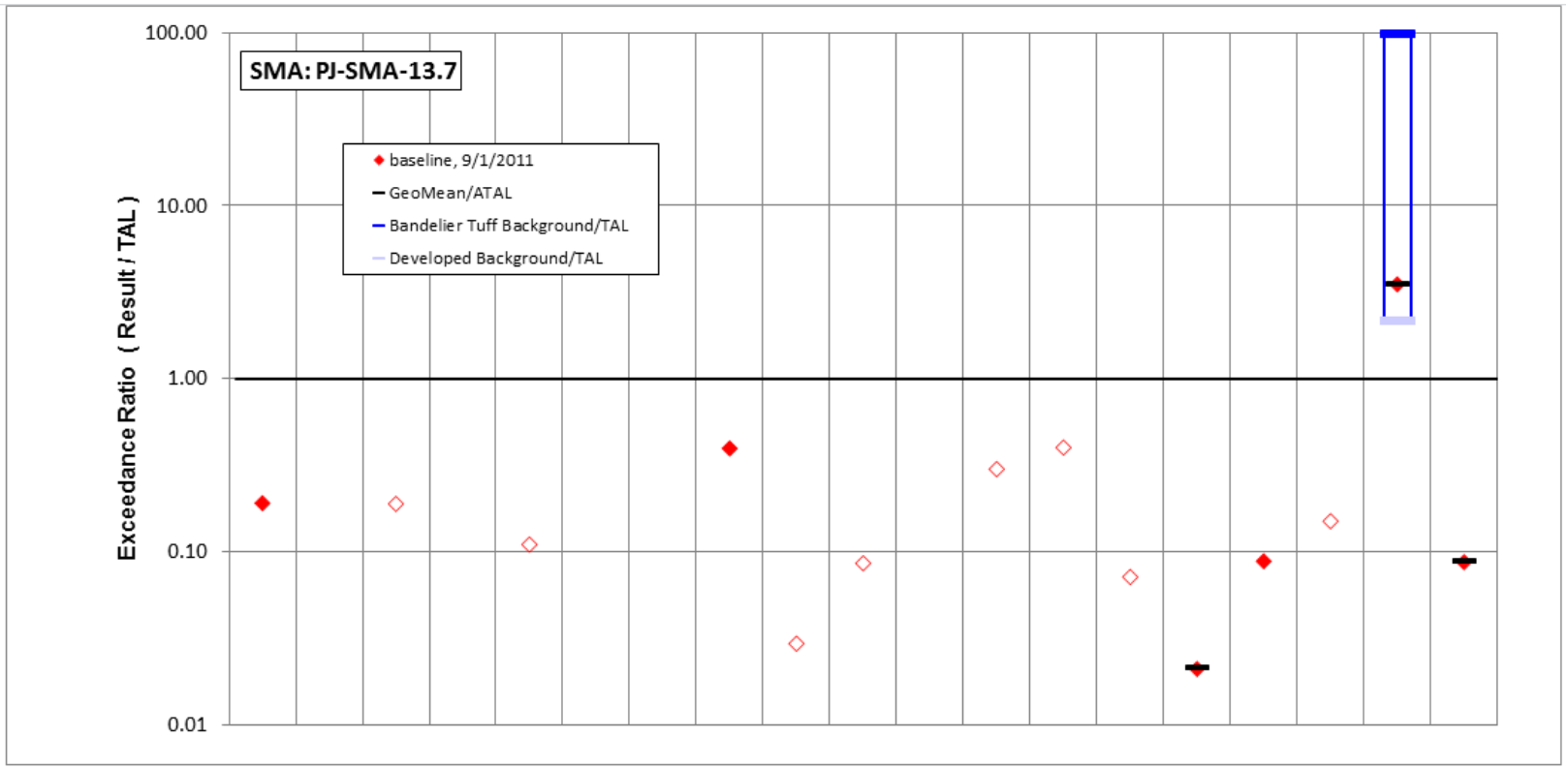


Figure 164-1 PJ-SMA-13.7 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/1/2011 result	143	*1*	*1.7*	*15*	*0.11*	*2*	1.8	1.7	*0.5*	*0.066*	0.89	*1.5*	*0.2*	*0.45*	2.1	3.7	*0.002*	**52.6**	2.61
result / TAL	0.19	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.0018	0.4	*0.029*	*0.086*	0.0052	*0.3*	*0.4*	*0.071*	0.021	0.088	*0.15*	**3.5**	0.087

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 164-2 Inorganic analytical results summary plot for PJ-SMA-13.7

165.0 PJ-SMA-14: SWMU 54-004

165.1 Site Descriptions

One historical industrial activity area is associated with J017, PJ-SMA-14: Site 54-004.

SWMU 54-004 (MDA H) is an inactive 0.3-acre landfill on Mesita del Buey in TA-54 consisting of nine inactive shafts used to dispose of Laboratory-generated classified waste such as weapon-component mockup shapes, detonators, papers, and tritium-contaminated items. Material disposed of at MDA H contained residues of DU, fuel elements, residual plutonium, HE, liquids, or gases, and the density of waste materials varied from 5 lb/ft^3 to over 400 lb/ft^3 in the shafts. Each shaft is 6 ft in diameter and 60 ft deep. Placement of all waste in the pit below the original land surface ensured the waste was contained within the disposal pit and prevented exposure to storm water runoff during the operational life of each pit. The shafts were capped when waste came to within 6 ft of the surface. Shafts 1 through 8 are capped with 3 ft of crushed tuff followed by 3-ft-thick concrete caps; shaft 9 is capped only with a 6-ft-thick layer of concrete. The nine shafts at MDA H were used from 1960 to 1986. One shaft, shaft 9, received hazardous waste after July 26, 1982, and therefore is considered a RCRA-regulated landfill. The surface area of MDA H was covered with clean fill and reseeded.

Investigation sampling is complete for SWMU 54-004. A CME was conducted at MDA H in 2009 and 2010 to evaluate alternatives for preventing future exposure to buried waste. CME results were submitted to NMED in September 2011.

The project map (Figure 165-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

165.2 Control Measures

There is a minor potential for run-on from the paved road north of the SMA. The SMA is slightly elevated on the southwestern side, reducing the potential for run-on from the area southwest of the SMA. Controls have been installed to manage runoff and reduce sediment migration. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 165-1).

Table 165-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01701010004	Seed and Wood Mulch	-	-	X	-	CB
J01703010005	Earthen Berm	-	X	-	X	B
J01703010006	Earthen Berm	-	X	-	X	B
J01703020002	Base Course Berm	X	-	-	X	CB
J01703020003	Base Course Berm	-	X	-	X	CB
J01708010001	Earth Cap	-	-	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

165.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-14. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

165.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 165-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39058	6-10-2014
Storm Rain Event	BMP-39341	7-2-2014
Storm Rain Event	BMP-39671	7-14-2014
Storm Rain Event	BMP-40459	7-24-2014
Storm Rain Event	BMP-41063	8-7-2014
Storm Rain Event	BMP-42371	9-2-2014
Storm Rain Event	BMP-43134	10-14-2014
Annual Erosion Evaluation	COMP-43740	10-29-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 165-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-38858	Raked out rilling in southwest corner of earth cap J01708010001 inside the fenced area. Installed straw wattle along inside southwest fence line. Applied seed and mulch to raked area.	7-1-2014	230 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.

165.5 Compliance Status

The Site associated with PJ-SMA-14 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 165-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 54-004	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

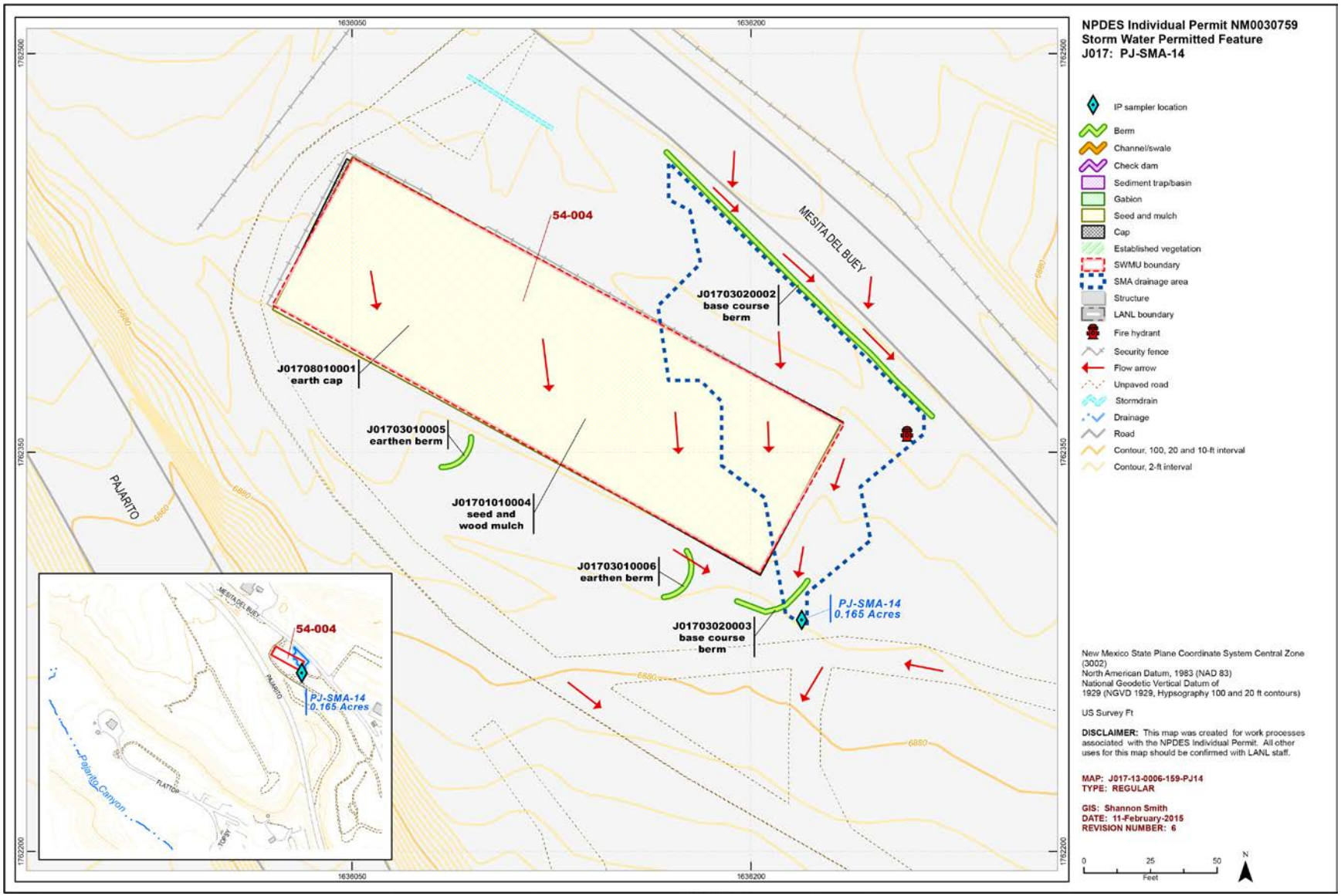


Figure 165-1 PJ-SMA-14 location map

166.0 PJ-SMA-14.2: SWMU 18-012(b)

166.1 Site Descriptions

One historical industrial activity area is associated with J018, PJ-SMA-14.2: Site 18-012(b).

SWMU 18-012(b) consists of a former outfall at TA-18 is an outfall that received discharge from several sources in buildings 18-30 and 18-31. The outfall, which was active from the time the buildings were constructed in 1950, is located south of building 18-31, approximately 20 ft north of the main drainage channel in Pajarito Canyon. The outfall received discharge from an associated sump [SWMU 18-001(c)], floor drains, sinks, storm water from the east-wing roof of building 18-31, and a welding quench tank in building 18-30. The outfall also received discharge from machine shop floor drains and storm water from the roof of building 18-31. Discharges from both buildings were transported to the outfall via a series of 4-in. polyethylene pipes connected to the sources within the buildings. All drains in both buildings were plugged in 1992 and 1993, with the exception of the storm water roof drains. From 1993 to 2011, the outfall received only storm water from the east-wing roof of building 18-30. Buildings 18-30 and 18-31 underwent D&D in 2011 and 2012.

SWMU 18-012(b) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 18-012(b).

The project map (Figure 166-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

166.2 Control Measures

There is no evidence of significant run-on from the paved areas. Established vegetation south of the paved areas effectively manages all minor run-on contributions. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 166-1).

Table 166-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01802040005	Established Vegetation	-	X	X	-	B
J01803060006	Straw Wattle	X	-	-	X	B
J01803120004	Rock Berm	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

166.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-14.2. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

166.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14.2 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 166-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39059	6-14-2014
Storm Rain Event	BMP-39342	7-1-2014
Storm Rain Event	BMP-39672	7-14-2014
Storm Rain Event	BMP-40460	7-24-2014
Storm Rain Event	BMP-41064	8-7-2014
Storm Rain Event	BMP-42372	9-2-2014
Storm Rain Event	BMP-43135	10-14-2014
Annual Erosion Evaluation	COMP-43741	10-29-2014

Table 166-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-36569	Installed angular rock to berm J01803120004 to rebuild rock berm.	4-4-2014	191 day(s)	Maintenance initiated as a result of the September 2013 1000-yr rain event was delayed by the federal government shutdown and the onset of winter weather conditions.

166.5 Compliance Status

The Site associated with PJ-SMA-14.2 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 166-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 18-012(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

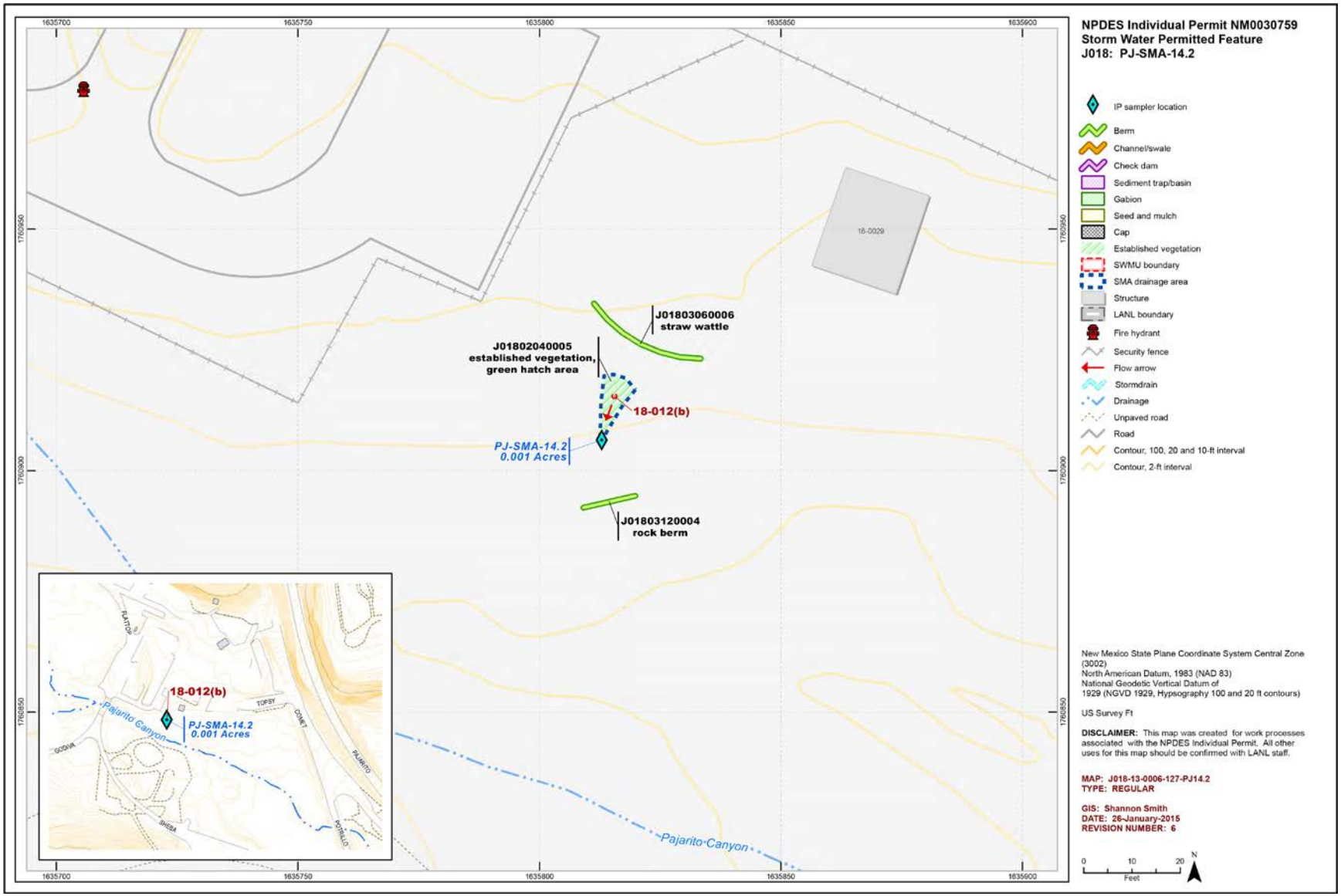


Figure 166-1 PJ-SMA-14.2 location map

167.0 PJ-SMA-14.3: SWMU 18-003(e)

167.1 Site Descriptions

One historical industrial activity area is associated with J019, PJ-SMA-14.3: Site 18-003(e).

SWMU 18-003(e) consists of an inactive septic system at TA-18 that includes two inlet lines, a cylindrical septic tank (structure 18-40), an outlet line, a drain field, and a former outfall. The septic tank is located approximately 50 ft southwest of building 18-37 and approximately 50 ft east of building 18-29 (a log cabin). The tank is constructed of reinforced concrete and measures 6 ft in diameter × 6 ft deep. The septic system received sanitary waste from building 18-31 (a utility building), building 18-37 (Guard Station 205), building 18-129 (a reactor subassembly building), building 18-189, and building 18-190. While it was in operation from 1951 to 1969, the septic system may have also received industrial waste from a sink in building 18-28 (a warehouse). Septic tanks associated with SWMUs 18-003(g and h) (structures 18-43 and 18-152, respectively) may have discharged to this septic system. Effluent discharged into a drain field that has four drainlines, each of which is approximately 40 ft long. The drainlines, which are 10 ft apart, merge at the distal end of the drain field, and continue an estimated 100 ft to the former outfall. In 1969, sanitary waste from the buildings was connected to the sewer system at the Site that routed effluent to the former TA-18 sanitary sewage lagoons. At that time, the septic tank was backfilled with sand.

SWMU 18-003(e) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 18-003(e).

The project map (Figure 167-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

167.2 Control Measures

There is no indication of run-on to the outfall area from the paved area above. Run-on to the area is managed by engineered controls within the TA-18 administrative area, and the Permitted Feature is not impacted. Established vegetation serves to filter and mitigate runoff from this area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 167-1).

Table 167-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01902040003	Established Vegetation	-	X	X	-	B
J01903060005	Straw Wattle	-	X	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

167.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-14.3. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

167.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14.3 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 167-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39060	6-12-2014
Storm Rain Event	BMP-39343	7-2-2014
Storm Rain Event	BMP-39673	7-14-2014
Storm Rain Event	BMP-40461	7-24-2014
Storm Rain Event	BMP-41065	8-7-2014
Storm Rain Event	BMP-42373	9-4-2014
Storm Rain Event	BMP-43136	10-14-2014
Annual Erosion Evaluation	COMP-43742	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-14.3 in 2014.

167.5 Compliance Status

The Site associated with PJ-SMA-14.3 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 167-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 18-003(e)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

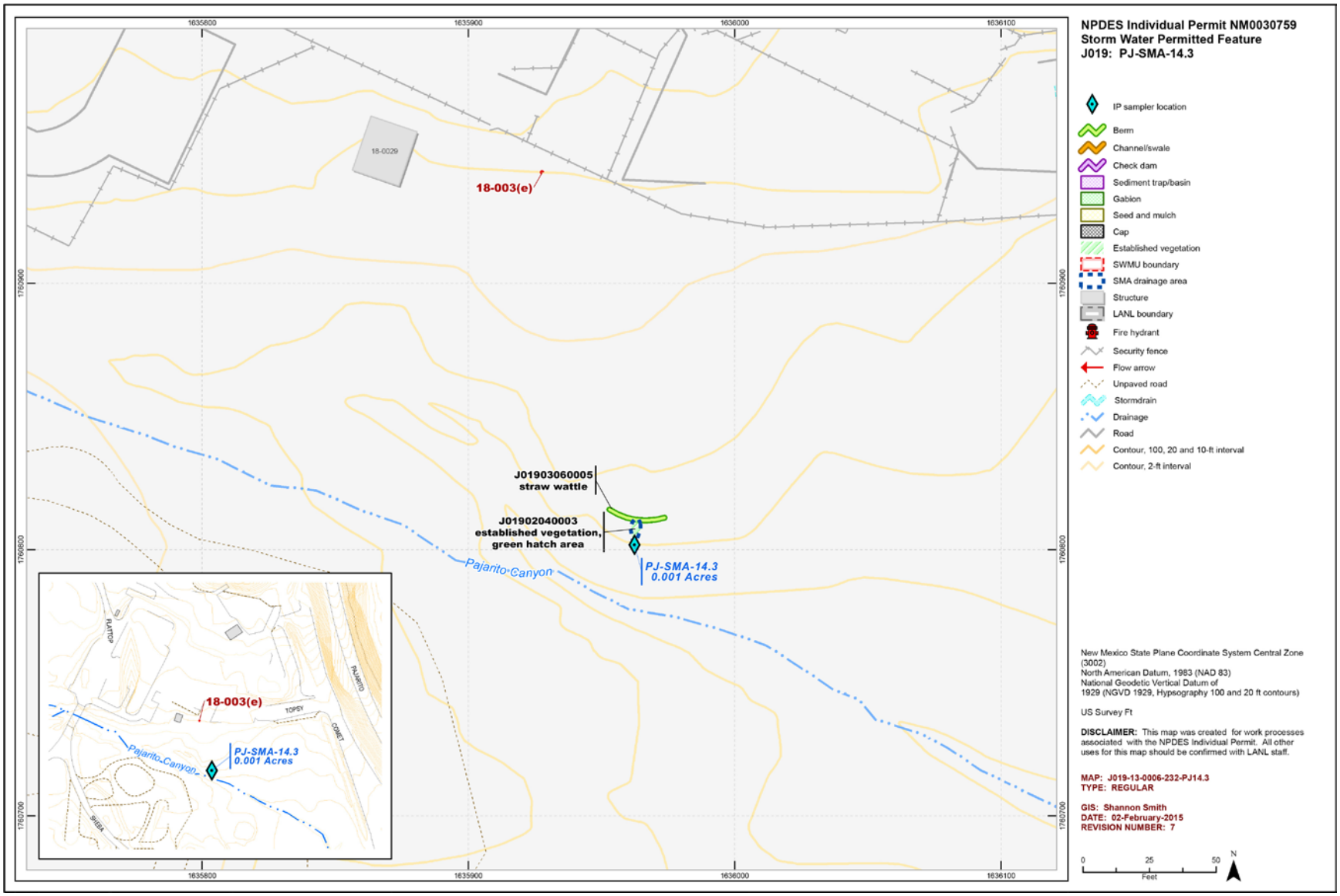


Figure 167-1 PJ-SMA-14.3 location map

168.0 PJ-SMA-14.4: AOC 18-010(d)

168.1 Site Descriptions

One historical industrial activity area is associated with J020, PJ-SMA-14.4: Site 18-010(d).

AOC 18-010(d) consists of an outfall at TA-18 that receives discharge in the form of sheet flow from a storm drainage collection area that drains the paved area northeast of a former guard station (building 18-37). The outfall discharges to a flat graveled and grassy area southeast of former building 18-37 and west of building 18-258. The discharge point is approximately 100 ft north of the stream channel in Pajarito Canyon. The date this outfall became operational is not known, but it is likely the outfall has been operational from the time building 18-37 was constructed in 1951. Building 18-37 underwent D&D in 2011 and 2012.

AOC 18-010(d) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for AOC 18-010(d).

The project map (Figure 168-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

168.2 Control Measures

This SMA receives a large amount of run-on from the paved areas located north of the security fence. Existing controls address these contributions and help manage the resulting runoff from the area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 168-1).

Table 168-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02002040010	Established Vegetation	-	X	X	-	B
J02003010008	Earthen Berm	X	-	-	X	CB
J02003040006	Asphalt Berm	X	-	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

168.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-14.4. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

168.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14.4 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 168-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39061	6-12-2014
Storm Rain Event	BMP-39344	7-2-2014
Storm Rain Event	BMP-39674	7-14-2014
Storm Rain Event	BMP-40462	7-24-2014
Storm Rain Event	BMP-41066	8-7-2014
Storm Rain Event	BMP-42374	9-2-2014
Storm Rain Event	BMP-43137	10-14-2014
Annual Erosion Evaluation	COMP-43743	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-14.4 in 2014.

168.5 Compliance Status

The Site associated with PJ-SMA-14.4 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 168-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
AOC 18-010(d)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

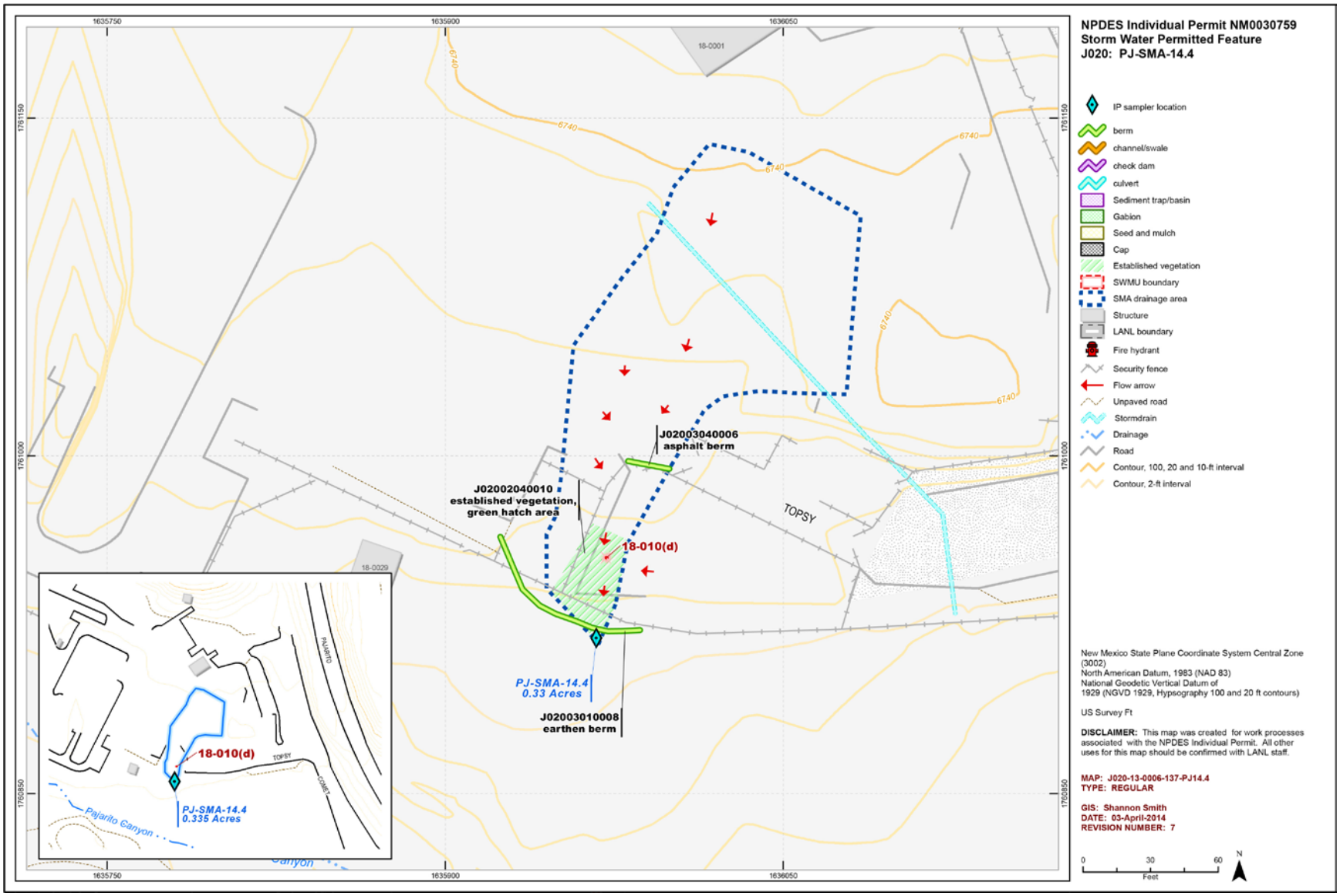


Figure 168-1 PJ-SMA-14.4 location map

169.0 PJ-SMA-14.6: AOC 18-010(e)

169.1 Site Descriptions

One historical industrial activity area is associated with J021, PJ-SMA-14.6: Site 18-010(e).

AOC 18-010(e) consists of an outfall at TA-18 that receives discharge from a storm sewer drainage that drains the paved area between buildings 18-28 and 18-147. Discharge enters a storm drain that runs southeast under the paved area west of building 18-129 to an area east of building 18-190 where the storm drain turns south. The storm drain reaches the outfall south of building 18-129, which discharges to a small grassy gully leading to the main stream channel in Pajarito Canyon. The outfall is located approximately 200 ft north of the stream channel. Buildings 18-28 and 18-147 underwent D&D in 2011 and 2012.

AOC 18-010(e) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for AOC 18-010(e).

The project map (Figure 169-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

169.2 Control Measures

Run-on to this SMA is influenced by engineered storm water controls within the administrative area at TA-18 and sheet flow from paved areas. Existing controls manage flow at the culvert outlet and the edge of the administrative area. Runoff from the area discharges to an area of established vegetation. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 169-1).

Table 169-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02102040008	Established Vegetation	-	X	X	-	B
J02103010005	Earthen Berm	-	X	-	X	B
J02104060007	Rip Rap	X	-	X	-	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

169.3 Storm Water Monitoring

Through calendar year 2014, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-14.6. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

169.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14.6 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 169-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39062	6-12-2014
Storm Rain Event	BMP-39345	7-2-2014
Storm Rain Event	BMP-39675	7-14-2014
Storm Rain Event	BMP-40463	7-24-2014
Storm Rain Event	BMP-41067	8-7-2014
Storm Rain Event	BMP-42375	9-4-2014
Storm Rain Event	BMP-43138	10-14-2014
Annual Erosion Evaluation	COMP-43744	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-14.6 in 2014.

169.5 Compliance Status

The Site associated with PJ-SMA-14.6 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 169-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
AOC 18-010(e)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

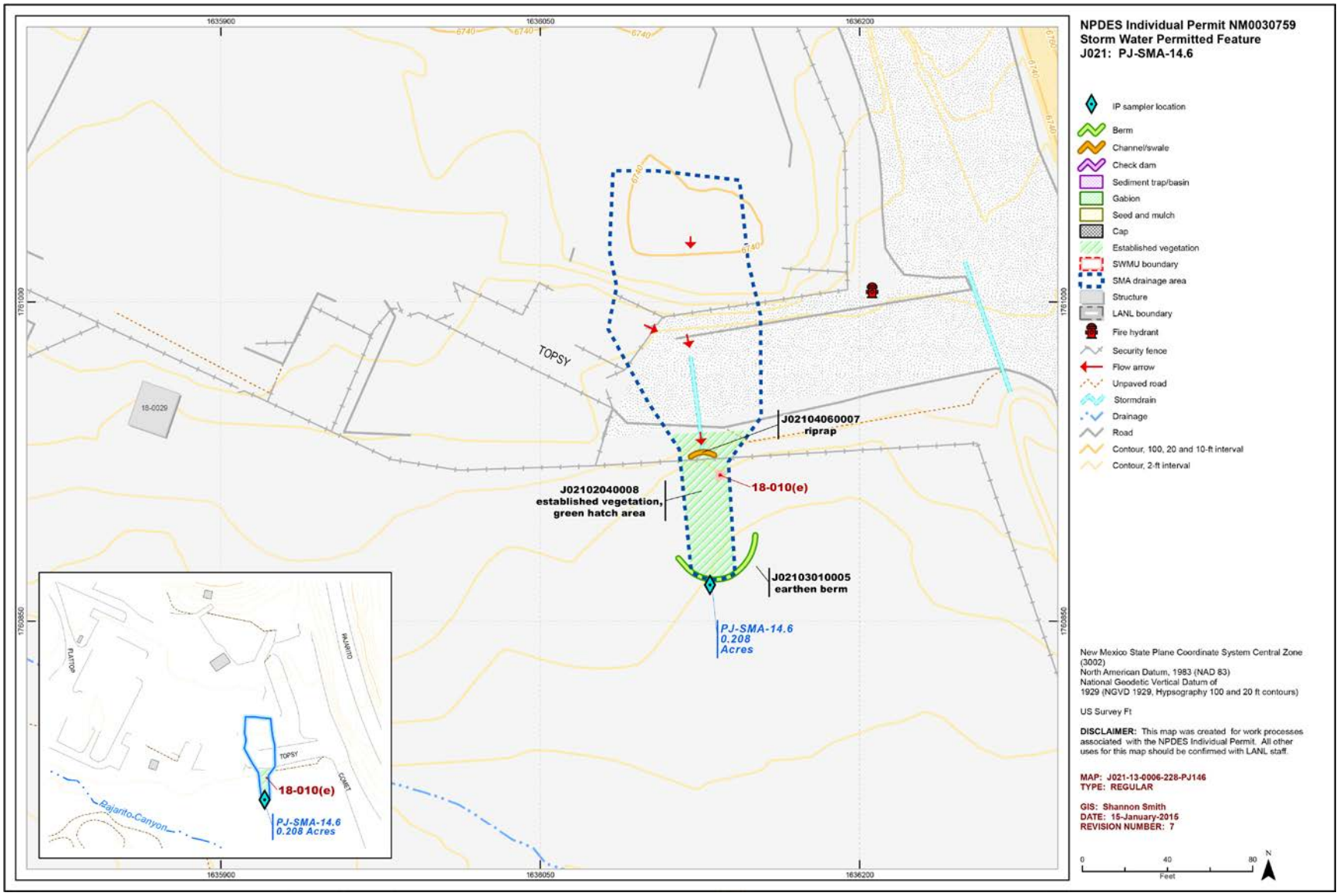


Figure 169-1 PJ-SMA-14.6 location map

170.0 PJ-SMA-14.8: SWMU 18-012(a)

170.1 Site Descriptions

One historical industrial activity area is associated with J022, PJ-SMA-14.8: Site 18-012(a).

SWMU 18-012(a) consists of a former outfall at TA-18 for a combined industrial drain and storm sewer drain for former building 18-116 (Kiva 3). Drainlines that discharged to this outfall were connected to building 18-116 roof drains, floor drains, and sinks. The outfall, found during 1992 field inspections using a dye-trace test, is located approximately 120 ft northeast of building 18-116 and approximately 150 ft from the stream channel in Pajarito Canyon. Building 18-116 was built in 1960 and used for uranium mockup tests for the Rover Program—a nuclear rocket propulsion program conducted from 1955 to 1972. The date this outfall became operational is not known, but it is likely the outfall has been operational from the time building 18-116 was completed in 1960. Building 18-116 underwent D&D in 2011 and 2012.

SWMU 18-012(a) is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 18-012(a).

The project map (Figure 170-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

170.2 Control Measures

A small paved area associated with CASA 3 may provide run-on contributions to the Permitted Feature. Existing controls address this potential contribution. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 170-1).

Table 170-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02202040007	Established Vegetation	-	X	X	-	B
J02203020005	Base Course Berm	X	-	-	X	CB
J02203060008	Straw Wattle	-	X	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

170.3 Storm Water Monitoring

SWMU 18-012(a) is monitored within PJ-SMA-14.8. Following the installation of baseline control measures, baseline storm water samples were collected on July 28, 2011, and August 18, 2011 (Figure 170-2). Analytical results from these samples yielded no TAL exceedances. Baseline confirmation is complete for PJ-SMA-14.8 and the associated SWMU 18-012(a) because all applicable sampling results are below the applicable MTAL or ATAL. No further sampling is required for PJ-SMA-14.8 for the duration of the IP.

170.4 Inspections and Maintenance

RG245.5 recorded 10 storm events at PJ-SMA-14.8 during the 2014 season. These rain events triggered seven post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 170-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39063	6-12-2014
Storm Rain Event	BMP-39346	7-2-2014
Storm Rain Event	BMP-39676	7-14-2014
Storm Rain Event	BMP-40464	7-24-2014
Storm Rain Event	BMP-41068	8-7-2014
Storm Rain Event	BMP-42376	9-2-2014
Storm Rain Event	BMP-43139	10-14-2014
Annual Erosion Evaluation	COMP-43745	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-14.8 in 2014.

170.5 Compliance Status

The Site associated with PJ-SMA-14.8 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 170-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 18-012(a)	Baseline Confirmation Complete	Baseline Confirmation Complete	No Comment

PJ-SMA-14.8, Base Course Berm, J02203020005 (photo ID 7527-1)

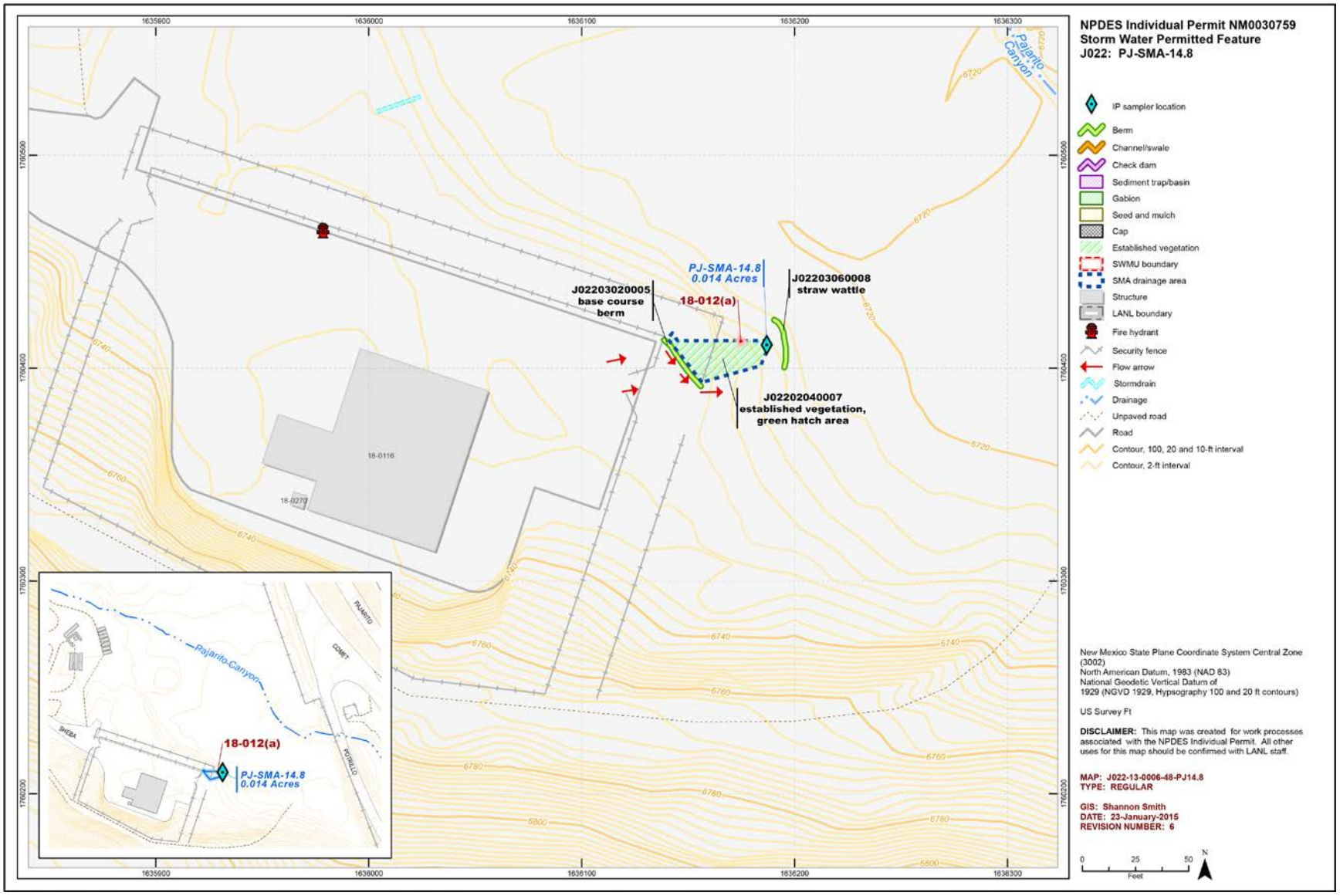
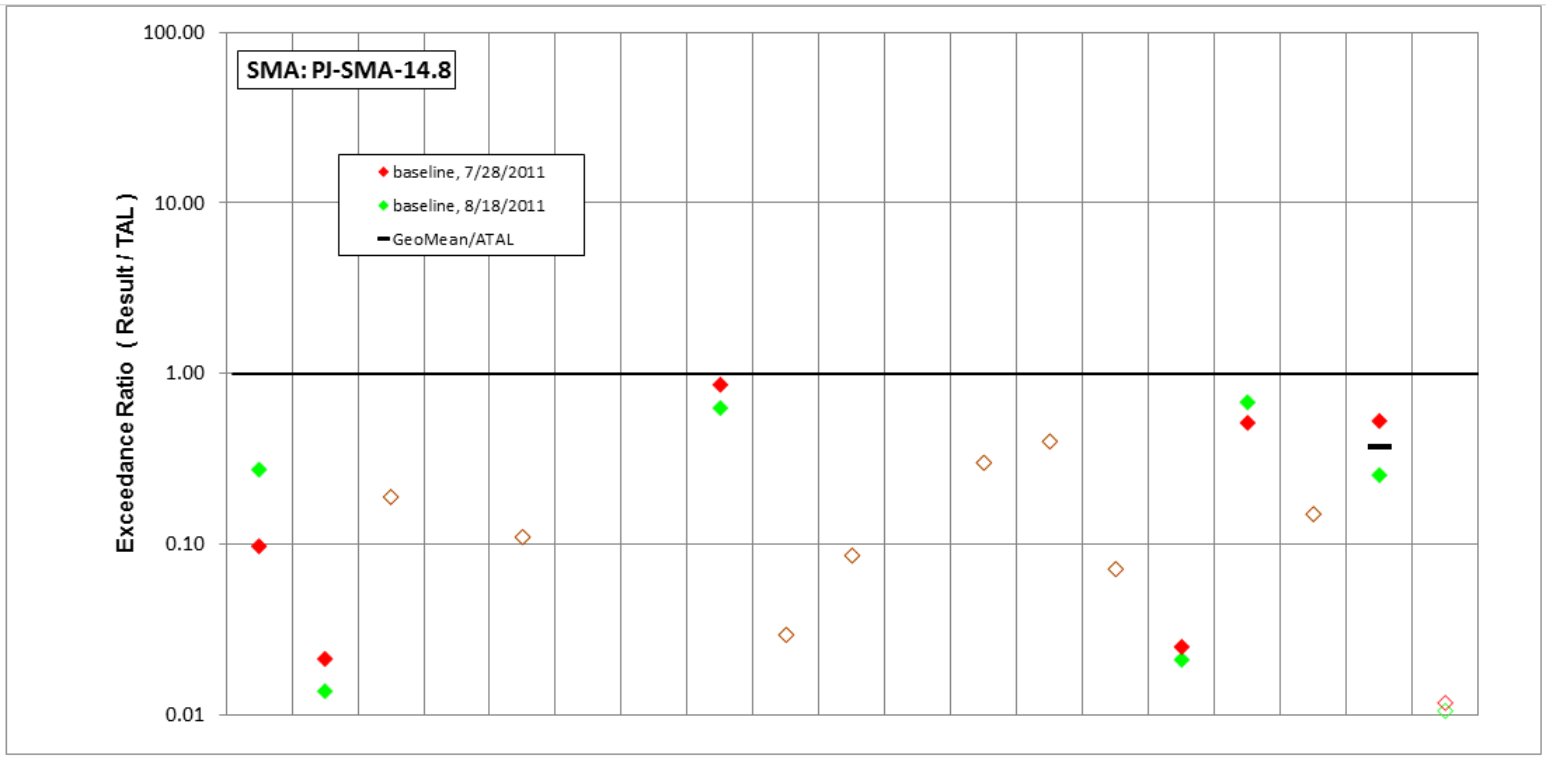


Figure 170-1 PJ-SMA-14.8 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/18/2011 result	205	8.8	*1.7*	19.1	*0.11*	*2*	3.9	2.7	*0.5*	*0.066*	1.5	*1.5*	*0.2*	*0.45*	2.1	28.5	*0.002*	3.81	*0.316*
result / TAL	0.27	0.014	*0.19*	0.0038	*0.11*	*0.01*	0.0039	0.63	*0.029*	*0.086*	0.0088	*0.3*	*0.4*	*0.071*	0.021	0.68	*0.15*	0.25	*0.011*
7/28/2011 result	72.9	13.6	*1.7*	*15*	*0.11*	*2*	*1*	3.7	*0.5*	*0.066*	0.77	*1.5*	*0.2*	*0.45*	2.5	21.6	*0.002*	7.91	*0.352*
result / TAL	0.097	0.021	*0.19*	*0.003*	*0.11*	*0.01*	*0.001*	0.86	*0.029*	*0.086*	0.0045	*0.3*	*0.4*	*0.071*	0.025	0.51	*0.15*	0.53	*0.012*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 170-2 Inorganic analytical results summary plot for PJ-SMA-14.8

171.0 PJ-SMA-16: SWMU 27-002

171.1 Site Descriptions

One historical industrial activity area is associated with J023, PJ-SMA-16: Site 27-002.

SWMU 27-002 is an inactive firing site in Pajarito Canyon used between 1944 and 1947. The Site consists of five former firing pits situated on both sides of Pajarito Road, approximately 0.9 mi southeast of TA-18. Firing Pit 1 is located in the grassy area approximately 100 ft south of the TA-36 fence. Firing Pits 2 and 3 are approximately 200 ft east of Firing Pit 1, between the fence and Pajarito Road. Firing Pit 4 has been impacted by the construction of Pajarito Road but is located on the north side of Pajarito Road. Firing Pit 5 is located on a small curve on the north side of Pajarito Road. The pits were used for explosives testing with materials such as beryllium, thorium, and uranium. A 1946 bullet sensitivity test at Firing Pit 1 caused a block of Composition B explosive to undergo a low-order explosion, scattering unexploded HE over a 250-yd radius.

SWMU 27-002 is included in the Consent Order as part of the Lower Pajarito Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Lower Canyon Aggregate Area was approved in December 2010. Decision-level data are not available for SWMU 27-002.

The project map (Figure 171-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

171.2 Control Measures

The only potential run-on contributions to PJ-SMA-16 are associated with Pajarito Road. This run-on source is minimal in this flat, well-vegetated area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 171-1).

Table 171-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02302040004	Established Vegetation	-	X	X	-	B
J02303060003	Straw Wattle	-	X	-	X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

171.3 Storm Water Monitoring

SWMU 27-002 is monitored within PJ-SMA-16. Following the installation of baseline control measures, baseline storm water samples were collected on July 30, 2011, and August 8, 2013 (Figures 171-2 and 171-3). Analytical results from these samples yielded no TAL exceedances. Baseline confirmation is complete for PJ-SMA-16 and the associated SWMU 27-002 because all applicable sampling results are below the applicable MTAL or ATAL. No further sampling is required for PJ-SMA-16 for the duration of the IP.

171.4 Inspections and Maintenance

RG-TA-54 recorded six storm events at PJ-SMA-16 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 171-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38638	5-27-2014
Storm Rain Event	BMP-39040	6-12-2014
Storm Rain Event	BMP-39641	7-15-2014
Storm Rain Event	BMP-41432	8-14-2014
Storm Rain Event	BMP-42353	9-4-2014
Annual Erosion Evaluation	COMP-43746	10-29-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-16 in 2014.

171.5 Compliance Status

The Site associated with PJ-SMA-16 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 171-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 27-002	Baseline Confirmation Complete	Baseline Confirmation Complete	No Comment

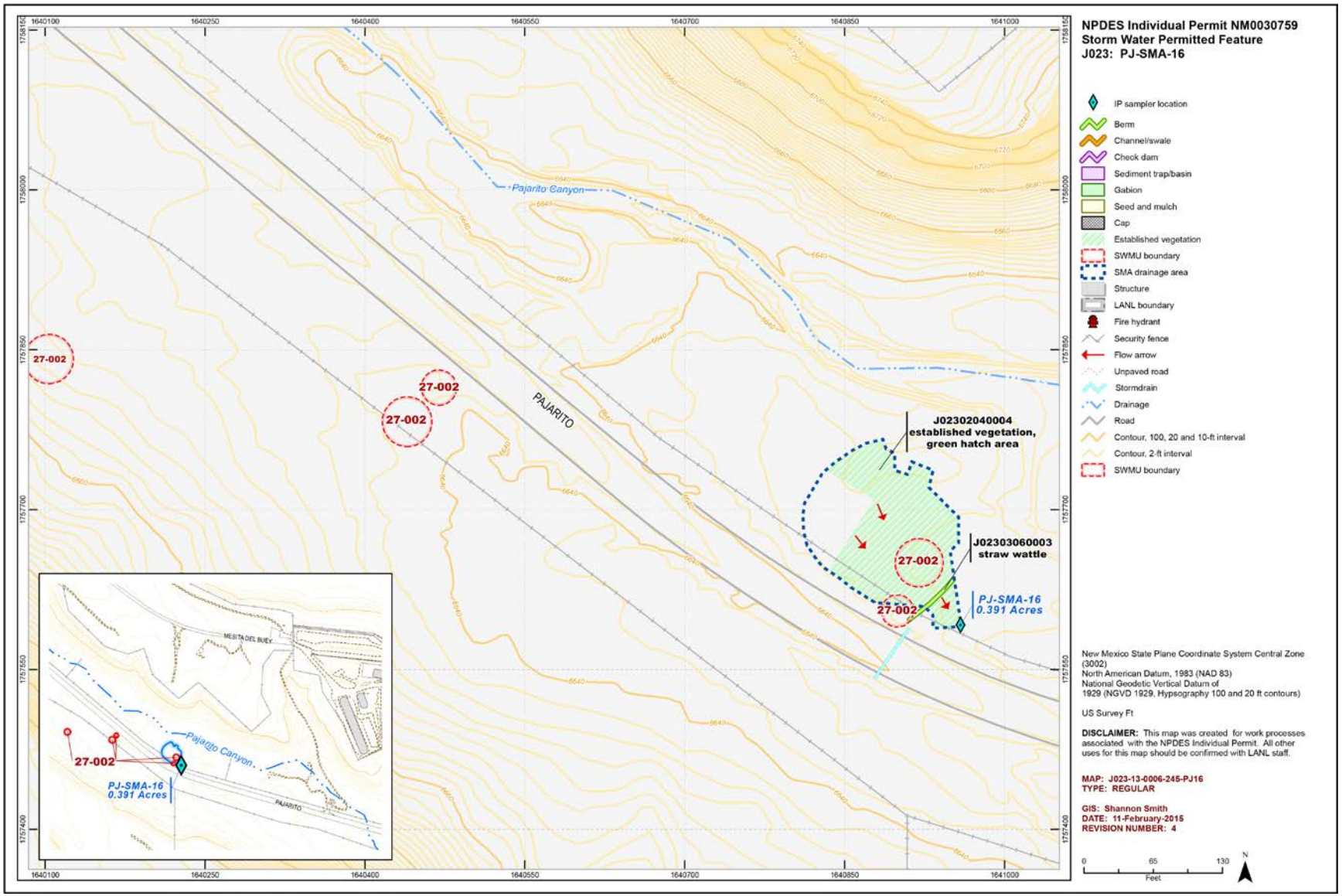
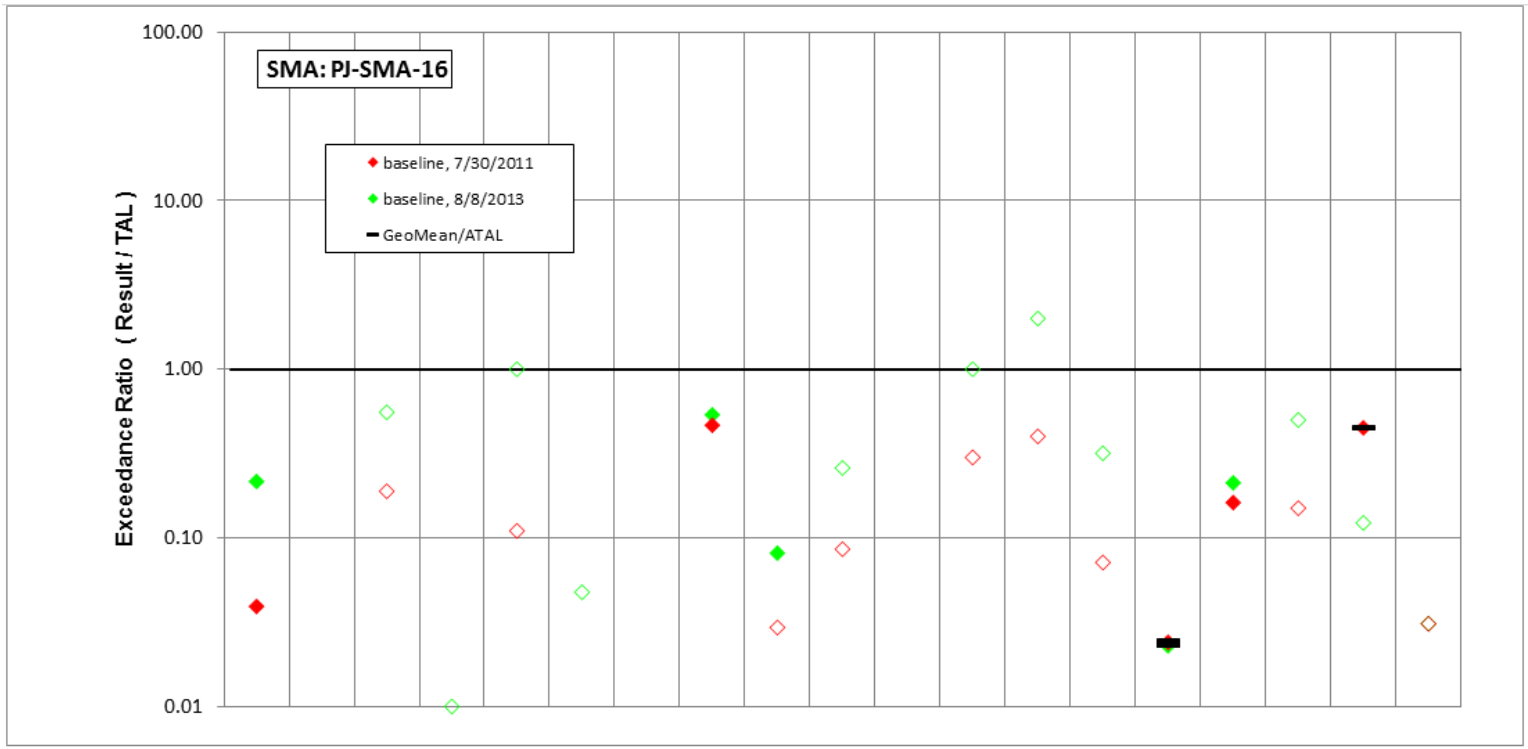


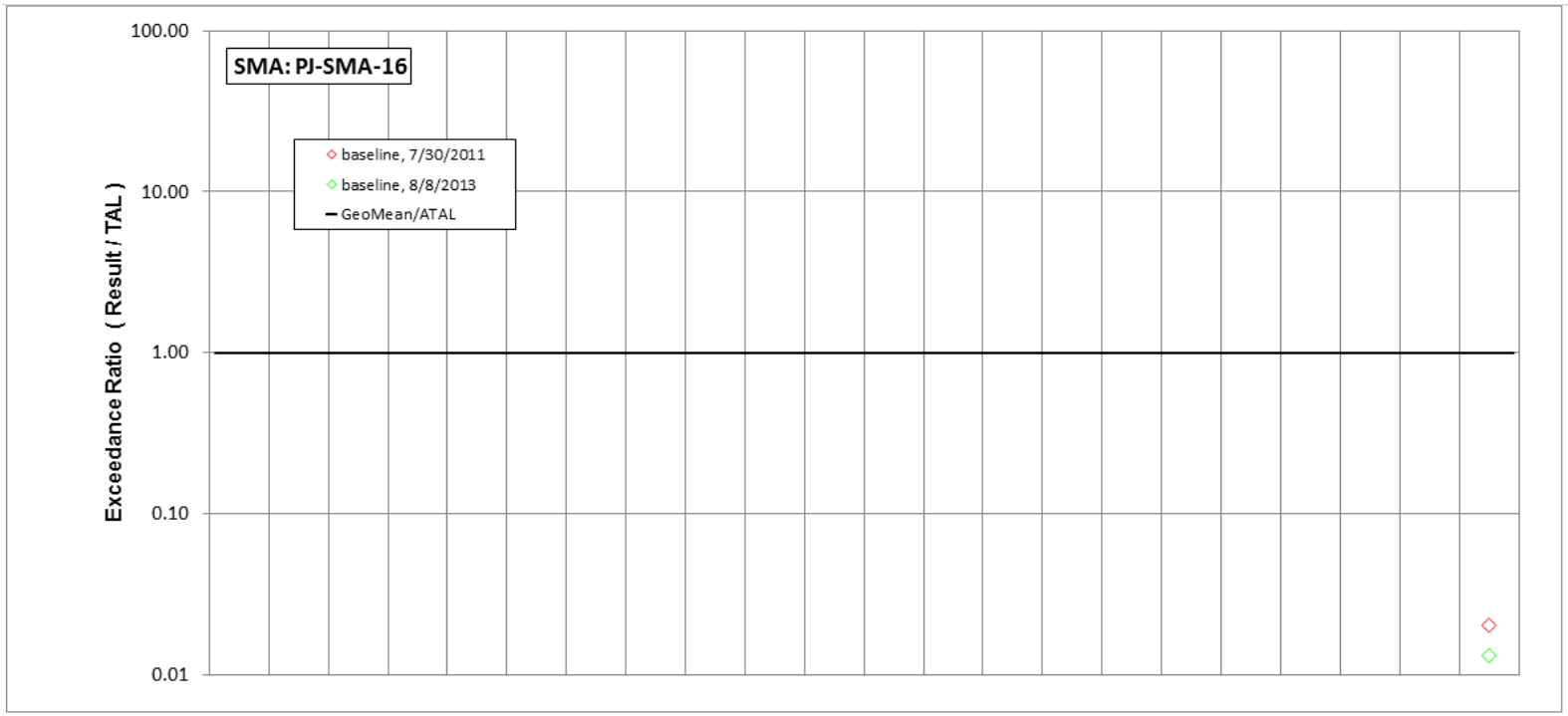
Figure 171-1 PJ-SMA-16 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/8/2013 result	162	*3*	*5*	*50*	*1*	*10*	2.49	2.31	1.38	*0.2*	1.04	*5*	***1***	*2*	2.29	8.9	*0.005*	*1.84*	*0.93*
result / TAL	0.22	*0.005*	*0.56*	*0.01*	*1*	*0.048*	0.0025	0.54	0.081	*0.26*	0.0061	*1*	***2***	*0.32*	0.023	0.21	*0.5*	*0.12*	*0.031*
7/30/2011 result	29.4	*1*	*1.7*	*15*	*0.11*	*2*	1.1	2	*0.5*	*0.066*	0.96	*1.5*	*0.2*	*0.45*	2.4	6.8	*0.002*	6.74	*0.928*
result / TAL	0.039	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.0011	0.47	*0.029*	*0.086*	0.0056	*0.3*	*0.4*	*0.071*	0.024	0.16	*0.15*	0.45	*0.031*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 171-2 Inorganic analytical results summary plot for PJ-SMA-16



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-	-	ATAL
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
8/8/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.263*	-	-	-	*0.263*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.001*	-	-	-	*0.013*
7/30/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.406*	-	-	-	*0.406*
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.002*	-	-	-	*0.02*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 171-3 Organic analytical results summary plot for PJ-SMA-16

172.0 PJ-SMA-17: SWMU 54-018

172.1 Site Descriptions

One historical industrial activity area is associated with J024, PJ-SMA-17: Site 54-018.

SWMU 54-018, which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of disposal pits 25 through 33 and 35 through 37. Pits 29 and 37, although no longer in use, are considered a regulated unit until RCRA closure is certified and approved by NMED. Pits 25 through 28 and 30 through 36 were operational between 1979 and 1980 and received radioactive, mixed, and TRU waste in the form of reactor control rods, D&D waste, contaminated soil, transformers, gloveboxes, asbestos, and laboratory waste. The volumes ranged from 20,957 yd^3 to 59,930 yd^3. Pit 29 operated until 1986. Pit 37 operated from 1990 to 1997 and primarily received circuit boards and contaminated soil. When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil and reseeded with native grasses; several of the pits were subsequently covered with asphalt.

The portions of the three Sites within PJ-SMA-17 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in March 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

The project map (Figure 172-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

172.2 Control Measures

The primary run-on source at this SMA originates on the paved road and from the roofs of area structures. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 172-1).

Table 172-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02402040008	Established Vegetation	-	X	X	-	B
J02404060006	Rip Rap	-	X	X	-	CB
J02404060007	Rip Rap	-	X	X	-	CB
J02405010005	Sediment Trap	-	X	-	X	CB
J02406010004	Rock Check Dam	X	-	-	X	CB

CB: Certified baseline control measure.
B: Additional baseline control measure.
EC: Enhanced control measure.

No exposure was certified August 27, 2014.

172.3 Storm Water Monitoring

SWMU 54-018 is monitored within PJ-SMA-17. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figures 172-2 and 172-3). Analytical results from this sample yielded the following TAL exceedances:

- Copper concentrations of 5.13 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activity of 61.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 54-018:

Industrial materials managed at this Site consist of wastes that were disposed of in subsurface pits. Therefore, these industrial materials are not exposed to any storm water runoff.

- Copper is known to be associated with industrial materials managed at this Site. Copper was not detected above soil or sediment BVs in 140 shallow (i.e., less than 3 ft bgs) RFI samples collected at MDA G.
- Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 172-2 and 172-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 172-2 and 172-3.

Monitoring location PJ-SMA-17 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

All the analytical results for these samples are reported in the 2013 Annual Report.

172.4 Inspections and Maintenance

RG-TA-54 recorded six storm events at PJ-SMA-17 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 172-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38639	5-27-2014
Storm Rain Event	BMP-39041	6-10-2014
Storm Rain Event	BMP-39642	7-15-2014
Storm Rain Event	BMP-41433	8-14-2014
Storm Rain Event	BMP-42354	9-8-2014
Annual Erosion Evaluation	COMP-43747	11-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 172-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-38787	Used hand tools to repair piping under western edge of rock check dam J02406010004. Raked out rilling below southeast end of riprap J02404060007 and applied seed.	6-10-2014	14 day(s)	Maintenance conducted as soon as practicable.

172.5 Compliance Status

The Sites associated with PJ-SMA-17 are High Priority Sites. The High Priority Site deadline for the certification of corrective action was 1 yr from the date of an observed TAL exceedance, which for PJ-SMA-17 was September 4, 2014. A completion of corrective action for PJ-SMA-17 was submitted on August 27, 2014.

Table 172-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 54-018	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 27, 2014, "Submittal of Completion of Corrective Action for CDB-SMA-4 (Sites 54-017, 54-018, and 54-020) and PJ-SMA-17 (Site 54-018)."

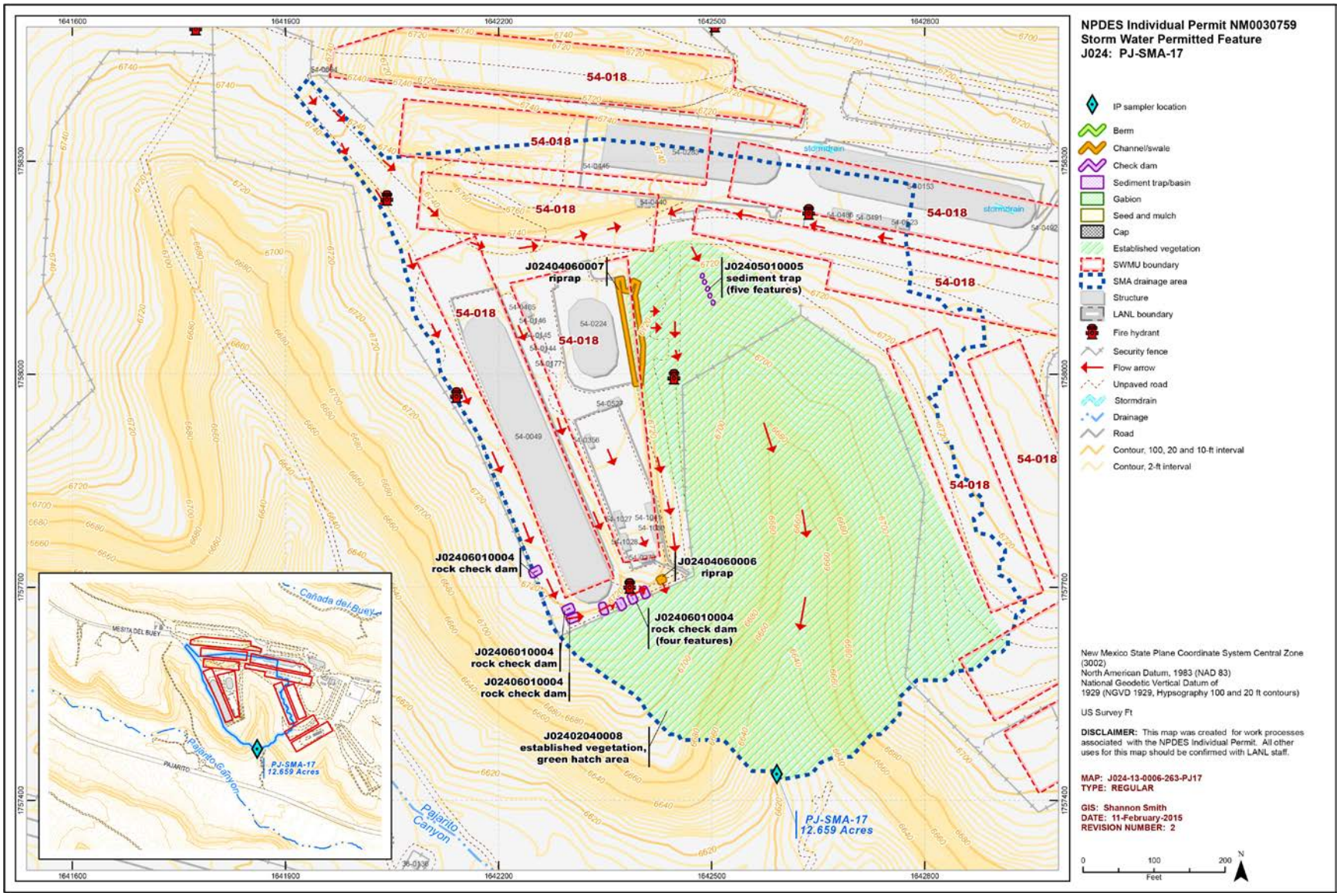
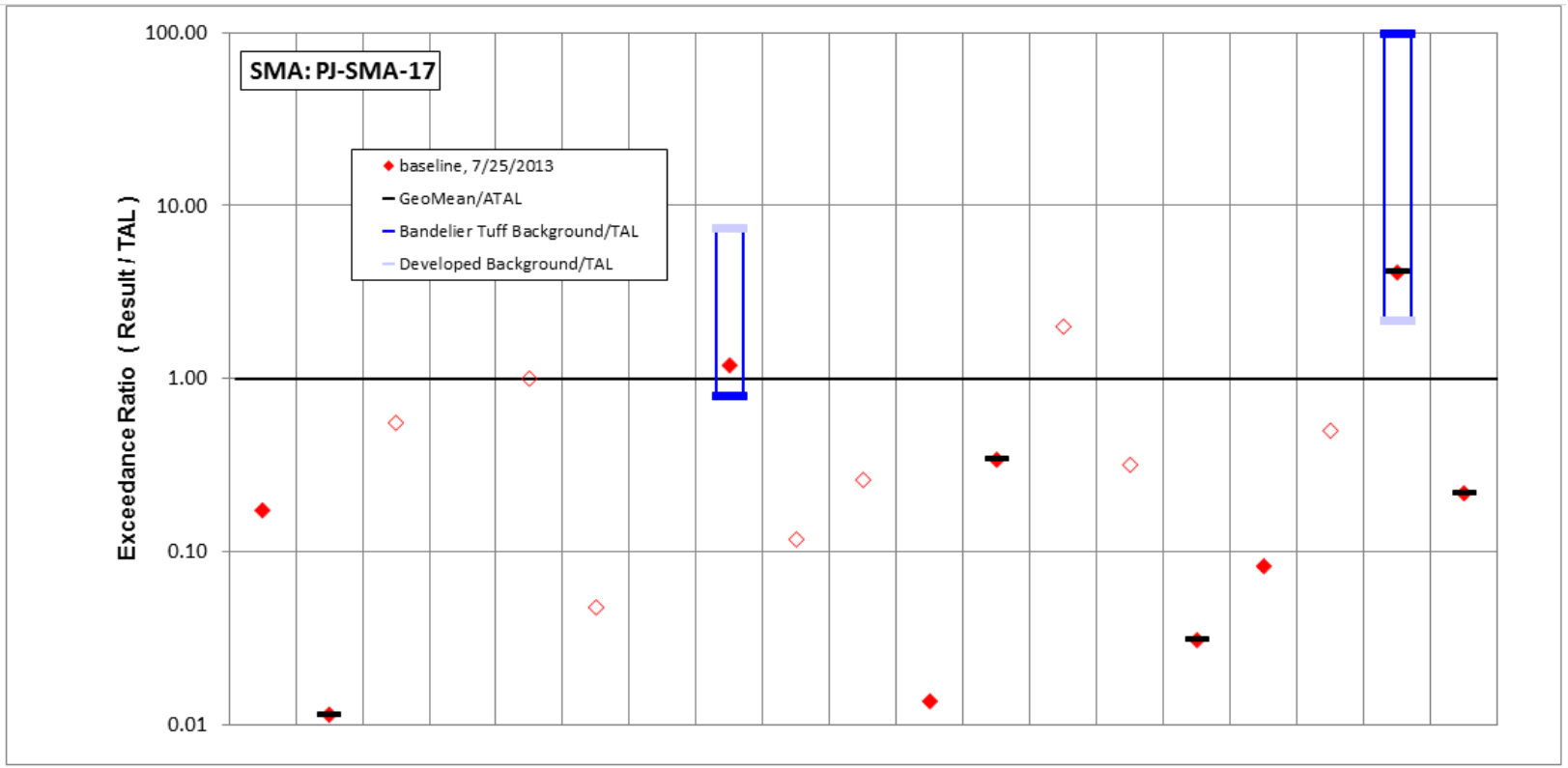


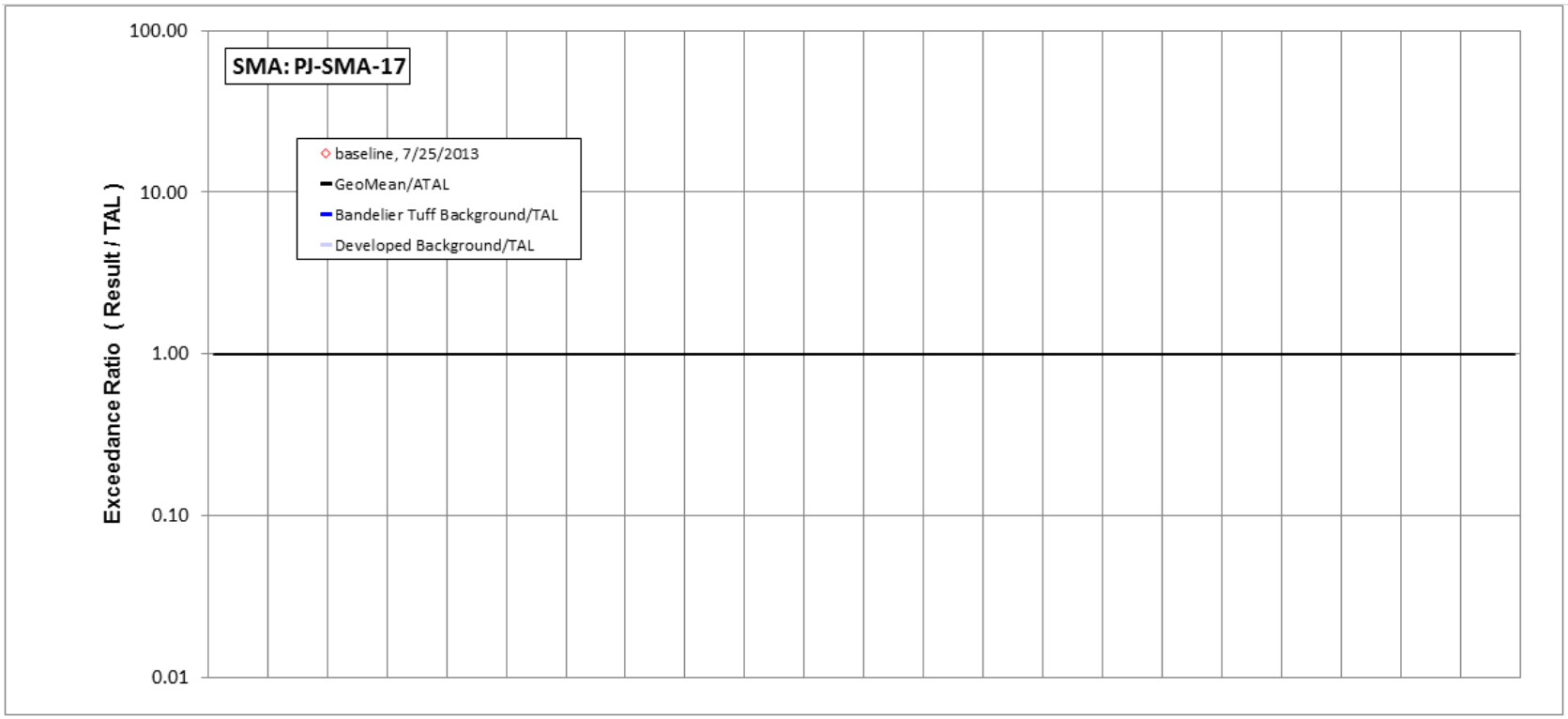
Figure 172-1 PJ-SMA-17 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/25/2013 result	130	7.31	*5*	28.3	*1*	*10*	2.76	**5.13**	*2*	*0.2*	2.32	1.7	***1***	*2*	3.08	3.46	*0.005*	**61.6**	6.52
result / TAL	0.17	0.011	*0.56*	0.0057	*1*	*0.048*	0.0028	**1.2**	*0.12*	*0.26*	0.014	0.34	***2***	*0.32*	0.031	0.082	*0.5*	**4.1**	0.22

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 172-2 Inorganic analytical results summary plot for PJ-SMA-17



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/25/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*1E-09*	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*2E-06*	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 172-3 Organic analytical results summary plot for PJ-SMA-17

173.0 PJ-SMA-18: SWMUs 54-014(d) and 54-017

173.1 Site Descriptions

Two historical industrial activity areas are associated with J026, PJ-SMA-18: Sites 54-014(d), and 54-017.

SWMU 54-014(d), which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of retrievable TRU waste storage trenches A, B, C, and D, located in the south-central portion of TA-54 Area G. These trenches began receiving TRU waste and MLLW in 1974. Trenches A, B, and C vary in size from 219 ft to 262.5 ft long × 13 ft wide × 6 ft to 8 ft deep. Trench D is 60 ft long × 13 ft wide × 6 ft deep. The TRU waste placed in these trenches was packaged in 30-gal. containers inside concrete casks. When filled, the trenches were backfilled with 3.3 ft of crushed tuff, followed by 4 in. of topsoil. The surface was reseeded with native grasses. The TRU wastes in these trenches will be retrieved and processed for disposal.

The two Sites within PJ-SMA-18 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to both Sites. Before the Consent Order went into effect in March 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

SWMU 54-017, which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of inactive subsurface disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. These pits were operational between 1959 and 1980 and received radioactive, mixed, and TRU-contaminated wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. Before 1971, waste was not segregated by disposal pit; the pits received both nonroutine and routine radioactive contaminated waste. Nonroutine contaminated waste included D&D debris from the demolition of TA-01 and Bayo Site, classified materials, TRU chips from the shops, and pieces of heavy equipment. Nonroutine contaminated waste was placed directly into the disposal pits; valves or other openings on large pieces of equipment were sealed before they were transported to TA-54 for disposal. Routine contaminated waste consisted of chemical laboratory waste packaged in cardboard boxes and 5-mil plastic bags, and 55-gal. drums of sludge from the waste treatment plants at TA-35, TA-45, and TA-50. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 are located in the eastern portion of Area G with volumes ranging from 1371 yd^3 to 56,759 yd^3. When filled, the pits were covered with consolidated crushed tuff and topsoil and reseeded with native grasses. All the SWMU 54-017 pits within PJ-SMA-18 currently have a minimum of 3 ft of soil cover over the buried wastes.

The portions of the three Sites within PJ-SMA-18 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant

discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

The project map (Figure 173-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

173.2 Control Measures

The majority of the run-on at this SMA originates on the unpaved access roads. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 173-1).

Table 173-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02602040010	Established Vegetation	-	X	X	-	B
J02604010009	Earthen Channel/Swale	X	-	X	-	B
J02604010011	Earthen Channel/Swale	-	X	X	-	B
J02604060007	Rip Rap	-	X	X	-	CB
J02604060012	Rip Rap	-	X	X	-	B
J02605010005	Sediment Trap	-	X	-	X	CB
J02606010004	Rock Check Dam	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

No exposure was certified August 27, 2014.

173.3 Storm Water Monitoring

SWMUs 54-014(d) and 54-017 are monitored within PJ-SMA-18. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figures 173-2 and 173-3). Analytical results from this sample yielded the following TAL exceedance:

- Gross-alpha activity of 23.6 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 54-014(d):

- Gross alpha-emitting radionuclides are known to have been associated with industrial materials historically managed at these Sites. Shallow RFI samples were not analyzed for gross-alpha radioactivity. Industrial materials managed at these Sites, however, consist of wastes disposed of in subsurface pits and trenches. Therefore, these industrial materials are not exposed to storm water runoff. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 54-017:

- Gross-alpha-emitting radionuclides are known to have been associated with industrial materials historically managed at this Site. Shallow RFI samples were not analyzed for gross-alpha radioactivity, radium-226, or radium-228. Americium-241 and plutonium isotopes are not included in the definition of adjusted gross-alpha radioactivity. Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity. Industrial materials managed at this Site consist of wastes that were disposed of in subsurface pits and shafts. Therefore, these industrial materials are not exposed to any storm water runoff.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 173-2 and 173-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 173-2 and 173-3.

Monitoring location PJ-SMA-18 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is less than both of these values.

All the analytical results for these samples are reported in the 2013 Annual Report.

173.4 Inspections and Maintenance

RG-TA-54 recorded six storm events at PJ-SMA-18 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 173-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38641	5-27-2014
Storm Rain Event	BMP-39043	6-10-2014
Storm Rain Event	BMP-39644	7-15-2014
Storm Rain Event	BMP-41435	8-14-2014
Storm Rain Event	BMP-42356	9-8-2014
Annual Erosion Evaluation	COMP-43748	11-6-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-18 in 2014.

173.5 Compliance Status

The Sites associated with PJ-SMA-18 are High Priority Sites. The High Priority Site deadline for the certification of corrective action was 1 yr from the date of an observed TAL exceedance, which for PJ-SMA-18 was September 3, 2014. A completion of corrective action for PJ-SMA-18 was submitted August 28, 2014.

Table 173-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 54-014(d)	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 28, 2014, "Submittal of Completion of Corrective Action for PJ-SMA-18 (Sites 54-017, 54-014(d)) and PJ-SMA-19 (Sites 54-013(b), 54-017, and 54-020)."
SWMU 54-017	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 28, 2014, "Submittal of Completion of Corrective Action for PJ-SMA-18 (Sites 54-017, 54-014(d)) and PJ-SMA-19 (Sites 54-013(b), 54-017, and 54-020)."

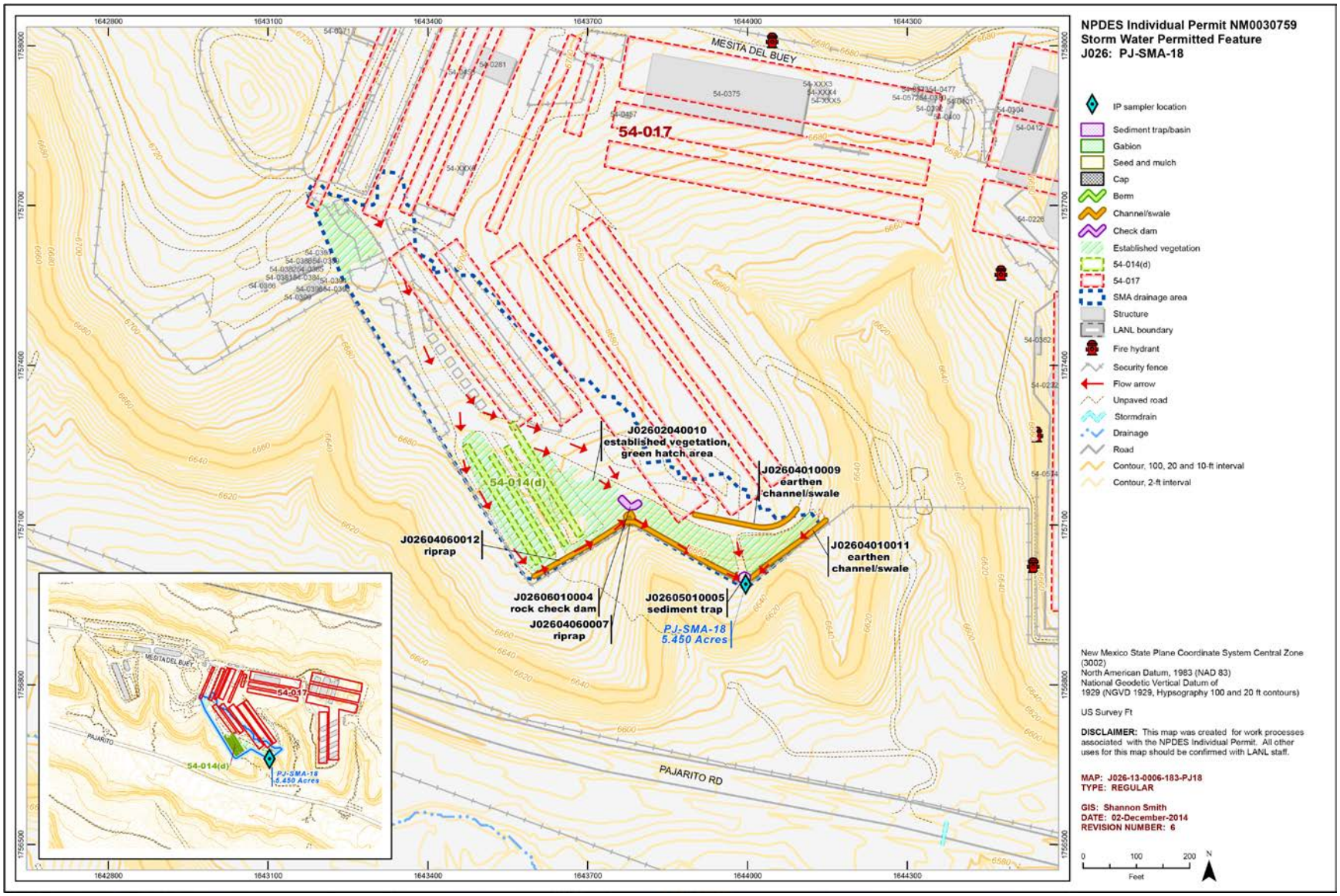
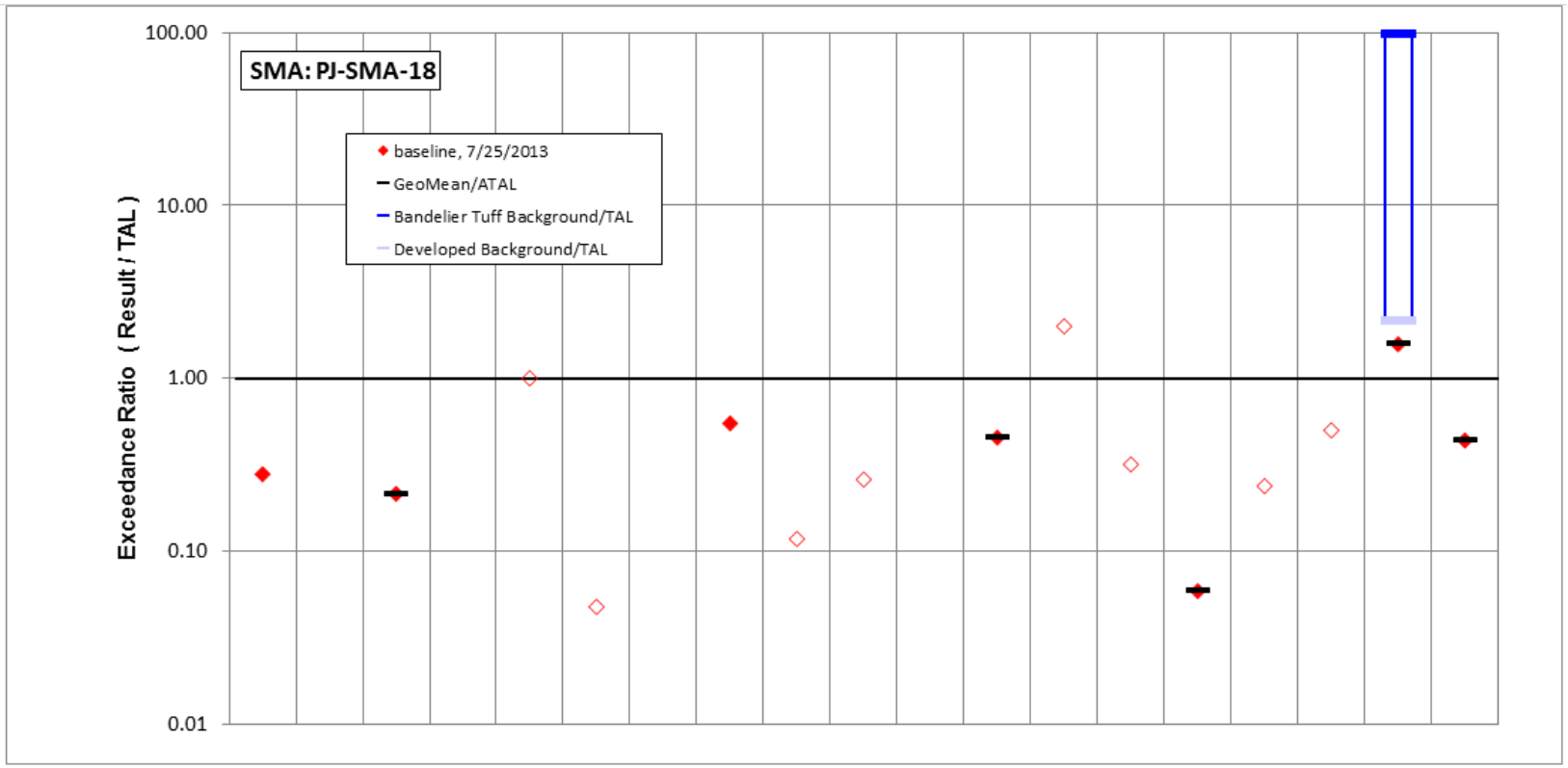


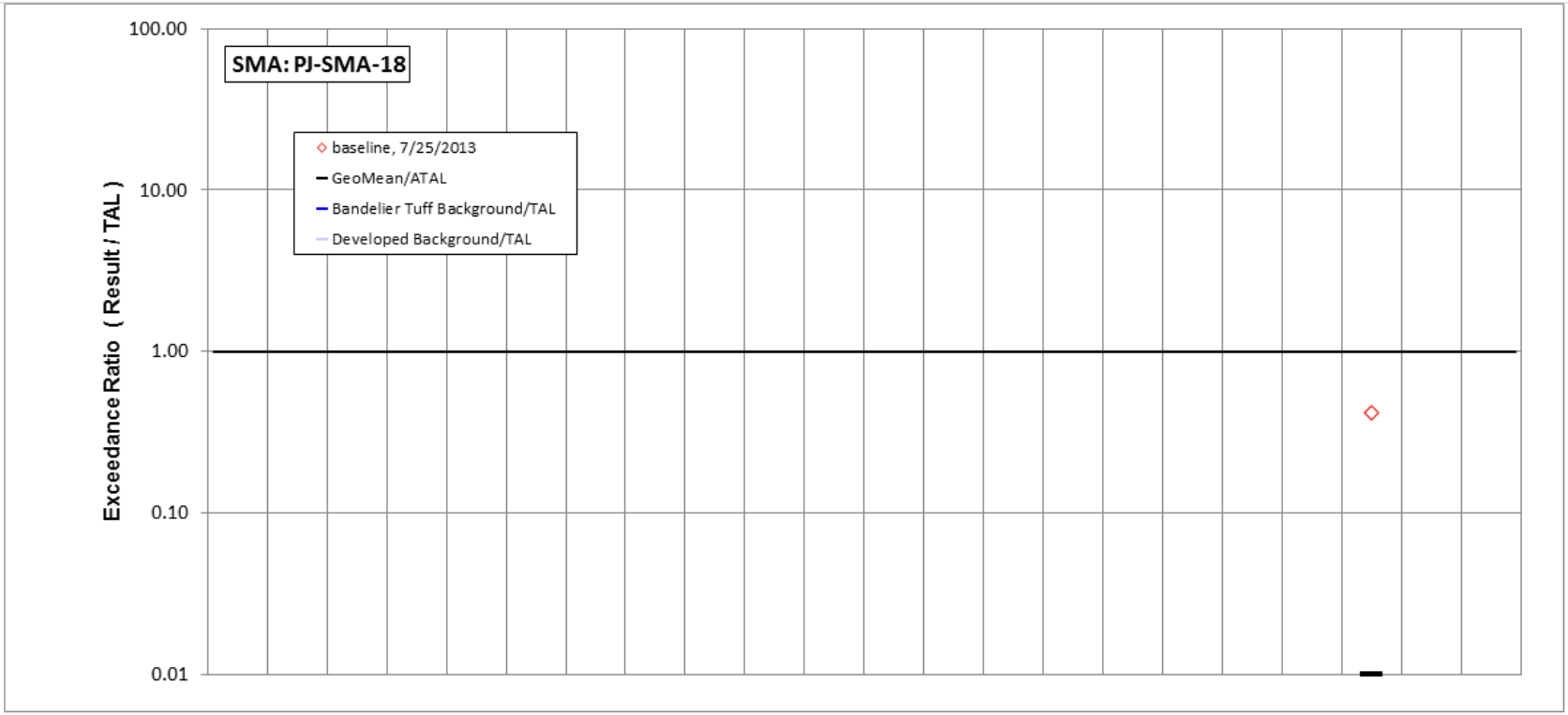
Figure 173-1 PJ-SMA-18 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/25/2013 result	209	*3*	1.93	19.7	*1*	*10*	2	2.36	*2*	*0.2*	1.49	2.27	***1***	*2*	5.87	*10*	*0.005*	**23.6**	13.1
result / TAL	0.28	*0.005*	0.21	0.0039	*1*	*0.048*	0.002	0.55	*0.12*	*0.26*	0.0088	0.45	***2***	*0.32*	0.059	*0.24*	*0.5*	**1.6**	0.44

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 173-2 Inorganic analytical results summary plot for PJ-SMA-18



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/25/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*3E-04*	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*0.42*	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 173-3 Organic analytical results summary plot for PJ-SMA-18

174.0 PJ-SMA-19: SWMUs 54-013(b), 54-017, and 54-020

174.1 Site Descriptions

Three historical industrial activity areas are associated with J025, PJ-SMA-19: Sites 54-013(b), 54-017, and 54-020.

SWMU 54-013(b), which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of a former truck monitoring/decontamination area. This Site was excavated in April 1971 specifically to be used as a decontamination (truck-washing) pit. The truck-washing and -decontamination pit was converted to Pit 19 in November 1975 when truck-washing activities ceased and the pit began receiving LLW for disposal as part of SWMU 54-017.

The portions of the three Sites within PJ-SMA-19 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in 2005, numerous RFIs were conducted at MDA G from 1993 to 2003. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined, and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A CME report was submitted to NMED under the Consent Order on September 9, 2011.

SWMU 54-017, which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of inactive subsurface disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. These pits were operational between 1959 and 1980 and received radioactive, mixed, and TRU-contaminated wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. Before 1971, waste was not segregated by disposal pit; the pits received both nonroutine and routine radioactive contaminated waste. Nonroutine contaminated waste included D&D debris from the demolition of TA-01 and Bayo Site, classified materials, TRU chips from the shops, and pieces of heavy equipment. Nonroutine contaminated waste was placed directly into the disposal pits; valves or other openings on large pieces of equipment were sealed before they were transported to TA-54 for disposal. Routine contaminated waste consisted of chemical laboratory waste packaged in cardboard boxes and 5-mil plastic bags, and 55-gal. drums of sludge from the waste treatment plants at TA-35, TA-45, and TA-50. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 are located in the eastern portion of Area G with volumes ranging from 1371 yd^3 to 56,759 yd^3. When filled, the pits were covered with consolidated crushed tuff and topsoil and reseeded with native grasses. All the SWMU 54-017 pits within PJ-SMA-19 currently have a minimum of 3 ft of soil cover over the buried wastes.

The portions of the three Sites within PJ-SMA-19 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation

reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

SWMU 54-020, which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of disposal shafts C1 through C10, C12, C13, 22, 35 through 37, 93 through 95, 99 through 108, 114, 115, 118 through 136, 138 through 140, 151 through 160, 189 through 192, and 196. These shafts operated between 1970 and the early 1990s. Only shaft 124, although no longer in use, is considered active until RCRA closure is certified and approved by NMED. The shafts contain one or a combination of the following waste types: PCB residues, LLW, and hazardous and mixed waste. The shafts range in size from 1–8 ft in diameter and 25–65 ft in depth and are located throughout the eastern portion of Area G. Disposal shafts were typically filled with waste to within 3 ft of the ground surface, backfilled with crushed tuff, and covered with a concrete dome.

The portions of the three Sites within PJ-SMA-19 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in March 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

The project map (Figure 174-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

174.2 Control Measures

Most of the run-on at this SMA originates in the paved areas and the structure roof drains. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 174-1).

Table 174-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02502040011	Established Vegetation	-	X	X	-	B
J02504020004	Concrete/Asphalt Channel/Swale	X	-	X	-	CB
J02504020006	Concrete/Asphalt Channel/Swale	X	-	X	-	CB
J02504060010	Rip Rap	-	X	X	-	CB
J02505020002	Sediment Basin	-	X	-	X	CB
J02506010005	Rock Check Dam	-	X	-	X	CB
J02506010008	Rock Check Dam	-	X	-	X	CB
J02506010009	Rock Check Dam	-	X	-	X	CB
J02507010001	Gabions	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

No exposure was certified on August 27, 2014.

174.3 Storm Water Monitoring

SWMUs 54-013(b), 54-017, and 54-020 are monitored within PJ-SMA-19. Following the installation of baseline control measures, a baseline storm water sample was collected on August 8, 2013 (Figures 174-2 and 174-3). Analytical results from this sample yielded the following TAL exceedances:

- Aluminum concentration of 761 µg/L (MTAL is 750 µg/L),
- Mercury concentration of 1.67 µg/L (ATAL is 0.77 µg/L),
- Gross-alpha activity of 51.2 pCi/L (ATAL is 15 pCi/L),
- Radium-226 and radium-228 activity of 43.7 pCi/L (ATAL is 30 pCi/L), and
- PCB concentration of 20 ng/L (ATAL is 0.6 ng/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 54-013(b):

Aluminum, mercury, PCBs, and gross-alpha-emitting radionuclides, including radium-226 and radium-228, are known to have been associated with industrial materials historically managed at this Site. However, industrial materials managed at this Site consist of wastes that were disposed of in subsurface pits and shafts. Therefore, these industrial materials are not exposed to any storm water runoff.

- Aluminum was not detected above soil or sediment BVs in 140 shallow (i.e., less than 3 ft bgs) RFI samples collected at MDA G.
- Mercury was detected slightly above the soil and sediment BVs in 2 of 36 shallow samples collected at MDA G with a maximum concentration 2.2 times the BVs.

- The PCB mixture Aroclor-1260 was detected in 5 shallow RFI samples at a maximum concentration 18% of the residential SSL in soil samples.
- Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 54-017:

Aluminum, mercury, PCBs, and gross-alpha-emitting radionuclides, including radium-226 and radium-228, are known to have been associated with industrial materials historically managed at this Site. However, industrial materials managed at this Site consist of wastes that were disposed of in subsurface pits and shafts. Therefore, these industrial materials are not exposed to any storm water runoff.

- Aluminum was not detected above soil or sediment BVs in 140 shallow (i.e., less than 3 ft bgs) RFI samples collected at MDA G.
- Mercury was detected slightly above the soil and sediment BVs in 2 of 36 shallow samples collected at MDA G with a maximum concentration 2.2 times the BVs.
- The PCB mixture Aroclor-1260 was detected in 5 shallow RFI samples at a maximum concentration 18% of the residential SSL in soil samples.
- Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 54-020:

Industrial materials managed at this Site consist of wastes that were disposed of in subsurface shafts. Therefore, these industrial materials are not exposed to any storm water runoff.

- The PCB mixture Aroclor-1260 was detected in 5 shallow RFI samples at a maximum concentration 18% of the residential SSL in soil samples.
- Alpha-emitting radionuclides managed by the Permittees are exempt from regulation under the CWA and are excluded from the definition of adjusted gross-alpha radioactivity.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 174-2 and 174-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled “Developed Background” in Figures 174-2 and 174-3.

Monitoring location PJ-SMA-19 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including aluminum and mercury are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; the aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum result from 2013 is between these two values.

- Mercury—The mercury UTLs from undisturbed Bandelier Tuff and from developed urban landscape background storm water run-on were not calculated because the number of detected values was not sufficient to permit calculation of the UTL values in the baseline metals background study. Therefore, no comparison to mercury BVs in storm water could be made.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is greater than both of these values.
- Radium—The radium-226 and radium-228 activity UTLs for background storm water containing sediment derived from Bandelier Tuff is 52.7 pCi/L, and radium-226 and radium-228 background storm water UTL for storm water run-on from a developed urban landscape is 8.94 pCi/L. The 2013 radium-226 and radium-228 result is between these values.
- PCBs—The PCB UTL from developed urban landscape storm water run-on is 98 ng/L; the PCB UTL for background storm water containing sediment derived from Bandelier Tuff is 11.7 ng/L. The PCB result from 2013 is between these values.

All the analytical results for these samples are reported in the 2013 Annual Report.

174.4 Inspections and Maintenance

RG-TA-54 recorded six storm events at PJ-SMA-19 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 174-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38640	5-27-2014
Storm Rain Event	BMP-39042	6-10-2014
Storm Rain Event	BMP-39643	7-15-2014
Storm Rain Event	BMP-41434	8-14-2014
Storm Rain Event	BMP-42355	9-8-2014
Annual Erosion Evaluation	COMP-43749	11-6-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 174-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-41337	Temporarily removed debris screen from riser pipe of sediment basin J02505020002. Modified screen as directed and replaced screens.	9-30-2014	60 day(s)	Maintenance delayed.

174.5 Compliance Status

The Sites associated with PJ-SMA-19 are High Priority Sites. The High Priority Site deadline for the certification of corrective action was 1 yr from the date of an observed TAL exceedance, which for PJ-SMA-19 was September 11, 2014. A completion of corrective action for PJ-SMA-19 was submitted on August 28, 2014.

Table 174-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 54-013(b)	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 28, 2014, "Submittal of Completion of Corrective Action for PJ-SMA-18 (Sites 54-017, 54-014(d)) and PJ-SMA-19 (Sites 54-013(b), 54-017, and 54-020)."
SWMU 54-017	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 28, 2014, "Submittal of Completion of Corrective Action for PJ-SMA-18 (Sites 54-017, 54-014(d)) and PJ-SMA-19 (Sites 54-013(b), 54-017, and 54-020)."
SWMU 54-020	Corrective Action Initiated	Corrective Action Complete for No Exposure	LANL, August 28, 2014, "Submittal of Completion of Corrective Action for PJ-SMA-18 (Sites 54-017, 54-014(d)) and PJ-SMA-19 (Sites 54-013(b), 54-017, and 54-020)."

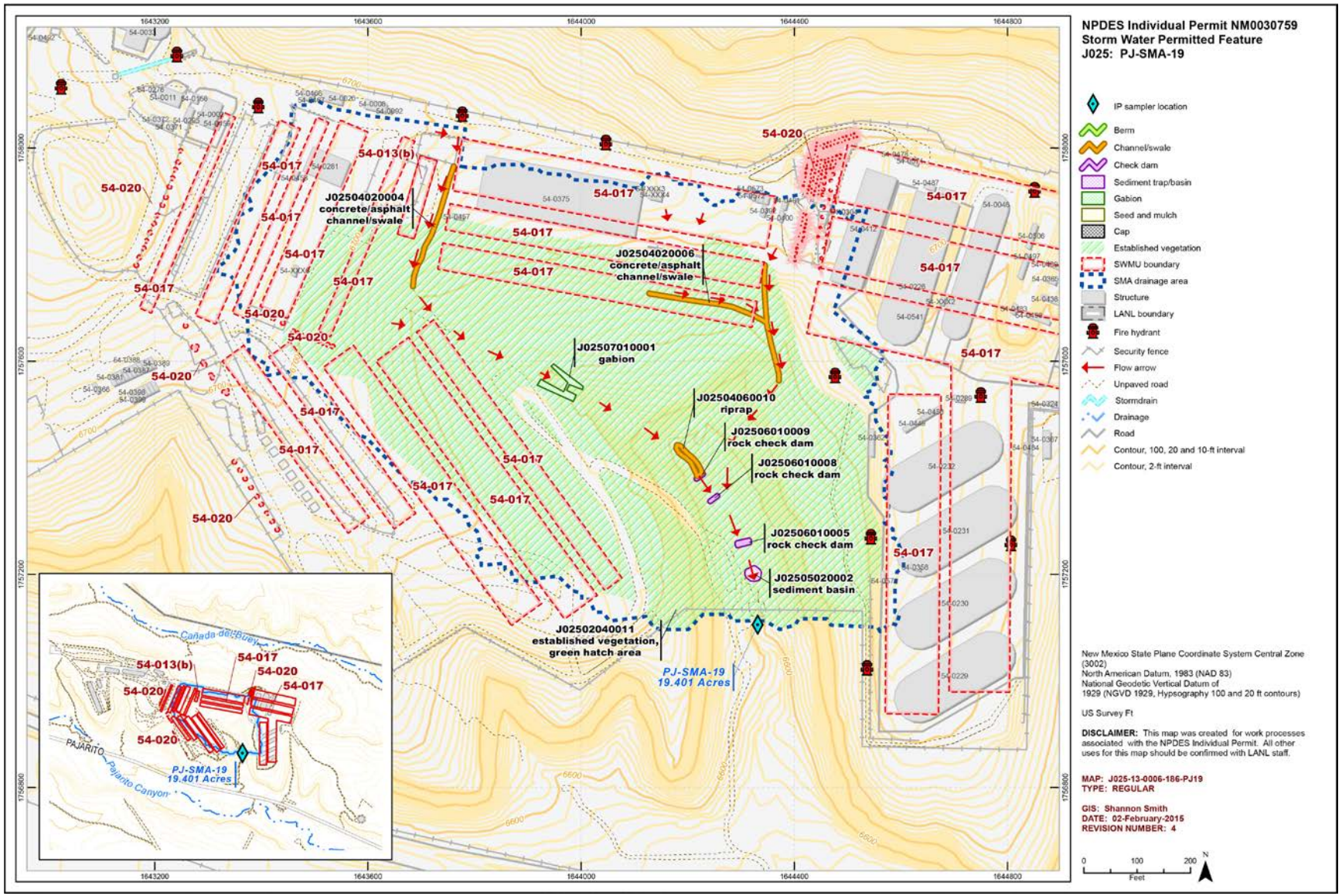
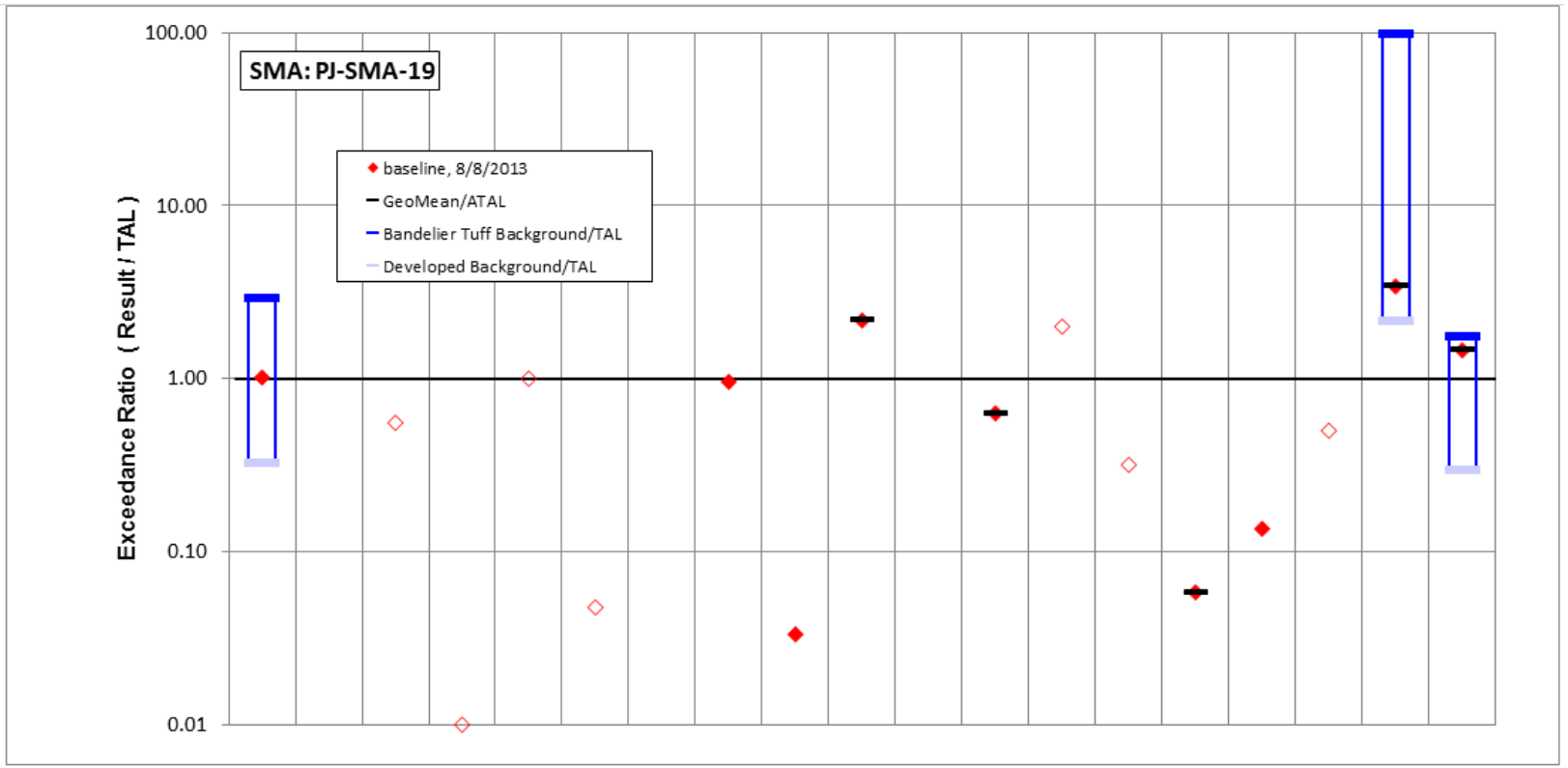


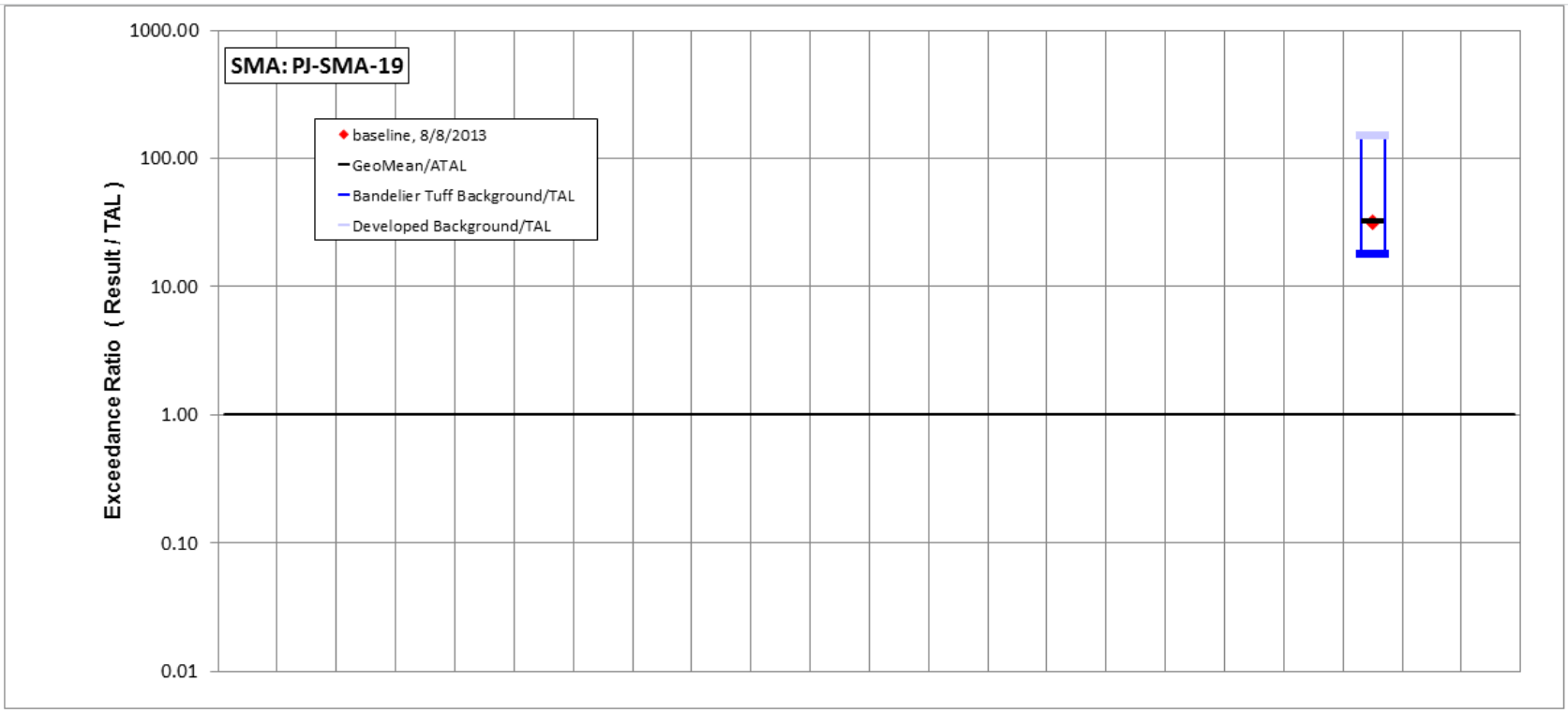
Figure 174-1 PJ-SMA-19 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	**Mercury**	Nickel	Selenium	**Silver**	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	**Radium-226 and Radium-228**
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/8/2013 result	**761**	*3*	*5*	*50*	*1*	*10*	2.94	4.12	0.566	**1.67**	1.33	3.15	***1***	*2*	5.82	5.69	*0.005*	**51.2**	**43.7**
result / TAL	**1**	*0.005*	*0.56*	*0.01*	*1*	*0.048*	0.0029	0.96	0.033	**2.2**	0.0078	0.63	***2***	*0.32*	0.058	0.14	*0.5*	**3.4**	**1.5**

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 174-2 Inorganic analytical results summary plot for PJ-SMA-19



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
8/8/2013 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.02**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**32**	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 174-3 Organic analytical results summary plot for PJ-SMA-19

175.0 PJ-SMA-20: SWMU 54-017

175.1 Site Descriptions

One historical industrial activity area is associated with J027, PJ-SMA-20: Site 54-017.

SWMU 54-017, which is part of Consolidated Unit 54-013(b)-99 at MDA G, consists of inactive subsurface disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. These pits were operational between 1959 and 1980 and received radioactive, mixed, and TRU-contaminated wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. Before 1971, waste was not segregated by disposal pit; the pits received both nonroutine and routine radioactive contaminated waste. Nonroutine contaminated waste included D&D debris from the demolition of TA-01 and Bayo Site, classified materials, TRU chips from the shops, and pieces of heavy equipment. Nonroutine contaminated waste was placed directly into the disposal pits; valves or other openings on large pieces of equipment were sealed before they were transported to TA-54 for disposal. Routine contaminated waste consisted of chemical laboratory waste packaged in cardboard boxes and 5-mil plastic bags, and 55-gal. drums of sludge from the waste treatment plants at TA-35, TA-45, and TA-50. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 are located in the eastern portion of Area G with volumes ranging from 1371 yd^3 to 56,759 yd^3. When filled, the pits were covered with consolidated crushed tuff and topsoil and reseeded with native grasses. All the SWMU 54-017 pits within PJ-SMA-20 currently have a minimum of 3 ft of soil cover over the buried wastes and have been covered with asphalt.

The portions of the three Sites within PJ-SMA-20 are part of Consolidated Unit 54-013(b)-99 at MDA G and were investigated as a single Site. The same surface sampling data set applies to all three Sites. Before the Consent Order went into effect in 2005, numerous RFIs were conducted from 1993 to 2003 at MDA G. Most of the investigations at MDA G have been directed toward characterizing potential subsurface releases of contaminants from the waste inventory in the subsurface pits and shafts. These wastes and releases are not exposed to storm water and, therefore, could not result in contaminant discharges to receiving waters. Potential surface contamination at the Site(s) that could be exposed to storm water was also characterized. Based on the sampling results presented in the investigation reports for MDA G, the lateral and vertical extent of detected chemicals and radionuclides are defined and the Site(s) poses no potential unacceptable risk/dose to human health based on current (i.e., industrial) land use. A revised CME report was submitted to NMED under the Consent Order on September 9, 2011.

The project map (Figure 175-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

175.2 Control Measures

The primary source of run-on at this SMA results from flow from the roofs and the paved areas within the Project Area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 175-1).

Table 175-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02702040007	Established Vegetation	-	X	X	-	B
J02703090001	Curbing	-	X	-	X	CB
J02704060006	Rip Rap	-	X	X	-	CB
J02708030005	Concrete/Asphalt Cap	X	-	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

175.3 Storm Water Monitoring

SWMU 54-017 is monitored within PJ-SMA-20. Following the installation of baseline control measures, a baseline storm water sample was collected on July 29, 2011 (Figures 175-2 and 175-3). On October 25, 2013, a document certifying the no exposure condition of SWMU 54-017 was completed and submitted to EPA. This Site is now certified as corrective action complete, and monitoring of storm water discharges has ceased at PJ-SMA-20. No further sampling is required for PJ-SMA-20 for the remainder of the IP.

175.4 Inspections and Maintenance

RG-TA-54 recorded six storm events at PJ-SMA-20 during the 2014 season. These rain events triggered five post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 175-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-38642	5-27-2014
Storm Rain Event	BMP-39044	6-10-2014
Storm Rain Event	BMP-39645	7-15-2014
Storm Rain Event	BMP-41436	8-14-2014
Storm Rain Event	BMP-42357	9-8-2014
Annual Erosion Evaluation	COMP-43750	11-6-2014

No maintenance activities or facility modifications affecting discharge were conducted at PJ-SMA-20 in 2014.

175.5 Compliance Status

The Sites associated with PJ-SMA-20 are High Priority Sites. Corrective action at this SMA was certified within 3 yr of the effective date of the IP (i.e., November 2013).

Table 175-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 54-017	Corrective Action Complete	Corrective Action Complete	LANL, October 25, 2013, "Submittal of Completion of Corrective Action for PJ-SMA-20, Site 54-017."

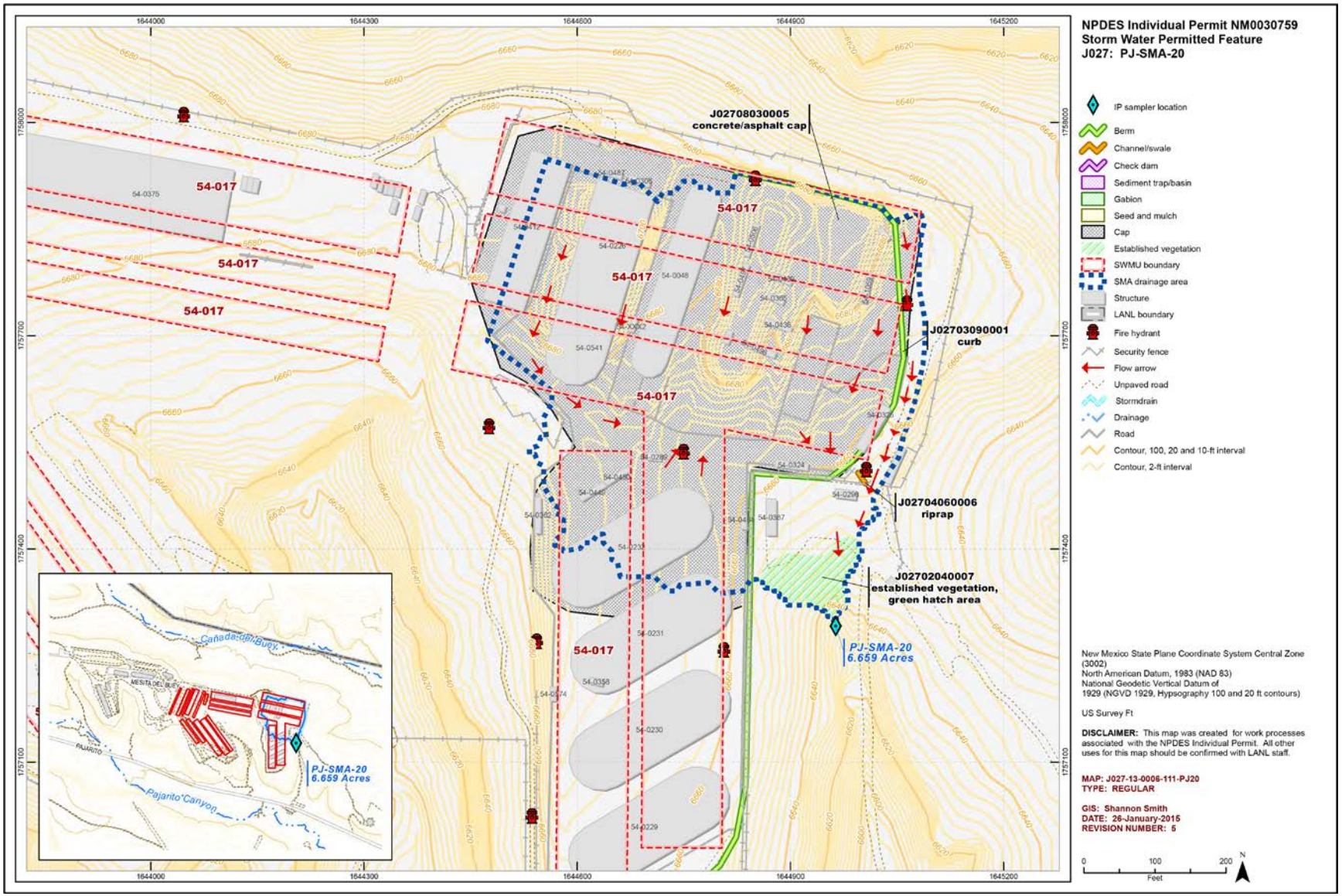
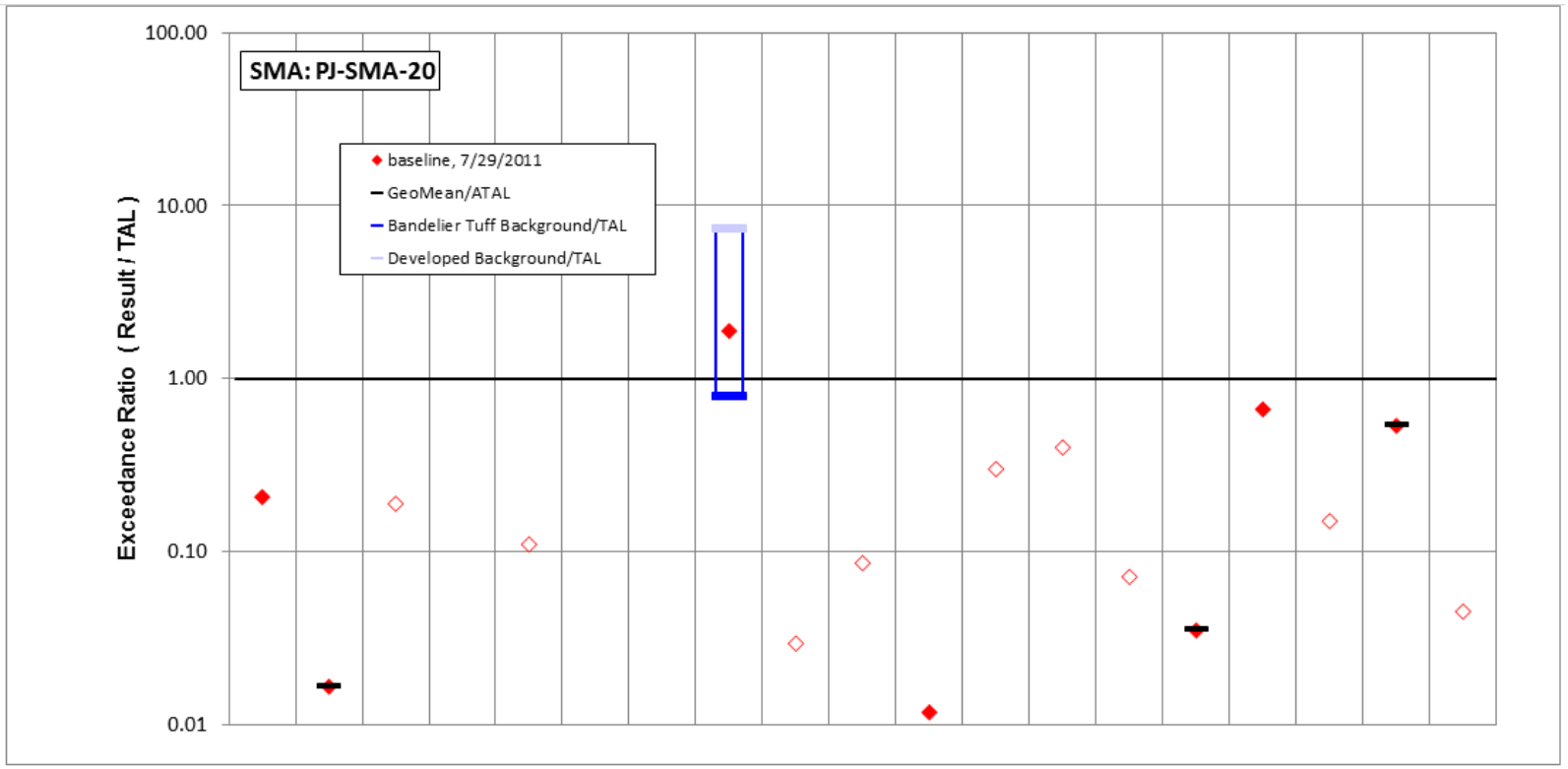


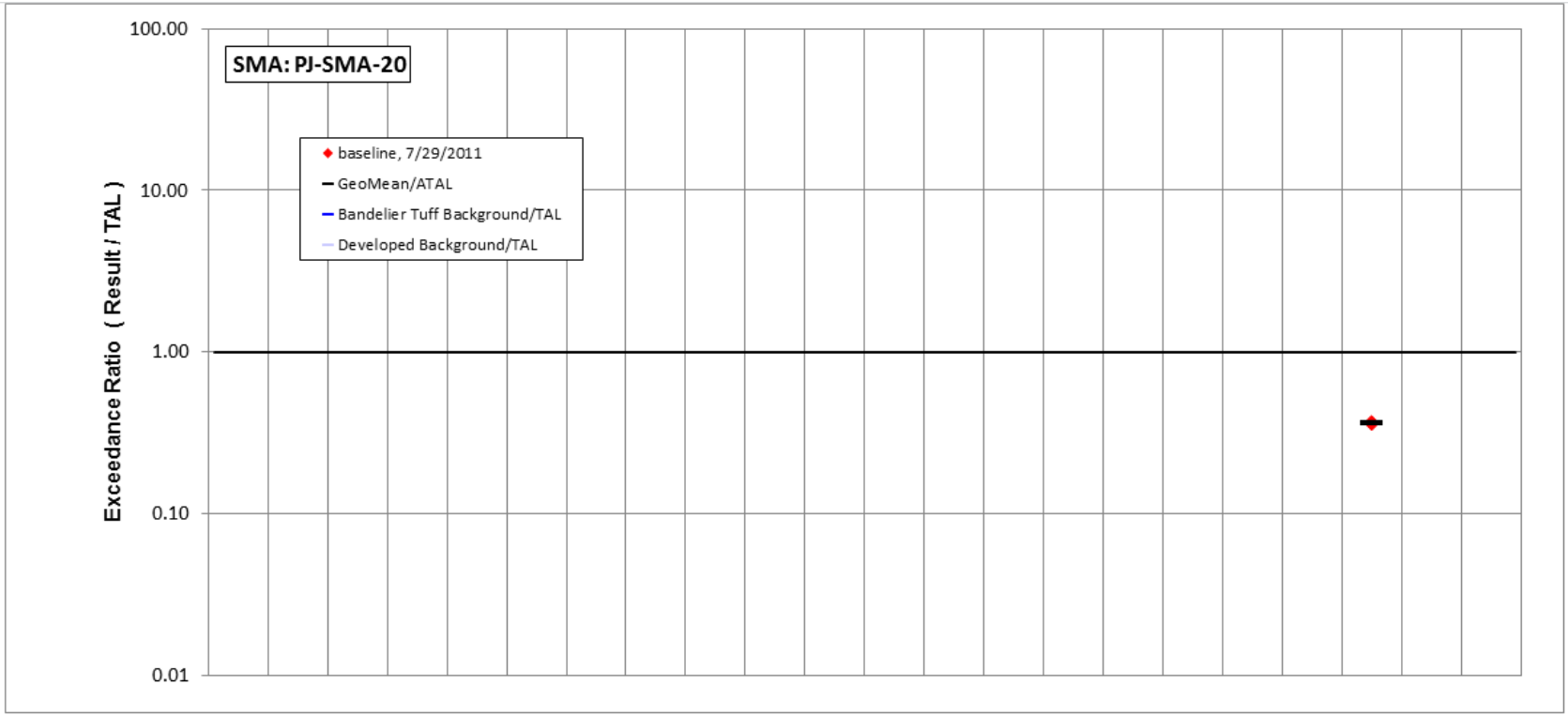
Figure 175-1 PJ-SMA-20 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
7/29/2011 result	155	10.6	*1.7*	28.4	*0.11*	*2*	1	**8.1**	*0.5*	*0.066*	2	*1.5*	*0.2*	*0.45*	3.5	27.9	*0.002*	8	*1.35*
result / TAL	0.21	0.017	*0.19*	0.0057	*0.11*	*0.01*	0.001	**1.9**	*0.029*	*0.086*	0.012	*0.3*	*0.4*	*0.071*	0.035	0.66	*0.15*	0.53	*0.045*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 175-2 Inorganic analytical results summary plot for PJ-SMA-20



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
7/29/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2E-04	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.36	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 175-3 Organic analytical results summary plot for PJ-SMA-20

176.0 STRM-SMA-1.05: AOC 08-009(f)

176.1 Site Descriptions

One historical industrial activity area is associated with J028, STRM-SMA-1.05: Site 08-009(f).

AOC 08-009(f) consists of an inactive outfall located approximately 40 ft southeast of building 08-22 (the x-ray building). Fluorescent penetrants (mixtures of dyes and surfactants) were used in building 08-22 to detect cracks in parts being prepared for installation into a weapons assembly; copper was not a component in the fluorescent penetrants. Historically, fluorescent penetrants, developers, and emulsifiers were discharged to the outfall through drains and drainlines located within building 08-22. The valves to the sinks that discharged to the drains were disconnected in 1992, and the drains were rerouted to the building 08-22 sanitary sewer system. After 1992, secondary containers were used to collect the chemicals for disposal.

Consent Order investigations have not been performed at SWMU 08-009(f), and no decision-level data are available for this Site. Screening-level data are available from an RFI performed in 1994.

The project map (Figure 176-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

176.2 Control Measures

Run-on from the paved access road is directed to the culvert inlet located next to the former outfall via the roadside conveyance located along the southern SMA boundary and the conveyance located west of building 08-0022. Roof run-on terminates at a ponding area in the vegetated area just west of building 08-0022 and does not impact the AOC. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 176-1).

Enhanced controls were installed and certified on June 4, 2013, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 176-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02802040009	Established Vegetation	-	X	X	-	B
J02804060006	Rip Rap	-	X	X	-	CB
J02806010004	Rock Check Dam	X	-	-	X	CB
J02806010005	Rock Check Dam	X	-	-	X	CB
J02806010007	Rock Check Dam	X	-	-	X	B
J02808030008	Concrete/Asphalt Cap	-	-	-	-	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

176.3 Storm Water Monitoring

AOC 08-009(f) is monitored within STRM-SMA-1.05. Following the installation of baseline control measures, two baseline storm water samples were was collected on August 5, 2011, and August 26, 2011 (Figure 176-2). Analytical results from these samples yielded the following TAL exceedance:

- Copper concentrations of 5.7 µg/L and 6.9 µg/L (MTAL is 4.3 µg/L).

Following the installation of enhanced control measures at STRM-SMA-1.05, corrective action storm water samples were collected on July 12, 2013, and August 1, 2013 (Figure 176-2). Analytical results from this corrective action monitoring sample yielded the following TAL exceedance:

- Copper concentrations of 9.92 µg/L and 10.8 µg/L (MTAL is 4.3 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

AOC 08-009(f):

- Copper is not known to have been associated with industrial materials historically managed at this Site. Copper was not detected above the soil BV in shallow (i.e., less than 3 ft bgs) RFI soil samples. The RFI data are screening level only.

STRM-SMA-1.05, Rock Check Dam, J02806010005 (photo ID 30475-4)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 176-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 176-2.

Monitoring location STRM-SMA-1.05 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper results from 2011 and 2013 are between these values.

All the analytical results for these samples are reported in the 2011 and 2013 Annual Reports.

176.4 Inspections and Maintenance

RG240 recorded six storm events at STRM-SMA-1.05 during the 2014 season. These rain events triggered three post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 176-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39818	7-14-2014
Storm Rain Event	BMP-40778	7-30-2014
Storm Rain Event	BMP-41545	8-13-2014
Annual Erosion Evaluation	COMP-43309	10-7-2014

Table 176-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-40778	Debris removed from site at inspection.	7-30-2014	0 day(s)	Maintenance conducted as soon as practicable.

176.5 Compliance Status

The Site associated with STRM-SMA-1.05 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 176-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
AOC 08-009(f)	Corrective Action Initiated after second TAL exceedance	Corrective Action Initiated after second TAL exceedance	Second initiation on 09-10-2013. Permit screening process for corrective action recommendation: Submit alternative compliance request to EPA.

Further details regarding compliance status and planned activities can be found in Attachment 6 for Sites in this SMA.

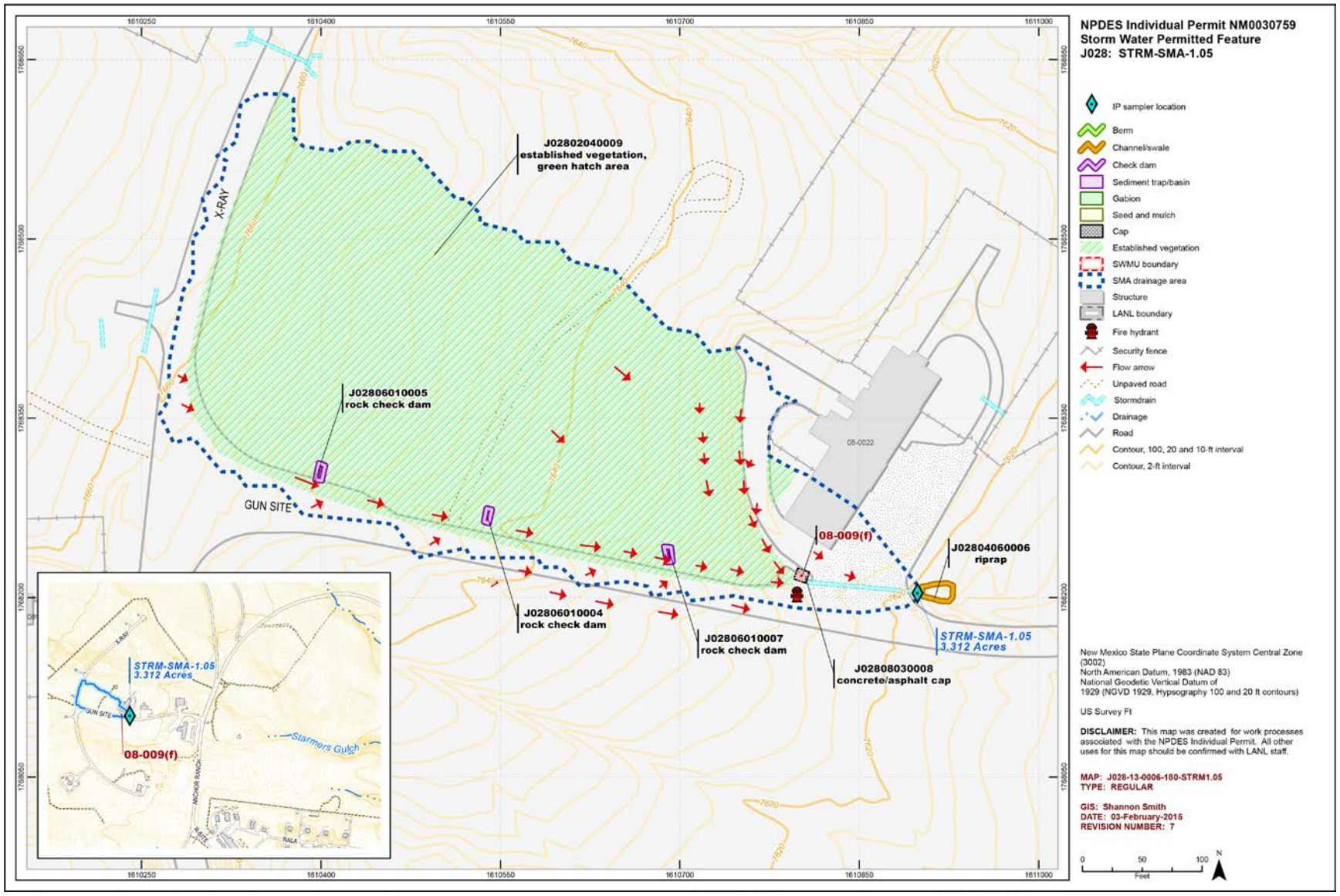
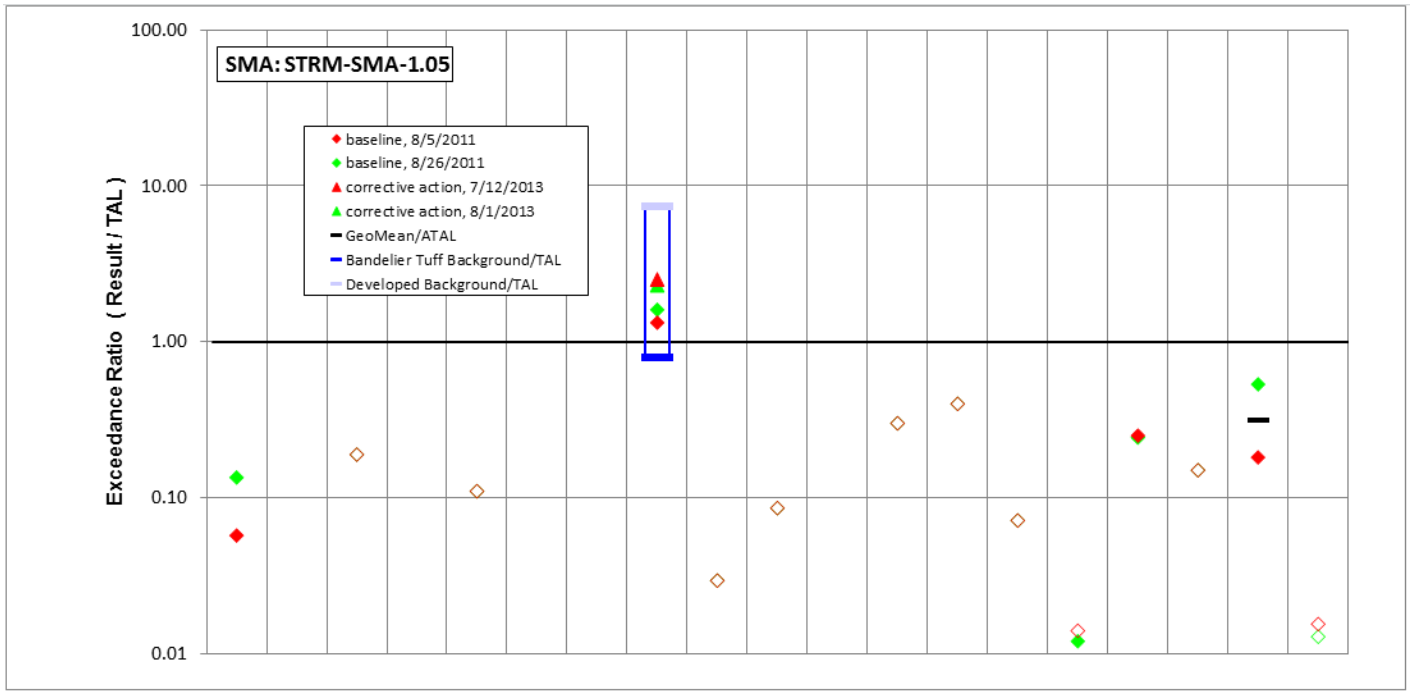


Figure 176-1 STRM-SMA-1.05 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	Gross alpha	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/1/2013 result	-	-	-	-	-	-	-	**9.92**	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	**2.3**	-	-	-	-	-	-	-	-	-	-	-
7/12/2013 result	-	-	-	-	-	-	-	**10.8**	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	**2.5**	-	-	-	-	-	-	-	-	-	-	-
8/26/2011 result	101	3.2	*1.7*	*15*	*0.11*	*2*	1.3	**6.9**	*0.5*	*0.066*	1	*1.5*	*0.2*	*0.45*	1.2	10.2	*0.002*	8	*0.385*
result / TAL	0.13	0.005	*0.19*	*0.003*	*0.11*	*0.01*	0.0013	**1.6**	*0.029*	*0.086*	0.0059	*0.3*	*0.4*	*0.071*	0.012	0.24	*0.15*	0.53	*0.013*
8/5/2011 result	42.9	2.5	*1.7*	*15*	*0.11*	*2*	*1*	**5.7**	*0.5*	*0.066*	1.6	*1.5*	*0.2*	*0.45*	*1.4*	10.5	*0.002*	2.72	*0.464*
result / TAL	0.057	0.0039	*0.19*	*0.003*	*0.11*	*0.01*	*0.001*	**1.3**	*0.029*	*0.086*	0.0094	*0.3*	*0.4*	*0.071*	*0.014*	0.25	*0.15*	0.18	*0.015*

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 176-2 Inorganic analytical results summary plot for STRM-SMA-1.05

177.0 STRM-SMA-1.5: SWMU 08-009(d)

177.1 Site Descriptions

One historical industrial activity area is associated with J029, STRM-SMA-1.5: Site 08-009(d).

SWMU 08-009(d) consists of the drains located in the photoprocessing and x-ray rooms of building 08-22 (x-ray building) at TA-08. Building 08-22 was constructed in 1950 and housed x-ray machines used to radiograph various items. The SWMU 08-009(d) drains were dedicated to receiving photoprocessing and photo-development solutions containing silver salts, chromium, pentachlorophenol, and other chemicals used during the radiography process. Before they were plugged, the drains discharged effluent to a formerly NPDES-permitted outfall (EPA 06A074), located approximately 300 ft northeast of building 08-22. The outfall drained into Starmer Gulch, a tributary of Pajarito Canyon. The drains were plugged between 1995 and 1997. The outfall was removed from the NPDES permit effective September 19, 1997.

Consent Order investigations have not been performed at SWMU 08-009(d), and no decision-level data are available for this Site. Screening-level data are available from an RFI performed in 1994.

The project map (Figure 177-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

177.2 Control Measures

The primary source of run-on to this SMA is a culvert system associated with the paved access road bisecting the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 177-1).

Enhanced controls were installed and certified on July 9, 2013, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 177-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02902040018	Established Vegetation	-	X	X	-	B
J02903010009	Earthen Berm	X	-	-	X	B
J02903010010	Earthen Berm	X	-	-	X	B
J02903010011	Earthen Berm	X	-	-	X	B
J02903010013	Earthen Berm	X	-	-	X	EC
J02903010014	Earthen Berm	-	X	-	X	EC
J02903120015	Rock Berm	-	X	-	X	EC
J02904060016	Rip Rap	-	X	X	-	EC
J02908030017	Concrete/Asphalt Cap	-	X	X	-	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

177.3 Storm Water Monitoring

SWMU 08-009(d) is monitored within STRM-SMA-1.5. Following the installation of baseline control measures, a baseline storm water sample was collected on July 11, 2012 (Figures 177-2 and 177-3). Analytical results from this sample yielded the following TAL exceedances:

- Cadmium concentration of 1.26 µg/L (MTAL is 1 µg/L),
- Mercury concentration of 1.17 µg/L (ATAL is 0.77 µg/L),
- Silver concentration of 0.58 µg/L (MTAL is 0.5 µg/L),
- Cyanide concentration of 0.02 mg/L (ATAL is 0.01 mg/L),
- Gross-alpha activity of 1270 pCi/L (ATAL is 15 pCi/L), and
- Radium-226 and radium-228 activity of 38.5 pCi/L (ATAL is 30 pCi/L).

Following the installation of enhanced control measures at STRM-SMA-1.5, a corrective action storm water sample was collected on September 13, 2013 (Figures 177-2 and 177-3). Analytical results from this corrective action monitoring sample yielded the following TAL exceedances:

- Silver concentration of 4.02 µg/L (MTAL is 0.5 µg/L) and
- Gross-alpha activity of 16.1 pCi/L (ATAL is 15 pCi/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 08-009(d):

- Cadmium is not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were analyzed for cadmium. Cadmium was detected above BV in 1 of 2 shallow soil samples but was not detected above the maximum soil background concentration. Data from the 1994 RFI are screening-level data.
- Mercury is not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were analyzed for mercury. Mercury was detected above BV in 1 of 2 shallow soil samples at a maximum concentration 1.9 times the maximum soil background concentration. Data from the 1994 RFI are screening-level data.
- Silver is known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were analyzed for silver. Silver was detected above BV in 4 of 4 shallow soil samples at a maximum concentration 177 times the soil BV. Data from the 1994 RFI are screening-level data.
- Cyanide is not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were not analyzed for cyanide because cyanide was not identified as a COPC.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because alpha-emitting radionuclides were not identified as COPCs.

- Radium isotopes are not known to be associated with industrial materials historically managed at the Site. Shallow soil samples collected downgradient of the Site outfall during the 1994 RFI were not analyzed for radium-226 and radium-228 because radium was not identified as a COPC.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 177-2 and 177-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 177-2 and 177-3.

Monitoring location STRM-SMA-1.5 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscape containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Cadmium—The cadmium UTL from developed urban landscape storm water run-on is 0.36 µg/L; the cadmium background storm water UTL from locations containing sediment derived from Bandelier Tuff was not calculated because an insufficient number of detected values was available to permit calculation of the UTL value in the baseline metals background study. The cadmium result from 2012 is greater than the developed urban landscape storm water UTL value.
- Radium—The radium-226 and radium-228 activity UTLs for background storm water containing sediment derived from Bandelier Tuff is 52.7 pCi/L, and radium-226 and radium-228 background storm water UTL for storm water run-on from a developed urban landscape is 8.94 pCi/L. The 2012 radium-226 and radium-228 result is between these values.
- Gross alpha—The gross-alpha background storm water UTL from locations containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2012 gross-alpha result is between these two values, while the 2013 result is below both of them.
- Mercury—The mercury UTLs from developed urban landscape storm water run-on and from locations containing sediment derived from Bandelier Tuff were not calculated because an insufficient number of detected values was available to permit calculation of a UTL value in the baseline metals concentration study. Therefore, a comparison to background storm water mercury UTLs could not be made.
- Silver—The silver UTLs from developed urban landscape storm water run-on and from locations containing sediment derived from Bandelier Tuff were not calculated because an insufficient number of detected values was available to permit calculation of a UTL value in the baseline metals concentration study. Therefore, a comparison to background storm water silver UTLs could not be made.
- Cyanide—The weak acid dissociable cyanide UTLs from developed urban landscape storm water run-on and from locations containing sediment derived from Bandelier Tuff were not calculated because an insufficient number of detected values was available to permit calculation of a UTL value in the baseline metals concentration study. Therefore, a comparison to background storm water weak acid dissociable cyanide UTLs could not be made.

All the analytical results for these samples are reported in the 2012 and 2013 Annual Reports.

177.4 Inspections and Maintenance

RG240 recorded six storm events at STRM-SMA-1.5 during the 2014 season. These rain events triggered three post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 177-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39819	7-14-2014
Storm Rain Event	BMP-40779	7-30-2014
Storm Rain Event	BMP-41546	8-13-2014
Annual Erosion Evaluation	COMP-43310	10-7-2014
TAL Exceedance	COMP-44548	10-7-2014

Maintenance activities conducted at the SMA are summarized in the following table.

Table 177-3 Maintenance during 2014

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-42130	Repaired eroded section of berm J02903010011. Removed matting from eroded area(s), added clean fill and compacted. Reapplied seed and matting. Applied seed and mulch or hydromulch to all areas disturbed by maintenance activities.	9-4-2014	22 day(s)	Maintenance conducted as soon as practicable.

177.5 Compliance Status

The Site associated with STRM-SMA-1.5 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 177-4 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 08-009(d)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after second TAL exceedance	Second initiation on 10-21-2013. Permit screening process for corrective action recommendation: Alternatives analysis is being performed to determine appropriate control to achieve corrective action. The proposed date of compliance certification is 09-20-2015.

Further details regarding compliance status and planned activities can be found in Attachment 6 for the Site in this SMA.

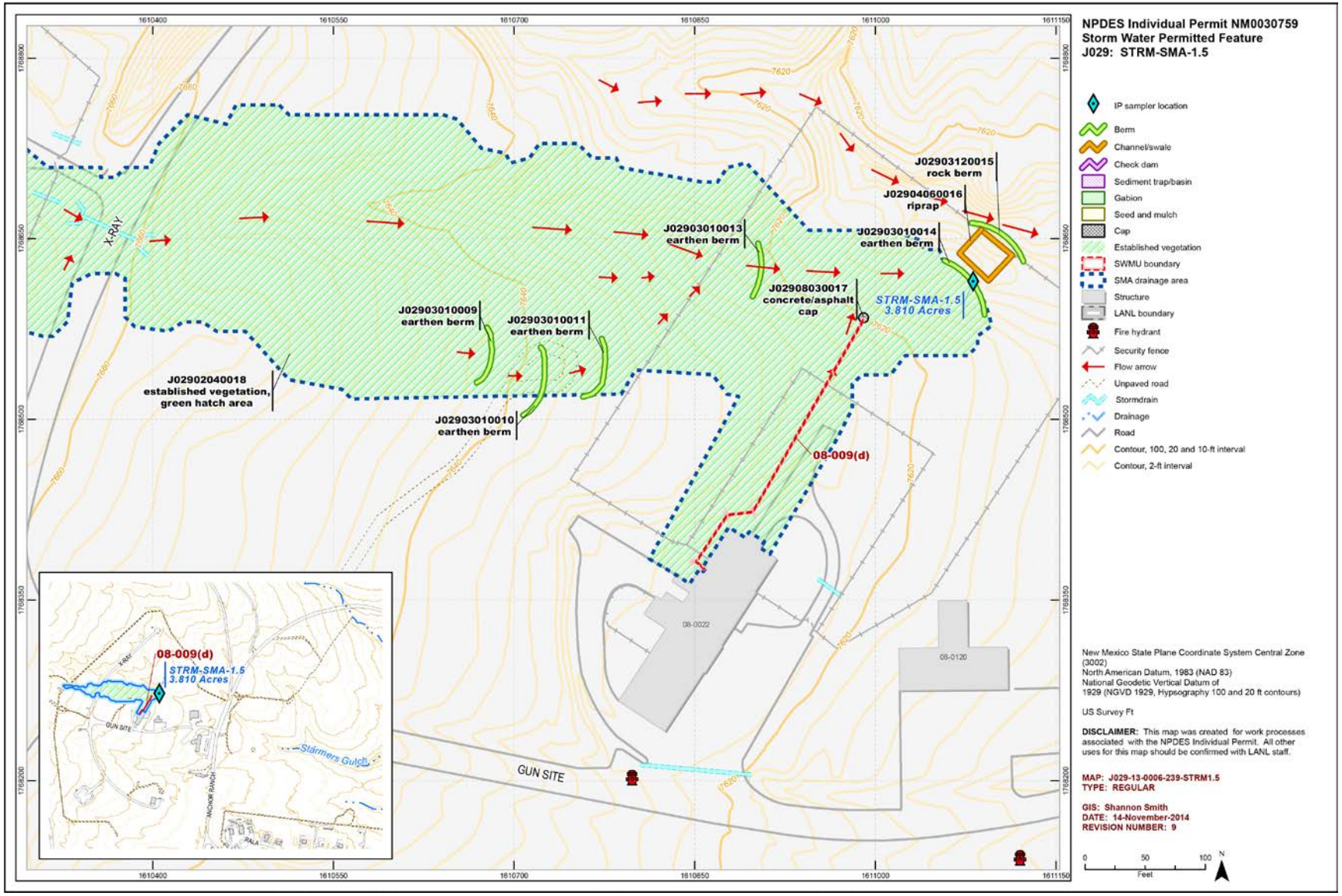
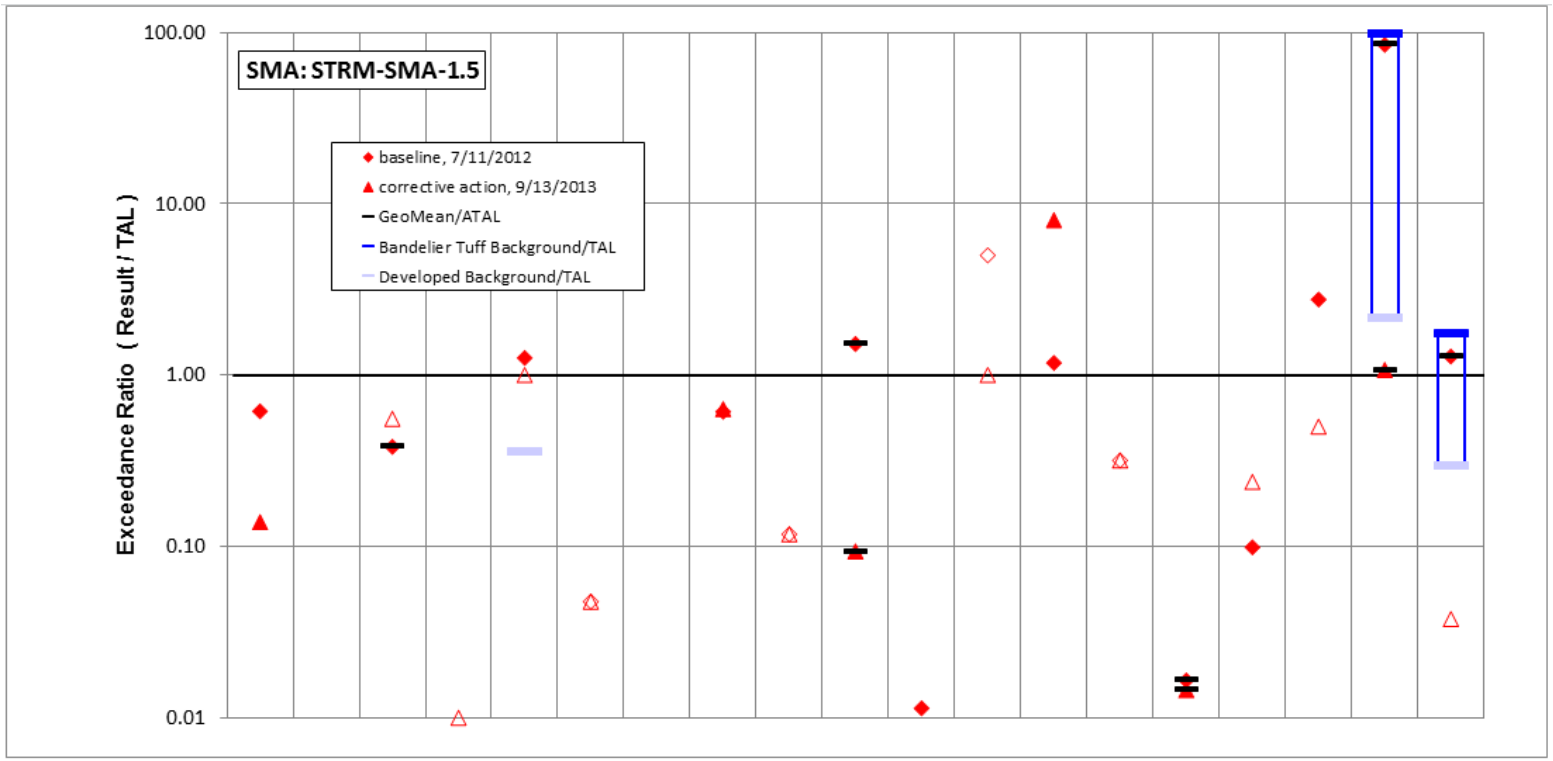


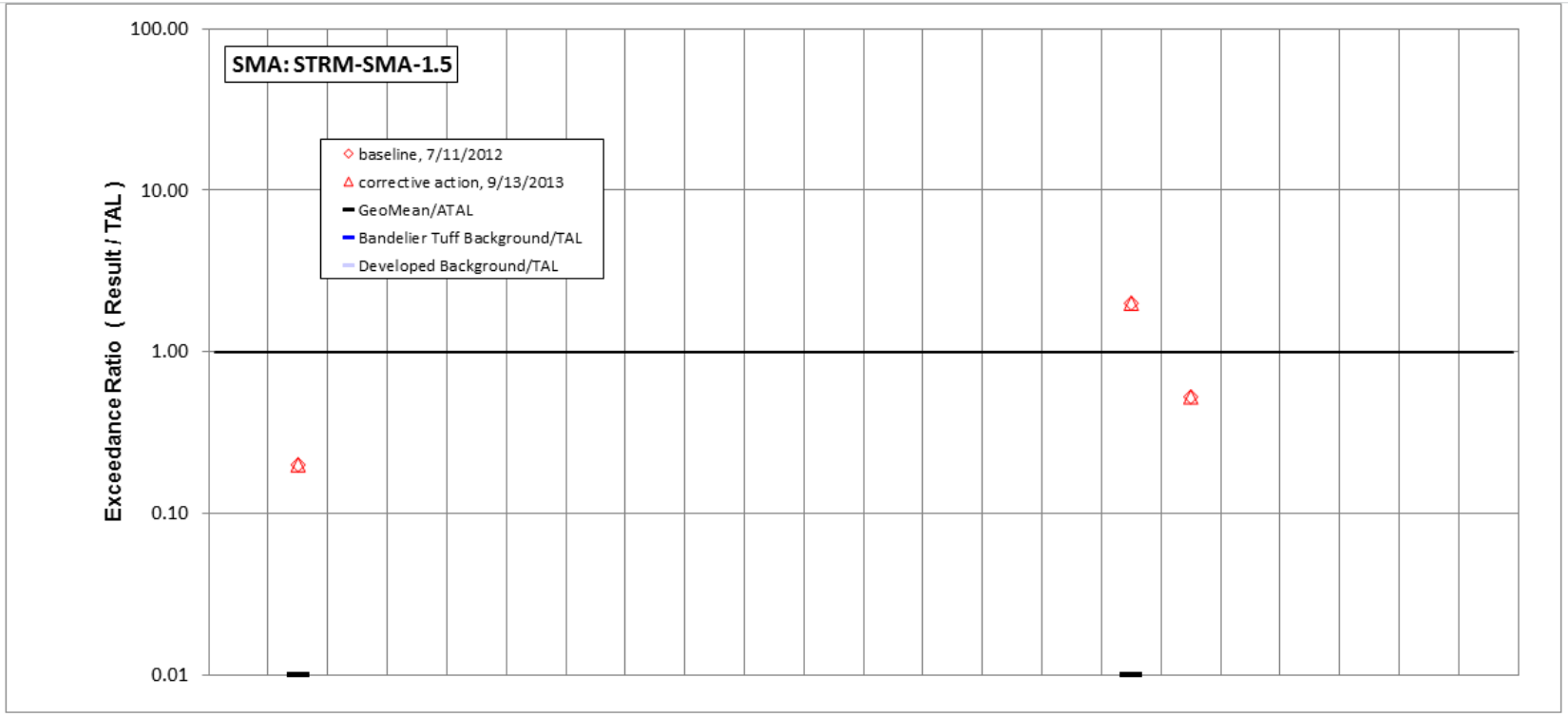
Figure 177-1 STRM-SMA-1.5 location map



	Aluminum	Antimony	Arsenic	Boron	**Cadmium**	Chromium	Cobalt	Copper	Lead	**Mercury**	Nickel	**Selenium**	**Silver**	Thallium	Vanadium	Zinc	**Cyanide, weak acid dissociable**	**Gross alpha**	**Radium-226 and Radium-228**
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	104	4.61	*5*	*50*	*1*	*10*	*5*	2.72	*2*	0.072	0.594	*5*	**4.02**	*2*	1.45	*10*	*0.005*	**16.1**	*1.13*
result / TAL	0.14	0.0072	*0.56*	*0.01*	*1*	*0.048*	*0.005*	0.63	*0.12*	0.094	0.0035	*1*	**8**	*0.32*	0.014	*0.24*	*0.5*	**1.1**	*0.038*
7/11/2012 result	461	*3*	3.43	28.7	**1.26**	*10*	2.35	2.63	*2*	**1.17**	1.93	***25***	**0.589**	*2*	1.65	4.15	**0.0276**	**1270**	**38.5**
result / TAL	0.61	*0.005*	0.38	0.0057	**1.3**	*0.048*	0.0024	0.61	*0.12*	**1.5**	0.011	***5***	**1.2**	*0.32*	0.016	0.099	**2.8**	**85**	**1.3**

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 177-2 Inorganic analytical results summary plot for STRM-SMA-1.5



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	**Hexachlorobenzene**	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	Total PCB	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	MQL	-	-	-	-	-	-	-	-	-	-	-	-	-	MQL	MTAL	-	-	-	-	-
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	-	-	-	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
9/13/2013 result	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	-	-	-	-	-
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	-	-	-	-	-
7/11/2012 result	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	-	-	-	-	-
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	-	-	-	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 177-3 Organic analytical results summary plot for STRM-SMA-1.5

178.0 STRM-SMA-4.2: SWMU 09-008(b)

178.1 Site Descriptions

One historical industrial activity area is associated with J030, STRM-SMA-4.2: Site 09-008(b).

SWMU 09-008(b) is the decommissioned oxidation pond (structure 09-212) located next to the western boundary of TA-09, approximately 200 ft east of Anchor Ranch Road. Installed in 1969, the pond measures 15 ft wide × 65 ft long × 6 ft deep, is lined with clay covered with emulsified asphalt water proofing, and is surrounded by an 8-ft-high chainlink fence. An overflow pipe, located at the southeast corner of the pond, discharged to a drainage channel that flows into Starmer Canyon. The pond treated sanitary waste received from the SWMU 09-005(d) septic tank (structure 09-211), which received effluent from buildings 08-20, 08-21, 08-22, 08-23, and 08-24. These buildings had various uses including radiography of nuclear fuel elements, photoprocessing, photo development, and x-ray operations. A strontium-90 spill occurred in building 08-24 in 1954; it is not known if any of the strontium-90 reached the pond. The pond was decommissioned and abandoned in place in 1988.

Consent Order investigations have not been performed at SWMU 09-008(b), and no decision-level data are available for this Site. Screening-level data are available from an RFI performed in 1994.

The project map (Figure 178-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

178.2 Control Measures

The run-on diversion channel located to the north of the SMA serves to divert run-on away from the Permitted Feature. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 178-1).

Enhanced controls were installed and certified on August 27, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 178-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J03001010005	Seed and Wood Mulch	-	-	X	-	EC
J03002040006	Established Vegetation	-	X	X	-	B
J03003010003	Earthen Berm	-	X	-	X	CB
J03003010004	Earthen Berm	-	X	-	X	EC
J03004010002	Earthen Channel/Swale	X	-	X	-	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

178.3 Storm Water Monitoring

SWMU 09-008(b) is monitored within STRM-SMA-4.2. Following the installation of baseline control measures, a baseline storm water sample was collected on August 21, 2011, and September 9, 2011 (Figure 178-2). Analytical results from this sample yielded the following TAL exceedance:

- Aluminum concentration of 2330 µg/L (MTAL is 750 µg/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 09-008(b):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Shallow sediment samples collected within the pond and in the drainage below the outfall during the 1994 RFI were not analyzed for metals.

TAL exceedances were also evaluated against the appropriate storm water BV, that is, "Bandelier Tuff background" for undisturbed SMAs or "developed background" for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figure 178-2. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figure 178-2.

STRM-SMA-4.2 is located on Bandelier Tuff and no run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from undisturbed background locations on Bandelier Tuff were compared with aluminum MTAL exceedances. Aluminum is associated with minerals in the Bandelier Tuff as well.

- Aluminum—The aluminum UTL for storm water containing sediment derived from Bandelier Tuff is 2210 µg/L; the result from 2011 is greater than this value.

All the analytical results for these samples are reported in the 2011 Annual Report.

178.4 Inspections and Maintenance

RG240 recorded six storm events at STRM-SMA-4.2 during the 2014 season. These rain events triggered three post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 178-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39820	7-14-2014
Storm Rain Event	BMP-40780	7-30-2014
Storm Rain Event	BMP-41547	8-12-2014
Annual Erosion Evaluation	COMP-43311	10-7-2014

No maintenance activities or facility modifications affecting discharge were conducted at STRM-SMA-4.2 in 2014.

178.5 Compliance Status

The Site associated with STRM-SMA-4.2 is a Moderate Priority Site. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 178-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-008(b)	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 08-17-2012.

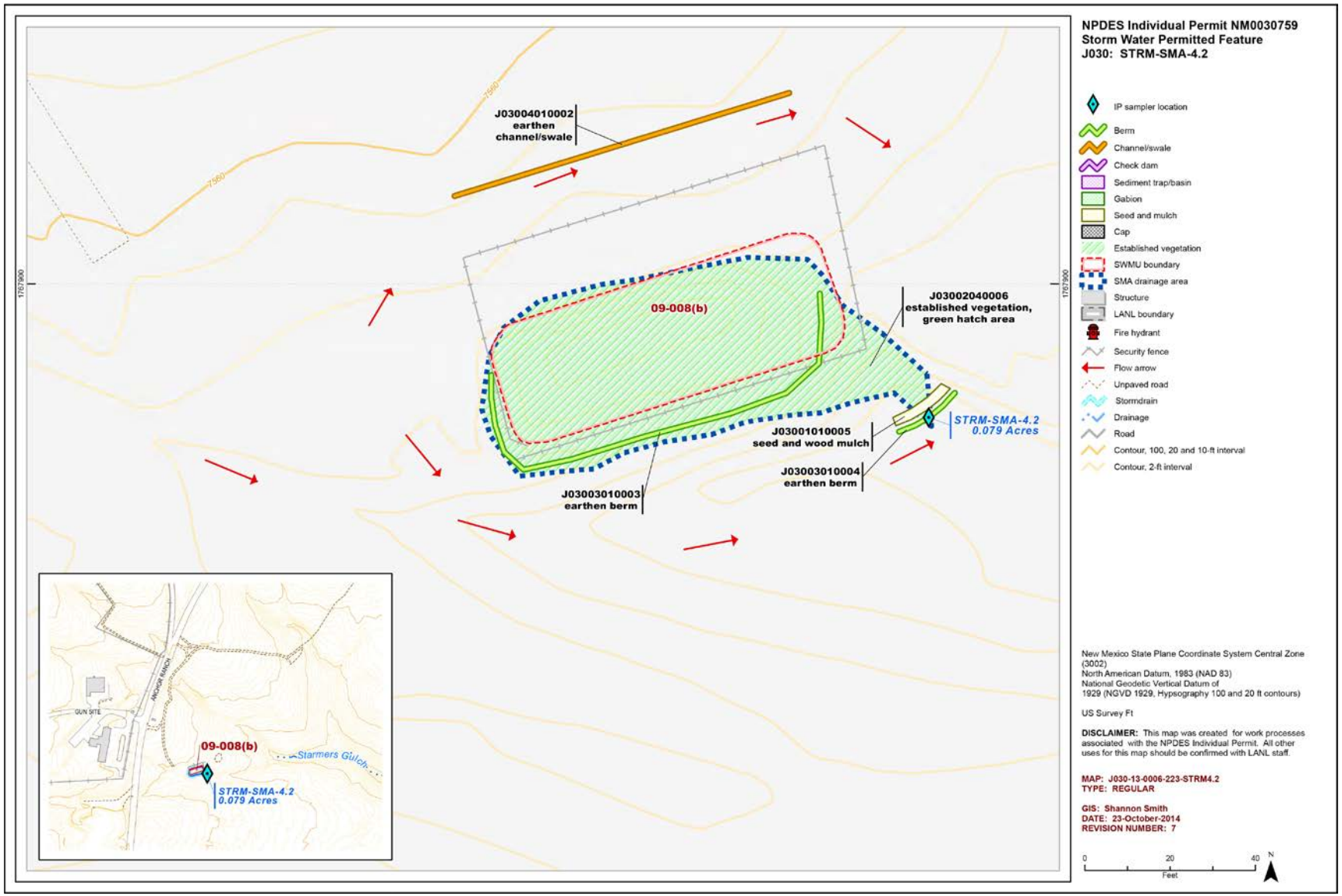
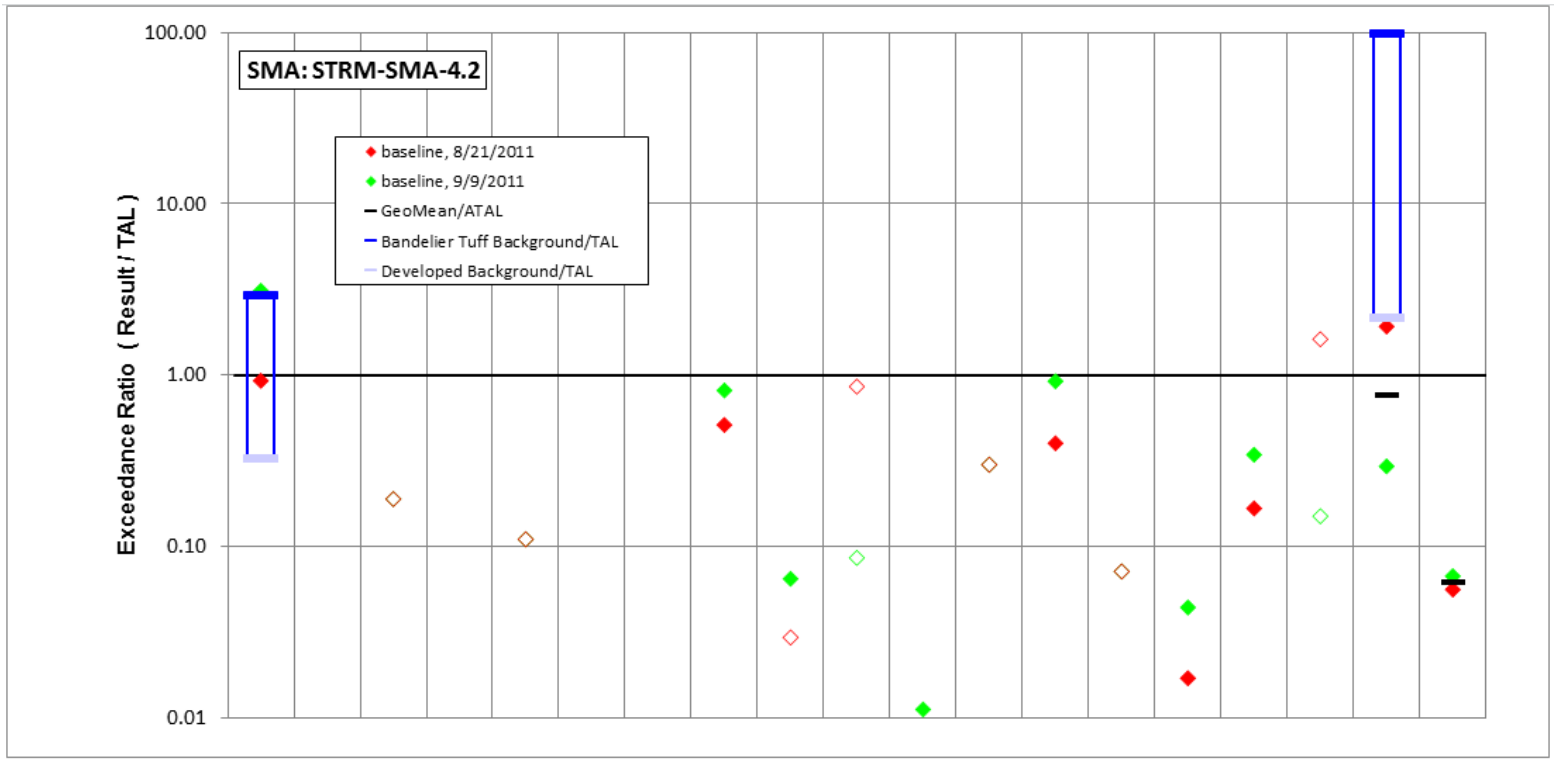


Figure 178-1 STRM-SMA-4.2 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	**Cyanide, weak acid dissociable**	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/9/2011 result	**2330**	*1*	*1.7*	16	*0.11*	2	3.9	3.5	1.1	*0.066*	1.9	*1.5*	0.46	*0.45*	4.4	14.4	*0.002*	4.4	2.01
result / TAL	**3.1**	*0.002*	*0.19*	0.0032	*0.11*	0.0095	0.0039	0.81	0.065	*0.086*	0.011	*0.3*	0.92	*0.071*	0.044	0.34	*0.15*	0.29	0.067
8/21/2011 result	695	*1*	*1.7*	25.1	*0.11*	*2*	3.5	2.2	*0.5*	*0.66*	1.4	*1.5*	0.2	*0.45*	1.7	7	***0.016***	**28.8**	1.68
result / TAL	0.93	*0.002*	*0.19*	0.005	*0.11*	*0.01*	0.0035	0.51	*0.029*	*0.86*	0.0082	*0.3*	0.4	*0.071*	0.017	0.17	***1.6***	**1.9**	0.056

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 178-2 Inorganic analytical results summary plot for STRM-SMA-4.2

179.0 STRM-SMA-5.05: SWMU 09-013

179.1 Site Descriptions

One historical industrial activity area is associated with J031, STRM-SMA-5.05: Site 09-013.

SWMU 09-013 is MDA M, which consists of two surface disposal areas at TA-09, a main area and a smaller satellite area. The main area occupies about 3.2 acres and is located approximately 1600 ft southwest of building 22-120. The 150-ft-wide × 260-ft-long satellite area is located approximately 750 ft northwest of the main area. MDA M was created during the demolition of the Old Anchor Ranch East and West sites. Structures were flash burned to remove any HE residue and deposited over the MDA surface. Debris from the construction of current TA 08 and TA 09 facilities (1949 to 1965) and other sites (1960 to 1965) were also deposited at MDA M. Materials present at the MDA included metal debris, wood debris, laboratory appliances and fixtures, and metal and glass containers. The main disposal area was surrounded by an earth berm that eroded through by surface-water runoff. MDA M has been inactive since 1965. All debris and contaminated soil were removed from MDA M during an expedited cleanup conducted in 1995 and 1996.

A Consent Order investigation has not been performed at SWMU 09-013, and no decision-level soil sampling data are available for this Site. Sampling was performed at the Site during a 1994 RFI and the 1995 and 1996 expedited cleanup.

The project map (Figure 179-1) is located at the end of this SMA update. Any future map updates will be posted on the IP website: http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/site-monitoring-area-maps.php.

179.2 Control Measures

All active control measures are listed in the following table, and their locations are shown on the project map (Figure 179-1).

Enhanced controls were installed and certified on July 25, 2012, as part of corrective action. Photographs of the enhanced controls are available at http://www.lanl.gov/community-environment/environmental-stewardship/protection/compliance/individual-permit-stormwater/construction-certifications.php.

Table 179-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J03102040013	Established Vegetation	-	X	X	-	B
J03103010009	Earthen Berm	X	-	-	X	EC
J03103010010	Earthen Berm	-	X	-	X	EC
J03103010012	Earthen Berm	X	-	-	X	B
J03103020004	Base Course Berm	-	X	-	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

179.3 Storm Water Monitoring

SWMU 09-013 is monitored within STRM-SMA-5.05. Following the installation of baseline control measures, a baseline storm water sample was collected on August 21, 2011 (Figures 179-2 and 179-3). Analytical results from this sample yielded the following TAL exceedances:

- Aluminum concentration of 1170 µg/L (MTAL is 750 µg/L),
- Gross-alpha activity of 24.5 pCi/L (ATAL is 15 pCi/L), and
- PCB concentration of 7 ng/L (ATAL is 0.6 ng/L).

Site history and shallow (i.e., less than 3 ft bgs) soil sampling data (where available) are used to determine whether the TAL exceedance constituent(s) may be related to historical industrial activities. The discussion is organized by Site and TAL exceedance constituent.

SWMU 09-013:

- Samples collected in 1996 were not analyzed for aluminum because it was not identified as a COPC.
- Uranium-235 was not detected but the detection limits were up to 8.5 times BVs in samples collected from SWMU 09-013 following the 1996 expedited site cleanup. Radium-226 was not detected but the detection limits were up to 2.3 times BVs in samples collected from SWMU 09-013 following the 1996 expedited site cleanup.
- Based on descriptions of the wastes present at MDA M, PCBs are not known to have been associated with industrial materials historically managed at this Site. PCBs were detected in RFI samples with Aroclor-1254 being detected above the 1 mg/kg SAL in two samples, both collected within the main (i.e., southern) area. The maximum concentration of Aroclor-1254 is 2.3 times the residential SSL. The PCB hotspots identified during the RFI were removed during the expedited cleanup, and confirmation samples were collected from grids. Three PCB mixtures (Aroclor-1248, Aroclor-1254, and Aroclor-1260) were detected in shallow (i.e., 0 to 3 ft bgs) expedited cleanup confirmation samples. Aroclor-1248 was detected in 5 of 11 shallow samples collected within the main area and was not detected in 2 shallow samples from the satellite area. The maximum concentration was 3% of the residential SSL. Aroclor-1254 was detected in 4 of 11 shallow samples collected within the main area and 1 of 2 shallow samples from the satellite area. The maximum concentration was 3% of the residential SSL. Aroclor-1260 was detected in 4 of 11 shallow samples collected within the main area and 1 of 2 shallow samples from the satellite area. The maximum concentration was 1% of the residential SSL. The RFI and expedited cleanup data are screening level only.

STRM-SMA-5.05, Earthen Berm, J03103010010 (photo ID 23504-2)

TAL exceedances were also evaluated against the appropriate storm water BV, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from

storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled "Bandelier Tuff Background" in Figures 179-2 and 179-3. UTLs developed for urban settings were derived from runoff from developed landscapes on the Pajarito Plateau, including buildings, parking lots, roads, and associated features, and are labeled "Developed Background" in Figures 179-2 and 179-3.

STRM-SMA-5.05 is located on Bandelier Tuff and no run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from locations containing sediment derived from Bandelier Tuff were compared with aluminum and gross-alpha MTAL and ATAL exceedances. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals. Aluminum is associated with minerals in the Bandelier Tuff as well.

- The aluminum UTL for storm water containing sediment derived from Bandelier Tuff is 2210 µg/L; the result from 2011 is less than this value.
- The gross-alpha UTL for storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L; the result from 2011 is less than this value.
- The PCB UTL for storm water containing sediment derived from Bandelier Tuff is 11.7 ng/L; the result from 2011 is less than this value.

All the analytical results for these samples are reported in the 2011 Annual Report.

179.4 Inspections and Maintenance

RG240 recorded six storm events at STRM-SMA-5.05 during the 2014 season. These rain events triggered three post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 179-2 Control Measure Inspections during 2014

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-39821	7-14-2014
Storm Rain Event	BMP-40781	7-30-2014
Storm Rain Event	BMP-41548	8-12-2014
Annual Erosion Evaluation	COMP-43312	10-7-2014

No maintenance activities or facility modifications affecting discharge were conducted at STRM-SMA-5.05 in 2014.

179.5 Compliance Status

The Sites associated with STRM-SMA-5.05 are Moderate Priority Sites. Corrective action is to be certified complete within 5 yr of the effective date of the IP (i.e., November 2015).

Table 179-3 Compliance Status during 2014

Site	Compliance Status on Jan 1, 2014	Compliance Status on Dec 31, 2014	Comments
SWMU 09-013	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated 06-27-2012.

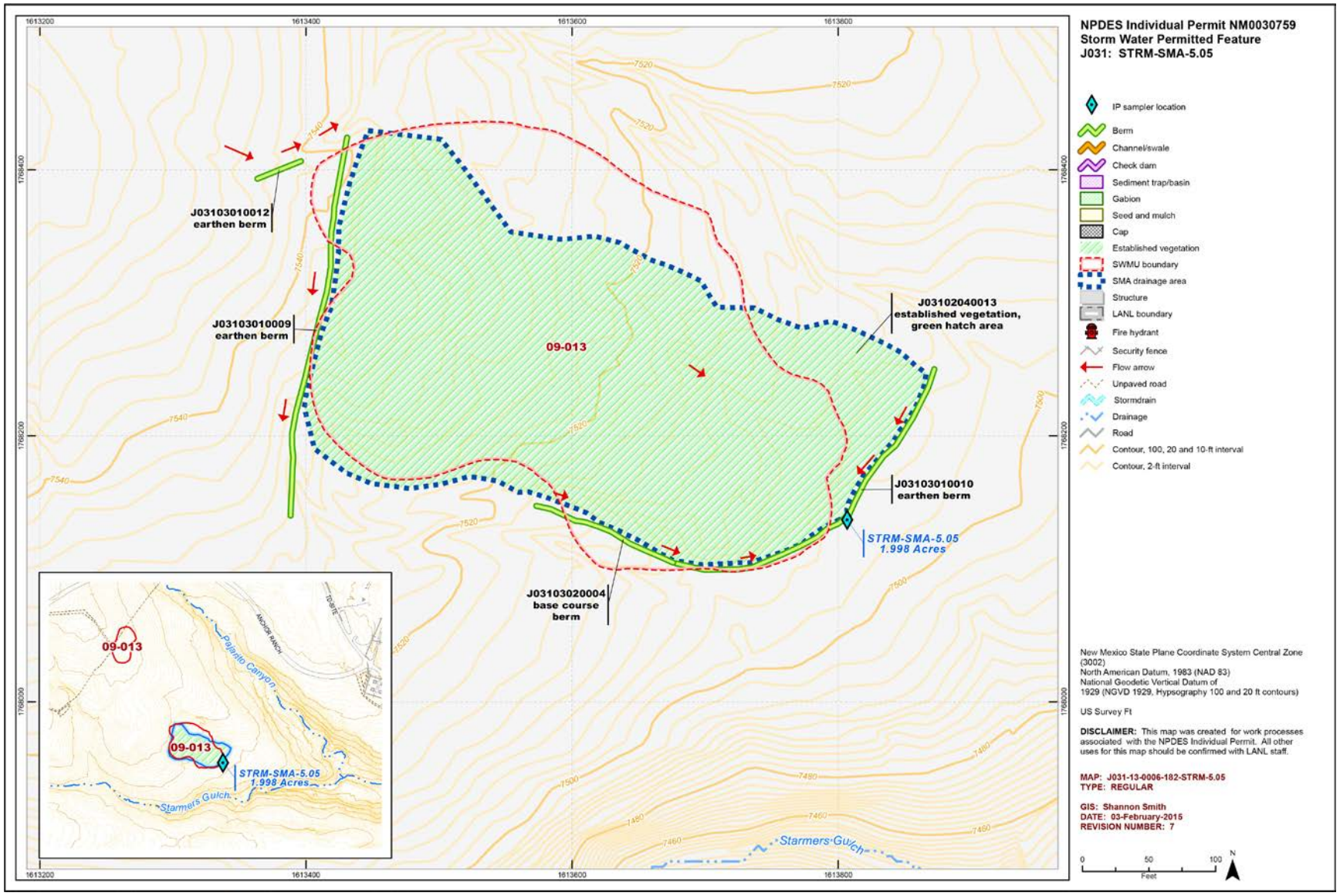
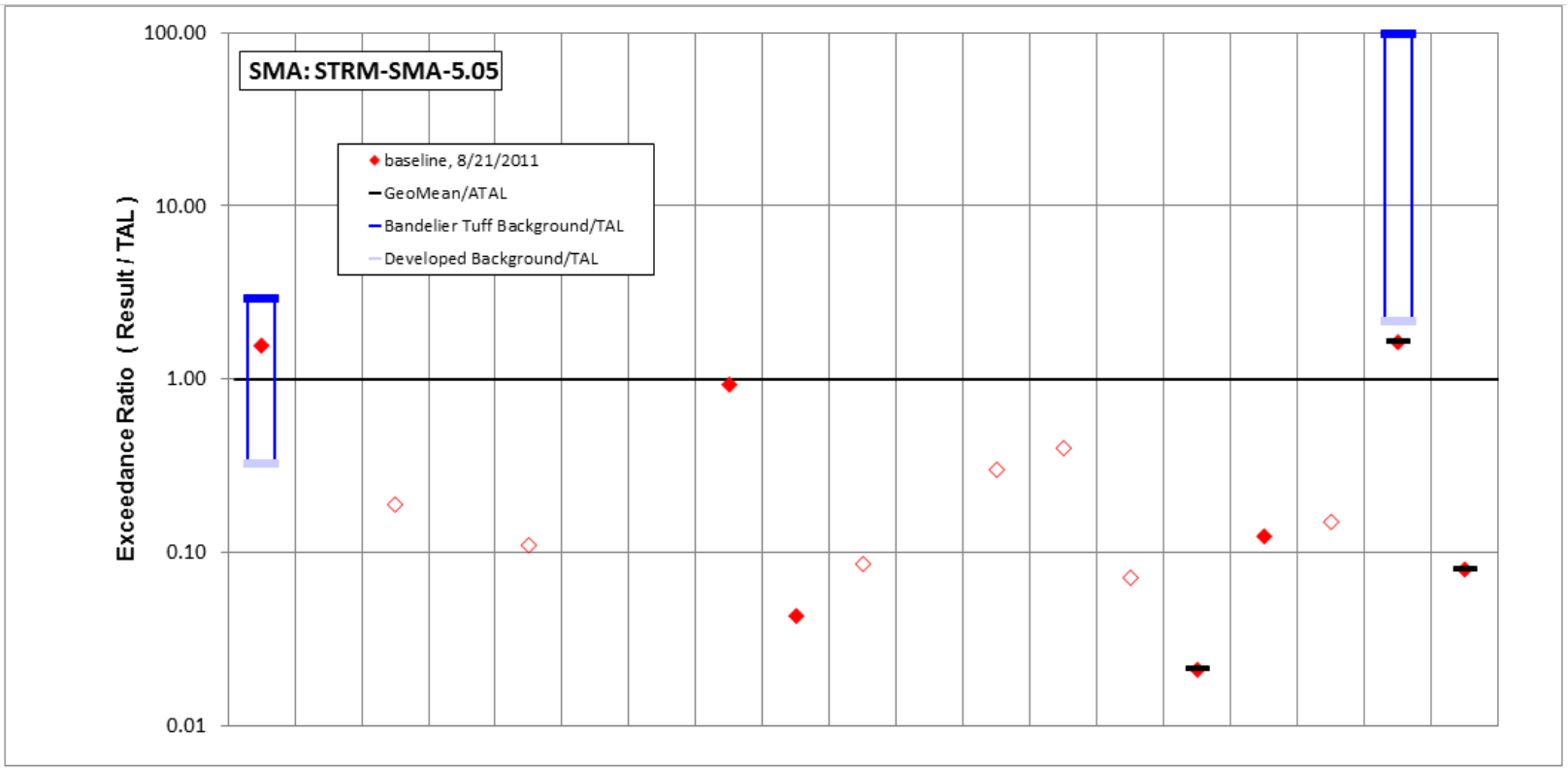


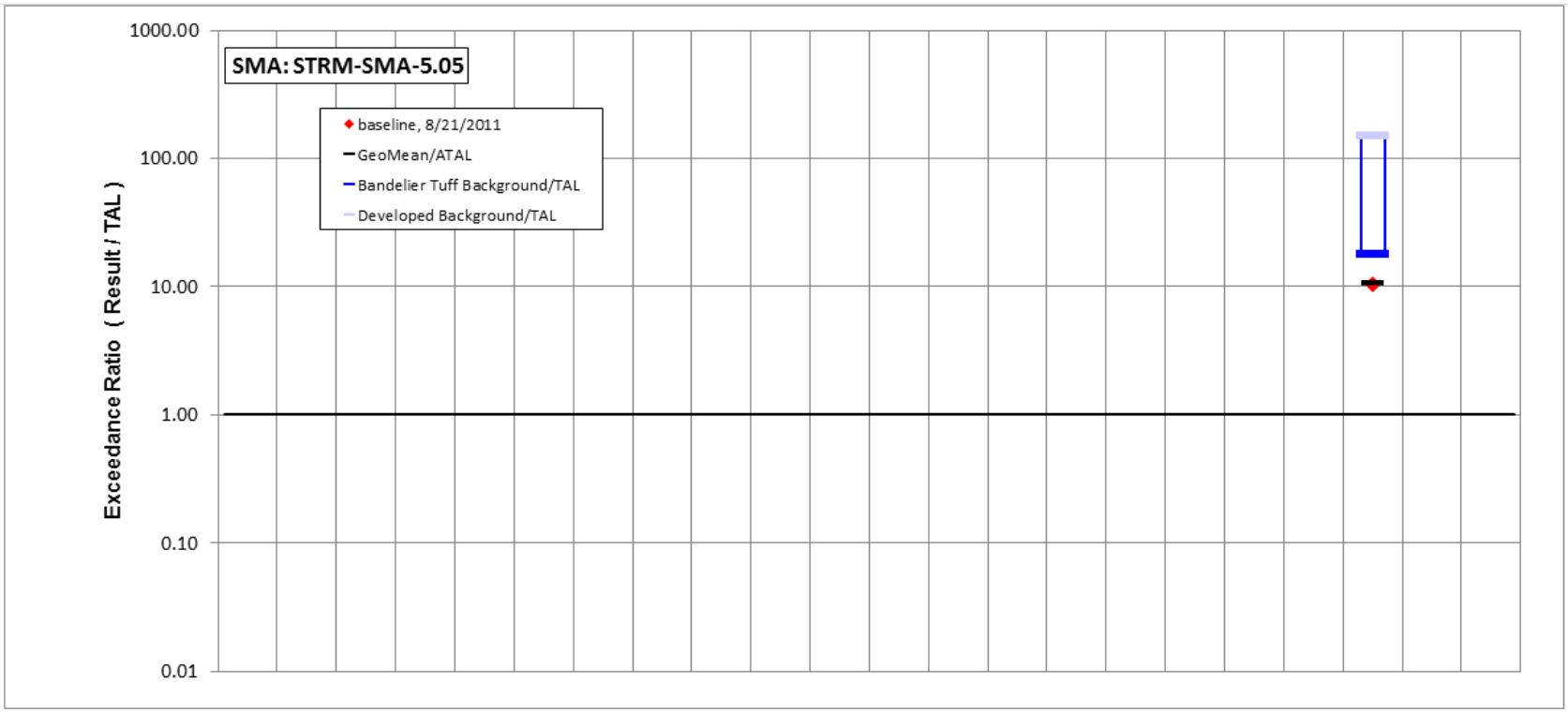
Figure 179-1 STRM-SMA-5.05 location map



	Aluminum	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Cyanide, weak acid dissociable	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MQL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MQL	ATAL	ATAL	MTAL	MQL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
8/21/2011 result	**1170**	*1*	*1.7*	*15*	*0.11*	*2*	3.4	4	0.73	*0.066*	1.1	*1.5*	*0.2*	*0.45*	2.1	5.2	*0.002*	**24.5**	2.39
result / TAL	**1.6**	*0.002*	*0.19*	*0.003*	*0.11*	*0.01*	0.0034	0.93	0.043	*0.086*	0.0065	*0.3*	*0.4*	*0.071*	0.021	0.12	*0.15*	**1.6**	0.08

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 179-2 Inorganic analytical results summary plot for STRM-SMA-5.05



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	Hexachlorobenzene	Pentachlorophenol	RDX	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	-	-
std value	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6E-04	-	-
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
8/21/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.007**	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**10**	-	-

Bold font indicates result>TAL/MQL; italic font and hollow symbols indicate undetected results; "-" is used if no analytical results were available.

Figure 179-3 Organic analytical results summary plot for STRM-SMA-5.05

Attachment 1
Amendments

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.660	1/2/2014	2M-SMA-1.67	Map Revision - (R7)	T	CCN - 37190
V3.661	1/14/2014	3M-SMA-0.4	Map Revision - (R6)	T	CCN - 36614
V3.662	1/14/2014	PJ-SMA-5	Map Revision - (R9)	T	CCN - 37197
V3.663	2/10/2014	PJ-SMA-5.1	New Control - Augment Existing - Control ID: J00603010011	T	CCN - 37205
V3.664	2/10/2014	PJ-SMA-5.1	New Control - Augment Existing - Control ID: J00608030012	T	CCN - 37205
V3.665	2/10/2014	PJ-SMA-5.1	Map Revision - (R9)	T	CCN - 37205
V3.666	4/3/2014	PJ-SMA-3.05	Map Revision - (R6)	T	CCN - 38037
V3.667	4/3/2014	2M-SMA-2	Map Revision - (R8)	T	CCN - 38036
V3.668	4/30/2014	PJ-SMA-7	New Control - Augment Existing - Control ID: J00803040007	T	CCN - 38119
V3.669	4/30/2014	PJ-SMA-7	Map Revision - (R7)	T	CCN - 38119
V3.670	4/30/2014	PJ-SMA-11.1	New Control - Augment Existing - Control ID: J01403060017	T	CCN - 38262
V3.671	4/30/2014	PJ-SMA-11.1	New Control - Augment Existing - Control ID: J01403060018	T	CCN - 38262
V3.672	4/30/2014	PJ-SMA-11.1	New Control - Augment Existing - Control ID: J01403060019	T	CCN - 38262
V3.673	4/30/2014	PJ-SMA-11.1	Retire Control - Lifecycle Expired - Control ID: J01406010005	T	CCN - 38262
V3.674	4/30/2014	PJ-SMA-11.1	Map Revision - (R9)	T	CCN - 38262
V3.675	5/5/2014	3M-SMA-0.5	Minor Sampler Adjustment, Updated Coordinates in Attach D.	T	CCN - 36902
V3.676	5/5/2014	3M-SMA-0.5	SMA Boundary Modification	T	CCN - 36902
V3.677	5/5/2014	3M-SMA-0.5	Map Revision - (R7)	T	CCN - 36902
V3.678	6/4/2014	PJ-SMA-18	Retire Control - Lifecycle Expired - Control ID: J02606010006	T	CCN - 38597
V3.679	6/5/2014	PJ-SMA-8	Map Revision - (R8)	T	CCN - 38981
V3.680	6/10/2014	2M-SMA-3	Map Revision - (R11)	T	CCN - 39094
V3.681	7/14/2014	PJ-SMA-7	Map Revision - (R8)	T	CCN - 39895
V3.682	7/28/2014	PJ-SMA-9	New Control - Augment Existing - Control ID: J01003060011	T	CCN - 11080

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.683	7/28/2014	PJ-SMA-9	New Control - Augment Existing - Control ID: J01003060012	T	CCN - 11080
V3.684	7/28/2014	PJ-SMA-9	New Control - Augment Existing - Control ID: J01003060013	T	CCN - 11080
V3.685	7/28/2014	PJ-SMA-9	Map Revision - (R4)	T	CCN - 11080
V3.686	7/28/2014	PJ-SMA-11	Retire Control - Damaged and/or Replaced - Control ID: J01303060010	T	CCN - 40936
V3.687	7/28/2014	PJ-SMA-11	New Control - Augment Existing - Control ID: J01303060022	T	CCN - 40936
V3.688	7/28/2014	PJ-SMA-11	Map Revision - (R11)	T	CCN - 40936
V3.689	8/7/2014	PJ-SMA-6	Retire Control - Lifecycle Expired - Control ID: J00701010017	T	CCN - 39413
V3.690	8/7/2014	PJ-SMA-6	Map Revision - (R9)	T	CCN - 39413
V3.691	8/20/2014	PJ-SMA-11	Retire Control - Damaged and/or Replaced - Control ID: J01303060013	T	CCN - 42182
V3.692	8/20/2014	PJ-SMA-11	New Control - Augment Existing - Control ID: J01303060023	T	CCN - 42182
V3.693	8/20/2014	PJ-SMA-11	Map Revision - (R12)	T	CCN - 42182
V3.694	8/20/2014	2M-SMA-3	Retire Control - Damaged and/or Replaced - Control ID: E01403060014	T	CCN - 42181
V3.695	8/20/2014	2M-SMA-3	Retire Control - Damaged and/or Replaced - Control ID: E01403060015	T	CCN - 42181
V3.696	8/20/2014	2M-SMA-3	Retire Control - Damaged and/or Replaced - Control ID: E01403060018	T	CCN - 42181
V3.697	8/20/2014	2M-SMA-3	New Control - Routine/Replacement - Control ID: E01403060019	T	CCN - 42181
V3.698	8/20/2014	2M-SMA-3	New Control - Routine/Replacement - Control ID: E01403060020	T	CCN - 42181
V3.699	8/20/2014	2M-SMA-3	New Control - Routine/Replacement - Control ID: E01403060021	T	CCN - 42181
V3.700	8/20/2014	2M-SMA-3	New Control - Routine/Replacement - Control ID: E01403060021	T	CCN - 42181
V3.701	8/20/2014	2M-SMA-3	Map Revision - (R12)	T	CCN - 42181
V3.702	9/24/2014	2M-SMA-1	Retire Control - Lifecycle Expired - Control ID: E00107010004	T	CCN - 42192
V3.703	9/24/2014	2M-SMA-1	New Control - Augment Existing - Control ID: E00103010014	T	CCN - 42192
V3.704	9/24/2014	2M-SMA-1	Retire Control - Damaged and/or Replaced - Control ID: E00103110015	T	CCN - 42192
V3.705	9/24/2014	2M-SMA-1	New Control - Augment Existing - Control ID: E00103040027	T	CCN - 42192

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.706	9/24/2014	2M-SMA-1	Map Revision - (R8)	T	CCN - 42192
V3.707	9/24/2014	3M-SMA-0.5	Map Revision - (R8)	T	CCN - 43027
V3.708	10/20/2014	2M-SMA-1.44	Map Revision - (R8)	T	CCN - 43635
V3.709	10/20/2014	2M-SMA-1.42	Map Revision - (R9)	T	CCN - 43637
V3.710	10/20/2014	2M-SMA-1.45	Map Revision - (R10)	T	CCN - 43638
V3.711	10/20/2014	2M-SMA-1.67	Map Revision - (R8)	T	CCN - 43639
V3.712	10/24/2014	3M-SMA-0.2	Map Revision - (R7)	T	CCN - 43817
V3.713	10/24/2014	PJ-SMA-11.1	Map Revision - (R10)	T	CCN - 43634
V3.714	10/24/2014	PJ-SMA-7	Map Revision - (R9)	T	CCN - 43814
V3.715	10/24/2014	STRM-SMA-4.2	Map Revision - (R7)	T	CCN - 43818
V3.716	10/30/2014	PJ-SMA-8	Map Revision - (R9)	T	CCN - 43911
V3.717	11/10/2014	2M-SMA-1.5	Retire Control - Damaged and/or Replaced - Control ID: E00603060004	T	CCN - 43928
V3.718	11/10/2014	2M-SMA-1.5	New Control - Routine/Replacement - Control ID: E00603060006	T	CCN - 43928
V3.719	11/10/2014	2M-SMA-1.5	Map Revision - (R7)	T	CCN - 43928
V3.720	11/10/2014	2M-SMA-1.9	Retire Control - Damaged and/or Replaced - Control ID: E01103100002	T	CCN - 44094
V3.721	11/10/2014	2M-SMA-1.9	New Control - Routine/Replacement - Control ID: E01103100004	T	CCN - 44094
V3.722	11/10/2014	2M-SMA-1.9	Map Revision - (R4)	T	CCN - 44094
V3.723	11/10/2014	2M-SMA-2	Map Revision - (R9)	T	CCN - 44093
V3.724	11/17/2014	2M-SMA-1.43	Map Revision - (R6)	T	CCN - 44053
V3.725	11/17/2014	PJ-SMA-3.05	Map Revision - (R7)	T	CCN - 44063
V3.726	11/17/2014	PJ-SMA-1.05	Map Revision - (R11)	T	CCN - 44057
V3.727	11/17/2014	PJ-SMA-2	New Control - Augment Existing - Control ID: J00206010023	T	CCN - 44062
V3.728	11/17/2014	PJ-SMA-2	SMA Boundary Modification	T	CCN - 44062
V3.729	11/17/2014	PJ-SMA-2	Map Revision - (R8)	T	CCN - 44062
V3.730	11/17/2014	STRM-SMA-1.5	Map Revision - (R9)	T	CCN - 44058

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.731	11/18/2014	2M-SMA-1.65	New Control - Augment Existing - Control ID: E00703060012	T	CCN - 44050
V3.732	11/18/2014	2M-SMA-1.65	Map Revision - (R7)	T	CCN - 44050
V3.733	11/18/2014	PJ-SMA-6	Retire Control - Lifecycle Expired - Control ID: J00706030008	T	CCN - 44051
V3.734	11/18/2014	PJ-SMA-6	Map Revision - (R10)	T	CCN - 44051
V3.735	1/23/2015	PJ-SMA-18	Retire Control - Lifecycle Expired - Control ID: J02601060002	T	CCN - 44420
V3.736	1/23/2015	PJ-SMA-18	New Control - Routine/Replacement - Control ID: J02604010011	T	CCN - 44420
V3.737	1/23/2015	PJ-SMA-18	New Control - Augment Existing - Control ID: J02604060012	T	CCN - 44420
V3.738	1/23/2014	PJ-SMA-18	Map Revision - (R6)	T	CCN - 44420
V3.739	1/23/2015	PJ-SMA-14.8	Map Revision - (R6)	T	CCN - 44399
V3.740	1/23/2015	2M-SMA-1.7	Map Revision - (R8)	T	CCN - 44405
V3.741	1/23/2015	PJ-SMA-10	Retire Control - Lifecycle Expired - Control ID: J01206010009	T	CCN - 44052
V3.742	1/23/2015	PJ-SMA-10	Retire Control - Lifecycle Expired - Control ID: J01206010010	T	CCN - 44052
V3.743	1/23/2015	PJ-SMA-10	Map Revision - (R9)	T	CCN - 44052
V3.744	1/26/2015	PJ-SMA-13.7	Map Revision - (R6)	T	CCN - 44397
V3.745	1/26/2015	PJ-SMA-14.2	Map Revision - (R6)	T	CCN - 44398
V3.746	1/26/2015	PJ-SMA-20	Map Revision - (R5)	T	CCN - 44414
V3.747	1/27/2015	3M-SMA-2.6	Map Revision - (R5)	T	CCN - 44388
V3.748	1/27/2015	PJ-SMA-13	Retire Control - Lifecycle Expired - Control ID: J01501010004	T	CCN - 44143
V3.749	1/27/2015	PJ-SMA-13	SMA Boundary Modification	T	CCN - 44143
V3.750	1/27/2015	PJ-SMA-13	Minor Sampler Adjustment, Updated Coordinates in Attach D.	T	CCN - 44143
V3.751	1/27/2015	PJ-SMA-13	Map Revision - (R5)	T	CCN - 44143
V3.752	1/27/2015	PJ-SMA-14.6	SMA Boundary Modification	T	CCN - 44144
V3.753	1/27/2015	PJ-SMA-14.6	Minor Sampler Adjustment, Updated Coordinates in Attach D.	T	CCN - 44144
V3.754	1/27/2015	PJ-SMA-14.6	Map Revision - (R7)	T	CCN - 44144
V3.755	1/27/2015	PJ-SMA-9	Retire Control - Damaged and/or Replaced - Control ID: J01003060011	T	CCN - 43930

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.756	1/27/2015	PJ-SMA-9	Retire Control - Damaged and/or Replaced - Control ID: J01003060012	T	CCN - 43930
V3.757	1/27/2015	PJ-SMA-9	New Control - Routine/Replacement - Control ID: J01003060014	T	CCN - 43930
V3.758	1/27/2015	PJ-SMA-9	New Control - Routine/Replacement - Control ID: J01003060015	T	CCN - 43930
V3.759	1/27/2015	PJ-SMA-9	Map Revision - (R5)	T	CCN - 43930
V3.760	3/10/2015	2M-SMA-1.7	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.761	3/10/2015	3M-SMA-0.5	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.762	3/10/2015	PJ-SMA-6	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.763	3/10/2015	2M-SMA-1.44	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.764	3/10/2015	3M-SMA-4	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.765	3/10/2015	PJ-SMA-9	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.766	3/10/2015	PJ-SMA-10	Change to SDPPP - Storm water monitoring section updated to include discussion of results of storm water sampling and analyses completed in calendar year 2014.	T	
V3.767	3/16/2015	3M-SMA-4	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.768	3/16/2015	PJ-SMA-2	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.769	3/16/2015	PJ-SMA-6	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.770	3/16/2015	PJ-SMA-9	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.771	3/16/2015	PJ-SMA-13	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.772	3/16/2015	PJ-SMA-14.2	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.773	3/16/2015	PJ-SMA-14.3	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.774	3/16/2015	PJ-SMA-14.4	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.775	3/16/2015	PJ-SMA-14.6	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.776	3/16/2015	PJ-SMA-14.8	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	
V3.777	3/16/2015	PJ-SMA-16	Change to SDPPP - In the site description section for this SMA reference(s) to a report scheduled to be submitted to NMED in 2014 was (were) deleted.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.778	3/17/2015	2M-SMA-1	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.779	3/17/2015	2M-SMA-1.42	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.780	3/17/2015	2M-SMA-1.43	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.781	3/17/2015	2M-SMA-1.45	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.782	3/17/2015	2M-SMA-1.8	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.783	3/17/2015	2M-SMA-1.9	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.784	3/17/2015	2M-SMA-2	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.785	3/17/2015	2M-SMA-2.2	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.786	3/17/2015	2M-SMA-3	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.787	3/17/2015	3M-SMA-0.5	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.788	3/17/2015	3M-SMA-4	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.789	3/17/2015	PJ-SMA-1.05	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.790	3/17/2015	PJ-SMA-3.05	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.791	3/17/2015	PJ-SMA-4.05	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.792	3/17/2015	PJ-SMA-5	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.793	3/17/2015	PJ-SMA-5.1	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.794	3/17/2015	PJ-SMA-6	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.795	3/17/2015	PJ-SMA-9	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.796	3/17/2015	PJ-SMA-10	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.797	3/17/2015	PJ-SMA-11	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.798	3/17/2015	PJ-SMA-11.1	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.799	3/17/2015	STRM-SMA-1.05	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.800	3/17/2015	STRM-SMA-4.2	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.801	3/17/2015	STRM-SMA-5.05	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.802	3/17/2015	2M-SMA-1.44	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Removed the sentence stating that corrective action has resulted in a decrease in concentrations of specific constituents detected in storm water samples collected from the SMA. Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.803	3/17/2015	2M-SMA-1.65	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Removed the sentence stating that corrective action has resulted in a decrease in concentrations of specific constituents detected in storm water samples collected from the SMA. Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.804	3/17/2015	STRM-SMA-1.5	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Removed the sentence stating that corrective action has resulted in a decrease in concentrations of specific constituents detected in storm water samples collected from the SMA. Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results.	T	
V3.805	3/17/2015	3M-SMA-0.4	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results. Edited statement(s) referring to historical management of alpha-emitting radionuclides at site(s) associated with the SMA.	T	

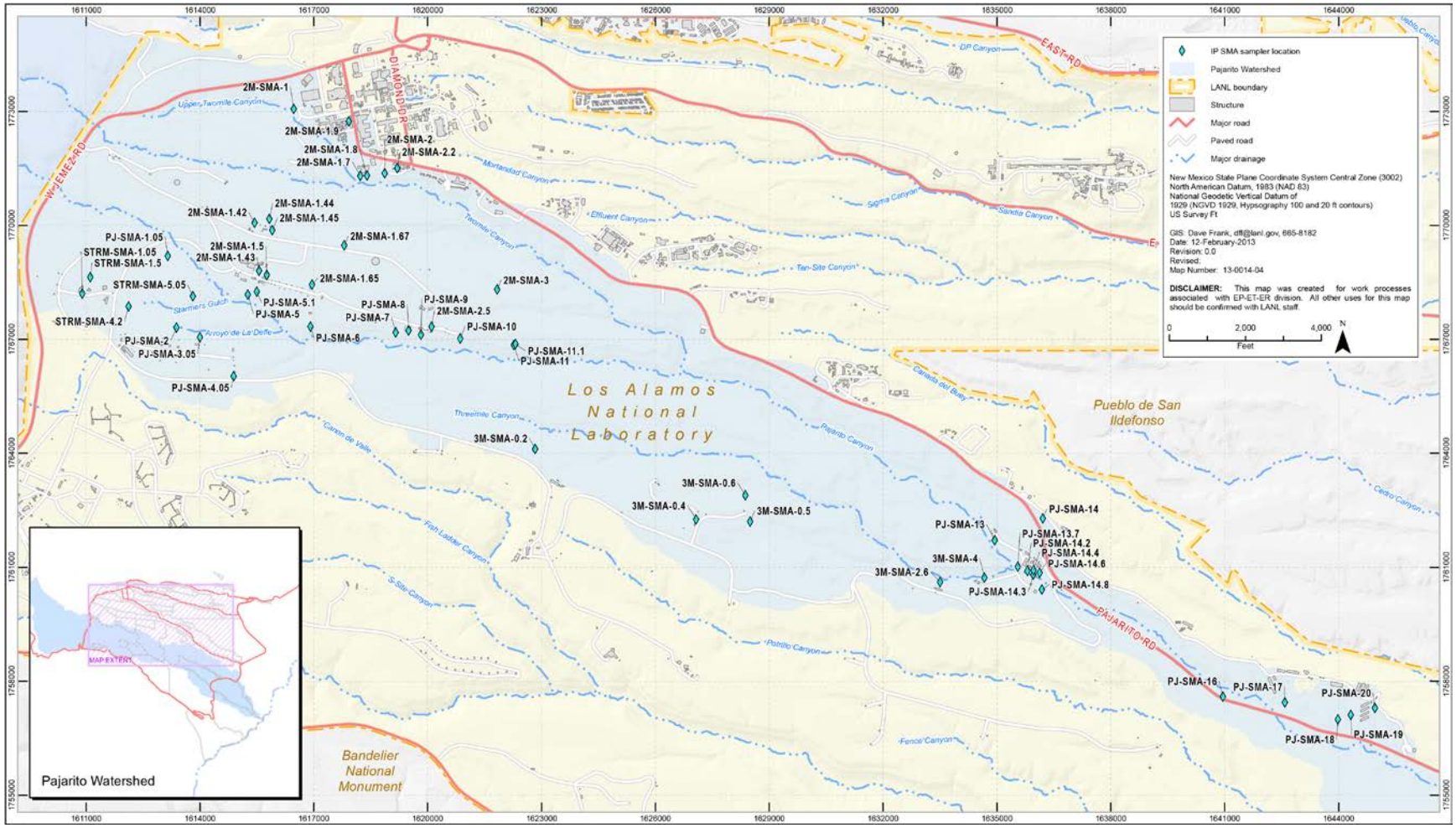
Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.806	3/17/2015	PJ-SMA-13.7	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results. Edited statement(s) referring to historical management of alpha-emitting radionuclides at site(s) associated with the SMA.	T	
V3.807	3/17/2015	PJ-SMA-17	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results. Edited statement(s) referring to historical management of alpha-emitting radionuclides at site(s) associated with the SMA.	T	
V3.808	3/17/2015	PJ-SMA-18	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results. Edited statement(s) referring to historical management of alpha-emitting radionuclides at site(s) associated with the SMA.	T	
V3.809	3/17/2015	PJ-SMA-19	Change to SDPPP - In the storm water monitoring section for this SMA the following changes were made: Edited statement introducing the comparison of constituents with storm water TAL exceedance(s) to those same constituents associated with historical activities and/or soil sampling analytical results. Edited statement(s) referring to historical management of alpha-emitting radionuclides at site(s) associated with the SMA.	T	
V3.810	4/13/2015	2M-SMA-2	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	
V3.811	4/13/2015	3M-SMA-0.5	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	

Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.812	4/13/2015	3M-SMA-0.6	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	
V3.813	4/13/2015	3M-SMA-2.6	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	
V3.814	4/13/2015	PJ-SMA-5	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	
V3.815	4/13/2015	PJ-SMA-5.1	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	
V3.816	4/13/2015	STRM-SMA-1.05	Change to SDPPP - Site description(s) were updated with the current status of Consent Order Investigation Findings.	T	

Attachment 2
Vicinity Map



Attachment 3
Precipitation Network

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RGTA54	1/31/2014	0.01	0.01	30
RGTA54	2/3/2014	0.05	0.02	180
RGTA54	2/27/2014	0.02	0.02	30
RGTA54	3/1/2014	0.45	0.09	780
RGTA54	3/2/2014	0.01	0.01	30
RGTA54	3/14/2014	0.04	0.03	60
RGTA54	3/25/2014	0.01	0.01	30
RGTA54	4/5/2014	0.03	0.03	30
RGTA54	4/6/2014	0.01	0.01	30
RGTA54	4/19/2014	0.07	0.02	90
RGTA54	5/12/2014	0.02	0.02	30
RGTA54	5/22/2014	0.53	0.35	120
RGTA54	5/23/2014	0.12	0.05	120
RGTA54	5/24/2014	0.26	0.07	210
RGTA54	5/25/2014	0.05	0.03	60
RGTA54	6/7/2014	0.47	0.3	120
RGTA54	6/8/2014	0.01	0.01	30
RGTA54	6/13/2014	0.19	0.16	120
RGTA54	6/21/2014	0.13	0.13	60
RGTA54	7/1/2014	0.11	0.11	30
RGTA54	7/2/2014	0.65	0.59	60
RGTA54	7/3/2014	0.02	0.02	30
RGTA54	7/6/2014	0.03	0.03	30
RGTA54	7/8/2014	1.46	0.72	300
RGTA54	7/9/2014	0.01	0.01	30
RGTA54	7/14/2014	0.53	0.14	240
RGTA54	7/15/2014	0.36	0.15	240
RGTA54	7/19/2014	0.04	0.02	150
RGTA54	7/23/2014	0.01	0.01	30
RGTA54	7/27/2014	0.1	0.08	60
RGTA54	7/28/2014	0.06	0.03	150
RGTA54	7/29/2014	0.06	0.02	120
RGTA54	7/31/2014	0.54	0.36	120
RGTA54	8/1/2014	0.12	0.08	150
RGTA54	8/4/2014	0.08	0.03	120

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RGTA54	8/5/2014	0.27	0.14	60
RGTA54	8/10/2014	0.1	0.07	60
RGTA54	8/13/2014	0.01	0.01	30
RGTA54	8/15/2014	0.02	0.02	30
RGTA54	8/21/2014	0.02	0.02	30
RGTA54	8/22/2014	0.09	0.03	390
RGTA54	8/26/2014	0.46	0.29	180
RGTA54	9/5/2014	0.13	0.11	60
RGTA54	9/22/2014	0.01	0.01	30
RGTA54	9/29/2014	0.19	0.14	75
RGTA54	10/8/2014	0.08	0.04	60
RGTA54	10/9/2014	0.23	0.14	120
RGTA54	10/10/2014	0.02	0.01	60
RGTA54	10/12/2014	0.01	0.01	30
RGTA54	10/17/2014	0.05	0.04	60
RGTA54	10/21/2014	0.02	0.01	60
RGTA54	11/2/2014	0.42	0.12	60
RGTA54	11/14/2014	0.01	0.01	30
RGTA54	11/15/2014	0.02	0.01	60
RGTA54	12/3/2014	0.05	0.03	60
RGTA54	12/4/2014	0.39	0.05	360
RGTA54	12/13/2014	0.18	0.04	240
RGTA06	1/31/2014	0.02	0.02	30
RGTA06	2/4/2014	0.02	0.02	30
RGTA06	2/27/2014	0.12	0.07	60
RGTA06	3/1/2014	0.65	0.08	660
RGTA06	3/2/2014	0.04	0.03	60
RGTA06	3/14/2014	0.31	0.12	120
RGTA06	3/15/2014	0.03	0.03	30
RGTA06	3/25/2014	0.03	0.03	30
RGTA06	3/26/2014	0.02	0.02	30
RGTA06	4/5/2014	0.04	0.02	60
RGTA06	4/6/2014	0.03	0.03	30
RGTA06	4/13/2014	0.09	0.04	60
RGTA06	4/14/2014	0.02	0.02	30
RGTA06	4/19/2014	0.04	0.01	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RGTA06	4/26/2014	0.06	0.03	60
RGTA06	4/27/2014	0.02	0.02	30
RGTA06	5/12/2014	0.01	0.01	30
RGTA06	5/22/2014	0.37	0.18	120
RGTA06	5/23/2014	0.45	0.32	120
RGTA06	5/24/2014	0.29	0.08	180
RGTA06	5/25/2014	0.35	0.26	120
RGTA06	5/26/2014	0.01	0.01	30
RGTA06	6/7/2014	0.4	0.24	120
RGTA06	6/13/2014	0.09	0.03	60
RGTA06	6/17/2014	0.02	0.02	30
RGTA06	6/21/2014	0.4	0.39	60
RGTA06	7/3/2014	0.01	0.01	30
RGTA06	7/4/2014	0.02	0.02	30
RGTA06	7/7/2014	1.46	1.37	60
RGTA06	7/8/2014	2	1.12	300
RGTA06	7/9/2014	0.03	0.03	30
RGTA06	7/10/2014	0.04	0.03	60
RGTA06	7/12/2014	0.01	0.01	30
RGTA06	7/13/2014	0.01	0.01	30
RGTA06	7/14/2014	0.72	0.18	240
RGTA06	7/15/2014	0.68	0.4	180
RGTA06	7/16/2014	0.09	0.08	60
RGTA06	7/17/2014	0.01	0.01	30
RGTA06	7/19/2014	0.9	0.3	180
RGTA06	7/20/2014	0.03	0.03	30
RGTA06	7/21/2014	0.05	0.04	60
RGTA06	7/26/2014	0.04	0.03	60
RGTA06	7/27/2014	0.72	0.34	180
RGTA06	7/28/2014	0.18	0.08	120
RGTA06	7/29/2014	0.58	0.23	180
RGTA06	7/30/2014	0.08	0.03	120
RGTA06	7/31/2014	1.17	0.92	180
RGTA06	8/1/2014	0.22	0.09	180
RGTA06	8/4/2014	0.53	0.33	180
RGTA06	8/5/2014	0.07	0.07	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RGTA06	8/9/2014	0.01	0.01	30
RGTA06	8/10/2014	0.02	0.02	30
RGTA06	8/13/2014	0.02	0.02	30
RGTA06	8/15/2014	0.16	0.11	120
RGTA06	8/22/2014	0.14	0.05	180
RGTA06	8/26/2014	0.11	0.03	180
RGTA06	9/4/2014	0.01	0.01	30
RGTA06	9/5/2014	0.07	0.03	60
RGTA06	9/22/2014	0.08	0.03	60
RGTA06	9/28/2014	0.01	0.01	30
RGTA06	9/29/2014	0.13	0.12	60
RGTA06	10/8/2014	0.11	0.05	120
RGTA06	10/9/2014	0.51	0.21	180
RGTA06	10/10/2014	0.09	0.03	120
RGTA06	10/12/2014	0.05	0.03	60
RGTA06	10/17/2014	0.05	0.04	60
RGTA06	10/21/2014	0.01	0.01	30
RGTA06	10/26/2014	0.02	0.01	60
RGTA06	11/2/2014	0.36	0.05	360
RGTA06	12/3/2014	0.02	0.02	60
RGTA06	12/4/2014	0.49	0.05	420
RGTA06	12/13/2014	0.09	0.03	120
RGTA06	12/14/2014	0.01	0.01	30
RG121.9	3/14/2014	0.21	0.06	135
RG121.9	3/15/2014	0.02	0.02	30
RG121.9	3/25/2014	0.04	0.02	30
RG121.9	3/27/2014	0.01	0.01	30
RG121.9	4/6/2014	0.04	0.01	30
RG121.9	4/13/2014	0.11	0.05	60
RG121.9	4/14/2014	0.03	0.03	30
RG121.9	4/19/2014	0.02	0.02	30
RG121.9	4/20/2014	0.01	0.01	30
RG121.9	4/26/2014	0.03	0.03	30
RG121.9	4/27/2014	0.02	0.02	30
RG121.9	5/12/2014	0.02	0.02	30
RG121.9	5/13/2014	0.01	0.01	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG121.9	5/22/2014	0.21	0.06	120
RG121.9	5/23/2014	0.36	0.03	180
RG121.9	5/24/2014	0.28	0.04	120
RG121.9	5/25/2014	0.14	0.02	60
RG121.9	5/26/2014	0.02	0.02	30
RG121.9	6/7/2014	0.24	0.14	60
RG121.9	6/13/2014	0.08	0.04	30
RG121.9	6/17/2014	0.03	0.03	30
RG121.9	6/21/2014	0.08	0.07	30
RG121.9	7/4/2014	0.04	0.03	30
RG121.9	7/7/2014	1.27	1.17	60
RG121.9	7/8/2014	1.33	0.89	180
RG121.9	7/9/2014	0.03	0.03	30
RG121.9	7/10/2014	0.04	0.04	30
RG121.9	7/11/2014	0.06	0.05	60
RG121.9	7/13/2014	0.02	0.02	30
RG121.9	7/14/2014	0.7	0.18	240
RG121.9	7/15/2014	0.63	0.39	120
RG121.9	7/16/2014	0.14	0.1	60
RG121.9	7/17/2014	0.02	0.02	30
RG121.9	7/19/2014	0.41	0.18	120
RG121.9	7/20/2014	0.03	0.03	30
RG121.9	7/21/2014	0.04	0.04	30
RG121.9	7/29/2014	1.24	0.67	120
RG121.9	7/30/2014	0.05	0.03	30
RG121.9	7/31/2014	1.34	1.21	60
RG121.9	8/1/2014	0.16	0.06	70
RG121.9	8/4/2014	0.39	0.33	60
RG121.9	8/5/2014	0.05	0.05	30
RG121.9	8/10/2014	0.04	0.04	30
RG121.9	8/13/2014	0.05	0.03	30
RG121.9	8/15/2014	0.28	0.21	60
RG121.9	8/22/2014	0.11	0.04	100
RG121.9	8/23/2014	0.01	0.01	30
RG121.9	8/26/2014	0.09	0.02	60
RG121.9	9/4/2014	0.04	0.03	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG121.9	9/5/2014	0.17	0.15	60
RG121.9	9/10/2014	0.01	0.01	30
RG121.9	9/22/2014	0.05	0.02	40
RG121.9	9/28/2014	0.01	0.01	30
RG121.9	9/29/2014	0.17	0.16	30
RG121.9	10/8/2014	0.1	0.05	60
RG121.9	10/9/2014	0.48	0.2	120
RG121.9	10/10/2014	0.13	0.05	60
RG121.9	10/12/2014	0.04	0.03	30
RG121.9	10/17/2014	0.05	0.03	30
RG121.9	10/21/2014	0.01	0.01	30
RG121.9	10/26/2014	0.01	0.01	30
RG121.9	11/2/2014	0.34	0.05	180
RG121.9	11/14/2014	0.08	0.2	60
RG121.9	11/15/2014	0.04	0.2	30
RG121.9	11/16/2014	0.09	0.03	60
RG240	3/25/2014	0.06	0.02	60
RG240	3/27/2014	0.03	0.03	30
RG240	4/3/2014	0.02	0.02	30
RG240	4/7/2014	0.01	0.01	30
RG240	4/13/2014	0.14	0.05	60
RG240	4/14/2014	0.04	0.02	30
RG240	4/19/2014	0.07	0.03	60
RG240	4/20/2014	0.01	0.01	30
RG240	4/21/2014	0.01	0.01	30
RG240	4/26/2014	0.02	0.02	30
RG240	4/27/2014	0.07	0.03	60
RG240	5/12/2014	0.02	0.02	30
RG240	5/13/2014	0.08	0.05	30
RG240	5/22/2014	0.15	0.08	60
RG240	5/23/2014	0.29	0.14	60
RG240	5/24/2014	0.26	0.09	120
RG240	5/25/2014	0.1	0.05	60
RG240	6/7/2014	0.26	0.21	60
RG240	6/13/2014	0.09	0.05	30
RG240	6/17/2014	0.01	0.01	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG240	6/21/2014	0.1	0.1	30
RG240	7/3/2014	0.02	0.02	30
RG240	7/4/2014	0.07	0.03	60
RG240	7/5/2014	0.01	0.01	30
RG240	7/7/2014	0.44	0.39	60
RG240	7/8/2014	0.47	0.13	120
RG240	7/9/2014	0.05	0.02	30
RG240	7/10/2014	0.43	0.34	60
RG240	7/11/2014	0.03	0.03	30
RG240	7/13/2014	0.04	0.02	30
RG240	7/14/2014	0.79	0.18	240
RG240	7/15/2014	0.28	0.1	120
RG240	7/16/2014	0.01	0.01	30
RG240	7/19/2014	0.86	0.27	120
RG240	7/20/2014	0.04	0.02	30
RG240	7/21/2014	0.02	0.02	30
RG240	7/26/2014	0.01	0.01	30
RG240	7/27/2014	0.29	0.16	60
RG240	7/28/2014	0.17	0.06	60
RG240	7/29/2014	1.3	0.77	120
RG240	7/30/2014	0.12	0.06	60
RG240	7/31/2014	1.01	0.52	120
RG240	8/1/2014	0.29	0.07	100
RG240	8/4/2014	0.24	0.16	60
RG240	8/8/2014	0.02	0.02	30
RG240	8/9/2014	0.01	0.01	30
RG240	8/13/2014	0.12	0.09	60
RG240	8/15/2014	0.26	0.24	60
RG240	8/18/2014	0.01	0.01	30
RG240	8/19/2014	0.01	0.01	30
RG240	8/22/2014	0.17	0.05	155
RG240	8/23/2014	0.01	0.01	30
RG240	8/26/2014	0.12	0.06	60
RG240	9/4/2014	0.05	0.03	30
RG240	9/5/2014	0.09	0.06	60
RG240	9/16/2014	0.01	0.01	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG240	9/21/2014	0.01	0.01	30
RG240	9/22/2014	0.07	0.04	30
RG240	9/29/2014	0.11	0.08	30
RG240	10/8/2014	0.09	0.04	60
RG240	10/9/2014	0.48	0.18	120
RG240	10/10/2014	0.12	0.03	60
RG240	10/11/2014	0.02	0.02	30
RG240	10/12/2014	0.04	0.03	120
RG240	10/17/2014	0.11	0.1	60
RG240	10/21/2014	0.02	0.02	30
RG240	11/2/2014	0.52	0.08	180
RG240	11/14/2014	0.13	0.03	60
RG240	11/15/2014	0.04	0.02	30
RG240	11/16/2014	0.01	0.01	30
RG245.5	3/14/2014	0.15	0.07	80
RG245.5	3/15/2014	0.18	0.05	240
RG245.5	3/16/2014	0.02	0.02	30
RG245.5	3/25/2014	0.02	0.02	30
RG245.5	3/26/2014	0.02	0.02	30
RG245.5	4/5/2014	0.05	0.02	30
RG245.5	4/6/2014	0.08	0.02	60
RG245.5	4/7/2014	0.01	0.01	30
RG245.5	4/8/2014	0.02	0.02	30
RG245.5	4/13/2014	0.02	0.02	30
RG245.5	4/14/2014	0.02	0.02	30
RG245.5	4/19/2014	0.08	0.02	60
RG245.5	4/20/2014	0.01	0.01	30
RG245.5	5/12/2014	0.01	0.01	30
RG245.5	5/13/2014	0.01	0.01	30
RG245.5	5/14/2014	0.01	0.01	30
RG245.5	5/22/2014	0.33	0.17	60
RG245.5	5/23/2014	0.31	0.12	60
RG245.5	5/24/2014	0.23	0.07	120
RG245.5	5/25/2014	0.05	0.02	30
RG245.5	5/29/2014	0.02	0.02	30
RG245.5	6/7/2014	0.39	0.29	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG245.5	6/13/2014	0.07	0.05	30
RG245.5	6/21/2014	0.39	0.38	60
RG245.5	6/25/2014	0.03	0.03	30
RG245.5	7/1/2014	0.02	0.02	30
RG245.5	7/2/2014	0.34	0.32	60
RG245.5	7/7/2014	0.07	0.06	60
RG245.5	7/8/2014	0.82	0.43	180
RG245.5	7/9/2014	0.03	0.03	30
RG245.5	7/10/2014	0.01	0.01	30
RG245.5	7/11/2014	0.07	0.05	30
RG245.5	7/12/2014	0.06	0.05	30
RG245.5	7/13/2014	0.02	0.02	30
RG245.5	7/14/2014	0.63	0.15	180
RG245.5	7/15/2014	0.9	0.65	120
RG245.5	7/16/2014	0.04	0.01	30
RG245.5	7/17/2014	0.05	0.03	30
RG245.5	7/19/2014	0.36	0.13	120
RG245.5	7/20/2014	0.07	0.04	60
RG245.5	7/22/2014	0.01	0.01	30
RG245.5	7/23/2014	0.01	0.01	30
RG245.5	7/26/2014	0.1	0.05	60
RG245.5	7/27/2014	0.59	0.4	60
RG245.5	7/28/2014	0.17	0.06	60
RG245.5	7/29/2014	0.2	0.09	60
RG245.5	7/30/2014	0.04	0.02	30
RG245.5	7/31/2014	0.81	0.59	120
RG245.5	8/1/2014	0.18	0.09	195
RG245.5	8/3/2014	0.02	0.02	30
RG245.5	8/4/2014	0.53	0.31	120
RG245.5	8/5/2014	0.29	0.19	60
RG245.5	8/10/2014	0.16	0.14	60
RG245.5	8/15/2014	0.03	0.03	30
RG245.5	8/21/2014	0.02	0.02	30
RG245.5	8/22/2014	0.09	0.04	70
RG245.5	8/26/2014	0.6	0.35	120
RG245.5	9/5/2014	0.13	0.1	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG245.5	9/8/2014	0.01	0.01	30
RG245.5	9/22/2014	0.06	0.03	80
RG245.5	9/29/2014	0.28	0.26	60
RG245.5	10/8/2014	0.09	0.04	60
RG245.5	10/9/2014	0.46	0.21	120
RG245.5	10/10/2014	0.06	0.02	60
RG245.5	10/11/2014	0.01	0.01	30
RG245.5	10/12/2014	0.04	0.03	30
RG245.5	10/17/2014	0.08	0.07	60
RG245.5	10/21/2014	0.02	0.01	30
RG245.5	11/2/2014	0.37	0.15	120
RG245.5	11/14/2014	0.05	0.03	30
RG245.5	11/15/2014	0.01	0.01	30
RG245.5	11/16/2014	0.05	0.02	30
RG253	3/14/2014	0.08	0.03	95
RG253	3/15/2014	0.31	0.08	190
RG253	3/25/2014	0.05	0.01	30
RG253	3/26/2014	0.01	0.01	30
RG253	3/27/2014	0.03	0.03	30
RG253	4/3/2014	0.02	0.02	30
RG253	4/6/2014	0.01	0.01	30
RG253	4/13/2014	0.14	0.05	60
RG253	4/14/2014	0.02	0.02	30
RG253	4/19/2014	0.05	0.03	30
RG253	4/20/2014	0.01	0.01	30
RG253	4/26/2014	0.02	0.02	30
RG253	4/27/2014	0.09	0.04	60
RG253	5/12/2014	0.03	0.03	30
RG253	5/13/2014	0.03	0.03	30
RG253	5/22/2014	0.2	0.09	60
RG253	5/23/2014	0.24	0.12	60
RG253	5/24/2014	0.28	0.1	120
RG253	5/25/2014	0.14	0.07	60
RG253	5/26/2014	0.02	0.02	30
RG253	6/7/2014	0.32	0.23	60
RG253	6/13/2014	0.08	0.04	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG253	6/17/2014	0.04	0.02	30
RG253	6/21/2014	0.2	0.19	30
RG253	7/3/2014	0.02	0.02	30
RG253	7/4/2014	0.03	0.03	30
RG253	7/5/2014	0.01	0.01	30
RG253	7/7/2014	0.22	0.2	60
RG253	7/8/2014	0.53	0.18	120
RG253	7/9/2014	0.05	0.02	30
RG253	7/10/2014	0.22	0.17	60
RG253	7/11/2014	0.03	0.03	30
RG253	7/13/2014	0.02	0.02	30
RG253	7/14/2014	0.77	0.14	300
RG253	7/15/2014	0.46	0.16	180
RG253	7/16/2014	0.06	0.04	30
RG253	7/19/2014	1.06	0.46	180
RG253	7/20/2014	0.07	0.04	60
RG253	7/21/2014	0.01	0.01	30
RG253	7/26/2014	0.01	0.01	30
RG253	7/27/2014	0.32	0.19	60
RG253	7/28/2014	0.17	0.06	60
RG253	7/29/2014	0.28	0.17	60
RG253	7/30/2014	0.35	0.3	60
RG253	7/31/2014	0.66	0.2	180
RG253	8/1/2014	0.28	0.08	190
RG253	8/4/2014	0.2	0.09	60
RG253	8/5/2014	0.03	0.01	30
RG253	8/8/2014	0.03	0.03	30
RG253	8/10/2014	0.02	0.01	30
RG253	8/13/2014	0.02	0.02	30
RG253	8/15/2014	0.03	0.03	30
RG253	8/22/2014	0.18	0.05	125
RG253	8/26/2014	0.06	0.02	60
RG253	9/4/2014	0.04	0.03	30
RG253	9/5/2014	0.05	0.04	30
RG253	9/22/2014	0.07	0.03	110
RG253	9/28/2014	0.04	0.04	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG253	9/29/2014	0.13	0.12	30
RG253	10/8/2014	0.1	0.04	60
RG253	10/9/2014	0.54	0.24	120
RG253	10/10/2014	0.12	0.03	60
RG253	10/11/2014	0.03	0.03	30
RG253	10/12/2014	0.05	0.03	30
RG253	10/17/2014	0.1	0.1	60
RG253	10/21/2014	0.02	0.02	30
RG253	10/26/2014	0.01	0.01	30
RG253	11/2/2014	0.48	0.06	180
RG253	11/14/2014	0.13	0.02	60
RG253	11/15/2014	0.04	0.02	30
RG253	11/16/2014	0.05	0.02	30
RG257	3/14/2014	0.16	0.07	195
RG257	3/15/2014	0.2	0.11	90
RG257	3/25/2014	0.04	0.02	30
RG257	3/26/2014	0.01	0.01	30
RG257	3/27/2014	0.01	0.01	30
RG257	4/5/2014	0.05	0.03	30
RG257	4/6/2014	0.04	0.02	30
RG257	4/13/2014	0.07	0.03	60
RG257	4/14/2014	0.02	0.02	30
RG257	4/19/2014	0.07	0.02	60
RG257	4/20/2014	0.01	0.01	30
RG257	4/26/2014	0.01	0.01	30
RG257	4/27/2014	0.08	0.03	60
RG257	5/12/2014	0.01	0.01	30
RG257	5/13/2014	0.01	0.01	30
RG257	5/22/2014	0.3	0.17	60
RG257	5/23/2014	0.36	0.25	60
RG257	5/24/2014	0.26	0.08	120
RG257	5/25/2014	0.06	0.03	60
RG257	6/7/2014	0.37	0.22	60
RG257	6/13/2014	0.07	0.03	60
RG257	6/17/2014	0.05	0.02	30
RG257	6/21/2014	0.22	0.22	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG257	7/3/2014	0.02	0.02	30
RG257	7/4/2014	0.02	0.02	30
RG257	7/7/2014	0.6	0.48	60
RG257	7/8/2014	1.8	0.98	180
RG257	7/9/2014	0.06	0.04	60
RG257	7/10/2014	0.02	0.02	30
RG257	7/11/2014	0.02	0.02	30
RG257	7/13/2014	0.01	0.01	30
RG257	7/14/2014	0.64	0.13	240
RG257	7/15/2014	0.4	0.17	120
RG257	7/16/2014	0.02	0.02	30
RG257	7/19/2014	0.82	0.25	120
RG257	7/20/2014	0.07	0.06	30
RG257	7/21/2014	0.03	0.03	30
RG257	7/27/2014	0.38	0.24	60
RG257	7/28/2014	0.16	0.07	60
RG257	7/29/2014	0.3	0.12	60
RG257	7/30/2014	0.18	0.15	60
RG257	7/31/2014	1.1	0.69	120
RG257	8/1/2014	0.21	0.05	195
RG257	8/4/2014	0.63	0.25	120
RG257	8/5/2014	0.13	0.12	30
RG257	8/8/2014	0.01	0.01	30
RG257	8/10/2014	0.09	0.09	30
RG257	8/13/2014	0.04	0.02	30
RG257	8/14/2014	0.01	0.01	30
RG257	8/15/2014	0.11	0.08	30
RG257	8/22/2014	0.13	0.04	100
RG257	8/26/2014	0.1	0.03	60
RG257	9/4/2014	0.01	0.01	30
RG257	9/5/2014	0.11	0.08	30
RG257	9/10/2014	0.01	0.01	30
RG257	9/22/2014	0.05	0.02	50
RG257	9/23/2014	0.01	0.01	30
RG257	9/28/2014	0.01	0.01	30
RG257	9/29/2014	0.09	0.09	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG257	10/8/2014	0.11	0.05	60
RG257	10/9/2014	0.34	0.17	60
RG257	10/10/2014	0.13	0.03	60
RG257	10/12/2014	0.04	0.03	30
RG257	10/17/2014	0.06	0.05	30
RG257	10/21/2014	0.02	0.02	30
RG257	10/26/2014	0.03	0.02	30
RG257	11/2/2014	0.36	0.06	180
RG257	11/14/2014	0.09	0.03	60
RG257	11/15/2014	0.02	0.01	30
RG257	11/16/2014	0.07	0.02	60
RG262.4	3/14/2014	0.19	0.08	180
RG262.4	3/15/2014	0.03	0.03	30
RG262.4	3/25/2014	0.03	0.03	30
RG262.4	3/26/2014	0.01	0.01	30
RG262.4	4/5/2014	0.03	0.03	30
RG262.4	4/6/2014	0.02	0.02	30
RG262.4	4/13/2014	0.03	0.03	30
RG262.4	4/14/2014	0.01	0.01	30
RG262.4	4/19/2014	0.08	0.04	60
RG262.4	4/21/2014	0.02	0.02	30
RG262.4	5/12/2014	0.01	0.01	30
RG262.4	5/13/2014	0.02	0.02	30
RG262.4	5/22/2014	0.24	0.11	60
RG262.4	5/23/2014	0.55	0.3	120
RG262.4	5/24/2014	0.29	0.09	60
RG262.4	5/25/2014	0.04	0.01	30
RG262.4	6/7/2014	0.45	0.37	60
RG262.4	6/13/2014	0.18	0.15	60
RG262.4	6/17/2014	0.01	0.01	30
RG262.4	6/18/2014	0.01	0.01	30
RG262.4	6/21/2014	0.68	0.46	120
RG262.4	7/1/2014	0.02	0.02	30
RG262.4	7/2/2014	0.12	0.1	60
RG262.4	7/7/2014	0.22	0.17	60
RG262.4	7/8/2014	1.09	0.55	240

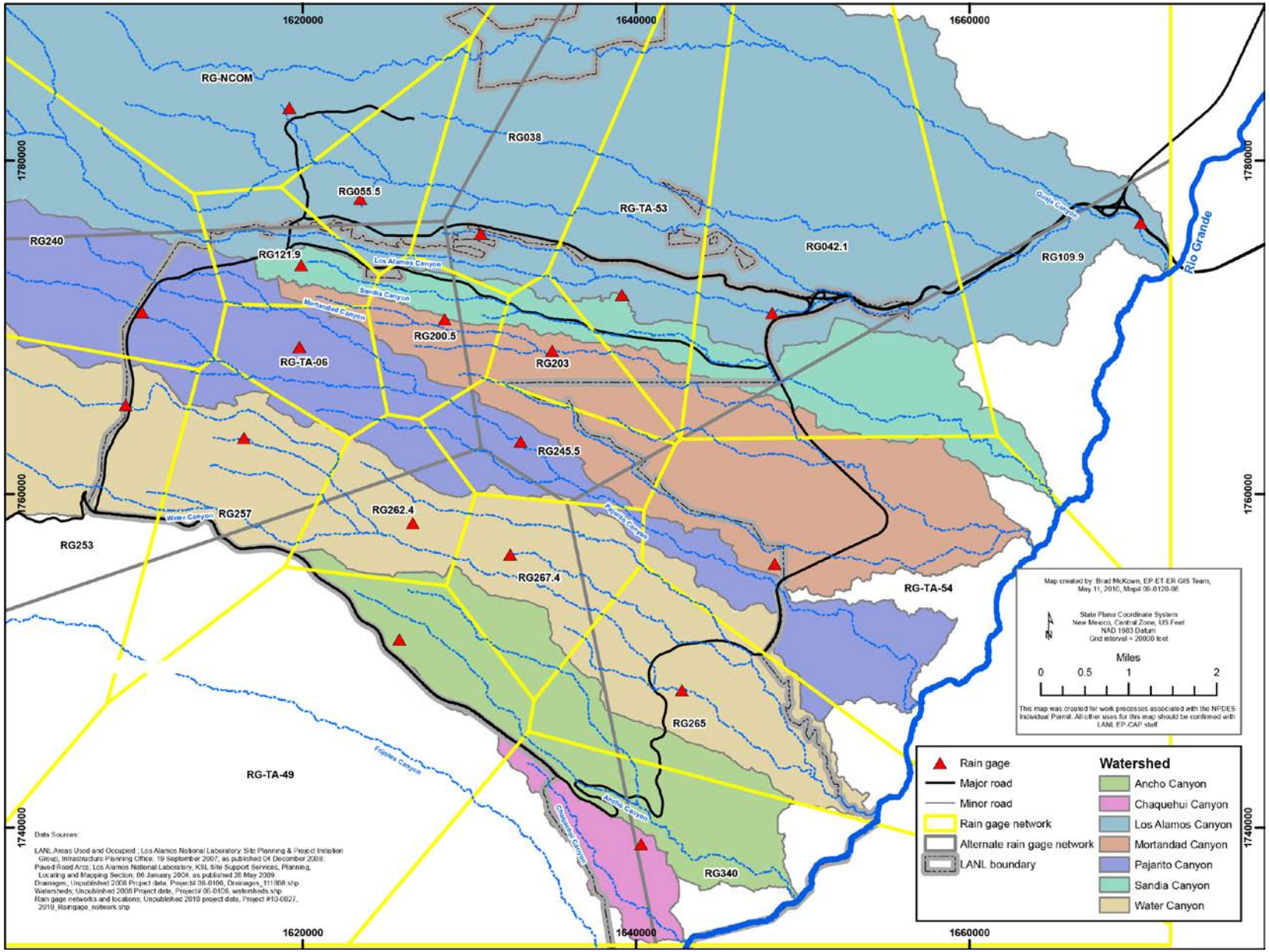
Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG262.4	7/9/2014	0.05	0.03	30
RG262.4	7/11/2014	0.08	0.06	60
RG262.4	7/13/2014	0.02	0.02	30
RG262.4	7/14/2014	0.76	0.2	240
RG262.4	7/15/2014	0.74	0.54	120
RG262.4	7/19/2014	0.59	0.21	60
RG262.4	7/20/2014	0.04	0.04	30
RG262.4	7/23/2014	0.04	0.04	30
RG262.4	7/26/2014	0.01	0.01	30
RG262.4	7/27/2014	0.6	0.42	60
RG262.4	7/28/2014	0.24	0.08	120
RG262.4	7/29/2014	0.7	0.3	120
RG262.4	7/30/2014	0.13	0.09	60
RG262.4	7/31/2014	0.95	0.76	120
RG262.4	8/1/2014	0.28	0.15	120
RG262.4	8/3/2014	0.02	0.02	30
RG262.4	8/4/2014	0.87	0.33	120
RG262.4	8/5/2014	0.3	0.21	60
RG262.4	8/10/2014	0.25	0.25	30
RG262.4	8/15/2014	0.05	0.04	30
RG262.4	8/21/2014	0.01	0.01	30
RG262.4	8/22/2014	0.12	0.05	60
RG262.4	8/26/2014	0.69	0.2	120
RG262.4	9/5/2014	0.33	0.32	60
RG262.4	9/8/2014	0.01	0.01	30
RG262.4	9/22/2014	0.11	0.05	60
RG262.4	9/26/2014	0.01	0.01	30
RG262.4	9/29/2014	0.28	0.25	60
RG262.4	9/30/2014	0.01	0.01	30
RG262.4	10/8/2014	0.1	0.05	60
RG262.4	10/9/2014	0.4	0.21	120
RG262.4	10/10/2014	0.03	0.01	30
RG262.4	10/11/2014	0.04	0.01	120
RG262.4	10/12/2014	0.01	0.01	30
RG262.4	10/17/2014	0.12	0.1	60
RG262.4	10/21/2014	0.01	0.01	30

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG262.4	11/2/2014	0.39	0.05	180
RG262.4	11/14/2014	0.06	0.02	60
RG262.4	11/15/2014	0.01	0.01	30
RG262.4	11/16/2014	0.05	0.02	30

Attachment 3, Precipitation Network (continued)



Attachment 4
Physical Characteristics

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate (Latitude)	Sampler Y Coordinate (Longitude)	SMA Drainage Area (ft^2)	Site Number	Site Drainage Area (ft^2)
Twomile	E001	2M-SMA-1	1616471 (35.87305)	1773067 (-106.330833)	808,387.02	03-010(a)	7,480.34
Twomile	E002	2M-SMA-1.42	1615432 (35.864817)	1770069 (-106.334333)	238.90	06-001(a)	0.00
Twomile	E003	2M-SMA-1.43	1615556 (35.861333)	1768803 (-106.3339)	9,742.30	22-014(a) 22-015(a)	98.29 60.06
Twomile	E004	2M-SMA-1.44	1615829 (35.8651)	1770174 (-106.332983)	288.33	06-001(b)	221.18
Twomile	E005	2M-SMA-1.45	1615829.64 (35.864276)	1769892.78 (-106.332742)	27,737.17	06-006	9,693.38
Twomile	E006	2M-SMA-1.5	1615739 (35.861047)	1768703 (-106.3332356)	90.00	22-014(b)	8.33
Twomile	E007	2M-SMA-1.65	1616952 (35.86035)	1768439 (-106.3292)	2,335.23	40-005	31.20
Twomile	E008	2M-SMA-1.67	1617799 (35.863183)	1769475 (-106.326333)	3,672.04	06-003(h)	3,168.53
Twomile	E009	2M-SMA-1.7	1618223 (35.868217)	1771303 (-106.324917)	9,523.48	03-055(a)	0.00
Twomile	E010	2M-SMA-1.8	1618405 (35.86825)	1771315 (-106.3243)	53,560.20	03-001(k)	600.00
Twomile	E011	2M-SMA-1.9	1617919 (35.87215)	1772736 (-106.325933)	11,104.28	03-003(a)	1,709.60
Twomile	E012	2M-SMA-2	1618915 (35.868405)	1771455 (-106.322726)	458,665.93	03-050(d) 03-054(b)	129.18 3,672.52
Twomile	E013	2M-SMA-2.2	1619199 (35.868783)	1771512 (-106.321617)	4,039.88	03-003(k)	0.77
Twomile	E015	2M-SMA-2.5	1620107 (35.8573)	1767329 (-106.31855)	1,925.26	40-001(c)	48.60
Twomile	E014	2M-SMA-3	1621835 (35.860017)	1768315 (-106.312717)	1,032,244.09	07-001(a) 07-001(b) 07-001(c) 07-001(d)	2,265.31 884.92 0.00 3,075.48
Threemile	H001	3M-SMA-0.2	1622831 (35.848467)	1764112 (-106.30935)	3,347.78	15-010(b)	25.43
Threemile	H002	3M-SMA-0.4	1627075 (35.843383)	1762259 (-106.295017)	235,152.99	15-006(b)	627.41
Threemile	H003	3M-SMA-0.5[1]	1628435 (35.843381)	1762258 (-106.290426)	242,600	15-006(c) 15-009(c)	865.19 146.97
Threemile	H004	3M-SMA-0.6	1628371 (35.845133)	1762895 (-106.29065)	29,678.86	15-008(b)	25,784.61

Attachment 4, Physical Characteristics (continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate (Latitude)	Sampler Y Coordinate (Longitude)	SMA Drainage Area (ft^2)	Site Number	Site Drainage Area (ft^2)
Threemile	H005	3M-SMA-2.6	1633503 (35.838833)	1760603 (-106.273333)	12,220.06	36-008 C-36-003	10,503.38 3.13
Threemile	H006	3M-SMA-4	1634679 (35.839183)	1760727 (-106.269367)	46,131,320.74	18-002(b) 18-003(c) 18-010(f)	2.31 0.77 0.77
Pajarito	J001	PJ-SMA-1.05	1613152 (35.862417)	1769199 (-106.342017)	10,767.13	09-013	7,896.56
Pajarito	J002	PJ-SMA-2	1613379 (35.857233)	1767311 (-106.34125)	39,683	09-009	4063.35
Pajarito	J003	PJ-SMA-3.05	1613987 (35.8565379)	1766967 (-106.3391653)	633.10	09-004(o)	95.00
Pajarito	J004	PJ-SMA-4.05	1614889 (35.8537)	1766026 (-106.33615)	52,608.18	09-004(g)	156.75
Pajarito	J005	PJ-SMA-5	1615255 (35.859633)	1768179 (-106.334917)	51,399.45	22-015(c)	7.03
Pajarito	J006	PJ-SMA-5.1	1615493 (35.859833)	1768258 (-106.334117)	9,050.88	22-016	0.00
Pajarito	J007	PJ-SMA-6	1616907 (35.8573)	1767335 (-106.32935)	5,257.12	40-010	4,471.19
Pajarito	J008	PJ-SMA-7	1619154 (35.8568894)	1767180 (-106.3217566)	5,239.00	40-006(c)	1485.17
Pajarito	J009	PJ-SMA-8	1619495 (35.8570254)	1767229 (-106.3206049)	3,720.00	40-006(b)	968.26
Pajarito	J010	PJ-SMA-9	1619820 (35.856717)	1767118 (-106.319517)	12,111.07	40-009	3,966.81
Pajarito	J012	PJ-SMA-10	1620931 (35.856739)	1767124 (-106.315760)	8,407.08	40-006(a)	636.59
Pajarito	J013	PJ-SMA-11	1622271 (35.856)	1766851 (-106.311233)	25,449.06	40-003(a)	5271.63
Pajarito	J014	PJ-SMA-11.1	1622311 (35.85605)	1766875 (-106.3111)	62,576.27	40-003(b)	7,414.55
Pajarito	J015	PJ-SMA-13	1634943 (35.841883)	1761709 (-106.268467)	5,576	18-002(a)	1.54
Pajarito	J016	PJ-SMA-13.7	1635561 (35.840065)	1761049 (-106.266385)	83,635.20	18-010(b)	0.00
Pajarito	J017	PJ-SMA-14	1636219 (35.843467)	1762287 (-106.264167)	10,552.06	54-004	2,022.21
Pajarito	J018	PJ-SMA-14.2	1635813 (35.839667)	1760906 (-106.265533)	51.84	18-012(b)	0.77
Pajarito	J019	PJ-SMA-14.3	1635962 (35.839383)	1760802 (-106.265033)	24.13	18-003(e)	0.00

Attachment 4, Physical Characteristics (continued)

Canyon	Permitted Feature	SMA Number	Sampler X Coordinate (Latitude)	Sampler Y Coordinate (Longitude)	SMA Drainage Area (ft^2)	Site Number	Site Drainage Area (ft^2)
Pajarito	J020	PJ-SMA-14.4	1635967 (35.839717)	1760919 (-106.265017)	14,580.52	18-010(d)	0.77
Pajarito	J021	PJ-SMA-14.6	1636131 (35.839533)	1760855 (-106.264467)	9,060	18-010(e)	0.77
Pajarito	J022	PJ-SMA-14.8	1636187 (35.838317)	1760411 (-106.264267)	2,578.20	18-012(a)	0.72
Pajarito	J023	PJ-SMA-16	1640959 (35.830567)	1757592 (-106.248167)	17,038.16	27-002	1,790.55
Pajarito	J024	PJ-SMA-17	1642592 (35.83015)	1757437 (-106.242667)	551,419.73	54-018	181,987.49
Pajarito	J026	PJ-SMA-18	1643997 (35.828917)	1756989 (-106.237917)	237,408.23	54-014(d) 54-017	11,056.71 58,872.77
Pajarito	J025	PJ-SMA-19	1644331 (35.829233)	1757106 (-106.2368)	845,108.54	54-013(b) 54-017 54-020	0.00 272,540.59 1,100.47
Pajarito	J027	PJ-SMA-20	1644964 (35.82975)	1757292 (-106.23465)	290,080.75	54-017	190,661.89
Pajarito	J028	STRM-SMA-1.05	1610899 (35.859683)	1768204 (-106.349617)	144,271.08	08-009(f)	0.77
Pajarito	J029	STRM-SMA-1.5	1611081 (35.860811)	1768615 (-106.349005)	165,963.60	08-009(d)	261.54
Pajarito	J030	STRM-SMA-4.2	1612117 (35.858767)	1767869 (-106.3455)	3,459.21	09-008(b)	1,733.55
Pajarito	J031	STRM-SMA-5.05	1613807 (35.8595)	1768137 (-106.3398)	87,012.57	09-013	76,189.35

[1] Minor sampler movement.

Attachment 5
Sampling Requirements and Plan

Sampling and Analysis Requirements

Sampling Conditions	Analytical Suite										
	Gross Alpha	Ra-226/ Ra-228	Cyanide	Dissolved Metals	Total Metals	Aluminum	Copper	Zinc	PCBs	High Explosives	SVOCs
Analytical method	EPA 900.0	EPA 903.0 EPA 904.1	SM 4500 CN-I	EPA:200.7 EPA:200.8	EPA:200.7 EPA:200.8 EPA:245.2	EPA:200.8	EPA:200.8	EPA:200.8	EPA 1668A	SW8321	EPA 625
Order code	SW-IP-Gross Alpha	SW-Ra226/ Ra-228	SW-IP-Cyanide	SW-Metals-Dissolved	SW-Metals-Total	SW-IP-Al F	SW-IP-Cu F	SW-IP-Zn F	SW-PCB-1668A-PQL	SW-HEXP-8330	SW-SVOC-625
Field prep code	UF	UF	UF	F	UF	F	F	F	UF	UF	UF
Preservation	HNO_3	HNO_3	NaOH, Ice	HNO_3	HNO_3	HNO_3	HNO_3	HNO_3	Ice	Ice	Ice, some analytes store in dark
Holding time (days)	180	180	14	180	180	180	180	180	365	7	7
Preferred volume (L)	2	2	1	0.5	0.5	0.5	0.5	0.5	3	2.5	3
Minimum volume required (L)	1	2	0.5	0.25	0.25	0.25	0.25	0.25	1	0.77	1
Shipping container	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Poly	Glass	Glass	Amber glass

UF: Unfiltered.

F: Filtered.

Attachment 5, Sampling Requirements and Plan (continued)

Sampling and Analysis Plan

Permit SMA Number	SDPPP Section	Station Name	Stage	Gross Alpha	Ra-226/Ra-228	Cyanide	Dissolved Metals	Total Metals	Dissolved Cu	Dissolved Al	Dissolved Zn	PCBs	High Explosives	Dioxins/Furans	Pesticides	SVOCs
2M-SMA-1	129	SS2432	CAI2													
2M-SMA-1.42	130	SS093203	CAM5	X						X						
2M-SMA-1.43	131	SS093204	CAI													
2M-SMA-1.44	132	SS093205	CAM5	X					X							
2M-SMA-1.45	133	SS123220	CAM5	X	X	X	X	X								
2M-SMA-1.5	134	SS2436	MEx	X	X	X	X	X					X			X
2M-SMA-1.65	135	SS093209	CAM5	X												
2M-SMA-1.67	136	SS103216	MEx	X	X	X	X	X					X			
2M-SMA-1.7	137	SS2438	CAM5						X							
2M-SMA-1.8	138	SS103217	CAI													
2M-SMA-1.9	139	SS103218	CAI													
2M-SMA-2	140	SS123221	CAI2													
2M-SMA-2.2	141	SS093214	CAI													
2M-SMA-3	142	SS2439	CAI													
2M-SMA-2.5	143	SS093210	BCComp													
3M-SMA-0.2	144	SS091501	MEx	X	X	X	X	X								
3M-SMA-0.4	145	SS101502	CAI													
3M-SMA-0.5	146	SS141505	MEx													
3M-SMA-0.6	147	SS2457	MEx	X	X	X	X	X								

Attachment 5, Sampling Requirements and Plan (continued)

Sampling and Analysis Plan (continued)

Permit SMA Number	SDPPP Section	Station Name	Stage	Gross Alpha	Ra-226/Ra-228	Cyanide	Dissolved Metals	Total Metals	Dissolved Cu	Dissolved Al	Dissolved Zn	PCBs	High Explosives	Dioxins/Furans	Pesticides	SVOCs
3M-SMA-2.6	148	SS101503	MEx	X	X	X	X	X					X			X
3M-SMA-4	149	SS101504	MEx	X	X	X	X	X					X			
PJ-SMA-1.05	150	SS092327	CAI													
PJ-SMA-2	151	SS2422	MEx	X	X	X	X	X								
PJ-SMA-3.05	152	SS092326	CAM5	X		X										
PJ-SMA-4.05	153	SS092328	CAI													
PJ-SMA-5	154	SS24254	CAI													
PJ-SMA-5.1	155	SS092306	CAM5	X					X		X					
PJ-SMA-6	156	SS24255	MEx	X	X	X	X	X								
PJ-SMA-7	157	SS112337	MEx	X	X	X	X	X					X			
PJ-SMA-8	158	SS112338	MEx	X	X	X	X	X					X			
PJ-SMA-9	159	SS2427	MEx	X	X	X	X	X					X			X
PJ-SMA-10	160	SS132340	MEx	X	X	X	X	X					X			X
PJ-SMA-11	161	SS102333	CAI													
PJ-SMA-11.1	162	SS102334	CAI													
PJ-SMA-13	163	SS102335	MEx	X	X	X	X	X					X			
PJ-SMA-13.7	164	SS132339	CAM5	X	X	X	X	X								
PJ-SMA-14	165	SS2465	MEx	X	X	X	X	X					X			
PJ-SMA-14.2	166	SS092320	MEx	X	X	X	X	X								
PJ-SMA-14.3	167	SS092321	MEx	X	X	X	X	X								

Attachment 5, Sampling Requirements and Plan (continued)

Sampling and Analysis Plan (continued)

Permit SMA Number	SDPPP Section	Station Name	Stage	Gross Alpha	Ra-226/Ra-228	Cyanide	Dissolved Metals	Total Metals	Dissolved Cu	Dissolved Al	Dissolved Zn	PCBs	High Explosives	Dioxins/Furans	Pesticides	SVOCs
PJ-SMA-14.4	168	SS092322	MEx	X	X	X	X	X								
PJ-SMA-14.6	169	SS092323	MEx	X	X	X	X	X								
PJ-SMA-14.8	170	SS092324	BCComp													
PJ-SMA-16	171	SS092325	BCComp													
PJ-SMA-17	172	SS092331	CAI													
PJ-SMA-18	173	SS092329	CAI													
PJ-SMA-19	174	SS092330	CAI													
PJ-SMA-20	175	SS092332	CACompC	X	X	X	X	X				X				
STRM-SMA-1.05	176	SS093001	CAI2													
STRM-SMA-1.5	177	SS133007	CAI2	X	X	X	X	X								X
STRM-SMA-4.2	178	SS093006	CAM5			X				X						
STRM-SMA-5.05	179	SS093002	CAM5	X		X				X		X				

CAI2 = Enhanced control corrective action monitoring has exceeded a target action level. A path to completion of corrective action is being planned.

CAM5 = Corrective Action Enhanced Control Monitoring: Two confirmation monitoring samples are collected following completion of corrective action control measures at moderate priority sites within 5 yr of effective date of the Permit.

MEx = Extended Baseline Monitoring: One confirmation monitoring sample is collected to determine if corrective action is required.

CAI = Corrective Action Initiated: A sample was collected during baseline confirmation monitoring, and analytical results show at least one pollutant concentration is above TAL, resulting in initiation of corrective action.

BCComp = Baseline Confirmation Complete: All confirmation monitoring results for all pollutants of concern at the SMA are at or below TALs, and corrective action is not required at the Sites. No further sampling is required.

CACompC=Control measures installed to totally eliminate exposure of pollutants to storm water.

Attachment 6
Additional Compliance Status Details for SMAs/Sites in Corrective Action

SMA	Site List	Additional Compliance Status Details
2M-SMA-1	03-010(a)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA is not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for alternative compliance for the Site in this SMA by May 1, 2015.
2M-SMA-1.43	22-014(a) 22-015(a)	TAL exceedance constituents are not known to be associated with industrial materials managed at these Sites and exceedance values are consistent with storm water background concentrations; therefore, the Permittees plan to submit a request for alternative compliance for the Sites in this SMA in 2015.
2M-SMA-1.44	06-001(b)	The Permittees plan to certify enhanced controls for the Site in this SMA before the corrective action deadline of November 1, 2015.
2M-SMA-1.7	03-055(a)	TAL exceedance constituents are not known to be associated with industrial materials managed at this Site and exceedance values are consistent with storm water background concentrations; therefore, the Permittees plan to submit a request for alternative compliance for the Site in this SMA in 2015.
2M-SMA-1.8	03-001(k)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate that the Site in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated EPA would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for Alternative Compliance for the Site in this SMA by May 1, 2015.
2M-SMA-1.9	03-003(a)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated EPA would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for alternative compliance for the Site in this SMA by May 1, 2015.
2M-SMA-2	03-050(d) 03-054(b)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Sites in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for alternative compliance for the Sites in this SMA by May 1, 2015.

Attachment 6, Additional Compliance Status Details for SMAs/Sites in Corrective Action (continued)

SMA	Site List	Additional Compliance Status Details
2M-SMA-2.2	03-003(k)	Enhanced controls consisting of a concrete/asphalt cap sealant were installed at this SMA in 2013. These enhanced controls were not certified at the time of installation the effectiveness of the controls needed to be assessed over winter freeze/thaw conditions. The enhanced controls were detrimentally affected by winter conditions and will be retired. After further investigations into Site history, it was discovered the Site was removed and new infrastructure has been located over the area. The Permittees plan to certify the Site for no exposure in 2015.
2M-SMA-3	07-001(a) 07-001(b) 07-001(c) 07-001(d)	Evaluation of corrective action through the IP screening process following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Sites in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit is not likely to be issued before the deadline for corrective action. While the Sites have no history of industrial activities associated with copper, the copper TAL exceedance for this SMA exceeds natural background concentrations, and no developed areas exist within the SMA could be a source of the TAL exceedance. Therefore, instead of submitting a request for alternative compliance as originally planned, the Permittees plan to certify enhanced controls for the Sites in this SMA in 2015.
3M-SMA-0.4	15-006(b)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA is not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for alternative compliance for the Site in this SMA by May 1, 2015.
3M-SMA-0.5	15-006(c) 15-009(c)	The Permittees plan to certify enhanced controls for the Sites in this SMA before the corrective action deadline of November 1, 2015.
3M-SMA-4	18-002(b) 18-003(c) 18-010(f)	The Permittees plan to certify enhanced controls for the Sites in this SMA before the corrective action deadline of November 1, 2015.

Attachment 6, Additional Compliance Status Details for SMAs/Sites in Corrective Action (continued)

SMA	Site List	Additional Compliance Status Details
PJ-SMA-1.05	09-013	The corrective action for the Site in this SMA was initiated by a TAL exceedance during the September 2013 1000-yr storm event that resulted in non-IP flood recovery maintenance efforts across LANL. Shortly after this severe storm event, work ceased as a result of the federal government shutdown in October 2013. In addition, the 1000-yr storm event resulted in TAL exceedances at an unprecedented number of SMAs. Each of these SMAs required evaluation through the screening process. For those SMAs with Site(s) that are likely or potentially a source of the TAL exceedance, the Site is recommended to undergo alternatives analysis. The alternatives analysis process evaluates the possible corrective action controls, including installation of enhanced controls, total retention, no exposure, and Site remediation. This process requires coordination with the Consent Order, cultural resource, biological resource, facility, and LANL subject matter experts to plan and implement. Once the corrective action control is designed, it must be scheduled after restricting events such as winter weather and seasonal biological habitat restrictions are over. The Permittees plan to certify enhanced controls for this Site in 2015.
PJ-SMA-4.05	09-004(g)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA is not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer the Site be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for Alternative Compliance for the Site in this SMA by May 1, 2015.
PJ-SMA-5	22-015(c)	The corrective action for the Site in this SMA was initiated by a TAL exceedance in October 2012. This SMAs required evaluation through the screening process. For those SMAs with Site(s) that are likely or potentially a source of the TAL exceedance, the Site is recommended to undergo alternatives analysis. The alternatives analysis process evaluates the possible corrective action controls, including installation of enhanced controls, total retention, no exposure and Site remediation. This process requires coordination with the Consent Order, cultural resource, biological resource, facility, and LANL subject matter experts to plan and implement. This SMA contains both cultural resources and biological resources that entailed additional consideration during the design process. During this process, the September 2013 1000-yr storm event resulted in non-IP flood recovery maintenance efforts across LANL. Shortly after this severe storm event, work ceased as a result of the federal government shutdown in October 2013. Once the corrective action control is designed it must be scheduled after restricting events such as winter weather and seasonal biological habitat restrictions are over. Construction activities were started in late 2014. The Permittees plan to certify enhanced controls for this Site in 2015.
PJ-SMA-6	40-010	TAL exceedance constituents are not known to be associated with industrial materials managed at this Site and exceedance values are consistent with storm water background concentrations, therefore, the Permittees plan to submit a request for Alternative Compliance for the Site in this SMA in 2015.
PJ-SMA-9	40-009	The Permittees plan to certify enhanced controls for the Site in this SMA before the corrective action deadline of November 1, 2015.

Attachment 6, Additional Compliance Status Details for SMAs/Sites in Corrective Action (continued)

SMA	Site List	Additional Compliance Status Details
PJ-SMA-10	40-006(a)	The Permittees plan to certify enhanced controls for the Site in this SMA before the corrective action deadline of November 1, 2015.
PJ-SMA-11	40-003(a)	Evaluation of corrective action through the IP screening process following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA is not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit is not likely to be issued before the deadline for corrective action. While the Site has no history of industrial activities associated with copper, the copper TAL exceedance for this SMA exceeds both natural and developed background concentrations, and no developed areas exist within the SMA which could be a source of the TAL exceedance. Therefore, instead of submitting a request for alternative compliance as originally planned, the Permittees plan to certify enhanced controls for the Site in this SMA in 2015.
PJ-SMA-11.1	40-003(b)	Evaluation of corrective action through the IP screening process following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit is not likely to be issued before the deadline for corrective action. While the Site has no history of industrial activities associated with copper, the copper TAL exceedance for this SMA exceeds natural background concentrations, and no developed areas exist within the SMA which could be a source of the TAL exceedance. Therefore, instead of submitting a request for alternative compliance as originally planned, the Permittees plan to certify enhanced controls for the Site in this SMA in 2015.
STRM-SMA-1.05	08-009(f)	Evaluation of corrective action alternatives following a confirmation sample TAL exceedance led the Permittees to initially select submittal of an alternative compliance request to demonstrate the Site in this SMA are not contributing to the TAL exceedance. However, discussions with EPA indicated it would prefer such Sites be addressed through the Permit renewal process. The process has been delayed and the new Permit will likely not be reissued before the deadline for corrective action (November 1, 2015). Therefore, to maintain compliance with the Permit, the Permittees plan to submit a request for alternative compliance for the Site in this SMA by May 1, 2015.

Attachment 6, Additional Compliance Status Details for SMAs/Sites in Corrective Action (continued)

SMA	Site List	Additional Compliance Status Details
STRM-SMA-1.5	08-009(d)	The corrective action for the Sites in this SMA was initiated by a TAL exceedance during the September 2013 1000-yr storm event that resulted in non-IP flood recovery maintenance efforts across LANL. Shortly after this severe storm event, work ceased as a result of the federal government shutdown in October 2013. In addition, the 1000-yr storm event resulted in TAL exceedances at an unprecedented number of SMAs. Each of these SMAs required evaluation through the screening process. For those SMAs with Site(s) that are likely or potentially a source of the TAL exceedance, the Site is recommended to undergo alternatives analysis. The alternatives analysis process evaluates the possible corrective action controls, including installation of enhanced controls, total retention, no exposure, and Site remediation. This process requires coordination with the Consent Order, cultural resource, biological resource, facility, and LANL subject matter experts to plan and implement. Once the corrective action control is designed, it must be scheduled after restricting events such as winter weather and seasonal biological habitat restrictions are over. The Permittees plan to certify enhanced controls for this Site in 2015.