

LA-UR-13-22491

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Title: Volume 3 2012 Update to the Site Discharge Pollution Prevention Plan,
revision 1 Pajarito Watershed

Author(s): Veenis, Steven J.

Intended for: Individual Permit Pollution Prevention Team, Public, EPA, NMED
Report
Environmental Programs

Issued: 2015-04-15 (rev.3)

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2012 Update to the Site Discharge Pollution Prevention Plan, Revision 1

Los Alamos National Laboratory
NPDES Permit No. NM0030759
LA-UR-13-22491 • May 1, 2013

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).

Solid Waste Management Unit (SWMU) 03-010(a) is a surface disposal area and drainage that received waste generated from vacuum pumps repaired at the shop in building 03-0030 [Area of Concern (AOC) 03-001(e)] at Technical Area 03 (TA-03). The surface disposal area received discharges of waste oil containing mercury between 1950 and 1957. Former site workers estimated that more than 100 lb of mercury was discharged to the area. The drainage site encompasses an area approximately 40 ft long x 15 ft wide on a moderately steep slope that drains into Twomile Canyon. Potential contaminants associated with industrial materials historically managed at this Site are mercury, volatile organic compounds (VOCs), petroleum products, and tritium.

The project map (Figure 129-1) is located at the end of this site monitoring area (SMA) update. Any future map updates will be posted on the National Pollutant Discharge Elimination System (NPDES) Permit No. NM0030759 (hereafter, 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

Rock check dams, gabions, and wattles are in place to control run-on to the SMA from the paved areas adjacent to the SMA. Most sources of run-on are the NM 501 culvert and parking lot run-off routed to the channel next to building 03-0030. 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	
E00102010005	Established Vegetation - Grasses and Shrubs			X		CB
E00102020006	Established Vegetation - Forested/Needle Cast			X		CB
E00103010014	Berms - Earthen	X			X	EC
E00103110015	Berms - Eco-Block	X			X	EC
E00104060010	Channel/Swale - Rip Rap	X		X		CB
E00104060011	Channel/Swale - Rip Rap	X		X		CB
E00105020013	Sediment Traps and Basins - Sediment Basin	X			X	EC
E00106010007	Check Dam - Rock	X			X	CB
E00106010008	Check Dam - Rock	X			X	CB
E00106010009	Check Dam - Rock	X			X	CB
E00106010016	Check Dam - Rock	X			X	EC
E00106010017	Check Dam - Rock	X			X	EC
E00106010018	Check Dam - Rock	X			X	EC
E00106010019	Check Dam - Rock	X			X	EC
E00106010020	Check Dam - Rock	X			X	EC
E00106010021	Check Dam - Rock	X			X	EC
E00106010022	Check Dam - Rock	X			X	EC
E00106010023	Check Dam - Rock	X			X	EC
E00106010024	Check Dam - Rock	X			X	EC
E00106010025	Check Dam - Rock	X			X	EC
E00107010003	Gabions - Gabions		X		X	CB
E00107010004	Gabions - Gabions		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 two target action level (TAL) exceedances:

- Aluminum concentration of 1200 µg/L (maximum TAL [MTAL] is 750 µg/L), and
- Gross-alpha activity of 18.3 pCi/L (average TAL [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 one TAL exceedance:

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

This exceedance was 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 03-010(a): Potential contaminants associated with industrial materials historically managed at this Site are metals, polychlorinated biphenyls (PCBs), and petroleum products.

- Compliance Order on Consent (Consent Order) soil sampling has not been performed at this Site. Several investigations and cleanups have been performed previously at the Site. The most recent sediment sampling was performed in 1999.
- Aluminum—Aluminum was not detected above BV in samples collected during the 1999 sampling.



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

In summary, aluminum is not known to be associated with industrial materials historically managed at the Site. Based on site history and previous sampling results, the Site is an unlikely source of aluminum above MTAL in storm water.

TAL exceedances were also evaluated against the appropriate storm water background value (BV), that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as upper tolerance limits (UTLs) using the approved U.S. Environmental Protection Agency (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.

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. 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; 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.

- Gross alpha—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 less than both these values.

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

129.4 Inspections and Maintenance

RG121.9 recorded two storm events at 2M-SMA-1 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Visual	COMP-21606	03-27-2012
Annual Erosion Evaluation	COMP-23299	03-27-2012
Construction	COMP-24164	06-18-2012
Enhanced Control Measure verification	BMP-24312	06-19-2012
Storm Rain Event	BMP-25246	07-25-2012
Visual	COMP-29199	10-25-2012
Storm Rain Event	BMP-28703	10-25-2012

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

Table 129-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25246	Cleared needle cast from rock check dams E00106010008 and -0009 and -0022-0025.	07-25-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 03-010(a)	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 07-20-2012

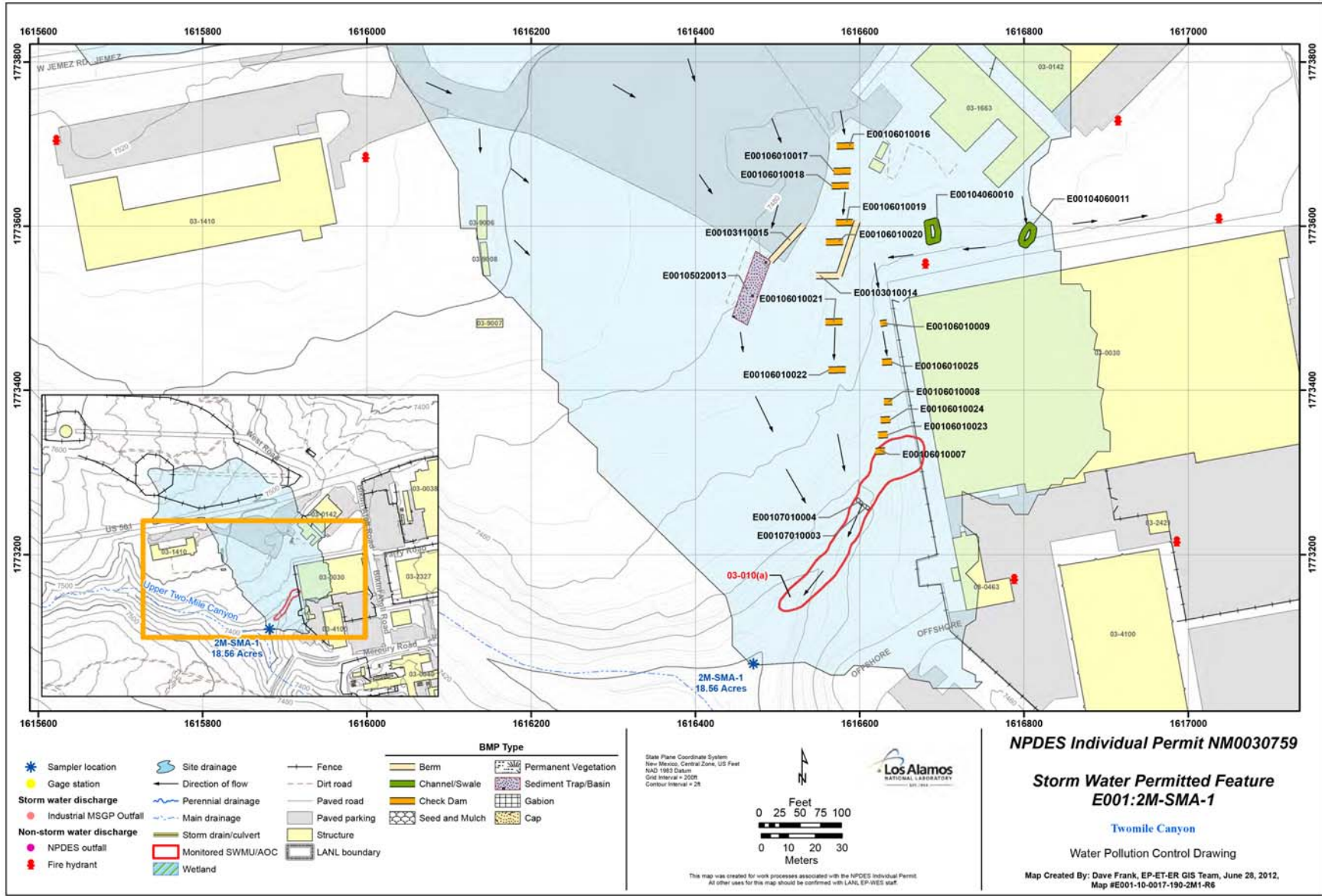
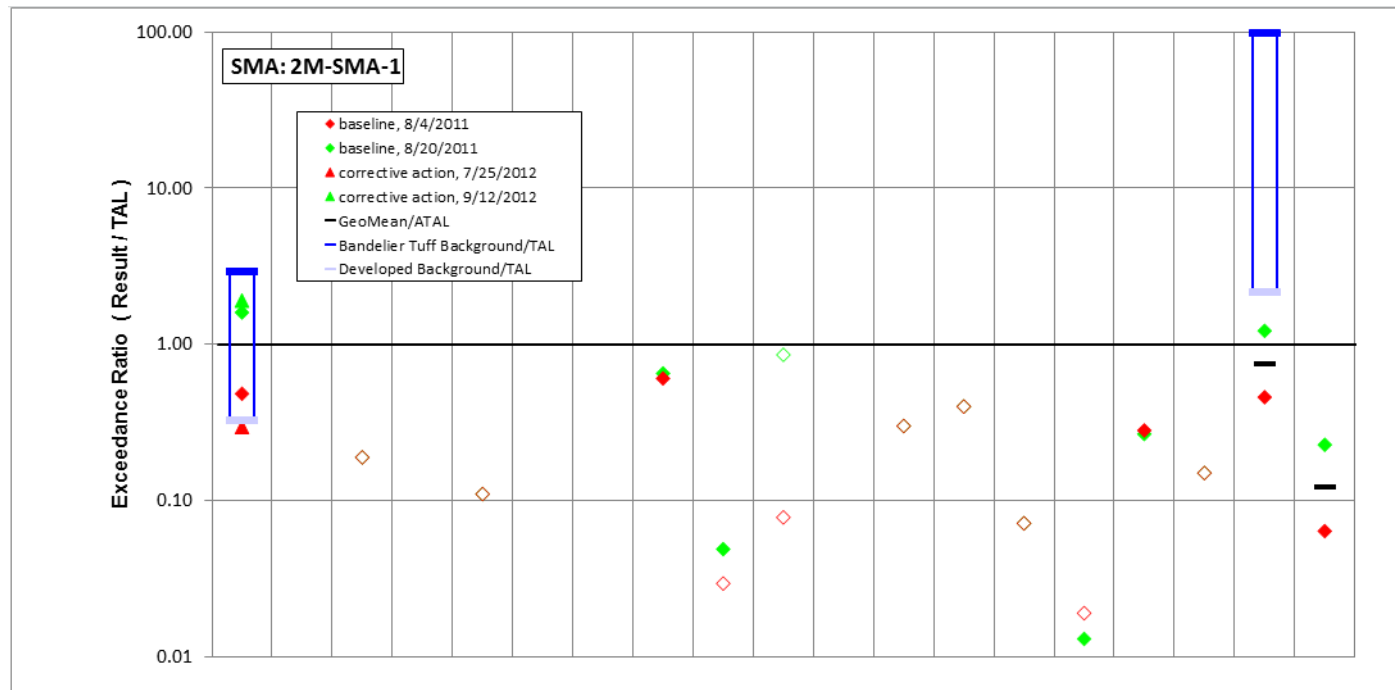


Figure 129-1 2M-SMA-1 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	<i>1</i>	<i>1.7</i>	<i>16.7</i>	<i>0.11</i>	<i>2</i>	<i>3.4</i>	<i>2.8</i>	<i>0.83</i>	<i>0.66</i>	<i>1.3</i>	<i>1.5</i>	<i>0.2</i>	<i>0.45</i>	<i>1.3</i>	<i>11.2</i>	<i>0.002</i>	18.3	<i>6.82</i>	
result / TAL	1.6	<i>0.002</i>	<i>0.19</i>	<i>0.0033</i>	<i>0.11</i>	<i>0.01</i>	<i>0.0034</i>	<i>0.65</i>	<i>0.049</i>	<i>0.86</i>	<i>0.0076</i>	<i>0.3</i>	<i>0.4</i>	<i>0.071</i>	<i>0.013</i>	<i>0.27</i>	<i>0.15</i>	1.2	<i>0.23</i>	
8/4/2011 result	362	<i>1</i>	<i>1.7</i>	<i>15</i>	<i>0.11</i>	<i>2</i>	<i>1</i>	<i>2.6</i>	<i>0.5</i>	<i>0.06</i>	<i>0.55</i>	<i>1.5</i>	<i>0.2</i>	<i>0.45</i>	<i>1.9</i>	<i>11.8</i>	<i>0.002</i>	<i>6.88</i>	<i>1.91</i>	
result / TAL	0.48	<i>0.002</i>	<i>0.19</i>	<i>0.003</i>	<i>0.11</i>	<i>0.01</i>	<i>0.001</i>	<i>0.6</i>	<i>0.029</i>	<i>0.078</i>	<i>0.0032</i>	<i>0.3</i>	<i>0.4</i>	<i>0.071</i>	<i>0.019</i>	<i>0.28</i>	<i>0.15</i>	<i>0.46</i>	<i>0.064</i>	

Bold font indicates result>TAL; italic font indicates 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 06-0040) and associated outfall. The septic tank is located approximately 100 ft north of former building 06-0003. The septic system outfall drained to Tributary A of Twomile Canyon. The septic tank, which had a volume of 840 gal., serviced former buildings 06-0001 and 06-0003. Former building 06-0001 was constructed in May 1944 and was originally used to develop analytical procedures for nonradioactive cobalt tracer shots. An engineering drawing shows the building as having two rooms, one identified as a carpenter shop and the other as a laboratory. The laboratory had an acid-resistant work bench and a lead-lined sink connected to the septic system.

In the late 1950s, silver soldering may have been conducted in the carpenter shop. In the early 1980s, cable and boxed inert supplies were warehoused in former building 06-0001. The building was not used after the carpenter shop closed in the 1980s. Former building 06-0003 contained a restroom, a darkroom, and a laboratory with a lead-lined sink. The building was first used as a control bunker for explosives shots and was surrounded on three sides by an earthen berm. It was remodeled in 1944 with explosion-proof fixtures because diethyl ether was used in the analyses performed in the building.

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 to prepare cobalt tracers. In 1972, the building was remodeled into a printed circuit shop and was later used as a silk-screen facility until the mid-1980s. After the mid-1980s, the building was used for storage. The septic system was decommissioned in 1986, and the drainline was plugged in 1988. During a reconnaissance visit in 1992, the tank was located, its cover was removed, and the tank was found to be empty. Buildings 06-0001 and 06-0003 were demolished and removed in 2004. The septic system was left in place. Potential contaminants associated with industrial materials historically managed at this Site are cobalt, copper, lead, silver, VOCs, and semivolatile organic compounds (SVOCs). 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

A culvert diverts storm water from Twomile Mesa Road west and away from the Permitted Feature. The rock check dam is minimizing run-on potential to the area below the outfall at this Permitted Feature. Run-on to the outfall area is minimal, and potential run-on impact from the sheet flow is managed with wattles. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 130-1).

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 Mulch - Seed and Wood Mulch			X		EC
E00202010001	Established Vegetation - Grasses and Shrubs			X		CB
E00202020002	Established Vegetation - Forested/Needle Cast			X		CB
E00203010011	Berms - Earthen		X		X	EC
E00203010012	Berms - Earthen	X			X	EC
E00203010014	Berms - Earthen	X			X	EC
E00203120003	Berms - Rock	X			X	CB
E00206010006	Check Dam - Rock	X			X	CB
E00206010007	Check Dam - Rock	X			X	CB
E00206010008	Check Dam - Rock	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 two 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).

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 06-001(a): Potential contaminants associated with industrial materials historically managed at this Site are cobalt, copper, lead, silver, VOCs, and SVOCs.

- Consent Order soil sampling has not been performed at this Site.
- Aluminum—Aluminum was detected at concentrations up to 1.9 times BV in Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) samples collected in 1994.
- Gross alpha—RFI samples were not analyzed for radionuclides because they were not identified as chemicals of potential concern at this Site.

In summary, aluminum and radionuclides are not known to be associated with industrial materials historically managed at the Site, and aluminum was detected only slightly above BV. Based on site

history and previous sampling results, the Site is an unlikely source of aluminum above MTAL and adjusted gross alpha above ATAL.

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 four storm events at 2M-SMA-1.42 during the 2012 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 130-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Enhanced Control Measure Verification	BMP-23499	05-14-2012
Annual Erosion Evaluation	COMP-23300	05-31-2012
Storm Rain Event	BMP-25211	07-18-2012
Storm Rain Event	BMP-27495	09-19-2012
Storm Rain Event	BMP-28166	10-11-2012
Storm Rain Event	BMP-28608	10-22-2012

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

Table 130-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28608	Field verified 10/24/12. There has been no change in erosion potential at this Site including the channel since on-job training was conducted here (beginning of Oct.). No evidence of scour or sedimentation between rock check dams.	10-22-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

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



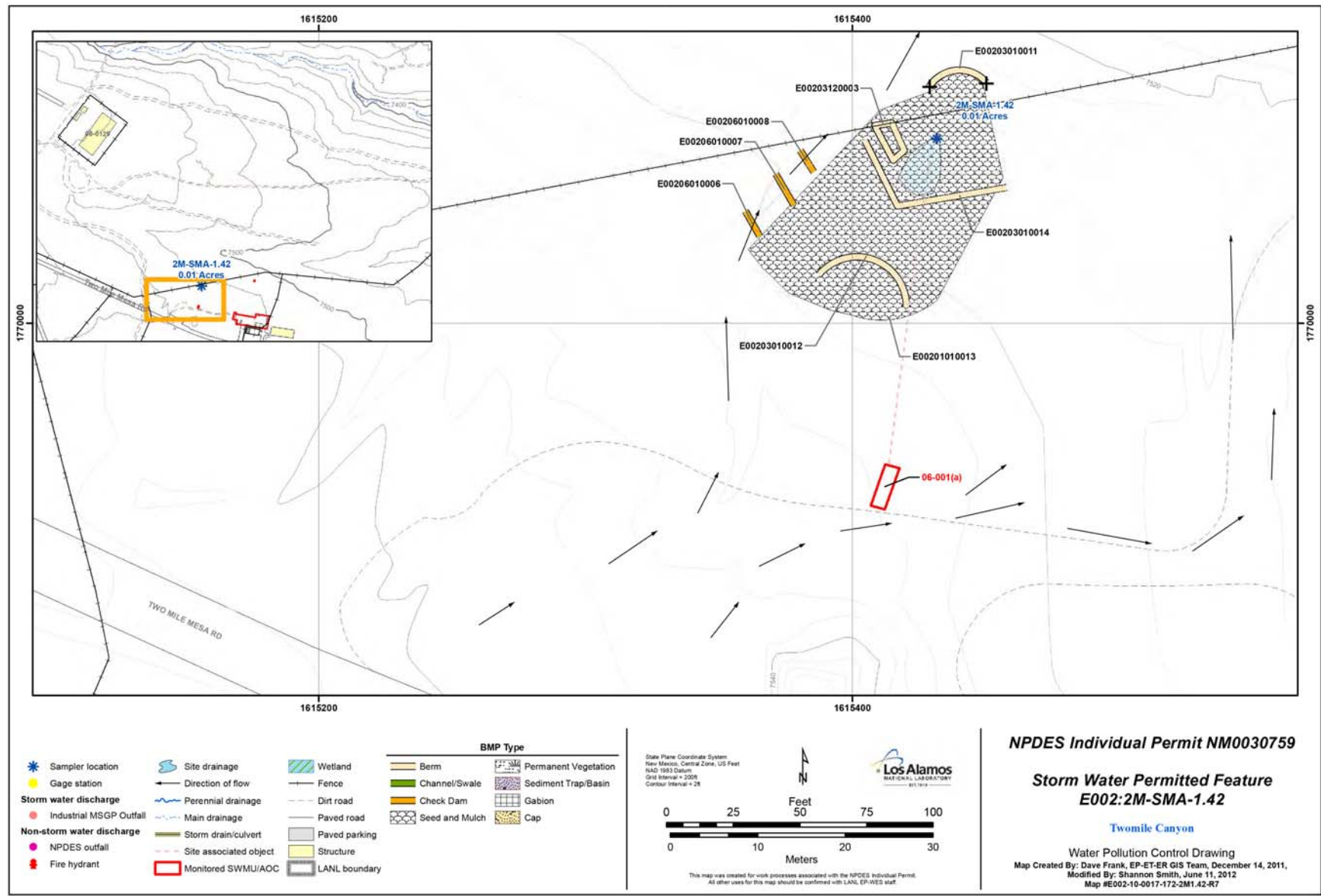
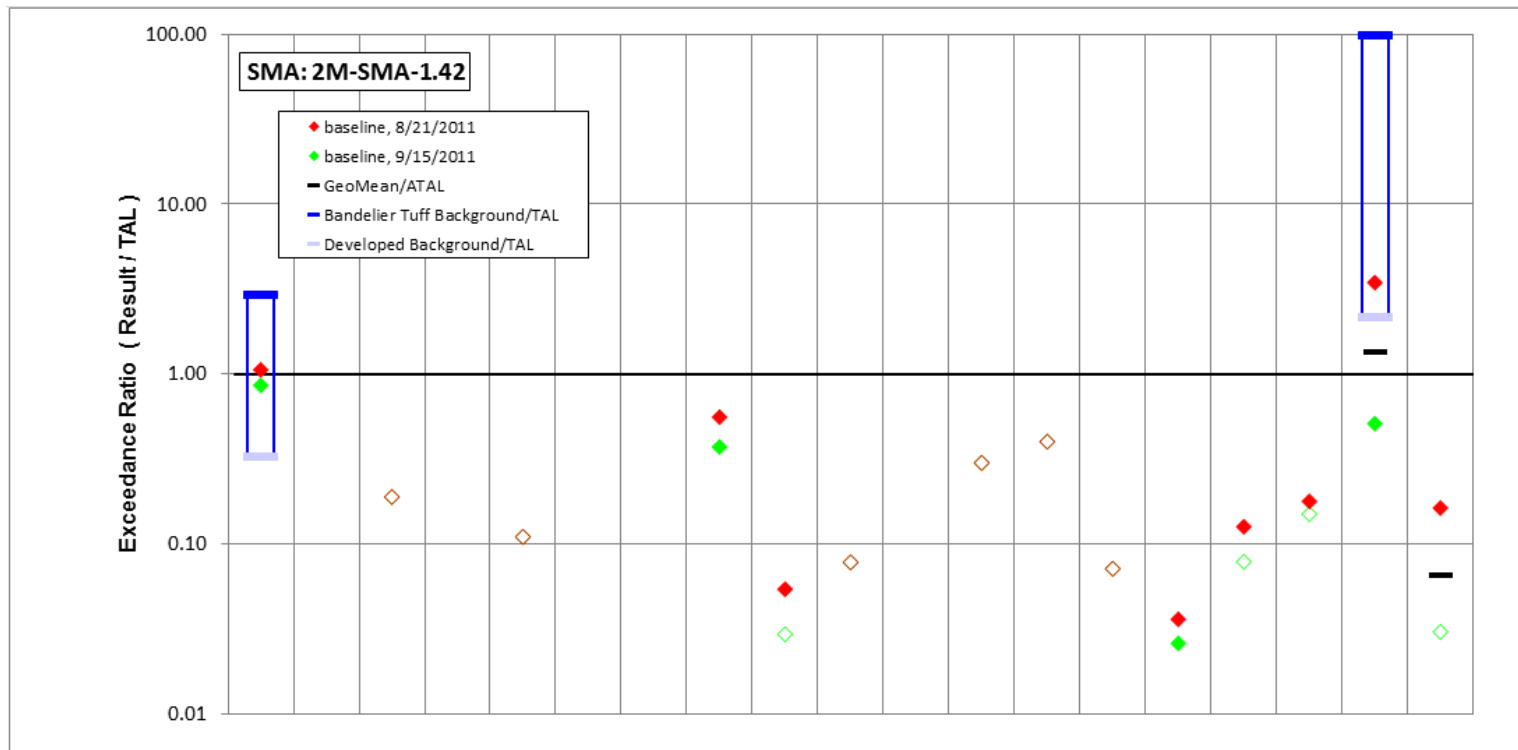


Figure 130-1 2M-SMA-1.42 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	0.69	1.5	0.2	0.45	2.6	3.3	0.002	7.66	0.91
result / TAL	0.86	0.002	0.19	0.003	0.11	0.01	0.003	0.37	0.029	0.078	0.0041	0.3	0.4	0.071	0.026	0.079	0.15	0.51	0.03
8/21/2011 result	794	1	1.7	15	0.11	2	3.5	2.4	0.92	0.06	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	0.078	0.0094	0.3	0.4	0.071	0.036	0.13	0.18	3.5	0.16

Bold font indicates result>TAL; italic font indicates 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 high explosives (HE) sump system and associated inactive drainline and seepage pit located at TA-22. The sump system is located immediately south of building 22-0093. The sump is constructed of concrete containing an inset aluminum tank and is approximately 4 ft deep × 9 ft long × 3 ft wide. The sump system has been operating since 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. The seepage pit is 4 ft in diameter and 40 ft deep. In 1995, the outflow from the sump was capped leaving the sump outlet 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.

SWMU 22-015(a) consists of two seepage pits (Pits A and B), located in an open, grass-covered area east of building 22-0091 at TA-22. Each pit has 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 is 26 ft deep, and Pit B is 20 ft deep. The seepage pits were operated in series and served rooms B102, B107, B121, B123, B145, and B160 in building 22-0091, which housed printed circuit board etching operations. The seepage pits began operation shortly after building 22-0091 was occupied in 1985. From 1985 to 1987, treated waste from the etching operations was discharged through a 6-in.-diameter polyvinyl chloride drainpipe to the seepage pits. As the effluent production rate exceeded the infiltration rate of liquid into the tuff, causing the seepage pits to overflow, the drainline was disconnected from the seepage pits in 1987 and the pits became inactive. After the pits were disconnected, effluent was allowed to daylight for only a few months before the drainlines were tied into the TA-16 wastewater treatment facility (WWTF).

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	
E00302010001	Established Vegetation - Grasses and Shrubs			X		CB
E00302030002	Established Vegetation – Vegetative Buffer Strip	X		X		CB
E00304060004	Channel/Swale - Rip Rap		X	X		B
E00306010003	Check Dam - Rock		X		X	CB

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

131.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at 2M-SMA-1.43. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

131.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.43 during the 2012 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 131-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23301	05-31-2012
Storm Rain Event	BMP-25212	07-18-2012
Storm Rain Event	BMP-27496	09-21-2012
Storm Rain Event	BMP-28167	10-11-2012
Storm Rain Event	BMP-28609	10-23-2012

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

Table 131-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-23981	Removed trash from channel.	06-13-2012	13 day(s)	Maintenance conducted in timely manner.
BMP-28609	Removed floatable debris and placed in waste disposal on-site.	10-23-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 22-014(a)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 22-015(a)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

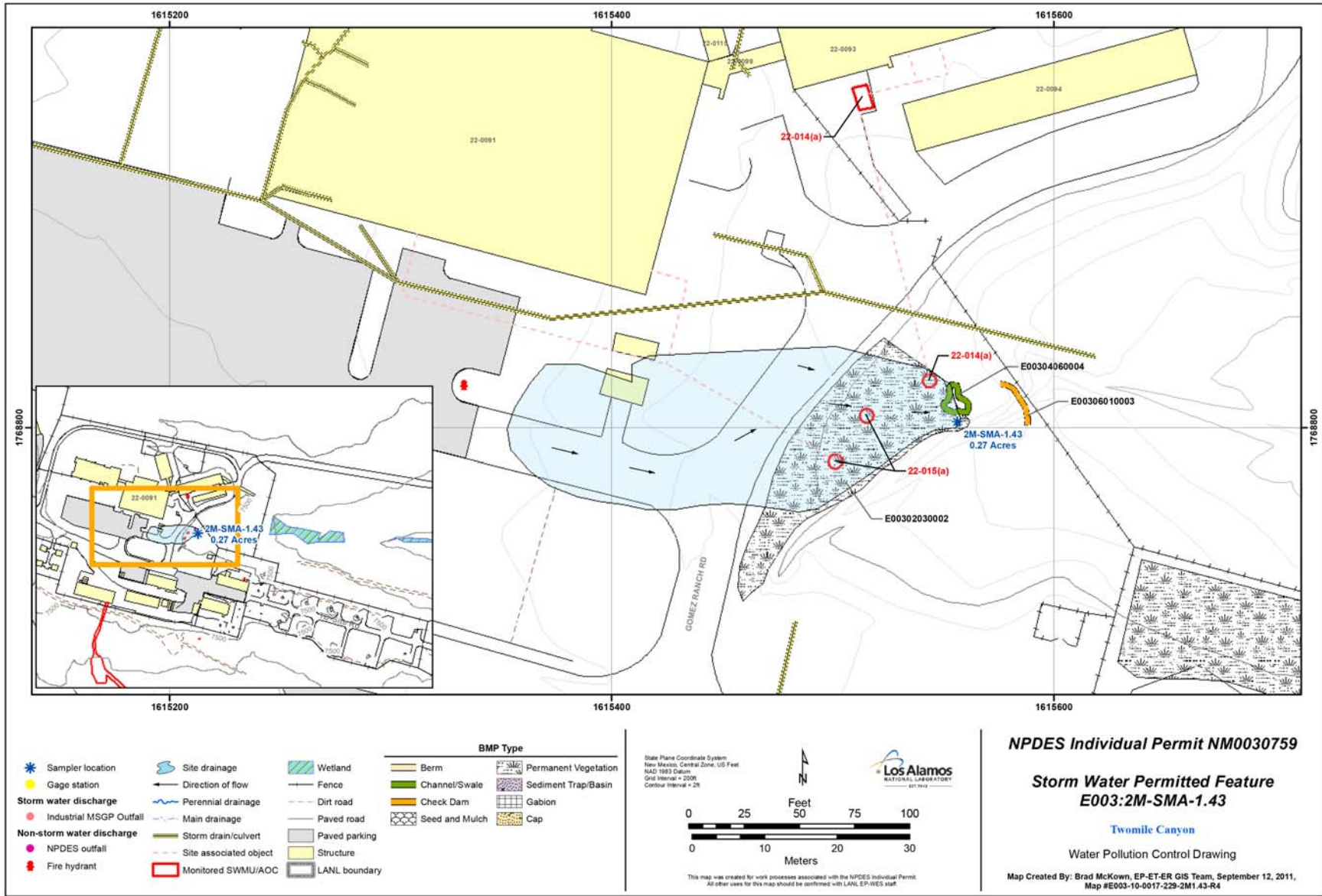


Figure 131-1 2M-SMA-1.43 location map

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 06-0043) and associated drainlines, distribution box, filter trench, and outfall located approximately 200 ft north of former building 06-0006 at TA-06. The septic system served former building 06-0006 and operated from 1945 to the 1980s. The tank's dimensions are 5 ft × 9 ft × 5 ft 9 in. deep. 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. Former building 06-0006 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 1970s, former building 06-0006 was used as a cable shop, where acetone, alcohol, and dilute acids may have been used. In the early 1980s, former building 06-0006 was used for printed circuit production. Building 06-0006 was demolished and removed in 2004; however, the septic tank, drainlines, distribution box, and filter trenches were left in. Potential contaminants associated with industrial materials historically managed at this Site are metals, VOCs, and SVOCs.



The RFI work plan for Operable Unit (OU) 1111 and the 1997 RFI report incorrectly state that buildings 06-0005 and building 06-0008 were connected to the SWMU 06-001(b) septic tank. However, engineering drawings for these two buildings show no outlet drainlines 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.

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. 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 Mulch - Seed and Wood Mulch			X		EC
E00402010001	Established Vegetation - Grasses and Shrubs			X		CB
E00402020002	Established Vegetation - Grasses and Shrubs			X		CB
E00403010006	Berms - Earthen	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 two 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).

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 06-001(b): Potential contaminants associated with industrial materials historically managed at this Site are metals, VOCs, and SVOCs.

- Consent Order soil sampling has not been performed at this Site.
- Copper—Copper was detected at concentrations up to 3 times BV in RFI samples collected in 1994.
- Gross alpha—RFI samples were not analyzed for radionuclides because they were not identified as chemicals of potential concern at this Site.

In summary, copper is known to be associated with industrial materials historically managed at the Site, but copper-contaminated wastes were discharged to the subsurface. However, copper was detected above BV. Based on site history and previous sampling results, the Site is likely source of copper above MTAL. Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of adjusted gross alpha above ATAL.

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 result from 2011 is 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 Annual Report.

132.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.44 during the 2012 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 132-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Enhanced Control Measure Verification	BMP-23500	05-14-2012
Annual Erosion Evaluation	COMP-23302	05-31-2012
Storm Rain Event	BMP-25213	07-18-2012
Storm Rain Event	BMP-27497	09-19-2012
Storm Rain Event	BMP-28168	10-11-2012
Storm Rain Event	BMP-28610	10-22-2012

There were no maintenance activities conducted at 2M-SMA-1.44 in 2012.

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 132-4 Compliance Status during 2012

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

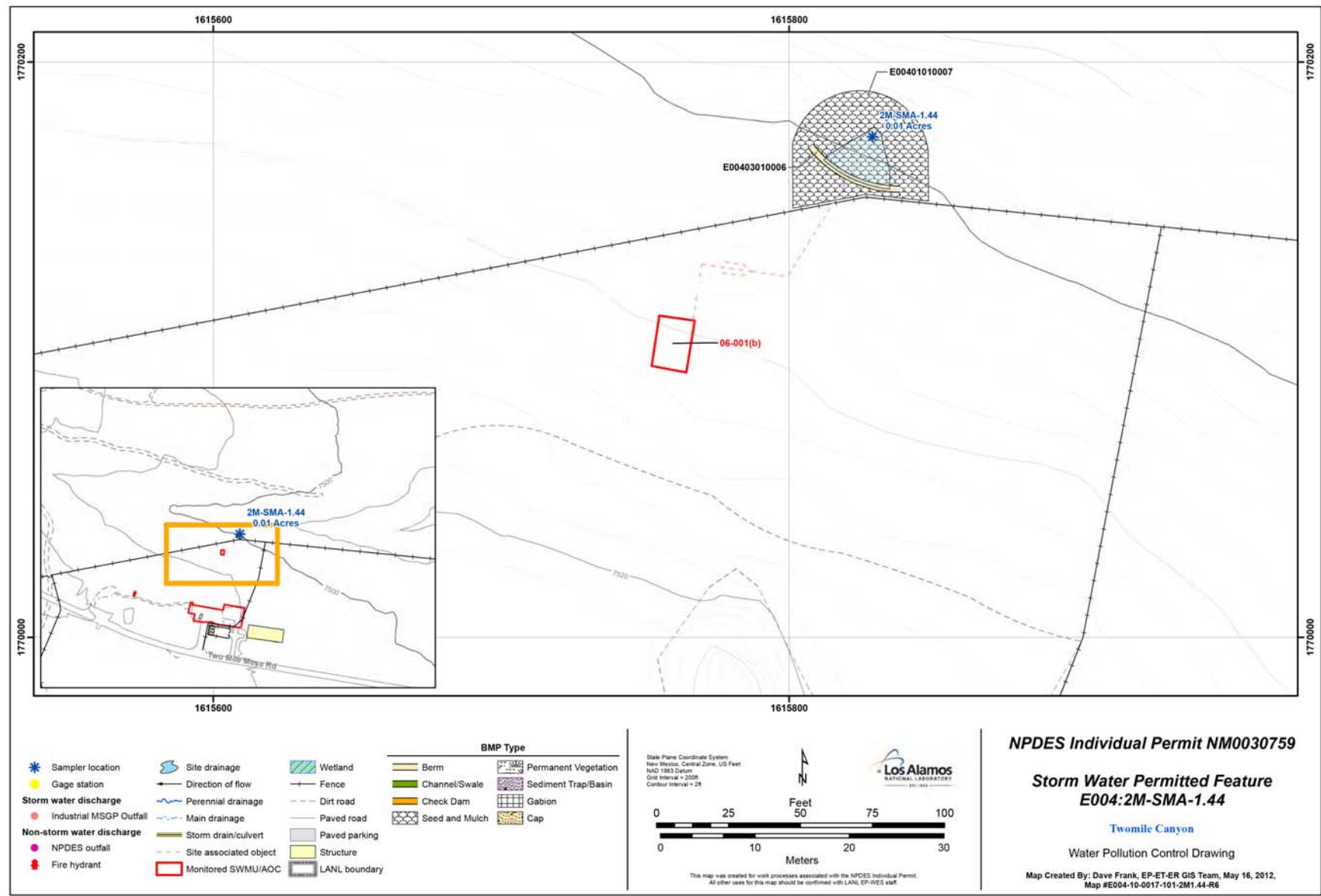
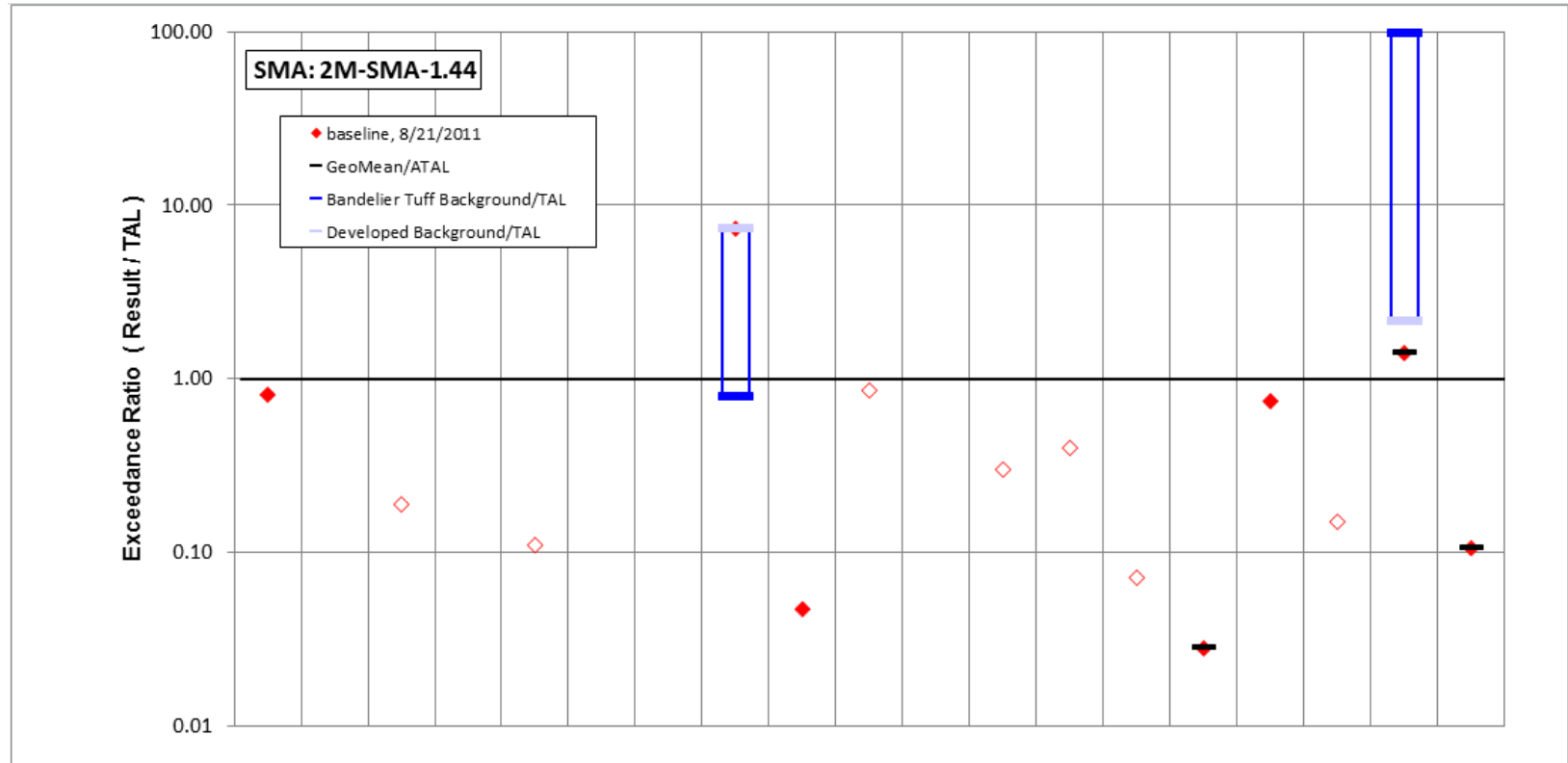


Figure 132-1 2M-SMA-1.44 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	607	<i>1</i>	1.7	25.3	<i>0.11</i>	2	2.4	31.5	0.8	<i>0.66</i>	1.1	1.5	0.2	0.45	2.8	31.2	<i>0.002</i>	21.1	3.17
result / TAL	0.81	<i>0.002</i>	0.19	0.0051	<i>0.11</i>	0.01	0.0024	7.3	0.047	<i>0.86</i>	0.0065	0.3	0.4	0.071	0.028	0.74	0.15	1.4	0.11

Bold font indicates result>TAL; italic font indicates 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 is a former container and equipment storage area located near the south and east sides of the former location of building 06-0006 at TA-06. The storage area consisted of a concrete pad and asphalt parking lot, approximately 300 ft × 20 ft, and was partially surrounded by a 4-ft berm. Waste containers and electrical equipment, including capacitors, were stored in this area from the late 1970s to the late 1980s. Potential contaminants associated with industrial materials historically managed at this Site are VOCs, SVOCs, and PCBs.

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

Most of the run-on from the paved areas south of the Permitted Feature is diverted away from the area by a system of culverts. There is some run-on from the parking area flowing across the eastern end of the SMA near the sampler. 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	
E00502010001	Established Vegetation - Grasses and Shrubs			X		CB
E00503010014	Berms - Earthen		X		X	B
E00503010015	Berms - Earthen	X			X	B
E00503010016	Berms - Earthen		X		X	EC
E00503010017	Berms - Earthen		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 one TAL exceedance:

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

This exceedance was 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 06-006: Potential contaminants associated with industrial materials historically managed at this Site are VOCs, SVOCs, and PCBs.

- Consent Order soil sampling has not been performed at this Site.
- Gross alpha—RFI samples were collected in 1994 but were not analyzed for radionuclides because they were not identified as chemicals of potential concern at this Site.

In summary, alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of adjusted gross alpha above ATAL.

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



2M-SMA-1.45, Earthen Berm, E00503010014 (photo ID 26099-3)

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 133-2. 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 133-2.

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—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.

The monitoring station was relocated on August 1, 2012 and is situated approximately 75 ft east of the original sampler location, west of SWMU 06-006 and west of the newly installed enhanced controls. The new location of the sampler is positioned below all enhanced controls and will provide more representative samples of storm water from SWMU 06-006. Sampler coordinates and SMA drainage area are updated in Attachment 4.

133.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.45 during the 2012 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 133-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23303	05-31-2012
Construction	COMP-24076	06-08-2012
Construction	COMP-23954	06-11-2012
Enhanced control measure verification	BMP-23593	06-25-2012
Storm Rain Event	BMP-25214	07-18-2012
Construction	COMP-26057	07-30-2012
Enhanced Control measure verification	BMP-26099	08-02-2012
Storm Rain Event	BMP-27498	09-19-2012
Storm Rain Event	BMP-28169	10-11-2012
Storm Rain Event	BMP-28611	10-22-2012

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

Table 133-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25214	Placed wattle at breach of earthen berm E00503010016.	8/2/2012	15 day(s)	Maintenance conducted in timely manner on 8/2/12. Temporary maintenance was conducted at inspection BMP-25214. Additional maintenance on berm was conducted during enhanced control measure installation. Enhanced control measure verification BMP-26099 was conducted on 8/2/12 at the completion of installation activities and did not recommend further need for maintenance of the berm.
BMP-29121	Moved 2x4s and wood out of channel(s) and onto banks where they will not migrate back into the channel(s).	10-24-2012	2 day(s)	Maintenance conducted in timely manner.

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 2012

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

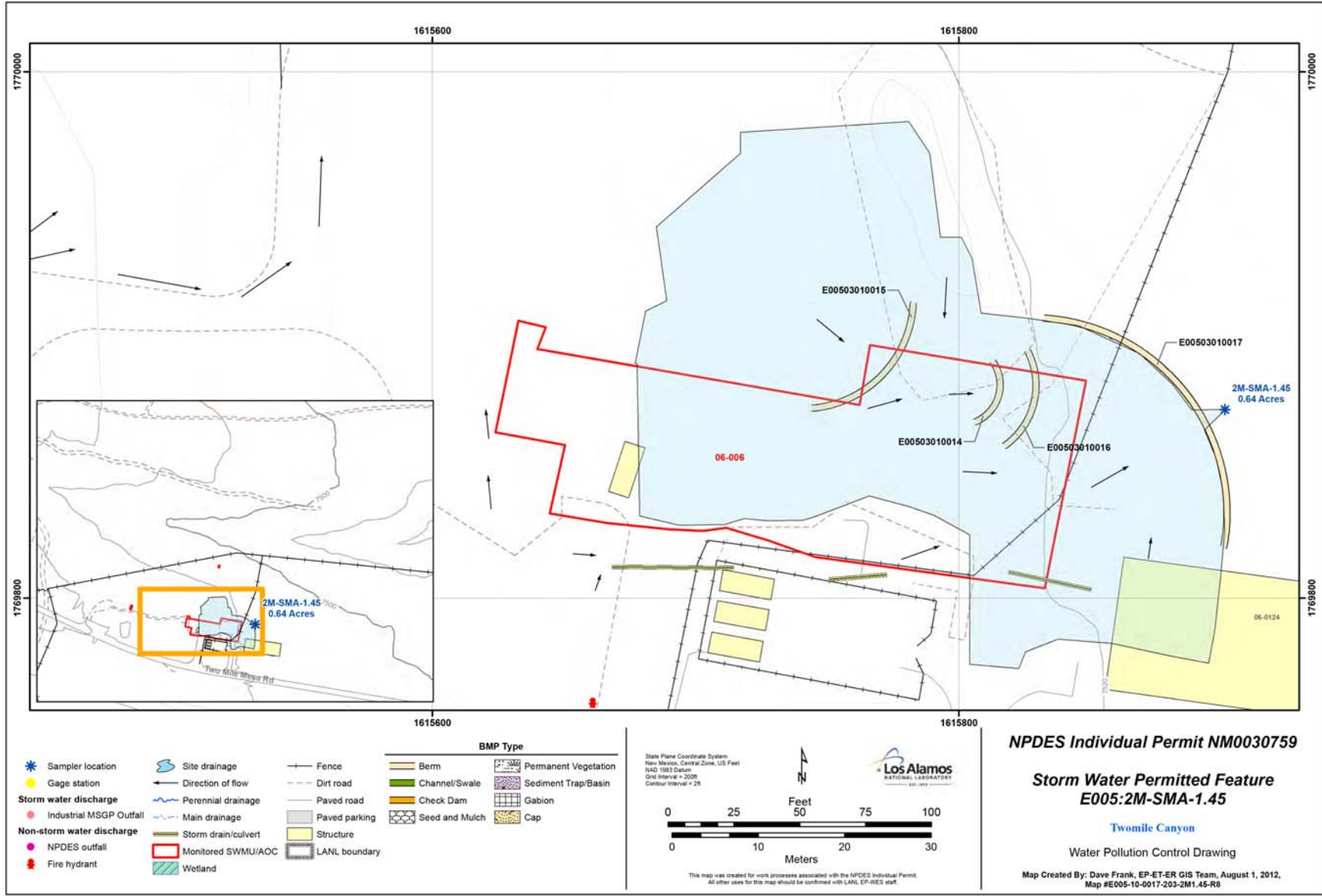
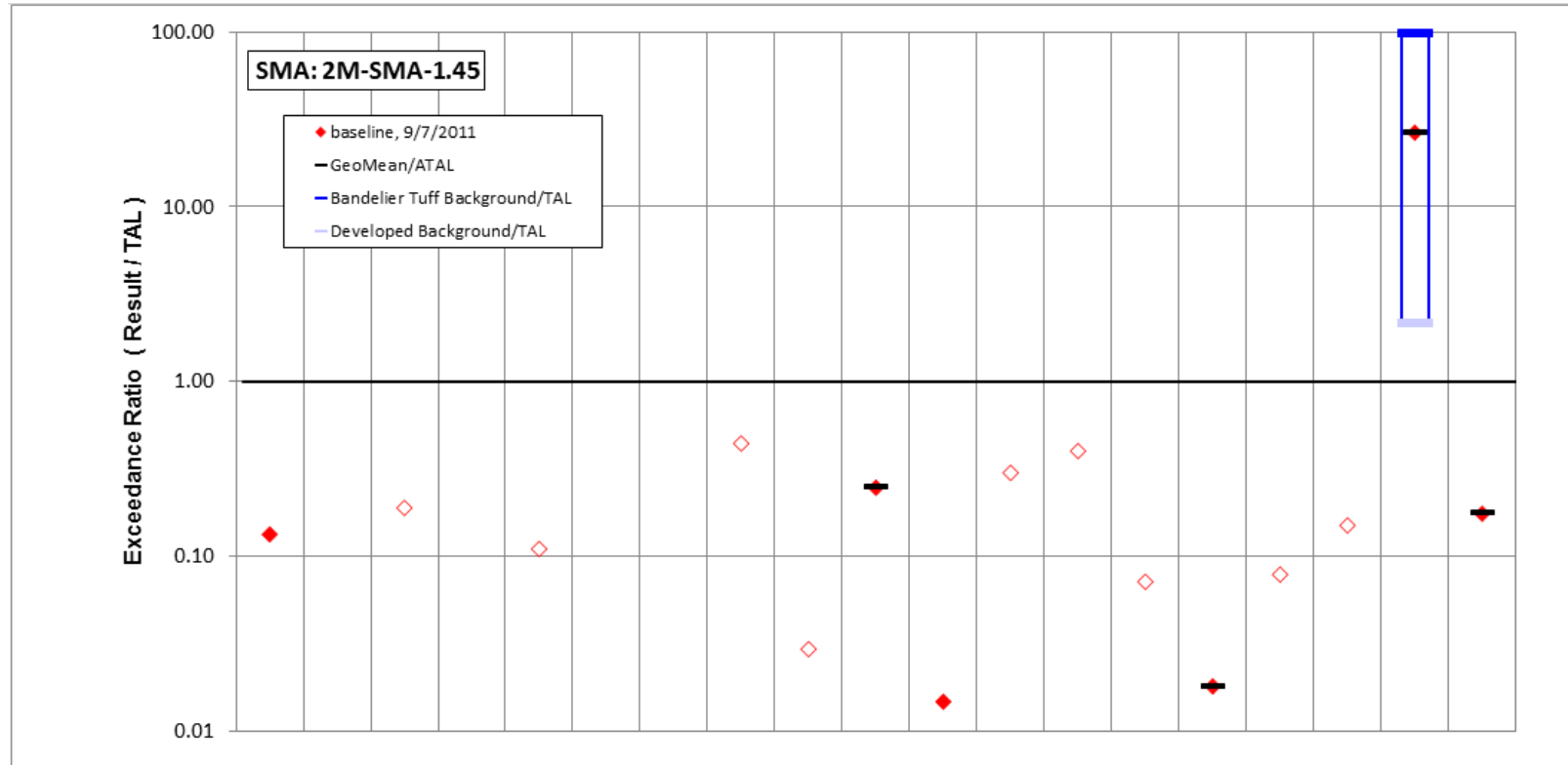


Figure 133-1 2M-SMA-1.45 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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; italic font indicates 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 ft × 2 ft × 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.

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>.

The Site boundary for SWMU 22-014(b) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 134-1), and the Site physical characteristic information listed in Attachment 4 has been updated.



134.2 Control Measures

A culvert on the eastern side of building 22-0034 diverts run-on from the paved areas, east and away from the monitored area. Runoff is controlled with a vegetative buffer strip. 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	
E00602010001	Established Vegetation - Grasses and Shrubs			X		CB
E00602030003	Established Vegetation - Vegetative Buffer Strip		X	X	X	CB
E00603060004	Berms - Straw Wattles	X			X	B
E00604040002	Channel/Swale - Culvert	X		X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

134.3 Storm Water Monitoring

For calendar year 2012, 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 four storm events at 2M-SMA-1.5 during the 2012 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 134-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23304	05-31-2012
Storm Rain Event	BMP-25215	07-18-2012
Storm Rain Event	BMP-27499	09-21-2012
Storm Rain Event	BMP-28170	10-11-2012
Storm Rain Event	BMP-28612	10-23-2012

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

Table 134-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28044	Installed straw wattles E00603060004 at the toe of the base course/asphalt millings slope.	10-11-2012	20 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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 22-014(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

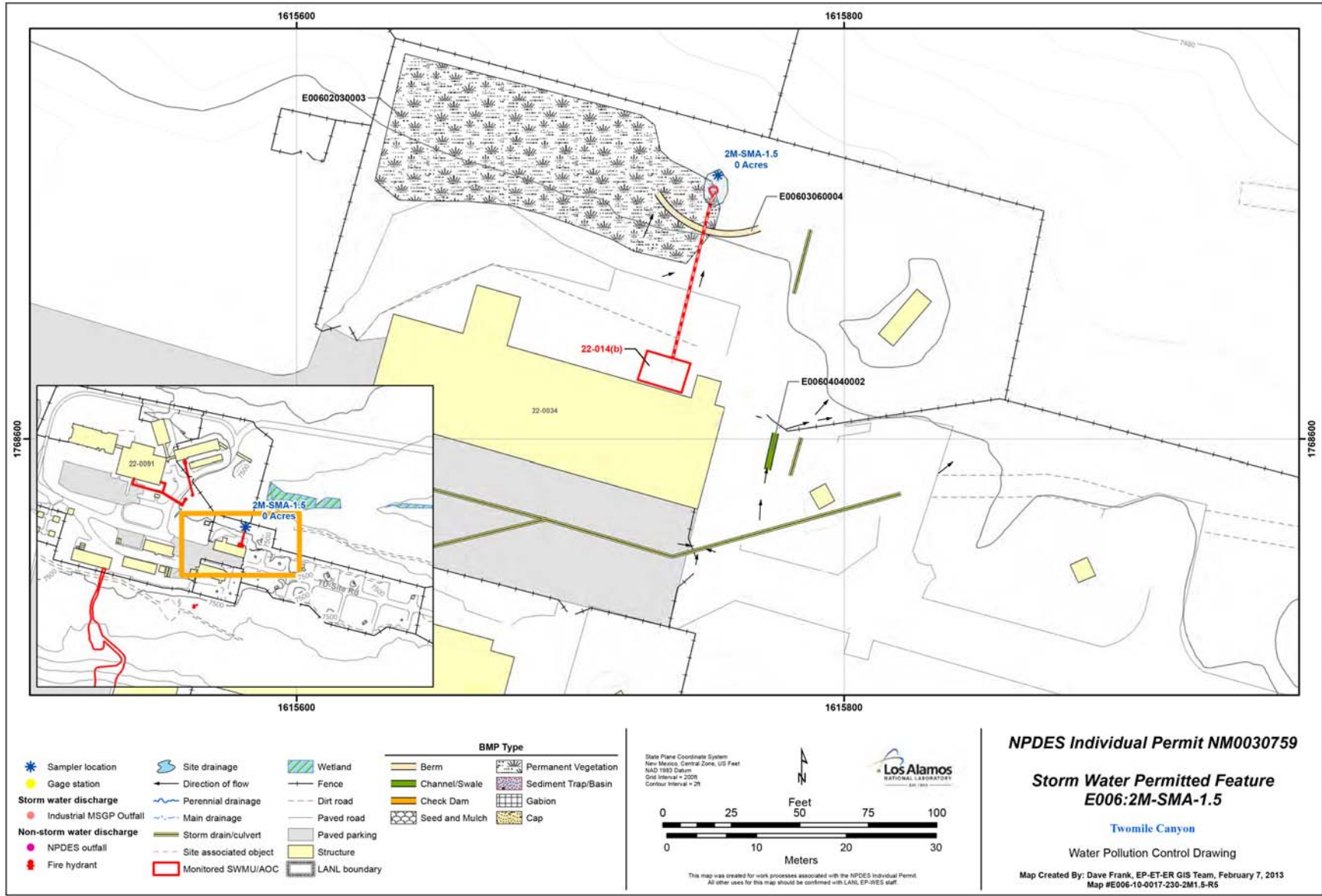


Figure 134-1 2M-SMA-1.5 location map

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 a sump (structure 22-0075) located at the northwest corner of building 40-0041 (formerly building 22-0041) at TA-40. Constructed in 1952, building 40-0041 was originally used for explosives-grinding operations. The sump, built in 1961, is constructed of concrete with an inset aluminum baffle tank. The sump is 4 ft 6 in. × 6 ft 4 in. × 5 ft deep. 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. Before it was incorporated into TA-40, building 40-0041 and the sump were part of TA-22. Currently, the building is used to prepare for explosives tests conducted at TA-40. In 1994, the sump outlet port was capped, and in December 1995 the outfall was deleted from the NPDES permit. The sump has been removed from service and filled with concrete. Potential contaminants associated with industrial materials historically managed at this Site are VOCs and explosive compounds.

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

Run-on from the paved access road and old parking areas are diverted away from the SMA, to the north and west. There is minor run-on from the paved area to the Permitted Feature. An existing culvert would direct storm water across the SMA. Currently, this culvert is blocked. 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	
E00702010001	Established Vegetation - Grasses and Shrubs			X		CB
E00703010004	Berms - Earthen	X			X	CB
E00703010005	Berms - Earthen		X		X	CB
E00703010010	Berms - Earthen	X			X	EC
E00706010006	Check Dam - Rock	X			X	EC
E00706010007	Check Dam - Rock	X			X	EC
E00706010008	Check Dam - Rock	X			X	EC
E00706010009	Check Dam - Rock	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 one TAL exceedance:

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

This exceedance was 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 40-005: Potential contaminants associated with industrial materials historically managed at this Site are VOCs and explosive compounds.

- Consent Order soil sampling has not been performed at this Site.
- Gross alpha—Uranium isotopes were not detected above BV in RFI samples collected in 1994.

In summary, alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Uranium isotopes, which emit alpha particles, were not detected above



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

BVs. Based on site history and previous sampling results, the Site is an unlikely source of adjusted gross alpha above ATAL.

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.

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—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.

135.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.65 during the 2012 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 135-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Construction	COMP-22701	04-19-2012
Enhanced Control Measure Verification	BMP-23591	05-30-2012
Annual Erosion Evaluation	COMP-23305	05-30-2012
Storm Rain Event	BMP-25216	07-18-2012
Storm Rain Event	BMP-27500	09-21-2012
Storm Rain Event	BMP-28171	10-10-2012
Storm Rain Event	BMP-28613	10-23-2012

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

Table 135-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-27500	Field verification on 9/26/12. Erosion of southeast end of berm -0005 existed prior to installation of enhanced controls. Extending berm -0005 could divert non-Site/SMA water to sampler. At present berm -0005 is not diverting runoff.	09-21-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

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

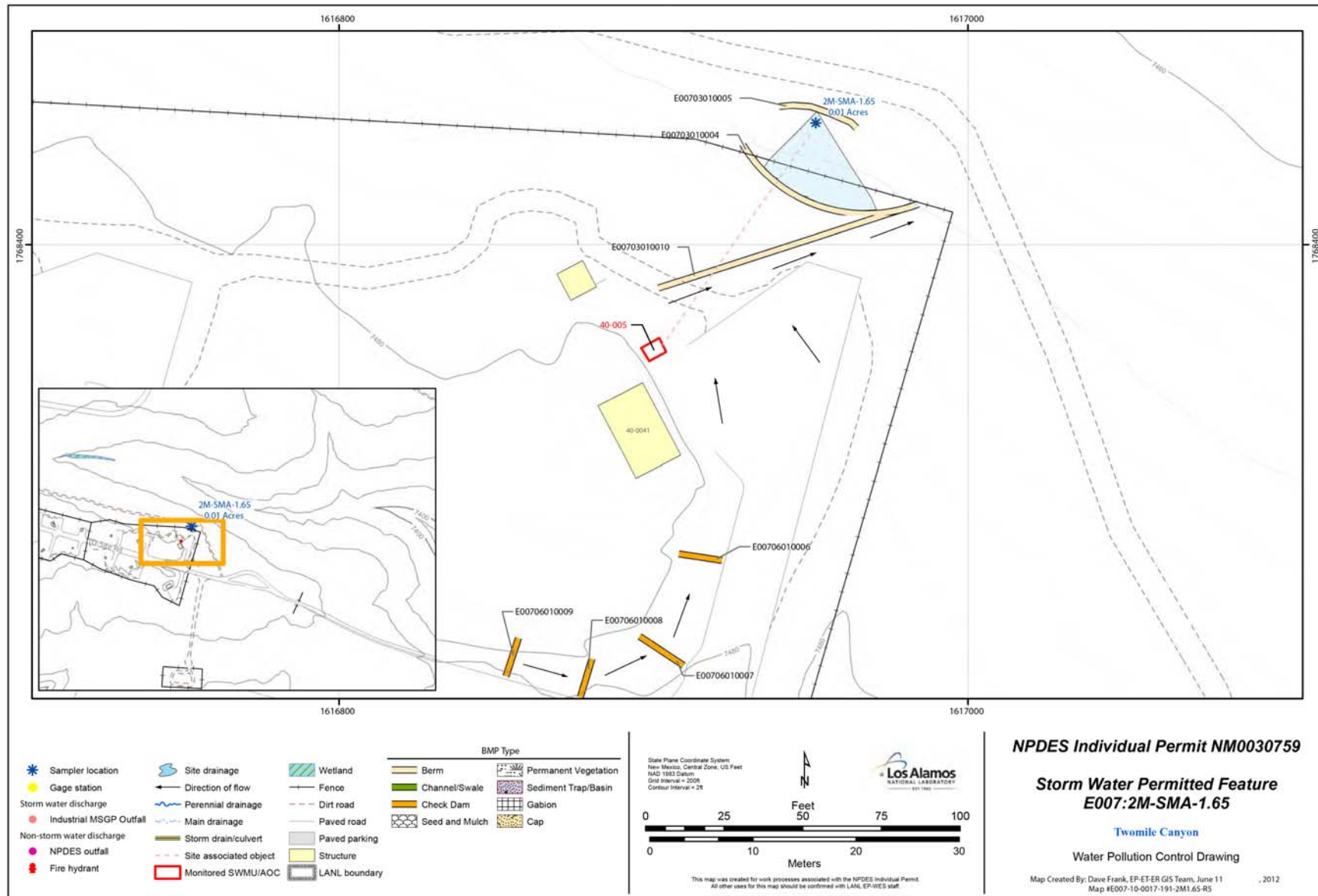
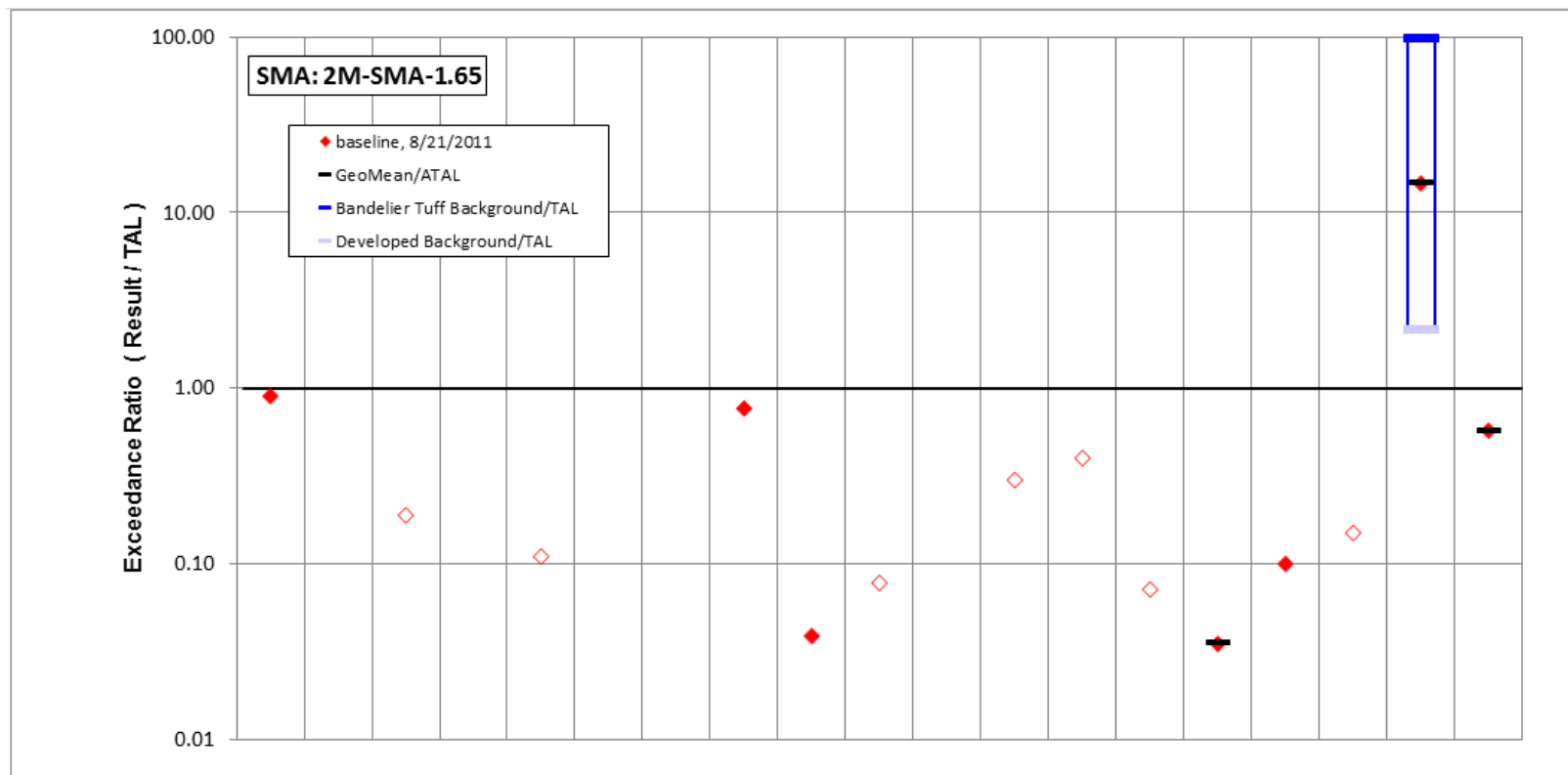


Figure 135-1 2M-SMA-1.65 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	676	<i>1</i>	1.7	15	<i>0.11</i>	2	1	3.3	0.66	<i>0.06</i>	0.96	1.5	0.2	0.45	3.5	4.2	0.002	220	17.2
result / TAL	0.9	<i>0.002</i>	0.19	0.003	<i>0.11</i>	0.01	0.001	0.77	0.039	<i>0.078</i>	0.0056	0.3	0.4	0.071	0.035	0.1	0.15	15	0.57

Bold font indicates result>TAL; italic font indicates 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. This site was not identified in the 1990 SWMU Report. It was first discussed in the OU 1111 RFI work plan as part of Material Disposal Area (MDA) F. In describing MDA F, the RFI work plan states that defective explosive lenses manufactured for use in the Fat Man implosion weapon were destroyed in this area by detonation in 1945. Some of the lenses were described as consisting of the explosive Baratol, which contains barium and TNT [trinitrotoluene(2,4,6-)]. A former employee involved with the detonations described this firing site as being located in the general area between the larger MDA F disposal pit [SWMU 06-007(a)] and Twomile Mesa Road. In 1993, the Laboratory requested that EPA add SWMU 06-003(h) to the hazardous waste permit as a separate site; EPA approved the request in 1994.

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

Run-on to the Permitted Feature from Twomile Mesa Road is minimal. Run-on from the road is diverted by a roadside channel. Run-on from the west of the SMA is diverted to the north and east by a natural channel away from the SMA. 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 Mulch - Seed and Wood Mulch			X		CB
E00802010001	Established Vegetation - Grasses and Shrubs			X		CB
E00802020002	Established Vegetation - Forested/Needle Cast			X		CB
E00803010014	Berms - Earthen		X		X	B
E00803010015	Berms - Earthen		X		X	B
E00803060009	Berms - Straw Wattles	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 complete baseline confirmation monitoring sample can be collected and analyzed with fully usable results.

136.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.67 during the 2012 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 136-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23306	05-31-2012
Storm Rain Event	BMP-25217	07-18-2012
Storm Rain Event	BMP-27501	09-19-2012
Storm Rain Event	BMP-28172	10-11-2012
Storm Rain Event	BMP-28614	10-24-2012

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

Table 136-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-27501	Per field verification on 9/21/12 there was no evidence of flow around berm E00803010014.	09-19-2012	0 day(s)	Maintenance conducted upon inspection.
BMP-28172	As per field verification on 10/18/2012, recommended maintenance denied. No evidence of erosion onsite or need to extend berms.	10-11-2012	0 day(s)	Maintenance conducted upon inspection.

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 136-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 06-003(h)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

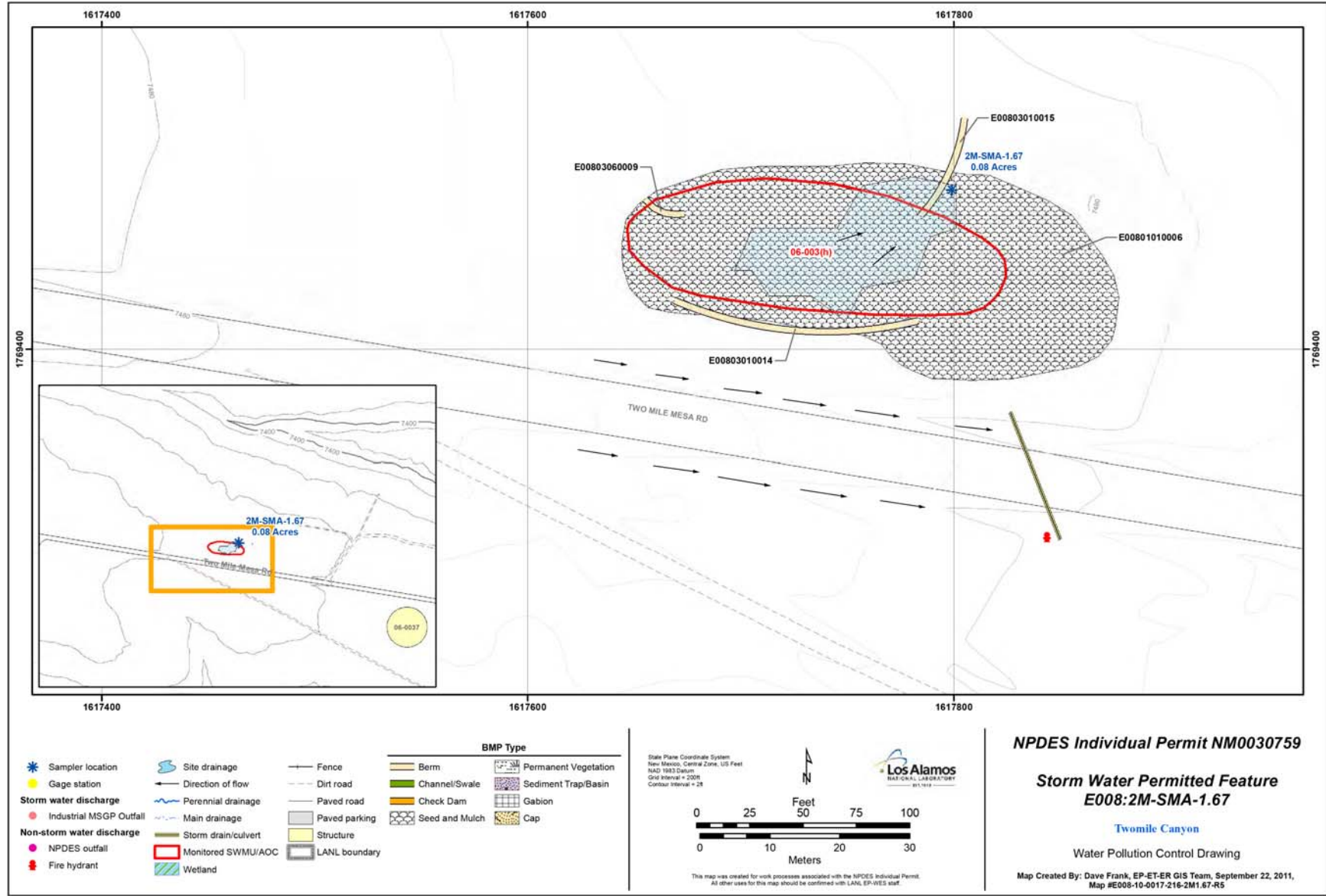
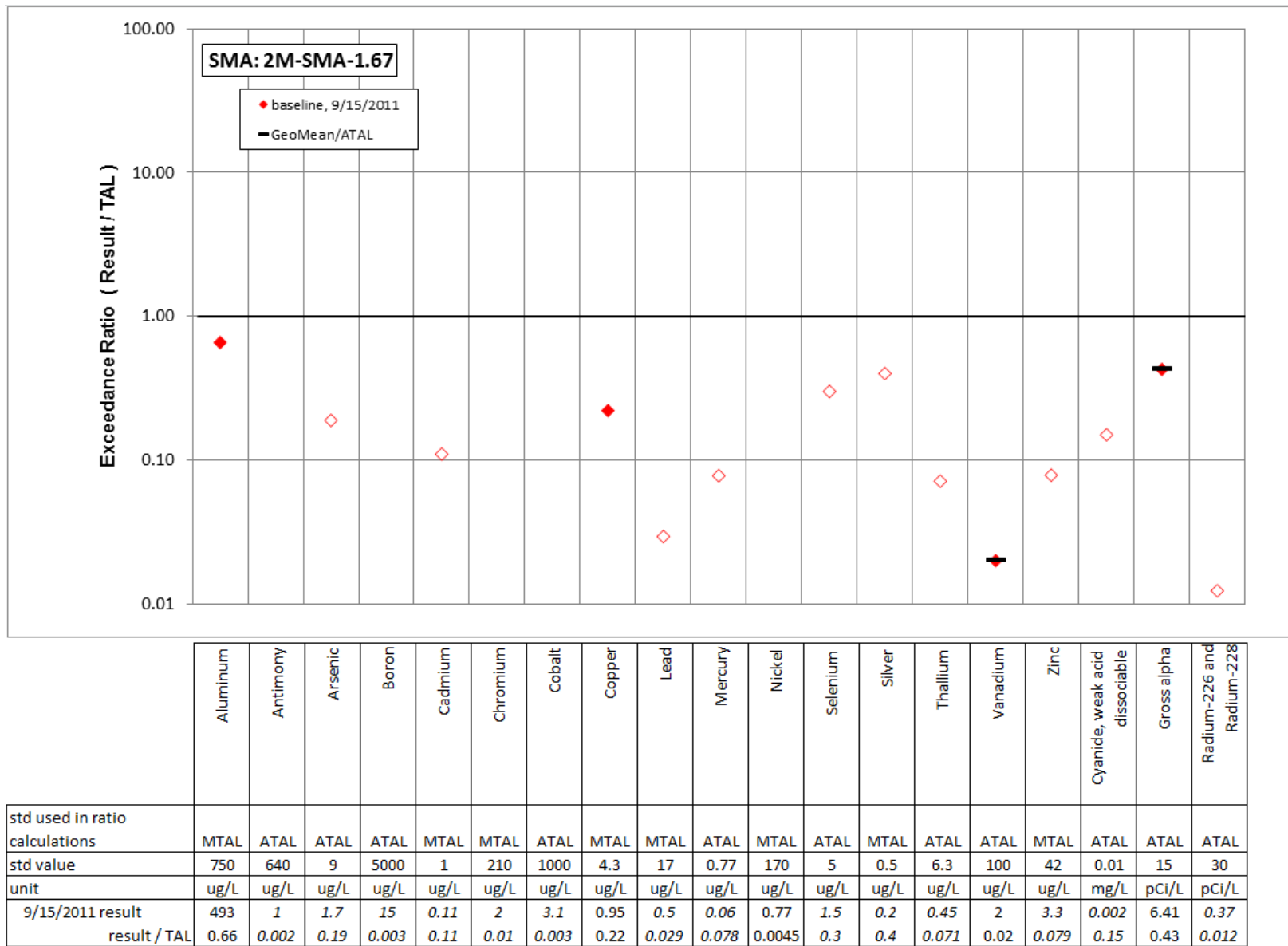
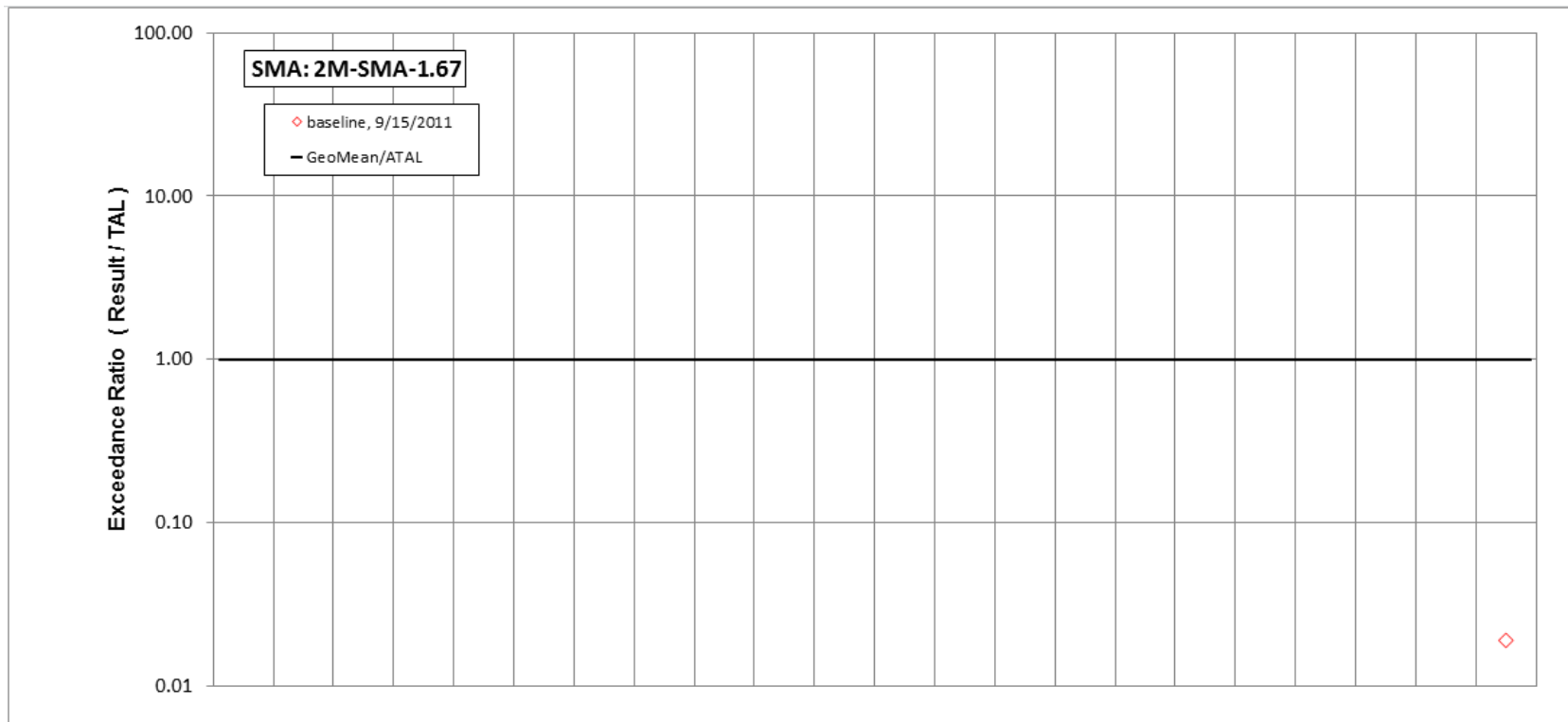


Figure 136-1 2M-SMA-1.67 location map



Bold font indicates result>TAL; italic font indicates 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.38	-	-	-	0.38
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	-	-	-	0.019

Bold font indicates result>TAL; italic font indicates 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 03-0016) at TA-03. Roof drains and one floor drain in generator room 68 discharged to the outfall 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 decontamination and decommissioning (D&D) activities began in 2005. Potential contaminants associated with industrial materials historically managed at this Site are petroleum products.

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

Most of the run-on to the Permitted Feature comes from the roof drains associated with building 03-0016 and the paved areas around the building. 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	
E00902020004	Established Vegetation - Forested/Needle Cast			X		CB
E00903010008	Berms - Earthen	X			X	EC
E00903120005	Berms - Rock		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 one TAL exceedance:

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

This exceedance was 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): Potential contaminants associated with industrial materials historically managed at this Site are petroleum products.

- Consent Order soil sampling has not been performed at this Site. No investigations were conducted at SWMU 03-055(a) before the Consent Order went into effect in 2005.

In summary, copper is not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of copper above MTAL.

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 result from 2011 is between these values.

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

137.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-1.7 during the 2012 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 137-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Visual	COMP-21609	03-27-2012
Annual Erosion Evaluation	COMP-23307	03-27-2012
Construction	COMP-25017	07-09-2012
Enhanced Control measure verification.	BMP-25018	07-09-2012
Storm Rain Event	BMP-25218	07-17-2012
Storm Rain Event	BMP-27502	09-12-2012
Storm Rain Event	BMP-28173	10-10-2012
Storm Rain Event	BMP-28615	10-25-2012

There were no maintenance activities conducted at 2M-SMA-1.7 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 03-055(a)	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 07-27-2012

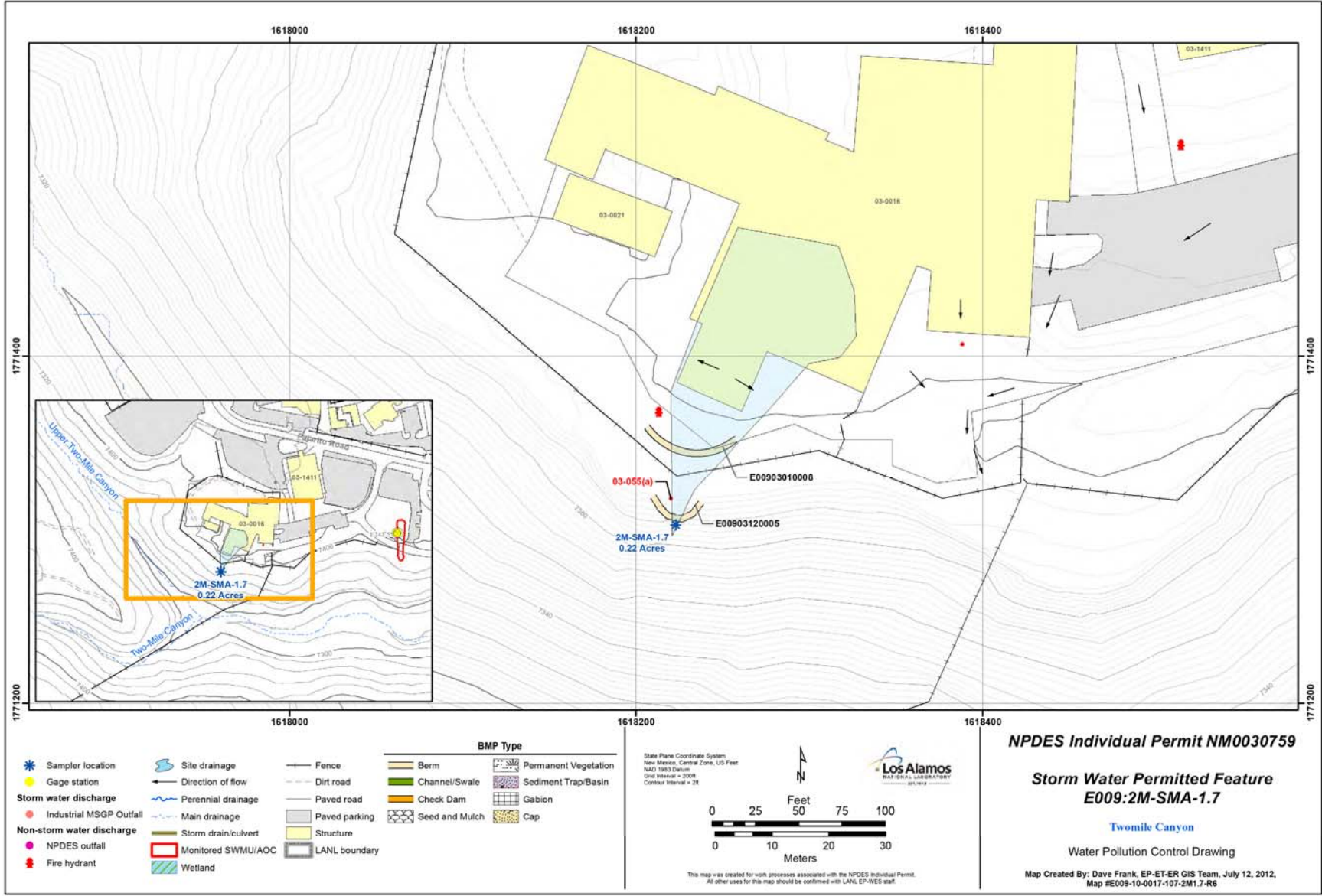
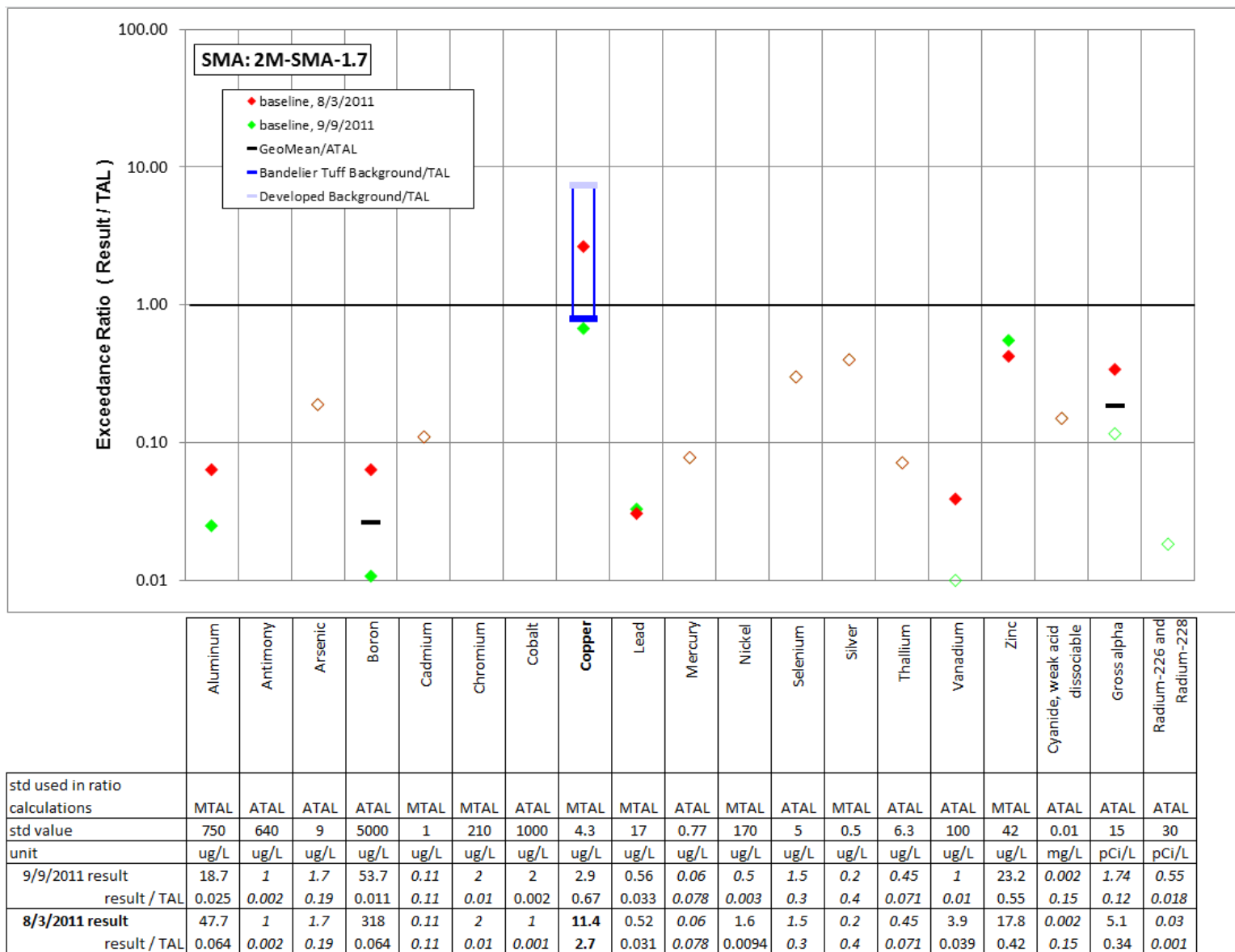


Figure 137-1 2M-SMA-1.7 location map



Bold font indicates result>TAL; italic font indicates 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 03-0016, the inactive Van de Graaff Accelerator and Ion Beam Facility at TA-03. SWMU 03-001(k) consists of two level asphalt areas, each measuring approximately 20 ft × 30 ft. The areas are located next to 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 destined for salvage. A 1986 field inspection of SWMU 03-001(k) noted oily unmarked drums where fresh vacuum oil for experiments was stored. Asphalt chip samples collected in 1989 indicated the presence of Aroclors. A 1993 inspection found the asphalt and concrete pad devoid of stains. Potential contaminants associated with industrial materials historically managed at this Site are solvents, PCBs, petroleum products, and tritium.

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>.

The Site boundary for SWMU 03-001(k) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 138-1), and the Site physical characteristic information listed in Attachment 4 has been updated.

138.2 Control Measures

The run-on contribution from the paved surrounding areas and from the eastern portion of the building 03-0016 roof is significant. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 138-1).

Enhanced controls were installed and verified on September 6, 2012, as part of corrective action.

Table 138-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01002020002	Established Vegetation - Forested/Needle Cast			X		CB
E01003040003	Berms - Asphalt	X			X	CB
E01006010004	Check Dam - Rock		X		X	CB
E01006010005	Check Dam - Rock		X		X	CB
E01006010006	Check Dam - Rock		X		X	CB
E01006010007	Check Dam - Rock		X		X	CB
E01008030008	Cap - Asphalt	X		X		EC
E01008030009	Cap - Asphalt	X		X		EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

138.3 Storm Water Monitoring

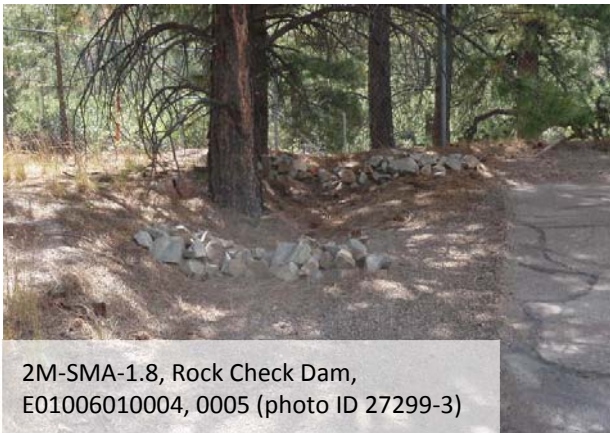
SWMU 03-001(k) is monitored within 2M-SMA-1.8. Following the installation of baseline control measures, two baseline storm water samples were collected on August 4, 2011, and September 9, 2011 (Figure 138-2). Analytical results from these samples yielded two TAL exceedances:

- Copper concentrations of 6.6 and 13.2 µg/L (MTAL is 4.3 µg/L), and
- Zinc concentration of 71.8 µg/L (MTAL is 42 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 03-001(k): Potential contaminants associated with industrial materials historically managed at this Site are solvents, PCBs, petroleum products, and tritium.

- Consent Order soil sampling has not been performed at this Site.
- Copper—Copper was detected at a maximum concentration of 6.7 times BV in fill samples collected beneath the asphalt paving in 2001.
- Zinc—Zinc was detected at a maximum concentration of 1.4 times BV in fill samples collected beneath the asphalt paving in 2001.



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

In summary, zinc was detected only slightly above BVs and is not known to be associated with industrial materials historically managed at the Site. Copper was detected above BV but is not known to be associated with the industrial materials historically managed at the Site. Based on site history and previous sampling results, the Site is an unlikely source of copper and zinc above MTALs in storm water.

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 four storm events at 2M-SMA-1.8 during the 2012 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 138-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23308	05-23-2012
Storm Rain Event	BMP-25219	07-17-2012
Enhanced Control Measure Verification	BMP-27299	09-06-2012
Storm Rain Event	BMP-27503	09-12-2012
Storm Rain Event	BMP-28174	10-10-2012
Storm Rain Event	BMP-28616	10-25-2012

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

Table 138-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25219	Relocated rock check dam - 0006 to outside fence line.	07-17-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 03-001(k)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011

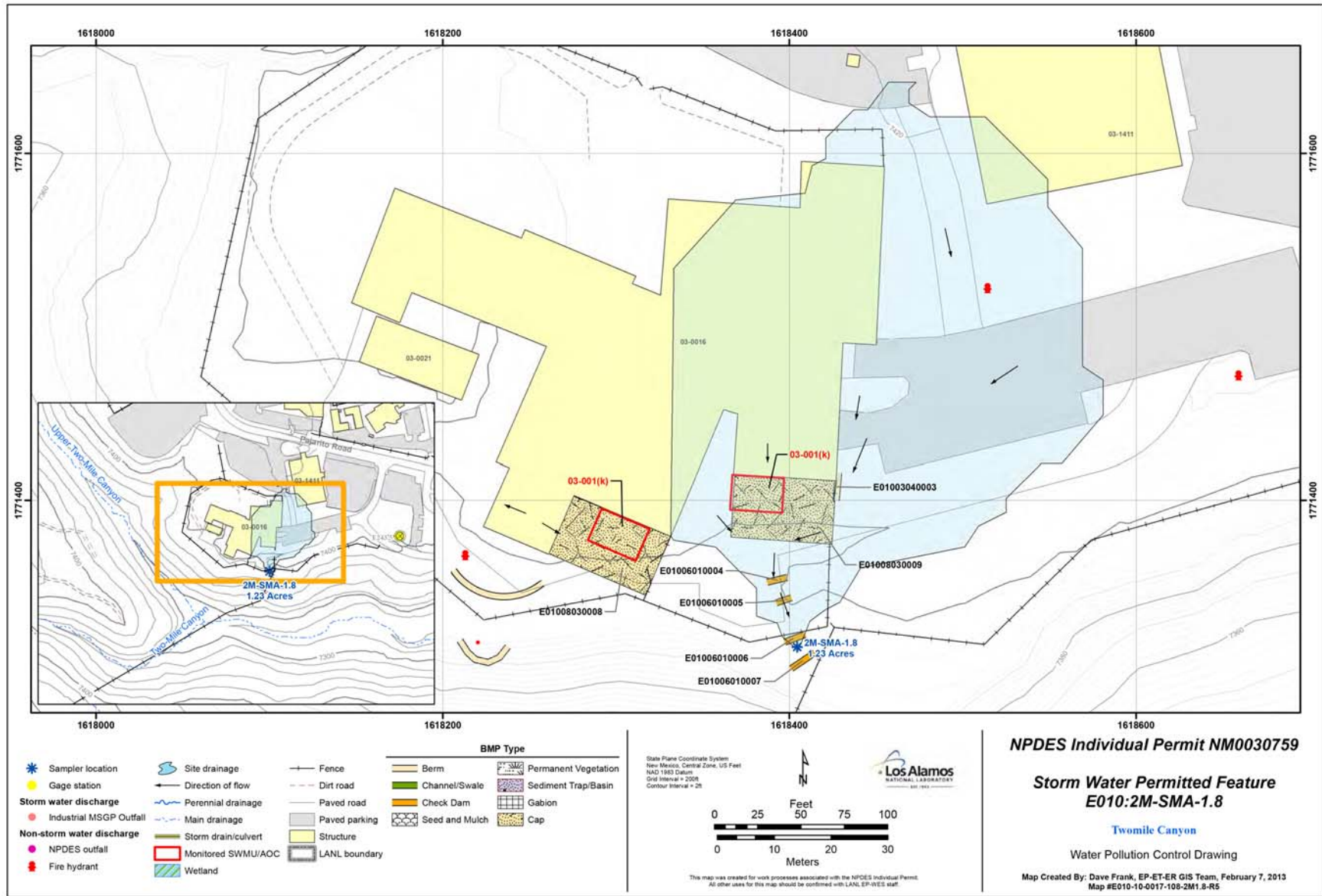
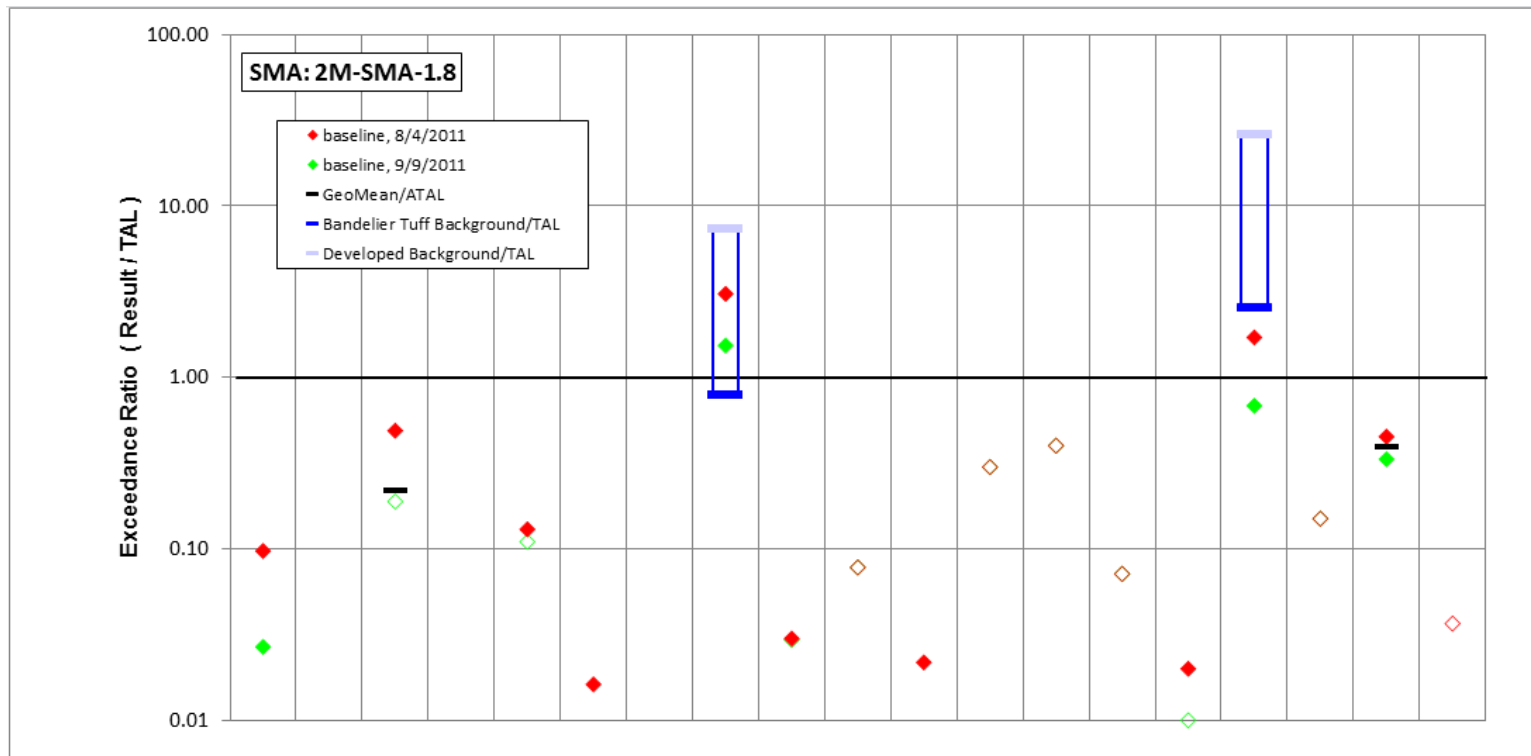


Figure 138-1 2M-SMA-1.8 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	1.2	1.5	0.2	0.45	1	28.7	0.002	5	0.17
result / TAL	0.027	0.002	0.19	0.003	0.11	0.01	0.0023	1.5	0.029	0.078	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	0.06	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	0.078	0.022	0.3	0.4	0.071	0.02	1.7	0.15	0.45	0.037

Bold font indicates result>TAL; italic font indicates 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 at TA-03. 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 in. to 20 in. high concrete curb. The concrete pad and curb are bounded on three sides by oil 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 Comprehensive Environmental Assessment and Response Program 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). SWMU 03-003(a) ceased to be used as a storage area in the early 1990s. Potential contaminants associated with industrial materials historically managed at this Site are metals, PCBs, and petroleum products.

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

The major source of run-on for this Permitted Feature is the roof drain from building 03-0040. This run-on is captured by a drop inlet that is the outfall for the SMA. Curbing acts to control flow not captured by the drop inlet. 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	Berms - Curbing	X			X	CB
E01103100002	Berms - Gravel Bags	X			X	CB
E01103100003	Berms - Gravel Bags		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls will be installed in the second quarter of 2013 as part of corrective action.

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 two 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).

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 03-003(a): Potential contaminants associated with industrial materials historically managed at this Site are metals, PCBs, and petroleum products.

- Copper—Copper was not detected above BVs in the 1994 samples.
- Zinc—Zinc was detected at a maximum concentration of 1.1 times BV in one sample collected during the 1994 Phase I RFI.

In summary, Consent Order soil sampling has not been performed at this Site. Copper was not detected above BV and zinc was detected only slightly above BVs, and copper and zinc are not known to be associated with industrial materials historically managed at the Site. Based on site history and previous sampling results, the Site is an unlikely source of copper and zinc above MTALs in storm water.

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 two storm events at 2M-SMA-1.9 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23309	05-23-2012
Storm Rain Event	BMP-25234	07-17-2012
Visual	COMP-27868	09-28-2012
Storm Rain Event	BMP-28691	10-25-2012

There were no maintenance activities conducted at 2M-SMA-1.9 in 2012.

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 139-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 03-003(a)	Baseline Monitoring	Corrective Action Initiated	Initiated 08-23-2012

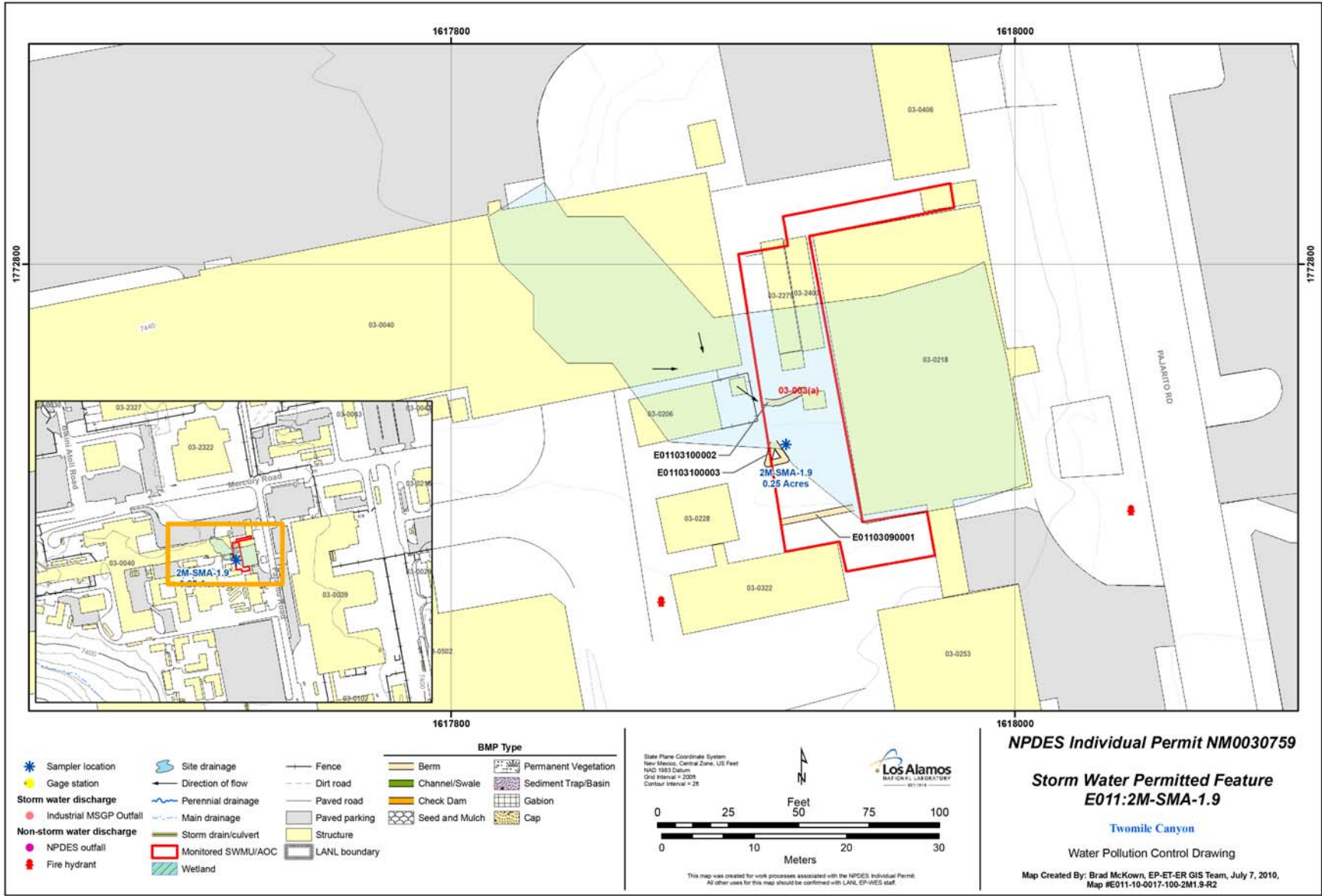
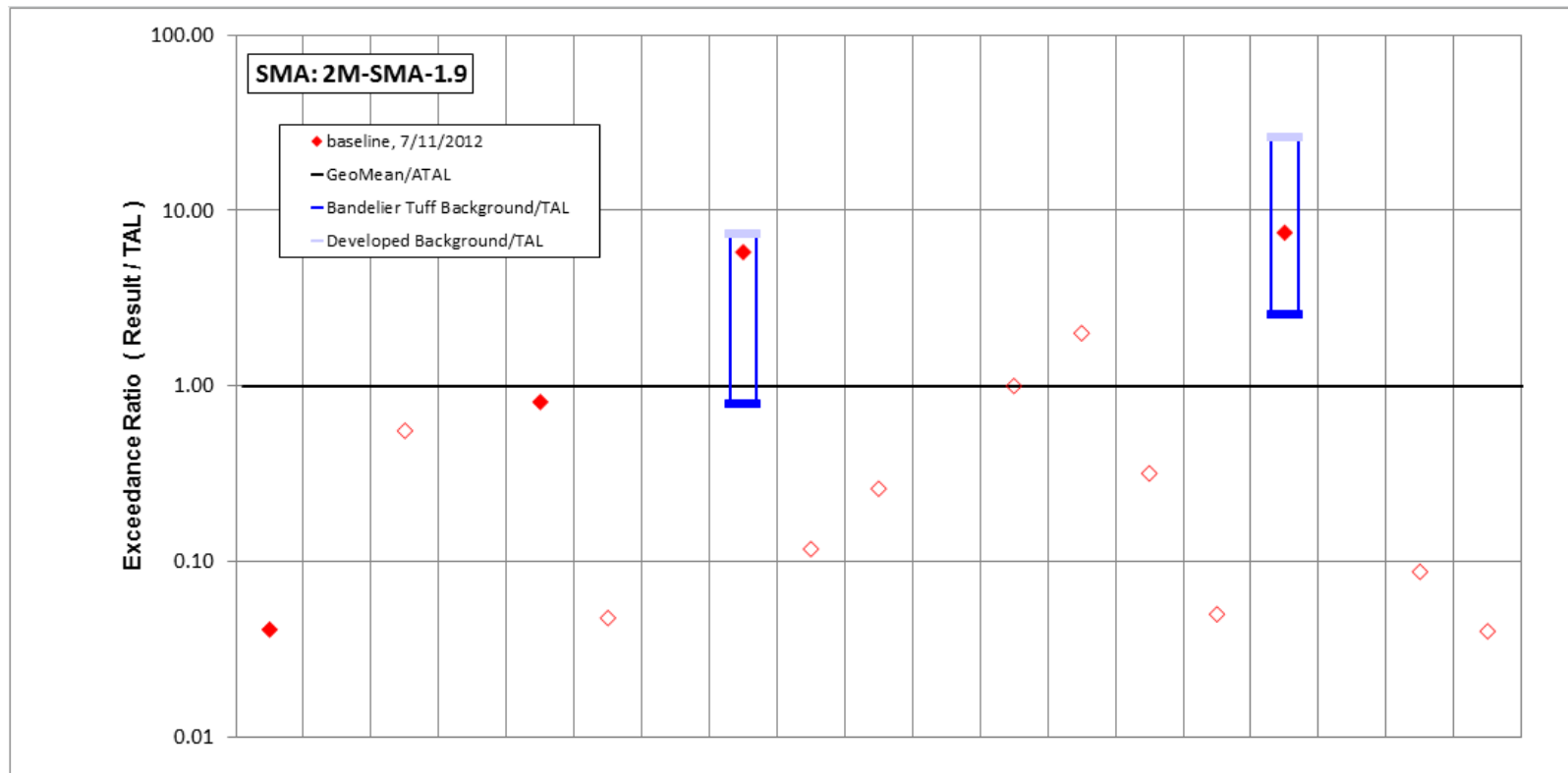


Figure 139-1 2M-SMA-1.9 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	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	0.81	<i>10</i>	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	0.81	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; italic font indicates 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) is an area of potential soil contamination associated with the exhaust emissions from the air-pollution-control device located on the south side of building 03-0102 at TA-03. The device was a shaker-type baghouse situated on a concrete pad. Building 03-0102 was constructed in 1957 for machining uranium-235 and uranium-238, lithium hydride, and small quantities of other metals. The baghouse was the primary air-pollution-control device to remove lithium-hydride particles from the gas stream to the stack, and it was also used as a secondary air-pollution-control device to remove uranium-graphite particulates from the gas stream to the stack. The baghouse ceased to operate in 1992 because of a failure detected in a test that measured the efficiency of the collection system. The baghouse was replaced by high-efficiency particulate air-filter banks. Radionuclide air emissions from the baghouse were monitored from the time it became operational in 1957 until it was decommissioned in 1992. Releases of radioactive uranium particulates through the baghouse fabric were deposited on the concrete pad. The concrete pad underlying the baghouse was subsequently painted to immobilize any existing uranium particulates. Radiological field survey results showed no detectable activity on the concrete pad or surrounding soil. Potential contaminants associated with industrial materials historically managed at this Site are metals and uranium.

SWMU 03-054(b) is an outfall located southeast of building 03-1411 and southwest of building 03-1316 at TA-03. The outfall receives storm water from surface areas surrounding 26 buildings, storm water from 94 roof drains, and noncontact cooling water from a furnace in building 03-0102. The outfall discharges to a drainage channel west of building 03-1612. The outfall was formerly permitted as NPDES 03A009 to receive discharge water from the cooling tower effluent blowdown from building 03-0102; however, this discharge was rerouted to the TA-46 Sanitary Wastewater Systems Consolidation (SWSC) Plant in 1993. Potential contaminants associated with industrial materials historically managed at this Site are metals, solvents, and petroleum products.

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>.

The Site boundaries for SWMUs 03-050(d) and 03-054(b) have been modified to match the boundaries depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary changes were minor and did not affect the SMA boundary or sampler location. The updated boundaries are shown on the project map (Figure 140-1), and the Site physical characteristic information listed in Attachment 4 has been updated.

140.2 Control Measures

The paved parking north of the channel at 03-054(b) is graded to the north, thus alleviating parking lot run-on. The culvert outlet captures storm water from the drop inlets associated with the TA-03 metals fabrication facility. 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 verified on September 10, 2012, as part of corrective action.

Table 140-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
E01202010005	Established Vegetation - Grasses and Shrubs			X		CB
E01202020004	Established Vegetation - Forested/Needle Cast			X		CB
E01203090006	Berms - Curbing	X			X	CB
E01205020014	Sediment Traps and Basins - 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 three TAL exceedances:

- Copper concentrations of 5.5 and 14.9 µg/L (MTAL is 4.3 µg/L),
- Zinc concentrations of 72.3 and 140 µg/L (MTAL is 42 µg/L), and
- PCB concentration of 60 ng/L (ATAL is 0.6 ng/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 03-050(d): Potential contaminants associated with industrial materials historically managed at this Site are metals and uranium.

- Consent Order soil sampling has not been performed at this Site. No investigations were conducted at SWMU 03-050(d) before the Consent Order went into effect in 2005.

In summary, copper, zinc, and PCBs are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of copper and zinc above MTALs and PCBs above ATAL in storm water.

SWMU 03-054(b): Potential contaminants associated with industrial materials historically managed at this Site are metals, solvents, and petroleum products.

- Consent Order soil sampling has not been performed at this Site.
- Copper—Copper was detected at a maximum concentration of 9 times the BV in soil samples collected in 2002 before building 03-1411 and a new parking lot were constructed and a new storm drain was installed at the Site.

- Zinc—Zinc was detected at a maximum concentration of 17 times BV in soil samples collected in 2002 before building 03-1411 and a new parking lot were constructed and a new storm drain was installed at the Site.
- PCBs—The samples collected in 2002 were not analyzed for PCBs because PCBs were not identified as chemicals of potential concern at this Site.

In summary, copper, zinc, and PCBs are not known to be associated with industrial materials historically managed at the Site. Based on site history and previous sampling results, the galvanized metal storm drain pipes that have carried storm water from SWMUs 03-052(a) and 03-052(e) to the SWMU 03-054(b) outfall area since the 1950s are a likely source of zinc above MTALs in storm water. In addition, storm water runoff from upgradient sources within TA-03 at Los Alamos National Laboratory (the Laboratory), including run-on from parking areas and roadways, are a likely source of copper and zinc above MTALs in storm water.

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 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 is less than both of these values, and the other result 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 result from 2011 is between these values.

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

The monitoring station was relocated on October 15, 2012, and is situated approximately 75 ft south of the original sampler location, downstream of the newly installed enhanced controls. The new location of the sampler is positioned below all enhanced controls and will provide more representative samples of storm water from SWMUs 03-050(d) and 03-054(b). Sampler coordinates and SMA drainage area are updated in Attachment 4.

140.4 Inspections and Maintenance

RG121.9 recorded two storm events at 2M-SMA-2 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23310	05-23-2012
Storm Rain Event	BMP-25235	07-25-2012
Construction	COMP-28235	10-01-2012
Construction	COMP-28465	10-10-2012
Enhanced Control Measure Verification	BMP-28342	10-10-2012
Construction	COMP-28267	10-15-2012
Storm Rain Event	BMP-28692	10-25-2012

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

Table 140-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-23722	Installed new wattle E01203060011 directly to the west of existing wattle -0007, which was retired.	06-12-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-23723	Installed new wattle E01203060012 directly to the west of existing wattle -0008, which was retired.	06-12-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-23724	Installed new wattle E01203060013 directly to the west of existing wattle -0009, which was retired.	06-12-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-25235	Needle cast and trash cleared from gabion blanket E01207020010.	07-25-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 03-050(d)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011
SWMU 03-054(b)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011

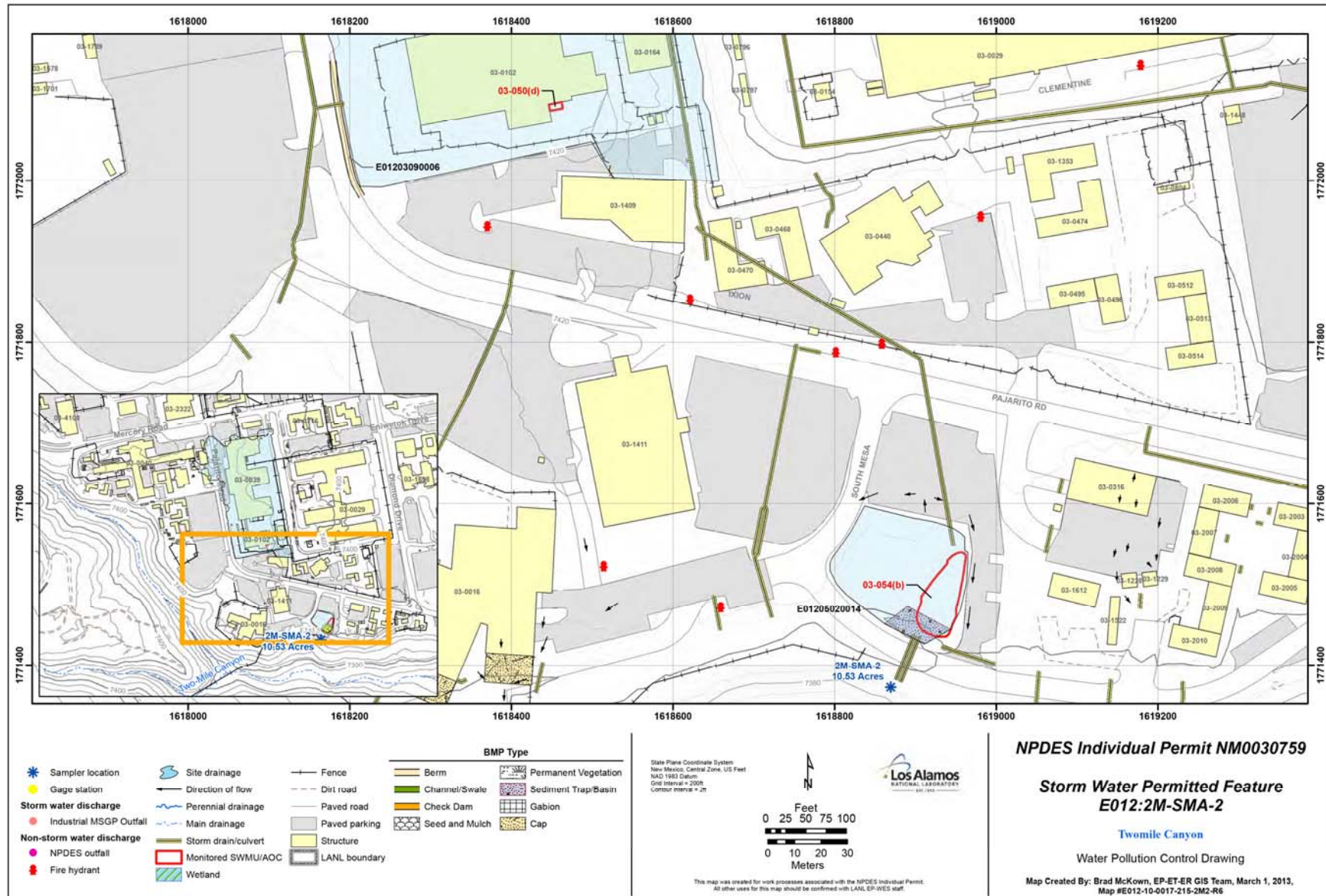
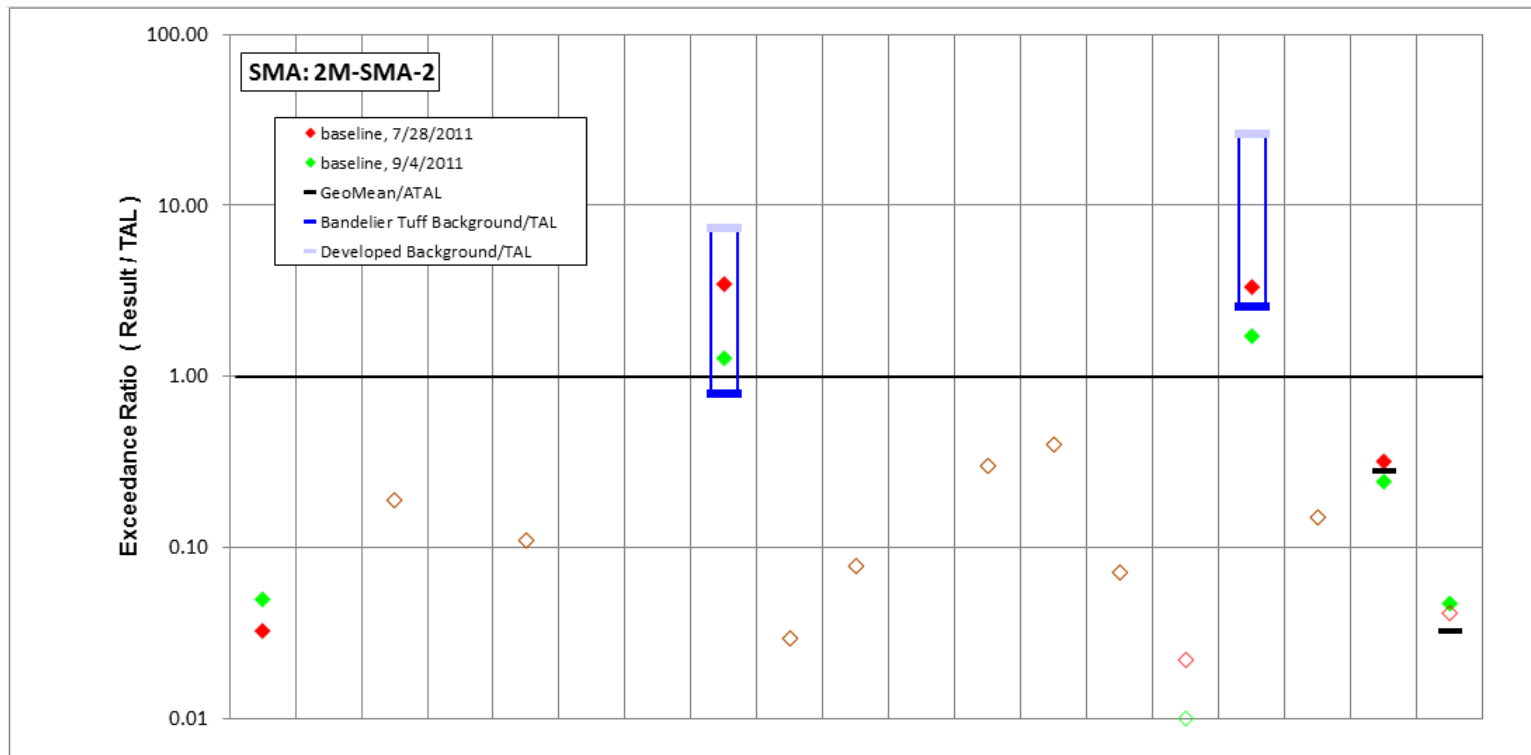


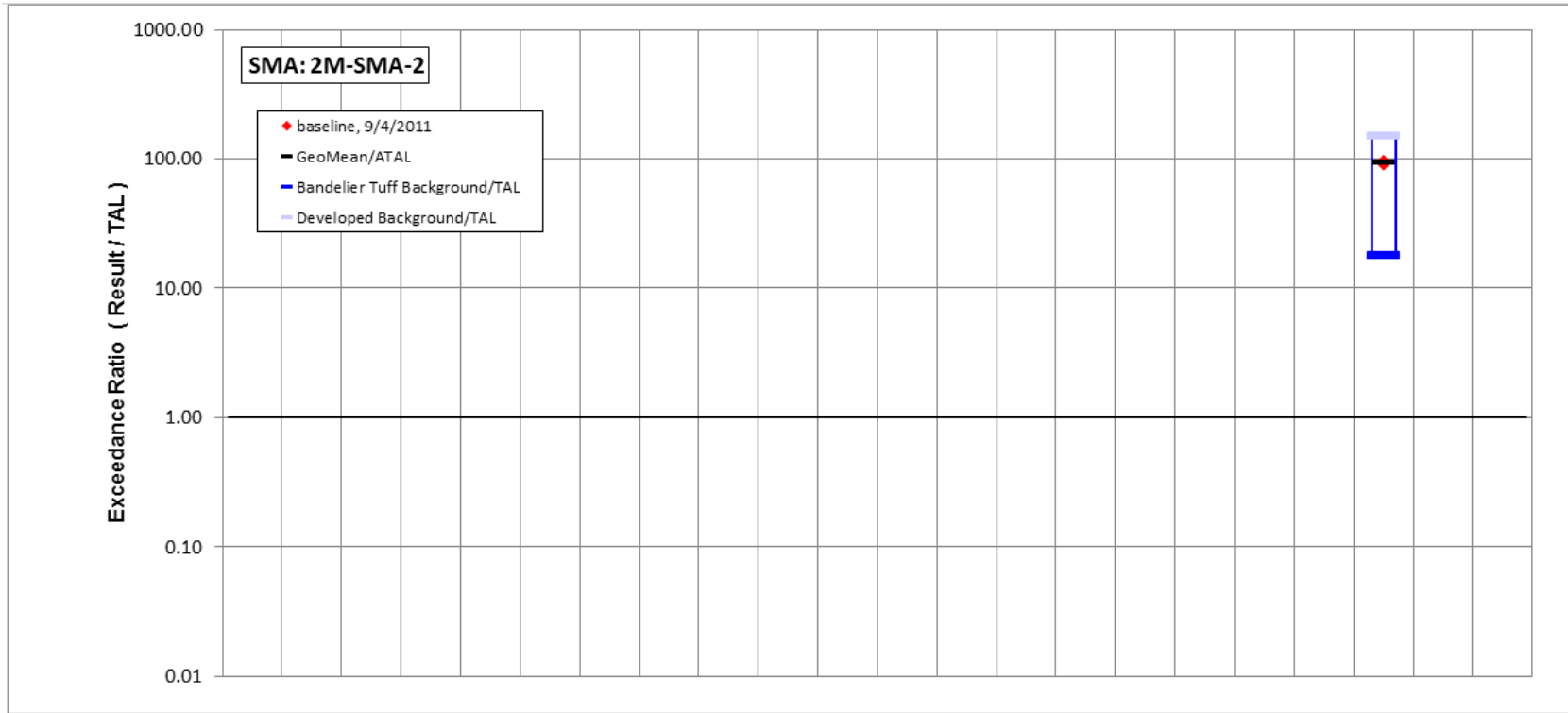
Figure 140-1 2M-SMA-2 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	37.3	1.8	1.7	15	0.11	2	2.7	5.5	0.5	0.06	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	0.078	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	0.06	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	0.078	0.0076	0.3	0.4	0.071	0.022	3.3	0.15	0.32	0.041

Bold font indicates result>TAL; italic font indicates 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
9/4/2011 result	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.06	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	94	-	-
<i>7/28/2011 result</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
result / TAL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Bold font indicates result>TAL; italic font indicates 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. Potential contaminants associated with industrial materials historically managed at this Site are PCBs.

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. An asphalt swale prevents erosion resulting from runoff. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 141-1).

Enhanced controls have been installed and were verified on September 6, 2012, as part of corrective action.

Table 141-1 Active Control Measures

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

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

AOC 03-003(k): Potential contaminants associated with industrial materials historically managed at this Site are PCBs.

- Consent Order soil sampling has not been performed at this Site and no investigations were conducted at this Site before the Consent Order went into effect in 2005.

In summary, copper and zinc are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of copper and zinc above MTALs in storm water. PCBs may have been associated with industrial materials historically used at the Site. Based on site history, the Site may be a source of PCBs above ATAL in storm water.

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 two storm events at 2M-SMA-2.2 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Visual	COMP-21610	03-27-2012
Annual Erosion Evaluation	COMP-23311	03-27-2012
Storm Rain Event	BMP-25236	07-25-2012
Enhanced Control measure verification	BMP-27300	09-06-2012
Storm Rain Event	BMP-28693	10-25-2012

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

Table 141-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25236	Concrete/asphalt channel swale E01304020003 and rock check dams E01306010004 and -0005 were cleared of needle cast and trash.	07-25-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 03-003(k)	Corrective Action Initiated	Corrective Action Initiated	Initiated 11-03-2011

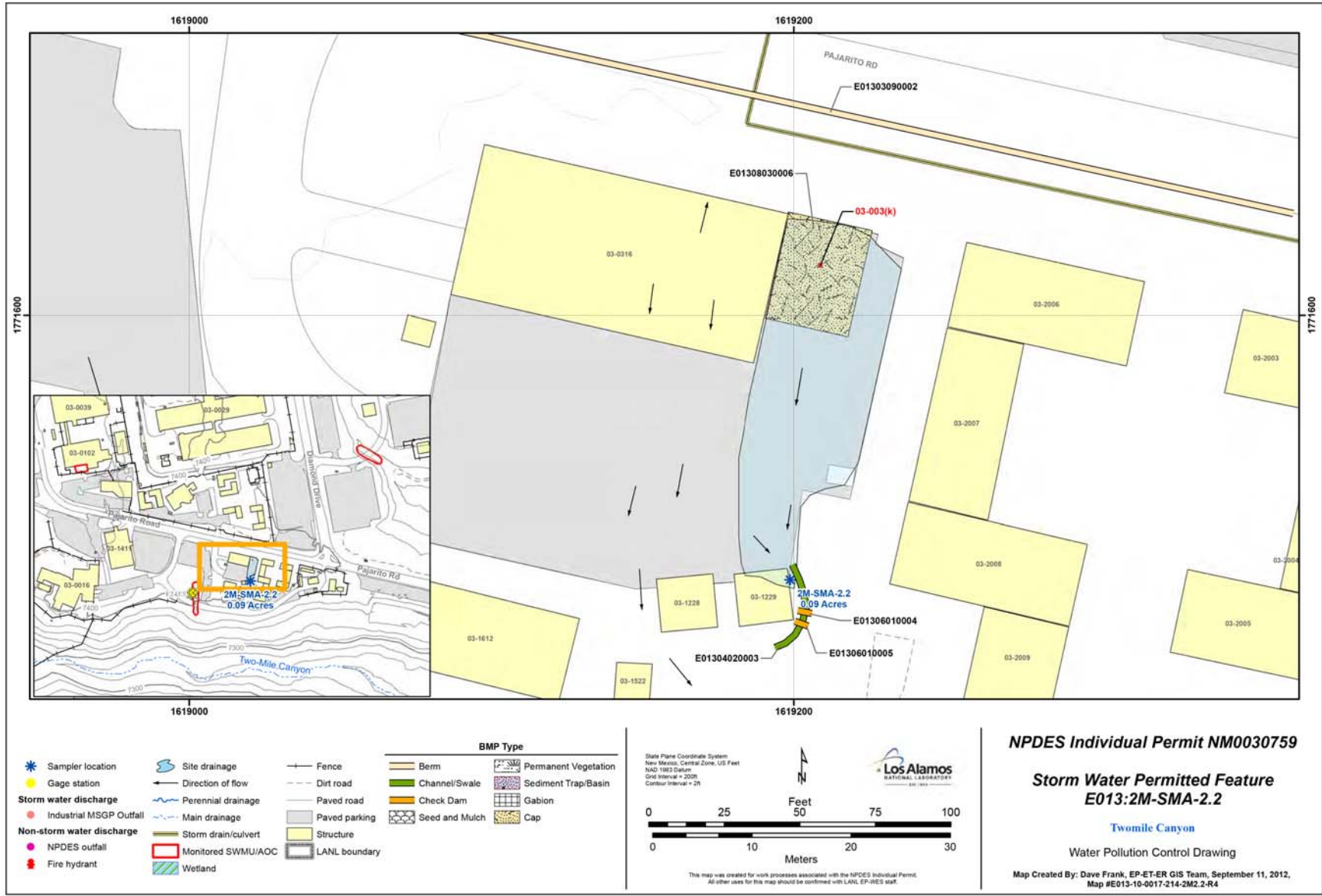
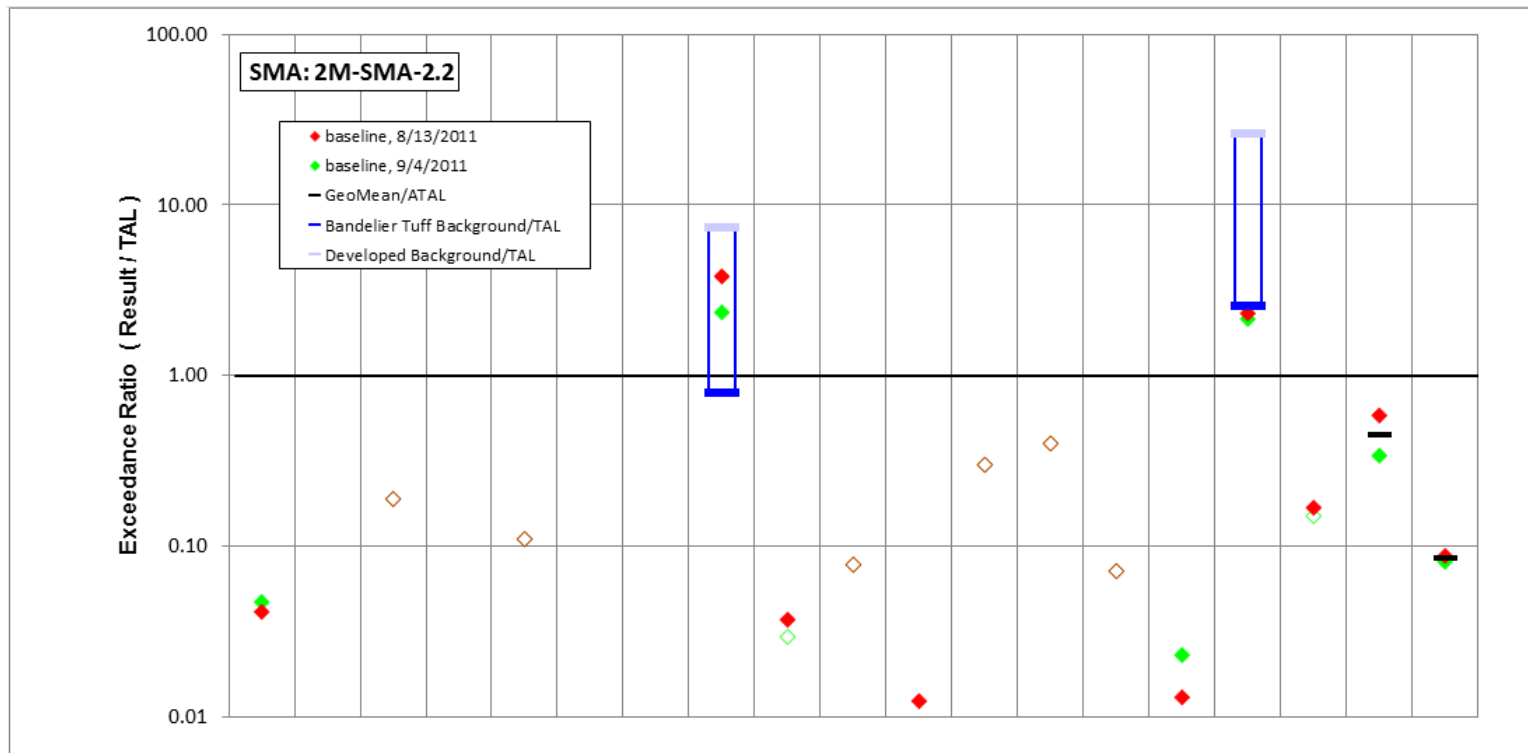


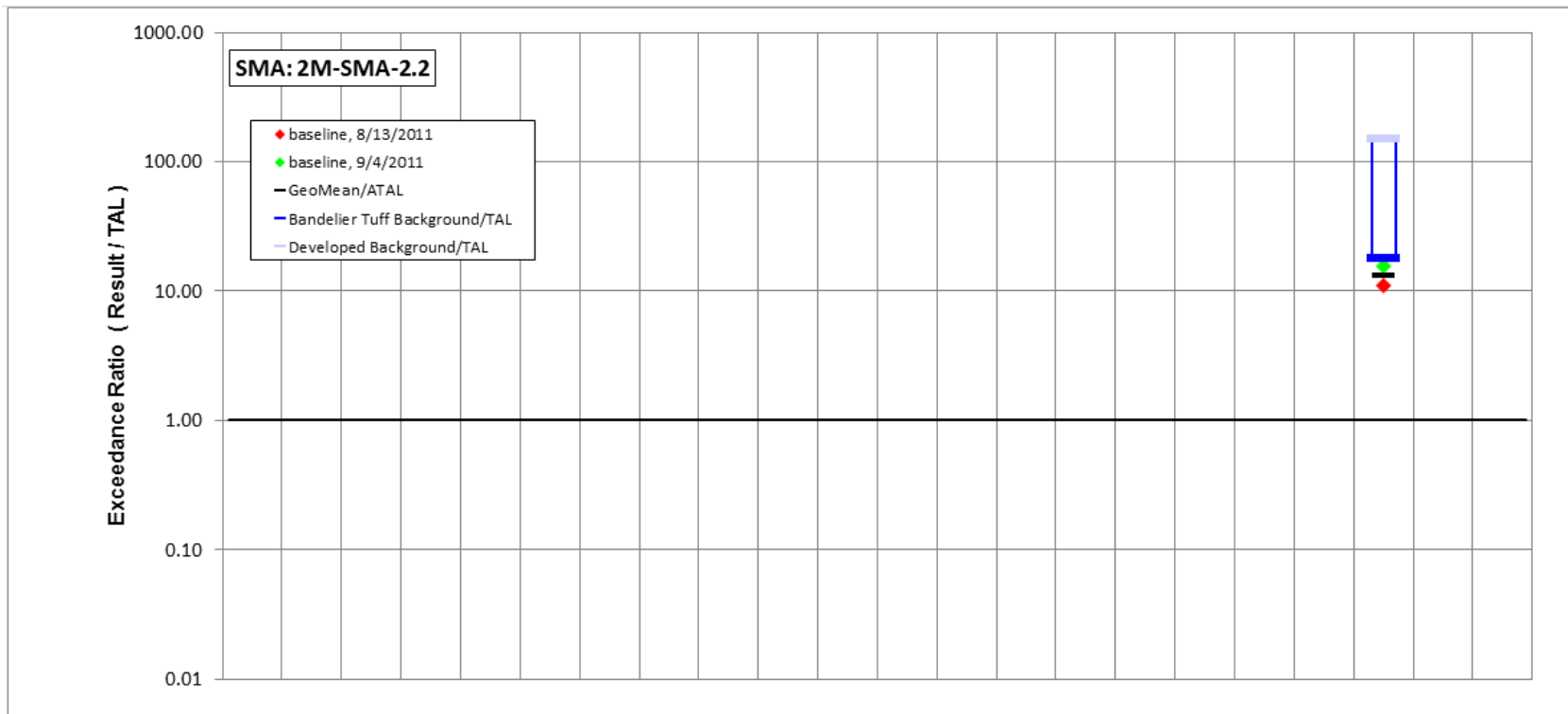
Figure 141-1 2M-SMA-2.2 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	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	0.078	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	0.06	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	0.078	0.012	0.3	0.4	0.071	0.013	2.3	0.17	0.58	0.088

Bold font indicates result>TAL; italic font indicates 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; italic font indicates 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 approximately 25 ft east of building 40-0011 at TA-40. 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.

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

The primary source of run-on to the project area originates on the paved area south of the sampler. Existing controls are in place to divert the run-on to the east. 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	
E01502010001	Established Vegetation - Grasses and Shrubs			X		CB
E01503010004	Berms - Earthen	X			X	CB
E01503010005	Berms - Earthen		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 four storm events at 2M-SMA-2.5 during the 2012 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 142-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22912	04-30-2012
Storm Rain Event	BMP-25220	07-18-2012
Storm Rain Event	BMP-27504	09-19-2012
Storm Rain Event	BMP-28175	10-10-2012
Storm Rain Event	BMP-28617	10-23-2012

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

Table 142-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25777	Re-seeded and repaired matting on berm E01503010004.	07-30-2012	12 day(s)	Maintenance conducted in timely manner.
BMP-27859	Repaired berm E01503010005 and added a geosynthetic fabric and rock lined spillway to berm.	10-03-2012	14 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-001(c)	Baseline Monitoring	Baseline Confirmation Complete	No Comment



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

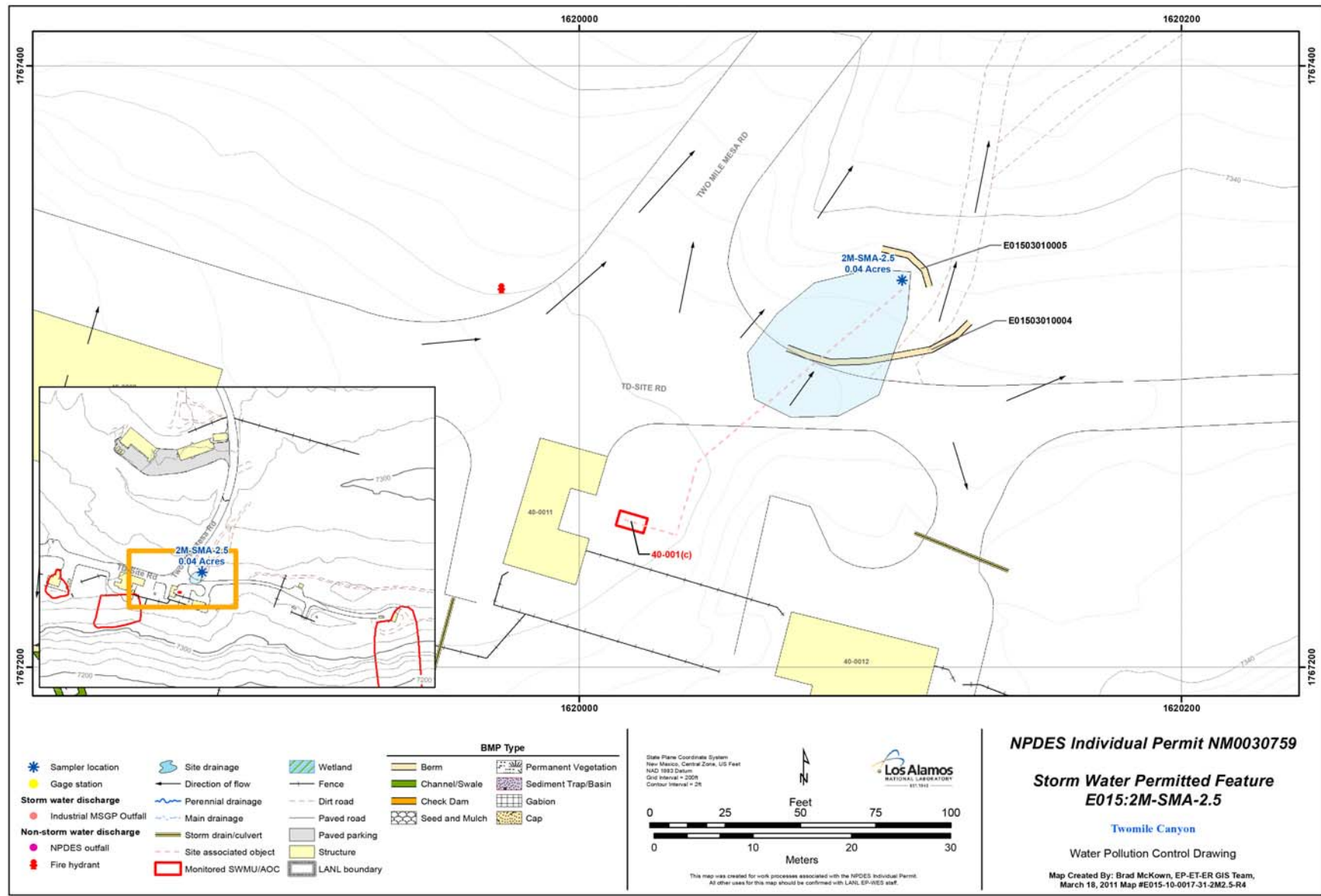
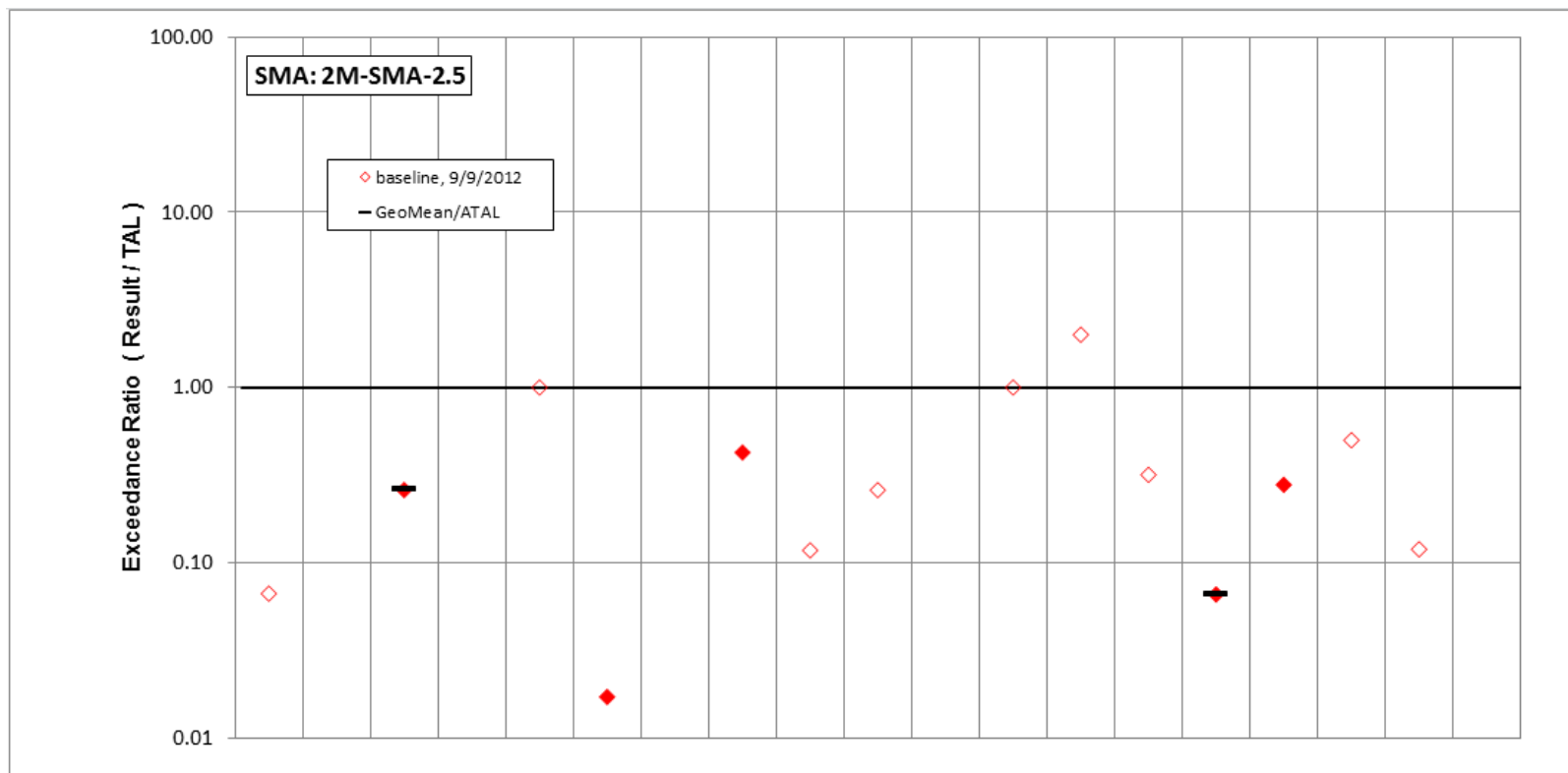


Figure 142-1 2M-SMA-2.5 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.53	5	1	2	6.59	11.7	0.005	1.79	0.2
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; italic font indicates 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 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 plastic-bonded explosive (PBX [potassium butyl xanthate]) were found. This method of destroying detonators was discontinued at this site in 1959.

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.

SWMU 07-001(c) is in an inactive amphitheater-shaped firing site, approximately 50 ft × 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 the site may have been used briefly to study ballistic initiation of critical mass through the study of projectiles fired at lead plates.

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 the site 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.

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>.

The Site boundary for SWMU 07-001(c) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change reduced effectiveness of the control measures. The updated Site boundary is shown on the project map (Figure 143.1), and the Site physical characteristic information listed in Attachment 4 has been updated. Control measure installations planned to address the boundary changes are shown with dashed lines in Figure 143.1. Construction will begin this spring when the soil surface is no longer frozen. The SMA boundary or sampler location was not affected by the Site boundary change.

The Site boundary for SWMU 07-001(d) has been modified to match the boundary depicted in the administrative record for the Consent order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA

boundary or sampler location. The updated boundary is shown on the project map (Figure 143.1) and the Site physical characteristic information listed in Attachment 4 has been updated.

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	
E01402010004	Established Vegetation - Grasses and Shrubs			X		CB
E01403060008	Berms - Straw Wattles		X		X	CB
E01403060009	Berms - Straw Wattles		X		X	CB
E01403060010	Berms - Straw Wattles	X			X	B
E01403060011	Berms - Straw Wattles		X		X	B
E01403060012	Berms - Straw Wattles		X		X	B

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

143.3 Storm Water Monitoring

For calendar year 2012, 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.

143.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at 2M-SMA-3 during the 2012 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 143-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23312	05-08-2012
Storm Rain Event	BMP-25221	07-18-2012
Storm Rain Event	BMP-27505	09-19-2012
Storm Rain Event	BMP-28176	10-02-2012
Storm Rain Event	BMP-28618	10-24-2012

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

Table 143-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-29283	Installed new wattle E01403060012 as a replacement and extension of existing wattle -0005, which was retired.	11-06-2012	13 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 07-001(a)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU 07-001(b)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU 07-001(c)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU 07-001(d)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

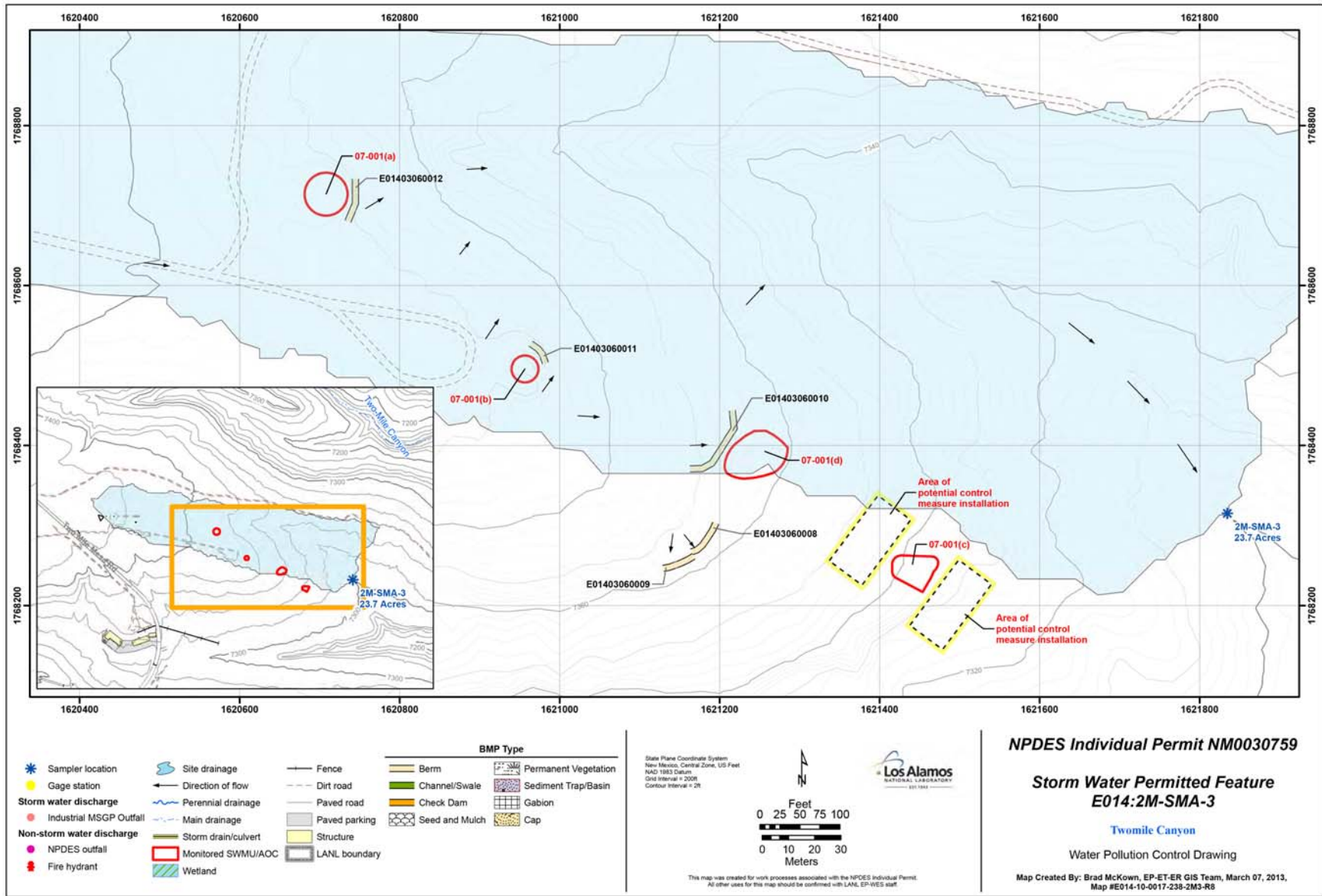


Figure 143-1 2M-SMA-3 location map

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 ft × 5 ft × 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 removal of the tank, which was found to contain liquid, until the contents were characterized. The liquid contents were sampled for waste characterization purposes and found to be nonhazardous and nonradioactive and were removed. The facility has requested the tank be closed in place and filled with concrete.

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>.

A recent review of SWMU/AOC boundaries in the Potential Release Site Database determined that the Site boundary for SWMU 15-010(b) is inaccurate. Los Alamos National Security, LLC, has submitted a letter to the New Mexico Environment Department (NMED) requesting approval of proposed boundary updates. The accurate, proposed boundary is shown with a dotted line on the project map (Figure 144-1). Upon NMED approval, the proposed, dotted boundary line on the project map will be replaced with a solid line and updated on the Project Maps page of the IP website. This change will also be incorporated into the next Site Discharge Pollution Prevention Plan (SDPPP) update.

144.2 Control Measures

Run-on from the R-Site Road north along the unpaved access road bisecting the Permitted Feature is significant. This run-on is diverted along a natural drainage channel on the western side of the SMA. This run-on source does not impact the settling tank outfall area. 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	
H00102020001	Established Vegetation - Forested/Needle Cast			X		CB
H00103010005	Berms - Earthen	X			X	B
H00106010002	Check Dam - Rock		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

144.3 Storm Water Monitoring

For calendar year 2012, 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 four storm events at 3M-SMA-0.2 during the 2012 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 144-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22932	06-06-2012
Storm Rain Event	BMP-25222	07-19-2012
Storm Rain Event	BMP-27506	09-21-2012
Storm Rain Event	BMP-28177	10-05-2012
Storm Rain Event	BMP-28619	10-24-2012

There were no maintenance activities conducted at 3M-SMA-0.2 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	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)

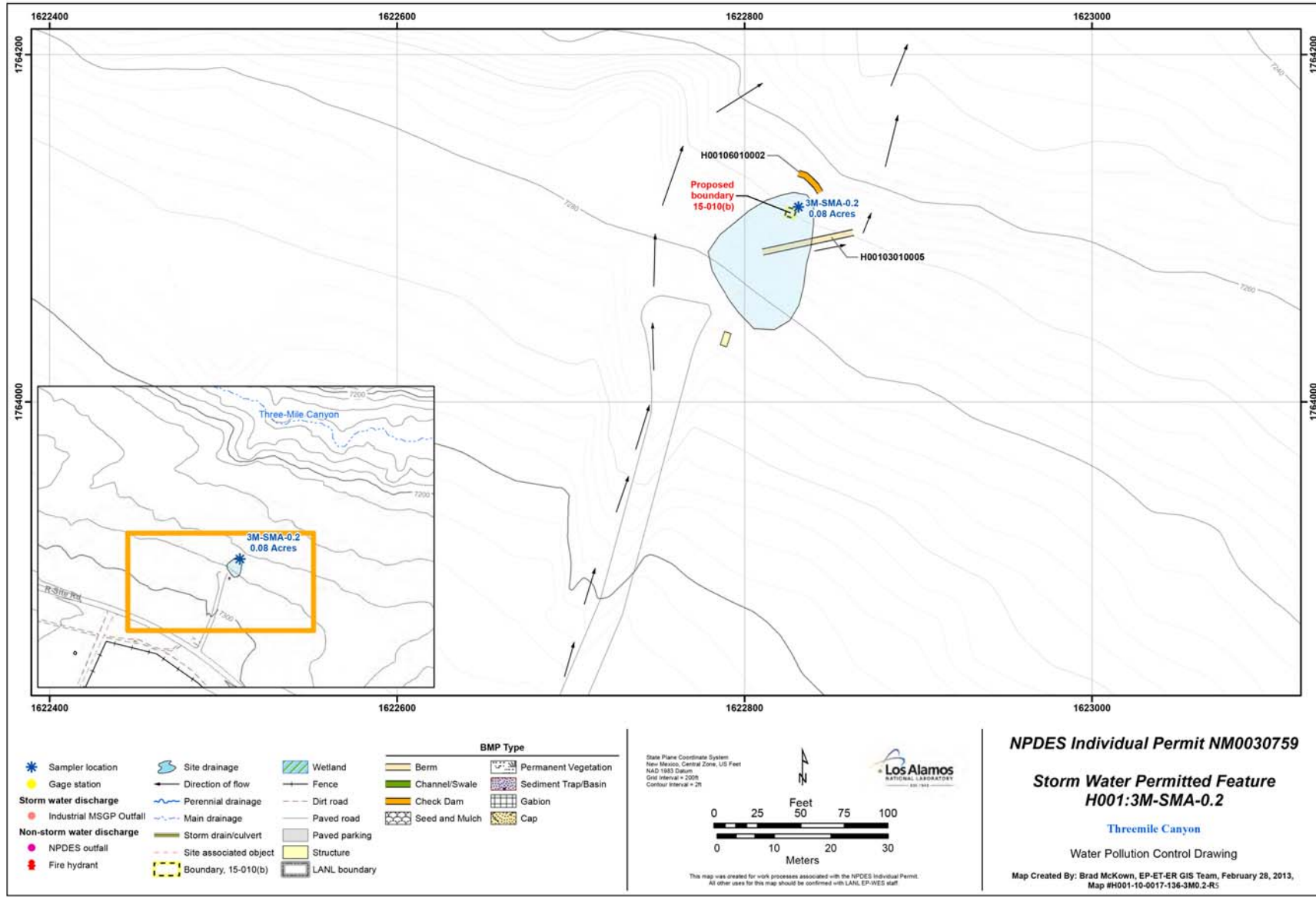


Figure 144-1 3M-SMA-0.2 location map

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 multidagnostic hydrotest (building 15-306), and the blast-protection structure (15-319). Materials used in the tests included uranium, beryllium, lead, and HE.

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. Planned controls are to address runoff around the existing drop inlet. 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	
H00202010001	Established Vegetation - Grasses and Shrubs			X		CB
H00203010003	Berms - Earthen		X		X	CB
H00203010004	Berms - Earthen		X		X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

145.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-0.4. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

145.4 Inspections and Maintenance

RG262.4 recorded four storm events at 3M-SMA-0.4 during the 2012 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 145-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22927	06-06-2012
Storm Rain Event	BMP-24913	07-16-2012
Storm Rain Event	BMP-25892	07-27-2012
Storm Rain Event	BMP-27552	09-20-2012

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

Table 145-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-23998	Repaired matting on berm H00203010004.	06-12-2012	6 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 15-006(b)	Baseline Monitoring	Baseline Monitoring Extended	No Comment



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

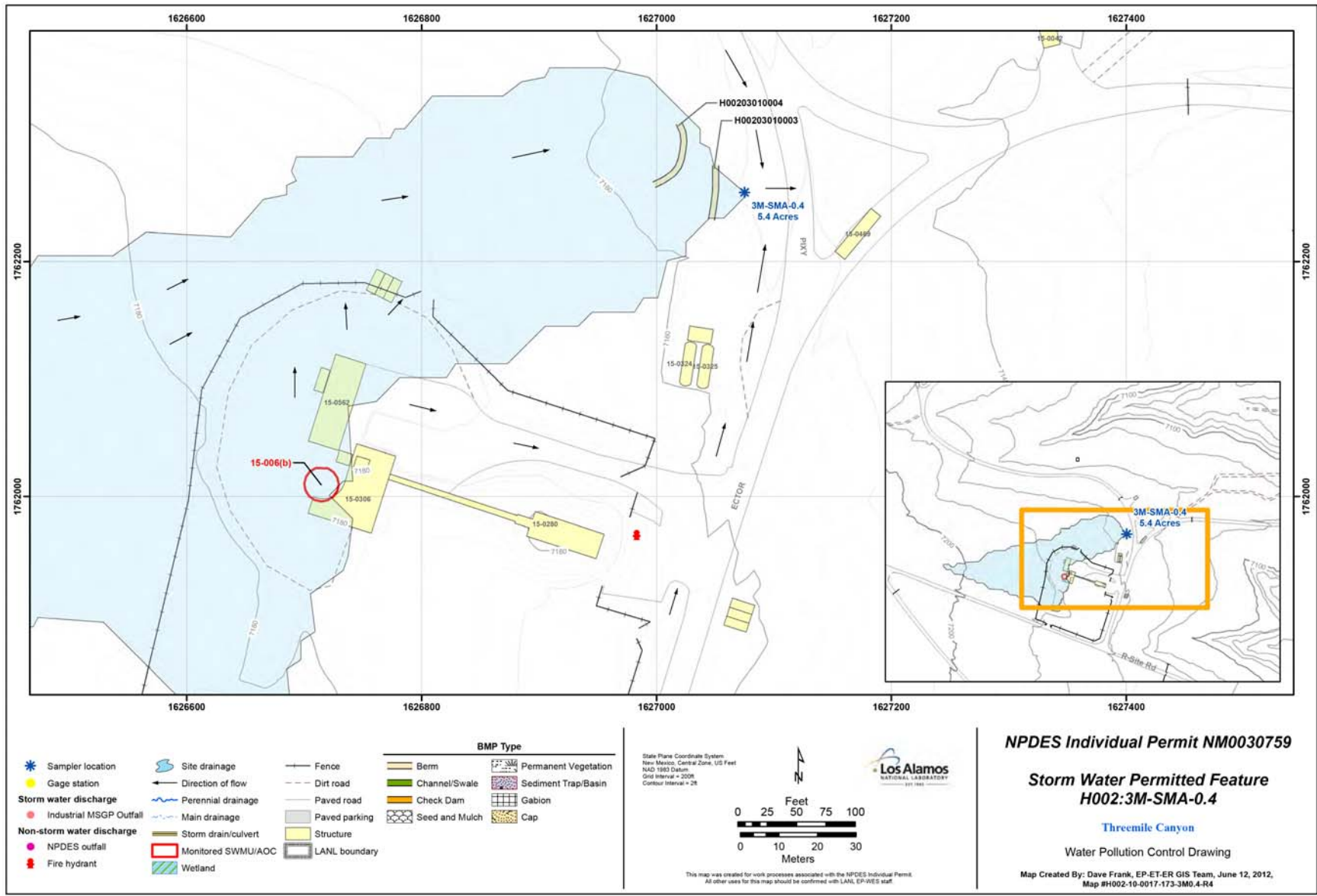


Figure 145-1 3M-SMA-0.4 location map

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 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 Pulsed High-Energy Radiographic Machine Emitting X-Rays (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. Along with SWMU 15-008(b), SWMU 15-006(c) is a component of Consolidated Unit 15-006(c)-99.



3M-SMA-0.5, Rock Check Dam, H00306010005 (photo ID 10873-9)

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 2009–2010 site investigation, but the drainlines remain in place.

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	
H00301030015	Seed and Mulch - Hydromulch			X		CB
H00302010003	Established Vegetation - Grasses and Shrubs			X		CB
H00303010014	Berms - Earthen		X		X	CB
H00304060001	Channel/Swale - Rip Rap		X	X		CB
H00304060004	Channel/Swale - Rip Rap		X	X		CB
H00306010002	Check Dam - Rock		X		X	CB
H00306010005	Check Dam - Rock	X			X	CB
H00306010006	Check Dam - Rock	X			X	CB
H00306010007	Check Dam - Rock	X			X	CB
H00306010008	Check Dam - Rock	X			X	CB
H00306010009	Check Dam - Rock	X			X	CB
H00306010010	Check Dam - Rock	X			X	CB
H00306010011	Check Dam - Rock	X			X	CB
H00306010012	Check Dam - Rock	X			X	CB
H00306010013	Check Dam - Rock		X		X	CB
H00306010016	Check Dam - Rock	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

146.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-0.5. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

146.4 Inspections and Maintenance

RG262.4 recorded four storm events at 3M-SMA-0.5 during the 2012 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 146-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22928	06-06-2012
Storm Rain Event	BMP-24914	07-16-2012
Storm Rain Event	BMP-25893	07-27-2012
Storm Rain Event	BMP-27553	09-20-2012

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

Table 146-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25495	Added seed and mulch to bare area in hydromulch H00301030015 behind berm H00303010014.	07-25-2012	9 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 15-006(c)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU 15-009(c)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

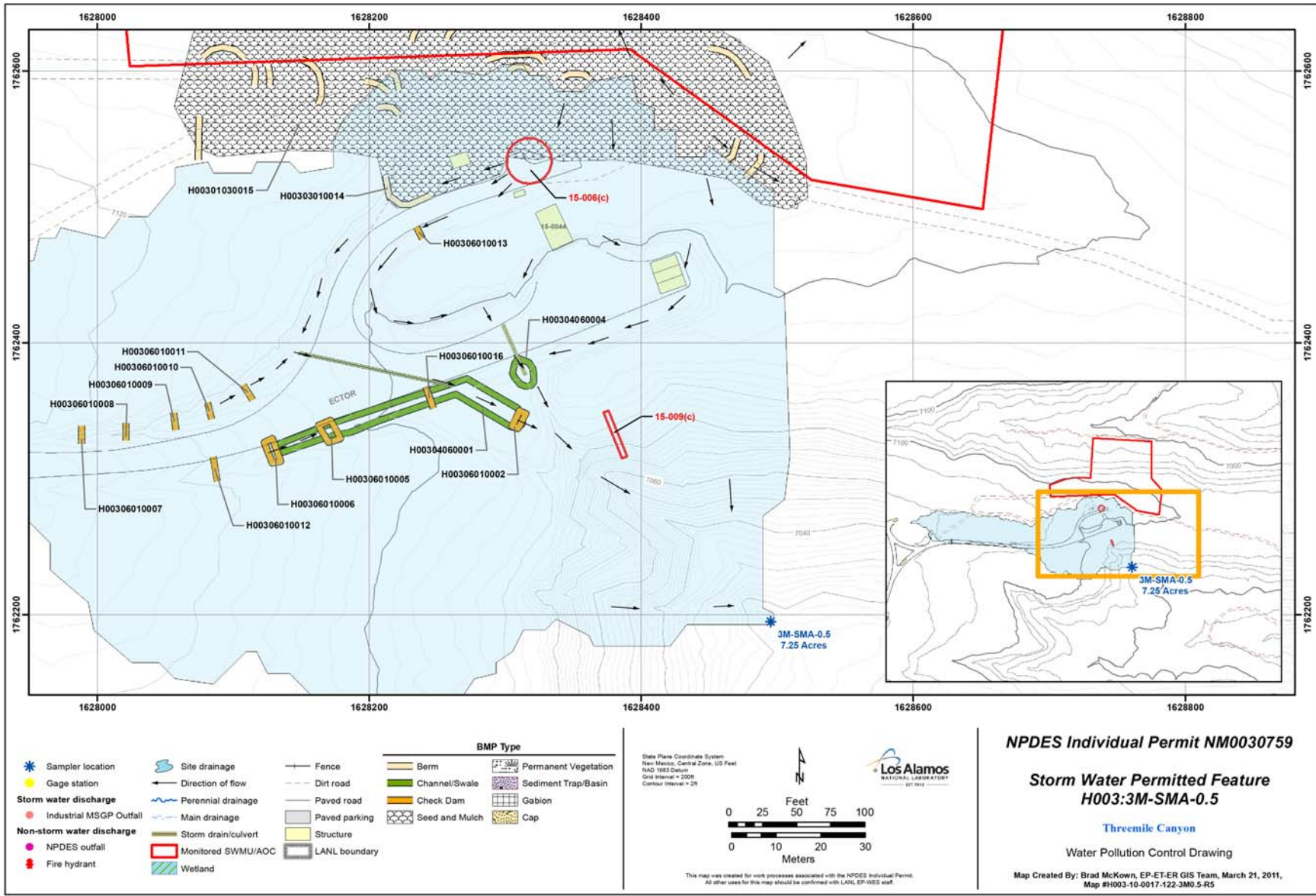


Figure 146-1 3M-SMA-0.5 location map

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 located north of firing site R-44 [SWMU 15-006(c)] and extending along the edge of the mesa and downslope into Threemile Canyon at TA-15. 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).

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).



3M-SMA-0.6, Hydromulch, H00401030028 (photo ID 10872-14)

Table 147-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
H00401010025	Seed and Mulch - Seed and Wood Mulch	X		X		CB
H00401030028	Seed and Mulch - Hydromulch			X		CB
H00402010001	Established Vegetation - Grasses and Shrubs			X		CB
H00402020026	Established Vegetation - Forested/Needle Cast			X		CB
H00403060002	Berms - Straw Wattles	X			X	CB
H00403060003	Berms - Straw Wattles	X			X	CB
H00403060004	Berms - Straw Wattles	X			X	CB
H00403060006	Berms - Straw Wattles	X			X	CB
H00403060007	Berms - Straw Wattles	X			X	CB
H00403060008	Berms - Straw Wattles	X			X	CB
H00403060009	Berms - Straw Wattles	X			X	CB
H00403060010	Berms - Straw Wattles	X			X	CB
H00403060011	Berms - Straw Wattles		X		X	CB
H00403060012	Berms - Straw Wattles		X		X	CB
H00403060013	Berms - Straw Wattles		X		X	CB
H00403060015	Berms - Straw Wattles	X			X	CB
H00403060017	Berms - Straw Wattles		X		X	CB
H00403060018	Berms - Straw Wattles		X		X	CB
H00403060019	Berms - Straw Wattles		X		X	CB
H00403060020	Berms - Straw Wattles		X		X	CB
H00403060021	Berms - Straw Wattles		X		X	CB
H00403060022	Berms - Straw Wattles	X			X	CB
H00403060023	Berms - Straw Wattles	X			X	CB
H00403060024	Berms - Straw Wattles		X		X	CB
H00403060027	Berms - Straw Wattles		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

147.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at 3M-SMA-0.6 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 147-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22929	06-06-2012
Storm Rain Event	BMP-26890	08-30-2012

There were no maintenance activities conducted at 3M-SMA-0.6 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 15-008(b)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

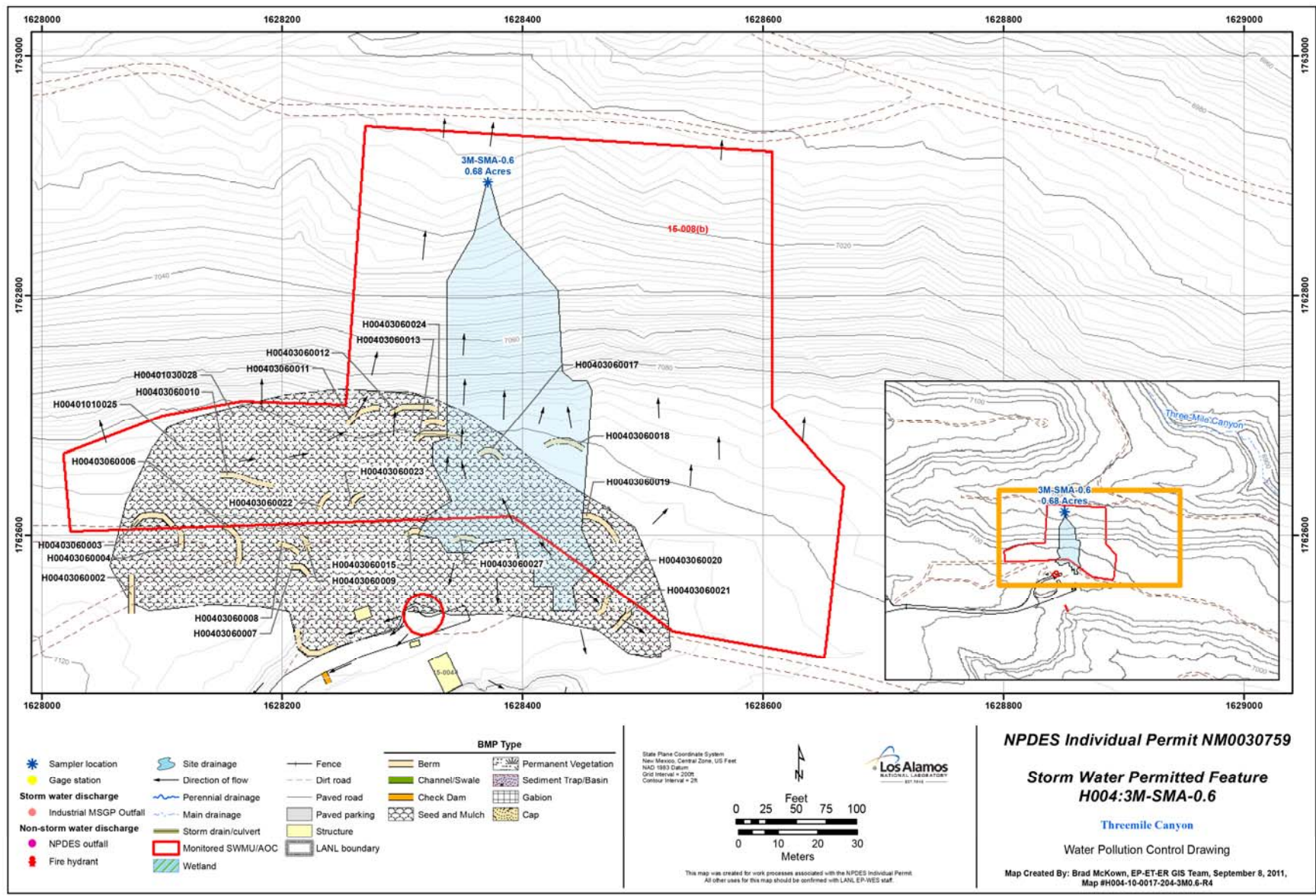


Figure 147-1 3M-SMA-0.6 location map

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 yd³ of debris was collected from the site, segregated, and staged for disposal. Also, as part of the emergency response action, storm water best management practices were implemented to prevent erosion.

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.



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

Road run-on south of the SMA is captured by an asphalt swale, drop inlet, and culvert and discharges to the slope west of the SWMU boundary. A portion of this flow runs onto the SMA at the western boundary. Planned controls are to address this run-on source along the western boundary. 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	
H00502010001	Established Vegetation - Grasses and Shrubs			X		CB
H00502020002	Established Vegetation - Forested/Needle Cast			X		CB
H00502030004	Established Vegetation - Vegetative Buffer Strip		X	X	X	CB
H00503120005	Berms - Rock	X			X	CB
H00504040003	Channel/Swale - Culvert	X				CB
H00506010006	Check Dam - Rock		X		X	CB

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

148.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at 3M-SMA-2.6 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 148-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22930	05-21-2012
Storm Rain Event	BMP-26891	08-29-2012

There were no maintenance activities conducted at 3M-SMA-2.6 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 36-008	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU C-36-003	Baseline Monitoring	Baseline Monitoring Extended	No Comment

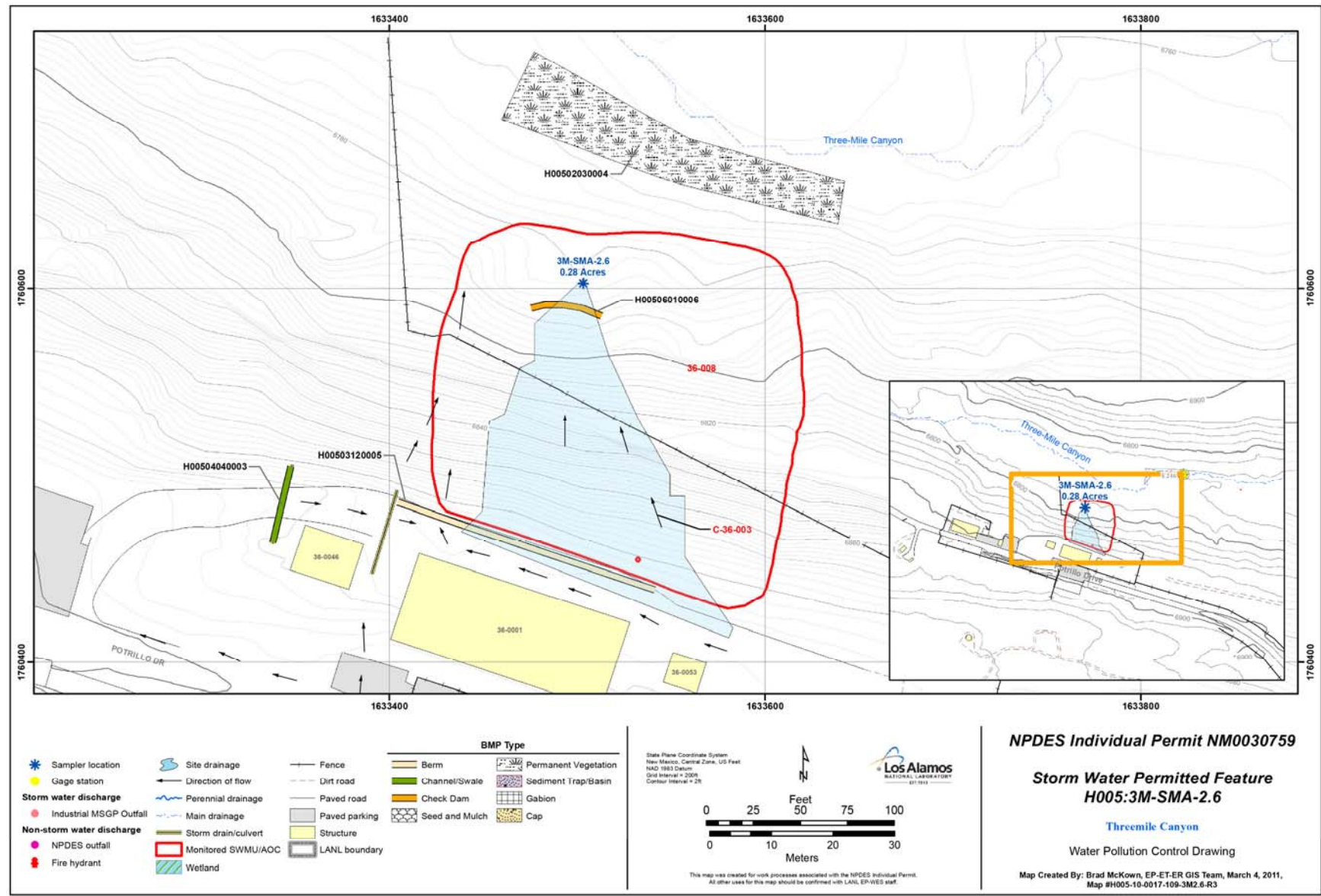


Figure 148-1 3M-SMA-2.6 location map

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 an inactive firing site at TA-18 in Threemile Canyon near the present location of building 18-0032 (Kiva 2). 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 18-0004) constructed from 1-in.-thick steel and an aboveground armored bunker (structure 18-0005), 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 18-0005. A ground-level wooden structure (former structure 18-0006), located east of structure 18-0005, was the battery building for the firing site cable conduit system. It contained racks of lead-acid batteries. Structure 18-0004 was removed in 1945, structure 18-0006 was dismantled in 1951, and structure 18-0005 remains. Three additional firing points farther up canyon are associated with SWMU 18-002(b). Firing Point C (now beneath building 18-0032) was 51 ft west of structure 18-0005 and on its midline. Firing Point G, located at the southeast corner of the current storage building 18-0122, was 145 ft west of structure 18-0005 on its midline. Firing Points C and G were used in firing operations involving smaller charges than the third firing point. The third firing point, Medium Firing Point, was built to handle HE charges of up to 2 tons. It was located 478 ft west of structure 18-0005 and 15 ft south of its midline. A flat graded area west of building 18-0032 marks the former location of this firing point. The firing points were removed in the late 1940s, before the construction of building 18-0032.

SWMU 18-003(c) is an inactive septic system at TA-18 that received sanitary waste from building 18-0032 from 1952 to 1995. The system includes an inlet line, a reinforced concrete septic tank (structure 18-0042), a discharge line, a drain field, and an outfall. The septic tank is located approximately 15 ft east of building 18-0128 and approximately 90 ft northeast of building 18-0032. The tank measures 6 ft in diameter × 5 ft deep and has a capacity of 650 gal. The inlet line leading to the tank is approximately 130 ft long, 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 line is approximately 75 ft long. An outfall, located at the distal end of the drain field, discharged into the stream channel in Threemile Canyon.



3M-SMA-4, Permanent Vegetation Vegetative Buffer Strip, H00602010004 (photo ID 7593-3)

AOC 18-010(f) is an outfall at TA-18 that received discharge from the roof and floor drains of building 18-0032. The roof and floor drains discharge to a storm drain that exits the building under the pavement from the northeast corner of building 18-0032. The storm drainline discharges to an outfall, approximately 100 ft north of building 18-0032, located on a sandy grassy bank on the south side of the stream channel in Threemile Canyon. Building 18-0032 was built in 1951 and used for nuclear critical

assembly work. The date this outfall became operational is not known, but it is likely the outfall has operated from the time building 18-0032 was constructed in 1951.

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. Installed controls are in place to stabilize this channel. 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	
H00602010004	Established Vegetation - Grasses and Shrubs			X		CB
H00603010007	Berms - Earthen		X		X	CB
H00603010008	Berms - Earthen		X		X	CB
H00604020009	Channel/Swale - Concrete/Asphalt	X		X		CB
H00604060005	Channel/Swale - Rip Rap	X		X		CB
H00604060006	Channel/Swale - Rip Rap		X	X		CB
H00607010002	Gabions - Gabions	X			X	CB

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

149.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at 3M-SMA-4. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

149.4 Inspections and Maintenance

RG245.5 recorded one storm event at 3M-SMA-4 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 149-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22931	05-21-2012
Storm Rain Event	BMP-26892	08-29-2012

There were no maintenance activities conducted at 3M-SMA-4 in 2012.

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 149-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-002(b)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
SWMU 18-003(c)	Baseline Monitoring	Baseline Monitoring Extended	No Comment
AOC 18-010(f)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

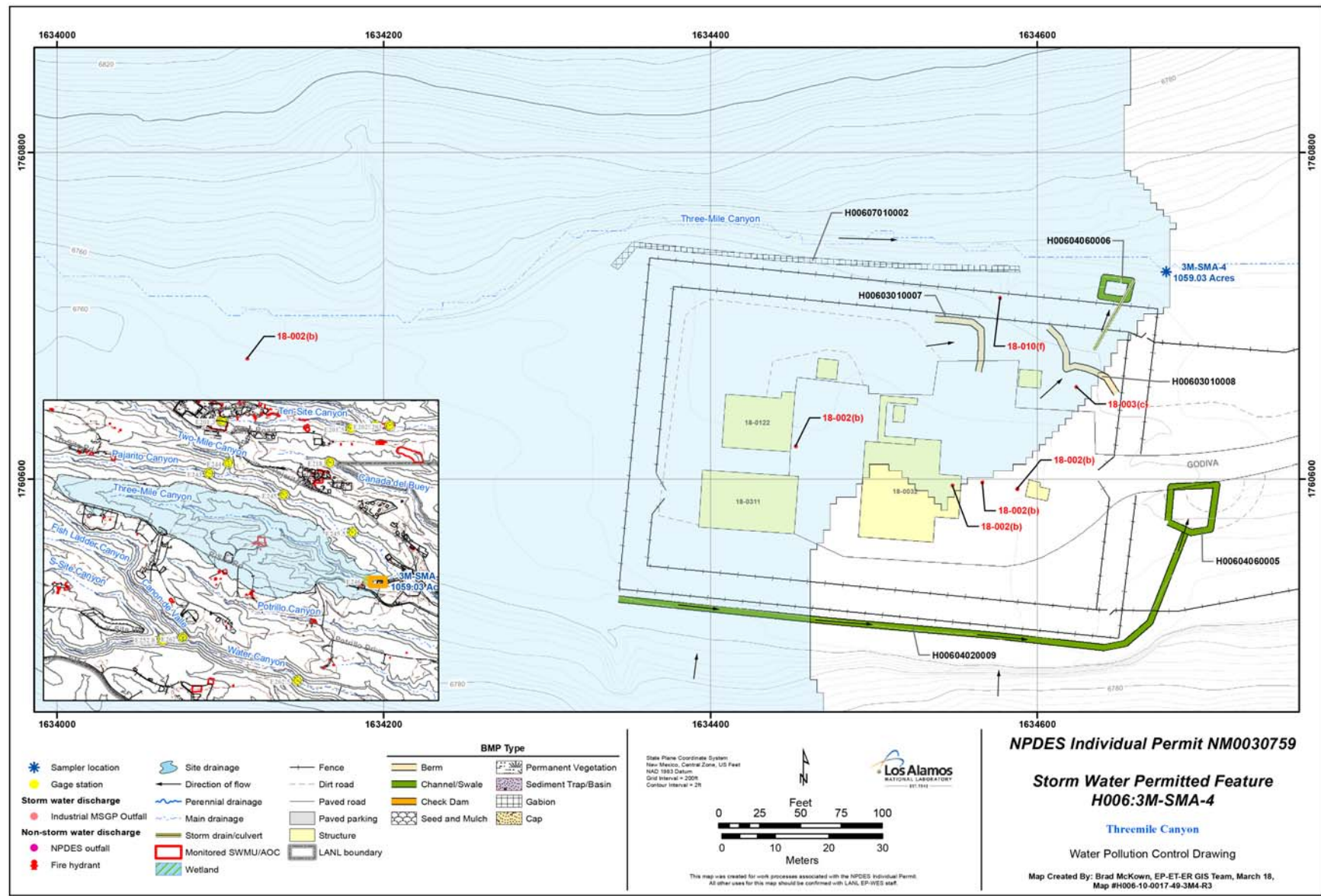


Figure 149-1 3M-SMA-4 location map

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 southeast of building 22-0120. 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 (1960–1965) 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 1995–1996.

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 Mulch - Seed and Wood Mulch			X		B
J00102010003	Established Vegetation - Grasses and Shrubs			X		CB
J00103010017	Berms - Earthen		X		X	B
J00103010018	Berms - Earthen		X		X	B
J00104050008	Channel/Swale - Water Bar		X	X		CB
J00104050009	Channel/Swale - Water Bar	X		X		CB
J00104050012	Channel/Swale - Water Bar	X		X		B
J00104050013	Channel/Swale - Water Bar	X		X		B
J00104050014	Channel/Swale - Water Bar	X		X		B
J00104060011	Channel/Swale - Rip Rap		X	X		CB
J00106010010	Check Dam - Rock		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

150.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-1.05. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

150.4 Inspections and Maintenance

RG240 recorded five storm events at PJ-SMA-1.05 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22642	04-19-2012
Storm Rain Event	BMP-24879	07-17-2012
Storm Rain Event	BMP-26658	08-23-2012
Storm Rain Event	BMP-28190	10-05-2012

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

Table 150-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-22771	Repaired vehicle damage to water bar J00104050008.	05-02-2012	13 day(s)	Maintenance conducted in timely manner.
BMP-22775	Repaired vehicle damage to water bar J00104050014.	05-09-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-22774	Repaired vehicle damage to water bar J00104050013.	05-09-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-22773	Repaired vehicle damage to water bar J00104050012.	05-09-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-22772	Repaired vehicle damage to water bar J00104050009. Extended eastern end of J00104050009 to base of tree snag. Added seed and matting to J00104050009 from road to end of new eastern extension.	05-09-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-22770	Moved wattles J00103060016 back into place and restaked.	05-09-2012	20 day(s)	Maintenance conducted as soon as practicable.
BMP-25782	Built up berm J00103010017 1 ft, reseeded and matted, also extended spillway approximately 6 ft to the south.	08-09-2012	23 day(s)	Maintenance conducted as soon as practicable.
BMP-25784	Modified water bar J00104050012 by extending east end approximately 75 ft, also seeded and matted extension.	08-27-2012	41 day(s)	Maintenance conducted as soon as practicable.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 09-013	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 09-013	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 10-31-2011

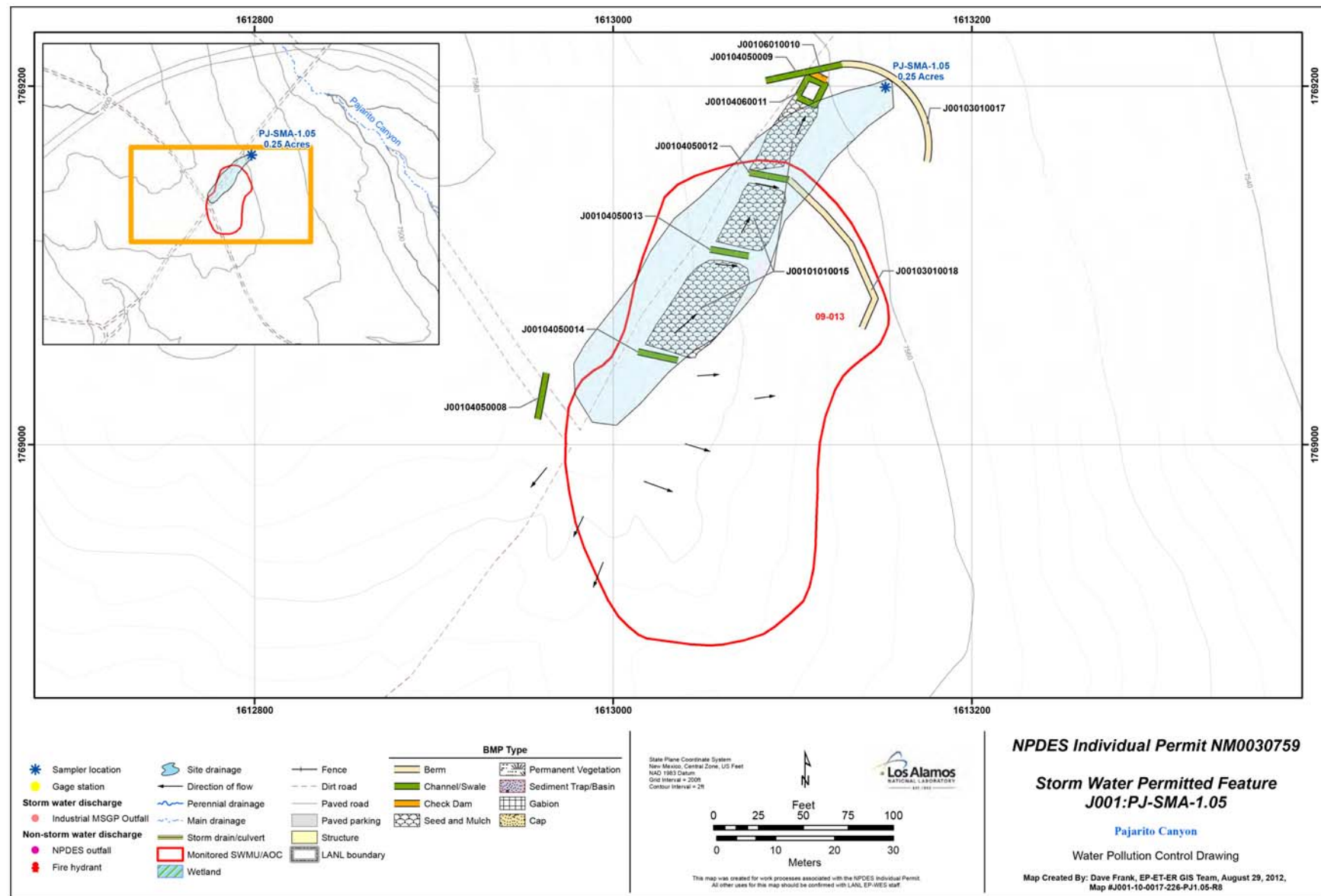


Figure 150-1 PJ-SMA-1.05 location map

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 09-0218) and two associated decommissioned sand filters at TA-09. The surface impoundment is located approximately 120 ft northeast of building 09-0040, 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, have a flexible membrane liner and are surrounded by a concrete curb. The



PJ-SMA-2, Permanent Vegetation Forested/
Needle Cast, J00202020004 (photo ID 7503-3)

surface impoundment was constructed in 1961 to treat sanitary waste from buildings 09-0020, 09-0021, 09-0028, 09-0029, 09-0032, 09-0033, 09-0034, 09-0035, 09-0037, and 09-0038 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 (EPA 55502S). In 1986, the sewer lines from TA-08 were connected to the surface impoundment, including the sewer line from building 08-0024, where the strontium-90 spill

occurred in 1954. The surface impoundment and sand filter system were decommissioned when SWSC came online in 1992.

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. Planned controls are to divert this run-on source 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	
J00202010003	Established Vegetation - Grasses and Shrubs			X		CB
J00202020004	Established Vegetation - Forested/Needle Cast			X		CB
J00203010006	Berms - Earthen	X			X	CB
J00203010007	Berms - Earthen	X			X	CB
J00203010008	Berms - Earthen	X			X	CB
J00203010009	Berms - Earthen	X			X	CB
J00203010015	Berms - Earthen	X			X	B
J00203060016	Berms - Straw Wattles	X			X	B
J00203060017	Berms - Straw Wattles	X			X	B
J00206010014	Check Dam - Rock		X		X	CB
J00206010018	Check Dam - Rock	X			X	B
J00206010019	Check Dam - Rock	X			X	B
J00206010020	Check Dam - Rock	X			X	B
J00206010021	Check Dam - Rock	X			X	B

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

151.3 Storm Water Monitoring

For calendar year 2012, 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 seven storm events at PJ-SMA-2 during the 2012 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 151-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation Inspection	COMP-23428	05-08-2012
Storm Rain Event	BMP-23516	05-24-2012
Storm Rain Event	BMP-24683	07-13-2012
Storm Rain Event	BMP-25840	07-27-2012
Storm Rain Event	BMP-26663	08-23-2012
Control Measure Installation at PJ-SMA-2. Follow up to OJT observations made 9/26/12.	BMP-28043	10-10-2012
Storm Rain Event	BMP-28750	10-23-2012

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

Table 151-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-23516	Removed debris.	05-24-2012	0 day(s)	Maintenance conducted upon inspection.
BMP-23707	Extended north part, built up, reseeded and matted Earthen Berm J00203010006.	06-07-2012	14 day(s)	Maintenance conducted in timely manner.
BMP-23708	Built up, re-seeded and matted Earthen Berm J00203010007.	06-07-2012	14 day(s)	Maintenance conducted in timely manner.
BMP-23709	Built up, extended southern part, reseeded and matted Earthen Berm J00203010008.	06-07-2012	14 day(s)	Maintenance conducted in timely manner.
BMP-25465	Extended berm J00203010009 to the south.	07-26-2012	13 day(s)	Maintenance conducted in timely manner.
BMP-24110	Installed earth berm J00203010015.	08-01-2012	85 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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 09-009	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

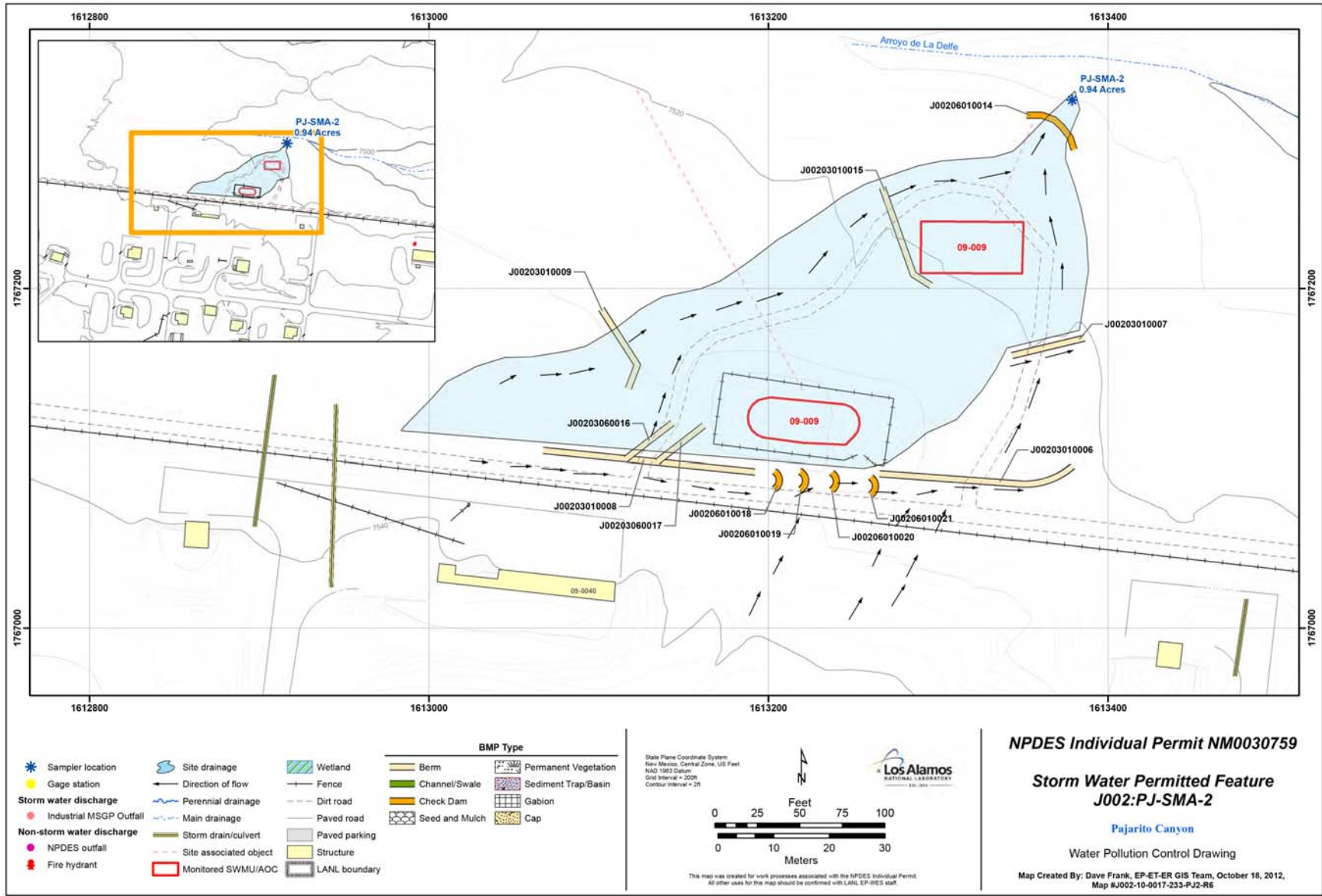


Figure 151-1 PJ-SMA-2 location map

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 the sump (structure 09-0198) located at TA-09 on the north side of HE machining building 09-0048. The sump, installed between 1950 and 1952, consists of aluminum-lined reinforced concrete and receives industrial waste from building 09-0048. Activities in the building involve HE machining. The sump collects settling 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 outfall has been removed from the permit and the sump is now periodically cleaned by pumping to a specially equipped truck. The sump is equipped with an overflow alarm and is inspected regularly. Potential contaminants associated with industrial materials historically managed at this Site are explosive compounds.

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

The Permitted Feature has potential for run-on from the paved areas around building 09-0048, but this run-on source provides little contribution to the monitored area. An asphalt berm diverts pavement run-on away from the area. 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	
J00302010001	Established Vegetation - Grasses and Shrubs			X		CB
J00303010010	Berms - Earthen	X			X	EC
J00303010011	Berms - Earthen		X		X	EC
J00306010009	Check Dam - Rock		X		X	B

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 two 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).

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 09-004(o): Potential contaminants associated with industrial materials historically managed at this Site are explosive compounds.

- Consent Order soil sampling has not been performed at this Site. RFI samples were collected in 1999 but were not analyzed for cyanide or radionuclides because these constituents were not identified as chemicals of potential concern at this Site.

In summary, based on site history, the Site is an unlikely source of weak acid dissociable cyanide above MTAL and ATAL and adjusted gross alpha above ATAL. Cyanide and 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 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 152-2. 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 152-2.

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 three storm events at PJ-SMA-3.05 during the 2012 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 152-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23430	05-08-2012
Construction	COMP-24075	06-08-2012
Enhanced control measure verification	BMP-24077	06-11-2012
Storm Rain Event	BMP-24896	07-17-2012
Storm Rain Event	BMP-28207	10-10-2012

There were no maintenance activities conducted at PJ-SMA-3.05 in 2012.

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 2012

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



PJ-SMA-3.05, Rock Check Dam, J00306010009 (photo ID 24077-2)

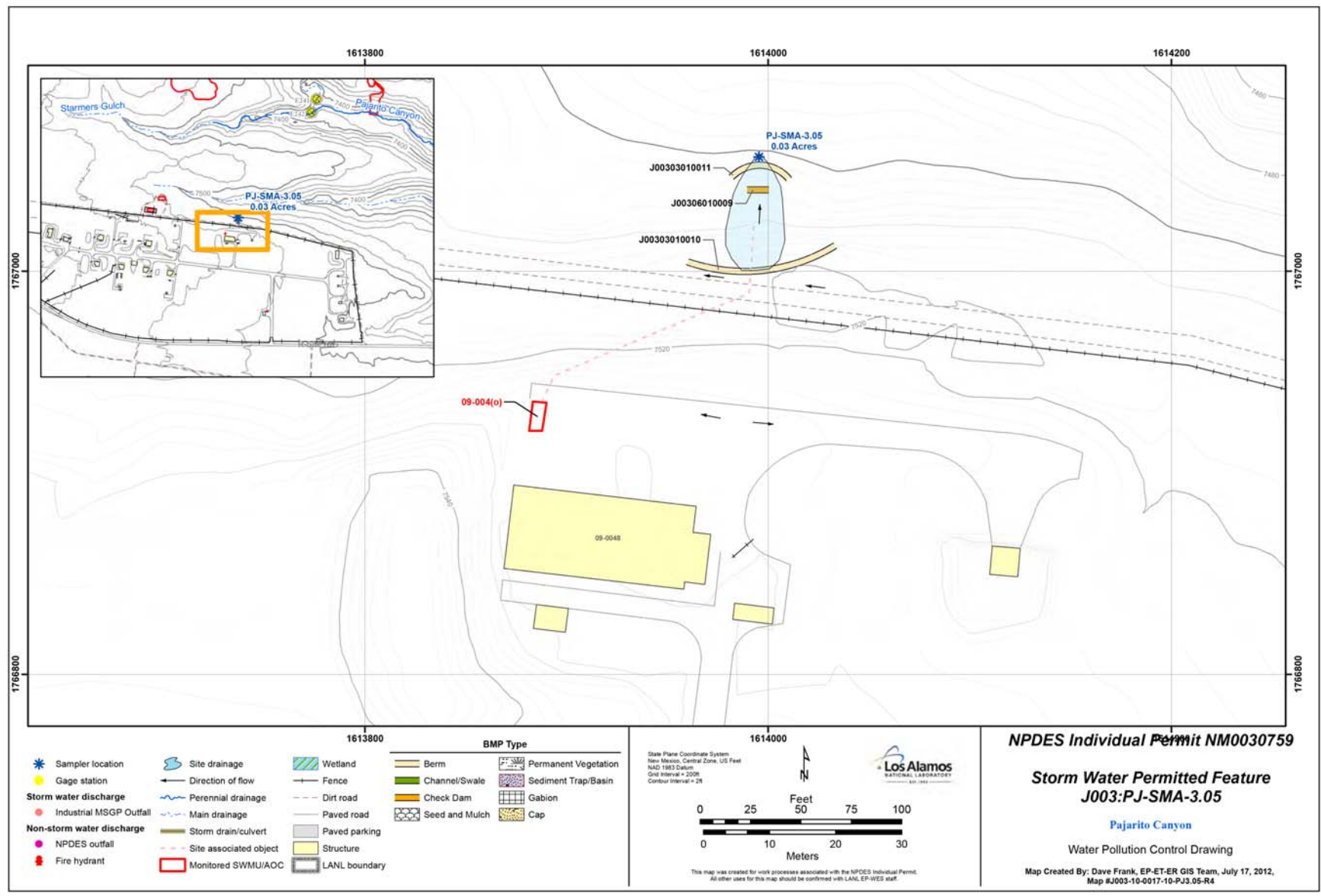
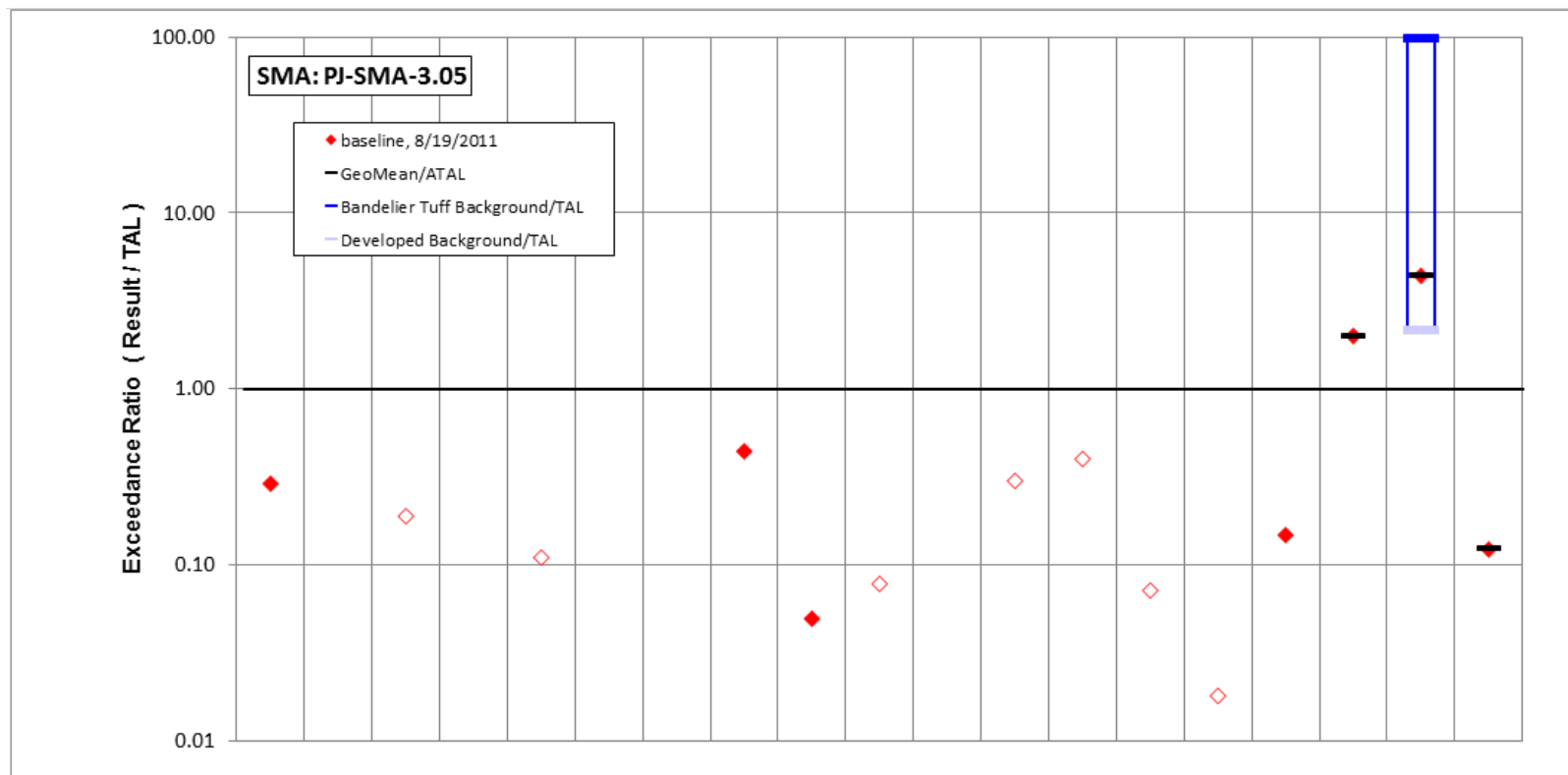


Figure 152-1 PJ-SMA-3.05 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	0.61	1.5	0.2	0.45	1.8	6.2	0.02	65.9	3.67
result / TAL	0.29	0.002	0.19	0.003	0.11	0.01	0.002	0.44	0.049	0.078	0.0036	0.3	0.4	0.071	0.018	0.15	2	4.4	0.12

Bold font indicates result>TAL; italic font indicates 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 09-0190) located at TA-09 on the east side of shipping and receiving building 09-0050. The sump, installed between 1950 and 1952, was made of reinforced concrete and previously received industrial waste from building 09-0050. Activities in the building involved shipping, receiving, short-term storage of HE, and small-scale laser experiments. Since 1993, building 09-0050 has been used only for storage. 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). Periodically, the sump was inspected, debris was removed using specially equipped trucks, and the sump was cleaned. In October 2006, the sump was removed.

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	
J00402010002	Established Vegetation - Grasses and Shrubs			X		CB
J00403010007	Berms - Earthen	X			X	B
J00406010006	Check Dam - Rock		X		X	CB

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

153.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-4.05. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

153.4 Inspections and Maintenance

RG257 recorded three storm events at PJ-SMA-4.05 during the 2012 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 153-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23431	05-08-2012
Storm Rain Event	BMP-24895	07-17-2012
Storm Rain Event	BMP-28206	10-10-2012

There were no maintenance activities conducted at PJ-SMA-4.05 in 2012.

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 153-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 09-004(g)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



PJ-SMA-4.05, Permanent Vegetation Grasses and Shrubs, J00402010002 (photo ID 7502-3)

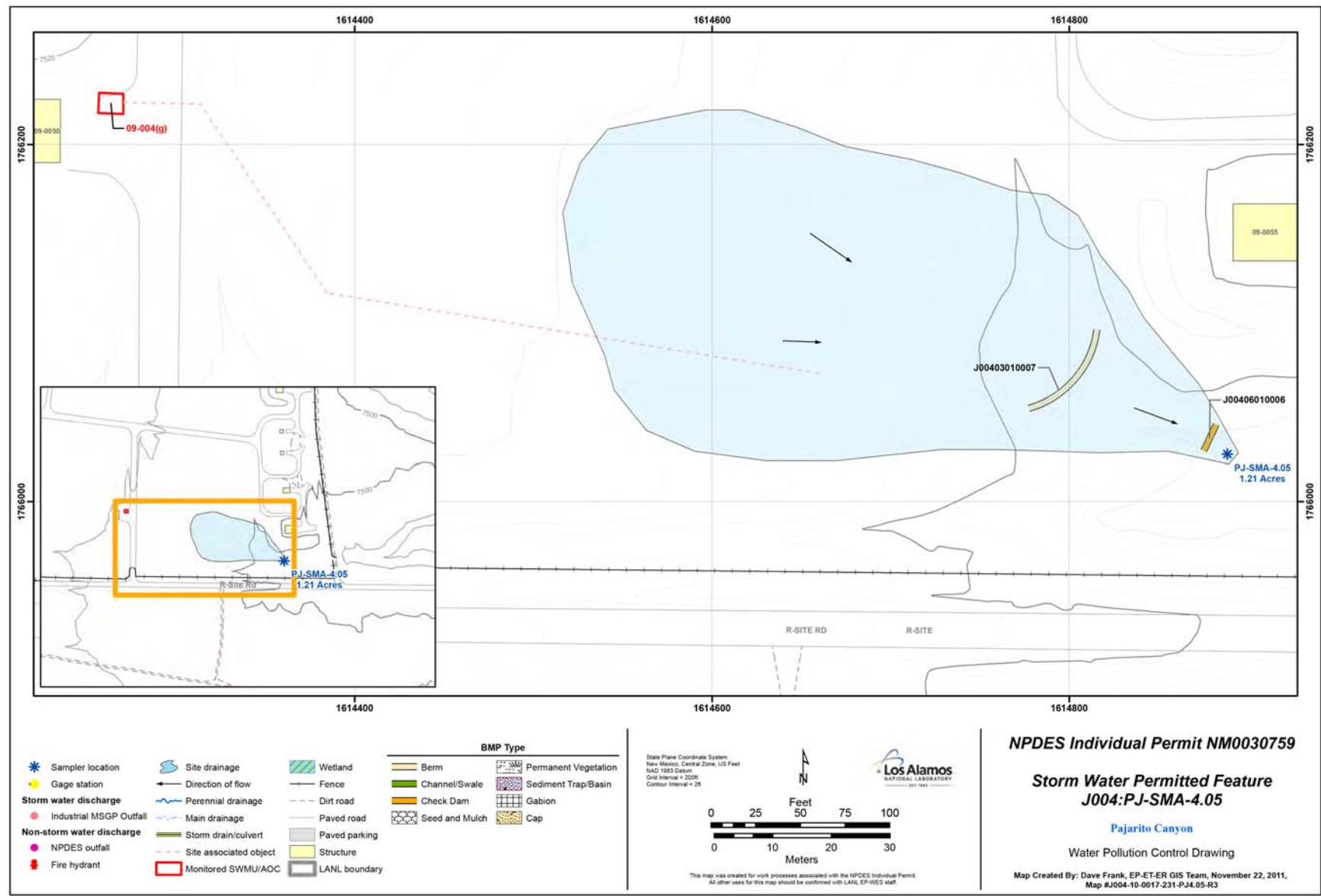


Figure 153-1 PJ-SMA-4.05 location map

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) is a former NPDES-permitted outfall (06A077) located at TA-22 approximately 80 ft south of building 22-0052. The outfall received discharge from the floor drains in building 22-0052, which were connected to the outfall via a 6-in.-diameter vitrified clay pipe (VCP). The outfall discharged to 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 22-0052 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 22-0052 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. Potential contaminants associated with industrial materials historically managed at this Site are aluminum, cadmium, copper, chromium, iron, nickel, silver, zinc, cyanide, and VOCs.

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>.

The Site boundary for SWMU 22-015(c) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 154-1), and the Site physical characteristic information listed in Attachment 4 has been updated.



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

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. The paved areas and associated engineered controls divert storm water flow to a culvert outlet on the slope south of building 0110. 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	
J00502010006	Established Vegetation - Grasses and Shrubs			X		CB
J00503060013	Berms - Straw Wattles	X			X	B
J00503060014	Berms - Straw Wattles	X			X	B
J00504010003	Channel/Swale - Earthen	X		X		CB
J00506010008	Check Dam - Rock	X			X	CB
J00506010009	Check Dam - Rock	X			X	CB
J00506010010	Check Dam - Rock	X			X	CB
J00506010011	Check Dam - Rock		X		X	CB
J00506010012	Check Dam - Rock		X		X	CB
J00506030004	Check Dam - Juniper Bales	X			X	CB
J00506030007	Check Dam - Juniper Bales	X			X	CB

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

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 one TAL exceedance:

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

This exceedance was 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 22-015(c): Potential contaminants associated with industrial materials historically managed at this Site are aluminum, cadmium, copper, chromium, iron, nickel, silver, zinc, cyanide, and VOCs.

- Consent Order soil sampling has not been performed at this Site.
- Copper—Copper was detected at a maximum concentration of 780 times BV in samples collected in 1995 during an expedited cleanup.

In summary, copper is known to have been associated with industrial materials historically managed at this Site and was detected substantially above BV. Based on site history and previous sampling results, the Site is a likely source of copper above MTAL.

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 four storm events at PJ-SMA-5 during the 2012 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 154-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23432	05-31-2012
Storm Rain Event	BMP-25228	07-18-2012
Storm Rain Event	BMP-27512	09-19-2012
Sampler QA inspection at PJ-SMA-5. Multiple attempts to collect with no sample.	COMP-27680	09-24-2012
Storm Rain Event	BMP-28183	10-02-2012
Storm Rain Event	BMP-28629	10-23-2012
Visual	COMP-30331	12-06-2012

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

Table 154-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-27861	Modified rock check dam J00506010011 with dirt, constructed swale.	09-27-2012	8 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 22-015(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 11-12-2012

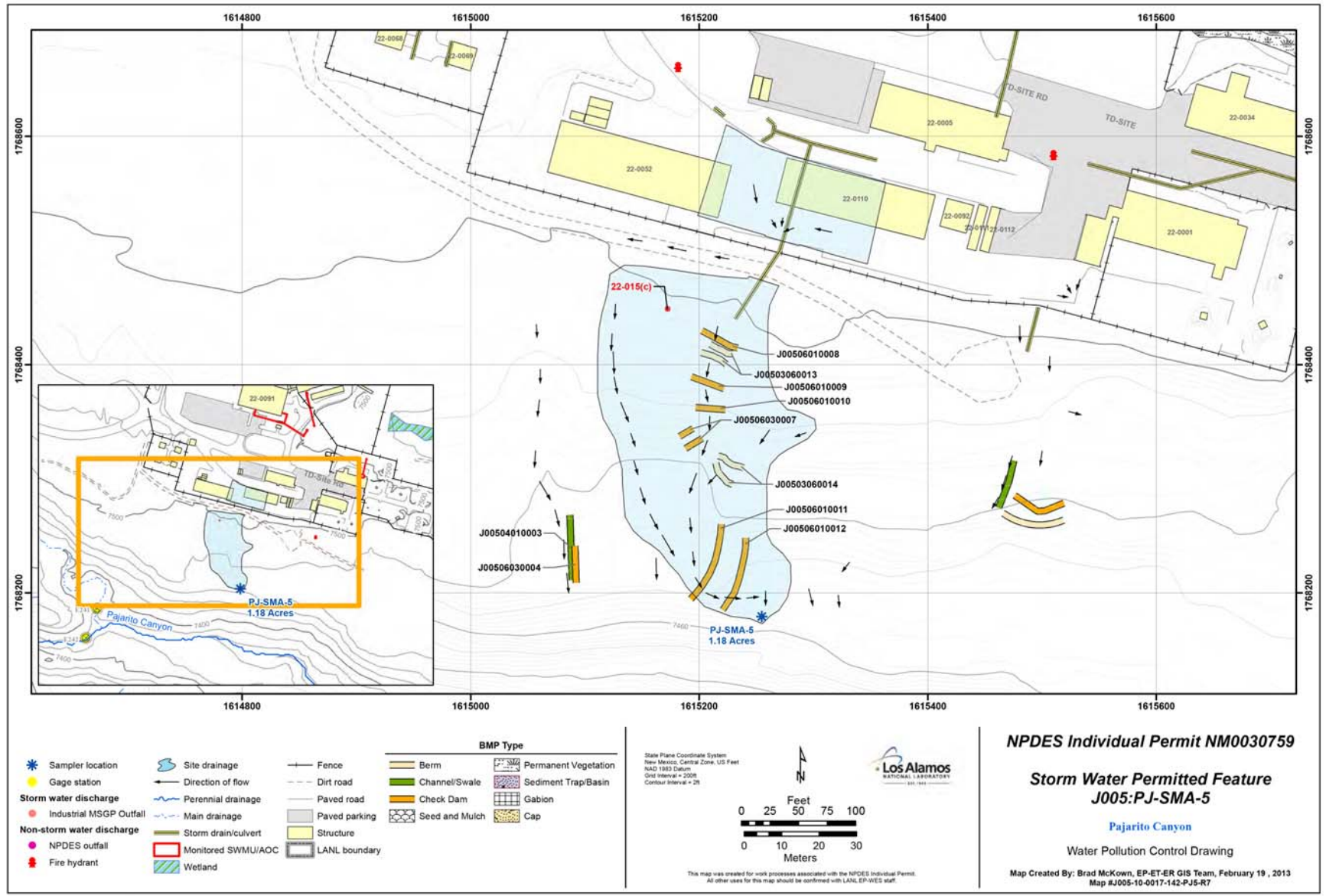
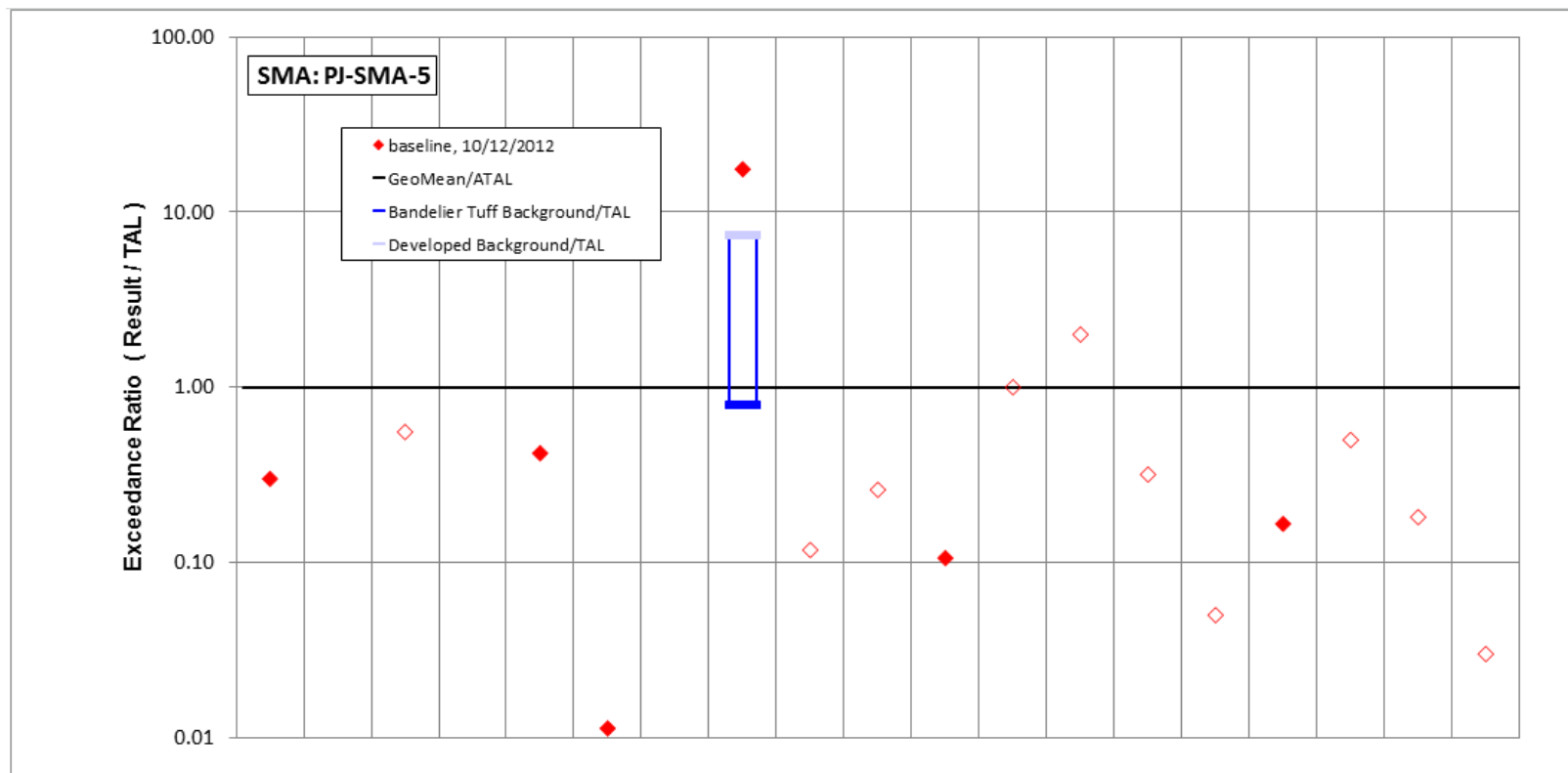


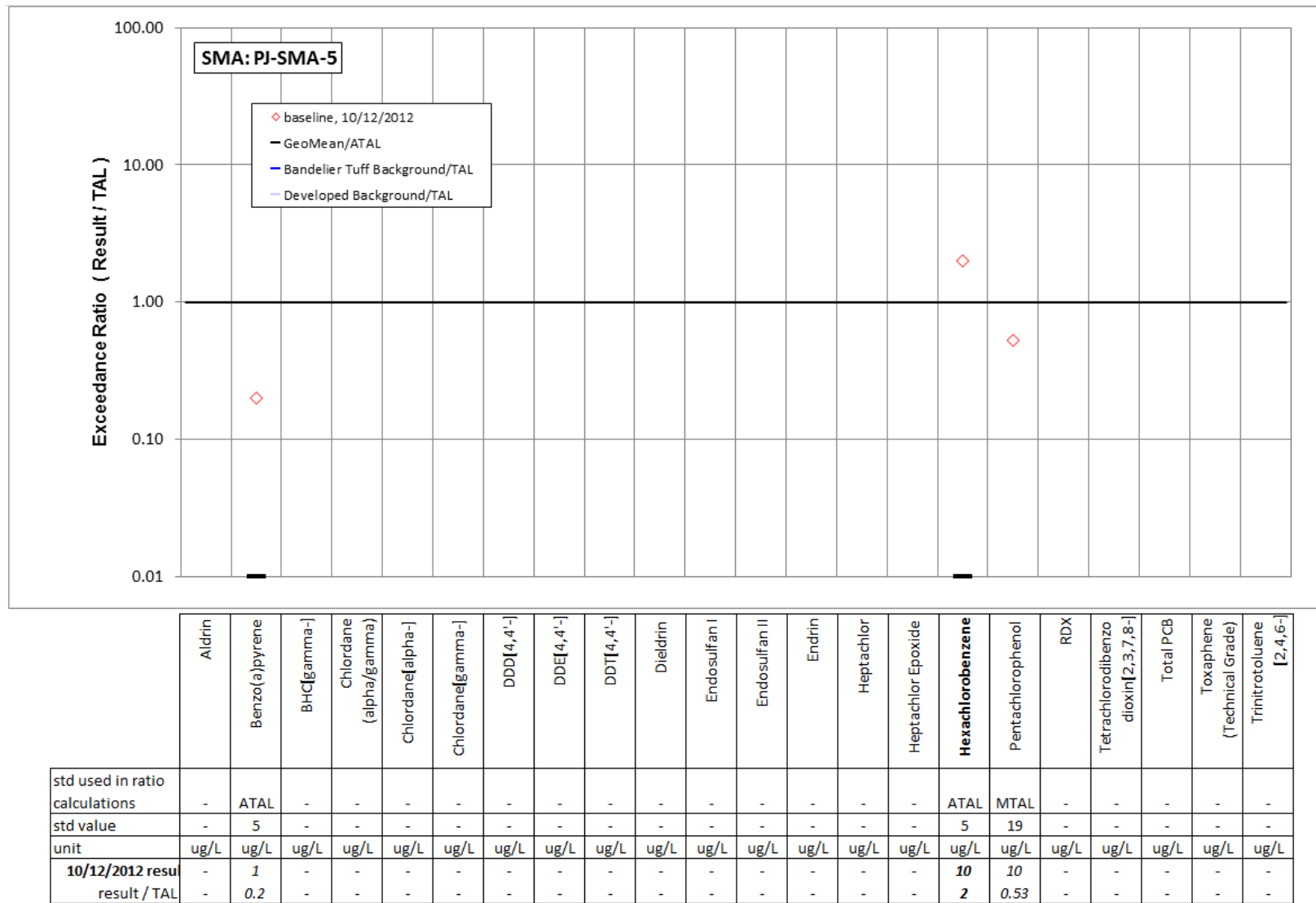
Figure 154-1 PJ-SMA-5 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.42	2.37	1.65	75.5	2	0.2	18	5	1	2	5	6.97	0.005	2.72	0.9
result / TAL	0.3	0.005	0.56	0.0036	0.42	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; italic font indicates undetected results; "-" is used if no analytical results were available.

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



Bold font indicates result>TAL; italic font indicates 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: SWMUs 22-016 and 22-010(b)

155.1 Site Descriptions

One historical industrial activity area is associated with J006, PJ-SMA-5.1: Sites 22-016 and 22-010(b).

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.

SWMU 22-010(b) is a septic system located at TA-22 approximately 90 ft south of building 22-1. The septic system consists of a septic tank (structure 22-51), drainlines, a leach field, sand filter, and outfall. The septic tank was installed in 1948 and originally served buildings 22-0001, 22-0004, 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. Potential contaminants associated with industrial materials historically managed at this Site are metals, cyanide, explosive compounds, VOCs, SVOCs, and petroleum products.

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	
J00602010001	Established Vegetation - Grasses and Shrubs			X		CB
J00603010009	Berms - Earthen		X		X	EC
J00604010004	Channel/Swale - Earthen	X		X		CB
J00606010007	Check Dam - Rock		X		X	CB

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

155.3 Storm Water Monitoring

SWMU 22-016 is 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 three TAL exceedances:

- Copper concentrations of 8.2 and 11.1 µg/L (MTAL is 4.3 µg/L),
- Zinc concentrations of 50.6 and 59.4 µg/L (MTAL is 42 µg/L), and
- Gross-alpha activities of 38.4 and 43.5 pCi/L (ATAL is 15 pCi/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 22-016: Potential contaminants associated with industrial materials historically managed at this Site are explosive compounds and VOCs.

- Consent Order soil sampling has not been performed at this Site. No investigations were conducted at SWMU 22-016 before the Consent Order went into effect in 2005.

In summary, copper, zinc, and alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this Site. Based on site history, the Site is an unlikely source of copper and zinc above MTALs and adjusted gross alpha above ATAL.

RFI sampling was performed in 1994 at adjacent site SWMU 22-010(b), which is located within the PJ-SMA-5.1 drainage area. Potential contaminants associated with industrial materials historically managed at SWMU 22-010(b) are metals, cyanide, explosive compounds, VOCs, SVOCs, and petroleum products.

- Copper—Copper was detected at a maximum concentration of 15 times BV.
- Zinc—Zinc was detected at a maximum concentration of 27 times BV respectively.
- Gross alpha—RFI samples were not analyzed for radionuclides because they were not identified as chemicals of potential concern.

In summary, copper and zinc were known to be associated with industrial materials historically managed at this Site and were detected substantially above BV. Based on site history and previous sampling



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

results, SWMU 22-010(b) is a likely source of copper and zinc above MTALs.

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.

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—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 four storm events at PJ-SMA-5.1 during the 2012 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 155-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23433	05-31-2012
Construction	COMP-24163	06-13-2012
Enhanced Control measure verification	BMP-24186	06-25-2012
Storm Rain Event	BMP-25229	07-18-2012
Storm Rain Event	BMP-27513	09-19-2012
Storm Rain Event	BMP-28184	10-02-2012
Storm Rain Event	BMP-28630	10-22-2012

There were no maintenance activities conducted at PJ-SMA-5.1 in 2012.

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 155-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 22-016	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 07-18-2012

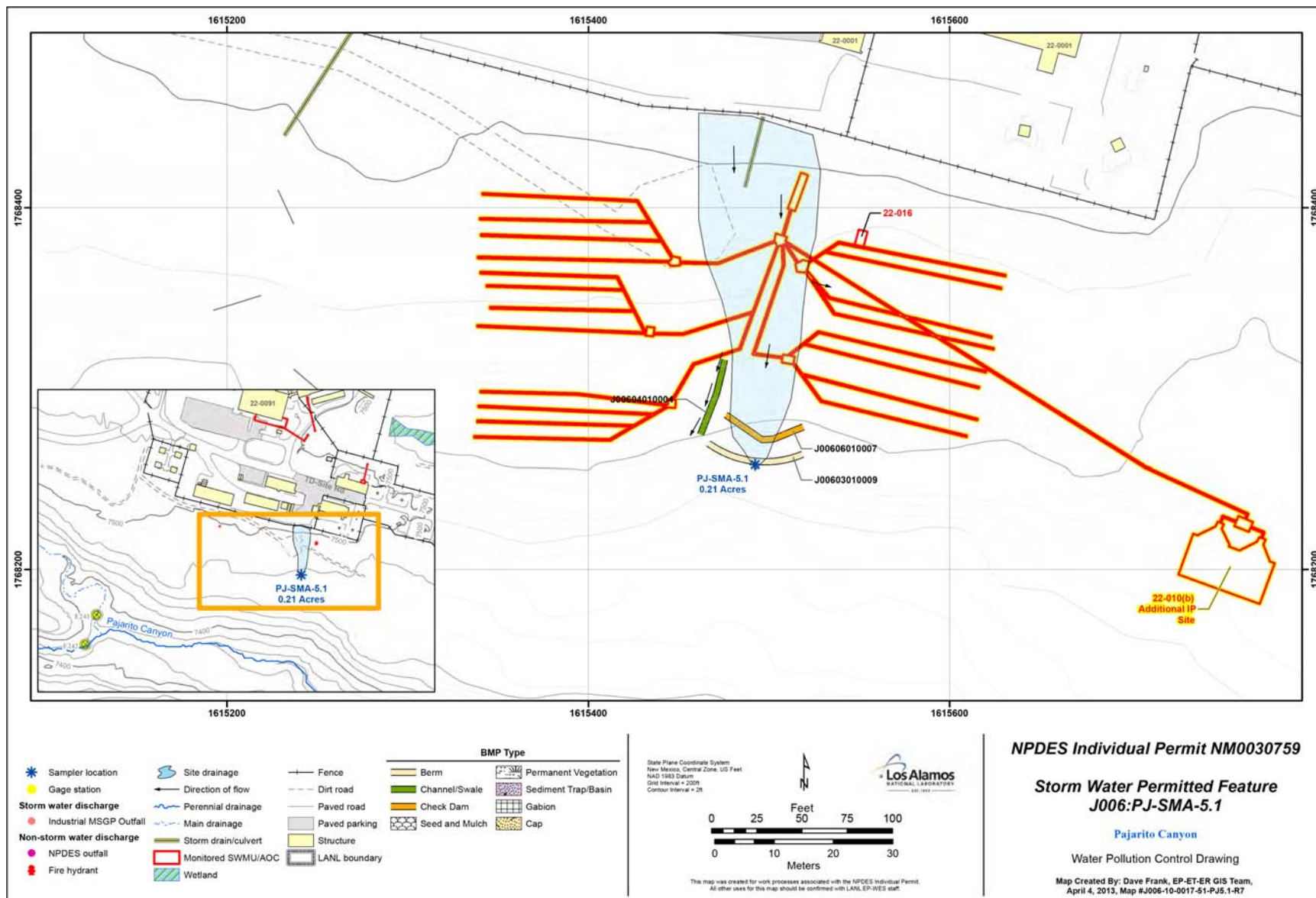
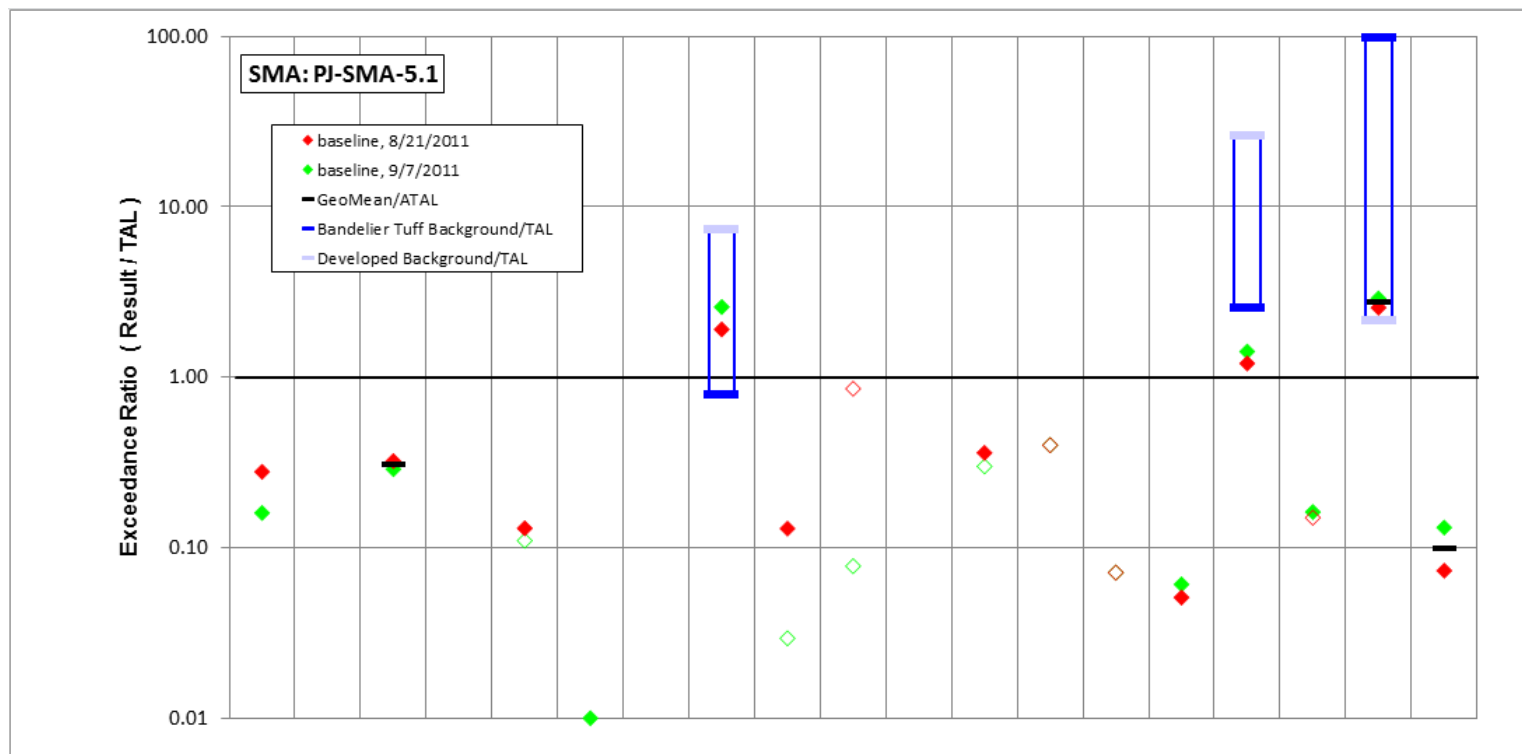


Figure 155-1 PJ-SMA-5.1 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	<i>1</i>	2.6	36.6	<i>0.11</i>	2.1	2.7	11.1	0.5	<i>0.06</i>	1.4	1.5	0.2	0.45	6.1	59.4	0.0016	43.5	3.94
result / TAL	0.16	<i>0.002</i>	0.29	0.0073	<i>0.11</i>	0.01	0.0027	2.6	<i>0.029</i>	<i>0.078</i>	0.0082	0.3	0.4	0.071	0.061	1.4	0.16	2.9	0.13
8/21/2011 result	209	<i>1</i>	2.9	42.3	0.13	2	3.3	8.2	2.2	<i>0.66</i>	1.5	1.8	0.2	0.45	5.1	50.6	<i>0.002</i>	38.4	2.2
result / TAL	0.28	<i>0.002</i>	0.32	0.0085	0.13	<i>0.01</i>	0.0033	1.9	0.13	<i>0.86</i>	0.0088	0.36	0.4	0.071	0.051	1.2	0.15	2.6	0.073

Bold font indicates result>TAL; italic font indicates 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 40-0072. The surface disposal area extends about 150 ft along the canyon edge and 140 ft down the canyon side. The area contained various 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. SWMU 40-010 is not identified in the 1990 SWMU Report. This SWMU was one of 27 newly identified SWMUs added to the Laboratory's Hazardous Waste Facility Permit by EPA in 1993.

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).



PJ-SMA-6, Permanent Vegetation Grasses and Shrubs, J00702010001 (photo ID 7509-2)

Table 156-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J00701010017	Seed and Mulch - Seed and Wood Mulch			X		B
J00702010001	Established Vegetation - Grasses and Shrubs			X		CB
J00703010009	Berms - Earthen		X		X	B
J00703010010	Berms - Earthen		X		X	B
J00703010011	Berms - Earthen		X		X	B
J00703060013	Berms - Straw Wattles	X			X	B
J00703060014	Berms - Straw Wattles	X			X	B
J00703060015	Berms - Straw Wattles	X			X	B
J00703060016	Berms - Straw Wattles	X			X	B
J00703120012	Berms - Rock	X			X	B
J00706010002	Check Dam - Rock	X			X	CB
J00706010003	Check Dam - Rock	X			X	CB
J00706010004	Check Dam - Rock	X			X	CB
J00706030008	Check Dam - Juniper Bales	X			X	CB

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

156.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-6. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

156.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at PJ-SMA-6 during the 2012 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 156-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22913	04-30-2012
Storm Rain Event	BMP-25230	07-19-2012
Storm Rain Event	BMP-27514	09-21-2012
Storm Rain Event	BMP-28185	10-10-2012
Storm Rain Event	BMP-28631	10-23-2012
Control Measure Installation follow-up to field verification of site.	BMP-29278	11-07-2012
Control Measure Maintenance follow-up to field verification on 10/22/12 of site controls.	BMP-29277	11-07-2012

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

Table 156-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28074	Extended berm J00703010009 to the east and repaired/modified the spillways.	10-09-2012	18 day(s)	Maintenance conducted as soon as practicable.
BMP-28075	Extended east end of berm J00703010010.	10-09-2012	18 day(s)	Maintenance conducted as soon as practicable.
BMP-29277	Seeded and matted bare areas of berm -0010.	11-13-2012	53 day(s)	Maintenance conducted as soon as practicable.
BMP-29278	Hand-raked compacted soils in area used for staging, added seed and mulch to areas behind berms -0009 and -0010 and -0011, rehabilitated approximately 300 ft of dirt access road, installed wattles across the road at intervals, added seed and mulch between wattles.	11-13-2012	53 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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-010	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

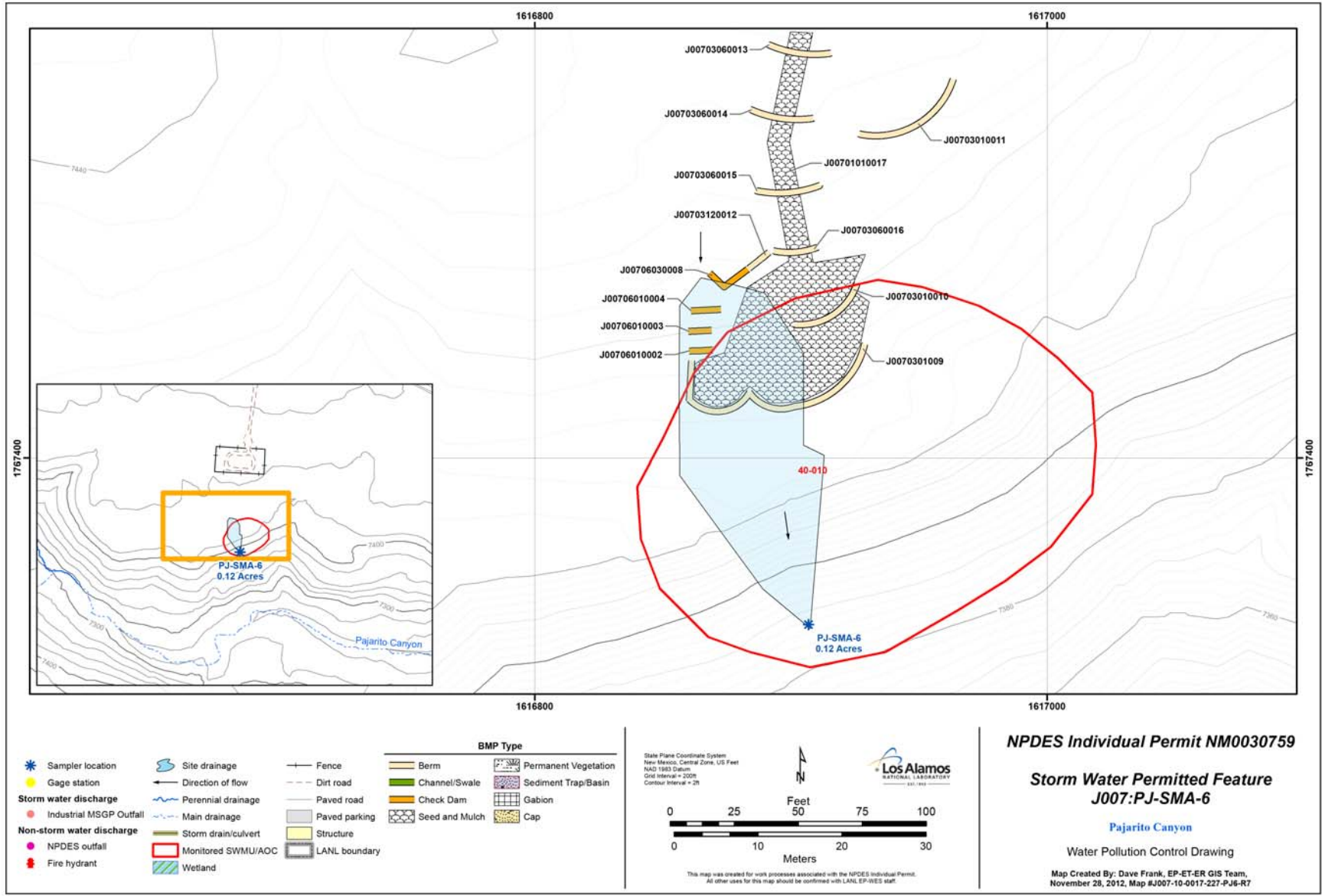


Figure 156-1 PJ-SMA-6 location map

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 a firing site (structure 40-0005) located at TA-40 on the north edge of Pajarito Canyon at the west end of TD Site Road. The 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.

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>.

The Site boundary for SWMU 40-006(c) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change reduced effectiveness of the control measures. The updated Site boundaries are shown on the project map (Figure 157-1), and the Site physical characteristic information listed in Attachment 4 has been updated. Control measure installations planned to address the boundary changes are shown with dashed lines in Figure 157-1. Construction will begin this spring when the soil surface is no longer frozen. The SMA boundary or sampler location was not affected by the Site boundary change.

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	
J00801060005	Seed and Mulch - Erosion Control Blankets		X	X		CB
J00802010001	Established Vegetation - Grasses and Shrubs			X		CB
J00803010004	Berms - Earthen		X		X	CB
J00804010002	Channel/Swale - Earthen	X		X		CB
J00804040003	Channel/Swale - Culvert	X		X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

157.3 Storm Water Monitoring

For calendar year 2012, 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 four storm events at PJ-SMA-7 during the 2012 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 157-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22914	04-30-2012
Storm Rain Event	BMP-25231	07-19-2012
Storm Rain Event	BMP-27515	09-21-2012
Storm Rain Event	BMP-28186	10-10-2012
Storm Rain Event	BMP-28632	10-23-2012

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

Table 157-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-27515	Needle cast was removed from channel upstream from the culvert.	09-21-2012	0 day(s)	Maintenance conducted upon inspection.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-006(c)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

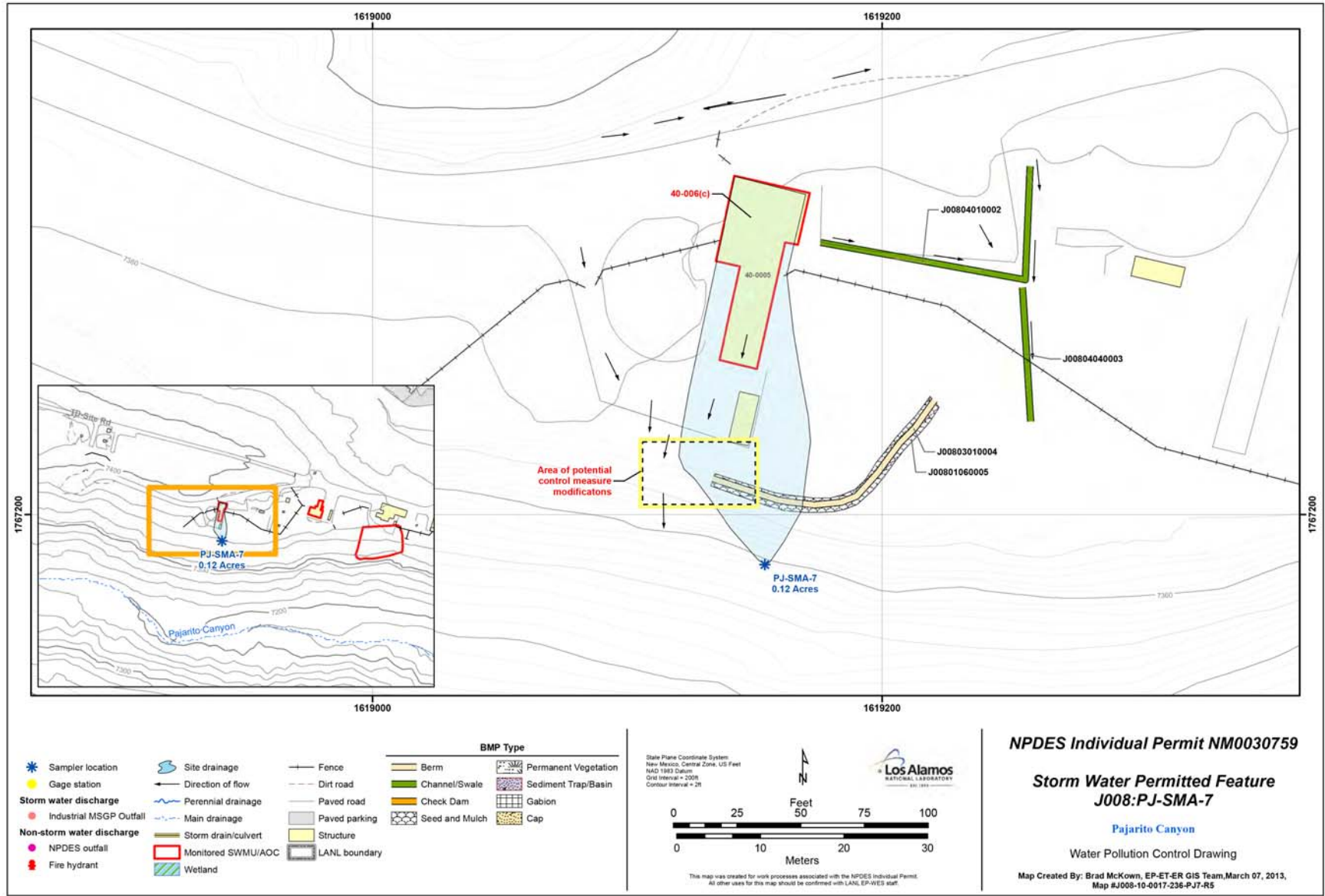


Figure 157-1 PJ-SMA-7 location map

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 a firing site (structure 40-0008) located at TA-40 on the northern rim of Pajarito Canyon, at the west end of TD Site Road. The 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, 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 HEPA filtration system was installed. The firing site is now used only to test and develop small explosive devices.

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>.

The Site boundary for SWMU 40-006(b) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 158-1), and the Site physical characteristic information listed in Attachment 4 has been updated.

158.2 Control Measures

Run-on contributions at this SMA originate from roof drainage associated with building 40-0008. Most of the run-on from the surrounding paved areas is diverted east, away from the monitored area. 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	
J00902010003	Established Vegetation - Grasses and Shrubs			X		CB
J00903010006	Berms - Earthen		X		X	CB
J00903010009	Berms - Earthen		X		X	CB
J00904020005	Channel/Swale - Concrete/Asphalt	X		X		CB
J00904060001	Channel/Swale - Rip Rap	X		X		CB
J00906010002	Check Dam - Rock	X			X	CB
J00906010004	Check Dam - Rock	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

158.3 Storm Water Monitoring

For calendar year 2012, 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 four storm events at PJ-SMA-8 during the 2012 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 158-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22915	04-30-2012
Storm Rain Event	BMP-25232	07-19-2012
Storm Rain Event	BMP-27516	09-21-2012
Storm Rain Event	BMP-28187	10-10-2012
Storm Rain Event	BMP-28633	10-23-2012

There were no maintenance activities conducted at PJ-SMA-8 in 2012.

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 158-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-006(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



PJ-SMA-8, Rock Check Dam, J00906010002 (photo ID 7510-1)

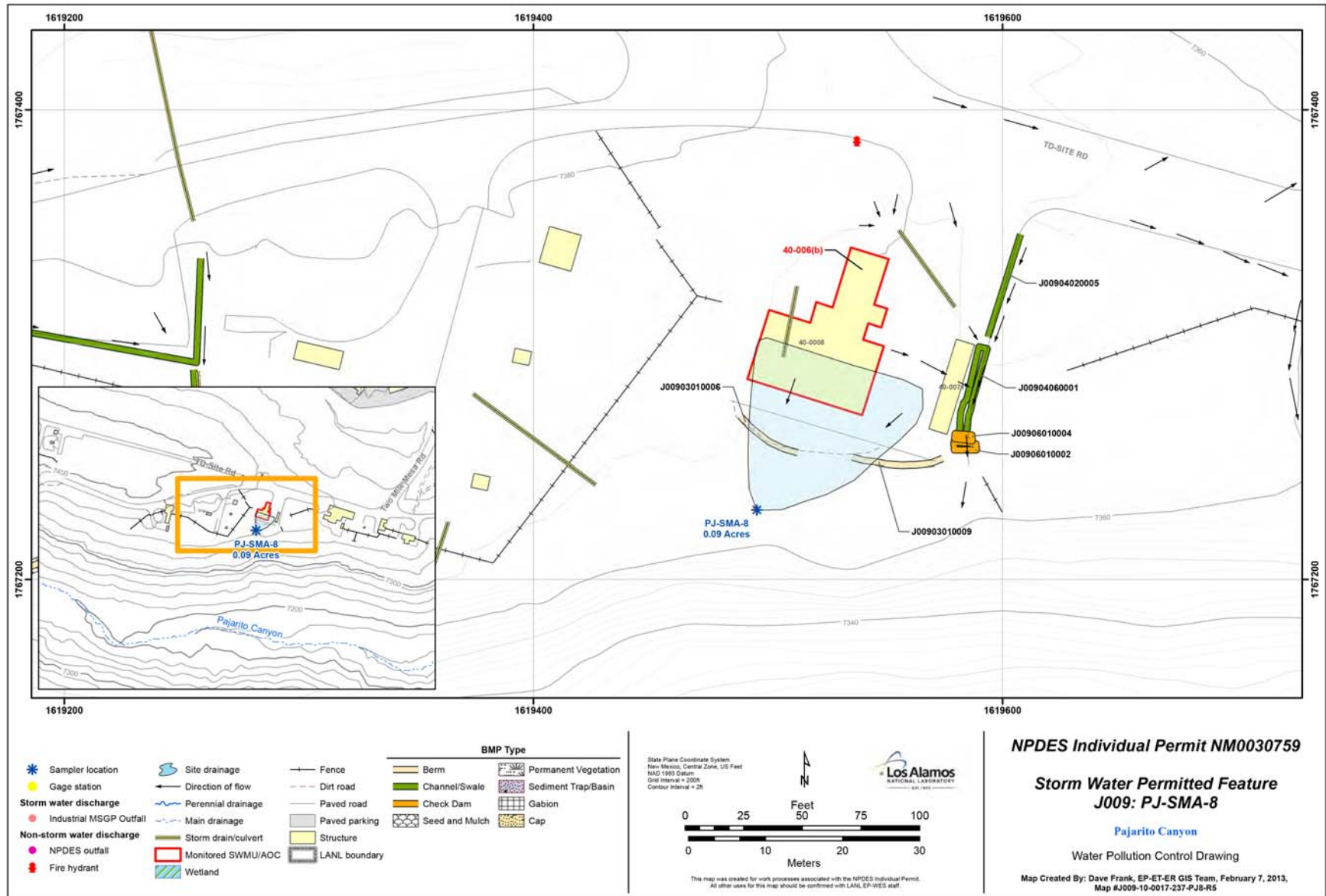


Figure 158-1 PJ-SMA-8 location map

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 40-0009. 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 for the landfill, stating debris from TA-15 was taken to TA-40 and disposed of in the canyon between buildings 40-0005 and 40-0015. The 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 40-0009. The field team suspected the berms were the landfill.

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	
J01002010003	Established Vegetation - Grasses and Shrubs			X		CB
J01003010002	Berms - Earthen		X		X	CB
J01004060001	Channel/Swale - Rip Rap	X		X		CB
J01006010006	Check Dam - Rock		X		X	CB
J01006010007	Check Dam - Rock	X			X	CB
J01006010008	Check Dam - Rock	X			X	CB
J01006010009	Check Dam - Rock	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

159.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-9. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

159.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at PJ-SMA-9 during the 2012 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 159-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22916	04-30-2012
Storm Rain Event	BMP-25233	07-19-2012
Storm Rain Event	BMP-27517	09-24-2012
Storm Rain Event	BMP-28188	10-10-2012
Storm Rain Event	BMP-28634	10-23-2012

There were no maintenance activities conducted at PJ-SMA-9 in 2012.

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 159-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-009	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



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

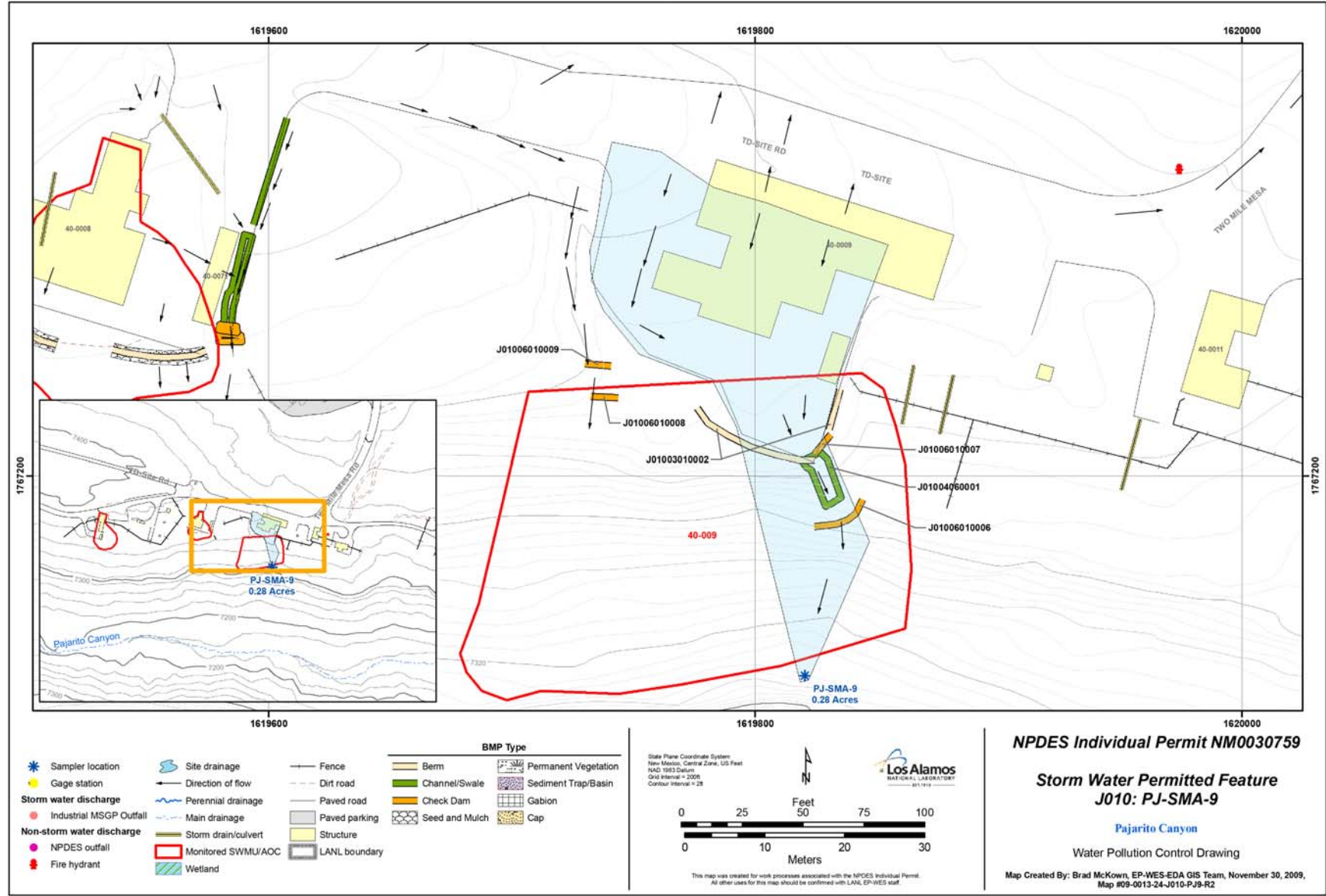


Figure 159-1 PJ-SMA-9 location map

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 a firing site (structure 40-0015) located at TA-40 on the northern rim of Pajarito Canyon at the east end of TD Site Road. The 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, the open area is graded, and the sand and debris are pushed to the edge of the canyon. This practice created a sand berm near the canyon edge. Building 40-0015 also served as the remote-control point for the SWMU 40-003(a) detonation sites.

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>.

The Site boundary for SWMU 40-006(a) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change affected the SMA boundary and reduced effectiveness of the control measures. The updated Site and SMA boundaries are shown on the project map (Figure 160-1), and the Site and SMA physical characteristic information listed in Attachment 4 has been updated. Control measure modifications planned to address the boundary changes are shown with dashed lines in Figure 160-1. Construction will begin this spring when the soil surface is no longer frozen. The sampler location was not affected by the Site boundary change.

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	
J01202010005	Established Vegetation - Grasses and Shrubs			X		CB
J01203020001	Berms - Base Course	X			X	CB
J01204060004	Channel/Swale - Rip Rap		X	X		CB
J01206010006	Check Dam - Rock		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

160.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-10. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

160.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at PJ-SMA-10 during the 2012 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 160-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22917	04-30-2012
Storm Rain Event	BMP-25225	07-19-2012
Storm Rain Event	BMP-27509	09-24-2012
Storm Rain Event	BMP-28180	10-10-2012
Storm Rain Event	BMP-28626	10-23-2012

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

Table 160-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25780	Repaired rock check dam J01206010006 by building up and extending.	07-26-2012	7 day(s)	Maintenance conducted in timely manner.
BMP-28030	Built up base course berm J01203020001.	10-04-2012	10 day(s)	Maintenance conducted in timely manner.
BMP-30418	Removed floatable debris from riprap -0004.	03-04-2013	161 day(s)	Maintenance conducted as soon as practicable.

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 160-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-006(a)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

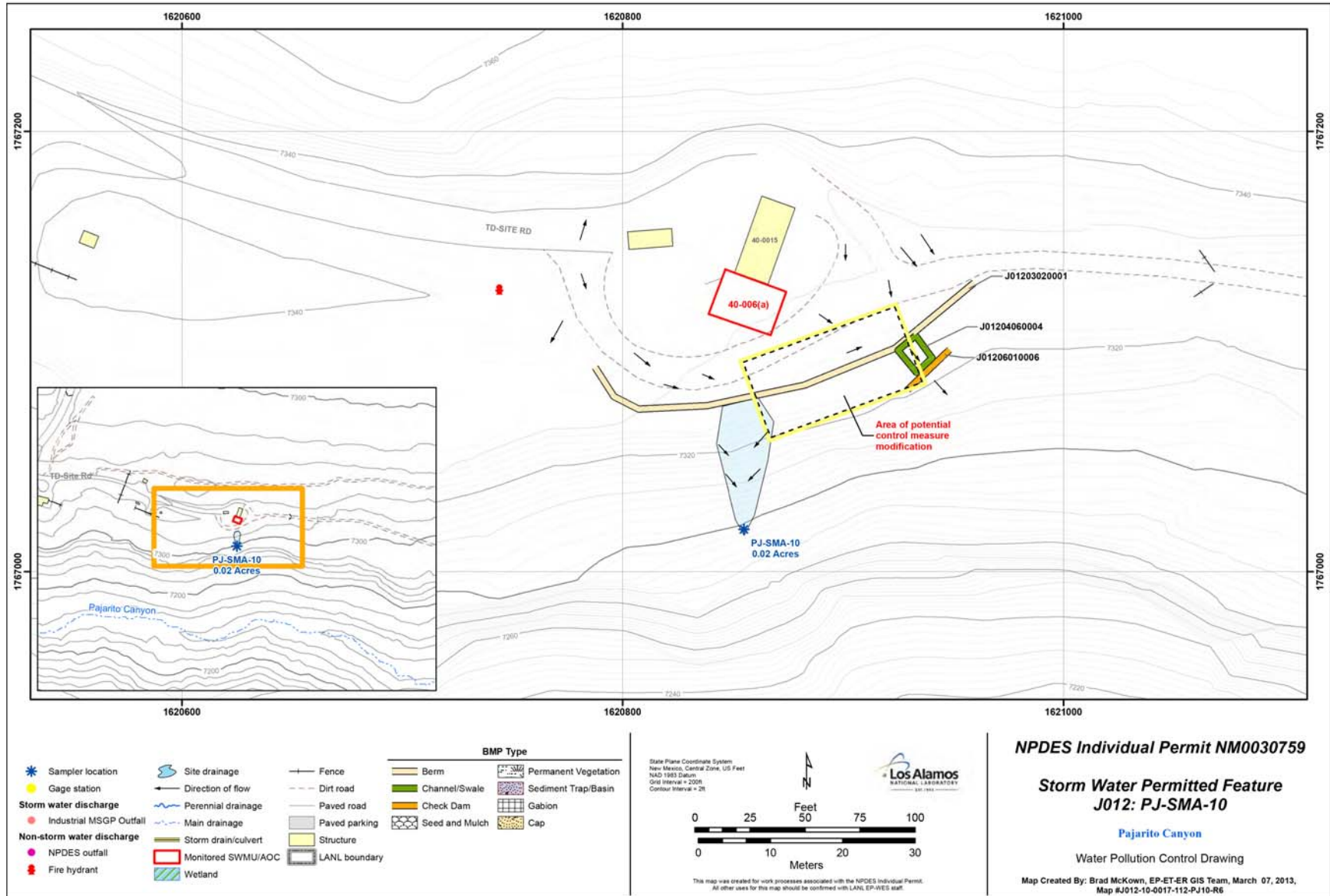


Figure 160-1 PJ-SMA-10 location map

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 site was located 450 ft east of structure 40-0015. The site began to be used in the early 1950s, and detonations were remotely controlled from structure 40-0015. In 1958, several instances occurred when 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 site is approximately 1300 ft east of structure 40-0015, within a natural amphitheater at the end of an unnamed dirt road. At the second site, scrap explosive materials were detonated and controlled remotely from structure 40-0015. 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 site 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. The 1990 SWMU Report and the OU 1111 RFI work plan both describe SWMU 40-003(a) as being located 450 ft east of structure 40-0015 and state that a RCRA closure plan was being developed for the site. Both documents mistakenly identify the location 450 ft east of structure 40-0015 as undergoing RCRA closure. The 1991 final closure plan was developed for the second detonation area located 1300 ft east of structure 40-0015 and specifically states that the first detonation area located 450 ft east of structure 40-0015 would not be addressed under RCRA closure. The first detonation area was omitted from the closure because its period of use occurred before RCRA regulation.

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>.

The Site boundary for SWMU 40-003(a) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change reduced effectiveness of the control measures. The updated Site boundaries are shown on the project map (Figure 161-1), and the Site physical characteristic information listed in Attachment 4 has been updated. Control measure modifications planned to address the boundary changes are shown with dashed lines in Figure 161-1. Construction will begin this spring when the soil surface is no longer frozen. The SMA boundary or sampler location was not affected by the Site boundary change.

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. Sandy areas are present at the head of this SMA. 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	
J01302010002	Established Vegetation - Grasses and Shrubs			X		CB
J01303010003	Berms - Earthen		X		X	CB
J01303010004	Berms - Earthen	X			X	CB
J01303060010	Berms - Straw Wattles		X		X	CB
J01303060012	Berms - Straw Wattles		X		X	CB
J01303060013	Berms - Straw Wattles		X		X	CB
J01303060014	Berms - Straw Wattles		X		X	CB
J01303060016	Berms - Straw Wattles		X		X	B
J01303060017	Berms - Straw Wattles		X		X	B
J01306010005	Check Dam - Rock		X		X	CB
J01306010006	Check Dam - Rock		X		X	CB
J01306010007	Check Dam - Rock		X		X	CB
J01306010008	Check Dam - Rock		X		X	CB

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

161.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-11. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

161.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at PJ-SMA-11 during the 2012 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 161-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22918	04-30-2012
Storm Rain Event	BMP-25226	07-19-2012
Storm Rain Event	BMP-27510	09-24-2012
Storm Rain Event	BMP-28181	10-10-2012
Storm Rain Event	BMP-28627	10-23-2012

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

Table 161-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28028	Installed new straw wattle J01303060017 in same location as existing wattle -0009, which was retired.	10-03-2012	9 day(s)	Maintenance conducted in timely manner.
BMP-28029	Built up and extended rock check dam J01306010007.	10-03-2012	9 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 40-003(a)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

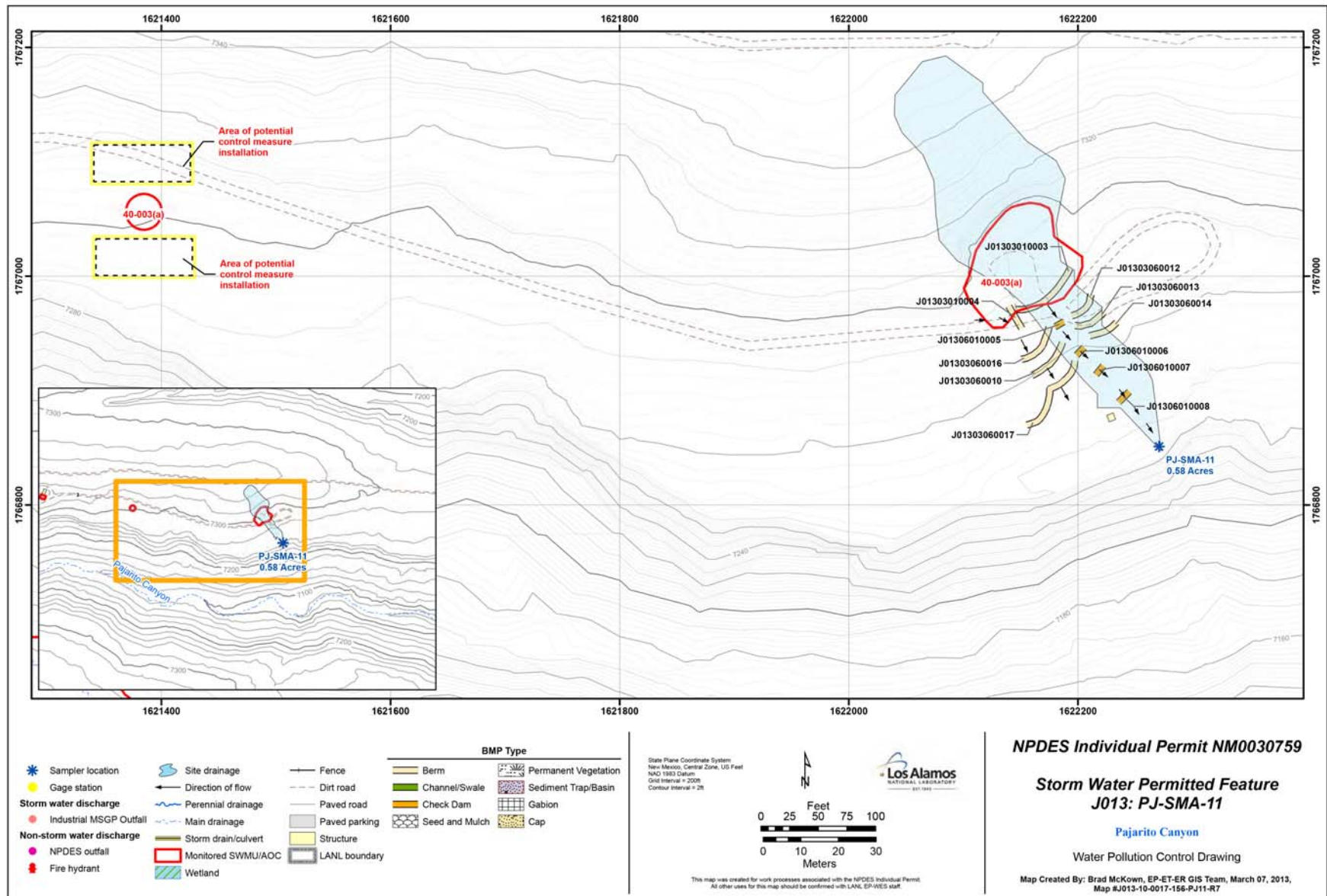


Figure 161-1 PJ-SMA-11 location map

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 40-0015, next to the open detonation area [SWMU 40-003(a)]. The burn site consists of three small burning areas and a burn pit. 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 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 locations of the burn cages operated as a hazardous waste thermal treatment unit under RCRA interim status until operations ceased in 1985. The locations underwent RCRA closure from 1992 to 1994. The closure report was approved by NMED in August 1995. The burn pit is located between the two northern locations of the burn cage and measures approximately 12 ft wide × 50 ft long × 12 ft deep. Burn pit operations began in 1961 and ceased sometime before 1980. The burn pit was omitted from RCRA closure because it was used before 1980 and, therefore, before RCRA regulation.



PJ-SMA-11.1, Permanent Vegetation Grasses and Shrubs, J01402010002 (photo ID 10865-7)

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>.

The Site boundary for AOC 40-003(b) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 162-1) and the Site physical characteristic information listed in Attachment 4 has been updated.

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 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	
J01402010002	Established Vegetation - Grasses and Shrubs			X		CB
J01403010003	Berms - Earthen	X			X	CB
J01403060014	Berms - Straw Wattles		X		X	CB
J01406010004	Check Dam - Rock		X		X	CB
J01406010005	Check Dam - Rock		X		X	CB
J01406010006	Check Dam - Rock		X		X	CB
J01406010007	Check Dam - Rock		X		X	CB
J01406010008	Check Dam - Rock		X		X	CB
J01406010009	Check Dam - Rock		X		X	CB
J01406010010	Check Dam - Rock		X		X	CB
J01406010011	Check Dam - Rock		X		X	CB
J01406010012	Check Dam - Rock		X		X	CB

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

162.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-11.1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

162.4 Inspections and Maintenance

RG-TA-06 recorded four storm events at PJ-SMA-11.1 during the 2012 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 162-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-22919	04-30-2012
Storm Rain Event	BMP-25227	07-19-2012
Storm Rain Event	BMP-27511	09-24-2012
Storm Rain Event	BMP-28182	10-10-2012
Storm Rain Event	BMP-28628	10-23-2012

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

Table 162-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28027	Installed seed and mulch in bare area noted near rock check dams J01406010008 and -0009.	10-03-2012	9 day(s)	Maintenance conducted in timely manner.
BMP-28816	Added rock and extended rock check dam J01406010012.	10-23-2012	13 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 40-003(b)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

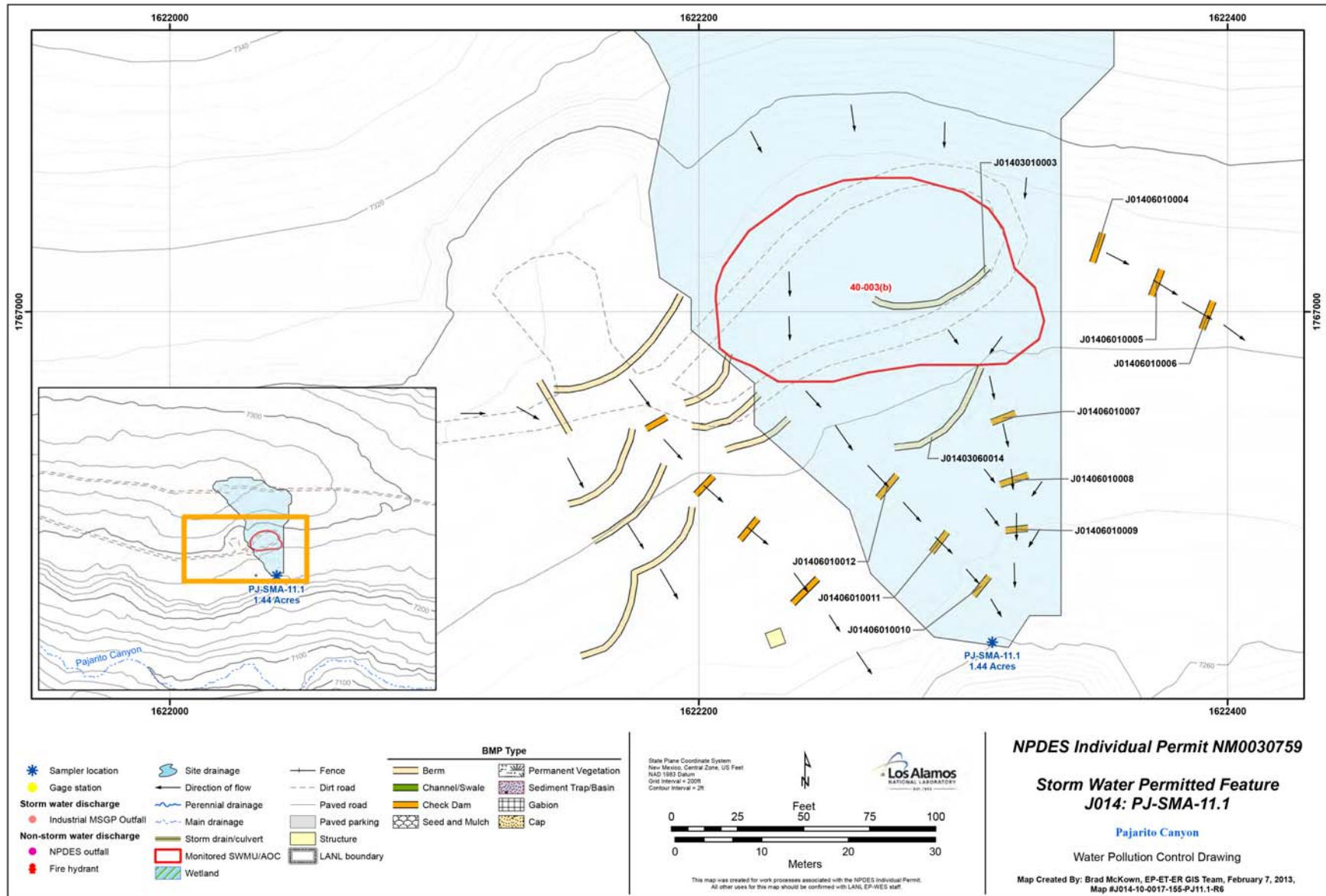


Figure 162-1 PJ-SMA-11.1 location map

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, while structure 18-0002 is no longer used.

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	
J01501010004	Seed and Mulch - Seed and Wood Mulch			X		CB
J01502010001	Established Vegetation - Grasses and Shrubs			X		CB
J01503010002	Berms - Earthen	X			X	CB
J01503010003	Berms - Earthen		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

163.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at PJ-SMA-13 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 163-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23416	05-21-2012
Storm Rain Event	BMP-26901	08-29-2012

There were no maintenance activities conducted at PJ-SMA-13 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-002(a)	Baseline Monitoring	Baseline Monitoring Extended	No Comment



PJ-SMA-13, Seed and Wood Mulch, J01501010004 (photo ID 12971-1)

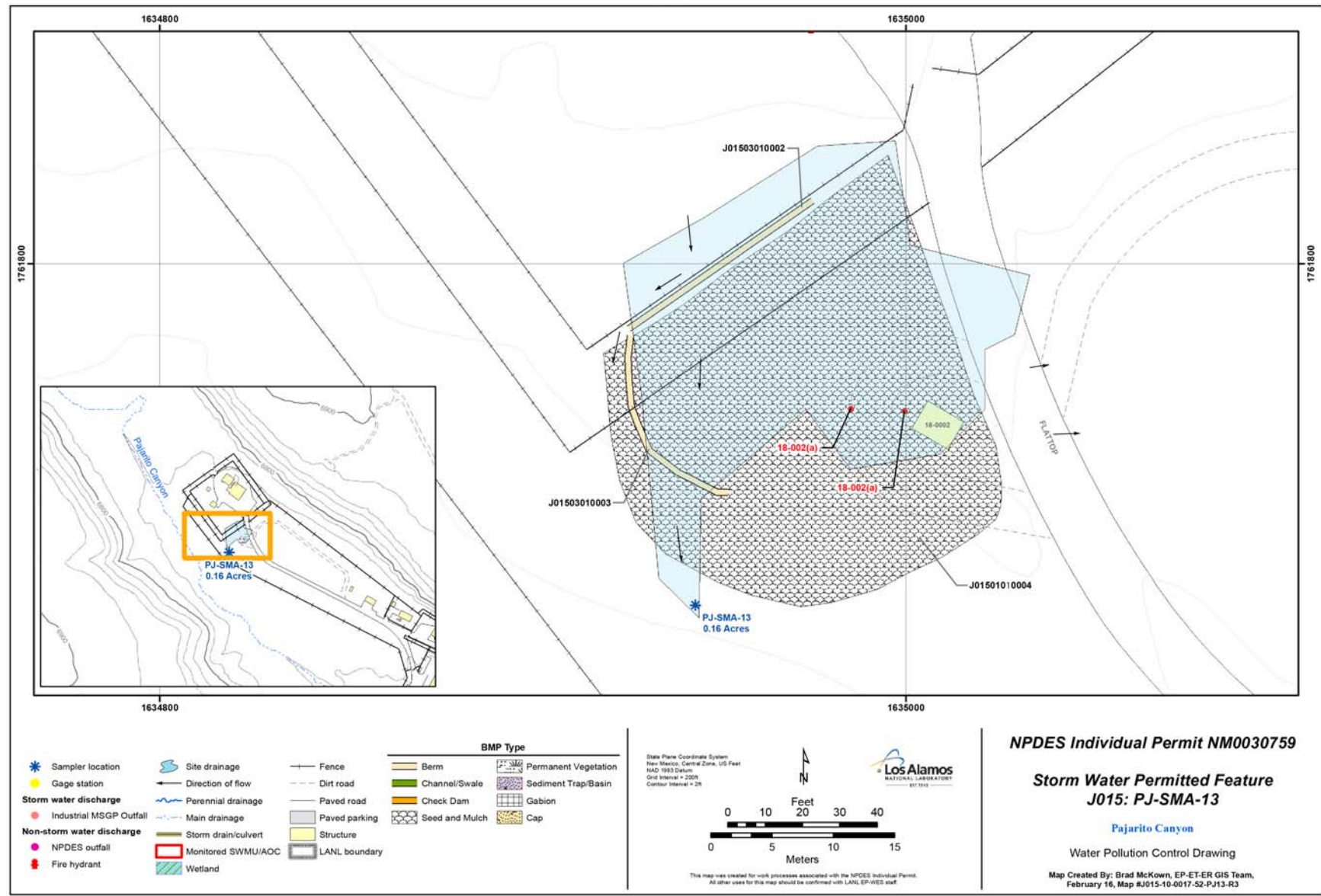


Figure 163-1 PJ-SMA-13 location map

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) is an outfall at TA-18 that receives storm water discharge from an asphalt-paved drainage ditch running southward along the west side of the paved area west of building 18-0030. The outfall discharges to a flat, grassy area at the fence southwest of building 18-0030. The discharge point is approximately 25 ft north of the stream channel in Pajarito Canyon. The date this outfall became operational is not known, but it is likely that the outfall has operated from the time building 18-0030 was constructed in 1951. The 1993 RFI work plan for AOC 18-010(b) described a 1988 photograph that noted spillage from a refueling platform into the asphalt-paved drainage ditch. Potential contaminants associated with industrial materials historically managed at this Site are lead, solvents, petroleum products, and uranium.

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).

Table 164-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J01602010001	Established Vegetation - Grasses and Shrubs			X		CB
J01602030003	Established Vegetation – Vegetative Buffer Strip		X	X		CB
J01606010004	Check Dam - Rock	X			X	CB
J01606010005	Check Dam - Rock	X			X	CB
J01606010006	Check Dam - Rock	X			X	CB
J01606010007	Check Dam - Rock	X			X	CB
J01607010002	Gabions - Gabions		X	X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls will be installed in the second quarter of 2013 as part of corrective action.

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 one TAL exceedance:

- Gross-alpha activity of 52.6 pCi/L (ATAL is 15 pCi/L).

This exceedance was 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.

AOC 18-010(b): Potential contaminants associated with industrial materials historically managed at this Site are lead, solvents, petroleum products, and uranium.

- Gross Alpha—Consent Order sampling has not been performed at AOC 18-010(b). Samples were collected during a 1994 Phase I RFI but were not analyzed for alpha-emitting radionuclides because these constituents were not identified as chemicals of potential concern.



PJ-SMA-13.7, Gabions, J01607010002 (photo ID 30474-3)

In summary, alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at this Site. Based on site history the Site is an unlikely source of adjusted gross alpha above ATAL in storm water.

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.

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—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 one storm event at PJ-SMA-13.7 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 164-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Visual	COMP-22066	03-26-2012
Annual Erosion Evaluation	COMP-23417	03-26-2012
Storm Rain Event	BMP-26902	08-29-2012
Construction	COMP-30403	12-11-2012
Construction	COMP-30410	12-17-2012

There were no maintenance activities conducted at PJ-SMA-13.7 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 18-010(b)	Baseline Monitoring	Corrective Action Initiated	Initiated 05-01-2012

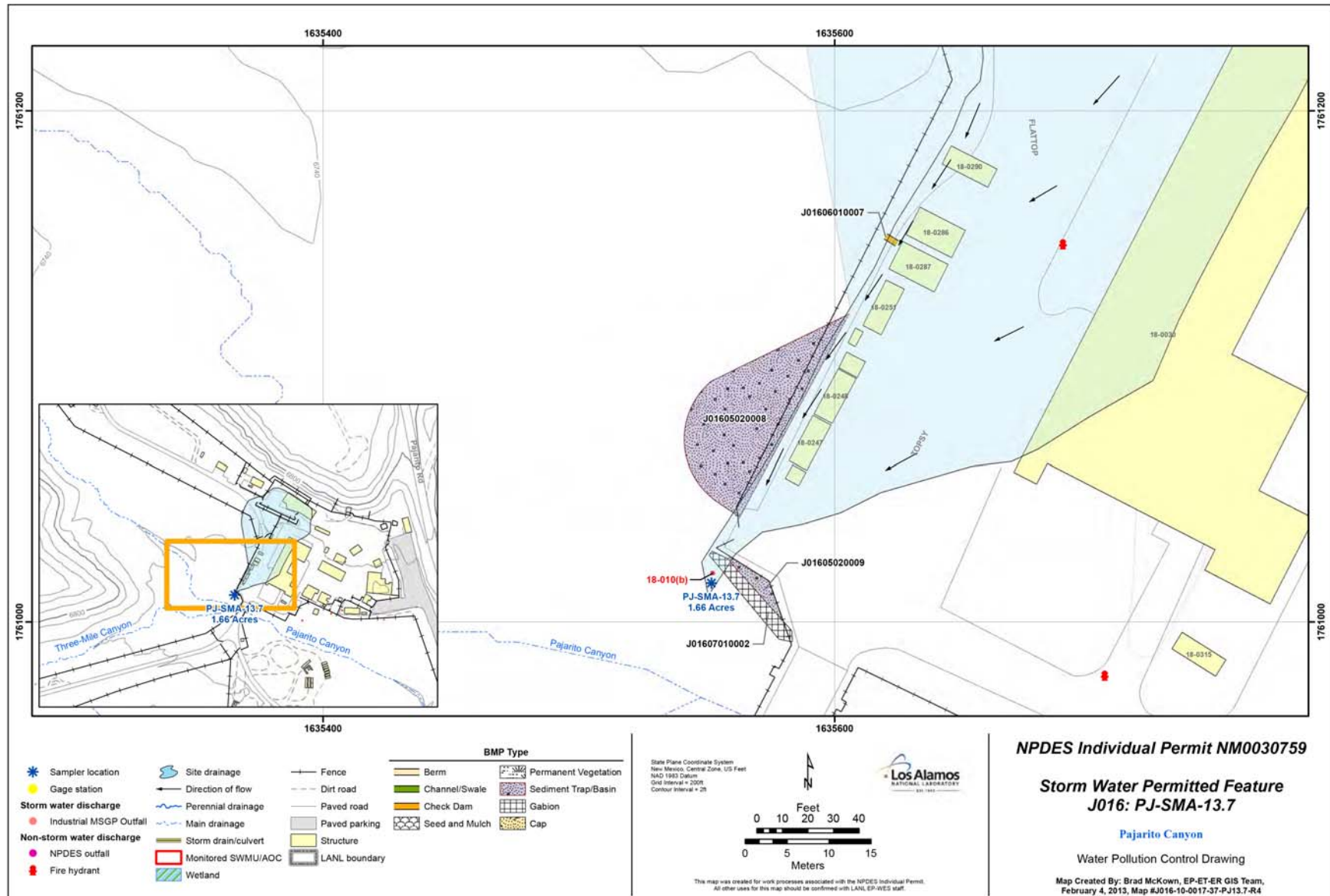
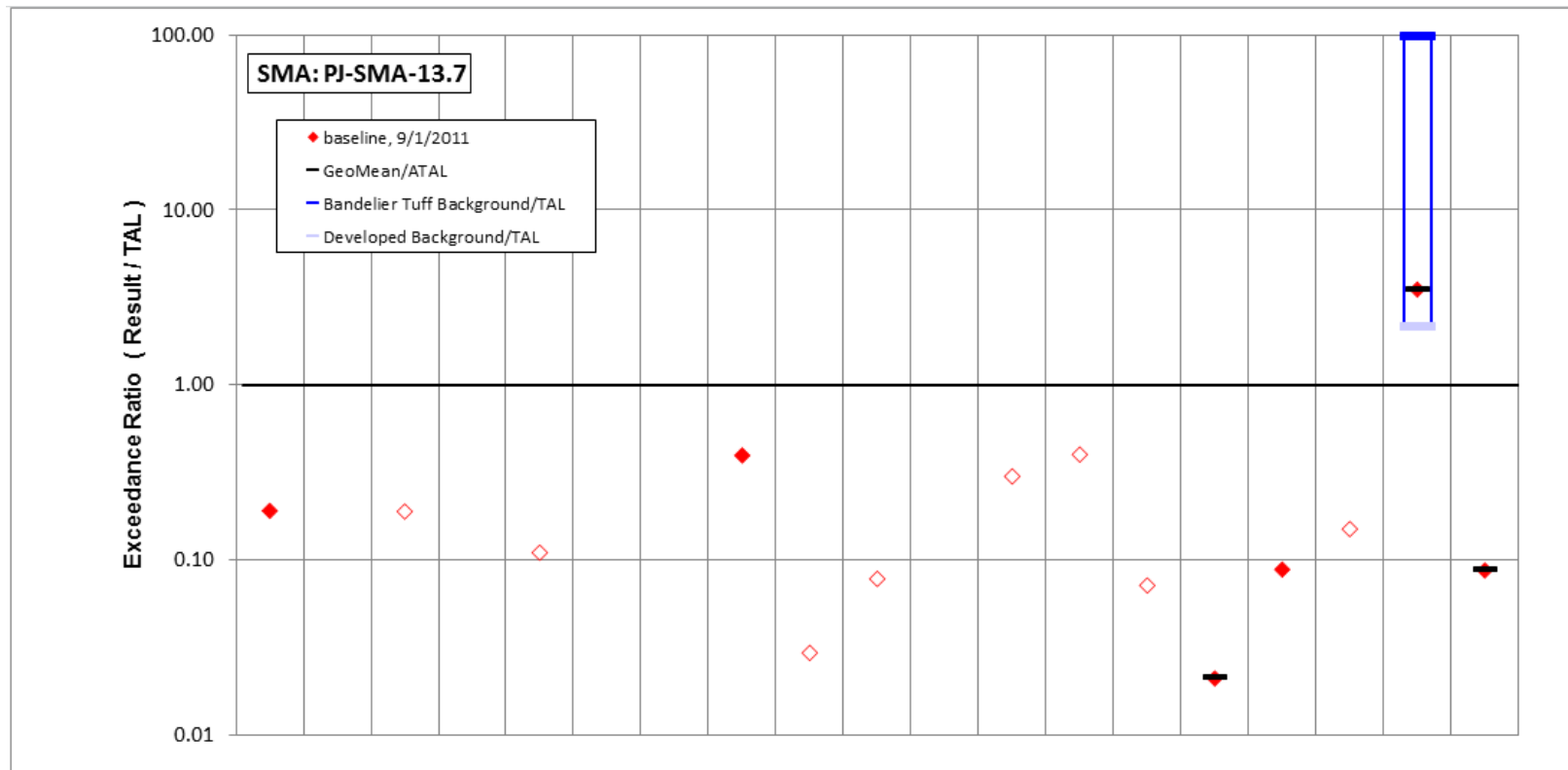


Figure 164-1 PJ-SMA-13.7 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	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	0.078	0.0052	0.3	0.4	0.071	0.021	0.088	0.15	3.5	0.087

Bold font indicates result>TAL; italic font indicates 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 is MDA H, a 0.3-acre site on Mesita del Buey in TA-54 that contains nine inactive shafts used to dispose of Laboratory-generated classified waste such as weapon-component mockup shapes, detonators, papers, and tritium-contaminated items. Each shaft is 6 ft in diameter and 60 ft deep. 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 solely by 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 has been reseeded.

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 Mulch - Seed and Wood Mulch			X		CB
J01703010005	Berms - Earthen		X		X	B
J01703010006	Berms - Earthen		X		X	B
J01703020002	Berms - Base Course	X			X	CB
J01703020003	Berms - Base Course		X		X	CB
J01708010001	Cap - Earth			X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

165.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at PJ-SMA-14 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 165-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23418	05-21-2012
Storm Rain Event	BMP-26903	08-29-2012

There were no maintenance activities conducted at PJ-SMA-14 in 2012.

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 165-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 54-004	Baseline Monitoring	Baseline Monitoring Extended	No Comment

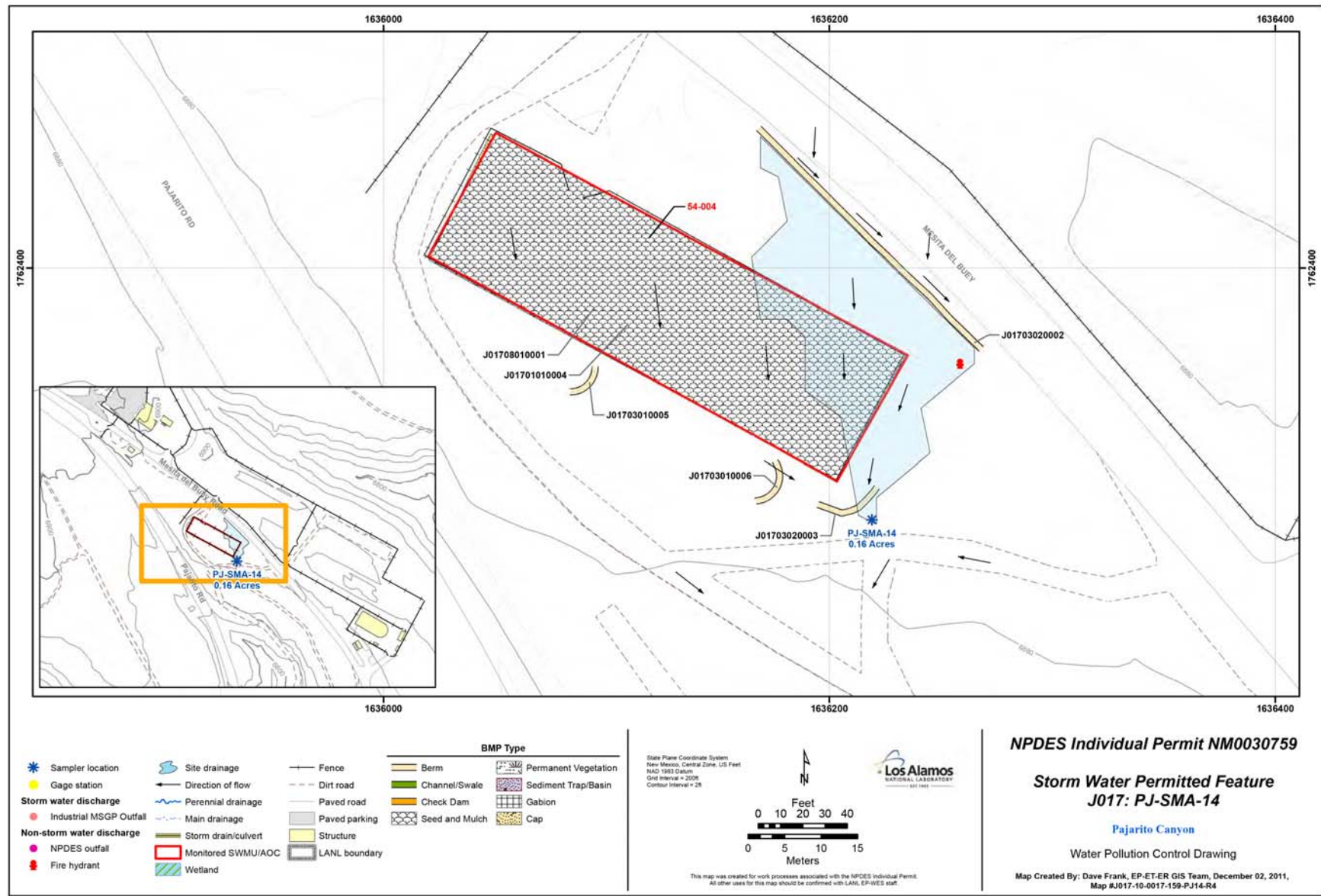


Figure 165-1 PJ-SMA-14 location map

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) is an outfall that received discharge from several sources in buildings 18-0030 and 18-0031. The outfall, active since the buildings were constructed in 1950, is located south of building 18-0031, 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 18-0031, and a welding quench tank in building 18-0030. The outfall also received discharge from machine shop floor drains and storm water from the roof of building 18-0031. Discharge from both buildings was transported to the outfall via a series of 4-in. polyethylene pipes connected to the sources within the buildings. Currently, this outfall receives only storm water from the east-wing roof of building 18-0030. The drainline that exits the southeast corner of building 18-0031 flows into the SWMU 18-003(e) septic system and is not associated with 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	
J01802010001	Established Vegetation - Grasses and Shrubs			X		CB
J01802030002	Established Vegetation – Vegetative Buffer Strip	X		X		CB
J01803120004	Berms - Rock		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

166.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at PJ-SMA-14.2 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 166-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23419	05-21-2012
Storm Rain Event	BMP-26904	08-29-2012

There were no maintenance activities conducted at PJ-SMA-14.2 in 2012.

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 166-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-012(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



PJ-SMA-14.2, Rock Berm, J01803120004 (photo ID 7524-1)

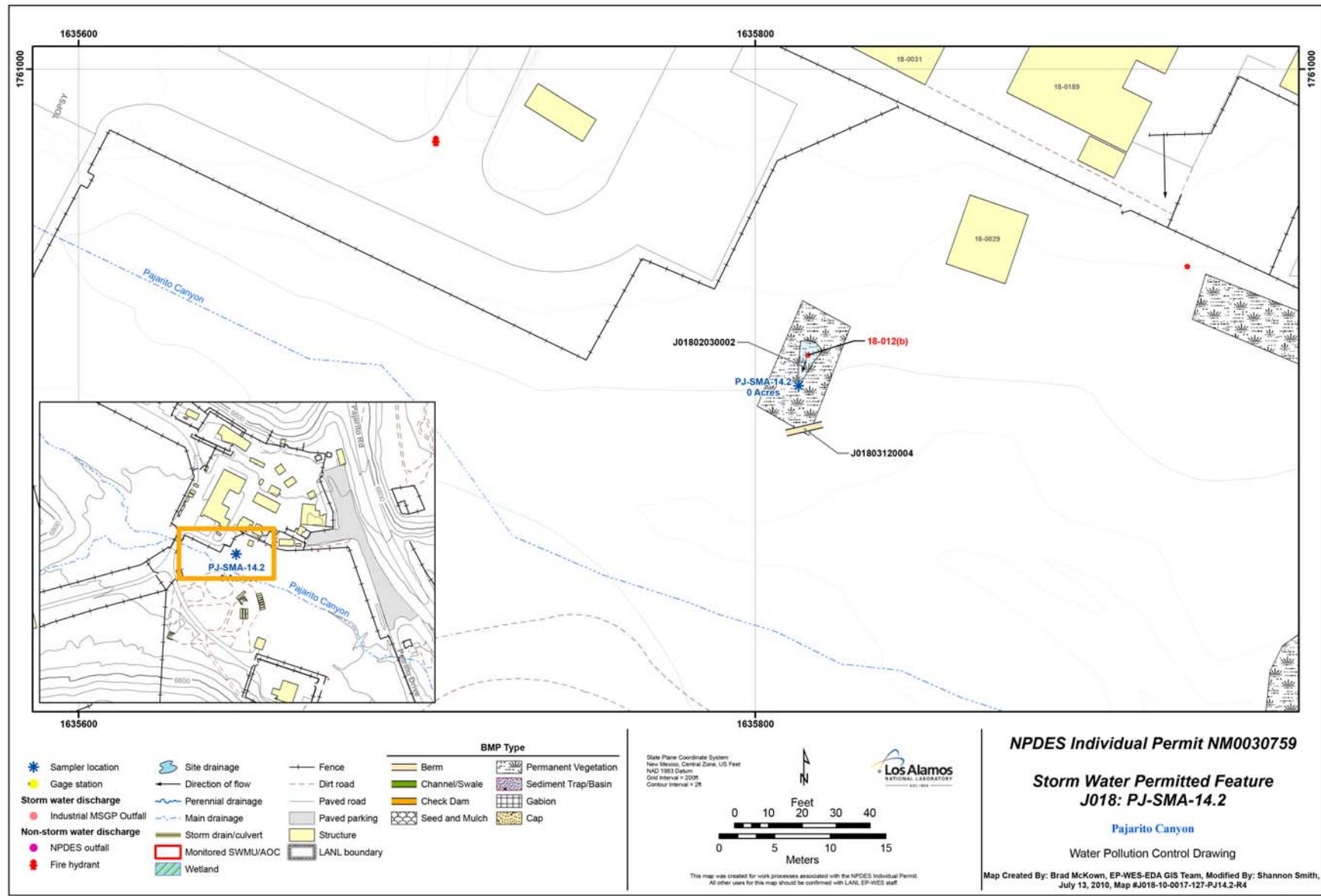


Figure 166-1 PJ-SMA-14.2 location map

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) is an inactive septic system at TA-18 that includes two inlet lines, a cylindrical septic tank (structure 18-0040), an outlet line, a drain field, and a former outfall. The septic tank is located approximately 50 ft southwest of building 18-0037 and approximately 50 ft east of building 18-0029 (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 utility building 18-0031, guard station 18-0037, reactor subassembly building 18-0129, building 18-0189, and building 18-0190. While it operated from 1951 to 1969, the septic system may have also received industrial waste from a sink in warehouse building 18-0028. Septic tanks 18-0043 [SWMU 18-003(g)] and 18-152 [SWMU 18-003(h)] may have also discharged to this septic system. Effluent from the septic system discharged into a drain field that has four drainlines, each of which is approximately 40 ft long. The drainlines, which are 10 ft apart from each other, 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 site sewer system that routed effluent to the sanitary sewage lagoons. At that time, the septic tank was backfilled with sand.

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. A vegetative buffer strip 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	
J01902010001	Established Vegetation - Grasses and Shrubs			X		CB
J01902030002	Established Vegetation – Vegetative Buffer Strip		X	X	X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

167.3 Storm Water Monitoring

Following installation of baseline controls, one baseline confirmation sample was collected from PJ-SMA-14.3 on July 11, 2012. No further confirmation samples were collected. The results of this sampling effort are presented in graphs at the end of the SMA update. The results are shown as a ratio

of the respective MTAL or ATAL. Full data analysis and reporting of the analytical results of this sampling will be provided in the Annual Report.

167.4 Inspections and Maintenance

RG245.5 recorded one storm event at PJ-SMA-14.3 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 167-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23420	05-21-2012
Storm Rain Event	BMP-26905	08-29-2012

There were no maintenance activities conducted at PJ-SMA-14.3 in 2012.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-003(e)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



PJ-SMA-14.3, Permanent Vegetation Grasses and Shrubs, J01902010001 (photo ID 7525-1)

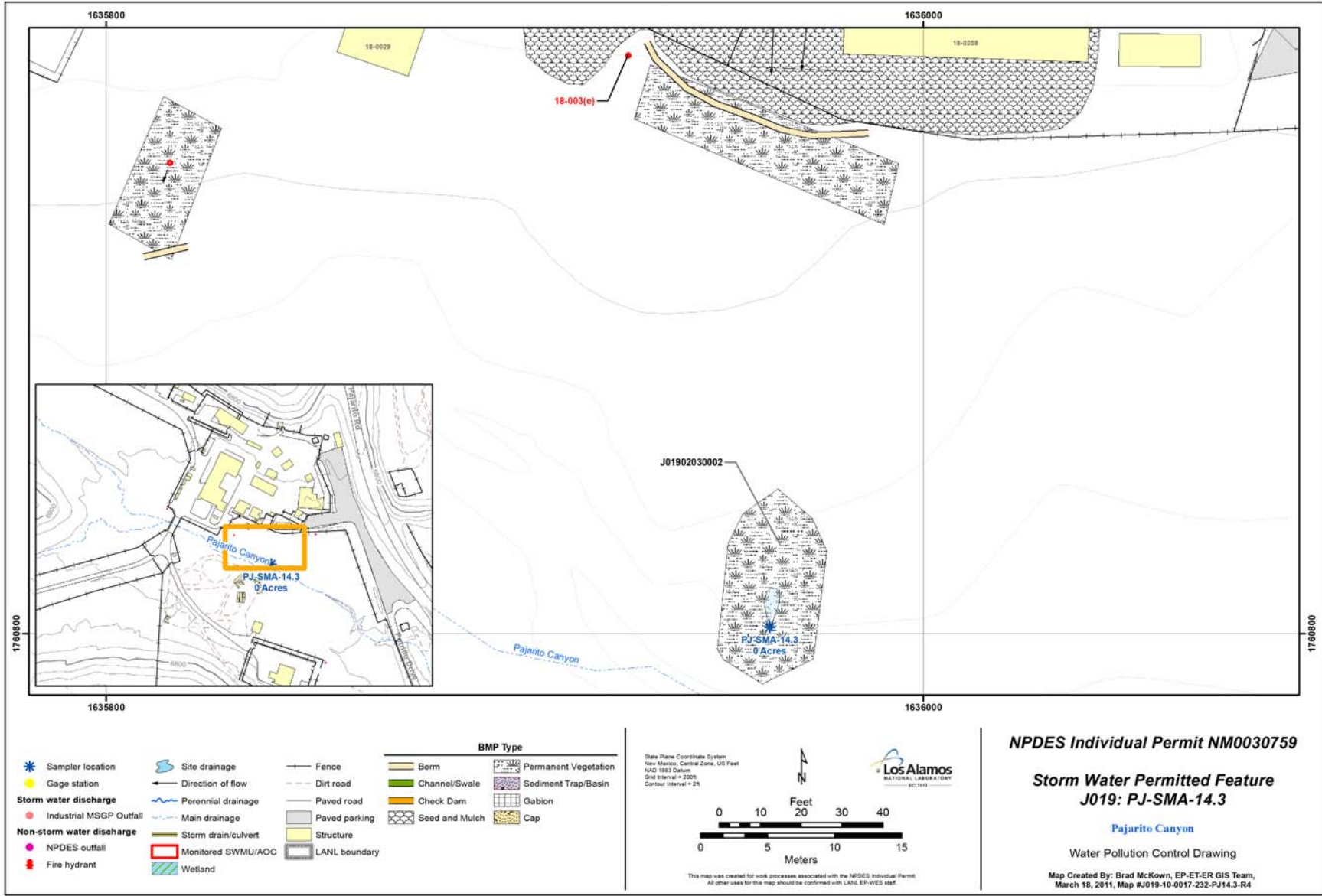


Figure 167-1 PJ-SMA-14.3 location map

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) is 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 building 18-0037. The outfall discharges to a flat graveled and grassy area southeast of building 18-0037 and west of building 18-0258. 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 that the outfall has operated from the time building 18-0037 was constructed in 1951.

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 resultant 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	
J02001010009	Seed and Mulch - Seed and Wood Mulch			X		CB
J02002010001	Established Vegetation - Grasses and Shrubs			X		CB
J02002030002	Established Vegetation – Vegetative Buffer Strip		X	X		CB
J02003010008	Berms - Earthen	X			X	CB
J02003040006	Berms - Asphalt	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

168.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at PJ-SMA-14.4 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 168-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23421	05-21-2012
Storm Rain Event	BMP-26906	08-29-2012

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

Table 168-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-26906	Berm J02003040006 built up and re-shaped with shovels.	08-29-2012	0 day(s)	Maintenance conducted upon inspection.

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 168-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 18-010(d)	Baseline Monitoring	Baseline Monitoring Extended	No Comment

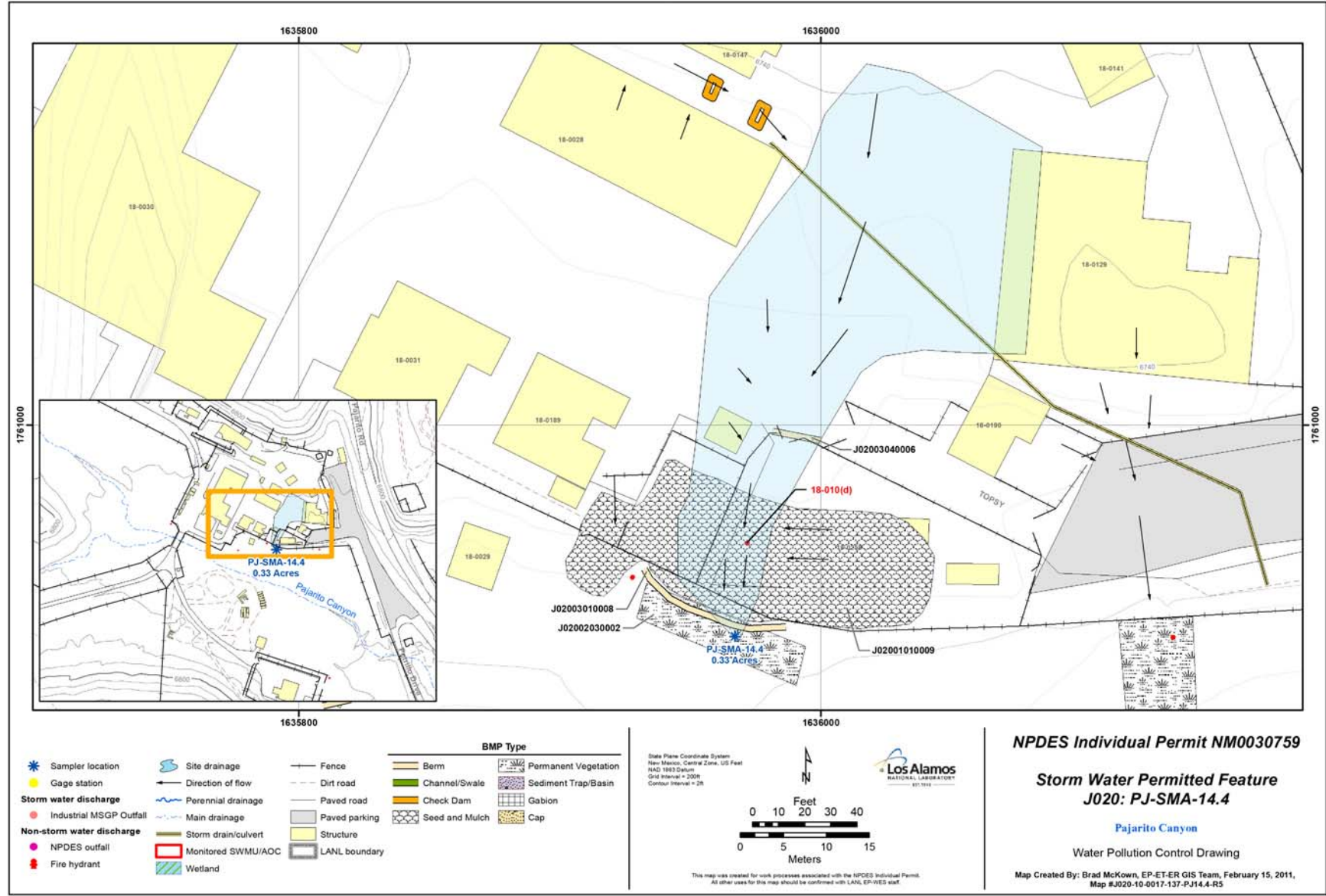


Figure 168-1 PJ-SMA-14.4 location map

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) is an outfall at TA-18 that receives discharge from a storm sewer that drains the paved area between buildings 18-0028 and 18-0147. The drainage enters a storm drain that runs southeast under the paved area west of building 18-0129 to a grating east of building 18-0190 and turns south to the outfall located south of building 18-0129. The outfall 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. The date this outfall became operational is not known, but it is likely that the outfall has operated from the time building 18-0037 was constructed in 1951.

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 heavily influenced by engineered storm water controls within the administrative area at TA-18. Existing controls are managing flow above the culvert inlet within the administrative area. Runoff from the area discharges to a vegetated buffer strip. 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	
J02101060006	Seed and Mulch - Erosion Control Blankets			X		B
J02102010001	Established Vegetation - Grasses and Shrubs			X		CB
J02103010005	Berms - Earthen		X		X	B
J02104060007	Channel/Swale - Rip Rap	X		X		B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

169.3 Storm Water Monitoring

For calendar year 2012, 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 one storm event at PJ-SMA-14.6 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 169-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23422	05-21-2012
Storm Rain Event	BMP-26907	08-29-2012

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

Table 169-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-27212	Install riprap inlet and outlet protection at culvert below rock check dam -0003. Rock check dams -0003 and -0004 will be retired when work is completed.	09-11-2012	13 day(s)	Maintenance conducted in timely manner.

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 169-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-010(e)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



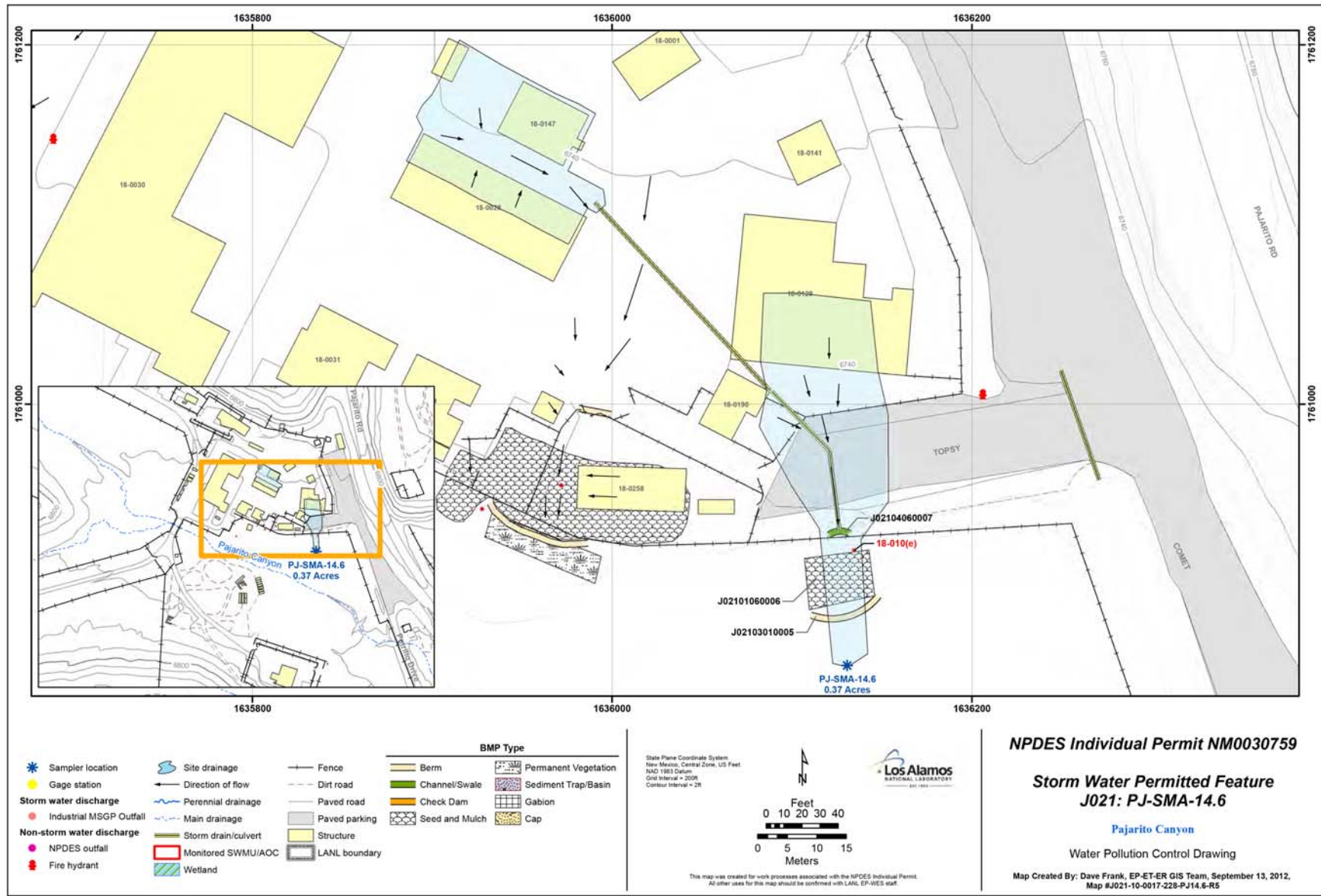


Figure 169-1 PJ-SMA-14.6 location map

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) is an outfall at TA-18 for a combined industrial drain and storm sewer drain for building 18-0116 (Kiva 3). Drainlines discharging to this outfall are connected to building 18-0116 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 18-0116 and approximately 150 ft from the stream channel in Pajarito Canyon. Building 18-0116 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 that the outfall has operated from the time building 18-0116 was completed in 1960. Potential contaminants associated with industrial materials historically managed at this Site are metals and uranium.

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	
J02202010001	Established Vegetation - Grasses and Shrubs			X		CB
J02202030004	Established Vegetation – Vegetative Buffer Strip		X	X		CB
J02203020005	Berms - Base Course	X			X	CB
J02203060006	Berms - Straw Wattles		X		X	CB

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 remaining period of the IP.

170.4 Inspections and Maintenance

RG245.5 recorded one storm event at PJ-SMA-14.8 during the 2012 season. These rain events triggered one post-storm inspection. Post-storm inspections and all other inspection activity conducted at the SMA are summarized below.

Table 170-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23423	05-21-2012
Storm Rain Event	BMP-26908	08-29-2012

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

Table 170-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-26908	Repaired base course berm J00203020005 with shovels to original height.	08-29-2012	0 day(s)	Maintenance conducted upon inspection.

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 170-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 18-012(a)	Baseline Confirmation Complete	Baseline Confirmation Complete	No Comment



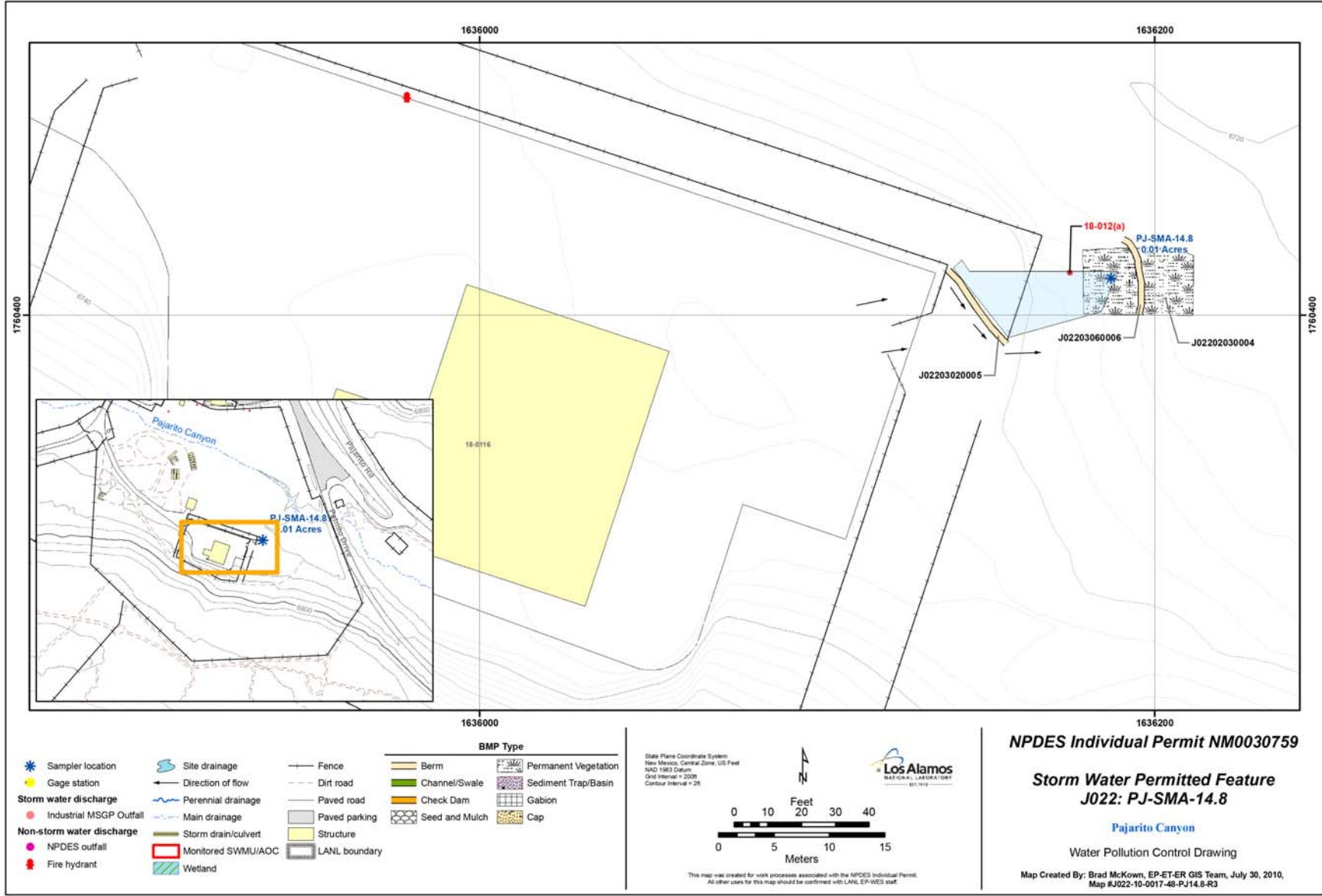
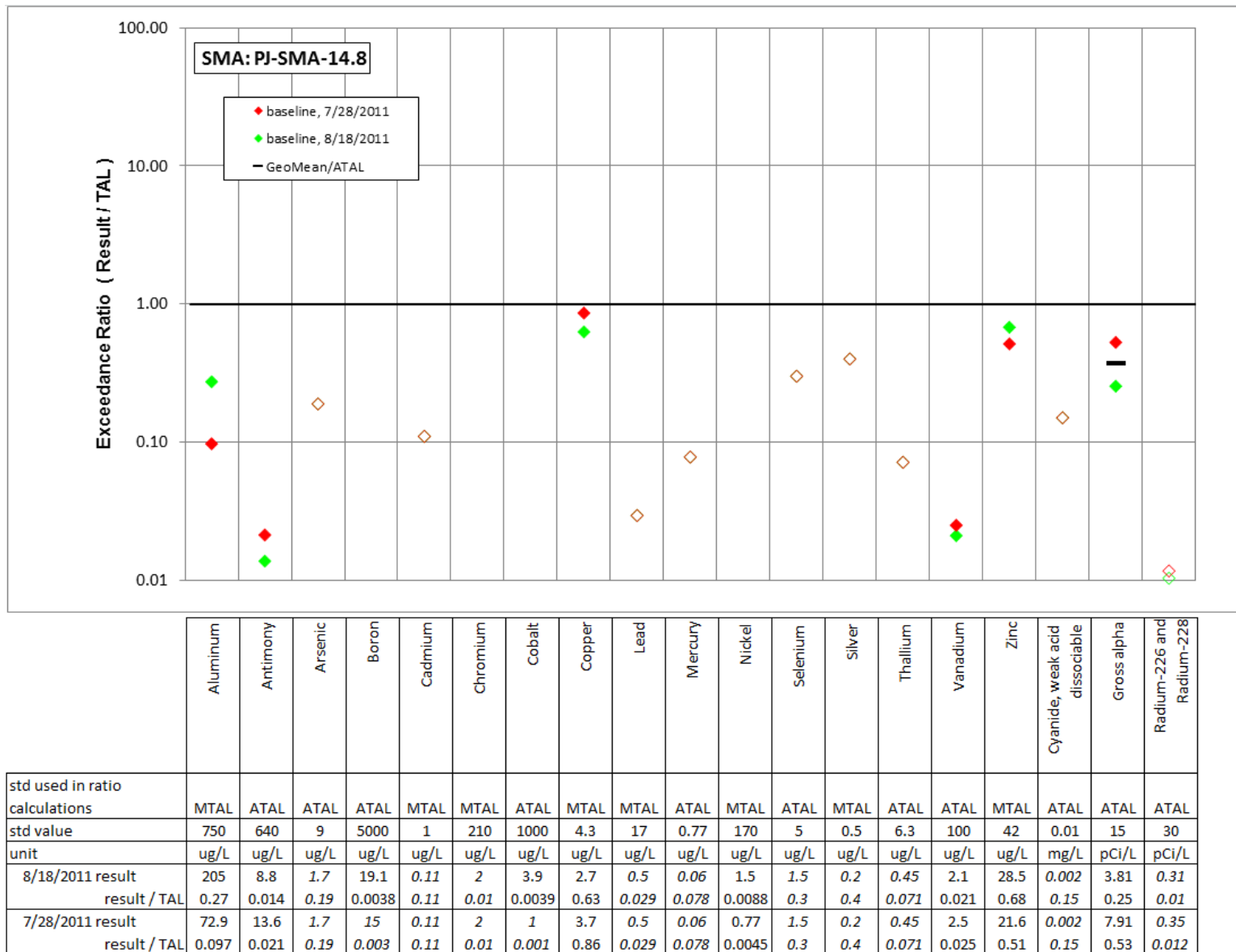


Figure 170-1 PJ-SMA-14.8 location map



Bold font indicates result>TAL; italic font indicates 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 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.

Potential contaminants associated with industrial materials historically managed at this Site are beryllium, cadmium, lead, thorium, uranium, and explosive compounds.

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 and 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	
J02302010001	Established Vegetation - Grasses and Shrubs			X		CB
J02303060003	Berms - Straw Wattles		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, a baseline storm water sample was collected on July 30, 2011 (Figures 171-2 and 171-3). Analytical results from this sample yielded no TAL exceedances. The HE sample from the July 30, 2011, collection date was extracted or analyzed beyond the appropriate holding time and thus may have a low bias and potentially underreport the concentration of HE in this sample. Consequently, the results for this analysis are unusable to confirm that pollutants of concern are not present at concentrations greater than the applicable TAL values. Therefore, PJ-SMA-16 will remain in the baseline monitoring extended phase until a complete baseline confirmation monitoring sample can be collected and analyzed with fully usable results.

171.4 Inspections and Maintenance

RG-TA-54 recorded three storm events at PJ-SMA-16 during the 2012 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 171-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-23254	05-15-2012
Annual Erosion Evaluation	COMP-23424	05-21-2012
Storm Rain Event	BMP-24750	07-09-2012
Storm Rain Event	BMP-26198	08-03-2012

There were no maintenance activities conducted at PJ-SMA-16 in 2012.

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 171-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 27-002	Baseline Monitoring	Baseline Monitoring Extended	No Comment

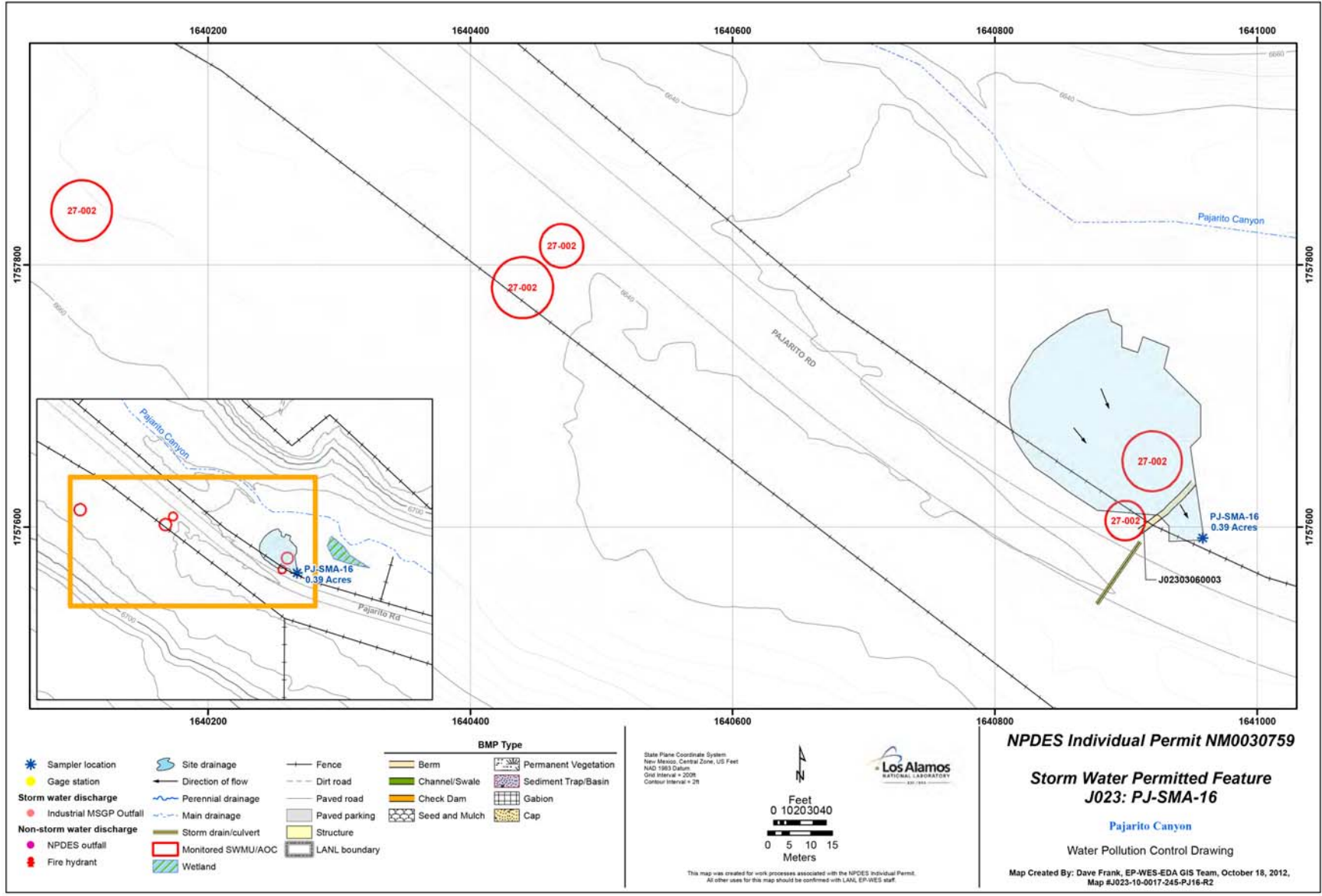
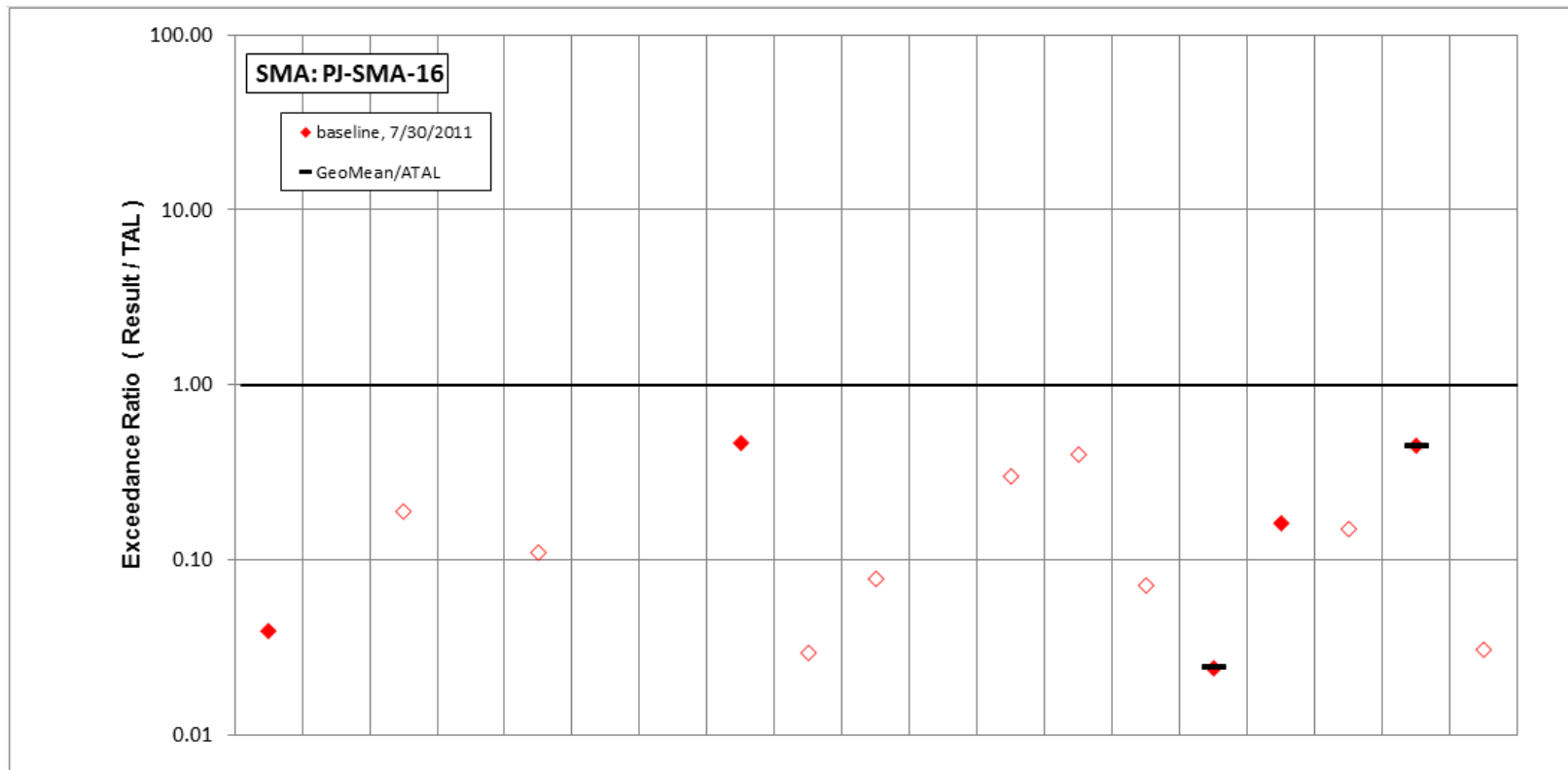


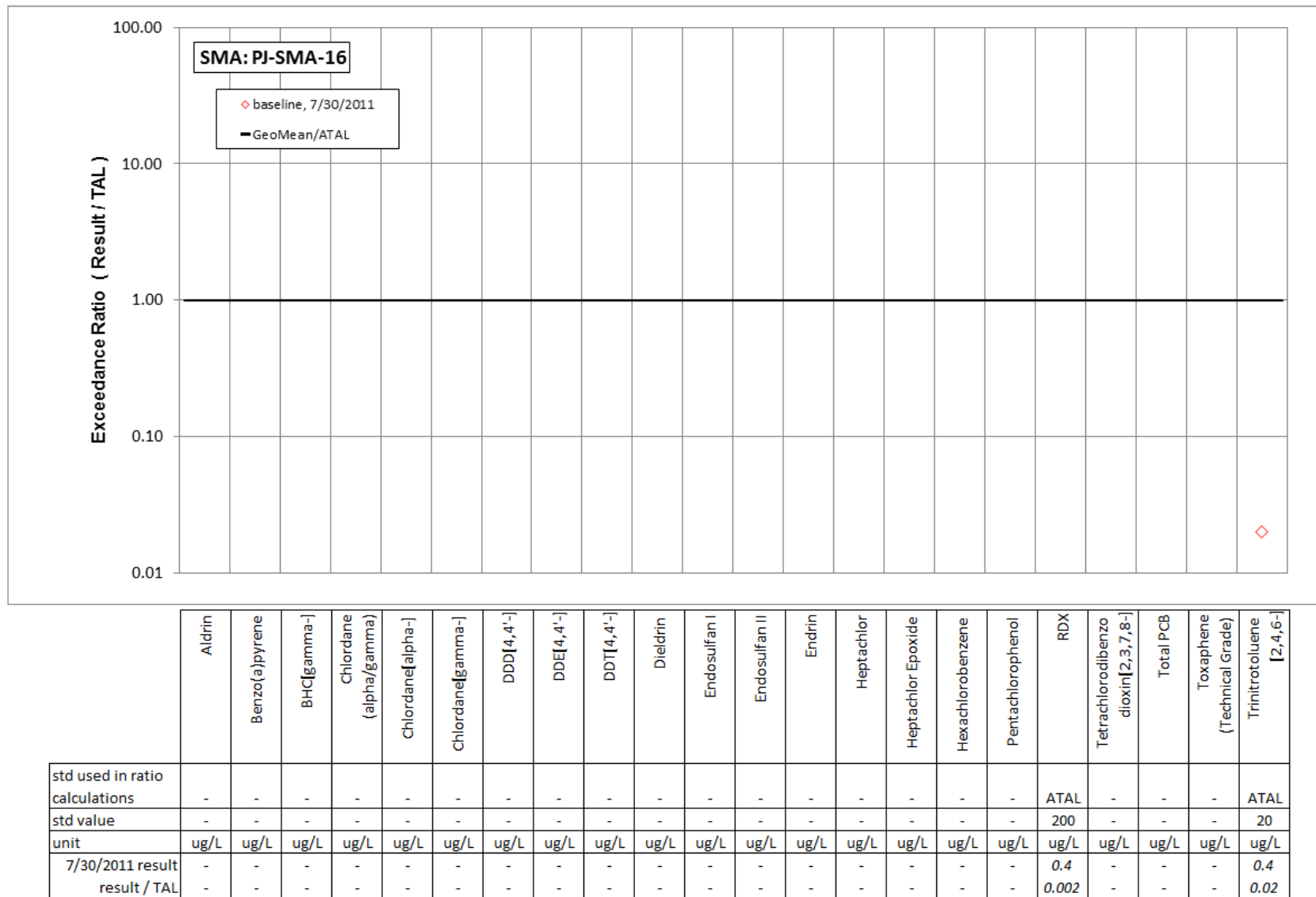
Figure 171-1 PJ-SMA-16 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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
7/30/2011 result	29.4	1	1.7	15	0.11	2	1.1	2	0.5	0.06	0.96	1.5	0.2	0.45	2.4	6.8	0.002	6.74	0.92
result / TAL	0.039	0.002	0.19	0.003	0.11	0.01	0.0011	0.47	0.029	0.078	0.0056	0.3	0.4	0.071	0.024	0.16	0.15	0.45	0.031

Bold font indicates result>TAL; italic font indicates undetected results; "-" is used if no analytical results were available.

Figure 171-2 Inorganic analytical results summary plot for PJ-SMA-16



Bold font indicates result>TAL; italic font indicates 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 consists of disposal pits 25 through 33 and 35 through 37. Only pit 29, although no longer in use, is considered a regulated unit until RCRA closure is certified and approved by NMED. Pits 25 through 28 and 30 through 36 operated between 1979 and 1980 and received radioactive, mixed, and transuranic (TRU) waste in the form of reactor control rods, D&D waste, contaminated soil,



PJ-SMA-17, Rock Check Dam, J02406010004 (photo ID 8507-1)

transformers, glove boxes, asbestos, and laboratory waste. The waste volume ranged from 20,957 to 59,930 yd³. 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.

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	
J02402010003	Established Vegetation - Grasses and Shrubs			X		CB
J02404060006	Channel/Swale - Rip Rap		X	X		CB
J02404060007	Channel/Swale - Rip Rap		X	X		CB
J02405010005	Sediment Traps and Basins - Sediment Trap		X		X	CB
J02406010004	Check Dam - Rock	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

172.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-17. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

172.4 Inspections and Maintenance

RG-TA-54 recorded three storm events at PJ-SMA-17 during the 2012 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 172-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-23255	05-15-2012
Annual Erosion Evaluation	COMP-23425	06-07-2012
Storm Rain Event	BMP-24751	07-12-2012
Storm Rain Event	BMP-26199	08-03-2012

There were no maintenance activities conducted at PJ-SMA-17 in 2012.

172.5 Compliance Status

The Sites associated with PJ-SMA-17 are high priority Sites. Corrective action is to be certified complete within 3 yr of the effective date of the IP (i.e., November 2015).

Table 172-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 54-018	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 54-018	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

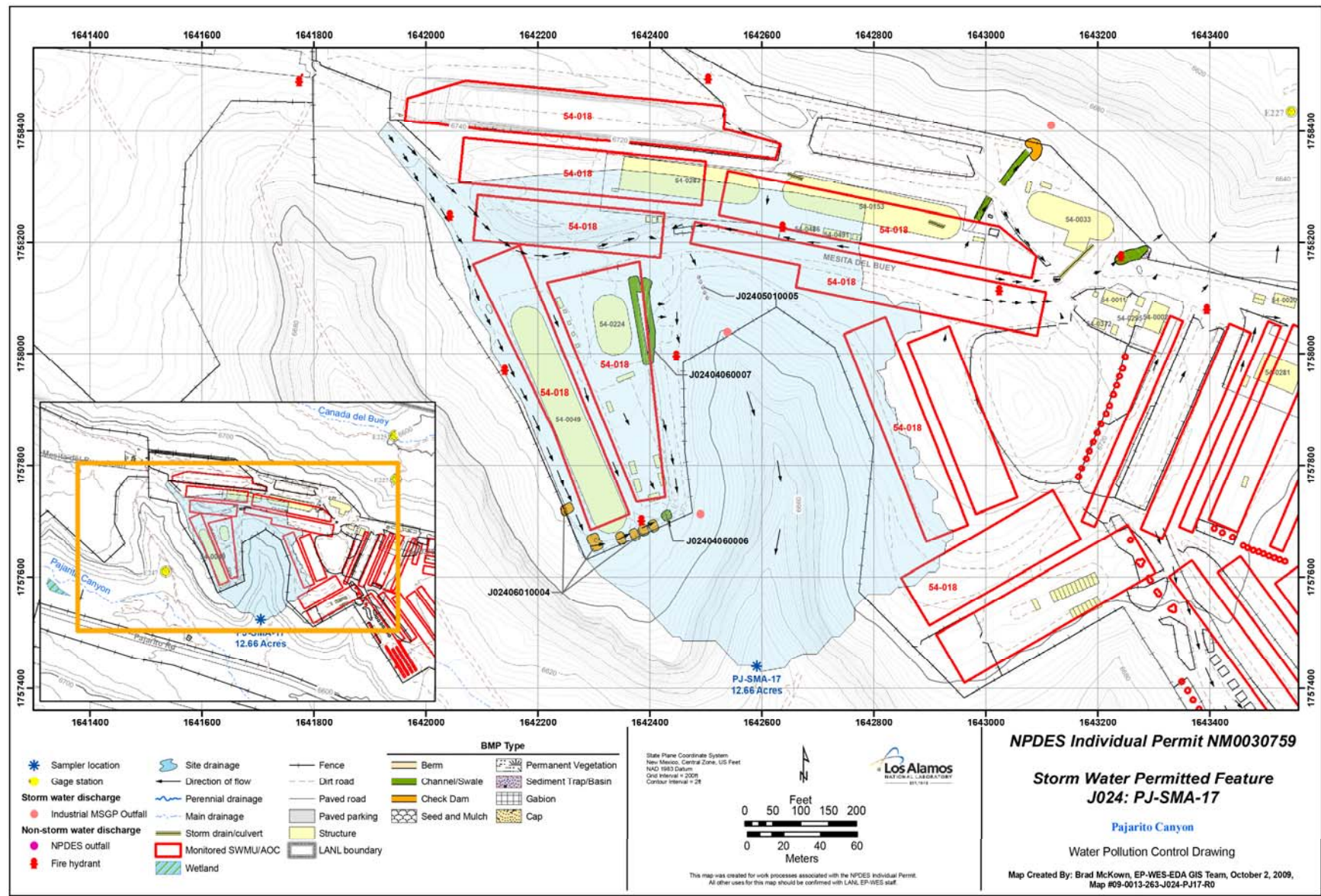


Figure 172-1 PJ-SMA-17 location map

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) 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 and mixed low-level waste (LLW) 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 at WIPP.

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 operated between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. 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 to 56,759 yd³. When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil and reseeded with native grasses.

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	
J02601060002	Seed and Mulch - Erosion Control Blankets		X	X		CB
J02602010001	Established Vegetation - Grasses and Shrubs			X		CB
J02604010009	Channel/Swale - Earthen	X		X		B
J02604060007	Channel/Swale - Rip Rap		X	X		CB
J02605010005	Sediment Traps and Basins - Sediment Trap		X		X	CB
J02606010004	Check Dam - Rock		X		X	CB
J02606010006	Check Dam - Rock		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

173.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-18. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

173.4 Inspections and Maintenance

RG-TA-54 recorded three storm events at PJ-SMA-18 during the 2012 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 173-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-23257	05-15-2012
Annual Erosion Evaluation	COMP-23426	06-07-2012
Storm Rain Event	BMP-24753	07-11-2012
Storm Rain Event	BMP-26201	08-03-2012

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

Table 173-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-24753	Cleaned out about 20-ft length of channel by erosion control blanket.	07-11-2012	0 day(s)	Maintenance conducted upon inspection.

173.5 Compliance Status

The Sites associated with PJ-SMA-18 are high priority Sites. Corrective action is to be certified complete within 3 yr of the effective date of the IP (i.e., November 2015).

Table 173-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 54-014(d)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 54-017	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

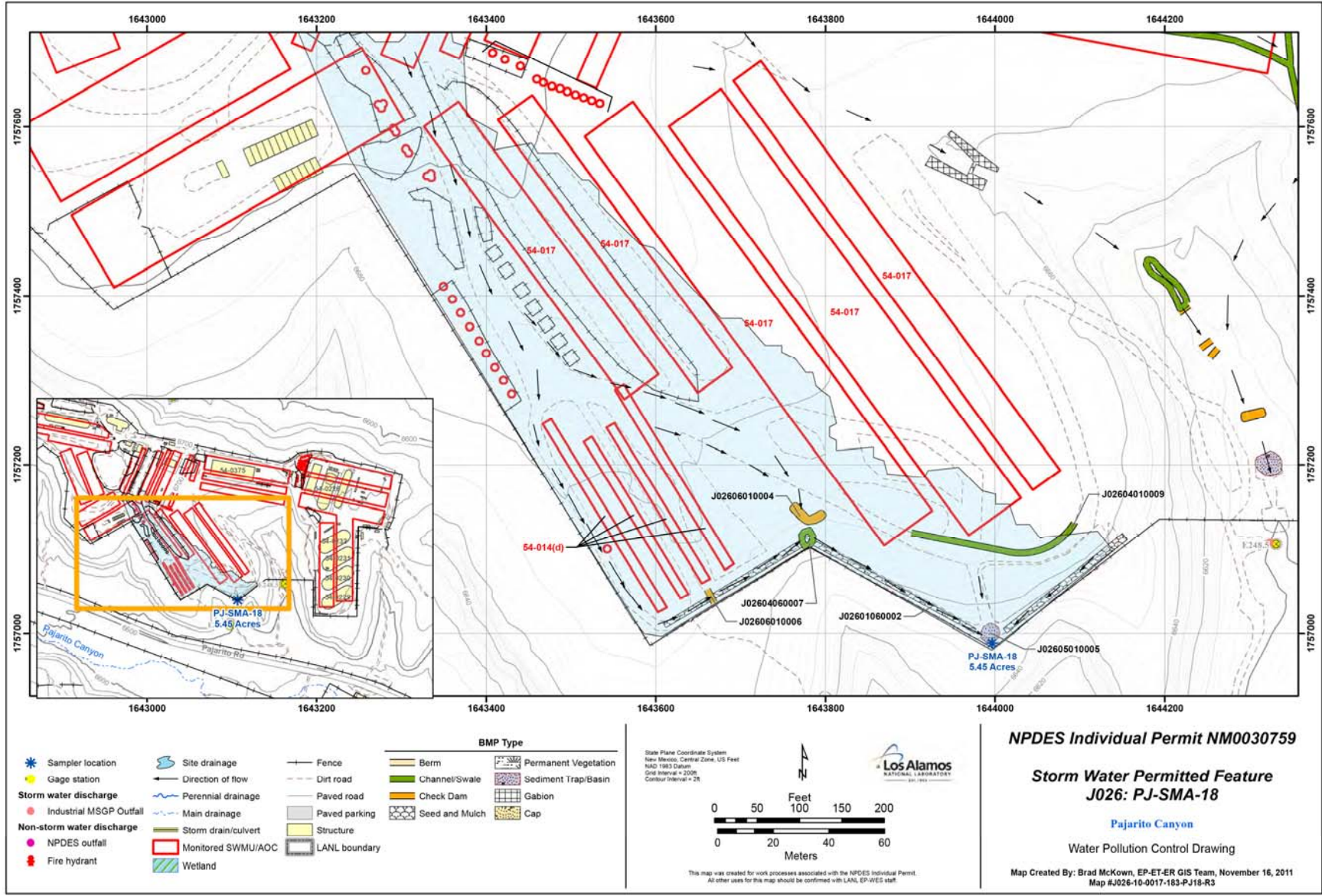


Figure 173-1 PJ-SMA-18 location map

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) was a vehicle monitoring/decontamination area located in the central portion of Area G on the surface of pit 19. The area was used to decontaminate trucks and TRU waste drums but is no longer in use.

SWMU 54-017 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 were operational between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. 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 to 56,759 yd³. When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil, and reseeded with native grasses.

SWMU 54-020 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 ft to 8 ft in diameter and 25 ft to 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 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	
J02502010003	Established Vegetation - Grasses and Shrubs			X		CB
J02504020004	Channel/Swale - Concrete/Asphalt	X		X		CB
J02504020006	Channel/Swale - Concrete/Asphalt	X		X		CB
J02504060010	Channel/Swale - Rip Rap		X	X		CB
J02505020002	Sediment Traps and Basins - Sediment Basin		X		X	CB
J02506010005	Check Dam - Rock		X		X	CB
J02506010007	Check Dam - Rock		X		X	CB
J02506010008	Check Dam - Rock		X		X	CB
J02506010009	Check Dam - Rock		X		X	CB
J02507010001	Gabions - Gabions		X		X	CB

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

174.3 Storm Water Monitoring

For calendar year 2012, storm water flow has not been sufficient for full-volume sample collection at PJ-SMA-19. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

174.4 Inspections and Maintenance

RG-TA-54 recorded three storm events at PJ-SMA-19 during the 2012 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 174-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-23256	05-15-2012
Annual Erosion Evaluation	COMP-23427	06-07-2012
Storm Rain Event	BMP-24752	07-11-2012
Storm Rain Event	BMP-26200	08-03-2012

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

Table 174-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-23181	Repaired J02504020006 with rock.	05-15-2012	7+ months	Maintenance conducted as soon as practicable.

174.5 Compliance Status

The Sites associated with PJ-SMA-19 are high priority Sites. Corrective action is to be certified complete within 3 yr of the effective date of the IP (i.e., November 2015).

Table 174-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 54-013(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 54-017	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 54-020	Baseline Monitoring	Baseline Monitoring Extended	No Comment

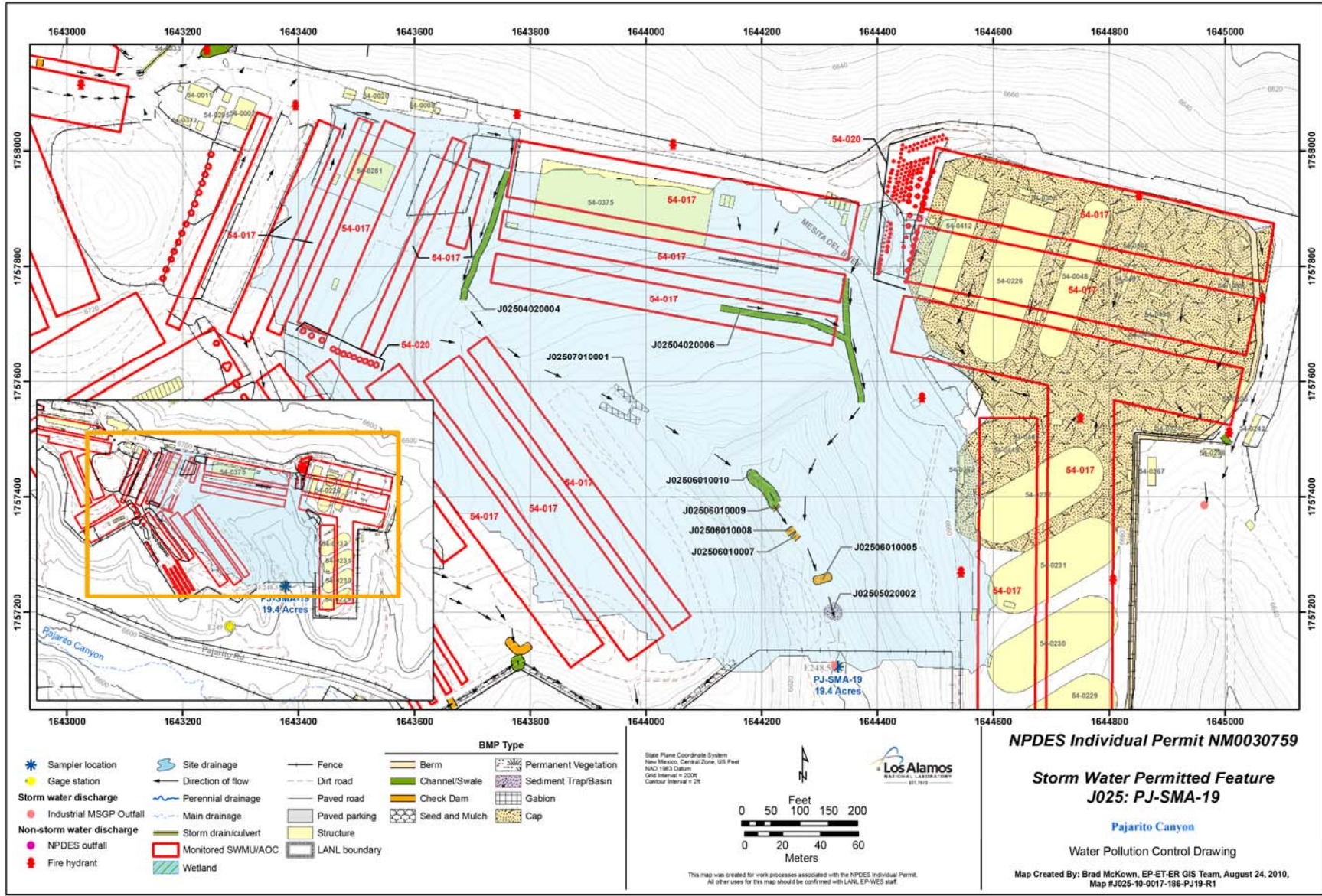


Figure 174-1 PJ-SMA-19 location map

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 consists of inactive disposal pits 1 through 8, 10, 12, 13, 16 through 22, and 24. Pits 1 through 8, 10, 12, 13, 16 through 22, and 24 operated between 1959 and 1980 and received radioactive, mixed, and TRU wastes in the form of wing tanks, dry boxes, building debris, sludge drums, laboratory waste, contaminated soil, D&D waste, filter plenums, and uranium. 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 to 56,759 yd³. When filled, the pits were covered with 3.3 ft of consolidated crushed tuff and 4 in. of topsoil and reseeded with native grasses. Potential contaminants associated with industrial materials historically managed at this Site are metals, VOCs, SVOCs, PCBs, and radionuclides. These industrial materials are all associated with wastes that have been disposed of in subsurface disposal pits and are not exposed to storm water.

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	
J02702010004	Established Vegetation - Grasses and Shrubs			X		CB
J02703090001	Berms - Curbing		X		X	CB
J02704060006	Channel/Swale - Rip Rap		X	X		CB
J02708030005	Cap - Asphalt	X		X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls will be installed in the second quarter of 2013 as part of corrective action

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). Analytical results from this sample yielded one TAL exceedance:

- Copper concentration of 8.1 µg/L (MTAL is 4.3 µg/L).

This exceedance was 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 54-017: Potential contaminants associated with industrial materials historically managed at this Site are metals, VOCs, SVOCs, PCBs, and radionuclides. These industrial materials are all associated with wastes that have been disposed of in subsurface disposal pits and are not exposed to storm water.

- Copper—Consent Order sampling at SWMU 54-017 did not include collection of surface and shallow subsurface samples. Copper was not detected above BVs in samples collected during the 1995 Channel Sediment RFI at TA-54.

In summary, copper is known to be associated with industrial materials historically managed at this Site, but these materials are all present in wastes disposed of in subsurface pits, which are not exposed to storm water. Copper was not detected above BV in drainage sediments. Based on site history and previous sampling results, the Site is an unlikely source of copper above MTALs in storm water.

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 175-2 and 175-3. 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 175-2 and 175-3.

Monitoring location PJ-SMA-20 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.

- 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 result from 2011 is between these two values.

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

175.4 Inspections and Maintenance

RG-TA-54 recorded three storm events at PJ-SMA-20 during the 2012 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 175-2 Control Measure Inspections during 2012

Inspection Type	Inspection Reference	Inspection Date
Storm Rain Event	BMP-23258	05-15-2012
Annual Erosion Evaluation	COMP-23429	06-07-2012
Storm Rain Event	BMP-24754	07-11-2012
Storm Rain Event	BMP-26202	08-08-2012

There were no maintenance activities conducted at PJ-SMA-20 in 2012.

175.5 Compliance Status

The Sites associated with PJ-SMA-20 are high priority Sites. Corrective action is to be certified complete within 3 yr of the effective date of the IP (i.e., November 2015).

Table 175-3 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 54-017	Baseline Monitoring	Corrective Action Initiated	Initiated 05-01-2012

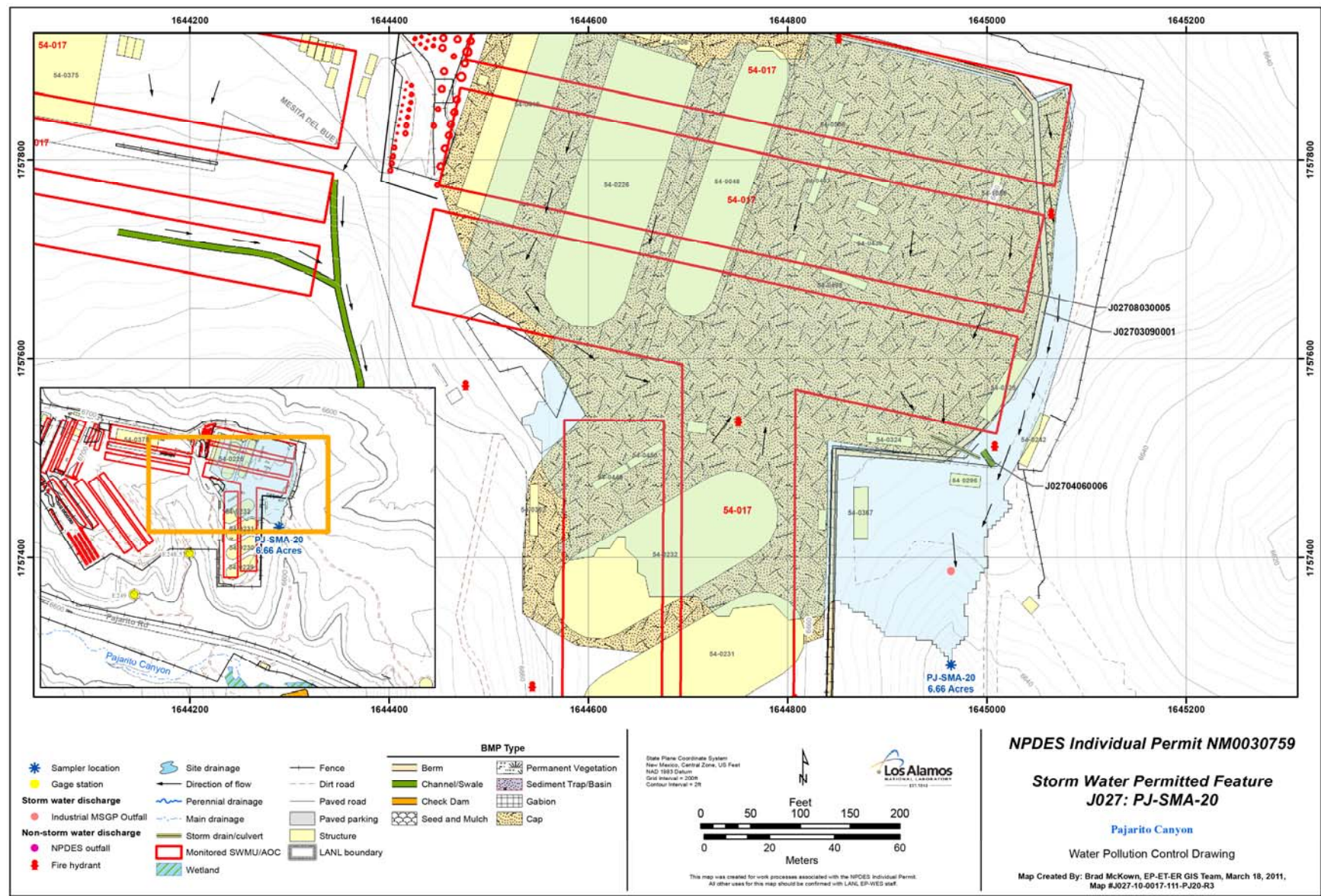
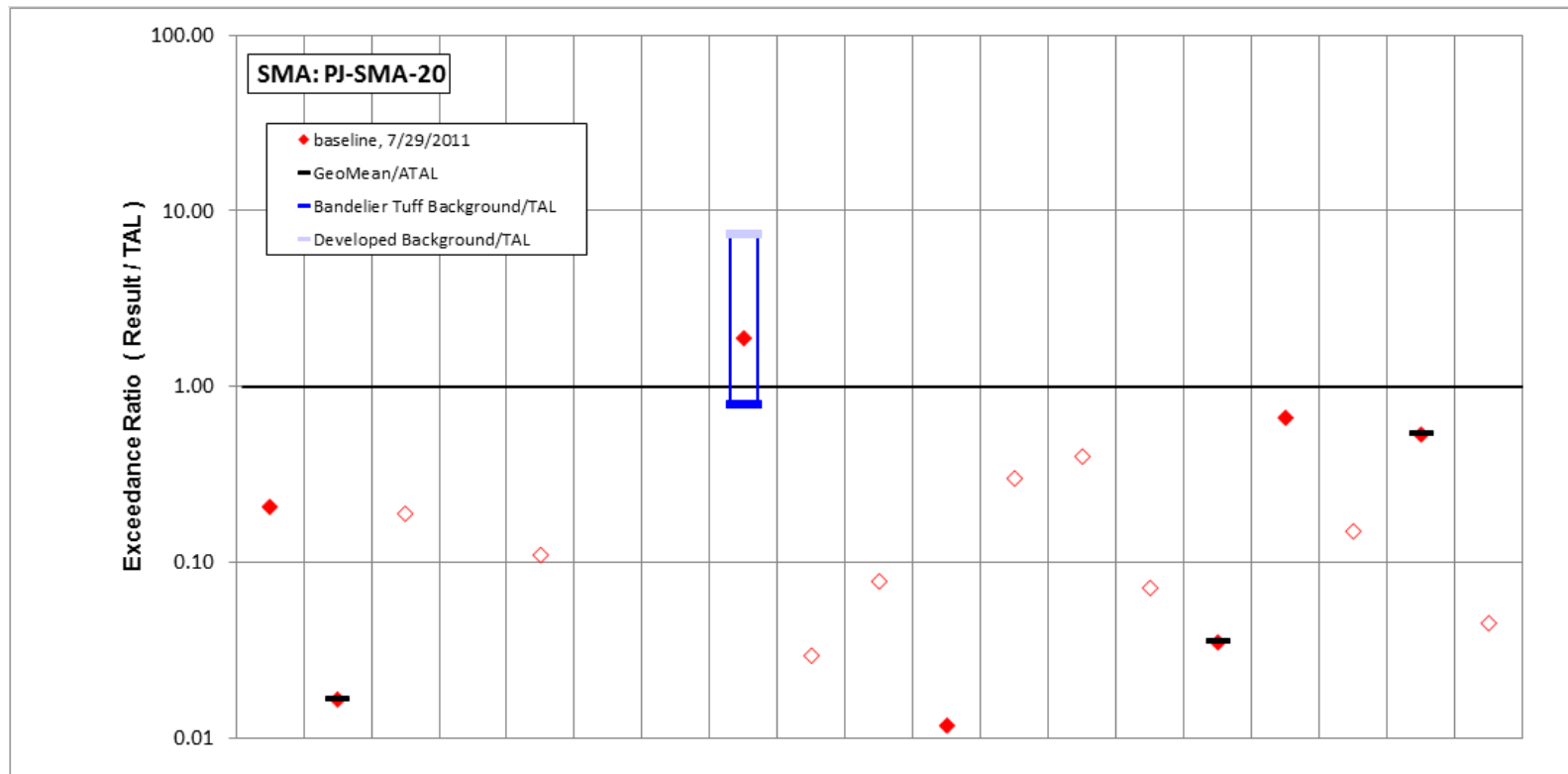


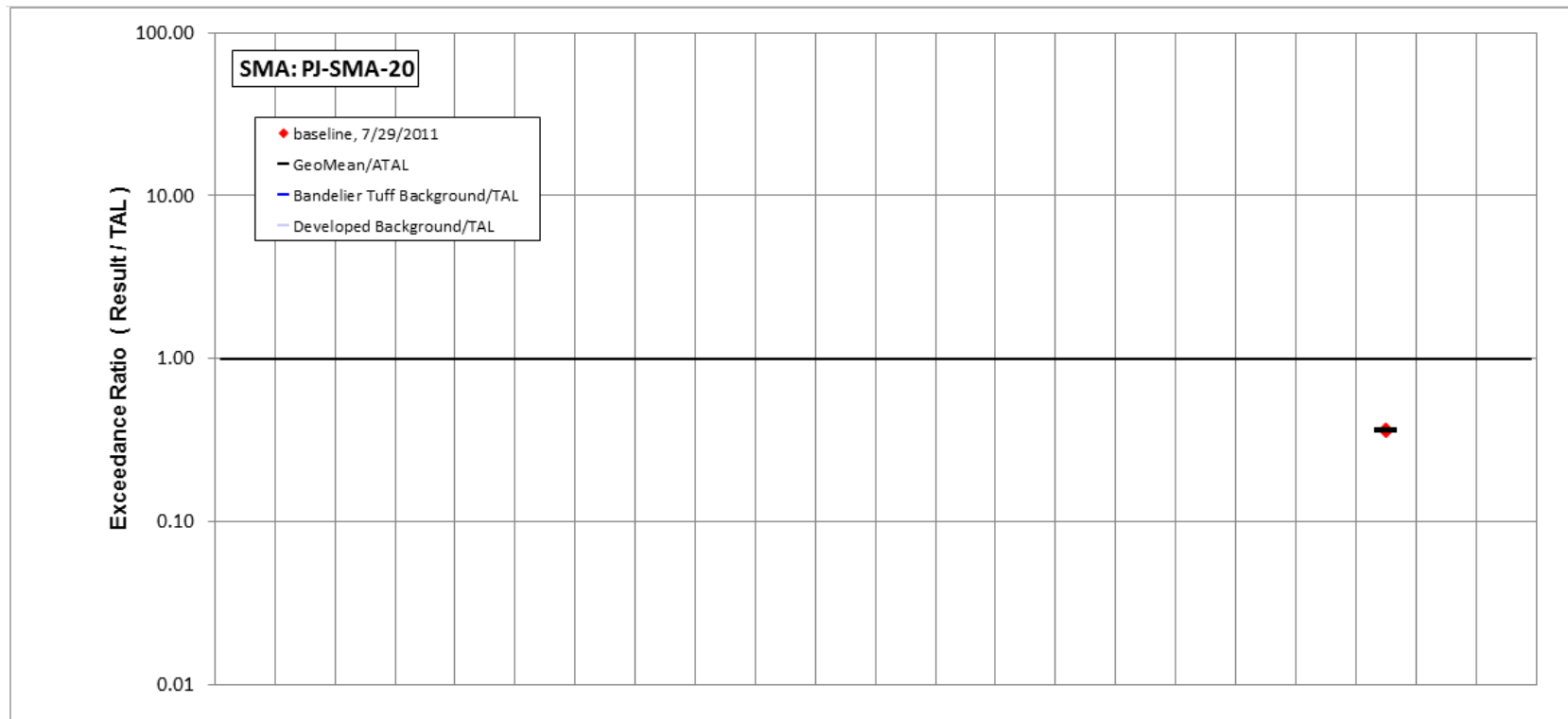
Figure 175-1 PJ-SMA-20 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	0.06	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	0.078	0.012	0.3	0.4	0.071	0.035	0.66	0.15	0.53	0.045

Bold font indicates result>TAL; italic font indicates 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; italic font indicates 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) is the outfall at TA-08 located approximately 40 ft southeast of building 08-0022 (the x-ray building). Fluorescent penetrants (mixtures of dyes and surfactants) were used in building 08-0022 to detect cracks in parts being prepared for installation into a weapons assembly. Historically, fluorescent penetrants, developers, and emulsifiers were discharged to the outfall through drains located within building 08-0022. The valves to the sinks that discharged to the drains were disconnected in 1992, and the drains were rerouted to the building 08-0022 sanitary sewer system. After 1992, secondary containers were used to collect the chemicals before disposal. Potential contaminants associated with industrial materials historically managed at this Site are VOCs and SVOCs.

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).

Table 176-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02802010002	Established Vegetation - Grasses and Shrubs			X		CB
J02802030003	Established Vegetation – Vegetative Buffer Strip	X		X		CB
J02804060006	Channel/Swale - Rip Rap		X	X		CB
J02806010004	Check Dam - Rock	X			X	CB
J02806010005	Check Dam - Rock	X			X	CB
J02806010007	Check Dam - Rock	X			X	B

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

Enhanced controls will be installed in the second quarter of 2013 as part of corrective action

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 collected on August 5, 2011, and August 26, 2011 (Figure 176-2). Analytical results from these samples yielded one TAL exceedance:

- Copper concentrations of 5.7 and 6.9 µg/L (MTAL is 4.3 µg/L).

This exceedance was 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.

AOC 08-009(f): Potential contaminants associated with industrial materials historically managed at this Site are VOCs and SVOCs.

- Copper—Consent Order sampling has not been performed at AOC 08-009(f). Copper was not detected above BVs in soil samples collected during the 1994 Phase I RFI.

Copper was not detected above BV and is not known to be associated with industrial materials historically managed at the Site. Based on site history and previous sampling results, the Site is an unlikely source of copper above MTAL in storm water.

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.



STRM-SMA-1.05, Permanent Vegetation Grasses and Shrubs, J02802010002 (photo ID 7497-2)

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 are between these values.

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

176.4 Inspections and Maintenance

RG240 recorded five storm events at STRM-SMA-1.05 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Visual	COMP-21629	03-28-2012
Annual Erosion Evaluation	COMP-23461	03-28-2012
Storm Rain Event	BMP-24880	07-17-2012
Storm Rain Event	BMP-26659	08-30-2012
Storm Rain Event	BMP-28191	10-11-2012

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

Table 176-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-24880	Cleaned needle cast out of rock check dams J02806010004 and -0005.	07-17-2012	0 day(s)	Maintenance conducted upon inspection.
BMP-25569	Installed new rock check dam J02806010007 directly above existing rock check dam -0001, which was retired.	07-25-2012	8 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
AOC 08-009(f)	Corrective Action Initiated	Corrective Action Initiated	Initiated 10-17-2011

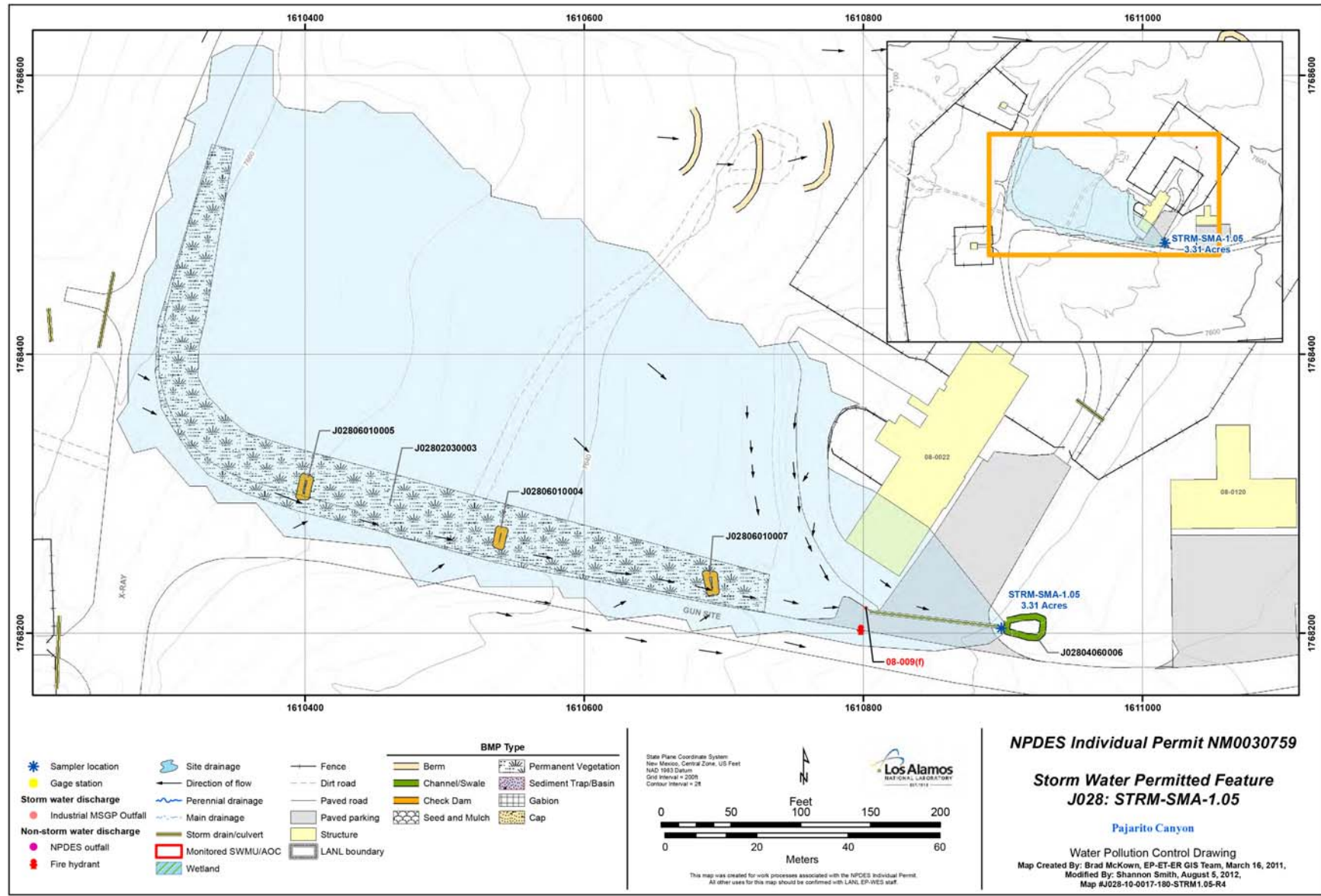
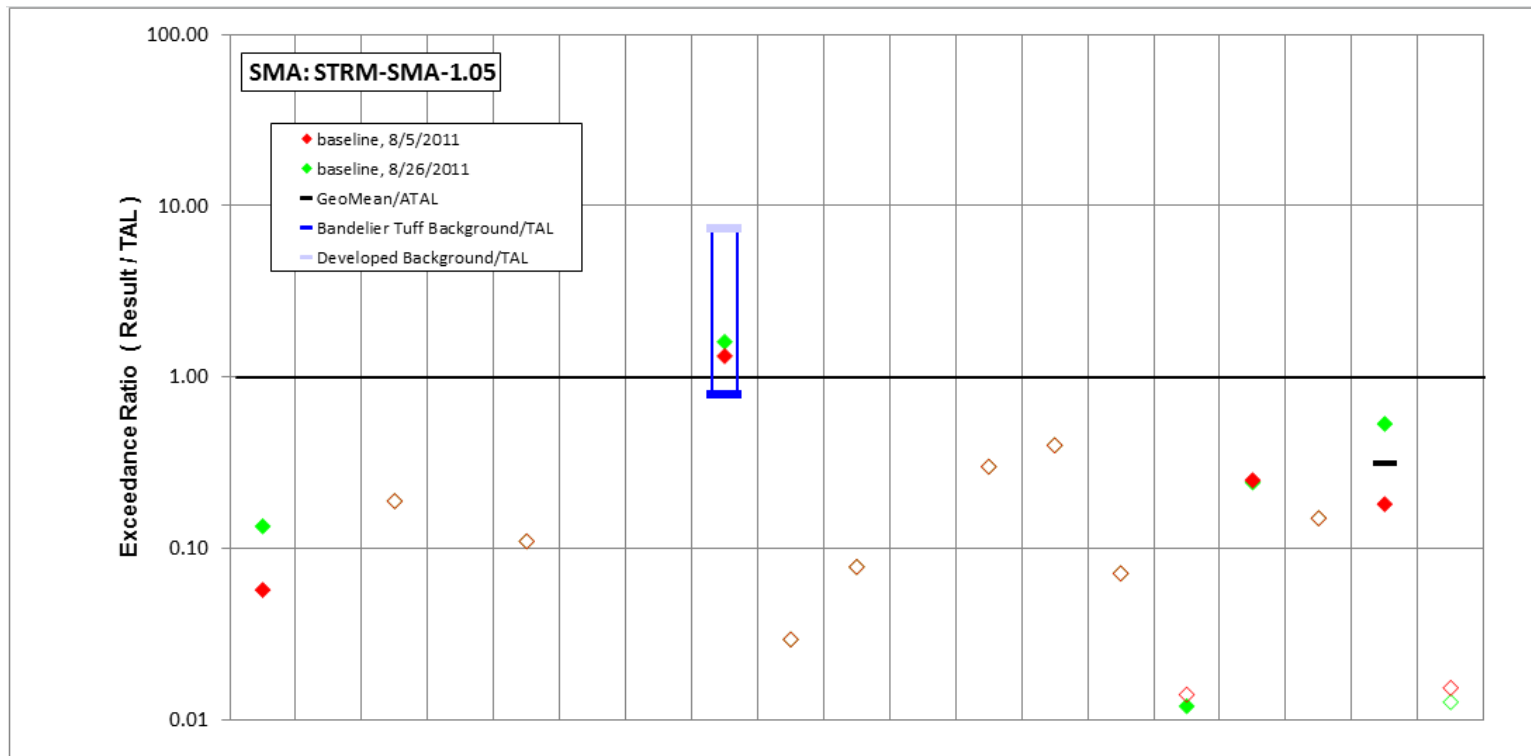


Figure 176-1 STRM-SMA-1.05 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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
8/26/2011 result	101	3.2	1.7	15	0.11	2	1.3	6.9	0.5	0.06	1	1.5	0.2	0.45	1.2	10.2	0.002	8	0.38
result / TAL	0.13	0.005	0.19	0.003	0.11	0.01	0.0013	1.6	0.029	0.078	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	0.06	1.6	1.5	0.2	0.45	1.4	10.5	0.002	2.72	0.46
result / TAL	0.057	0.0039	0.19	0.003	0.11	0.01	0.001	1.3	0.029	0.078	0.0094	0.3	0.4	0.071	0.014	0.25	0.15	0.18	0.015

Bold font indicates result>TAL; italic font indicates 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 08-0022 (x-ray building) at TA-08. Building 08-0022 was built in 1950 and housed x-ray machines used to radiograph various items. The SWMU 08-009(d) drains were dedicated to receive photoprocessing and photodevelopment solutions that contained 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 08-0022. 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. Potential contaminants associated with industrial materials historically managed at this Site are chromium, silver, and SVOCs.

Based on the NPDES-permit outfall number listed in the 1990 SWMU Report, the RFI team concluded the SWMU report had incorrectly attributed the source of the SWMU 08-009(d) drains to effluent from fluorescent penetrant experiment, rather than to their correct source: photoprocessing effluent. To account for the drain that received the fluorescent penetrant effluent, the approved RFI work plan proposed designating a new identifier, AOC 08-009(f).

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>.

The Site boundary for SWMU 08-009(d) has been modified to match the boundary depicted in the administrative record for the Consent Order, which is the controlling authority for SWMU and AOC boundary definitions used in the IP. The Site boundary change was minor and did not affect the SMA boundary or sampler location. The updated boundary is shown on the project map (Figure 177-1) and the Site physical characteristic information listed in Attachment 4 has been updated.

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).

Table 177-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
J02901010007	Seed and Mulch - Seed and Wood Mulch	X		X		CB
J02902010001	Established Vegetation - Grasses and Shrubs			X		CB
J02902020002	Established Vegetation - Forested/Needle Cast			X		CB
J02903010009	Berms - Earthen	X			X	B
J02903010010	Berms - Earthen	X			X	B
J02903010011	Berms - Earthen	X			X	B
J02903060003	Berms - Straw Wattles		X		X	CB
J02903060004	Berms - Straw Wattles	X			X	CB
J02903060008	Berms - Straw Wattles	X			X	B
J02903060012	Berms - Straw Wattles	X			X	B

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 six 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).

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 08-009(d): Potential contaminants associated with industrial materials historically managed at this Site are chromium, silver, and SVOCs.

- Consent Order sampling has not been performed at SWMU 08-009(d).
- Mercury—Mercury was detected at a maximum concentration of slightly greater than BV in the 1994 Phase I RFI samples.
- Silver—Silver was detected at a maximum concentration of 177 times BV in the 1994 Phase I RFI samples.

- Cadmium—Cadmium was not detected above BVs in samples collected during the 1994 Phase I RFI.
- Cyanide—Samples collected during the 1994 Phase I RFI were not analyzed for cyanide because cyanide was not identified as a chemical of potential concern.
- Gross alpha—Samples collected during the 1994 Phase I RFI were not analyzed for alpha-emitting radionuclides because alpha-emitting radionuclides were not identified as chemicals of potential concern.
- Radium—Samples collected during the 1994 Phase I RFI were not analyzed for radium-226 or radium-228 because radium was not identified as a chemical of potential concern.

In summary, silver was likely associated with industrial materials historically used at the Site and was detected substantially above BV. Based on site history and previous sampling results, the Site may be a source of silver above MTAL in storm water. Cadmium and mercury are not known to be associated with industrial materials historically managed at the Site. Cadmium was not detected above BV and mercury was detected only slightly above BV. Based on site history and previous sampling results, the Site is an unlikely source of cadmium above MTAL and mercury above ATAL in storm water. Cyanide, alpha-emitting radionuclides, radium-226, and radium-228 are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of cyanide above ATAL and MTAL and adjusted gross alpha and radium-226 and radium-288 above ATAL in storm water.

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 UTL 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 the UTL value in the baseline metals background study.

- **Gross alpha**—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 greater than both of these values. Therefore, a comparison to background gross-alpha UTLs could not be made.
- **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 Annual Report.

177.4 Inspections and Maintenance

RG240 recorded five storm events at STRM-SMA-1.5 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23462	05-08-2012
Storm Rain Event	BMP-24881	07-17-2012
Storm Rain Event	BMP-26660	08-30-2012
Visual	COMP-27864	10-01-2012
Storm Rain Event	BMP-28192	10-11-2012

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

Table 177-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-28830	Removed and bagged items of floatable debris from channel. Left bag onsite but outside channel and contacted FOD for removal of the bag.	10-23-2012	12 day(s)	Maintenance conducted in timely manner.

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 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 08-009(d)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 08-27-2012

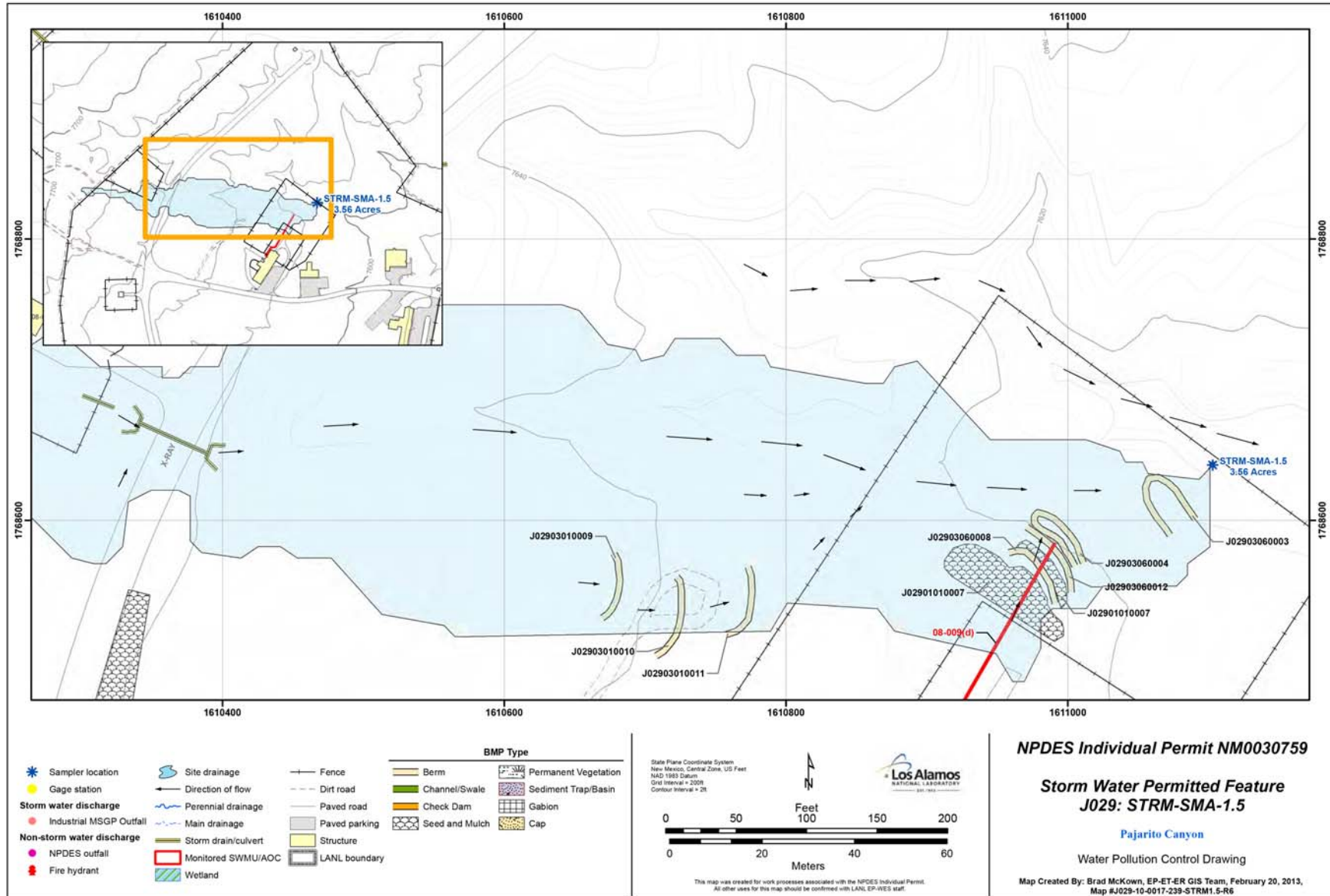
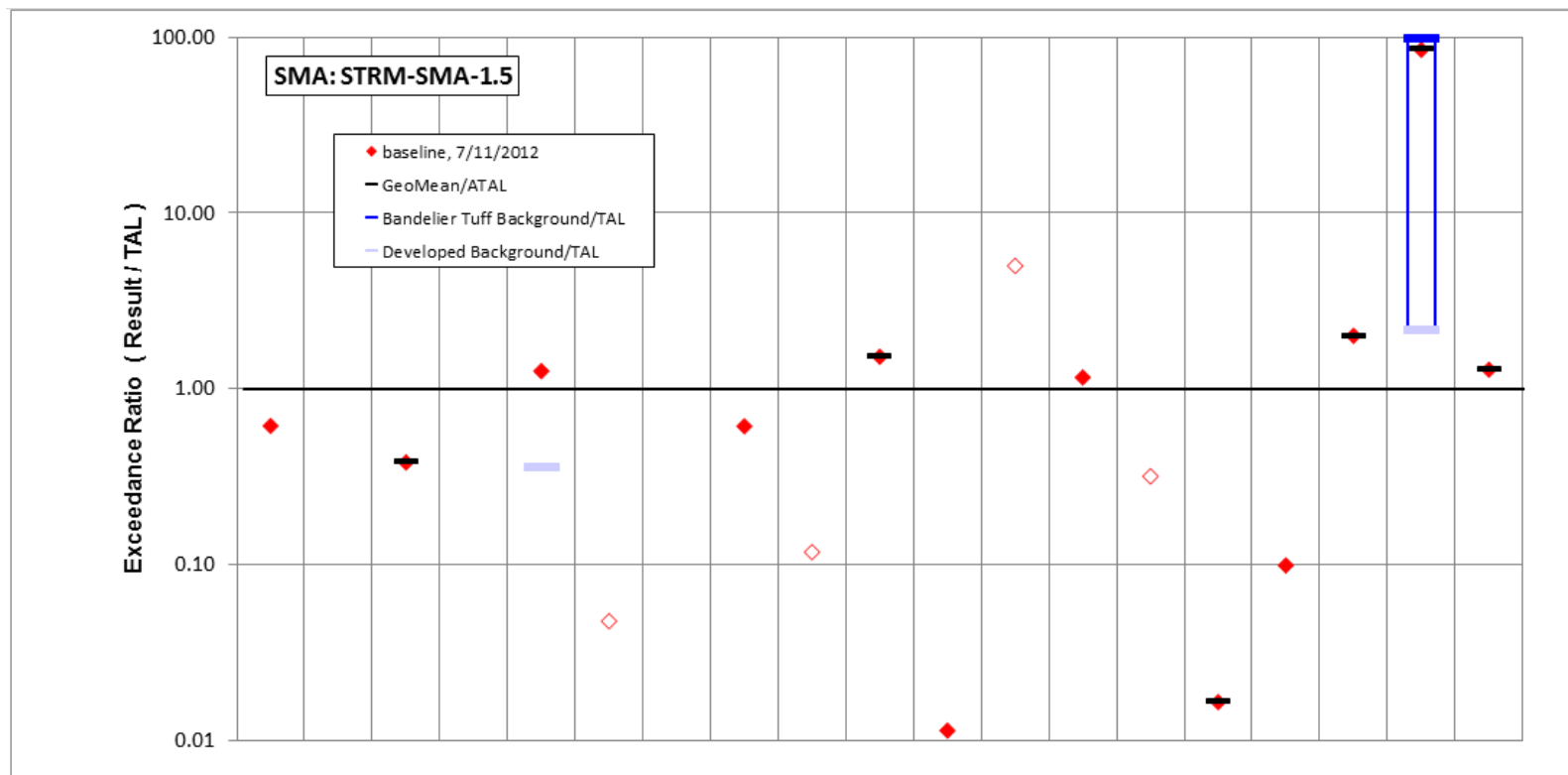


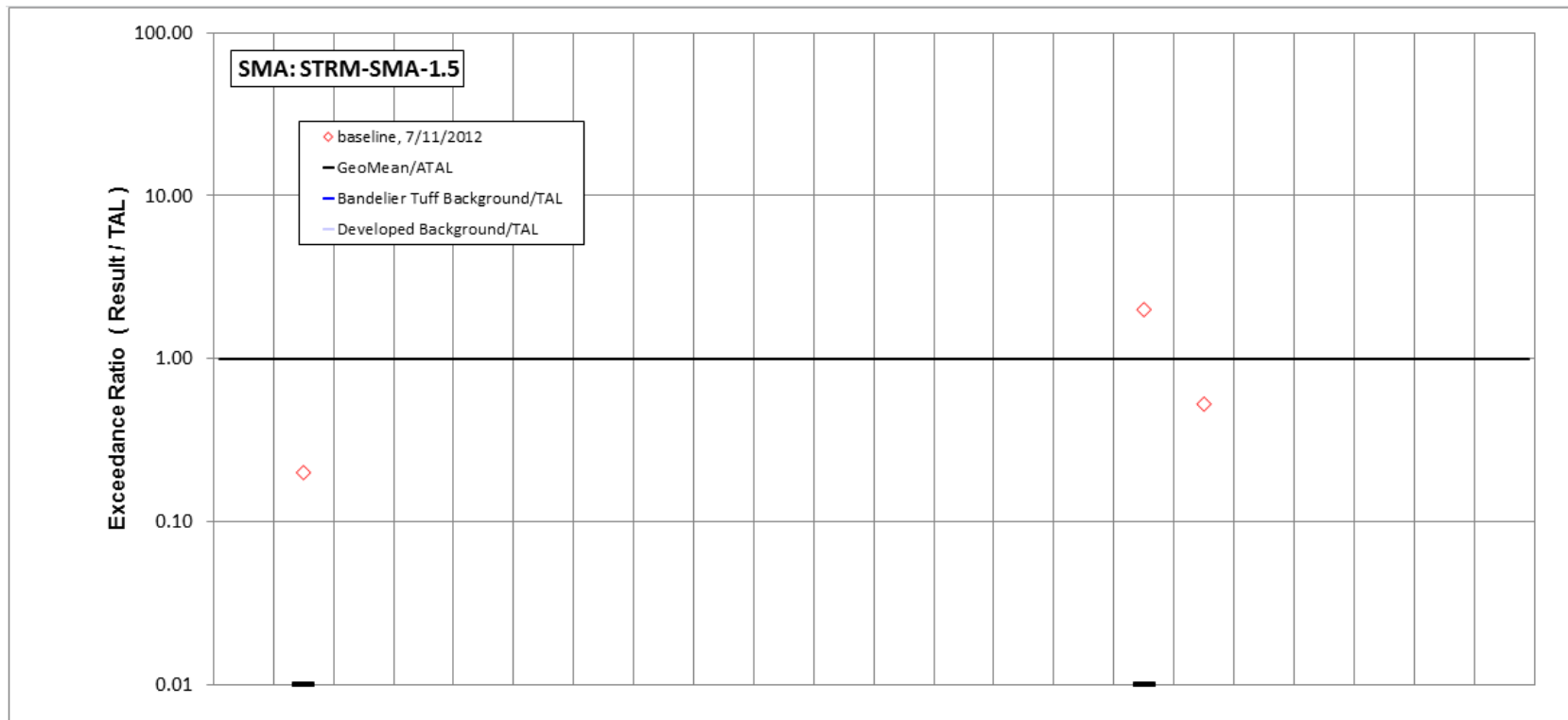
Figure 177-1 STRM-SMA-1.5 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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
7/11/2012 result	461	3	3.43	28.7	1.26	<i>10</i>	2.35	2.63	2	1.17	1.93	25	0.58	2	1.65	4.15	0.02	1270	38.5
result / TAL	0.61	<i>0.005</i>	0.38	0.0057	1.3	<i>0.048</i>	0.0024	0.61	0.12	1.5	0.011	5	1.2	0.32	0.016	0.099	2	85	1.3

Bold font indicates result>TAL; italic font indicates 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	-	ATAL	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	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	ug/L
7/11/2012 result	-	<i>1</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	10	<i>10</i>	-	-	-	-	-	-
result / TAL	-	<i>0.2</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	2	<i>0.53</i>	-	-	-	-	-	-

Bold font indicates result>TAL; italic font indicates 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 09-0212) 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. The pond is clay-plated with emulsified asphalt waterproofing 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, which served the sewer line from building 08-0024, where the strontium-90 spill occurred in 1954. The pond was decommissioned in 1988. Potential contaminants associated with industrial materials historically managed at this Site are various organic chemicals, metals, and radionuclides present at low concentrations in sanitary wastewater from TA-09 facilities. In addition, the site may have received strontium-90 from a one-time spill.

Although associated with TA-09, SWMU 09-008(b) is located within the physical boundary of TA-08.

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 Mulch - Seed and Wood Mulch			X		EC
J03002010001	Established Vegetation - Grasses and Shrubs			X		CB
J03003010003	Berms - Earthen		X		X	CB
J03003010004	Berms - Earthen		X		X	EC
J03004010002	Channel/Swale - Earthen	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 two TAL exceedances:

- Aluminum concentration of 2330 µg/L (MTAL is 750 µg/L), and
- Gross-alpha activity of 28.8 pCi/L (ATAL is 15 pCi/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 09-008(b): Potential contaminants associated with industrial materials historically managed at this Site are various organic chemicals, metals, and radionuclides present at low concentrations in sanitary wastewater from TA-09 facilities. In addition, the Site may have received strontium-90 from a one-time spill.

- Aluminum—Consent Order sampling has not been performed at SWMU 09-008(b). Samples collected during the 1994 Phase I RFI were not analyzed for aluminum because it was not identified as a chemical of potential concern.
- Gross alpha—Consent Order sampling has not been performed at SWMU 09-008(b). Samples collected during the 1994 Phase I RFI were not analyzed for alpha-emitting radionuclides because these constituents were not identified as chemicals of potential concern.



STRM-SMA-4.2, Permanent Vegetation Grasses and Shrubs, J03002010001 (photo ID 26017-4)

In summary, aluminum and alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Based on site history, the Site is an unlikely source of aluminum above MTAL and adjusted gross alpha above ATAL in storm water.

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 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 storm water containing sediment derived from Bandelier Tuff is 2210 µg/L; the result from 2011 is greater than this value.
- 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.

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

178.4 Inspections and Maintenance

RG240 recorded five storm events at STRM-SMA-4.2 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-23463	05-31-2012
Storm Rain Event	BMP-24882	07-17-2012
Enhanced Control Measure Verification	BMP-26017	08-07-2012
Storm Rain Event	BMP-26661	08-23-2012
Storm Rain Event	BMP-28193	10-05-2012

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

Table 178-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-24882	Picked up debris.	07-17-2012	0 day(s)	Maintenance conducted upon inspection.

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 178-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 09-008(b)	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 08-17-2012

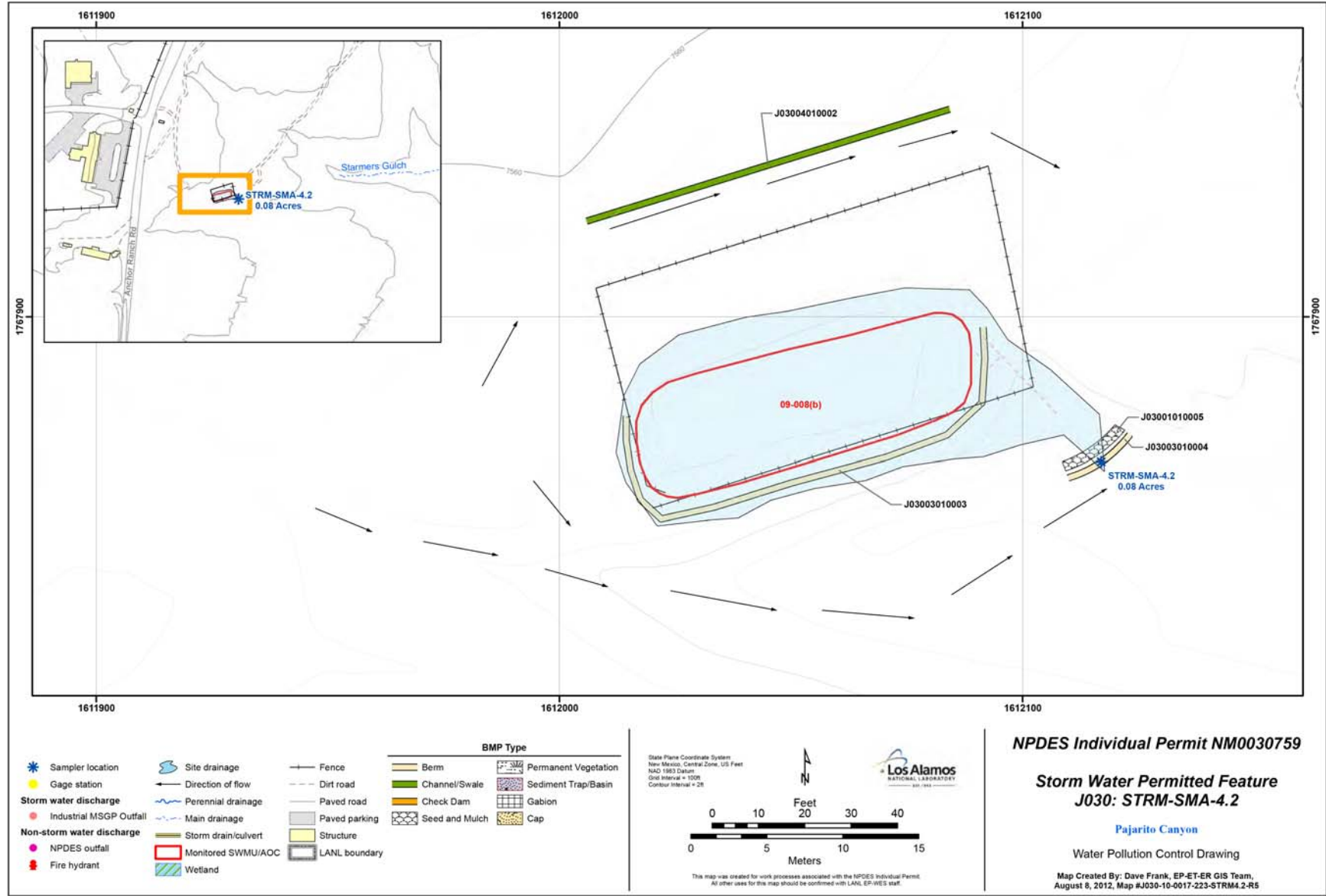
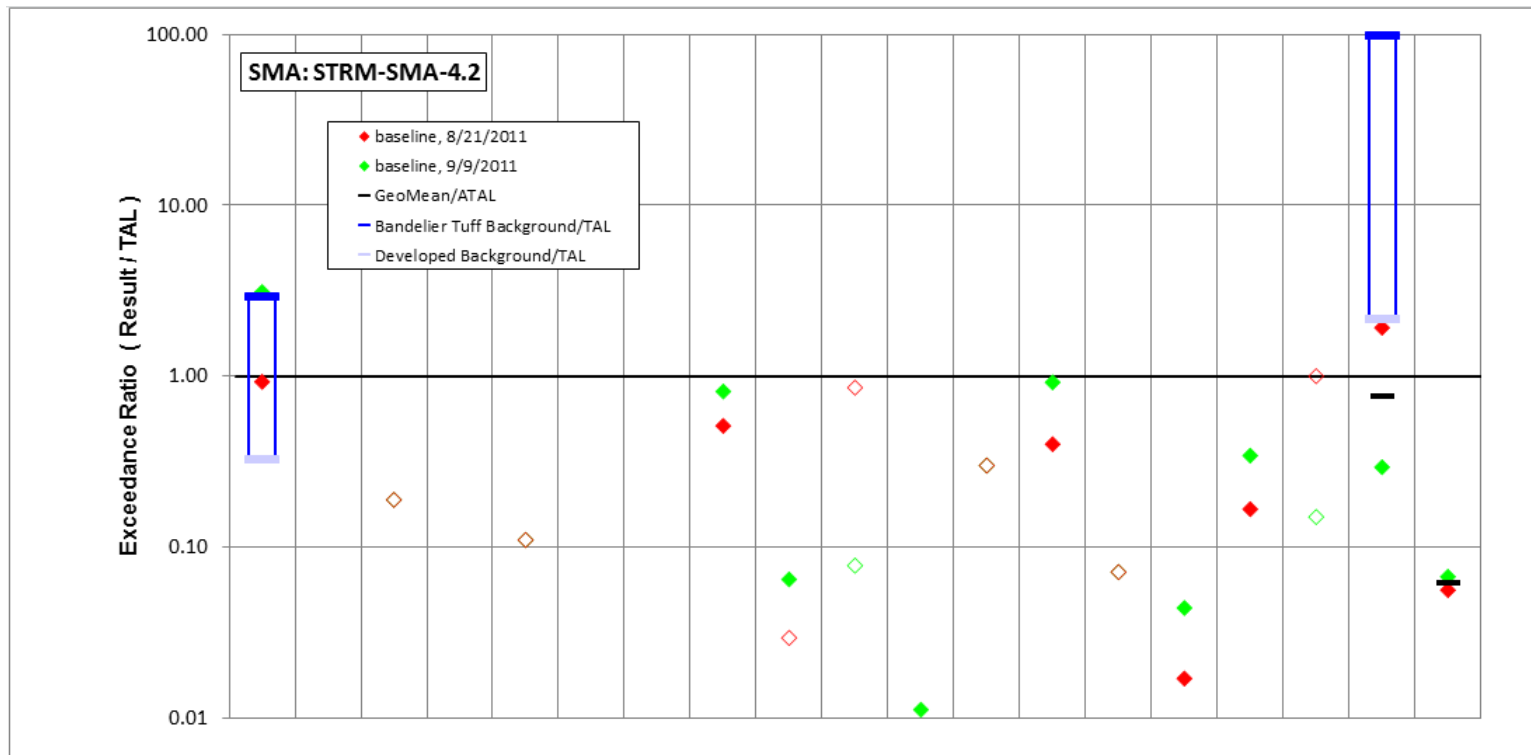


Figure 178-1 STRM-SMA-4.2 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	<i>1</i>	<i>1.7</i>	<i>16</i>	<i>0.11</i>	<i>2</i>	<i>3.9</i>	<i>3.5</i>	<i>1.1</i>	<i>0.06</i>	<i>1.9</i>	<i>1.5</i>	<i>0.46</i>	<i>0.45</i>	<i>4.4</i>	<i>14.4</i>	<i>0.002</i>	<i>4.4</i>	<i>2.01</i>
result / TAL	3.1	<i>0.002</i>	<i>0.19</i>	<i>0.0032</i>	<i>0.11</i>	<i>0.0095</i>	<i>0.0039</i>	<i>0.81</i>	<i>0.065</i>	<i>0.078</i>	<i>0.011</i>	<i>0.3</i>	<i>0.92</i>	<i>0.071</i>	<i>0.044</i>	<i>0.34</i>	<i>0.15</i>	<i>0.29</i>	<i>0.067</i>
8/21/2011 result	695	<i>1</i>	<i>1.7</i>	<i>25.1</i>	<i>0.11</i>	<i>2</i>	<i>3.5</i>	<i>2.2</i>	<i>0.5</i>	<i>0.66</i>	<i>1.4</i>	<i>1.5</i>	<i>0.2</i>	<i>0.45</i>	<i>1.7</i>	<i>7</i>	<i>0.01</i>	28.8	<i>1.68</i>
result / TAL	0.93	<i>0.002</i>	<i>0.19</i>	<i>0.005</i>	<i>0.11</i>	<i>0.01</i>	<i>0.0035</i>	<i>0.51</i>	<i>0.029</i>	<i>0.86</i>	<i>0.0082</i>	<i>0.3</i>	<i>0.4</i>	<i>0.071</i>	<i>0.017</i>	<i>0.17</i>	<i>1</i>	1.9	<i>0.056</i>

Bold font indicates result>TAL; italic font indicates 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 southeast of building 22-0120. 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 surface of the MDA. Debris from the construction of current TA-08 and TA-09 facilities (1949–1965) and other sites (1960–1965) 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. Potential contaminants associated with industrial materials historically managed at the Site are metals, SVOCs, explosive compounds, uranium, and PCBs. 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 1995–1996.

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

Potential run-on to the SMA is sheet flow and run-on generated by the unpaved access road. These run-on contributions are minimal and run-on is managed effectively by the existing controls. 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	
J03101040011	Seed and Mulch - Seeding			X		EC
J03102010003	Established Vegetation - Grasses and Shrubs			X		CB
J03103010009	Berms - Earthen	X			X	EC
J03103010010	Berms - Earthen		X		X	EC
J03103010012	Berms - Earthen	X			X	B
J03103020004	Berms - Base Course		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 three 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).

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 09-013: Potential contaminants associated with industrial materials historically managed at the Site are metals, SVOCs, explosive compounds, and PCBs.

- Aluminum—Samples collected in 1996 were not analyzed for aluminum because it was not identified as a chemical of potential concern.
- Gross alpha—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.
- PCBs—PCBs were detected in samples collected from SWMU 09-013 following the 1996 expedited Site cleanup. The PCB mixtures Aroclor-1248, Aroclor-1254, and Aroclor-1260 were detected in 1996 cleanup verification samples at concentrations less than 5.7%, 2.6%, and 0.76% of residential SSLs, respectively.

In summary, aluminum and PCBs may have been associated with industrial materials historically managed at the Site, but these materials were all removed during the 1996 cleanup. Samples were not



STRM-SMA-5.05, Earthen Berm, J03103010010 (photo ID 23504-2)

analyzed for aluminum, and PCBs were detected at low concentration below residential SSLs. Based on site history and previous sampling results, the Site may be a source of aluminum above MTAL and PCBs above ATAL in storm water. Alpha-emitting radionuclides are known to be associated with industrial materials historically managed at this Site, though these materials were removed during the 1996 cleanup. Uranium-235 and radium-226 are alpha-emitting radionuclides and were not detected above BV in post-remediation confirmation samples but detection limits were above BVs. Uranium

isotopes are excluded from the definition of adjusted gross-alpha radioactivity. No other alpha-emitting radionuclides are known to be associated with industrial materials historically managed at the Site. Based on site history and previous sampling results, the Site is an unlikely source of adjusted gross alpha above ATAL in storm water.

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 five storm events at STRM-SMA-5.05 during the 2012 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 2012

Inspection Type	Inspection Reference	Inspection Date
Enhanced Control Measure Verification	BMP-23504	05-18-2012
Annual Erosion Evaluation	COMP-23464	05-31-2012
Storm Rain Event	BMP-24883	07-17-2012
Storm Rain Event	BMP-26662	08-23-2012
Storm Rain Event	BMP-28194	10-05-2012

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

Table 179-3 Maintenance during 2012

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-25570	Repaired matting on earth berm J03103010009.	07-30-2012	13 day(s)	Maintenance conducted in timely manner.
BMP-25571	Built up southern end of base course berm J03103020004.	07-30-2012	13 day(s)	Maintenance conducted in timely manner.

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 179-4 Compliance Status during 2012

Site	Compliance Status on Jan 1, 2012	Compliance Status on Dec 31, 2012	Comments
SWMU 09-013	Corrective Action Initiated	Enhanced Control Corrective Action Monitoring	Initiated 06-27-2012

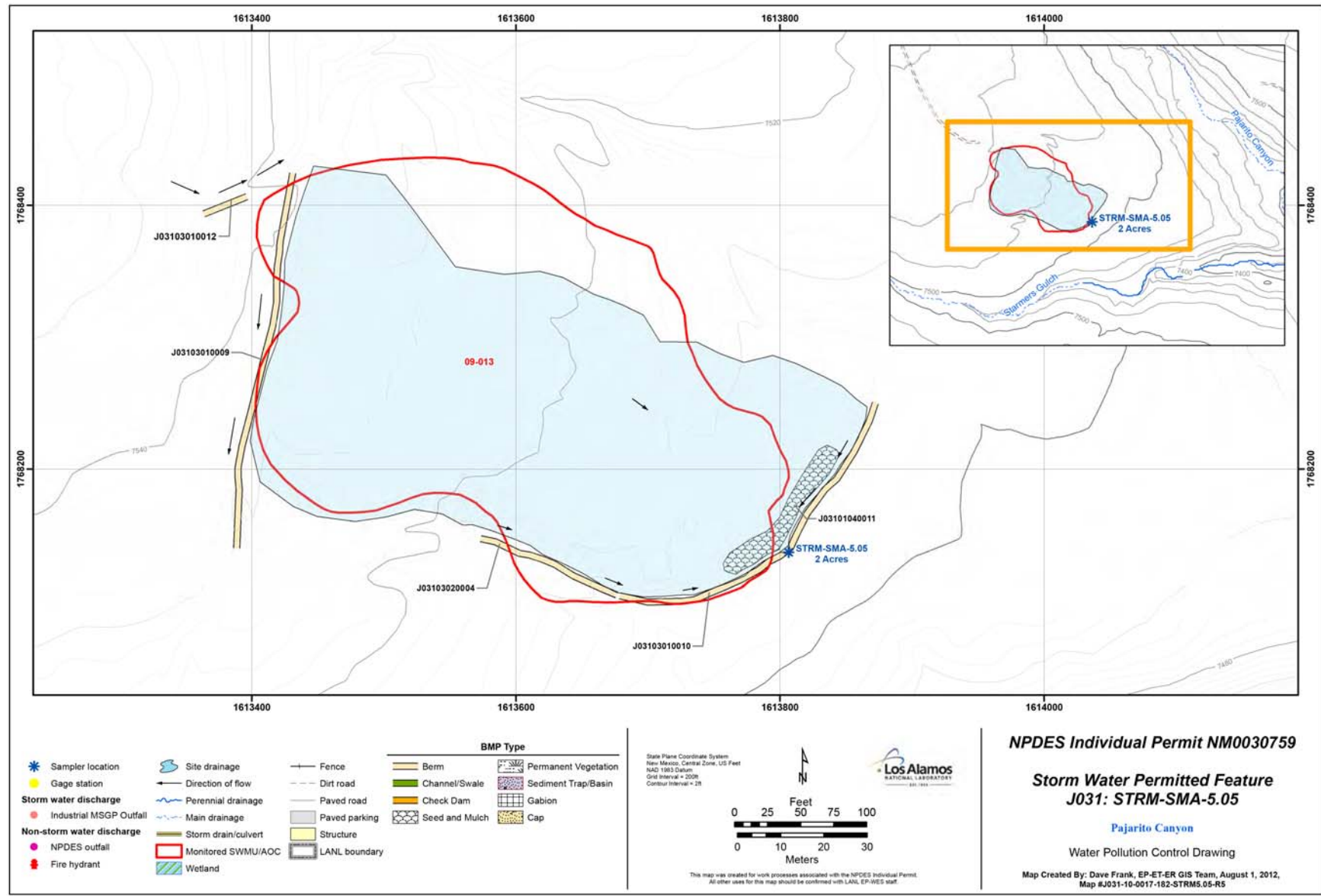
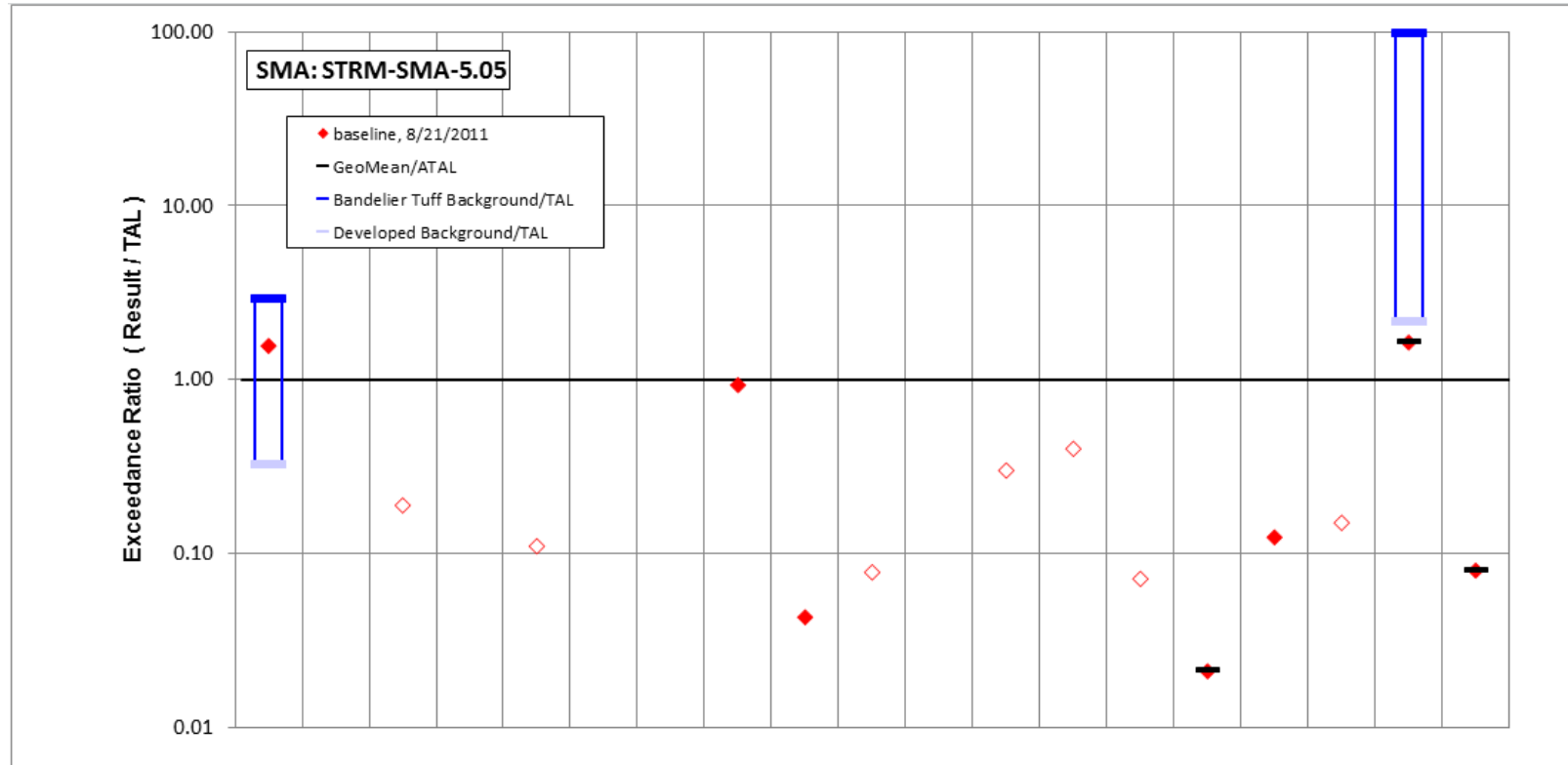


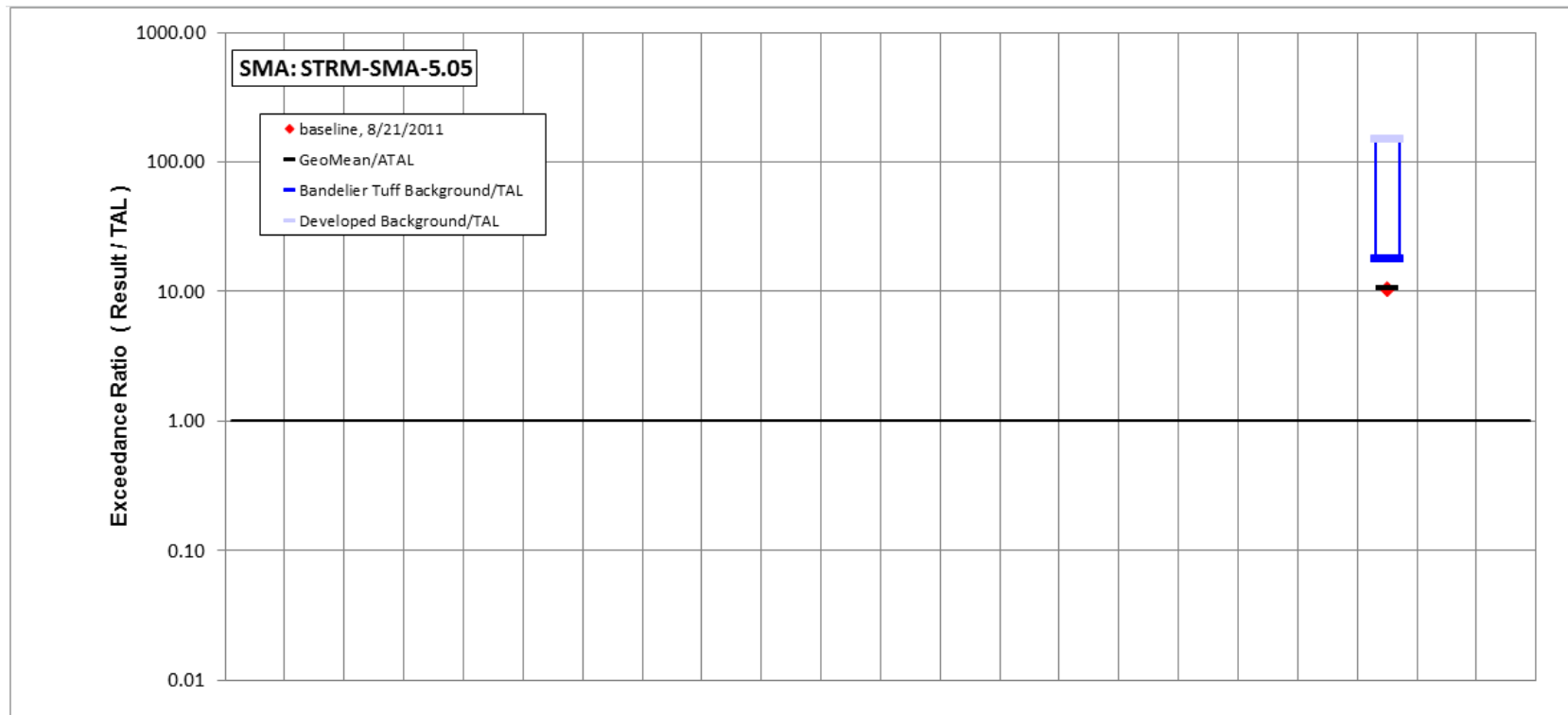
Figure 179-1 STRM-SMA-5.05 location map



	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	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	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	<i>1</i>	<i>1.7</i>	<i>15</i>	<i>0.11</i>	<i>2</i>	<i>3.4</i>	<i>4</i>	<i>0.73</i>	<i>0.06</i>	<i>1.1</i>	<i>1.5</i>	<i>0.2</i>	<i>0.45</i>	<i>2.1</i>	<i>5.2</i>	<i>0.002</i>	24.5	<i>2.39</i>
result / TAL	1.6	<i>0.002</i>	<i>0.19</i>	<i>0.003</i>	<i>0.11</i>	<i>0.01</i>	<i>0.0034</i>	<i>0.93</i>	<i>0.043</i>	<i>0.078</i>	<i>0.0065</i>	<i>0.3</i>	<i>0.4</i>	<i>0.071</i>	<i>0.021</i>	<i>0.12</i>	<i>0.15</i>	1.6	<i>0.08</i>

Bold font indicates result>TAL; italic font indicates 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; italic font indicates 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
V3.161	05-14-2012	2M-SMA-1.44	New Control - Corrective Action Control ID: E004-01-01-0007	T	CCN - 23508
V3.162	05-14-2012	2M-SMA-1.44	Retire Control - Lifecycle Expired Control ID: E004-03-06-0003	T	CCN - 23508
V3.163	05-14-2012	2M-SMA-1.44	Retire Control - Lifecycle Expired Control ID: E004-03-06-0004	T	CCN - 23508
V3.164	05-14-2012	2M-SMA-1.44	Retire Control - Lifecycle Expired Control ID: E004-03-06-0005	T	CCN - 23508
V3.165	05-16-2012	2M-SMA-1.44	Map Revision (R6)	T	CCN - 23508
V3.166	06-11-2012	2M-SMA-1.42	Map Revision (R7)	T	CCN - 23507
V3.167	05-14-2012	STRM-SMA-5.05	New Control - Corrective Action Control ID: J031-01-04-0011	T	CCN - 23506
V3.168	05-16-2012	STRM-SMA-5.05	Map Revision (R4)	T	CCN - 23506
V3.169	05-16-2012	2M-SMA-1.44	SMA Boundary Modification	T	CCN - 23508
V3.170	05-31-2012	PJ-SMA-5.1	Retire Control - Lifecycle Expired Control ID: J006-03-06-0006	T	CCN - 23984
V3.171	05-31-2012	PJ-SMA-5.1	Retire Control - Lifecycle Expired Control ID: J006-03-06-0008	T	CCN - 23984
V3.172	06-13-2012	PJ-SMA-5.1	Map Revision (R5)	T	CCN - 23984
V3.173	06-06-2012	3M-SMA-0.4	Retire Control - Lifecycle Expired Control ID: H002-03-05-0002	T	CCN - 24001
V3.174	06-12-2012	3M-SMA-0.4	Map Revision (R4)	T	CCN - 24001
V3.175	06-12-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0007	T	CCN - 24256
V3.176	06-12-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0008	T	CCN - 24256
V3.177	06-12-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0009	T	CCN - 24256
V3.178	06-12-2012	2M-SMA-2	New Control - Routine/Replacement Control ID: E012-03-06-0011	T	CCN - 24256
V3.179	06-12-2012	2M-SMA-2	New Control - Routine/Replacement Control ID: E012-03-06-0012	T	CCN - 24256
V3.180	06-12-2012	2M-SMA-2	New Control - Routine/Replacement Control ID: E012-03-06-0013	T	CCN - 24256
V3.181	06-19-2012	2M-SMA-2	Map Revision (R4)	T	CCN - 24256
V3.182	05-09-2012	PJ-SMA-1.05	New Control - Augment Existing Control ID: J001-03-01-0017	T	CCN - 22776

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
V3.183	06-18-2012	PJ-SMA-1.05	Map Revision (R7)	T	CCN - 22776
V3.184	07-27-2012	STRM-SMA-5.05	New Control - Augment Existing Control ID: J031-03-01-0012	T	CCN - 26070
V3.185	08-01-2012	STRM-SMA-5.05	Map Revision (R5)	T	CCN - 26070
V3.186	07-25-2012	STRM-SMA-1.05	Retire Control - Damaged and/or Replaced Control ID: J028-06-01-0001	T	CCN - 26021
V3.187	07-25-2012	STRM-SMA-1.05	New Control - Routine/Replacement Control ID: J028-06-01-0007	T	CCN - 26021
V3.188	08-05-2012	STRM-SMA-1.05	Map Revision (R4)	T	CCN - 26021
V3.189	08-06-2012	2M-SMA-1.8	Map Revision (R3)	T	CCN - 25565
V3.190	08-07-2012	PJ-SMA-2	Retire Control - Damaged and/or Replaced Control ID: J002-01-06-0010	T	CCN - 24169
V3.191	08-07-2012	PJ-SMA-2	Retire Control - Damaged and/or Replaced Control ID: J002-01-06-0012	T	CCN - 24169
V3.192	08-07-2012	PJ-SMA-2	Retire Control - Damaged and/or Replaced Control ID: J002-01-06-0013	T	CCN - 24169
V3.193	08-01-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-03-01-0015	T	CCN - 24169
V3.194	08-07-2012	PJ-SMA-2	Map Revision (R5)	T	CCN - 24169
V3.195	06-11-2012	PJ-SMA-3.05	Retire Control - Damaged and/or Replaced Control ID: J003-06-01-0006	T	CCN - 24160
V3.196	06-11-2012	PJ-SMA-3.05	Retire Control - Damaged and/or Replaced Control ID: J003-06-01-0007	T	CCN - 24160
V3.197	06-11-2012	PJ-SMA-3.05	Retire Control - Damaged and/or Replaced Control ID: J003-03-04-0008	T	CCN - 24160
V3.198	06-11-2012	PJ-SMA-3.05	New Control - Corrective Action Control ID: J003-03-01-0010	T	CCN - 24160
V3.199	06-11-2012	PJ-SMA-3.05	New Control - Corrective Action Control ID: J003-03-01-0011	T	CCN - 24160
V3.200	06-11-2012	PJ-SMA-3.05	Map Revision (R3)	T	CCN - 24160
V3.201	07-18-2012	PJ-SMA-3.05	Map Revision (R4)	T	CCN - 24160
V3.202	06-25-2012	PJ-SMA-5.1	New Control - Corrective Action Control ID: J006-03-01-0009	T	CCN - 24448
V3.203	06-27-2012	PJ-SMA-5.1	Map Revision (R6)	T	CCN - 24448
V3.204	06-19-2012	2M-SMA-1	Retire Control - Damaged and/or Replaced Control ID: E001-03-01-0012	T	CCN - 24449
V3.205	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-05-02-0013	T	CCN - 24449
V3.206	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-03-01-0014	T	CCN - 24449
V3.207	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-03-11-0015	T	CCN - 24449

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
V3.208	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0016	T	CCN - 24449
V3.209	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0017	T	CCN - 24449
V3.210	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0018	T	CCN - 24449
V3.211	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0019	T	CCN - 24449
V3.212	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0020	T	CCN - 24449
V3.213	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0021	T	CCN - 24449
V3.214	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0022	T	CCN - 24449
V3.215	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0023	T	CCN - 24449
V3.216	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0024	T	CCN - 24449
V3.217	06-19-2012	2M-SMA-1	New Control - Corrective Action Control ID: E001-06-01-0025	T	CCN - 24449
V3.218	06-28-2012	2M-SMA-1	Map Revision (R6)	T	CCN - 24449
V3.219	05-30-2012	2M-SMA-1.65	New Control - Corrective Action Control ID: E007-06-01-0006	T	CCN - 23749
V3.220	05-30-2012	2M-SMA-1.65	New Control - Corrective Action Control ID: E007-06-01-0007	T	CCN - 23749
V3.221	05-30-2012	2M-SMA-1.65	New Control - Corrective Action Control ID: E007-06-01-0008	T	CCN - 23749
V3.222	05-30-2012	2M-SMA-1.65	New Control - Corrective Action Control ID: E007-06-01-0009	T	CCN - 23749
V3.223	05-30-2012	2M-SMA-1.65	New Control - Corrective Action Control ID: E007-03-01-0010	T	CCN - 23749
V3.224	06-01-2012	2M-SMA-1.65	Map Revision (R5)	T	CCN - 23749
V3.225	08-09-2012	2M-SMA-1.65	SMA Boundary Modification	T	CCN - 23749
V3.226	06-25-2012	2M-SMA-1.45	Retire Control - Damaged and/or Replaced Control ID: E005-01-06-0009	T	CCN - 24447
V3.227	06-25-2012	2M-SMA-1.45	Retire Control - Damaged and/or Replaced Control ID: E005-01-06-0010	T	CCN - 24447
V3.228	06-25-2012	2M-SMA-1.45	Retire Control - Damaged and/or Replaced Control ID: E005-03-01-0007	T	CCN - 24447
V3.229	06-25-2012	2M-SMA-1.45	Retire Control - Damaged and/or Replaced Control ID: E005-03-01-0008	T	CCN - 24447
V3.230	06-25-2012	2M-SMA-1.45	Retire Control - Damaged and/or Replaced Control ID: E005-03-06-0013	T	CCN - 24447
V3.231	06-25-2012	2M-SMA-1.45	New Control - Corrective Action Control ID: E005-03-01-0016	T	CCN - 24447
V3.232	06-25-2012	2M-SMA-1.45	New Control - Corrective Action Control ID: E005-03-01-0017	T	CCN - 24447

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
V3.233	06-27-2012	2M-SMA-1.45	Map Revision (R7)	T	CCN - 24447
V3.234	08-01-2012	2M-SMA-1.45	Minor Sampler Adjustment, Updated Coordinates in Attachment 4	T	CCN - 24447
V3.235	08-01-2012	2M-SMA-1.45	SMA Boundary Modification	T	CCN - 24447
V3.236	08-01-2012	2M-SMA-1.45	Map Revision (R8)	T	CCN - 24447
V3.237	08-07-2012	STRM-SMA-4.2	New Control - Corrective Action Control ID: J030-03-01-0004	T	CCN - 26066
V3.238	07-20-2012	STRM-SMA-4.2	New Control - Corrective Action Control ID: J030-01-01-0005	T	CCN - 26066
V3.239	08-08-2012	STRM-SMA-4.2	Map Revision (R5)	T	CCN - 26066
V3.240	07-09-2012	2M-SMA-1.7	New Control - Corrective Action Control ID: E009-03-01-0008	T	CCN - 24472
V3.241	07-09-2012	2M-SMA-1.7	Retire Control - Damaged and/or Replaced Control ID: E009-03-06-0006	T	CCN - 24472
V3.242	07-09-2012	2M-SMA-1.7	Retire Control - Damaged and/or Replaced Control ID: E009-03-06-0007	T	CCN - 24472
V3.243	07-12-2012	2M-SMA-1.7	Map Revision (R5)	T	CCN - 24472
V3.244	07-18-2012	2M-SMA-1.7	Map Revision (R6)	T	CCN - 24472
V3.245	08-27-2012	PJ-SMA-1.05	Retire Control - Damaged and/or Replaced Control ID: J001-03-06-0005	T	CCN - 25590
V3.246	08-27-2012	PJ-SMA-1.05	Retire Control - Damaged and/or Replaced Control ID: J001-03-06-0006	T	CCN - 25590
V3.247	08-27-2012	PJ-SMA-1.05	Retire Control - Damaged and/or Replaced Control ID: J001-03-06-0016	T	CCN - 25590
V3.248	08-27-2012	PJ-SMA-1.05	New Control - Routine/Replacement Control ID: J001-03-01-0018	T	CCN - 25590
V3.249	08-29-2012	PJ-SMA-1.05	Map Revision (R8)	T	CCN - 25590
V3.250	05-01-2012	PJ-SMA-5.1	Errata-Inspection BMP-21557 on 11/7/11 should be a "Visual" inspection not a "Storm Rain Event" as labeled.	E	
V3.251	09-06-2012	2M-SMA-1.8	New Control - Corrective Action Control ID: E010-08-03-0008	T	CCN - 27464
V3.252	09-06-2012	2M-SMA-1.8	New Control - Corrective Action Control ID: E010-08-03-0009	T	CCN - 27464
V3.253	09-11-2012	2M-SMA-1.8	Map Revision (R4)	T	CCN - 27464
V3.254	09-06-2012	2M-SMA-2.2	New Control - Corrective Action Control ID: E013-08-03-0006	T	CCN - 27458
V3.255	09-11-2012	2M-SMA-2.2	Map Revision (R4)	T	CCN - 27458
V3.256	09-11-2012	PJ-SMA-14.6	Retire Control - Damaged and/or Replaced Control ID: J021-06-01-0003	T	CCN - 27568

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
V3.257	09-11-2012	PJ-SMA-14.6	Retire Control - Damaged and/or Replaced Control ID: J021-06-01-0004	T	CCN - 27568
V3.258	09-11-2012	PJ-SMA-14.6	New Control - Routine/Replacement Control ID: J021-04-06-0007	T	CCN - 27568
V3.259	09-13-2012	PJ-SMA-14.6	Map Revision (R5)	T	CCN - 27968
V3.260	05-14-2012	2M-SMA-1.42	Retire Control - Damaged and/or Replaced Control ID: E002-03-01-0009	T	CCN - 23507
V3.261	05-14-2012	2M-SMA-1.42	New Control - Corrective Action Control ID: E002-03-01-0014	T	CCN - 23507
V3.262	10-10-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0011	T	CCN - 28596
V3.263	10-10-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0012	T	CCN - 28596
V3.264	10-10-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-03-06-0013	T	CCN - 28596
V3.265	10-10-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-04-06-0001	T	CCN - 28596
V3.266	10-10-2012	2M-SMA-2	Retire Control - Damaged and/or Replaced Control ID: E012-07-02-0010	T	CCN - 28596
V3.267	10-10-2012	2M-SMA-2	New Control - Corrective Action Control ID: E012-05-02-0014	T	CCN - 28596
V3.268	10-15-2012	2M-SMA-2	Map Revision (R5)	T	CCN - 28596
V3.269	10-15-2012	2M-SMA-2	SMA Boundary Modification	T	CCN - 28596
V3.270	10-15-2012	2M-SMA-2	Minor Sampler Adjustment, Updated Coordinates in Attachment 4	T	CCN - 28596
V3.271	10-10-2012	PJ-SMA-8	Retire Control - Lifecycle Expired Control ID: J009-01-06-0008	T	CCN - 28833
V3.272	10-10-2012	PJ-SMA-8	Retire Control - Damaged and/or Replaced Control ID: J009-01-06-0007	T	CCN - 28833
V3.273	10-18-2012	PJ-SMA-8	Map Revision (R4)	T	CCN - 28833
V3.274	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-03-06-0016	T	CCN - 28836
V3.275	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-03-06-0017	T	CCN - 28836
V3.276	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-06-01-0018	T	CCN - 28836
V3.277	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-06-01-0019	T	CCN - 28836
V3.278	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-06-01-0020	T	CCN - 28836
V3.279	10-10-2012	PJ-SMA-2	New Control - Augment Existing Control ID: J002-06-01-0021	T	CCN - 28836
V3.280	10-18-2012	PJ-SMA-2	Map Revision (R6)	T	CCN - 28836
V3.281	10-03-2012	PJ-SMA-11	Retire Control - Damaged and/or Replaced Control ID: J013-03-06-0009	T	CCN - 28463

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
V3.282	10-03-2012	PJ-SMA-11	New Control - Routine/Replacement Control ID: J013-03-06-0017	T	CCN - 28463
V3.283	10-18-2012	PJ-SMA-11	Map Revision (R6)	T	CCN - 28463
V3.284	10-03-2012	PJ-SMA-16	Retire Control - Damaged and/or Replaced Control ID: J023-03-06-0002	T	CCN - 28464
V3.285	10-03-2012	PJ-SMA-16	New Control - Routine/Replacement Control ID: J023-03-06-0003	T	CCN - 28464
V3.286	10-18-2012	PJ-SMA-16	Map Revision (R2)	T	CCN - 28464
V3.287	10-11-2012	2M-SMA-1.5	New Control - Augment Existing Control ID: E006-03-06-0004	T	CCN - 28834
V3.288	10-18-2012	2M-SMA-1.5	Map Revision (R4)	T	CCN - 28834
V3.289	10-22-2012	PJ-SMA-6	Map Revision (R6)	T	CCN - 28072
V3.290	11-26-2012		Add Reference Document: Site Discharge Pollution Prevention Plan, Los Alamos National Laboratory, NPDES Permit No. NM0030759, May 1, 2012, Pajarito Watershed, Receiving Waters: Pajarito Canyon, Twomile Canyon, Threemile Canyon, Volume 3	D	ERID-215107
V3.291	11-26-2012	Appendix D: References	Minor Sampler Adjustment, Updated Coordinates in Attachment 4	D	LA-UR-11-01553
V3.292	12-03-2012	PJ-SMA-6	New Control - Augment Existing Control ID: J007-03-06-0013	T	CCN - 29847
V3.293	12-03-2012	PJ-SMA-6	New Control - Augment Existing Control ID: J007-03-06-0014	T	CCN - 29847
V3.294	12-03-2012	PJ-SMA-6	New Control - Augment Existing Control ID: J007-03-06-0015	T	CCN - 29847
V3.295	12-03-2012	PJ-SMA-6	New Control - Augment Existing Control ID: J007-03-06-0016	T	CCN - 29847
V3.296	12-03-2012	PJ-SMA-6	New Control - Augment Existing Control ID: J007-01-01-0017	T	CCN - 29847
V3.297	12-03-2012	PJ-SMA-6	Map Revision (R7)	T	CCN - 29847
V3.298	12-05-2012	2M-SMA-3	Retire Control - Damaged and/or Replaced Control ID: E014-03-06-0005	T	CCN - 29925
V3.299	12-05-2012	2M-SMA-3	New Control - Routine/Replacement Control ID: E014-03-06-0012	T	CCN - 29925
V3.300	12-05-2012	2M-SMA-3	Map Revision (R7)	T	CCN - 29925
V3.301	12-07-2012	1.0 Background	Change to SDPPP - Updated hyperlink to public website	T	
V3.303	12-07-2012	1.0 Background	Change to SDPPP - Removed sentence referencing hyperlink to procedures on public website.	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
V3.304	12-07-2012	1.0 Background	Change to SDPPP - Replaced second and third sentences in second paragraph with "These procedures reside on the public website and apply to the work activities described in this section."	T	
V3.305	12-07-2012		Change to SDPPP - Changed section title to: "Annual Inspection and Erosion Evaluation"	T	
V3.306	12-07-2012	1.0 Background	Change to SDPPP - Replaced second bullet with "SOP-5220, EX-ID/PR-ID Project Reviews for the FFCA Project and Individual Permit describes the process for proactively identifying and managing proposed construction projects that may influence SMAs."	T	
V3.307	12-07-2012	1.0 Background	Change to SDPPP - Replaced 2nd and 3rd sentences in 2nd paragraph with "These procedures reside on the public website and apply to the work activities described in this section."	T	
V3.309	12-07-2012	2M-SMA-1.45	Change to SDPPP - Updated second sentence with 2012 post-storm inspection data.	T	
V3.310	12-07-2012	2M-SMA-1.45	Change to SDPPP - For SMAs that have sampled, updated second sentence with 2012 post-storm inspection data.	T	
V3.311	12-07-2012	2M-SMA-1.45	Change to SDPPP - Changed (2)s to (1) for all suites in table and removed paragraph under table for SMAs remaining in baseline sampling.	T	
V3.312	12-07-2012	2M-SMA-1.45	Change to SDPPP - For SMAs remaining in baseline sampling, replaced 2nd and 3rd sentences with "Initial confirmation sampling will continue as provided above until one confirmation sample is collected from this SMA."	T	
V3.313	12-10-2012	Attachment 1: Amendments	Change to SDPPP - Suppressed the R1 amendments and only have FY12 amendments in the table.	T	
V3.314	12-10-2012	1.0 Background	Add New Procedure	T	
V3.316	12-10-2012	Appendix A: Acronyms	Change to SDPPP - Added: Certified Inspector of Sediment and Erosion Control (CISEC) and Certified Professional in Erosion and Sediment Control (CPESC)	T	
V3.317	01-23-2013	2M-SMA-1.8	Change to SDPPP - Updated Site description for 03-001(k)	T	

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Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.318	01-23-2013	2M-SMA-1.9	Change to SDPPP - Updated Site description for 03-003(a)	T	
V3.319	01-23-2013	2M-SMA-2.2	Change to SDPPP - Updated Site description for 03-003(k)	T	
V3.320	01-23-2013	2M-SMA-1	Change to SDPPP - Updated Site description for 03-010(a)	T	
V3.321	01-23-2013	2M-SMA-2	Change to SDPPP - Updated Site description for 03-050(d)	T	
V3.322	01-23-2013	2M-SMA-2	Change to SDPPP - Updated Site description for 03-054(b)	T	
V3.323	01-23-2013	2M-SMA-1.7	Change to SDPPP - Updated Site description for 03-055(a)	T	
V3.324	01-23-2013	2M-SMA-1.42	Change to SDPPP - Updated Site description for 06-001(a)	T	
V3.325	01-23-2013	2M-SMA-1.44	Change to SDPPP - Updated Site description for 06-001(b)	T	
V3.326	01-23-2013	2M-SMA-1.67	Change to SDPPP - Updated Site description for 06-003(h)	T	
V3.327	01-23-2013	2M-SMA-1.45	Change to SDPPP - Updated Site description for 06-006	T	
V3.328	01-23-2013	2M-SMA-3	Change to SDPPP - Updated Site description for 07-001(a)	T	
V3.329	01-23-2013	2M-SMA-3	Change to SDPPP - Updated Site description for 07-001(b)	T	
V3.330	01-23-2013	2M-SMA-3	Change to SDPPP - Updated Site description for 07-001(c)	T	
V3.331	01-23-2013	2M-SMA-3	Change to SDPPP - Updated Site description for 07-001(d)	T	
V3.332	01-23-2013	2M-SMA-1.43	Change to SDPPP - Updated Site description for 22-014(a)	T	
V3.333	01-23-2013	2M-SMA-1.5	Change to SDPPP - Updated Site description for 22-014(b)	T	
V3.334	01-23-2013	2M-SMA-1.43	Change to SDPPP - Updated Site description for 22-015(a)	T	
V3.335	01-23-2013	2M-SMA-1.65	Change to SDPPP - Updated Site description for 40-005	T	
V3.336	01-23-2013	3M-SMA-0.4	Change to SDPPP - Updated Site description for 15-006(b)	T	
V3.337	01-23-2013	3M-SMA-0.5	Change to SDPPP - Updated Site description for 15-006(c)	T	
V3.338	01-23-2013	3M-SMA-0.6	Change to SDPPP - Updated Site description for 15-008(b)	T	
V3.339	01-23-2013	3M-SMA-0.5	Change to SDPPP - Updated Site description for 15-009(c)	T	
V3.340	01-23-2013	3M-SMA-0.2	Change to SDPPP - Updated Site description for 15-010(b)	T	
V3.341	01-23-2013	3M-SMA-2.6	Change to SDPPP - Updated Site description for 36-008	T	
V3.342	01-23-2013	3M-SMA-2.6	Change to SDPPP - Updated Site description for C-36-003	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
V3.343	01-23-2013	STRM-SMA-1.5	Change to SDPPP - Updated Site description for 08-009(d)	T	
V3.344	01-23-2013	STRM-SMA-1.05	Change to SDPPP - Updated Site description for 08-009(f)	T	
V3.345	01-23-2013	PJ-SMA-4.05	Change to SDPPP - Updated Site description for 09-004(g)	T	
V3.346	01-23-2013	PJ-SMA-3.05	Change to SDPPP - Updated Site description for 09-004(o)	T	
V3.347	01-23-2013	STRM-SMA-4.2	Change to SDPPP - Updated Site description for 09-008(b)	T	
V3.348	01-23-2013	PJ-SMA-2	Change to SDPPP - Updated Site description for 09-009	T	
V3.349	01-23-2013	PJ-SMA-1.05	Change to SDPPP - Updated Site description for 09-013	T	
V3.350	01-23-2013	STRM-SMA-5.05	Change to SDPPP - Updated Site description for 09-013	T	
V3.351	01-23-2013	PJ-SMA-5	Change to SDPPP - Updated Site description for 22-015(c)	T	
V3.352	01-23-2013	PJ-SMA-5.1	Change to SDPPP - Updated Site description for 22-016	T	
V3.353	01-23-2013	2M-SMA-2.5	Change to SDPPP - Updated Site description for 40-001(c)	T	
V3.354	01-23-2013	PJ-SMA-11	Change to SDPPP - Updated Site description for 40-003(a)	T	
V3.355	01-23-2013	PJ-SMA-11.1	Change to SDPPP - Updated Site description for 40-003(b)	T	
V3.356	01-23-2013	PJ-SMA-10	Change to SDPPP - Updated Site description for 40-006(a)	T	
V3.357	01-23-2013	PJ-SMA-8	Change to SDPPP - Updated Site description for 40-006(b)	T	
V3.358	01-23-2013	PJ-SMA-7	Change to SDPPP - Updated Site description for 40-006(c)	T	
V3.359	01-23-2013	PJ-SMA-9	Change to SDPPP - Updated Site description for 40-009	T	
V3.360	01-23-2013	PJ-SMA-6	Change to SDPPP - Updated Site description for 40-010	T	
V3.361	01-23-2013	PJ-SMA-13	Change to SDPPP - Updated Site description for 18-002(a)	T	
V3.362	01-23-2013	3M-SMA-4	Change to SDPPP - Updated Site description for 18-002(b)	T	
V3.363	01-23-2013	3M-SMA-4	Change to SDPPP - Updated Site description for 18-003(c)	T	
V3.364	01-23-2013	PJ-SMA-14.3	Change to SDPPP - Updated Site description for 18-003(e)	T	
V3.365	01-23-2013	PJ-SMA-13.7	Change to SDPPP - Updated Site description for 18-010(b)	T	
V3.366	01-23-2013	PJ-SMA-14.4	Change to SDPPP - Updated Site description for 18-010(d)	T	
V3.367	01-23-2013	PJ-SMA-14.6	Change to SDPPP - Updated Site description for 18-010(e)	T	

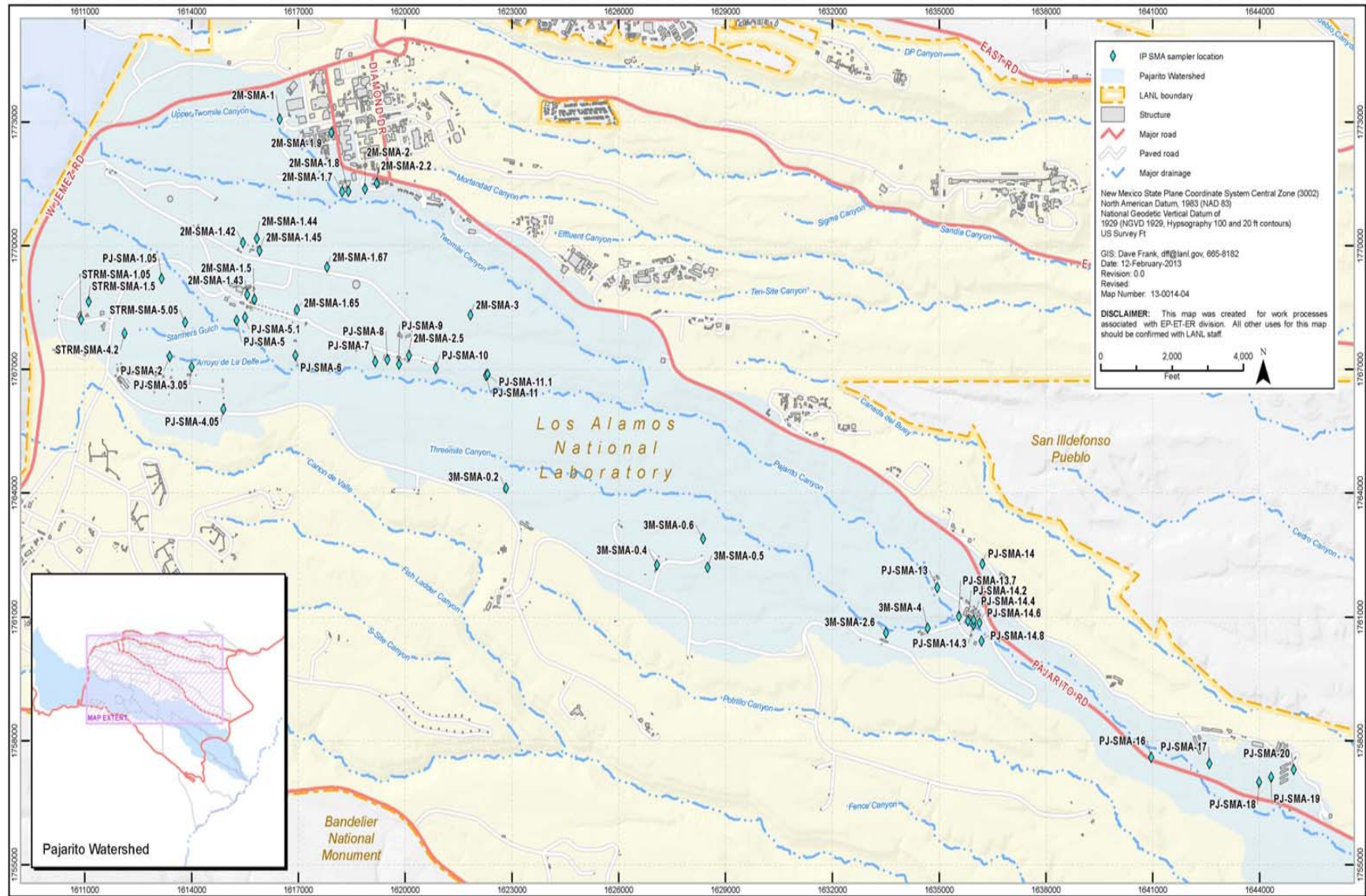
Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V3.368	01-23-2013	3M-SMA-4	Change to SDPPP - Updated Site description for 18-010(f)	T	
V3.369	01-23-2013	PJ-SMA-14.8	Change to SDPPP - Updated Site description for 18-012(a)	T	
V3.370	01-23-2013	PJ-SMA-14.2	Change to SDPPP - Updated Site description for 18-012(b)	T	
V3.371	01-23-2013	PJ-SMA-16	Change to SDPPP - Updated Site description for 27-002	T	
V3.372	01-23-2013	PJ-SMA-19	Change to SDPPP - Updated Site description for 54-013(b)	T	
V3.373	01-23-2013	PJ-SMA-18	Change to SDPPP - Updated Site description for 54-014(d)	T	
V3.374	01-23-2013	PJ-SMA-18	Change to SDPPP - Updated Site description for 54-017	T	
V3.375	01-23-2013	PJ-SMA-19	Change to SDPPP - Updated Site description for 54-017	T	
V3.376	01-23-2013	PJ-SMA-20	Change to SDPPP - Updated Site description for 54-017	T	
V3.377	01-23-2013	PJ-SMA-17	Change to SDPPP - Updated Site description for 54-018	T	
V3.378	01-23-2013	PJ-SMA-19	Change to SDPPP - Updated Site description for 54-020	T	
V3.379	02-11-2013	PJ-SMA-11.1	Site Boundary Modification	T	CCN - 30372
V3.380	02-11-2013	PJ-SMA-11.1	Map Revision (R6)	T	CCN - 30372
V3.381	02-11-2013	2M-SMA-1.8	Site Boundary Modification	T	CCN - 30359
V3.382	02-11-2013	2M-SMA-1.8	Map Revision (R5)	T	CCN - 30359
V3.383	02-11-2013	2M-SMA-1.5	Site Boundary Modification	T	CCN - 30543
V3.384	02-11-2013	2M-SMA-1.5	Map Revision (R5)	T	CCN - 30543
V3.385	02-11-2013	PJ-SMA-8	Site Boundary Modification	T	CCN - 30375
V3.386	02-11-2013	PJ-SMA-8	Map Revision (R5)	T	CCN - 30375
V3.387	02-22-2013	STRM-SMA-1.5	Site Boundary Modification	T	CCN - 30376
V3.388	02-22-2013	STRM-SMA-1.5	Map Revision (R6)	T	CCN - 30376
V3.389	02-22-2013	PJ-SMA-5	Site Boundary Modification	T	CCN - 30373
V3.390	02-22-2013	PJ-SMA-5	Map Revision (R7)	T	CCN - 30373
V3.391	02-26-2013	2M-SMA-1.45	Change to SDPPP - Corrected control status for earth berms E00503010014 and E00503010015 from enhanced control to baseline	T	CCN - 30587

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
V3.392	03-04-2013	3M-SMA-0.2	Site Boundary Modification	T	CCN - 30597
V3.393	03-04-2013	3M-SMA-0.2	Map Revision (R5)	T	CCN - 30597
V3.394	03-04-2013	2M-SMA-2	Site Boundary Modification	T	CCN - 30360
V3.395	03-04-2013	2M-SMA-2	Site Boundary Modification	T	CCN - 30360
V3.396	03-04-2013	2M-SMA-2	Map Revision (R6)	T	CCN - 30360
V3.397	3-8-2013	2M-SMA-3	Site Boundary Modification	T	CCN - 30361
V3.398	3-8-2013	2M-SMA-3	Map Revision (R8)	T	CCN - 30361
V3.399	3-8-2013	PJ-SMA-7	Site Boundary Modification	T	CCN - 30374
V3.400	3-8-2013	PJ-SMA-7	Map Revision (R5)	T	CCN - 30374
V3.401	3-8-2013	PJ-SMA-10	Site Boundary Modification	T	CCN - 30370
V3.402	3-8-2013	PJ-SMA-10	Map Revision (R6)	T	CCN - 30370
V3.403	3-8-2013	PJ-SMA-11	Site Boundary Modification	T	CCN - 30371
V3.404	3-8-2013	PJ-SMA-11	Map Revision (R7)	T	CCN - 30371

Attachment 2 Vicinity Map



Attachment 3 Precipitation Network

Rain Gage	Date	Total (In.)	Intensity (In./Min)	Duration (Min)
RG-TA-06	May 13, 2012	0.31	0.12	180
	June 28, 2012	0.05	0.03	60
	July 02, 2012	0.11	0.07	120
	July 03, 2012	0.17	0.11	60
	July 04, 2012	0.35	0.23	60
	July 07, 2012	0.08	0.05	60
	July 11, 2012	0.44	0.4	60
	July 13, 2012	0.01	0.01	0
	July 21, 2012	0.01	0.01	0
	July 24, 2012	0.03	0.02	60
	July 25, 2012	0.24	0.24	60
	August 02, 2012	0.18	0.11	120
	August 03, 2012	0.01	0.01	0
	August 05, 2012	0.02	0.01	60
	August 16, 2012	0.29	0.18	60
	August 20, 2012	0.28	0.23	60
	August 22, 2012	0.07	0.02	120
	August 24, 2012	0.23	0.17	60
	September 10, 2012	0.61	0.39	120
	September 27, 2012	0.02	0.02	0
September 28, 2012	0.29	0.25	60	
October 12, 2012	1.02	0.53	180	
RG-TA-54	April 26, 2012	0.01	0.01	0
	May 08, 2012	0.52	0.27	120
	May 13, 2012	0.12	0.04	120
	July 02, 2012	0.88	0.73	120
	July 03, 2012	0.32	0.15	60
	July 04, 2012	0.16	0.14	60
	July 10, 2012	0.22	0.22	60
	July 21, 2012	0.23	0.23	60
	July 25, 2012	0.12	0.1	60
	August 01, 2012	0.3	0.3	60
	August 02, 2012	0.42	0.22	120
	August 05, 2012	0.01	0.01	0
	August 16, 2012	0.3	0.11	60

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (In.)	Intensity (In./Min)	Duration (Min)
RG-TA-54	August 20, 2012	0.16	0.11	60
	August 22, 2012	0.12	0.09	60
	August 24, 2012	0.13	0.07	60
	August 26, 2012	0.14	0.13	60
	September 10, 2012	0.16	0.05	120
	September 28, 2012	0.04	0.02	60
	October 12, 2012	0.14	0.09	60
RG121.9	April 26, 2012	0.01	0.01	0
	May 13, 2012	0.25	0.08	120
	June 28, 2012	0.14	0.11	60
	July 02, 2012	0.18	0.08	60
	July 03, 2012	0.13	0.09	60
	July 04, 2012	0.11	0.07	60
	July 07, 2012	0.16	0.14	60
	July 10, 2012	0.01	0.01	0
	July 11, 2012	0.44	0.41	60
	July 13, 2012	0.01	0.01	0
	July 21, 2012	0.07	0.03	0
	July 24, 2012	0.05	0.02	0
	July 25, 2012	0.12	0.11	0
	August 02, 2012	0.23	0.11	60
	August 03, 2012	0.09	0.07	0
	August 05, 2012	0.05	0.02	0
	August 16, 2012	0.23	0.17	60
	August 20, 2012	0.26	0.14	60
	August 22, 2012	0.08	0.04	60
	August 24, 2012	0.03	0.02	0
	September 10, 2012	0.27	0.21	60
	September 27, 2012	0.03	0.02	0
	September 28, 2012	0.22	0.19	60
October 12, 2012	1.07	0.26	240	
RG240	April 26, 2012	0.03	0.02	0
	May 13, 2012	0.42	0.14	120
	June 28, 2012	0.35	0.17	60
	July 02, 2012	0.24	0.11	60
	July 03, 2012	0.04	0.04	0

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (In.)	Intensity (In./Min)	Duration (Min)
RG240	July 04, 2012	0.54	0.45	60
	July 07, 2012	0.03	0.03	0
	July 10, 2012	0.04	0.03	0
	July 11, 2012	1.04	0.98	60
	July 13, 2012	0.04	0.03	0
	July 21, 2012	0.12	0.1	0
	July 24, 2012	0.14	0.05	60
	July 25, 2012	0.15	0.14	0
	August 02, 2012	0.1	0.04	60
	August 03, 2012	0.09	0.07	0
	August 05, 2012	0.11	0.06	60
	August 16, 2012	0.48	0.38	60
	August 20, 2012	0.36	0.29	60
	August 22, 2012	0.08	0.02	60
	August 24, 2012	0.02	0.01	0
	September 10, 2012	0.41	0.17	120
	September 28, 2012	0.65	0.58	60
October 12, 2012	0.8	0.23	180	
RG245.5	April 26, 2012	0.08	0.05	0
	May 13, 2012	0.11	0.03	60
	June 28, 2012	0.01	0.01	0
	July 02, 2012	0.03	0.01	0
	July 03, 2012	0.12	0.08	60
	July 04, 2012	0.1	0.06	60
	July 07, 2012	0.19	0.19	60
	July 11, 2012	0.01	0.01	0
	July 13, 2012	0.01	0.01	0
	July 25, 2012	0.08	0.05	0
	August 02, 2012	0.2	0.12	60
	August 05, 2012	0.24	0.19	60
	August 16, 2012	0.3	0.2	60
	August 20, 2012	0.22	0.15	60
	August 22, 2012	0.46	0.31	60
	August 24, 2012	0.16	0.11	60
	August 26, 2012	0.04	0.01	0
September 10, 2012	0.23	0.12	60	

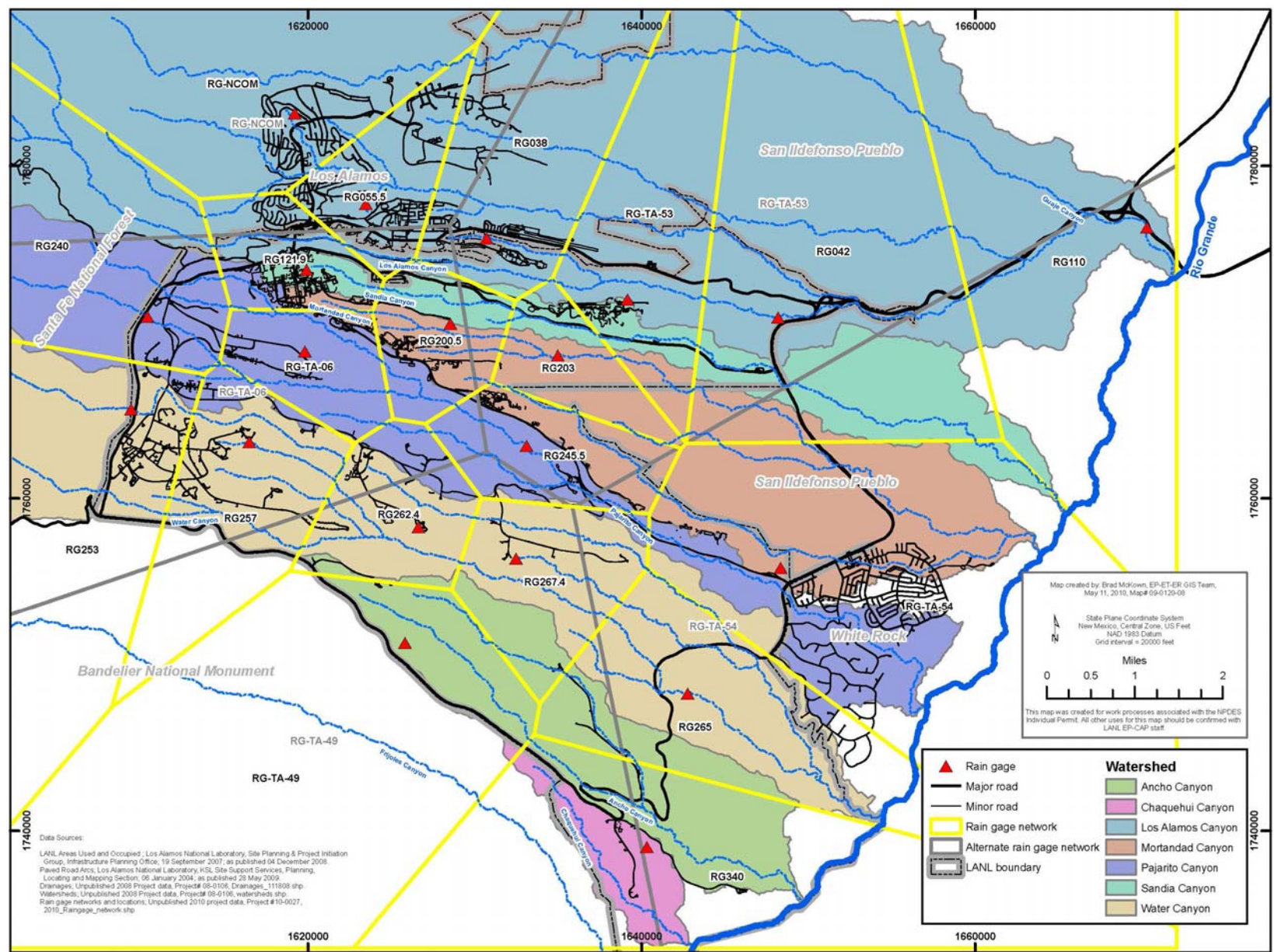
Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (In.)	Intensity (In./Min)	Duration (Min)
RG245.5	September 27, 2012	0.02	0.02	0
	September 28, 2012	0.15	0.11	60
	October 12, 2012	0.38	0.22	120
RG253	May 13, 2012	0.64	0.29	180
	June 28, 2012	0.4	0.32	60
	July 02, 2012	0.2	0.11	60
	July 03, 2012	0.1	0.09	60
	July 04, 2012	0.41	0.24	60
	July 07, 2012	0.06	0.05	0
	July 10, 2012	0.05	0.03	0
	July 11, 2012	1.89	1.74	60
	July 13, 2012	0.05	0.04	0
	July 21, 2012	0.12	0.09	0
	July 24, 2012	0.55	0.43	120
	July 25, 2012	0.26	0.26	0
	August 02, 2012	0.29	0.19	60
	August 03, 2012	0.07	0.05	60
	August 05, 2012	0.14	0.03	60
	August 16, 2012	0.44	0.38	60
	August 20, 2012	0.11	0.07	60
	August 22, 2012	0.09	0.03	60
	August 24, 2012	0.01	0.01	0
	September 10, 2012	0.59	0.19	120
September 28, 2012	0.27	0.21	60	
October 12, 2012	1.01	0.33	240	
RG257	April 26, 2012	0.01	0.01	0
	May 13, 2012	0.35	0.11	120
	June 28, 2012	0.06	0.04	60
	July 02, 2012	0.18	0.06	60
	July 03, 2012	0.11	0.09	60
	July 04, 2012	0.42	0.28	60
	July 07, 2012	0.01	0.01	0
	July 10, 2012	0.01	0.01	0
	July 11, 2012	0.46	0.45	60
	July 13, 2012	0.02	0.02	0
July 21, 2012	0.1	0.09	0	

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (In.)	Intensity (In./Min)	Duration (Min)
RG257	July 24, 2012	0.21	0.15	60
	July 25, 2012	0.15	0.15	0
	August 02, 2012	0.2	0.09	60
	August 05, 2012	0.05	0.03	0
	August 16, 2012	0.33	0.24	60
	August 20, 2012	0.1	0.07	0
	August 22, 2012	0.07	0.03	60
	August 24, 2012	0.16	0.14	60
	September 10, 2012	0.62	0.21	120
	September 28, 2012	0.42	0.34	60
	October 12, 2012	0.81	0.2	180
RG262.4	April 26, 2012	0.01	0.01	0
	May 13, 2012	0.27	0.11	120
	July 02, 2012	0.05	0.02	0
	July 03, 2012	0.12	0.1	60
	July 04, 2012	0.39	0.3	60
	July 07, 2012	0.37	0.3	60
	July 11, 2012	0.03	0.03	0
	July 13, 2012	0.01	0.01	0
	July 24, 2012	0.04	0.03	0
	July 25, 2012	0.41	0.27	60
	August 02, 2012	0.22	0.15	60
	August 03, 2012	0.01	0.01	0
	August 05, 2012	0.14	0.09	60
	August 16, 2012	0.11	0.02	60
	August 22, 2012	0.22	0.1	60
	August 24, 2012	0.29	0.23	60
	August 26, 2012	0.12	0.12	0
	September 10, 2012	0.54	0.25	120
	September 28, 2012	0.16	0.05	60
	October 12, 2012	0.38	0.19	120

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 ¹	1615829 (35.8651)	1770174 (-106.332983)	288.33	06-001(b)	221.18
Twomile	E005	2M-SMA-1.45 ^{1,2}	1615901 (35.864276)	1769871 (-106.332742)	27,747.72	06-006	9,713.88
Twomile	E006	2M-SMA-1.5 ¹	1615739 (35.861047)	1768703 (-106.3332356)	90.00	22-014(b)	8.33
Twomile	E007	2M-SMA-1.65 ¹	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 ¹	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 ^{1,2}	1618869 (35.868405)	1771372 (-106.322727)	458,665.92	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 ¹	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 ¹	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	1628495 (35.843217)	1762195 (-106.290217)	315,963.74	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)	40,895.61	09-009	3,293.67
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 ¹	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 ¹	1619154 (35.8568894)	1767180 (-106.3217566)	5,239.00	40-006(c)	1485.17
Pajarito	J009	PJ-SMA-8 ¹	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 ¹	1620855 (35.85645)	1767019 (-106.316017)	1,034.00	40-006(a)	0.00
Pajarito	J013	PJ-SMA-11 ¹	1622271 (35.856)	1766851 (-106.311233)	25,449.06	40-003(a)	5271.63
Pajarito	J014	PJ-SMA-11.1 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)	6,977.39	18-002(a)	1.54
Pajarito	J016	PJ-SMA-13.7	1635552 (35.839967)	1761015 (-106.266417)	59,731.90	18-010(b)	0.77
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)	16,256.96	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 ¹	1611103 (35.860883)	1768639 (-106.348933)	155,072.72	08-009(d)	89.33
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 Site boundary revised.

² 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	Aluminum	Copper	Zinc	PCBs	High Explosives	SVOCs
2M-SMA-1	129	SS2432	CAI2											
2M-SMA-1.42	130	SS093203	CAM5	X					X					
2M-SMA-1.43	131	SS093204	MEx	X	X	X	X	X						
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	CAI											
2M-SMA-2.2	141	SS093214	CAI											
2M-SMA-2.5	142	SS093210	BCComp											
2M-SMA-3	143	SS2439	MEx	X	X	X	X	X					X	
3M-SMA-0.2	144	SS091501	MEx	X	X	X	X	X						
3M-SMA-0.4	145	SS101502	MEx	X	X	X	X	X					X	
3M-SMA-0.5	146	SS2459	MEx	X	X	X	X	X					X	
3M-SMA-0.6	147	SS2457	MEx	X	X	X	X	X						
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	

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	Aluminum	Copper	Zinc	PCBs	High Explosives	SVOCs
PJ-SMA-1.05	150	SS092327	MEx	X	X	X	X	X				X		
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	MEx	X	X	X	X	X						
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	SS2428	MEx	X	X	X	X	X					X	X
PJ-SMA-11	161	SS102333	MEx	X	X	X	X	X						
PJ-SMA-11.1	162	SS102334	MEx	X	X	X	X	X						
PJ-SMA-13	163	SS102335	MEx	X	X	X	X	X					X	
PJ-SMA-13.7	164	SS102336	CAI											
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						
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	MEx	X	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	Aluminum	Copper	Zinc	PCBs	High Explosives	SVOCs
PJ-SMA-17	172	SS092331	MEx	X	X	X	X	X				X		
PJ-SMA-18	173	SS092329	MEx	X	X	X	X	X				X		
PJ-SMA-19	174	SS092330	MEx	X	X	X	X	X				X		
PJ-SMA-20	175	SS092332	CAI											
STRM-SMA-1.05	176	SS093001	CAI											
STRM-SMA-1.5	177	SS2411	CAI											
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.