

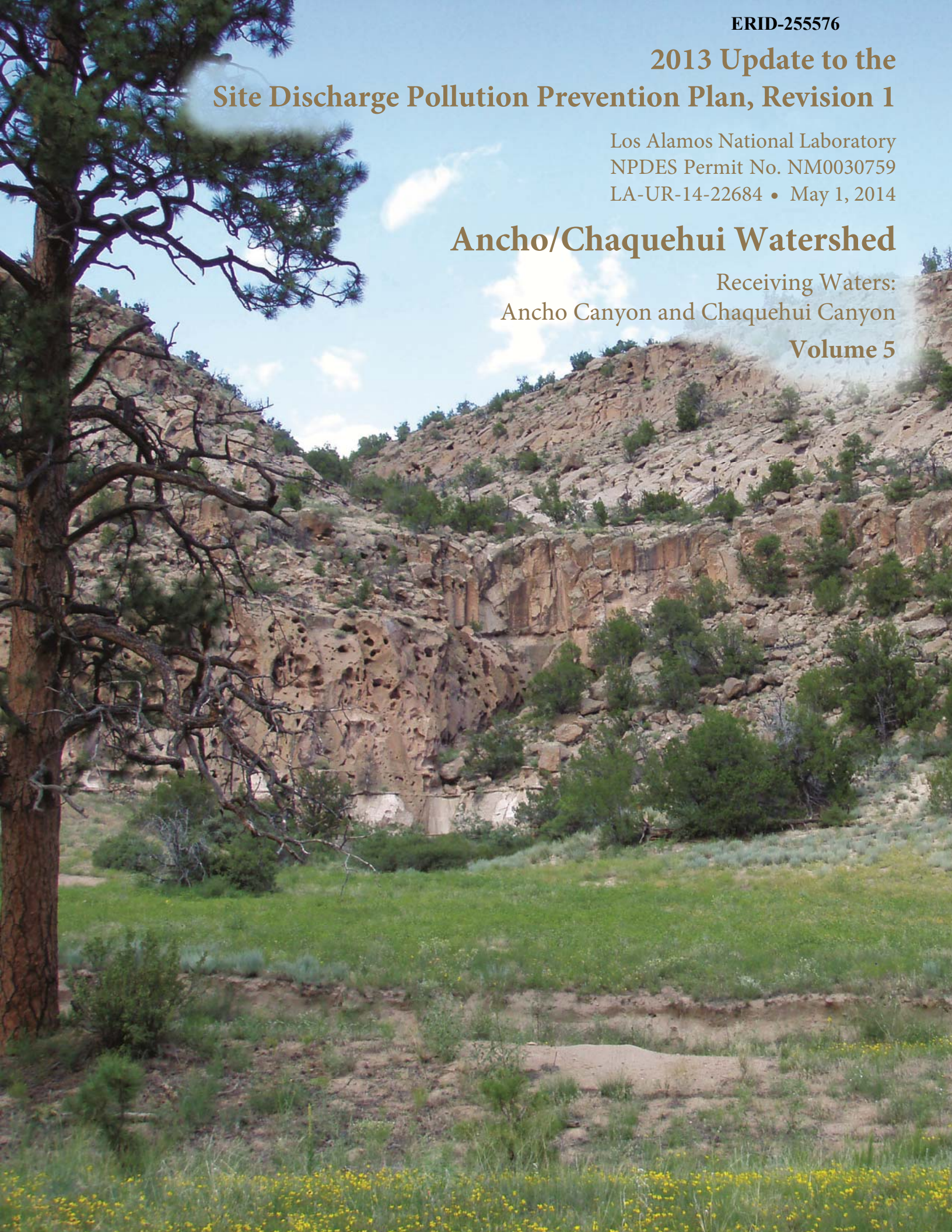
2013 Update to the Site Discharge Pollution Prevention Plan, Revision 1

Los Alamos National Laboratory
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Ancho/Chaquehui Watershed

Receiving Waters:
Ancho Canyon and Chaquehui Canyon

Volume 5



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

230.1 Site Descriptions

Two historical industrial activity areas are associated with A001, A-SMA-1.1: Sites 39-004(a) and 39-004(d).

SWMU 39-004(a) is a firing site (structure 39-7) at TA-39. This Site was constructed in 1953 as a remote test firing facility to test materials. The experiments conducted at this firing site are designed to expend all the HE contained in the device. If a shot fails so not all the HE is spent, an effort is made to pick up and destroy the unexploded HE. A typical shot carries 10 to 100 lb of explosives, but on occasion, up to 1000 lb may be used. Signs of impact are generally noticeable only within a 200-ft radius around the firing pad. This firing site is within the fall zone of a high cliff that erodes when explosives experiments are conducted at the Site. The Site is currently on standby status. SWMU 39-004(d), another remote test firing facility, is located near SWMU 39-004(a) and is currently active. Both 39-004(a) and 39-004(d) are located along the northern tributary of the upper reach of Ancho Canyon. The firing pads are located in the canyon bottom between a diverted ephemeral stream and the canyon wall. For the purposes of evaluating the area, SWMUs 39-004(a) and 39-004(d) were sampled as one site during the 1995 RFI and 2009 Consent Order investigations.

SWMU 39-004(a) is deferred per Table IV-2 of the Consent Order; therefore, Consent Order sampling has not been conducted at the Site. RFI and Consent Order samples were collected around and downgradient of the Site to determine the potential contaminants being released at the Site and whether these contaminants are migrating off-site. The approved Investigation Report for North Ancho Canyon Aggregate Area, Revision 1, concluded the extent of detected inorganic, organic, and radionuclide contaminants is defined in drainages downgradient of the Site and the drainages meet recreational and residential risk levels; therefore, no immediate corrective action is required until firing site activities cease.

SWMU 39-004(d) is a firing site (structure 39-57) located along the northern tributary of the upper reach of Ancho Canyon and situated in the bottom of the canyon between a diverted ephemeral stream and the canyon wall. The firing site was constructed in 1953 and is used for explosives experiments. SWMU 39-004(a), another remote test firing facility, is located near SWMU 39-004(d) and is currently inactive. Both SWMUs 39-004(a) and 39-004(d) are located along the northern tributary of the upper reach of Ancho Canyon. For the purposes of evaluating the area, SWMUs 39-004(a) and 39-004(d) were sampled as one site during the 1995 RFI and 2009 Consent Order investigations.

SWMU 39-004(d) is deferred per Table IV-2 of the Consent Order; therefore, Consent Order sampling has not been conducted at the Site. RFI and Consent Order samples were collected around and downgradient of the Site to determine the potential contaminants being released at the Site and whether these contaminants are migrating off-site. The approved Investigation Report for North Ancho Canyon Aggregate Area, Revision 1, concluded the extent of detected inorganic, organic, and radionuclide contaminants is defined in drainages downgradient of the Site and the drainages meet recreational and residential risk levels; therefore, no immediate corrective action is required until firing site activities cease.

The project map (Figure 230-1) 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>.

230.2 Control Measures

Most of run-on to this SMA originates in the natural areas around the Sites. The channel east of the Sites is confined by a berm located parallel to the access road. All Site runoff is captured in the ponding area to the southeast of the Sites, between the intersection of the two access roads and North Ancho Canyon Road. All active control measures are listed in the following table and their locations are shown on the project map (Figure 230-1).

Table 230-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00102040006	Established Vegetation		X	X		B
A00103010005	Earthen Berm	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

230.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at A-SMA-1.1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

230.4 Inspections and Maintenance

RG267.4 recorded seven storm events at A-SMA-1.1 during the 2013 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 230-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30881	5-13-2013
Storm Rain Event	BMP-33187	7-10-2013
Storm Rain Event	BMP-33696	7-16-2013
Storm Rain Event	BMP-34203	8-8-2013
Storm Rain Event	BMP-35654	9-23-2013
Annual Erosion Evaluation	COMP-36820	10-28-2013
Storm Rain Event	BMP-37134	11-12-2013

No maintenance activities were conducted at A-SMA-1.1 in 2013.

230.5 Compliance Status

The Sites associated with A-SMA-1.1 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 230-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 39-004(a)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 39-004(d)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

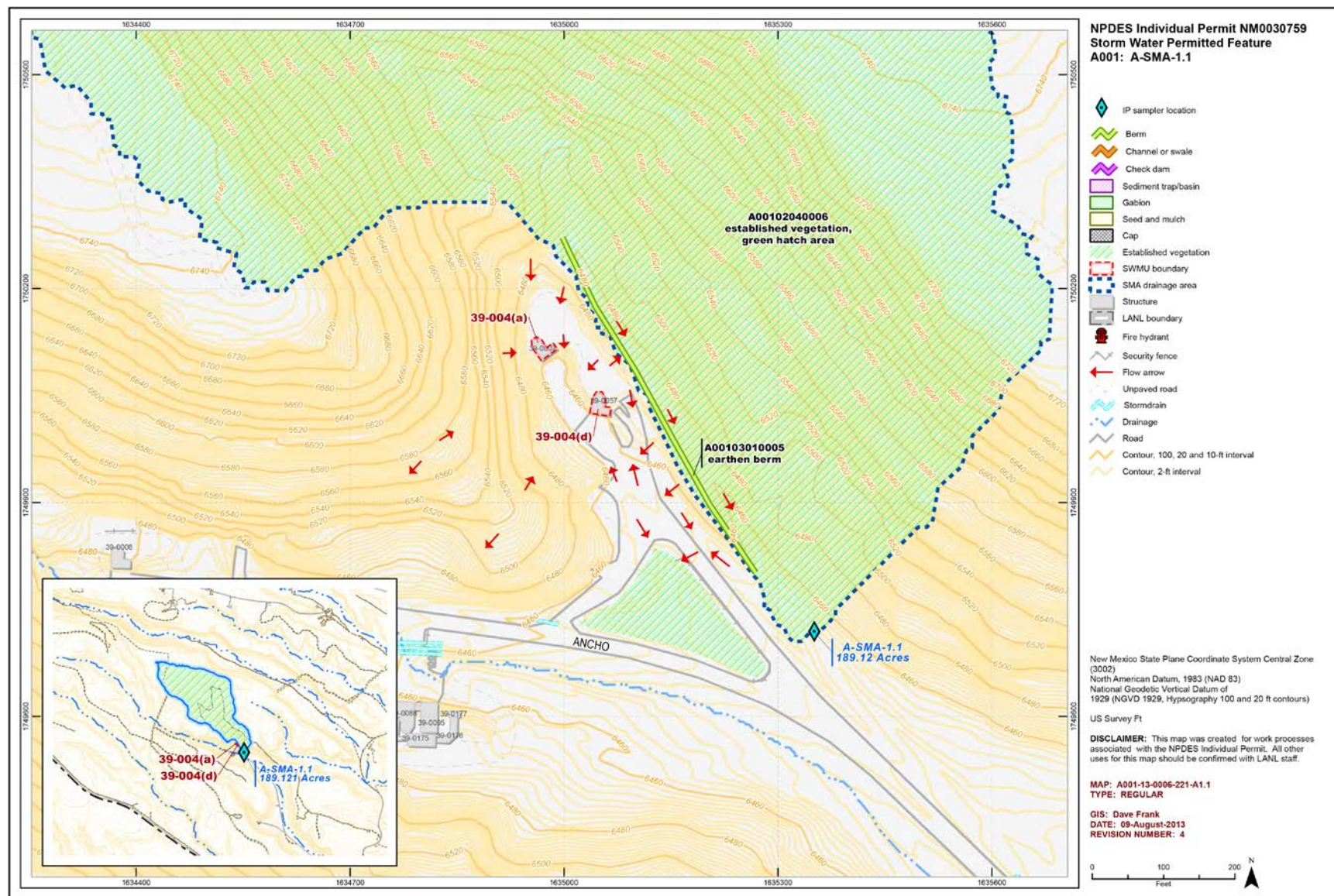


Figure 230-1 A-SMA-1.1 location map

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

231.1 Site Descriptions

Two historical industrial activity areas are associated with A002, A-SMA-2: Sites 39-004(b) and 39-004(e).

SWMU 39-004(b) is a firing site (structure 39-8) located at TA-39. The SWMU 39-004(b) firing site is located in the western tributary of the upper reach of Ancho Canyon. The firing pad is located in the canyon bottom between an ephemeral stream and the northern canyon wall. This Site had been used to test materials from the time TA-39 was established as a remote test firing facility in 1953. The experiments conducted at this firing site were designed to expend all HE in the device. Signs of impact are generally noticeable only within a 200-ft radius around the firing pad. Activities at this Site were discontinued in 1980 because of the constant hazard of falling debris from the nearby cliff.

The completion of Consent Order investigations at SWMU 39-004(b) is deferred because the Site is within the area affected by operations at other active firing sites; however, 2009 Consent Order samples were collected from the extended drainages downgradient of the firing site to assess the potential for off-site migration. The approved Investigation Report for North Canyon Aggregate Area, Revision 1, concluded that all inorganic and radionuclide COPCs from this Site are at or below BVs in the drainage downstream of the Sites and meet residential risk levels; therefore, no immediate corrective action is required until firing site activities cease.

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

The completion of Consent Order investigations at SWMU 39-004(e) is deferred because the Site is within the area affected by operations at other active firing sites; however, 2009 Consent Order samples were collected from the extended drainages downgradient of the firing site to assess the potential for off-site migration. The approved investigation report for North Canyon Aggregate Area, Revision 1, concluded that all inorganic and radionuclide COPCs from this Site are at or below BVs in the drainage downstream of the Sites and meet residential risk levels; therefore, no immediate corrective action is required until firing site activities cease.

The project map (Figure 231-1) 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>.

231.2 Control Measures

The primary run-on source for this SMA is North Ancho Canyon. Flow passes through the area via a natural drainage channel and a system of culverts that diverts this flow away from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 231-1).

Table 231-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00202040017	Established Vegetation		X	X		B
A00203010007	Earthen Berm	X			X	CB
A00203010008	Earthen Berm	X			X	CB
A00203060018	Straw Wattles		X		X	B
A00203060024	Straw Wattles	X			X	B
A00203060027	Straw Wattles	X			X	B
A00203060029	Straw Wattles	X			X	B
A00203060030	Straw Wattles	X			X	B
A00203060031	Straw Wattles	X			X	B
A00203060032	Straw Wattles	X			X	B
A00203060033	Straw Wattles	X			X	B
A00203060034	Straw Wattles	X			X	B
A00203060035	Straw Wattles	X			X	B
A00203060036	Straw Wattles	X			X	B
A00203060037	Straw Wattles	X			X	B
A00203060038	Straw Wattles	X			X	B
A00203060039	Straw Wattles	X			X	B
A00204010013	Earthen Channel/Swale	X		X		CB
A00204060004	Rip Rap	X		X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls installation and certification are being planned for the end of 2014 or early in 2015 as part of corrective action.

231.3 Storm Water Monitoring

SWMUs 39-004(b) and 39-004(e) are monitored within A-SMA-2. Following the installation of baseline control measures, a baseline storm water sample was collected on September 12, 2013 (Figures 231-2 and 231-3). Analytical results from this sample yielded three TAL exceedances:

- Aluminum concentration of 1310 µg/L (MTAL is 750 µg/L),
- Copper concentrations of 23.9 µg/L (MTAL is 4.3 µg/L), and
- Gross-alpha activity of 23.7 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 39-004(b):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected or detected above soil or sediment BVs in any of the 55 shallow (i.e., less than 3 ft bgs) 2009 Consent Order and 1995 RFI samples collected at the Site.
- Copper is known to be associated with industrial materials historically managed at SWMU 39-004(b). Copper was detected above BVs in 13 of 31 shallow soil and sediment samples collected during the 1995 RFI conducted at the firing site at a maximum concentration 87.8 times the soil BV.
- Alpha-emitting radionuclides (uranium) are known to be associated with industrial materials historically managed at SWMU 39-004(b). Consent Order and RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium, which contains alpha-emitting isotopes, and were analyzed for isotopic plutonium, thorium, and uranium, which are also alpha emitters. Any alpha-emitting radionuclides associated with the Site are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

SWMU 39-004(e):

- Aluminum is not known to be associated with industrial materials historically managed at the Site. Aluminum was not detected or detected above soil or sediment BVs in any of the 63 shallow 2009 Consent Order and 1995 RFI samples collected at the Site.
- Copper is known to be associated with industrial materials historically managed at SWMU 39-004(e). Copper was detected above BVs in 14 of 39 shallow soil and sediment samples collected during the 1995 RFI conducted at the firing site at a maximum concentration 563 times the soil BV. Copper was detected above BVs in 2 of 6 shallow soil and sediment Consent Order samples collected at three locations in the drainage adjacent to the firing site at a maximum concentration 4 times the soil BV.
- Alpha-emitting radionuclides (uranium) are known to be associated with industrial materials historically managed at SWMU 39-004(b). Consent Order and RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for total uranium, which contains alpha-emitting isotopes, and were analyzed for isotopic plutonium, thorium, and uranium, which are also alpha emitters. Any alpha-emitting radionuclides associated with the Site are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance..

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 231-2 and 231-3. 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 231-2 and 231-3.

Monitoring location A-SMA-2 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including aluminum, and copper are associated with building materials, parking lots, and automobiles as well as low concentrations in the Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Aluminum—The aluminum UTL from developed urban landscape storm water run-on is 245 µg/L; the aluminum UTL for background storm water containing sediment derived from Bandelier Tuff is 2210 µg/L. The aluminum result from 2013 is between these two values.
- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is less than both of these values.

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

231.4 Inspections and Maintenance

RG267.4 recorded seven storm events at A-SMA-2 during the 2013 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 231-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30882	5-13-2013
Storm Rain Event	BMP-33188	7-10-2013
Storm Rain Event	BMP-33697	7-16-2013
Storm Rain Event	BMP-34204	8-8-2013
Storm Rain Event	BMP-35655	9-23-2013
Annual Erosion Evaluation	COMP-36821	10-28-2013
Storm Rain Event	BMP-37135	11-12-2013
TAL Exceedance	COMP-36873	10-28-2013

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

Table 231-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-32110	Install new straw wattle to replace existing wattle -0010. Wattle -0010 will be retired when work is completed.	7-30-2013	78 day(s)	Maintenance conducted as soon as practicable.
BMP-33491	Install new straw wattle to replace the furthest west portion of wattle of -0016.	7-19-2013	9 day(s)	Maintenance conducted in timely manner.
BMP-34804	Install new straw wattles either directly above or on top of existing wattles -0016. Wattles -0016 will be retired when work is completed. Install at least 2 wattles in channel above existing rock check dam -0011 as a temporary measure. Rock check dam -0011 will be retired when work is completed. Install at least 2 wattles in channel above and below existing rock check dam -0012 as a temporary measure. Rock check dam -0011 will be retired when work is completed. Rake out rills by hand in area east of rock check dams -0011 and -0012 identified as experiencing increased erosion. Install at least 5 lines of wattles in same areas as above. Apply seed by hand over same area as above.	8-16-2013	8 day(s)	Maintenance conducted in timely manner.
BMP-37142	Install new straw wattle directly upgradient of existing wattle -0020. Wattle -0020 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37143	Install new straw wattle directly upgradient of existing wattle -0021. Wattles -0021 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37145	Install new straw wattle directly upgradient of existing wattle -0022. Wattle -0022 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37146	Install new straw wattle directly upgradient of existing wattle -0023. Wattle -0023 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37147	Install new straw wattle directly upgradient of existing wattle -0025. Wattle -0025 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37148	Install new straw wattle directly upgradient of existing wattle -0026. Wattle -0026 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.
BMP-37149	Install new straw wattle directly upgradient of existing wattle -0028. Wattle -0028 will be retired when work is completed.	11-20-2013	58 day(s)	Maintenance conducted as soon as practicable.

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37150	Repair wattle A00203060029 by retrenching and/or backfilling undercut.	11-19-2013	57 day(s)	Maintenance conducted as soon as practicable.
BMP-37151	Repair wattle Asset ID A00203060030 by retrenching and/or backfilling undercut.	11-19-2013	57 day(s)	Maintenance conducted as soon as practicable.
BMP-37152	Repair wattle A00203060031 by retrenching and/or backfilling undercut.	11-19-2013	57 day(s)	Maintenance conducted as soon as practicable.
BMP-37153	Repair wattle A00203060032 by retrenching and/or backfilling undercut.	11-19-2013	57 day(s)	Maintenance conducted as soon as practicable.
BMP-37154	Repair wattle Asset ID A00203060024 by retrenching and/or backfilling undercut.	11-19-2013	22 day(s)	Maintenance conducted in timely manner.
BMP-37155	Repair wattle Asset ID A00203060027 by retrenching and/or backfilling undercut	11-19-2013	22 day(s)	Maintenance conducted in timely manner.

231.5 Compliance Status

The Sites associated with A-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 231-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 39-004(b)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-22-13
SWMU 39-004(e)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-22-13



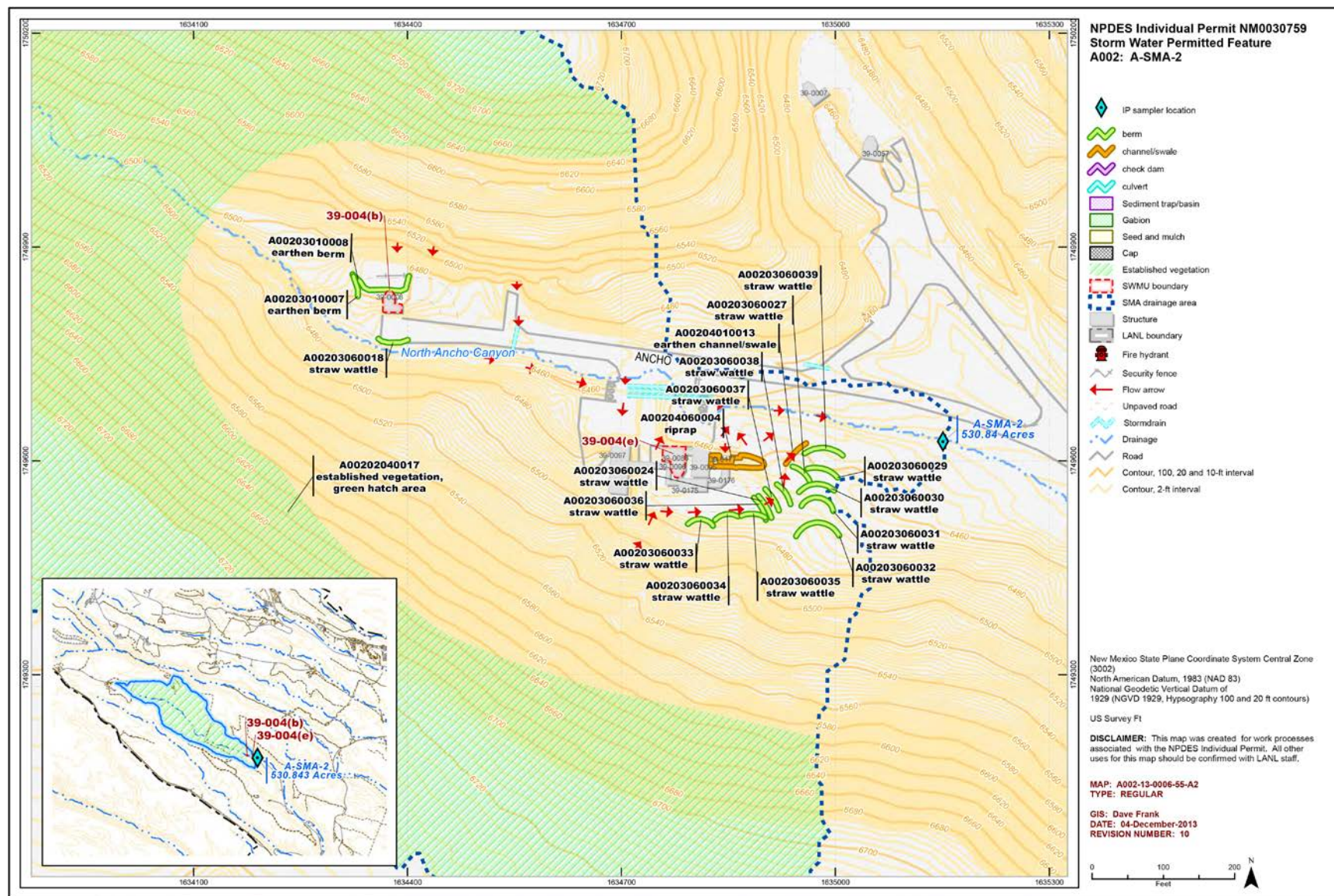


Figure 231-1 A-SMA-2 location map

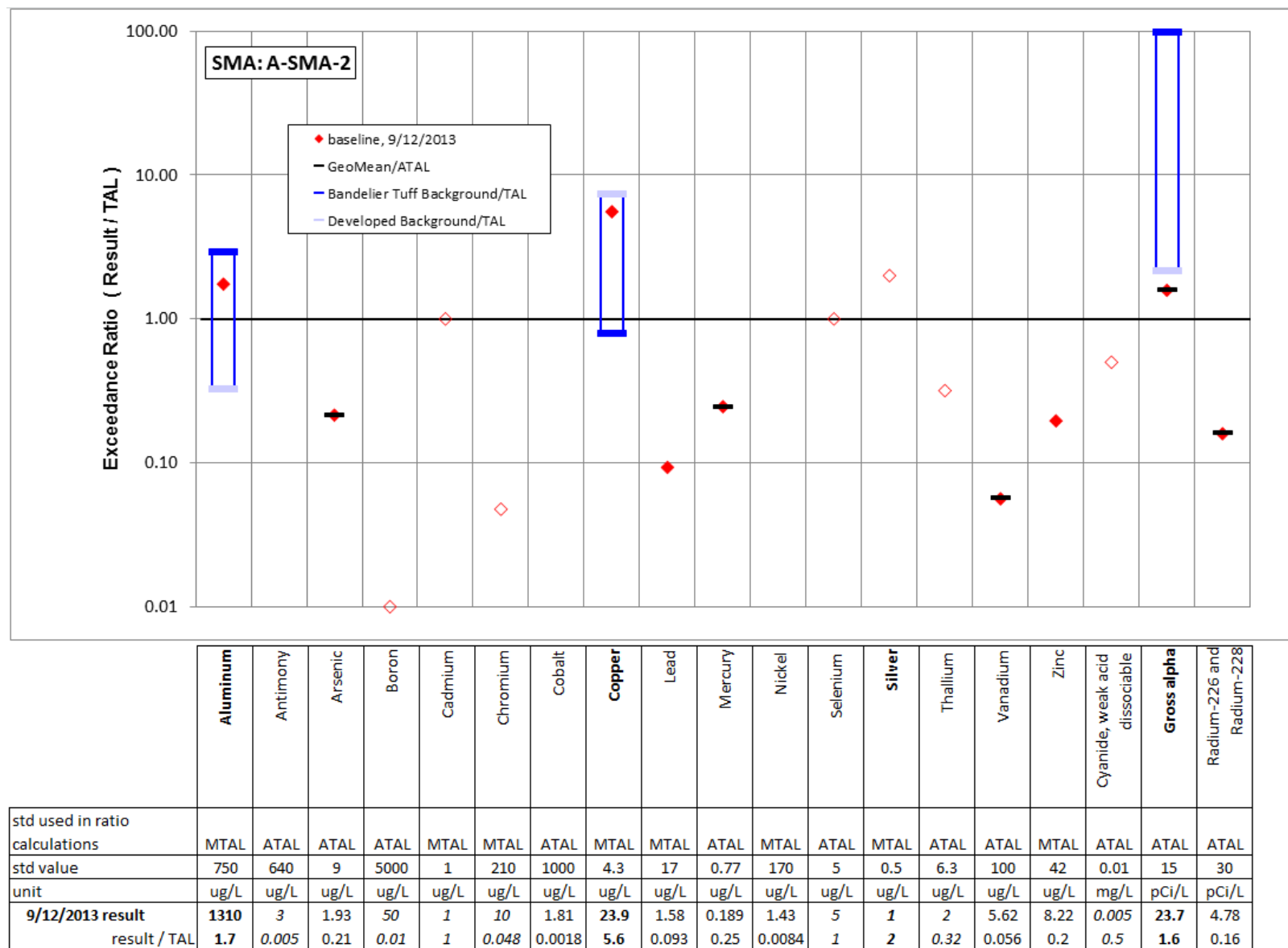


Figure 231-2 Inorganic analytical results summary plot for A-SMA-2

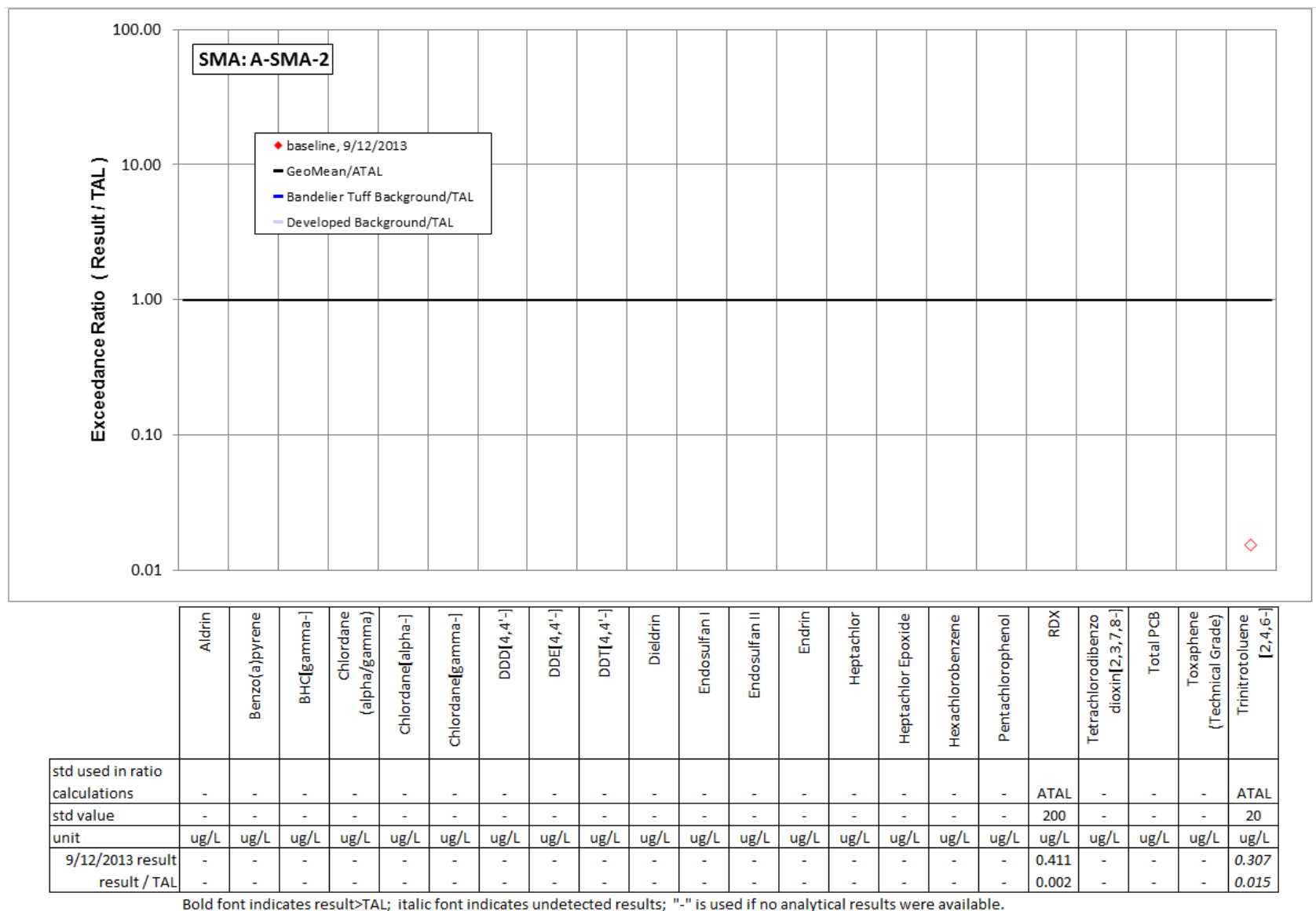


Figure 231-3 Organic analytical results summary plot for A-SMA-2

232.0 A-SMA-2.5: SWMU 39-010

232.1 Site Descriptions

One historical industrial activity area is associated with A003, A-SMA-2.5: Site 39-010.

SWMU 39-010 is an area that was used for staging soil excavated during the 1978 construction of a firing site [SWMU 39-004(e)]. During construction of the firing site, large quantities of soil were removed and deposited in the canyon east of the firing site, forming SWMU 39-010. This soil dump, covering approximately 76,200 ft², was not identified in the 1990 SWMU report. However, it was noted in both the RFI work plan and described in a letter notification to NMED designating a new SWMU.

Phase I Consent Order sampling is complete for SWMU 39-010. All detected inorganic and organic chemical concentrations and radionuclide activities from Consent Order samples were below residential SSLs and SALs, except for two detections of uranium-238. SWMU 39-010 will be recommended for corrective action complete in the supplemental investigation report for North Ancho Canyon Aggregate Area, to be submitted to NMED in 2015. SWMU 39-010 will be eligible for a COC upon approval of the report by NMED.

The project map (Figure 232-1) 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>.

232.2 Control Measures

This Permitted Feature is elevated and flat, resulting in a low potential for run-on or runoff. A natural drainage channel east of the SMA diverts run-on from North Ancho Canyon away from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 232-1).

Table 232-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00302040007	Established Vegetation		X	X		B
A00303010003	Earthen Berm		X		X	CB
A00303060008	Straw Wattles	X			X	B
A00303060009	Straw Wattles	X			X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

232.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at A-SMA-2.5. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

232.4 Inspections and Maintenance

RG265 recorded eight storm events at A-SMA-2.5 during the 2013 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 232-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30883	5-13-2013
Storm Rain Event	BMP-33151	7-10-2013
Storm Rain Event	BMP-33434	7-16-2013
Storm Rain Event	BMP-34199	8-8-2013
Storm Rain Event	BMP-35650	9-23-2013
Annual Erosion Evaluation	COMP-36822	10-29-2013
TAL Exceedance	COMP-37086	10-29-2013

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

Table 232-3 Maintenance during 2013

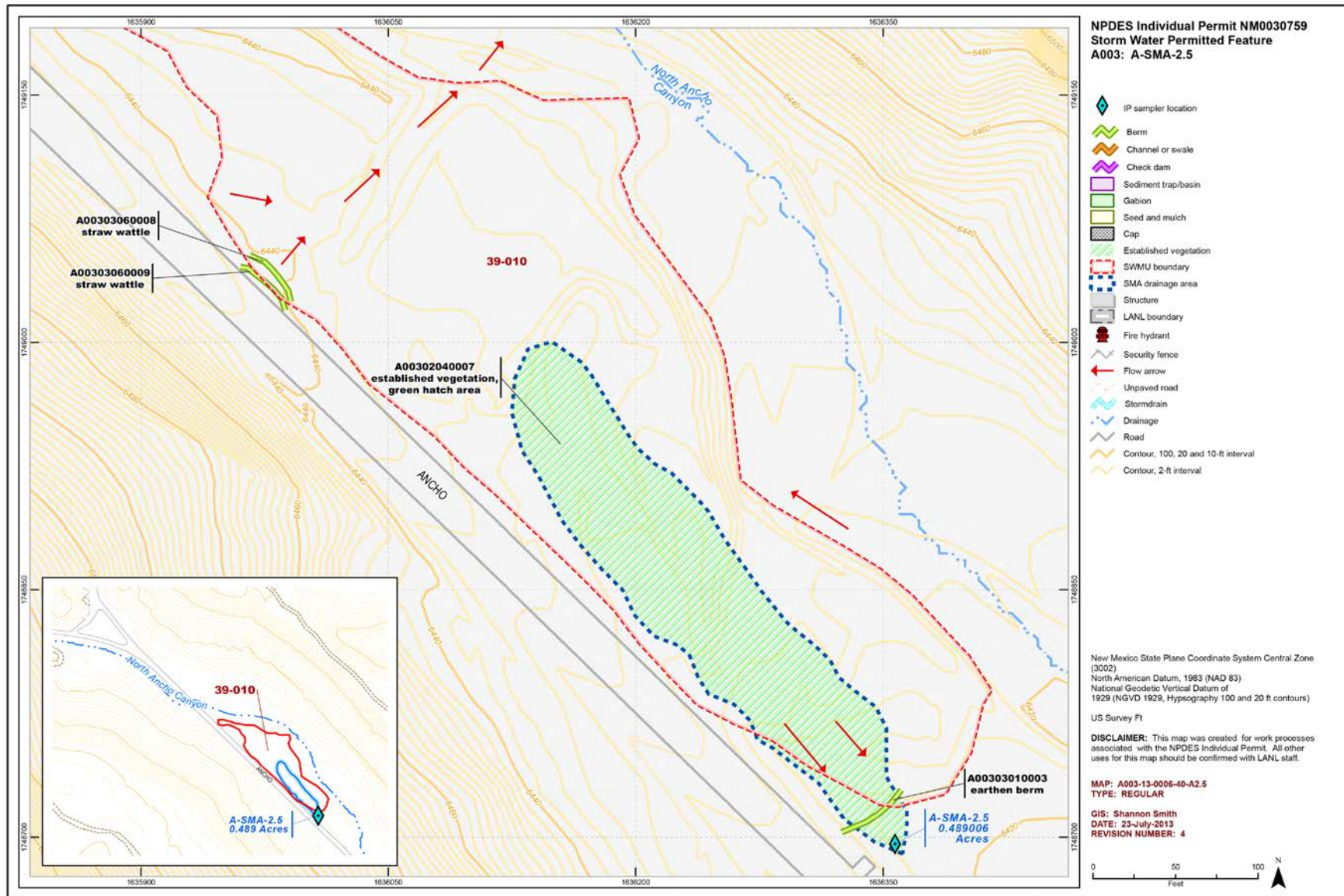
Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-32157	Install new straw wattle(s) directly above wattle -0006 (wattles may be touching). Wattle -0006 will be retired when work is completed.	7-19-2013	67 day(s)	Maintenance conducted as soon as practicable.
BMP-33107	Install new straw wattle above existing wattle -0005. Wattle -0005 will be retired when work is completed.	7-19-2013	67 day(s)	Maintenance conducted as soon as practicable.
BMP-34830	Repair berm A00303010003 by reapplying seed and matting over berm.	8-16-2013	8 day(s)	Maintenance conducted in timely manner.

232.5 Compliance Status

The Site associated with A-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 232-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 39-010	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



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

233.1 Site Descriptions

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

AOC 39-002(c) is the location of a former outdoor SAA on an asphalt-paved area next to the southwest corner of the gas-gun support structure (39-0056). Waste paper, solvent-contaminated rags (ethanol, acetone, and trichloroethane), and vacuum grease were stored at this SAA. It is not known if this area was used for storage before being placed in service as an SAA. This SAA was removed from service in February 1994.

The Consent Order investigation of AOC 39-002(c) is complete. The approved Investigation Report for North Ancho Canyon Aggregate Area, Revision 1, concluded that the nature and extent for all detected inorganic and organic contaminants are defined at AOC 39-002(c); no radiological COPCs were detected at the Site. The Site meets residential risk levels; therefore, no further investigation or corrective action is required. NMED issued a COC without controls for AOC 39-002(c) in April 2010.

SWMU 39-008 is an area of potential soil contamination from an active gas-gun firing site.

Building 39-0137 houses a single-stage gas gun that is used to fire DU projectiles at targets on a cliff face. Testing at this Site was conducted from 1960 to 1975, suspended for 13 yr, and then resumed in 1988. Most of the debris from the site activities is scattered over the area just west of building 39-0137, but occasionally projectiles and target fragments hit the cliff face, which is located approximately 200 ft west of another building associated with this experimental gun (building 39-0056). SWMU 39-008 is impacted by continuing Site operations; therefore, further investigation of the Site under the Consent Order is delayed until operations at the Site cease.

RFI and Consent Order samples were collected at the Site to determine the potential contaminants being released at the Site and whether these contaminants are migrating off the Site. The approved Investigation Report for North Ancho Canyon Aggregate Area, Revision 1, concluded that all detected inorganic and radionuclide contaminants from this Site are at or below BVs and/or FVs, and organic COPCs were detected at or below the EQLs in the drainage downstream of the Site and that contaminants are not migrating off-site; therefore, no immediate corrective action is required.

The project map (Figure 233-1) 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>.

233.2 Control Measures

There are no significant run-on sources at this SMA. All active control measures are listed in Table 233-1, and their locations are shown on the project map (Figure 233-1). Enhanced controls were installed and certified on August 23, 2012, and submitted to EPA on September 20, 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 233-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00402040017	Established Vegetation		X	X		B
A00403010013	Earthen Berm		X		X	EC
A00403010014	Earthen Berm		X		X	EC
A00403010015	Earthen Berm		X		X	EC
A00403010016	Earthen Berm		X		X	EC

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

233.3 Storm Water Monitoring

AOC 39-002(c) and SWMU 39-008 are monitored within A-SMA-2.7. Following the installation of baseline control measures, baseline confirmation samples were collected on July 24, 2011, and September 4, 2011 (Figures 233-2 and 233-3). Inorganic analytical results from the two samples yielded the same two TAL exceedances:

- Copper concentrations of 5.4 and 6.2 µg/L (MTAL is 4.3 µg/L) and
- Gross-alpha activities of 25.4 pCi/L and 31.8 pCi/L (ATAL is 15 pCi/L)

Following the installation of enhanced control measures at A-SMA-2.7, a corrective action storm water sample was collected on September 13, 2013 (Figures 233-2 and 233-3). Analytical results from this corrective action monitoring sample yielded one TAL exceedance:

- Gross-alpha activity of 175 pCi/L (ATAL is 15 pCi/L).

Corrective action has resulted in a decrease in copper concentrations detected in storm water samples collected at A-SMA-2.7.

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 39-002(c):

- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at AOC 39-002(c). Consent Order samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

SWMU 39-008:

- Alpha-emitting radionuclides are known to be associated with industrial materials historically managed at SWMU 39-008. RFI and Consent Order samples were not analyzed for gross-alpha radioactivity but were analyzed for americium-241, plutonium, thorium, and uranium isotopes, which are alpha-emitting radionuclides, and total uranium, which has alpha-emitting isotopes. Any alpha-emitting radionuclides associated with the Site are exempt from regulation under the

CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

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 233-2. 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 233-2.

Most of the A-SMA-2.7 drainage area is located on Bandelier Tuff, and there is minimal run-on from developed facilities (e.g., buildings, parking lots, and pavement); therefore, the Bandelier Tuff background UTL was compared with gross-alpha storm water exceedances.

- **Gross alpha**—The gross alpha is associated with naturally occurring radioactive uranium- and thorium-bearing minerals in Bandelier Tuff. The gross-alpha UTL for storm water containing sediments derived from Bandelier Tuff is 1490 pCi/L; the results from 2011 confirmation samples are below this value. The gross-alpha geometric mean of 28.4 pCi/L is approximately 50 times lower than the background storm water UTL.

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

233.4 Inspections and Maintenance

RG265 recorded eight storm events at A-SMA-2.7 during the 2013 season. These rain events triggered four post-storm inspections. Post-storm inspections and all other inspection activity conducted at the SMA are summarized in Table 233-2.

Table 233-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30884	5-13-2013
Storm Rain Event	BMP-33152	7-10-2013
Storm Rain Event	BMP-33435	7-16-2013
Storm Rain Event	BMP-34200	8-8-2013
Storm Rain Event	BMP-35651	9-23-2013
Annual Erosion Evaluation	COMP-36823	10-29-2013

Maintenance activities conducted at the SMA are summarized in Table 233-3.

Table 233-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-34803	Modify spillway on berm A00403010016 by lowering the spillway rock height. Move some of the spillway rock to the far edges of spillway. This work does not involve equipment.	8-15-2013	7 day(s)	Maintenance conducted in timely manner.
BMP-36568	Rake out rills and gullies around berms -0015 and -0016. Apply seed and mulch over same area.	11-9-2013	47 day(s)	Maintenance conducted as soon as practicable.

233.5 Compliance Status

The Sites associated with A-SMA-2.7 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 233-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
AOC 39-002(c)	Corrective Action Complete	Corrective Action Complete	NMED, April 6, 2010, "Approval, Request for Certificates of Completion for Two Solid Waste Management Units and Five Areas of Concern in the North Ancho Canyon Aggregate Area"
SWMU 39-008	Enhanced Control Corrective Action Monitoring	Enhanced Control Corrective Action Monitoring	Initiated on August 23, 2012

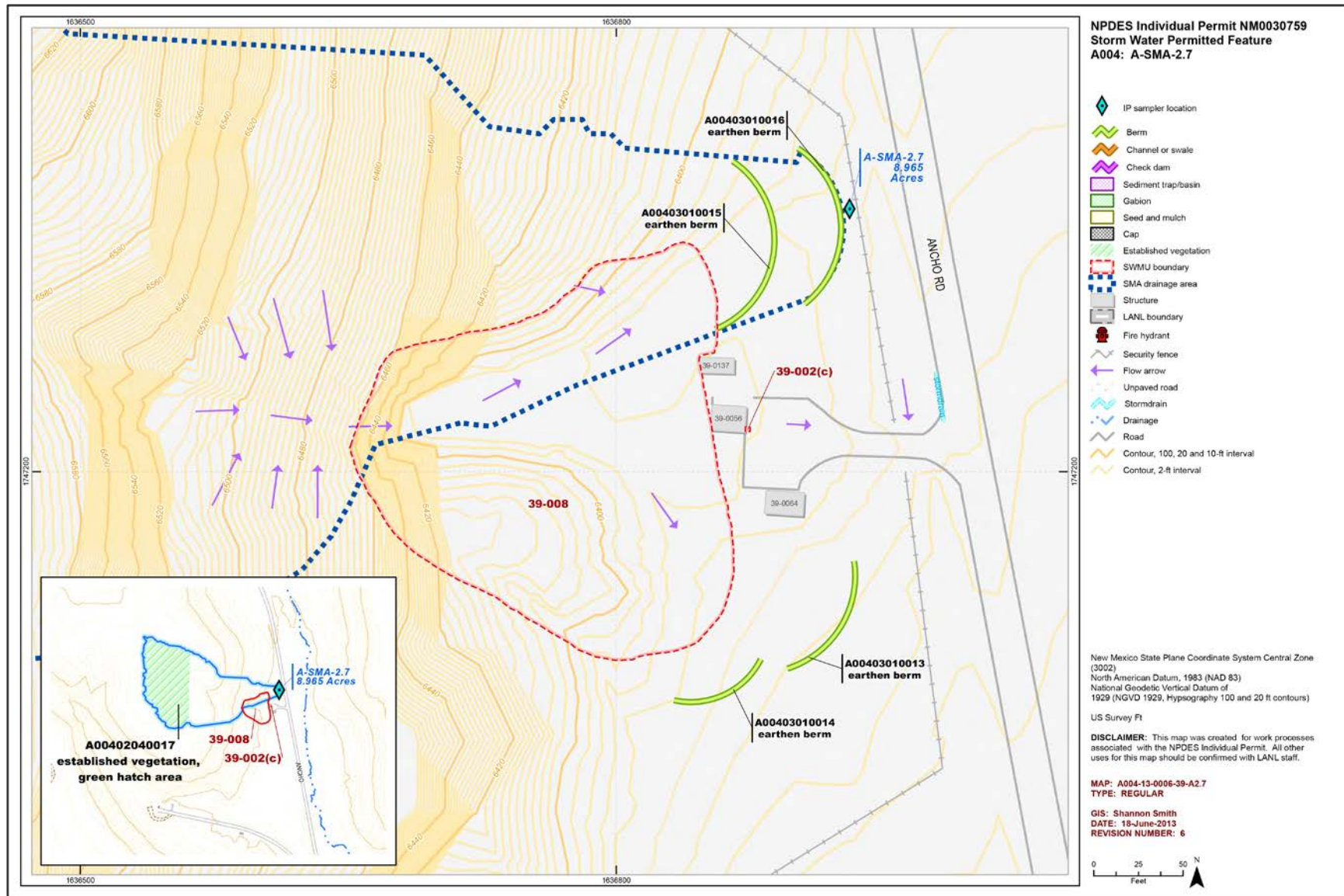


Figure 233-1 A-SMA-2.7 location map

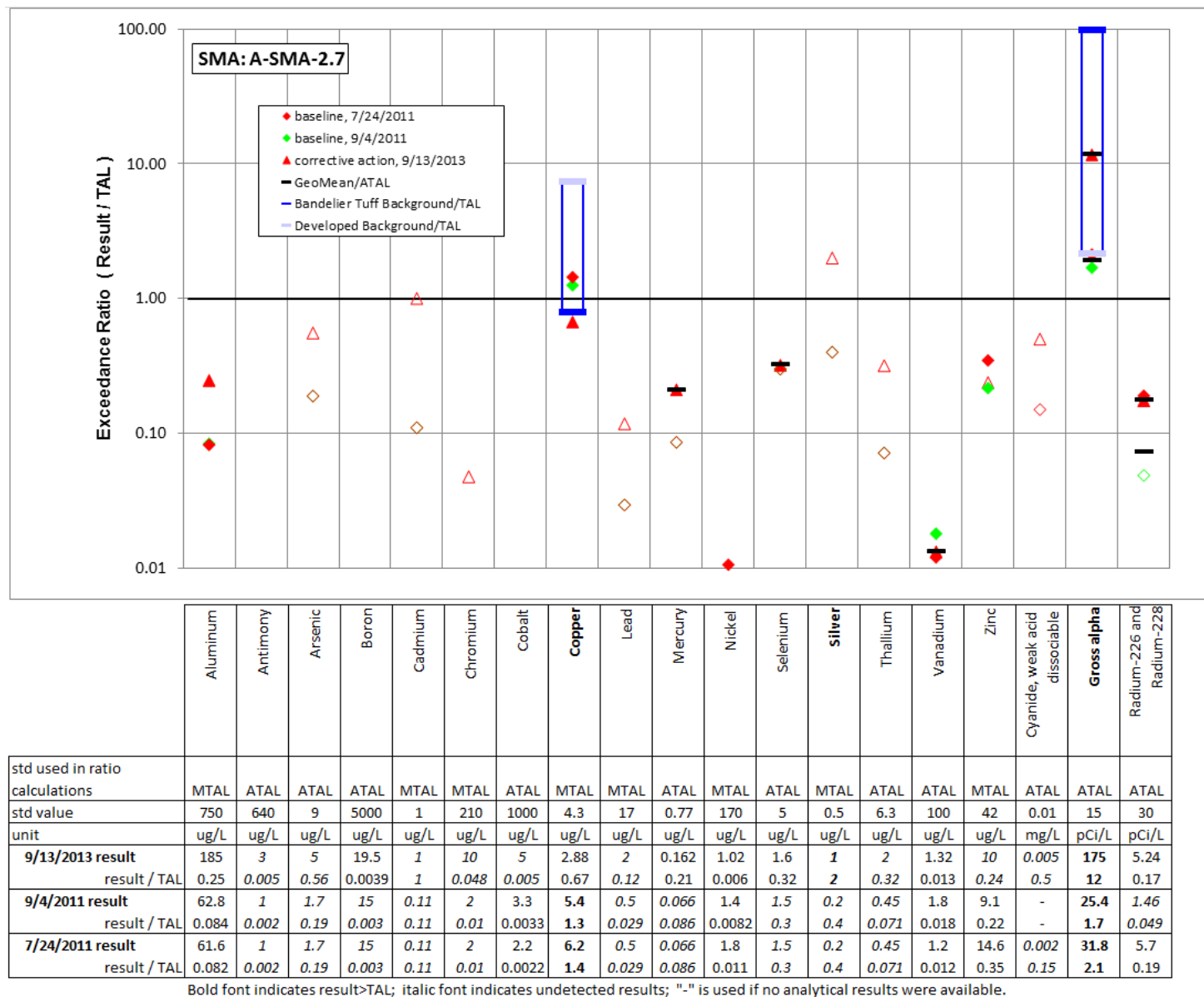


Figure 233-2 Inorganic analytical results summary plot for A-SMA-2.7

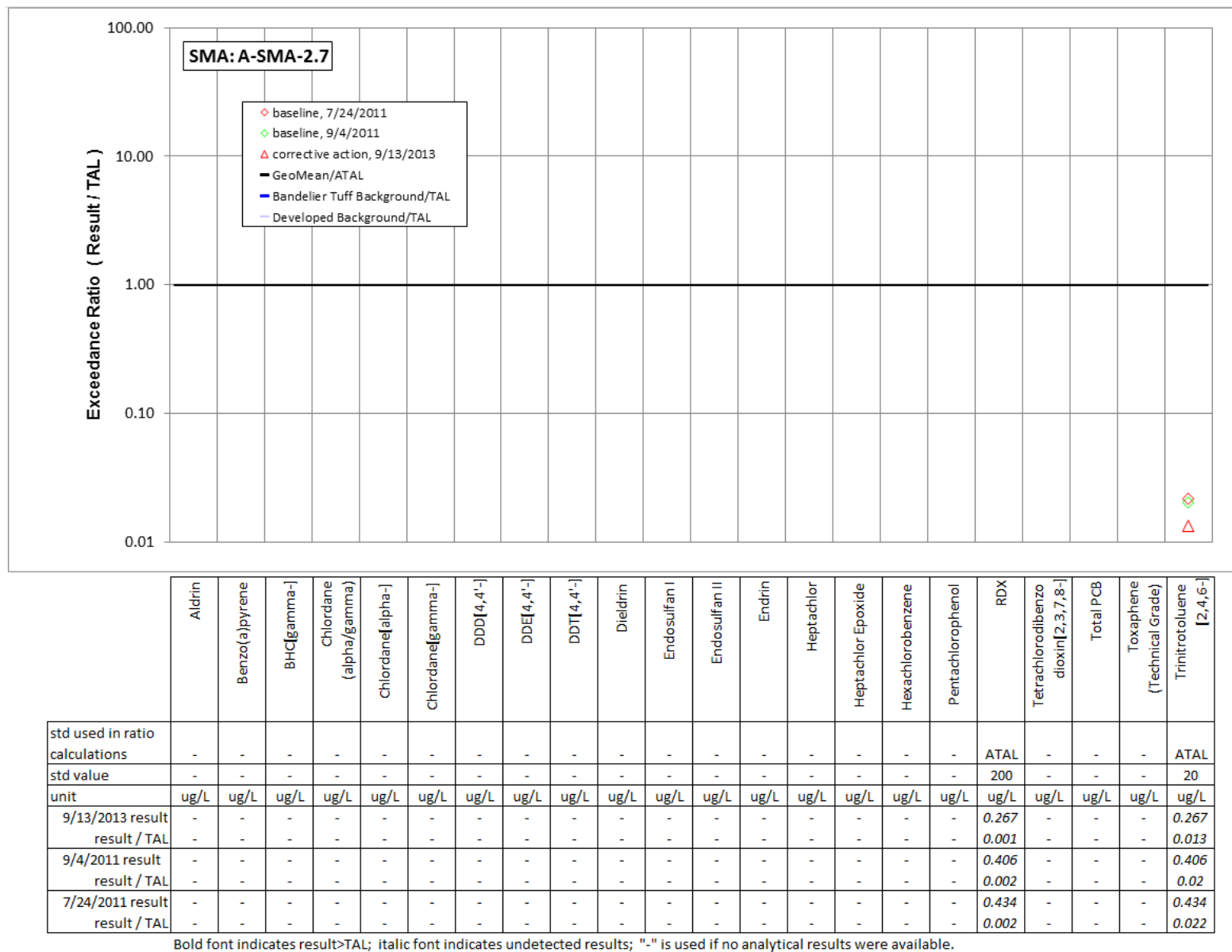


Figure 233-3 Organic analytical results summary plot for A-SMA-2.7

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

234.1 Site Descriptions

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

SWMU 39-001(b), also known as MDA Y, consists of three former disposal trenches used to dispose of debris from firing site SWMU 39-008 as well as empty chemical containers and office waste. During the 2009 Consent Order investigation, all wastes at SWMU 39-001(b) were excavated, removed, and disposed of off-site. The final excavation of SWMU 39-001(b) at its maximum dimensions measured 349 × 98 × 16 ft deep, with an average depth of 8.1 ft. SWMU 39-001(b) was backfilled with overburden material and clean fill after confirmatory sampling results determined that concentrations of COPCs at the base and walls of the excavation were below industrial SSLs and SALs.

Consent Order investigation and remediation are complete for SWMU 39-001(b); the Site meets residential risk level. NMED issued a COC without controls for the Site in April 2010.

The project map (Figure 234-1) 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>.

234.2 Control Measures

There are no significant run-on sources to this SMA. Storm water run-on from adjacent paved areas is diverted by engineered controls away from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 234-1).

Table 234-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00501010004	Seed and Wood Mulch			X		B
A00503010002	Earthen Berm		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.



234.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at A-SMA-2.8. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

234.4 Inspections and Maintenance

RG265 recorded eight storm events at A-SMA-2.8 during the 2013 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 234-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30885	5-13-2013
Storm Rain Event	BMP-33153	7-10-2013
Storm Rain Event	BMP-33436	7-16-2013
Storm Rain Event	BMP-34201	8-8-2013
Storm Rain Event	BMP-35652	9-23-2013
Annual Erosion Evaluation	COMP-36824	10-29-2013

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

Table 234-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37241	Repair earthen berm A00503010002 by removing matting from areas damaged by rodents. Add clean fill to damaged areas and compact. Contour new spillway. Contact B. Schilling for location. Apply non-woven geotextile fabric to spillway. Add angular rock to spillway. Apply seed and mulch to any area disturbed by maintenance activities.	12-4-2013	36 day(s)	Maintenance conducted as soon as practicable.

234.5 Compliance Status

The Site associated with A-SMA-2.8 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 234-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 39-001(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	NMED, April 6, 2010, "Approval Request for Certificates of Completion for Two Solid Waste Management Units and Five Areas of Concern in the North Ancho Canyon Aggregate Area"

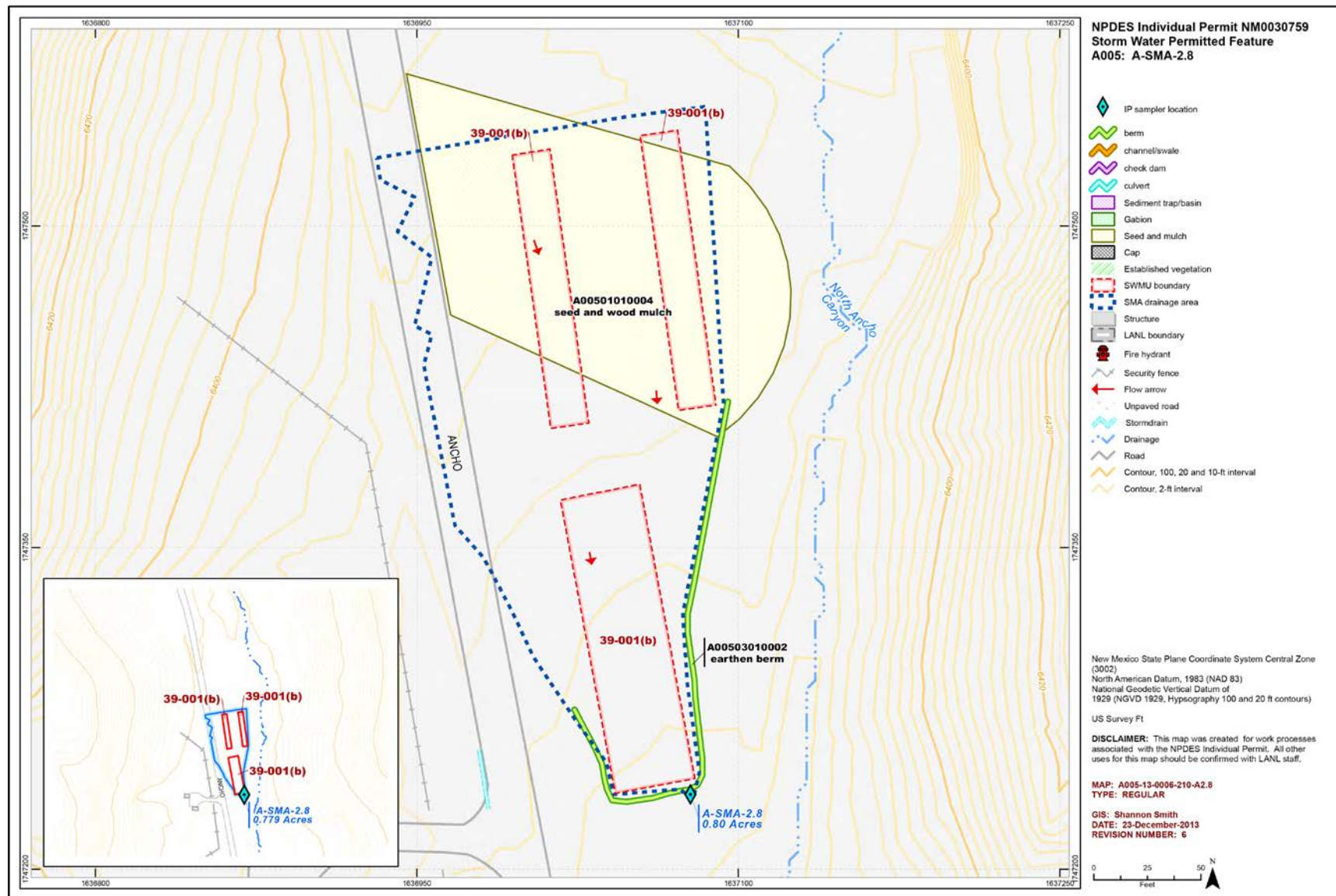


Figure 234-1 A-SMA-2.8 location map

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

235.1 Site Descriptions

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

AOC 39-002(b) is an active SAA located on a 5- × 5-ft concrete pad next to a firing site support building (structure 39-06) and an active firing site [SWMU 39-004(c)]. AOC 39-002(b) was also used for storage before it became an SAA. AOC 39-002(b) was used to store small quantities of paper contaminated with waste solvents (ethanol, acetone, trichloroethane, copper sulfate); transformer oil; vacuum grease; and Polaroid photographic wastes. There is no evidence, visible or documentary, of spills or leaks at this Site. However, this AOC is within the blast radius of a firing site.

No Consent Order or other investigations have been conducted at AOC 39-002(b).

SWMU 39-004(c) is an active firing site and active operating RCRA OD Site (structure 39-06) subject to RCRA closure requirements. The Site is located in the southernmost western tributary of Ancho Canyon in the canyon bottom between an ephemeral stream and steep hill slopes to both the north and south. The Site is used for explosives experiments and for treating reactive hazardous waste by OD. The experiments conducted at this firing site are designed to expend all HE in the device. Use of this Site as a test firing site began when TA-39 was established in 1953. Materials used in significant quantities at the TA-39 firing sites over the years include beryllium, mercury, natural and DU, lead, aluminum, copper, brass, iron, stainless steel, and various types of HE. Other materials used at TA-39 firing sites include thallium, cadmium, chromium, and thorium (the latter was naturally occurring thorium-232). In addition, firing assemblies were covered with dielectric oil (about 100 gal. per shot), much of which ended up in the soil of the firing pad. This oil may have contained PCBs.

The project map (Figure 235-1) 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>.

235.2 Control Measures

The primary source of run-on to this SMA is from overland flow originating in the natural areas around it. Any run-on primarily enters the Permitted Feature from the south, flowing generally north until it reaches a natural drainage channel, then flowing east. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 235-1).

Table 235-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00602040018	Established Vegetation		X	X		B
A00603120017	Rock Berm	X			X	B
A00604060002	Rip Rap	X		X		CB
A00606010003	Rock Check Dam		X		X	CB
A00606010009	Rock Check Dam		X		X	CB
A00606010010	Rock Check Dam				X	CB
A00606010011	Rock Check Dam				X	CB
A00606010014	Rock Check Dam		X		X	B
A00606010019	Rock Check Dam	X			X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls installation and certification are being planned for the end of 2014 or early in 2015 as part of corrective action.

235.3 Storm Water Monitoring

AOC 39-002(b) and SWMU 39-004(c) are monitored within A-SMA-3. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figures 235-2 and 235-3). Analytical results from this sample yielded six TAL exceedances:

- Aluminum concentration of 997 µg/L (MTAL is 750 µg/L),
- Copper concentrations of 245 µg/L (MTAL is 4.3 µg/L),
- Mercury concentration of 9.04 µg/L (ATAL is 0.77 µg/L),
- Selenium concentration of 12.1 µg/L (ATAL is 5 µg/L),
- Gross-alpha activity of 136 pCi/L (ATAL is 15 pCi/L), and
- PCB concentration of 3060 ng/L (ATAL is 0.6 ng/L).

AOC 39-002(b):

- Aluminum is not known to be associated with industrial materials historically managed at this Site.
- Copper is known to be associated with industrial materials historically managed at this Site.
- Mercury is not known to be associated with industrial materials historically managed at this Site.
- Selenium is not known to be associated with industrial materials historically managed at this Site.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at this Site.
- PCBs are known to be associated with industrial materials historically managed at this Site.

SWMU 39-004(c):

- Aluminum is known to be associated with industrial materials historically managed at the Site. Aluminum, however, was not detected above BV in 45 shallow (i.e., less than 3 ft bgs) soil samples collected during the 2009 Consent Order investigation and 1995 RFI.
- Copper is known to be associated with industrial materials historically managed at the Site. Copper was detected above BV in shallow Consent Order and RFI soil samples. Copper was detected above the soil BV in 15 of 45 shallow samples with a maximum concentration 180 times the soil BV.
- Mercury is known to be associated with industrial materials historically managed at the Site. Mercury was only detected above the soil BV in 2 of 45 shallow samples with a maximum concentration 85 times the soil BV.
- Selenium is not known to be associated with industrial materials historically managed at the Site. Selenium was not detected above BV in 45 shallow Consent Order and RFI soil samples.
- PCBs are known to have been associated with industrial materials historically managed at this Site. Three PCB mixtures (Aroclor-1248, Aroclor-1254, and Aroclor-1260) were detected in shallow Consent Order samples. Aroclor-1248 was detected in 3 of 4 shallow samples with a maximum concentration 30 times the residential SSL. Aroclor-1254 was detected in 1 of 4 shallow samples with a maximum concentration 52% of the residential SSL. Aroclor-1260 was detected in 2 of 4 shallow samples with a maximum concentration 3.1 times the residential SSL.
- Thorium and uranium are known to have been associated with industrial materials historically managed at this Site. Consent Order and RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for plutonium, thorium, and uranium isotopes, which are alpha-emitting, and total uranium, which has alpha-emitting isotopes. These radionuclides are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross alpha radioactivity detected in the IP sample they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

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 235-2 and 235-3. 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 235-2 and 235-3.

Most of the A-SMA-3 drainage area is located on Bandelier Tuff, and run-on from developed facilities (e.g., buildings, parking lots, and pavement) is minimal; therefore, the Bandelier Tuff background UTL was compared with aluminum, copper, PCBs and gross-alpha storm water exceedances.

- Aluminum—Aluminum is a major component of Bandelier Tuff. The aluminum UTL for storm water containing sediments derived from Bandelier Tuff is 2210 µg/L; the result from 2013 is less than this value.
- Copper—Copper is associated with trace minerals in Bandelier Tuff. The copper UTL for storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L. The copper result from the storm water confirmation sample in 2013 is above this value.

- **PCBs**—PCBs are associated with building materials including paint, caulking, asphalt, solvents, transformers, and cutting oils. The baseline PCB UTL for storm water containing sediments derived from Bandelier Tuff is 11.7 ng/L. The ATAL exceedance in the storm water confirmation sample in 2013 is greater than the storm water baseline UTL.
- **Gross alpha**—The gross alpha is associated with naturally occurring radioactive uranium- and thorium-bearing minerals in Bandelier Tuff. The gross-alpha UTL for storm water containing sediments derived from Bandelier Tuff is 1490 pCi/L; the results from 2013 confirmation samples are below this value. The gross-alpha geometric mean of 136 pCi/L is approximately 11 times lower than the background storm water UTL.

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

235.4 Inspections and Maintenance

RG265 recorded eight storm events at A-SMA-3 during the 2013 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 235-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30886	5-13-2013
Storm Rain Event	BMP-33154	7-10-2013
Storm Rain Event	BMP-33437	7-16-2013
Storm Rain Event	BMP-34202	8-8-2013
Storm Rain Event	BMP-35653	9-23-2013
Annual Erosion Evaluation	COMP-36825	10-29-2013
TAL Exceedance	COMP-35283	9-9-2013

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

Table 235-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-34805	Install large rock berm with spillway below (down gradient) of existing rock check dam A00606010014. Install large rock berm with spillway below (down gradient) of existing rock check dam A00606010013. Install rock check dam below (down gradient) of existing rock check dam A00606010012. Install rock check dam above (up gradient) of existing rock check dam A00606010012. If there is not enough space to install a in this space, attempt to install the rock check dam above (up gradient) of existing rock check dam A00606010011.	12-2-2013	116 day(s)	Maintenance conducted as soon as practicable.
BMP-34806	Rock Check Dam [A00606010009] Modify rock check dam by adding rock to build up and extend both sides. Rock Check Dam [A00606010010] Modify rock check dam by adding rock to build up and extend both sides. Rock Check Dam [A00606010011] Rock Check Dam [A00606010013] Modify rock check dam by adding rock to build up and extend both sides. Rock Check Dam [A00606010014] Modify rock check dam by adding rock to build up and extend both sides. Rip Rap [A00604060002] Repair rip rap entrance by removing rock. Widen the rip rap area entrance. Reline the rip rap entrance filter fabric and new angular rock ensuring the center of rip rap area remains lower that the edges. Build up entrance to rip rap to ensure firing pad runoff is directed to rip rap.	12-2-2013	116 day(s)	Maintenance conducted as soon as practicable.

235.5 Compliance Status

The Sites associated with A-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 235-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
AOC 39-002(b)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 39-004(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13

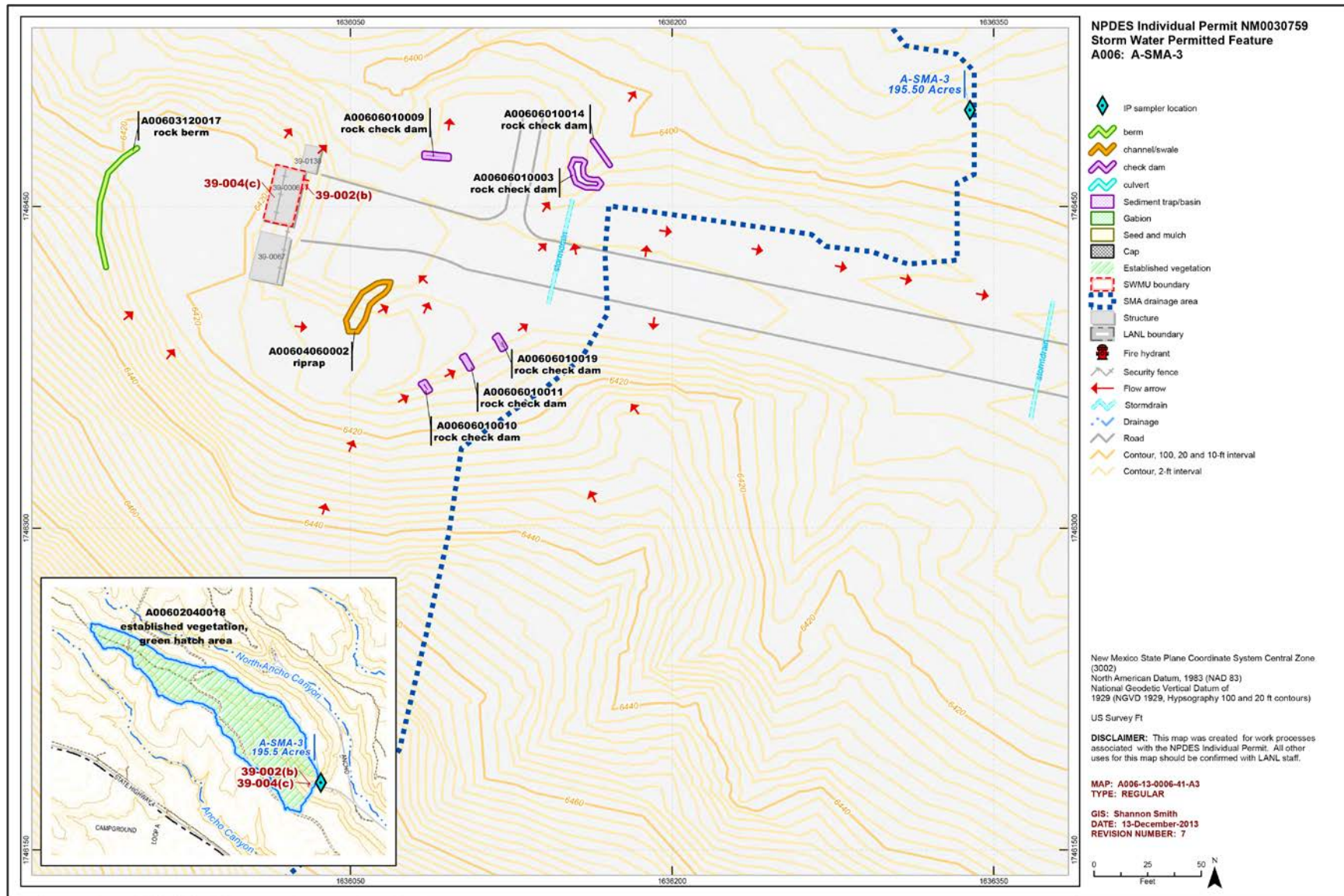


Figure 235-1 A-SMA-3 location map

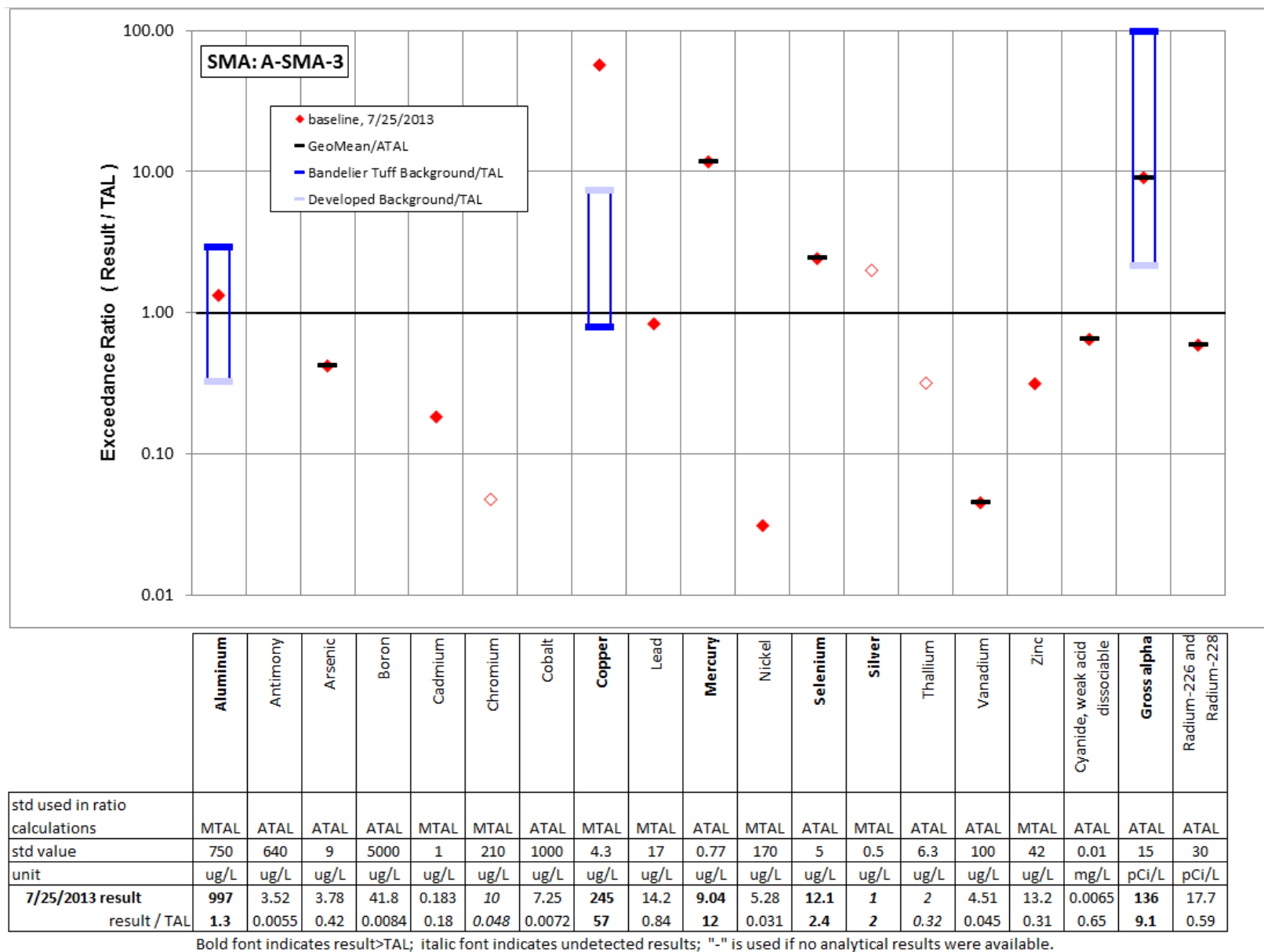


Figure 235-2 Inorganic analytical results summary plot for A-SMA-3

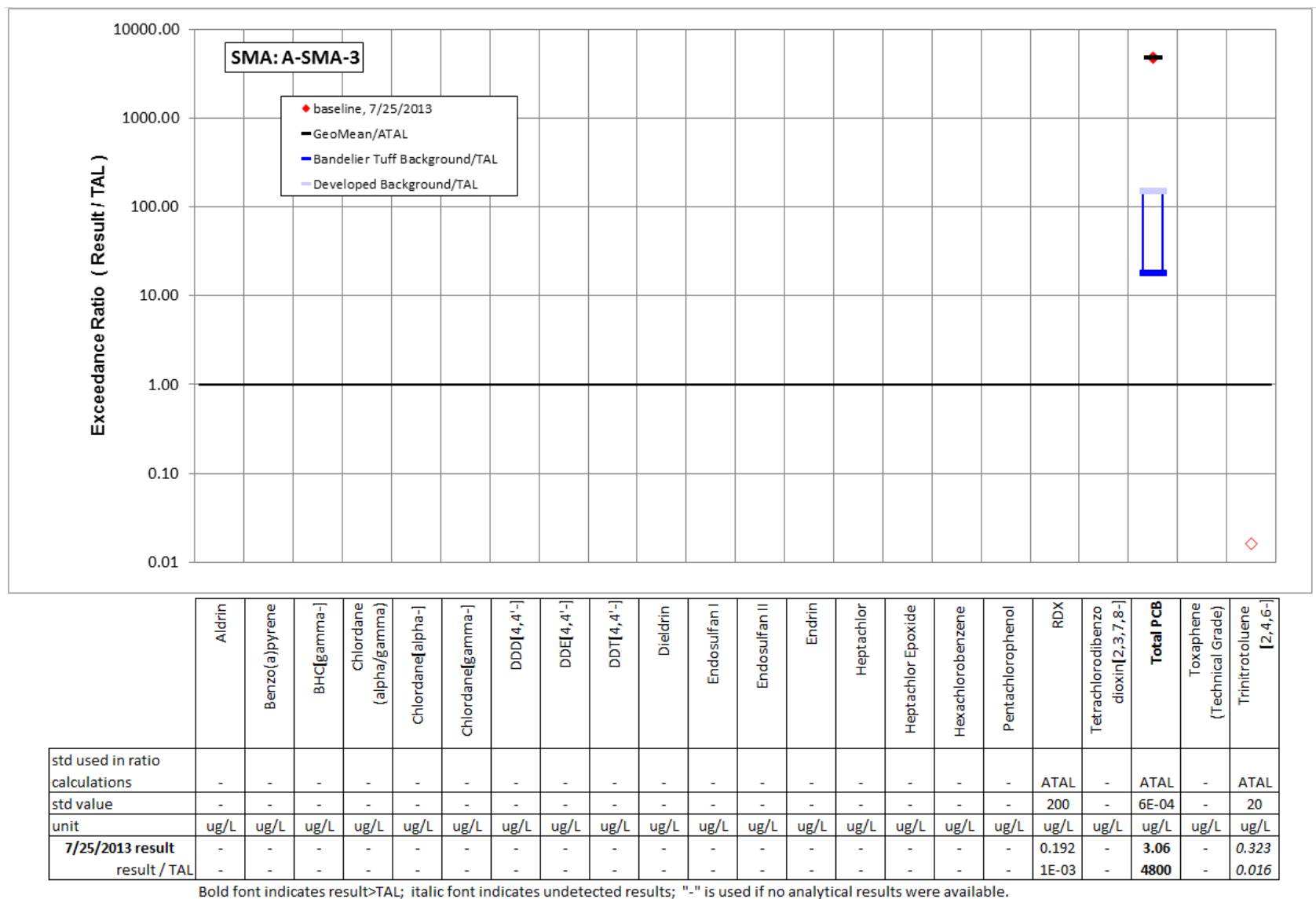


Figure 235-3 Organic analytical results summary plot for A-SMA-3

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

236.1 Site Descriptions

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

SWMU 39-006(a) consists of a septic system with inactive and active components located east and south of building 39-2 at TA-39. The inactive portion of the septic system was constructed in 1953 and received discharges from building 39-2. The inactive portion of the septic system included an 1800-gal. septic tank (former structure 39-12), sections of drainlines, a subsurface sand filter, a chemical seepage pit, and an outfall. The septic tank was located 100 ft east of building 39-2 and was connected to a sand filter north of NM 4. The sand filter discharged to an outfall south of NM 4 in North Ancho Canyon. In 1973, the septic tank was enlarged, a new subsurface sand filter was installed on the south side of NM 4, and use of the old sand filter was discontinued. Septic tank 39-104, the new sand filter south of NM 4, and the still-active drainlines are part of the SWMU 39-006(a) active components. In 1989, the outlet from the new sand filter was plugged, eliminating the discharge to the outfall. Photographic-processing chemicals from building 39-2 were routinely discharged to former septic tank 39-12, eventually causing the septic tank to malfunction. To correct the problem, a seepage pit was installed in 1973 directly north of former septic tank 39-12 to manage the photographic-processing chemicals. The seepage pit handled approximately 75 gal./yr until 1992. The chemical seepage pit consisted of an open pit approximately 12 ft deep and filled with cobble. A CMP approximately 1 ft in diameter runs vertically through the center of the seepage pit. The inactive septic tank (former structure 39-12), inactive chemical seepage pit, and the original sand filter were removed during 2009 field activities.

Consent Order sampling data for the inactive components of SWMU 39-006(a) indicate the Site meets residential risk levels. During the 2009 Consent Order investigation, only the outfall drainage of the active components of SWMU 39-006(a) was sampled to provide initial characterization data. Samples were not collected from the active septic tank and the active sand filter because sampling would disrupt the lines of an active septic system currently in use. All detected inorganic and organic chemical concentrations were below residential SSLs; no radionuclides were detected. Because preliminary investigation results demonstrate that current activities are not contributing to off-site migration, further investigation of the active components of SWMU 39-006(a) is delayed until operations at the Site cease.

The project map (Figure 236-1) 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>.

236.2 Control Measures

There are no significant run-on sources to this SMA. The associated Site is an active septic system serving TA-39. The discharge area associated with this system is located in a remote and rugged area. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 236-1).

Table 236-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00702040003	Established Vegetation		X	X		B
A00703060002	Straw Wattles		X		X	CB
A00703060004	Straw Wattles	X			X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

236.3 Storm Water Monitoring

SWMU 39-006(a) is monitored within A-SMA-3.5. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figures 236-2 and 236-3). Analytical results from this sample yielded no TAL exceedances. Baseline confirmation is complete for A-SMA-3.5 and the associated SWMU 39-006(a) because all applicable sampling results are below the applicable MTAL or ATAL. No further sampling is required for A-SMA-3.5 for the remaining period of the IP.

236.4 Inspections and Maintenance

RG340 recorded nine storm events at A-SMA-3.5 during the 2013 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 236-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30887	5-13-2013
Storm Rain Event	BMP-33155	7-9-2013
Storm Rain Event	BMP-33471	7-24-2013
Storm Rain Event	BMP-34208	8-7-2013
Storm Rain Event	BMP-35214	9-17-2013
Storm Rain Event	BMP-36306	10-24-2013
Annual Erosion Evaluation	COMP-36826	10-24-2013

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

Table 236-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37006	Install new straw wattles at the location marked in field with green pin flags	11-12-2013	19 day(s)	Maintenance conducted in timely manner.

236.5 Compliance Status

The Site associated with A-SMA-3.5 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 236-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 39-006(a)	Baseline Monitoring Extended	Baseline Confirmation Complete	No Comment

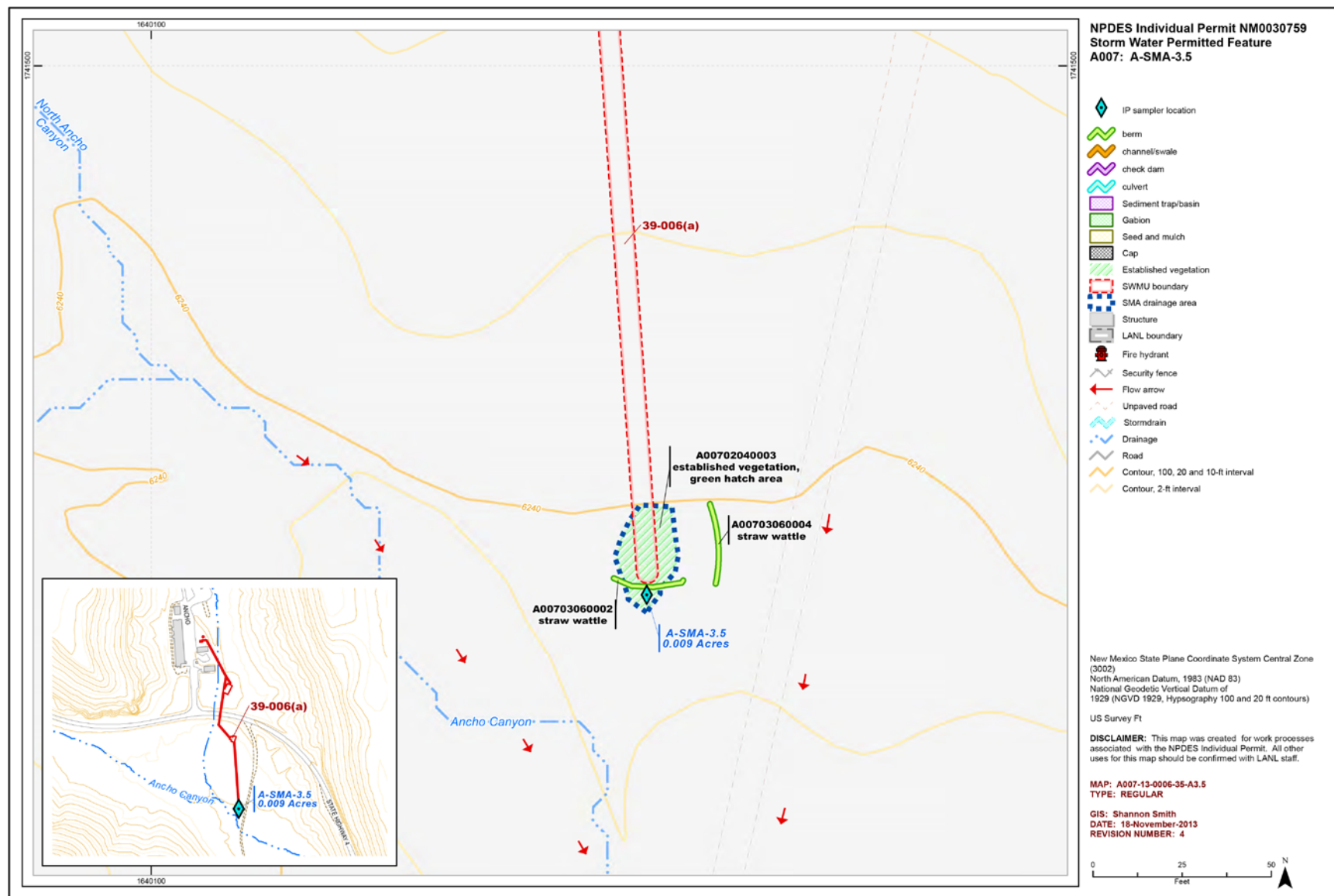


Figure 236-1 A-SMA-3.5 location map

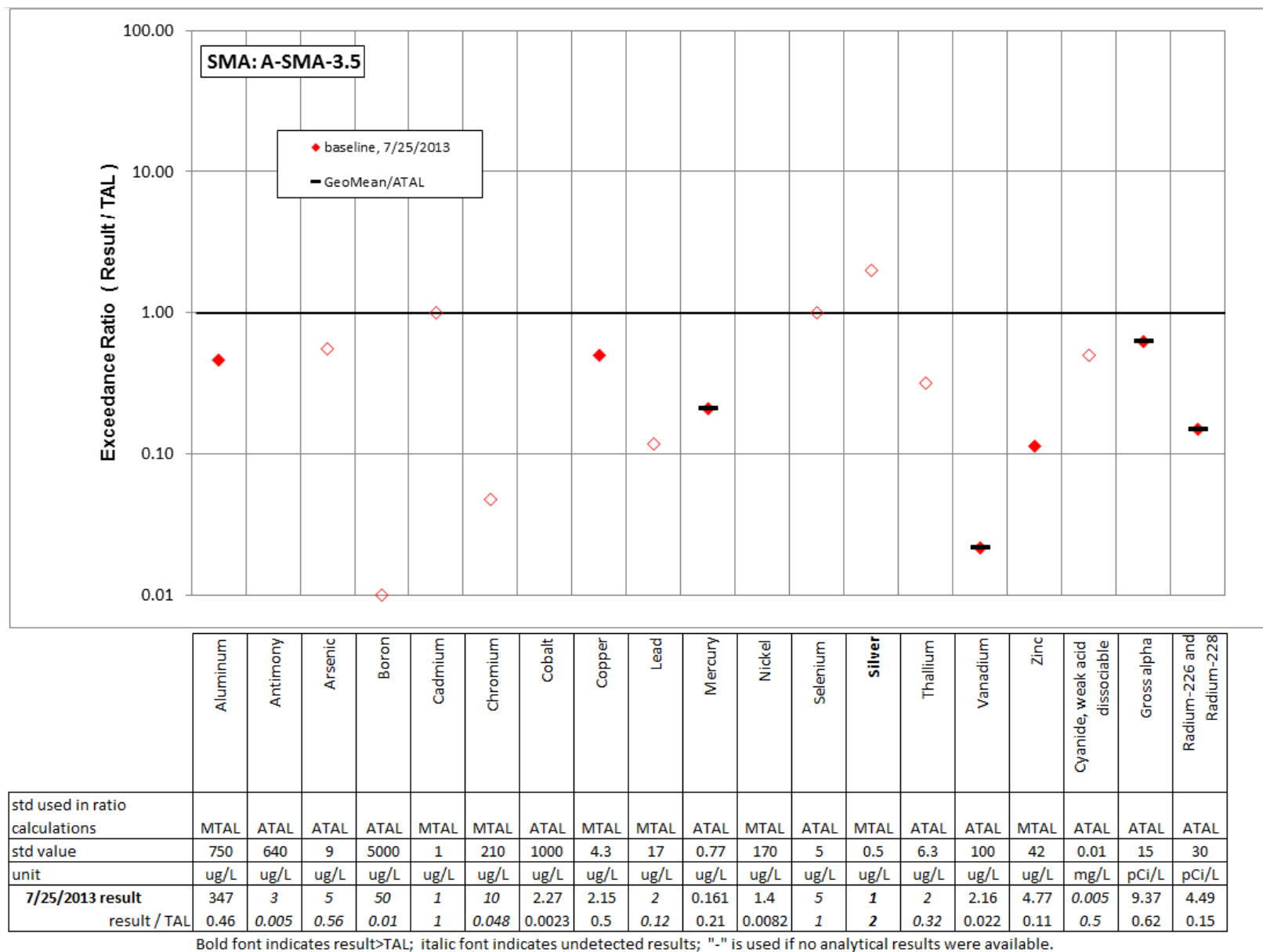


Figure 236-2 Inorganic analytical results summary plot for A-SMA-3.5

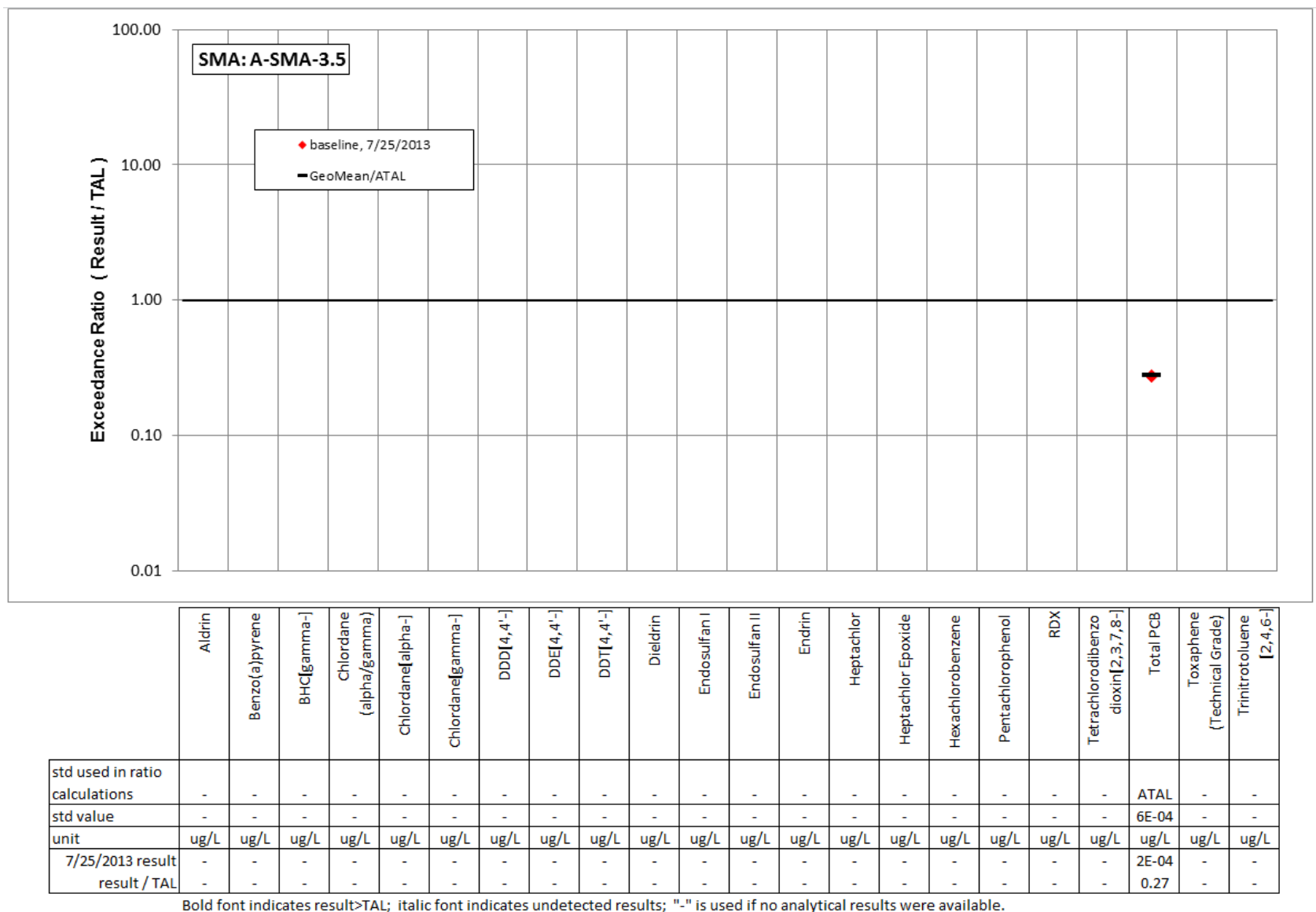


Figure 236-3 Organic analytical results summary plot for A-SMA-3.5

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

237.1 Site Descriptions

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

SWMU 33-010(d) is a former canyon-side disposal area situated in the northeastern portion of East Site at TA-33 directly north of the former gun firing site berms [SWMU 33-006(b)]. Debris scattered along the canyon rim and in a small drainage leading to Ancho Canyon consisted of concrete blocks, empty glass specimen vials, pieces of foam, cable, and metal cans. The date this debris was deposited at the Site is not known, but operations at East Site occurred between 1948 and 1972. During the 1995 VCA implemented at the Site, 2 yd³ of nonhazardous/nonradioactive debris and 0.1 yd³ of radioactive debris were removed from Site.

SWMU 33-010(d) is included in the Consent Order as part of the South Ancho Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for the South Ancho Canyon Aggregate Area is currently due to NMED by June 30, 2014. No decision-level data are available for SWMU 33-010(d).

The project map (Figure 237-1) 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>.

237.2 Control Measures

Run-on enters this Permitted Feature from the paved access road as well as from the natural areas around the SMA. Existing controls are placed to help mitigate run-on from these areas. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 237-1).

Table 237-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00802040010	Established Vegetation		X	X		B
A00803010007	Earthen Berm	X				CB
A00803010009	Earthen Berm		X		X	B
A00806010003	Rock Check Dam	X			X	CB
A00806010004	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

237.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at A-SMA-4. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

237.4 Inspections and Maintenance

RG340 recorded nine storm events at A-SMA-4 during the 2013 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 237-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30888	5-6-2013
Storm Rain Event	BMP-33156	7-9-2013
Storm Rain Event	BMP-33472	7-24-2013
Storm Rain Event	BMP-34209	8-6-2013
Storm Rain Event	BMP-35215	9-17-2013
Storm Rain Event	BMP-36307	10-24-2013
Annual Erosion Evaluation	COMP-36827	10-24-2013

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

Table 237-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-31913	Repair or replace matting on berm A00803010007 by installing new matting on top of existing matting.	7-31-2013	86 day(s)	Maintenance conducted as soon as practicable.
BMP-33874	Repair or replace matting on berm A00803010009 by installing new matting on top of existing matting.	7-31-2013	86 day(s)	Maintenance conducted in timely manner.

237.5 Compliance Status

The Site associated with A-SMA-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 237-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-010(d)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

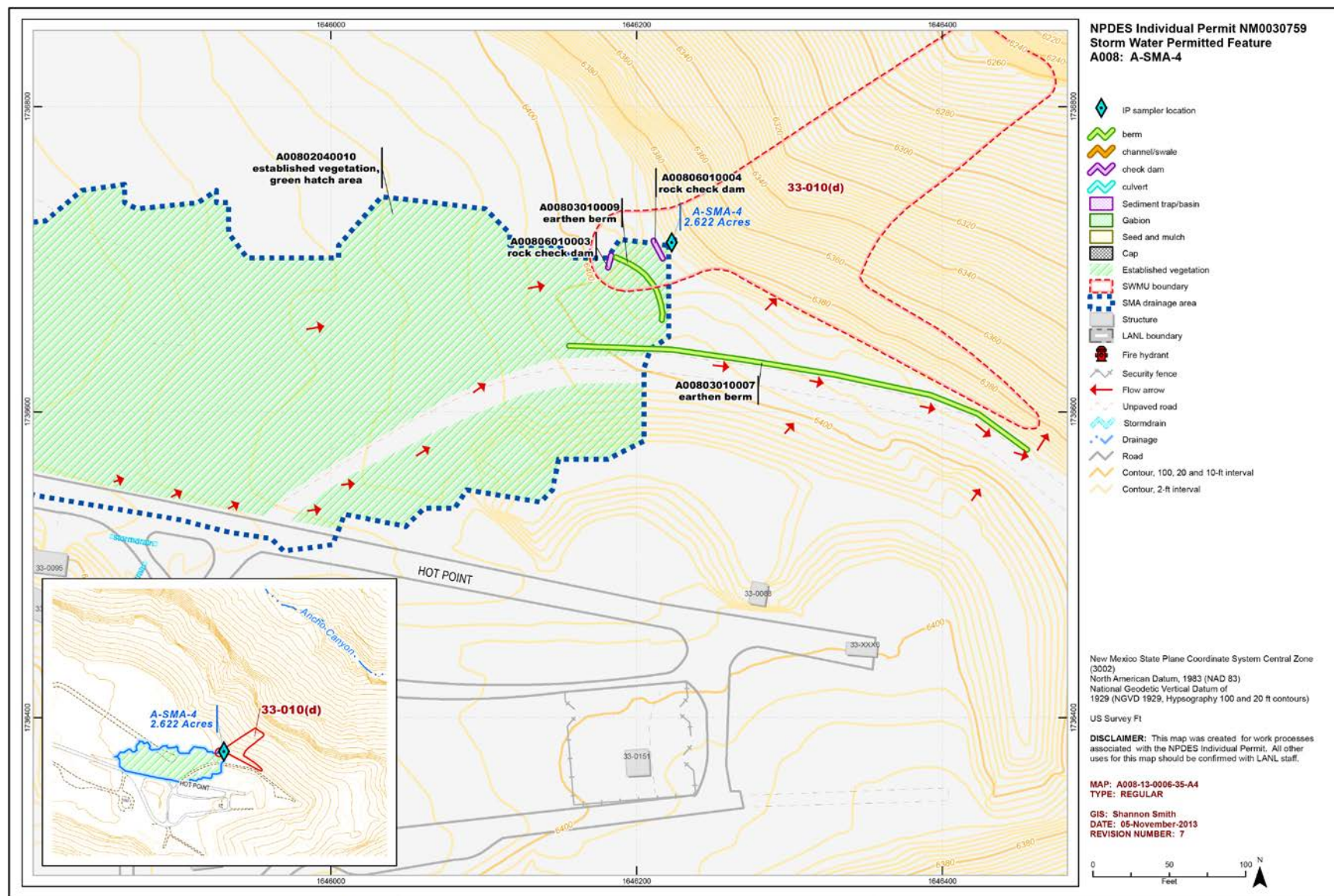


Figure 237-1 A-SMA-4 location map

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

238.1 Site Descriptions

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

SWMU 33-004(k) consists of a suspected outfall from building 33-87 located at East Site at TA-33. Building 33-87 was constructed in 1955 to support firing site experiments at East Site. The firing tests that structure 33-87 supported were conducted until the early 1970s. The outfall reportedly received discharge from a toilet, sink, floor drains, and an electrical water cooler within the building. Structure 33-87 was used to house electronic equipment, and there is no recorded use of radioactive materials in this building. The RFI work plan indicated that photoprocessing may have occurred. Engineering drawing C-3304 shows a cast-iron drainpipe exiting the south wall of the building and extending approximately 125 ft southeast of the building where it terminates at the outfall. The engineering drawing describes the drainline as consisting of 54 ft of 8-in.-diameter cast-iron pipe and 71 ft of 8-in.-diameter VCP. Attempts to locate the drainline and outfall in 1994 and 1995 using geophysics and test trenches were unsuccessful. An inspection of the building performed in 1996 revealed that no floor drains existed in the building. The sink and toilet in the building discharge to septic tank 33-96 [SWMU 33-004(c)], located north of the building. Therefore, the drainline and outfall likely never existed.

SWMU 33-004(k) is included in the Consent Order as part of the South Ancho Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. No decision-level data are available for SWMU 33-004(k).

SWMU 33-007(a) is a gun firing site located at East Site at TA-33. The firing site consists of three gun mounts (structures 33-116, 33-117, and 33-135) and two former catcher boxes (structures 33-118 and 33-136). Firing site activities began in the mid-1950s and included firing projectiles from large cannons into the catcher boxes filled with vermiculite and sand. Other activities included experiments using scintillation fluids and x-rays. Cobalt-60 was used in some of the firing site activities. Firing site activities ceased in 1972. In 1984, the catcher boxes and their contents were removed and disposed of in a landfill [SWMU 33-008(b)] located at East Site. A narrow asphalt road runs the length of the Site, as does an asphalt drainage ditch.

SWMU 33-007(a) is included in the Consent Order as part of the South Ancho Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. No decision-level data are available for SWMU 33-007(a).

SWMU 33-010(a) is a surface disposal area located on a cliff ledge above Ancho Canyon at East Site at TA-33. Much of the debris was associated with the initial clearing of East Site and included dead tree trunks, rocks, and scraped earth. Other debris, such as metal scrap, timber, and plastic foam, is associated with firing site operations conducted from 1955 to 1972. Debris was scattered at the rim of the canyon and within 15 ft below the rim. A VCA performed in 1995 removed 8 yd³ of nonhazardous, nonradioactive debris and 0.2 yd³ of radioactive debris from the surface of the Site. No confirmation samples were collected.

The project map (Figure 238-1) 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>.

238.2 Control Measures

A system of culverts and riprap outlet protection control run-on to this Permitted Feature. The primary source of run-on is from overland flow from the natural areas around the SMA, with some contribution from the paved access roads in the vicinity. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 238-1).

Table 238-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
A00902040023	Established Vegetation		X	X		B
A00903010021	Earthen Berm		X		X	CB
A00904020007	Concrete/Asphalt Channel/Swale		X	X		CB
A00904060005	Rip Rap		X	X		CB
A00906010008	Rock Check Dam		X		X	CB
A00906010009	Rock Check Dam		X		X	CB
A00906010010	Rock Check Dam		X		X	CB
A00906010011	Rock Check Dam		X		X	CB
A00906010012	Rock Check Dam		X		X	CB
A00906010013	Rock Check Dam	X			X	CB
A00906010014	Rock Check Dam		X		X	CB
A00906010015	Rock Check Dam		X		X	CB
A00906010016	Rock Check Dam		X		X	CB
A00906010017	Rock Check Dam		X		X	CB
A00906010018	Rock Check Dam		X		X	CB
A00906010019	Rock Check Dam		X		X	CB
A00906010020	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

238.3 Storm Water Monitoring

SWMUs 33-004(k), 33-007(a), and 33-010(a) are monitored within A-SMA-6. Following the installation of baseline control measures, a baseline storm water sample was collected on August 4, 2013 (Figures 238-2 and 238-3). Analytical results from this sample yielded two TAL exceedances:

- Copper concentrations of 5.86 µg/L (MTAL is 4.3 µg/L), and
- Gross-alpha activity of 29.6 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 33-004(k):

- Copper is not known to be associated with industrial materials historically managed at this Site.
- Gross-alpha radioactivity is not known to be associated with industrial materials historically managed at this Site.

SWMU 33-007(a):

- Copper is not known to have been associated with industrial materials historically managed at this Site. Copper was not detected above BV in 35 shallow (i.e., less than 3 ft bgs) soil and sediment samples collected during the 1994 RFI at the Site.
- Gross alpha-emitting radionuclides are known to have been associated with industrial materials historically managed at this Site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium, which has alpha-emitting isotopes. Any alpha-emitting radionuclides associated with the Site are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

SWMU 33-010(a):

- Copper is not known to have been associated with industrial materials historically managed at this Site. Copper was not detected above BVs in 8 shallow screening-level soil samples collected during the 1994 RFI at the Site.
- Gross alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at this site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium, which has alpha-emitting isotopes. Any alpha-emitting radionuclides associated with the Site are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 238-2 and 238-3. 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 238-2 and 238-3.

Monitoring location A-SMA-6 receives runoff primarily from undeveloped areas, with some contribution from nonurban developed areas. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is between these two values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is less than both of these values.

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

238.4 Inspections and Maintenance

RG340 recorded nine storm events at A-SMA-6 during the 2013 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 238-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30889	5-6-2013
Storm Rain Event	BMP-33157	7-9-2013
Storm Rain Event	BMP-33473	7-24-2013
Storm Rain Event	BMP-34210	8-6-2013
Storm Rain Event	BMP-35216	9-16-2013
Annual Erosion Evaluation	COMP-36828	10-24-2013
Storm Rain Event	BMP-36308	10-24-2013
TAL Exceedance	COMP-35284	9-9-2013

No maintenance activities were conducted at A-SMA-6 in 2013.

238.5 Compliance Status

The Sites associated with A-SMA-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 238-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-004(k)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 9-4-13
SWMU 33-007(a)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 9-4-13
SWMU 33-010(a)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 9-4-13



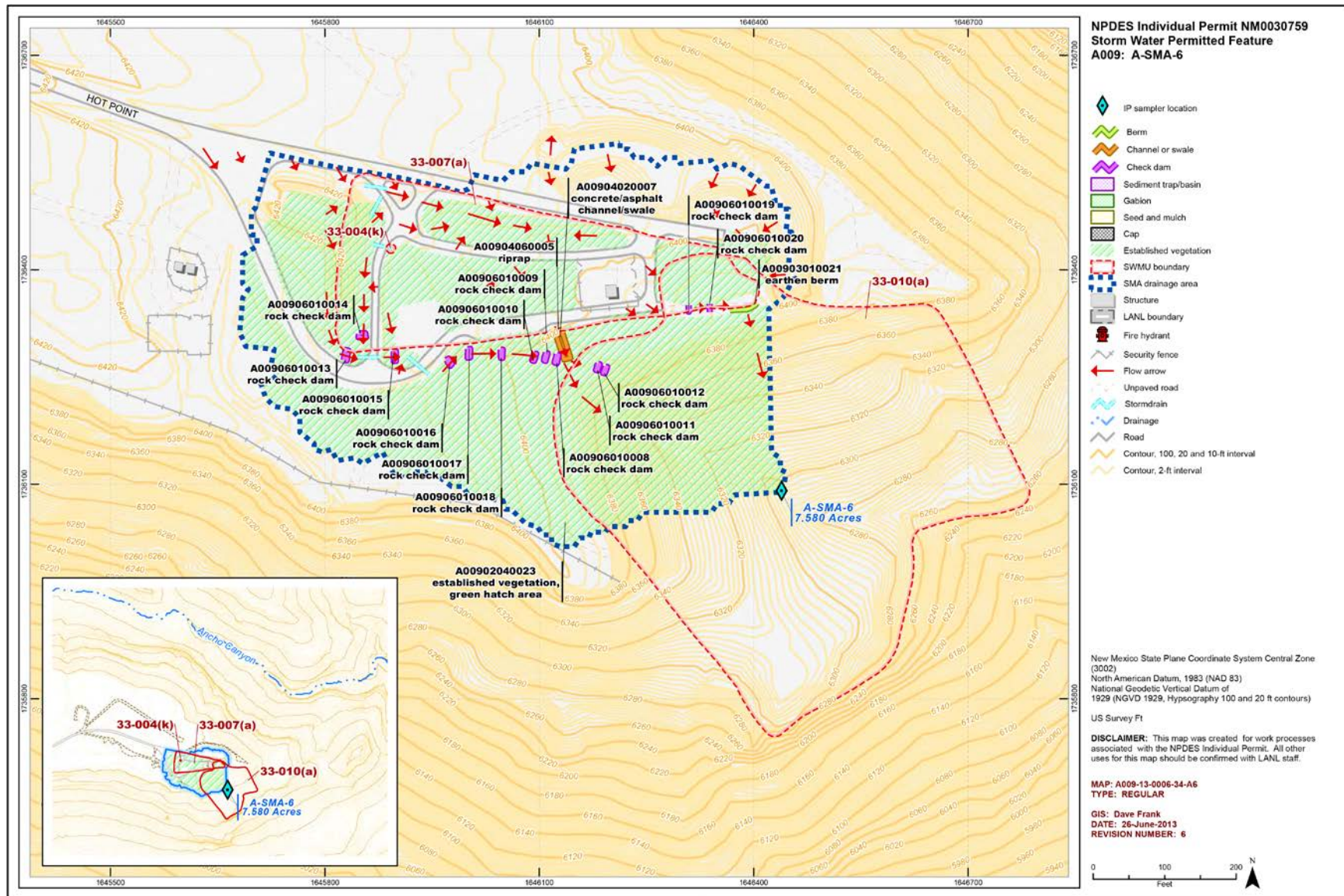


Figure 238-1 A-SMA-6 location map

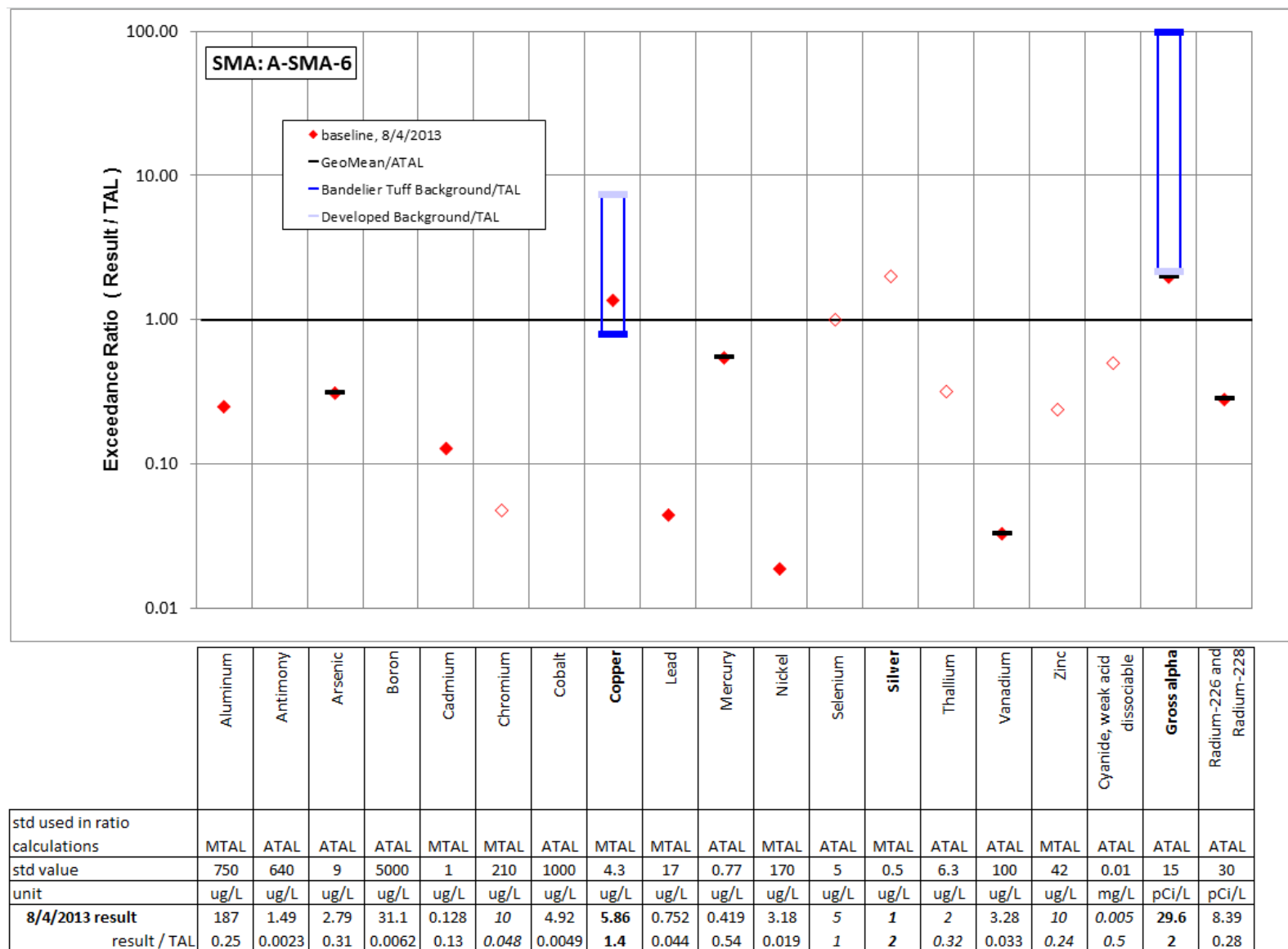


Figure 238-2 Inorganic analytical results summary plot for A-SMA-6

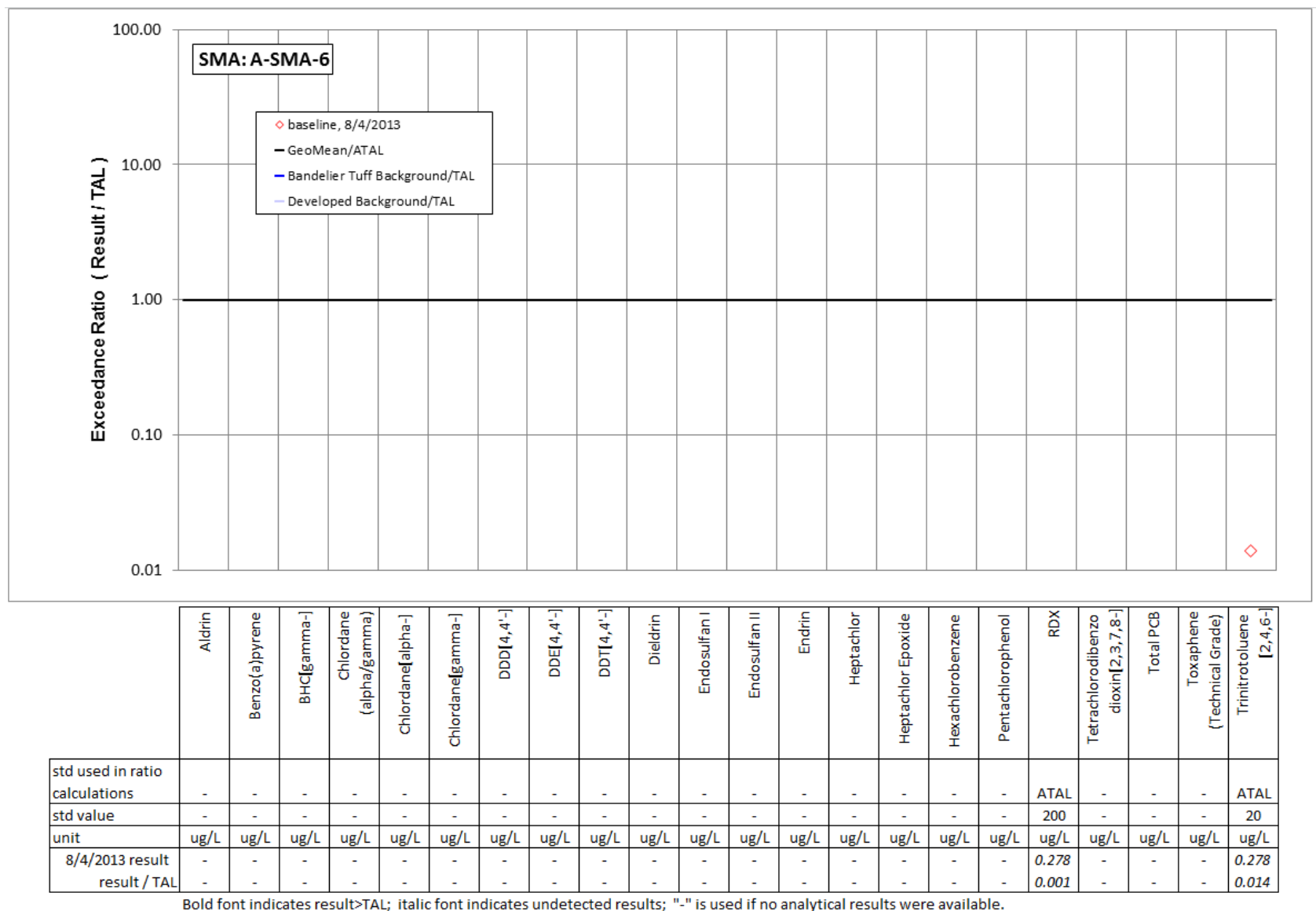


Figure 238-3 Organic analytical results summary plot for A-SMA-6

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

239.1 Site Descriptions

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

SWMU 33-004(g) is reportedly an outfall and associated drainline that discharged wastewater from building 33-0016. The outfall is located at the end of a VCP that runs west approximately 50 ft from the northwest corner of building 33-0016. The pipe daylights at the edge of a level area above a drainage channel that leads to a tributary of Chaquehui Canyon. The ground surface below the outfall slopes steeply down to the tributary channel, which is approximately 70 ft lower than the outfall. A culvert under a roadway, approximately 60 ft southwest of the outfall, receives runoff from most of the paved portions of Area 6. Building 33-0016 was constructed in 1949 as a gun building for initiator tests. It housed a gas gun that was used to fire projectiles as well as electronic equipment used to measure neutron production. Large-bore (2-in. to 5-in.-diameter) guns were also mounted on concrete pads around building 33-0016 and used to fire projectiles containing initiator test assemblies. These activities continued until 1955. Photographs may have been developed in building 33-0016 or in a small trailer parked next to the drainage from the Site. In 1956, building 33-0016 was used to make and machine laminating materials that contained barium, lead, titanium, and zinc. Toxic fumes were reportedly released from a fume hood in the building used to cure epoxy resins. Building 33-0016 later was used as a library and storage building and has been empty and unused since 1991. The 1992 Santa Fe Engineering study of drains and discharges at TA-33 was conducted to identify all sources of discharges from TA-33 buildings. This study identified no discharges from building 33-0016. Thus, the source of any potential discharge to the SWMU 33-004(g) outfall is not known.

SWMU 33-004(g) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-004(g).

SWMU 33-007(c) consists of abandoned firing sites associated with the initiator tests conducted at Area 6. The firing sites included firing pads and two catcher boxes. One pad was located immediately west of building 33-0016. The catcher boxes were located approximately 20 ft south of building 33-0016 and were approximately 6 × 6 ft, constructed of timber, and filled with soil, wood chips, and vermiculite. Guns (2- to 5-in. bore) were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination. Several other firing pads were on a level area excavated into a basaltic cinder cone southwest of building 33-0016. This area was used to test nuclear gun mock-ups. A 4- to 5-in. bore gun was used to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the Site was used. A 1951 memorandum describes a test at Area 6 that resulted in the leak of radioactive material from a projectile. The Site was cleaned up by using a bulldozer to scrape away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels. The memorandum describes removing loose material and leaving impregnated spots

as high as 1 million cpm. Contaminated surface dirt was bulldozed from the shot area into the adjacent canyon.

During the 1995 IA conducted at SWMU 33-007(c), the Site was stabilized to prevent migration of metals and isotopic uranium contamination identified during the RFI. In 1996, approximately 200 yd³ of soil was removed from the catcher boxes and processed as part of a pilot test to verify the effectiveness of processes for remediating uranium-contaminated soil. Sampling results for the processed soil showed mean activities for uranium-234, uranium-235, and uranium-238 of 15.8 pCi/g, 0.515 pCi/g, and 15.7 pCi/g, respectively; the processed soil was returned to the catcher boxes. Experimental projectiles totaling 1720 lb were also discovered in the soil from the catcher boxes and were subsequently characterized and disposed of as LLW.

SWMU 33-007(c) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-007(c).

SWMU 33-009 is a former surface disposal area located in Area 6, west of the TA-33 Main Site. The disposal Site includes an area approximately 100 ft long × 75 ft wide that has been leveled into the side of a natural basaltic cinder cone as well as an area that extends approximately 80 ft down the slope of the cinder cone. The slope continues below the disposal Site until it reaches a tributary of Chaquehui Canyon. The debris within this surface disposal area is believed to be associated with the activities at a nearby gun firing site [SWMU 33-007(c)]. This gun firing site operated from 1949 to 1955. When the firing area became contaminated as a result of firing activities, contaminated soil and debris were bulldozed over the edge of the canyon. SWMU 33-009 also received debris from general operations at TA-33, including metal wastes, light bulbs, tires, and drums. In 1960, the Site received uranium turnings from the building 33-0113 machine shop. In addition, from 1967 to 1972, the Site served as a storage and disposal area for defective electrical capacitors from the Sherwood Project. These capacitors had an average weight of 300 lb and were about 4 ft³ to 6 ft³ in volume. Disposal of the capacitors at this Site ceased in 1972, at which time defective capacitors were sent off-site for disposal. In December 1974, the Site was partially cleaned up as part of general cleanup activities conducted at TA-33. Several truckloads of material were taken to MDA G for disposal. Material removed from the Site included DU pieces, electrical capacitors, metal turnings, old tires, and fluorescent light tubes. A radiation survey was performed after the cleanup. The area was surveyed at intervals of about 10 ft across the slope and 16 ft up and down the slope. Radiation above background was not detected. Not all material was removed in 1974. Broken glass and chunks of metal were still present when the RFI was conducted in 1993. An empty capacitor containing small amounts of PCB-contaminated oil was also discovered partially buried at the Site in 1994 and was removed.

SWMU 33-009 is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-009.

The project map (Figure 239-1) 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>.

239.2 Control Measures

Potential run-on from the paved access road, conveyed by the channel north of the road impacts the SMA. Channelized overland flow may also impact the northwest corner of the area. Control measures are in place to mitigate run-on sources to this SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 239-1).

Table 239-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00102040008	Established Vegetation		X	X		B
Q00103020002	Base Course Berm		X		X	CB
Q00104050006	Water Bar	X			X	CB
Q00104050007	Water Bar	X			X	CB
Q00106010003	Rock Check Dam	X			X	CB
Q00106010004	Rock Check Dam	X			X	CB
Q00106010005	Rock Check Dam	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

239.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at CHQ-SMA-0.5. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

239.4 Inspections and Maintenance

RG340 recorded nine Storm events at CHQ-SMA-0.5 during the 2013 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 239-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30722	5-9-2013
Storm Rain Event	BMP-33158	7-9-2013
Storm Rain Event	BMP-33474	7-25-2013
Storm Rain Event	BMP-34211	8-6-2013
Storm Rain Event	BMP-35217	9-17-2013
Storm Rain Event	BMP-36309	9-30-2013
Annual Erosion Evaluation	COMP-36661	10-29-2013

No maintenance activities were conducted at CHQ-SMA-0.5 in 2013.

239.5 Compliance Status

The Sites associated with CHQ-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 239-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-004(g)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 33-007(c)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment
SWMU 33-009	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

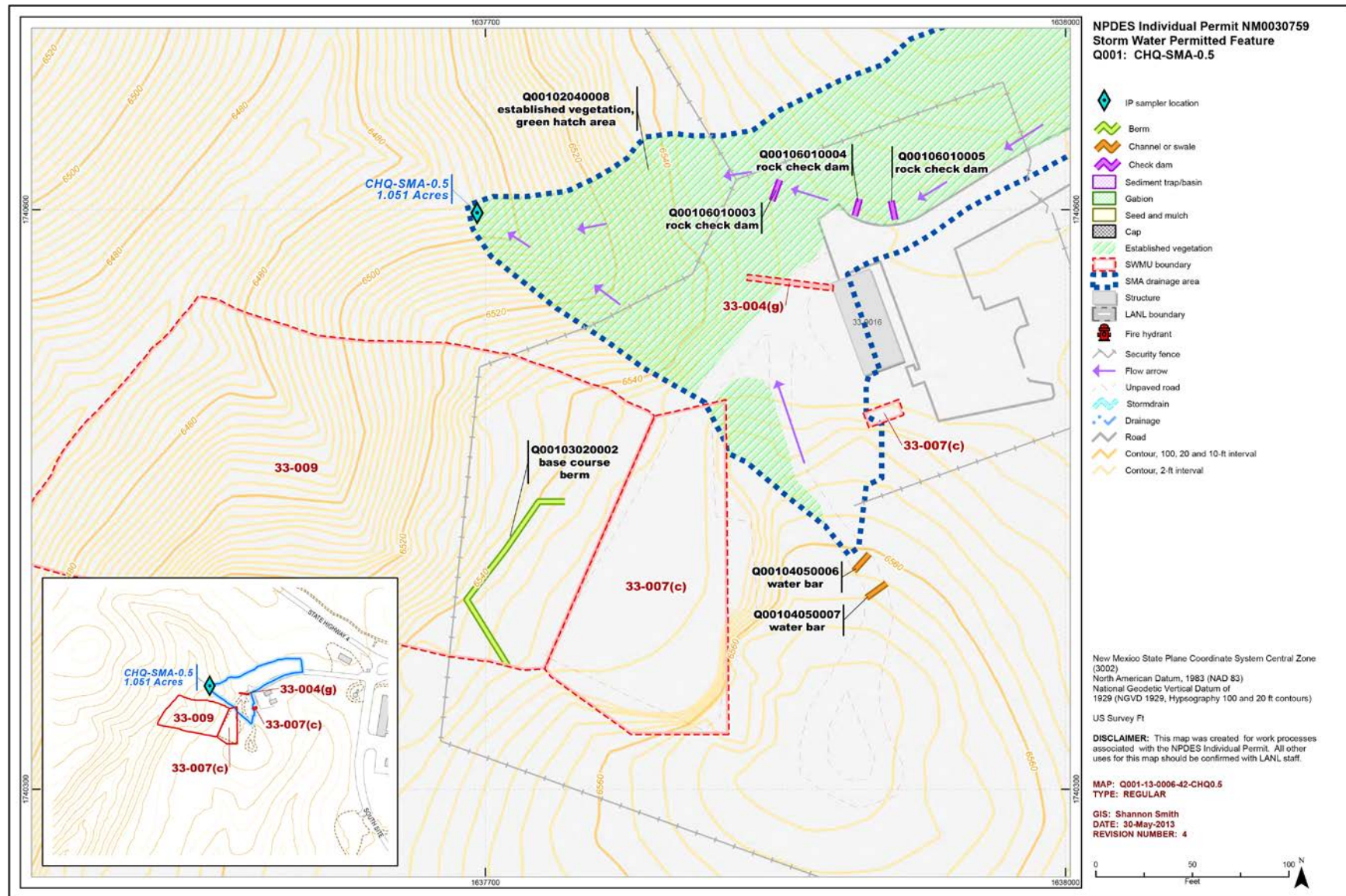


Figure 239-1 CHQ-SMA-0.5 location map

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

240.1 Site Descriptions

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

SWMU 33-002(d) is a former NPDES-permitted outfall that discharged noncontact cooling water from former building 33-0086, the former high-pressure tritium facility. This outfall was created when the SWMU 33-002(c) seepage pit was deactivated and disconnected from the building 33-0086 drainline. At that time, the drainline to the seepage pit was extended 90 ft to the east to create an outfall for the discharge of noncontact cooling water. Operations at building 33-0086 ceased in 1990, including discharges to the SWMU 33-002(d) outfall; building 33-0086 underwent D&D in the mid-1990s. The outfall was removed from the Laboratory's NPDES permit on July 11, 1995. The drainline that discharged to this outfall was removed in 2005 during an ACA implemented for other SWMUs associated with the former high-pressure tritium facility.

SWMU 33-002(d) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-002(d).

The project map (Figure 240-1) 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>.

240.2 Control Measures

Run-on to the SMA may originate from the paved areas in proximity to this SMA. Control measures are installed to divert run-on to the area from these paved areas and to mitigate runoff. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 240-1).

Table 240-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00202040008	Established Vegetation		X	X		B
Q00203060003	Straw Wattles		X		X	CB
Q00203060005	Straw Wattles		X		X	CB
Q00203060009	Straw Wattles	X			X	B
Q00203060010	Straw Wattles	X			X	B
Q00203060011	Straw Wattles	X			X	B

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

240.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at CHQ-SMA-1.01. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

240.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-1.01 during the 2013 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 240-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30723	5-6-2013
Storm Rain Event	BMP-33161	7-9-2013
Storm Rain Event	BMP-33477	7-24-2013
Storm Rain Event	BMP-34214	8-7-2013
Storm Rain Event	BMP-35220	9-17-2013
Storm Rain Event	BMP-36312	10-24-2013
Annual Erosion Evaluation	COMP-36662	10-24-2013

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

Table 240-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37157	Install at least 3 wattles between dirt access road and base course berm - 0007 for runoff/sediment controls. Base course berm -0007 will be retired when work is completed.	11-25-2013	32 day(s)	Maintenance conducted as soon as practicable.

240.5 Compliance Status

The Site associated with CHQ-SMA-1.01 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 240-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-002(d)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

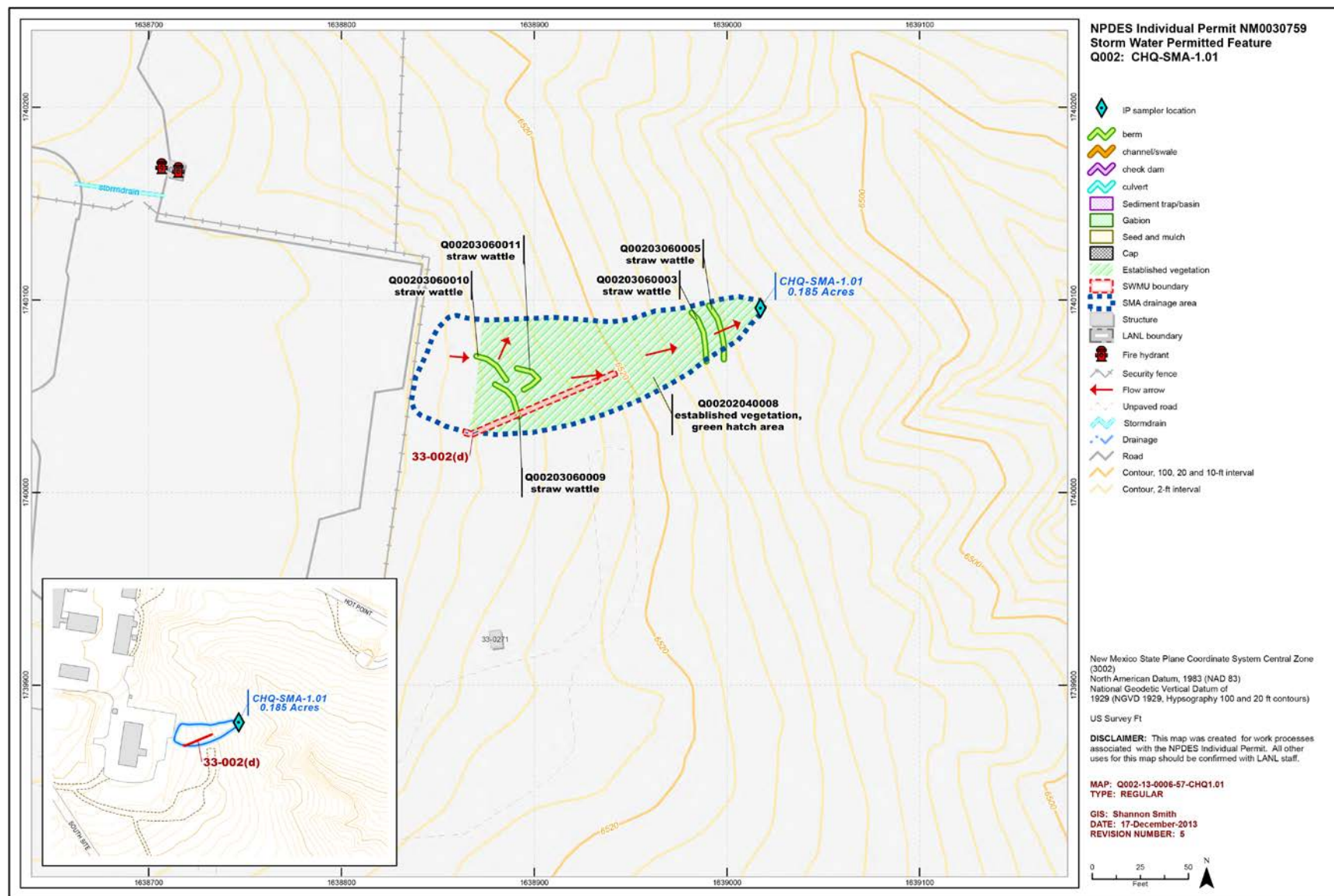


Figure 240-1 CHQ-SMA-1.01 location map

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

241.1 Site Descriptions

Four historical industrial activity areas are associated with Q002A, CHQ-SMA-1.02: Sites 33-004(h), 33-008(c), 33-011(d), and 33-015.

SWMU 33-004(h) consists of a reported outfall associated with a warehouse (building 33-0020) located at the south side of Main Site. The warehouse was constructed in 1950 and used from 1952 to 1972 to store materials associated with initiator tests, including beryllium and uranium. The building subsequently was cleaned and used by other groups as a light laboratory and for general storage. The RFI work plan for OU 1122 states historical engineering drawings show an 8-in.-diameter VCP drain exiting the southeast corner of the building, which reportedly discharged to an outfall. A study of building drains at TA-33 identified two floor drains in building 33-0020 but could not locate an outfall. The study also noted there was no source of water in the building. A geophysical survey conducted in 1993 found no evidence of a drainline.

Consent Order investigations have not been performed at SWMU 33-004(h), but RFI screening-level data are available for this Site.

SWMU 33-011(d) consists of a former a storage area located on the asphalt next to a warehouse (building 33-0020) near the south side of TA-33 Main Site. Beryllium and uranium were stored around building 33-0020 from 1950 to 1972. In addition, recovered scrap from shots containing uranium, beryllium, and tungsten was stored south of building 33-0020. Much of the material stored at the Site was salvaged for use elsewhere. A 1987 site survey found no materials remaining in storage at this location.

Consent Order investigations have not been performed at SWMU 33-011(d), and no decision-level data are available for this Site. The RFI data are screening level only.

SWMU 33-015 consists of the former location of a small incinerator (former structure 33-0110) approximately 50 ft southeast of building 33-0039 on a hillside that slopes to a tributary of Chaquehui Canyon. The incinerator measured approximately 4 × 4 × 6 ft high and was mounted on a concrete base. The incinerator was first used in 1955 to burn uncontaminated office trash. The date it ceased to be used is not known; however, it was no longer in use during the 1993 RFI and was no longer present at the site by 1995.

Consent Order investigations have not been performed at SWMU 33-015, and no decision-level data are available for this Site. The RFI data are screening level only. AOC 33-008(c) is a former surface disposal area located east of Main Site buildings 33-39 and 33-113 outside of the Main Site security fence. This former disposal site consists of two areas: one near a culvert discharge where glass bottles and other debris were discovered and the other an area of surface debris situated north of the culvert. The culvert receives storm water runoff from Main Site, is directly east of building 33-39, and is located in a drainage channel that discharges to a tributary of Chaquehui Canyon. Debris observed included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert. The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area, and a partially full chemical bottle was present on the ground surface. In 1999, a BMP was performed and all visible debris was removed from the watercourse.

AOC 33-008(c) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for

Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Decision-level data are available for AOC 33-008(c) from the 1996 RFI.

The project map (Figure 241-1) 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>.

241.2 Control Measures

Run-on contributions to the SMA are a result of the paved roads north and west of the SMA and the unpaved access road that intersects the SMA. Control measures serve to divert impacts of run-on to the area and to mitigate runoff from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 241-1).

Enhanced controls were installed and certified on October 24, 2012, and submitted to EPA on October 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 241-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q002A03010010	Earthen Berm		X		X	EC
Q002A03010011	Earthen Berm		X		X	EC
Q002A03010012	Earthen Berm		X		X	EC
Q002A03010013	Earthen Berm	X			X	EC
Q002A06010002	Rock Check Dam		X		X	CB
Q002A06010003	Rock Check Dam		X		X	CB
Q002A06010007	Rock Check Dam	X			X	CB
Q002A06010009	Rock Check Dam		X		X	CB
Q002A08030004	Concrete/Asphalt Cap			X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

241.3 Storm Water Monitoring

SWMUs 33-004(h), 33-011(d), and 33-015 and AOC 33-008(c) are monitored within CHQ-SMA-1.02. Following the installation of baseline control measures, a baseline storm water sample was collected on August 12, 2011 (Figures 241-2 and 241-3). Analytical results from this sample yielded two TAL exceedances:

- Copper concentration of 8 µg/L (MTAL is 4.3 µg/L) and
- PCB concentration of 9.22 ng/L (ATAL is 0.6 ng/L).

Following the installation of enhanced control measures at CHQ SMA 1.02, corrective action storm water samples were collected on July 25, 2013 and September 15, 2013 (Figures 241-2 and 241-3). Analytical results from this corrective action monitoring sample yielded two TAL exceedances:

- Copper concentrations of 4.46 µg/L (MTAL is 4.3 µg/L), and
- PCB concentration of 7 ng/L and 16 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 or previous investigations with the storm water TAL exceedances to determine whether the exceedances may be related to historical industrial activities. The discussion is organized by Site and analyte.

SWMU 33-004(h):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not detected above BVs in the three shallow (i.e., less than 3 ft bgs) 1993 RFI samples.
- PCBs are not known to be associated with industrial materials historically managed at the Site. The 1993 RFI samples were not analyzed for PCBs because they are not known to be associated with industrial materials historically managed at this Site.

SWMU 33-011(d):

- Copper is not known to be associated with industrial materials historically managed at the Site. RFI samples were not analyzed for copper.
- PCBs are not known to be associated with industrial materials historically managed at the Site. The 1993 RFI samples were not analyzed for PCBs.

SWMU 33-015:

- Copper is not known to be associated with industrial materials historically managed at the Site. Shallow RFI samples were not analyzed for copper.
- PCBs are not known to be associated with industrial materials historically managed at the Site. The 1993 RFI samples were not analyzed for PCBs.

AOC 33-008(c):

- Copper is likely associated with industrial materials historically managed at the Site. Copper was detected above BVs in 15 of 17 shallow RFI samples at a maximum concentration 2250 times the sediment BV.
- PCBs are not known to have been associated with industrial materials historically managed at the Site. RFI samples were not analyzed for PCBs because they are not known to have been 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 Figures 241-2 and 241-3. 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 241-2 and 241-3.

Monitoring location CHQ-SMA-1.02 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings as well as landscape consisting of sediments derived from Bandelier Tuff.

- **Copper**—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 sediments derived from Bandelier Tuff is 3.43 µg/L. The copper result from the storm water confirmation samples in 2011 and 2013 are between these two values.
- **PCBs**—PCBs are associated with building materials including paint, caulking, asphalt, solvents, transformers, and cutting oils. The baseline PCB UTL for storm water run-on from a developed urban landscape is 98 ng/L; the PCB UTL for storm water containing sediments derived from Bandelier Tuff is 11.7 ng/L. The ATAL exceedance observed in the storm water confirmation samples in 2011 and 2013 is less than both storm water baseline UTLs.



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

241.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-1.02 during the 2013 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 241-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30724	5-6-2013
Storm Rain Event	BMP-33162	7-9-2013
Storm Rain Event	BMP-33478	7-24-2013
Storm Rain Event	BMP-34215	8-6-2013
Storm Rain Event	BMP-35221	9-17-2013
Storm Rain Event	BMP-36313	10-24-2013
Annual Erosion Evaluation	COMP-36663	10-24-2013
TAL Exceedance	COMP-35289	9-9-2013

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

Table 241-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37112	Add angular rock to extend both ends of rock check dam Q002A06010002	11-8-2013	15 day(s)	Maintenance conducted in timely manner.
BMP-37113	Repair earthen berm Q002A03010012 by adding angular rock to damaged area on north side of spillway.	11-12-2013	19 day(s)	Maintenance conducted in timely manner.
BMP-37114	Modify earthen berm Q002A03010013 by adding angular rock to expand the rip rap apron.	11-8-2013	15 day(s)	Maintenance conducted in timely manner.

241.5 Compliance Status

The Sites associated with CHQ-SMA-1.02 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 241-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-004(h)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after 2 nd TAL exceedance	2 nd initiation on 11-3-13
AOC 33-008(c)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after 2 nd TAL exceedance	2 nd initiation on 11-3-13
SWMU 33-011(d)	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after 2 nd TAL exceedance	2 nd initiation on 11-3-13
SWMU 33-015	Enhanced Control Corrective Action Monitoring	Corrective Action Initiated after 2 nd TAL exceedance	2 nd initiation on 11-3-13

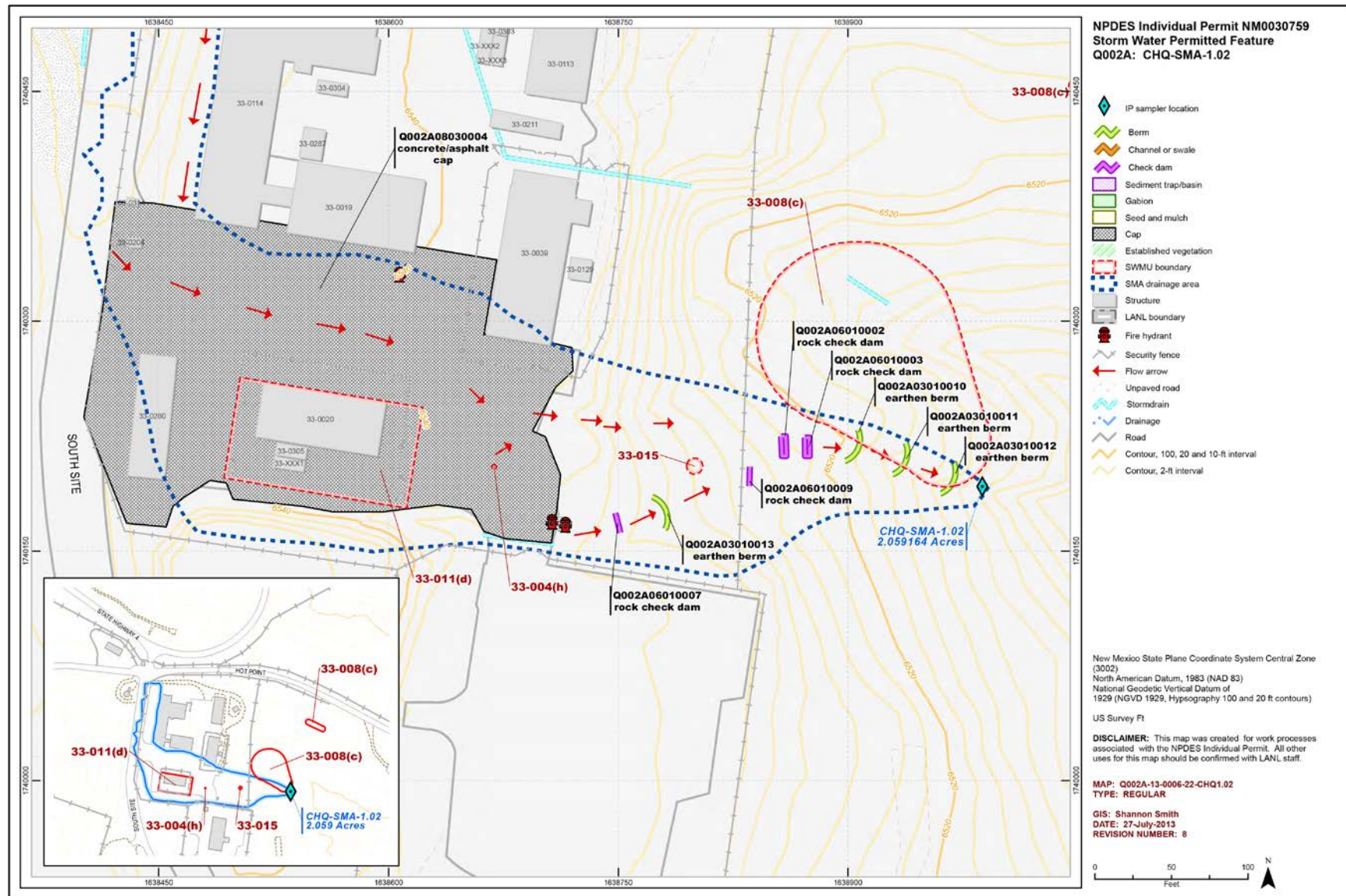
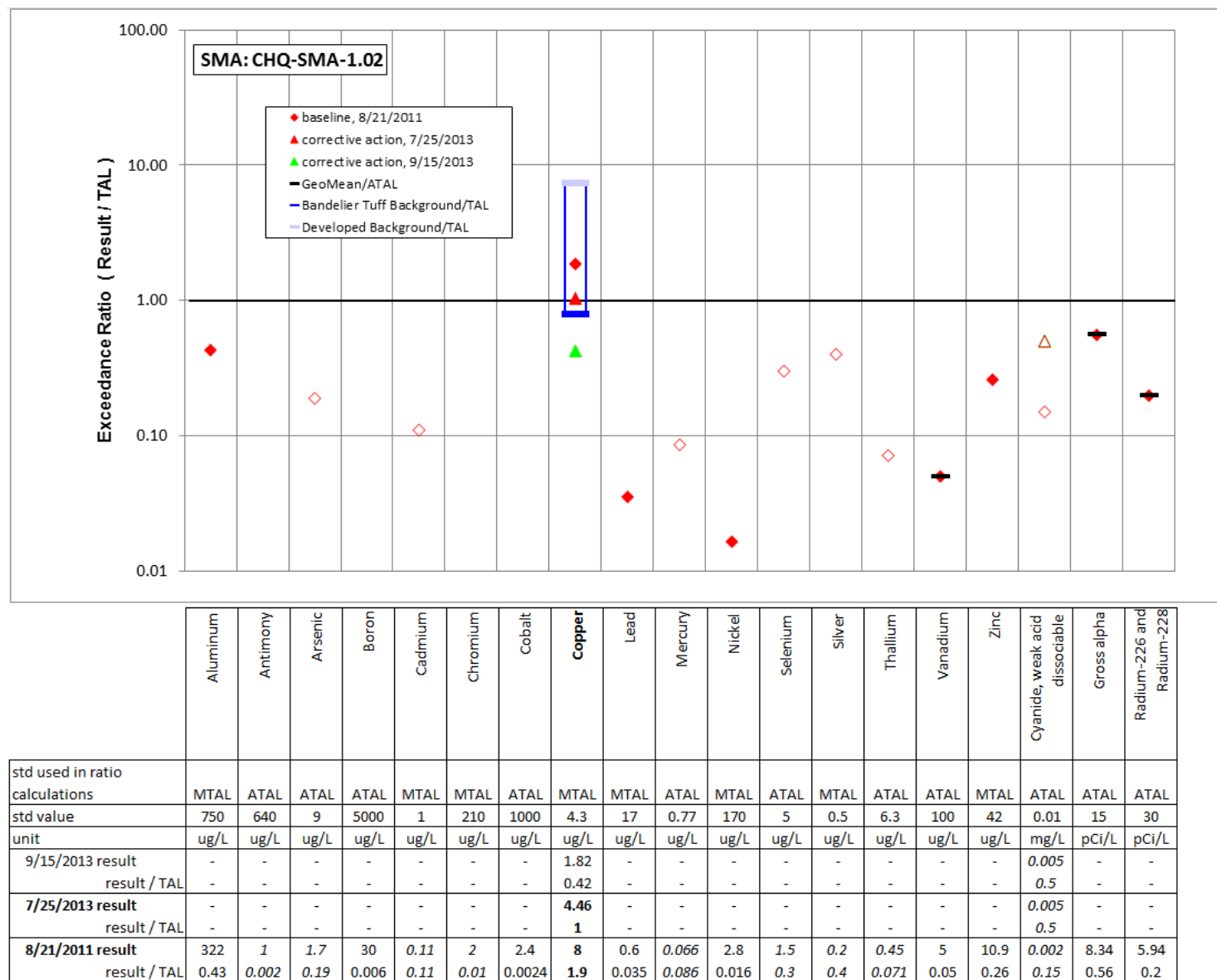


Figure 241-1 CHQ-SMA-1.02 location map



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

Figure 241-2 Inorganic analytical results summary plot for CHQ-SMA-1.02

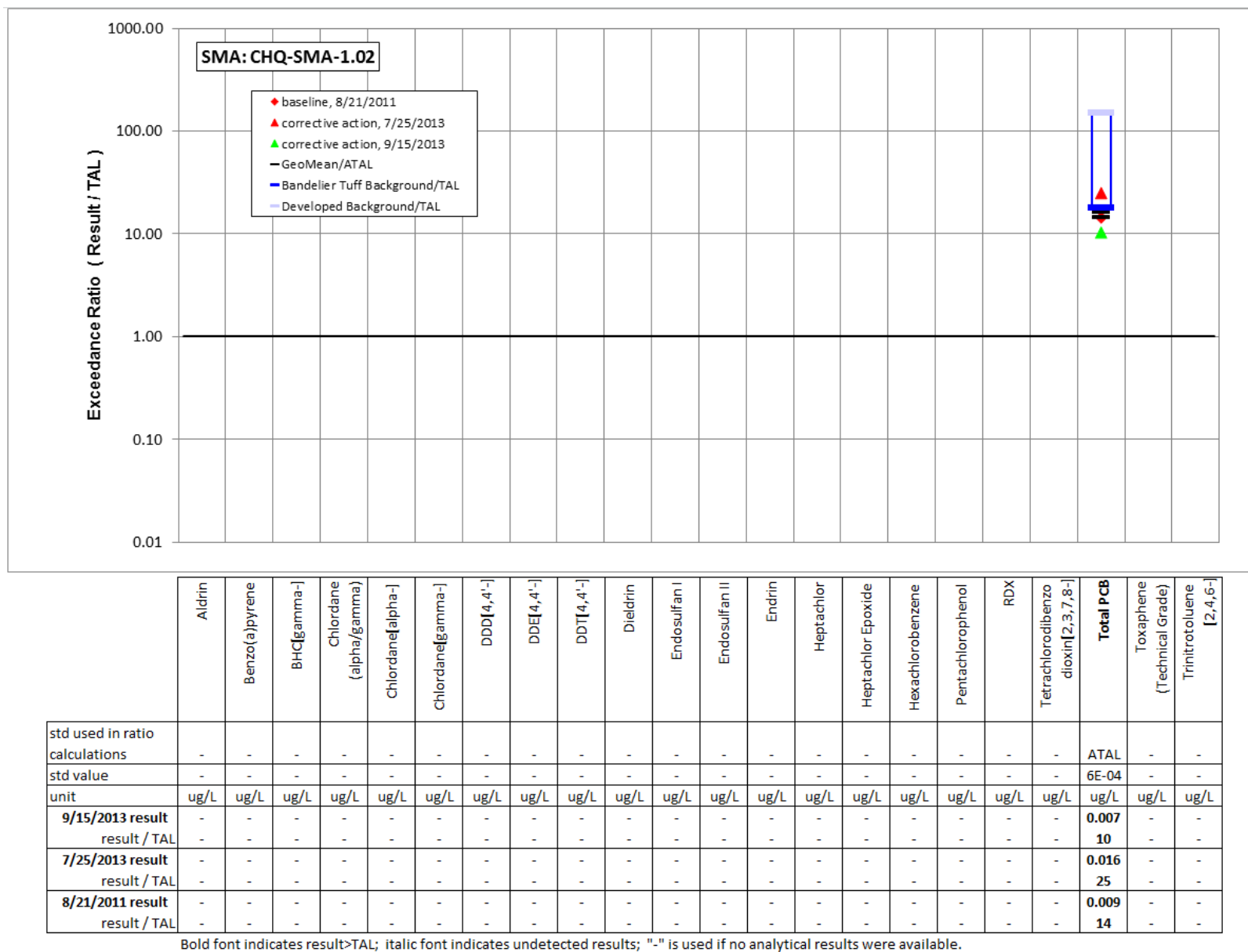


Figure 241-3 Organic analytical results summary plot for CHQ-SMA-1.02

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

242.1 Site Descriptions

Five historical industrial activity areas are associated with Q002B, CHQ-SMA-1.03: 33-012(a), 33-017, C-33-001, C-33-003, and 33-008(c).

SWMU 33-012(a) is the location of a former drum storage area for a machine shop (building 33-39). This storage area was located on an asphalt pad on the east side of building 33-39, between the building and a storage shed. The asphalt pad is approximately 20 ft wide × 20 ft long. The area was used to accumulate 55-gal. drums of solvents and solvent-contaminated oil that may have been contaminated with PCBs and unknown metals. The drums were placed on pallets or directly on the asphalt pad. The 1990 SWMU report notes the presence of multiple oil stains at this site. The 1992 RFI work plan, however, states no evidence of oil staining was found at the Site. The asphalt pad is level, and the ground surface east of building 33-09 slopes to the east. The beginning date of operation of the storage area is not known; however, building 33-39 was constructed in 1951. The storage area was deactivated in 1992 or 1993. SWMU 33-012(a) lies within the boundary of former SWMU 33-017, which includes areas impacted by operational releases from TA-33 Main Site.

SWMU 33-012(a) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Only screening-level data from the 1993 RFI are available for SWMU 33-012(a).

SWMU 33-017 consists of areas potentially impacted by operational releases from the TA-33 Main Site. SWMU 33-017 is located at the northern and eastern edges of Main Site and is approximately 8.26 acres. The Site generally slopes downward to the east and is at the head of a small drainage tributary of Chaquehui Canyon. SWMU 33-017 is potentially impacted by runoff from the paved areas of the TA-33 Main Site complex by deposition from airborne releases from TA-33 Main Site facilities and by operational releases from an area east of building 33-39 used for vehicle maintenance. Operations conducted within Main Site included uranium processing and machining, cadmium and silver welding and soldering, lead melting and casting, cadmium and beryllium machining, and tritium processing and decontamination. These operations began in 1949 and most continued until 1972. Following these operations, some of the facilities were used for offices and electronics laboratories.

SWMU 33-017 is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Decision-level data from the 1996 RFI are available for SWMU 33-017.

AOC C-33-001 consists of a former power transformer (structure 33-124) at TA-33 Main Site. The transformer was mounted on a concrete pad next to the east wall of building 33-114 and was bounded by asphalt to the north, east, and south. The pad was enclosed by a fence and accessible only through a locked gate. Because this transformer was placed into service in the 1950s, the oil in the transformer may have contained PCBs. The pad reportedly had oil stains, but active leaks from the transformer were not observed during inspections conducted in September 1985 and March 1992. In 1992, the transformer was replaced as part of activities conducted under TSCA. A BMP implemented in 1999 consisted of vacuuming PCB-contaminated soil and sediment present on the asphalt between

buildings 33-113 and 33-114. In addition, the field team vacuumed a low-grade slope from building 33-114 east between buildings 33-0113 and 33-39. A total volume of 55 gal. of material was collected.

AOC C-33-001 is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Decision-level data from the 1996 RFI are available for AOC C-33-001.

AOC C-33-003 consists of two former fill areas located at Main Site in TA-33. Fill was placed in these areas to provide level sites for portable trailers. One of the trailers (structure 33-169) was installed next to the Main Site water tower. The filled area to accommodate trailer 33-169 is approximately 100 × 100 × 4 ft deep. The other trailer (structure 33-170) was installed north of building 33-114. The filled area to accommodate trailer 33-170 is approximately 70 × 90 × 7 ft deep. Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these Sites. Three projectiles, one of which contained uranium, were discovered at the fill area near the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material, which was obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into catcher boxes at the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

During a 1999 VCA, fill material was excavated until native soil or tuff was encountered. A total of 408.5 yd³ of fill material was excavated. Radiation surveys of the excavated areas showed no readings greater than 2 times local background. Confirmation samples verified cleanup levels were achieved. The excavated material was transported to a Segmented Gate System treatment plant, where radioactive materials were separated from the fill and disposed of. A total of 1.45 yd³ of contaminated fill was separated and disposed of as LLW. Treated fill samples verified cleanup levels were achieved. The decontaminated fill was returned to the Site, and the Site was restored and revegetated.

AOC C-33-003 is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Decision-level data from the 1999 VCA confirmation samples are available for AOC C-33-003.

AOC 33-008(c) is a former surface disposal area located east of Main Site buildings 33-39 and 33-113 outside of the Main Site security fence. This former disposal site consists of two areas: one near a culvert discharge where glass bottles and other debris were discovered and the other an area of surface debris situated north of the culvert. The culvert receives storm water runoff from Main Site, is directly east of building 33-39, and is located in a drainage channel that discharges to a tributary of Chaquehui Canyon. Debris observed included machined metal turnings, cable, glass bottles, and general trash on the ground surface and in the channel downstream of the culvert. The outlines of a possible trenched area are visible in aerial photographs from 1958. A small asphalt pad is located at the west end of the northern area, and a partially full chemical bottle was present on the ground surface. In 1999, a BMP was performed and all visible debris was removed from the watercourse.

AOC 33-008(c) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the

aggregate area is due to NMED by March 31, 2015. Decision-level data from the 1996 RFI are available for AOC 33-008(c).

The project map (Figure 242-1) 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>.

242.2 Control Measures

Run-on to the SMA may originate on the paved areas near this SMA. Control measures serve to mitigate potential impacts from run-on to the area and to moderate runoff from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 242-1).

Table 242-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q002B02040012	Established Vegetation		X	X		B
Q002B04060006	Rip Rap	X		X		CB
Q002B04060007	Rip Rap		X	X		CB
Q002B04060009	Rip Rap		X	X		CB
Q002B04060010	Rip Rap		X	X		CB
Q002B06010004	Rock Check Dam		X		X	CB
Q002B06010005	Rock Check Dam		X		X	CB
Q002B06010008	Rock Check Dam		X		X	CB
Q002B06010011	Rock Check Dam		X		X	CB
Q002B08030003	Concrete/Asphalt Cap		X	X		CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls installation and/or certification are planned for 2014 as part of corrective action.

242.3 Storm Water Monitoring

SWMUs 33-012(a) and 33-017 and AOCs C-33-001, C-33-003, and 33-008(c) are monitored within CHQ-SMA-1.03. Following the installation of baseline control measures, a baseline storm water sample was collected on July 4, 2012 (Figures 242-2 and 242-3). Analytical results from this sample yielded three TAL exceedances:

- Copper concentration of 14.4 µg/L (MTAL is 4.3 µg/L),
- Gross-alpha activity of 63.5 pCi/L (ATAL is 15 pCi/L), and
- PCB concentration of 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 or previous investigations with the storm water TAL exceedances to determine

whether the exceedances may be related to historical industrial activities. The discussion is organized by Site and analyte.

SWMU 33-012(a):

- Copper may have been associated with industrial materials historically managed at the Site. Copper was not detected above BVs in shallow RFI samples; however, the data are screening level only.
- PCBs may have been associated with industrial materials historically managed at the Site. The PCB mixture Aroclor-1254 was detected in two of two shallow RFI samples at a maximum concentration 205% of the residential SSL; however, the data are screening level only.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at the Site. RFI samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because they are not associated with industrial materials historically managed at the Site. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

SWMU 33-017:

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not analyzed in any shallow RFI samples.
- PCBs are not known to have been associated with industrial materials historically managed at the Site. The PCB mixtures Aroclor-1254 and Aroclor-1260 were detected in shallow RFI samples. Aroclor-1254 was detected in 5 of 7 samples at a maximum concentration 124% of the residential SSL. Aroclor-1260 was detected in 7 of 7 samples at a maximum concentration 248% of the residential SSL.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at the Site. RFI samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because they are not associated with industrial materials historically managed at the Site. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

AOC C-33-001:

- Copper is not known to be associated with industrial materials historically managed at the Site. RFI samples were not analyzed for inorganic chemicals because they are not associated with industrial materials historically managed at the Site.
- PCBs are known to have been associated with industrial materials historically managed at the Site. The PCB mixture Aroclor-1260 was detected in four of four shallow RFI soil samples at a maximum concentration 495% of the residential SSL.

- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at AOC C-33-001. RFI samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because they are not associated with industrial materials historically managed at the Site. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

AOC C-33-003:

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was detected above BVs in 14 of 17 shallow VCA samples at a maximum concentration 4.1 times the tuff BV.
- PCBs are not known to have been associated with industrial materials historically managed at the Site. Confirmation samples collected during the 1999 VCA were not analyzed for PCBs because they are not known to have been associated with industrial materials historically managed at the Site.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at the Site. VCA samples were not analyzed for gross-alpha radioactivity but were analyzed for isotopic uranium, which contains alpha-emitting radionuclides. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

AOC 33-008(c):

- Copper is likely associated with industrial materials historically managed at the Site. Copper was detected above BVs in 15 of 17 shallow RFI samples at a maximum concentration 2250 times the sediment BV.
- PCBs are not known to have been associated with industrial materials historically managed at the Site. RFI samples were not analyzed for PCBs because they are not known to have been associated with industrial materials historically managed at the Site.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at the Site. RFI samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides but were analyzed for uranium, which contains alpha-emitting radionuclides. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

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 243-2. 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 243-2.

Monitoring location CHQ-SMA-1.03 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as from landscape consisting of 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. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals. PCBs are associated with building materials including paint, caulking, asphalt, solvents, transformers, and cutting oils.

- **Copper**—The copper UTL for storm water containing sediments derived from Bandelier Tuff storm water is 3.43 µg/L, and the copper storm water UTL for run-on from a developed urban landscape is 32.3 µg/L. The 2012 copper result is between these two values.
- **Gross alpha**—The gross-alpha background UTL for storm water containing sediments derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2012 gross-alpha result is between these two values.
- **PCBs**—The PCB baseline storm water UTL for storm water containing sediments derived Bandelier Tuff is 11.7 ng/L, and the baseline PCB UTL for run-on from a developed urban landscape is 98 ng/L. The 2012 PCB result is less then both values.

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

242.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-1.03 during the 2013 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 242-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30725	5-6-2013
Storm Rain Event	BMP-33163	7-9-2013
Storm Rain Event	BMP-33479	7-24-2013
Storm Rain Event	BMP-34216	8-6-2013
Storm Rain Event	BMP-35222	9-17-2013
Storm Rain Event	BMP-36314	10-24-2013
Annual Erosion Evaluation	COMP-36664	10-24-2013

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

Table 242-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37108	Add angular rock to rock check dam Asset ID Q002B06010008 to build up height and extend both ends.	11-15-2013	22 day(s)	Maintenance conducted in timely manner.
BMP-37109	Add angular rock to rip rap Q002B04060006 to extend southern edge approx. 5 ft.	11-15-2013	22 day(s)	Maintenance conducted in timely manner.
BMP-30110	Add angular rock to rip rap Q002B04060010 to extend southern edge approx. 10 ft. to stabilize the downslope portion of the new road cut.	11-15-2013	22 day(s)	Maintenance conducted in timely manner.

242.5 Compliance Status

The Sites associated with CHQ-SMA-1.03 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 242-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2012	Comments
AOC 33-008(c)	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
SWMU 33-012(a)	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
SWMU 33-017	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
AOC C-33-001	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
AOC C-33-003	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012

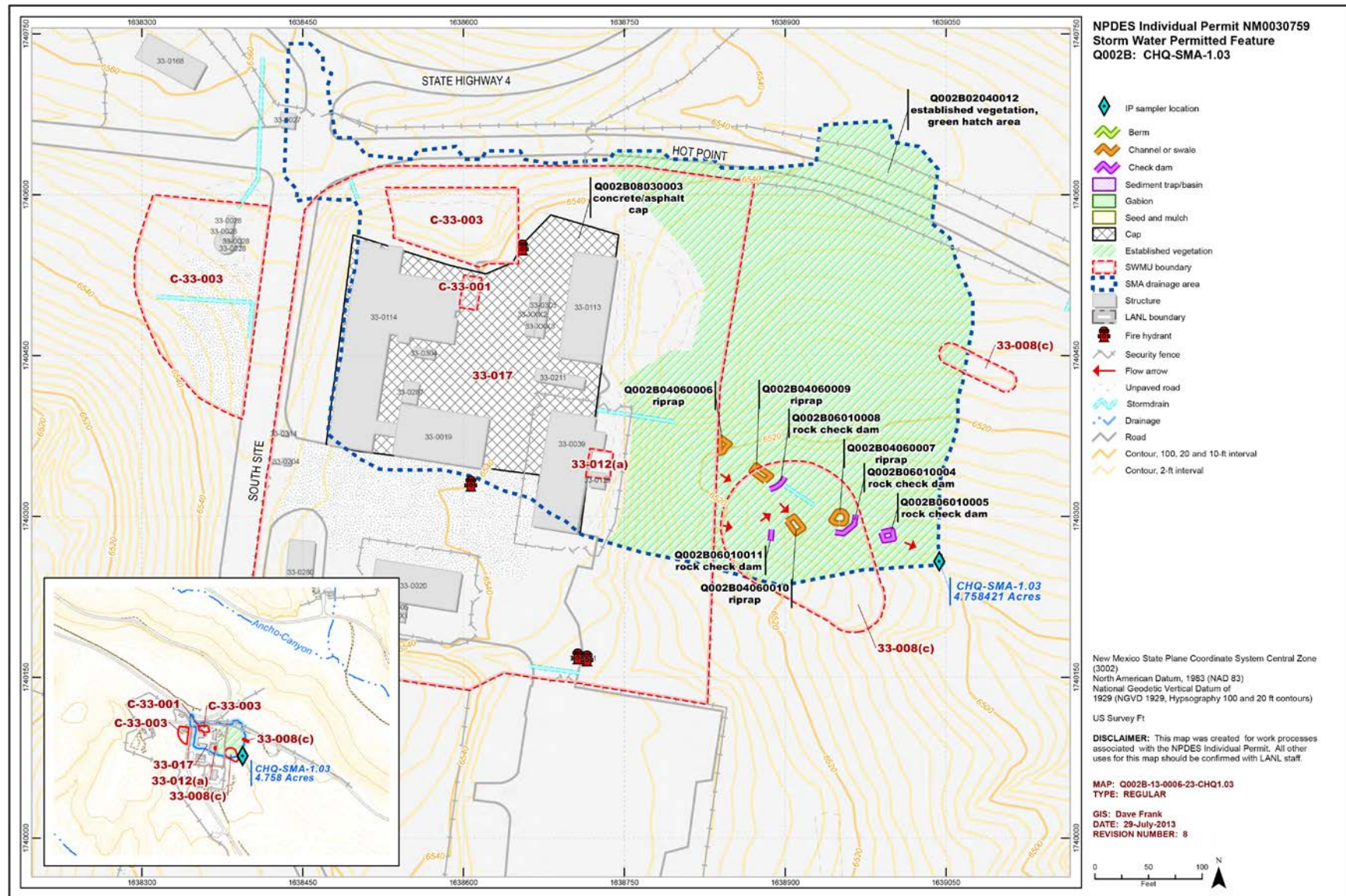


Figure 242-1 CHQ-SMA-1.03 location map

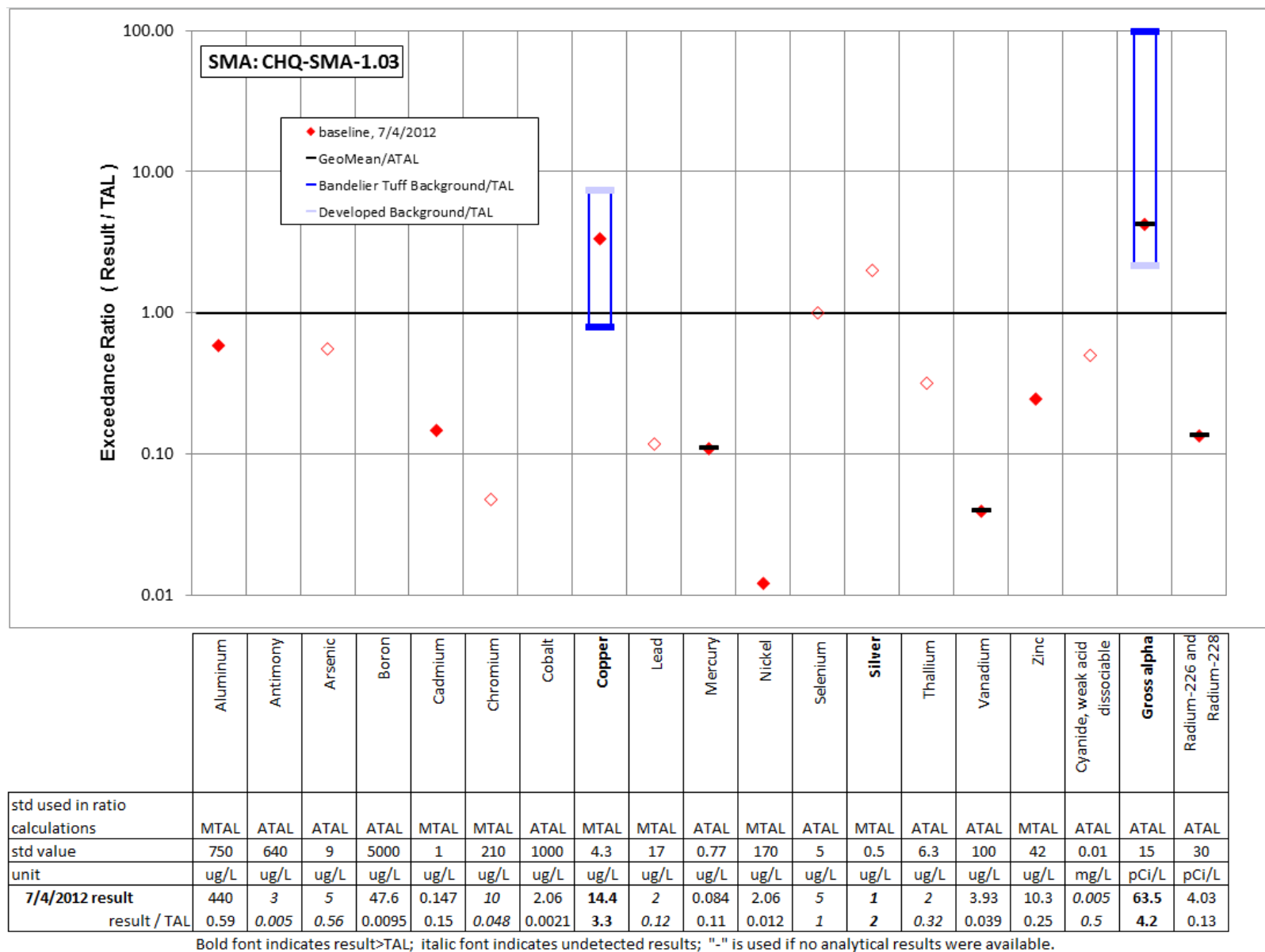


Figure 242-2 Inorganic analytical results summary plot for CHQ-SMA-1.03

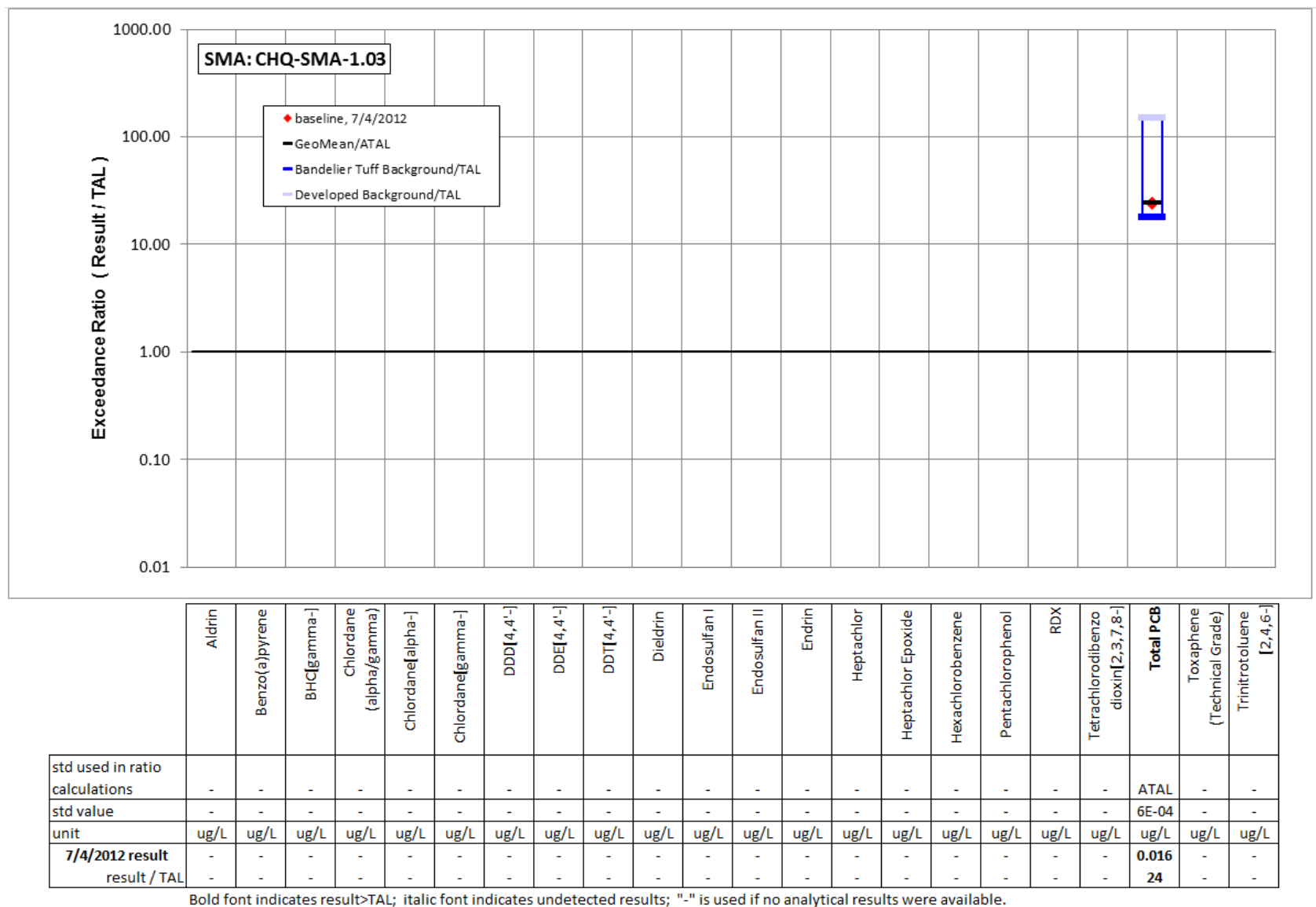


Figure 242-3 Organic analytical results summary plot for CHQ-SMA-1.03

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

243.1 Site Descriptions

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

SWMU 33-004(d) consists of an active septic tank (structure 33-121) and associated drainline and drain field located in TA-33, Area 6. Septic tank 33-121 is located approximately 50 ft southeast of building 33-1. Building 33-1 was used from 1948 to 1955 to support nonexplosive initiator tests conducted at Area 6. After 1955, building 33-1 was used as office space and for storage until use of the building was discontinued in 1991. A 1993 study of drains and discharges at TA-33 identified the only discharges to the septic system were from a lavatory, toilet, and sink drain. Although the building was removed from the Site in 1994, the septic tank is still in place.

The septic tank is constructed of corrugated iron and has a capacity of 500 gal. Septic tank 33-121 received wastewater from a toilet and sink in a laboratory building (33-1). While building 33-1 was in use, effluent was discharged from the septic tank to a drain field located approximately 20 ft east of the tank. The drain field is constructed of a single row of vitrified-clay tiles installed in gravel approximately 5 ft belowgrade. In addition, the RFI work plan stated that there is a buried outfall from the drain field in a side wash of Chaquehui Canyon. Land surface at the tank location slopes east approximately 200 ft to a shallow drainage eroded into the bedrock that flows south.

SWMU 33-007(c) consists of abandoned firing sites associated with the initiator tests conducted at Area 6. The firing sites included firing pads and two catcher boxes. One pad was located immediately west of building 33-0016. The catcher boxes were located approximately 20 ft south of building 33-0016 and were approximately 6 × 6 ft, constructed of timber, and filled with soil, wood chips, and vermiculite. Guns (2- to 5-in. bore) were placed on the concrete pads and used to fire projectiles containing test assemblies into targets placed in front of the catcher boxes. Materials used in the projectiles included beryllium, polonium-210, uranium, copper, lead, tungsten, and stainless steel. The projectiles frequently cracked open, contaminating the pads and surrounding area with polonium-210. Contaminated areas on the guns and pads were painted with lead-based paint to fix surface contamination. Several other firing pads were on a level area excavated into a basaltic cinder cone southwest of building 33-0016. This area was used to test nuclear gun mock-ups. A 4-in. to 5-in. bore gun was used to fire projectiles into the back of the excavation. The back of the excavation currently extends about 75 ft farther back than when the Site was used. A 1951 memorandum describes a test at Area 6 that resulted in leakage of radioactive material from a projectile. The Site was cleaned up by using a bulldozer to scrape away the contaminated soil and embankment. A 1954 memorandum describes decontamination of one of the Area 6 gun barrels. The memorandum describes removing loose material and leaving impregnated spots as high as 1 million cpm. Contaminated surface dirt was bulldozed from the shot area into the adjacent canyon.

During the 1995 IA conducted at SWMU 33-007(c), the Site was stabilized to prevent migration of metals and isotopic uranium contamination identified during the RFI. In 1996, approximately 200 yd³ of soil was removed from the catcher boxes and processed as part of a pilot test to verify the effectiveness of processes for remediating uranium-contaminated soil. Sampling results for the processed soil showed mean activities for uranium-234, uranium-235, and uranium-238 of 15.8 pCi/g, 0.515 pCi/g, and 15.7 pCi/g, respectively; the processed soil was returned to the catcher boxes. Experimental projectiles totaling 1720 lb were also discovered in the soil from the catcher boxes and were subsequently characterized and disposed of as LLW.

SWMU 33-007(c) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-007(c).

AOC C-33-003 consists of two former fill areas located at Main Site in TA-33. Fill was placed in these areas to provide level sites for portable trailers. One of the trailers (structure 33-169) was installed next to the Main Site water tower. The filled area to accommodate trailer 33-169 is approximately 100 × 100 × 4 ft deep. The other trailer (structure 33-170) was installed north of building 33-114. The filled area to accommodate trailer 33-170 is approximately 70 × 90 × 7 ft deep. Both trailers were installed in January 1984 and removed in June 1988. After the trailers were removed, no further improvements were made to these Sites. Three projectiles, one of which contained uranium, were discovered at the fill area near the water tower during brush-clearing activities conducted during the spring of 1996. The source of these projectiles appears to have been the fill material, which was obtained from the cinder cone located in Area 6, just west of Main Site. Projectiles historically were fired into catcher boxes at the base of the cinder cone during experiments conducted at the Area 6 firing area [SWMU 33-007(c)].

During a 1999 VCA, fill material was excavated until native soil or tuff was encountered. A total of 408.5 yd³ of fill material was excavated. Radiation surveys of the excavated areas showed no readings greater than 2 times local background. Confirmation samples verified cleanup levels were achieved. The excavated material was transported to a Segmented Gate System treatment plant, where radioactive materials were separated from the fill and disposed of. A total of 1.45 yd³ of contaminated fill was separated and disposed of as LLW. Treated fill samples verified cleanup levels were achieved. The decontaminated fill was returned to the Site and the Site was restored and revegetated.

AOC C-33-003 is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. Decision-level data are available for AOC C-33-003 from the 1999 VCA confirmation samples.

The project map (Figure 243-1) 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>.

243.2 Control Measures

Run-on to the SMA may originate on the paved roads north and east of the area. Control measures serve to mitigate impacts from these potential run-on sources and to moderate runoff from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 243-1).

Table 243-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00302040023	Established Vegetation		X	X		B
Q00303020001	Base Course Berm	X			X	CB
Q00303020006	Base Course Berm	X			X	CB
Q00303040015	Asphalt Berm	X			X	CB
Q00303060017	Straw Wattles	X			X	CB
Q00303060020	Straw Wattles	X			X	CB
Q00303060021	Straw Wattles	X			X	CB
Q00304060002	Rip Rap	X		X		CB
Q00304060007	Rip Rap	X		X		CB
Q00306010003	Rock Check Dam		X		X	CB
Q00306010008	Rock Check Dam		X		X	CB
Q00306010009	Rock Check Dam	X			X	CB
Q00306010010	Rock Check Dam	X			X	CB
Q00306010011	Rock Check Dam	X			X	CB
Q00306010012	Rock Check Dam	X			X	CB
Q00306010013	Rock Check Dam	X			X	CB
Q00306010014	Rock Check Dam	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

243.3 Storm Water Monitoring

SWMUs 33-004(d) and 33-007(c) and AOC C-33-003 are monitored within CHQ-SMA-2. Following the installation of baseline control measures, a baseline storm water sample was collected on July 4, 2012 (Figure 243-2). Analytical results from this sample yielded three TAL exceedances:

- Aluminum concentration of 967 µg/L (MTAL is 750 µg/L),
- Copper concentration of 6.75 µg/L (MTAL is 4.3 µg/L), and
- Gross-alpha activity of 91.2 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 or previous investigations with the storm water TAL exceedances to determine whether the exceedances may be related to historical industrial activities. The discussion is organized by Site and analyte.

SWMU 33-004(d):

- No soil sampling has been performed under the Consent Order. RFI samples were analyzed for TCLP metals rather than total metals, so aluminum and copper were not analytes.
- RFI samples were not analyzed for gross-alpha radioactivity or alpha-emitting radionuclides because they were not identified as potential contaminants at this Site.

- Aluminum, copper, and alpha-emitting radionuclides are not associated with industrial materials historically managed at the Site, although laboratory bench-scale quantities of aluminum were used in growing crystals.

SWMU 33-007(c):

Potential contaminants associated with industrial materials historically managed at this Site are metals, including copper, lead, and zinc, and radionuclides, including uranium. Consent Order soil sampling has not yet been conducted at SWMU 33-007(c).

- Aluminum—Soil samples previously collected at the Site were not analyzed for aluminum because this constituent is not associated with industrial materials historically managed at this Site.
- Copper—Soil samples previously collected at the Site were not analyzed for copper. Although copper is associated with industrial materials historically managed at this Site, the quantities managed are believed to be low.
- Gross alpha—Uranium was detected above the BV in previous RFI soil samples with a maximum uranium concentration 40 times BV.

In summary, based on site history, it was determined that the Site is an unlikely source of aluminum and copper in storm water results above TALs. Uranium, which has alpha-emitting isotopes, is associated with industrial materials historically managed at the Site and was detected substantially above BV in soil samples. Uranium isotopes, however, 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 this Site. Based on site history, previous sampling results, and calculation of adjusted gross alpha, the Site is an unlikely source of adjusted gross alpha above the ATAL in storm water.



CHQ-SMA-2, Rock Check Dam,
Q00306010008 (photo ID 10887-11)

AOC C-33-003:

- Aluminum was not detected above BV in previous RFI soil samples collected at the Site. Aluminum is not associated with industrial materials historically managed at this Site.
- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was detected above BVs in 14 of 17 shallow VCA samples at a maximum concentration 4.1 times the tuff BV.
- Alpha-emitting radionuclides are not known to have been associated with industrial materials historically managed at the Site. VCA samples were not analyzed for gross-alpha radioactivity but were analyzed for isotopic uranium, which contains alpha-emitting radionuclides. Any alpha-emitting radionuclides associated with the Site would be exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

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 243-2. 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 243-2.

Most of the CHQ-SMA-2 drainage area is located on Bandelier Tuff, and minimal run-on occurs from developed facilities (i.e., buildings, pavement, and parking lots); therefore, calculated storm water UTLs from samples containing sediment derived from Bandelier Tuff were compared with aluminum, copper 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 a major component of Bandelier Tuff, and copper is associated with trace minerals in the Bandelier Tuff as well.

- Aluminum—The aluminum UTL for storm water containing sediments derived from Bandelier Tuff is 2210 µg/L; the result from 2012 is less than this value.
- Copper—The copper UTL for storm water containing sediments derived from Bandelier Tuff is 3.43 µg/L; the result from 2012 is greater than this value.
- Gross alpha—The gross-alpha UTL for storm water containing sediments derived from Bandelier Tuff is 1490 pCi/L; the result from 2012 is less than this value.

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

243.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-2 during the 2013 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 243-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30726	5-9-2013
Storm Rain Event	BMP-33159	7-9-2013
Storm Rain Event	BMP-33475	7-25-2013
Storm Rain Event	BMP-34212	8-6-2013
Storm Rain Event	BMP-35218	9-17-2013
Storm Rain Event	BMP-36310	9-30-2013
Annual Erosion Evaluation	COMP-36665	10-29-2013

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

Table 243-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37010	Extend both ends of rock check dam Q00306010009 with rock on site.	11-21-2013	23 day(s)	Maintenance conducted in timely manner.
BMP-37011	Extend both ends of rock check dam Q00306010010 with rock on site.	11-21-2013	23 day(s)	Maintenance conducted in timely manner.
BMP-37012	Extend both ends of rock check dam Q00306010011 with rock on site.	11-21-2013	23 day(s)	Maintenance conducted in timely manner.

243.5 Compliance Status

The Sites associated with CHQ-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 243-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-004(d)	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
SWMU 33-007(c)	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012
AOC C-33-003	Corrective Action Initiated	Corrective Action Initiated	Initiated August 27, 2012

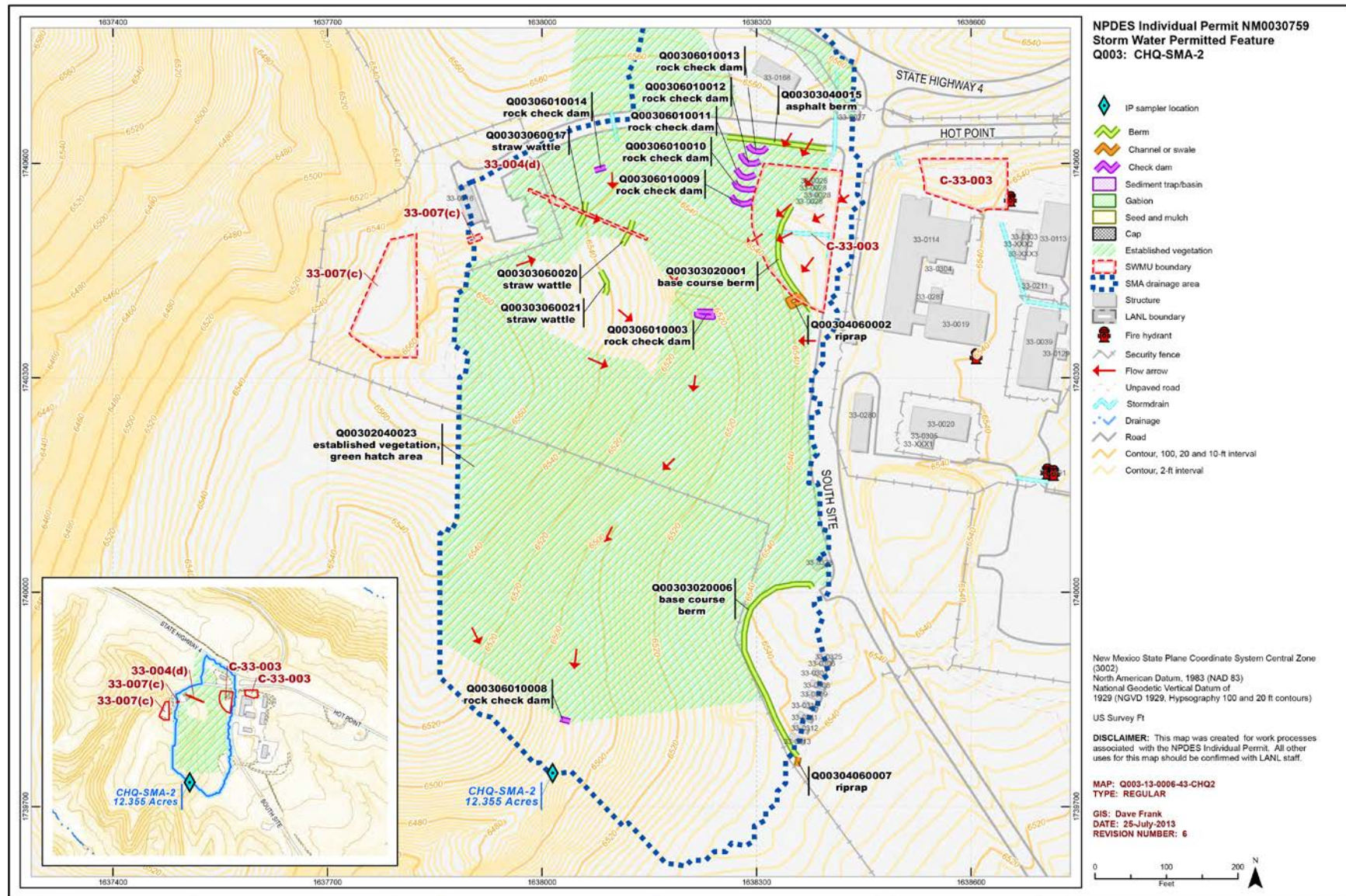


Figure 243-1 CHQ-SMA-2 location map

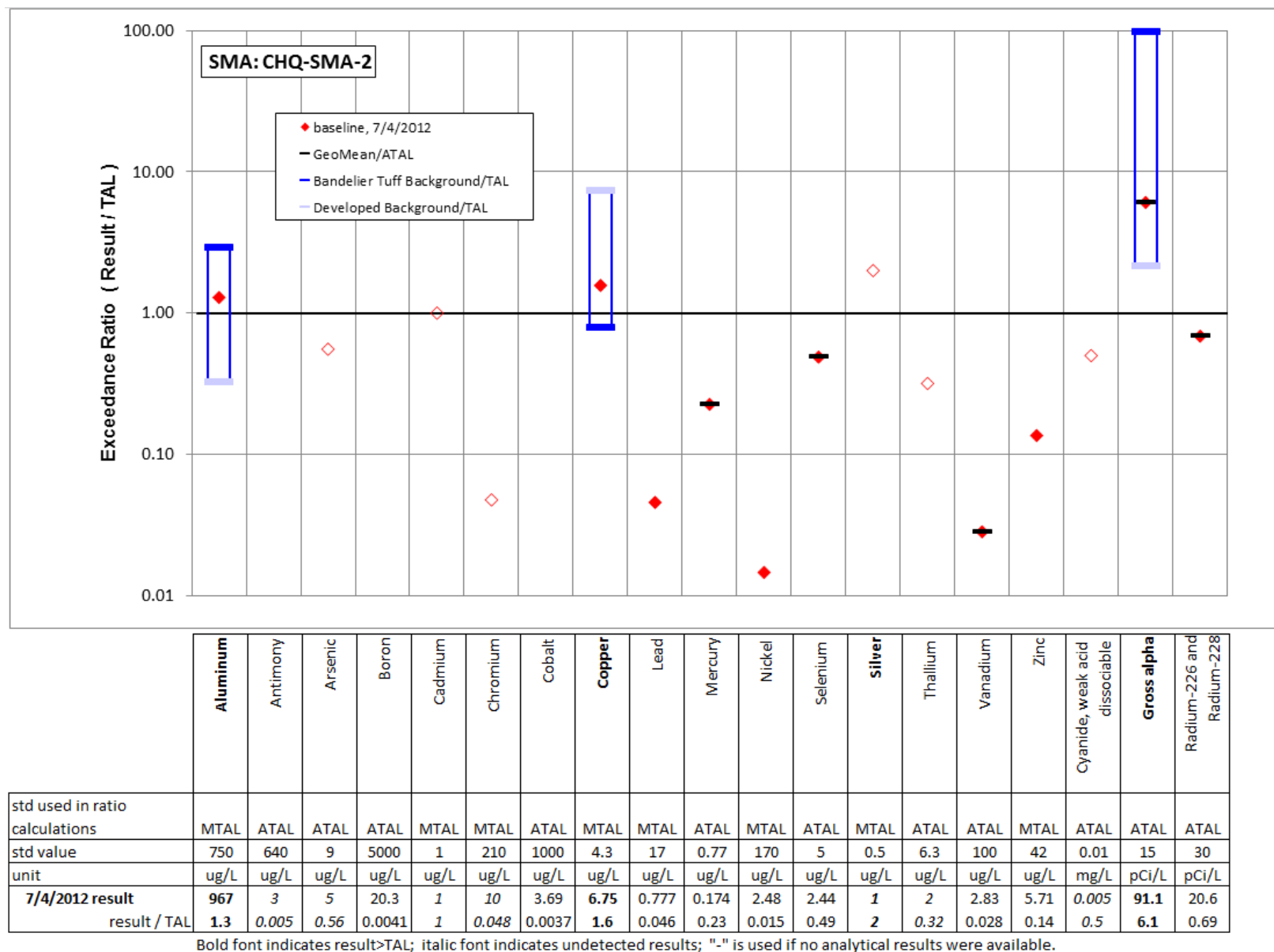


Figure 243-2 Inorganic analytical results summary plot for CHQ-SMA-2

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

244.1 Site Descriptions

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

SWMU 33-010(f) consists of a surface disposal area at TA 33. The history of the Site and the origins of the wastes are not known. The 1990 SWMU report states the SWMU was observed during a 1987 reconnaissance conducted by the former ER Project and describes it as concrete, cans, and metal pieces that littered the area east of former building 33-0086. The RFI report describes this SWMU as consisting of two small surface disposal areas located 300 ft southeast of former building 33-0086 and approximately 50 ft apart. One of the areas is described as approximately 15 ft² and the other as approximately 200 ft². Materials at the Site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other debris. Although the source of these materials is not known, some are believed to be associated with roadwork activities. During the 2005 VCA implemented at SWMUs 33-002(a, b, and c), directly northwest of SWMU 33-010(f), no debris was visible at this SWMU or anywhere around the SWMU.

The project map (Figure 244-1) 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>.

244.2 Control Measures

This SMA is located in an undeveloped area. There are no roads, structures, or other contributions of concentrated run-on to the monitored area. Control measures provide improved sediment retention and reduce any impact to the area from overland sheet flow. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 244-1).

Table 244-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00402040009	Established Vegetation		X	X		B
Q00403010008	Earthen Berm		X		X	B
Q00403060002	Straw Wattles	X			X	CB
Q00403060003	Straw Wattles	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

244.3 Storm Water Monitoring

SWMU 33-010(f) is monitored within CHQ-SMA-3.05. Following the installation of baseline control measures, a baseline storm water sample was collected on September 10, 2013 (Figures 244-2 and 244-3). Analytical results from this sample yielded two TAL exceedances:

- Gross-alpha activity of 60.3 pCi/L (ATAL is 15 pCi/L).
- PCB concentration of 0.9 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 33-010(f):

Although no soil samples have been collected under the Consent Order, screening-level RFI data are available for this Site.

- Soil samples collected from during the 1993 RFI at the Site were not analyzed for PCBs because they are not known to have been associated with industrial materials historically managed at this Site.
- RFI samples were not analyzed for gross-alpha radioactivity but were analyzed by gamma spectroscopy. However, alpha-emitting radionuclides were not included because they are not known to have been associated with industrial materials historically managed at this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 244-2 and 244-3. 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 244-2 and 244-3.

Monitoring location CHQ-SMA-3.05 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these values.
- PCBs—The PCB UTL from developed urban landscape storm water run-on is 98 ng/L; the PCB UTL for background storm water containing sediment derived from Bandelier Tuff is 11.7 ng/L. The PCB result from 2013 is less than both these two values.

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

244.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-3.05 during the 2013 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 244-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30727	5-9-2013
Storm Rain Event	BMP-33164	7-9-2013
Storm Rain Event	BMP-33480	7-24-2013
Storm Rain Event	BMP-34217	8-6-2013
Storm Rain Event	BMP-35223	9-17-2013
Storm Rain Event	BMP-36315	10-24-2013
Annual Erosion Evaluation	COMP-36666	10-24-2013
TAL Exceedance	COMP-36880	10-24-2013

No maintenance activities were conducted at CHQ-SMA-3.05 in 2013.

244.5 Compliance Status

The Site associated with CHQ-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 244-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2012	Comments
SWMU 33-010(f)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-23-13

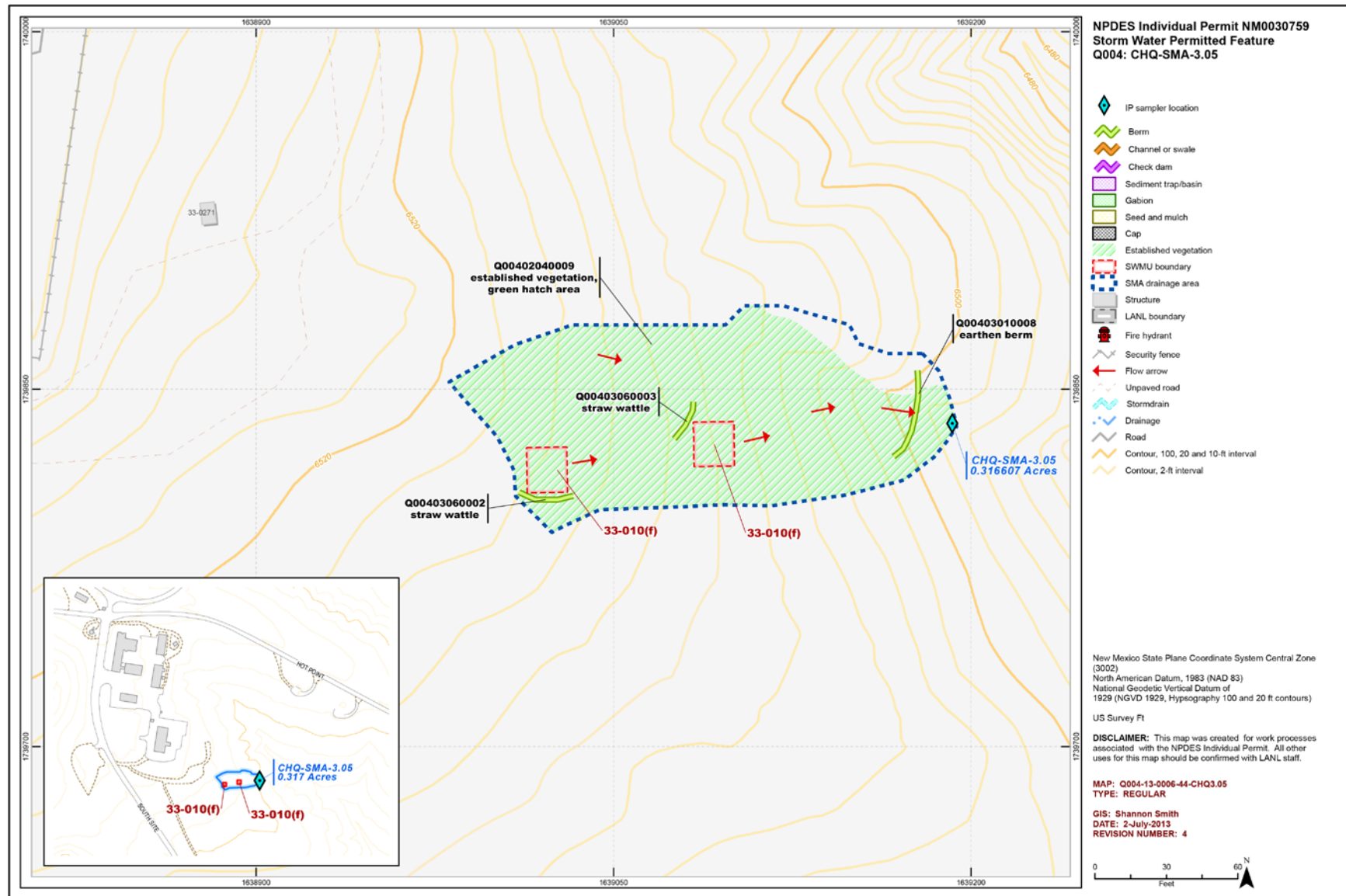


Figure 244-1 CHQ-SMA-3.05 location map

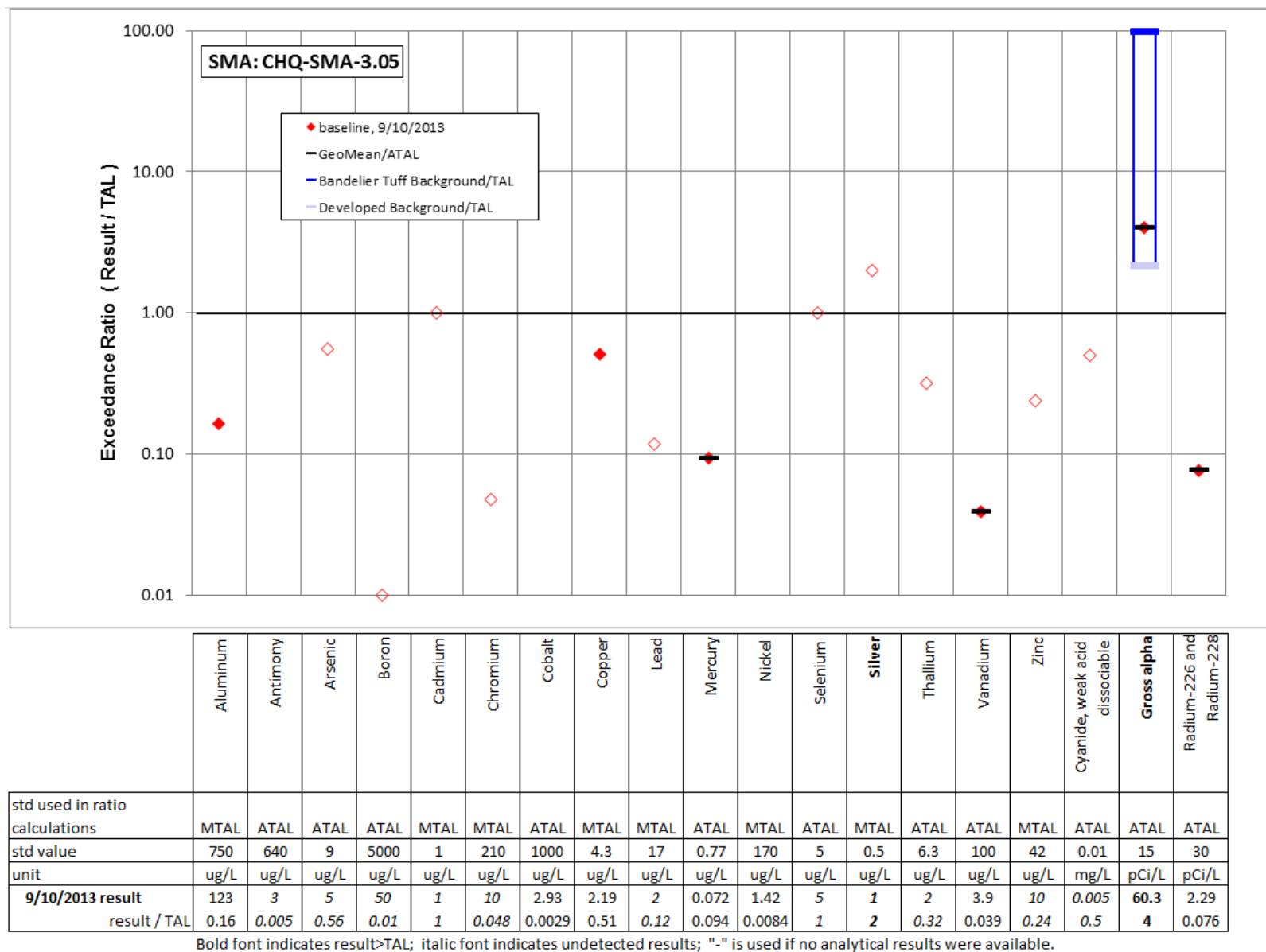


Figure 244-2 Inorganic analytical results summary plot for CHQ-SMA-3.05

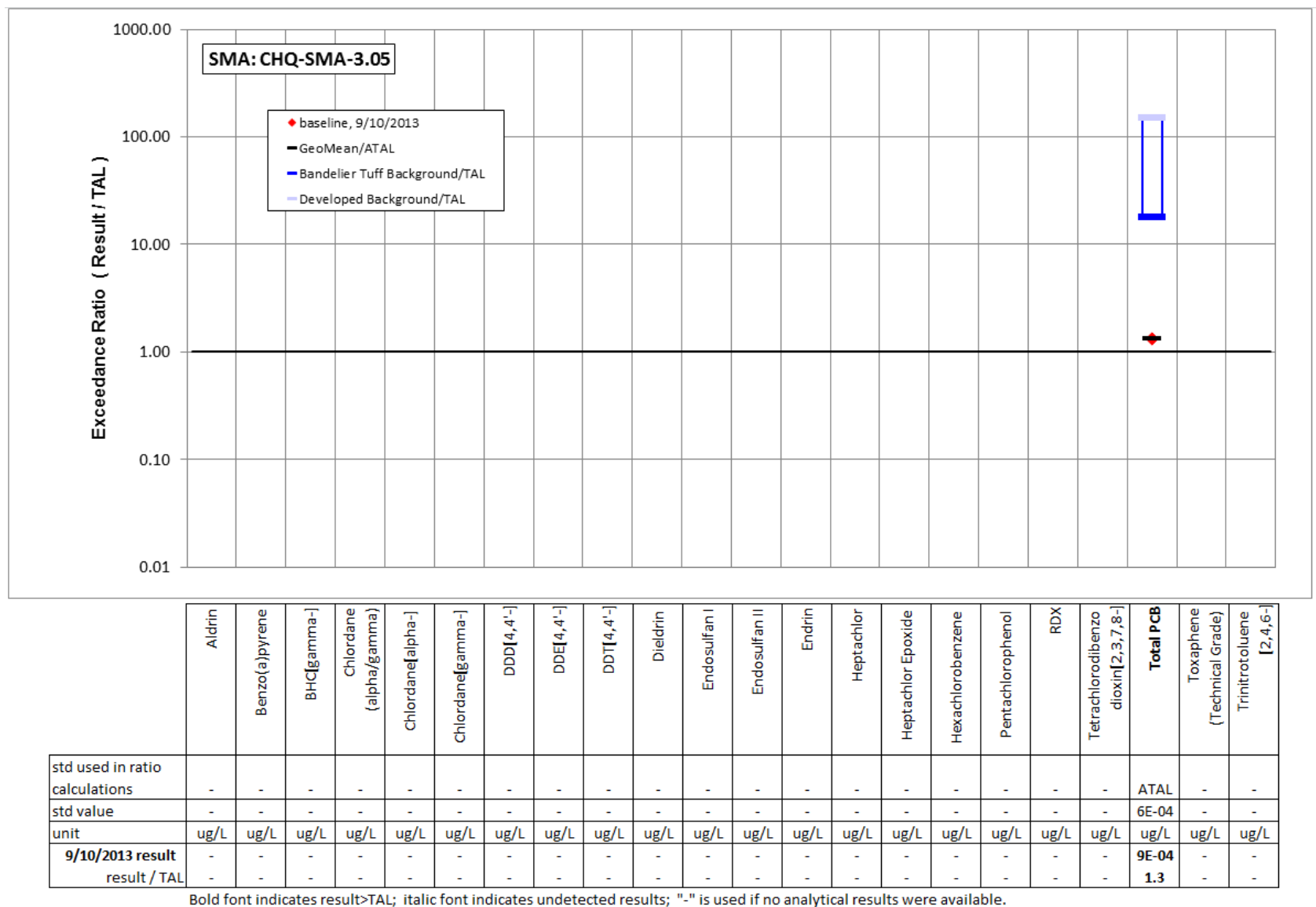


Figure 244-3 Organic analytical results summary plot for CHQ-SMA-3.05

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

245.1 Site Descriptions

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

SWMU 33-011(e) is a former drum-storage area located at the south end of TA-33 Main Site, approximately 30 ft northwest of building 33-0022, a former HE storage magazine. The area is unpaved and gradually slopes to the southwest. Drums containing unknown materials were previously stored in this area. The date the materials were first stored at this Site is not known. At the time the OU 1122 RFI work plan was prepared in 1992, all drums had been removed from the Site and the area had been cleared. The Site has not been used since that time.

SWMU 33-011(e) is included in the Consent Order as part of the Chaquehui Canyon Aggregate Area. Consent Order investigations for this aggregate area have not yet begun. The investigation work plan for Chaquehui Canyon Aggregate Area was approved in March 2011; the investigation report for the aggregate area is due to NMED by March 31, 2015. No decision-level data are available for SWMU 33-011(e).

The project map (Figure 245-1) 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>.

245.2 Control Measures

Run-on in the form of sheet flow may originate from a small portion of paved area in proximity to this SMA. Most of the potential run-on flows to the south, away from the SWMU. Controls are installed to promote vegetative growth, to mitigate any impacts from run-on sources, and to moderate runoff from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 245-1).

Table 245-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00502040019	Established Vegetation		X	X		B
Q00503010020	Earthen Berm		X		X	B
Q00503060006	Straw Wattles	X			X	CB
Q00506010003	Rock Check Dam		X		X	CB
Q00506010004	Rock Check Dam		X		X	CB
Q00506010005	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

245.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at CHQ-SMA-4. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

245.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-4 during the 2013 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 245-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30728	5-9-2013
Storm Rain Event	BMP-33160	7-9-2013
Storm Rain Event	BMP-33476	7-24-2013
Storm Rain Event	BMP-34213	8-6-2013
Storm Rain Event	BMP-35219	9-16-2013
Storm Rain Event	BMP-36311	10-24-2013
Annual Erosion Evaluation	COMP-36667	10-24-2013

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

Table 245-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37115	Modify earthen berm -0016 by extending the south end to the bunker. Remove matting from south end of berm. Add clean fill to extend berm to same height as existing section and compact. Apply seed and matting to new section of berm and junction of new section of berm with previously existing section of berm. Apply seed and mulch to any area disturbed by maintenance activities.	11-13-2013	20 day(s)	Maintenance conducted in timely manner.
BMP-37116	Add clean fill and compact to same height as existing berms. Apply seed and matting to new section of berm and both sites where new section of berm joins previously existing berms. Apply seed and mulch to any area disturbed by maintenance activities.	11-13-2013	20 day(s)	Maintenance conducted in timely manner.

245.5 Compliance Status

The Site associated with CHQ-SMA-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 245-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-011(e)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



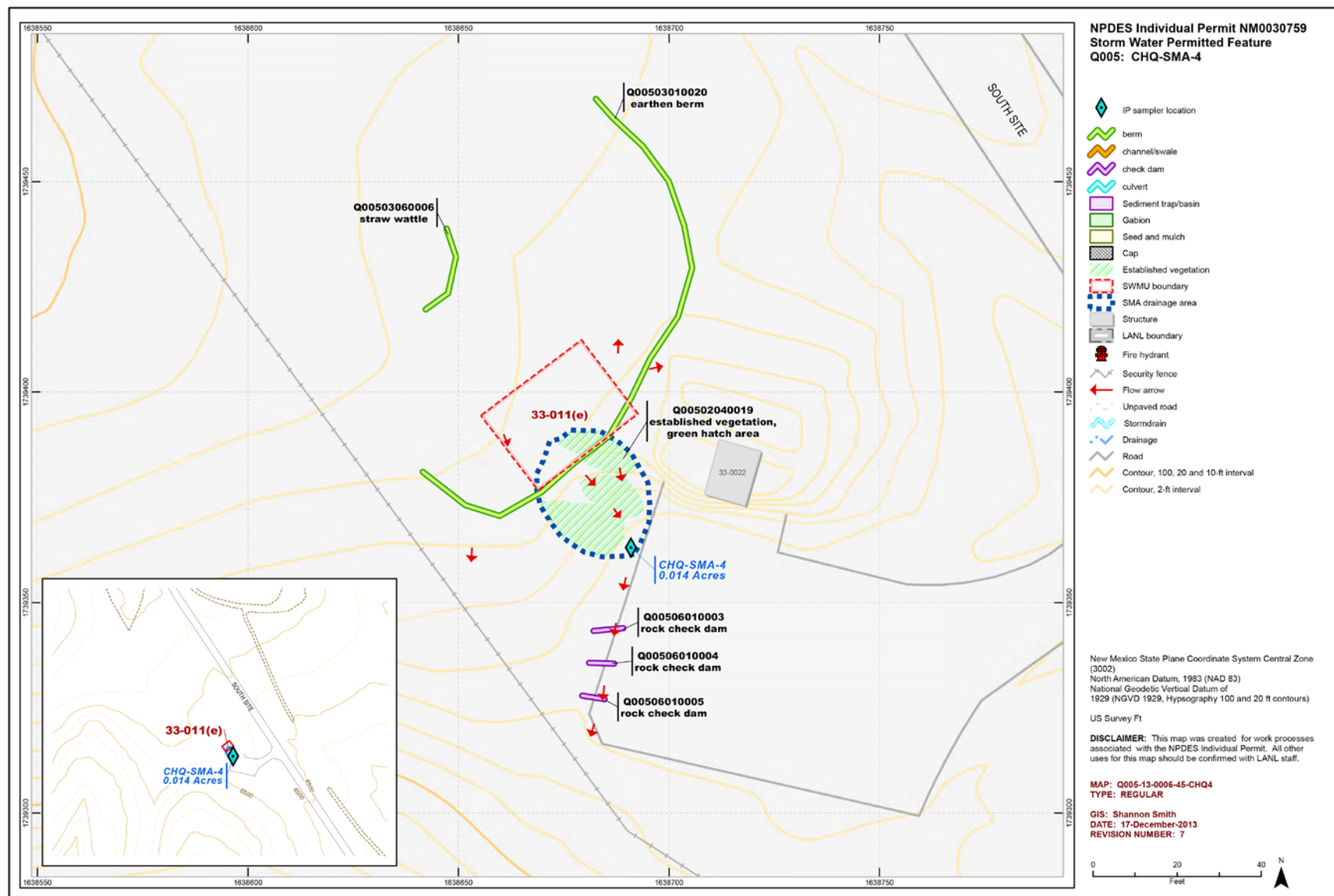


Figure 245-1 CHQ-SMA-4 location map

246.0 CHQ-SMA-4.1: SWMU 33-016

246.1 Site Descriptions

One historical industrial activity area is associated with Q006, CHQ-SMA-4.1: Site 33-016.

SWMU 33-016 consists of a formerly used sump and associated drainline and outfall at a process bunker (structure 33-0023) located in the southern portion of Main Site at TA-33. The concrete sump is 3 × 2 × 2 ft deep and is located next to the northwest corner of the bunker's exterior wall, near the door. A drainline leads from the sump to an outfall approximately 250 ft southwest of the building to a small side canyon to Chaquehui Canyon. The sump was connected to a sink and floor drain in the bunker, which was constructed in 1950. From 1950 to 1972, the bunker was used as a trim building to prepare propellant charges for gun tests at South Site. Structure 33-0023 was subsequently used until 1994 to store lithologic cores from the Hot Dry Rock Program. In addition to the sink and floor drain, the sump also may have received rainwater and snowmelt. The VCA implemented at SWMU 33-016 in 1995 involved removing the sump contents, filling the sump with approximately 3 yd³ of sand and gravel and capping the sump with 1 ft of concrete. The sump contents were characterized and determined to be nonhazardous.

The project map (Figure 246-1) 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>.

246.2 Control Measures

There are no significant run-on sources at this SMA. Control measures serve to mitigate any impacts from overland flow along the southwestern boundary and to moderate runoff from this SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 246-1).

Table 246-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00602040008	Established Vegetation		X	X		B
Q00603060004	Straw Wattles	X			X	CB
Q00603060005	Straw Wattles	X			X	CB
Q00606010002	Rock Check Dam		X		X	CB
Q00606010003	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

246.3 Storm Water Monitoring

SWMU 33-016 is monitored within CHQ-SMA-4.1. Following the installation of baseline control measures, a baseline storm water sample was collected on September 13, 2013 (Figures 246-2 and 246-3). Analytical results from this sample yielded one TAL exceedance:

- Gross-alpha activity of 34.5 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 33-016:

- None of the 5 shallow (i.e., less than 3 ft bgs) samples collected during the 1993 RFI at the Site were analyzed for gross-alpha radioactivity or any other radionuclides because they are not known to have been associated with industrial materials historically managed at this Site. Radionuclides were not detected in the sludge removed from the sump. The RFI data are screening level only; no decision-level data are available for this Site.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 246-2 and 246-3. 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 246-2 and 246-3.

Monitoring location CHQ-SMA-4.1 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

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

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

246.4 Inspections and Maintenance

RG340 recorded nine Storm events at CHQ-SMA-4.1 during the 2013 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 246-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30729	5-9-2013
Storm Rain Event	BMP-33165	7-9-2013
Storm Rain Event	BMP-33481	7-24-2013
Storm Rain Event	BMP-34218	8-6-2013
Storm Rain Event	BMP-35224	9-16-2013
Storm Rain Event	BMP-36316	10-24-2013
Annual Erosion Evaluation	COMP-36668	10-24-2013
TAL Exceedance	COMP-36881	10-24-2013

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

Table 246-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-37008	Rebuild rock check dam Q00606010002 with rock on site.	11-21-2013	28 day(s)	Maintenance conducted in timely manner.
BMP-37009	Rebuild rock check dam Q00606010003 with rock on site	11-21-2013	28 day(s)	Maintenance conducted in timely manner.

246.5 Compliance Status

The Site associated with CHQ-SMA-4.1 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 246-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-016	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 10-22-13

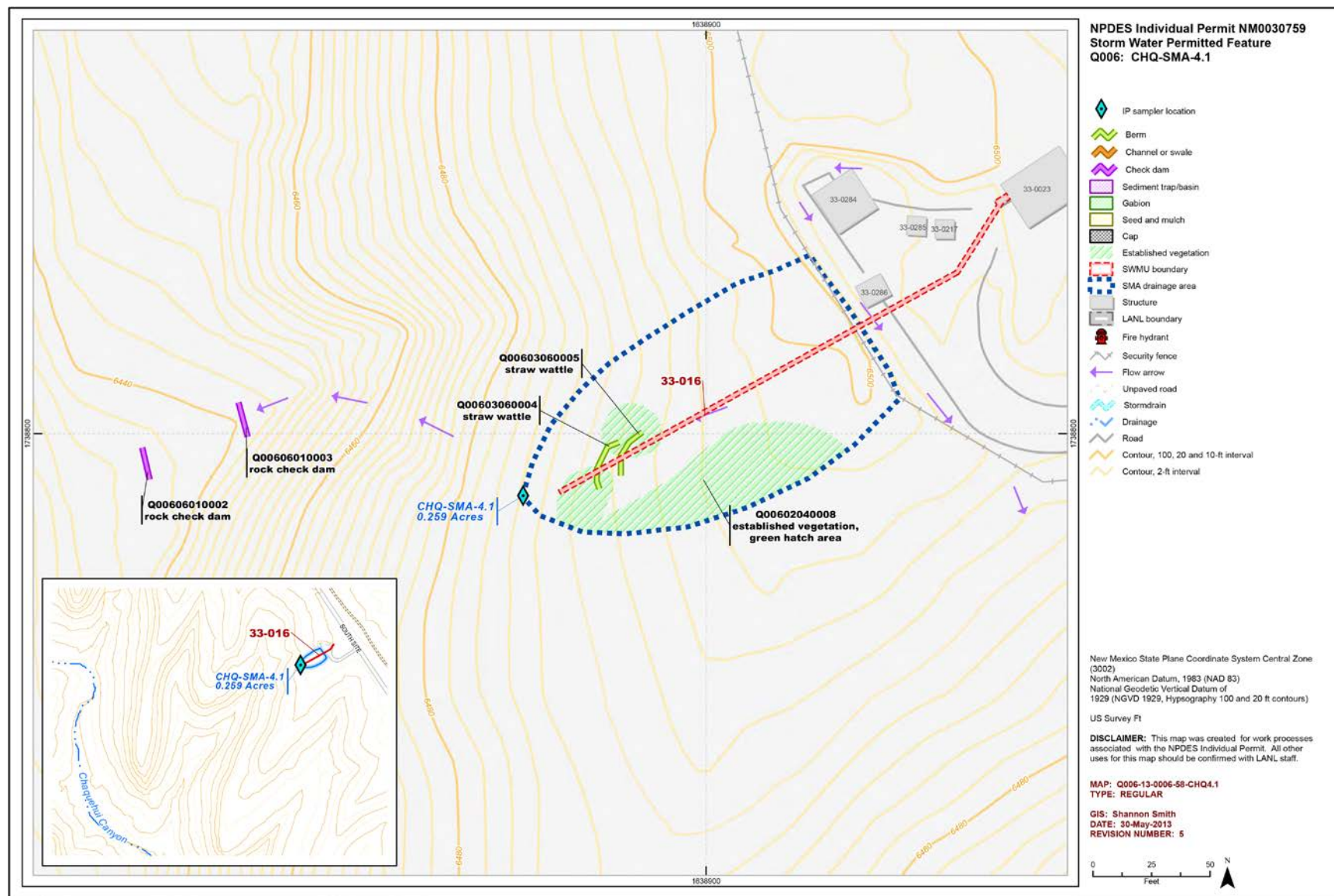
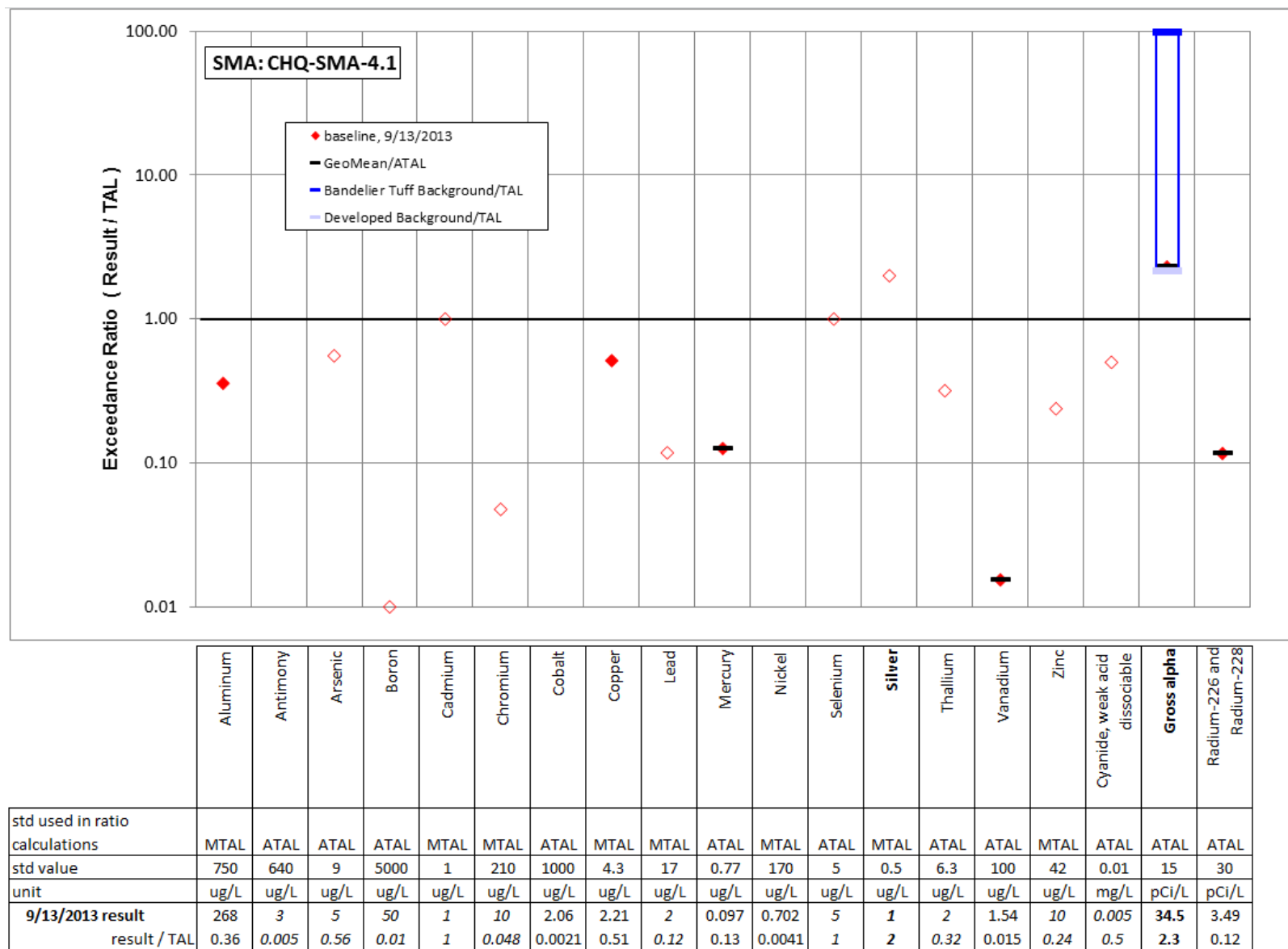
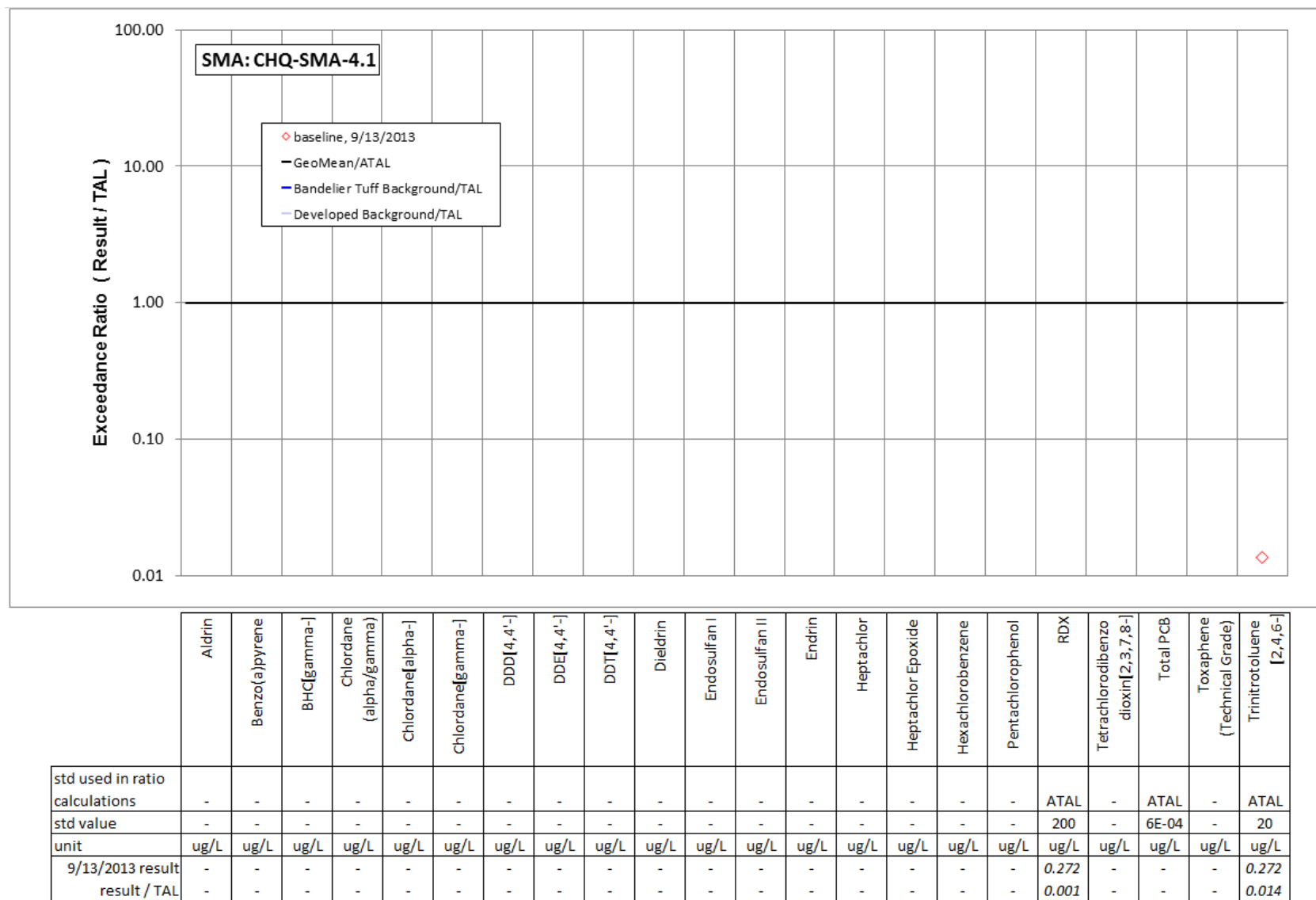


Figure 246-1 CHQ-SMA-4.1 location map



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

Figure 246-2 Inorganic analytical results summary plot for CHQ-SMA-4.1



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

Figure 246-3 Organic analytical results summary plot for CHQ-SMA-4.1

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

247.1 Site Descriptions

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

AOC 33-011(b) consists of a former storage area located just outside the northwest corner of the National Radio Astronomy Observatory site at TA 33. This storage area was approximately 300 ft wide × 600 ft long. Beginning in the 1950s, the Site served as a storage area for equipment and materials such as tungsten, uranium, and beryllium. Equipment used at the TA-33 firing sites was also stored at the Site. The storage area was cleaned in 1984, and most materials and debris were removed at that time, although some debris remained. Approximately 75% of the area was scraped and leveled to or near the tuff bedrock. During the 1996 VCA, all remaining surface debris was removed from the Site. A total of 2 yd³ of nonhazardous/nonradioactive debris and 0.5 ft³ of radioactive debris were removed. No confirmation samples were collected during the VCA because no soil was removed.

The project map (Figure 247-1) 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>.

247.2 Control Measures

There are no significant run-on contributions to this monitored area. Paved areas in proximity to the SMA are graded away from the SMA. Control measures serve to moderate runoff from this SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 247-1).

Table 247-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00702040010	Established Vegetation		X	X		B
Q00703010009	Earthen Berm		X		X	B
Q00703060011	Straw Wattles		X		X	B
Q00703060013	Straw Wattles		X		X	B
Q00703060014	Straw Wattles		X		X	B
Q00703060015	Straw Wattles		X		X	B
Q00706010002	Rock Check Dam		X		X	CB
Q00706010003	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: additional baseline control measure.

EC: enhanced control measure.

247.3 Storm Water Monitoring

AOC 33-011(b) is monitored within CHQ-SMA-4.5. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figure 247-2). Analytical results from this sample yielded one TAL exceedance:

- Gross-alpha activity of 103 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.

AOC 33-011(b):

- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Although no soil samples have been collected under the Consent Order, RFI screening-level soil data are available for this Site. None of the 10 shallow (i.e., less than 3 ft bgs) samples collected during the 1994 RFI were analyzed for gross-alpha radioactivity but were analyzed by gamma spectroscopy, which is capable of detecting americium-241 and uranium-235. No alpha-emitting radionuclides were detected.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figure 247-2. 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 247-2.

Monitoring location CHQ-SMA-4.5 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

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

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

247.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-4.5 during the 2013 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 247-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30730	5-6-2013
Storm Rain Event	BMP-33166	7-9-2013
Storm Rain Event	BMP-33482	7-24-2013
Storm Rain Event	BMP-34219	8-6-2013
Storm Rain Event	BMP-35225	9-17-2013
Storm Rain Event	BMP-36317	10-24-2013
Annual Erosion Evaluation	COMP-36669	10-24-2013
TAL Exceedance	COMP-35290	9-9-2013

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

Table 247-3 Maintenance during 2013

Maintenance Reference	Maintenance Conducted	Maintenance Date	Response Time	Response Discussion
BMP-31838	Install 3 to 5 wattles in area indicated on attached map.	7-19-2013	74 day(s)	Maintenance conducted as soon as practicable.
BMP-34653	Install new straw wattle directly above existing wattle -0008. Wattle -0008 will be retired when work is completed.	8-13-2013	7 day(s)	Maintenance conducted in timely manner.
BMP-34654	Install new rock check dam in channel directly above existing rock check dam Q00706010003. Rock check dam -0003 will be retired when work is completed.	11-14-2013	100 day(s)	Maintenance conducted as soon as practicable.
BMP-36197	Replace straw wattle -0012 by installing a new wattle directly upstream of wattle -0012.	11-7-2013	51 day(s)	Maintenance conducted as soon as practicable.

247.5 Compliance Status

The Site associated with CHQ-SMA-4.5 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 247-4 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
AOC 33-011(b)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 9-5-13



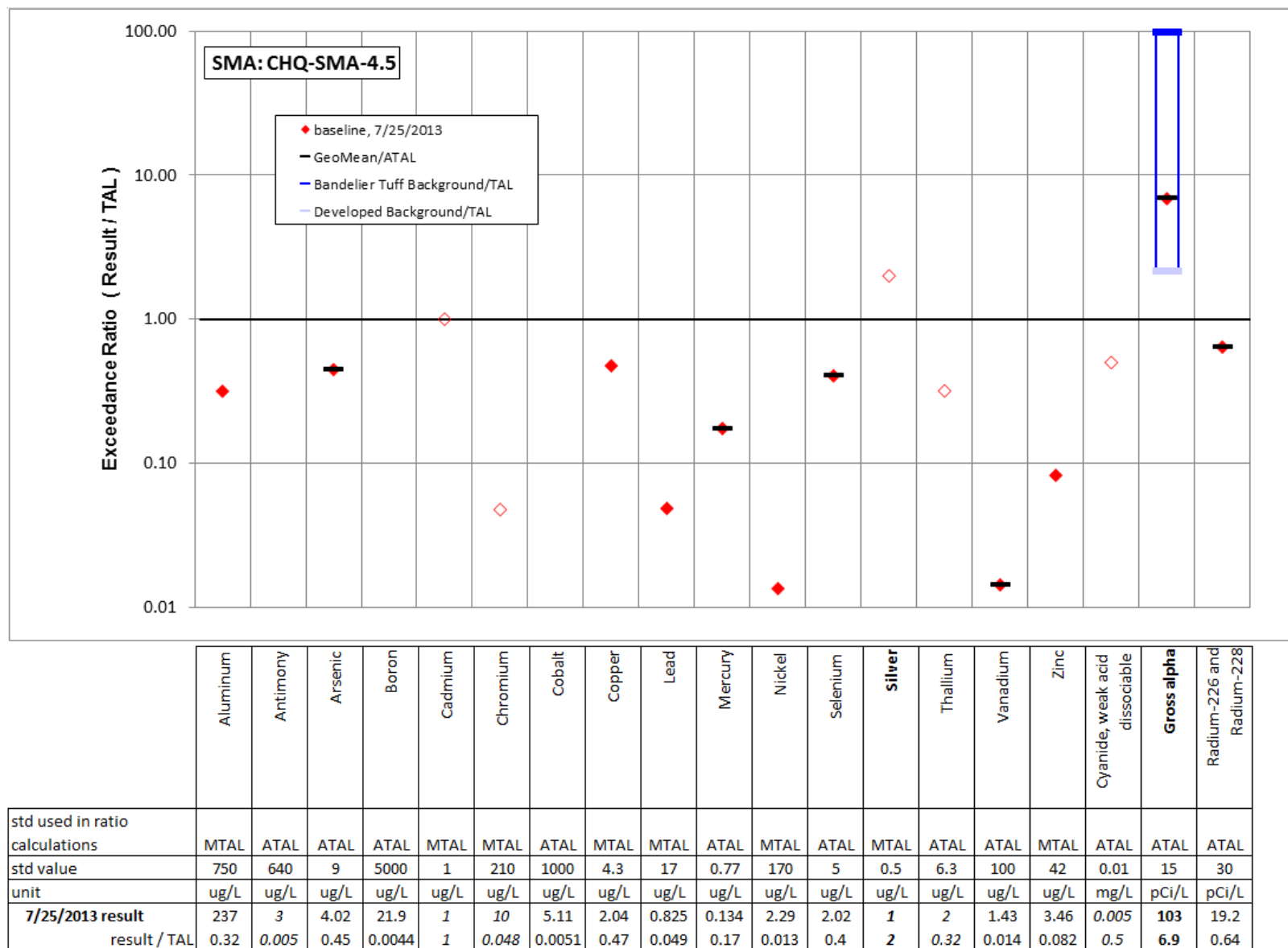


Figure 247-2 Inorganic analytical results summary plot for CHQ-SMA-4.5

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

248.1 Site Descriptions

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

SWMU 33-007(b) consists of two inactive gun firing sites at TA-33. The first area is located approximately 600 ft north of structure 33-0026 [SWMU 33-006(a)] and consists of a 6- × 6-ft concrete pad and gun mount (structure 33-0085), a u-shaped soil berm (structure 33-0043), and a catcher box. The berm and catcher box were constructed in August 1950. The concrete pad and gun mount were constructed in June 1952. This area was used to test free-recoil weapons. Tests involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings.

The other gun firing site was located on the west side of South Site and included a gun building (structure 33-0025) and a berm (structure 33-0063). The gun building housed 2- to 4-in. bore guns that were used to fire projectiles into the structure 33-0063 berm, which consisted of a mound of soil approximately 50 × 50 × 10 ft high. The projectiles used at this Site contained uranium, beryllium, and tungsten. South Site activities were discontinued in the late 1950s. The Site was used to support atmospheric physics measurements in the late 1980s and early 1990s. Structures associated with these activities include a tower (structure 33-203) constructed in 1987 and two trailers (structures 33-201 and 33-202).

A VCA was performed in 1999 during which time berm 33-0063 was removed. Treated soil was returned back to the location of the former berm, and the Site was graded and compacted. Recently, approximately 1 to 2 ft of engineered fill has been placed over the location of the former berm. Building 33-0025 was renovated in 2005 and 2006.

Consent Order sampling has not been performed, and no decision-level soil data are available for this Site. Screening-level data are available from the 1995 RFI and the 1999 VCA.

The project map (Figure 248-1) 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>.

248.2 Control Measures

There are minor run-on contributions from a roof and surrounding bare areas to the SMA. Existing controls effectively manage these run-on contributions and also provide sediment retention for any runoff from this SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 248-1).

Table 248-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00802040008	Established Vegetation		X	X		B
Q00803020006	Base Course Berm		X		X	CB
Q00804060002	Rip Rap		X	X		CB
Q00804060005	Rip Rap	X		X		CB
Q00804060007	Rip Rap		X	X		CB
Q00806010003	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

248.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at CHQ-SMA-5.05. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

248.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-5.05 during the 2013 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 248-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30731	5-9-2013
Storm Rain Event	BMP-33169	7-9-2013
Storm Rain Event	BMP-33485	7-24-2013
Storm Rain Event	BMP-34222	8-6-2013
Storm Rain Event	BMP-35228	9-16-2013
Storm Rain Event	BMP-36320	10-24-2013
Annual Erosion Evaluation	COMP-36670	10-24-2013

No maintenance activities were conducted at CHQ-SMA-5.05 in 2013.

248.5 Compliance Status

The Sites associated with CHQ-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 248-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-007(b)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment



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

249.1 Site Descriptions

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

SWMU 33-004(j) is an outfall at the end of a 4-in. steel pipe used to drain storm water from the entrance pad to building 33-26. Building 33-0026 is the x-unit vault for the South Site firing pad at TA-35 and formerly housed electronics used to control experiments conducted on the firing pad. These experiments were conducted from 1950 to 1956, and the vault is now empty. Structure 33-0026 was abandoned in 1956 along with the drainline and outfall.

The vault was cut into the tuff and the entrance pad to the vault is located belowgrade. The drainline runs from the entrance pad, which is on the south side of building 33-26, approximately 200 ft south to the outfall. The outfall is located in a small arroyo that drains south to Chaquehui Canyon. A culvert at the upper end of this arroyo, upstream of the outfall, also may have received storm runoff from the vault entrance pad. No hazardous materials are known to have been used in building 33-26, but the entrance pad may have been contaminated with debris from the SWMU 33-006(a) firing pad, located above the vault.

SWMU 33-006(a) consists of an inactive shot pad at TA-33 South Site and the surrounding area that potentially was impacted by shrapnel and debris from implosion tests conducted at the pad. This area extends to a radius of approximately 1.1 mi around the shot pad. Operations at South Site began in June 1950 and continued until 1955. The shot pad has been inactive since that time. The shot pad is approximately 40 ft in diameter and encompasses building 33-26, which housed electronic equipment associated with the tests. The tests conducted at SWMU 33-006(a) involved initiator devices placed inside uranium shells and imploded with HE. The amount of HE used in each test ranged from 275 to 5000 lb. Before detonations, the assemblies were placed in copper cans for electrical shielding and covered with wooden boxes. The detonations spread shrapnel, including copper and uranium, throughout the South Site valley. Reportedly, two to three shots were made per week. Runoff from the firing pad flows to an arroyo, which drains south to Chaquehui Canyon.

An IA was performed at SWMU 33-006(a) in 1996 to remove contaminated debris within a half-mile radius from the shot pad and to prevent the off-site migration into Chaquehui Canyon. Firing-site shrapnel and debris were removed from mesa-top areas and drainages along the southern rim of Chaquehui Canyon within Bandelier National Monument, from drainage channels along the northern rim of Chaquehui Canyon, and from the canyon bottom. Since 1996, the entire area south of building 33-0025 [SWMU 33-007(b)] has been significantly disturbed by the installation of new utilities during the complete renovation of building 33-0025. Currently, the pad is covered with up to a foot or more of sand and firing site debris.

SWMU 33-007(b) consists of two inactive gun firing sites at TA-33. The first area is located approximately 600 ft north of structure 33-0026 [SWMU 33-006(a)] and consists of a 6- × 6-ft concrete pad and gun mount (structure 33-0085), a u-shaped soil berm (structure 33-0043), and a catcher box. The berm and catcher box were constructed in August 1950. The concrete pad and gun mount were constructed in June 1952. This area was used to test free-recoil weapons. Tests involved firing projectiles into the berm and the catcher box. Projectiles fired from the guns contained uranium, beryllium, titanium, and tritium housed inside steel casings.

The other gun firing site was located on the west side of South Site and included a gun building (structure 33-0025) and a berm (structure 33-0063). The gun building housed 2- to 4-in. bore guns that were used to fire projectiles into the structure 33-0063 berm, which consisted of a mound of soil approximately 50 × 50 × 10 ft high. The projectiles used at this Site contained uranium, beryllium, and tungsten. South Site activities were discontinued in the late 1950s. The Site was used to support atmospheric physics measurements in the late 1980s and early 1990s. Structures associated with these activities include a tower (structure 33-203) constructed in 1987 and two trailers (structures 33-201 and 33-202).

A VCA was performed in 1999 during which time berm 33-0063 was removed. Treated soil was returned back to the location of the former berm, and the Site was graded and compacted. Recently, approximately 1 to 2 ft of engineered fill has been placed over the location of the former berm. Building 33-0025 was renovated in 2005 and 2006.

Consent Order sampling has not been performed, and no-decision level soil data are available for this Site. Screening-level data are available from the 1995 RFI and the 1999 VCA.

SWMU 33-010(c) consists of a former surface disposal area located at South Site on the northern rim of Chaquehui Canyon, approximately 230 ft south of structure 33-0026. The disposal area dimensions were approximately 50 × 30 × 2 ft to 4 ft deep. The area is located along the western edge of the main South Site drainage channel. From approximately 1950 to 1955, this Site was used to dispose of debris from the implosion tests conducted at SWMU 33-006(a). Debris disposed of at the Site includes copper and aluminum shrapnel, pieces of electronic cable, and wood. Between shots, the shot pad and surrounding area were scraped and the debris deposited at SWMU 33-010(c).

During the 1999 VCA, the debris pile was excavated and removed. Soil with radioactivity levels above the cleanup criterion removed during the VCA was disposed of at Area G; soil with radioactivity levels below the cleanup criterion was returned to the SWMU boundaries. The treated soil was then regraded, compacted, and reseeded with native vegetation. Confirmation samples collected during the 1999 VCA included samples from four locations within the excavated area and three surface samples from the drainage east of the disposal area.

SWMU 33-010(g) consists of a former disposal area that was located on the south side of TA-33 South Site at the edge of Chaquehui Canyon. Debris was scattered along the rim and upper walls of the canyon. This former disposal area is located within the boundaries impacted by former activities at the SWMU 33-006(a) gun firing site. The firing pad for SWMU 33-006(a) is located approximately 500 ft northwest of the SWMU 33-010(g) disposal area. Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) reportedly resulted from the initial clearing of South Site. Other debris included chunks of metal. The period of operation for this disposal Site is not known, but firing-site operations associated with initiator testing at South Site were conducted from 1950 through 1956. A VCA conducted in 1995 resulted in the removal of 4 yd³ of nonhazardous, nonradioactive debris and 2 ft² of radioactive debris from the site.

SWMU 33-010(h) consists of a surface disposal area located approximately 450 ft northeast of structure 33-0026 and immediately south of berm 33-0043. The area is a mound of dirt, and firing-site debris is scattered on the soil surface. The debris includes metal, wood, cable, and shrapnel. The area is approximately 100 × 100 ft. There is no documentation regarding the history of the disposal area. The main drainage for South Site bounds the disposal area on the west, and an unimproved road is located to the east. During the 1994 Phase I RFI, a geophysical survey was conducted to determine the presence of subsurface anomalies; none were identified. A backhoe was used to excavate a 42-ft-long trench

(0.5 to 2 ft deep) through the center of the Site. Debris was not observed during the trenching activities. No shallow surface samples were collected during the RFI.

SWMU 33-014 consists of a former location of an open burn area located approximately 300 ft north of the fence surrounding MDA E [Consolidated Unit 33-001(a)-99]. This burn area was believed to have been established in 1950 when operations at South Site began and may have served all of TA-33. Materials burned at this Site may have included construction debris, timber, and sawdust used in catcher boxes, and black powder. It is not known when burning operations were discontinued at this Site. The soil at the burn site was scraped to bedrock, and some bedrock is blackened from burning.

Consent Order sampling has not been performed, and no decision level soil data are available for this Site. Screening-level data are available from the 1994 RFI.

The project map (Figure 249-1) 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>.

249.2 Control Measures

Run-on contributions to this monitored area originate on the unpaved access road that runs north and south through the SMA as well as from the paved areas in proximity to the area. Control measures serve to encourage vegetative growth in the area and to moderate runoff from the SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 249-1).

Table 249-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00902040036	Established Vegetation		X	X		B
Q00903010017	Earthen Berm		X		X	CB
Q00903060033	Straw Wattles		X		X	B
Q00903060034	Straw Wattles		X		X	B
Q00903060035	Straw Wattles		X		X	B
Q00903120030	Rock Berm	X			X	B
Q00903120031	Rock Berm	X			X	B
Q00903120032	Rock Berm	X			X	B
Q00906010001	Rock Check Dam		X		X	CB
Q00906010002	Rock Check Dam		X		X	CB
Q00906010007	Rock Check Dam		X		X	CB
Q00906010008	Rock Check Dam		X		X	CB
Q00906010011	Rock Check Dam	X			X	CB
Q00906010018	Rock Check Dam	X			X	CB
Q00906010021	Rock Check Dam		X		X	CB
Q00906010022	Rock Check Dam		X		X	CB
Q00906010023	Rock Check Dam		X		X	CB

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q00906010024	Rock Check Dam	X			X	CB
Q00906010025	Rock Check Dam	X			X	CB
Q00906010026	Rock Check Dam	X			X	CB
Q00906010027	Rock Check Dam	X			X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

Enhanced controls installation and certification are being planned for the end of 2014 or early in 2015 as part of corrective action.

249.3 Storm Water Monitoring

SWMUs 33-004(j), 33-006(a), 33-007(b), 33-010(c), 33-010(g), 33-010(h), and 33-014 are monitored within CHQ-SMA-6. Following the installation of baseline control measures, a baseline storm water sample was collected on July 25, 2013 (Figures 249-2 and 249-3). Analytical results from this sample yielded two TAL exceedances:

- Copper concentrations of 87.6 µg/L (MTAL is 4.3 µg/L), and
- Gross-alpha activity of 157 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 33-004(j):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was detected above the sediment BV in shallow (i.e., less than 3 ft bgs) RFI samples. Copper was detected above the sediment BV in 4 of 4 samples at a maximum concentration 4.6 times the sediment BV. The RFI data are screening level only.
- Isotopic uranium is the only alpha-emitting radionuclide associated with industrial materials historically managed at the Site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for total uranium, which has alpha-emitting isotopes. Uranium was detected above the sediment BV in 4 of 4 shallow samples with a maximum concentration 10 times the sediment BV. However, uranium isotopes are excluded from the definition of adjusted gross-alpha radioactivity. The RFI data are screening level only.

SWMU 33-006(a):

- Copper is known to be associated with industrial materials historically managed at the Site. Copper was detected above soil and sediment BVs in shallow RFI samples. Copper was detected above the sediment BV in 11 of 11 drainage samples at a maximum concentration 36.3 times the sediment BV. Copper was also detected above the soil BV in 25 of 46 mesa top samples at a maximum concentration 1585 times the soil BV. The RFI data are screening level only.

- Uranium isotopes are known to have been associated with industrial materials historically managed at this Site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for total uranium, which has alpha-emitting isotopes. Uranium was detected above the sediment BV in 11 of 11 shallow samples with a maximum concentration 183 times the sediment BV. Uranium was also detected above the soil BV in 28 of 46 mesa top samples at a maximum concentration 373 times the soil BV. Uranium isotopes are excluded from the definition of adjusted gross-alpha radioactivity. The RFI data are screening level only.

SWMU 33-007(b):

- Copper was likely associated with industrial materials historically managed at the Site. Copper was detected above the soil and sediment BVs in 2 of 9 shallow RFI and VCA samples with a maximum concentration 1.4 times the sediment BV.
- Uranium isotopes are known to have been associated with industrial materials historically managed at this Site. RFI and VCA samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium isotopes, which are alpha emitters. Uranium-234, uranium-235/236, and uranium-238 were each detected above BVs in 2, 1, and 2 of 9 shallow soil and sediment samples with maximum activities 2.8, 1.6, and 3.1 times soil BVs, respectively. Uranium isotopes are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 33-010(c):

- Copper is known to have been associated with industrial materials historically managed at the Site. Copper was detected above the sediment BV in 5 of 5 shallow RFI samples with a maximum concentration 123 times the sediment BV. Copper was detected above soil, sediment, and tuff BVs in shallow VCA confirmation samples with a maximum concentration 52 times the sediment BV.
- Uranium isotopes are known to have been associated with industrial materials historically managed at this Site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for total uranium, which has alpha-emitting isotopes. Uranium was detected above soil and sediment BVs in 12 of 12 shallow samples with a maximum concentration 118 times the soil BV. VCA samples were not analyzed for gross-alpha radioactivity but were analyzed for uranium isotopes, which are alpha emitters. Uranium-234, uranium-235/236 and uranium-238 were each detected above BVs in 9 of 10 shallow soil and sediment samples with maximum activities 8, 6, and 11 times soil BVs, respectively. Uranium isotopes are excluded from the definition of adjusted gross-alpha radioactivity.

SWMU 33-010(g):

- Copper is not known to be associated with industrial materials historically managed at the Site. Copper was not detected above BVs in shallow RFI samples.
- Alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site. Uranium was not detected or detected above BVs in shallow RFI samples.

SWMU 33-010(h):

- Neither copper nor alpha-emitting radionuclides are not known to be associated with industrial materials historically managed at the Site.

SWMU 33-014:

- Copper is not known to be an industrial material historically managed at this Site. Copper was detected above the soil BV in 4 of 5 shallow RFI samples with a maximum concentration 99 times the soil BV. Copper is, however, attributed to former firing site activities at nearby Site 33-006(a).
- Alpha-emitting radionuclides are not known to be industrial materials historically managed at this Site. RFI samples were not analyzed for gross-alpha radioactivity but were analyzed for total uranium, which has alpha-emitting isotopes. Uranium was detected above soil BV in 4 of 5 shallow RFI samples with a maximum concentration 32 times the soil BV. These radionuclides are exempt from regulation under the CWA. Although these radionuclides may be associated with the gross-alpha radioactivity detected in the IP sample, they are excluded from the definition of adjusted gross-alpha radioactivity and would not be the source of the TAL exceedance.

TAL exceedances were also evaluated against the appropriate storm water BVs, that is, “Bandelier Tuff background” for undisturbed SMAs or “developed background” for urban settings. BVs are expressed as UTLs using the approved EPA method for calculating BVs. UTLs for undisturbed SMAs were derived from storm water runoff containing entrained sediments derived from Bandelier Tuff and are labeled “Bandelier Tuff Background” in Figures 249-2 and 249-3. 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 249-2 and 249-3.

Monitoring location CHQ-SMA-6 receives storm water run-on from developed environments, including paved parking lots, roads, and buildings, as well as landscapes containing sediment derived from Bandelier Tuff. Metals including copper are associated with building materials, parking lots, and automobiles and can be detected at low concentrations in Bandelier Tuff. Gross alpha in Bandelier Tuff is associated with naturally occurring radioactive uranium- and thorium-bearing minerals.

- Copper—The copper UTL from developed urban landscape storm water run-on is 32.3 µg/L; the copper UTL for background storm water containing sediment derived from Bandelier Tuff is 3.43 µg/L. The copper result from 2013 is greater than both these values.
- Gross alpha—The gross-alpha UTL for background storm water containing sediment derived from Bandelier Tuff is 1490 pCi/L, and the gross-alpha background storm water UTL for storm water run-on from a developed urban landscape is 32.5 pCi/L. The 2013 gross-alpha result is between these two values.

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

249.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-6 during the 2013 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 249-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30732	5-9-2013
Storm Rain Event	BMP-33167	7-9-2013
Storm Rain Event	BMP-33483	7-24-2013
Storm Rain Event	BMP-34220	8-6-2013
Storm Rain Event	BMP-35226	9-16-2013
Storm Rain Event	BMP-36318	10-24-2013
Annual Erosion Evaluation	COMP-36671	10-24-2013
TAL Exceedance	COMP-35291	9-9-2013

No maintenance activities were conducted at CHQ-SMA-6 in 2013.

249.5 Compliance Status

The Sites associated with CHQ-SMA-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 249-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-004(j)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-006(a)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-007(b)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-010(c)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-010(g)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-010(h)	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13
SWMU 33-014	Baseline Monitoring Extended	Corrective Action Initiated	Initiated 8-29-13



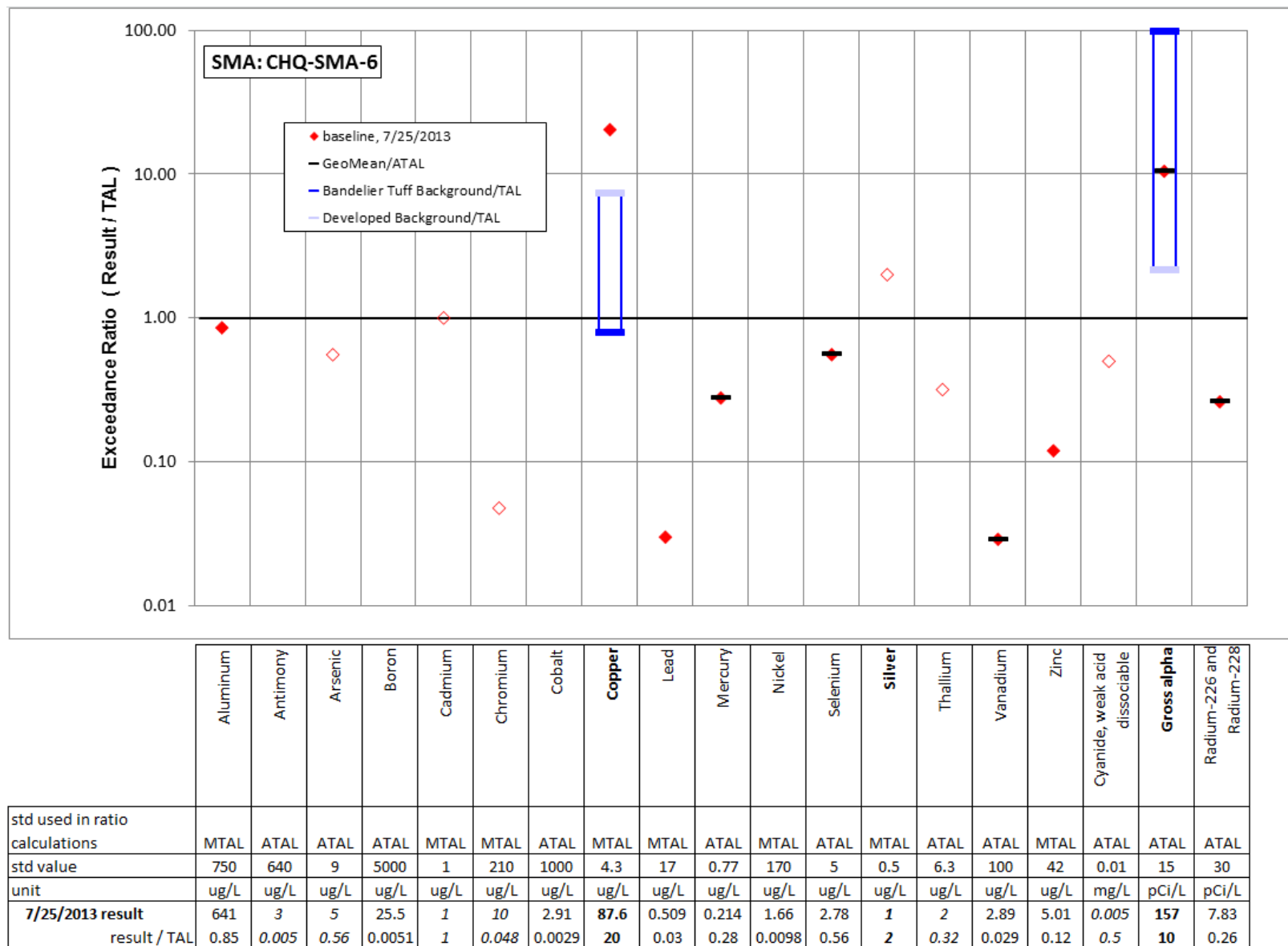


Figure 249-2 Inorganic analytical results summary plot for CHQ-SMA-6

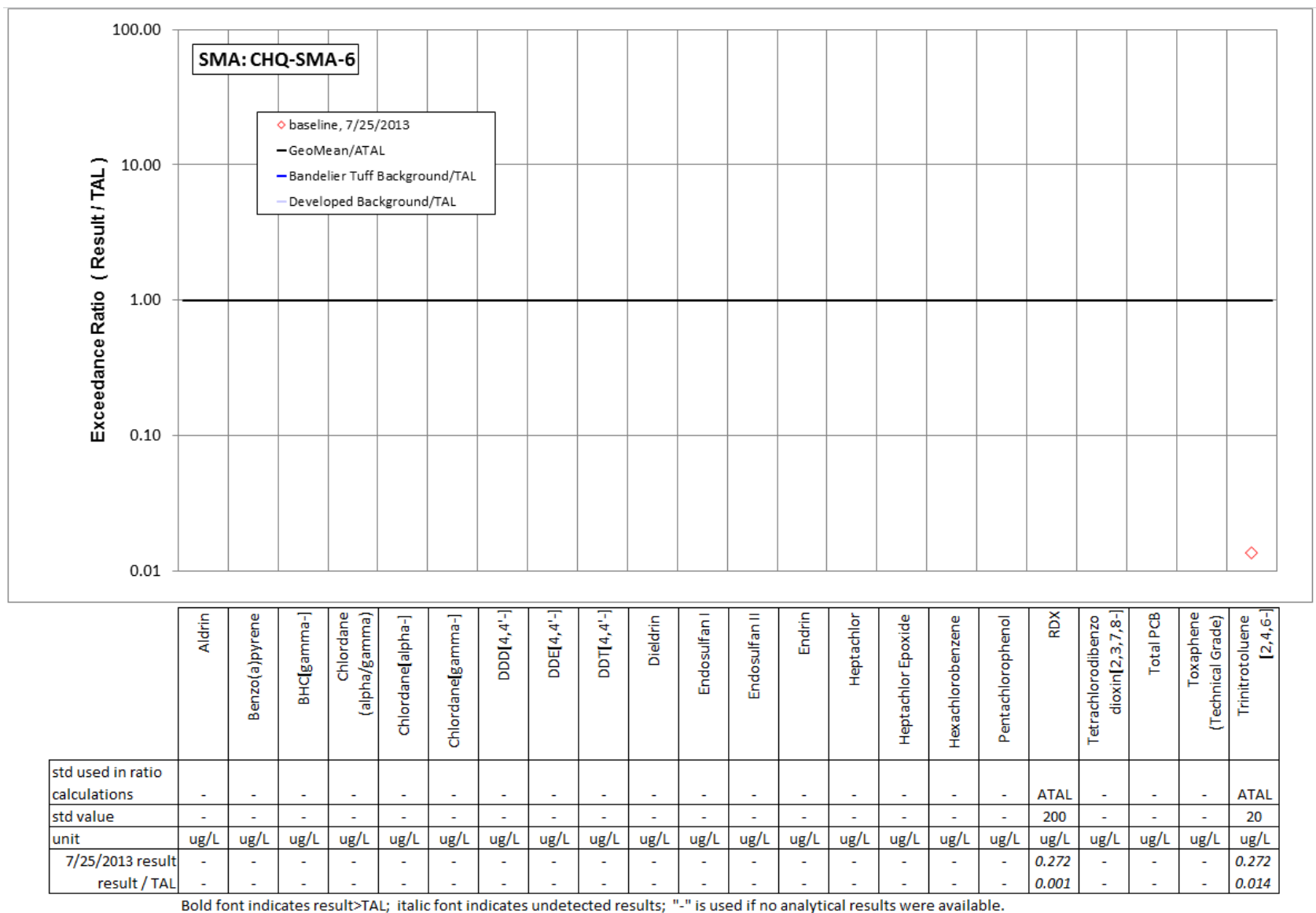


Figure 249-3 Organic analytical results summary plot for CHQ-SMA-6

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

250.1 Site Descriptions

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

SWMU 33-010(g) consists of a former disposal area that was located on the south side of TA-33 South Site at the edge of Chaquehui Canyon. Debris was scattered along the rim and upper walls of the canyon. This former disposal area is located within the boundaries impacted by former activities at the SWMU 33-006(a) gun firing site. The firing pad for SWMU 33-006(a) is located approximately 500 ft northwest of the SWMU 33-010(g) disposal area. Some debris present at SWMU 33-010(g) (such as dead tree trunks, rocks, and scraped earth) reportedly resulted from the initial clearing of South Site. Other debris included chunks of metal. The period of operation for this disposal site is not known, but firing site operations associated with initiator testing at South Site were conducted from 1950 to 1956. A VCA conducted in 1995 resulted in the removal of 4 yd³ of nonhazardous, nonradioactive debris and 2 ft² of radioactive debris from the Site.

The project map (Figure 250-1) 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>.

250.2 Control Measures

Run-on contributions from the surrounding developed area are minor and originate on the unpaved north to south access road. Control measures serve to mitigate potential influences from run-on and to moderate runoff from this SMA. All active control measures are listed in the following table, and their locations are shown on the project map (Figure 250-1).

Table 250-1 Active Control Measures

Control ID	Control Name	Purpose of Control				Control Status
		Run-On	Runoff	Erosion	Sediment	
Q01002040012	Established Vegetation		X	X		B
Q01003010010	Earthen Berm	X			X	B
Q01003010011	Earthen Berm	X			X	B
Q01006010003	Rock Check Dam		X		X	CB

CB: Certified baseline control measure.

B: Additional baseline control measure.

EC: Enhanced control measure.

250.3 Storm Water Monitoring

Through calendar year 2013, storm water flow has not been sufficient for full-volume sample collection at CHQ-SMA-7.1. Initial confirmation sampling will continue until one confirmation sample is collected from this SMA.

250.4 Inspections and Maintenance

RG340 recorded nine storm events at CHQ-SMA-7.1 during the 2013 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 250-2 Control Measure Inspections during 2013

Inspection Type	Inspection Reference	Inspection Date
Annual Erosion Evaluation	COMP-30733	5-9-2013
Storm Rain Event	BMP-33168	7-9-2013
Storm Rain Event	BMP-33484	7-24-2013
Storm Rain Event	BMP-34221	8-6-2013
Storm Rain Event	BMP-35227	9-16-2013
Storm Rain Event	BMP-36319	10-24-2013
Annual Erosion Evaluation	COMP-36672	10-24-2013

No maintenance activities were conducted at CHQ-SMA-7.1 in 2013.

250.5 Compliance Status

The Sites associated with CHQ-SMA-7.1 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 250-3 Compliance Status during 2013

Site	Compliance Status on Jan 1, 2013	Compliance Status on Dec 31, 2013	Comments
SWMU 33-010(g)	Baseline Monitoring Extended	Baseline Monitoring Extended	No Comment

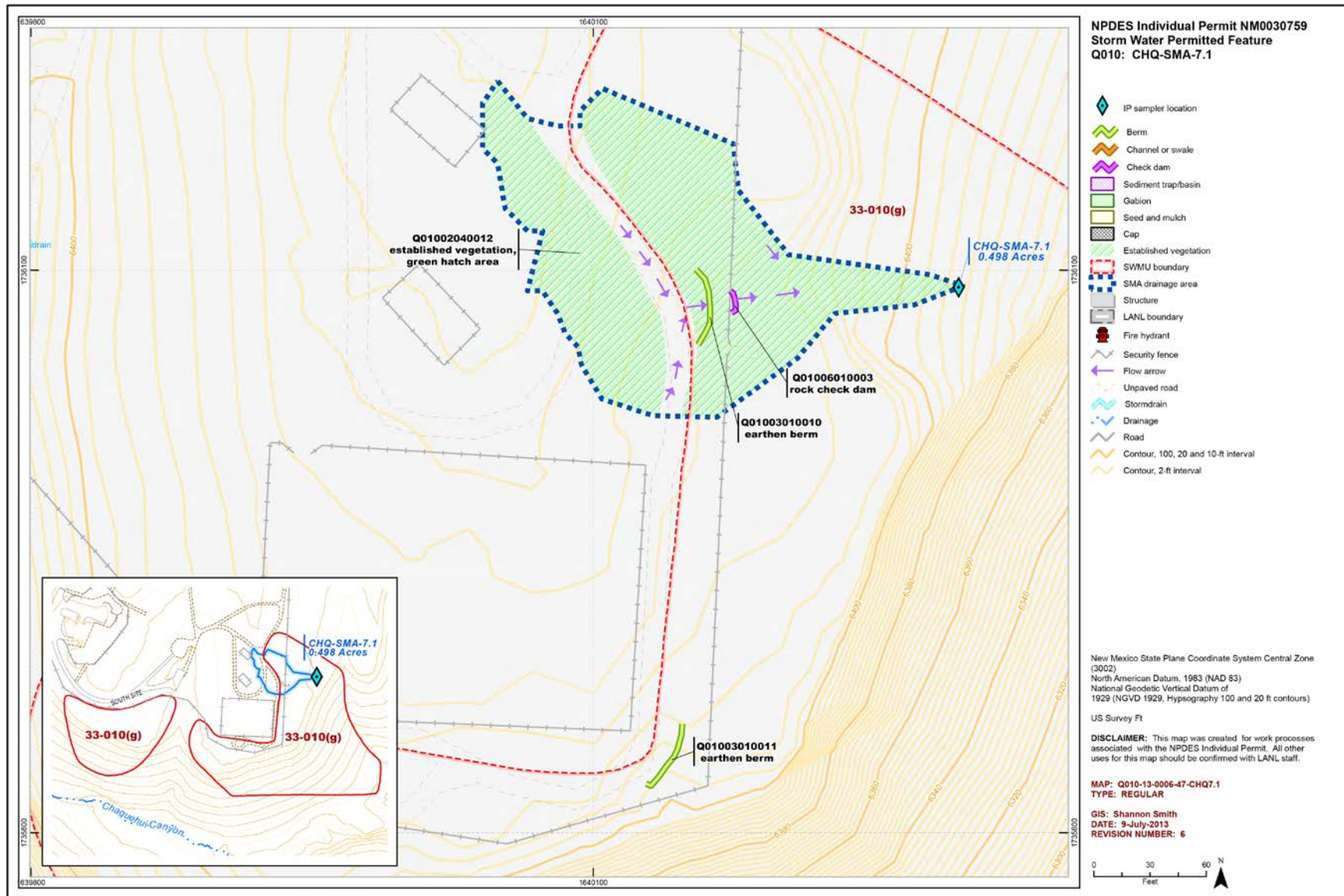


Figure 250-1 CHQ-SMA-7.1 location map

Attachment 1 Amendments

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V5.247	7/29/2013	CHQ-SMA-1.02	Map Revision - (R8)	T	CCN - 31835
V5.248	7/31/2013	CHQ-SMA-1.03	Retire Control - Damaged and/or Replaced - Control ID: Q002B02010001	T	CCN - 31836
V5.249	7/31/2013	CHQ-SMA-1.03	Retire Control - Damaged and/or Replaced - Control ID: Q002B02030002	T	CCN - 31836
V5.250	7/31/2013	CHQ-SMA-1.03	New Control - Routine/Replacement - Control ID: Q002B02040012	T	CCN - 31836
V5.251	7/31/2013	CHQ-SMA-1.03	Map Revision - (R8)	T	CCN - 31836
V5.252	7/29/2013	CHQ-SMA-1.01	Retire Control - Damaged and/or Replaced - Control ID: Q00202010002	T	CCN - 31837
V5.253	7/29/2013	CHQ-SMA-1.01	New Control - Routine/Replacement - Control ID: Q00202040008	T	CCN - 31837
V5.254	7/29/2013	CHQ-SMA-1.01	Retire Control - Lifecycle Expired - Control ID: Q00201020001	T	CCN - 31837
V5.255	7/29/2013	CHQ-SMA-1.01	Map Revision - (R4)	T	CCN - 31837
V5.256	5/30/2013	CHQ-SMA-6	Retire Control - Damaged and/or Replaced - Control ID: Q00902010005	T	CCN - 31999
V5.257	5/30/2013	CHQ-SMA-6	New Control - Routine/Replacement - Control ID: Q00902040036	T	CCN - 31999
V5.258	5/30/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00901010029	T	CCN - 31999
V5.259	5/30/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00901030028	T	CCN - 31999
V5.260	5/30/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00901060006	T	CCN - 31999
V5.261	5/30/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00903060014	T	CCN - 31999
V5.262	5/30/2013	CHQ-SMA-6	Map Revision - (R9)	T	CCN - 31999
V5.263	6/4/2013	CHQ-SMA-5.05	Retire Control - Damaged and/or Replaced - Control ID: Q00802010004	T	CCN - 32002
V5.264	6/4/2013	CHQ-SMA-5.05	New Control - Routine/Replacement - Control ID: Q00802040008	T	CCN - 32002
V5.265	6/4/2013	CHQ-SMA-5.05	Map Revision - (R1)	T	CCN - 32002
V5.266	6/4/2013	CHQ-SMA-4.1	Retire Control - Damaged and/or Replaced - Control ID: Q00602010001	T	CCN - 32004
V5.267	6/4/2013	CHQ-SMA-4.1	New Control - Routine/Replacement - Control ID: Q00602040008	T	CCN - 32004
V5.268	6/4/2013	CHQ-SMA-4.1	Retire Control - Lifecycle Expired - Control ID: Q00603060006	T	CCN - 32004

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
V5.269	6/4/2013	CHQ-SMA-4.1	Retire Control - Lifecycle Expired - Control ID: Q00603060007	T	CCN - 32004
V5.270	6/4/2013	CHQ-SMA-4.1	Map Revision - (R5)	T	CCN - 32004
V5.271	8/7/2013	CHQ-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: Q00302010004	T	CCN - 32005
V5.272	8/7/2013	CHQ-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: Q00302020005	T	CCN - 32005
V5.273	8/7/2013	CHQ-SMA-2	Retire Control - Lifecycle Expired - Control ID: Q00303060016	T	CCN - 32005
V5.274	8/7/2013	CHQ-SMA-2	Retire Control - Lifecycle Expired - Control ID: Q00303060018	T	CCN - 32005
V5.275	8/7/2013	CHQ-SMA-2	Retire Control - Lifecycle Expired - Control ID: Q00303060019	T	CCN - 32005
V5.276	8/7/2013	CHQ-SMA-2	New Control - Routine/Replacement - Control ID: Q00302040023	T	CCN - 32005
V5.277	8/7/2013	CHQ-SMA-2	Map Revision - (R6)	T	CCN - 32005
V5.278	6/4/2013	CHQ-SMA-0.5	Retire Control - Damaged and/or Replaced - Control ID: Q00102010001	T	CCN - 32006
V5.279	6/4/2013	CHQ-SMA-0.5	New Control - Routine/Replacement - Control ID: Q00102040008	T	CCN - 32006
V5.280	6/4/2013	CHQ-SMA-0.5	Map Revision - (R4)	T	CCN - 32006
V5.281	7/19/2013	CHQ-SMA-7.1	Retire Control - Damaged and/or Replaced - Control ID: Q01002010001	T	CCN - 32008
V5.282	7/19/2013	CHQ-SMA-7.1	New Control - Routine/Replacement - Control ID: Q01002040012	T	CCN - 32008
V5.283	7/19/2013	CHQ-SMA-7.1	Retire Control - Lifecycle Expired - Control ID: Q01004060009	T	CCN - 32008
V5.284	7/19/2013	CHQ-SMA-7.1	Retire Control - Lifecycle Expired - Control ID: Q01006010008	T	CCN - 32008
V5.285	7/19/2013	CHQ-SMA-7.1	Map Revision - (R6)	T	CCN - 32008
V5.286	6/4/2013	CHQ-SMA-4	Retire Control - Damaged and/or Replaced - Control ID: Q00502010001	T	CCN - 32009
V5.287	6/4/2013	CHQ-SMA-4	New Control - Routine/Replacement - Control ID: Q00502040019	T	CCN - 32009
V5.288	6/4/2013	CHQ-SMA-4	Map Revision - (R6)	T	CCN - 32009
V5.289	6/18/2013	A-SMA-2.7	Retire Control - Damaged and/or Replaced - Control ID: A00402010002	T	CCN - 32043
V5.290	6/18/2013	A-SMA-2.7	New Control - Routine/Replacement - Control ID: A00402040017	T	CCN - 32043
V5.291	6/18/2013	A-SMA-2.7	Map Revision - (R6)	T	CCN - 32043
V5.292	6/18/2013	A-SMA-3	Retire Control - Damaged and/or Replaced - Control ID: A00602010001	T	CCN - 32044

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
V5.293	6/18/2013	A-SMA-3	New Control - Routine/Replacement - Control ID: A00602040018	T	CCN - 32044
V5.294	6/18/2013	A-SMA-2.7	Map Revision - (R5)	T	CCN - 32044
V5.295	6/18/2013	A-SMA-3.5	Retire Control - Damaged and/or Replaced - Control ID: A00702010001	T	CCN - 32045
V5.296	6/18/2013	A-SMA-3.5	New Control - Routine/Replacement - Control ID: A00702040003	T	CCN - 32045
V5.297	6/18/2013	A-SMA-3.5	Map Revision - (R3)	T	CCN - 32045
V5.298	7/19/2013	CHQ-SMA-3.05	Retire Control - Damaged and/or Replaced - Control ID: Q00402010001	T	CCN - 32047
V5.299	7/19/2013	CHQ-SMA-3.05	New Control - Routine/Replacement - Control ID: Q00402040009	T	CCN - 32047
V5.300	7/19/2013	CHQ-SMA-3.05	Retire Control - Lifecycle Expired - Control ID: Q00406010006	T	CCN - 32047
V5.301	7/19/2013	CHQ-SMA-3.05	Retire Control - Lifecycle Expired - Control ID: Q00406010007	T	CCN - 32047
V5.302	7/19/2013	CHQ-SMA-3.05	Map Revision - (R4)	T	CCN - 32047
V5.303	7/29/2013	A-SMA-2.8	Retire Control - Lifecycle Expired - Control ID: A00502010001	T	CCN - 32105
V5.304	7/29/2013	A-SMA-2.8	Map Revision - (R5)	T	CCN - 32105
V5.305	7/23/2013	A-SMA-4	Retire Control - Damaged and/or Replaced - Control ID: A00802010001	T	CCN - 31914
V5.306	7/23/2013	A-SMA-4	New Control - Routine/Replacement - Control ID: A00802040010	T	CCN - 31914
V5.307	7/23/2013	A-SMA-4	Retire Control - Lifecycle Expired - Control ID: A00801060008	T	CCN - 31914
V5.308	7/23/2013	A-SMA-4	Retire Control - Lifecycle Expired - Control ID: A00803060002	T	CCN - 31914
V5.309	7/23/2013	A-SMA-4	Map Revision - (R6)	T	CCN - 31914
V5.310	7/19/2013	A-SMA-6	Retire Control - Damaged and/or Replaced - Control ID: A00902010006	T	CCN - 31834
V5.311	7/19/2013	A-SMA-6	New Control - Routine/Replacement - Control ID: A00902040023	T	CCN - 31834
V5.312	7/19/2013	A-SMA-6	Map Revision - (R6)	T	CCN - 31834
V5.313	7/24/2013	A-SMA-2.5	Retire Control - Damaged and/or Replaced - Control ID: A00302010002	T	CCN - 32159
V5.314	7/24/2013	A-SMA-2.5	New Control - Routine/Replacement - Control ID: A00302040007	T	CCN - 32159
V5.315	7/24/2013	A-SMA-2.5	Retire Control - Lifecycle Expired - Control ID: A00303060006	T	CCN - 32159
V5.316	7/24/2013	A-SMA-2.5	Retire Control - Lifecycle Expired - Control ID: A00303060005	T	CCN - 32159

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
V5.317	7/24/2013	A-SMA-2.5	New Control - Augment Existing - Control ID: A00303060008	T	CCN - 32159
V5.318	7/24/2013	A-SMA-2.5	New Control - Augment Existing - Control ID: A00303060009	T	CCN - 32159
V5.319	7/24/2013	A-SMA-2.5	Map Revision - (R4)	T	CCN - 32159
V5.320	8/7/2013	CHQ-SMA-4.5	Retire Control - Damaged and/or Replaced - Control ID: Q00702010001	T	CCN - 34335
V5.321	8/7/2013	CHQ-SMA-4.5	New Control - Routine/Replacement - Control ID: Q00702040010	T	CCN - 34335
V5.322	8/7/2013	CHQ-SMA-4.5	Retire Control - Lifecycle Expired - Control ID: Q00703060004	T	CCN - 34335
V5.323	8/7/2013	CHQ-SMA-4.5	New Control - Augment Existing - Control ID: Q00703060011	T	CCN - 34335
V5.324	8/7/2013	CHQ-SMA-4.5	New Control - Augment Existing - Control ID: Q00703060012	T	CCN - 34335
V5.325	8/7/2013	CHQ-SMA-4.5	New Control - Augment Existing - Control ID: Q00703060013	T	CCN - 34335
V5.326	8/7/2013	CHQ-SMA-4.5	Map Revision - (R4)	T	CCN - 34335
V5.327	8/12/2013	A-SMA-1.1	Retire Control - Damaged and/or Replaced - Control ID: A00102030001	T	CCN - 32146
V5.328	8/12/2013	A-SMA-1.1	New Control - Routine/Replacement - Control ID: A00102040006	T	CCN - 32146
V5.329	8/12/2013	A-SMA-1.1	Map Revision - (R4)	T	CCN - 32146
V5.330	8/12/2013	A-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: A00202010003	T	CCN - 32112
V5.331	8/12/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00202040017	T	CCN - 32112
V5.332	8/12/2013	A-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: A00203060010	T	CCN - 32112
V5.333	8/12/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00203060018	T	CCN - 32112
V5.334	8/12/2013	A-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: A00203060016	T	CCN - 32112
V5.335	8/12/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00203060019	T	CCN - 32112
V5.336	8/12/2013	A-SMA-2	Map Revision - (R8)	T	CCN - 32112
V5.337	8/16/2013	CHQ-SMA-4.5	Retire Control - Damaged and/or Replaced - Control ID: Q00703060008	T	CCN - 34892
V5.338	8/16/2013	CHQ-SMA-4.5	New Control - Routine/Replacement - Control ID: Q00703060014	T	CCN - 34892
V5.339	8/16/2013	CHQ-SMA-4.5	Map Revision - (R5)	T	CCN - 34892
V5.340	8/27/2013	A-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: A00203060016	T	CCN - 35007

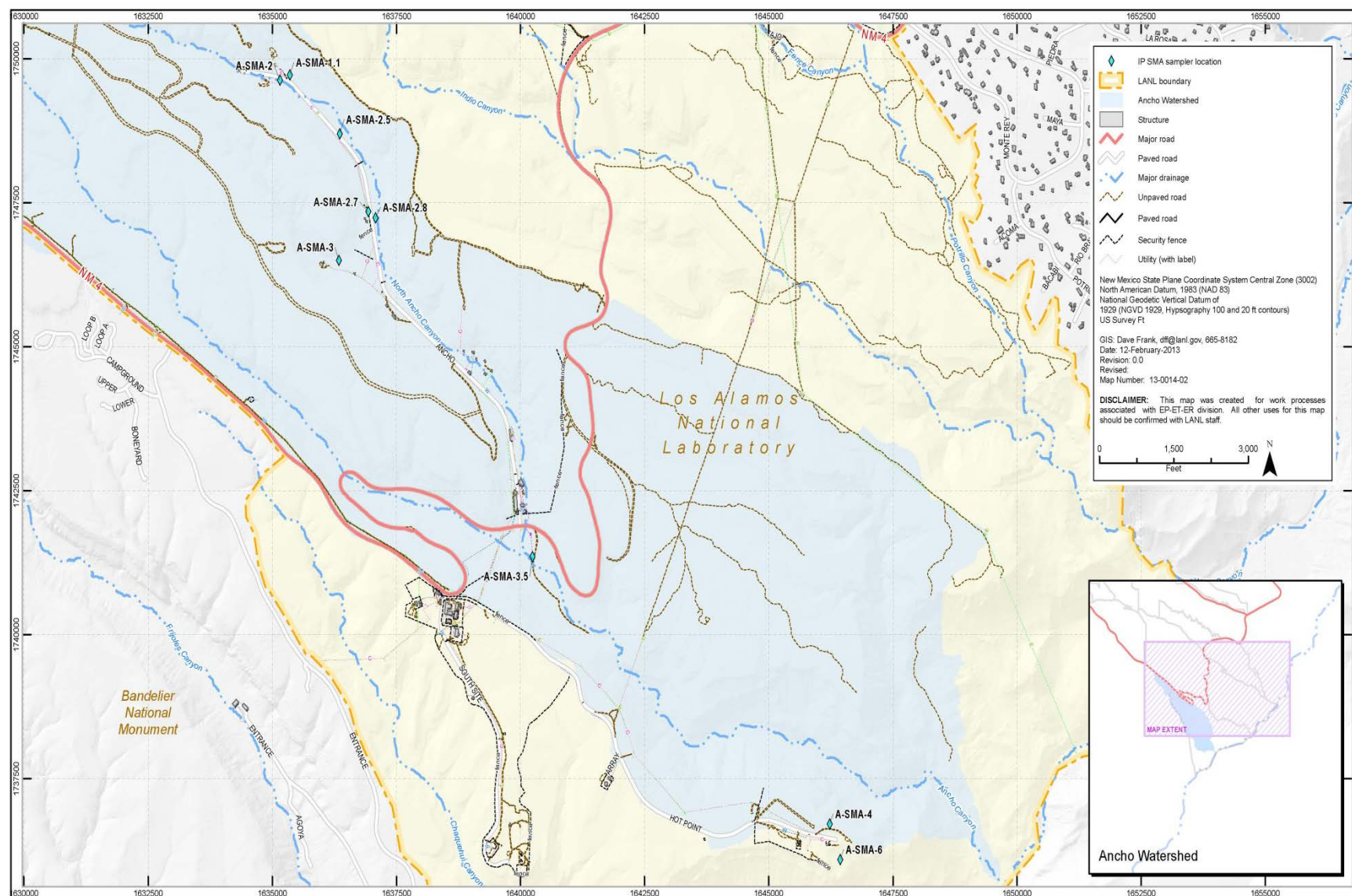
Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V5.341	8/27/2013	A-SMA-2	Retire Control - Damaged and/or Replaced - Control ID: A00203060019	T	CCN - 35007
V5.342	8/27/2013	A-SMA-2	Retire Control - Lifecycle Expired - Control ID: A00206010011	T	CCN - 35007
V5.343	8/27/2013	A-SMA-2	Retire Control - Lifecycle Expired - Control ID: A00206010012	T	CCN - 35007
V5.344	8/27/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00203060020	T	CCN - 35007
V5.345	8/27/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00203060021	T	CCN - 35007
V5.346	8/27/2013	A-SMA-2	New Control - Routine/Replacement - Control ID: A00203060022	T	CCN - 35007
V5.347	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060023	T	CCN - 35007
V5.348	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060024	T	CCN - 35007
V5.349	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060025	T	CCN - 35007
V5.350	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060026	T	CCN - 35007
V5.351	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060027	T	CCN - 35007
V5.352	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060028	T	CCN - 35007
V5.353	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060029	T	CCN - 35007
V5.354	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060030	T	CCN - 35007
V5.355	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060031	T	CCN - 35007
V5.356	8/27/2013	A-SMA-2	New Control - Augment Existing - Control ID: A00203060032	T	CCN - 35007
V5.357	8/27/2013	A-SMA-2	Map Revision - (R9)	T	CCN - 35007
V5.358	11/5/2013	A-SMA-4	Retire Control - Damaged and/or Replaced - Control ID: A00804050005	T	CCN - 37156
V5.359	11/5/2013	A-SMA-4	Retire Control - Damaged and/or Replaced - Control ID: A00804050006	T	CCN - 37156
V5.360	11/5/2013	A-SMA-4	Map Revision - (R7)	T	CCN - 37156
V5.361	11/5/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00906010019	T	CCN - 37161
V5.362	11/5/2013	CHQ-SMA-6	Retire Control - Lifecycle Expired - Control ID: Q00906010020	T	CCN - 37161
V5.363	11/5/2013	CHQ-SMA-6	Map Revision - (R10)	T	CCN - 37161
V5.364	11/8/2013	A-SMA-3	Retire Control - Lifecycle Expired - Control ID: A00606010015	T	CCN - 37187

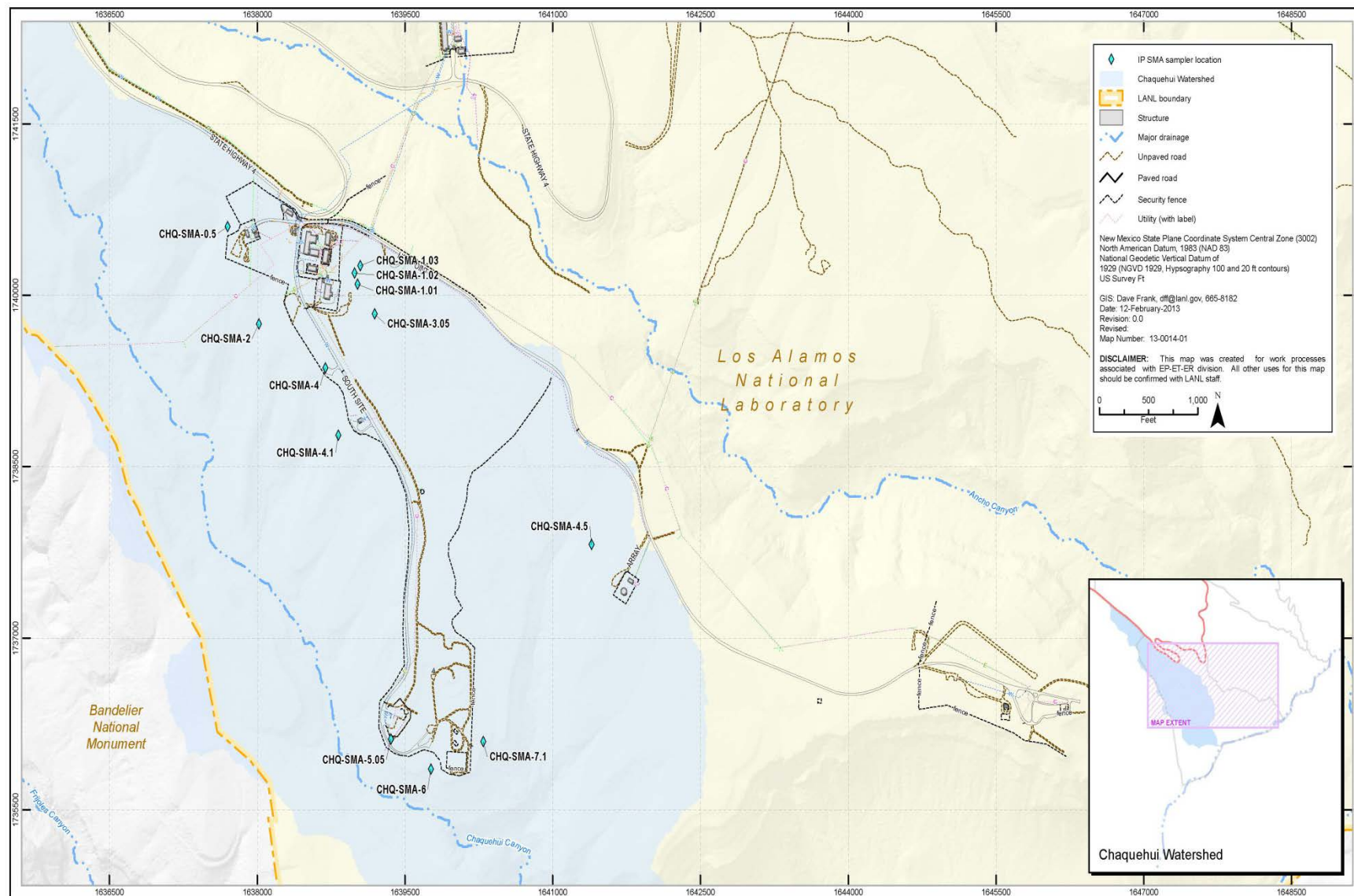
Attachment 1, Amendments (continued)

Amendment Number	Effective Date	SMA Number or Section Number	Description of Changes	Type of Change [Technical (T), Documentation (D), or Errata (E)]	Reference
V5.365	11/8/2013	A-SMA-3	Retire Control - Lifecycle Expired - Control ID: A00606010016	T	CCN - 37187
V5.366	11/8/2013	A-SMA-3	Map Revision - (R6)	T	CCN - 37187
V5.367	11/20/2013	A-SMA-3.5	New Control - Augment Existing - Control ID: A00703060004	T	CCN - 37306
V5.368	11/20/2013	A-SMA-3.5	Map Revision - (R4)	T	CCN - 37306
V5.369	3/28/2014	All Sections	Change to SDPPP - Updated storm water results section for each SMA in the SDPPP volume that had a storm water sample collected in 2013.	T	
V5.370	4/9/2014	Attachment 1	Change to SDPPP - Updated amendments to SDPPP completed in 2013.	D	
V5.371	4/9/2014	Attachment 3	Change to SDPPP - Updated precipitation data collected in 2013.	T	
V5.372	4/9/2014	Attachment 4	Change to SDPPP - Updated changes to SMA and Site characteristics made in 2013.	T	
V5.373	4/9/2014	Attachment 5	Change to SDPPP - Updated sampling plan for samples to be collected in 2014.	T	
V5.374	4/9/2014	All Sections	Change to SDPPP - Updated AOC and SWMU (Site) descriptions in the SDPPP volume to the most recent updated versions prepared for the Permit Renewal.	T	

Attachment 2 Vicinity Map



Attachment 2, Vicinity Map (continued)



Attachment 3 Precipitation Network

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG265	April 3, 2013	0.01	0.01	5
RG265	April 8, 2013	0.03	0.03	15
RG265	April 9, 2013	0.1	0.04	45
RG265	April 10, 2013	0.1	0.07	40
RG265	April 17, 2013	0.02	0.01	10
RG265	May 9, 2013	0.01	0.01	5
RG265	May 10, 2013	0.05	0.04	25
RG265	June 14, 2013	0.13	0.06	40
RG265	June 28, 2013	0.01	0.01	5
RG265	June 29, 2013	0.03	0.02	15
RG265	June 30, 2013	0.12	0.11	30
RG265	July 2, 2013	0.09	0.07	35
RG265	July 3, 2013	0.28	0.28	25
RG265	July 5, 2013	0.18	0.16	25
RG265	July 6, 2013	0.03	0.01	15
RG265	July 10, 2013	0.01	0.01	5
RG265	July 11, 2013	0.37	0.3	40
RG265	July 12, 2013	0.03	0.03	15
RG265	July 13, 2013	0.04	0.04	15
RG265	July 14, 2013	0.31	0.24	60
RG265	July 15, 2013	0.03	0.01	15
RG265	July 21, 2013	0.02	0.02	10
RG265	July 23, 2013	0.05	0.04	25
RG265	July 25, 2013	0.99	0.66	90
RG265	July 26, 2013	0.44	0.34	75
RG265	July 28, 2013	0.03	0.01	15
RG265	July 31, 2013	0.02	0.01	10
RG265	August 1, 2013	0.05	0.02	25
RG265	August 2, 2013	0.11	0.07	50
RG265	August 4, 2013	0.29	0.16	80
RG265	August 5, 2013	0.17	0.17	10
RG265	August 7, 2013	0.01	0.01	5
RG265	August 8, 2013	0.09	0.09	30
RG265	August 13, 2013	0.02	0.02	10
RG265	August 15, 2013	0.02	0.02	10

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG265	August 22, 2013	0.02	0.02	10
RG265	August 25, 2013	0.02	0.01	10
RG265	August 30, 2013	0.07	0.06	20
RG265	September 1, 2013	0.14	0.12	35
RG265	September 3, 2013	0.08	0.06	35
RG265	September 8, 2013	0.01	0.01	5
RG265	September 12, 2013	3.08	0.65	390
RG265	September 13, 2013	1.27	0.38	340
RG265	September 14, 2013	1.21	0.32	230
RG265	September 15, 2013	0.01	0.01	5
RG265	September 17, 2013	0.04	0.02	20
RG265	September 18, 2013	0.03	0.01	15
RG265	September 19, 2013	0.03	0.02	15
RG265	September 22, 2013	0.33	0.25	70
RG265	October 10, 2013	0.25	0.12	75
RG265	October 11, 2013	0.01	0.01	5
RG265	October 12, 2013	0.01	0.01	5
RG265	October 13, 2013	0.03	0.01	15
RG265	October 15, 2013	0.22	0.04	110
RG265	October 16, 2013	0.01	0.01	5
RG265	October 24, 2013	0.27	0.08	120
RG265	October 25, 2013	0.02	0.02	10
RG265	October 30, 2013	0.03	0.02	15
RG265	October 31, 2013	0.01	0.01	5
RG265	November 4, 2013	0.85	0.18	240
RG267.4	April 8, 2013	0.03	0.03	15
RG267.4	April 9, 2013	0.13	0.03	65
RG267.4	April 10, 2013	0.19	0.06	95
RG267.4	April 18, 2013	0.01	0.01	5
RG267.4	May 9, 2013	0.02	0.02	10
RG267.4	May 10, 2013	0.07	0.05	30
RG267.4	May 15, 2013	0.03	0.01	15
RG267.4	June 14, 2013	0.17	0.15	30
RG267.4	June 29, 2013	0.04	0.04	15
RG267.4	June 30, 2013	0.26	0.15	45
RG267.4	July 2, 2013	0.08	0.06	35

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG267.4	July 3, 2013	0.03	0.03	10
RG267.4	July 5, 2013	0.35	0.3	45
RG267.4	July 6, 2013	0.02	0.01	10
RG267.4	July 7, 2013	0.02	0.02	10
RG267.4	July 9, 2013	0.21	0.2	30
RG267.4	July 11, 2013	0.08	0.07	20
RG267.4	July 12, 2013	0.37	0.35	40
RG267.4	July 13, 2013	0.06	0.05	20
RG267.4	July 14, 2013	0.2	0.2	20
RG267.4	July 15, 2013	0.01	0.01	5
RG267.4	July 21, 2013	0.13	0.11	40
RG267.4	July 23, 2013	0.06	0.03	30
RG267.4	July 25, 2013	0.63	0.45	75
RG267.4	July 26, 2013	0.35	0.23	85
RG267.4	July 28, 2013	0.03	0.01	15
RG267.4	July 31, 2013	0.02	0.02	10
RG267.4	August 1, 2013	0.08	0.02	40
RG267.4	August 2, 2013	0.07	0.05	30
RG267.4	August 4, 2013	0.49	0.15	155
RG267.4	August 5, 2013	0.04	0.04	15
RG267.4	August 8, 2013	0.11	0.08	30
RG267.4	August 13, 2013	0.01	0.01	5
RG267.4	August 18, 2013	0.11	0.11	20
RG267.4	August 23, 2013	0.01	0.01	5
RG267.4	September 1, 2013	0.07	0.05	25
RG267.4	September 2, 2013	0.01	0.01	5
RG267.4	September 3, 2013	0.01	0.01	5
RG267.4	September 8, 2013	0.1	0.09	30
RG267.4	September 11, 2013	0.01	0.01	5
RG267.4	September 12, 2013	2.13	0.43	395
RG267.4	September 13, 2013	2.03	0.57	350
RG267.4	September 14, 2013	0.87	0.25	200
RG267.4	September 17, 2013	0.05	0.03	25
RG267.4	September 19, 2013	0.01	0.01	5
RG267.4	September 21, 2013	0.03	0.03	10
RG267.4	September 22, 2013	0.36	0.15	95

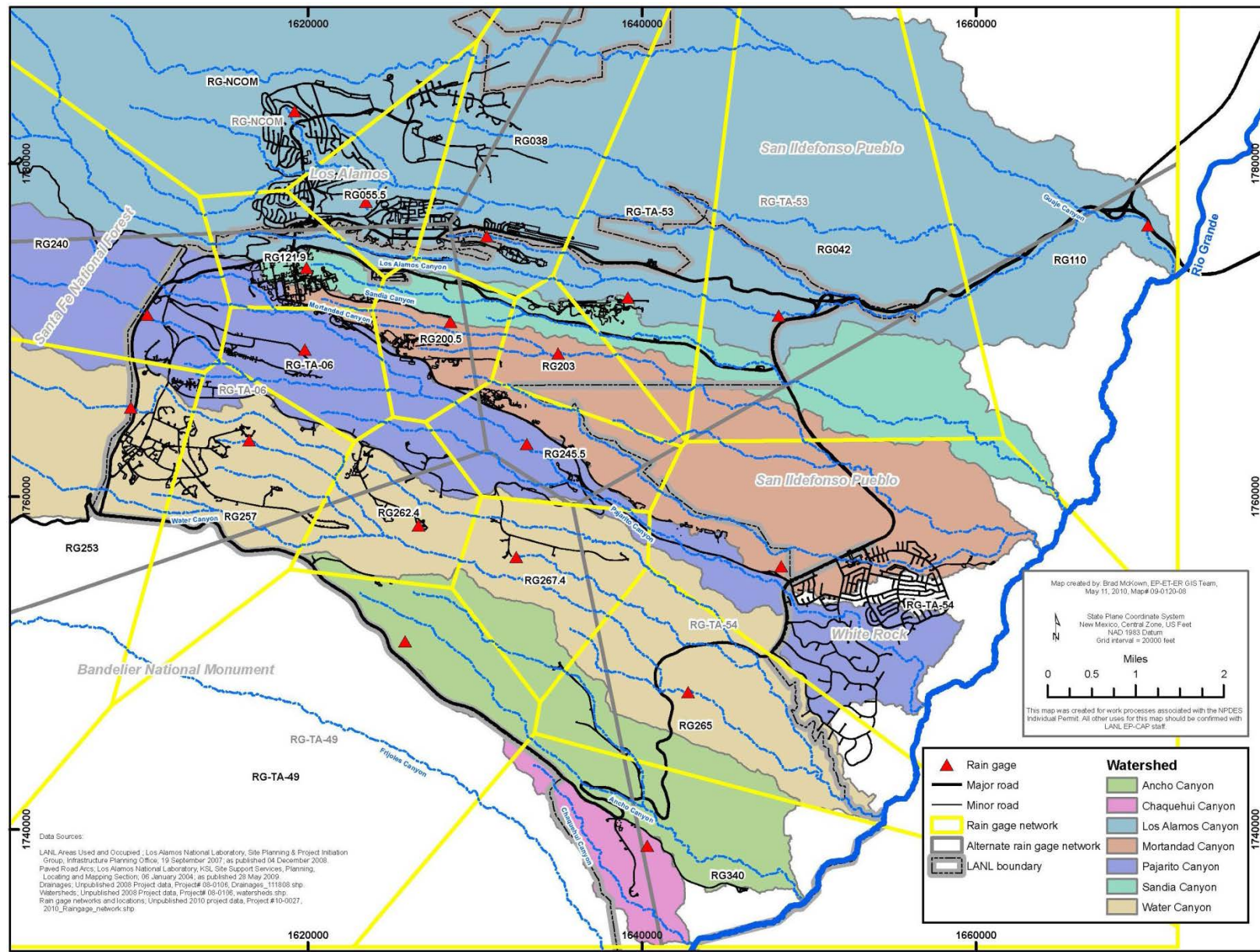
Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG267.4	October 9, 2013	0.01	0.01	5
RG267.4	October 10, 2013	0.25	0.11	85
RG267.4	October 13, 2013	0.07	0.05	25
RG267.4	October 15, 2013	0.25	0.07	115
RG267.4	October 16, 2013	0.07	0.02	35
RG267.4	October 24, 2013	0.29	0.12	115
RG267.4	October 25, 2013	0.02	0.02	10
RG267.4	October 29, 2013	0.01	0.01	5
RG267.4	October 30, 2013	0.03	0.02	15
RG267.4	November 4, 2013	0.93	0.3	240
RG267.4	November 5, 2013	0.01	0.01	15
RG340	April 8, 2013	0.02	0.02	10
RG340	April 9, 2013	0.08	0.02	40
RG340	April 10, 2013	0.11	0.04	55
RG340	April 11, 2013	0.01	0.01	5
RG340	April 17, 2013	0.01	0.01	5
RG340	April 18, 2013	0.01	0.01	5
RG340	May 10, 2013	0.02	0.01	10
RG340	May 14, 2013	0.01	0.01	5
RG340	May 15, 2013	0.02	0.01	10
RG340	June 14, 2013	0.07	0.05	30
RG340	June 28, 2013	0.09	0.08	20
RG340	June 29, 2013	0.01	0.01	5
RG340	June 30, 2013	0.09	0.06	40
RG340	July 2, 2013	0.09	0.08	35
RG340	July 3, 2013	0.37	0.37	20
RG340	July 4, 2013	0.01	0.01	5
RG340	July 5, 2013	0.02	0.01	10
RG340	July 6, 2013	0.02	0.01	10
RG340	July 9, 2013	0.21	0.21	20
RG340	July 10, 2013	0.03	0.03	15
RG340	July 11, 2013	0.41	0.29	55
RG340	July 12, 2013	0.03	0.03	10
RG340	July 14, 2013	0.03	0.02	15
RG340	July 15, 2013	0.03	0.02	15
RG340	July 21, 2013	0.04	0.03	20

Attachment 3, Precipitation Network (continued)

Rain Gage	Date	Total (in.)	Intensity (in./30 min)	Duration (min)
RG340	July 23, 2013	0.11	0.06	50
RG340	July 25, 2013	0.99	0.68	95
RG340	July 26, 2013	0.45	0.3	95
RG340	July 28, 2013	0.02	0.01	10
RG340	July 31, 2013	0.1	0.05	35
RG340	August 1, 2013	0.03	0.01	15
RG340	August 2, 2013	0.08	0.05	40
RG340	August 4, 2013	0.33	0.2	90
RG340	August 5, 2013	0.03	0.03	5
RG340	August 13, 2013	0.06	0.05	15
RG340	August 20, 2013	0.02	0.02	10
RG340	August 22, 2013	0.02	0.01	10
RG340	August 24, 2013	0.02	0.02	5
RG340	August 25, 2013	0.05	0.04	15
RG340	August 30, 2013	0.03	0.02	15
RG340	September 1, 2013	0.36	0.31	50
RG340	September 2, 2013	0.02	0.02	10
RG340	September 3, 2013	0.08	0.07	30
RG340	September 12, 2013	2.5	0.49	390
RG340	September 13, 2013	1.37	0.46	360
RG340	September 14, 2013	1.36	0.63	210
RG340	September 17, 2013	0.09	0.09	15
RG340	September 18, 2013	0.02	0.01	10
RG340	September 19, 2013	0.05	0.05	10
RG340	September 22, 2013	0.34	0.27	60
RG340	October 10, 2013	0.19	0.09	70
RG340	October 13, 2013	0.03	0.01	15
RG340	October 15, 2013	0.19	0.03	95
RG340	October 16, 2013	0.01	0.01	5
RG340	October 17, 2013	0.01	0.01	5
RG340	October 24, 2013	0.3	0.08	140
RG340	October 25, 2013	0.02	0.01	10
RG340	October 30, 2013	0.02	0.01	10
RG340	November 4, 2013	0.82	0.19	255
RG340	November 5, 2013	0.01	0.01	5

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)
Ancho	A001	A-SMA-1.1	1635351 (35.808933)	1749719 (-106.267083)	8,238,094.43	39-004(a) 39-004(d)	0.00 0.00
Ancho	A002	A-SMA-2	1635151 (35.808683)	1749627 (-106.267767)	23,123,516.61	39-004(b) 39-004(e)	589.79 1,074.60
Ancho	A003	A-SMA-2.5	1636357 (35.806133)	1748696 (-106.263683)	21,301.09	39-010	20,028.18
Ancho	A004	A-SMA-2.7 ¹	1636976.6 (35.802422)	1747175.3 (-106.261756)	390,525.28	39-002(c) 39-008	0.00 10510.87
Ancho	A005	A-SMA-2.8	1637078 (35.802117)	1747235 (-106.261267)	30,457.26	39-001(b)	5,085.54
Ancho	A006	A-SMA-3	1636339 (35.800083)	1746495 (-106.26375)	8,516,072.97	39-002(b) 39-004(c)	10.14 374.92
Ancho	A007	A-SMA-3.5	1640239 (35.78595)	1741352 (-106.2506)	370.26	39-006(a)	124.10
Ancho	A008	A-SMA-4	1646223 (35.7732)	1736711 (-106.230433)	114,205.09	33-010(d)	1,341.36
Ancho	A009	A-SMA-6	1646439 (35.7715)	1736091 (-106.2297)	330,186.36	33-004(k) 33-007(a) 33-010(a)	131.75 95,198.36 87,558.30
Chaquehui	Q001	CHQ-SMA-0.5	1637696 (35.783883)	1740598 (-106.259167)	45,790.40	33-004(g) 33-007(c) 33-009	134.41 148.09 13,518.75
Chaquehui	Q002	CHQ-SMA-1.01	1639017 (35.7825)	1740096 (-106.254717)	8,055.69	33-002(d)	241.09
Chaquehui	Q002A	CHQ-SMA-1.02	1638988 (35.782767)	1740192 (-106.254817)	89,697.16	33-004(h) 33-008(c) 33-011(d) 33-015	7.02 1,551.30 8,051.69 85.85
Chaquehui	Q002B	CHQ-SMA-1.03	1639044 (35.78295)	1740258 (-106.254633)	207,276.81	33-008(c) 33-012(a) 33-017 C-33-001 C-33-003	13,224.91 591.95 114,281.55 518.51 7,614.69
Chaquehui	Q003	CHQ-SMA-2	1638015 (35.78155)	1739747 (-106.2581)	538,186.74	33-004(d) 33-007(c) C-33-003	862.46 140.21 19,037.77
Chaquehui	Q004	CHQ-SMA-3.05	1639192 (35.781783)	1739836 (-106.254133)	13,791.40	33-010(f)	640.17
Chaquehui	Q005	CHQ-SMA-4	1638691 (35.780483)	1739363 (-106.255817)	626.74	33-011(e)	104.66

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)
Chaquehui	Q006	CHQ-SMA-4.1	1638823 (35.7788686)	1738774 (-106.2553743)	11,265.00	33-016	291.00
Chaquehui	Q007	CHQ-SMA-4.5	1641395 (35.77625)	1737819 (-106.2467)	118,510.86	33-011(b)	43,063.86
Chaquehui	Q008	CHQ-SMA-5.05	1639356 (35.77155)	1736112 (-106.253567)	6,700.00	33-007(b)	2,254.47
Chaquehui	Q009	CHQ-SMA-6	1639763 (35.77085)	1735852 (-106.2522)	518,103.82	33-004(j) 33-006(a) 33-007(b) 33-010(c) 33-010(g) 33-010(h) 33-014	4,008.38 1,955.76 53,013.12 1,954.18 20,307.29 4,695.05 3,519.27
Chaquehui	Q010	CHQ-SMA-7.1	1640295 (35.7715)	1736091 (-106.250417)	21,690.50	33-010(g)	12,401.55

¹ Minor sampler movement.

Attachment 5

Sampling Requirements and Plan

Sampling and Analysis Requirements

Sampling Conditions	Analytical Suite								
	Gross Alpha	Ra-226/ Ra-228	Cyanide	Dissolved Metals	Total Metals	Copper	PCBs	High Explosives	Pesticides
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 1668A	SW8321	EPA 608
Order code	SW-IP- Gross Alpha	SW-Ra226/ Ra-228	SW-IP- Cyanide	SW-Metals- Dissolved	SW-Metals- Total	SW-IP-Cu F	SW-PCB- 1668A-PQL	SW-HEXP-8330	SW-Pesticides
Field prep code	UF	UF	UF	F	UF	F	UF	UF	UF
Preservation	HNO ₃	HNO ₃	NaOH, Ice	HNO ₃	HNO ₃	HNO ₃	Ice	Ice	Ice, some analytes store in dark
Holding time (days)	180	180	14	180	180	180	365	7	7
Preferred volume (L)	2	2	1	0.5	0.5	0.5	3	2.5	3
Minimum volume required (L)	1	2	0.5	0.25	0.25	0.25	1	0.77	1
Shipping container	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	Copper	PCBs	High Explosives	Pesticides
A-SMA-1.1	230	SS100209	MEx	X	X	X	X	X			X	
A-SMA-2	231	SS2732	CAI									
A-SMA-2.5	232	SS090204	MEx	X	X	X	X	X				
A-SMA-2.7	233	SS120211	CAM5	X	X	X	X	X			X	
A-SMA-2.8	234	SS090206	MEx	X	X	X	X	X				
A-SMA-3	235	SS100210	CAI									
A-SMA-3.5	236	SS090208	BCComp									
A-SMA-4	237	SS276	MEx	X	X	X	X	X			X	
A-SMA-6	238	SS310	CAI									
CHQ-SMA-0.5	239	SS090601	MEx	X	X	X	X	X		X	X	
CHQ-SMA-1.01	240	SS090612	MEx	X	X	X	X	X		X		
CHQ-SMA-1.02	241	SS090613	CAI2									
CHQ-SMA-1.03	242	SS090614	CAI									
CHQ-SMA-2	243	SS3374	CAI									
CHQ-SMA-3.05	244	SS090615	CAI									
CHQ-SMA-4	245	SS3375	MEx	X	X	X	X	X		X	X	
CHQ-SMA-4.1	246	SS100617	CAI									
CHQ-SMA-4.5	247	SS341	CAI									
CHQ-SMA-5.05	248	SS090616	MEx	X	X	X	X	X				

Attachment 5, Sampling Requirements and Plan (continued)

Sampling and Analysis Plan (continued)

Permit SMA Number	SDPPP Section	Station Name	Stage	Gross Alpha	Ra-226/ Ra-228	Cyanide	Dissolved Metals	Total Metals	Copper	PCBs	High Explosives	Pesticides
CHQ-SMA-6	249	SS3377	CAI									
CHQ-SMA-7.1	250	SS100618	MEx	X	X	X	X	X			X	

MEx = Extended Baseline Monitoring: One confirmation monitoring sample is collected to determine if corrective action is required.

CAM5 = Corrective Action Enhanced Control Monitoring: Two confirmation monitoring samples are collected following completion of corrective action control measures at within 5 yr of effective date of the Permit.

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 results for all pollutants of concern at SMA are at or below TALs, no further sampling is required at the SMA.

CAI2 = Corrective Action Initiated, Second go-around: A sample was collected during baseline confirmation monitoring, and analytical results show at least one pollutant concentration is above TAL for a second time, resulting in second initiation of corrective action.