



2022 Annual Sampling Implementation Plan

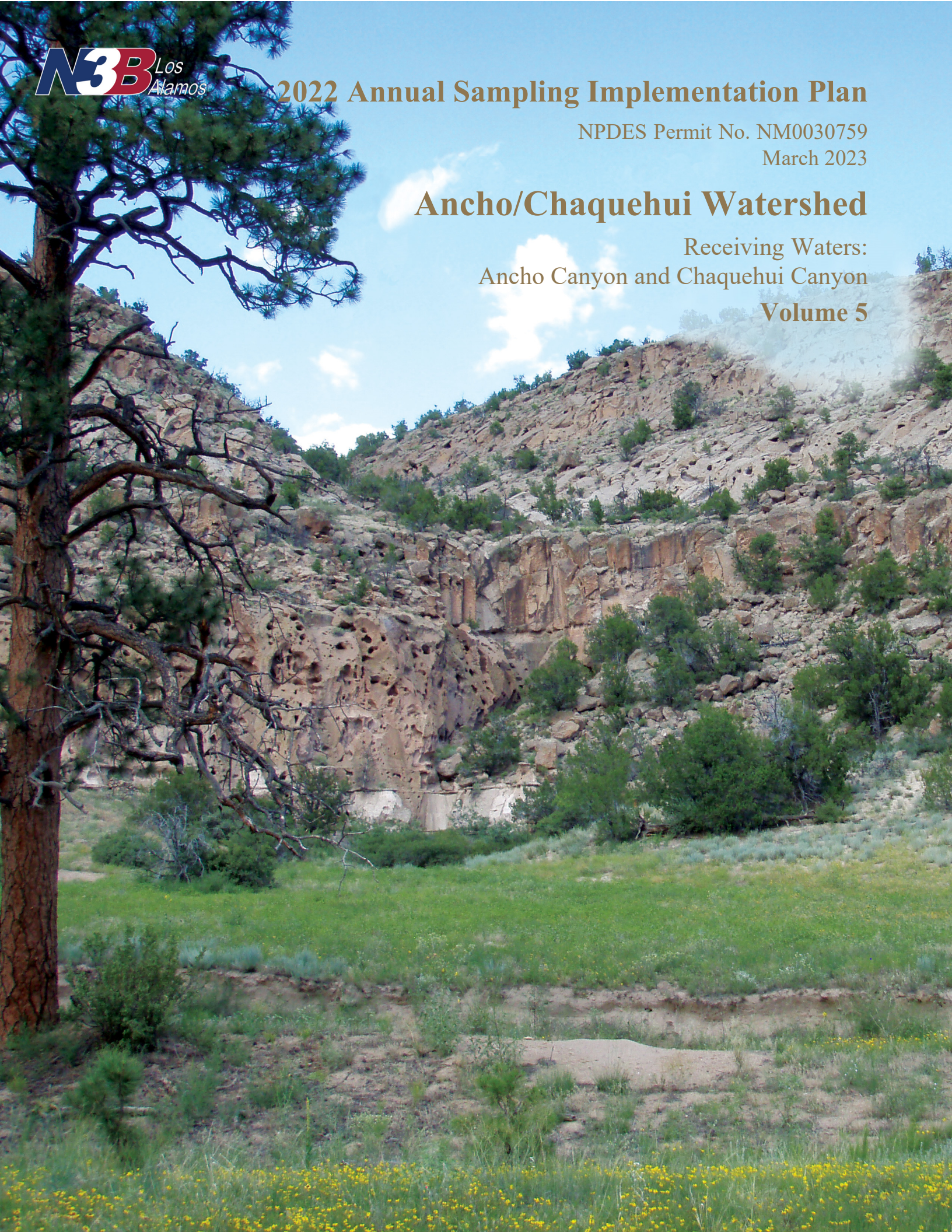
NPDES Permit No. NM0030759

March 2023

Ancho/Chaquehui Watershed

Receiving Waters:
Ancho Canyon and Chaquehui Canyon

Volume 5



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219.0 A-SMA-1.1

Associated Sites	39-004(a), 39-004(d)
Receiving Water	North Ancho Canyon
Drainage Area	192.06 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 39-004(a): In Progress Deferred per Consent Order SWMU 39-004(d): In Progress Deferred per Consent Order
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Long-Term Stewardship per Permit Part I.C.3 criterion

219.1 2010 Administratively Continued Permit Summary

Following the December 2010 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in August 2018. Analytical results from this sample initiated corrective action.

Following the December 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701797), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

219.2 Site History

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

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

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

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

SWMU 39-004(d) is an active firing site (structure 39-57) at TA-39. This site was constructed in 1953 as a remote test-firing facility to test materials. The experiments conducted at this firing site are designed to

expend all the HE contained in the device. If a shot fails such that not all of the HE is spent, an effort is made to pick up and destroy the unexploded HE. A typical shot carries 10 lb to 100 lb of explosives, but on occasion, up to 1000 lb may be used.

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

Consent Order investigations of SWMUs 39-004(a) and 39-004(d) are deferred per Appendix A of the 2016 Consent Order. Some sampling was performed in the drainage adjacent to, and downgradient of, the sites, and is considered decision-level data. Refer to “Investigation Report for North Ancho Canyon Aggregate Area, Revision 1” (LANL 2010, 108500.11) for information on those activities.

219.2.1 *Known or Potential Use of POCs*

POCs known to be managed or potentially used at the Site are listed in Table 219.2-1.

Table 219.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

219.3 **Consent Order Soil Data**

Decision-level data for SWMU 39-004(a) and SWMU 39-004(d) consist of results from samples collected in 1995 and 2009. These results are presented in Figures 219.3-1 to 219.3-4. The approved IR (LANL 2010, 108500.11) concluded that the extent of detected inorganic and organic chemicals and radionuclides is not defined at the Site; however, results of the preliminary characterization indicated that contaminants are not migrating off-site.

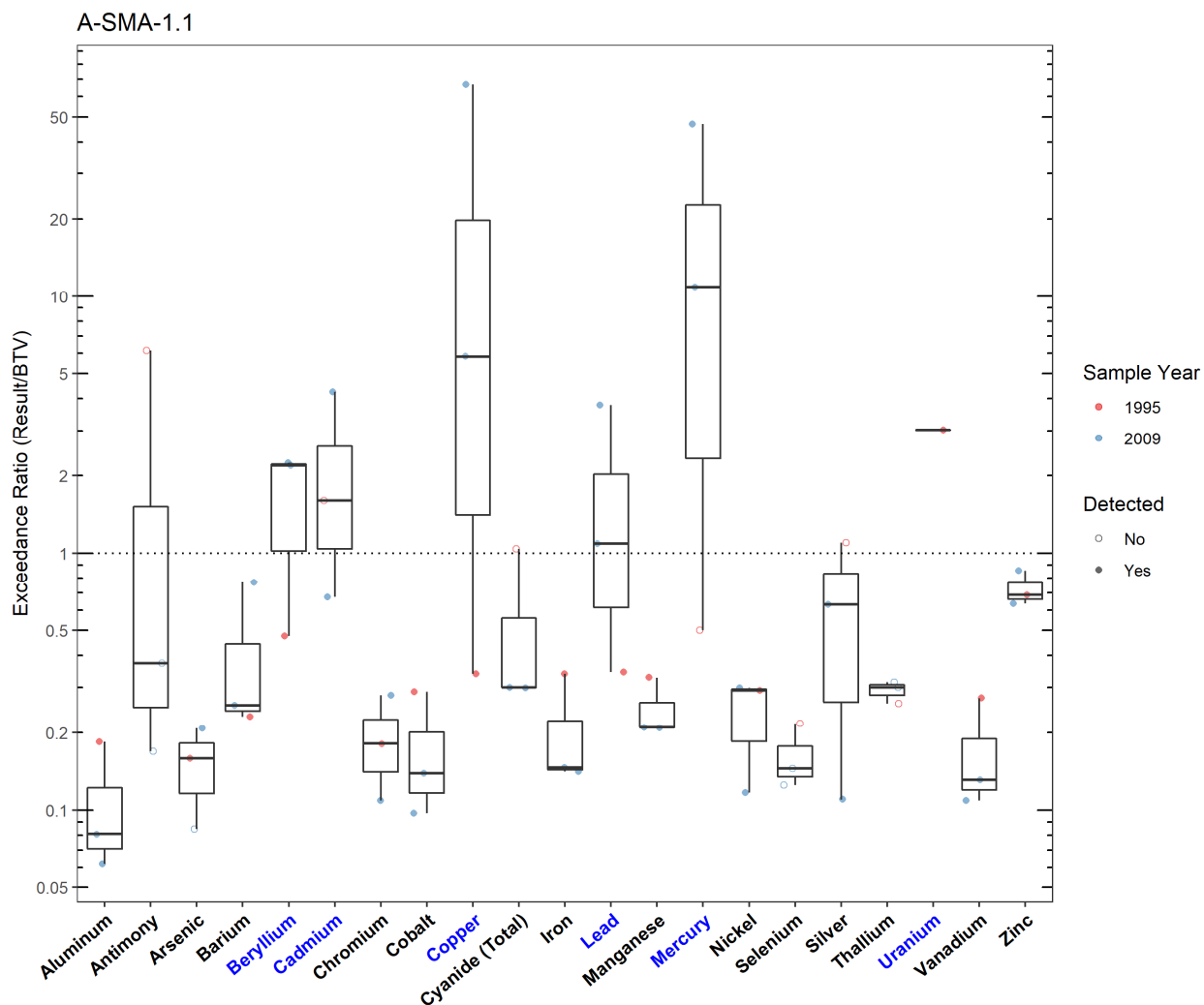


Figure 219.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-1.1

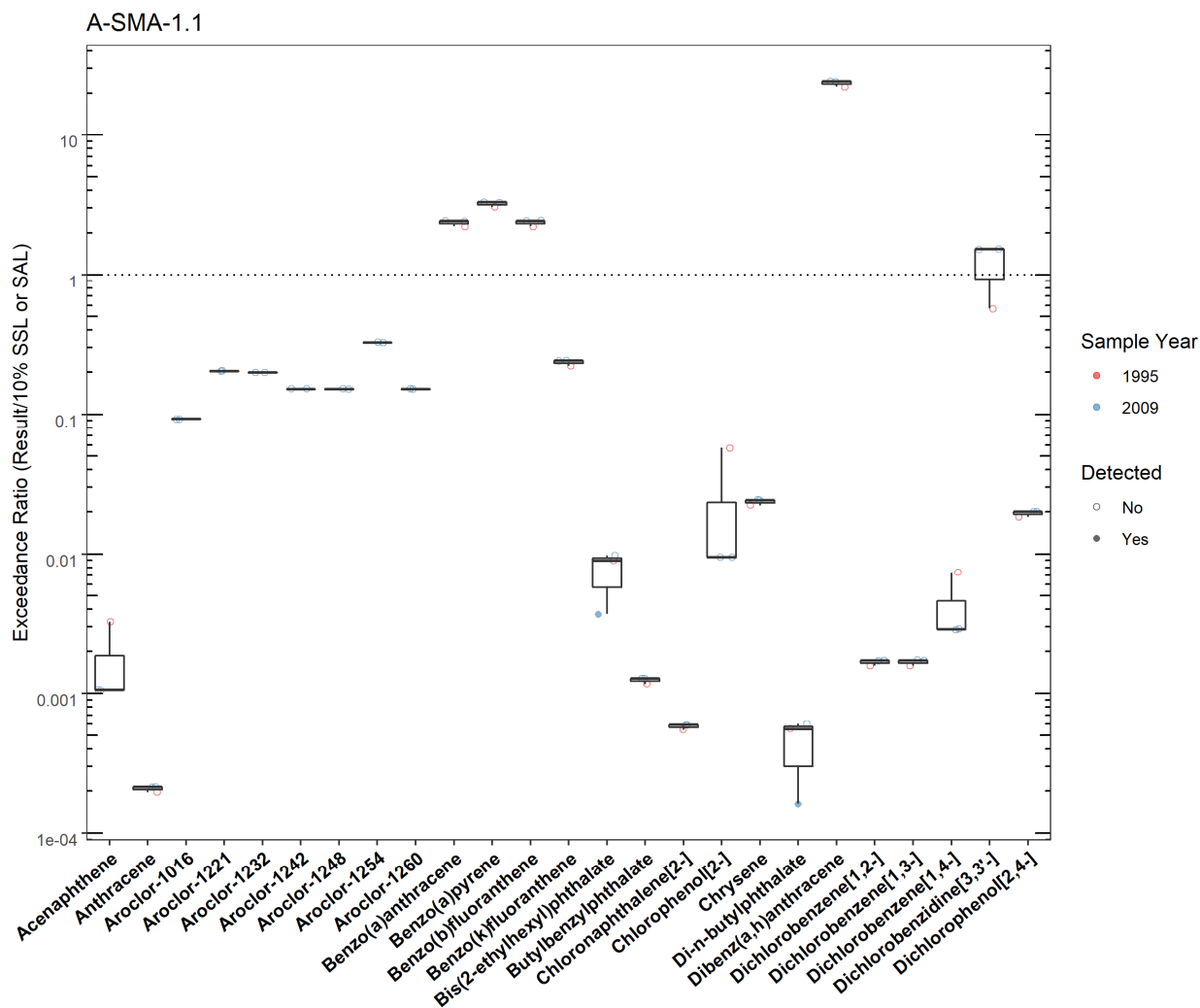


Figure 219.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-1.1 (Plot 1)

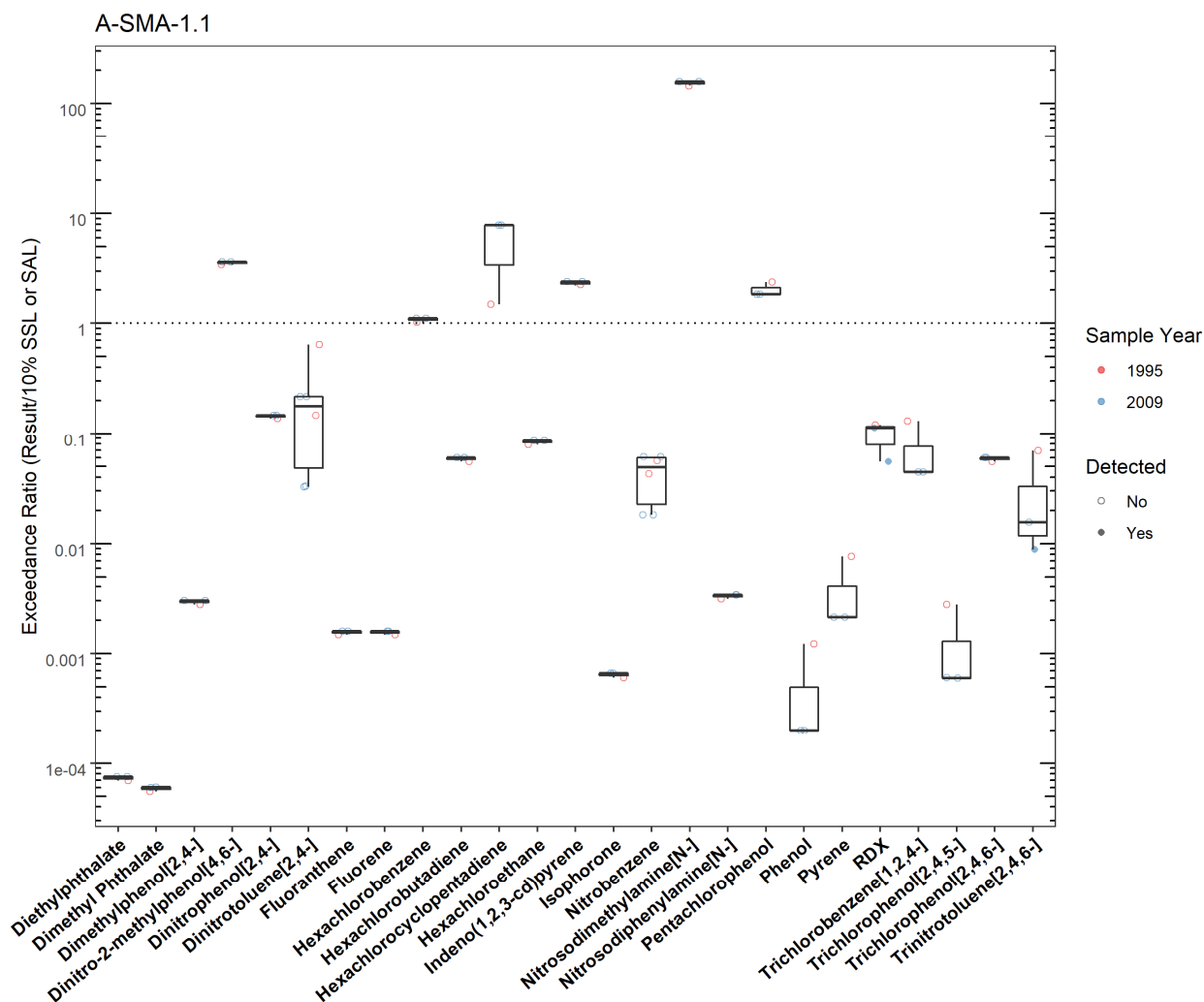


Figure 219.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-1.1 (Plot 2)

A-SMA-1.1							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Beryllium	A-SMA-1.1	Be	Y	BTV	1.83	4.10	2009-04-02
Cadmium	A-SMA-1.1	Cd	Y	BTV	0.400	1.70	2009-04-02
Copper	A-SMA-1.1	Cu	Y	BTV	14.7	984	2009-04-02
Lead	A-SMA-1.1	Pb	Y	BTV	22.3	84.4	2009-04-02
Mercury	A-SMA-1.1	Hg	Y	BTV	0.100	4.69	2009-04-02
Uranium	A-SMA-1.1	U	Y	BTV	1.82	5.50	1995-09-21

Figure 219.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-1.1

219.4 Stormwater Evaluation

219.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current location at the SMA.

219.4.2 Assessment Unit and Stream Impairments

A-SMA-1.1 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

219.5 Site-Specific Demonstration

219.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data and have not yet been measured in stormwater at the current monitoring location: beryllium, cadmium, copper, lead, mercury, and uranium.

219.5.2 Stormwater Data Summary

No confirmation-monitoring data.

219.5.3 2022 Permit Status

All Sites within the SMA are deferred under the Consent Order. Therefore, the SMA is eligible for long-term stewardship pursuant to permit Part 1.C.3.

220.0 A-SMA-2

Associated Sites	39-004(b), 39-004(e)
Receiving Water	North Ancho Canyon
Drainage Area	523.21 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 39-004(b): In Progress Deferred per Consent Order SWMU 39-004(e): In Progress Deferred per Consent Order
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Long-Term Stewardship per Permit Part I.C.3 criterion

220.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in September 2013. Analytical results from this sample initiated corrective action.

Following the August 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600911), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. Stormwater samples were collected in July and October 2019. Analytical results from these samples initiated corrective action.

Following the March 2022 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2022, 701927), corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

220.2 Site History

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

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

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

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

SWMU 39-004(e) is a firing site (structure 39-88) located at TA-39. This site was constructed in 1978 as a remote test firing facility to test materials, and has been in use since that time. The SWMU 39-004(e)

firing site is located in the western tributary of the upper reach of Ancho Canyon within the same tributary as the SWMU 39-004(b) firing site. The experiments conducted at this firing site are designed to expend all HE in the device. Signs of impact are generally noticeable only within a 200-ft radius around the firing pad.

Consent Order investigations of SWMUs 39-004(b) and 39-004(e) are deferred per Appendix A of the 2016 Consent Order. Some sampling was performed in the drainage adjacent to and downgradient of the sites, and is considered decision-level data. Refer to “Investigation Report for North Ancho Canyon Aggregate Area, Revision 1” (LANL 2010, 108500.11) for information on those activities.

220.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 220.2-1.

Table 220.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

220.3 Consent Order Soil Data

Decision-level data for SWMU 39-004(b) and SWMU 39-004(e) consist of results from samples collected in 1995 and 2009. These results are presented in Figures 220.3-1 to 220.3-4. The approved IR (LANL 2010, 108500.11) concluded that the extent of detected inorganic and organic chemicals and radionuclides is not defined at the Site. However, results of the preliminary characterization indicated that contaminants are not migrating off-site.

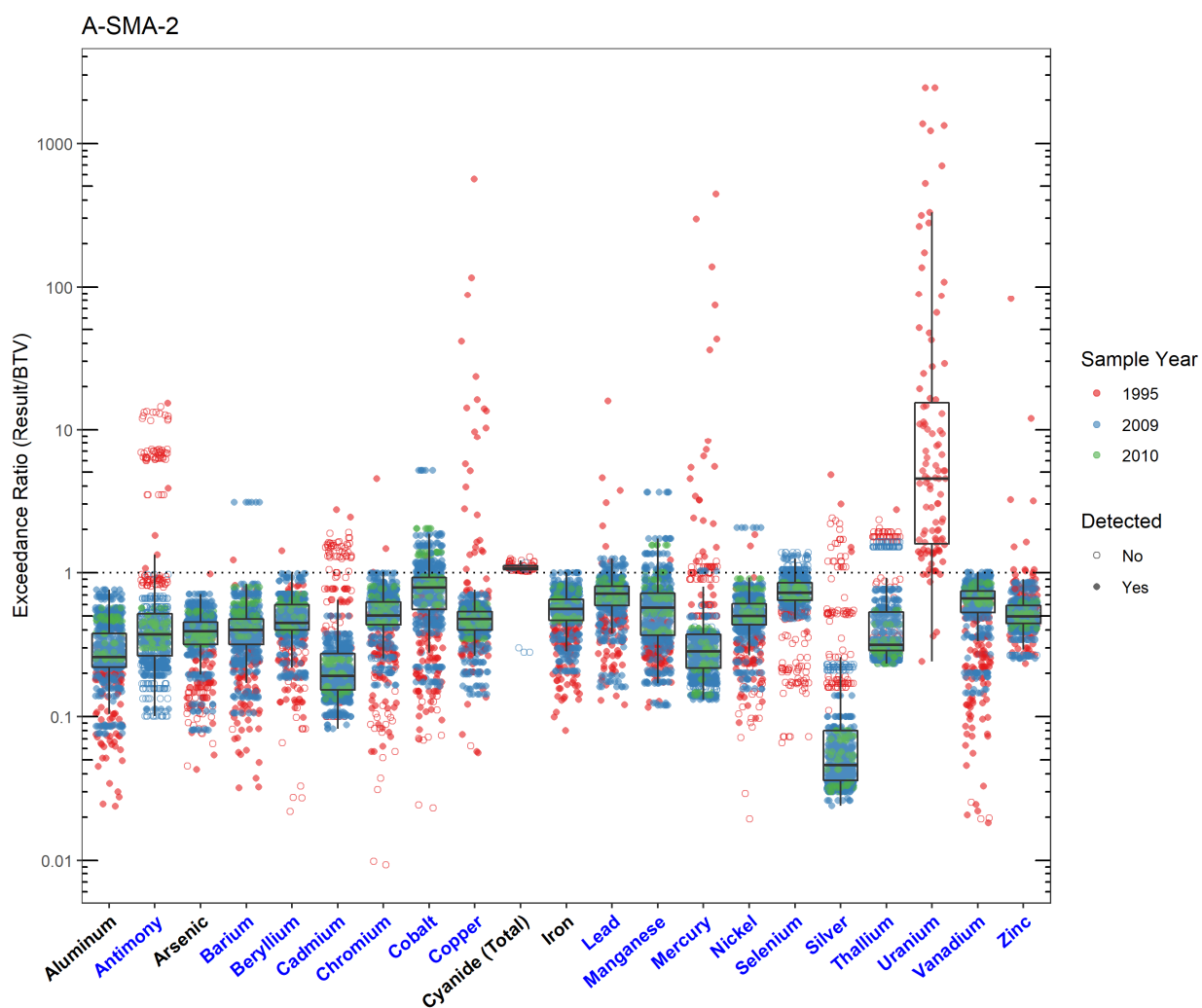


Figure 220.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-2

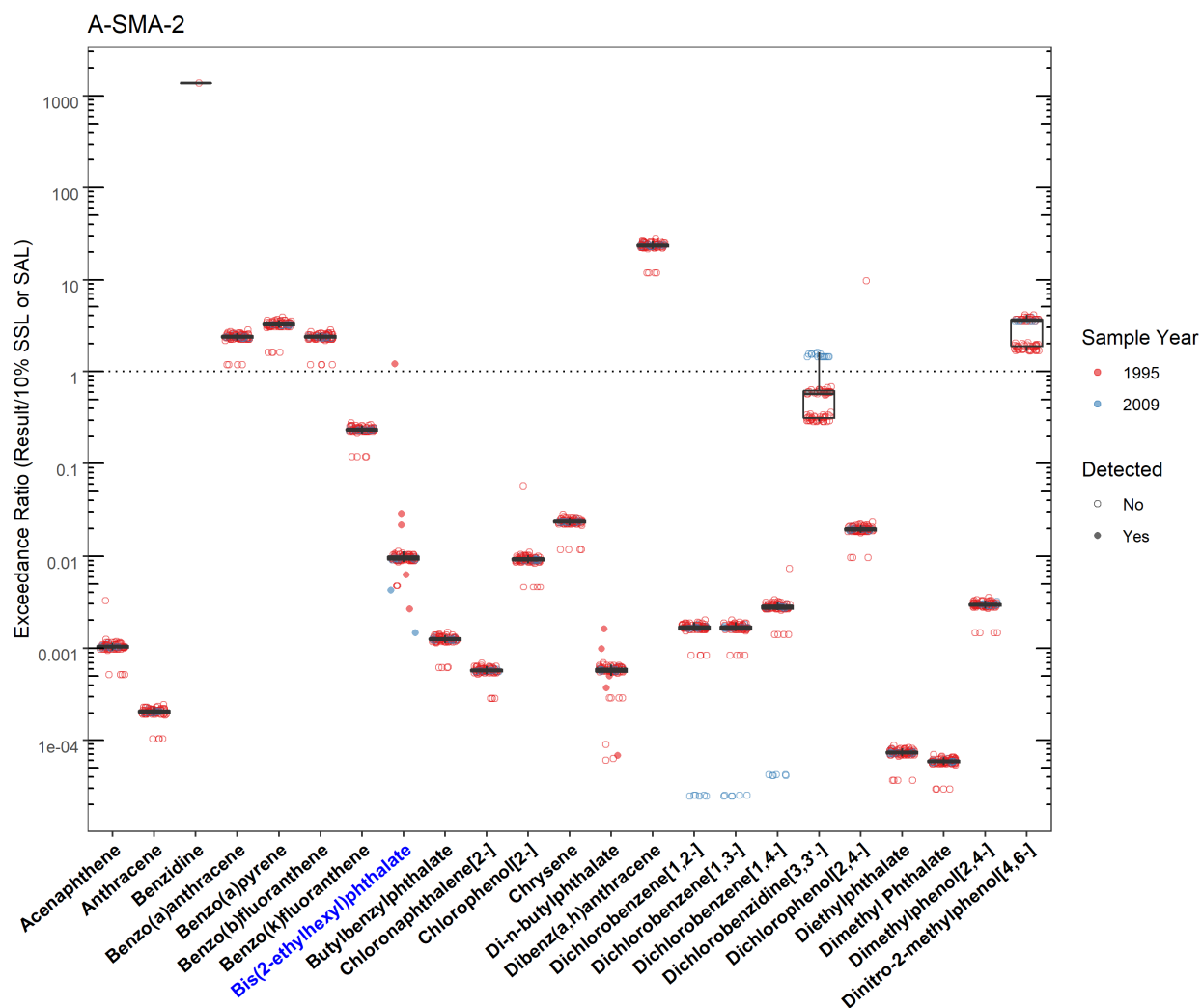


Figure 220.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-2 (Plot 1)

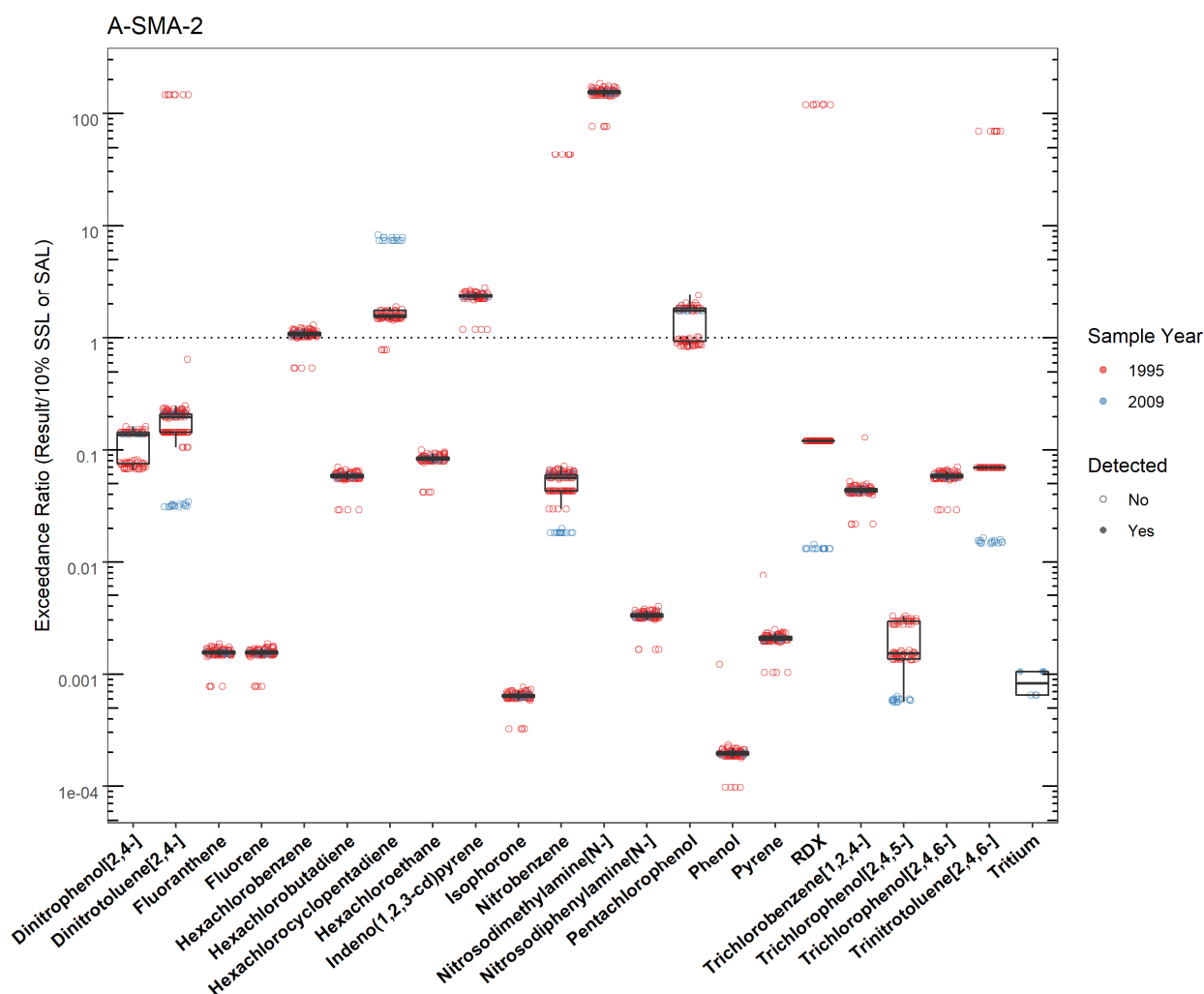


Figure 220.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-2 (Plot 2)

A-SMA-2							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	A-SMA-2	Sb	Y	BTV	0.830	12.8	1995-08-29
Barium	A-SMA-2	Ba	Y	BTV	295	915	2009-12-11
Beryllium	A-SMA-2	Be	Y	BTV	1.83	2.60	1995-09-21
Bis(2-ethylhexyl)phthalate	A-SMA-2	117-81-7	Y	SSL_0.1	38.0	46.0	1995-08-17
Cadmium	A-SMA-2	Cd	Y	BTV	0.400	1.10	1995-08-09
Chromium	A-SMA-2	Cr	Y	BTV	19.3	86.8	1995-08-09
Cobalt	A-SMA-2	Co	Y	BTV	8.64	44.5	2009-12-11
Copper	A-SMA-2	Cu	Y	BTV	14.7	8280	1995-08-09
Lead	A-SMA-2	Pb	Y	BTV	22.3	355	1995-08-09
Manganese	A-SMA-2	Mn	Y	BTV	671	2430	2009-12-11
Mercury	A-SMA-2	Hg	Y	BTV	0.100	44.1	1995-08-15
Nickel	A-SMA-2	Ni	Y	BTV	15.4	31.7	2009-12-11
Selenium	A-SMA-2	Se	Y	BTV	1.52	2.00	2009-12-11
Silver	A-SMA-2	Ag	Y	BTV	1.00	4.80	1995-08-30
Thallium	A-SMA-2	Tl	Y	BTV	0.730	2.00	1995-08-17
Uranium	A-SMA-2	U	Y	BTV	1.82	4460	1995-08-15
Vanadium	A-SMA-2	V	Y	BTV	39.6	40.1	2009-11-24
Zinc	A-SMA-2	Zn	Y	BTV	48.8	4020	1995-08-09

Figure 220.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-2

220.4 Stormwater Evaluation

220.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current stage at the SMA.

220.4.2 Assessment Unit and Stream Impairments

A-SMA-2 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

220.5 Site-Specific Demonstration

220.5.1 Soil Data Summary

Copper exceeded the applicable screening value in soil data and previously exceeded the TAL in stormwater. When the Site is removed from deferred status, this Site-related POC will be added to the SAP.

All other metals which exceeded the applicable screening values in soil data were previously measured in stormwater data and did not exceed TALs; therefore, they will not be added to the SAP. Bis(2-ethylhexyl)phthalate exceeded the applicable screening value in soil data but is not a Site-related POC and will not be added to the SAP.

220.5.2 Stormwater Data Summary

No data for the current monitoring stage have been collected. In the previous monitoring stage, copper exceed the TAL and the BTV; aluminum and gross alpha exceeded TALs but not BTVs.

220.5.3 2022 Permit Status

All Sites within the SMA are deferred under the Consent Order. Therefore, the SMA is eligible for long-term stewardship pursuant to permit Part 1.C.3.

221.0 A-SMA-2.5

Associated Sites	39-010
Receiving Water	North Ancho Canyon
Drainage Area	0.08 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 39-010: In Progress
2010 Administratively Continued Permit Final Status	Baseline Monitoring Extended
2016–2018 SIP Actions	Based on the September 2017 field visit, the sampler was moved to increase the likelihood of collecting a sample from this SMA.
2022 Permit Status	Active Monitoring

221.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, baseline monitoring was initiated. While developing the 2018 SAP, a decision was made to implement the monitoring location move recommended during the 2017 SIP review, and monitoring was reinitiated. To date, stormwater flow has not been sufficient for full-volume sample collection. Monitoring is ongoing until one confirmation sample is collected from this SMA.

221.2 Site History

39-010 (8/28/2017)

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

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

For investigation activities, refer to “Phase II Investigation Work Plan for North Ancho Canyon Aggregate Area Revision 1” (LANL 2011, 201561).

221.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 221.2-1.

Table 221.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

221.3 Consent Order Soil Data

Decision-level data for SWMU 39-010 consist of results from samples collected in 2009. These results are presented in Figures 221.3-1 to 221.3-4. The IR (LANL 2011, 201561) concluded that the nature and extent of contamination have been defined, except for the lateral and vertical extent of uranium-234, uranium-235/236, and uranium-238, and the vertical extent of copper; lead; mercury; benzo(a)pyrene; bis(2-ethylhexyl)phthalate; di-n-butylphthalate; 1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX); and tritium.

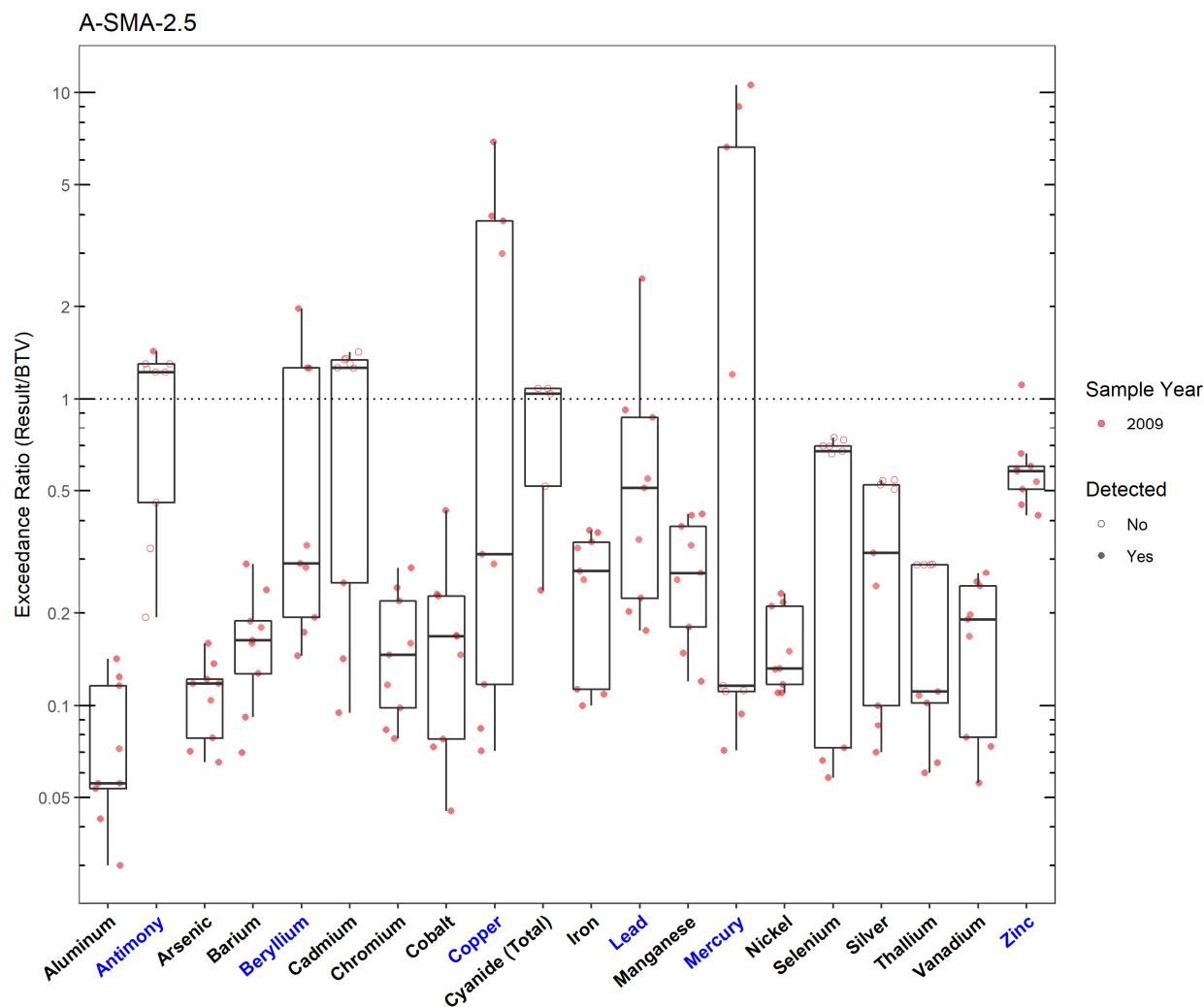


Figure 221.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-2.5

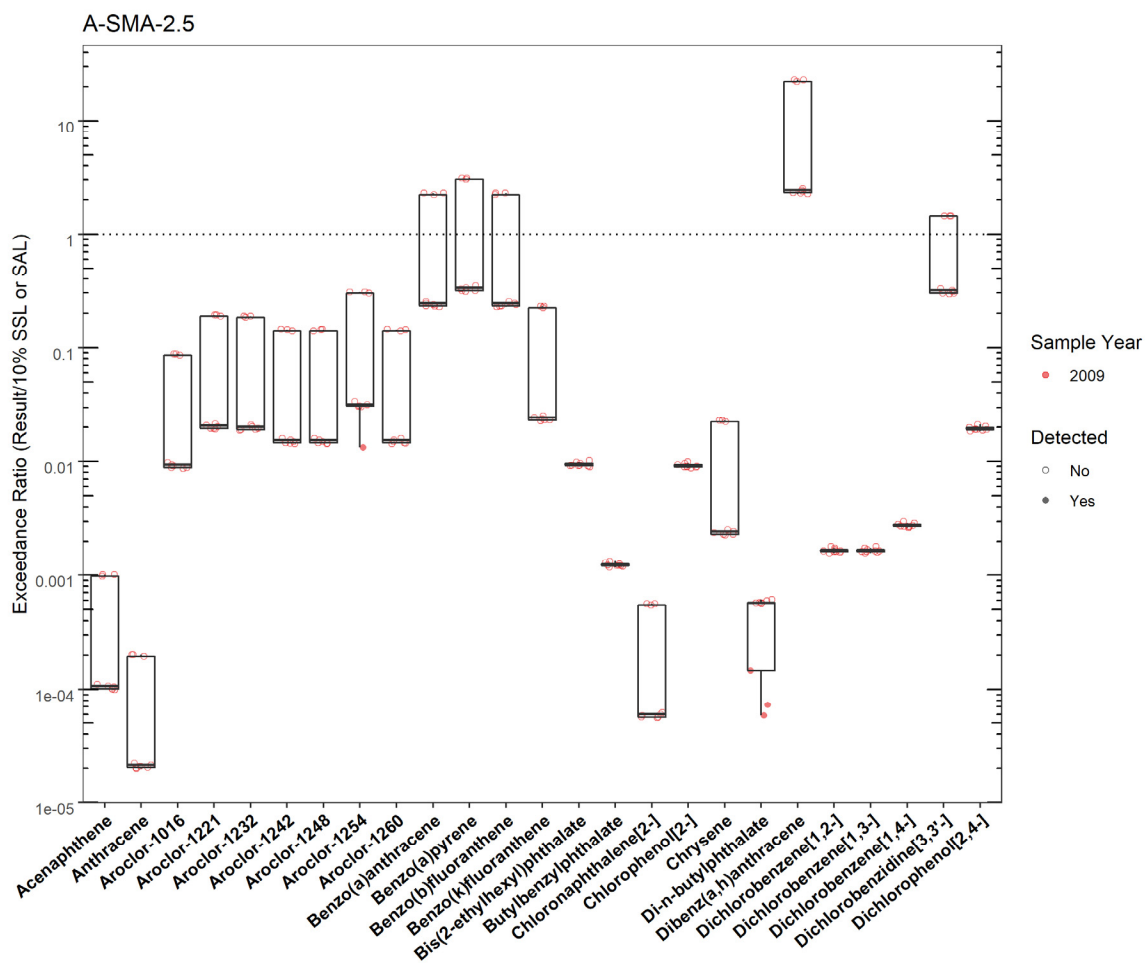


Figure 221.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-2.5 (Plot 1)

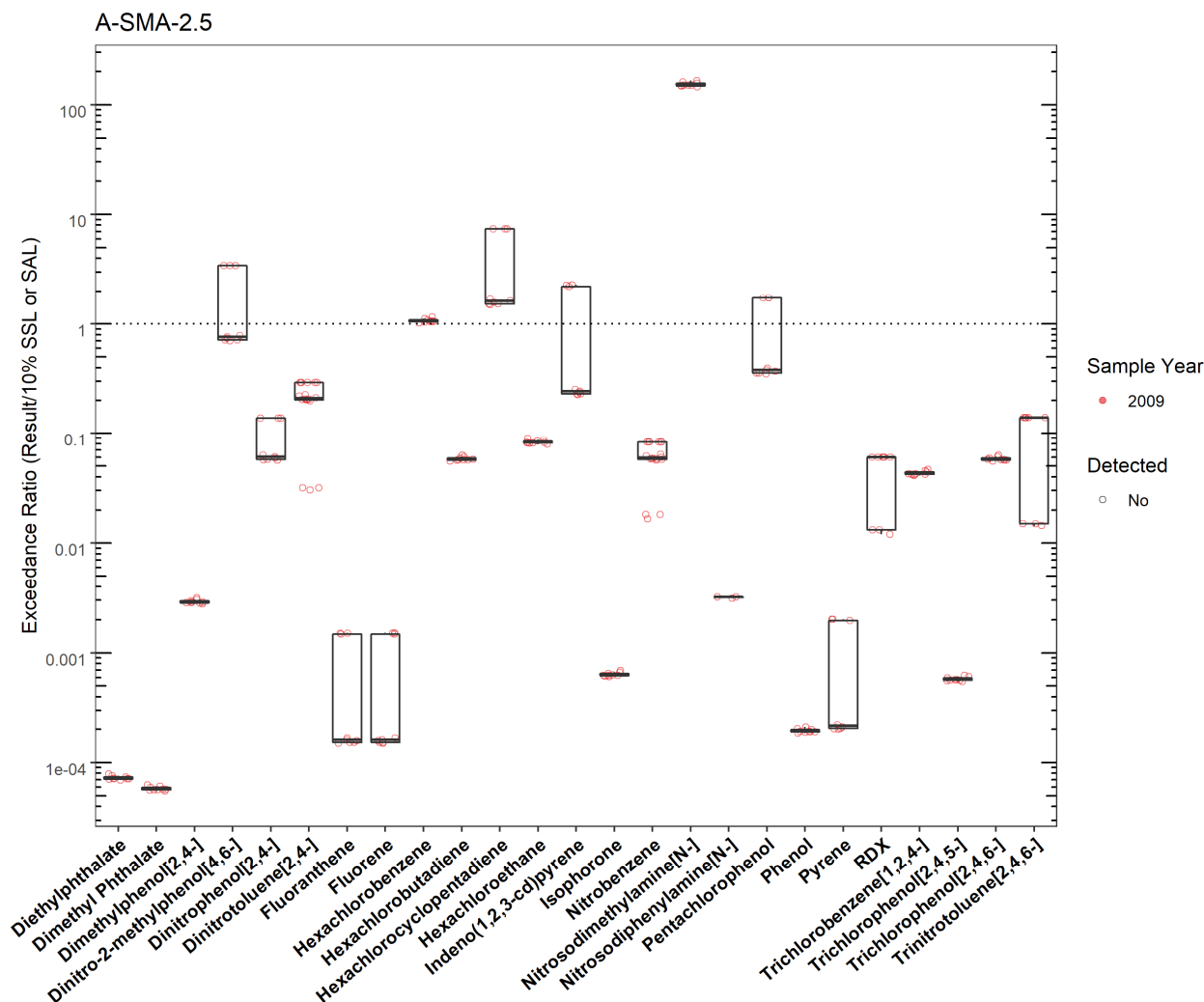


Figure 221.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-2.5 (Plot 2)

A-SMA-2.5

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	A-SMA-2.5	Sb	Y	BTV	0.830	1.19	2009-03-16
Beryllium	A-SMA-2.5	Be	Y	BTV	1.83	3.60	2009-05-11
Copper	A-SMA-2.5	Cu	Y	BTV	14.7	101	2009-05-11
Lead	A-SMA-2.5	Pb	Y	BTV	22.3	55.4	2009-03-16
Mercury	A-SMA-2.5	Hg	Y	BTV	0.100	1.06	2009-05-11
Zinc	A-SMA-2.5	Zn	Y	BTV	48.8	54.4	2009-03-16

Figure 221.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-2.5

221.4 Stormwater Evaluation

221.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected at the SMA.

221.4.2 Assessment Unit and Stream Impairments

A-SMA-2.5 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

221.5 Site-Specific Demonstration

221.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data and have not yet been measured in stormwater: antimony, beryllium, copper, mercury, lead, and zinc.

Site-related POCs aluminum, iron, and HE were measured below the applicable screening values in soil data. Therefore, they will not be added to the SAP.

Uranium, also a Site-related POC, was not measured in soil data. Therefore, it will be added to the SAP.

221.5.2 Stormwater Data Summary

No confirmation-monitoring data.

221.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected.

221.5.4 Sampling and Analysis Plan

Table 221.5-1 is the proposed SAP for A-SMA-2.5.

Table 221.5-1 Proposed SAP, A-SMA-2.5

Monitoring Constituent	Background for Monitoring
Gross alpha	Site history (uranium) and impairment
Total PCBs	Impairment and Site history
Dissolved beryllium, copper, lead, antimony, uranium, and zinc	Site history and soil data
Total mercury	Site history and soil data
DOC	Permit requirement
SSC	Permit requirement

222.0 A-SMA-2.7

Associated Sites	39-002(c), 39-008
Receiving Water	North Ancho Canyon
Drainage Area	9.50 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	AOC 39-002(c): Pending Inclusion in Permit Modification Request. Certificate of Completion Received Without Controls SWMU 39-008: In Progress Deferred per Consent Order
2010 Administratively Continued Permit Final Status	Corrective Action Complete/ Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Active Monitoring

222.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, baseline stormwater samples were collected in July and September 2011. Analytical results from these samples initiated corrective action.

AOC 39-002(c) received a COC under the Consent Order from NMED in April 2010. The Permittees submitted a certification of completion of corrective action per Permit part I.E.2(d) for the Site in November 2012 (LANL 2012, 232272; LANL 2012/2013, 232273) and resubmitted in August 2013 (LANL 2013, 250035).

Following the September 2012 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2012, 227785; LANL 2012, 227786), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated for SWMU 39-008. A stormwater sample was collected in September 2013, and stormwater monitoring is ongoing to attempt to collect a second sample.

222.2 Site History

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

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

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

39-008 (8/28/2017)

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

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

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

For investigation activities for these Sites, refer to “Investigation Report for North Ancho Canyon Aggregate Area, Revision 1” (LANL 2010, 108500.11).

222.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 222.2-1.

Table 222.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

222.3 Consent Order Soil Data

Decision-level data for AOC 39-002(c) consist of samples collected in 2009. The 2010 IR (LANL 2010, 108500.11) concluded that the nature and extent of contamination have been defined, and no further sampling for extent is warranted.

Decision-level data for SWMU 39-008 consist of results from samples collected in 1995 and 2009. The approved IR (LANL 2010, 108500.11) concluded that the nature and extent of contamination are defined except for total uranium or isotopic uranium.

Analytical results from all soil samples collected for A-SMA-2.7 are presented in Figures 222.3-1 to 222.3-4.

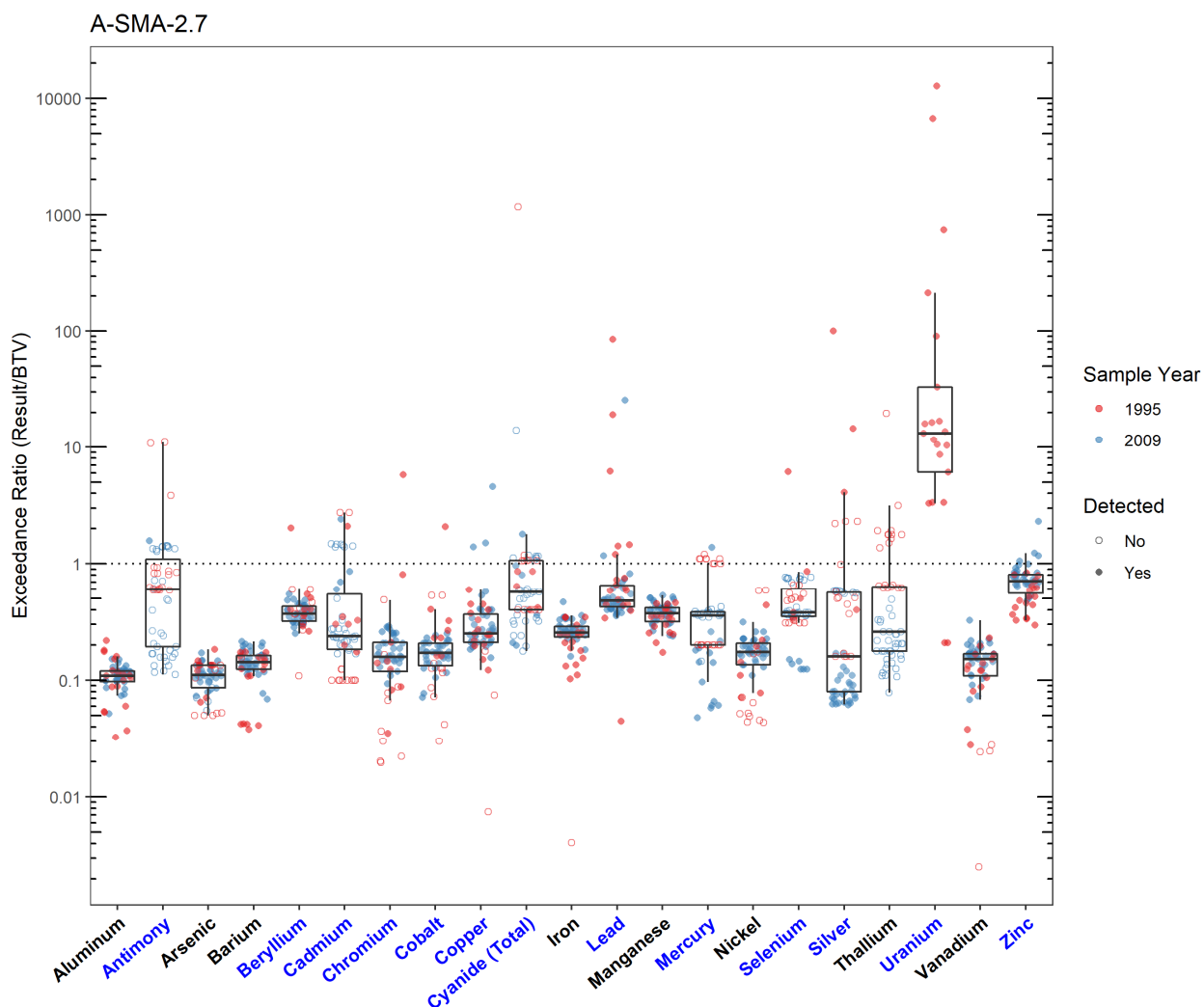


Figure 222.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-2.7

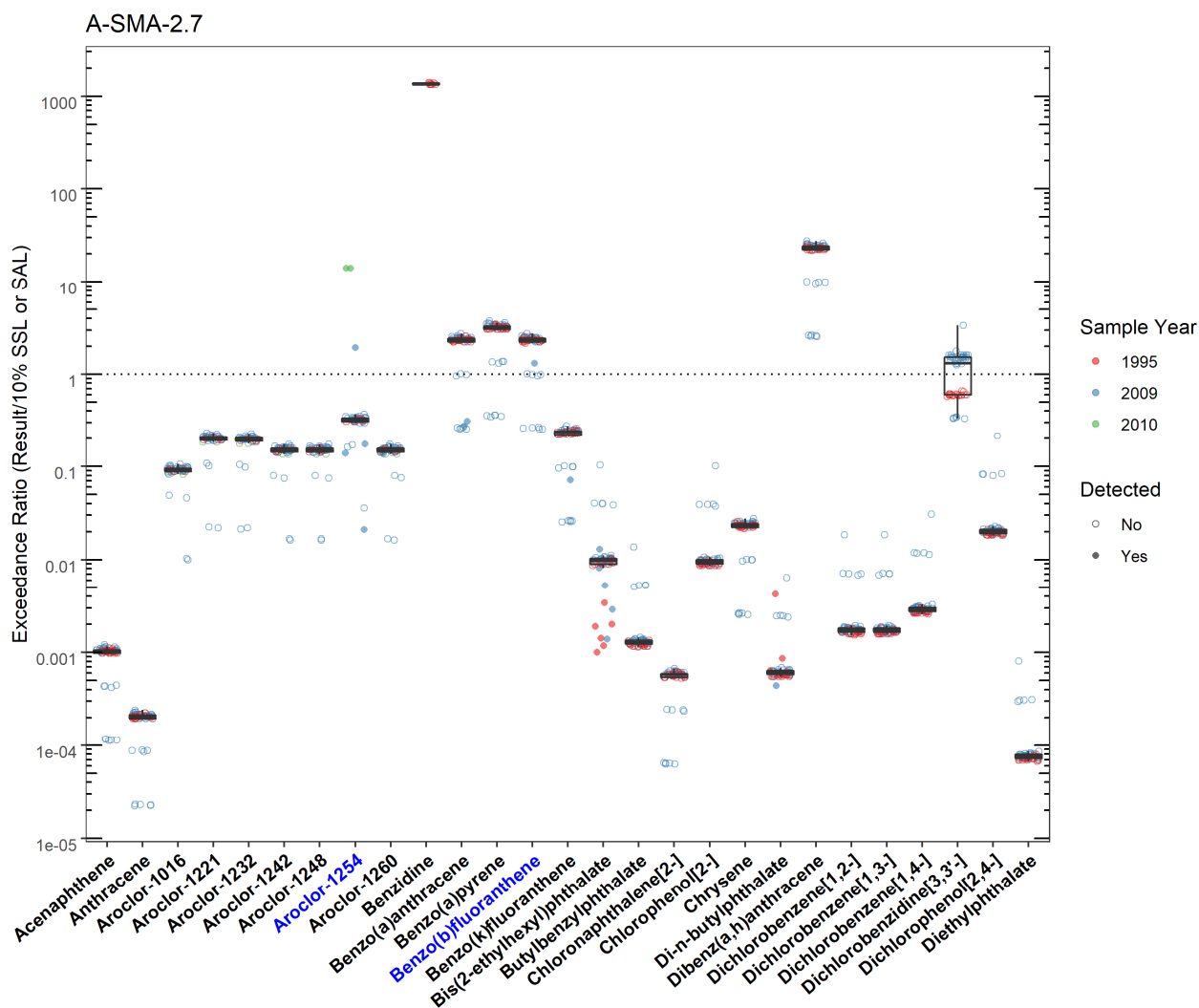


Figure 222.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-2.7 (Plot 1)

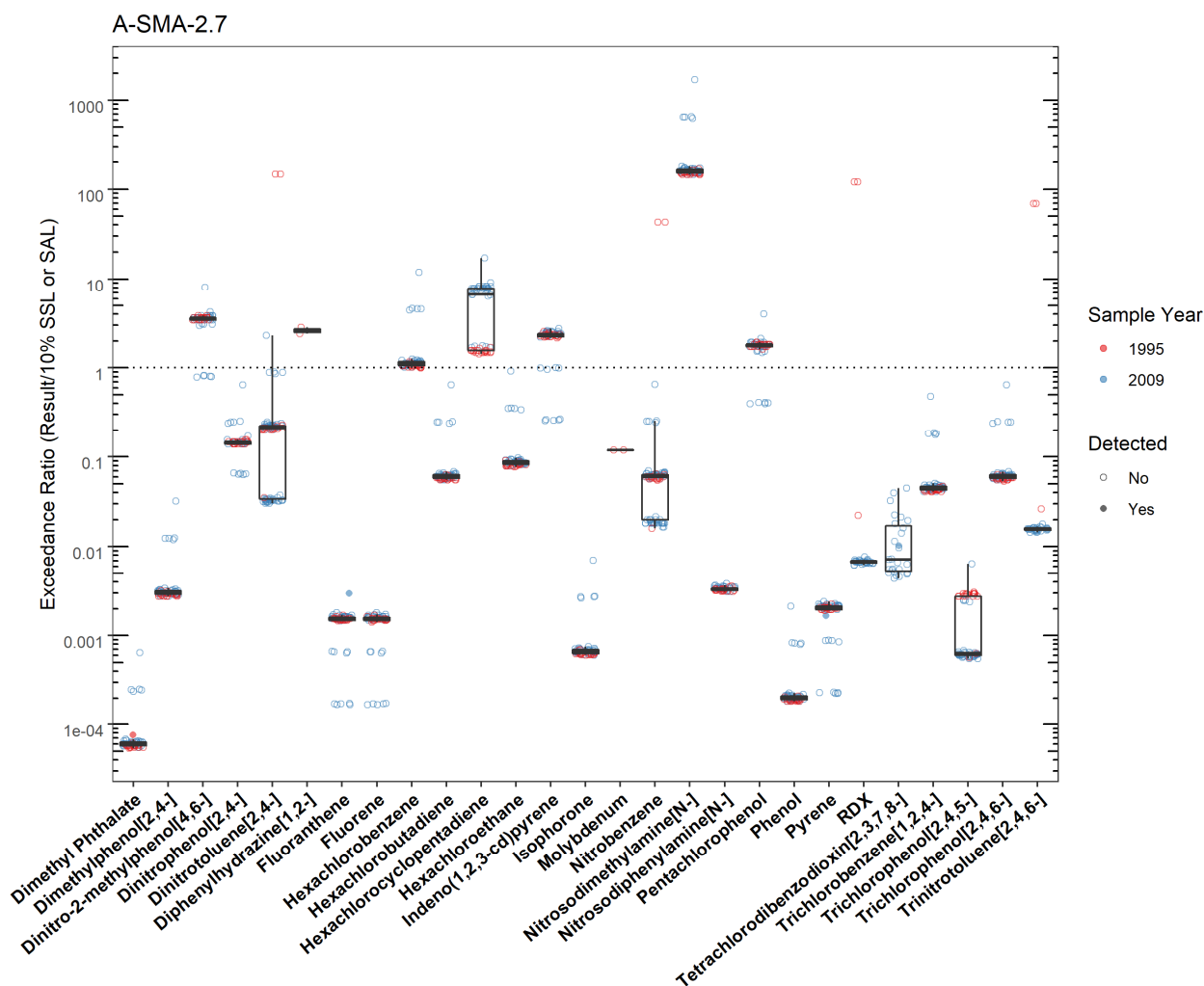


Figure 222.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-2.7 (Plot 2)

A-SMA-2.7

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	A-SMA-2.7	Sb	Y	BTV	0.830	1.30	2009-02-19
Aroclor-1254	A-SMA-2.7	11097-69-1	Y	SSL_0.1	0.114	1.60	2010-06-03
Benzo(b)fluoranthene	A-SMA-2.7	205-99-2	Y	SSL_0.1	0.153	0.200	2009-02-19
Beryllium	A-SMA-2.7	Be	Y	BTV	1.83	3.70	1995-09-28
Cadmium	A-SMA-2.7	Cd	Y	BTV	0.400	0.966	2009-03-12
Chromium	A-SMA-2.7	Cr	Y	BTV	19.3	111	1995-09-28
Cobalt	A-SMA-2.7	Co	Y	BTV	8.64	18.0	1995-09-28
Copper	A-SMA-2.7	Cu	Y	BTV	14.7	67.4	2009-02-18
Cyanide (Total)	A-SMA-2.7	CN(TOTAL)	Y	BTV	0.500	0.899	2009-03-12
Lead	A-SMA-2.7	Pb	Y	BTV	22.3	1880	1995-10-03
Mercury	A-SMA-2.7	Hg	Y	BTV	0.100	0.138	2009-03-12
Selenium	A-SMA-2.7	Se	Y	BTV	1.52	9.30	1995-09-28
Silver	A-SMA-2.7	Ag	Y	BTV	1.00	100	1995-09-28
Uranium	A-SMA-2.7	U	Y	BTV	1.82	23300	1995-09-28
Zinc	A-SMA-2.7	Zn	Y	BTV	48.8	112	2009-03-12

Figure 222.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-2.7

222.4 Stormwater Evaluation

222.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in September 2013. Analytical results from that sample are presented in Figures 222.4-1 and 222.4-2.

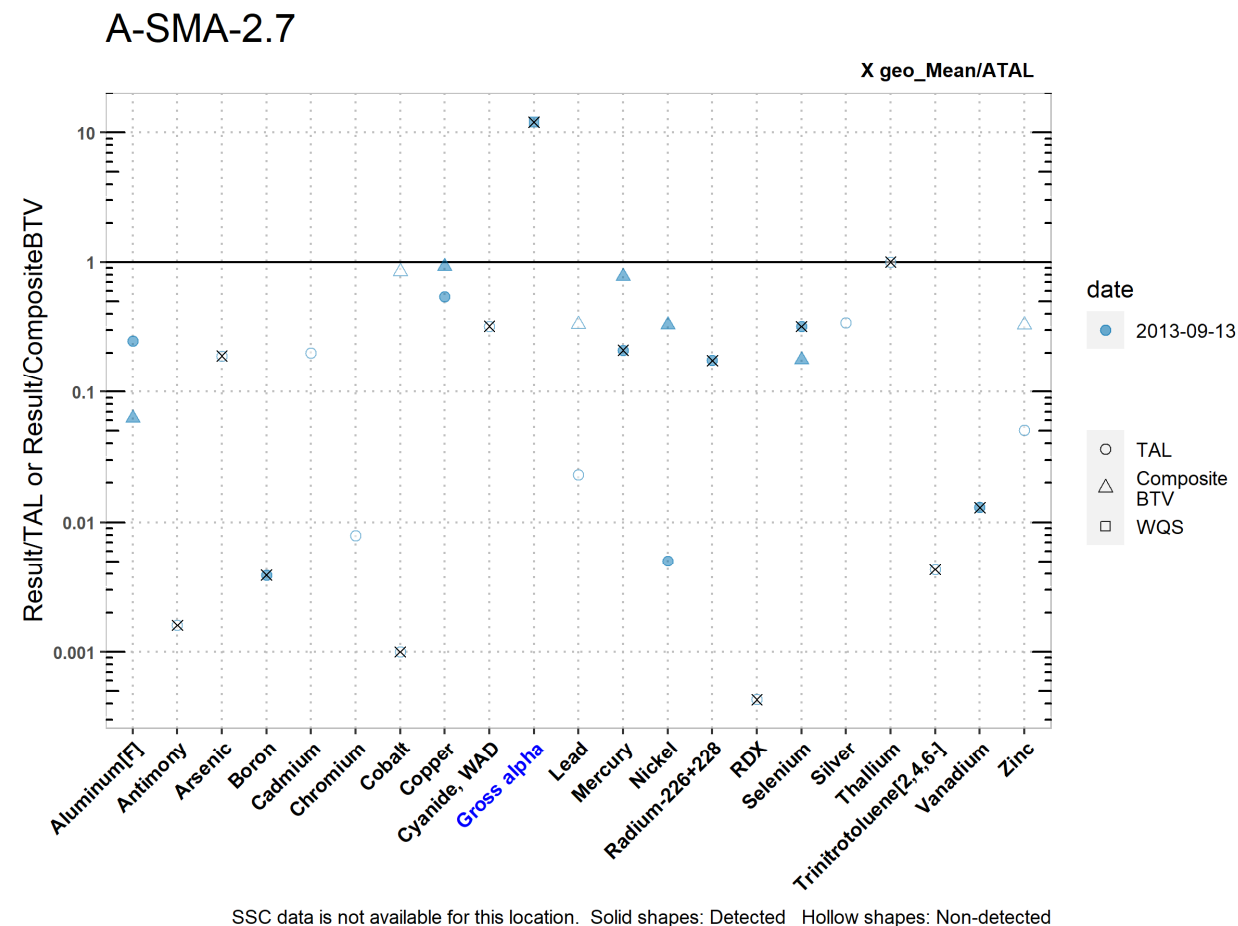


Figure 222.4-1 Analytical Results from Stormwater Sample, A-SMA-2.7 (Plot)

		A-SMA-2.7																				
		Aluminum [F]	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Lead	Mercury	Nickel	Radium-226+228	RDX	Selenium	Silver	Thallium	Trinitrotoluene [2,4,6-]	Vanadium	Zinc
	MQL	2.5	1	0.5	100	1	10	50	0.5	10	NA	0.5	0.005	0.5	NA	NA	5	0.5	0.5	NA	50	20
	ATAL	NA	640	9	5000	NA	NA	1000	NA	5.2	15	NA	0.77	NA	30	200	5	NA	0.47	20	100	NA
	MTAL	750	NA	340	NA	0.711	253	NA	5.29	22	NA	21.7	NA	203	NA	NA	20	0.587	NA	NA	NA	65.1
Composite_BTV		2950	NA	NA	NA	NA	NA	1.18	3.12	NA	57.2	1.50	0.208	3.10	4.21	NA	8.98	NA	NA	NA	NA	10.0
	unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2013-09-13	result	185	1.00	1.70	19.5	0.110	2.00	1.00	2.88	1.67	175	0.500	0.162	1.02	5.24	0.0856	1.60	0.200	0.450	0.0856	1.32	3.30
2013-09-13	dT	0.247	NA	NA	0.0039	NA	NA	NA	0.544	NA	12	NA	0.21	0.00502	0.175	NA	0.32	NA	NA	NA	0.013	NA
2013-09-13	dB	0.0627	NA	NA	NA	NA	NA	NA	0.923	NA	NA	NA	0.779	0.329	NA	NA	0.178	NA	NA	NA	NA	NA
geo_mean	/ATAL	NA	0.0016	0.19	0.0039	NA	NA	0.0010	NA	0.321	12	NA	0.21	NA	0.175	0.00043	0.32	NA	1	0.0043	0.013	NA
Italic font indicates nondetect results																						
dT=detected result/TAL, dB=detected result/composite BTV																						

Figure 222.4-2 Analytical Results from Stormwater Sample, A-SMA-2.7 (Table)

222.4.2 Assessment Unit and Stream Impairments

A-SMA-2.7 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

222.5 Site-Specific Demonstration

222.5.1 Soil Data Summary

Aroclor-1254, beryllium, and uranium exceeded the applicable screening values in soil data and have not yet been measured in stormwater.

Benzo(b)fluoranthene exceeded the applicable screening value, but is not a Site-related POC and will not be added to the SAP.

The other metals that exceeded the applicable screening values in soil data were previously measured in stormwater data and did not exceed TALs. Therefore, they will not be added to the SAP.

222.5.2 Stormwater Data Summary

Gross alpha exceeded the TAL in 2013 stormwater data; there was no paired SSC result to confirm whether it was below BTVs. Therefore, it will be added to the SAP.

222.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

222.5.4 Sampling and Analysis Plan

Table 222.5-1 is the proposed SAP for A-SMA-2.7.

Table 222.5-1 Proposed SAP, A-SMA-2.7

Monitoring Constituent	Background for Monitoring
Total PCBs	Impairment, Site history, and soil data
Gross alpha	Impairment and Site history
Dissolved beryllium and uranium	Site history and soil data
DOC	Permit requirement
SSC	Permit requirement

223.0 A-SMA-2.8

Associated Sites	39-001(b)
Receiving Water	North Ancho Canyon
Drainage Area	0.97 acres
Landscape Characteristics	22% impervious, 78% pervious
Consent Order Site Status	SWMU 39-001(b): Pending Inclusion in Permit Modification Request. Certificate of Completion Received Without Controls
2010 Administratively Continued Permit Final Status	Baseline Monitoring Extended
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

223.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, baseline monitoring was initiated. To date, stormwater flow has not been sufficient for full-volume sample collection. Monitoring is ongoing until one confirmation sample is collected from this SMA.

223.2 Site History

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

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

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

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

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

survey. SWMU 39-001(b) was completely excavated during the 2009 Phase I Consent Order investigation.

For investigation activities, refer to “Investigation Report for North Ancho Canyon Aggregate Area Revision 1” (LANL 2010, 108500.11).

223.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 223.2-1.

Table 223.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

223.3 Consent Order Soil Data

Decision-level data for SWMU 39-001(b) consist of results from samples collected in 2009. These results are presented in Figures 223.3-1 to 223.3-4. The 2010 IR (LANL 2010, 108500.11) concluded that the nature and extent of contamination have been defined and no further sampling for extent is warranted. This Site does not pose a potential unacceptable risk or dose under the residential scenario, and poses no potential ecological risk.

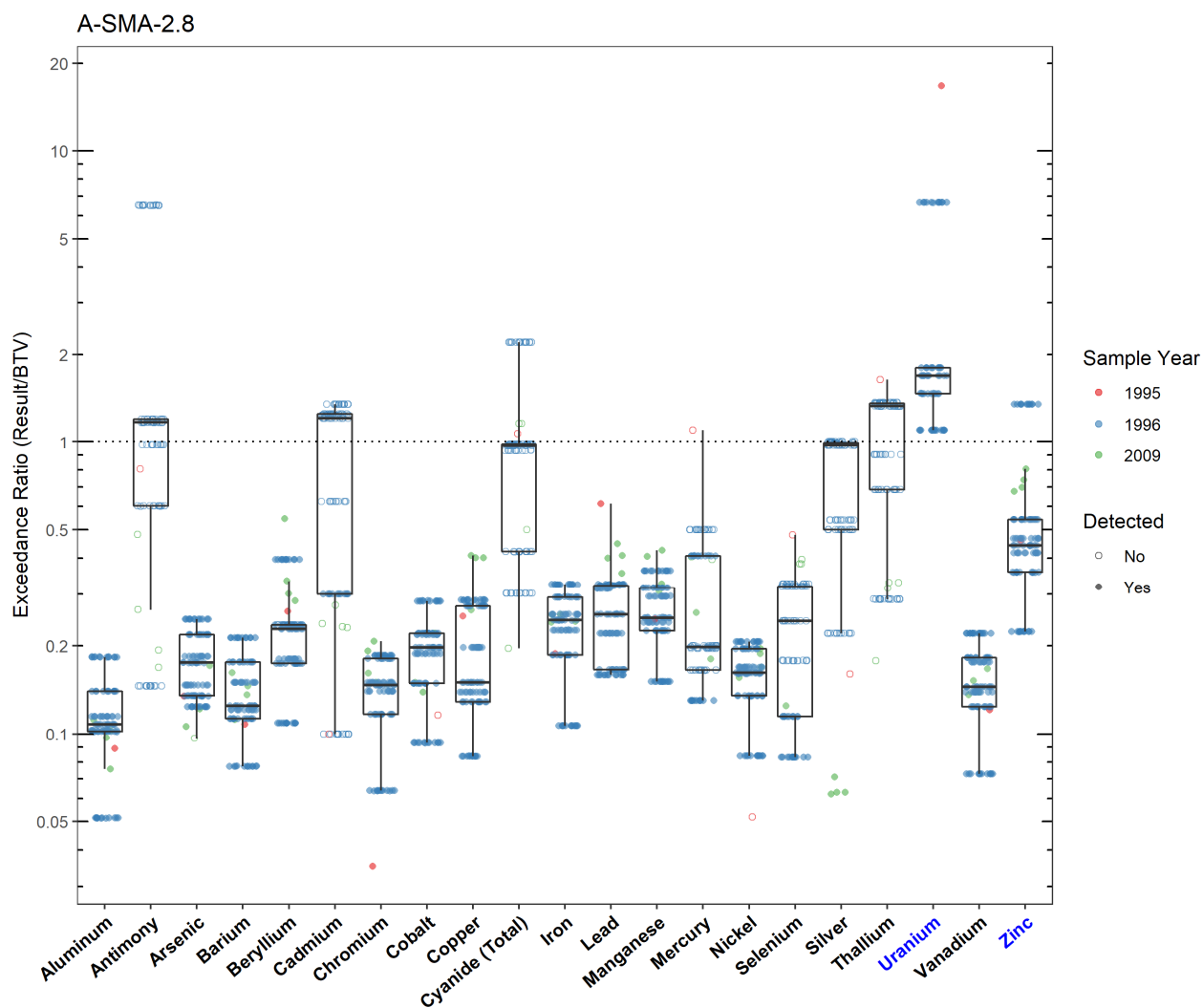


Figure 223.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-2.8

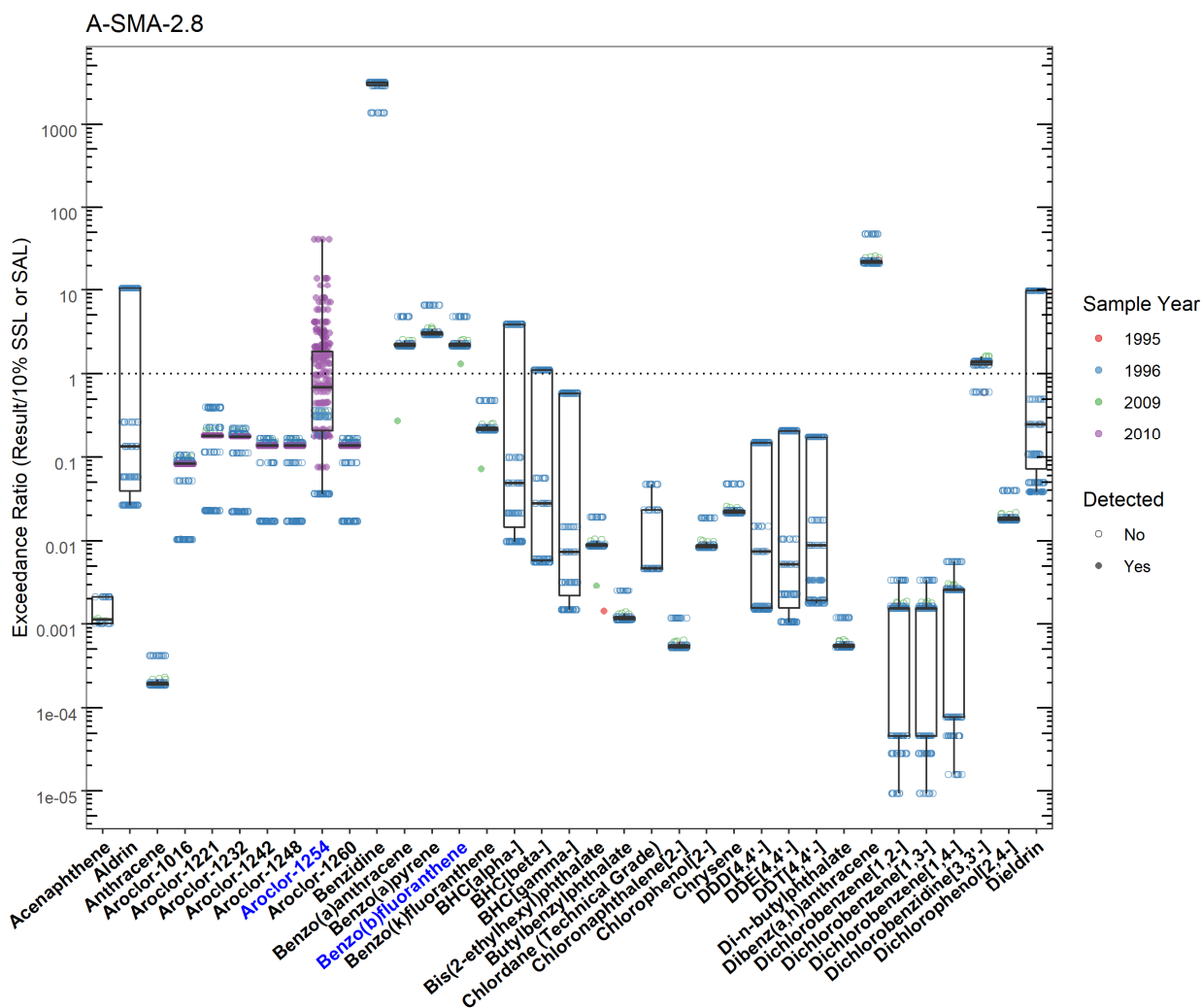


Figure 223.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-2.8 (Plot 1)

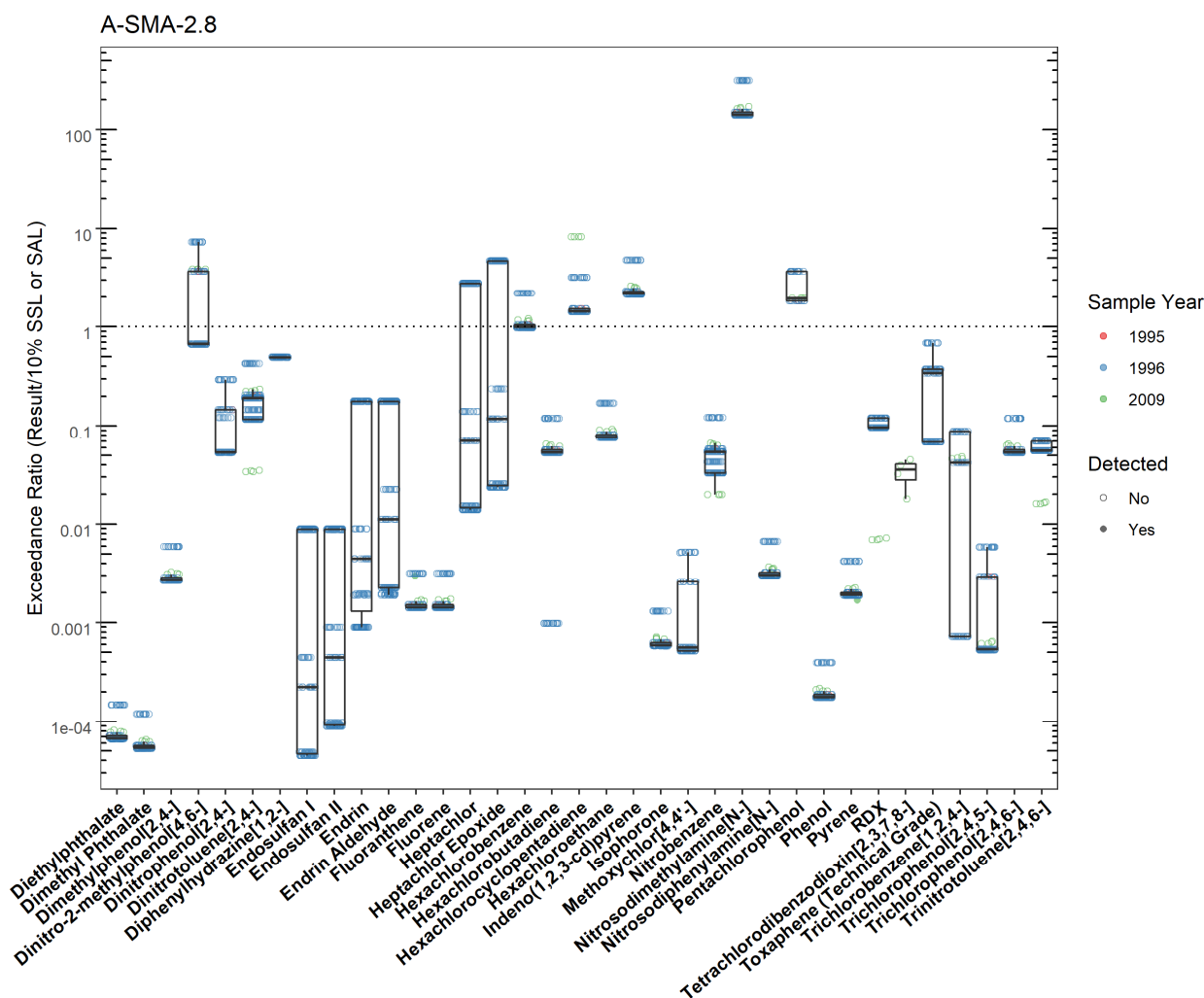


Figure 223.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-2.8 (Plot 2)

A-SMA-2.8							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Aroclor-1254	A-SMA-2.8	11097-69-1	Y	SSL_0.1	0.114	4.70	2010-06-03
Benzo(b)fluoranthene	A-SMA-2.8	205-99-2	Y	SSL_0.1	0.153	0.200	2009-02-19
Uranium	A-SMA-2.8	U	Y	BTV	1.82	30.5	1995-10-03
Zinc	A-SMA-2.8	Zn	Y	BTV	48.8	65.7	1996-03-04

Figure 223.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-2.8

223.4 Stormwater Evaluation

223.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected at the SMA.

223.4.2 Assessment Unit and Stream Impairments

A-SMA-2.8 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

223.5 Site-Specific Demonstration

223.5.1 Soil Data Summary

Aroclor-1254 and uranium are Site-related POCs that exceeded the applicable screening values in soil data and have not yet been measured in stormwater. Benzo(b)fluoranthene and zinc exceeded the applicable screening values, but are not Site-related POCs and will not be added to the SAP. Beryllium, lead, and HE are Site-related POCs but did not exceed the applicable screening values in soil data and will not be added to the SAP.

223.5.2 Stormwater Data Summary

No confirmation-monitoring data.

223.5.3 2022 Permit Status

The SMA is in active monitoring; no confirmation-monitoring sample has been collected.

223.5.4 Sampling and Analysis Plan

Table 223.5-1 is the proposed SAP for A-SMA-2.8.

Table 223.5-1 Proposed SAP, A-SMA-2.8

Monitoring Constituent	Background for Monitoring
Gross alpha	Impairment and Site history (uranium)
Total PCBs	Impairment, Site history, and soil data
Dissolved uranium	Soil data and Site history
Total mercury	Site history and soil data
DOC	Permit requirement
SSC	Permit requirement

224.0 A-SMA-3

Associated Sites	39-002(b), 39-004(c)
Receiving Water	North Ancho Canyon
Drainage Area	200.42 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	AOC 39-002(b): In Progress SWMU 39-004(c): In Progress Deferred per Consent Order
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Active Monitoring

224.1 2010 Administratively Continued Permit Summary

Following the December 2010 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2013. Analytical results from this sample initiated corrective action.

Following the September 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600909), corrective-action monitoring was initiated and a stormwater sample was collected in August 2018. Analytical results from this sample initiated corrective action.

Following the December 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701797), the sampler was relocated to a more representative location and corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

224.2 Site History

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

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

Beginning in 1953, the area was used to store small quantities of paper contaminated with waste solvents (ethanol, acetone, and trichloroethane), copper sulfate, transformer oil, vacuum pump grease, and photographic waste. The date when the SAA was established is not known; however, the SAA was removed from service in 1993. The concrete pad is intact; no staining is visible on the pad.

AOC 39-002(b) is located within the blast radius of active firing site [SWMU 39-004(c)].

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

SWMU 39-004(c) is an active firing site and active operating RCRA OD Site (structure 39-6), subject to RCRA closure requirements. The site is located in the southernmost western tributary of Ancho Canyon

in the canyon bottom, between an ephemeral stream and steep hill slopes to both the north and south. The site is used for explosives experiments and for treating reactive hazardous waste by OD. The experiments conducted at this firing site are designed to expend all HE in the device.

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

For investigation activities for AOC 39-002(b), refer to “Phase II Investigation Work Plan for North Ancho Canyon Aggregate Area Revision 1” (LANL 2011, 201561). For investigation activities at SWMU 39-004(c), refer to “Investigation Report for North Ancho Canyon Aggregate Area, Revision 1” (LANL 2010, 108500.11).

224.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 224.2-1.

Table 224.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

224.3 Consent Order Soil Data

No decision-level data are available for AOC 39-002(b). However, decision-level data from samples collected from locations within a tributary drainage channel downgradient of the Site are available to determine if contamination is migrating from the Site. The approved 2010 IR (LANL 2011, 201561) concluded that the nature and extent of all detected chemicals and radionuclides are defined in the drainage downgradient of AOC 39-002(b).

Decision-level data for SWMU 39-004(c) consist of results from samples collected in 1995 and 2009. These results are presented in Figures 224.3-1 to 224.3-4. The approved IR (LANL 2011, 201561) concluded that the extent of detected inorganic and organic chemicals and radionuclides is not defined at the Site; however, results of the preliminary characterization indicated that contaminants are not migrating off-site.

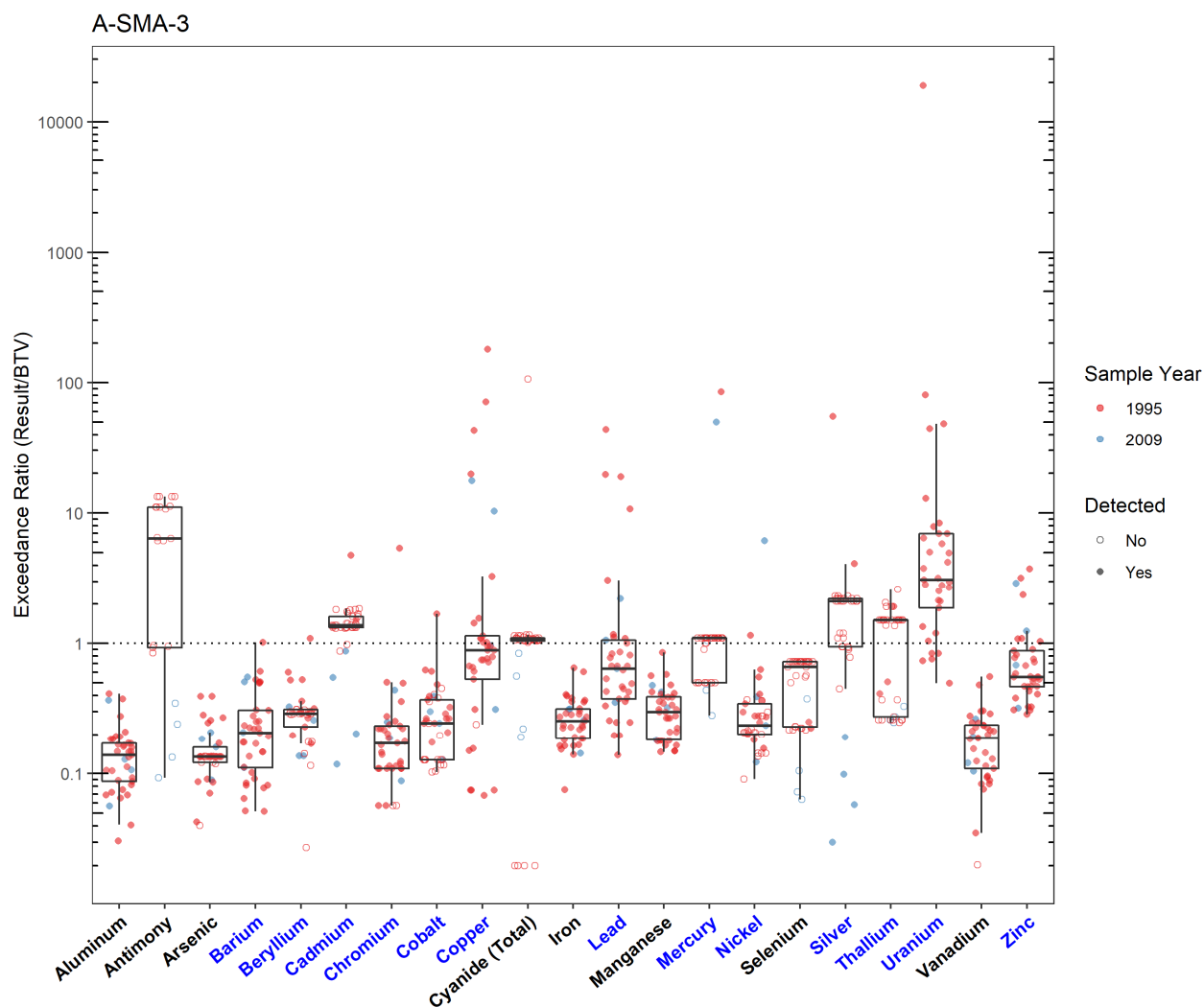


Figure 224.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-3

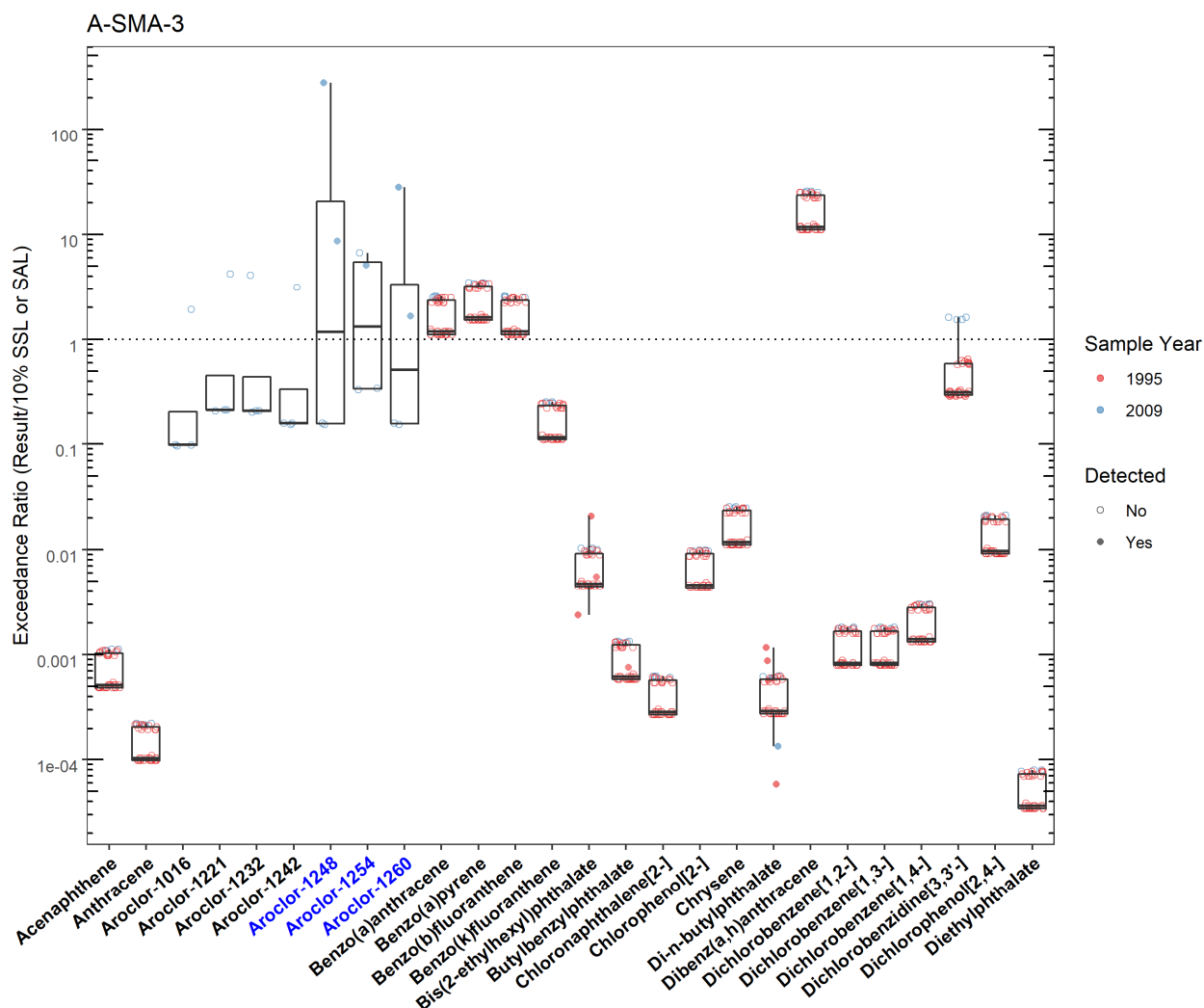


Figure 224.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-3 (Plot 1)

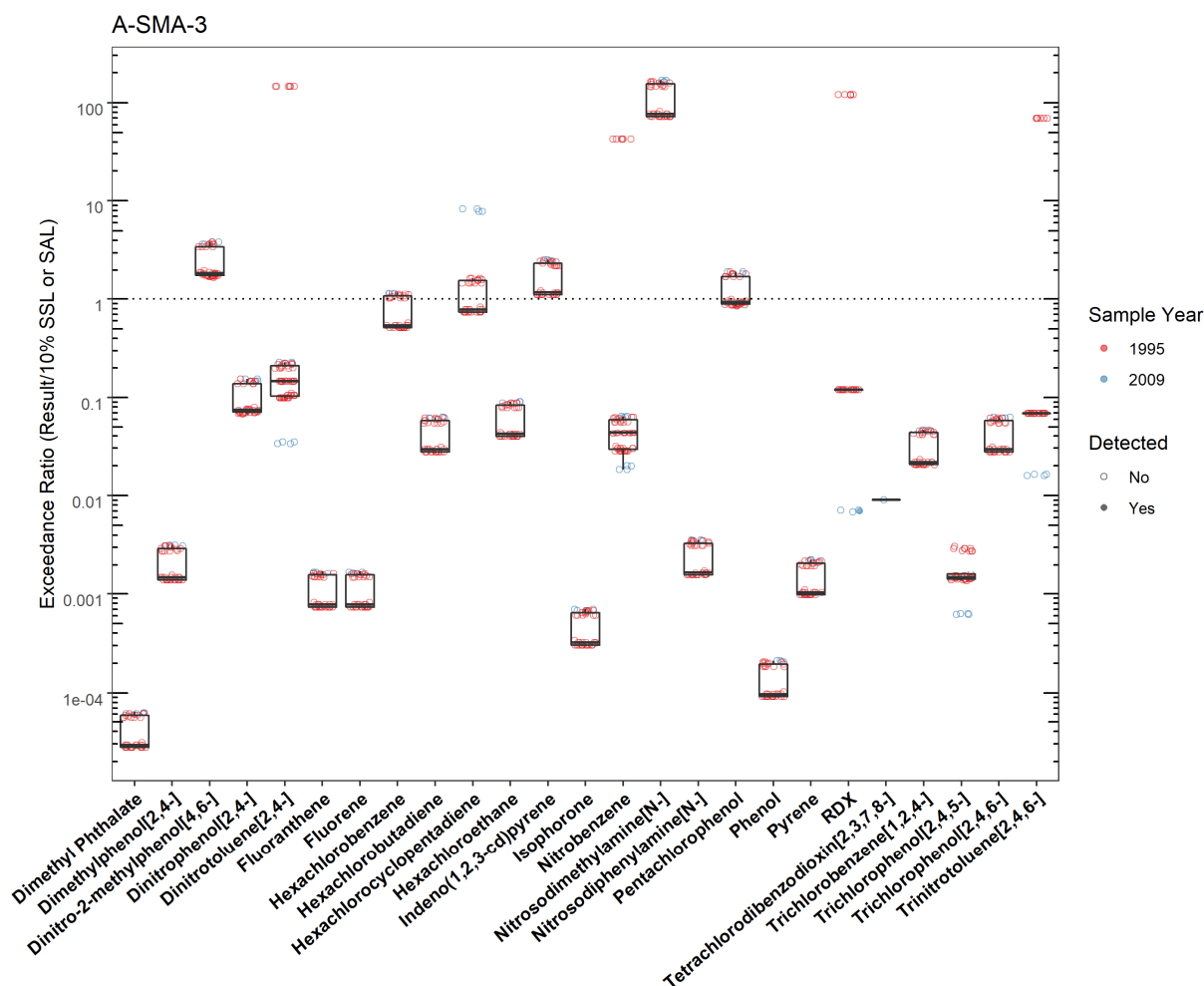


Figure 224.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-3 (Plot 2)

A-SMA-3							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Aroclor-1248	A-SMA-3	12672-29-6	Y	SSL_0.1	0.243	67.0	2009-03-13
Aroclor-1254	A-SMA-3	11097-69-1	Y	SSL_0.1	0.114	0.580	2009-03-13
Aroclor-1260	A-SMA-3	11096-82-5	Y	SSL_0.1	0.243	6.80	2009-03-13
Barium	A-SMA-3	Ba	Y	BTV	295	302	1995-08-15
Beryllium	A-SMA-3	Be	Y	BTV	1.83	2.00	1995-08-15
Cadmium	A-SMA-3	Cd	Y	BTV	0.400	1.90	1995-08-15
Chromium	A-SMA-3	Cr	Y	BTV	19.3	104	1995-08-15
Cobalt	A-SMA-3	Co	Y	BTV	8.64	14.5	1995-08-15
Copper	A-SMA-3	Cu	Y	BTV	14.7	2640	1995-08-15
Lead	A-SMA-3	Pb	Y	BTV	22.3	978	1995-08-15
Mercury	A-SMA-3	Hg	Y	BTV	0.100	8.50	1995-08-15
Nickel	A-SMA-3	Ni	Y	BTV	15.4	94.9	2009-03-13
Silver	A-SMA-3	Ag	Y	BTV	1.00	55.1	1995-08-15
Thallium	A-SMA-3	Tl	Y	BTV	0.730	1.40	1995-08-15
Uranium	A-SMA-3	U	Y	BTV	1.82	34500	1995-08-15
Zinc	A-SMA-3	Zn	Y	BTV	48.8	183	1995-08-15

Figure 224.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-3

224.4 Stormwater Evaluation

224.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current location at the SMA.

224.4.2 Assessment Unit and Stream Impairments

A-SMA-3 drains to North Fork Ancho Canyon (Ancho Canyon to headwaters), which has impairments for PCBs and adjusted gross alpha. The impairments may be Site-related, based on Site history.

224.5 Site-Specific Demonstration

224.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data, but have not yet been measured in stormwater at the current monitoring location: Aroclor-1248, Aroclor-1254, Aroclor-1260, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, silver, thallium, uranium, and zinc.

Barium, cobalt, nickel, and zinc exceeded the applicable screening values in soil data, but are not Site-related POCs. Therefore, they will not be added to the SAP.

224.5.2 Stormwater Data Summary

No confirmation-monitoring data.

224.5.3 2022 Permit Status

The SMA is in active monitoring; no confirmation-monitoring sample has been collected at the current location.

224.5.4 Sampling and Analysis Plan

Table 224.5-1 is the proposed SAP for A-SMA-3.

Table 224.5-1 Proposed SAP, A-SMA-3

Monitoring Constituent	Background for Monitoring
Total PCBs	Impairment, Site history, and soil data
Gross alpha	Impairment and Site history (uranium)
Dissolved beryllium, cadmium, chromium, copper, lead, silver, thallium, and uranium	Site history and soil data
Total mercury	Site history and soil data
DOC	Permit requirement
SSC	Permit requirement

225.0 A-SMA-3.5

Associated Sites	39-006(a)
Receiving Water	South Ancho Canyon
Drainage Area	0.002 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 39-006(a): In Progress Deferred per Consent Order
2010 Administratively Continued Permit Final Status	Baseline Monitoring Extended*
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Long-Term Stewardship per Permit Part I.C.3 criterion

* Baseline monitoring was reinitiated in 2020 (where one baseline sample had previously been collected with no TAL exceedances) to collect a second sample.

225.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2013. This sample had no TAL exceedances, and stormwater monitoring ceased until 2020. Baseline-confirmation monitoring resumed in 2020 and is ongoing to attempt to collect a second sample with all results below the applicable MTAL or ATAL, potentially allowing the Permittees to make a Site deletion request per Permit part I.I.2.

225.2 Site History

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

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

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

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

engineering drawing ENG-C 44331 (p. 2 of 4). A CMP approximately 1 ft in diameter runs vertically through the center of the seepage pit. The seepage pit handled approximately 75 gal./yr until 1992.

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

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

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

For investigation activities, refer to “Phase II investigation Work Plan for North Ancho Canyon Aggregate Area Revision 1” (LANL 2011, 201561).

225.2.1 *Known or Potential Use of POCs*

POCs known to be managed or potentially used at the Site are listed in Table 225.2-1.

Table 225.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

225.3 *Consent Order Soil Data*

Decision-level data for the inactive components of SWMU 39-006(a) consist of results from samples collected in 1996 and 2009. The IR (LANL 2011, 201561) concluded that the nature and extent of contamination have been defined except for the vertical extent of cadmium, cyanide, silver, and tritium.

Decision-level data for the active components of SWMU 39-006(a) consist of results for seven samples collected from four locations in 2009 at the sand filter outfall and downgradient of the outfall. These results are presented in Figures 225.3-1 to 225.3-4. The IR (LANL 2011, 201561) concluded that the nature and extent of contamination have been defined and no further sampling for extent is warranted.

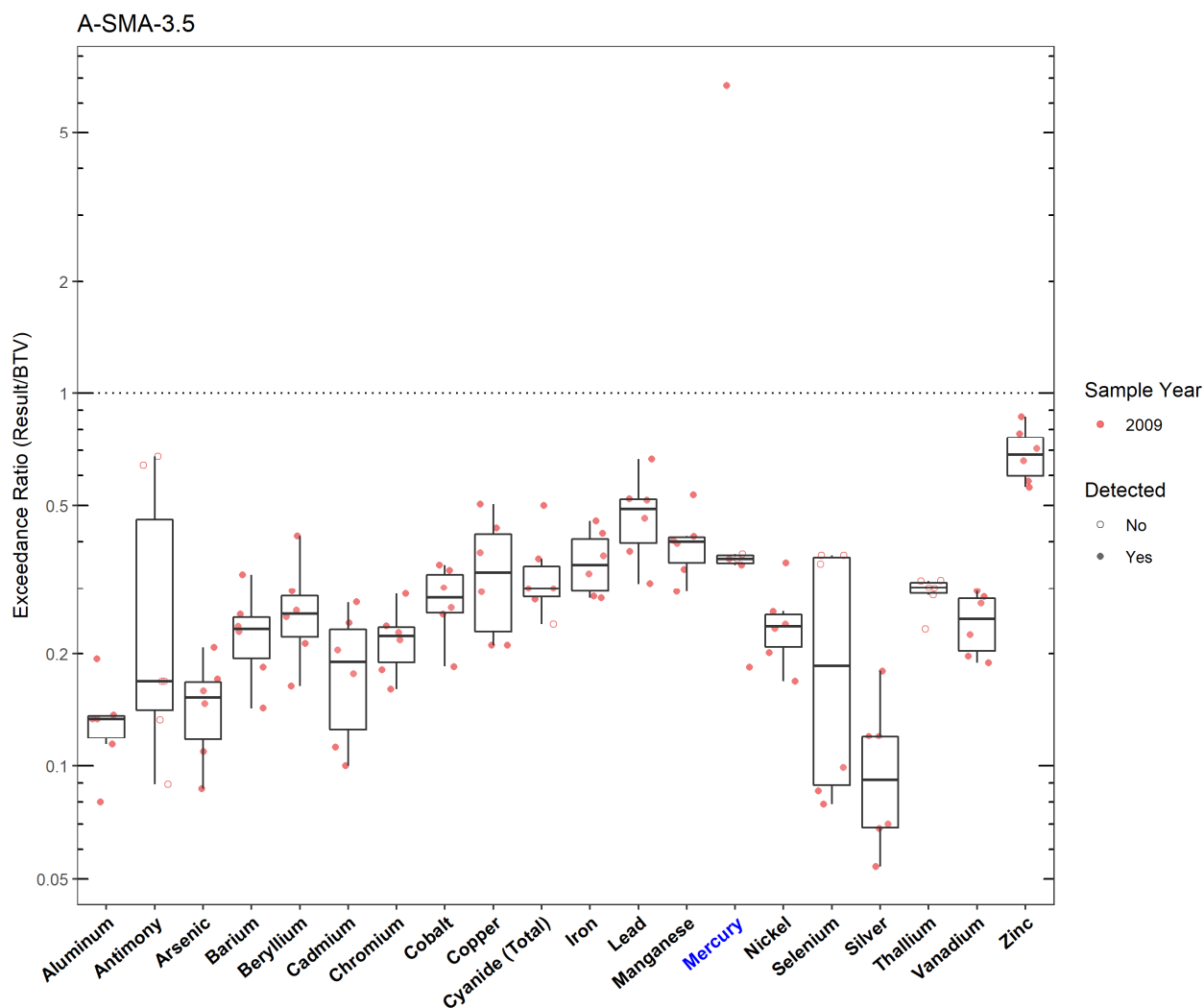


Figure 225.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-3.5

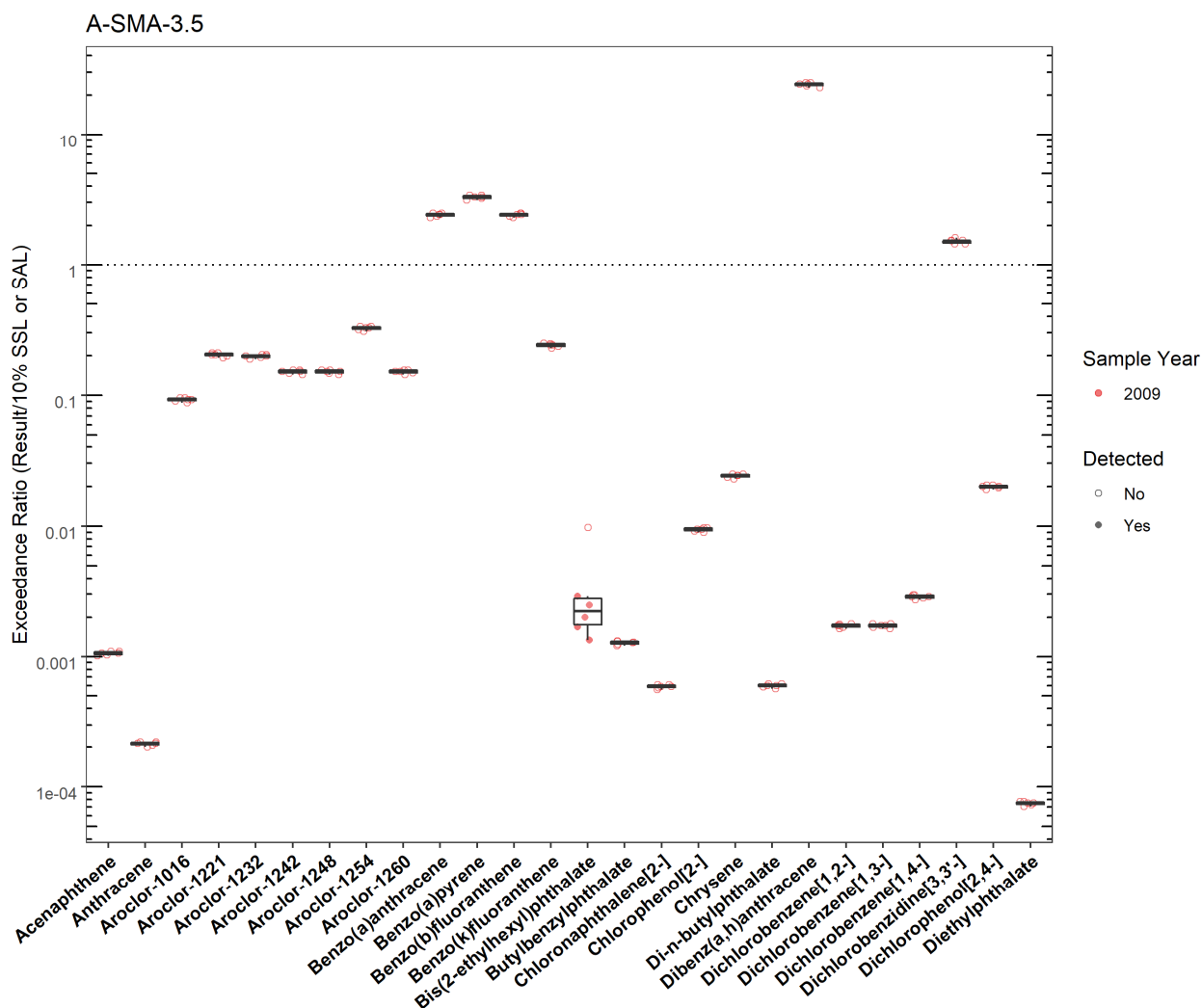


Figure 225.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-3.5 (Plot 1)

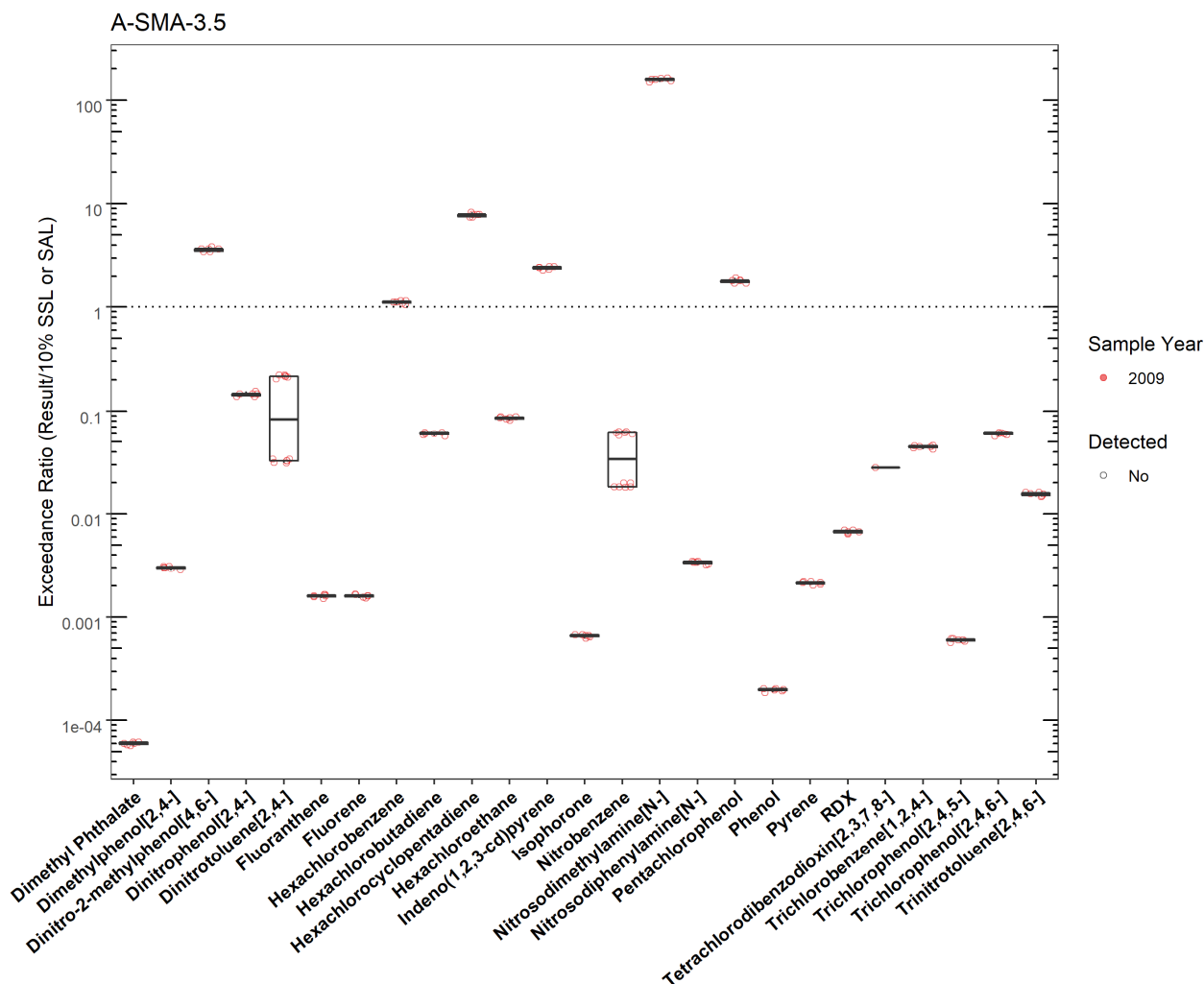


Figure 225.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-3.5 (Plot 2)

A-SMA-3.5

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Mercury	A-SMA-3.5	Hg	Y	BTV	0.100	0.669	2009-03-31

Figure 225.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-3.5

225.4 Stormwater Evaluation

225.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in July 2013. Analytical results from that sample are presented in Figures 225.4-1 and 225.4-2.

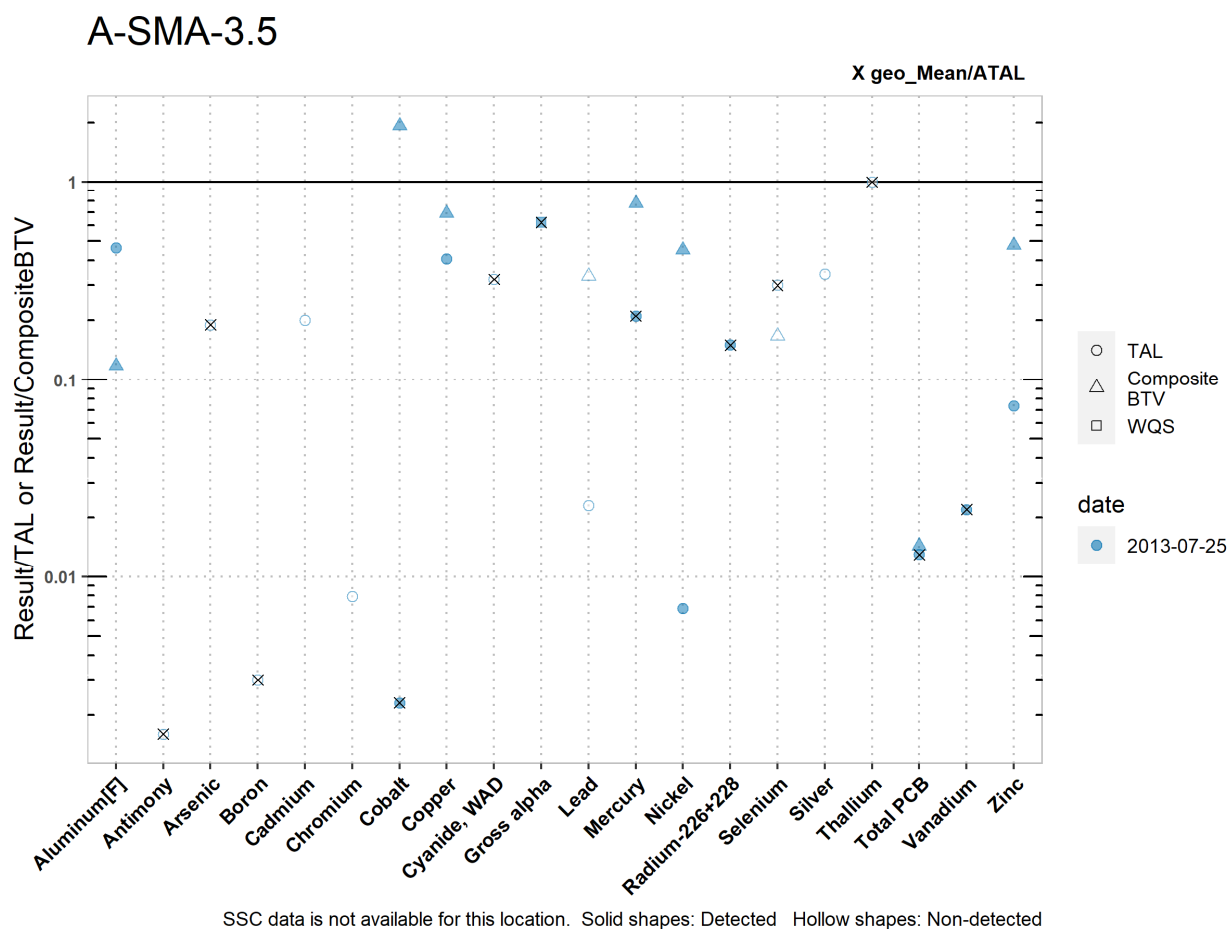


Figure 225.4-1 Analytical Results from Stormwater Sample, A-SMA-3.5 (Plot)

A-SMA-3.5

	Aluminum [F]	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Lead	Mercury	Nickel	Radium-226+228	Selenium	Silver	Thallium	Total PCB	Vanadium	Zinc
<i>MQL</i>	2.5	1	0.5	100	1	10	50	0.5	10	NA	0.5	0.005	0.5	NA	5	0.5	0.5	0.2	50	20
<i>ATAL</i>	NA	640	9	5000	NA	NA	1000	NA	5.2	15	NA	0.77	NA	30	5	NA	0.47	0.014	100	NA
<i>MTAL</i>	750	NA	340	NA	0.711	253	NA	5.29	22	NA	21.7	NA	203	NA	20	0.587	NA	NA	NA	65.1
<i>Composite_BTV unit</i>	2950	NA	NA	NA	NA	NA	1.18	3.12	NA	57.2	1.50	0.208	3.10	4.21	8.98	NA	NA	0.0122	NA	10.0
<i>2013-07-25 result</i>	347	1.00	1.70	15.0	0.110	2.00	2.27	2.15	1.67	9.37	0.500	0.161	1.40	4.49	1.50	0.200	0.450	0.000176	2.16	4.77
<i>2013-07-25 dT</i>	0.463	NA	NA	NA	NA	NA	0.0023	0.406	NA	0.62	NA	0.21	0.00690	0.150	NA	NA	NA	0.013	0.022	0.0733
<i>2013-07-25 dB</i>	0.118	NA	NA	NA	NA	NA	1.92	0.689	NA	NA	NA	0.774	0.452	NA	NA	NA	NA	0.0144	NA	0.477
<i>geo_mean/ATAL</i>	NA	0.0016	0.19	0.0030	NA	NA	0.0023	NA	0.321	0.62	NA	0.21	NA	0.150	0.30	NA	1	0.013	0.022	NA

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTV

Figure 225.4-2 Analytical Results from Stormwater Sample, A-SMA-3.5 (Table)

225.4.2 Assessment Unit and Stream Impairments

A-SMA-3.5 drains to Ancho Canyon (Above Ancho Springs to North Fork Ancho), which has impairments for PCBs and total mercury. The impairments may be Site-related, based on Site history.

225.5 Site-Specific Demonstration

225.5.1 Soil Data Summary

Mercury exceeded the applicable screening value in soil data. However, it was previously monitored in stormwater data and did not exceed the TAL, therefore it will not be added to the SAP.

225.5.2 Stormwater Data Summary

No TAL exceedances.

225.5.3 2022 Permit Status

All Sites within the SMA are deferred under the Consent Order. Therefore, the SMA is eligible for long-term stewardship pursuant to permit Part 1.C.3.

226.0 A-SMA-4

Associated Sites	33-010(d)
Receiving Water	South Ancho Canyon
Drainage Area	0.64 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-010(d): In Progress
2010 Administratively Continued Permit Final Status	Alternative Compliance Requested
2016–2018 SIP Actions	The February 2018 field visit determined that the current SMA sampler location encompassed soil sampling locations in the area of this SWMU and stormwater from where industrial materials were known or potentially managed. The SIP team decided that BMP controls would be modified to encourage flow to the current sampler location. Therefore, the sampler was not moved. On July 23, 2018, prior to BMP modifications, the automated sampler collected a stormwater sample with results exceeding TAL(s), and N3B determined that modification of BMP controls to encourage flow to the sampler was no longer necessary.
2022 Permit Status	Active Monitoring

226.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2018. Analytical results from this sample initiated corrective action.

The Permittees submitted a request for alternative compliance for the Site per permit Part I.E.3 in October 2020 (N3B 2020, 701098). No response has been received from EPA, and stormwater monitoring has not occurred since 2018.

226.2 Site History

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

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

For investigation activities, refer to “Investigation Report for South Ancho Canyon Aggregate Area” (N3B 2021, 701686).

226.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 226.2-1.

Table 226.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

226.3 Consent Order Soil Data

Decision-level data for SWMU 33-010(d) consist of results from samples collected in 2020. Analytical results from those samples are presented in Figures 226.3-1 to 226.3-4. The 2021 IR (N3B 2021, 701686) concluded that the nature and extent of contamination have been defined.

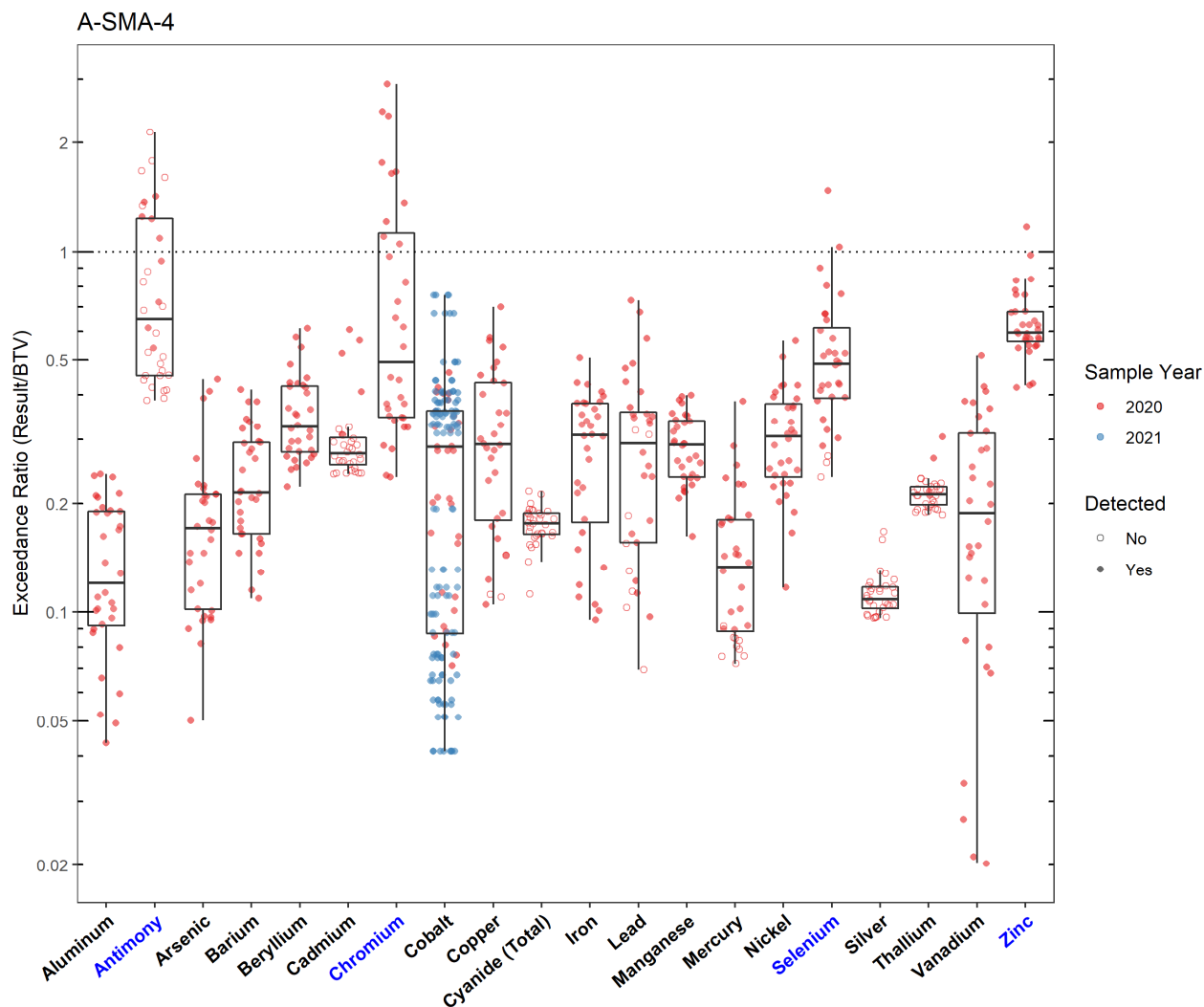


Figure 226.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-4

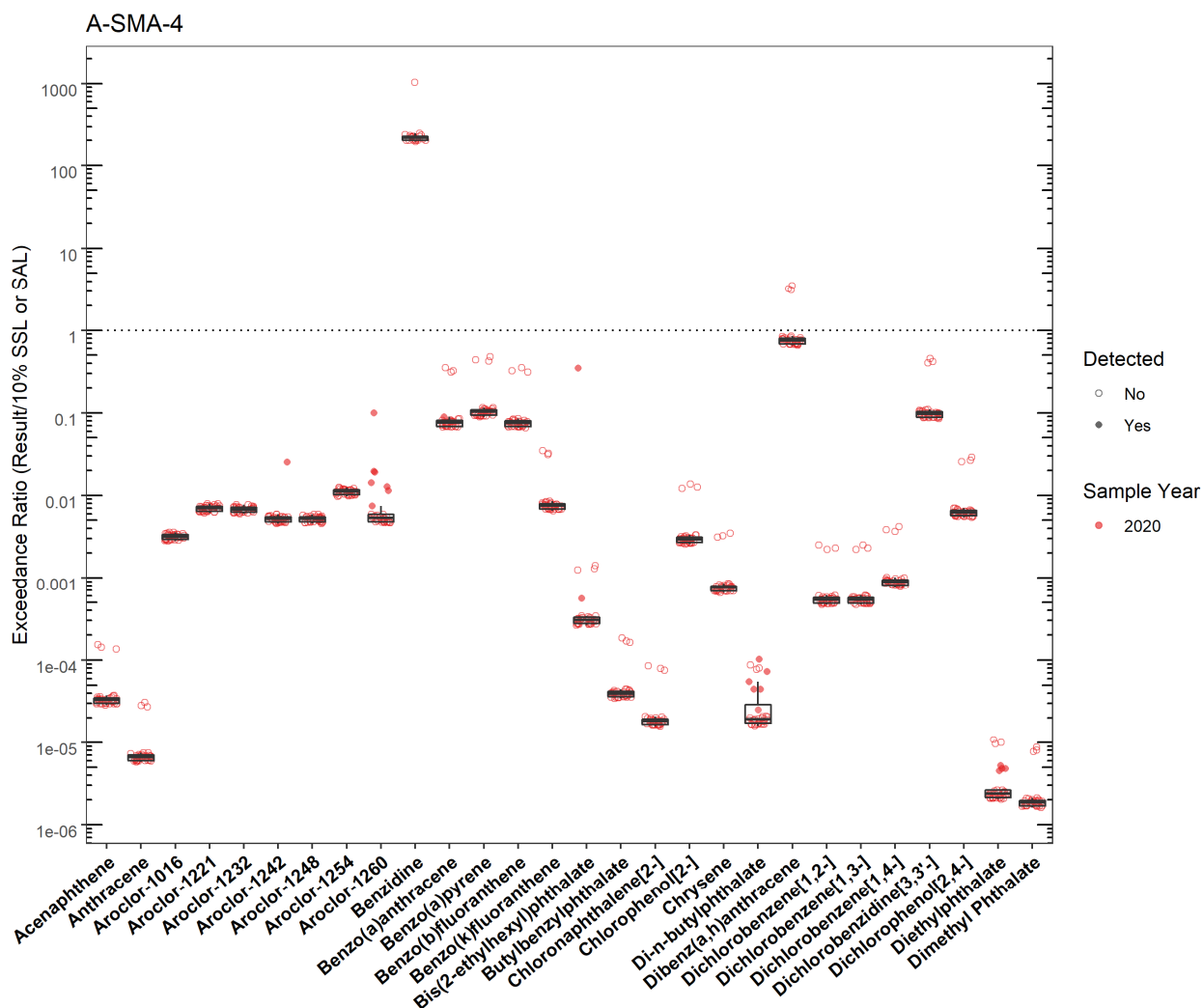


Figure 226.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-4 (Plot 1)

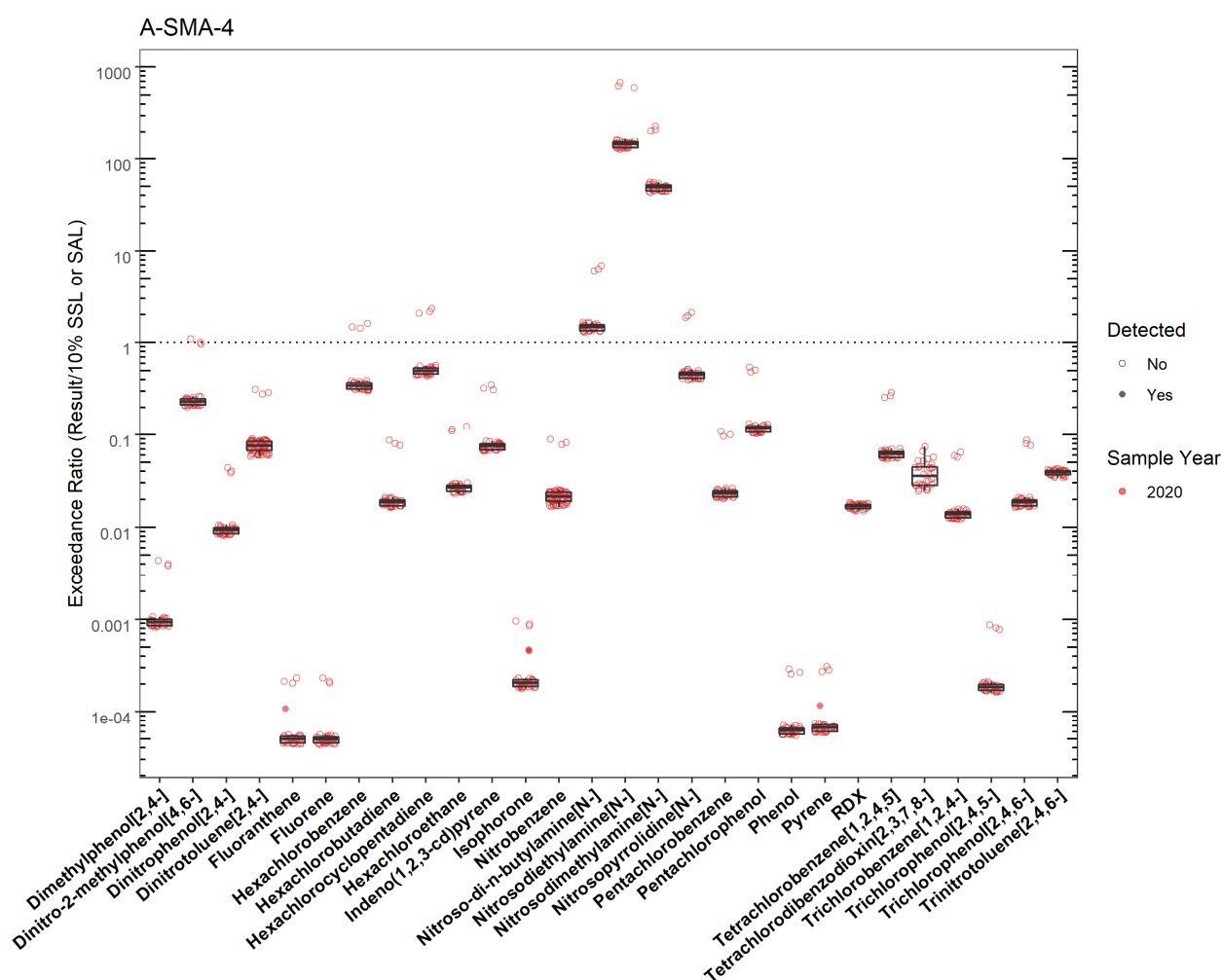


Figure 226.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-4 (Plot 2)

A-SMA-4							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	A-SMA-4	Sb	Y	BTV	0.830	1.18	2020-03-16
Chromium	A-SMA-4	Cr	Y	BTV	19.3	56.1	2020-03-17
Selenium	A-SMA-4	Se	Y	BTV	1.52	2.24	2020-03-17
Zinc	A-SMA-4	Zn	Y	BTV	48.8	57.1	2020-03-16

Figure 226.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-4

226.4 Stormwater Evaluation

226.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective action stormwater sample was collected in July 2018. Analytical results from that sample are presented in Figures 226.4-1 to 226.4-4.

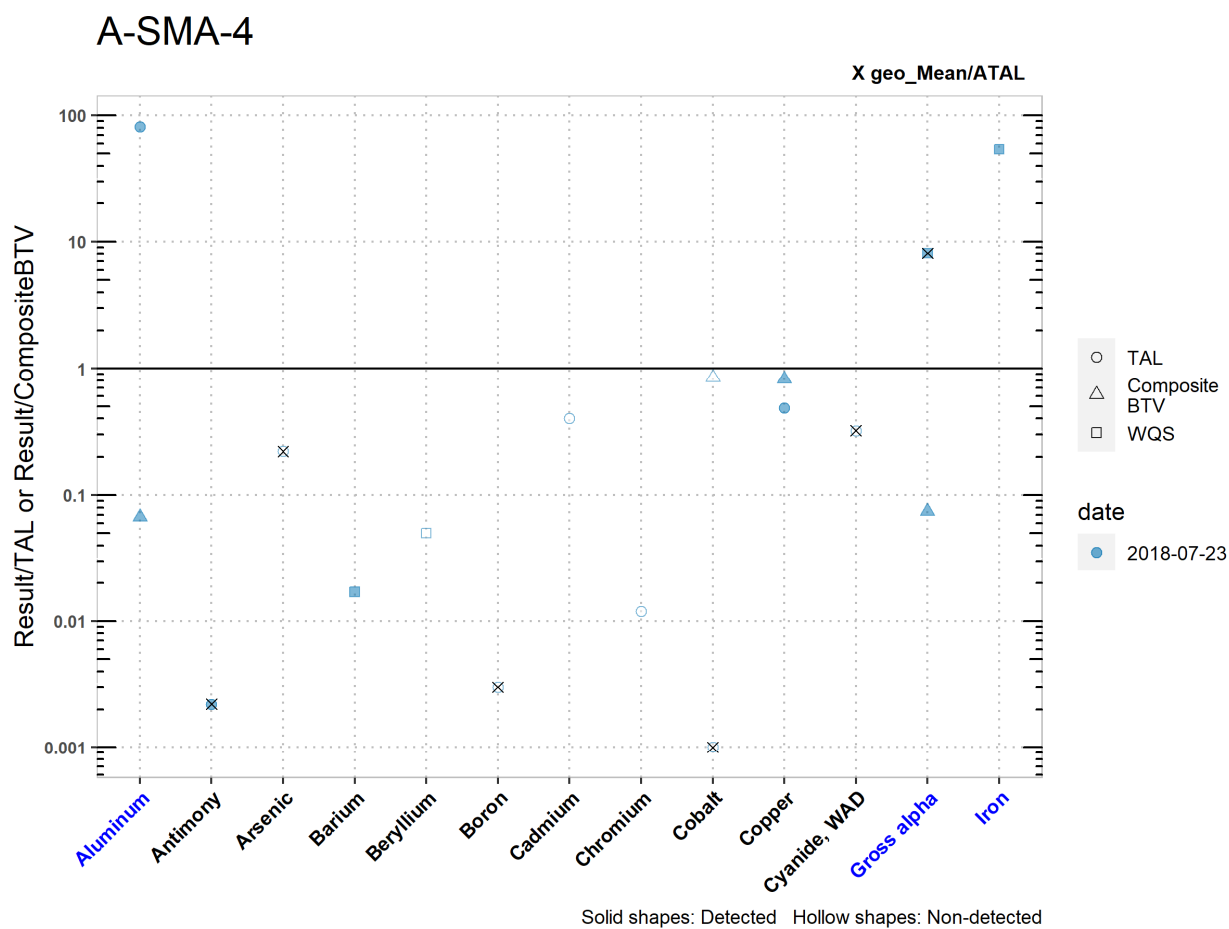


Figure 226.4-1 Analytical Results from Stormwater Sample, A-SMA-4 (Plot 1)

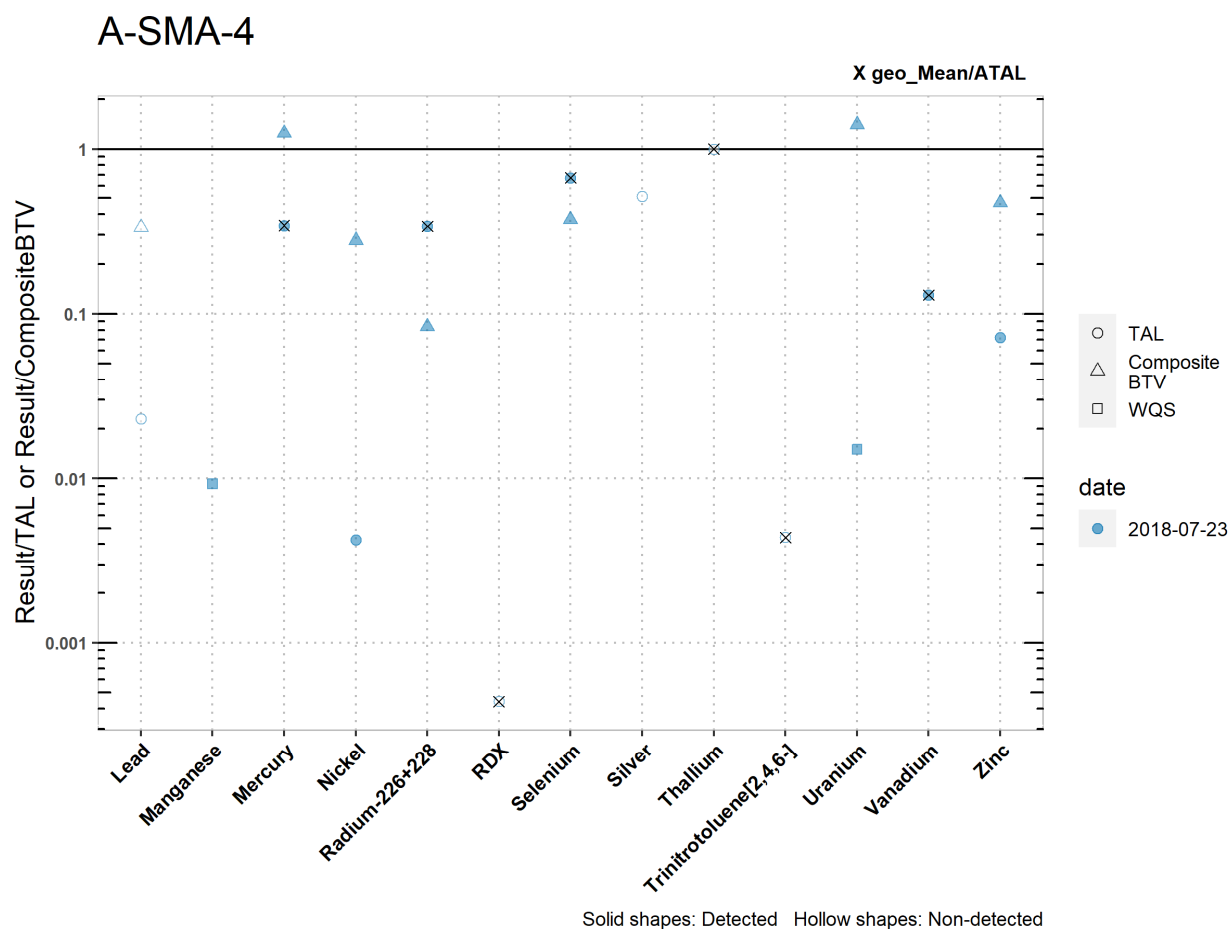


Figure 226.4-2 Analytical Results from Stormwater Sample, A-SMA-4 (Plot 2)

A-SMA-4

	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Iron
<i>MQL</i>	2.5	1	0.5	NA	NA	100	1	10	50	0.5	10	NA	NA
<i>ATAL</i>	NA	640	9	NA	NA	5000	NA	NA	1000	NA	5.2	15	NA
<i>MTAL</i>	883	NA	340	NA	NA	NA	0.711	253	NA	5.29	22	NA	NA
<i>Composite_BTV</i>	37400	NA	NA	NA	NA	NA	NA	NA	1.18	3.12	NA	57.2	NA
<i>unit</i>	ug/L**	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*	ug/L
<i>2018-07-23 result</i>	71800	1.39	2.00	34.2	0.200	15.0	0.300	3.00	1.00	2.56	1.67	122	54400
<i>2018-07-23 dT</i>	81.3	0.0022	NA	0.017	NA	NA	NA	NA	NA	0.484	NA	8.1	54
<i>2018-07-23 dB</i>	0.0671	NA	NA	NA	NA	NA	NA	NA	NA	0.821	NA	0.0746	NA
<i>geo_mean/ATAL</i>	NA	0.0022	0.22	NA	NA	0.0030	NA	NA	0.0010	NA	0.321	8.1	NA

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTV
*SSC normalized unit is pCi/g **SSC normalized unit is mg/kg

Figure 226.4-3 Analytical Results from Stormwater Sample, A-SMA-4 (Table 1)

A-SMA-4

	Lead	Manganese	Mercury	Nickel	Radium-226+228	RDX	Selenium	Silver	Thallium	Trinitrotoluene [2,4,6-]	Uranium	Vanadium	Zinc
<i>MQL</i>	0.5	NA	0.005	0.5	NA	NA	5	0.5	0.5	NA	NA	50	20
<i>ATAL</i>	NA	NA	0.77	NA	30	200	5	NA	0.47	20	NA	100	NA
<i>MTAL</i>	21.7	NA	NA	203	NA	NA	20	0.587	NA	NA	NA	NA	65.1
<i>Composite_BTV unit</i>	1.50 ug/L	NA ug/L	0.208 ug/L	3.10 ug/L	4.21 pCi/L*	NA ug/L	8.98 ug/L	NA ug/L	NA ug/L	NA ug/L	0.315 ug/L	NA ug/L	10.0 ug/L
<i>2018-07-23 result</i>	0.500	11.2	0.261	0.863	10.1	0.0889	3.33	0.300	0.600	0.0889	0.444	13.4	4.68
<i>2018-07-23 dT</i>	NA	0.0093	0.34	0.00425	0.337	NA	0.67	NA	NA	NA	0.015	0.13	0.0719
<i>2018-07-23 dB</i>	NA	NA	1.25	0.278	0.0839	NA	0.371	NA	NA	NA	1.41	NA	0.468
<i>geo_mean/ATAL</i>	NA	NA	0.34	NA	0.337	0.00044	0.67	NA	1	0.0044	NA	0.13	NA

Italic font indicates nondetect results

dT=detected_result/TAL, dB=detected_result/composite_BTV

**SSC normalized unit is pCi/g*

Figure 226.4-4 Analytical Results from Stormwater Sample, A-SMA-4 (Table 2)

226.4.2 Assessment Unit and Stream Impairments

A-SMA-4 drains to Ancho Canyon (Above Ancho Springs to North Fork Ancho), which has impairments for PCBs and total mercury. The impairments may be Site-related, based on Site history.

226.5 Site-Specific Demonstration

226.5.1 Soil Data Summary

The metals that exceeded the applicable screening values in soil data were previously monitored in stormwater data and did not exceed TALs. Therefore, they will not be added to the SAP.

226.5.2 Stormwater Data Summary

Aluminum and gross alpha exceeded the TALs but not the BTVs. Iron exceeded the WQS. However, there is no TAL in the Permit for iron; only POCs with TALs are used in the SSD.

226.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

226.5.4 Sampling and Analysis Plan

Table 226.5-1 is the proposed SAP for A-SMA-4.

Table 226.5-1 Proposed SAP, A-SMA-4

Monitoring Constituent	Background for Monitoring
Total PCBs	Impairment and Site history
Strontium-90	Site history (radionuclides)
Tritium	Site history (radionuclides)
SVOCs	Site history (organic chemicals)
DOC	Permit requirement
SSC	Permit requirement

227.0 A-SMA-6

Associated Sites	33-004(k), 33-007(a), 33-010(a), 33-010(b)
Receiving Water	South Ancho Canyon
Drainage Area	6.35 acres
Landscape Characteristics	7% impervious, 93% pervious
Consent Order Site Status	SWMU 33-004(k): In Progress SWMU 33-007(a): In Progress SWMU 33-010(a): In Progress SWMU 33-010(b): In Progress
2010 Administratively Continued Permit Final Status	Alternative Compliance Requested
2016–2018 SIP Actions	Based on the February 2018 field visit, the SIP team agreed that the current SMA sampler may not encompass stormwater from areas where industrial material were known or potentially managed at this Site. Given that Consent Order investigation and M&O Contractor activities were planned for these Sites, no sampler move was recommended. Phase I Consent Order investigations were completed in 2021. No sampler move is planned at this time, but the N3B SIP team plans to reassess the monitoring location during the winter of 2022/2023.
2022 Permit Status	Active Monitoring

227.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in August 2013. Analytical results from this sample initiated corrective action.

The Permittees submitted a request for alternative compliance for the Site per permit Part I.E.3 in May 2015 (LANL 2015, 600418). No response has been received from EPA, and stormwater monitoring has not occurred since 2013.

33-010(b) was not monitored on the Administratively Continued Permit. It will be added to the 2022 Individual Permit based on NMED’s State Certification.

227.2 Site History

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

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

Engineering drawing C-3304, sheet 3 (stamped “As Built” in 1955) for structure 33-87 depicts a perforated CMP drainline along the entire south side of the bunker that ties into a single CMP at the southeast corner of structure 33-87 and extends approximately 125 ft southeast of the bunker to an inactive outfall. Engineering drawing C34651-00001, from 1967, shows the planned extension of the

8-in. CMP to a ditch and outfall southeast of the bunker. There is no documented use of hazardous or radioactive materials within control bunker 33-87.

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

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

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

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

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

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

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

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

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

For investigation activities, refer to “Investigation Report for South Ancho Canyon Aggregate Area” (N3B 2021, 701686).

227.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 227.2-1.

227.3 Consent Order Soil Data

Decision-level data for SWMU 33-004(k), SWMU 33-007(a), SWMU 33-010(a), and SWMU 33-010(b) consist of results from samples collected in 2020. Analytical results from those samples are presented in

Figures 227.3-1 through 227.3-4. The 2021 IR (N3B 2021, 701686) concluded that the nature and extent of contamination have been defined.

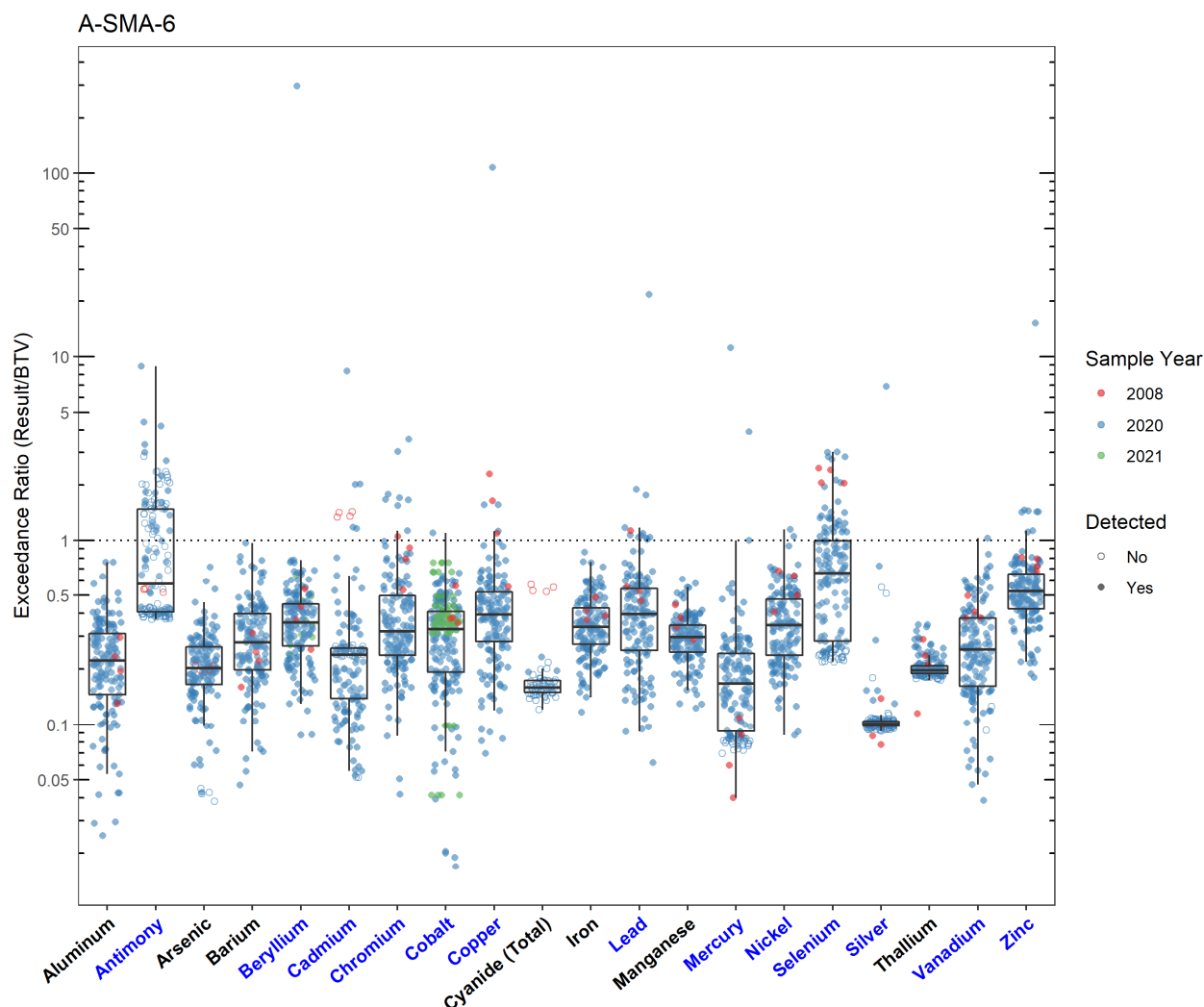


Table 227.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

Figure 227.3-1 Inorganics Analytical Results from Soil Samples Associated with A-SMA-6

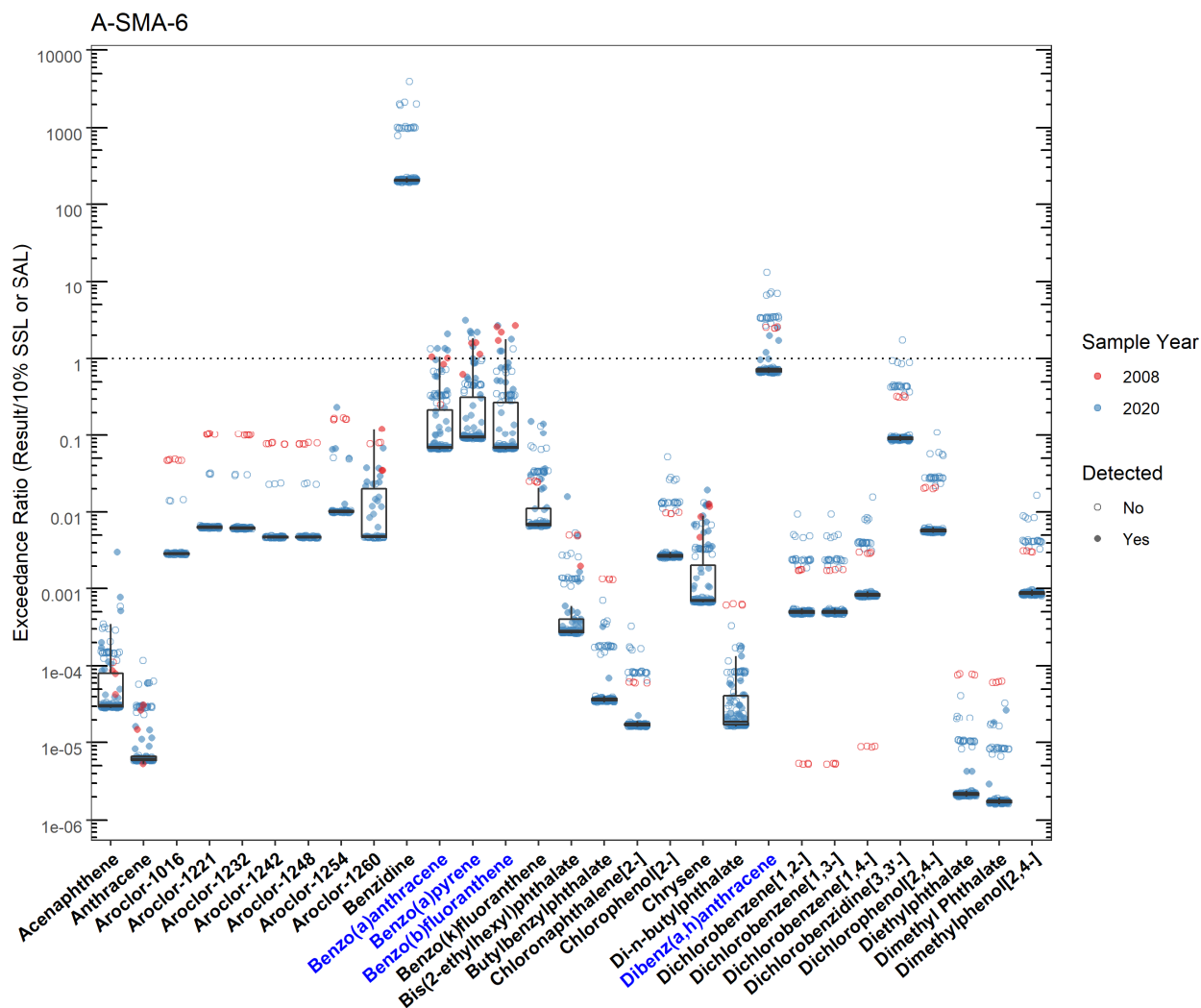


Figure 227.3-2 Organics Analytical Results from Soil Samples Associated with A-SMA-6 (Plot 1)

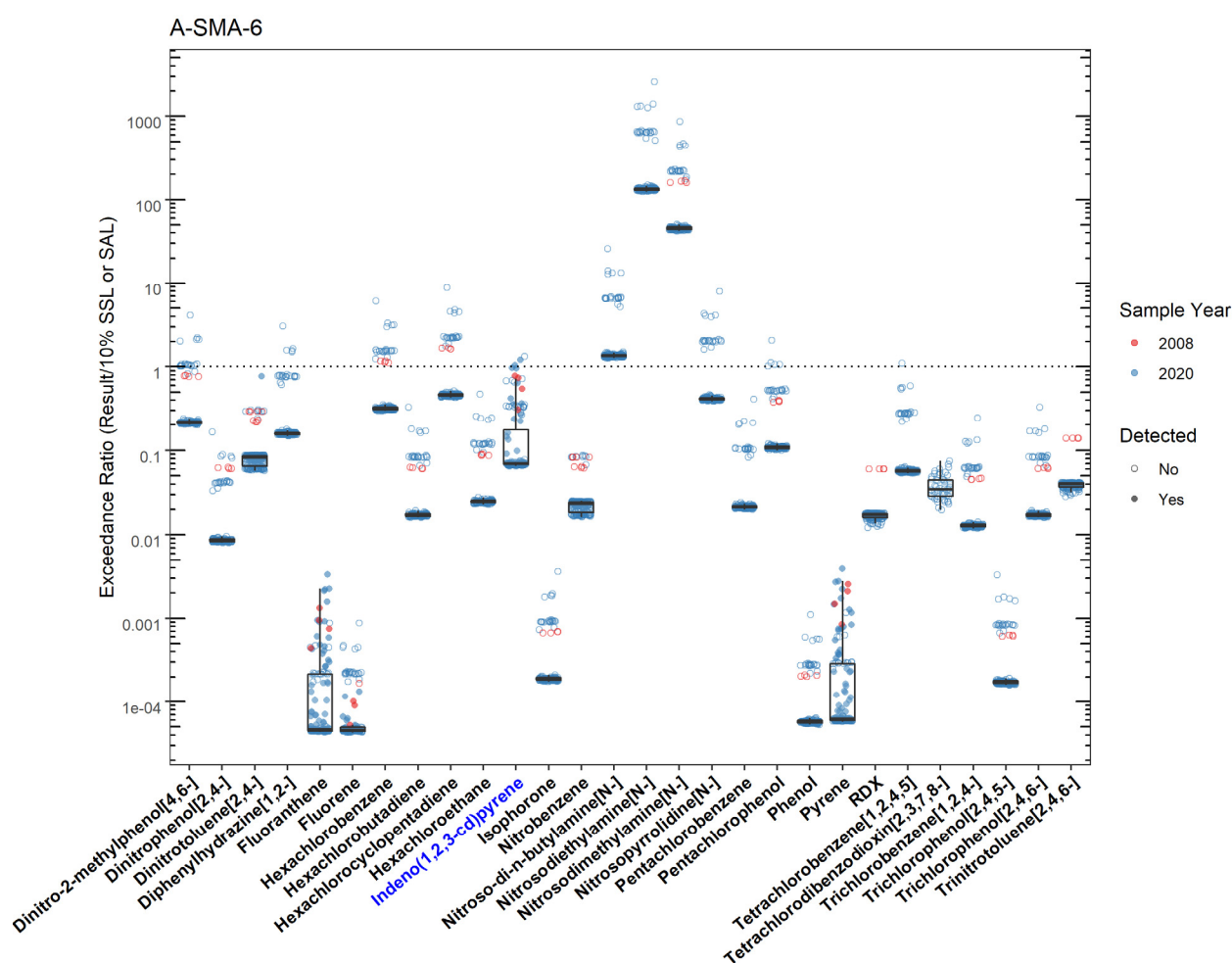


Figure 227.3-3 Organics Analytical Results from Soil Samples Associated with A-SMA-6 (Plot 2)

A-SMA-6							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	A-SMA-6	Sb	Y	BTV	0.830	7.35	2020-07-27
Benzo(a)anthracene	A-SMA-6	56-55-3	Y	SSL_0.1	0.153	0.317	2020-07-29
Benzo(a)pyrene	A-SMA-6	50-32-8	Y	SSL_0.1	0.112	0.348	2020-07-29
Benzo(b)fluoranthene	A-SMA-6	205-99-2	Y	SSL_0.1	0.153	0.406	2020-07-29
Beryllium	A-SMA-6	Be	Y	BTV	1.83	545	2020-07-29
Cadmium	A-SMA-6	Cd	Y	BTV	0.400	3.35	2020-07-27
Chromium	A-SMA-6	Cr	Y	BTV	19.3	68.3	2020-10-07
Cobalt	A-SMA-6	Co	Y	BTV	8.64	9.51	2020-07-29
Copper	A-SMA-6	Cu	Y	BTV	14.7	1570	2020-10-08
Dibenz(a,h)anthracene	A-SMA-6	53-70-3	Y	SSL_0.1	0.0153	0.0382	2020-07-29
Indeno(1,2,3-cd)pyrene	A-SMA-6	193-39-5	Y	SSL_0.1	0.153	0.185	2020-07-29
Lead	A-SMA-6	Pb	Y	BTV	22.3	485	2020-10-08
Mercury	A-SMA-6	Hg	Y	BTV	0.100	1.12	2020-10-08
Nickel	A-SMA-6	Ni	Y	BTV	15.4	17.7	2020-10-07
Selenium	A-SMA-6	Se	Y	BTV	1.52	4.58	2020-10-08
Silver	A-SMA-6	Ag	Y	BTV	1.00	6.91	2020-07-21
Vanadium	A-SMA-6	V	Y	BTV	39.6	40.7	2020-10-13
Zinc	A-SMA-6	Zn	Y	BTV	48.8	743	2020-10-08

Figure 227.3-4 Screening-Level Exceedances from Soil Samples Associated with A-SMA-6

227.4 Stormwater Evaluation

227.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in August 2013. Analytical results from that sample are presented in Figures 227.4-1 and 227.4-2.

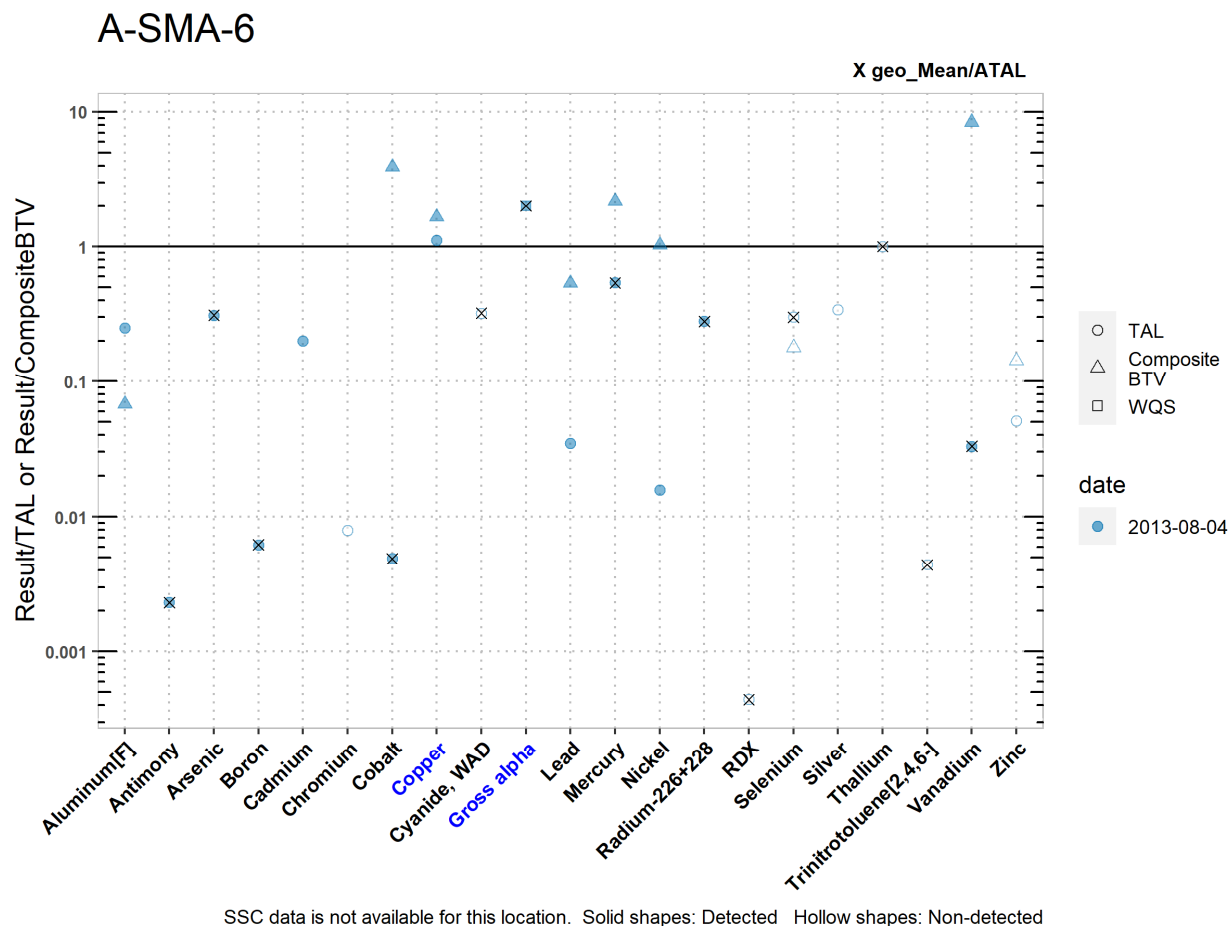


Figure 227.4-1 Analytical Results from Stormwater Sample, A-SMA-6 (Plot)

		A-SMA-6																				
		Aluminum [F]	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Lead	Mercury	Nickel	Radium-226+228	RDX	Selenium	Silver	Thallium	Trinitrotoluene [2,4,6-]	Vanadium	Zinc
	MQL	2.5	1	0.5	100	1	10	50	0.5	10	NA	0.5	0.005	0.5	NA	NA	5	0.5	0.5	NA	50	20
	ATAL	NA	640	9	5000	NA	NA	1000	NA	5.2	15	NA	0.77	NA	30	200	5	NA	0.47	20	100	NA
	MTAL	750	NA	340	NA	0.711	253	NA	5.29	22	NA	21.7	NA	203	NA	NA	20	0.587	NA	NA	NA	65.1
Composite_BTV	2760	NA	NA	NA	NA	NA	1.25	3.53	NA	56.7	1.40	0.194	3.10	4.64	NA	8.36	NA	NA	NA	0.390	23.1	
	unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2013-08-04	result	187	1.49	2.79	31.1	0.128	2.00	4.92	5.86	1.67	29.6	0.752	0.419	3.18	8.39	0.0889	1.50	0.200	0.450	0.0889	3.28	3.30
	2013-08-04 dT	0.249	0.0023	0.31	0.0062	0.2	NA	0.0049	1.11	NA	2.0	0.0347	0.54	0.0157	0.280	NA	NA	NA	NA	NA	0.033	NA
	2013-08-04 dB	0.0678	NA	NA	NA	NA	NA	3.94	1.66	NA	NA	0.537	2.16	1.03	NA	NA	NA	NA	NA	NA	8.41	NA
	geo_mean/ATAL	NA	0.0023	0.31	0.0062	NA	NA	0.0049	NA	0.321	2.0	NA	0.54	NA	0.280	0.00044	0.30	NA	1	0.0044	0.033	NA
Italic font indicates nondetect results																						
dT=detected result/TAL, dB=detected result/composite BTV																						

Figure 227.4-2 Analytical Results from Stormwater Sample, A-SMA-6 (Table)

227.4.2 Assessment Unit and Stream Impairments

A-SMA-6 drains to Rio Grande (Cochiti Reservoir to boundary of Pueblo de San Ildefonso), which has impairments for mercury (fish consumption advisory), PCBs, adjusted gross alpha, total aluminum, total selenium, temperature, and turbidity. The PCBs, adjusted gross alpha, and metals impairments may be Site-related, based on Site history.

227.5 Site-Specific Demonstration

227.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data, and have not yet been measured in stormwater: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and beryllium.

Copper exceeded the applicable screening value in soil data and the TAL in stormwater data and will be added to the SAP. The other metals that exceeded the applicable screening values in soil data were previously measured in stormwater data and did not exceed TALs. Therefore, they will not be added to the SAP.

227.5.2 Stormwater Data Summary

Gross alpha exceeded TAL in 2013 stormwater data. There was no paired SSC result to confirm whether it was below BTVs, therefore it will be added to the SAP.

Copper exceeded the TAL and BTV. Asbestos, tritium, and uranium are Site-related POCs that have not yet been measured in stormwater or soil data. Therefore, they will be added to the SAP.

227.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

227.5.4 Sampling and Analysis Plan

Table 227.5-1 is the proposed SAP for A-SMA-6.

Table 227.5-1 Proposed SAP, A-SMA-6

Monitoring Constituent	Background for Monitoring
Total PCBs	Impairment and Site history (organic chemicals)
Gross alpha (1)	Impairment and Site history
Total mercury (1), aluminum, selenium (1)	Impairment, soil data, and Site history
Radium-226 and radium-228 (1)	Site history
Dissolved copper (1), beryllium, uranium	Stormwater data, soil data, and Site history (metals)
SVOCs	Soil data and Site history (organic chemicals)
Strontium-90	Site history (radionuclides)
Asbestos	Site history
Tritium	Site history
DOC	Permit requirement
SSC	Permit requirement

228.0 CHQ-SMA-0.5

Associated Sites	33-004(g), 33-007(c), 33-009
Receiving Water	Chaquehui Canyon
Drainage Area	0.52 acres
Landscape Characteristics	2% impervious, 98% pervious
Consent Order Site Status	SWMU 33-004(g): In Progress SWMU 33-007(c): In Progress SWMU 33-009: In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Active Monitoring

228.1. 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2014. Analytical results from this sample initiated corrective action.

Following the October 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600980), corrective action monitoring was initiated, and a stormwater sample was collected in August 2021. Stormwater monitoring is ongoing until a second confirmation sample is collected from this SMA.

228.2 Site History

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

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

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

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

According to the 1990 SWMU Report, building 33-16 was originally built for office space and was converted to the gun-firing building in 1961. A long-time TA-33 staff member reported that the drainline

from building 33-16 also served two trailers that were parked on the pad north of the building when Area 6 was occupied. One trailer was used for assembly and the other contained a darkroom.

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

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

SWMU 33-007(c) consists of two abandoned gun-firing areas associated with the initiator tests conducted at Area 6 in the west-central portion of TA-33. The first gun-firing area included a gun building (former structure 33-16), a gun mount (structure 33-64), and an earthen berm (structure 33-60). Structure 33-16 was completed in 1949 and housed an air gun, and then electronic equipment, to measure neutron production in gun-type initiators containing beryllium and polonium-210. Gun sizes with bore diameters ranging from 4-in. to 8-in. fired projectiles into berms where two 6-ft × 6-ft catcher boxes constructed of wood timbers were embedded in the north end of berm structure 33-60. Each catcher box contained soil, wood chips, and vermiculite. The second gun-firing area included a large gun (structure 33-65), a hillside embankment (structure 33-61), and two barricades (structures 33-62 and 33-72), located north and east of the gun.

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

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

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

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

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

33-009 (2/18/2021)

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

The debris within this surface disposal area is believed to be associated with the activities at a nearby former gun-firing site [SWMU 33-007(c)] which operated from 1949 to 1955. When the firing area became contaminated as a result of firing activities, contaminated soil and debris was bulldozed over the edge of the canyon. SWMU 33-009 also received various types of debris from general operations at TA-33, including metal wastes, light bulbs, tires, and drums. In 1960, the site received uranium turnings from the building 33-113 machine shop. In addition, from 1967 until 1972, the site served as a storage and disposal site for defective electrical capacitors from the Sherwood Project. These capacitors had an average weight of 300 lb with an approximately 4- to 6-ft³ volume for dielectric fluid. Disposal of the capacitors at this site ceased in 1972.

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

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

For investigation activities for SWMUs 33-004(g) and 33-009, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046). For investigation activities for SWMU 33-007(c), refer to “Phase II Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2021, 701606).

228.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 228.2-1.

Table 228.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

228.3 Consent Order Soil Data

Decision-level data for SWMUs 33-004(g) and 33-009 consist of results from samples collected in 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination have been defined.

Decision-level data at SWMU 33-007(c) consist of results from samples collected at in 2020 and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination is defined and no further sampling for extent is warranted.

Analytical results for all soil samples for this SMA are presented in Figures 228.3-1 through 228.3-4.

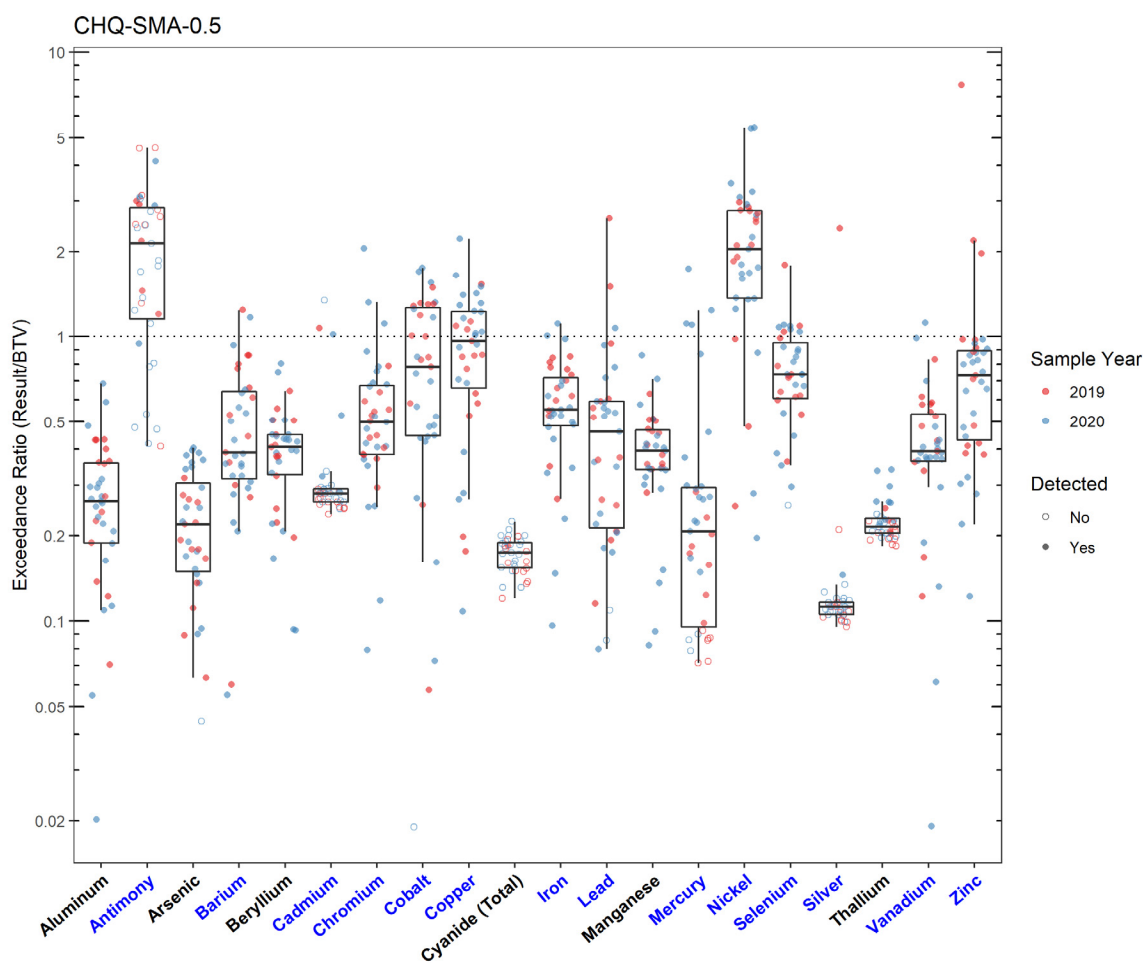


Figure 228.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-0.5

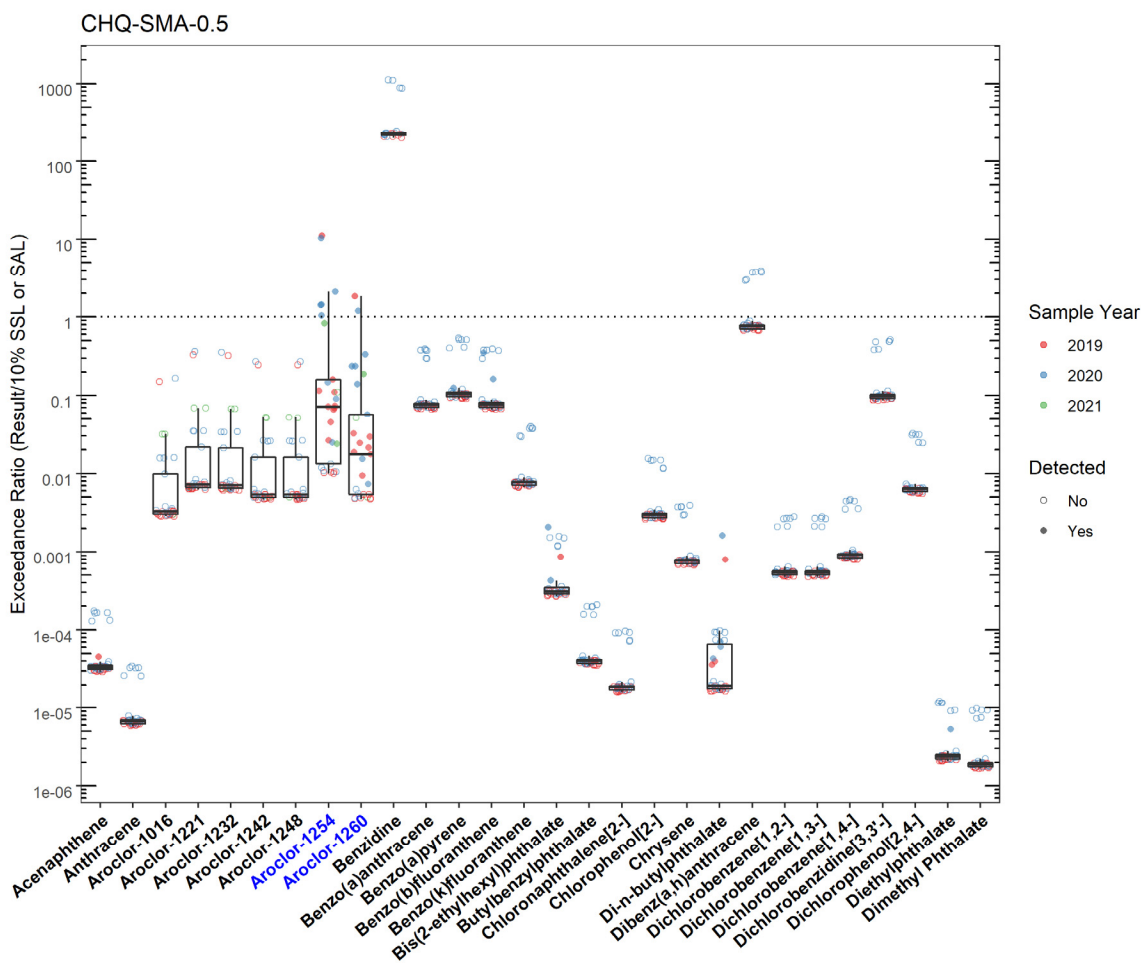


Figure 228.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-0.5 (Plot 1)

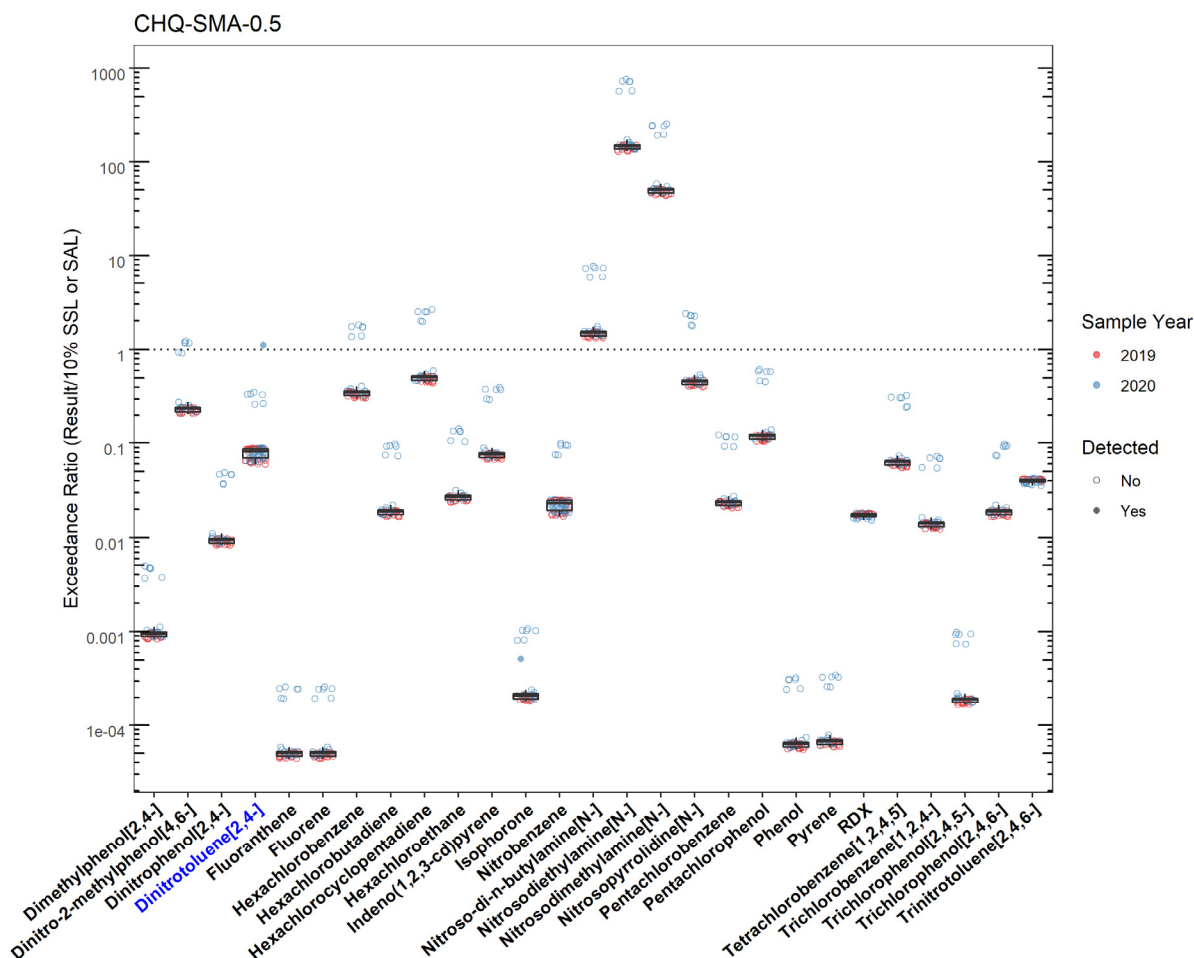


Figure 228.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-0.5 (Plot 2)

CHQ-SMA-0.5							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-0.5	Sb	Y	BTV	0.830	3.43	2020-03-10
Aroclor-1254	CHQ-SMA-0.5	11097-69-1	Y	SSL_0.1	0.114	1.27	2019-11-20
Aroclor-1260	CHQ-SMA-0.5	11096-82-5	Y	SSL_0.1	0.243	0.445	2019-11-20
Barium	CHQ-SMA-0.5	Ba	Y	BTV	295	367	2019-11-20
Cadmium	CHQ-SMA-0.5	Cd	Y	BTV	0.400	0.427	2019-12-04
Chromium	CHQ-SMA-0.5	Cr	Y	BTV	19.3	39.5	2020-02-07
Cobalt	CHQ-SMA-0.5	Co	Y	BTV	8.64	15.1	2020-02-07
Copper	CHQ-SMA-0.5	Cu	Y	BTV	14.7	32.7	2020-02-07
Dinitrotoluene[2,4-]	CHQ-SMA-0.5	121-14-2	Y	SSL_0.1	1.71	1.88	2020-03-11
Iron	CHQ-SMA-0.5	Fe	Y	BTV	21500	23900	2020-02-07
Lead	CHQ-SMA-0.5	Pb	Y	BTV	22.3	58.4	2019-11-20
Mercury	CHQ-SMA-0.5	Hg	Y	BTV	0.100	0.174	2020-02-10
Nickel	CHQ-SMA-0.5	Ni	Y	BTV	15.4	84.0	2020-03-11
Selenium	CHQ-SMA-0.5	Se	Y	BTV	1.52	2.72	2019-11-20
Silver	CHQ-SMA-0.5	Ag	Y	BTV	1.00	2.41	2019-11-20
Vanadium	CHQ-SMA-0.5	V	Y	BTV	39.6	44.2	2020-02-07
Zinc	CHQ-SMA-0.5	Zn	Y	BTV	48.8	376	2019-11-22

Figure 228.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-0.5

228.4 Stormwater Evaluation

228.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in August 2021. Analytical results from that sample are presented in Figures 228.4-1 through 228.4-4.

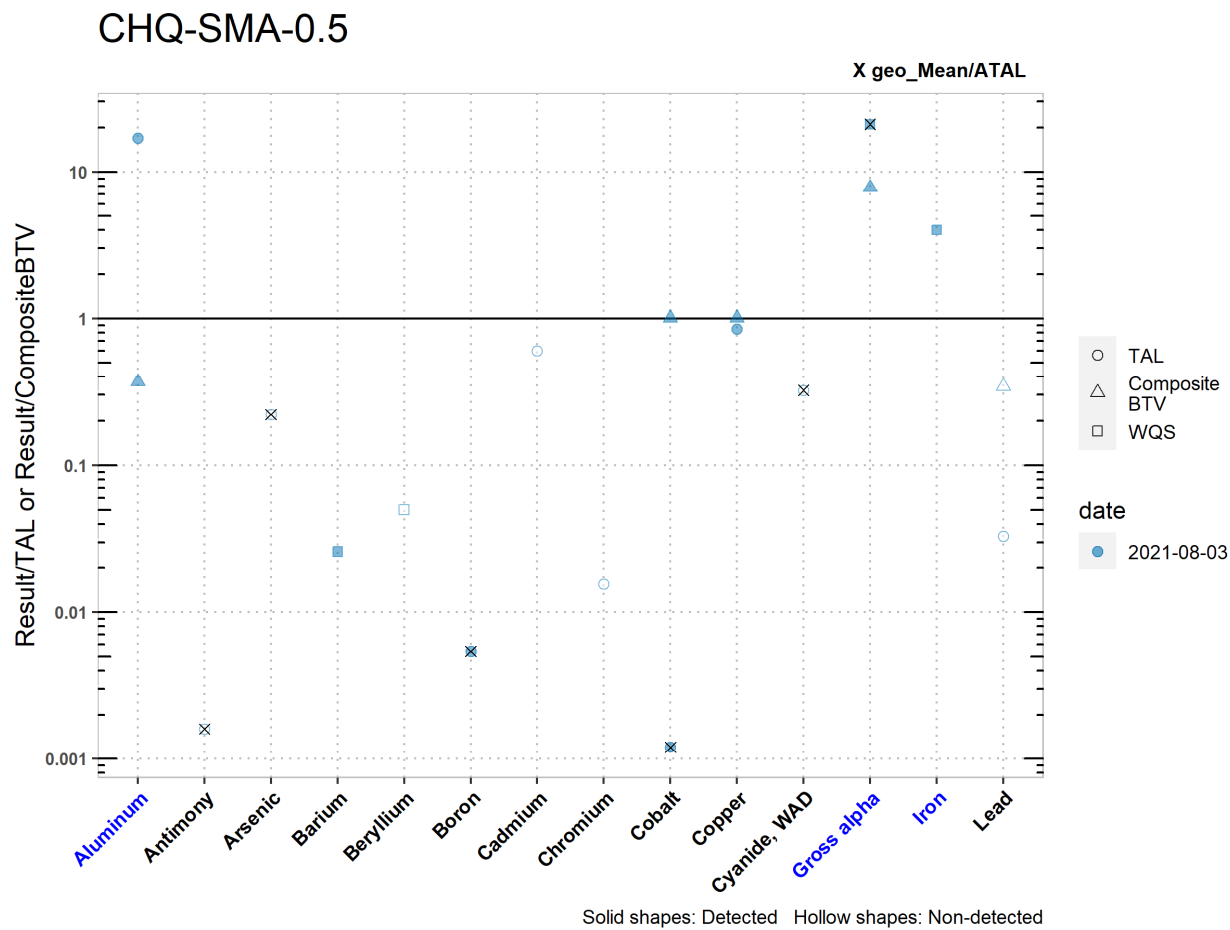


Figure 228.4-1 Analytical Results from Stormwater Sample, CHQ-SMA-0.5 (Plot 1)

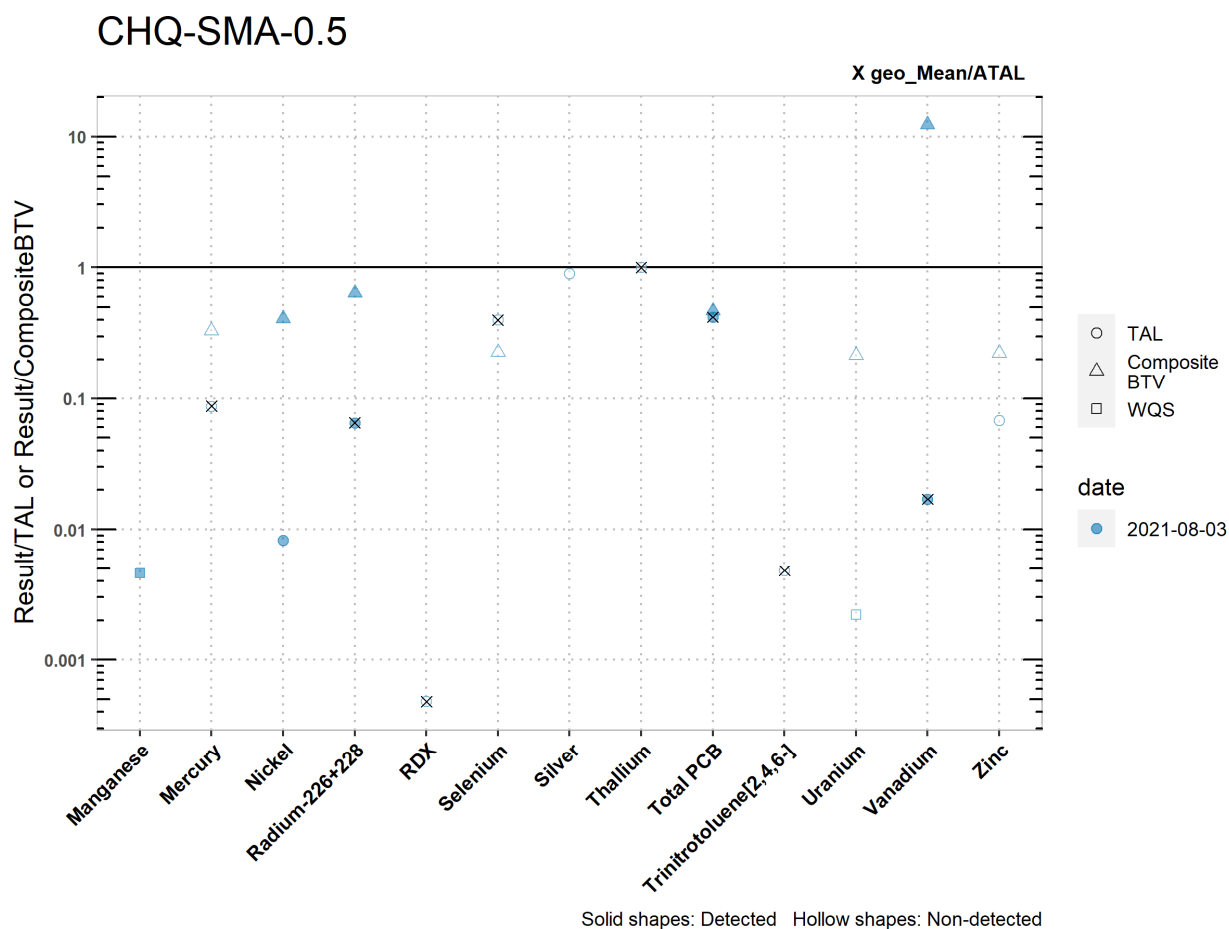


Figure 228.4-2 Analytical Results from Stormwater Sample, CHQ-SMA-0.5 (Plot 2)

CHQ-SMA-0.5

	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Iron	Lead
<i>MQL</i>	2.5	1	0.5	NA	NA	100	1	10	50	0.5	10	NA	NA	0.5
<i>ATAL</i>	NA	640	9	NA	NA	5000	NA	NA	1000	NA	5.2	15	NA	NA
<i>MTAL</i>	566	NA	340	NA	NA	NA	0.539	194	NA	3.9	22	NA	NA	15.1
<i>Composite_BTV</i>	37300	NA	NA	NA	NA	NA	NA	NA	1.21	3.27	NA	57.0	NA	1.46
<i>unit</i>	ug/L**	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*	ug/L	ug/L
2021-08-03 result	9600	1.00	2.00	51.9	0.200	27.2	0.300	3.00	1.22	3.29	1.67	312	3960	0.500
2021-08-03 dT	17.0	NA	NA	0.026	NA	0.0054	NA	NA	0.0012	0.844	NA	21	4.0	NA
2021-08-03 dB	0.368	NA	NA	NA	NA	NA	NA	NA	1.01	1.01	NA	7.82	NA	NA
geo_mean/ATAL	NA	0.0016	0.22	NA	NA	0.0054	NA	NA	0.0012	NA	0.321	21	NA	NA

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTV
*SSC normalized unit is pCi/g **SSC normalized unit is mg/kg

Figure 228.4-3 Analytical Results from Stormwater Sample, CHQ-SMA-0.5 (Table 1)

CHQ-SMA-0.5

	Manganese	Mercury	Nickel	Radium-226+228	RDX	Selenium	Silver	Thallium	Total PCB	Trinitrotoluene [2,4,6-]	Uranium	Vanadium	Zinc
<i>MQL</i>	NA	0.005	0.5	NA	NA	5	0.5	0.5	0.2	NA	NA	50	20
<i>ATAL</i>	NA	0.77	NA	30	200	5	NA	0.47	0.014	20	NA	100	NA
<i>MTAL</i>	NA	NA	154	NA	NA	20	0.336	NA	NA	NA	NA	NA	48.5
<i>Composite_BTV</i>	NA	0.203	3.10	4.36	NA	8.76	NA	NA	0.0124	NA	0.312	0.140	14.7
<i>unit</i>	ug/L	ug/L	ug/L	pCi/L*	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
<i>2021-08-03 result</i>	5.02	0.0670	1.27	1.95	0.0952	2.00	0.300	0.600	0.00582	0.0952	0.0670	1.74	3.30
<i>2021-08-03 dT</i>	0.0046	NA	0.00825	0.0650	NA	NA	NA	NA	0.42	NA	NA	0.017	NA
<i>2021-08-03 dB</i>	NA	NA	0.410	0.639	NA	NA	NA	NA	0.469	NA	NA	12.4	NA
<i>geo_mean/ATAL</i>	NA	0.087	NA	0.0650	0.00048	0.40	NA	1	0.42	0.0048	NA	0.017	NA

Italic font indicates nondetect results

dT=detected_result/TAL, dB=detected_result/composite_BTV

*SSC normalized unit is pCi/g

Figure 228.4-4 Analytical Results from Stormwater Sample, CHQ-SMA-0.5 (Table 2)

228.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-0.5 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment may be Site-related, based on Site history.

228.5 Site-Specific Demonstration

228.5.1 Soil Data Summary

All Site-related POCs that exceeded the applicable soil screening values were previously measured in stormwater data and did not exceed TALs, with the exception of PCBs.

228.5.2 Stormwater Data Summary

Aluminum and gross alpha exceeded the TAL in the current monitoring stage but did not exceed the BTV. PCBs exceeded the TAL in the previous stage and will continue in the SAP.

Iron exceeded the WQS in one sample. However, there is no TAL in the Permit for iron; only POCs with TALs are used in the SSD.

228.5.3 2022 Permit Status

The SMA is in active monitoring; a second confirmation-monitoring sample has not been collected at this location.

228.5.4 Sampling and Analysis Plan

Table 228.5-1 is the proposed SAP for CHQ-SMA-0.5.

Table 228.5-1 Proposed SAP, CHQ-SMA-0.5

Monitoring Constituent	Background for Monitoring
Total PCBs (1)	Impairment, Site history, soil data, stormwater data
SVOCs	Site History, soil data
DOC	Permit requirement
SSC	Permit requirement

229.0 CHQ-SMA-1.01

Associated Sites	33-002(d)
Receiving Water	Chaquehui Canyon
Drainage Area	0.36 acres
Landscape Characteristics	3% impervious, 97% pervious
Consent Order Site Status	SWMU 33-002(d): In Progress
2010 Administratively Continued Permit Final Status	Baseline Monitoring Extended
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

229.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, baseline monitoring was initiated. To date, stormwater flow has not been sufficient for full-volume sample collection. Monitoring is ongoing until one confirmation sample is collected from this SMA.

229.2 Site History

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

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

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

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

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” and the “Addendum to the Investigation Report for Chaquehui Canyon Aggregate Area for Material Disposal Area K, at Technical Area 33” (N3B 2020, 701046; N3B 2021, 701735).

229.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the site are listed in Table 229.2-1.

Table 229.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

229.3 Consent Order Soil Data

Decision-level data for SWMU 33-002(d) consist of results from samples collected in 2005 and 2020. Analytical results for those samples are presented in Figures 229.3-1 through 229.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination have not been defined, and additional sampling is needed to determine the lateral and vertical extent of subsurface tritium contamination.

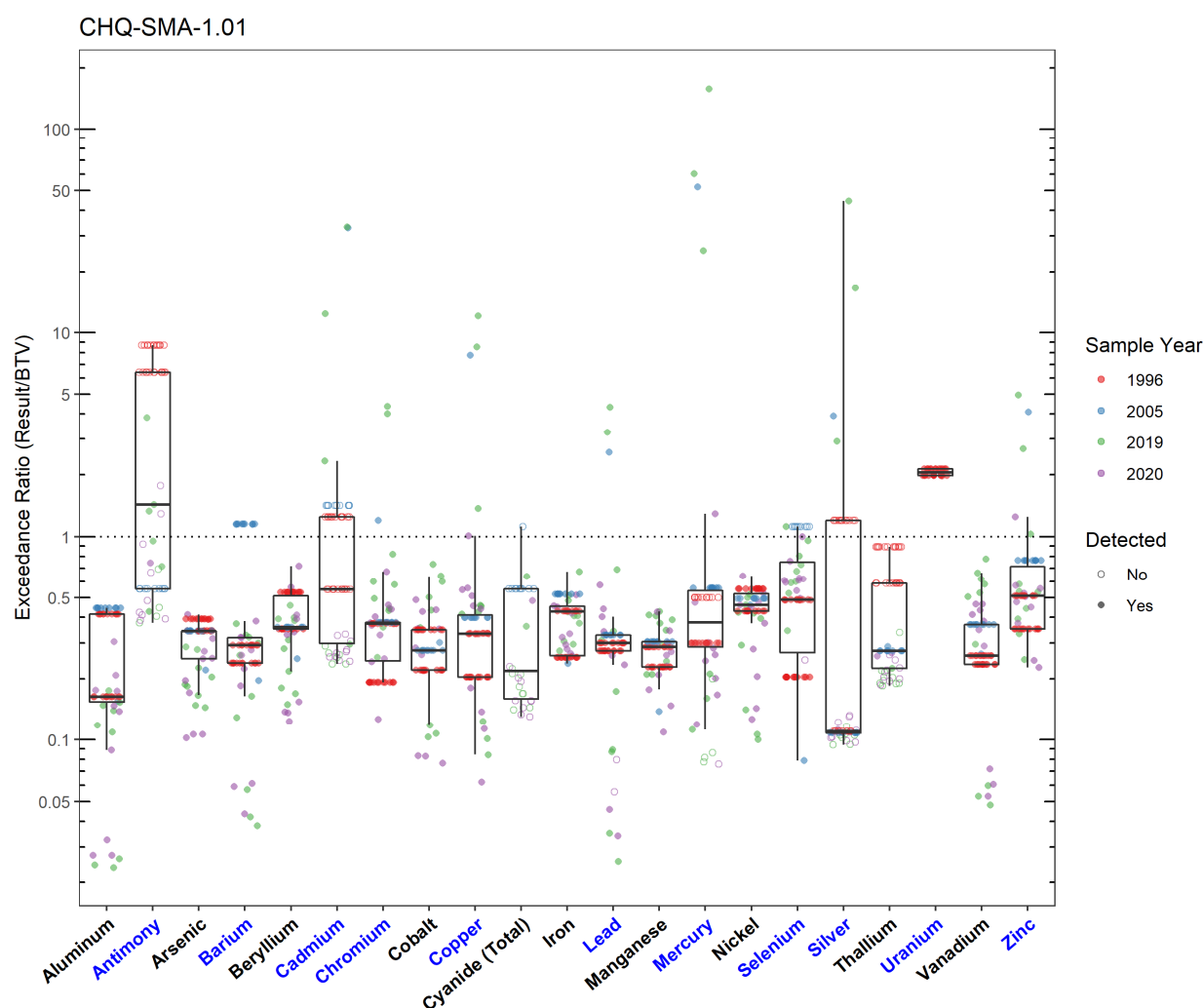


Figure 229.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-1.01

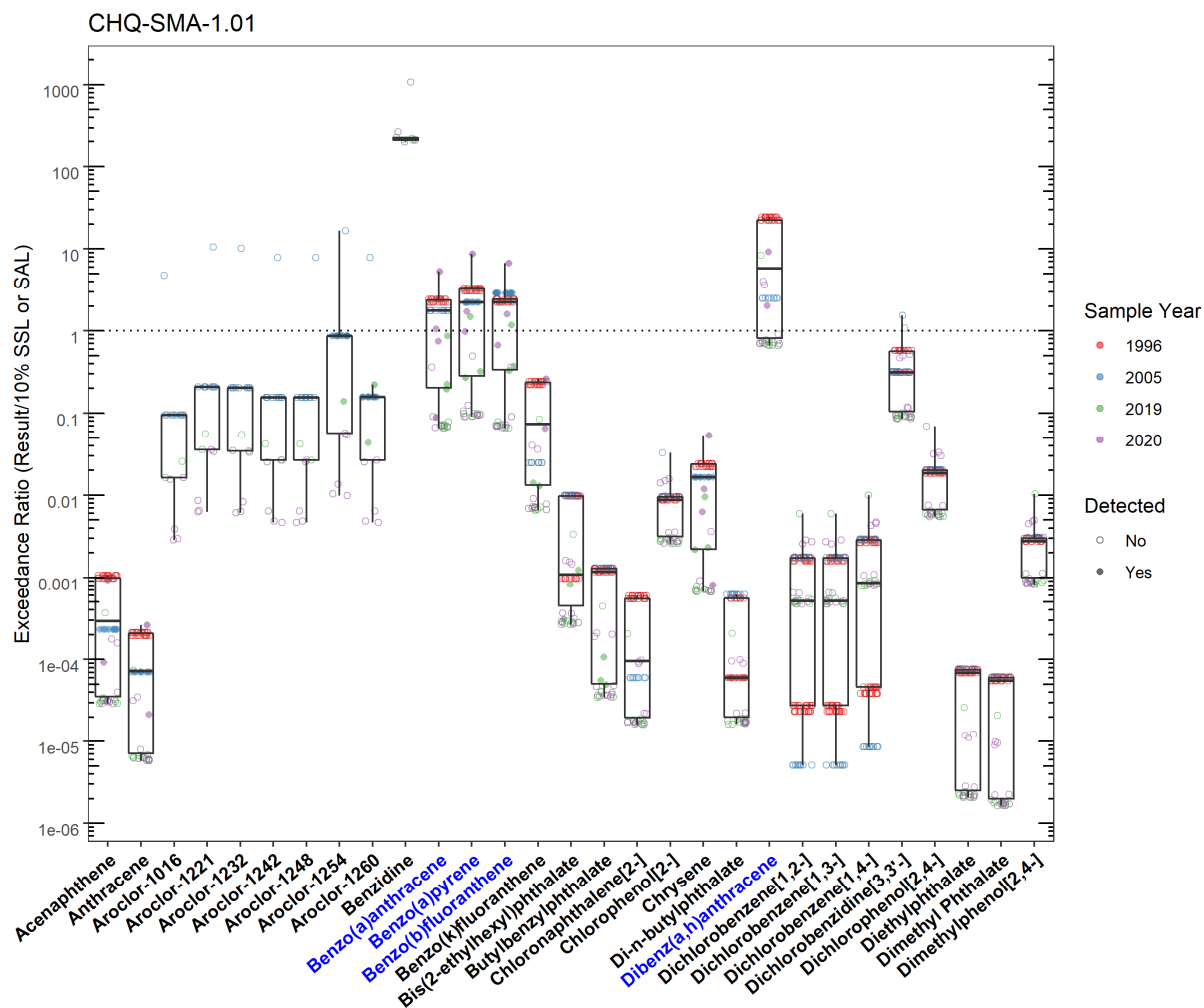


Figure 229.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.01 (Plot 1)

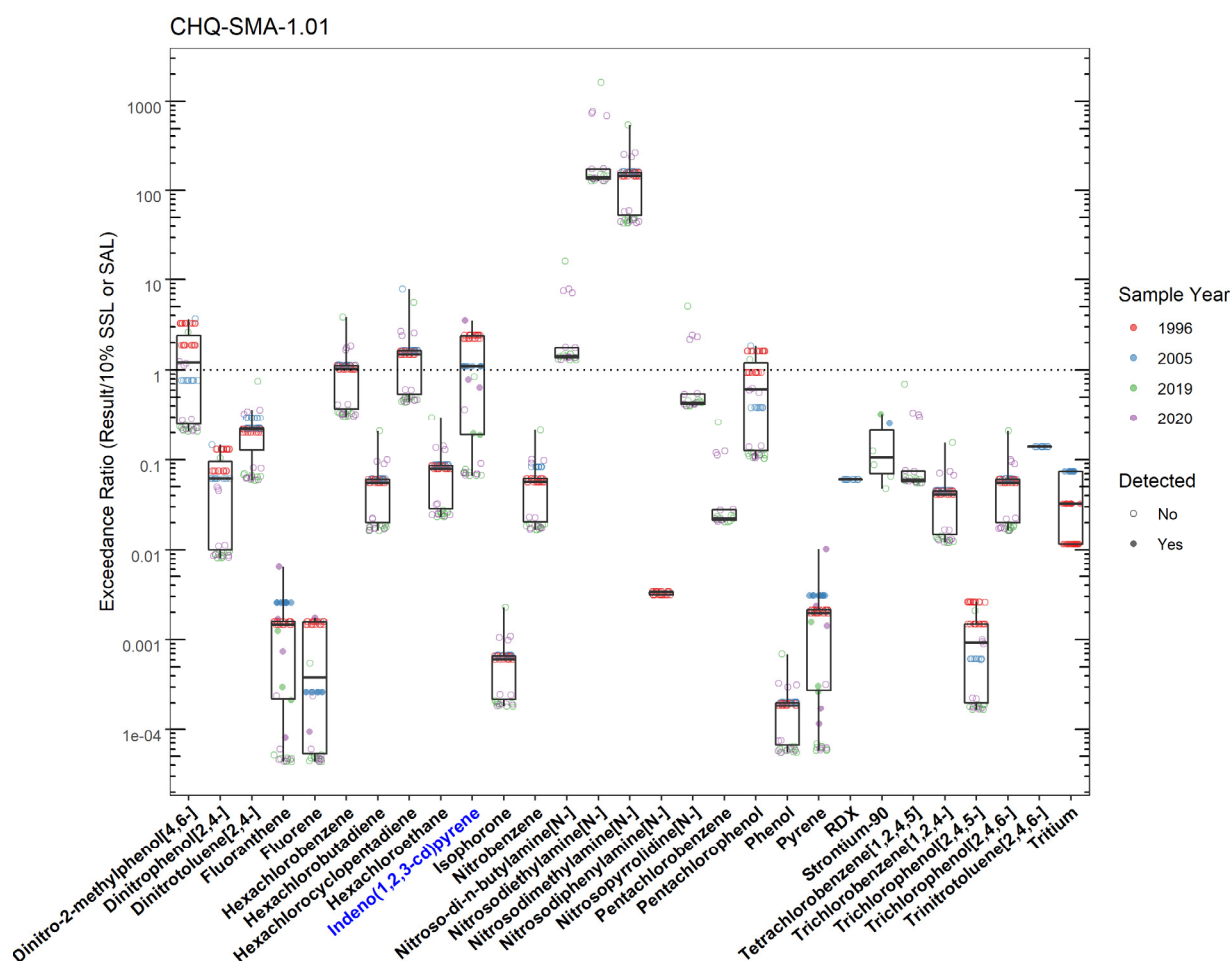


Figure 229.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.01 (Plot 2)

CHQ-SMA-1.01

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-1.01	Sb	Y	BTV	0.830	3.17	2019-12-17
Barium	CHQ-SMA-1.01	Ba	Y	BTV	295	339	2005-06-27
Benzo(a)anthracene	CHQ-SMA-1.01	56-55-3	Y	SSL_0.1	0.153	0.814	2020-02-12
Benzo(a)pyrene	CHQ-SMA-1.01	50-32-8	Y	SSL_0.1	0.112	0.970	2020-02-12
Benzo(b)fluoranthene	CHQ-SMA-1.01	205-99-2	Y	SSL_0.1	0.153	1.02	2020-02-12
Cadmium	CHQ-SMA-1.01	Cd	Y	BTV	0.400	13.3	2019-12-17
Chromium	CHQ-SMA-1.01	Cr	Y	BTV	19.3	83.7	2019-12-17
Copper	CHQ-SMA-1.01	Cu	Y	BTV	14.7	178	2019-12-17
Dibenz(a,h)anthracene	CHQ-SMA-1.01	53-70-3	Y	SSL_0.1	0.0153	0.141	2020-02-12
Indeno(1,2,3-cd)pyrene	CHQ-SMA-1.01	193-39-5	Y	SSL_0.1	0.153	0.540	2020-02-12
Lead	CHQ-SMA-1.01	Pb	Y	BTV	22.3	95.8	2019-12-17
Mercury	CHQ-SMA-1.01	Hg	Y	BTV	0.100	15.8	2019-12-17
Selenium	CHQ-SMA-1.01	Se	Y	BTV	1.52	1.71	2019-12-17
Silver	CHQ-SMA-1.01	Ag	Y	BTV	1.00	44.3	2019-12-17
Uranium	CHQ-SMA-1.01	U	Y	BTV	1.82	3.90	1996-05-28
Zinc	CHQ-SMA-1.01	Zn	Y	BTV	48.8	242	2019-12-17

Figure 229.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-1.01

229.4 Stormwater Evaluation

229.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected at the SMA.

229.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-1.01 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

229.5 Site-Specific Demonstration

229.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data, but have not yet been measured in stormwater: antimony, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, uranium, and zinc.

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene exceeded the applicable screening values in soil data but are not Site-related POCs and will not be added to the SAP.

229.5.2 Stormwater Data Summary

No confirmation-monitoring data.

229.5.3 2022 Permit Status

The SMA is in active monitoring; no confirmation-monitoring sample has been collected.

229.5.4 Sampling and Analysis Plan

Table 229.5-1 is the proposed SAP for CHQ-SMA-1.01.

Table 229.5-1 Proposed SAP, CHQ-SMA-1.01

Monitoring Constituent	Background for Monitoring
Dissolved antimony, barium, cadmium, chromium, copper, lead, silver, uranium, and zinc	Site history (metals) and soil data
Total mercury and selenium	Site history (metals) and soil data
Tritium	Site history
DOC	Permit requirement
SSC	Permit requirement

230.0 CHQ-SMA-1.02

Associated Sites	33-004(h), 33-008(c), 33-011(d), 33-015
Receiving Water	Chaquehui Canyon
Drainage Area	2.20 acres
Landscape Characteristics	6% impervious, 94% pervious
Consent Order Site Status	SWMU 33-004(h): In Progress SWMU 33-008(c): In Progress SWMU 33-011(d): In Progress SWMU 33-015: In Progress
2010 Administratively Continued Permit Final Status	This SMA is being evaluated for a corrective action recommendation
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Corrective Action

230.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in August 2011. Analytical results from this sample initiated corrective action.

Following the October 2012 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2012, 228781), corrective-action monitoring was initiated, and stormwater samples were collected in July and September 2013. Analytical results from these samples initiated corrective action.

Following the September 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600909), corrective-action monitoring was initiated, and stormwater samples were collected in July and August 2018. Analytical results from these samples initiated corrective action.

Following the April 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701388), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. Stormwater samples were collected in May and August 2021. Analytical results from these samples initiated corrective action, and installation of enhanced controls is ongoing.

230.2 Site History

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

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

The RFI work plan for OU 1122 states that historical engineering drawings show an 8-in. VCP drain, which reportedly discharged to an outfall, exiting the southeast corner of the building. A study of

building drains at TA-33 identified two floor drains in building 33-20 but could not locate an outfall. The study also noted that there was no source of water in the building.

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

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

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

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

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

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

33-015 (2/18/2021)

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

For investigation activities for SWMUs 33-004(h) and 33-015, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046). For investigation activities for SWMUs 33-008(c) and 33-011(d), refer to “Phase II Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2021, 701606).

230.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 230.2-1.

Table 230.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

230.3 Consent Order Soil Data

Decision-level data for SWMU 33-004(h) and SWMU 33-015 consist of results from samples collected in 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination have been defined.

Decision-level data for SWMU 33-008(c) consist of results from samples collected in 1996, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the extent of contamination is not defined, and additional sampling is required to define the extent of copper; lead; mercury; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenz(a,h)anthracene; and indeno(1,2,3-cd)pyrene at several sampling locations.

Decision-level data for SWMU 33-011(d) consist of results from samples collected in 1996, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination is defined, and no further sampling for extent is warranted.

Analytical results for all soil samples for this SMA are presented in Figures 230.3-1 through 230.3-4.

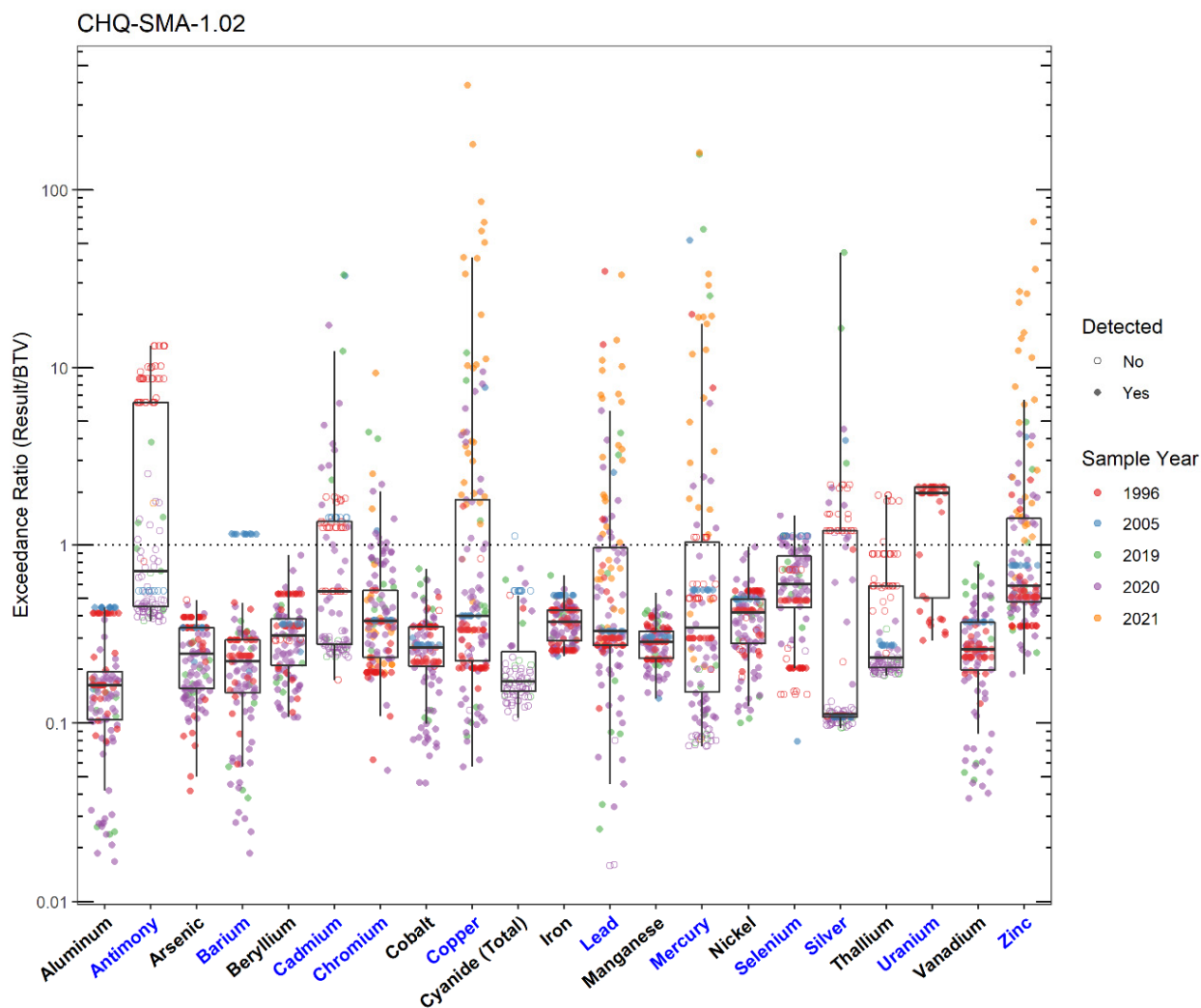


Figure 230.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-1.02

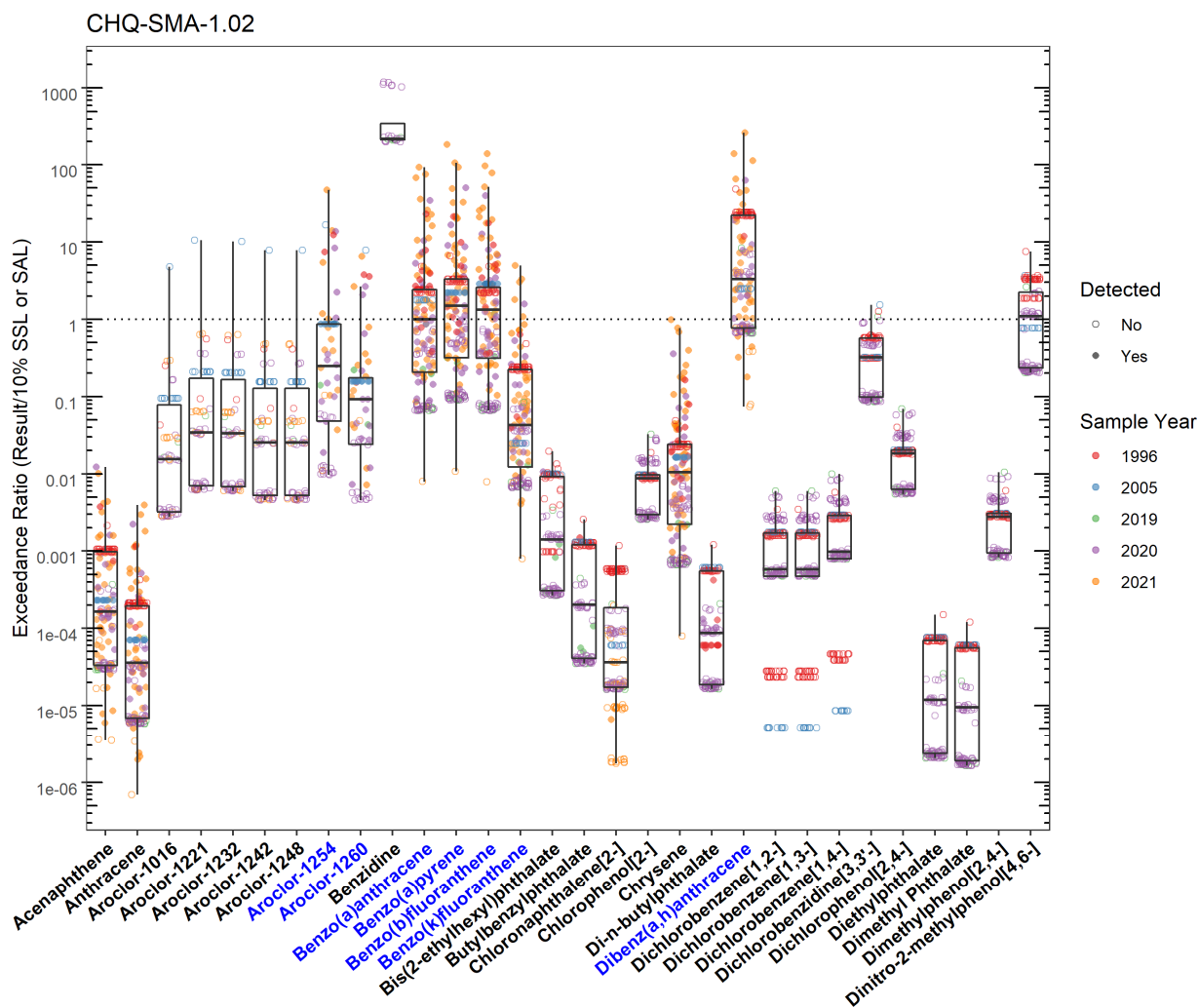


Figure 230.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.02 (Plot 1)

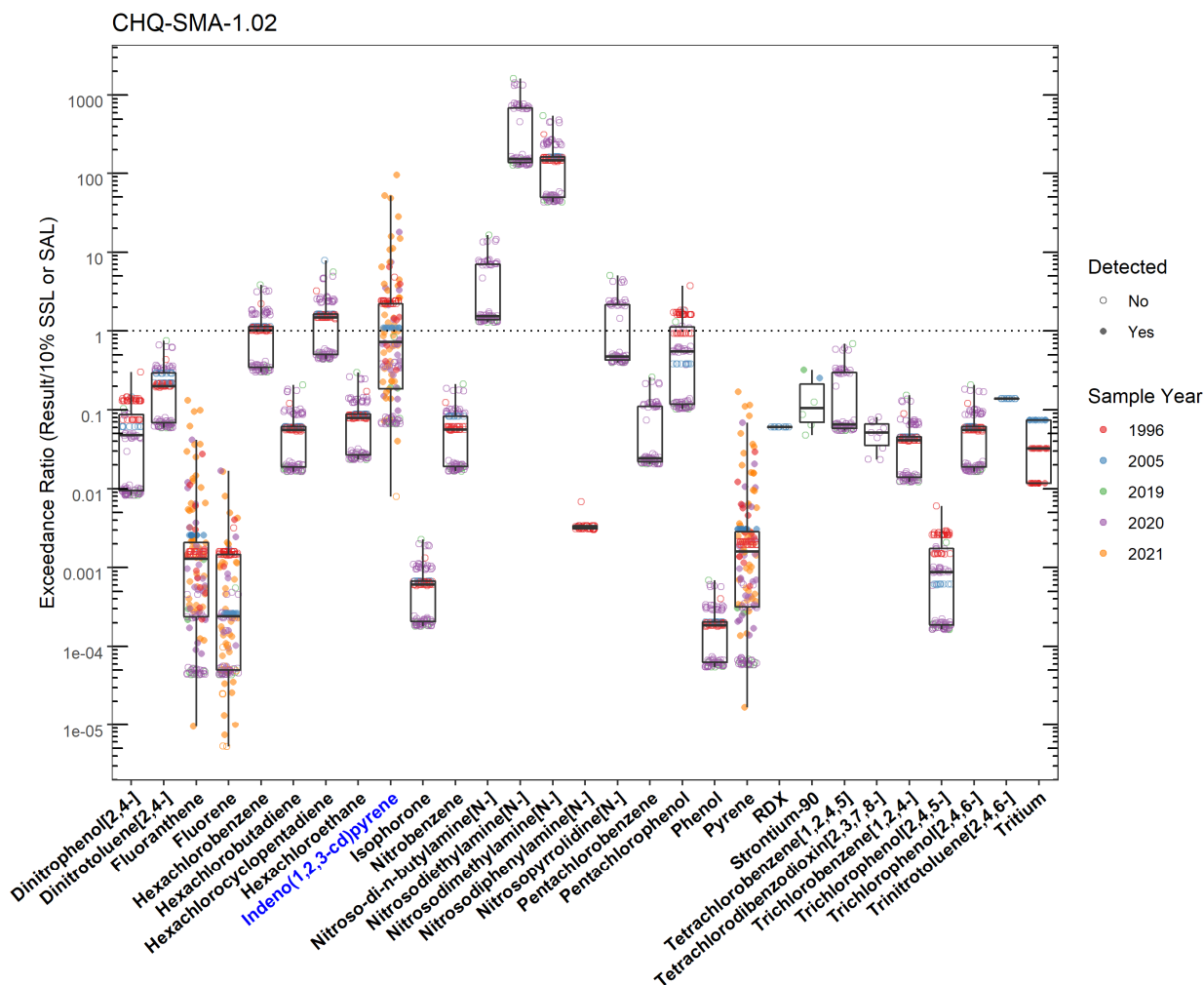


Figure 230.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.02 (Plot 2)

CHQ-SMA-1.02

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-1.02	Sb	Y	BTV	0.830	3.17	2019-12-17
Aroclor-1254	CHQ-SMA-1.02	11097-69-1	Y	SSL_0.1	0.114	5.35	2021-04-14
Aroclor-1260	CHQ-SMA-1.02	11096-82-5	Y	SSL_0.1	0.243	1.59	2021-04-14
Barium	CHQ-SMA-1.02	Ba	Y	BTV	295	339	2005-06-27
Benzo(a)anthracene	CHQ-SMA-1.02	56-55-3	Y	SSL_0.1	0.153	14.2	2021-05-05
Benzo(a)pyrene	CHQ-SMA-1.02	50-32-8	Y	SSL_0.1	0.112	20.5	2021-05-05
Benzo(b)fluoranthene	CHQ-SMA-1.02	205-99-2	Y	SSL_0.1	0.153	21.1	2021-05-05
Benzo(k)fluoranthene	CHQ-SMA-1.02	207-08-9	Y	SSL_0.1	1.53	7.57	2021-05-05
Cadmium	CHQ-SMA-1.02	Cd	Y	BTV	0.400	13.3	2019-12-17
Chromium	CHQ-SMA-1.02	Cr	Y	BTV	19.3	180	2021-05-05
Copper	CHQ-SMA-1.02	Cu	Y	BTV	14.7	5710	2021-05-05
Dibenzo(a,h)anthracene	CHQ-SMA-1.02	53-70-3	Y	SSL_0.1	0.0153	4.05	2021-05-05
Indeno(1,2,3-cd)pyrene	CHQ-SMA-1.02	193-39-5	Y	SSL_0.1	0.153	14.6	2021-05-05
Lead	CHQ-SMA-1.02	Pb	Y	BTV	22.3	774	1996-07-02
Mercury	CHQ-SMA-1.02	Hg	Y	BTV	0.100	16.2	2021-05-05
Selenium	CHQ-SMA-1.02	Se	Y	BTV	1.52	2.22	2020-02-07
Silver	CHQ-SMA-1.02	Ag	Y	BTV	1.00	44.3	2019-12-17
Uranium	CHQ-SMA-1.02	U	Y	BTV	1.82	3.90	1996-05-28
Zinc	CHQ-SMA-1.02	Zn	Y	BTV	48.8	3220	2021-05-05

Figure 230.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-1.02

230.4 Stormwater Evaluation

230.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. Corrective-action stormwater samples were collected in May and August 2021. Analytical results from those samples are presented in Figures 230.4-1 through 230.4-4.

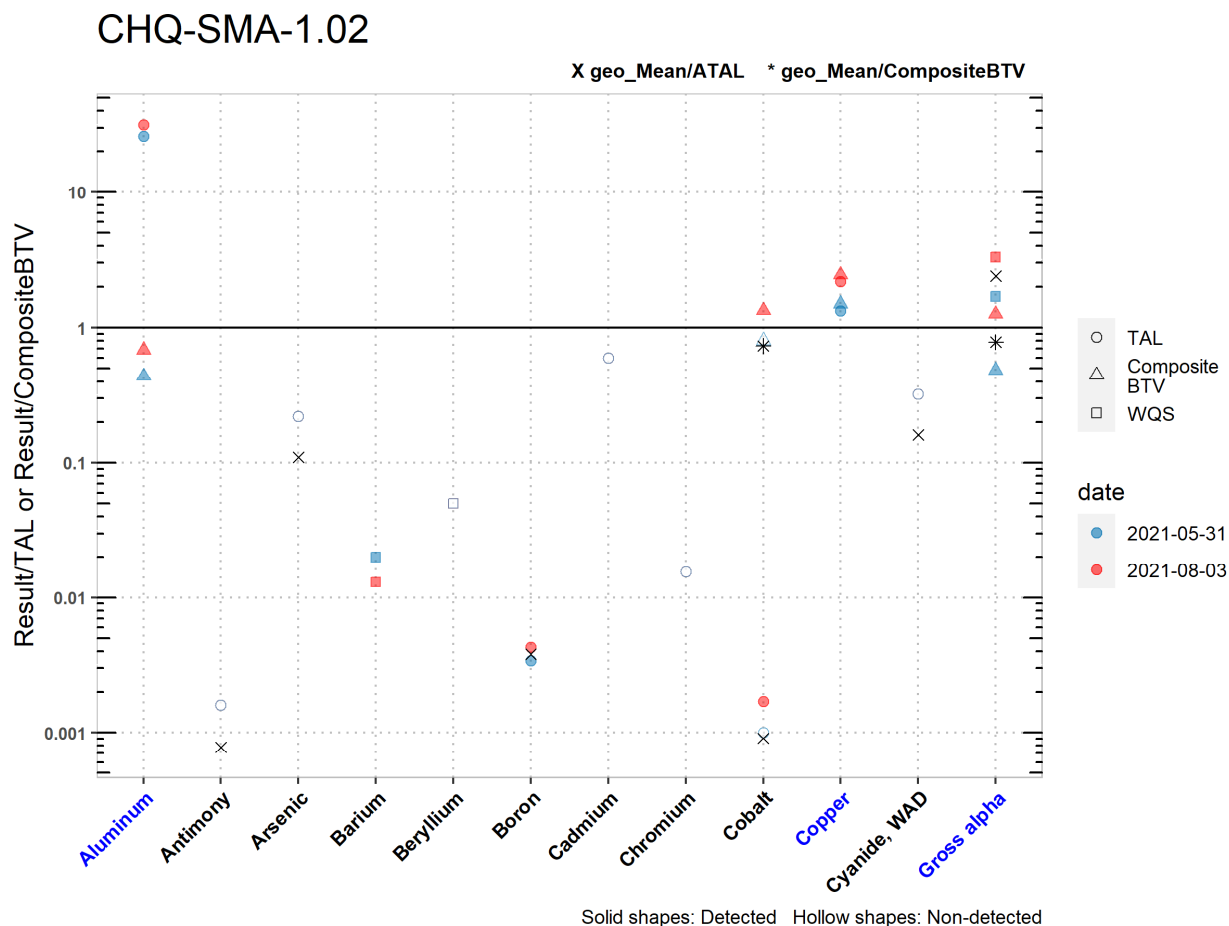


Figure 230.4-1 Analytical Results from Stormwater Samples, CHQ-SMA-1.02 (Plot 1)

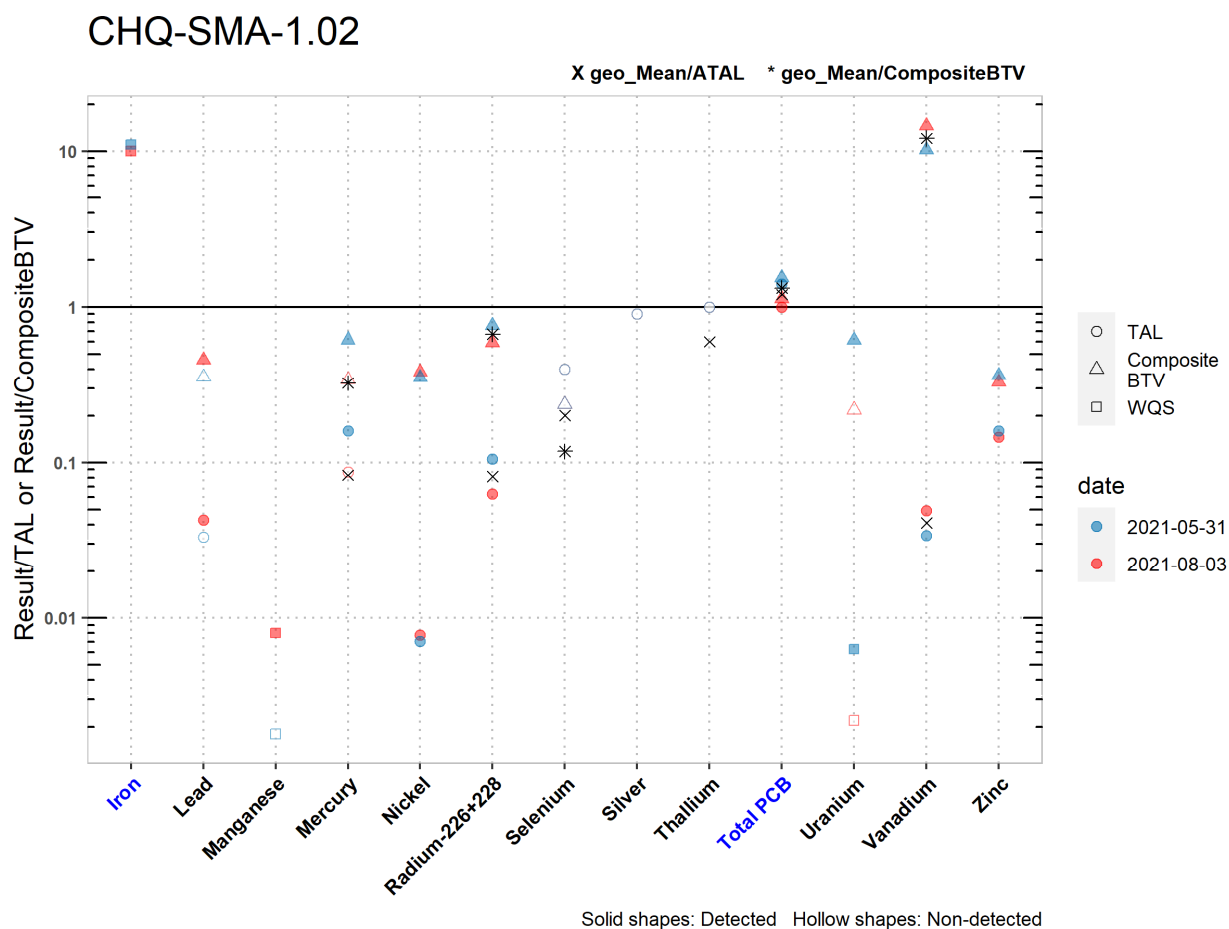


Figure 230.4-2 Analytical Results from Stormwater Samples, CHQ-SMA-1.02 (Plot 2)

CHQ-SMA-1.02

	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha
<i>MQL</i>	2.5	1	0.5	NA	NA	100	1	10	50	0.5	10	NA
<i>ATAL</i>	NA	640	9	NA	NA	5000	NA	NA	1000	NA	5.2	15
<i>MTAL</i>	566	NA	340	NA	NA	NA	0.539	194	NA	3.9	22	NA
<i>Composite_BTIV</i>	37200	NA	NA	NA	NA	NA	NA	NA	1.24	3.47	NA	56.7
<i>unit</i>	ug/L**	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*
<i>2021-05-31 result</i>	14700	1.00	2.00	39.6	0.200	16.9	0.300	3.00	1.00	5.20	1.67	24.8
<i>2021-05-31 dT</i>	26.0	NA	NA	0.020	NA	0.0034	NA	NA	NA	1.33	NA	1.7
<i>2021-05-31 dB</i>	0.439	NA	NA	NA	NA	NA	NA	NA	NA	1.50	NA	0.486
<i>2021-08-03 result</i>	17900	1.00	2.00	25.1	0.200	21.6	0.300	3.00	1.66	8.50	1.67	50.2
<i>2021-08-03 dT</i>	31.6	NA	NA	0.013	NA	0.0043	NA	NA	0.0017	2.18	NA	3.3
<i>2021-08-03 dB</i>	0.687	NA	NA	NA	NA	NA	NA	NA	1.34	2.45	NA	1.26
<i>geo_mean/ATAL</i>	NA	0.00078	0.11	NA	NA	0.0038	NA	NA	0.00091	NA	0.161	2.4
<i>geo_mean/B</i>	NA	NA	NA	NA	NA	NA	NA	NA	0.735	NA	NA	0.784

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTIV
geo_mean/B=geo_mean/composite_BTIV
*SSC normalized unit is pCi/g **SSC normalized unit is mg/kg

Figure 230.4-3 Analytical Results from Stormwater Samples, CHQ-SMA-1.02 (Table 1)

CHQ-SMA-1.02

	Iron	Lead	Manganese	Mercury	Nickel	Radium-226+228	Selenium	Silver	Thallium	Total PCB	Uranium	Vanadium	Zinc
<i>MQL</i>	NA	0.5	NA	0.005	0.5	NA	5	0.5	0.5	0.2	NA	50	20
<i>ATAL</i>	NA	NA	NA	0.77	NA	30	5	NA	0.47	0.014	NA	100	NA
<i>MTAL</i>	NA	15.1	NA	NA	154	NA	20	0.336	NA	NA	NA	NA	48.5
<i>Composite_BTV</i>	NA	1.41	NA	0.196	3.10	4.58	8.44	NA	NA	0.0126	0.308	0.338	21.4
<i>unit</i>	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
<i>2021-05-31 result</i>	11200	0.500	2.00	0.121	1.09	3.15	2.00	0.300	0.600	0.0194	0.189	3.44	7.76
<i>2021-05-31 dT</i>	11	NA	NA	0.16	0.00708	0.105	NA	NA	NA	1.4	0.0063	0.034	0.160
<i>2021-05-31 dB</i>	NA	NA	NA	0.617	0.352	0.764	NA	NA	NA	1.54	0.614	10.2	0.363
<i>2021-08-03 result</i>	10400	0.647	8.82	0.0670	1.19	1.89	2.00	0.300	0.600	0.0143	0.0670	4.90	7.06
<i>2021-08-03 dT</i>	10	0.0428	0.0080	NA	0.00773	0.0630	NA	NA	NA	1.0	NA	0.049	0.146
<i>2021-08-03 dB</i>	NA	0.459	NA	NA	0.384	0.590	NA	NA	NA	1.13	NA	14.5	0.330
<i>geo_mean/ATAL</i>	NA	NA	NA	0.083	NA	0.0813	0.20	NA	0.6	1.2	NA	0.041	NA
<i>geo_mean/B</i>	NA	NA	NA	0.325	NA	0.671	0.118	NA	NA	1.32	NA	12.1	NA

Italic font indicates nondetect results

dT=detected_result/TAL, dB=detected_result/composite_BTV

geo_mean/B=geo_mean/composite_BTV

**SSC normalized unit is pCi/g*

Figure 230.4-4 Analytical Results from Stormwater Samples, CHQ-SMA-1.02 (Table 2)

230.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-1.02 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment may be Site-related, based on Site history.

230.5 Site-Specific Demonstration

230.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data but have not yet been measured in stormwater: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

Copper exceeded the applicable screening value in soil data and stormwater data, and will be included in the SAP. The other metals that exceeded the applicable screening values in soil data were previously measured in stormwater, and did not exceed TALs and BTVs. Therefore, they will not be added to the SAP.

230.5.2 Stormwater Data Summary

Copper and PCBs exceeded the TAL and BTV. Aluminum and gross alpha exceeded the TAL but not the BTV.

230.5.3 2022 Permit Status

Due to the exceedance of a composite BTV and/or TAL, corrective action will be initiated at this SMA (Part I.C.2)

231.0 CHQ-SMA-1.03

Associated Sites	33-008(c), 33-012(a), 33-017, C-33-001, C-33-003
Receiving Water	Chaquehui Canyon
Drainage Area	10.52 acres
Landscape Characteristics	23% impervious, 77% pervious
Consent Order Site Status	SWMU 33-008(c): In Progress SWMU 33-012(a): In Progress SWMU 33-017: In Progress AOC C-33-001: In Progress AOC C-33-003: In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Sites.
2022 Permit Status	Active Monitoring

231.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2012. Analytical results from this sample initiated corrective action.

Following the May 2014 submittal to EPA of certification of enhanced control installation as a corrective action (LANL, 2014, 256722), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. A stormwater sample was collected in August 2018. Monitoring is ongoing until a second confirmation sample is collected from this SMA.

231.2 Site History

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

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

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

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

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

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

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

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

33-017 (1/25/2022)

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

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

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

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

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

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

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

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

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

For investigation activities for AOC C-33-003, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046). For investigation activities for SWMUs 33-008(c), 33-012(a), 33-017, and AOC C-33-001, refer to “Phase II Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2021, 701606).

231.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 231.2-1.

Table 231.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

231.3 Consent Order Soil Data

Decision-level data for SWMU 33-008(c) consist of results from samples collected in 1996, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the extent of contamination is not defined and additional sampling is required.

Decision-level data for SWMU 33-012(a) consist of results from samples collected at in 2020 and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of inorganic and organic chemicals is not fully defined at SWMU 33-012(a).

Decision-level data for SWMU 33-017 consist of results from samples collected in 1996, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination is defined, except for the lateral extent of lead at one location.

Decision-level data for AOC C-33-001 consist of results from samples collected in 1996, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of organic compounds are defined, or no further sampling for extent is warranted, except for determining lateral extent of Aroclor-1254 at one sample location and Aroclor-1260 at an additional sample location.

Decision-level data for AOC C-33-003 consist of results from samples collected in 1999 and 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

Analytical results for all soil samples for this SMA are presented in Figures 231.3-1 through 231.3-4.

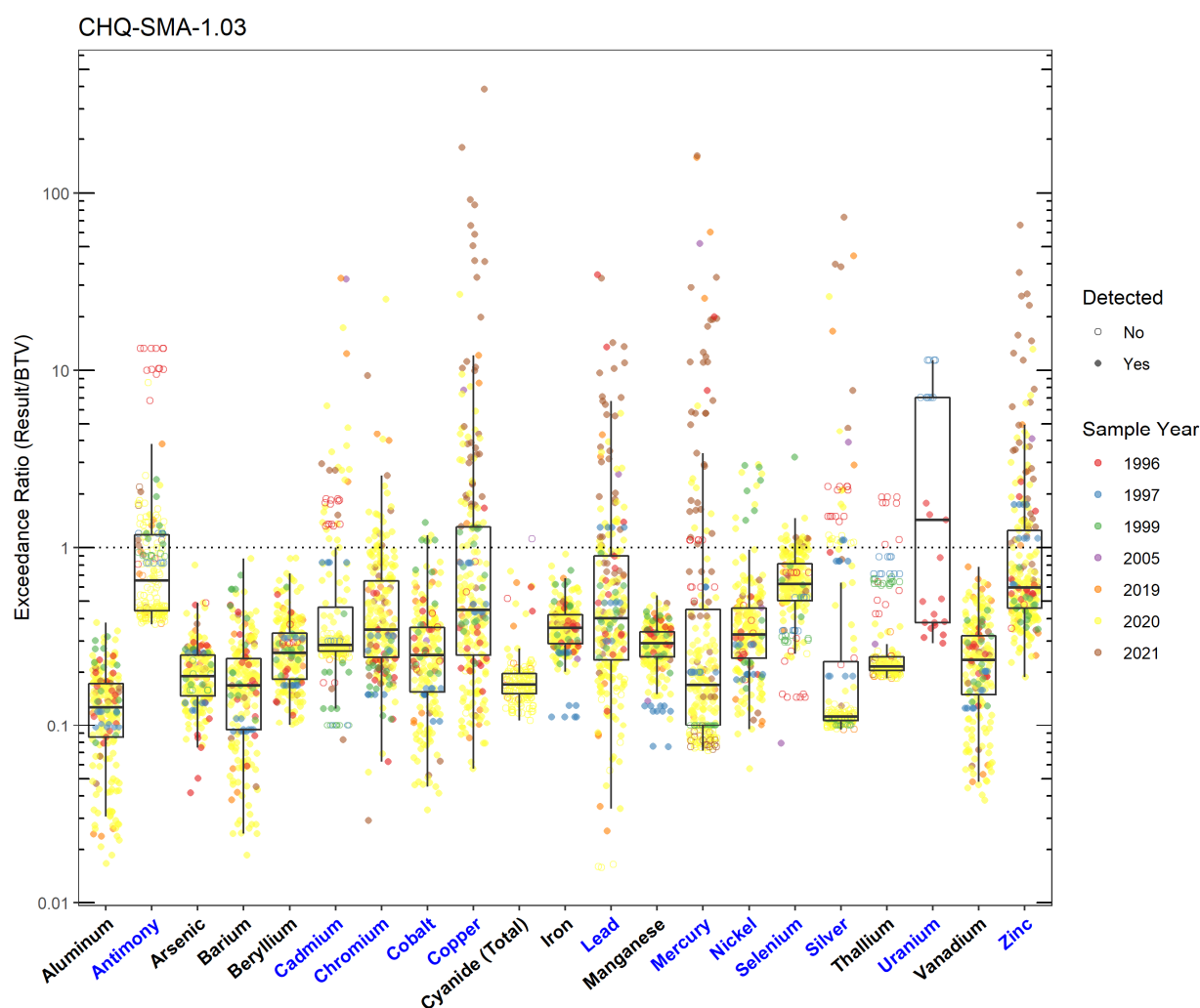


Figure 231.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-1.03

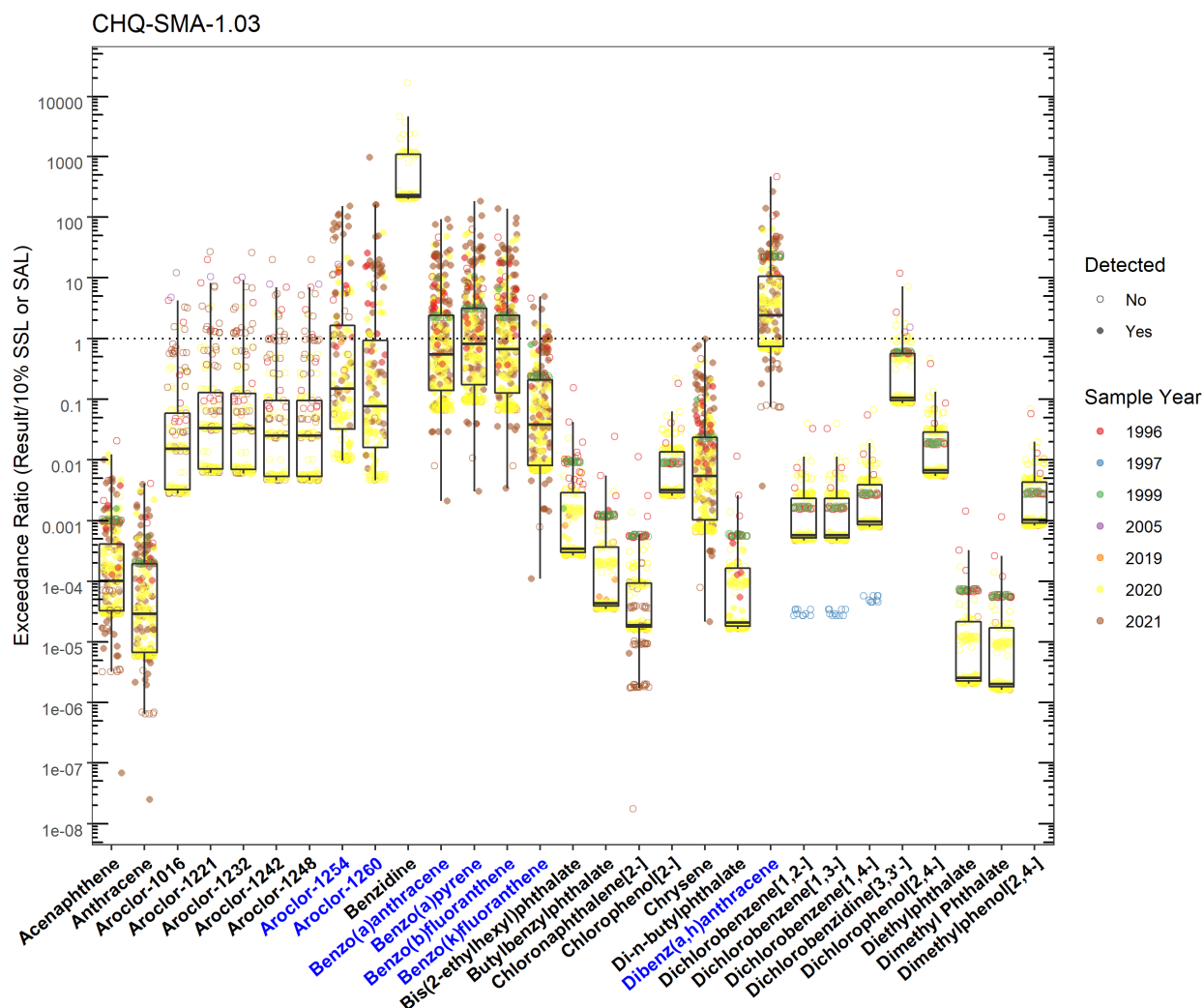


Figure 231.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.03 (Plot 1)

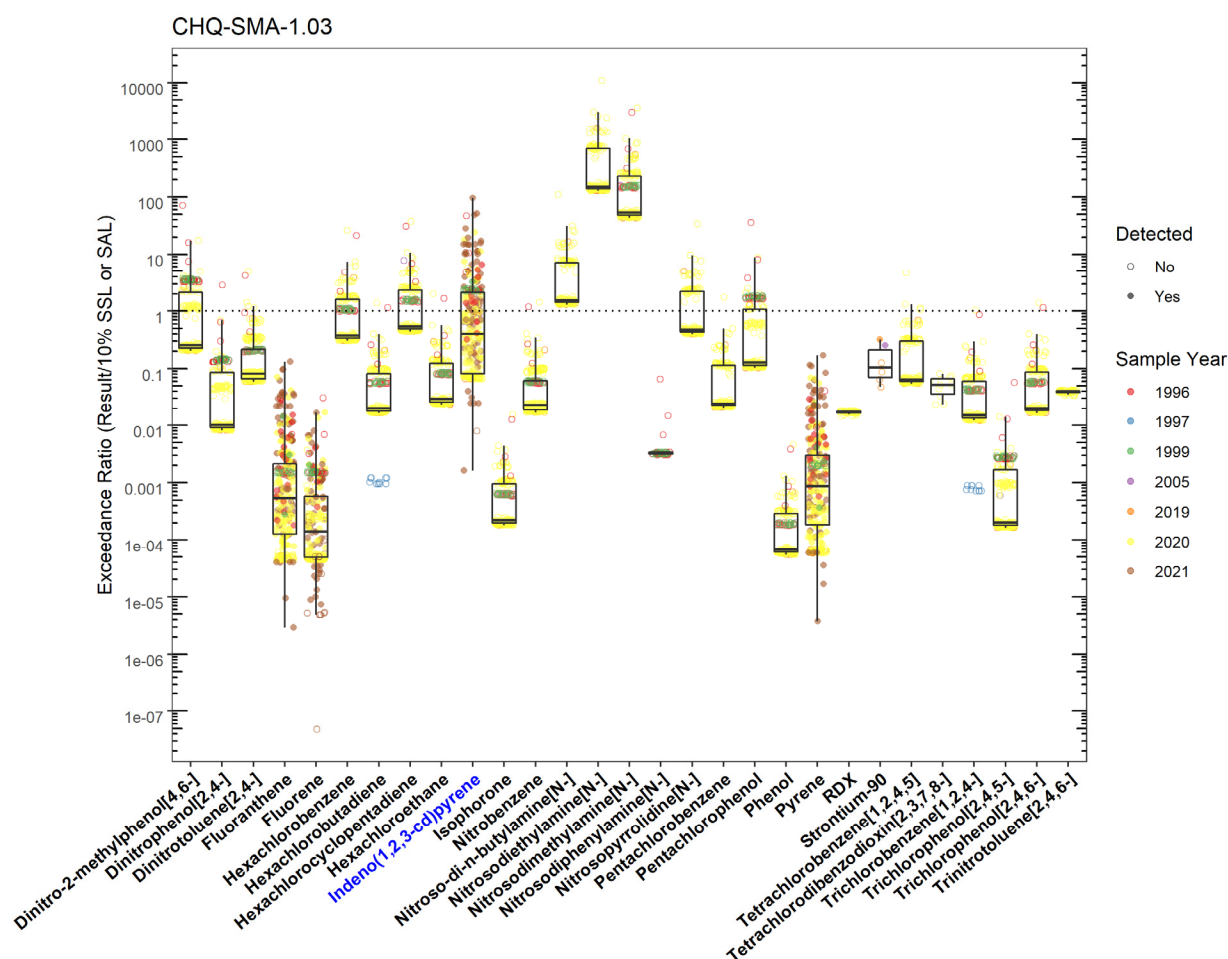


Figure 231.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-1.03 (Plot 2)

CHQ-SMA-1.03							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-1.03	Sb	Y	BTV	0.830	3.17	2019-12-17
Aroclor-1254	CHQ-SMA-1.03	11097-69-1	Y	SSL_0.1	0.114	17.3	2021-04-14
Aroclor-1260	CHQ-SMA-1.03	11096-82-5	Y	SSL_0.1	0.243	233	2021-04-12
Benzo(a)anthracene	CHQ-SMA-1.03	56-55-3	Y	SSL_0.1	0.153	14.2	2021-05-05
Benzo(a)pyrene	CHQ-SMA-1.03	50-32-8	Y	SSL_0.1	0.112	20.5	2021-05-05
Benzo(b)fluoranthene	CHQ-SMA-1.03	205-99-2	Y	SSL_0.1	0.153	21.1	2021-05-05
Benzo(k)fluoranthene	CHQ-SMA-1.03	207-08-9	Y	SSL_0.1	1.53	7.57	2021-05-05
Cadmium	CHQ-SMA-1.03	Cd	Y	BTV	0.400	13.3	2019-12-17
Chromium	CHQ-SMA-1.03	Cr	Y	BTV	19.3	482	2020-02-19
Cobalt	CHQ-SMA-1.03	Co	Y	BTV	8.64	11.9	1999-05-12
Copper	CHQ-SMA-1.03	Cu	Y	BTV	14.7	5710	2021-05-05
Dibenz(a,h)anthracene	CHQ-SMA-1.03	53-70-3	Y	SSL_0.1	0.0153	4.05	2021-05-05
Indeno(1,2,3-cd)pyrene	CHQ-SMA-1.03	193-39-5	Y	SSL_0.1	0.153	14.6	2021-05-05
Lead	CHQ-SMA-1.03	Pb	Y	BTV	22.3	774	1996-07-02
Mercury	CHQ-SMA-1.03	Hg	Y	BTV	0.100	16.2	2021-05-05
Nickel	CHQ-SMA-1.03	Ni	Y	BTV	15.4	44.9	2020-02-12
Selenium	CHQ-SMA-1.03	Se	Y	BTV	1.52	4.90	1999-05-12
Silver	CHQ-SMA-1.03	Ag	Y	BTV	1.00	72.9	2021-02-01
Uranium	CHQ-SMA-1.03	U	Y	BTV	1.82	3.22	1996-10-02
Zinc	CHQ-SMA-1.03	Zn	Y	BTV	48.8	3220	2021-05-05

Figure 231.4-1 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-1.03

231.4 Stormwater Evaluation

231.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in August 2018. Analytical results for that sample are presented in Figures 231.4-1 through 231.4-4.

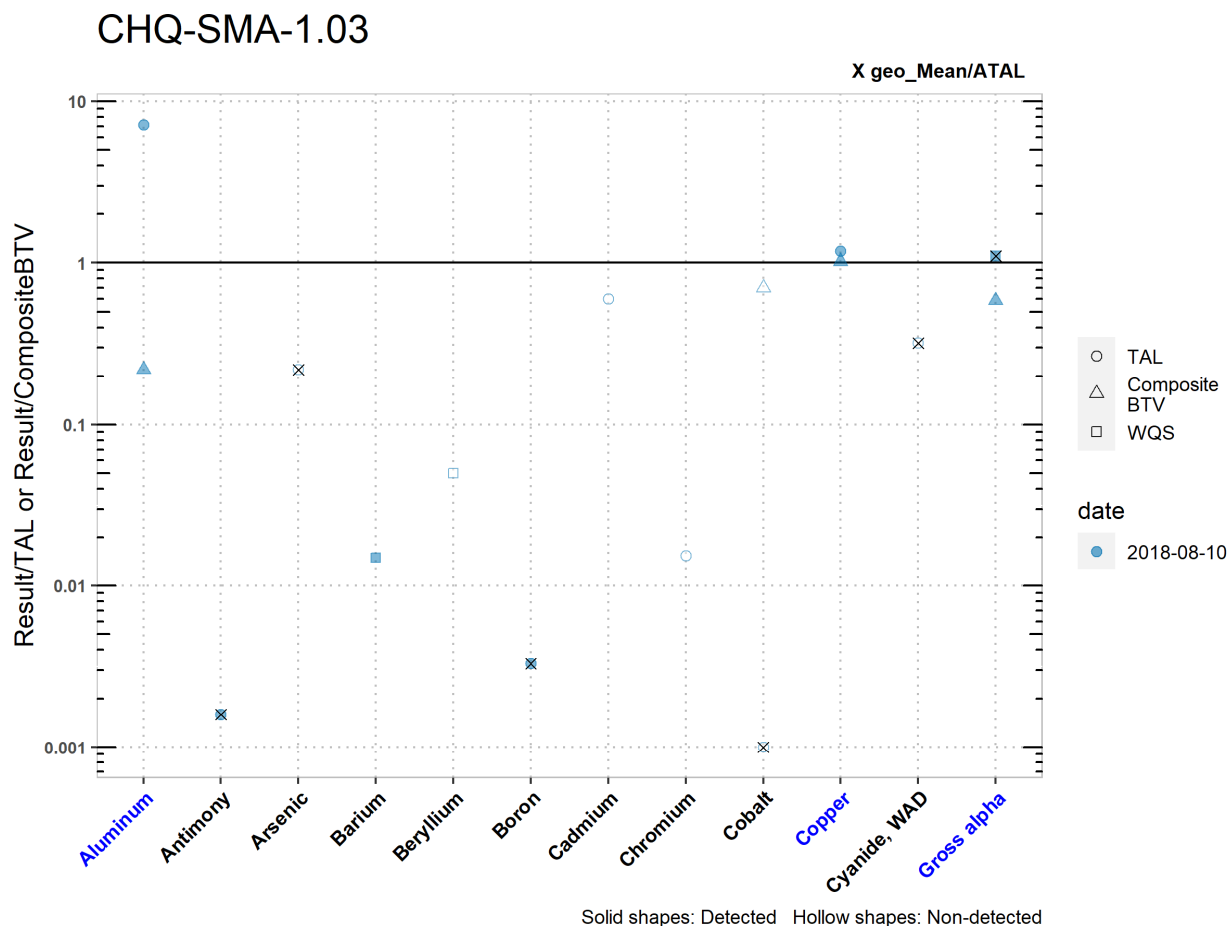


Figure 231.4-1 Analytical Results from Stormwater Sample, CHQ-SMA-1.03 (Plot 1)

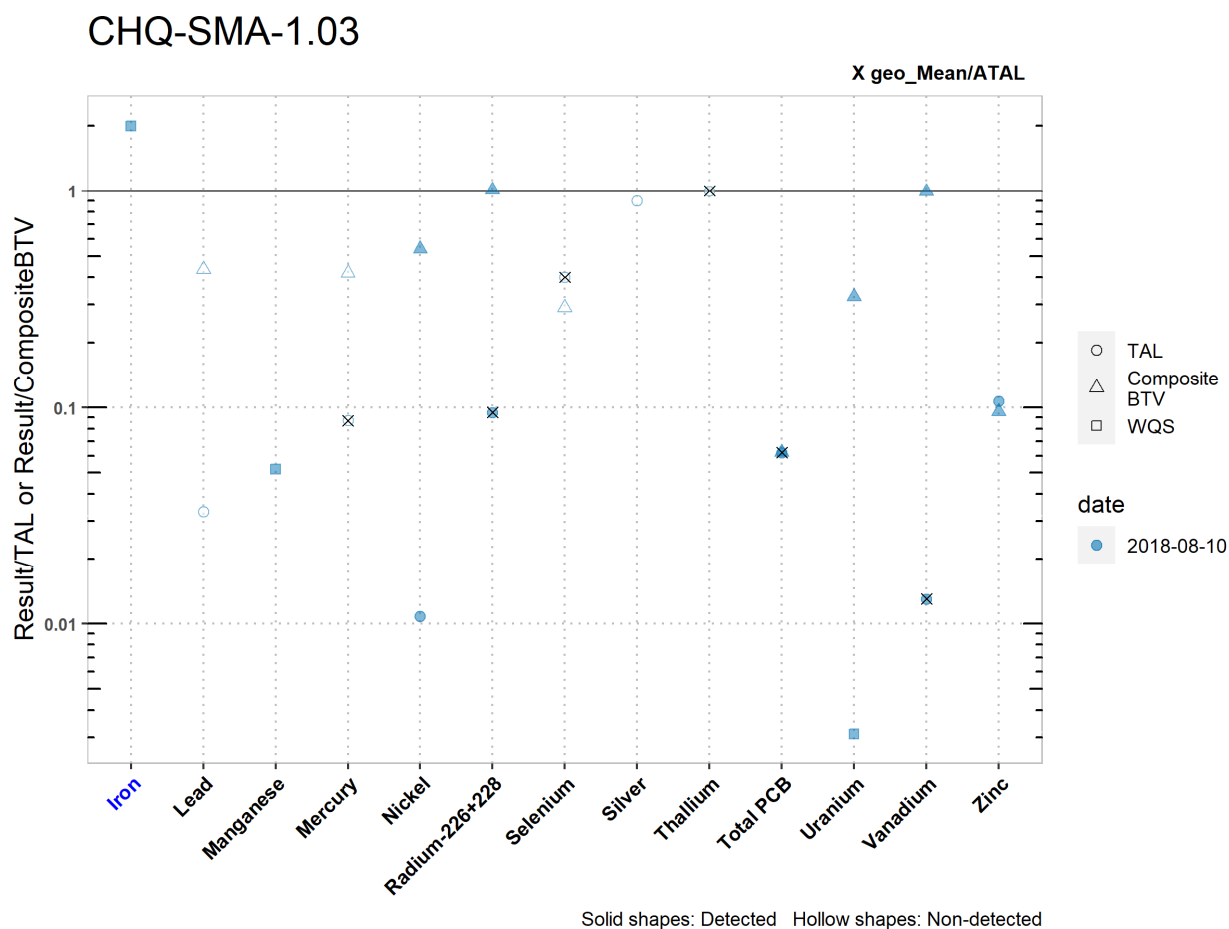


Figure 231.4-2 Analytical Results from Stormwater Sample, CHQ-SMA-1.03 (Plot 2)

CHQ-SMA-1.03

	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha
<i>MQL</i>	2.5	1	0.5	NA	NA	100	1	10	50	0.5	10	NA
<i>ATAL</i>	NA	640	9	NA	NA	5000	NA	NA	1000	NA	5.2	15
<i>MTAL</i>	566	NA	340	NA	NA	NA	0.539	194	NA	3.9	22	NA
<i>Composite_BTV</i>	36600	NA	NA	NA	NA	NA	NA	NA	1.43	4.50	NA	55.4
<i>unit</i>	ug/L**	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*
<i>2018-08-10 result</i>	4050	1.01	2.00	29.2	0.200	16.5	0.300	3.00	1.00	4.60	1.67	16.2
<i>2018-08-10 dT</i>	7.16	0.0016	NA	0.015	NA	0.0033	NA	NA	NA	1.18	NA	1.1
<i>2018-08-10 dB</i>	0.221	NA	NA	NA	NA	NA	NA	NA	NA	1.02	NA	0.585
<i>geo_mean/ATAL</i>	NA	0.0016	0.22	NA	NA	0.0033	NA	NA	0.0010	NA	0.321	1.1

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTV
*SSC normalized unit is pCi/g **SSC normalized unit is mg/kg

Figure 231.4-3 Analytical Results from Stormwater Sample, CHQ-SMA-1.03 (Table 1)

CHQ-SMA-1.03

	Iron	Lead	Manganese	Mercury	Nickel	Radium-226+228	Selenium	Silver	Thallium	Total PCB	Uranium	Vanadium	Zinc
<i>MQL</i>	NA	0.5	NA	0.005	0.5	NA	5	0.5	0.5	0.2	NA	50	20
<i>ATAL</i>	NA	NA	NA	0.77	NA	30	5	NA	0.47	0.014	NA	100	NA
<i>MTAL</i>	NA	15.1	NA	NA	154	NA	20	0.336	NA	NA	NA	NA	48.5
<i>Composite_BTV</i>	NA	1.15	NA	0.160	3.10	5.65	6.89	NA	NA	0.0139	0.288	1.31	54.3
<i>unit</i>	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L*	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
<i>2018-08-10 result</i>	1990	0.500	57.6	0.0670	1.67	2.85	2.00	0.300	0.600	0.000863	0.0940	1.30	5.21
<i>2018-08-10 dT</i>	2.0	NA	0.052	NA	0.0108	0.0950	NA	NA	NA	0.062	0.0031	0.013	0.107
<i>2018-08-10 dB</i>	NA	NA	NA	NA	0.539	1.01	NA	NA	NA	0.0621	0.326	0.992	0.0959
<i>geo_mean/ATAL</i>	NA	NA	NA	0.087	NA	0.0950	0.40	NA	1	0.062	NA	0.013	NA

Italic font indicates nondetect results

dT=detected_result/TAL, dB=detected_result/composite_BTV

*SSC normalized unit is pCi/g

Figure 231.4-4 Analytical Results from Stormwater Sample, CHQ-SMA-1.03 (Table 2)

231.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-1.03 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment may be Site-related, based on Site history.

231.5 Site-Specific Demonstration

231.5.1 Soil Data Summary

The following parameters exceeded the applicable screening values in soil data and have not yet been measured in stormwater: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

Copper exceeded the applicable screening value in soil data and the TAL and BTV in stormwater data, and will be included in the SAP. The other metals that exceeded the applicable screening values in soil data were previously monitored in stormwater data and did not exceed TALs and BTVs. Therefore, they will not be added to the SAP.

231.5.2 Stormwater Data Summary

Copper exceeded the TAL and BTV.

Aluminum and gross alpha exceeded the TAL but not the BTV.

Iron exceeded the WQS in one sample. However, there is no TAL in the Permit for iron; only POCs with TALs are used in the SSD.

231.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

231.5.4 Sampling and Analysis Plan

Table 231.5-1 is the proposed SAP for CHQ-SMA-1.03.

Table 231.5-1 Proposed SAP, CHQ-SMA-1.03

Monitoring Constituent	Background for Monitoring
Total PCBs (1)	Impairment, Site history, soil data, and stormwater data
Dissolved copper (1)	Site history, soil data, and stormwater data
SVOCs	Site history (organics) and soil data
Pesticides	Site history
DOC	Permit requirement
SSC	Permit requirement

232.0 CHQ-SMA-2

Associated Sites	33-004(d), 33-007(c), C-33-003
Receiving Water	Chaquehui Canyon
Drainage Area	13.70 acres
Landscape Characteristics	6% impervious, 94% pervious
Consent Order Site Status	SWMU 33-004(d): In Progress SWMU 33-007(c): In Progress AOC C-33-003: In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

232.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2012. Analytical results from this sample initiated corrective action.

Following the October 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600980), corrective-action monitoring was initiated, and stormwater samples were collected in July and August 2018. Analytical results from these samples initiated corrective action.

Following the April 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701388), corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection, Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

232.2 Site History

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

SWMU 33-004(d) is an abandoned septic system consisting of a septic tank (structure 33-121), inlet and outlet drainlines, an outfall, and an associated tile drain field located at Area 6 in TA-33.

Septic tank 33-121 is located approximately 100 ft east of building 33-16 in the northwest portion of TA-33. The septic tank is constructed of corrugated iron and has a capacity of 500 gal.

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

Building 33-01 was used from 1948 to 1955 to support nonexplosive initiator tests conducted at Area 6. In 1958, the building was used to grow crystals of potassium niobate, and possibly other types of crystals (aluminates, titanates, tungstates, etc.). Silver plating was also reportedly performed in this building. Later, building 33-01 was used as office space and for storage, until use of the building was discontinued

in 1991. A 1993 study of drains and discharges at TA-33 determined that the only discharges to the septic system were from a lavatory, toilet, and sink drain.

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

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

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

SWMU 33-007(c) consists of two abandoned gun-firing areas associated with the initiator tests conducted at Area 6 in the west-central portion of TA-33. The first gun-firing area included a gun building (former structure 33-16), a gun mount (structure 33-64), and an earthen berm (structure 33-60). Structure 33-16 was completed in 1949 and housed an air gun, and then electronic equipment, to measure neutron production in gun-type initiators containing beryllium and polonium-210. The concrete firing pad, on which the gun was mounted, was located immediately west of structure 33-16. The pad measured 6 ft × 10 ft and was surrounded by a concrete apron. Guns with bore diameters ranging from 4-in. to 8-in. fired projectiles into berms where two 6-ft × 6-ft catcher boxes constructed of wood timbers were embedded in the north end of berm structure 33-60. The two catcher boxes were located approximately 20 ft south of structure 33-16 and contained soil, wood chips, and vermiculite.

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

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

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

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

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

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

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

For investigation activities for SWMU 33-004(d) and AOC C-33-003, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046). For investigation activities for SWMU 33-007(c), refer to “Phase II Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2021, 701606).

232.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 232.2-1.

Table 232.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

232.3 Consent Order Soil Data

Decision-level data for SWMU 33-004(d) consist of results from samples collected in 1995 and 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination have been defined.

Decision-level data at SWMU 33-007(c) consist of results from samples collected in 2020 and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination is defined and no further sampling for extent is warranted.

Decision-level data for AOC C-33-003 consist of results from samples collected in 1999 and 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

Analytical results for all soil samples for this SMA are presented in Figures 232.3-1 through 232.3-4.

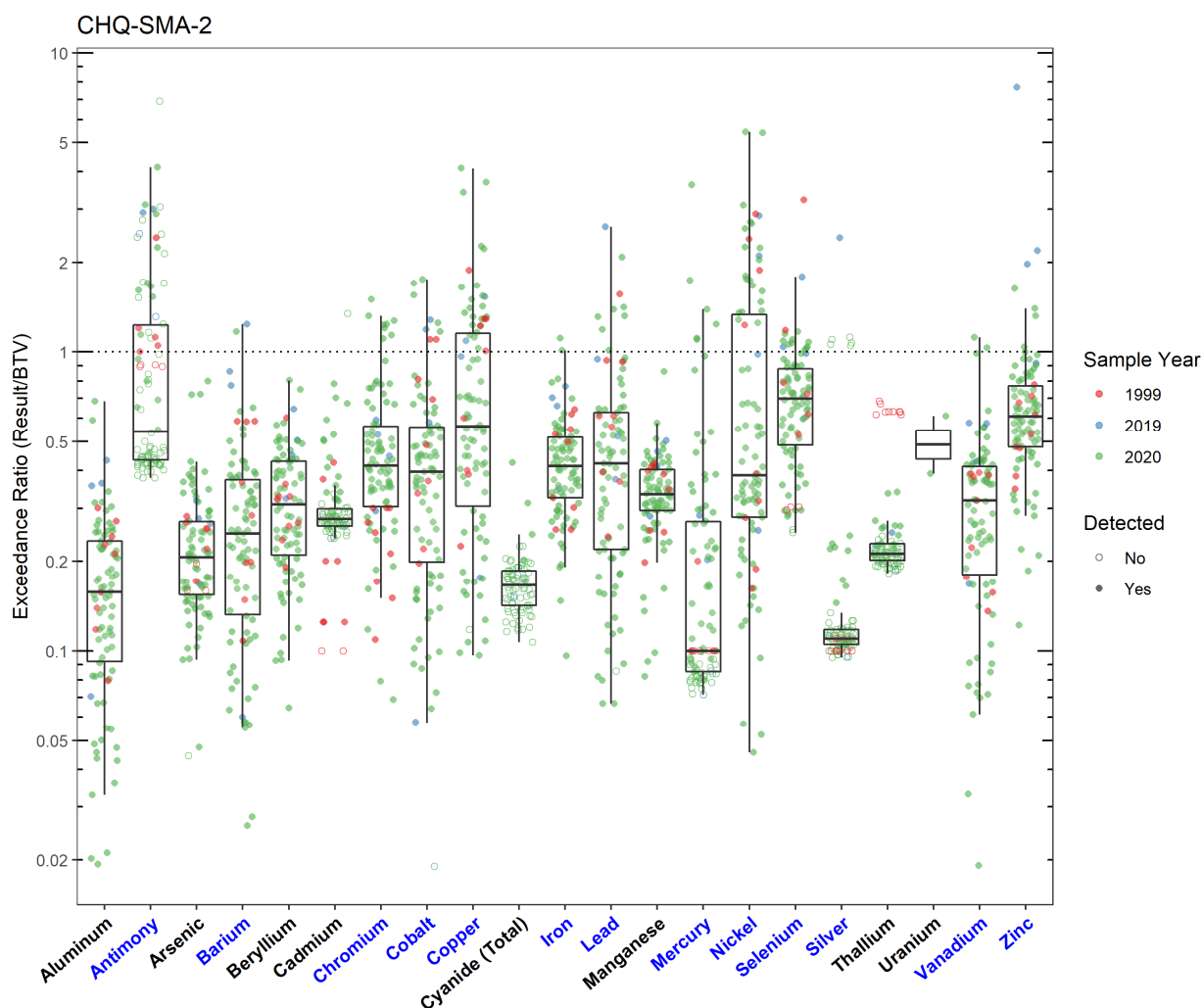


Figure 232.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-2

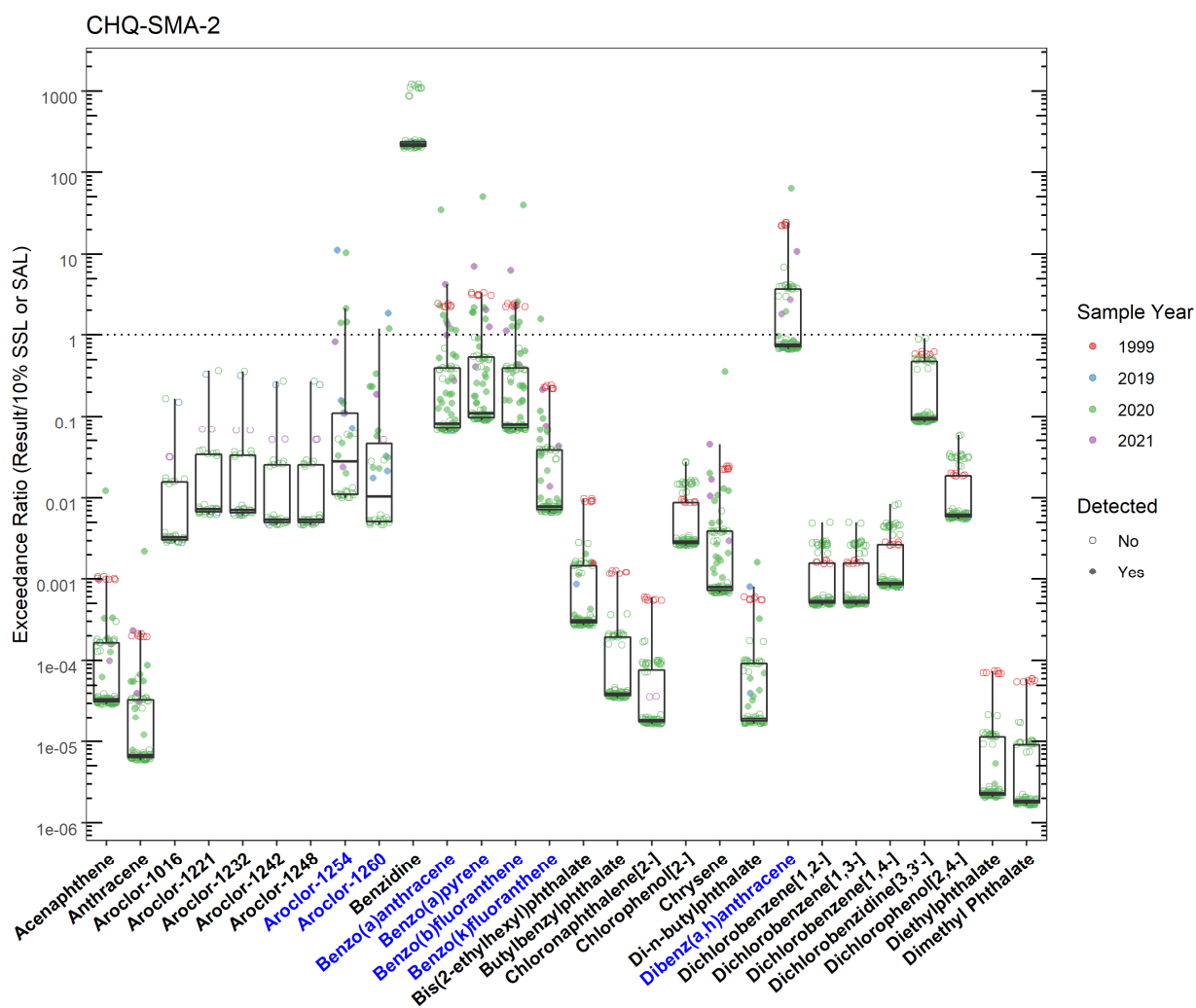


Figure 232.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-2 (Plot 1)

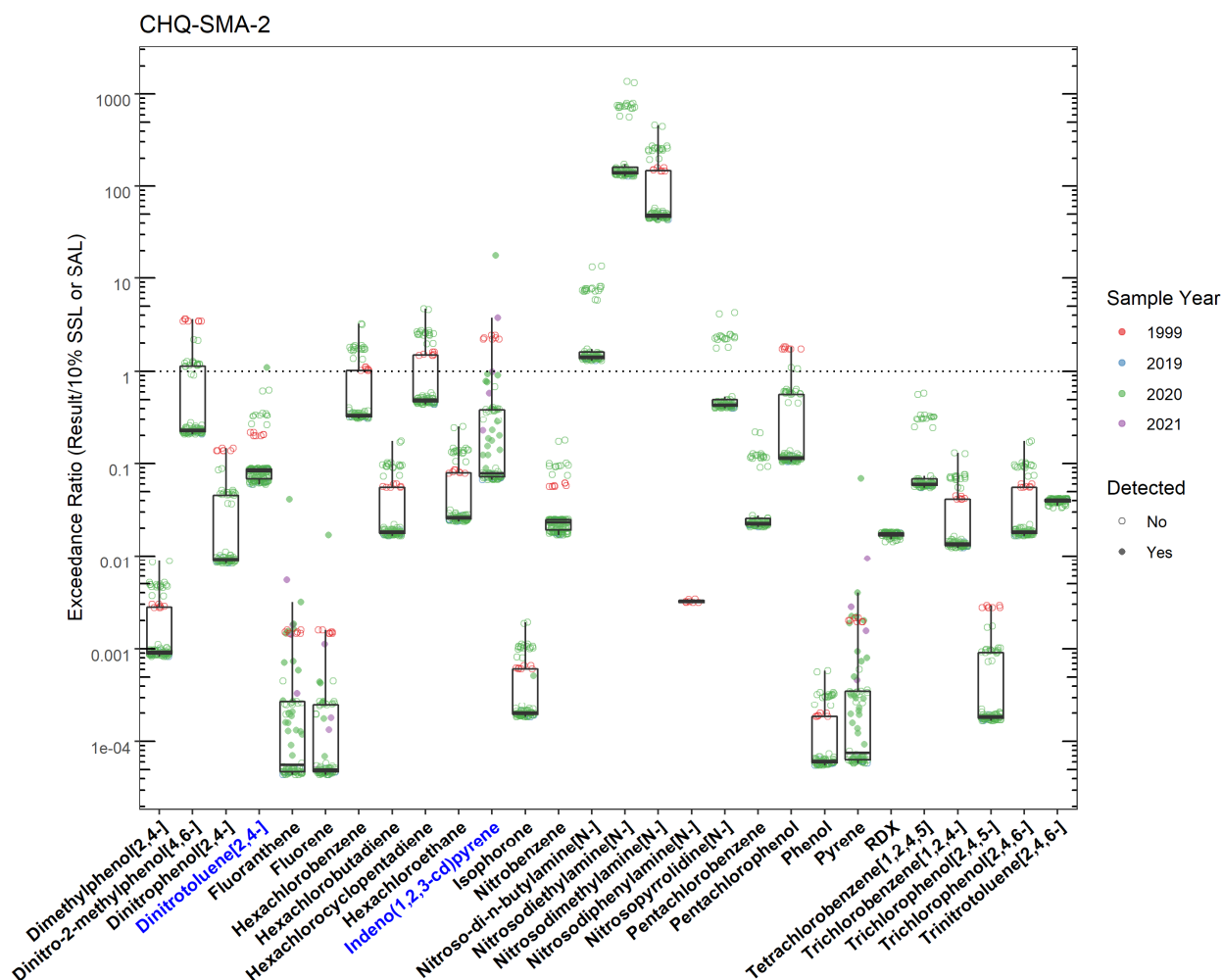


Figure 232.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-2 (Plot 2)

CHQ-SMA-2

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-2	Sb	Y	BTV	0.830	3.43	2020-03-10
Aroclor-1254	CHQ-SMA-2	11097-69-1	Y	SSL_0.1	0.114	1.27	2019-11-20
Aroclor-1260	CHQ-SMA-2	11096-82-5	Y	SSL_0.1	0.243	0.445	2019-11-20
Barium	CHQ-SMA-2	Ba	Y	BTV	295	367	2019-11-20
Benzo(a)anthracene	CHQ-SMA-2	56-55-3	Y	SSL_0.1	0.153	5.31	2020-02-12
Benzo(a)pyrene	CHQ-SMA-2	50-32-8	Y	SSL_0.1	0.112	5.64	2020-02-12
Benzo(b)fluoranthene	CHQ-SMA-2	205-99-2	Y	SSL_0.1	0.153	6.07	2020-02-12
Benzo(k)fluoranthene	CHQ-SMA-2	207-08-9	Y	SSL_0.1	1.53	2.40	2020-02-12
Chromium	CHQ-SMA-2	Cr	Y	BTV	19.3	28.9	2020-01-28
Cobalt	CHQ-SMA-2	Co	Y	BTV	8.64	15.1	2020-02-07
Copper	CHQ-SMA-2	Cu	Y	BTV	14.7	60.2	2020-02-04
Dibenz(a,h)anthracene	CHQ-SMA-2	53-70-3	Y	SSL_0.1	0.0153	0.965	2020-02-12
Dinitrotoluene[2,4-]	CHQ-SMA-2	121-14-2	Y	SSL_0.1	1.71	1.88	2020-03-11
Indeno(1,2,3-cd)pyrene	CHQ-SMA-2	193-39-5	Y	SSL_0.1	0.153	2.75	2020-02-12
Iron	CHQ-SMA-2	Fe	Y	BTV	21500	23900	2020-02-07
Lead	CHQ-SMA-2	Pb	Y	BTV	22.3	58.4	2019-11-20
Mercury	CHQ-SMA-2	Hg	Y	BTV	0.100	0.361	2020-01-09
Nickel	CHQ-SMA-2	Ni	Y	BTV	15.4	84.0	2020-03-11
Selenium	CHQ-SMA-2	Se	Y	BTV	1.52	4.90	1999-05-12
Silver	CHQ-SMA-2	Ag	Y	BTV	1.00	2.41	2019-11-20
Vanadium	CHQ-SMA-2	V	Y	BTV	39.6	44.2	2020-02-07
Zinc	CHQ-SMA-2	Zn	Y	BTV	48.8	376	2019-11-22

Figure 232.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-2

232.4 Stormwater Evaluation

232.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current stage at the SMA.

232.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-2 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment may be Site-related, based on Site history.

232.5 Site-Specific Demonstration

232.5.1 Soil Data Summary

The following Site-related POCs exceeded the applicable screening values in soil data, but have not yet been measured in stormwater: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, dinitrotoluene[2,4-], and indeno(1,2,3-cd)pyrene.

The metals that exceeded the applicable screening values in soil data were previously measured in stormwater data and did not exceed TALs, Therefore, they will not be added to the SAP.

232.5.2 Stormwater Data Summary

No data for the current monitoring stage have been collected. In the previous monitoring stage:

- Copper exceeded the TAL and BTV, and will be added to the SAP.
- Gross alpha result exceeded TAL and was below BTV.
- PCBs did not exceed TAL.

- Iron exceeded BV in soil but did not exceed the WQS. However, there is no TAL in the Permit for iron; only POCs with TALs are used in the SSD.

232.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected in the current stage.

232.5.4 Sampling and Analysis Plan

Table 232.5-1 is the proposed SAP for CHQ-SMA-2.

Table 232.5-1 Proposed SAP, CHQ-SMA-2

Monitoring Constituent	Background for Monitoring
SVOCs	Site history and soil data
Dissolved copper	Site history, soil data, and stormwater data
DOC	Permit requirement
SSC	Permit requirement

233.0 CHQ-SMA-3.05

Associated Sites	33-010(f)
Receiving Water	Chaquehui Canyon
Drainage Area	0.30 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-010(f): In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

233.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in September 2013. Analytical results from this sample initiated corrective action.

Following the August 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600776), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

233.2 Site History

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

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

The 1990 SWMU Report states that the SWMU was identified during a 1987 ER Project reconnaissance, and describes the site as concrete, cans, and metal pieces that littered the area east of the former Tritium Facility (former building 33-86). The 1995 RFI report describes this SWMU as consisting of two small surface disposal areas, located 300 ft southeast of former building 33-86 and approximately 50 ft apart. One of the areas is described as approximately 15 ft² and the other as approximately 10 ft × 20 ft. Materials at the site included pieces of concrete; piles of tuff and cured asphalt; rusted metal cans, rebar, and strapping bands; and other miscellaneous construction debris. Although the source of these materials is not known, some were believed to be associated with roadwork activities. During the 2005 VCA conducted at SWMUs 33-002(a-e) directly north and east of SWMU 33-010(f), only small piles of soil and a few pieces of concrete were observed to be present at the site. Residual debris was removed from SWMU 33-010(f) during the 2019–2020 Consent Order investigation.

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

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” and “Addendum to the Investigation Report for Chaquehui Canyon Aggregate Area for Material Disposal Area K, at Technical Area 33” (N3B 2020, 701046; N3B 2021, 701735).

233.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 233.2-1.

Table 233.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

233.3 Consent Order Soil Data

Decision-level data for SWMU 33-010(f) consist of results from samples collected in 2020. Analytical results for these samples are presented in Figures 233.3-1 through 233.3-4. The 2020 IR (N3B 2020, 70) concluded that the nature and extent of contamination are defined.

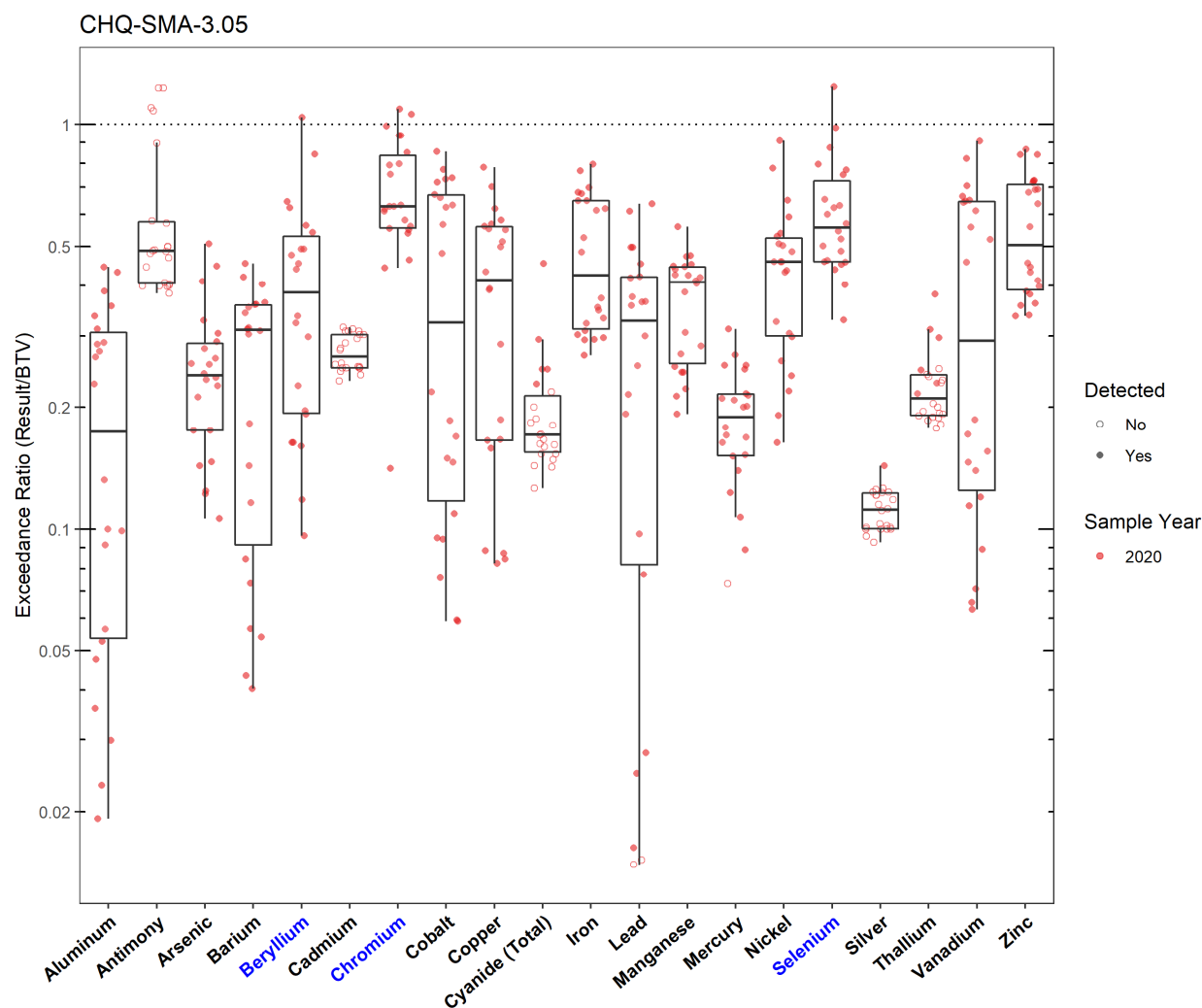


Figure 233.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-3.05

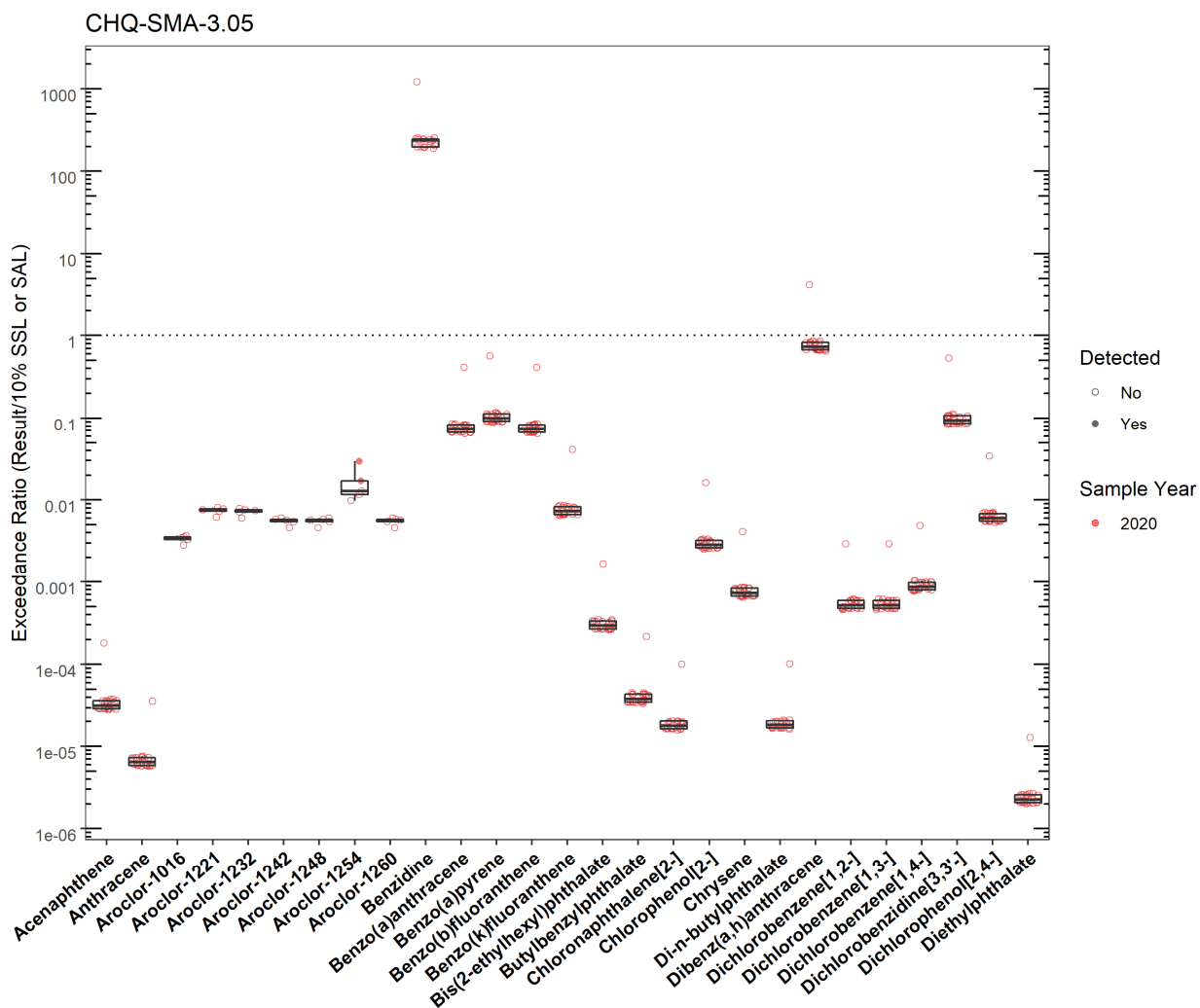


Figure 233.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-3.05 (Plot 1)

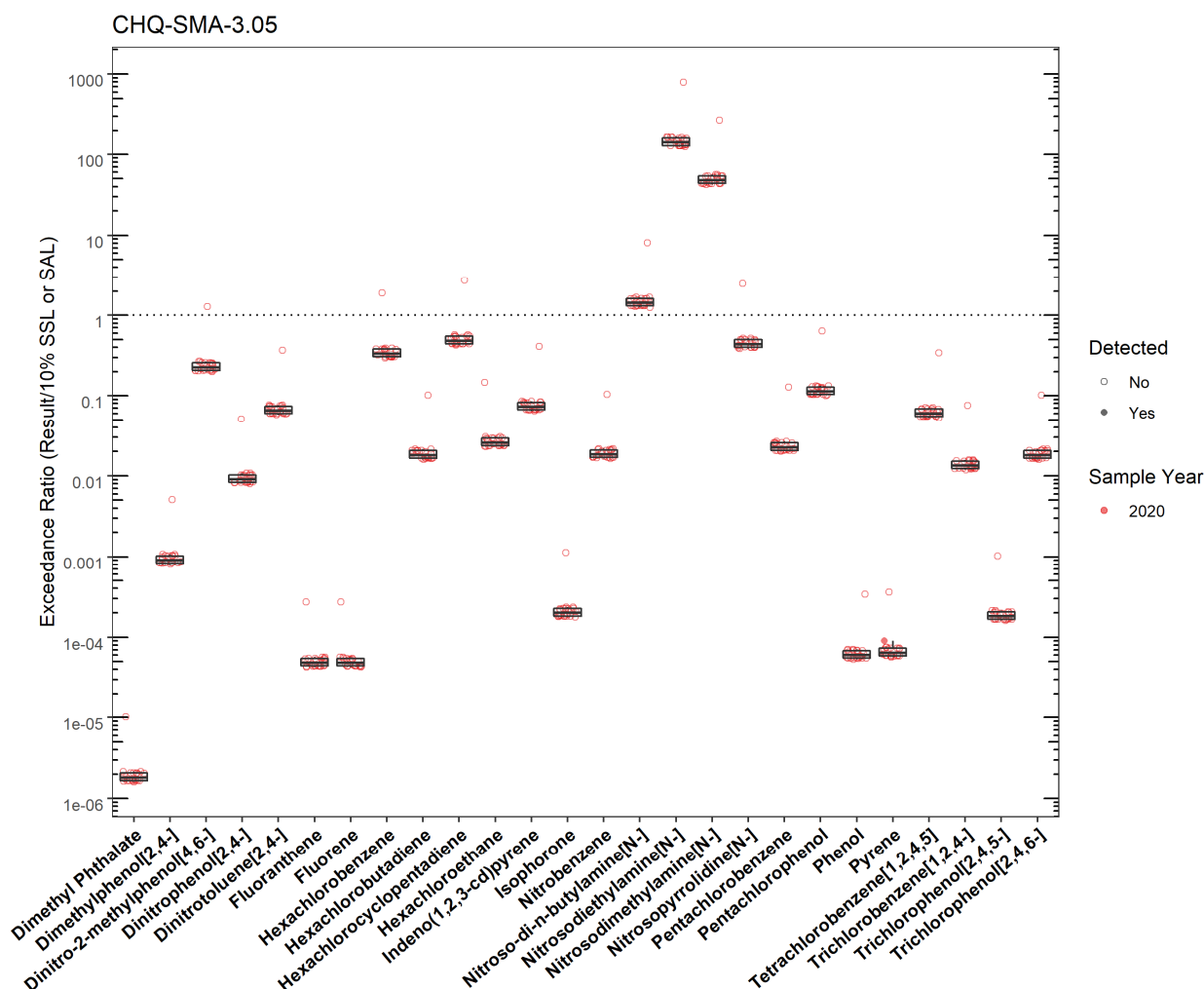


Figure 233.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-3.05 (Plot 2)

CHQ-SMA-3.05							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Beryllium	CHQ-SMA-3.05	Be	Y	BTV	1.83	1.91	2020-02-25
Chromium	CHQ-SMA-3.05	Cr	Y	BTV	19.3	21.0	2020-02-25
Selenium	CHQ-SMA-3.05	Se	Y	BTV	1.52	1.89	2020-02-26

Figure 233.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-3.05

233.4 Stormwater Evaluation

233.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current location at the SMA.

233.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-3.05 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

233.5 Site-Specific Demonstration

233.5.1 Soil Data Summary

All Site-related POCs which exceeded the applicable screening values in soil data did not exceed the TAL. Beryllium, chromium, and selenium exceeded BVs in soil data but are not Site-related POCs. Therefore, they will not be added to the SAP.

233.5.2 Stormwater Data Summary

No confirmation-monitoring data.

233.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected at the current location.

233.5.4 Sampling and Analysis Plan

Table 233.5-1 is the proposed SAP for CHQ-SMA-3.05.

Table 233.5-1 Proposed SAP, CHQ-SMA-3.05

Monitoring Constituent	Background for Monitoring
SVOCs	Site history (PAHs)
DOC	Permit requirement
SSC	Permit requirement

234.0 CHQ-SMA-4

Associated Sites	33-011(e)
Receiving Water	Chaquehui Canyon
Drainage Area	0.21 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-011(e): In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

234.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2018. Analytical results from this sample initiated corrective action.

Following the October 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701717), the sampler was relocated to a more representative location, and corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

234.2 Site History

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

SWMU 33-011(e) is a former drum-storage area located south of Main Site at TA-33. The storage area was reportedly a 20-ft × 100-ft area located approximately 30 ft northwest of building 33-22, a former HE storage magazine. The area is unpaved and gradually slopes to the southwest. Drums containing unknown materials were previously stored on the ground at this area. The date the materials were first stored at this site is not known.

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

For investigation activities refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

234.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 234.2-1.

Table 234.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

234.3 Consent Order Soil Data

Decision-level data for SWMU 33-011(e) consist of results from samples collected within, and adjacent to, the former storage area in 2020. Analytical results for these samples are presented in Figures 234.3-1 through 234.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

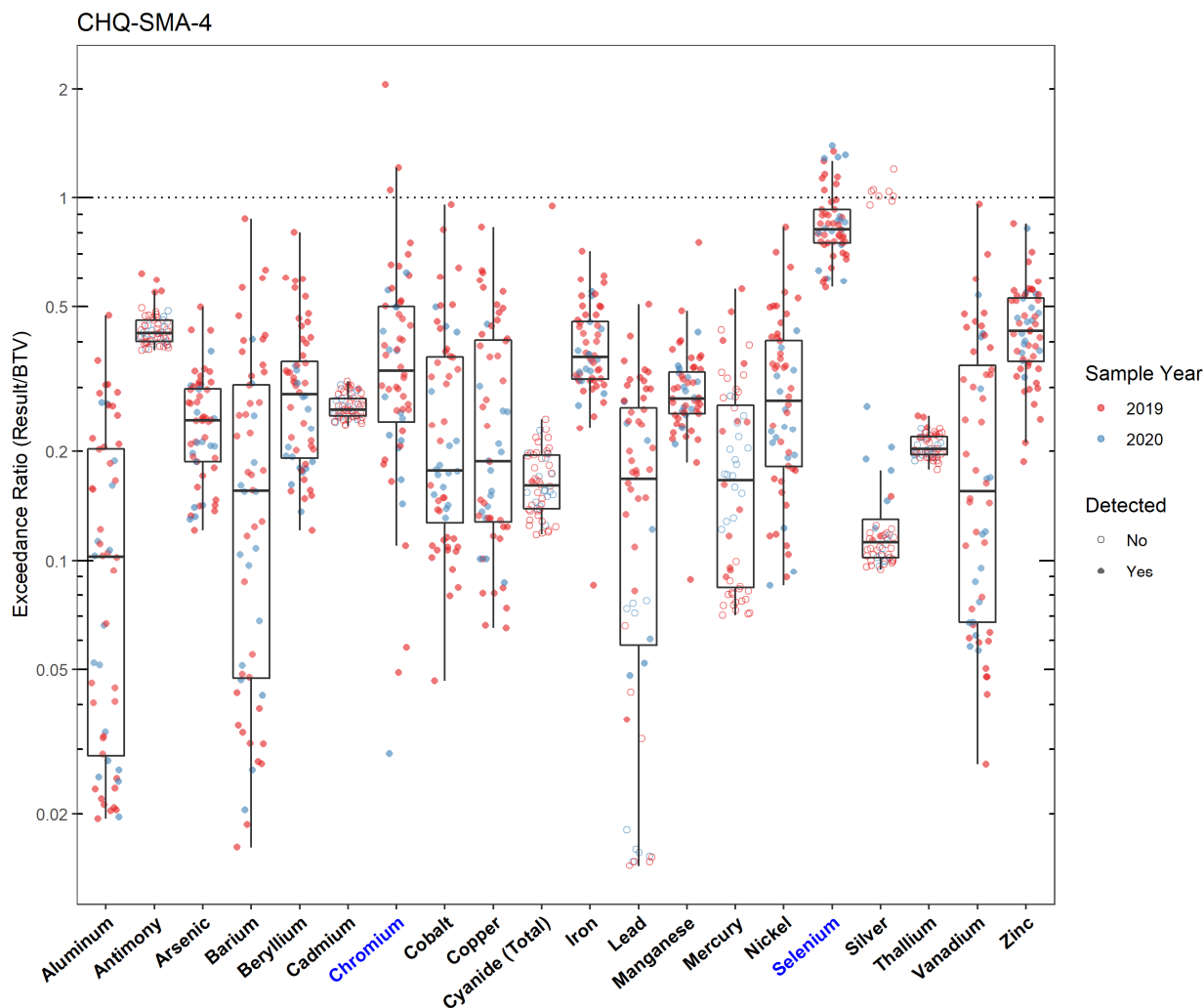


Figure 234.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-4

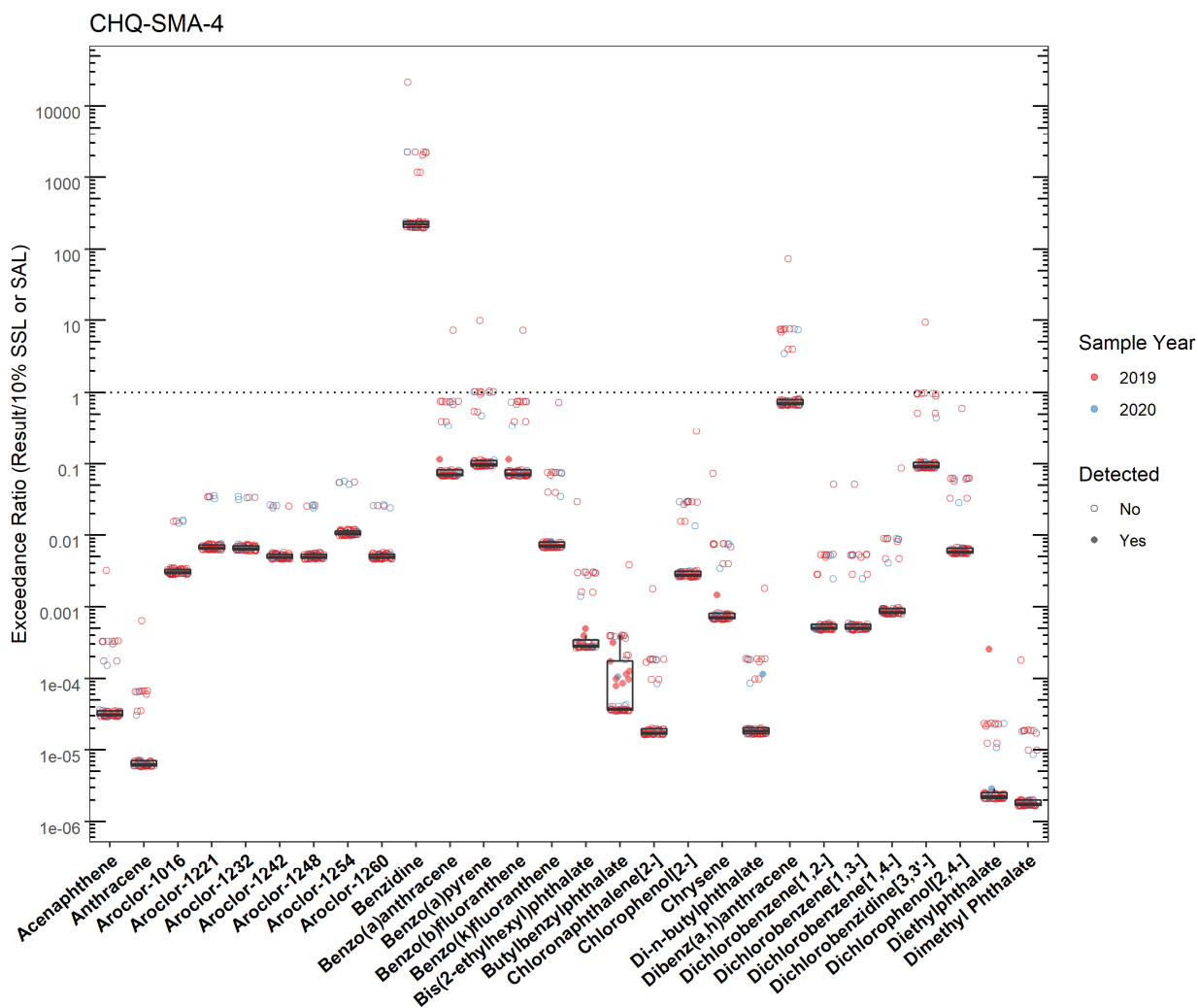


Figure 234.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4 (Plot 1)

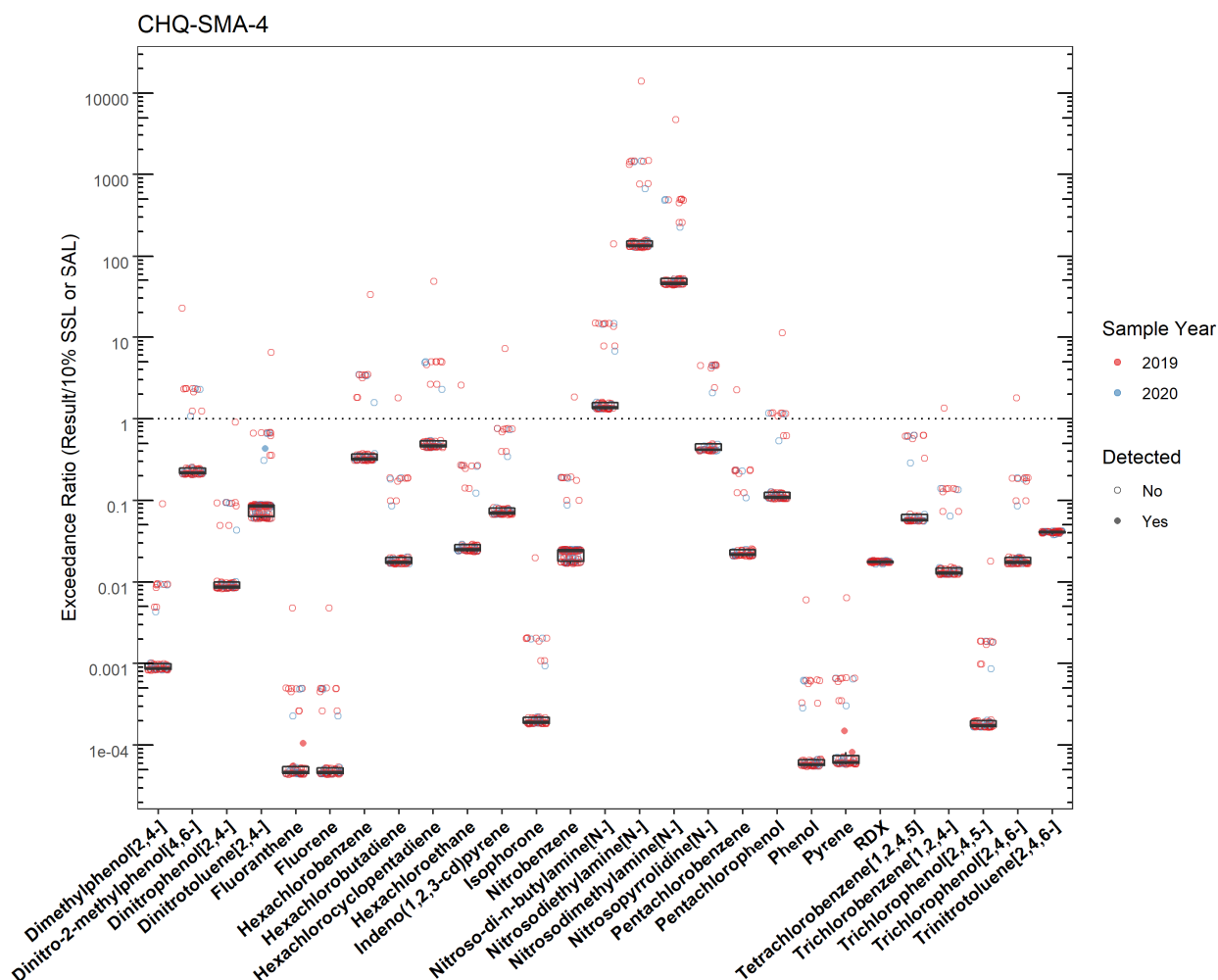


Figure 234.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4 (Plot 2)

CHQ-SMA-4							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Chromium	CHQ-SMA-4	Cr	Y	BTV	19.3	39.7	2019-12-20
Selenium	CHQ-SMA-4	Se	Y	BTV	1.52	2.11	2020-01-02

Figure 234.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-4

234.4 Stormwater Evaluation

234.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current location at the SMA.

234.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-4 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

234.5 Site-Specific Demonstration

234.5.1 Soil Data Summary

Uranium was not monitored in soil data and will be added to the SAP.

234.5.2 Stormwater Data Summary

No confirmation-monitoring data has been collected at the current location. PCBs exceeded the TAL and BTV at a previous location and will be added to the SAP for monitoring.

234.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected at the current location.

234.5.4 Sampling and Analysis Plan

Table 234.5-1 is the proposed SAP for CHQ-SMA-4.

Table 234.5-1 Proposed SAP, CHQ-SMA-4

Monitoring Constituent	Background for Monitoring
Total PCBs	Stormwater data
Gross alpha	Site history (uranium)
Dissolved uranium	Site history
DOC	Permit requirement
SSC	Permit requirement

235.0 CHQ-SMA-4.1

Associated Sites	33-016
Receiving Water	Chaquehui Canyon
Drainage Area	0.92 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-016: In Progress
2010 Administratively Continued Permit Final Status	Alternative Compliance Requested
2016–2018 SIP Actions	The September 2017 field visit determined that the sampler will be moved downgradient in the drainage to capture runoff from more of the potentially affected area.
2022 Permit Status	Active Monitoring

235.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in September 2013. Analytical results from this sample initiated corrective action.

The Permittees submitted a request for alternative compliance for the Site per permit Part I.E.3 in May 2015 (LANL 2015, 600417). No response has been received from EPA, and stormwater monitoring has not occurred since 2013.

235.2 Site History

33-016 (2/18/2021)

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

The sump was connected to a sink and floor drain in the bunker, which was constructed in 1950. From 1950 to 1972, the bunker was used as a trim building to prepare propellant charges for gun tests conducted at South Site. Structure 33-23 was subsequently used until 1994 to store lithologic cores from the Hot Dry Rock Program. In addition to the sink and floor drain, the sump also may have received rainwater and snowmelt. The sump was decommissioned during a VCA implemented at the Site in 1995.

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

235.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 235.2-1.

Table 235.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

235.3 Consent Order Soil Data

Decision-level data for SWMU 33-016 consist of results from samples collected in 2020. Analytical results for these samples are presented in Figures 235.3-1 through 235.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

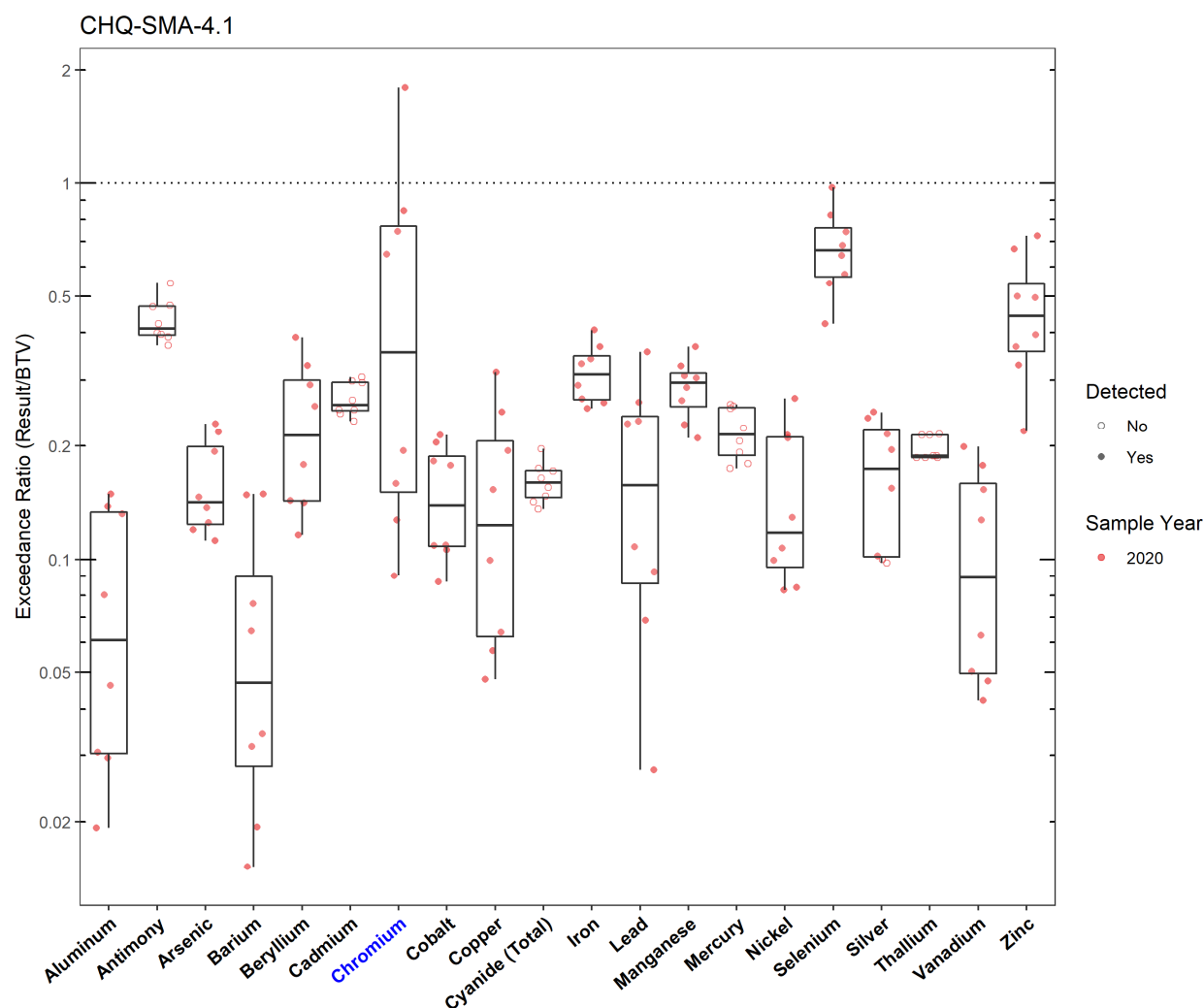


Figure 235.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-4.1

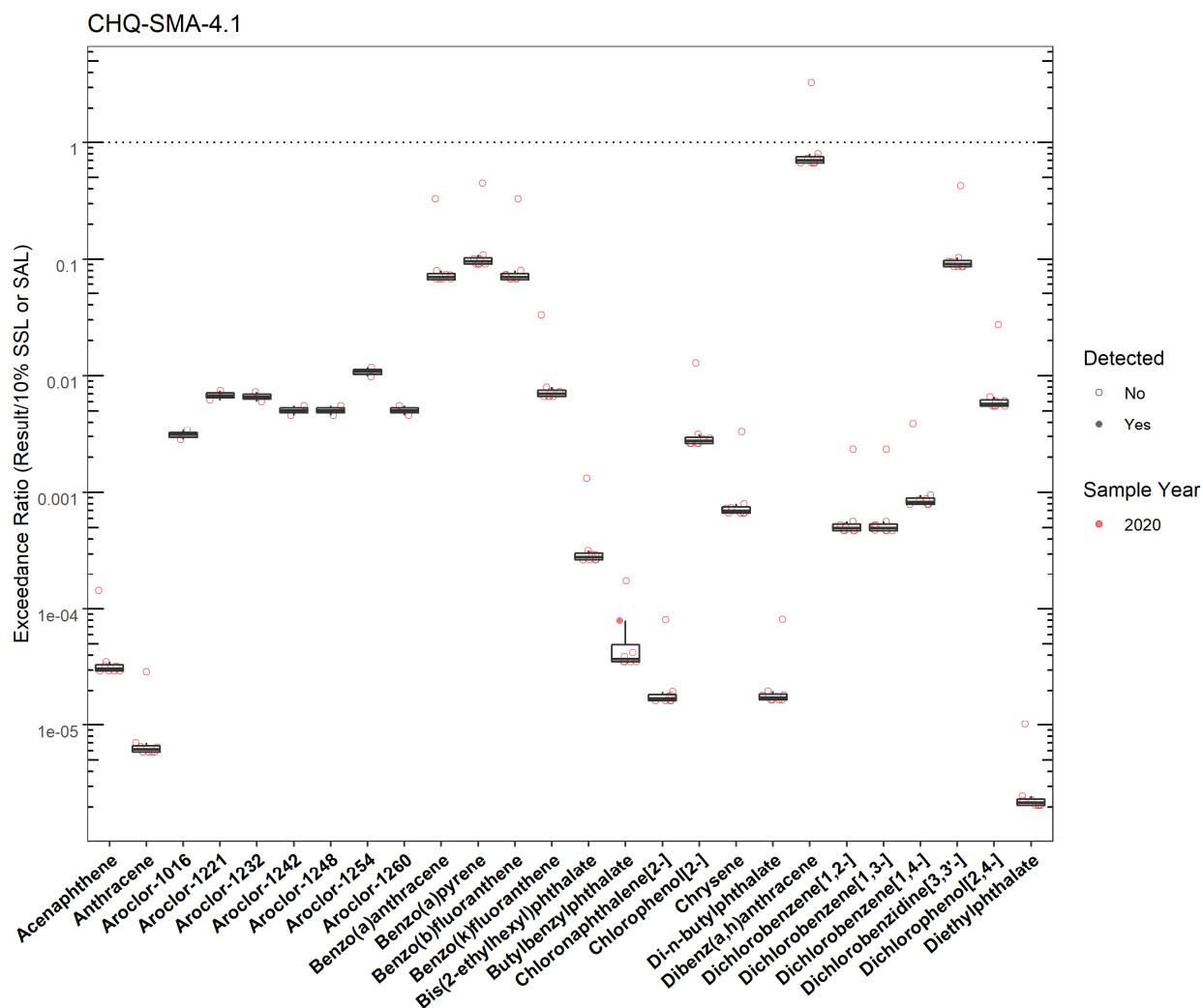


Figure 235.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4.1 (Plot 1)

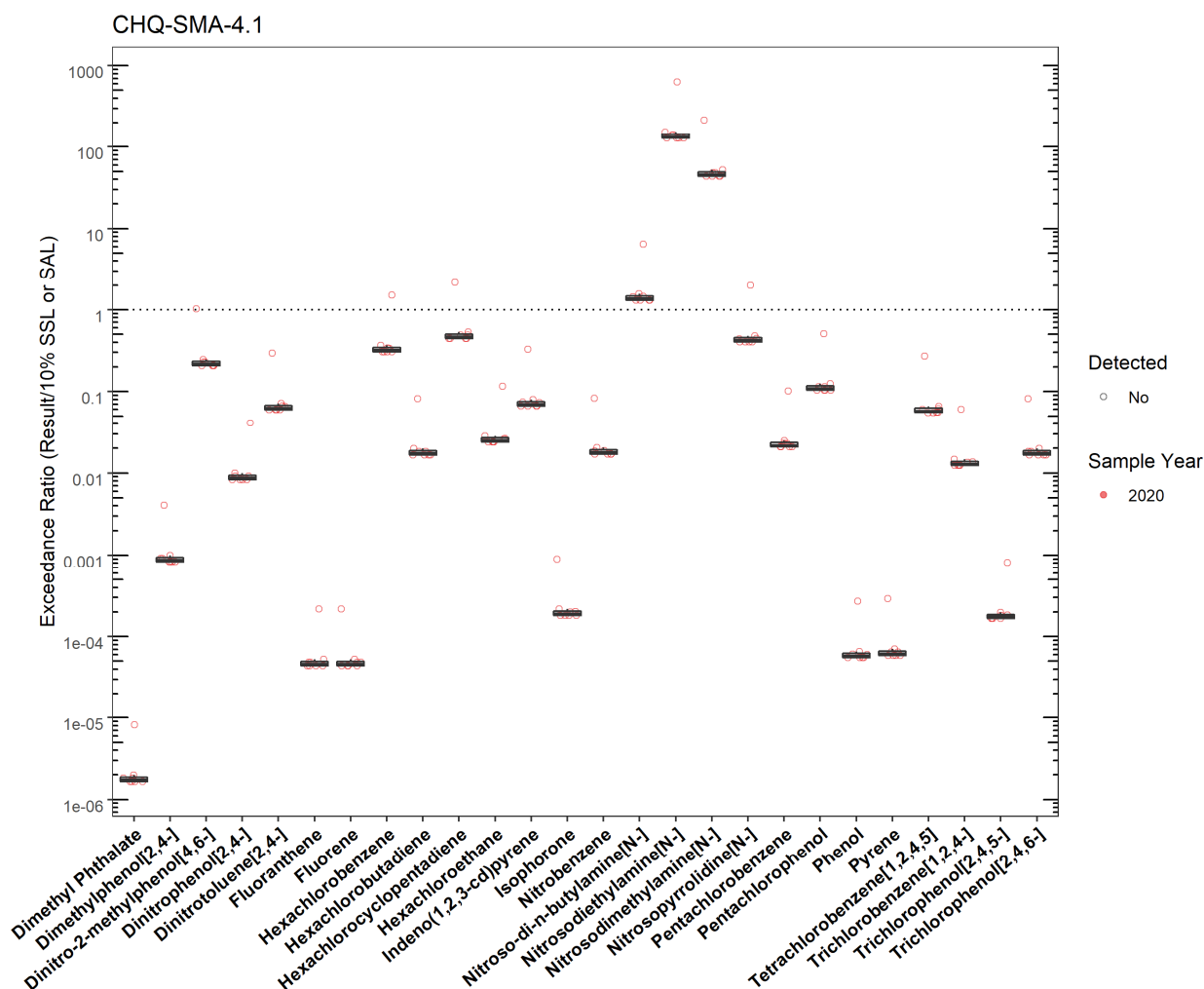


Figure 235.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4.1 (Plot 2)

CHQ-SMA-4.1

	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Chromium	CHQ-SMA-4.1	Cr	Y	BTV	19.3	34.7	2020-01-07

Figure 235.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-4.1

235.4 Stormwater Evaluation

235.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current location at the SMA.

235.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-4.1 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

235.5 Site-Specific Demonstration

235.5.1 Soil Data Summary

Chromium exceeded the applicable screening value in soil data but is not a Site-related POC and will not be added to the SAP. HE is a Site-related POC, but it has not been sampled in soil data. Therefore, it will be added to the SAP.

235.5.2 Stormwater Data Summary

No confirmation-monitoring data.

235.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected at the current location.

235.5.4 Sampling and Analysis Plan

Table 235.5-1 is the proposed SAP for CHQ-SMA-4.1.

Table 235.5-1 Proposed SAP, CHQ-SMA-4.1

Monitoring Constituent	Background for Monitoring
HE	Site history
SVOCs	Site history
DOC	Permit requirement
SSC	Permit requirement

236.0 CHQ-SMA-4.5

Associated Sites	33-011(b)
Receiving Water	Chaquehui Canyon
Drainage Area	3.32 acres
Landscape Characteristics	4% impervious, 96% pervious
Consent Order Site Status	AOC 33-011(b): In Progress
2010 Administratively Continued Permit Final Status	Alternative Compliance Requested
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

236.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2013. Analytical results from this sample initiated corrective action.

The Permittees submitted a request for alternative compliance for the Site per permit Part I.E.3 in May 2015 (LANL 2015, 600417). No response has been received from EPA, and stormwater monitoring has not occurred since 2013.

236.2 Site History

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

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

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

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

236.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 236.2-1.

Table 236.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

236.3 Consent Order Soil Data

Decision-level data for AOC 33-011(b) consist of results from samples collected in 2020. Analytical results for those samples are presented in Figures 236.3-1 through 236.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

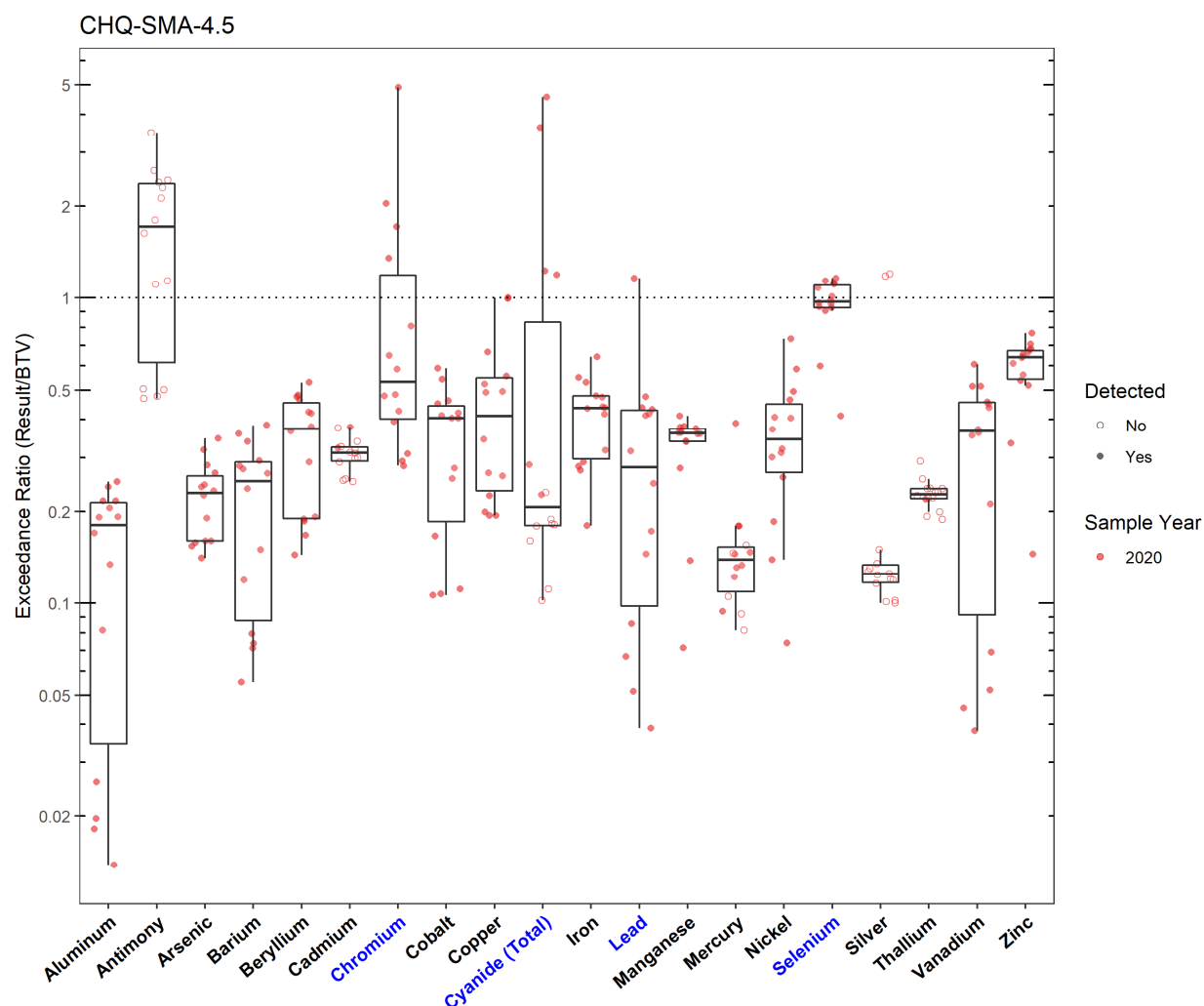


Figure 236.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-4.5

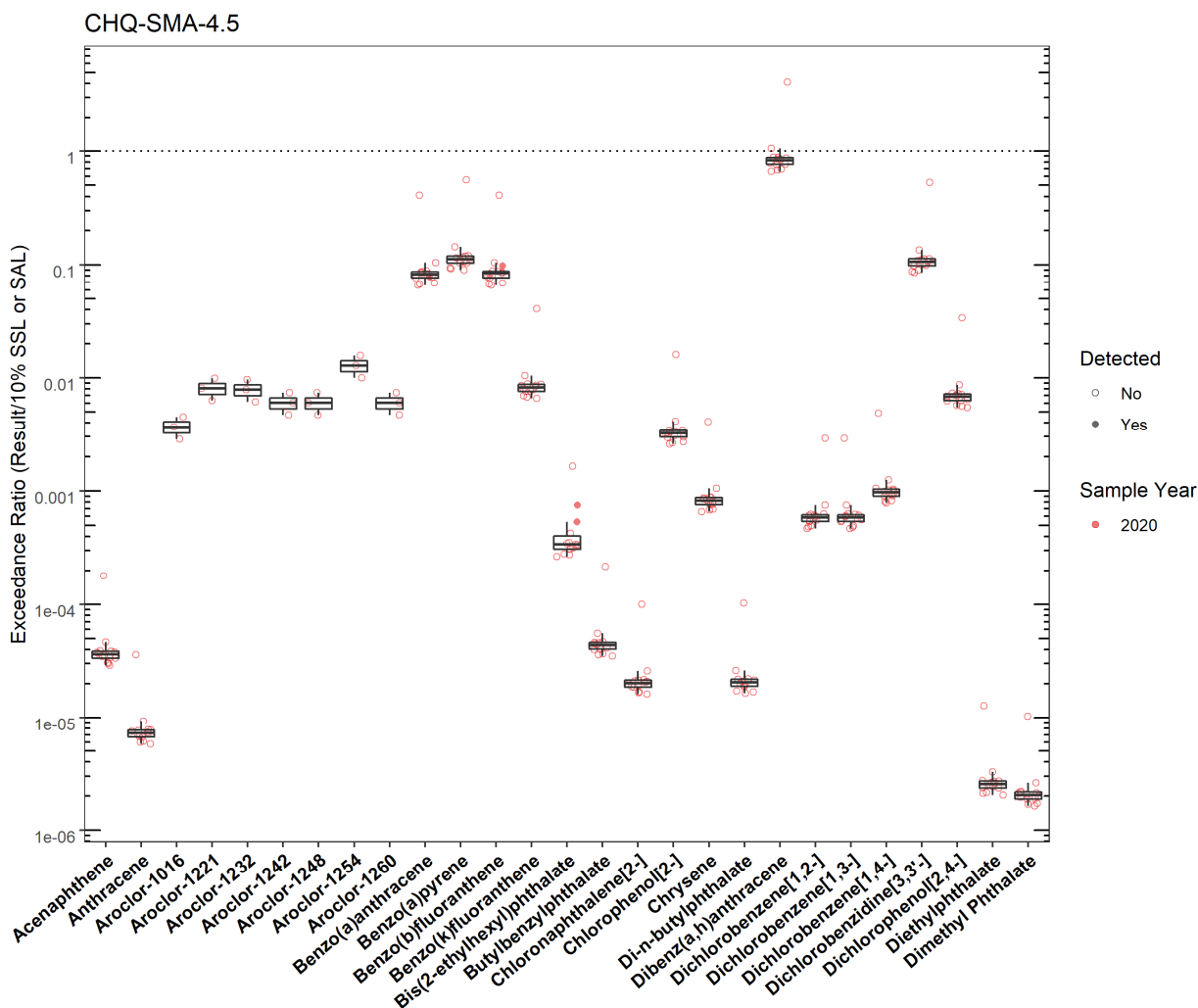


Figure 236.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4.5 (Plot 1)

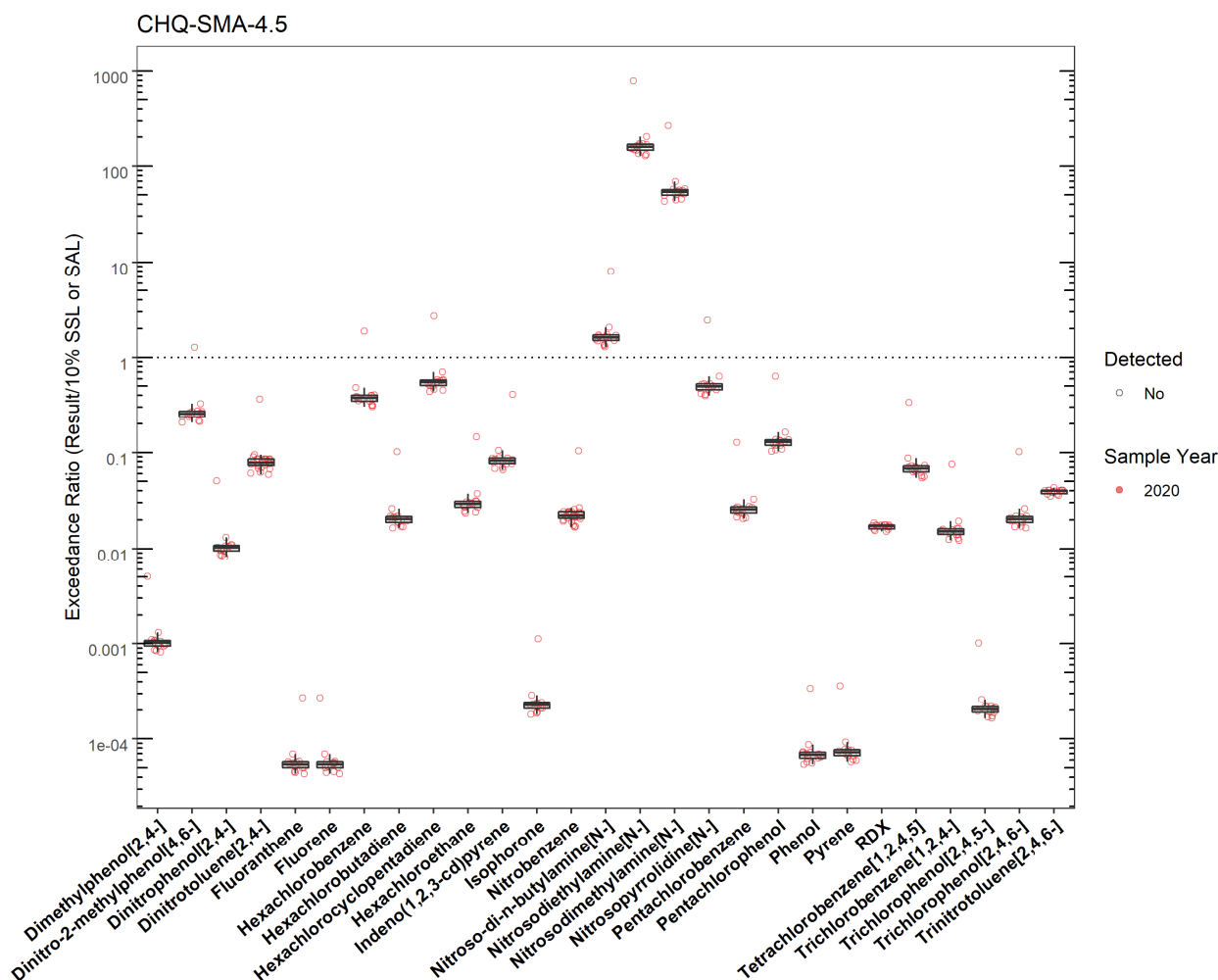


Figure 236.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-4.5 (Plot 2)

CHQ-SMA-4.5							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Chromium	CHQ-SMA-4.5	Cr	Y	BTV	19.3	94.8	2020-02-05
Cyanide (Total)	CHQ-SMA-4.5	CN(TOTAL)	Y	BTV	0.500	2.28	2020-02-06
Lead	CHQ-SMA-4.5	Pb	Y	BTV	22.3	25.9	2020-02-04
Selenium	CHQ-SMA-4.5	Se	Y	BTV	1.52	1.77	2020-02-06

Figure 236.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-4.5

236.4 Stormwater Evaluation

236.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. A corrective-action stormwater sample was collected in July 2013. Analytical results from that sample are presented in Figures 236.4-1 and 236.4-2.

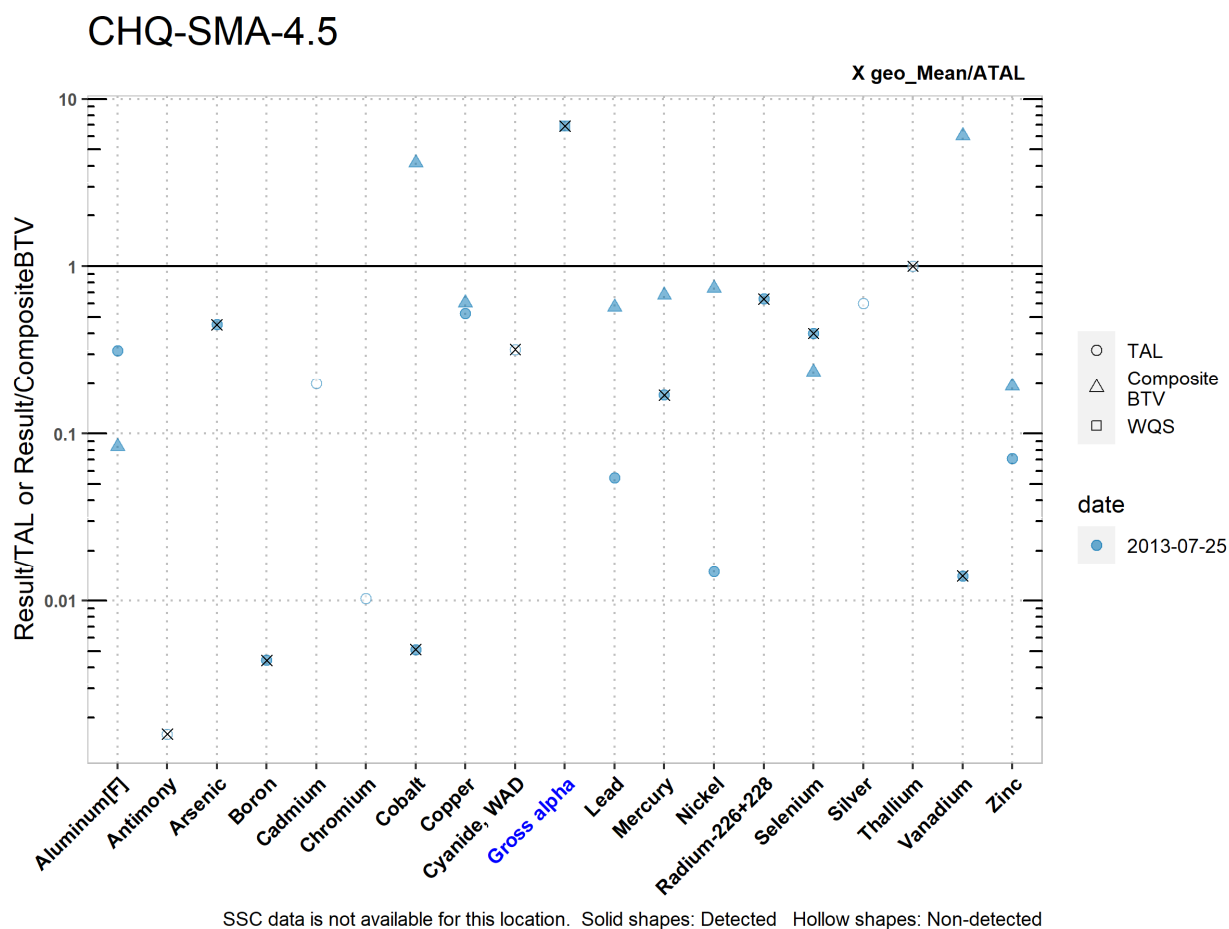


Figure 236.4-1 Analytical Results from Stormwater Sample, CHQ-SMA-4.5 (Plot)

CHQ-SMA-4.5

	Aluminum [F]	Antimony	Arsenic	Boron	Cadmium	Chromium	Cobalt	Copper	Cyanide, WAD	Gross alpha	Lead	Mercury	Nickel	Radium-226+228	Selenium	Silver	Thallium	Vanadium	Zinc
<i>MQL</i>	2.5	1	0.5	100	1	10	50	0.5	10	NA	0.5	0.005	0.5	NA	5	0.5	0.5	50	20
<i>ATAL</i>	NA	640	9	5000	NA	NA	1000	NA	5.2	15	NA	0.77	NA	30	5	NA	0.47	100	NA
<i>MTAL</i>	750	NA	340	NA	0.539	194	NA	3.9	22	NA	15.1	NA	154	NA	20	0.336	NA	NA	48.5
<i>Composite_BTV</i>	2830	NA	NA	NA	NA	NA	1.23	3.37	NA	56.9	1.44	0.199	3.10	4.47	8.60	NA	NA	0.237	18.0
<i>unit</i>	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	pCi/L	ug/L	ug/L	ug/L	ug/L	ug/L
<i>2013-07-25 result</i>	237	1.00	4.02	21.9	0.110	2.00	5.11	2.04	1.67	103	0.825	0.134	2.29	19.2	2.02	0.200	0.450	1.43	3.46
<i>2013-07-25 dT</i>	0.316	NA	0.45	0.0044	NA	NA	0.0051	0.523	NA	6.9	0.0546	0.17	0.0149	0.640	0.40	NA	NA	0.014	0.0713
<i>2013-07-25 dB</i>	0.0837	NA	NA	NA	NA	NA	4.15	0.605	NA	NA	0.573	0.673	0.739	NA	0.235	NA	NA	6.03	0.192
<i>geo_mean/ATAL</i>	NA	0.0016	0.45	0.0044	NA	NA	0.0051	NA	0.321	6.9	NA	0.17	NA	0.640	0.40	NA	1	0.014	NA

Italic font indicates nondetect results
dT=detected_result/TAL, dB=detected_result/composite_BTV

Figure 236.4-2 Analytical Results from Stormwater Sample, CHQ-SMA-4.5 (Table)

236.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-4.5 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment may be Site-related, based on Site history.

236.5 Site-Specific Demonstration

236.5.1 Soil Data Summary

All Site-related POCs that exceeded the applicable screening values in soil data were previously monitored in stormwater data and did not exceed TALs. Therefore, they will not be added to the SAP.

236.5.2 Stormwater Data Summary

Gross alpha exceeded TAL in 2013 stormwater data. There was no paired SSC result to confirm whether it was below BTVs, so it will be added to the SAP.

236.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

236.5.4 Sampling and Analysis Plan

Table 236.5-1 is the proposed SAP for CHQ-SMA-4.5.

Table 236.5-1 Proposed SAP, CHQ-SMA-4.5

Monitoring Constituent	Background for Monitoring
Total PCBs	Impairment and Site history (organic chemicals)
Gross alpha	Site history (uranium) and stormwater data
SVOCs	Site history (organic chemicals)
Dissolved uranium	Site history
HE	Site history
DOC	Permit requirement
SSC	Permit requirement

237.0 CHQ-SMA-5.05

Associated Sites	33-007(b)
Receiving Water	Chaquehui Canyon
Drainage Area	0.35 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-007(b): In Progress
2010 Administratively Continued Permit Final Status	Baseline Monitoring Extended
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

237.1 2010 Administratively Continued Permit Summary

Following the December 2010 submittal to EPA of certification of baseline control installation, baseline monitoring was initiated. To date, stormwater flow has not been sufficient for full-volume sample collection. Monitoring is ongoing until one confirmation sample is collected from this SMA.

237.2 Site History

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

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

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

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

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

During the 1999 VCA performed at the structure 33-63 barricade, the berm was removed and treated to remove radioactively-contaminated soil and debris exceeding dose-based cleanup levels, as well as any projectiles. Treated soil was returned to the location of the former berm. The site was graded,

compacted, and reseeded. Approximately 1 to 2 ft of engineered fill was placed over the location of the former berm when building 33-25 was renovated in 2005 and 2006.

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

237.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 237.2-1.

Table 237.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

237.3 Consent Order Soil Data

Decision-level data for SWMU 33-007(b) consist of results from samples collected in 1999, 1999, and 2020. Analytical results for those samples are presented in Figures 237.3-1 through 237.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

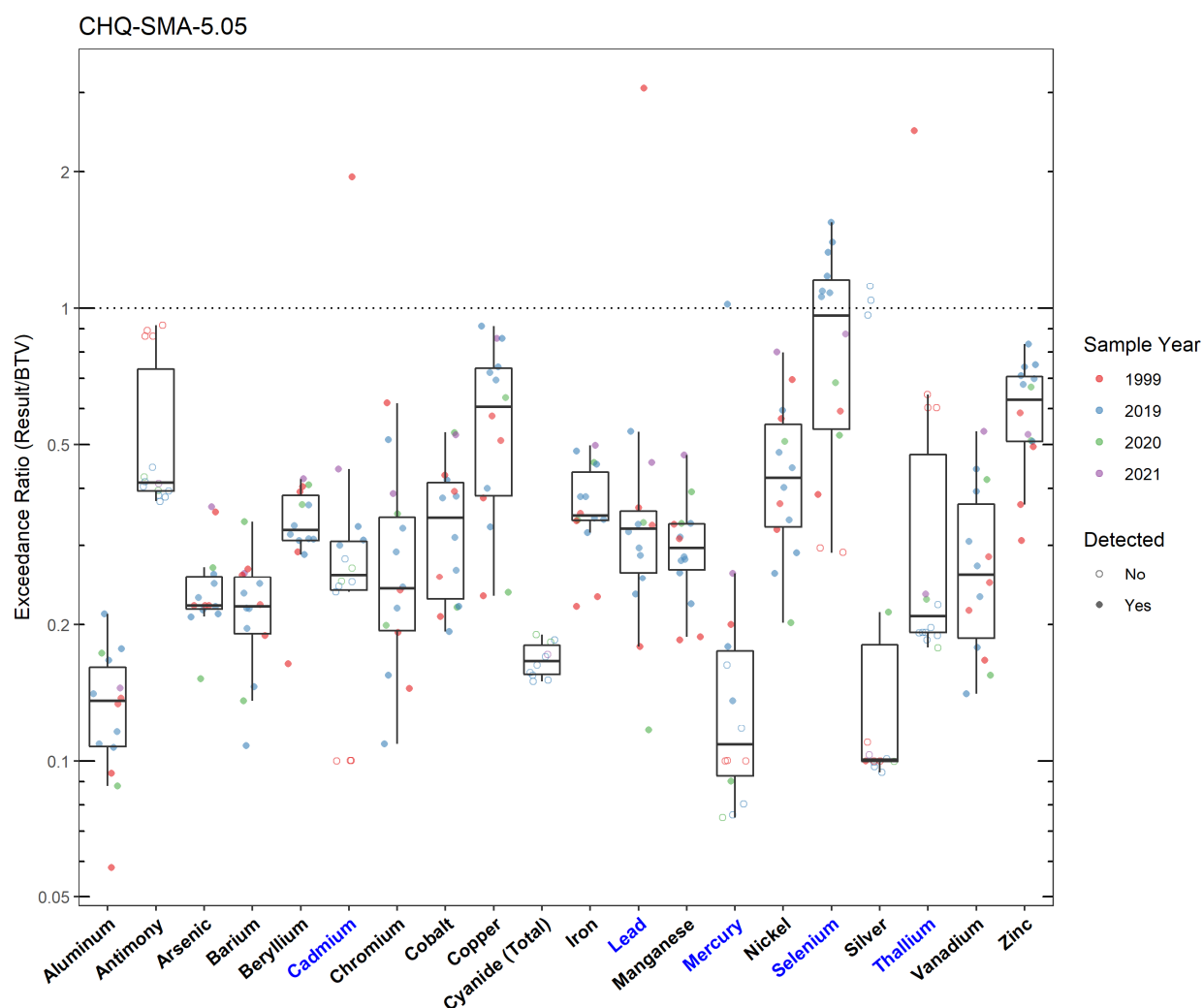


Figure 237.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-5.05

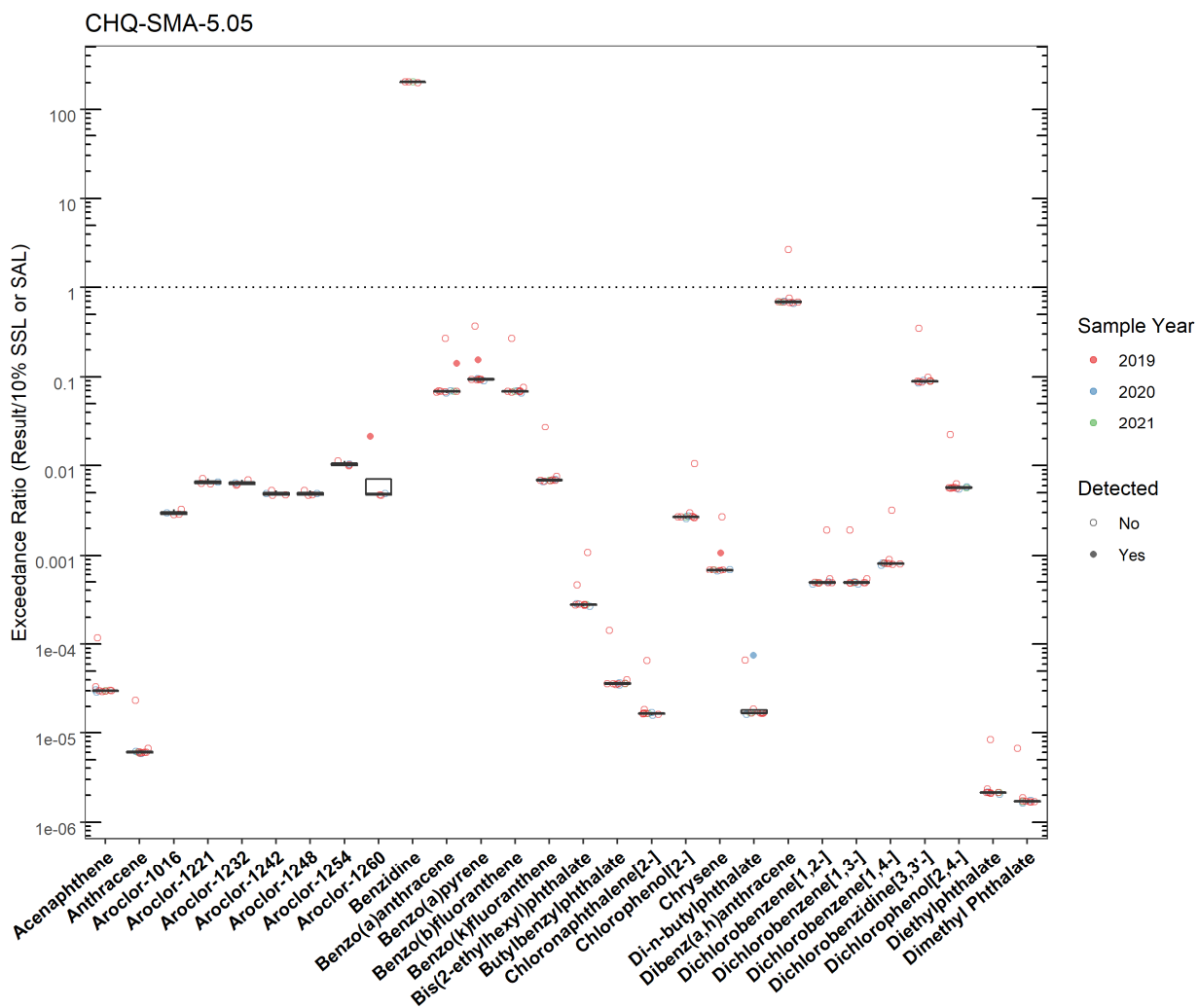


Figure 237.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-5.05 (Plot 1)

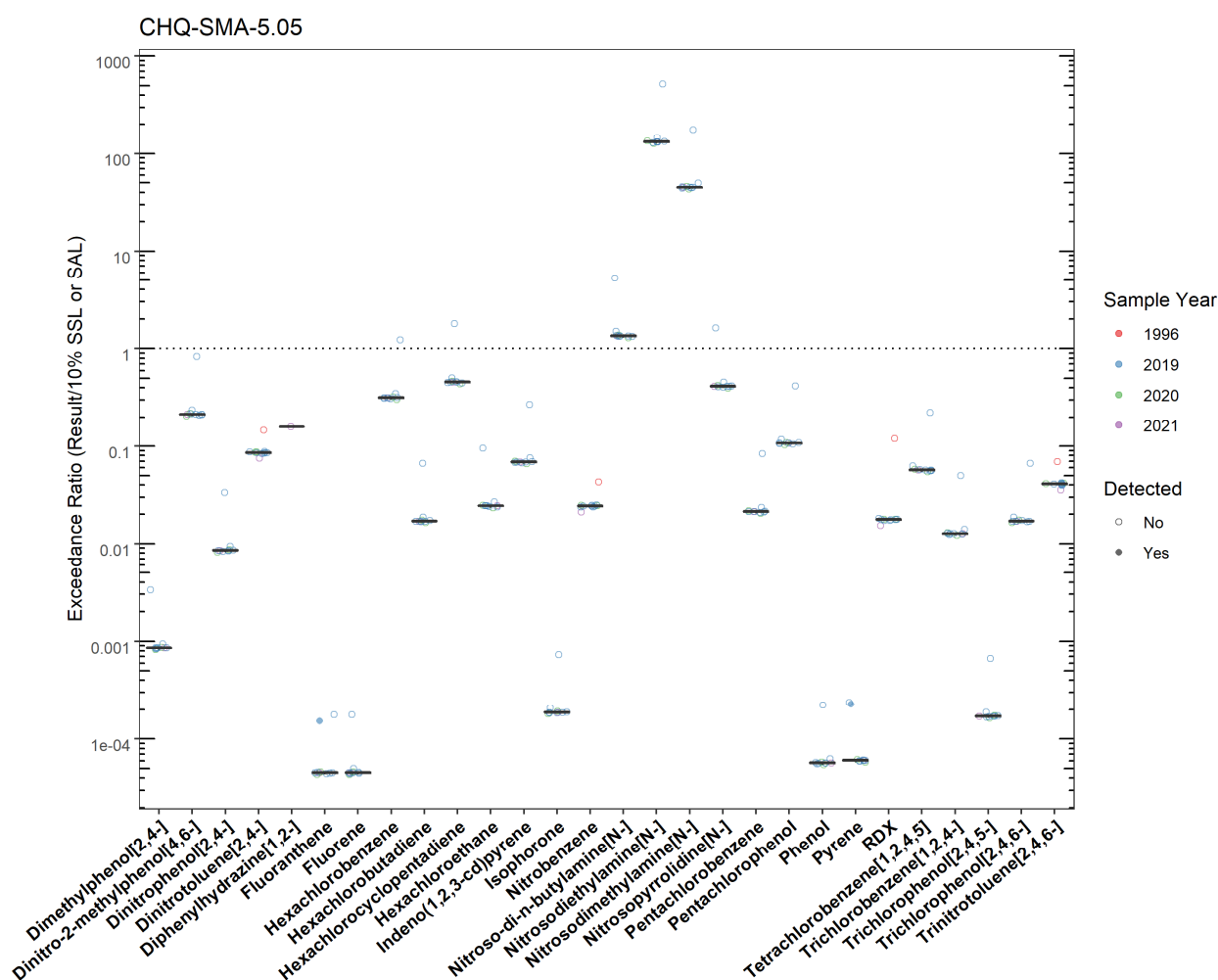


Figure 237.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-5.05 (Plot 2)

CHQ-SMA-5.05							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Cadmium	CHQ-SMA-5.05	Cd	Y	BTV	0.400	0.780	1999-05-21
Lead	CHQ-SMA-5.05	Pb	Y	BTV	22.3	68.5	1999-05-21
Mercury	CHQ-SMA-5.05	Hg	Y	BTV	0.100	0.102	2019-12-12
Selenium	CHQ-SMA-5.05	Se	Y	BTV	1.52	2.35	2019-12-13
Thallium	CHQ-SMA-5.05	Tl	Y	BTV	0.730	1.80	1999-05-21

Figure 237.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-5.05

237.4 Stormwater Evaluation

237.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected at the SMA.

237.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-5.05 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

237.5 Site-Specific Demonstration

237.5.1 Soil Data Summary

No Site-related POCs exceed the applicable screening values in soil data. Beryllium and iron were measured in soil and did not exceed the applicable screening values in soil. Therefore, they will not be added to the SAP.

237.5.2 Stormwater Data Summary

No confirmation-monitoring data.

237.5.3 2022 Permit Status

The SMA is in active monitoring; a confirmation-monitoring sample has not been collected.

237.5.4 Sampling and Analysis Plan

Table 237.5-1 is the proposed SAP for CHQ-SMA-5.05.

Table 237.5-1 Proposed SAP, CHQ-SMA-5.05

Monitoring Constituent	Background for Monitoring
Dissolved uranium	Site history
Tritium	Site history
Gross alpha	Site history (uranium)
DOC	Permit requirement
SSC	Permit requirement

238.0 CHQ-SMA-6

Associated Sites	33-004(j), 33-006(a), 33-007(b), 33-010(c), 33-010(g), 33-010(h), 33-014
Receiving Water	Chaquehui Canyon
Drainage Area	11.27 acres
Landscape Characteristics	2% impervious, 98% pervious
Consent Order Site Status	SWMU 33-004(j): In Progress SWMU 33-006(a): In Progress SWMU 33-007(b): In Progress SWMU 33-010(c): In Progress SWMU 33-010(g): In Progress SWMU 33-010(h): In Progress SWMU 33-014: In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

238.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2013. Analytical results from this sample initiated corrective action.

Following the August 2015 submittal to EPA of certification of enhanced control installation as a corrective action (LANL 2015, 600776), corrective-action monitoring was initiated and stormwater samples were collected in May and July 2021. Analytical results from these samples initiated corrective action.

Following the June 2022 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2022, 702165), corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

238.2 Site History

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

SWMU 33-004(j) consists of a 4-in. steel stormwater drainline and outfall that drained the entrance to the South Site x-unit vault (structure 33-26) at South Site in the southern portion of TA-33. The drainline is connected to a drain located on the concrete pad at the entrance to structure 33-26. The storm drainline extends 75 ft southeast to the outfall that discharged to an open drainage channel emptying into Chaquehui Canyon. A stormwater culvert situated beneath the unpaved portion of the road, that extends beyond structure 33-26, also discharges to the open drainage channel below the SWMU 33-004(j) outfall. At the upper portion of the drainage channel, both the SWMU 33-004(j) storm drainline and the culvert discharge have been cut into the tuff.

The 1990 SWMU report describes SWMU 33-004(j) as an inactive outfall system from structure 33-26 including an outlet drainline from the east side of building 33-26, a channel cut into the tuff, a culvert, and an arroyo draining into Chaquehui Canyon. However, review of engineering drawing AB26 and a 1958 aerial photograph of South Site confirmed that the unit boundary should include only the storm drain at the entrance of structure 33-26, the 75-ft long storm drainline, and the outfall discharge point at the end of the drainline.

Structure 33-26 is an x-unit chamber (i.e., a control chamber that housed a firing-voltage-distribution system used for the remote detonation of test firings). It stored electronic devices used to detonate initiators for experiments conducted on the shot pad [SWMU 33-006(a)] located directly above the structure. The SWMU 33-006(a) shot pad was built in 1948, and structure 33-26 was constructed in 1950.

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

SWMU 33-006(a) is an inactive shot pad at South Site, where implosion tests were conducted at the southern end of TA-33. The shot pad consists of a 50-ft-diameter circular area located immediately north of, and next to, the roof of structure 33-26. Implosion tests performed at the shot pad contained up to 5000 lb of HE covered in wooden boxes. The detonations scattered debris, shrapnel, and wood fragments over the mesa top of South Site and into Chaquehui Canyon, including the drainage channel below the SWMU 33-004(j) outfall. Shrapnel has been found at distances up to a mile away from the shot pad. Use of the site ceased in 1956, and structure 33-26 has remained vacant since then.

During an IA conducted in 1996, 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. Residual debris was removed from SWMU 33-006(a) during the 2019–2020 Phase I Consent Order investigation. Currently, the pad is covered with a foot or more of sand.

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

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

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

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

During the late 1980s and early 1990s, this area was used to support atmospheric physics measurements. Structures associated with these activities include a tower (former structure 33-203)

constructed in 1987 and two trailers (former structures 33-201 and 33-202). All structures have been removed.

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

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

SWMU 33-010(c) is a former surface-disposal area located at South Site on the northern rim of Chaquehui Canyon, at the southern end of TA-33. The disposal area measured approximately 50 ft × 30 ft × 2ft deep, and was approximately 230 ft south of structure 33-26 [SWMU 33-006(a)] along the western edge of the main South Site drainage channel.

From approximately 1950 to 1955, this site was used to dispose of debris from the implosion tests conducted at SWMU 33-006(a). Debris disposed of at the site included copper and aluminum shrapnel, pieces of electronic cable, sand and soil with residual HE, and wood. Between shots, the shot pad and surrounding area were scraped and the debris was bulldozed over the canyon edge and onto the hillside below.

During the VCA performed at the site in 1999, all debris was removed from the site. Residual debris was removed from SWMU 33-010(c) during the 2019–2020 Consent Order investigation. 33-010(g) (2/18/2021)

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

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

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

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

33-014 (2/18/2021)

SWMU 33-014 is the former location of an open burn site located approximately 300 ft north of the fence surrounding MDA E [SWMUs 33-001(a-e)] at South Site, at the south end of TA-33. The soil at the burn site has been scraped to bedrock, and some bedrock is blackened from burning. This burn area was

believed to have been established in 1950 when operations at South Site began, and may have served all of TA-33 for a few years. Materials burned at this site included construction debris, timber, and sawdust used in the firing berms at TA-33. These materials contained DU, beryllium black powder, propellant powders, and residual HE. It is not known when burning operations were discontinued at this site, but operations at the site were likely discontinued before 1960.

For investigation activities for SWMU 33-006(a), refer to “Phase II Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2021, 701606). For investigation activities for all other Sites in this SMA, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

238.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 238.2-1.

Table 238.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

238.3 Consent Order Soil Data

Decision-level data for SWMU 33-004(j), SWMU 33-010(g), SWMU 33-010(h), and SWMU 33-014 consist of results from samples collected in 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination have been defined.

Decision-level data for SWMU 33-006(a) consist of results from samples collected in 2020 and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination are defined, except for lateral extent of copper around two sample locations.

Decision-level data for SWMU 33-007(b) consist of results from samples collected in 1995, 1999, and 2020. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

Decision-level data for SWMU 33-010(c) consist of results from samples collected in 1999, 2020, and 2021. The 2021 Phase II IR (N3B 2021, 701606) concluded that the lateral and vertical extent of contamination are defined or no further sampling for extent is warranted.

Analytical results for all soil samples for this SMA are presented in Figures 238.3-1 through 238.3-4.

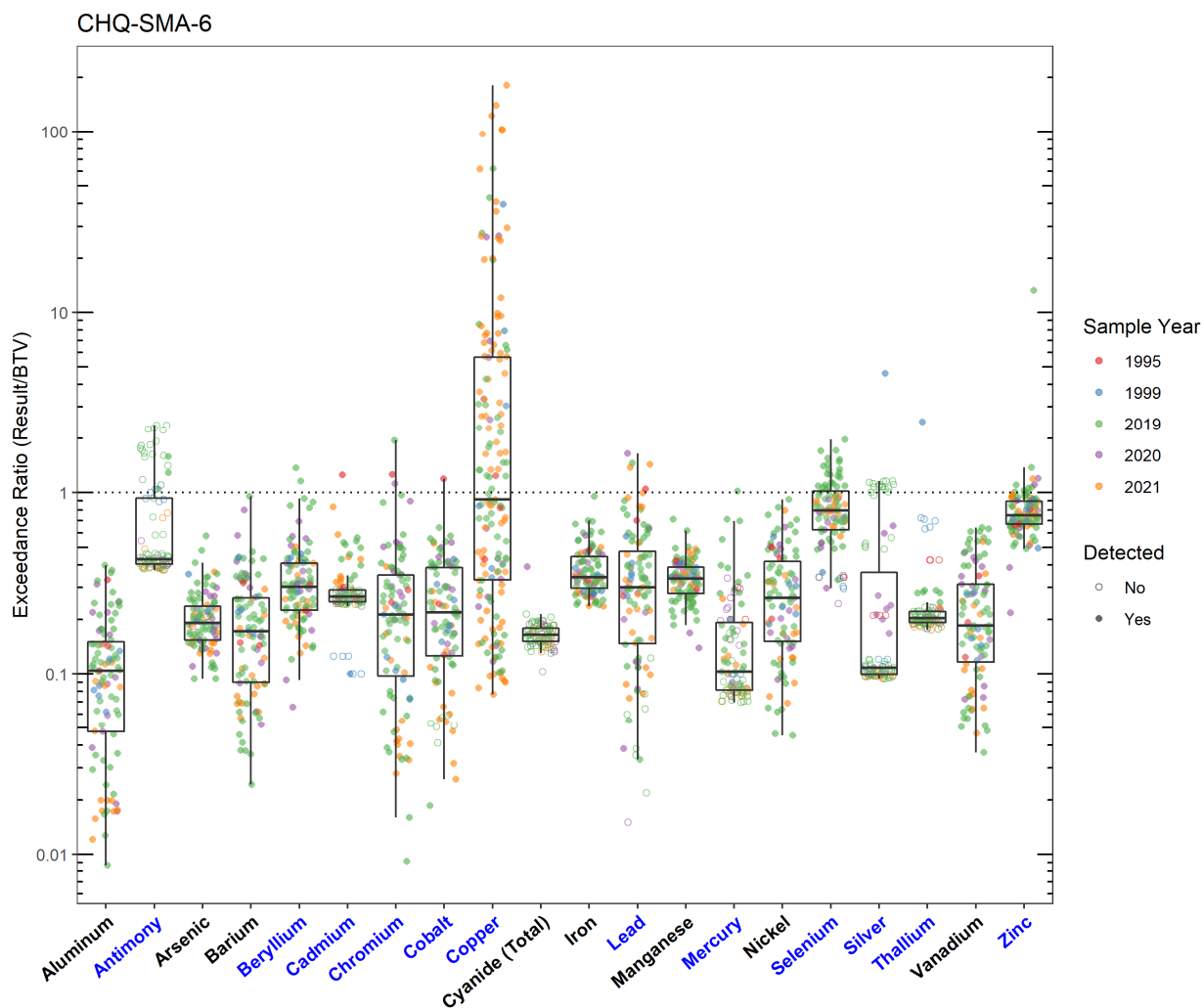


Figure 238.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-6

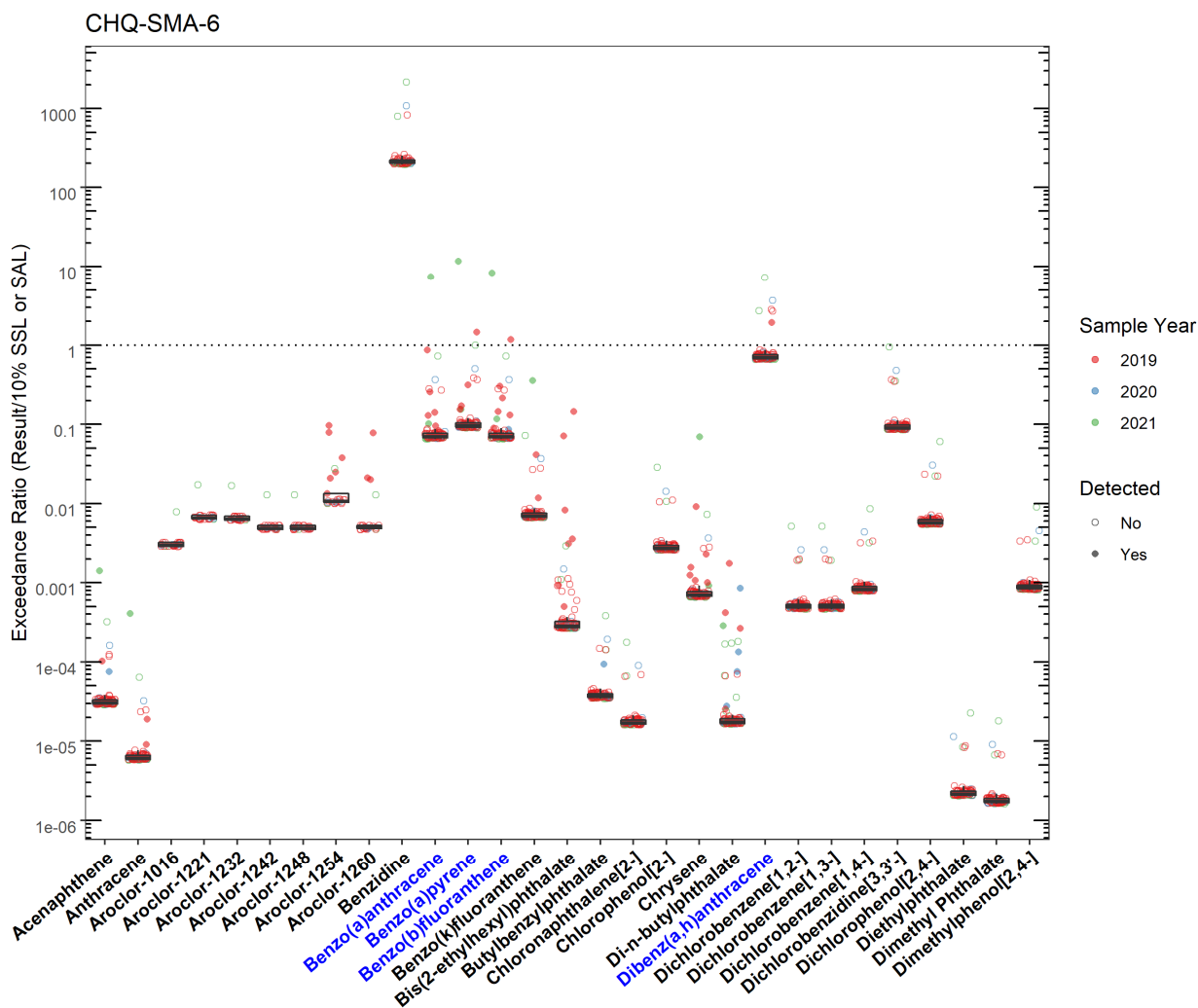


Figure 238.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-6 (Plot 1)

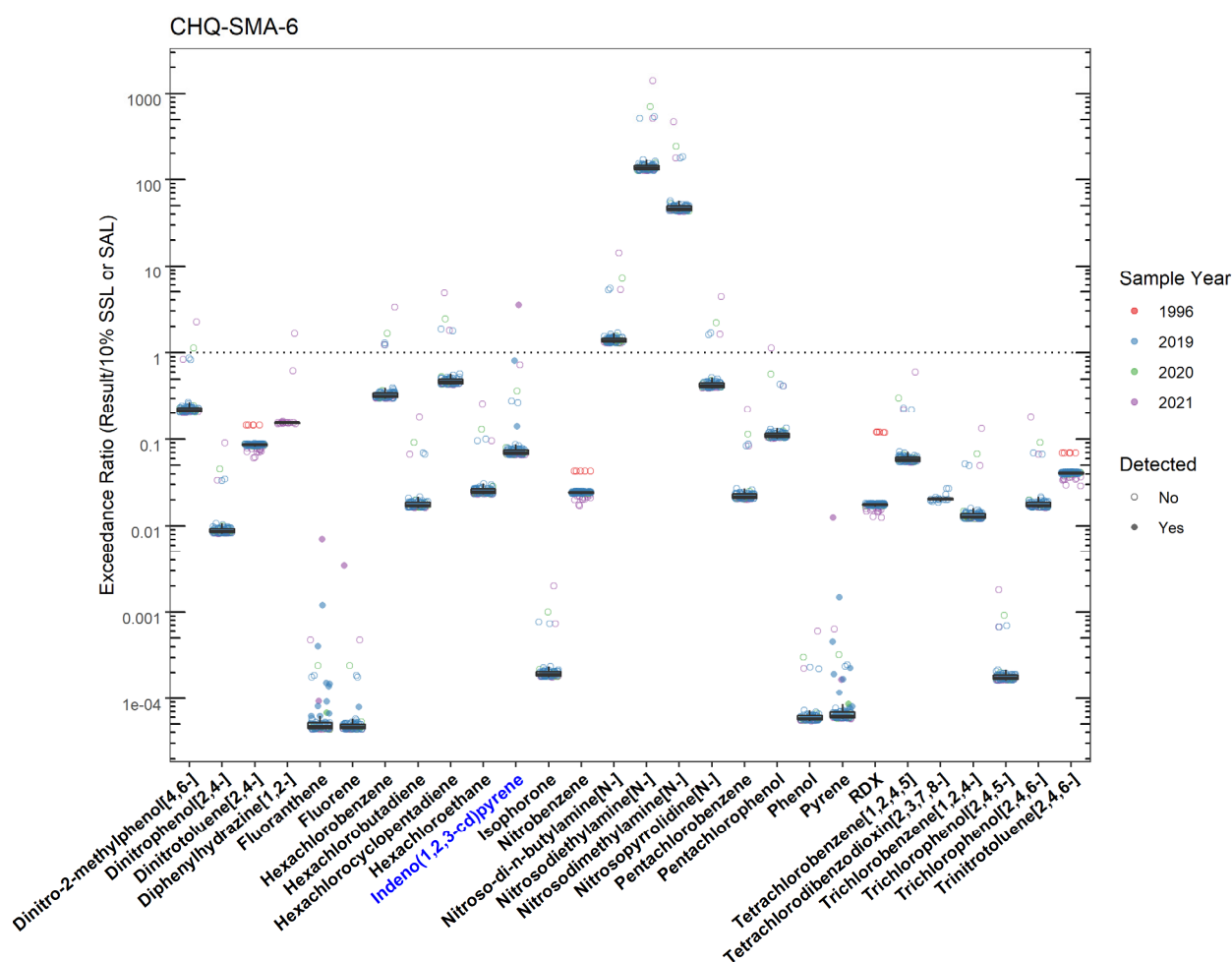


Figure 238.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-6 (Plot 2)

CHQ-SMA-6							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-6	Sb	Y	BTV	0.830	1.31	2019-12-02
Benzo(a)anthracene	CHQ-SMA-6	56-55-3	Y	SSL_0.1	0.153	1.13	2021-01-13
Benzo(a)pyrene	CHQ-SMA-6	50-32-8	Y	SSL_0.1	0.112	1.30	2021-01-13
Benzo(b)fluoranthene	CHQ-SMA-6	205-99-2	Y	SSL_0.1	0.153	1.26	2021-01-13
Beryllium	CHQ-SMA-6	Be	Y	BTV	1.83	2.51	2019-11-07
Cadmium	CHQ-SMA-6	Cd	Y	BTV	0.400	0.500	1995-11-06
Chromium	CHQ-SMA-6	Cr	Y	BTV	19.3	37.7	2019-11-15
Cobalt	CHQ-SMA-6	Co	Y	BTV	8.64	10.3	1995-11-06
Copper	CHQ-SMA-6	Cu	Y	BTV	14.7	2660	2021-01-11
Dibenz(a,h)anthracene	CHQ-SMA-6	53-70-3	Y	SSL_0.1	0.0153	0.0293	2019-12-17
Indeno(1,2,3-cd)pyrene	CHQ-SMA-6	193-39-5	Y	SSL_0.1	0.153	0.536	2021-01-13
Lead	CHQ-SMA-6	Pb	Y	BTV	22.3	36.8	2020-01-06
Mercury	CHQ-SMA-6	Hg	Y	BTV	0.100	0.102	2019-12-12
Selenium	CHQ-SMA-6	Se	Y	BTV	1.52	3.00	2019-11-07
Silver	CHQ-SMA-6	Ag	Y	BTV	1.00	4.60	1999-06-08
Thallium	CHQ-SMA-6	Tl	Y	BTV	0.730	1.80	1999-05-21
Zinc	CHQ-SMA-6	Zn	Y	BTV	48.8	645	2019-12-06

Figure 238.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-6

238.4 Stormwater Evaluation

238.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No corrective action monitoring samples have been collected in the current monitoring stage.

238.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-6 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

238.5 Site-Specific Demonstration

238.5.1 Soil Data Summary

The metals that exceeded the applicable screening values in soil data were previously measured in stormwater data and did not exceed TALs. Therefore, they will not be added to the SAP (with the exception of copper).

Tetrachlorodibenzodioxin[2,3,7,8-] (the POC for dioxins/furans) was measured in soil data and did not exceed TALs. Therefore, it will not be added to the SAP.

238.5.2 Stormwater Data Summary

Copper exceeded the TAL and BTV in stormwater data in a previous stage and will continue to be monitored. Aluminum and gross alpha exceeded the TALs but not the BTVs. Iron exceeded the WQS; however, there is no TAL in the Permit for iron. Only POCs with TALs are used in the SSD.

238.5.3 2022 Permit Status

The SMA is in active monitoring; not all Site-related POCs were monitored for in previous samples.

238.5.4 Sampling and Analysis Plan

Table 238.5-1 is the proposed SAP for CHQ-SMA-6.

Table 238.5-1 Proposed SAP, CHQ-SMA-6

Monitoring Constituent	Background for Monitoring
Tritium	Site history
Dissolved copper	Site history, stormwater data, and soil data
DOC	Permit requirement
SSC	Permit requirement

239.0 CHQ-SMA-7.1

Associated Sites	33-010(g)
Receiving Water	Chaquehui Canyon
Drainage Area	0.47 acres
Landscape Characteristics	100% pervious
Consent Order Site Status	SWMU 33-010(g): In Progress
2010 Administratively Continued Permit Final Status	Enhanced Control Corrective Action Monitoring
2016–2018 SIP Actions	Based on the September 2017 field visit, all parties agreed that the current SMA sampling location and boundary were the best representation of stormwater discharge from the Site.
2022 Permit Status	Active Monitoring

239.1 2010 Administratively Continued Permit Summary

Following the February 2011 submittal to EPA of certification of baseline control installation, a baseline stormwater sample was collected in July 2018. Analytical results from this sample initiated corrective action.

Following the April 2021 submittal to EPA of certification of enhanced control installation as a corrective action (N3B 2021, 701388), corrective-action monitoring was initiated. Since that time, stormwater flow has not been sufficient for full-volume sample collection. Corrective-action monitoring is ongoing until at least one confirmation sample is collected from this SMA.

239.2 Site History

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

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

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

For investigation activities, refer to “Investigation Report for Chaquehui Canyon Aggregate Area” (N3B 2020, 701046).

239.2.1 Known or Potential Use of POCs

POCs known to be managed or potentially used at the Site are listed in Table 239.2-1.

Table 239.2-1 POCs Known or Suspected to Have Been Used Historically at the Site

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

239.3 Consent Order Soil Data

Decision-level data for SWMU 33-010(g) consist of results from samples collected in 2020. Analytical results for those samples are presented in Figures 239.3-1 through 239.3-4. The 2020 IR (N3B 2020, 701046) concluded that the nature and extent of contamination are defined.

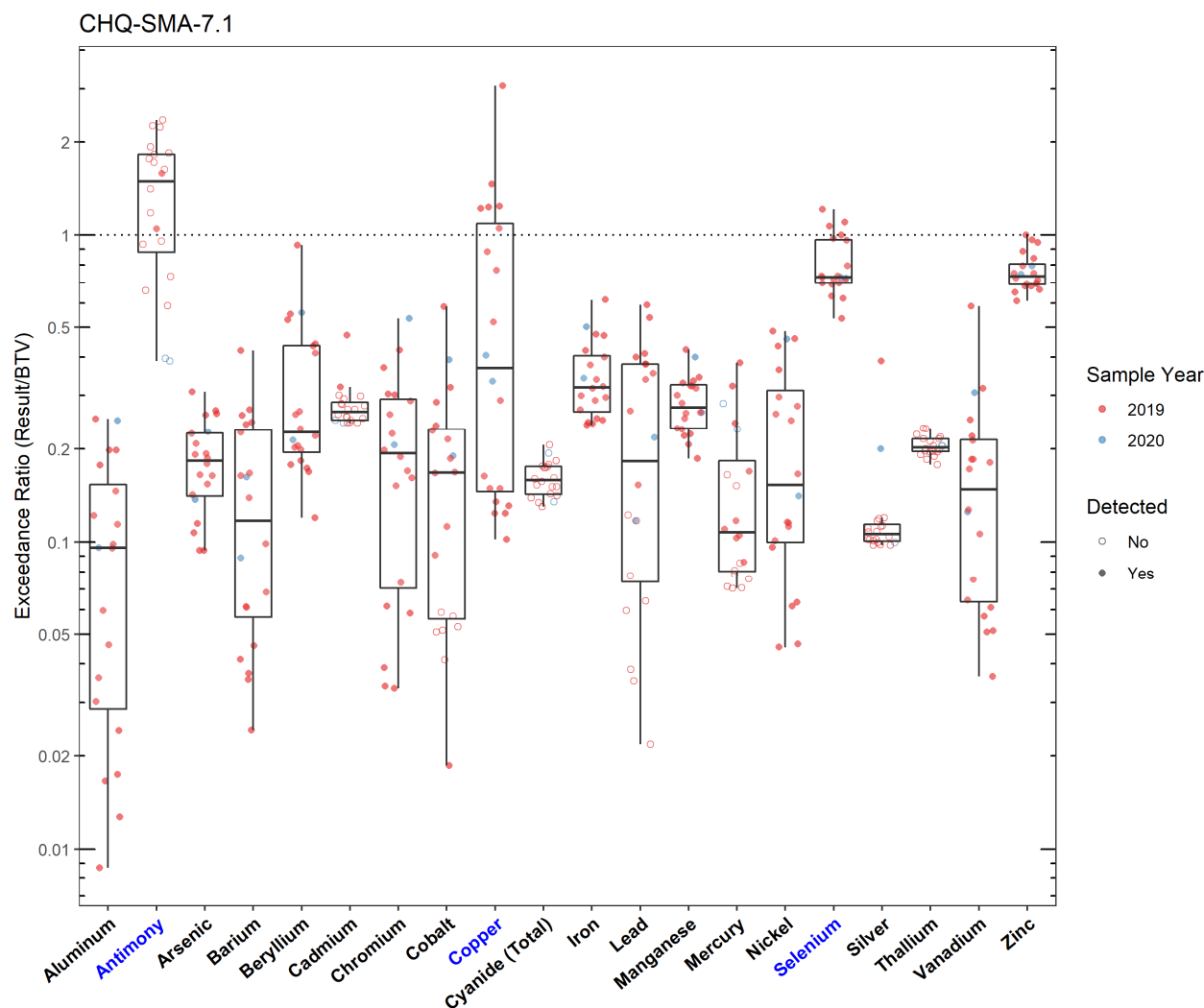


Figure 239.3-1 Inorganics Analytical Results from Soil Samples Associated with CHQ-SMA-7.1

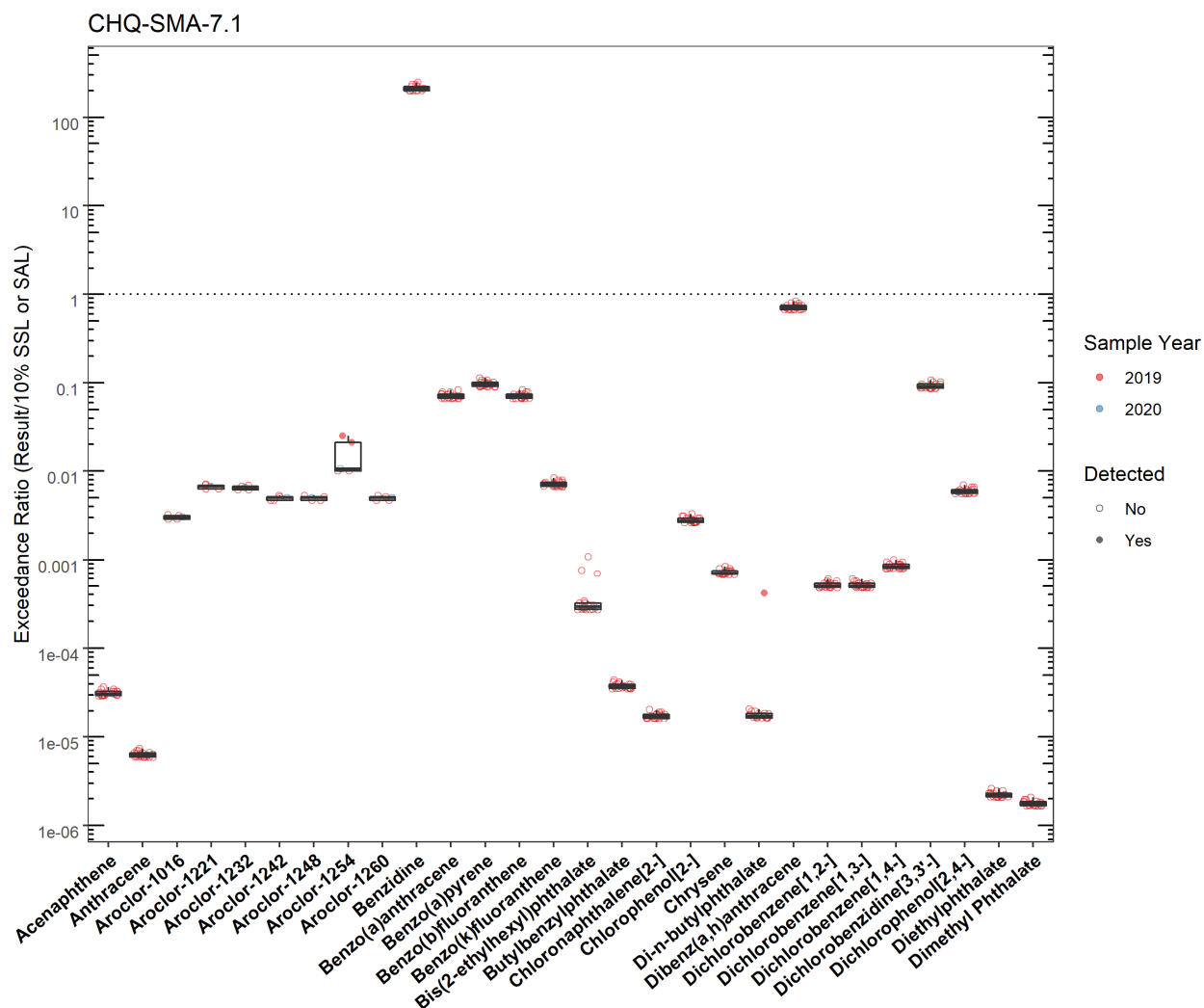


Figure 239.3-2 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-7.1 (Plot 1)

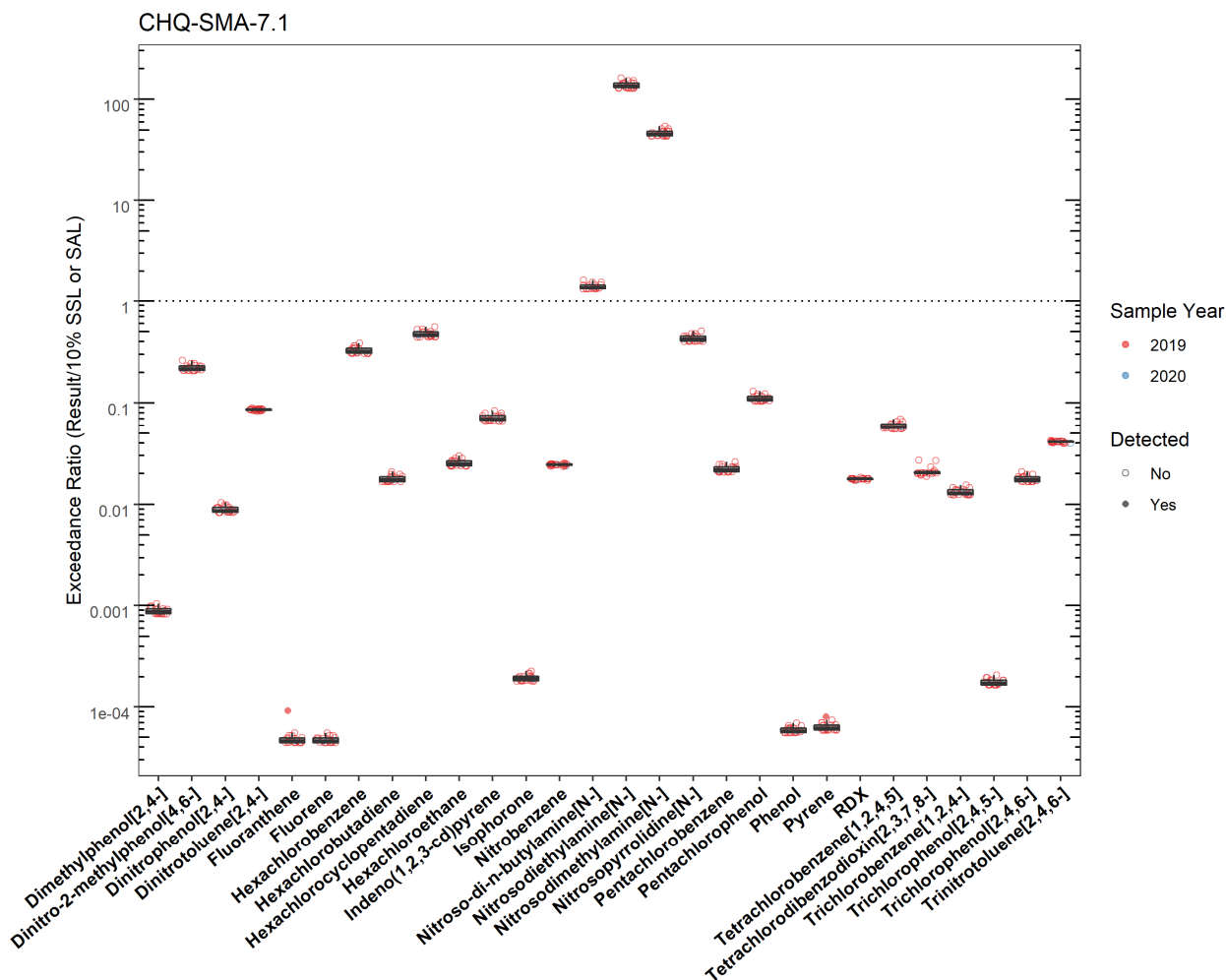


Figure 239.3-3 Organics Analytical Results from Soil Samples Associated with CHQ-SMA-7.1 (Plot 2)

CHQ-SMA-7.1							
	SMA	Parameter Code	Detected	Screening Type	Screening Level (mg/kg)	Max Result (mg/kg)	Date of Max Result
Antimony	CHQ-SMA-7.1	Sb	Y	BTV	0.830	1.31	2019-12-02
Copper	CHQ-SMA-7.1	Cu	Y	BTV	14.7	45.1	2019-12-03
Selenium	CHQ-SMA-7.1	Se	Y	BTV	1.52	1.84	2019-11-22

Figure 239.3-4 Screening-Level Exceedances from Soil Samples Associated with CHQ-SMA-7.1

239.4 Stormwater Evaluation

239.4.1 Summary of Stormwater Results Compared with TALs and BTVs

The 2022 Individual Permit uses current-stage compliance data for the SSD. No confirmation-monitoring stormwater samples have been collected in the current stage at the SMA.

239.4.2 Assessment Unit and Stream Impairments

CHQ-SMA-7.1 drains to Chaquehui Canyon (within LANL), which has an impairment for PCBs. The impairment is not likely to be Site-related, based on Site history.

239.5 Site-Specific Demonstration

239.5.1 Soil Data Summary

Copper exceeded the applicable screening value in soil and the TAL in previous stormwater samplings, so it will be included in the SAP. Antimony and selenium exceeded the applicable screening values in soil data but were previously measured in stormwater data and did not exceed TALs; therefore they will not be added to the SAP. Beryllium and HE, present in the Site History, were measured in soil and did not exceed screening levels.

239.5.2 Stormwater Data Summary

No data for the current monitoring stage have been collected. In the previous monitoring stage, aluminum and gross alpha exceeded TALs but not the BTVs, and copper exceeded the TAL and BTV. Uranium was measured in stormwater and did not exceed the WQS.

239.5.3 2022 Permit Status

The SMA is in active monitoring; no confirmation-monitoring sample has been collected in the current stage.

239.5.4 Sampling and Analysis Plan

Table 239.5-1 is the proposed SAP for CHQ-SMA-7.1.

Table 239.5-1 Proposed SAP, CHQ-SMA-7.1

Monitoring Constituent	Background for Monitoring
Dissolved copper	Site history, soil data, and stormwater data
DOC	Permit requirement
SSC	Permit requirement

