



U.S. DEPARTMENT OF
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2023 Overview of the Individual Permit for Storm Water at Los Alamos National Laboratory

Karly Rodriguez

Program Manager for Stormwater and IP

February 28, 2024



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N3B Los
Alamos



- What is a Storm Water Permit?
- Objectives of Permit
- Implementation of new Permit
- Work Performed in 2023
 - Inspections
 - Control Installation
 - Samples Collected
- Annual Updates to the SIP
- Plans for 2024





What is a Storm Water Permit?



- Storm water permits authorize permittees to discharge storm water from specific activities or facilities
- Part of the National Pollutant Discharge Elimination System (NPDES), the permitting program to protect and improve water quality
- NPDES is part of the Federal Clean Water Act administered by the U.S. Environmental Protection Agency (EPA)
- Individual storm water permit is a type of NPDES permit
- Permit need is determined by EPA and requirements are specific to a particular facility or activity
- Individual storm water permits are issued by EPA for a maximum of 5 years





Storm Water Monitoring Objectives

- Minimize pollutants of concern (POCs) in storm water runoff from sites potentially contaminated by historical activities at Los Alamos National Laboratory (LANL).
- Reducing pollutants in storm water means reducing or eliminating them with storm water control measures, such as earthen berms or rock check dams that detain the sediment to which contaminants typically bind.
- Installation of storm water control measures must be followed by comparison of storm water runoff sample results to screening levels, which assesses the effectiveness of the control measure and helps improve water quality.

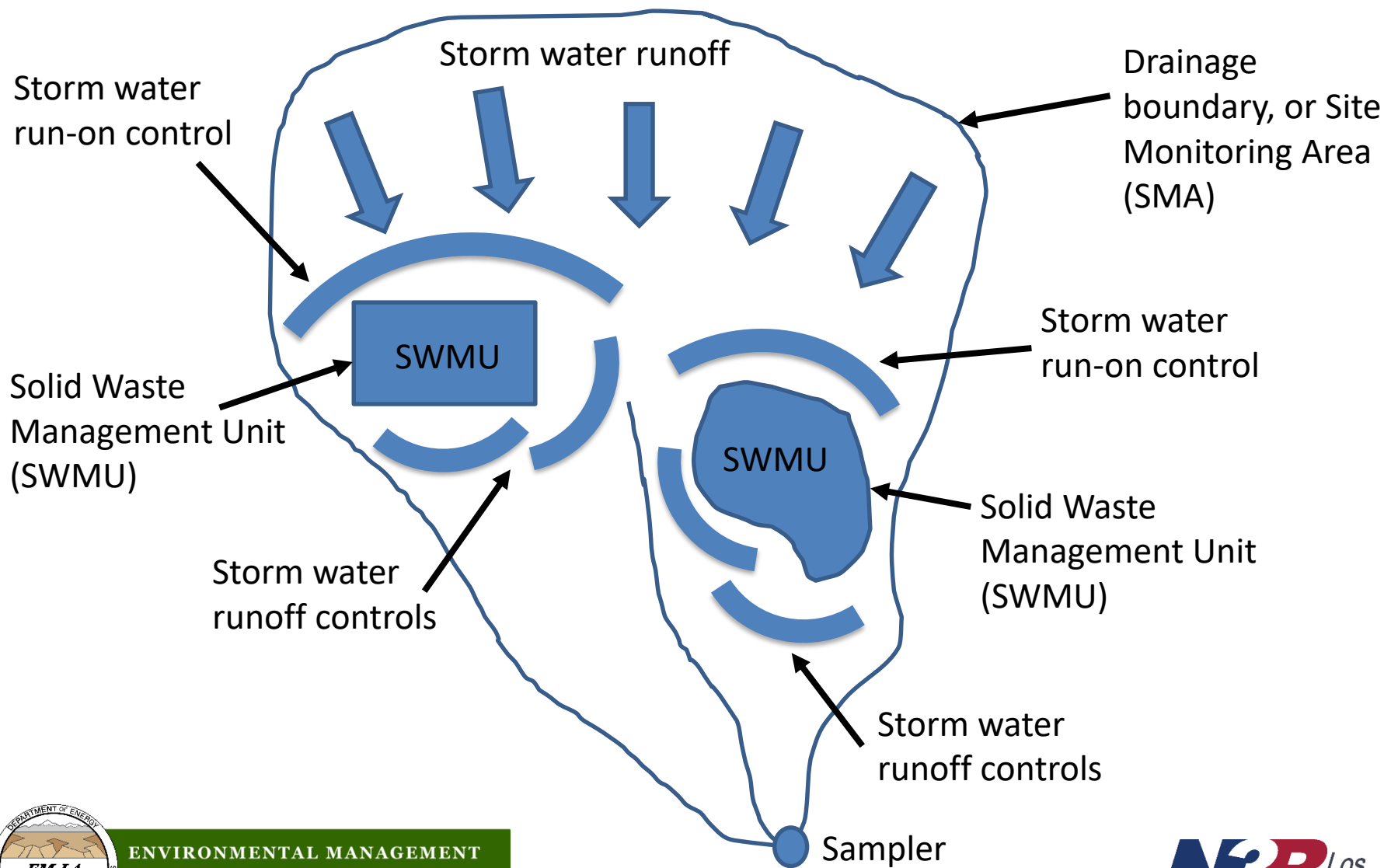


Installation of storm water controls at P-SMA-2.2





How Do We Monitor Storm Water Runoff?





IP Site Monitoring Areas (SMAs) across LANL

239 SMAs on
new permit

IP Sampler Locations & Watersheds

- ◆ Individual Permit (IP) sampler
- Drainage
- Arterial Rd
- Collector Rd
- Local Rd
- LANL Technical Area

Watersheds

- Ancho Canyon watershed
- Los Alamos Canyon watershed
- Mortandad Canyon watershed
- Pajarito Canyon watershed
- Sandia Canyon watershed
- Water Canyon watershed

GIS: Joshua Sammons
joshua.sammons@em-ls.doe.gov

NM State Plane Coordinate System Central Zone (5022)
North American Datum, 1983 (NAD 83)

DISCLAIMER: This map was created for work processes associated with the LLCC.
All other uses for this map should be confirmed with NSB staff.

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Implementation of New IP

- NMED Review and Public Comment Period completed January 30, 2023
- Initial SIP was implemented on May 1, 2023 Comments were received from EPA on May 2, 2023
- Response to EPA's comments were submitted on June 22, 2023
- EPA Approved the Initial SIP and issued a Minor Permit Modification on July 5, 2023





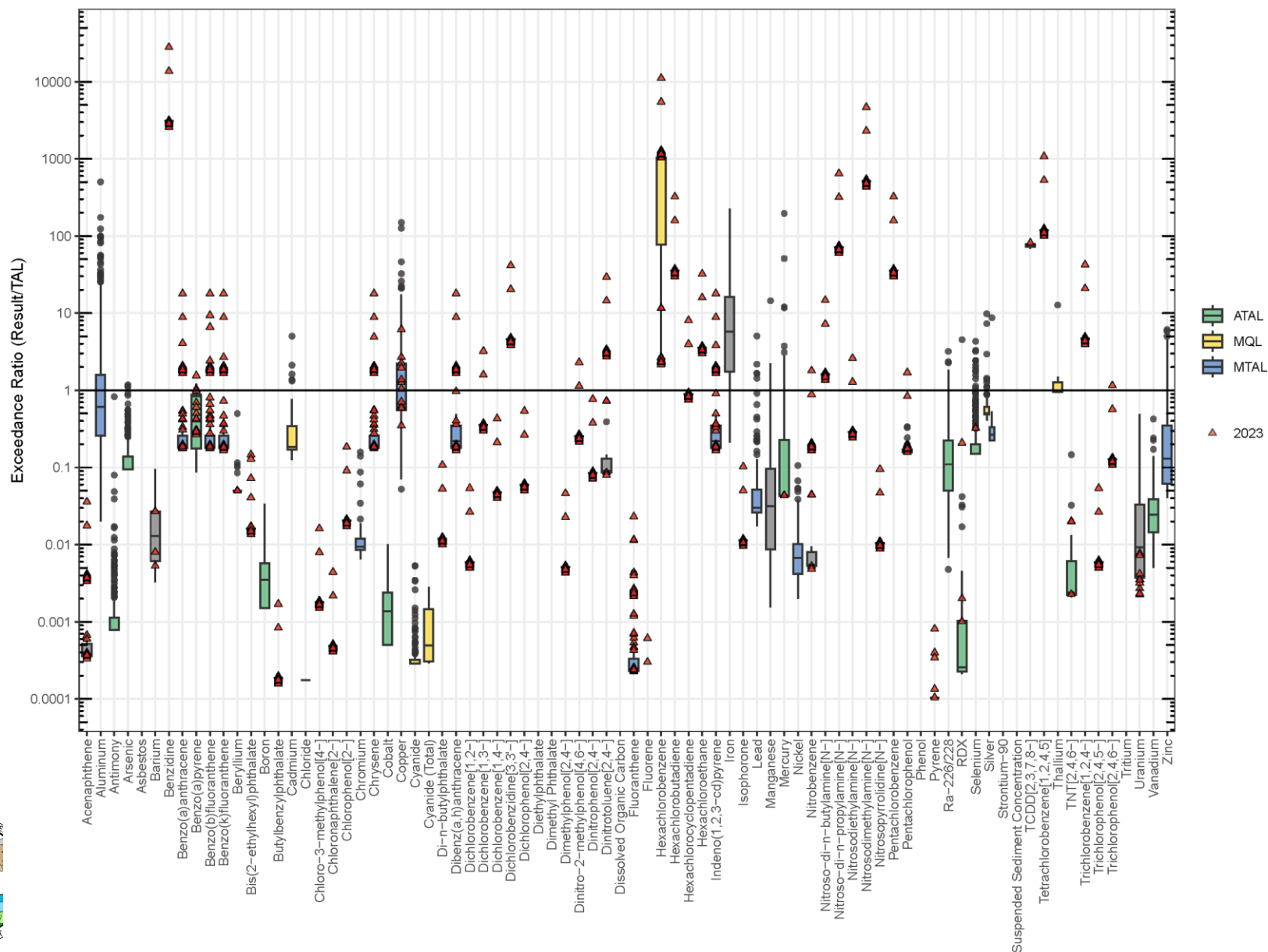
Work Performed in 2023

- Operation of 191 IP storm water samplers and 15 rain gages
- Sampler activations began on March 6, 2023
- Conducted:
 - 1,914 IP storm water sampler inspections
 - 189 post-storm inspections of storm water control measures
 - 288 soil disturbance inspections (construction related)
 - 255 rain gage inspections
 - 16 Target Action Level (TAL) exceedance inspections
- Collected 52 IP samples results which have been screened and discussed in the 2023 Sampling Implementation Plan (SIP)
- Installed 19 controls at 17 SMAs
- All samplers were deactivated for winter to avoid sampling snowmelt (not allowed in stormwater permits) by November 17, 2023





2023 Monitoring Summary





Completed Actions

- a. January 12 – Permittee to send draft SIP update to NMED.
- b. February 13 – NMED SWQB provided comments on draft SIP updates.

Upcoming Actions

- a. March 31 – Draft SIP due to EPA
 - a. Permittees will revise draft SIP updates based on NMED's input.
 - b. Permittees will submit draft SIP updates to EPA for review and approval. Note: if no comments are received from NMED by February 11, Permittees may submit the draft SIP updates to EPA for approval without NMED input.
- b. April 31* – EPA will review proposed SIP updates, require revisions as necessary, and approve as a minor permit modification. Note: unless disapproved, Permittees may implement proposed SIP 30 days after submittal to EPA and update as necessary once the final SIP is approved.
- c. Please note – Per the Permit there is no public comment period for annual updates to the SIP, only the initial SIP. The initial SIP is the foundational document to establish monitoring suites and all updates will use the same process.

* Estimated Date





- Sampler activations to begin in March 2024
- Deployment and testing of a new satellite telemetry system, to reduce field visits and retrieve samples from the field faster
- 182 sampling locations to be activated for monitoring in 2024 based on the draft SIP





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2023 Individual Permit Monitoring Season Summary

February 28, 2024

Audrey Krehlik



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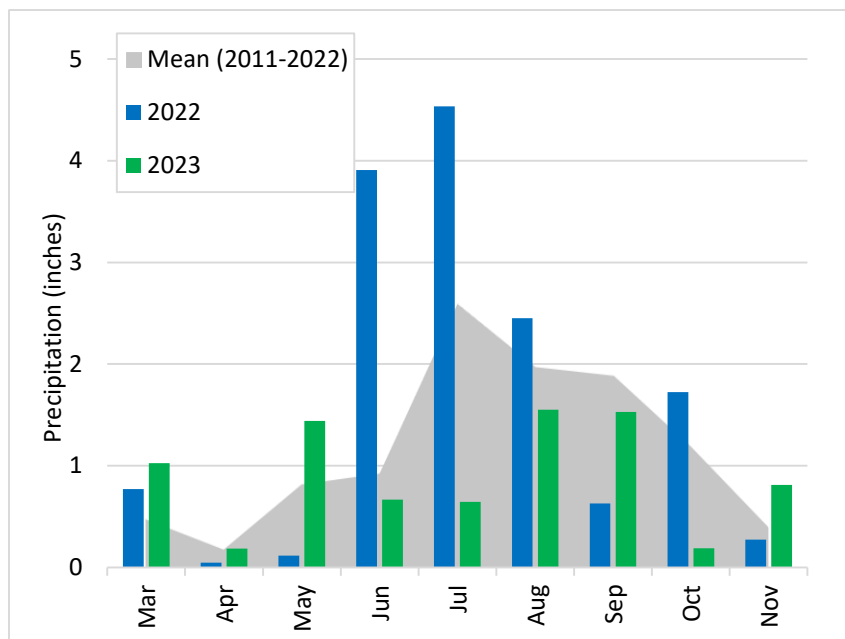


- 2023 Precipitation and Samples Collected
- 2023 TAL Exceedances
- 2023 Sampling Implementation Plan (SIP)
- SMA Data Examples
- Questions

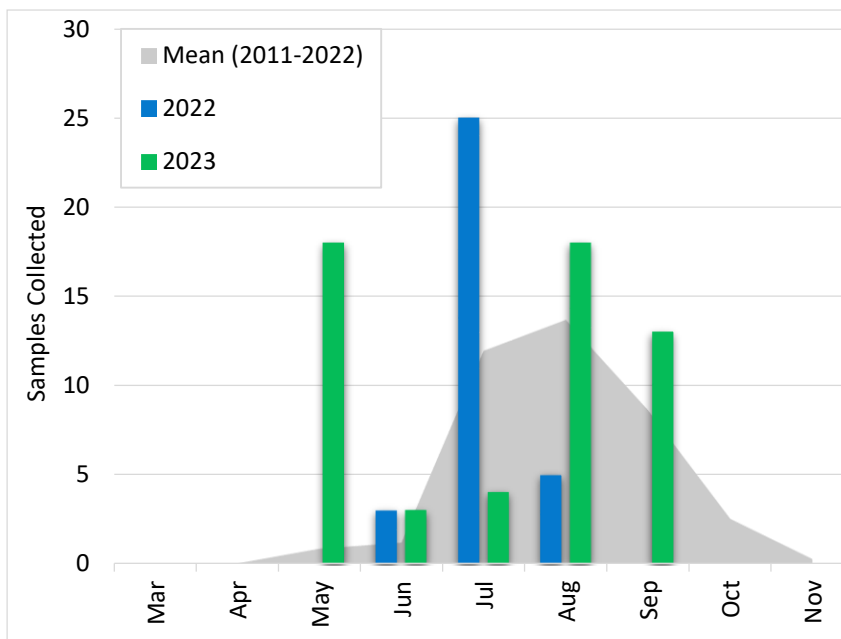




Precipitation



Samples Collected



- 52 samples collected from 34 Site Monitoring Areas (SMAs)
 - 15 partial samples
 - 10 SMAs collected one complete sample, 13 SMAs collected two complete samples





- 33 samples collected with no Target Action Level (TAL) exceedances
- 31 TAL exceedances at 16 SMAs
 - Aluminum (2 SMAs), Copper (7 SMAs), Total PCBs (9 SMAs), SVOCs (3 SMAs)

SMA	Exceedances
2M-SMA-1.43	total PCBs (below BTV)
A-SMA-6	aluminum (below BTV), total PCBs
CDV-SMA-2.42	total PCBs
CHQ-SMA-2	copper
CHQ-SMA-6	copper
LA-SMA-0.85	copper
LA-SMA-3.1	total PCBs
M-SMA-7.9	copper
PJ-SMA-3.05	total PCBs
PJ-SMA-4.05	total PCBs (below BTV)
PJ-SMA-20	copper
2M-SMA-1.8	benzo(b)fluoranthene, copper (below BTV), total PCBs
S-SMA-3.6	benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, benzo(a)anthracene, chrysene, indeno(1,2,3-cd)pyrene
S-SMA-3.62	aluminum, copper, total PCBs
STRM-SMA-4.2	total PCBs
W-SMA-5	benzo(a)anthracene, benzo(b)fluoranthene





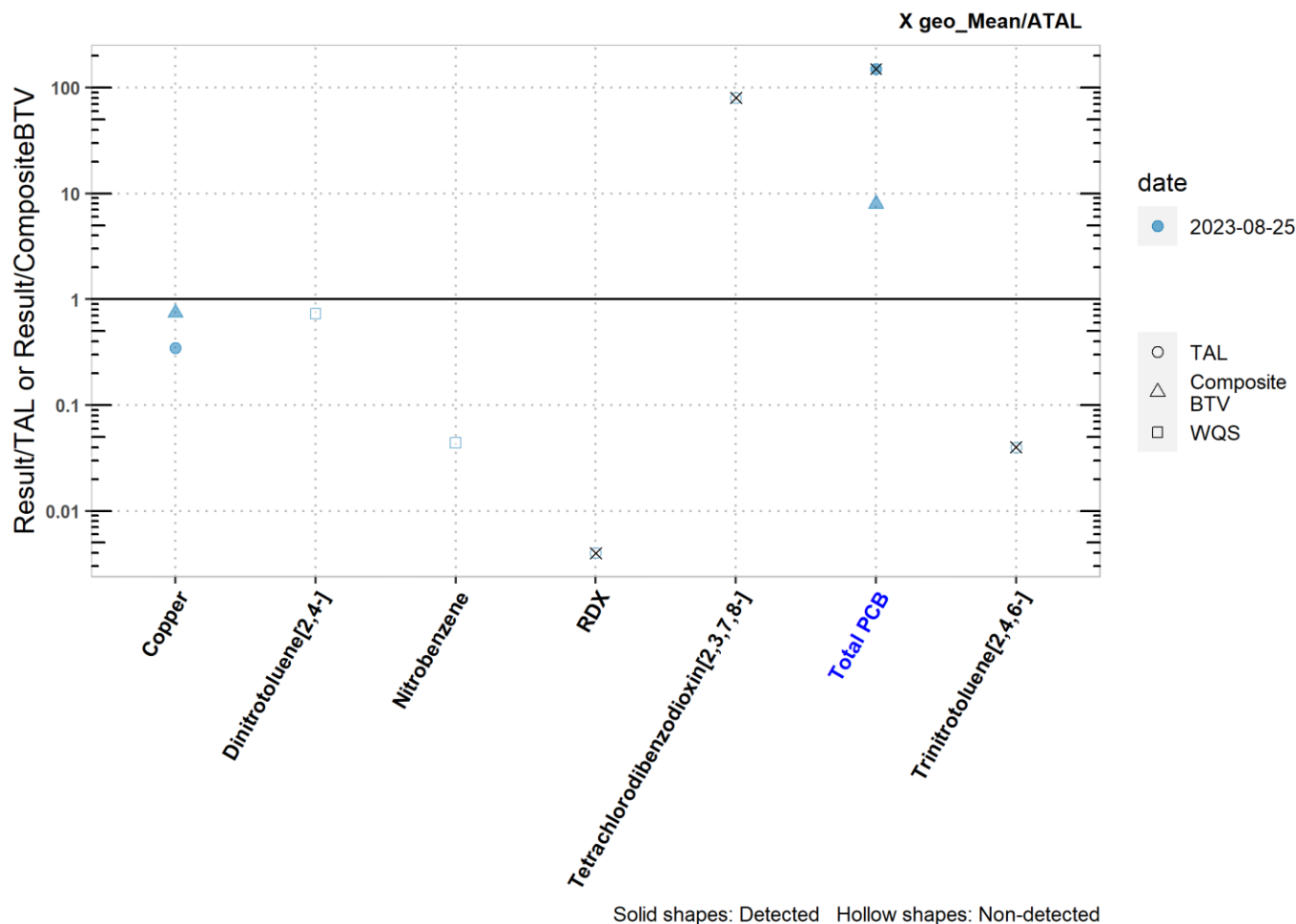
- Draft 2023 Sampling Implementation Plan submitted to NMED January 12, 2024. Comments were received on February 13, 2024. Final version is due to EPA by March 31, 2024.
- SMA status categories:

	2022 SIP	2023 SIP
Active Monitoring	160	156
Active Monitoring/ Corrective Action	30	26
Corrective Action	15	21
Long-Term Stewardship	32	32
SMA Deletion	3	5





CDV-SMA-2.42

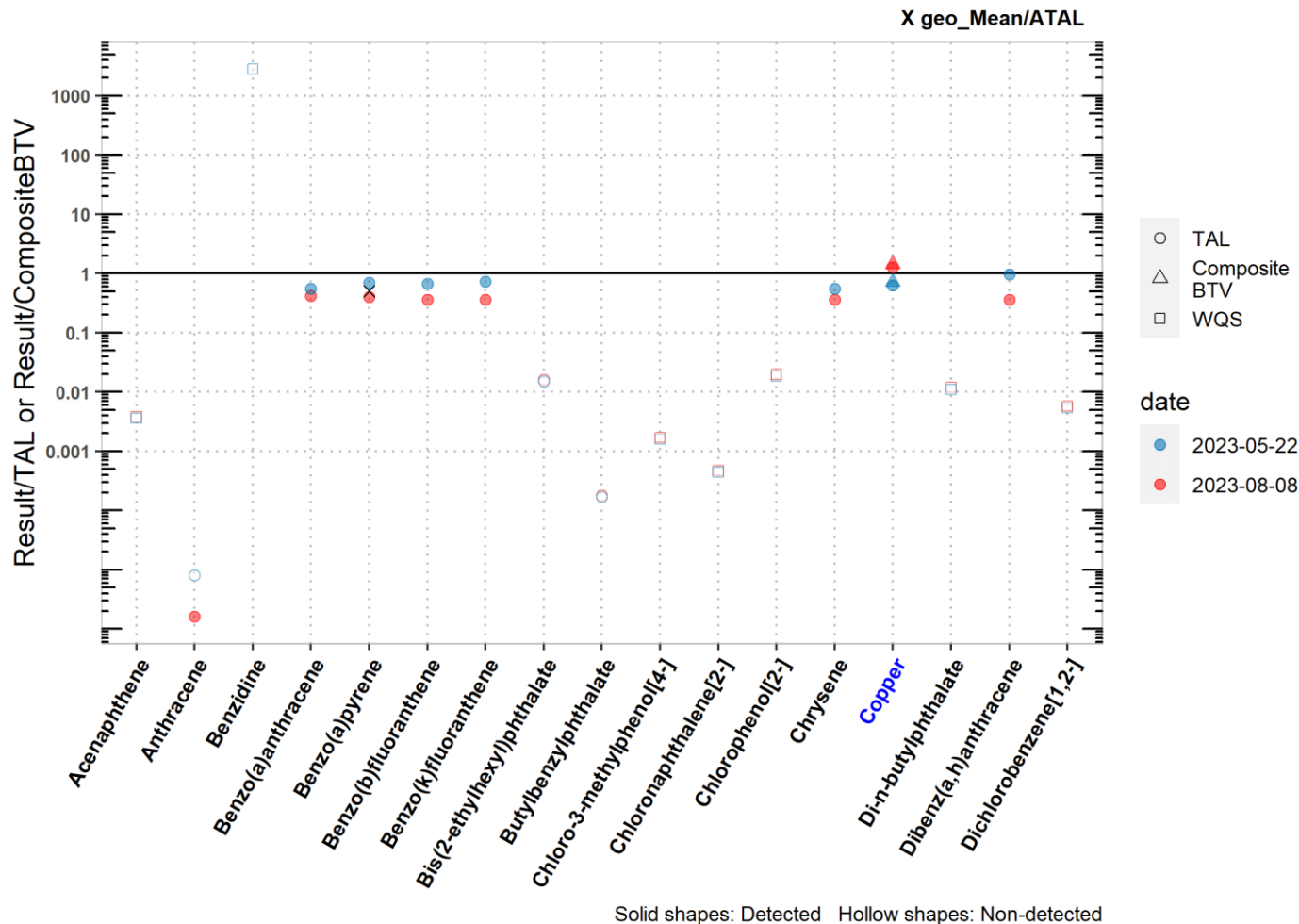


- 1 complete sample collected
- Total PCBs exceeded TAL and BTV
- 2023 status: Active Monitoring
- 2024 status: Active Monitoring
- If a second sample is not collected within 2 years (by Sept. 2025), corrective action will begin





CHQ-SMA-2

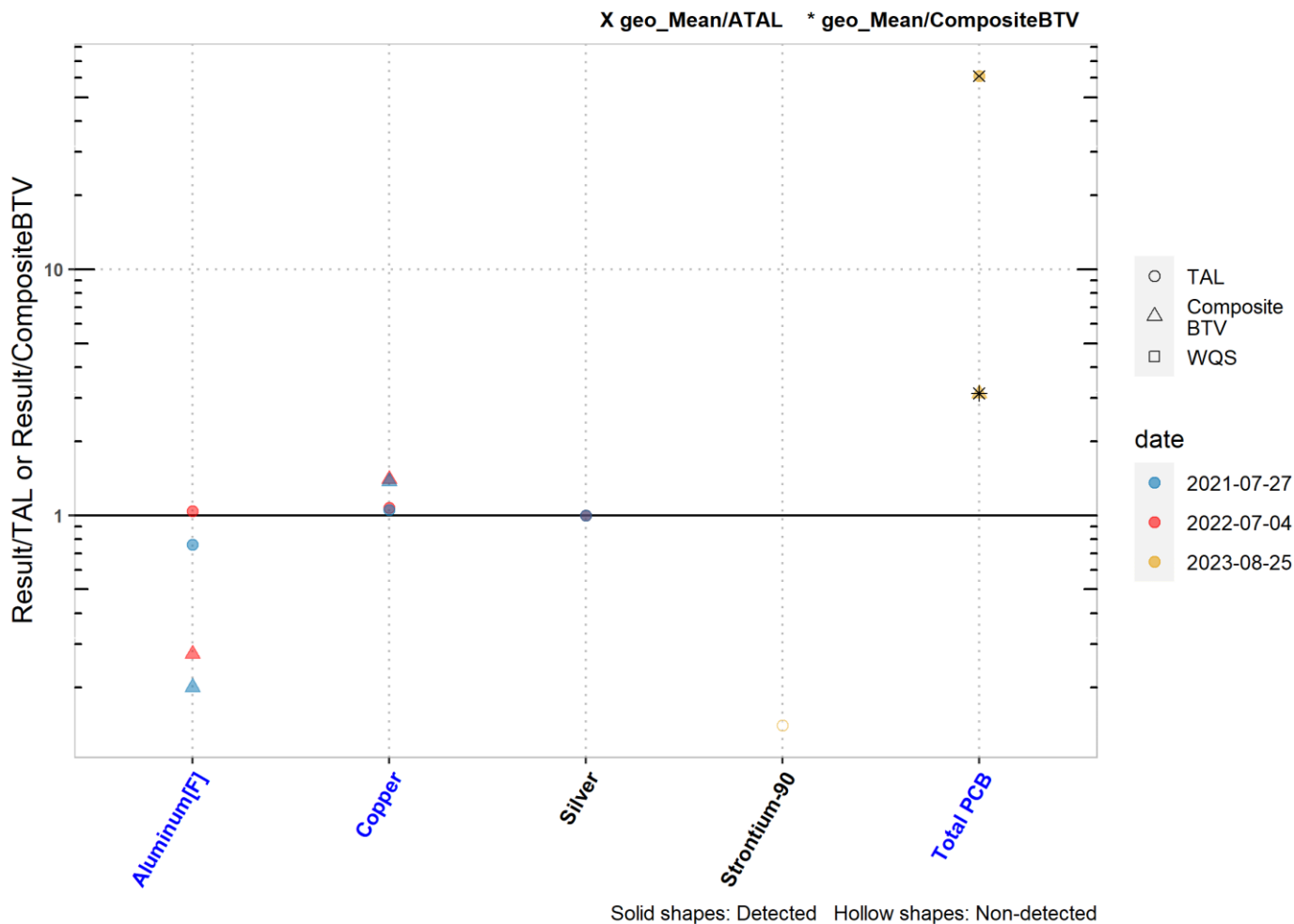


- 2 complete samples collected
- Copper exceeded TAL and BTV
- 2023 status: Active Monitoring
- 2024 status: Corrective Action
- Corrective action must be completed by September 2025.





STRM-SMA-4.2



- 1 partial sample collected in 2023
- Copper exceeded in 2021 and 2022
- PCBs exceeded in 2023
- 2023 status: Active Monitoring
- 2024 status: Active Monitoring/Corrective Action





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Questions?



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Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos
on behalf of DOE's Environmental Management Los Alamos Field Office





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Individual Permit Corrective Actions Update

February 28, 2024

Grayson Vogel, PE

Water Programs Engineering Manager

N3B/T2S



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Acronyms

- 2M – Twomile Canyon
- 3M – Threemile Canyon
- A – Ancho Canyon
- Acid – Acid Canyon
- AOC – Area of Concern
- B – Bayo Canyon
- BTV – Background Threshold Value
- CDB – Cañada del Buey
- CDV – Cañon de Valle
- CHQ – Chaquehui Canyon
- DP – DP Canyon
- IP – Individual Permit
- LA – Los Alamos Canyon
- M – Mortandad Canyon
- NPDES – National Pollutant Discharge Elimination System
- P – Pueblo Canyon
- PCB – Polychlorinated biphenyl
- POC – Pollutant of Concern
- PJ – Pajarito Canyon
- PT – Potrillo Canyon
- R – Rendija Canyon
- S – Sandia Canyon
- SMA – Site Monitoring Area
- STRM - Starmers Gulch
- SWMU – Solid Waste Management Unit
- T – Ten Site Canyon
- TA – Technical Area
- TAL – Target Action Level
- W – Water Canyon





Effective date: August 1, 2022

Corrective action is required once a permit Target Action Level (TAL) and Background Threshold Value (BTV) have been exceeded for a Site-related Pollutant of Concern (POC). Options for implementing corrective action are:

Installation of Enhanced Controls – Enhanced controls are designed to reduce storm water run-on or runoff from the Site, mitigate erosion within the Site, or capture sediment/POCs on the Site.

Eliminate Exposure of POCs to Storm Water – No exposure can be (a) a cap or engineered cover, or (b) soil removal

Retention of 3-Year, 24-Hour Storm Runoff Volume – 3-year, 24-hour retention can be achieved by retaining the volume of storm water runoff from a Site or Site Monitoring Area (SMA) that is equivalent to a 3-year, 24-hour storm event.

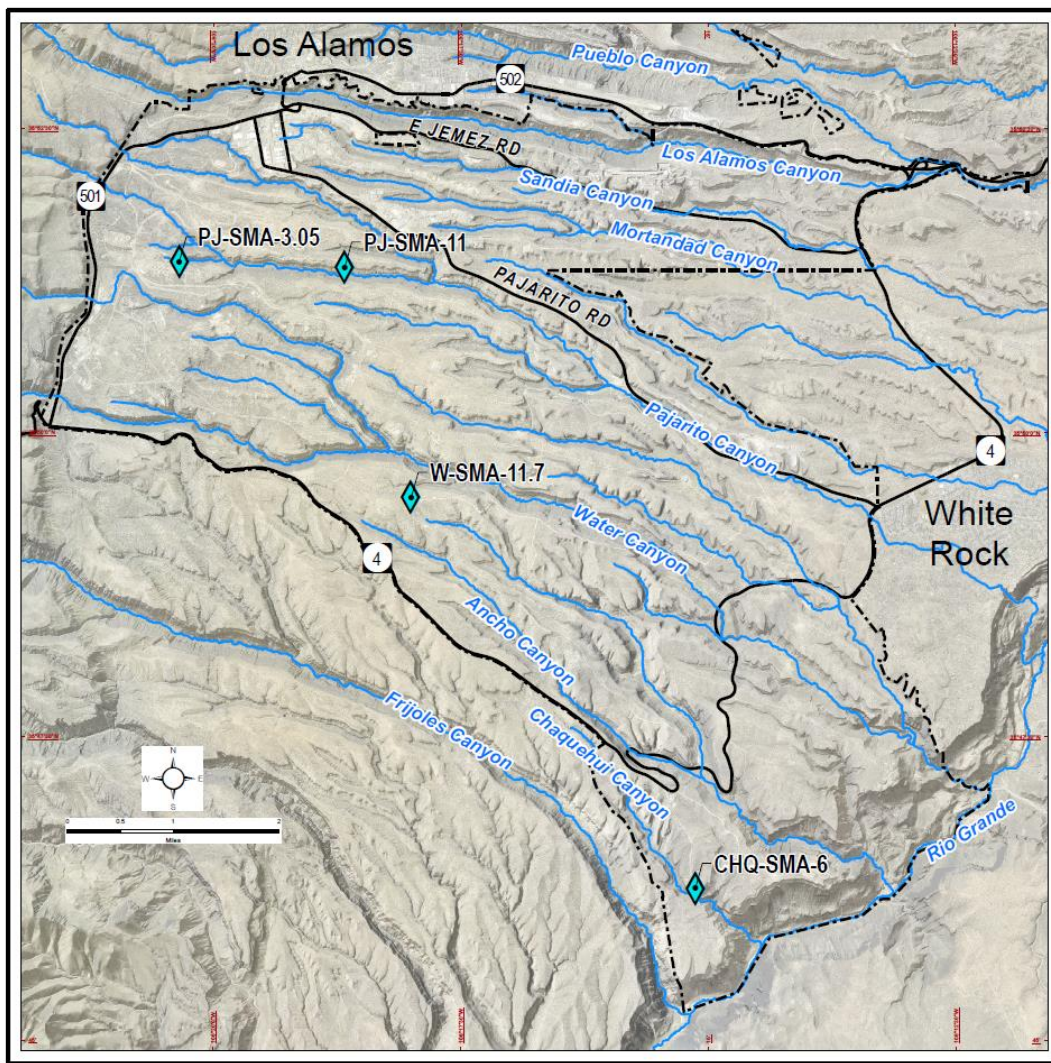




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Corrective Actions Completed in 2022



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Corrective Actions Completed in 2022

PJ-SMA-3.05

- This site monitors SWMU 09-004(o), a high explosives sump and associated inlet and outlet drainlines.
- It had 1.1 x copper and 2.2 x gross alpha TAL exceedances from September 2019 and July 2021 samples.
- The corrective action consisted of installing coir logs and compost logs.

PJ-SMA-11

- This site monitors SWMU 40-003(a), a former detonation area.
- It had 8.2 & 10 x copper and 3.6 x gross alpha TAL exceedances from June 2021 and August 2021 samples.
- The corrective action consisted of installing compost logs and lining a swale with riprap.



New stormwater controls at PJ-SMA-11





Corrective Actions Completed in 2022

W-SMA-11.7

- This site monitors AOC 49-008(c), potentially contaminated soil from radiochemistry operations and containment experiments.
- It had 6.3 x aluminum and 3.0 x gross alpha TAL exceedances from September 2013 and August 2021 samples.
- The corrective action consisted of installing wood chip wattles.

CHQ-SMA-6

- This site monitors SWMU 33-004(j), a drainline; SWMU 33-006(a), an inactive shot pad; SWMU 33-007(b), two former gun-firing sites; SMU 33-010(c), a former surface disposal site; and SWMU 33-010(h), a former surface disposal site.
- It had 9.2 & 9.0 x copper and 1.5 x gross alpha TAL exceedances from May and July 2021 samples.
- The corrective action consisted of installing coir logs and rock check dams.
- An additional action consisted of a debris pickup; shrapnel and cable were removed from the monitoring area.



New stormwater controls at W-SMA-11.7

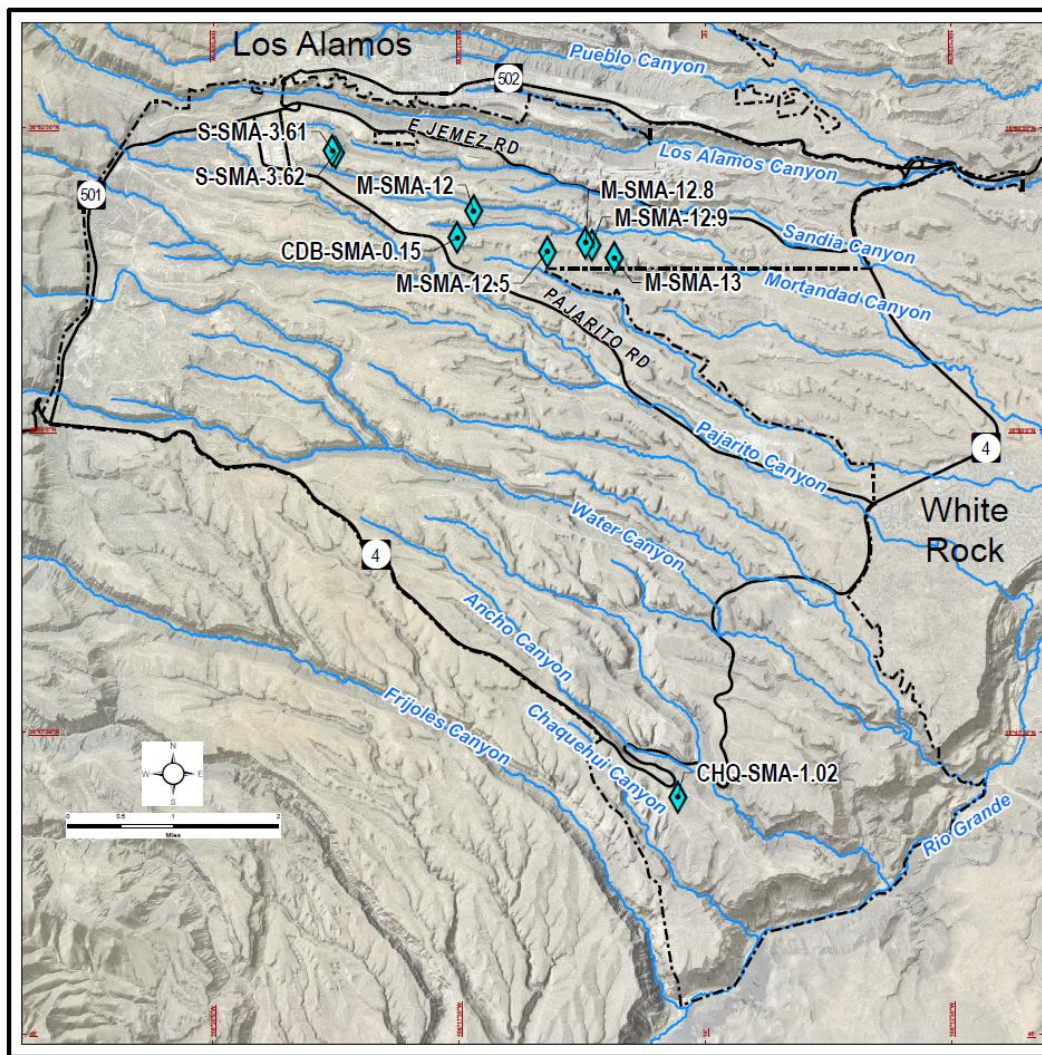




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Corrective Actions Completed in 2023



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Corrective Actions Completed in 2023

CHQ-SMA-1.02

- This site monitors SWMU 33-004(h), a warehouse outfall; SWMU 33-011(d), a former storage area; SWMU 33-015, a former incinerator; and AOC 33-008(c), a former surface disposal area.
- It had 2.0 x copper and 2.4 x gross alpha TAL exceedances from May and August 2021 samples.
- The corrective action consisted of installing an earthen berm.



Earthen berm construction at CHQ-SMA-1.02





Corrective Actions Completed in 2023

S-SMA-3.61

- This site monitors SWMU 60-004(f), a former storage area.
- This is a new site.
- The baseline controls consisted of installing gravel bags and certifying an asphalt berm and cap.

S-SMA-3.62

- This site monitors SWMU 60-002, three former storage areas.
- This is a new site.
- The baseline controls consisted of installing coir logs and rock check dams.

CDB-SMA-0.15

- This site monitors SWMU-04-003(a), a former building outfall, and AOC 04-004, soil contamination associated with the photo processing laboratory.
- It had BTV and 1.57 x copper TAL exceedances from a July 2015 sample.
- The corrective action consisted of installing coir logs and certifying a new curb.

M-SMA-12

- This site monitors SWMU 35-016 (p), an active roof storm drain.
- It had BTV and 2.01 x aluminum TAL exceedances from a July 2015 sample.
- The corrective action consisted of installing gravel bags and compost logs.





Corrective Actions Completed in 2023

M-SMA-12.5

- This site monitors SWMU 05-005(b), a former outfall and associated outlet drainline.
- It had BTV and 2.4 x selenium TAL exceedances from a July 2019 sample.
- The corrective action consisted of installing coir logs and rock check dams.

M-SMA-12.8

- This site monitors SWMU 05-001(a), a former steel barricade firing pit; and 05-002, a canyon side disposal site.
- It had BTV and 1.01 x copper TAL exceedances from a July 2019 sample.
- The corrective action consisted of installing coir logs.

M-SMA-12.9

- This site monitors SWMU 05-001(b), a former steel barricade firing pit; and 05-002, a canyon side disposal site.
- It had BTV and 5.91 x copper TAL exceedances from a July 2015 sample.
- The corrective action consisted of installing coir logs, compost logs, and riprap erosion controls.





M-SMA-13

- This site monitors AOC 05-001(c), a former firing point.
- It had BTV and 2.17 x copper TAL exceedances from a August 2021 sample.
- The corrective action consisted of installing coir logs and compost logs.

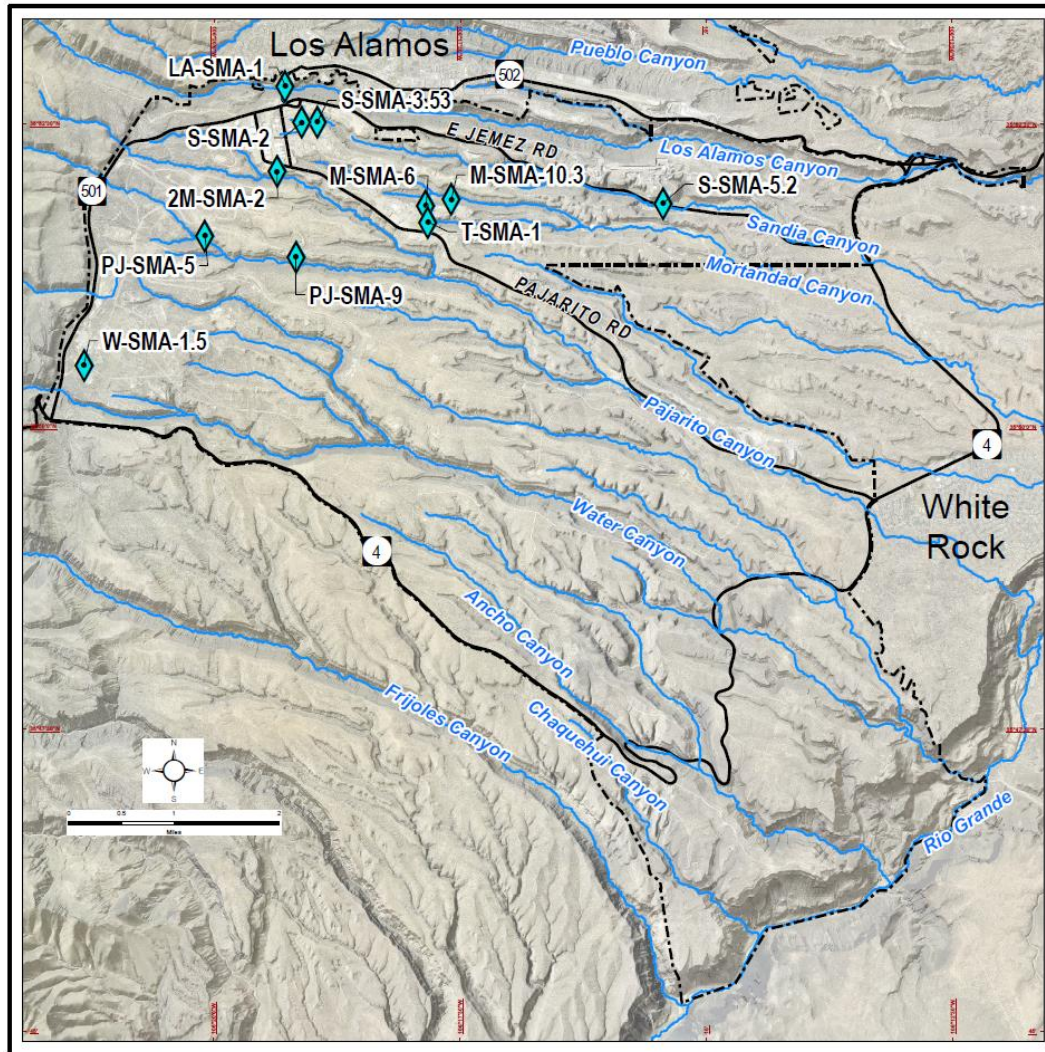


New stormwater controls at M-SMA-12.9





Corrective Actions Scheduled for Completion in 2024





Corrective Actions Scheduled for Completion in 2024

LA-SMA-1

- This site monitors SWMU 00-017, inactive industrial waste lines; and AOC C-00-044, surface contamination from use of lead based paint on Omega bridge.
- It had BTV and 39.9 x aluminum TAL, 2.1 x gross alpha TAL, and 1.7 x PCB TAL exceedances from a July 2017 sample.
- The corrective action installation is complete and certification is in process. The corrective action consisted of installing rock check dams and log berms.

S-SMA-5.2

- This site monitors SWMU 20-003(c), a former gun mount.
- It had BTV and 190.0 x hexachlorobenzene TAL exceedances from a July 2019 sample.
- The corrective action installation is complete and certification is in process. The corrective action consisted of installing coir logs and a rock berm.

M-SMA-10.3

- This site monitors SWMU 35-016(i), a building storm drain outfall; and AOC 35-014(e2), a former oil spill.
- It had BTV and 3.3 x aluminum TAL exceedances from a July 2011 sample.
- The corrective action installation is complete and certification is in process. The corrective action consisted of installing coir logs and gravel bags.





Corrective Actions Scheduled for Completion in 2024

T-SMA-1

- This site monitors SWMU 50-006(a), a former outfall area; and SWMU 50-009, also known as Material Disposal Area C.
- It had BTV and 5.0 & 3.0 x copper, 2.0 x PCB, and 6.1 & 2.0 x zinc TAL exceedances from July and August 2011 samples.
- The corrective action installation is complete and certification is in process. The corrective action consisted of installing sediment basins.



Sediment basin at W-SMA-1.5



New stormwater controls at T-SMA-1

W-SMA-1.5

- This site monitors SWMU 16-026(b2), a former outfall and associated drainlines; and 16-028(d), a former NPDES outfall.
- BTV and 1.4 x copper TAL, and 2.7 x zinc exceedances from a July 2022 sample.
- The corrective action installation is complete and certification is in process. The corrective action consisted of installing rock berms.
- An additional action consisting of vegetation planting and fencing a sediment basin is planned for spring 2024.





Corrective Actions Scheduled for Completion in 2024

2M-SMA-2

- This site monitors SWMU 03-050(d), an area of potential contamination from exhaust emissions; and 03-054(b) a cooling tower outfall.
- It had BTV and 4.3 & 4.6 x copper, 42.0 x PCB, and 1.9 & 2.3 zinc TAL exceedances from June and August 2013 samples.
- The corrective action installation is scheduled for April 2024. The corrective action will consist of expanding an existing sediment basin.

PJ-SMA-5

- This site monitors SWMU 22-015(c), a former NPDES outfall.
- It had BTV and 126.0 & 32.3 x copper TAL exceedances from May 2021 and July 2022 samples.
- The corrective action installation is scheduled for February 2024. The corrective action will consist of a diversion berm and large compost logs.



Soil staining at PJ-SMA-5





Corrective Actions Scheduled for Completion in 2024

S-SMA-2

- This site monitors SWMU 03-012(b), 03-045(b), operational releases from cooling towers, 03-045(c), a cooling tower outfall, and 03-056(c), a former outdoor transformer storage area.
- It had BTV and 160 x PCB TAL exceedances from July and August 2013 samples.
- The corrective action installation is scheduled for May 2024. The corrective action will consist of a shotcrete cap.

S-SMA-3.53

- This site monitors AOC 03-014(b2), a former NPDES outfall.
- It had BTV and 1.2 x copper, and 160 x PCB TAL exceedances from a July 2014 sample.
- The corrective action installation is scheduled for May 2024. The corrective action will consist of a shotcrete cap.



Soil removal area at SWMU 03-056(c) with existing stormwater controls.





Corrective Actions Scheduled for Completion in 2024

M-SMA-6

- This site monitors SWMU 35-016(h), three storm drain outfalls.
- It had BTV and 3.1 x copper, 11 x gross alpha, and 55 x PCB TAL exceedances from an October 2012 sample.
- The corrective action installation is scheduled for Spring 2024. The corrective action will consist of coir logs and rock check dams.

PJ-SMA-9

- This site monitors SWMU 40-009, a former surface disposal area.
- It had BTV and 2.0 & 2.5 x copper TAL exceedances from July 2021 and 2022 samples.
- This site is in alternatives analysis.





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