



# Individual Permit Efficacy of Corrective Action

March 5, 2025

Julianna Barnett





- **Introduction**
- **Rain Gage locations**
- **Pajarito (PJ) Watershed Site Monitoring Area (SMA) (PJ-SMA-5 Study)**
  - Map
  - Background
  - Graph with exceedances
  - Precipitation summary table
- **Starmer/Upper Pajarito (STRM) Watershed (STRM-SMA-4.2 Study)**
  - Map
  - Background
  - Graph with exceedances
  - Precipitation summary table
- **Conclusion**
- **Next Steps**
- **Questions**





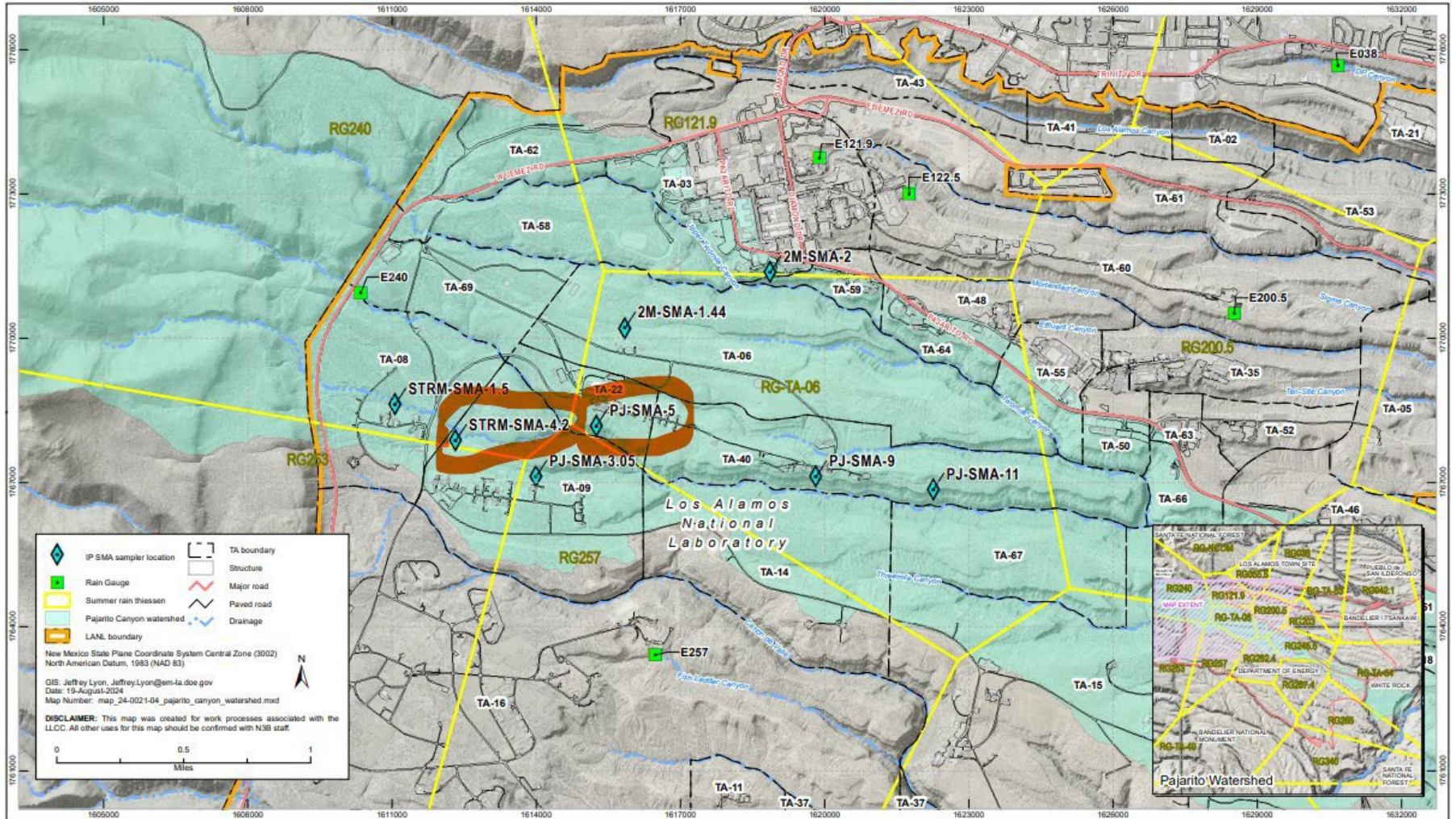
- Overall question: ***“Can we determine how effective corrective actions are at reducing pollutants of concern (POCs) in storm water samples with consideration to storm intensity?”***
- Line graphs for Site Monitoring Areas (SMAs) with multiple rounds of corrective actions and sample exceedances have been developed showing:
  - Contaminant exceedance Target Action Level (TAL) ratios for each sample, the TAL and sample results are notated in ug/L
  - Suspended Sediment Concentration (SSC) where available
  - Storm intensity when sample was collected (*30 min. max, total daily and three- day total*)
  - For the purposes of this presentation, only POCs with more than one data point have been included in this analysis.

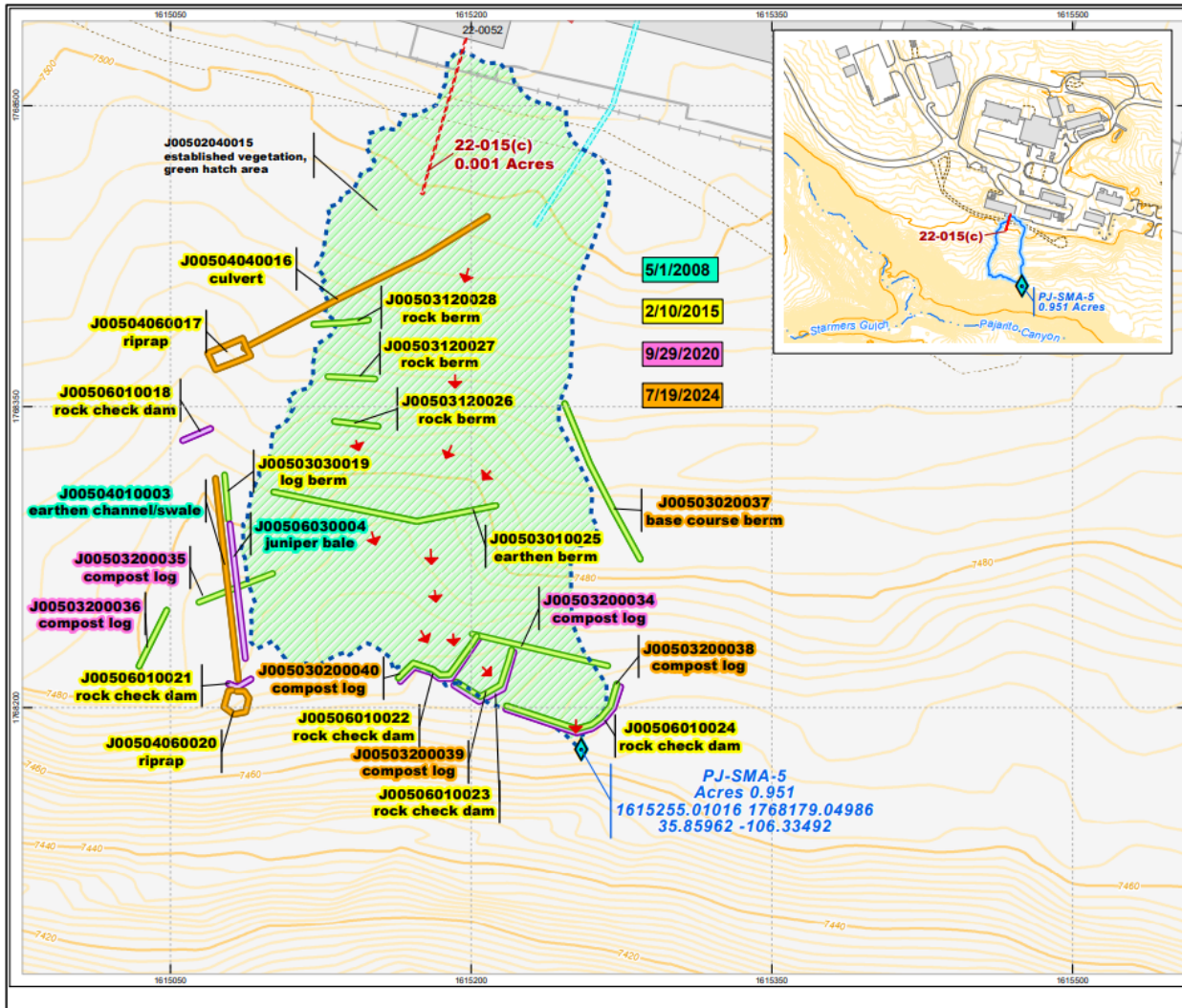
Two of the twenty analysis performed are being presented today: **PJ-SMA-5** & **STRM-SMA-4.2**





# Pajarito (PJ) Watershed Rain Gage Locations





**NPDES Individual Permit NM0030759**  
**Storm Water Permitted Feature**  
**J005: PJ-SMA-5**

- IP sampler location
- Berm
- Channel/swale
- Check dam
- Gabion
- Sediment trap/basin
- Seed and mulch
- Cap
- Vegetation
- SWMU boundary
- SMA drainage area
- Structure
- LANL boundary
- Hydrant
- Flow arrow
- Unpaved road
- Drainage
- Road
- Stormdrain
- Security fence
- Contour, 100, 20 and 10-ft interval
- Contour, 2-ft interval

New Mexico State Plane Coordinate System Central Zone (3002)  
 North American Datum, 1983 (NAD 83)  
 National Geodetic Vertical Datum of 1929 (NGVD 1929, Hypsographic 100 and 20 ft contours)  
 US Survey Ft

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

Q:\18-Projects\18-001111\_Individual\_Permits\SMA\Paper\PJ-SMA-5\JB\_Presentation\06-J005-13-0006-142-PJ5\_Combined.mxd

**TYPE: REGULAR**  
 GIS: Jeffrey Lyon  
 DATE: 24-April-2024  
 REVISION NUMBER: 20

0 25 50 Feet





Constituent	TAL	10/12/2012	9/3/2018	5/30/2021	7/26/2022	9/5/2024
Copper (ug/L)	4.35	75.5	651	549	141	292
SSC (mg/L)	n/a	n/a	800	n/a	n/a	3400

- Respective Rain Gage: RG-TA-06
- Controls Installed:
  - 5/1/2008 - earthen channel/swale, juniper bales (baseline controls)
  - 2/10/2015 - earthen berm, log berm, rock berms, culvert, riprap, and rock check dams
  - 9/29/2020 - compost logs
  - 7/19/2024 – base course berm and compost logs
- A sample from 2024 exceeded for copper. This SMA will enter corrective action after a second sample is collected or two years have passed.



Compost logs (2024) and rock check dams (2015)

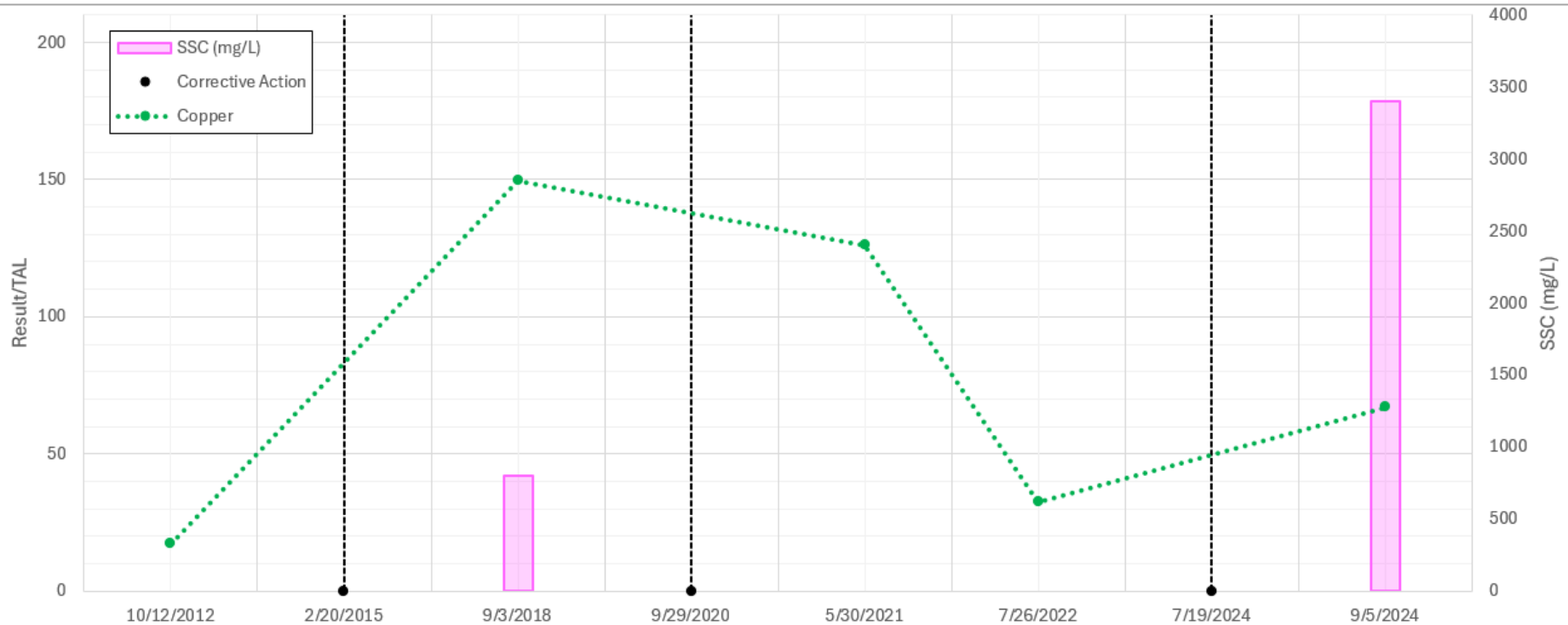


Base course berm (2024)



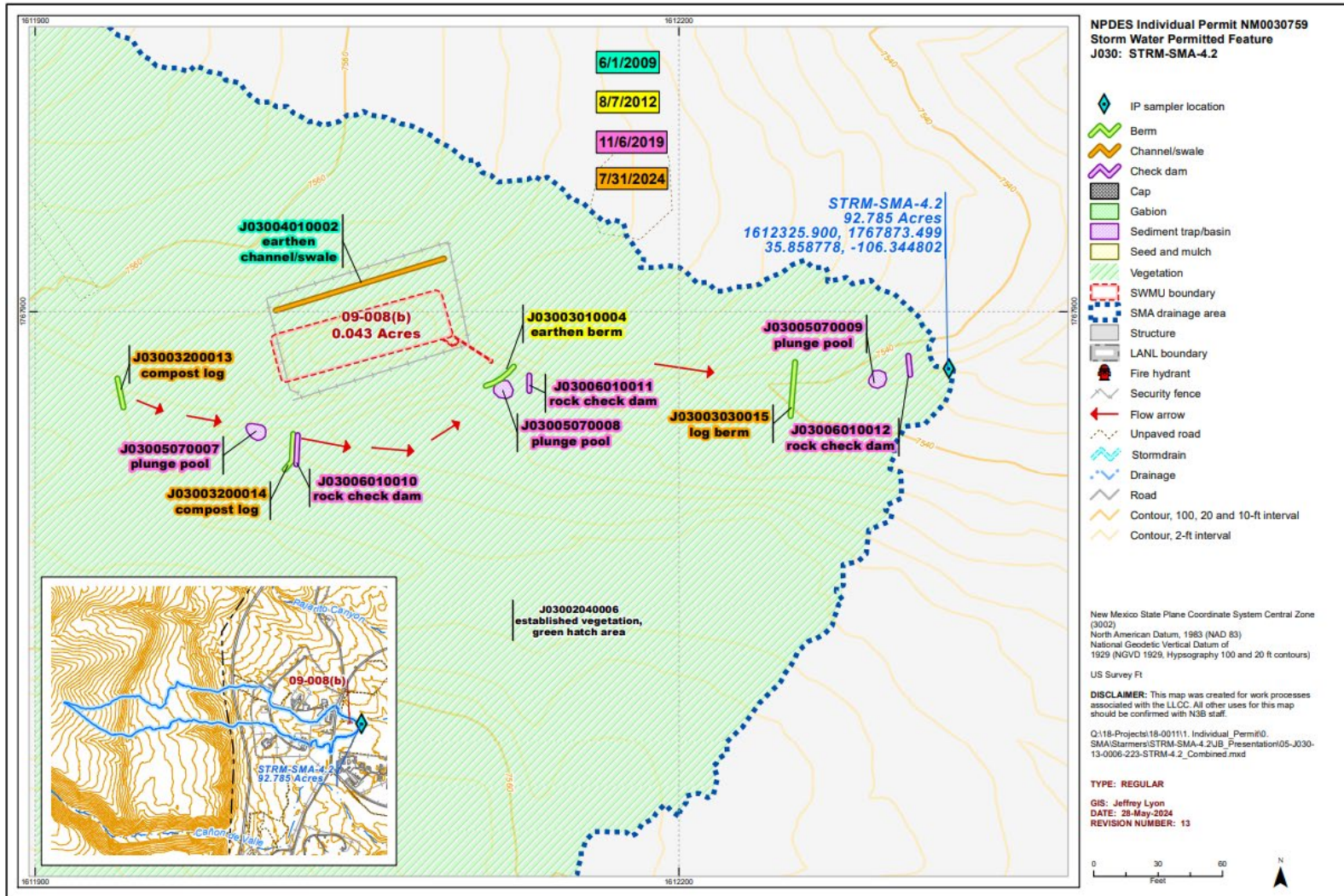


# PJ-SMA-5 Efficacy of Corrective Action Graph



Date	10/12/2012	2/20/2015	9/3/2018	9/29/2020	5/30/2021	7/26/2022	7/19/2024	9/5/2024
<b>30 Min. Max (in)</b>	0.53	n/a	0.37	n/a	0.43	0.09	n/a	0.6
<b>Total Daily (in)</b>	1.02	n/a	0.4	n/a	0.6	0.27	n/a	1.34
<b>Three-day Total (in)</b>	1.02	n/a	0.58	n/a	0.77	0.39	n/a	1.37
<b>Corrective Actions</b>	n/a	Earthen berm, log berms, rock check dams	n/a	Small compost logs	n/a	n/a	Base course berm, large compost logs	n/a









Constituent	TAL	7/29/2017	9/27/2017	7/27/2021	7/4/2022
Aluminum [F] (ug/L)	750	2190	1980	569	779
Copper (ug/L)	4.35	8.81	5.26	4.57	4.67
Silver (ug/L)	0.41	0.52	0.3	0.57	0.45
SSC (mg/L)	n/a	n/a	300	300	135

- Respective Rain Gage: RG-240
- Controls Installed:
  - 6/1/2009 - earthen channel/swale (baseline controls)
  - 8/7/2012 - earthen berm
  - 11/6/2019 - plunge pools, rock check dams
  - 7/31/2024 – log berm, compost logs
- Sampler was moved after 2012; therefore, only samples after 2012 were included in this analysis.
- This SMA will enter corrective action for a 2023 TAL exceedance for a POC that was previously not monitored after a second sample is collected or two years have passed.



Coir log (2024), rock check dam and plunge pool (2019)

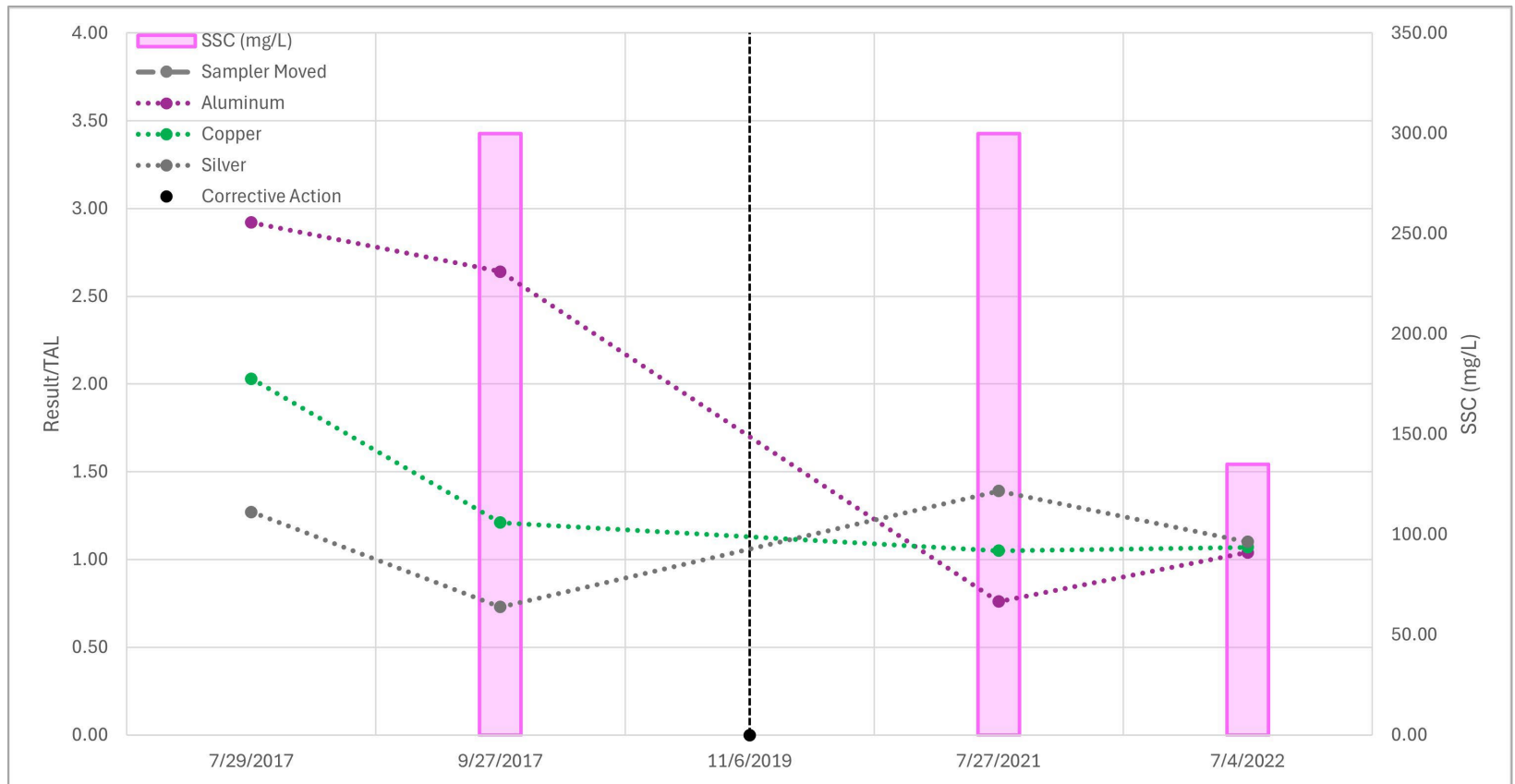


Coir log (2024)





# STRM-SMA-4.2 Efficacy of Corrective Action Graph



Date	7/29/2017	9/27/2017	11/6/2019	7/27/2021	7/4/2022
<b>30 Min. Max (in)</b>	0.29	0.18		0.31	0.21
<b>Total Daily (in)</b>	0.54	1.71		0.37	0.53
<b>Three-day Total (in)</b>	0.97	2.34		0.61	0.87
<b>Corrective Action / Site Change</b>	n/a	n/a	Plunge pools, rock check dams	n/a	n/a





- Given the many site-specific parameters, evaluating the efficacy of corrective actions is complex.
- This analysis for PJ-SMA-5 appears to show SSC and storm intensity as drivers of the magnitude for exceedances.
- This analysis for STRM-SMA-4.2 appears to show that smaller controls are effective at reducing POCs exceedances, but there may be a lower limit to still be reached.

### Trends help in planning future installations of control measures, such as:

- Small exceedances with high SSC – Enhanced controls that focus on runoff, sediment and erosion controls.
  - (i.e., PJ-SMA-9 - rock check dams, coir logs installed 2024, STRM-SMA-4.2 - plunge pools, rock check dams installed 2019)
- Large exceedances driven by Solid Waste Management Unit/Area of Concern soil data results – no exposure controls
  - (i.e., S-SMA-2 - Shotcrete cap over SWMU installed 2024)
- Large exceedances driven by precipitation/high SSC – retention controls focused on preventing runoff and sediment migration.
  - (i.e., 2M-SMA-2 - sediment basin extension completed in 2024)





- Include any co-located sites to highlight differences/similarities between sites that are close to each other (i.e., LA-SMA-1/LA-SMA-1.25, PJ-SMA-11/PJ-SMA-11.1).
- Include any construction activities ongoing in background, to show additional context of why samples might be exceeding.
- Include sites where controls have been effective for preventing exceedances, to compare/contrast to sites with multiple exceedances.

**Any questions or comments?**

