LA-UR-14-20366

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Title:	**January 2014 Public Meeting Presentation, Individual Permit for Storm Water, NPDES Permit No. NM0030759**
Author(s):	Veenis, Steven J.
Intended for:	Public, NMED, USEPA
Purpose:	This presentation was prepared for the Individual Permit for Storm Water (IP) public meeting held at the Cities of Gold Casino, Pojoaque, NM, on January 22, 2014. The purpose of the meeting was to update the public on implementation of and compliance with the permit and to provide the opportunity for public comment as required under Part 1.I (7) of the IP (National Pollutant Discharge Elimination System Permit No. NM0030759). The presentation will be available on Los Alamos National Laboratory's (LANL's) public website.

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NATIONAL LABORATORY
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ADEP Surface Water Protection Project
NPDES Storm Water Individual Permit
Biannual Update

January 2014

LA-UR-14-20366

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Welcome

- 7th Biannual Meeting
- CCW Technical Meetings
- May expand future meetings to include other surface water protection topics
  - Gage network
  - Sediment sampling
  - Canyon scale controls
  - Source removal projects

General Ground Rules

- Please wait until the scheduled time to provide information or to ask questions;
- Please identify yourself before speaking;
- Please keep questions brief;
- Please honor the process by keeping questions and comments civil and by using appropriate language;
- Please yield the floor if requested by a facilitator; and
- Please help the participants and facilitator ensure the agenda content and timeframes are met.

Agenda

Poster Session	5:30 p.m.	
Welcome	5:50 p.m.	Steve Veenis
Storm & Flooding Events Fall 2013	6:00 p.m.	Armand Groffman
IP Compliance for 2013	6:15 p.m.	Jeff Walterscheid Kate Lynnes
Screening Process under the IP	6:35 p.m.	Thaddeus Kostrubala
Permit Renewal	6:45 p.m.	Kate Lynnes
Communities for Clean Water Youth Initiative Project	7:00 p.m.	Robert Chavez
Wrap-up	7:15 p.m.	Steve Veenis

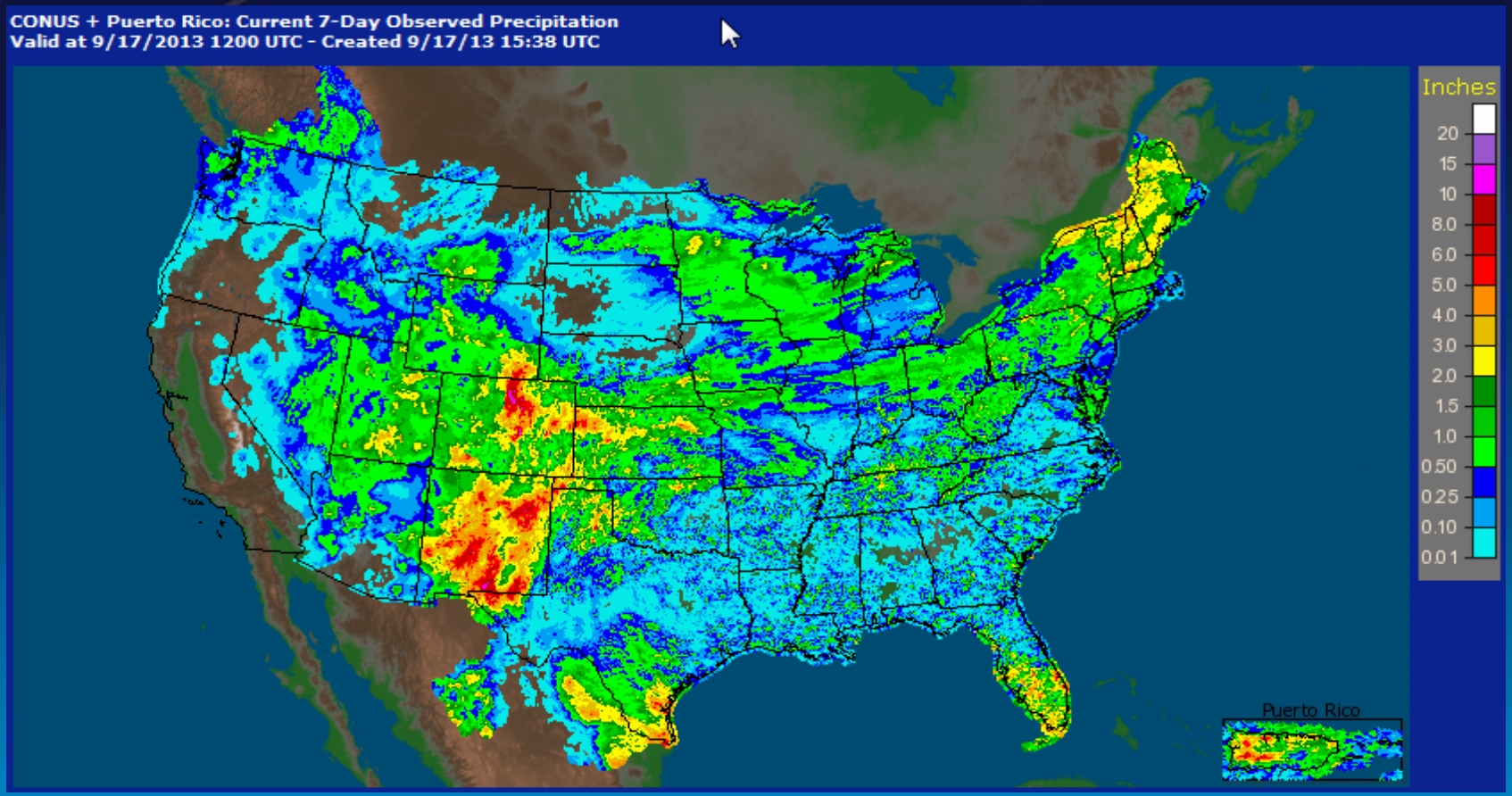
- Note: All times are approximate

IP Monitoring

Storms and Flooding in September 2013

Armand Groffman

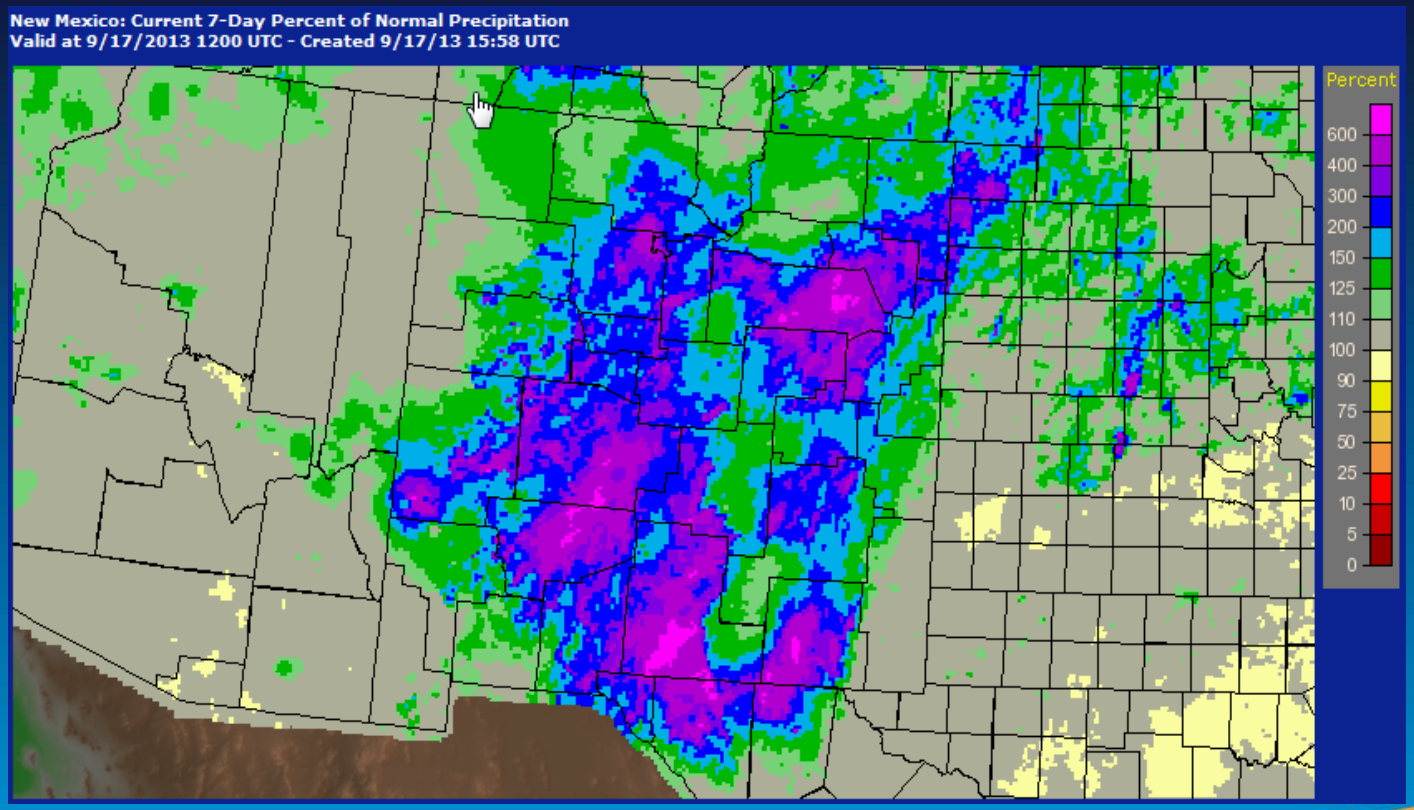
Observed precipitation for the continental United States for September 10-17, 2013



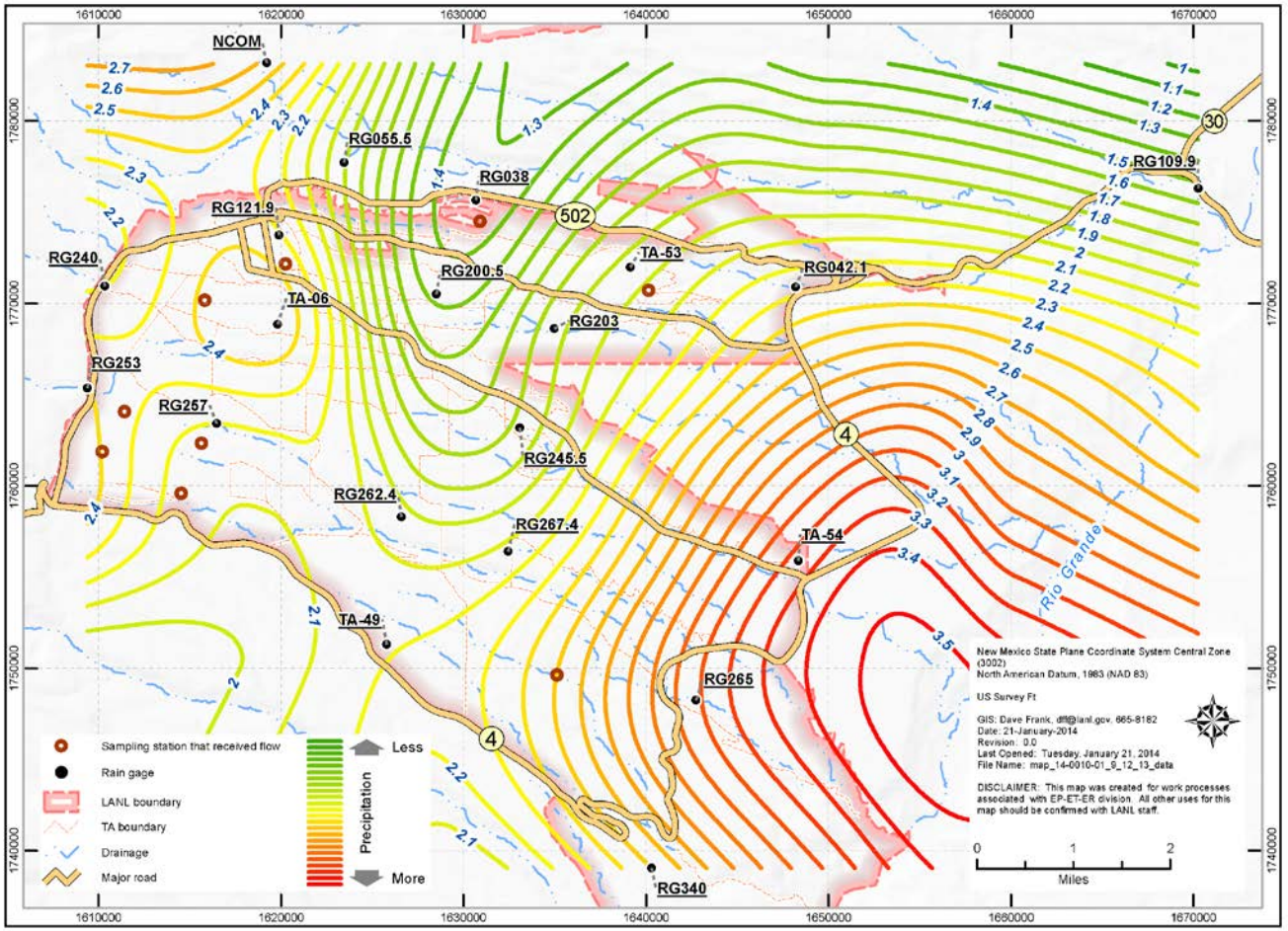
(Source: National Oceanic and Atmospheric Administration [NOAA])

Percent of precipitation for September 10 to 17, 2013, for New Mexico (NOAA)

- Los Alamos County received between 200% and 600% of the normal precipitation for this time period.



September 12, 2013 Isohyetal Map and SMAs that Collected Storm Water Samples



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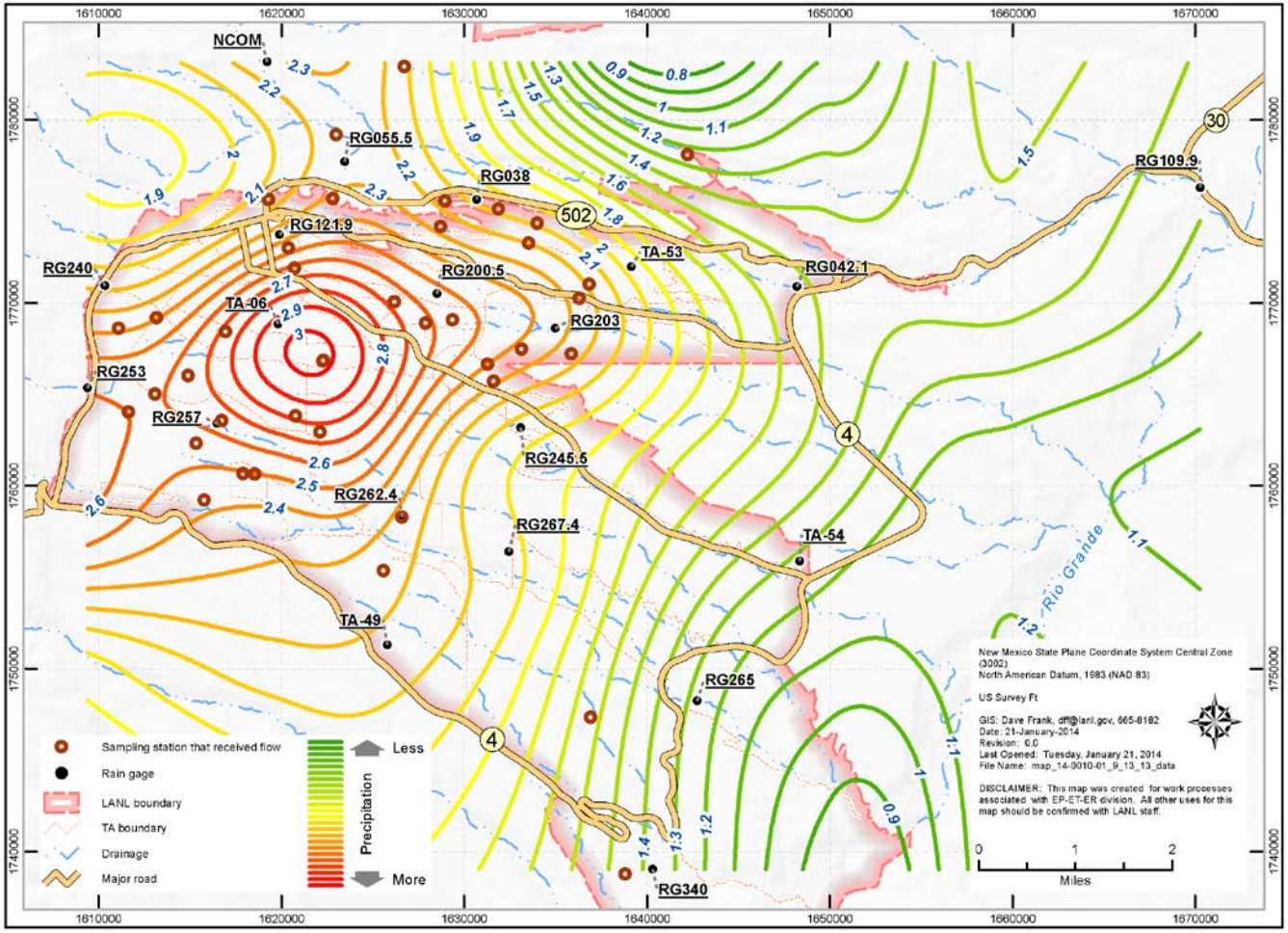
September 13, 2013 Isohyetal Map and SMAs that Collected Storm Water Samples



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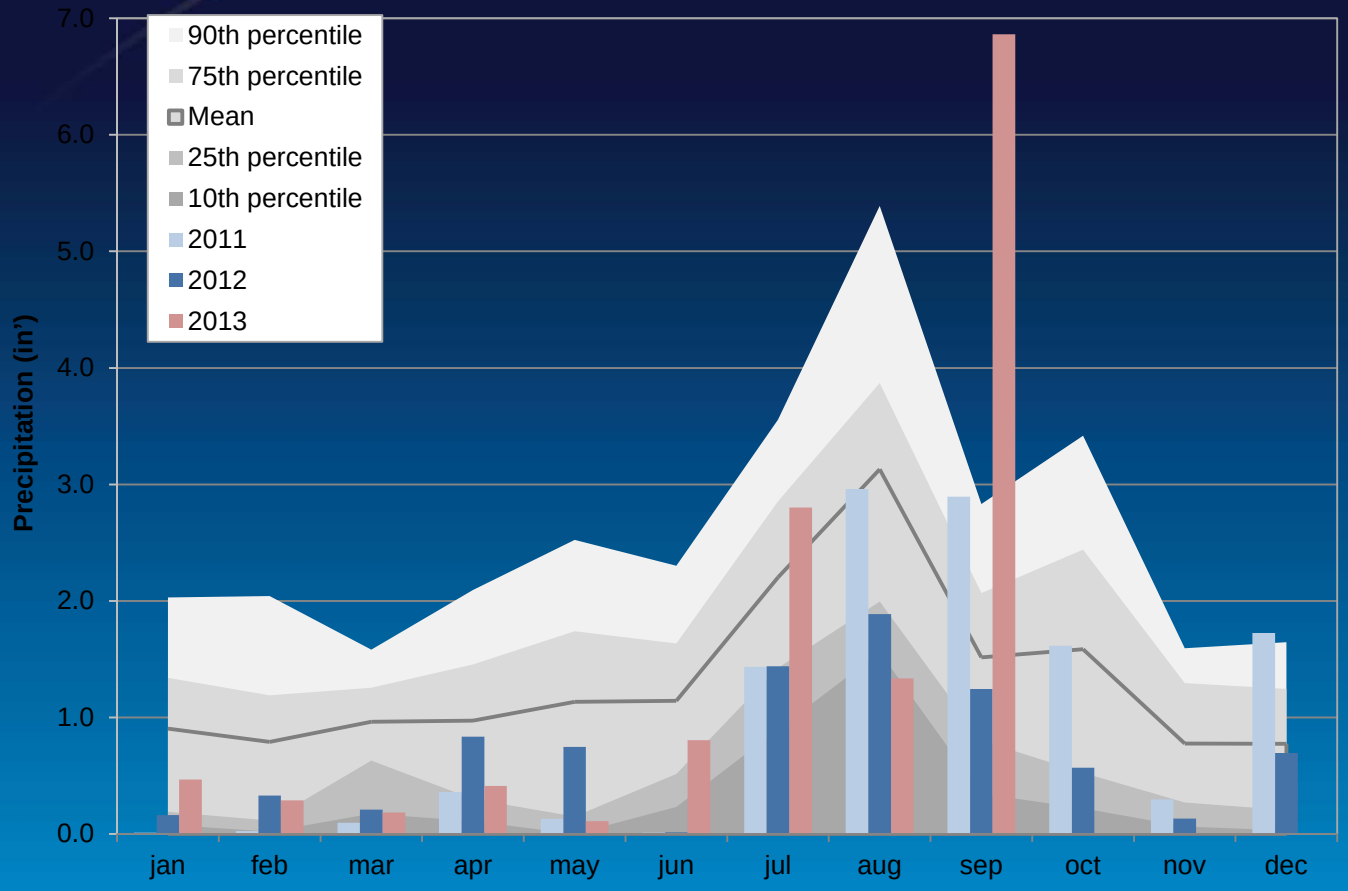
Total precipitation for each month of 2011, 2012 and through September 2013; Laboratory meteorological tower data averaged over the Laboratory



Mean and percentiles are based on data from 1992 to 2010.

Total precipitation at LANL meteorological towers

Met Tower	9/10/2013		9/11/2013		9/12/2013–9/13/2013		9/14/2013–9/15/2013	
	Precipitation (in.)	Return Period (yr)	Precipitation (in.)	Return Period (yr)	Precipitation (in.)	Return Period (yr)	Precipitation (in.)	Return Period (yr)
TA-06	1.35	3	0.10	<1	5.07	>1000	0.36	<1
TA-49	1.40	2	0.08	<1	3.94	200	1.85	5
TA-53	1.21	3	0.05	<1	3.70	>1000	0.49	<1
TA-54	1.37	4	0.02	<1	4.28	>1000	1.02	1
NCOMM	1.40	2	0.09	<1	4.49	>1000	0.35	<1
LANL Average	1.35	3	0.07	<1	4.30	>1000	0.81	1

Sequence of Events

- Heavy rain week of September 8, 2013
- Flooding Friday, September 13
  - Limited teams in field due to safety concerns
- Access inspections (two days)
- Site inspection of roads, site monitoring areas (SMAs), gages, watershed controls, wells, and equipment recovery (15 days)
- Government shutdown (October 2-21)
- Government declared flood emergency
- Flood Assessment Report (completed in November)
- Prioritize maintenance work based on budget, high priority site and target action level (TAL) exceedance
- Weather is a limiting condition for completion of control maintenance
- Using current weather window to our advantage for completion of maintenance items

Flooding in lower Pueblo Canyon above the grade control structure on September 13, 2013

Flooding in S-SMA-0.25 drainage adjacent to the University House

2M-SMA-2 during September 13, 2013 storm event

Damage to access roads

Gage station impacts

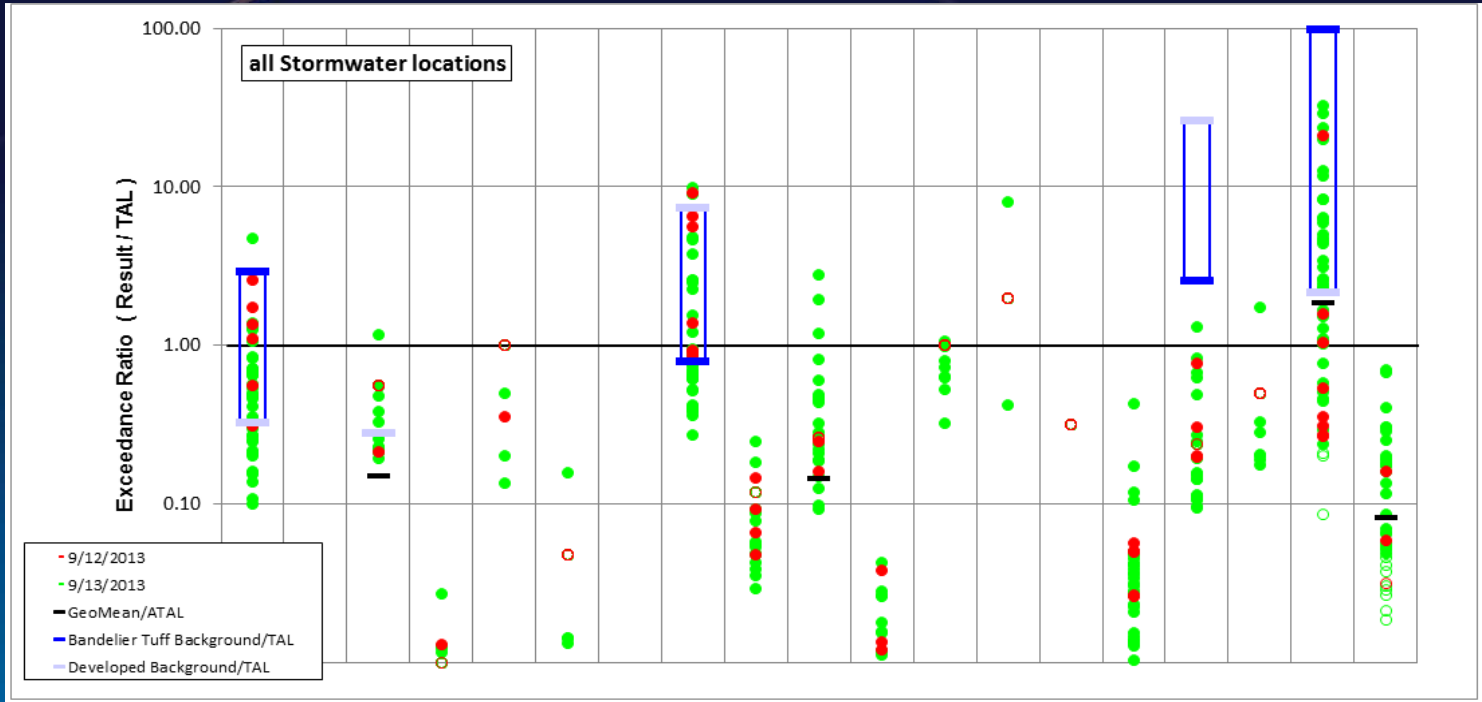
Impacts to SMAs

Ancho Canyon

Sandia Canyon

Los Alamos Canyon Weir

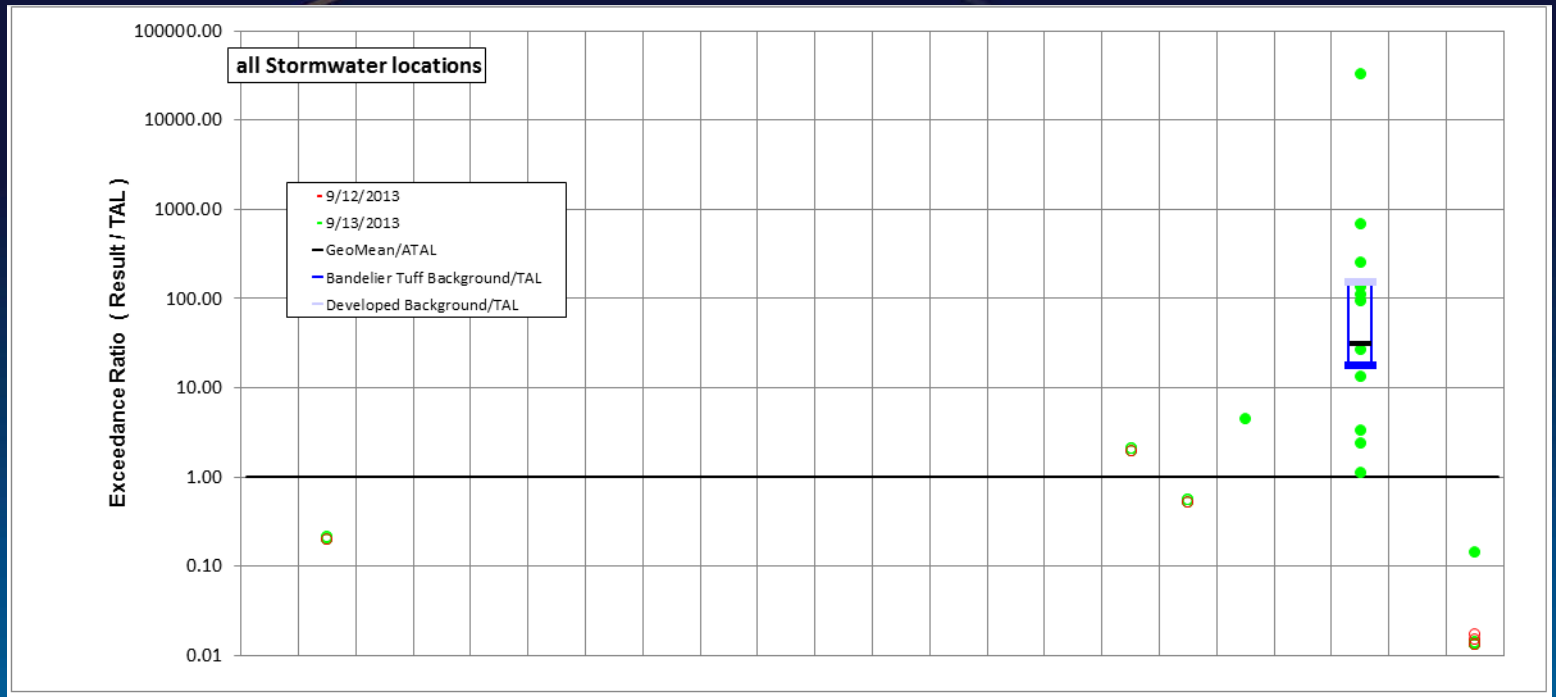
Inorganic results from the samples collected during September 12 and 13, 2013 storm event



	Aluminum	Antimony	**Arsenic**	Boron	Cadmium	Chromium	Cobalt	**Copper**	Lead	**Mercury**	Nickel	**Selenium**	**Silver**	Thallium	Vanadium	**Zinc**	**Cyanide, weak acid dissociable**	**Gross alpha**	Radium-226 and Radium-228
std used in ratio calculations	MTAL	ATAL	ATAL	ATAL	MTAL	MTAL	ATAL	MTAL	MTAL	ATAL	MTAL	ATAL	MTAL	ATAL	ATAL	MTAL	ATAL	ATAL	ATAL
std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L
9/13/2013 result	**3540**	4.61	**10.6**	135	*1*	33.2	6.28	**42.9**	4.19	**2.14**	7.19	**5.33**	**4.02**	*2*	42.5	**55.4**	**0.0175**	**486**	20.9
result / TAL	**4.7**	0.0072	**1.2**	0.027	*1*	0.16	0.0063	**10**	0.25	**2.8**	0.042	**1.1**	**8**	*0.32*	0.42	**1.3**	**1.8**	**32**	0.7
9/12/2013 result	**1920**	*3*	*5*	65.2	*1*	*10*	1.81	**39.5**	2.47	*0.2*	6.47	*5*	***1***	*2*	5.62	32.3	*0.005*	**314**	4.78
result / TAL	**2.6**	*0.005*	*0.56*	0.013	*1*	*0.048*	0.0018	**9.2**	0.15	*0.26*	0.038	*1*	***2***	*0.32*	0.056	0.77	*0.5*	**21**	0.16

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

Organic results from the samples collected during September 12 and 13, 2013 storm event



	Aldrin	Benzo(a)pyrene	BHC[gamma-]	Chlordane (alpha/gamma)	Chlordane[alpha-]	Chlordane[gamma-]	DDD[4,4'-]	DDE[4,4'-]	DDT[4,4'-]	Dieldrin	Endosulfan I	Endosulfan II	Endrin	Heptachlor	Heptachlor Epoxide	**Hexachlorobenzene**	Pentachlorophenol	**RDX**	Tetrachlorodibenzo dioxin[2,3,7,8-]	**Total PCB**	Toxaphene (Technical Grade)	Trinitrotoluene [2,4,6-]
std used in ratio calculations	-	ATAL	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	MTAL	ATAL	-	ATAL	-	ATAL
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	200	-	6E-04	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
9/13/2013 result	-	*1.06*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10.6***	*10.6*	**908**	-	**21.1**	-	2.93
result / TAL	-	*0.21*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2.1***	*0.56*	**4.5**	-	**33000**	-	0.15
9/12/2013 result	-	*1*	-	-	-	-	-	-	-	-	-	-	-	-	-	***10***	*10*	0.411	-	-	-	*0.347*
result / TAL	-	*0.2*	-	-	-	-	-	-	-	-	-	-	-	-	-	***2***	*0.53*	0.002	-	-	-	*0.017*

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

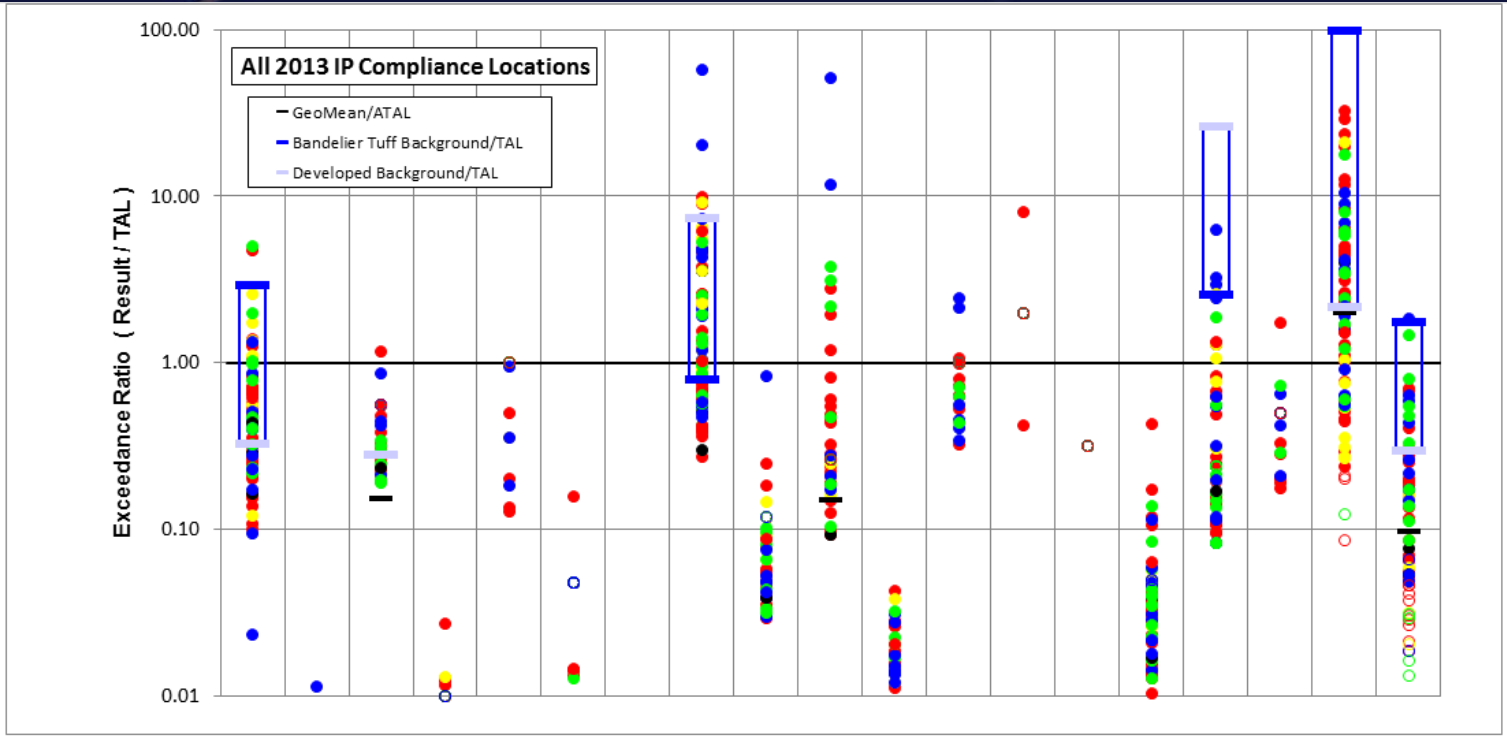
September Storm Summary

- The September 2013 storms resulted in catastrophic flooding on the Pajarito Plateau.
- Damage has been assessed and work will be scheduled when funding is released.
- Samples were collected at 49 SMAs.
  - September 13th rainfall was a 1,000-yr return event
- TAL exceedances included the usual constituents (Al, Cu, some Hg, gross alpha, and polychlorinated biphenyls).
- Most of the TAL exceedances fall in the range of background/ baseline concentrations.

IP Monitoring

2013 Results

Inorganic results from the samples collected during the 2013 monitoring season



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std value	750	640	9	5000	1	210	1000	4.3	17	0.77	170	5	0.5	6.3	100	42	0.01	15	30
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	pCi/L	pCi/L

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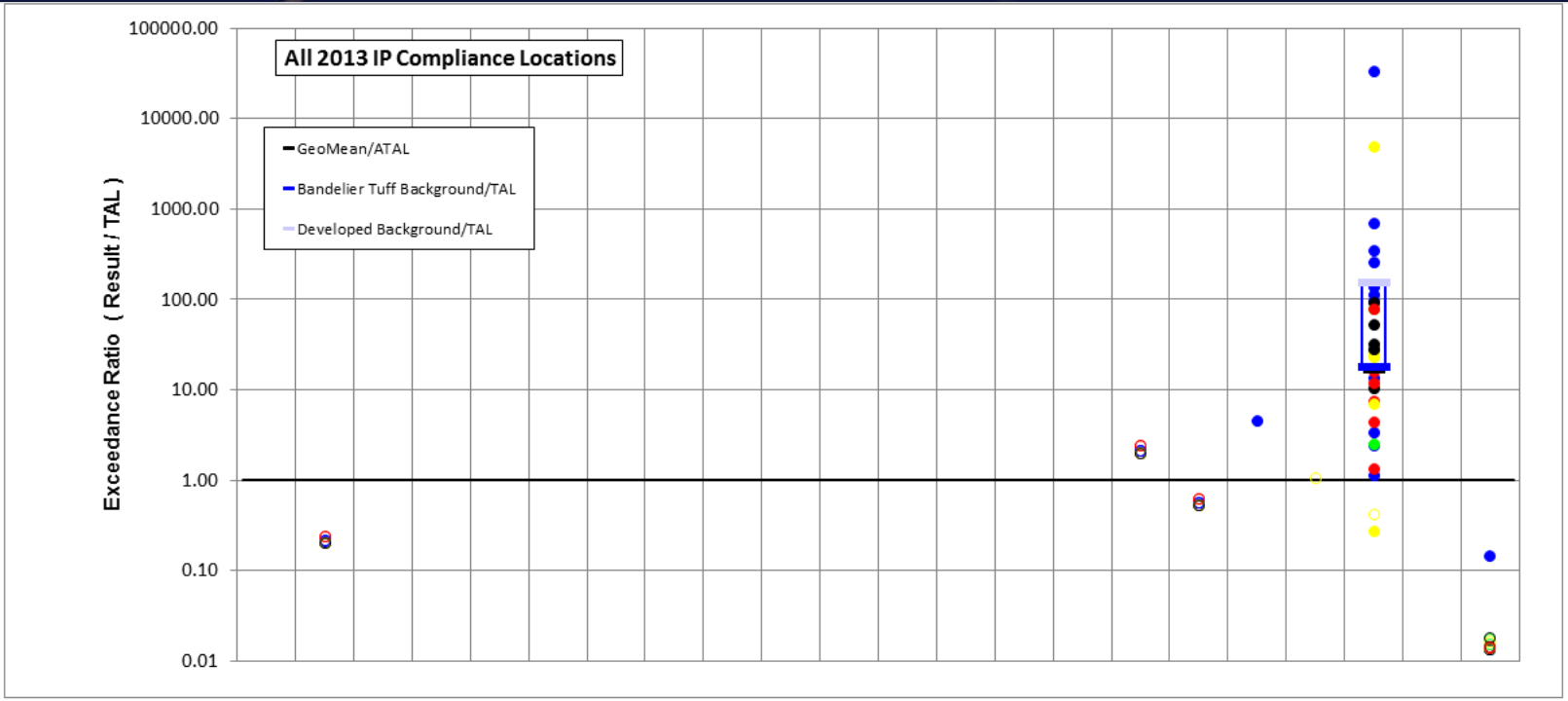
Organic results from the samples collected during the 2013 monitoring season



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std used in ratio calculations	-	ATAL	-	-	-	-	-	-	-	-	-	-	-	-	-	ATAL	MTAL	ATAL	ATAL	ATAL	-	ATAL
std value	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	19	200	1E-05	6E-04	-	20
unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

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

2013 IP Monitoring Results Summary

- Thirty storms impacted the Laboratory during 2013.
- Storm water samples were collected from 28 storms during the 2013 monitoring season.
- A total of 89 samples were collected under the IP during the 2013 monitoring season; 49 samples were collected during September 12th and 13th.
- Samples have never been collected at 64 SMAs throughout the life of the Individual Permit, including the storms of September 2013.
- TAL exceedances included the usual constituents (Al, Cu, Zn, some Hg, gross alpha, and polychlorinated biphenyls).
- Most of the TAL exceedances fall in the range of background/ baseline concentrations.

IP Compliance

2013

Jeff Walterscheid
Kate Lynnes

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2013 Field Status

January-August

- The Pajarito Plateau was in severe drought conditions
- Summer monsoon rain events were localized

September

- Upwards of eight inches of rain plateau wide during the month

October-December

- Early snows in mid November

Challenges Completing Field Work

- Seasonal Restrictions
  - Winter, lightning, red flag conditions
  - Endangered species
- Health & Safety
  - Accessibility
  - Site specific hazards
- Cultural Concerns
  - Archaeological sites
  - Historical sites/trails
- Property Ownership
  - Access agreements

Control Measures

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Routine Maintenance

- Based on site inspection results following a qualifying storm event
  - 859 rain event inspections completed during 2013
    - January-August: 592 inspections completed
    - September-December: 267 inspections completed
  - 106 work orders for routine maintenance were issued and work completed prior to September
  - September storm event routine maintenance work orders are currently being issued and work is being completed

Control Measures

Additional Controls

- Based on monitoring results, SMAs with confirmation samples exceeding TALs are evaluated for installation of additional controls.
  - Eleven SMAs had additional controls installed

M-SMA-1.22 Sand Filter

STRM-SMA-1.05 Vegetated Swell with Rock Check Dams

W-SMA-1 Drainage Controls

W-SMA-1 Sand Filter Bed

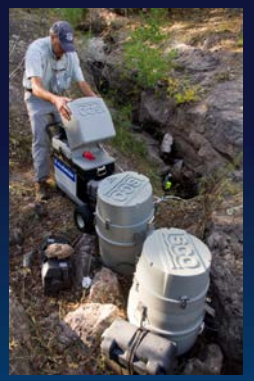
PJ-SMA-13.7 Sediment Basin

PJ-SMA-13.7 Plugged Outfall Pipe

S-SMA-2 Retention Pond

Completion Status Summary

- Certified corrective action complete for 20 sites using a certificate of completion (CoC) issued by NMED
- Certified corrective action complete for two sites based upon a demonstration of “no exposure”
- Submitted two alternative compliance requests for five sites in TA-03
- Submitted a permit modification request for one site to change from High Priority to Moderate
- Submitted two force majeure requests for six sites based upon waiting for NMED to issue CoCs
- Developed a screening procedure to identify corrective measure alternatives (EP-DIV-SOP-20176)



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Individual Permit

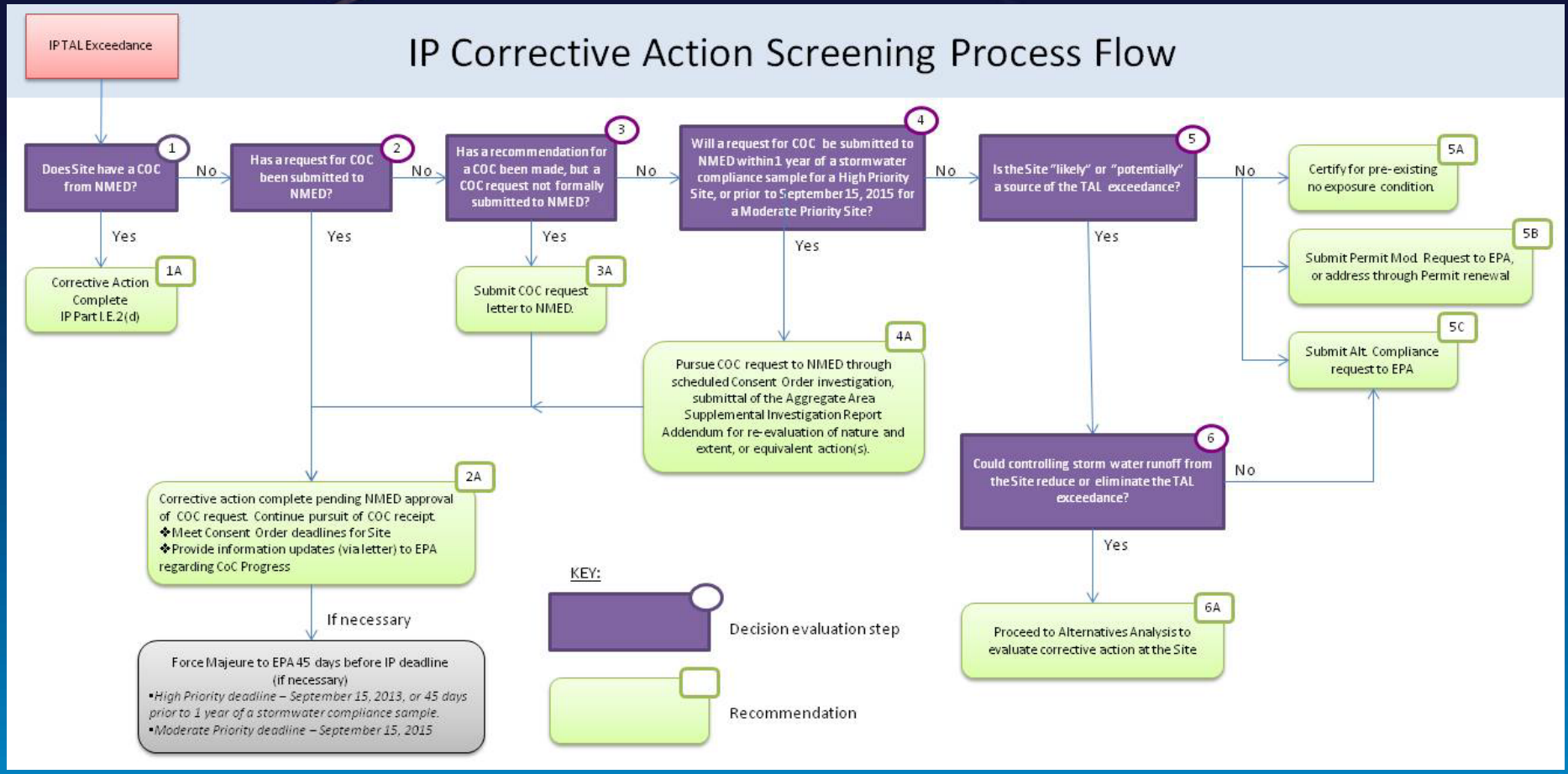
Screening Process

Thaddeus Kostrubala

Screening Purpose

- Evaluate and select corrective action following a TAL exceedance
- 74 TAL exceedance screened at SMAs
  - 155 sites

Screening Considerations



Screening Considerations

Los Alamos NATIONAL LABORATORY	Individual Permit Corrective Action Screening NPDES Permit No. NM0030759	SMA Name

Attachment 1-A:
XXX-SMA-XXX Table Review for Corrective Action Screening

Table Review for Corrective Action Screening

☐ Moderate Priority Site ☐ High Priority Site

Storm Water Data

TAL Exceedances (*see scatter plots*)	Exceeds Tuff Background/TAL	Exceeds Developed Background/TAL	Notes
Constituent 1 (X TAL) – Value (TAL)	(UTL) ☐ Yes ☐ No	(UTL) ☐ Yes ☐ No	
Constituent 2 (X TAL) – Value (TAL)	(UTL) ☐ Yes ☐ No	(UTL) ☐ Yes ☐ No	

Soil Sampling Data

Site	TAL Constituent Detected Above BV/SSLs in RFI or CO Soil Sampling in upper 3 ft?	TAL Constituent Associated with Industrial Material?	Is Site a Potential Source of the TAL Exceedance?	Notes
Site 1 – Site definition	Constituent 1 – Y/N (description) Constituent 2 – Y/N (description)	Constituent 1 – "Known to have been used"; "Likely to have been used"; or "Not known to have been used" (description) Constituent 1 – "Known to have been used"; "Likely to have been used"; or "Not known to have been used" (description)	Constituent 1 – "Likely/Potential/Unlikely" (description) Constituent 2 – "Likely/Potential/Unlikely" (description)	
Site 2 – Site definition	Constituent 1 – Y/N (description) Constituent 2 – Y/N (description)	Constituent 1 – "Known to have been used"; "Likely to have been used"; or "Not known to have been used" (description) Constituent 1 – "Known to have been used"; "Likely to have been used"; or "Not known to have been used" (description)	Constituent 1 – "Likely/Potential/Unlikely" (description) Constituent 2 – "Likely/Potential/Unlikely" (description)	

Consent Order Status

Soil Investigation Summary	Add text
Site 1	• Add text
Site 2	• Add text

Compliance Path Evaluation

Certify for No Exposure	Add text
Submit Alternative Compliance request to EPA	Add text
Submit Permit Modification request to EPA or address through Permit renewal	Add text

Additional Information to Support Recommendations

Add text

TAL comparison to tuff and developed background values

Comparison to soil sampling results

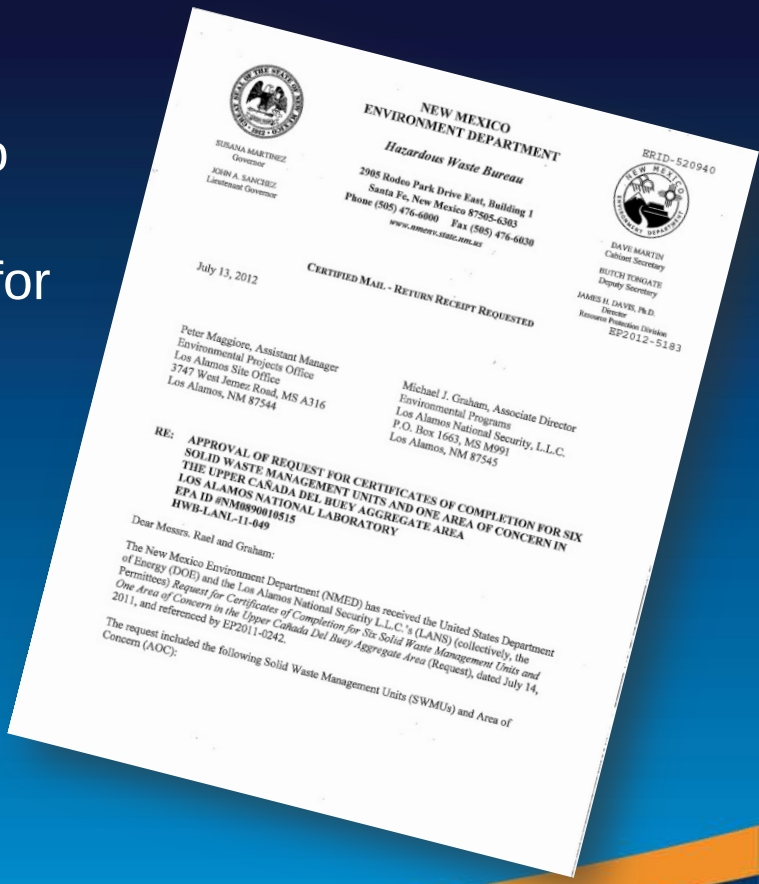
Consent Order status

Compliance path

Additional information

Screening Recommendations

- Pursue a Certificate of Completion
  - CoC request has been submitted to NMED and is under review
  - NMED approves recommendation for CoC in the investigation report
    - Request will be submitted to NMED
  - Scheduled Consent Order actions are anticipated to result in a recommendation for a CoC



NEW MEXICO
ENVIRONMENT DEPARTMENT
Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
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Governor

JOHN A. SANCHEZ
Lieutenant Governor

DAVE MARTIN
Cabinet Secretary

BUTCH TONGATE
Deputy Secretary

JAMES H. DAVIS, Ph.D.
Director
Resource Protection Division

ERID-520940

EP2012-5183

July 13, 2012

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Peter Maggiore, Assistant Manager
Environmental Projects Office
Los Alamos Site Office
3747 West Jemez Road, MS A316
Los Alamos, NM 87544

Michael J. Graham, Associate Director
Environmental Programs
Los Alamos National Security, L.L.C.
P.O. Box 1663, MS M991
Los Alamos, NM 87545

RE: APPROVAL OF REQUEST FOR CERTIFICATES OF COMPLETION FOR SIX SOLID WASTE MANAGEMENT UNITS AND ONE AREA OF CONCERN IN THE UPPER CAÑADA DEL BUEY AGGREGATE AREA
LOS ALAMOS NATIONAL LABORATORY
EPA ID #NM0890010515
HWB-LANL-11-049

Dear Messrs. Rael and Graham:

The New Mexico Environment Department (NMED) has received the United States Department of Energy (DOE) and the Los Alamos National Security L.L.C.'s (LANS) (collectively, the Permittees) *Request for Certificates of Completion for Six Solid Waste Management Units and One Area of Concern in the Upper Cañada Del Buey Aggregate Area* (Request), dated July 14, 2011, and referenced by EP2011-0242.

The request included the following Solid Waste Management Units (SWMUs) and Area of Concern (AOC):

Screening Recommendations

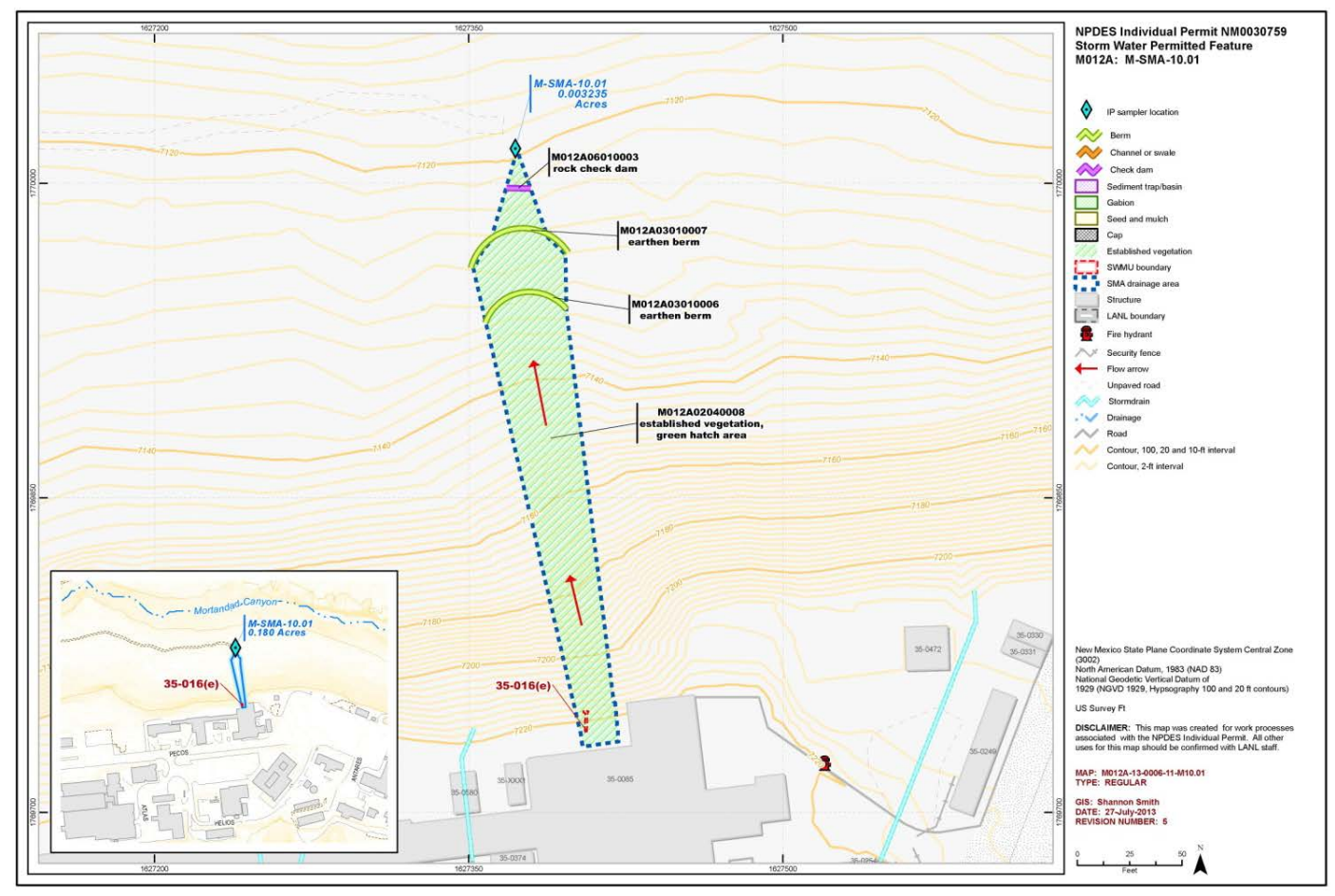
- Alternatives Compliance Candidate
  - CoC potential is not within the Individual Permit compliance time frame
  - Site is not the source of the TAL exceedance

Screening Recommendations

- Proceed to Alternatives Analysis:
  - The site is “likely” or “potentially” a source of the TAL exceedance
  - Evaluate available corrective action options under the Individual Permit:
    - *Site remediation*
    - Installation of a *no exposure* cover
    - Installation of a *total retention* control (volume based on graded approach)
    - Installation of *enhanced controls* to reduce storm water peaks and frequency of flow events

Note: The corrective action option, or options selected, must meet TALs or alternative compliance request is required.

Screening Examples



M-SMA-10.01 / AOC 35-016(c) (former outfall)

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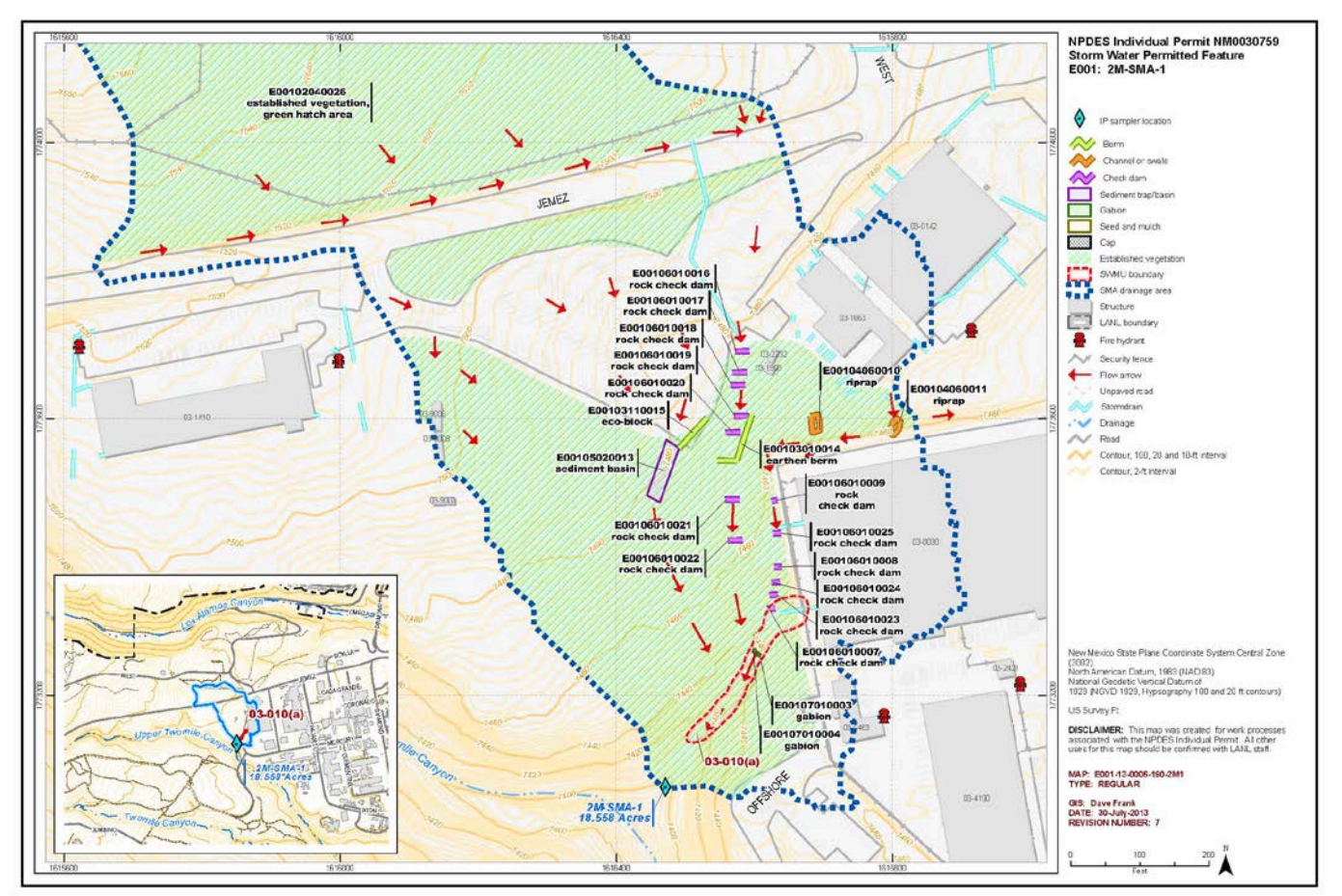
Screening Examples

- Pursue a CoC
  - M-SMA-10.01/AOC 35-016(c) (former outfall)
    - TAL exceedance: **Gross Alpha (1.3×) / Copper (3.7×)**
    - Site history:
      - Former NPDES-permitted outfall to discharge only non-contact cooling water from building 35-85
      - Copper and alpha-emitting radionuclides are not known to be associated with industrial materials managed at the area of concern (AOC)
    - Recommendation:
      - Pursue the CoC through the request submitted to NMED in August 2011

Screening Examples



2M-SMA-1 / SWMU 03-010(a) (former vacuum repair shop outfall and drainage)

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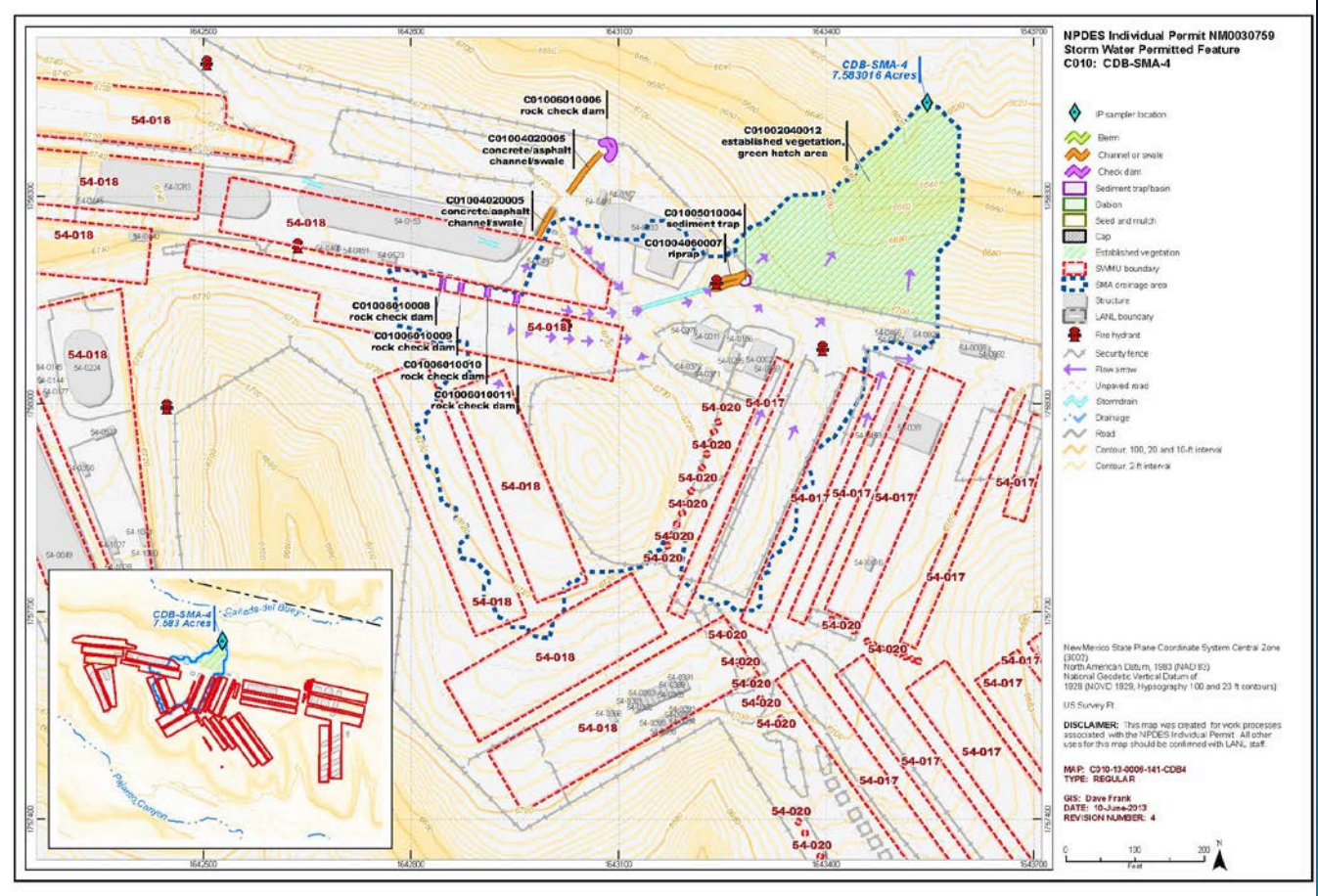
Screening Examples

- Alternative Compliance
  - 2M-SMA-1/SWMU 03-010(a) (former vacuum repair shop outfall and drainage)
    - TAL exceedance: Aluminum (1.9×)
    - Site history:
      - Outfall received discharges of waste oil and mercury
      - Investigated and remediated between 1992 and 2010
      - Aluminum not known to have been associated with industrial materials historically managed at the site
      - Residual contamination detected beneath building 03-30 prevents a CoC request
    - Recommendation:
      - Submit alternative compliance request

Screening Examples

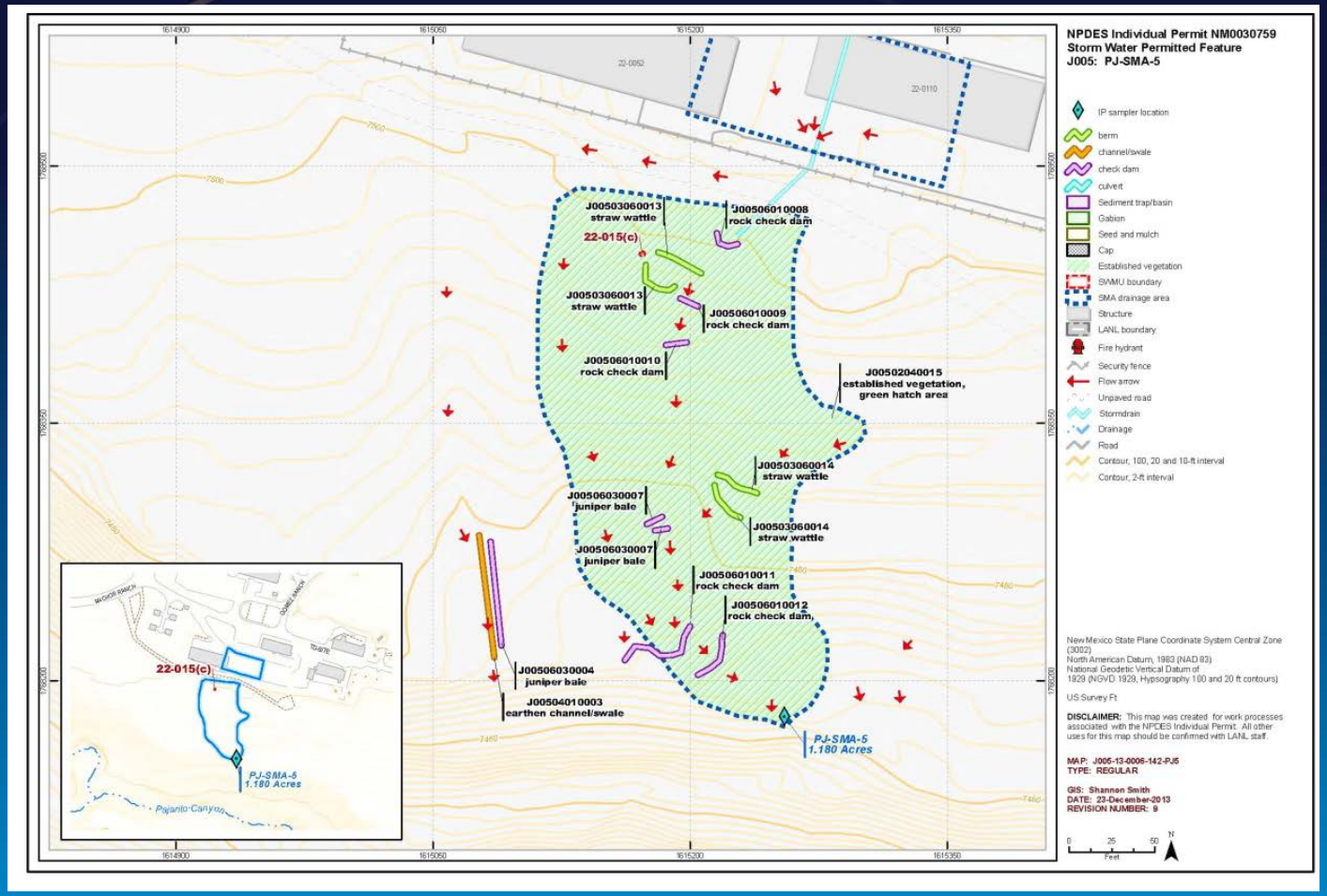


CDB-SMA-4 / SWMU 54-017, 54-018, 54-020 (inactive disposal pits and shafts)

Screening Examples

- No Exposure
  - CDB-SMA-4/SWMU 54-017, 54-018, 54-020 (inactive disposal pits and shafts)
    - TAL exceedance: **Gross alpha (2.3×), Copper (2×), PCB (6.8×)**
    - Site history:
      - The permitted sites are subsurface disposal pits
      - Covered with operational cover by 1986 per DOE requirements
      - Ongoing operational activities regulated by MSGP and RCRA permit
    - Recommendation:
      - No exposure preexisting

Screening Examples



PJ-SMA-5 / SWMU 22-015(c) (former outfall)

UNCLASSIFIED

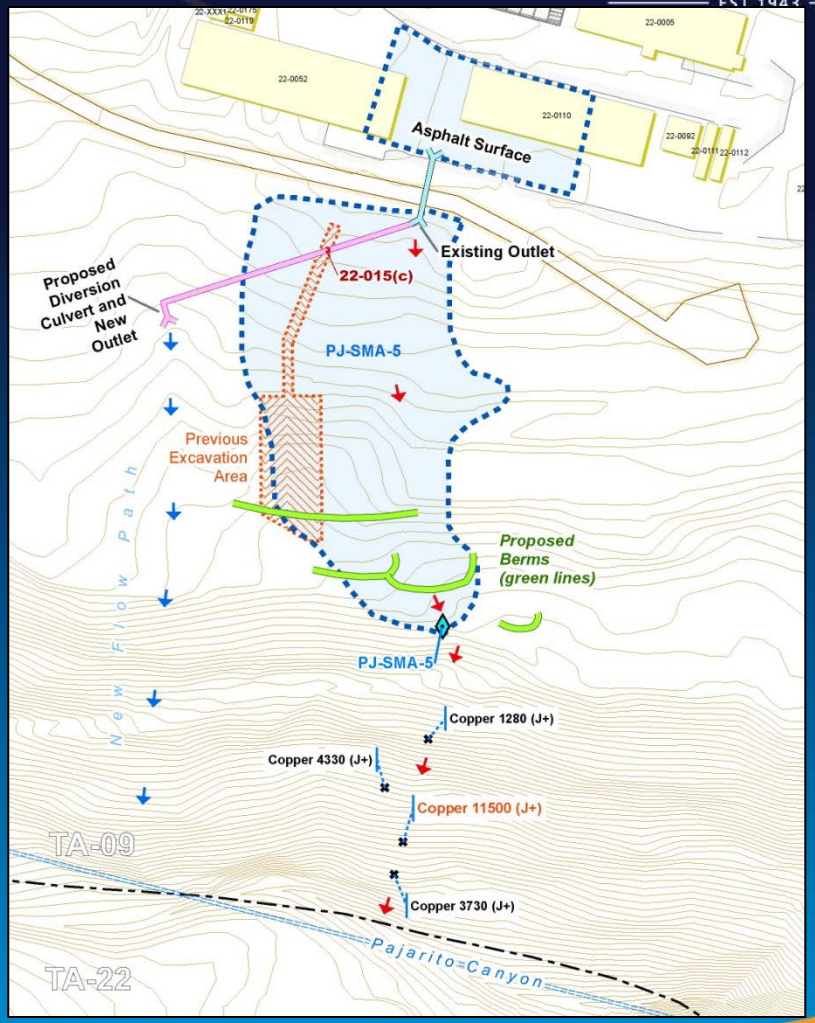
Screening Examples

- Alternatives Analysis
  - PJ-SMA-5/SWMU 22-015(c) (former outfall)
    - TAL exceedance: **Copper (17.6× TAL)**
    - Site history/soil sampling investigations:
      - Electroplating and etching rinse tanks overflowed to the outfall
      - During 1995 expedited cleanup, removed 260 yd^3 of contaminated soil
      - Confirmation samples following cleanup maximum of 7,800 times soil background value
    - Recommendation:
      - Proceed to alternatives analysis

Screening Example

PJ-SMA-5 –

Alternatives analysis concept



Screening Conclusions

- Recommendations:
  - 77 sites potential candidates for CoCs
  - 30 sites candidates for alternatives compliance
  - 8 sites potentially no exposure
  - 40 sites candidates for alternatives analysis

Individual Permit Renewal

Updates on EPA Meeting and Application Overview

Kate Lynnes

IP Renewal Refresher

- Initial permit application submitted 2005
  - Permit the result of a settlement agreement following a Clean Water Act-FFCA lawsuit
- Permit issued in September 2010
  - Unique NPDES permit
  - 405 sites considered point-source discharges
    - Sites are a subset of SWMUs and AOCs in the Consent Order (CO)
    - Storm water compliance monitoring done in sub-watersheds or SMAs

IP Renewal Refresher (continued)

- SWMU (site) selection process was very conservative
  - Three criteria for identifying site:
    - Are significant industrial materials (SIM) present?
    - Are materials exposed to storm water?
    - Can materials potentially impact receiving stream water quality?
  - Soil and storm water data were limited

IP Renewal Refresher (continued)

- How has the program matured since 2005?
  - CO soil investigations provide better understanding of SIMs at sites
  - Three years' worth of storm water data
  - Two background storm water reports (metals and PCBs)
- What's the good news?
  - CO data shows that most sites don't have SIMS exposed to storm water
  - Contaminants we do see repeatedly are lab-wide, natural background (e.g. gross alpha, Al) or urban, non-point runoff (e.g. PCBs, Cu and Zn)
  - Many sites identified as high priority for PCBs don't even have PCBs

Renewal Process

- 3/29/14 submittal deadline for application package
- Proposed changes:
  - Move away from SMA approach to more representative, site-based sampler locations
  - Remove sites that do not have significant industrial materials exposed to storm water
  - Tailor the list of monitoring constituents to target exposed significant industrial materials