



WILLIAMS AFB ARIZONA

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 475816



DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER

AFCEC/CIBW
706 Hangar Road
Rome, NY 13441

24 May 2016

Ms. Carolyn d'Almeida
U.S. EPA Region IX
75 Hawthorne Street
San Francisco, CA 94105

and

Mr. Wayne Miller, P.E., R.G.
Arizona Department of Environmental Quality
1110 West Washington Street, 4415B-1
Phoenix, Arizona 85007

Subject: Submission of "Meeting Minutes: Restoration Advisory Board Meeting, 15 September 2015, Former Williams Air Force Base, Mesa, Arizona"

The Air Force is pleased to submit the attached record of the Restoration Advisory Board Meeting held on 15 September 2015, at the Arizona State University Polytechnic Campus (Peralta Hall) in Mesa, Arizona. These minutes were approved by the RAB on 6 April 2016. Included with the minutes are the attendee list and presentation slides.

Please contact me at (315) 356-0810 or catherine.jerrard@us.af.mil if you have any questions regarding this submittal.

Sincerely,

A handwritten signature in black ink, which appears to read "Catherine Jerrard", is positioned above the printed name.

CATHERINE JERRARD, PE
BRAC Environmental Coordinator

Attachment:

1. Meeting Minutes: Restoration Advisory Board Meeting, 15 September 2015, Former Williams Air Force Base, Mesa, Arizona
 2. 15 September 2015 Meeting Attendee List
 3. 15 September 2015 Presentation Slides
- c:
- ADEQ - Wayne Miller (2 and 2 CD)
 - Administrative Record – Terie Glaspey (1 and 1 CD)
 - AFCEC – Catherine Jerrard (1 and 1 CD)
 - ASU Libraries – Dan Stanton (1 and 1 CD)
 - CNTS – Geoff Watkin (1 and 1 CD)
 - TechLaw – Michael Anderson (1 and 1 CD)
 - USEPA – Carolyn d’Almeida (1 and 1 CD)
 - USEPA – Eva Davis (1 and 1 CD)
 - UXOPro – Steve Willis (1 CD)
 - RAB Distribution List (via email transmittal)
 - File

**Former Williams Air Force Base (AFB)
Restoration Advisory Board (RAB)
Meeting Minutes**

**September 15, 2015, 7 p.m.
Arizona State University Polytechnic Campus
Peralta Hall, Room #302
7171 E. Sonoran Arroyo Mall Road
Mesa, AZ**

Attendees:

<i>Name</i>	<i>Organization</i>
Ms. Cathy Jerrard	Air Force Civil Engineer Center (AFCEC)/Base Realignment and Closure (BRAC) Environmental Coordinator (BEC)/Air Force Co-chair
Mr. Len Fuchs	RAB Community Co-Chair/Gilbert resident
Ms. Linda Geissinger	AFCEC, Public Affairs
Mr. Scott Johnston	Sytsma Group, Public Affairs support contractor
Mr. Geoff Watkin	Cherokee Nation Technology Solutions, AFCEC technical support contractor
Mr. Don Smallbeck	AMEC/Foster Wheeler, AFCEC remediation contractor
Ms. Carolyn d'Almeida	RAB member/U.S. Environmental Protection Agency (USEPA), Region 9, Remedial Project Manager (RPM)
Ms. Beverly Salvage	RAB member/Mesa resident
Mr. Wayne Miller	RAB member/Arizona Department of Environmental Quality (ADEQ), RPM
Mr. Steve Willis	UXO Pro, Arizona Department of Environmental Quality (ADEQ) contractor
Ms. Eva Davis	U.S. Environmental Protection Agency (USEPA), Kerr Laboratory
Mr. Steven Hunter	Arizona State University, Assoc. Dir. Environ. Health and Safety
Mr. Ben Mitsuda	Arizona State University, Associate General Counsel
Mr. Richard Dyer	Mesa Independent Newspaper
Mr. Eric Braun	City of Gilbert
Mr. Chad Willis	Phoenix-Mesa Gateway Airport
Ms. Latonya West	Arizona State University, Polytechnic Campus
Ms. Katie Murphy	AMEC-Foster Wheeler
Mr. John Meyer	City of Mesa

Mr. Len Fuchs called the meeting to order at 7 p.m. and reminded everyone to please provide his or her contact information on the sign-in sheet (Attachment 2). The 24 March 2015 RAB minutes were approved. Mr. Fuchs invited each attendee to introduce him or herself.

Ms. Cathy Jerrard thanked everyone for coming and then reviewed the action items from the 24 March 2015 RAB meeting. The items included researching the Arizona Pipeline news story to determine if it was associated with Site XU403, providing public notices in additional locations such as libraries and radio broadcast and providing a response to a community member regarding recommendation to sample indoor air at Site ST035. Ms. Jerrard stated that the Air Force did check into the possible find of a munitions site near Sossaman Road and Power Road. According to a local news story, it was actually a story about munitions that were delivered to a local steel recycling plant. There was no connection to former Williams AFB. Ms. Jerrard stated the Air Force followed up on the request for additional public

notification for these meetings. Notifications for this meeting were provided through newspaper ads, personal emails to the mailing list, press releases, public service announcements to media outlets, and requests for postings on media twitter and Facebook pages. Posters were displayed at the local library.. Ms. Jerrard stated the third item regarding indoor air sampling was looked into further, and based on the design and structure of the building, and additional sampling conducted closer to the ST035 site, no indoor air sampling is deemed necessary. Ms. Jerrard stated the responses to these action items will be documented in the minutes.

Ms. Jerrard then introduced Mr. Don Smallbeck.

Site Status Updates

Mr. Smallbeck presented summary status updates for Sites FT002, LF004, ST012, SS017 and ST035; see attached slides (Attachment 1) for more information. RAB and community discussions for the summary updates are presented below.

FT002 Former Fire Training Area No. 2

Mr. Smallbeck provided site background and updates for remedy status and the path forward. Mr. Smallbeck stated the contaminants of concern (COCs) at this site are benzene, chloroform, and 1,4-dichlorobenzene. An Operable Unit (OU)-3 Record of Decision (ROD) was approved in 1996 for soil. A bioventing remedy was implemented, but it was not effective. Additional petroleum related soil contamination was found during sampling completed in 2013. A remediation well and equipment were installed in May 2014 to address the remaining contamination with soil vapor extraction (SVE). The system at the site consists of one nested SVE well with three screen intervals. Operations began in June 2014. Contaminated vapors are extracted from the subsurface and treated. The treatment was completed in June 2015. The system was shut down for a one month rebound testing period. Rebound test results did not indicate a potential vapor intrusion risk, and confirmation sampling was performed in July 2015. Confirmation soil samples were collected in August 2015. If the confirmation sampling indicates soil vapor goals have not been met, the SVE system may be re-started. If the contaminants remain below soil vapor goals following confirmation sampling, a closure report will be submitted to the regulatory agencies.

Questions asked during FT002 presentation:

There were none.

LF004, Former Solid Waste Landfill

Mr. Smallbeck provided site background, a groundwater monitoring update, a remedy status update, and path forward for LF004. Contaminants of concern are dieldrin and beryllium in the surface soil and trichloroethene (TCE) and tetrachloroethene (PCE) in the groundwater and soil gas. The site has a flat, eastward gradient from west to east for groundwater flow. Monitoring from November 2014 to May 2015 shows the TCE and PCE groundwater contaminant plumes have decreased in size and have remained well defined. The remedy for the site is In-Well Air Stripping (IWAS), SVE and oxidant injection. System construction is complete and treatment operations have commenced. The system is anticipated to operate through September 2017. The IWAS system for remediating the groundwater has removed 5.3 pounds of TCE and PCE. One of the IWAS wells (RW01A) was used for oxidant injection in April 2015. The SVE system operating at the former Aboveground Storage Tank (AST) area currently has five wells in operation and has removed an estimated 91.4 pounds of TCE and PCE as soil gas from the subsurface.

The Southern Area Remediation IWAS system is injecting oxidant with groundwater recirculation. The Southeast Landfill SVE system has had 100% operational uptime since startup and has removed 31.5 pounds of TCE and PCE as soil gas from the subsurface. The system will continue to operate with

additional oxidant injections in other areas as necessary. A landfill cap inspection will be performed in Sept. 2015.

Questions asked during LF004 presentation:

There were none.

ST012, Former Liquid Fuels Storage Operation

Mr. Smallbeck presented slides summarizing how the remedy works, cleanup status and the path forward. Mr. Smallbeck stated the first phase of startup was to establish hydraulic control of the site, followed by steam injection and extraction.

To date, a total of 1,625,499 pounds of contaminant mass has been recovered. Mr. Smallbeck stated that about 964,983 pounds of non-aqueous phase liquid (NAPL) has been removed to date. An estimated 660,515 pounds of mass (PID) has been removed in the vapor phase.

Mr. Smallbeck stated the SVE system on the site has been operating at 97% uptime from Jan. through Mar. 2015, removing 18,400 pounds (2,800 gallons) of total petroleum hydrocarbons. The SVE system on the site has been operating at 96% uptime from April through Jun. 2015, removing 21,300 pounds (3,200 gallons) of total petroleum hydrocarbons.

The SVE system is nearing 300,000 gallons of petroleum hydrocarbons removed from vapors in the soil zone above the water table.

Questions asked during ST012 presentation:

There were none.

SS017, Old Pesticide/Paint Shop

Mr. Smallbeck summarized the slides presenting the site background, groundwater monitoring update, and the path forward. Mr. Smallbeck stated groundwater flow continues to be to the east and dieldrin exceeded the EPA screening level at 3 wells in July 2015 (the same wells as 2013-2014 sampling). Results were presented from a performance evaluation conducted by sending samples to two laboratories. The next monitoring event is in Aug. 2016.

Mr. Smallbeck stated a dispute resolution process including the AF, ADEQ and EPA is progressing to determine the final remedy for the site and is expected to be resolved by the end of the year.

Questions asked during SS017 presentation:

There were none.

ST035, Former Building 760 Underground Storage Tanks (USTs)

Mr. Smallbeck summarized the slides presenting the site background, contaminants, status of cleanup actions, groundwater and soil gas sampling results, and the path forward. Mr. Smallbeck stated an SVE system was installed and operated for 3 years to treat contamination in the subsurface soil. Operating data indicated that the soil cleanup goals have been achieved for the soil. The SVE system was shut down in December 2013 to perform a rebound test.

Mr. Smallbeck stated that monitoring of the soil vapor for rebound testing indicated that the soil cleanup goals have been achieved. Risk evaluations are being performed to assess if residual contamination is protective of site receptors and to assess any impact to groundwater. 1,2-DCA was the main COC exceedance in groundwater for 2015. That plume is stable and attenuating. Groundwater monitoring will continue at the site until site closure is achieved.

Mr. Smallbeck stated that a Vapor Intrusion Assessment was conducted in conjunction with ADEQ. This was done to test vapor intrusion into hypothetical residential structures located over sources areas. Data was collected from the former tank pit and dispenser island area. Each was evaluated separately. The modeling indicated that all the risks were well below the threshold levels.

Questions asked during ST035 presentation:

There were none.

Former Williams Air Force Base Five-Year Review

Mr. Smallbeck presented information regarding the Williams Five-Year review. Mr. Smallbeck stated Five-Year Reviews are a CERCLA requirement and are used to assess whether or not remedies have remained protective of human health and the environment. This is the fourth five-year review initiated. The review period is scheduled from Sept. 2015 to Sept. 2016. A draft submittal is scheduled for May 2016; agency review will be May/June 2016, comment resolution in June/July 2016 and document finalized in August 2016.

Meeting Wrap-up

Action items from meeting: There were none.

Mr. Fuchs asked for suggested agenda items for the next RAB meeting. There were none. That concluded the information portion of the evening.

Mr. Fuchs adjourned the meeting at 7:54 p.m.

The next Williams RAB meeting is scheduled for Tuesday, March 15, 2016 at 7 p.m. at the Arizona State University Polytechnic Campus. *Note: Subsequent to the meeting, the next RAB meeting date was postponed to September 20, 2016 at 7 p.m.*

Attachments:

1. September 15, 2015 RAB meeting slide handout
2. Sign in sheet

Former Williams AFB Restoration Advisory Board

475816

Williams AR#

Page 8 of 86

Date: September 15, 2015

Please sign in. If your information has changed since you last attended, please place an asterisk (*) next to your name.

	NAME/ORGANIZATION
1.	Scott Johnston VAMEC Support
2.	LINDA GEISSINGER
3.	Geoff Watkin
4.	RICHARD DYER
5.	ERIC BEAUN
6.	Carl D'Amanda
7.	Chad Willis AMGAA
8.	Don Smallbeck
9.	Len Fuchs
10.	Latecia West
11.	Katie Murphy
12.	John MEYER
13.	Beverly Delmage
14.	Ben Mitsuda
15.	Wayne Miller

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FORMER WILLIAMS AIR FORCE BASE Restoration Advisory Board (RAB)

15 September 2015

Arizona State Polytechnic Campus
Peralta Hall Room #302
7171 E. Sonoran Arroyo Mall Rd.
Mesa, AZ

Air Force Civil Engineer Center

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Welcome & Introductions

Presented by:
Mr. Len Fuchs / Ms. Catherine Jerrard,
RAB Community Co-Chairs
and Scott Johnston



Welcome & Introductions

- Mr. Len Fuchs, RAB Community Co-Chair
- Ms. Catherine Jerrard, Air Force Civil Engineer Center (AFCEC), PM/BEC and RAB Co-Chair
- Ms. Carolyn d'Almeida, Project Manager, U.S. Environmental Protection Agency (EPA), Region 9
- Mr. Wayne Miller, Project Manager, Arizona Department of Environmental Quality (ADEQ)



Agenda

<u>Time</u>	<u>Topic</u>	<u>Presenter</u>
7:00 PM	<u>RAB Meeting Convenes</u> <ul style="list-style-type: none">• Welcome and Introductions• Community Co-chair Remarks• Review March 2015 Meeting Minutes and Action Items	Mr. Len Fuchs Ms. Catherine Jerrard Mr. Scott Johnston
7:15-8:30 PM	<u>Program Updates</u> FT002 Status Update <ul style="list-style-type: none">• Remedial Action Update LF004 Status Update <ul style="list-style-type: none">• Remedial Action Update ST012 Status Update <ul style="list-style-type: none">• Remedial Action Update	Ms. Catherine Jerrard Mr. Don Smallbeck



Agenda Continued

Time**Topic****Presenter****7:15-8:30 PM****Program Updates *continued*****Mr. Don Smallbeck****SS017 Status Update**

- Jul 2015 GW Results
- Path Forward

ST035 Status Update

- Soil Vapor Sampling Results
- Path Forward

Five Year Review**8:30-8:45 PM****Meeting wrap-up****Ms. Catherine Jerrard**

- Review action items for next meeting
- Call for agenda items for next meeting
- Propose next RAB meeting – 15 Mar 2016

8:45 PM**Adjourn****Mr. Len Fuchs**

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Program Updates, FT002, LF004, ST012, SS017, ST035, and Five Year Review

Presented by:

Mr. Don Smallbeck, Amec Foster Wheeler

Ms. Catherine Jerrard, AFCEC

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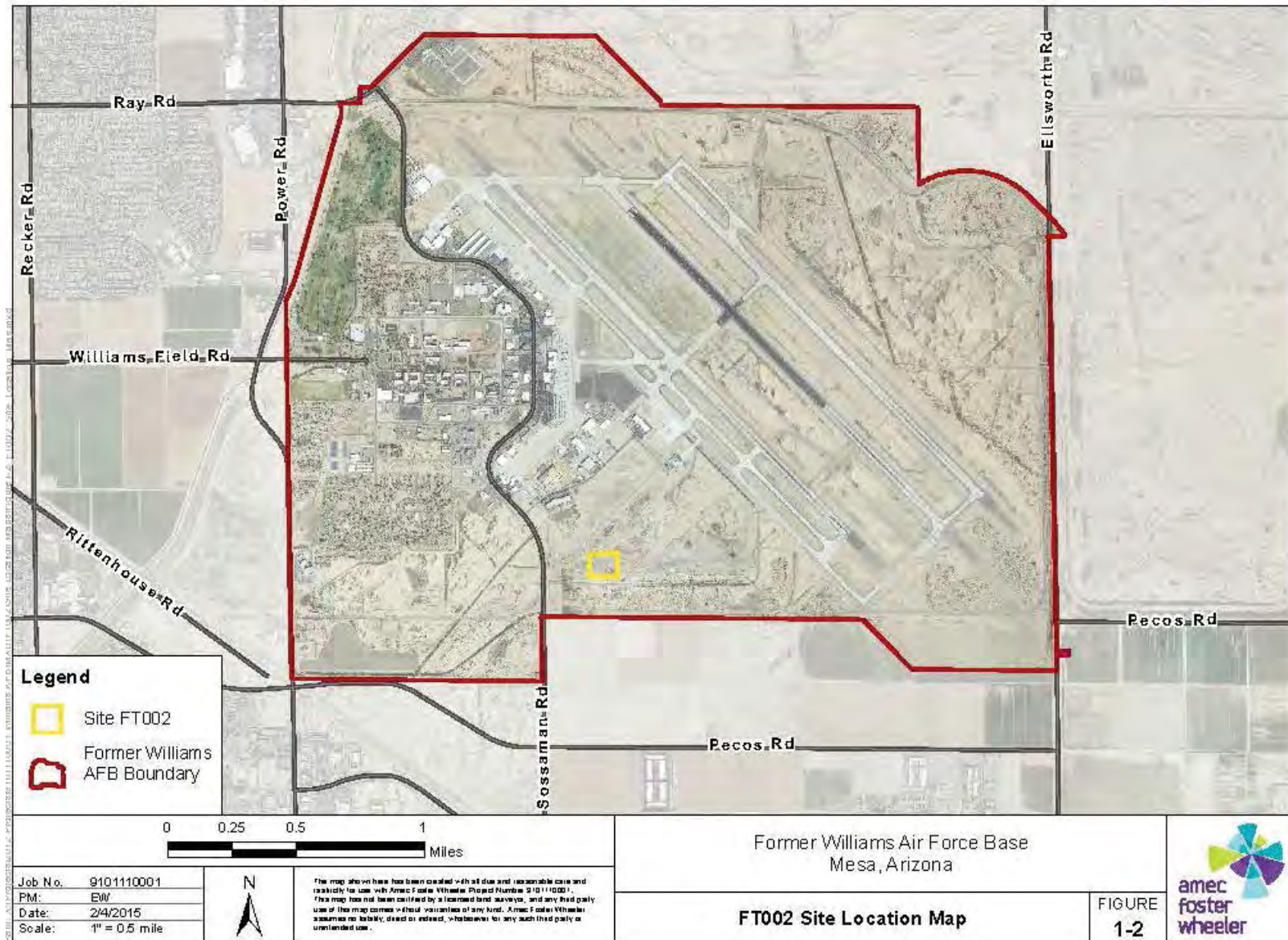


Site FT002, Fire Training Area

REMEDIAL ACTION



Site FT002 Location Map





Site FT002 Site Background

- Fire protection training activities (1958-1991)
- Soil COCs: benzene, chloroform, 1,4-dichlorobenzene
- No evidence of groundwater impact
- OU-3 ROD 1996; Soil Remedy (bioventing) implemented in 1996-1997
- Until cleanup levels are achieved, Declaration of Environmental Use Restriction (2008) will remain in place to prohibit residential use and require soil management below 5 feet (ft)



Site FT002

Soil Vapor Extraction System Update

System Description

- One nested SVE well with three screen intervals - shallow (S) 14-39 ft, middle (M) 42-57 ft, and deep (D) 60-75 ft
- Treatment system: Combination thermal oxidizer (for concentrations exceeding 2000 ppmv) and electric catalytic oxidizer (for concentrations less than 2000 ppmv)
- Treatment system operation commenced on 2 Jun 2014 and was completed on 15 Jun 2015





Site FT002

Estimated COC Mass Removal

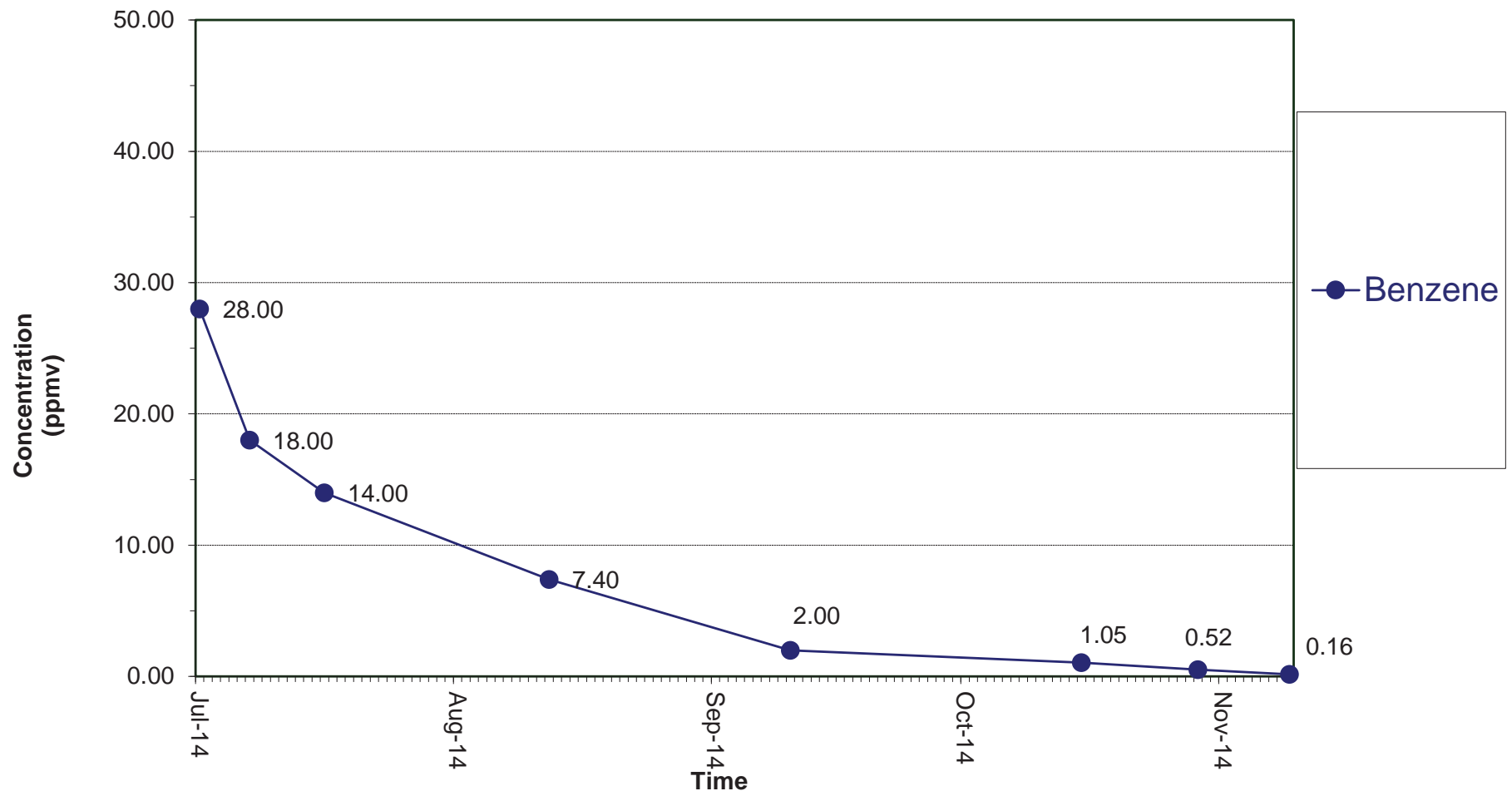
VOC	Total Mass removed through 6/15/15 as total pounds
Benzene	33.85
Toluene	620
Ethylbenzene	194
Xylene	1066
Total TMB	172



Site FT002

SVE System Performance – Benzene

Figure 3-3
Site FT002 SVE-1M
Benzene Concentrations vs Time





Site FT002 Path Forward

- **SVE system was shut down on 15 Jun 2015**
- **SVE system was shut down for a one month rebound testing period. Soil vapor samples were collected from the VMPs and analyzed to evaluate relative changes in soil gas concentrations**
- **Rebound test results did not indicate a potential vapor intrusion risk, and confirmation soil vapor sampling was performed in Jul 2015**
- **Confirmation soil samples were collected in Aug 2015**
- **If confirmation sampling results indicate that cleanup goals have been achieved, a site closure report will be prepared for regulatory review and approval. If not, additional SVE could be needed**

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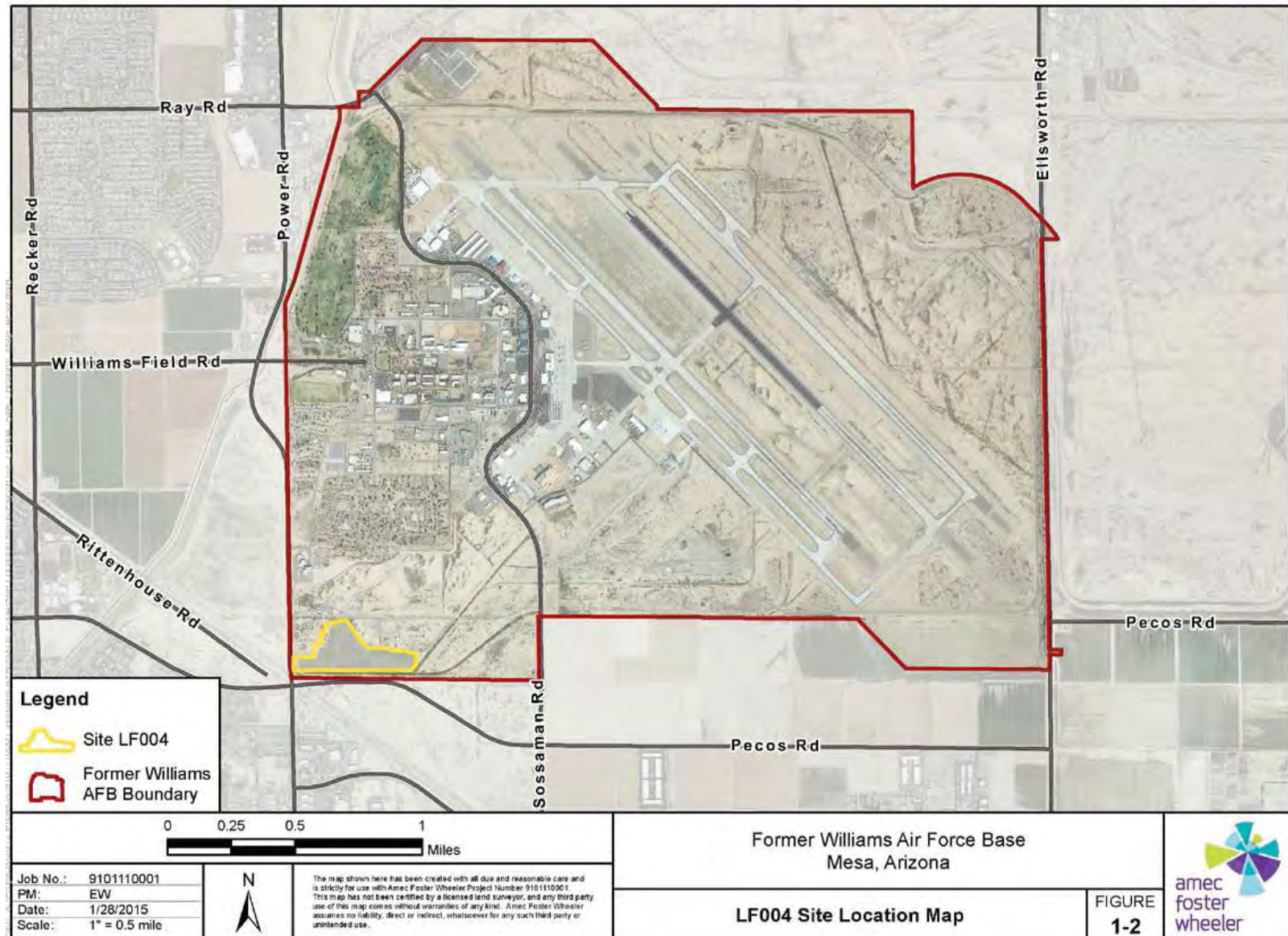


**SITE LF004,
LANDFILL**

REMEDIAL ACTION



Site LF004 Site Location Map





Site LF004 Site Background

■ Landfill

- Former solid waste landfill
- Operated from 1941 to 1976
- Closed in 1995 with a permeable soil cap (OU-1 ROD 1994)
- Rising groundwater table
- Ongoing semiannual groundwater monitoring
- 2014 Record of Decision Amendment remedy –
In Well Air Stripping and Oxidation for
groundwater; Soil Vapor Extraction for soil gas

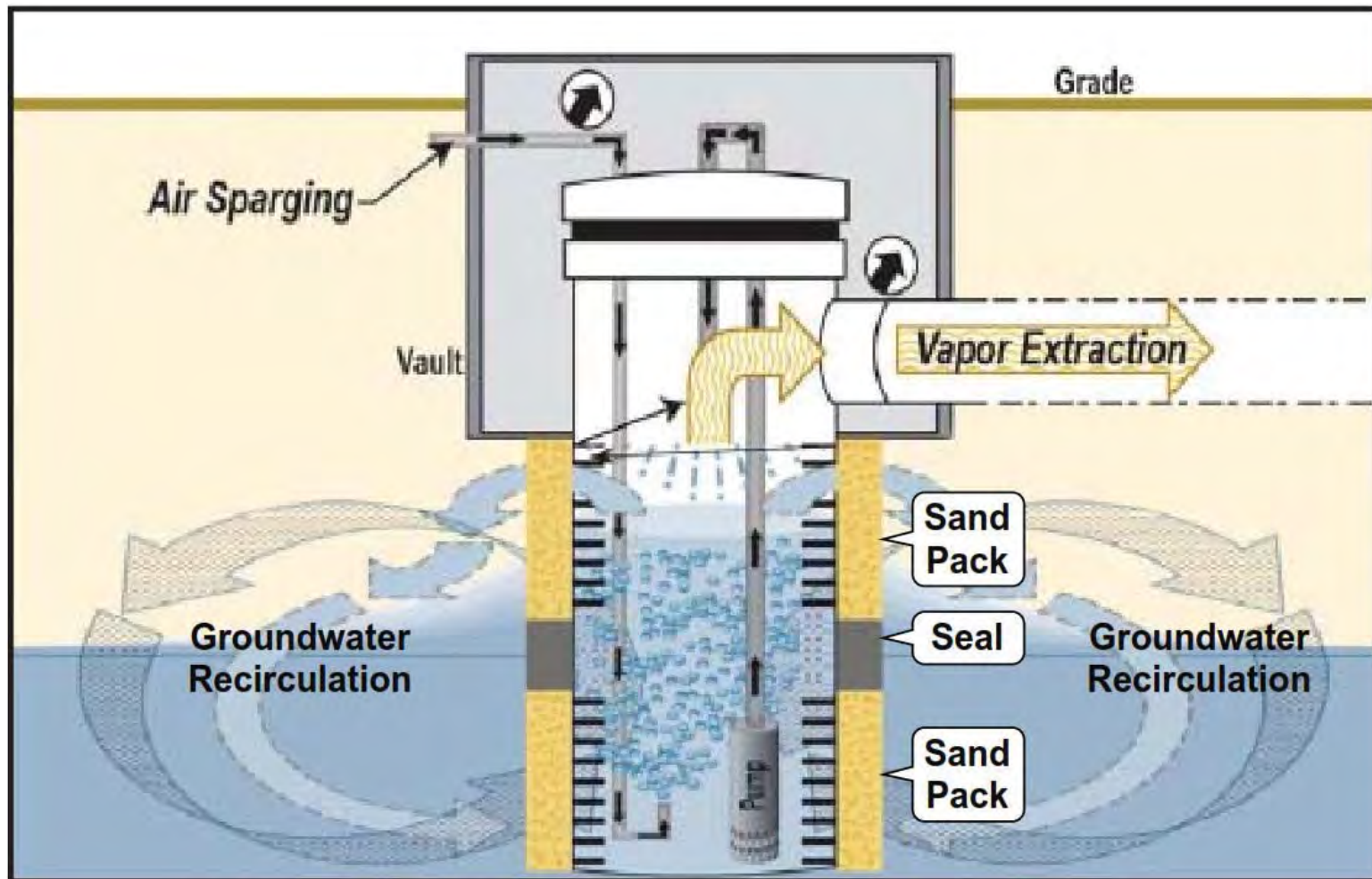
■ COCs

- Dieldrin & beryllium in surface soil
- TCE & PCE in groundwater & soil gas



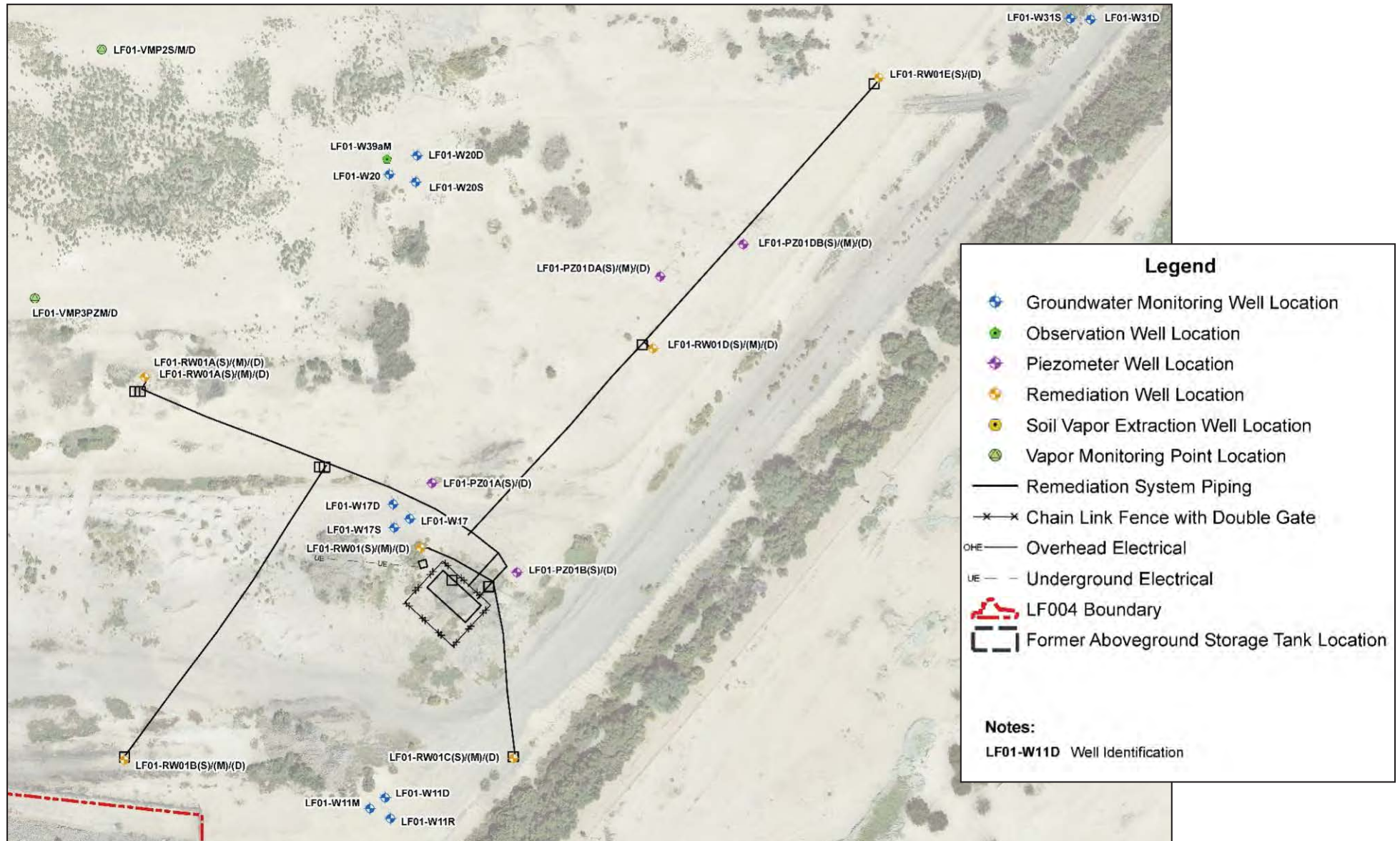
LF004 In Well Air Stripping (IWAS) and Oxidation for Groundwater

IWAS Contaminant Removal Process





Site LF004 LF01-W17 Area IWAS System Update





Site LF004

LF01-W17 Area IWAS System Update

Operations Summary through 4 Sep 2015

- Began operation 29 Aug 2014
(12 months of operation)
- Average 90% operational uptime for
Mar-Sep 2015 reporting period
- Estimated 5.3 pounds of TCE and PCE
removed by vapor extraction
- All remediation wells operating





Site LF004

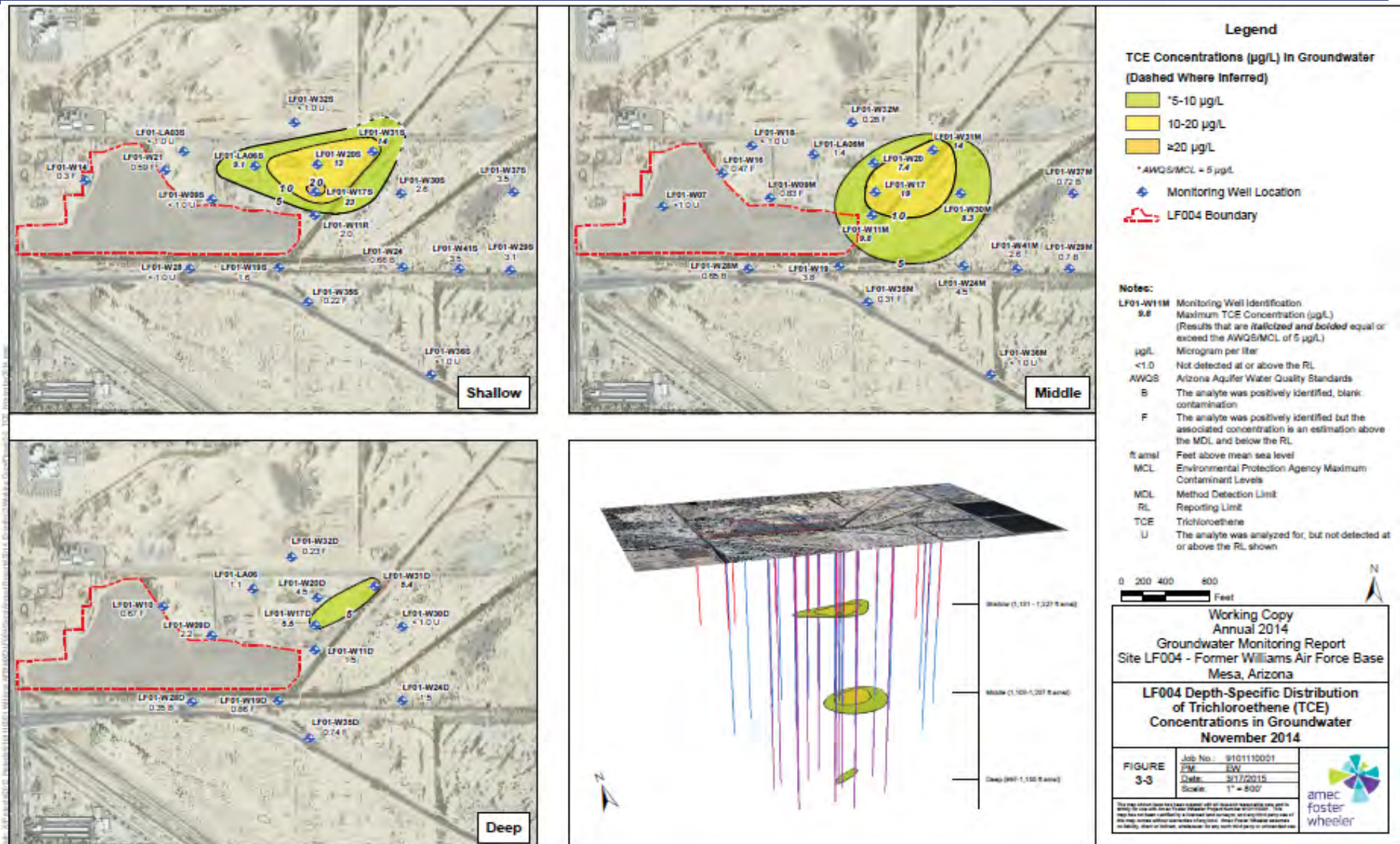
LF01-W17 Area IWAS System Update



- Oxidant (potassium permanganate) is injected in groundwater to treat contaminants in areas where IWAS is less effective.
- To target chemicals of concern (COCs) upgradient of W17, oxidant injection was expanded from RW01 to RW01A in Apr 2015
- Oxidant concentrations declining in W17S and W17 (no longer detected at W17D) – low levels remain at RW01 and RW01A
- Evaluating additional oxidant injections at W11



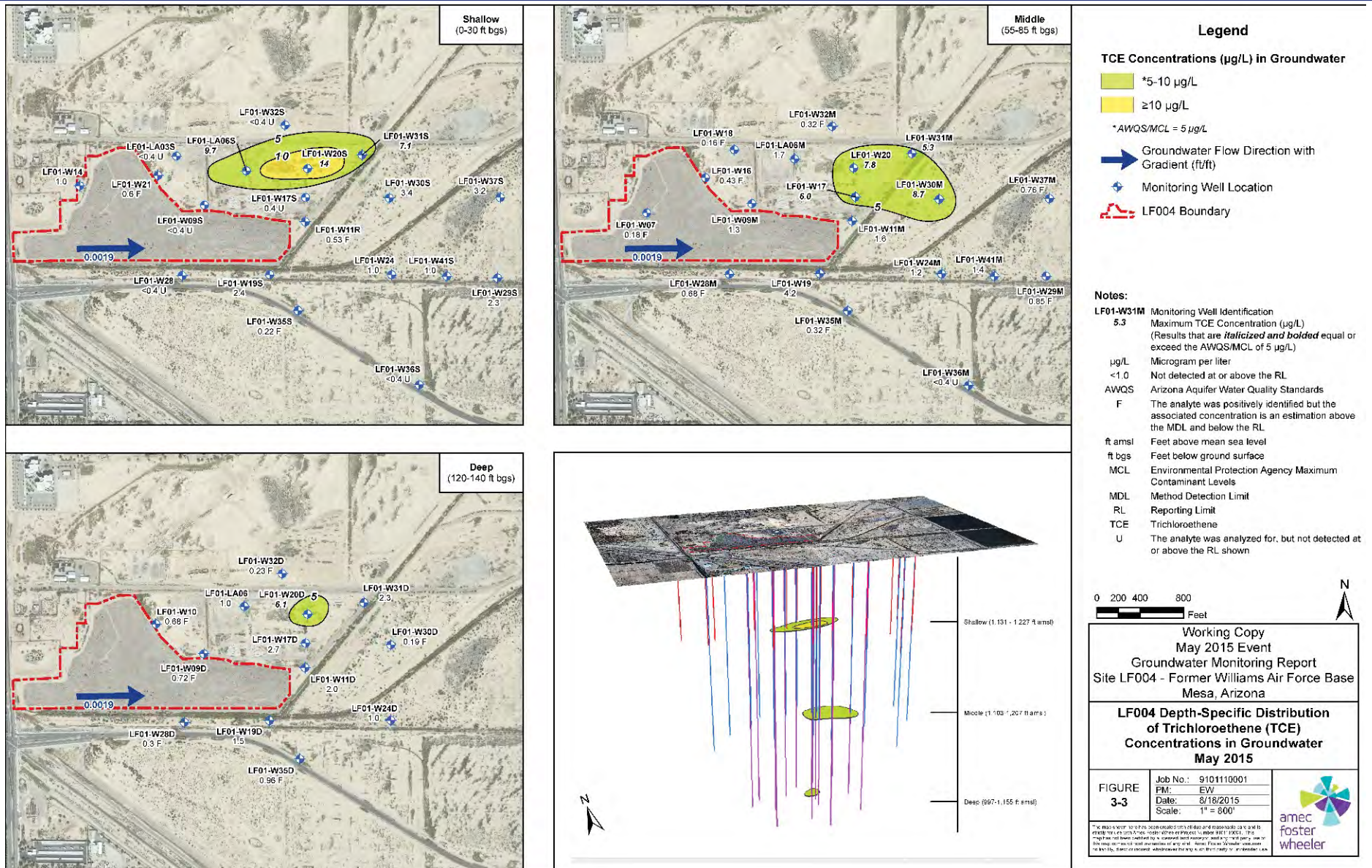
Site LF004 GW Monitoring Update TCE Isoconcentration Map - Nov 2014





Site LF004 GW Monitoring Update

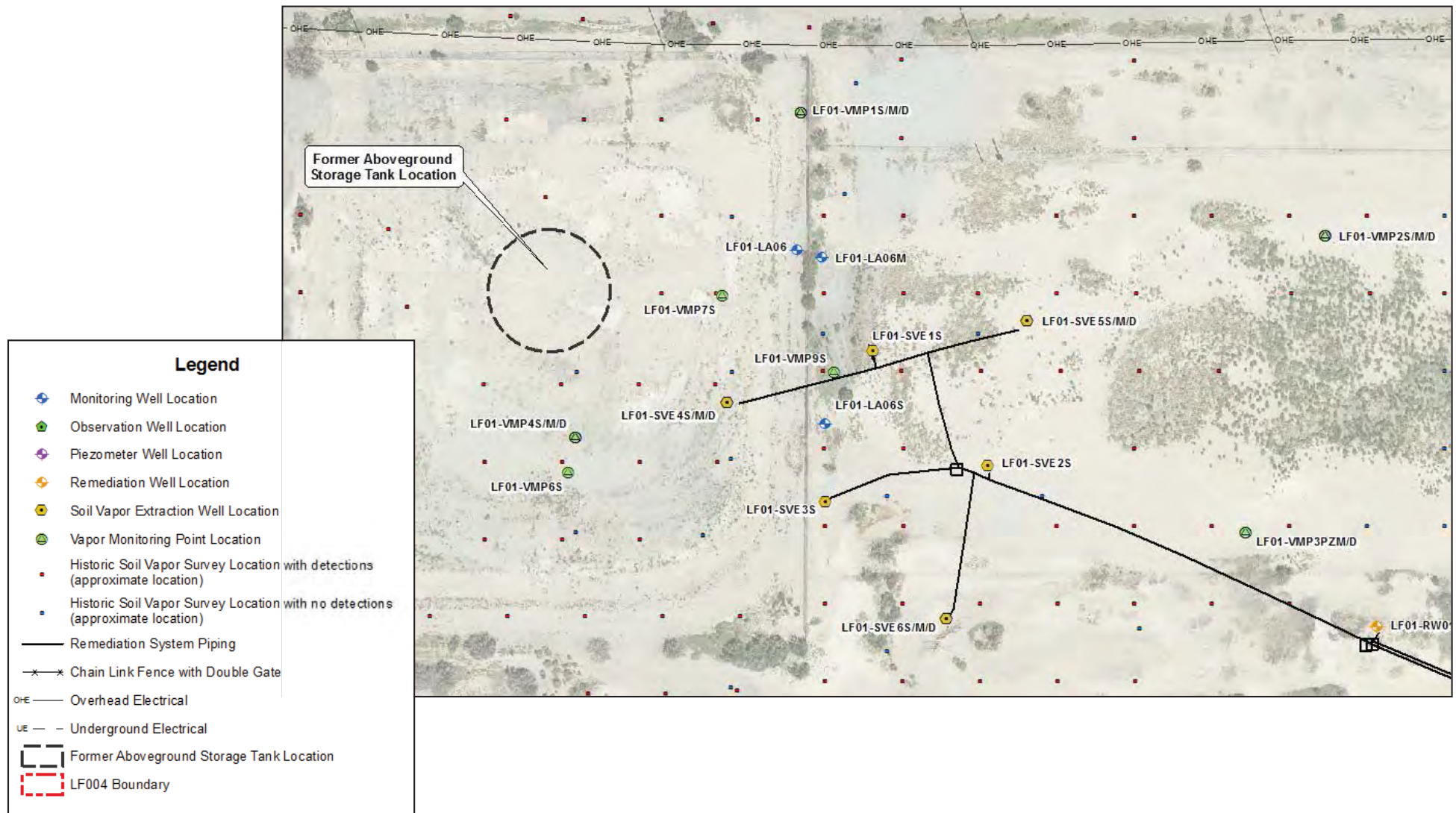
TCE Isoconcentration Map – May 2015





Site LF004

Former AST SVE System Update





Site LF004

Former AST SVE System Update

Operations Summary through 4 Sep 2015

- Began operation 9 Sep 2014 (12 months of operation)
- 99% operational uptime for Mar-Sep 2015 reporting period
- Estimated 91.4 pounds of TCE and PCE removed by SVE
- Five wells currently operational (SVE-4D, SVE-5M, SVE-5D, SVE-6D and VMP-02D)





Site LF004 TCE Soil Vapor in Shallow Zone

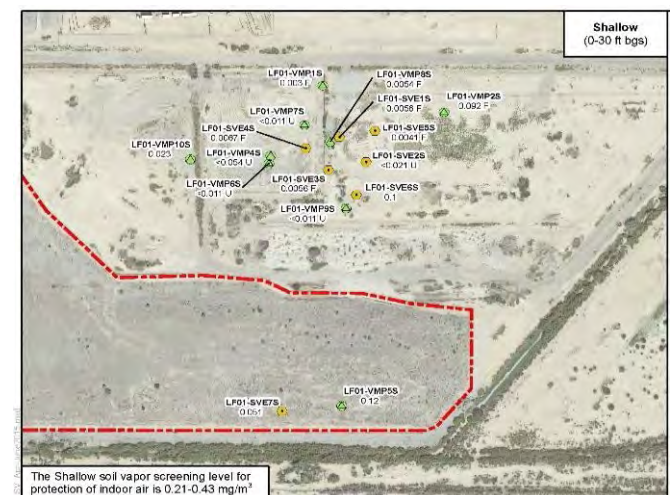
Prior to Treatment (Sep 2014)



After 3 Months of Operation (Dec 2014)



After 8 Months of Operation (May 2015)





Site LF004 TCE Soil Vapor in Middle Zone

Prior to Treatment (Sep 2014)



After 3 Months of Operation (Dec 2014)



After 8 Months of Operation (May 2015)



Site LF004 TCE Soil Vapor in Deep Zone

Prior to Treatment (Sep 2014)



After 3 Months of Operation (Dec 2014)



After 8 Months of Operation (May 2015)

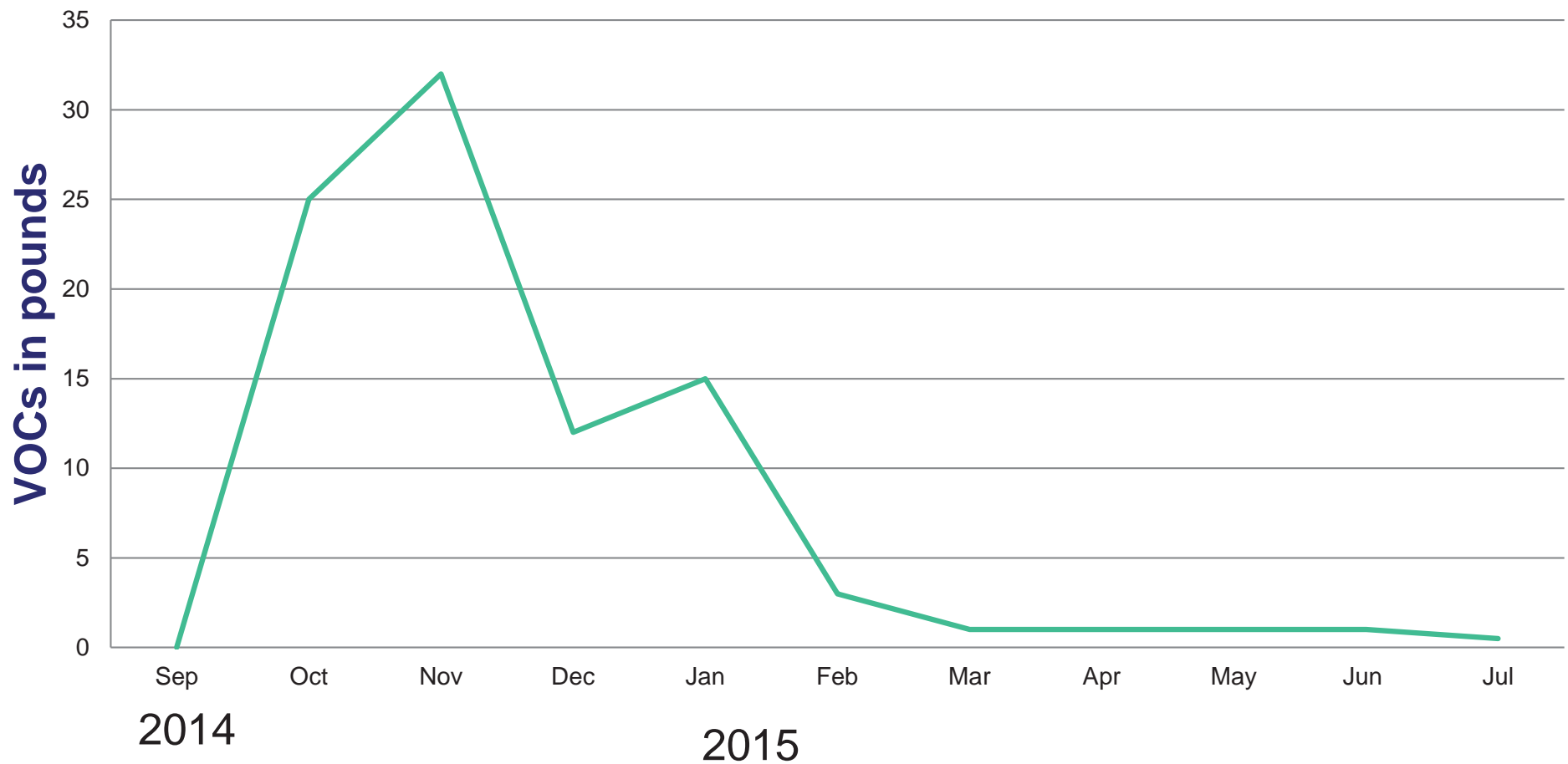




Site LF004

Former AST SVE System Update

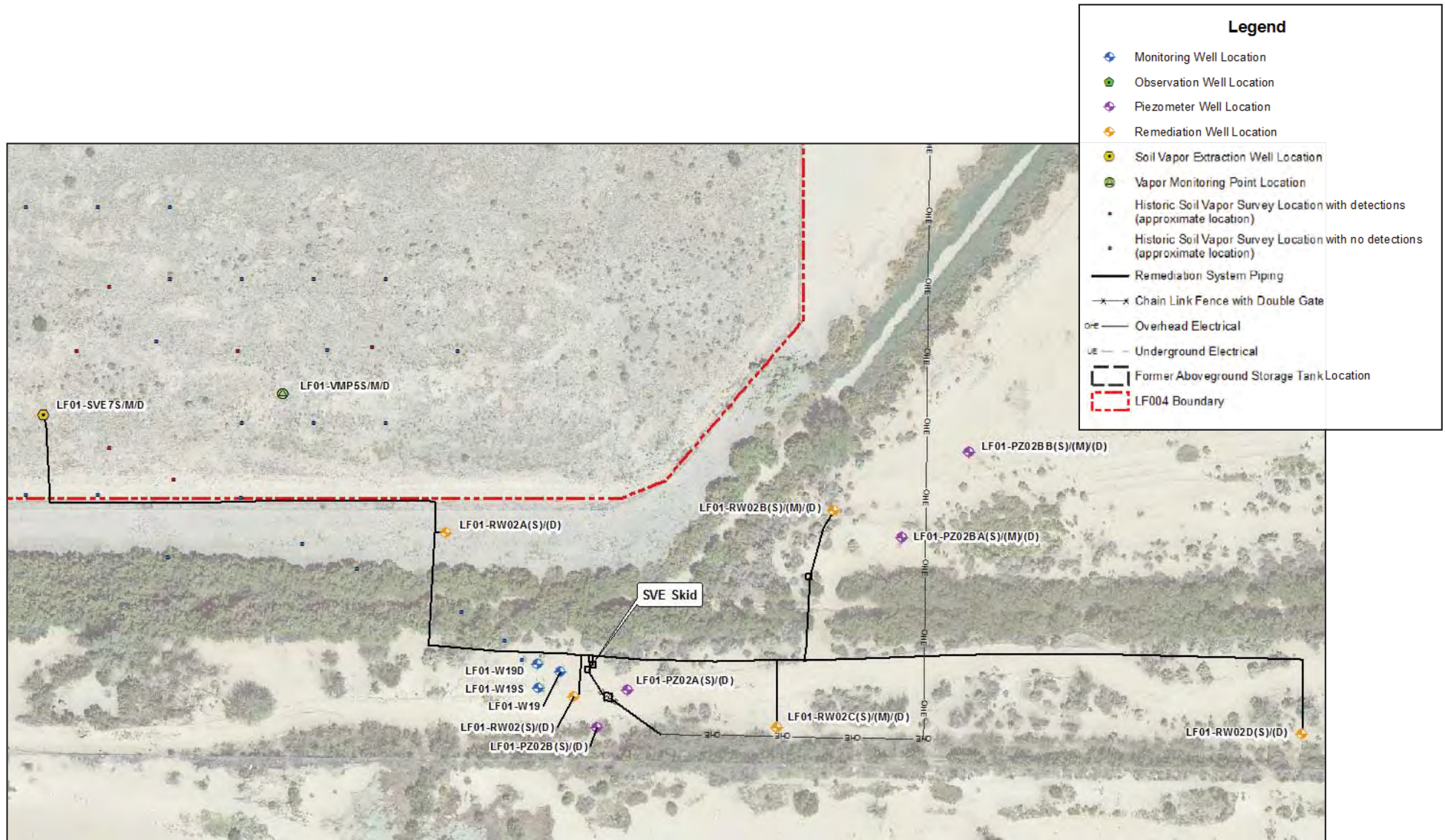
VOC Mass Removal Rate





Site LF004

Southern Area Remediation Wells





Site LF004

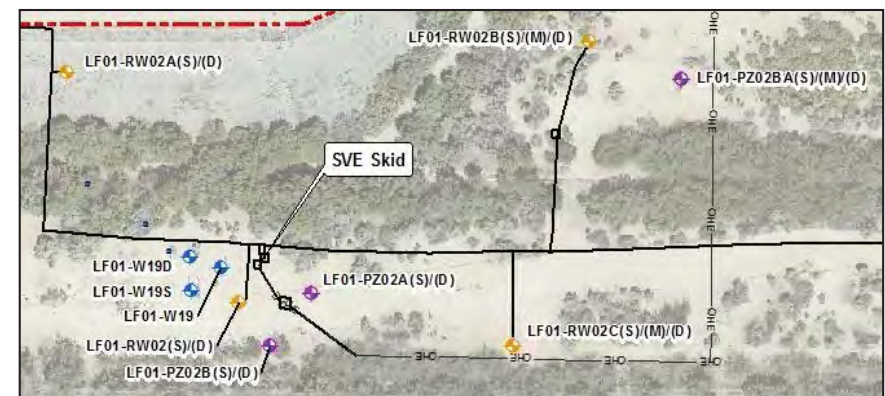
Southern Area Oxidant Injection

Activity Summary through 4 Sep 2015

- Began operation 15 Sep 2014
(12 months of operation)
- RW02A and RW02C are operating in recirculation mode (oxidant has only been added to RW02A)
- Presence of oxidant after injection indicates good distribution in the target treatment area [oxidant observed in RW02A and RW02C was observed in RW02(S), RW02A(S), RW02B(D), PZ02A(S), PZ02A(D), PZ02B(S), PZ02B(D), PZ02BA(M), PZ02BA(D), PZ02BB(S), W19S, and W19D].

Jul/Aug Oxidant Injection Summary

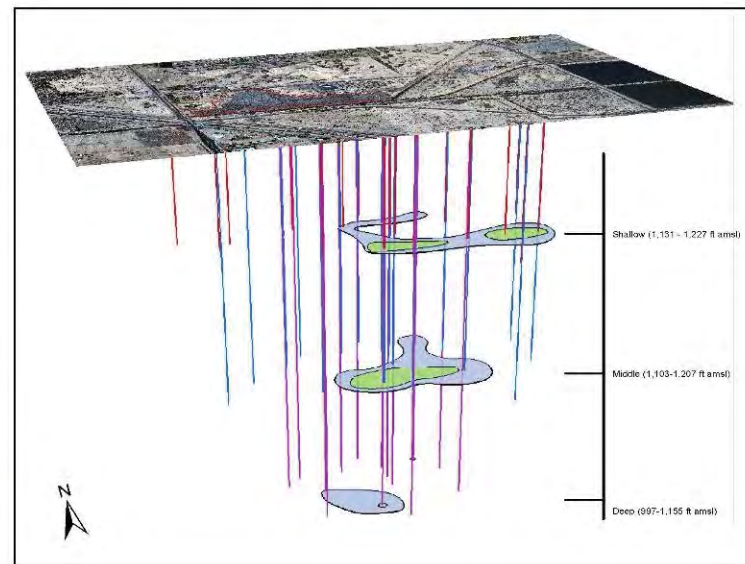
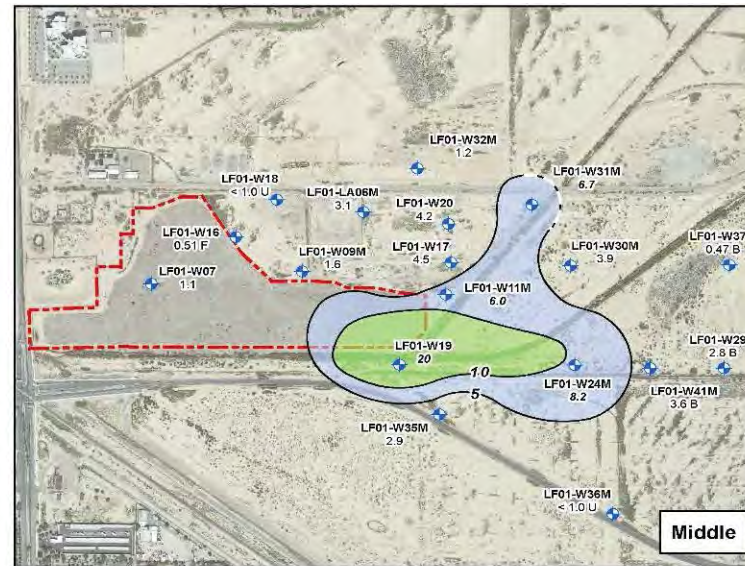
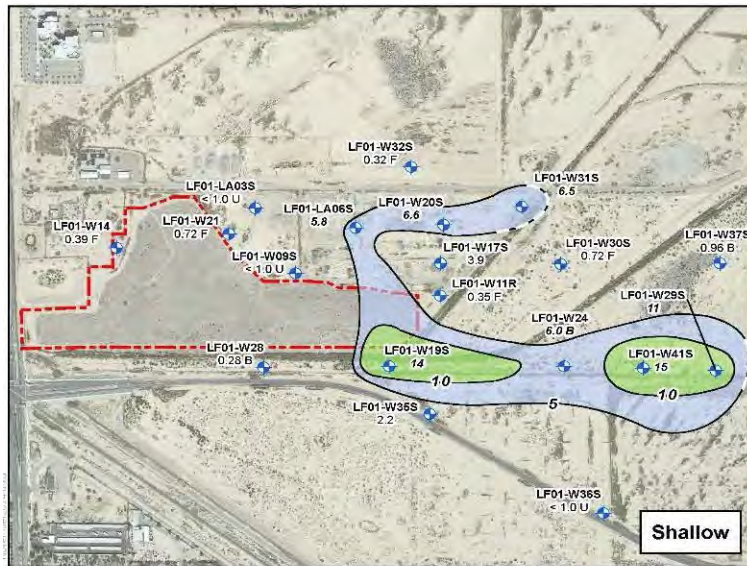
Well(s)	Duration of Oxidant Injection	Description
W19S and W19D	20 Jul – 9 Aug 2015	Extraction from W19S and Injection into W19D (Recirculation only)
RW02A and RW02C	20 Jul – Aug 9 2015	Injection into RW02A and extraction from RW02C





Site LF004 GW Monitoring Update

PCE Isoconcentration Map - Nov 2014



Legend

PCE Concentrations (µg/L) in Groundwater (Dashed Where Inferred)

- *5-10 µg/L
- 10-20 µg/L

*AWQS/MCL = 5 µg/L

Monitoring Well Location

LF004 Boundary

Notes:

LF01-W11M Monitoring Well Identification

6 Maximum PCE Concentration (µg/L) (Results that are **italicized and bolded** equal or exceed the AWQS/MCL of 5 µg/L)

µg/L Microgram per liter

<1.0 Not detected at or above the RL

AWQS Arizona Aquifer Water Quality Standards

B The analyte was positively identified, blank contamination

F The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL

ft amsl Feet above mean sea level

MCL Environmental Protection Agency Maximum Contaminant Levels

MDL Method Detection Limit

RL Reporting Limit

PCE Tetrachloroethene

U The analyte was analyzed for, but not detected at or above the RL shown

0 200 400 800 Feet

N

Working Copy
Annual 2014
Groundwater Monitoring Report
Site LF004 - Former Williams Air Force Base
Mesa, Arizona

LF004 Depth-Specific Distribution of Tetrachloroethene (PCE) Concentrations in Groundwater November 2014

FIGURE 3-5

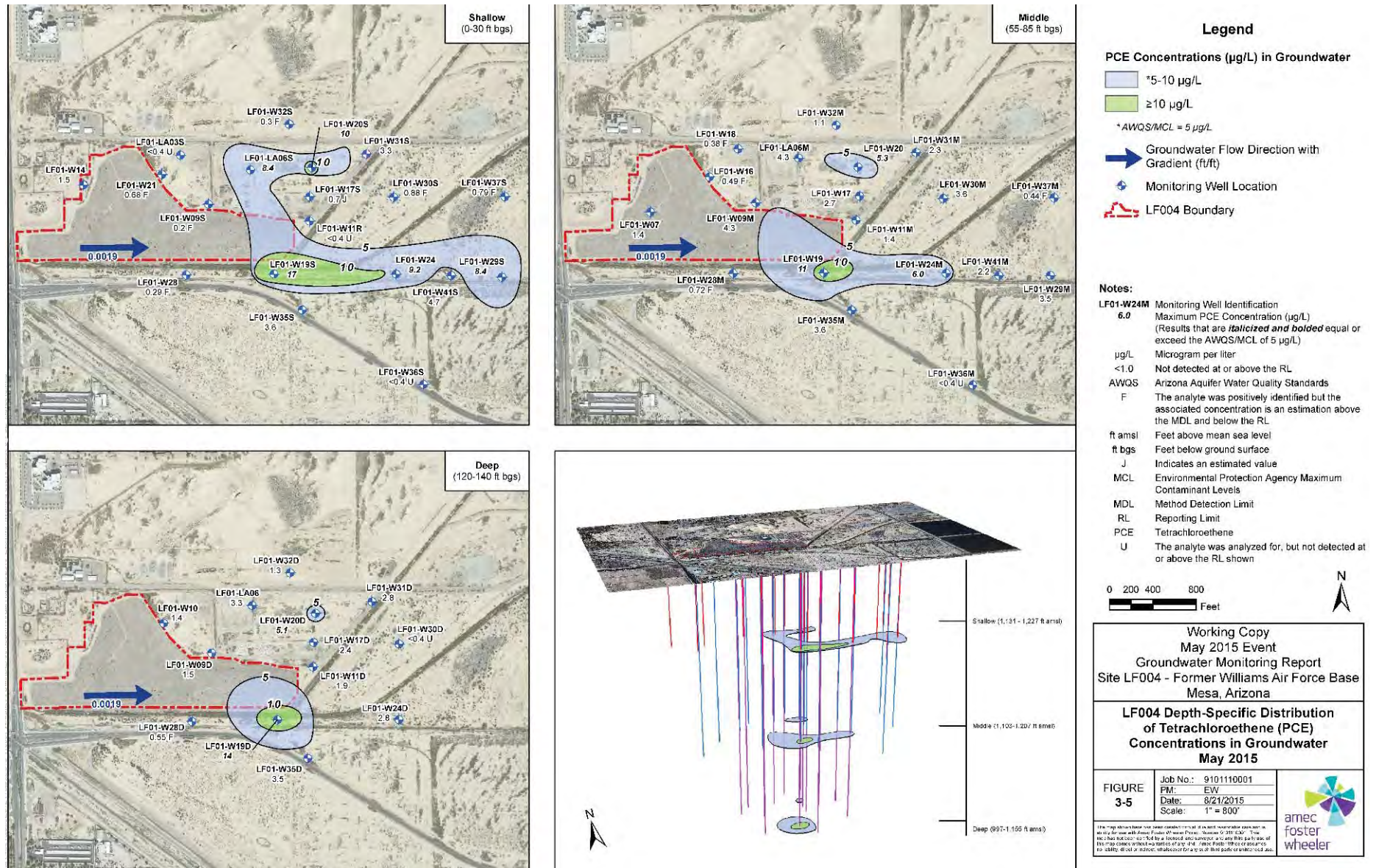
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PM: EW
Date: 3/17/2015
Scale: 1" = 800'

amec foster wheeler



Site LF004 GW Monitoring Update

PCE Isoconcentration Map – May 2015

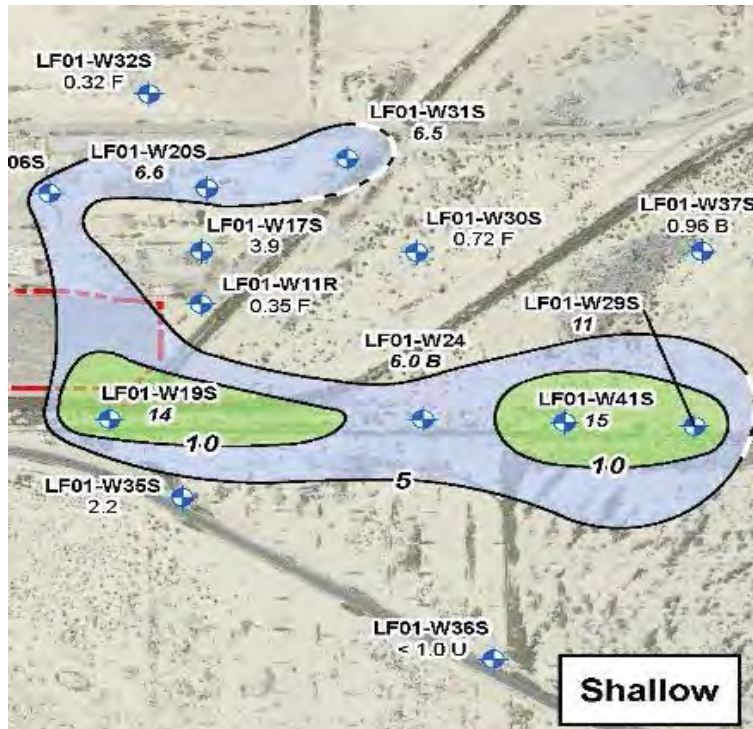




Site LF004

Southern Area Oxidant Injection

- Additional oxidant injections planned for shallow interval downgradient of W19 Area (W24, W41 and W29) in Sep 2015



**PCE Concentrations
(Nov 2014)**





Site LF004

Southeast Landfill SVE System Update

Operations Summary through 4 Sep 2015

- Began operation 12 Sep 2014
(12 months of operation)
- 100% operational uptime for Mar-Sep 2015 reporting period
- Estimated 31.5 pounds of PCE and TCE removed by SVE
- One well currently operational (SVE-7D) Operation of RW02A temporarily suspended for oxidant recirculation





Site LF004 PCE Soil Vapor in Middle Zone

Prior to Treatment (Sep 2014)



After 3 Months of Operation (Dec 2014)



After 8 Months of Operation (May 2015)





Site LF004 PCE Soil Vapor in Deep Zone

Prior to Treatment (Sep 2014)



After 3 Months of Operation (Dec 2014)



After 8 Months of Operation (May 2015)

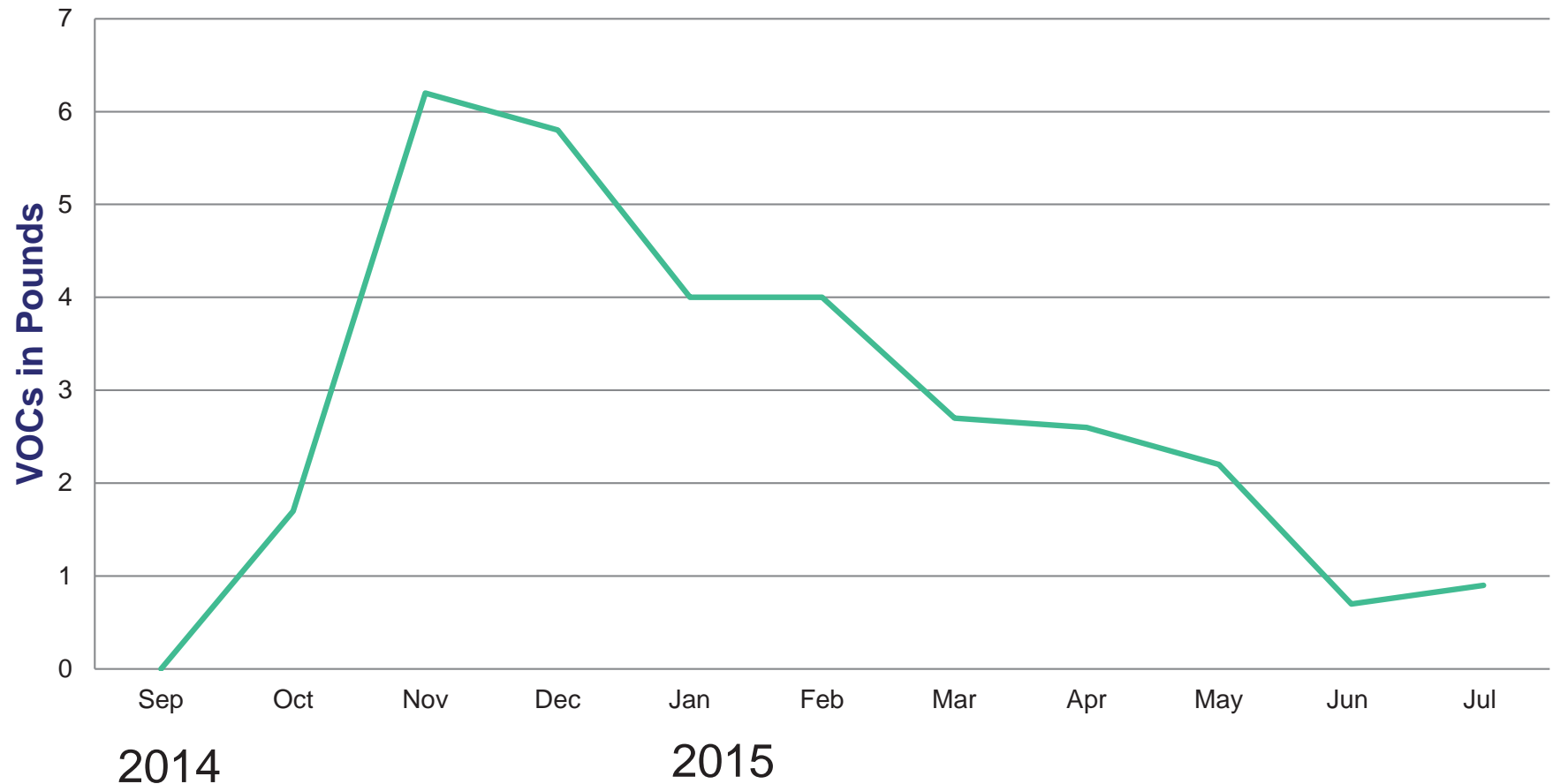




Site LF004

Southeast Landfill SVE System Update

VOCs Mass Removal Rate





Site LF004 Remediation System Recent and Upcoming Activities

- Operation of IWAS, SVE, and Southern Area remediation wells will continue
- Quarterly remedial action groundwater monitoring conducted during the weeks of 17 Aug 2015 and 24 Aug 2015
- Semi-annual groundwater monitoring event scheduled for Nov 2015
- Quarterly soil vapor monitoring sampling event conducted during the week of 24 Aug 2015
- Landfill cap inspection will be performed in Sep 2015



Site LF004 Remediation System Recent and Upcoming Activities

- Jul/Aug oxidant injections complete in the W19 area (W19 and RW02A).
- Additional oxidant injections planned for shallow interval downgradient of W19 Area (W24, W41 and W29) in Sep 2015.
- Evaluating additional oxidant injections at W11 which will be based on groundwater results from Aug 2015 monitoring event
- Changes in SVE operations will be conducted based on evaluation of Aug 2015 data

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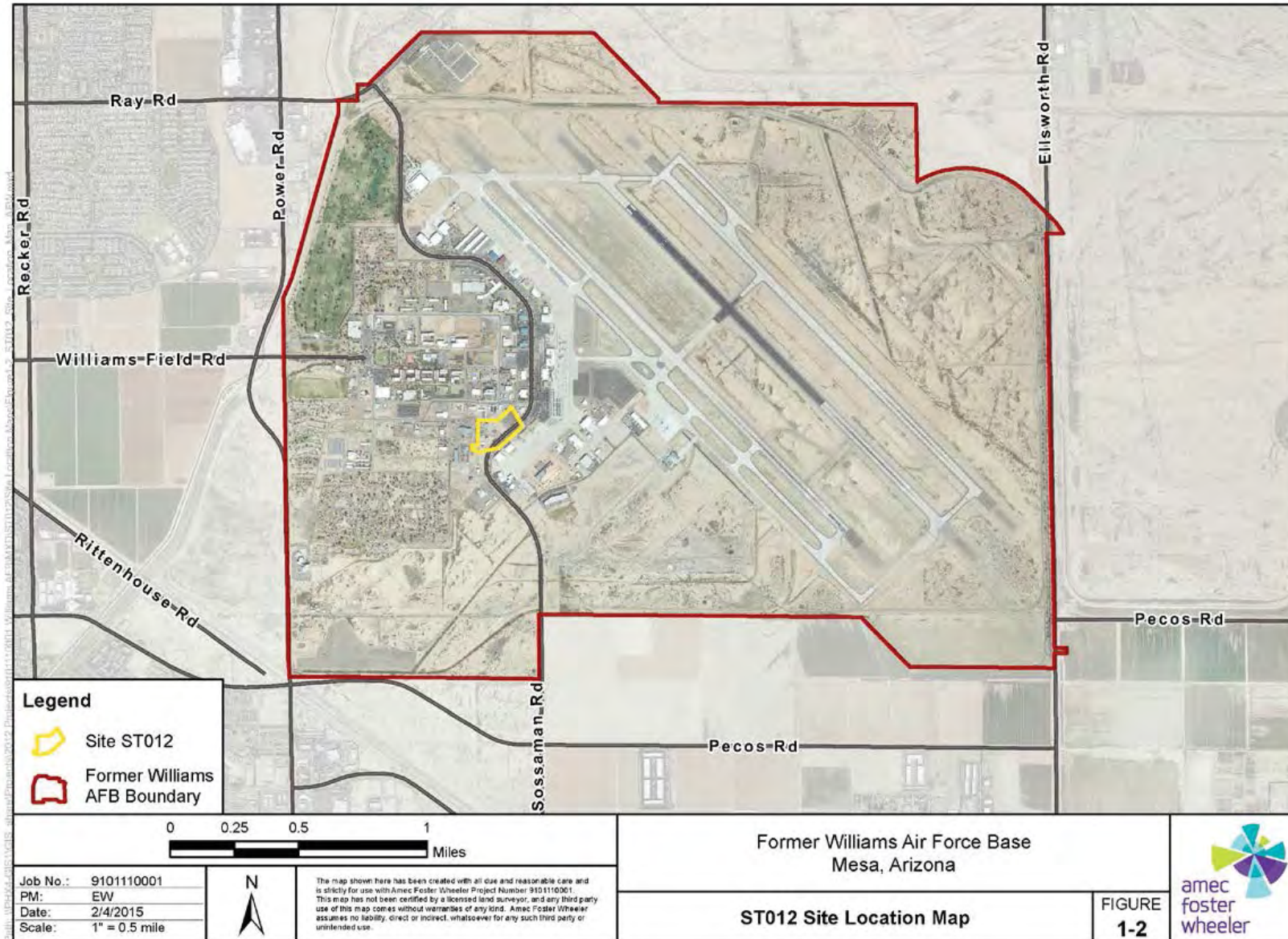


SITE ST012, FORMER LIQUID FUELS STORAGE AREA

REMEDIAL ACTION



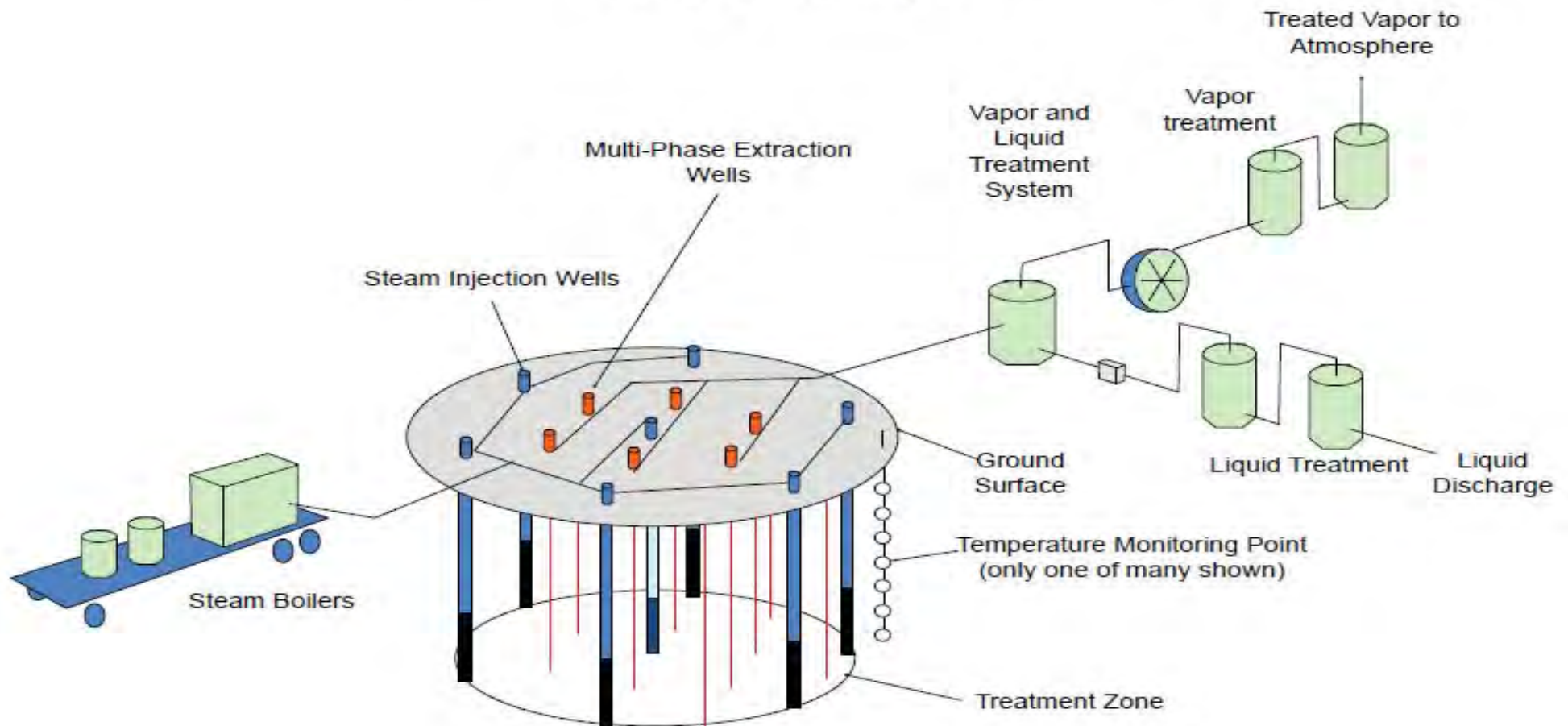
Site ST012 Site Location Map





Steam Enhanced Extraction (SEE) System Process

Steam Enhanced Extraction System Process Overview



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ST012 Steam Injection Status



ST012 SEE Operational Progress

- SEE Startup 29 Sep 2014
- Extraction Only Phase 29 Sep – 15 Oct 2014
- Steam Injection Start 16 Oct 2014
- SEE System Operations (presented in last RAB) 16 Oct 2014 – 23 Feb 2015



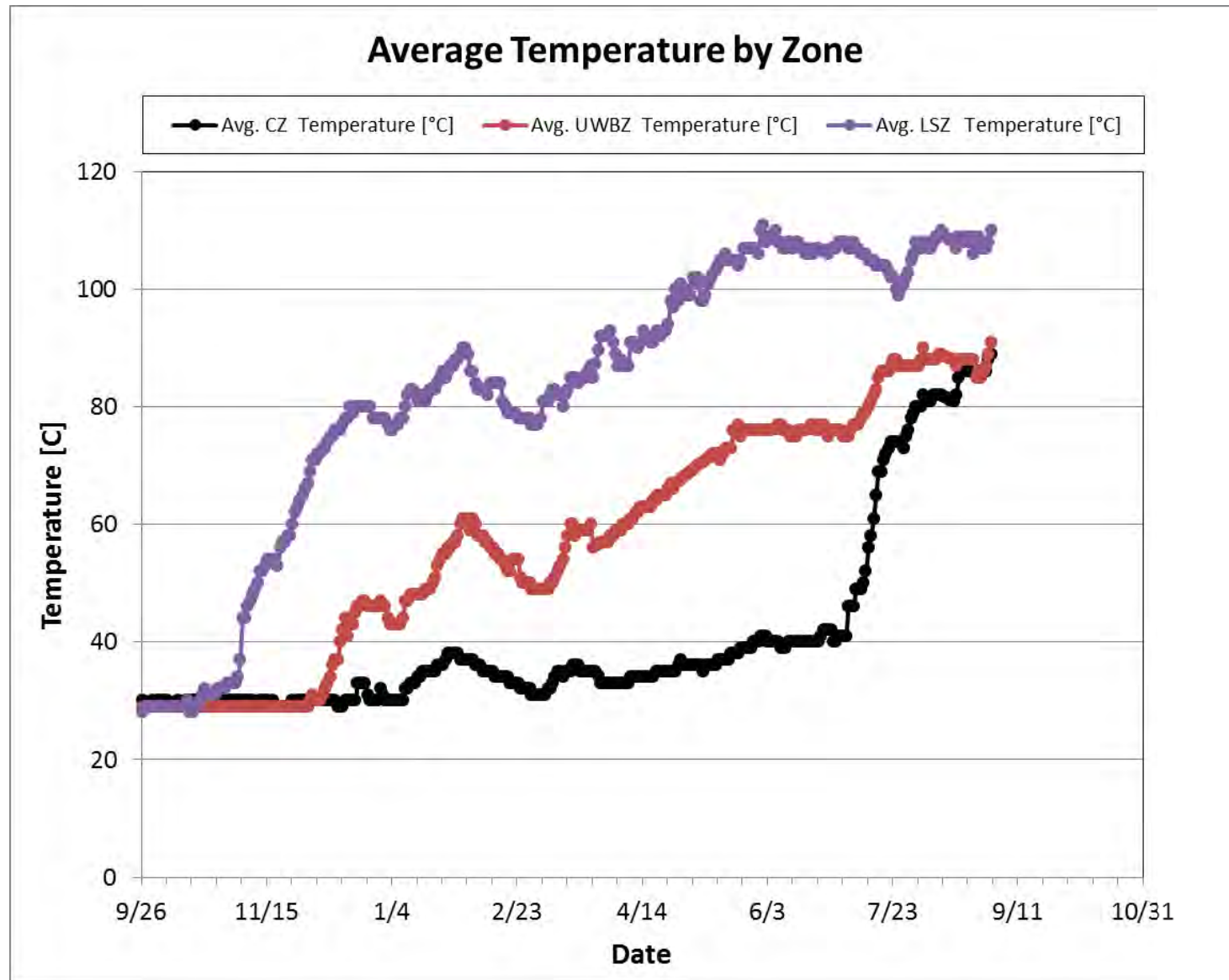
ST012 Operational Progress

Period	Average Extraction Rate (gpm)	Number of Extraction Skids Online	Average Steam Injection Rate (lbs/hr)	Number of Injection Wells Online	Other
24 Feb – 23 Mar	86	4	15,600(LSZ) 4,900(UWBZ)	21	
23 Mar – 23 Apr	126	5	18,100(LSZ) 8,800(UWBZ)	25	
23 Apr - 18 May	122	5	23,200(LSZ) 11,700(UWBZ)	24	
19 May - 15 Jun	111	6	23,500(LSZ) 10,000(UWBZ)	24	•UWBZ depressurization started 8 Jun
16 Jun – 20 Jul	119	5	11,400(LSZ) 9,500(UWBZ) 7,100(CZ)	30	•LSZ depressurization started 16 Jun •UWBZ pressurization started 22 Jun •CZ injections started 30 Jun
21 Jul – 10 Aug	114	5	20,200(LSZ) 6,000(UWBZ) 5,600(CZ)	31	•LSZ pressurization and UWBZ depressurization started 24 Jul
11 Aug – 31 Aug	108	5	11,750(LSZ) 8,250(UWBZ) 7,000(CZ)	32	•LSZ depressurization and UWBZ pressurization started 12 Aug •Injections started at UWBZ20 26 Aug •UWBZ depressurization started 25 Aug except in southwest portion of zone

- Eductor skids 4 and 6 (downgradient wells) have typically been operated continuously
- SEE discharge continues to meet compliance standards

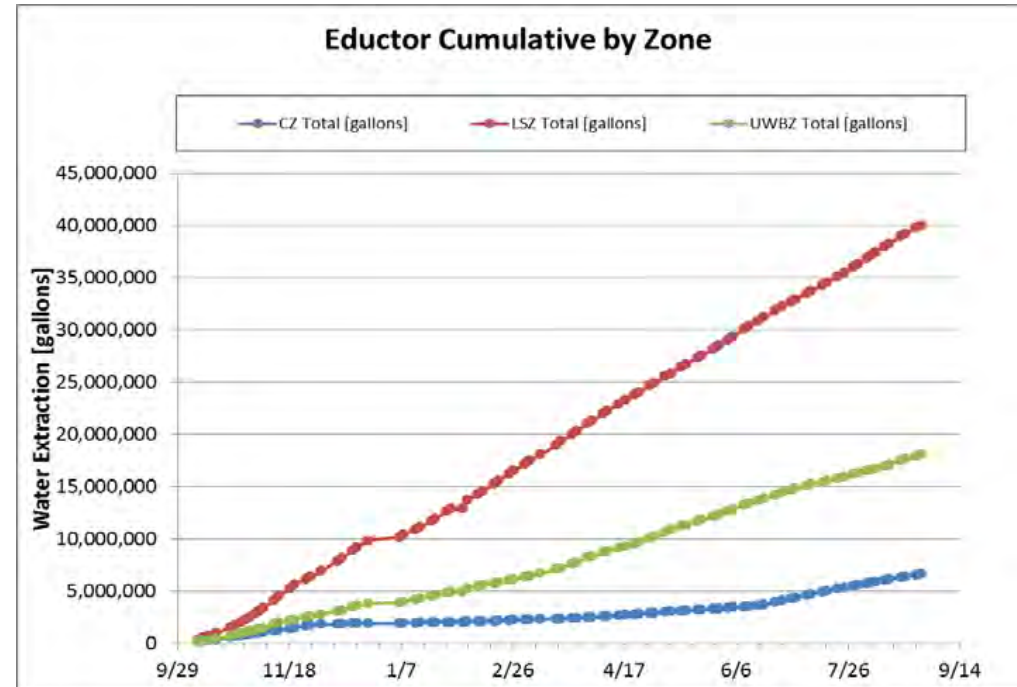
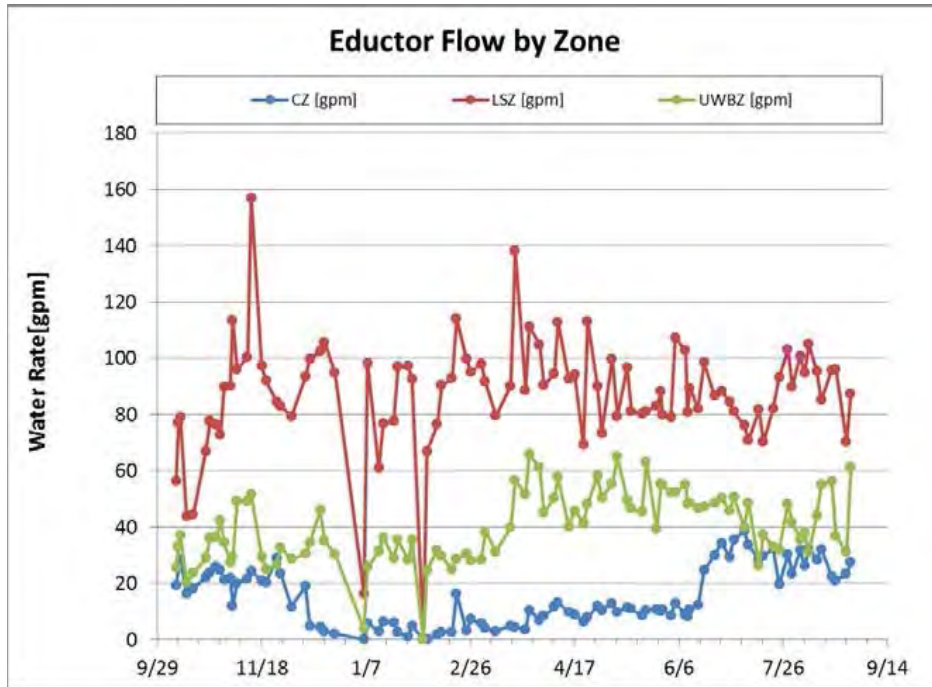


ST012 SEE Co-located Temperatures at Extraction Wells by Zone





Site ST012 SEE System Water Extraction by Zone

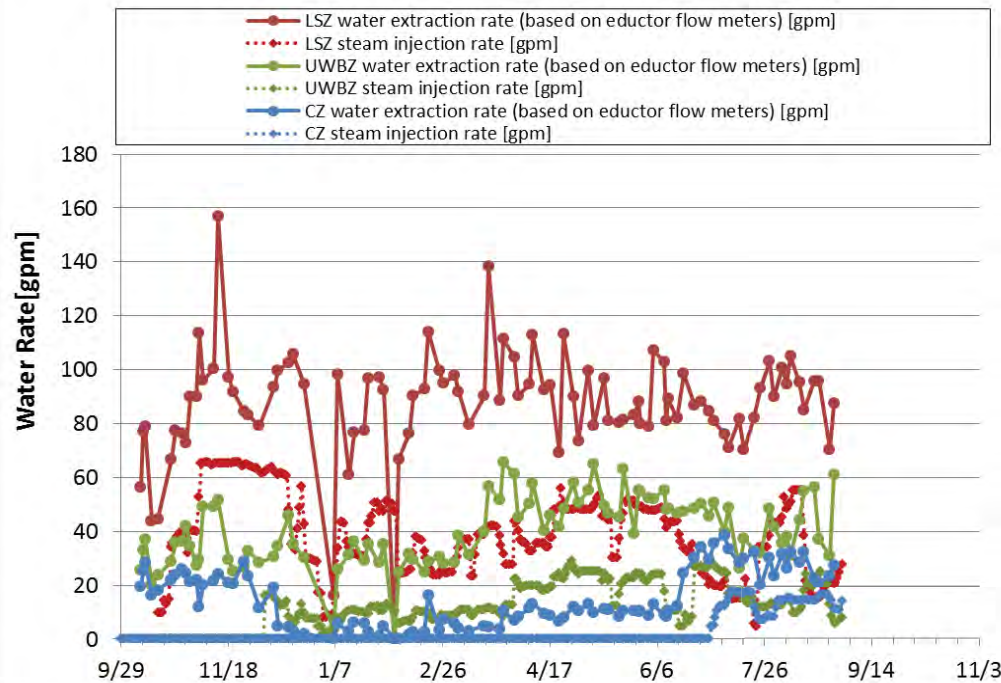


- Eductor extraction rates per zone are based on individual eductor feed and return meters
- Current overall extraction:injection ratio as of 31 Aug 2015 is 2.5:1 based on average flows (about 1.6:1 in the CZ, 3.9:1 in the UWBZ, 2.5:1 in the LSZ based on eductor flows)



Site ST012 SEE System Injection/Extraction Balance

Steam Injection and Water Extraction Balance

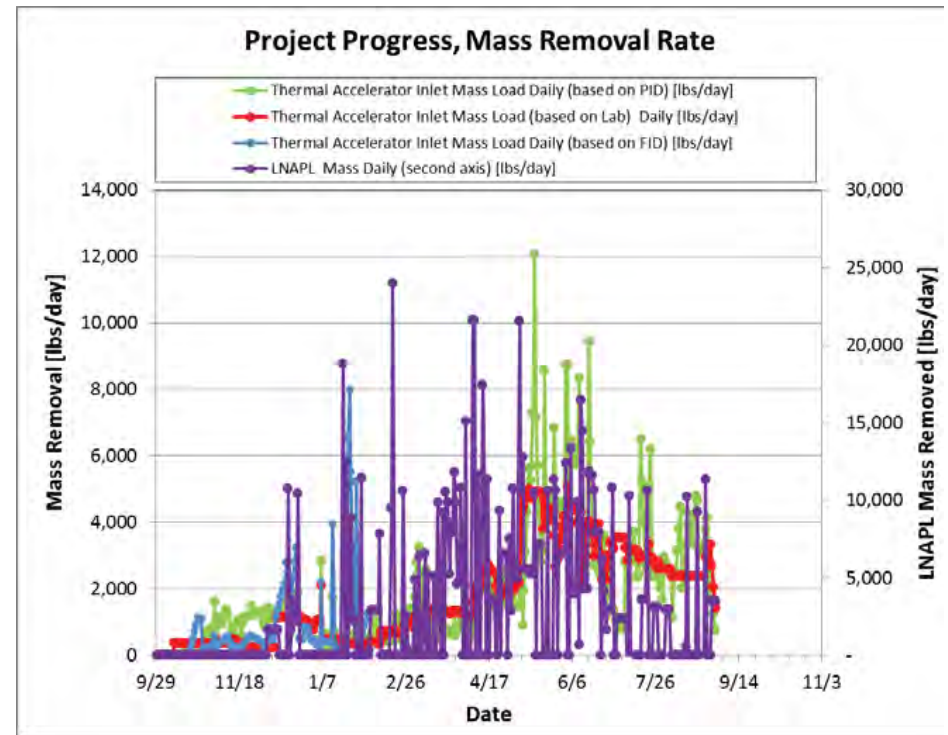
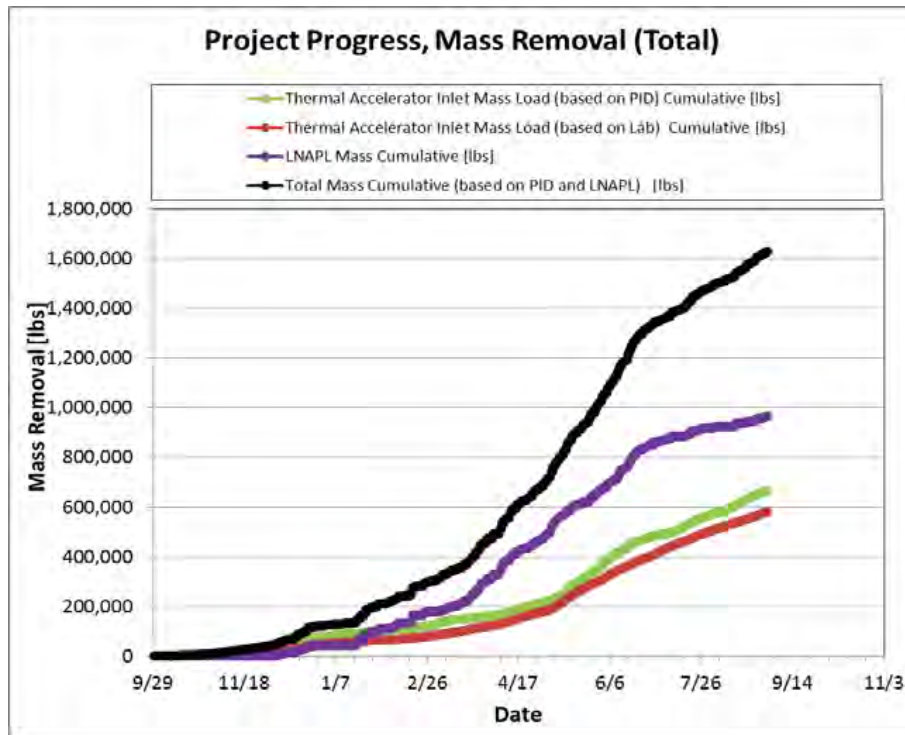


	CZ	UWBZ	LSZ
	[gallons]	[gallons]	[gallons]
Water extracted	6,630,000	18,054,000	40,022,000
Water injected (as steam)	1,177,000	5,791,000	17,756,000
Net extraction	5,453,000	12,263,000	22,266,000

Note: water extracted to date per zone is based on individual eductor meters



Site ST012 SEE System Mass Removal



- **Total Contaminant Mass Removal: 1,625,499 lbs** has been recovered to date
- **An estimated 964,983 lbs (146,654 gallons)** as non-aqueous phase liquid (NAPL)
- **An estimated 660,515 lbs of mass (PID)** has been removed in the vapor phase (equivalent to 100,382 gallons)



Site ST012 SVE System Update

Jan – Mar 2015

- 97% operational uptime
- Total Petroleum Hydrocarbon (TPH) removed – 18,400 lbs or 2,800 gallons
- 7 deep wells disconnected in Aug 2014 prior to SEE

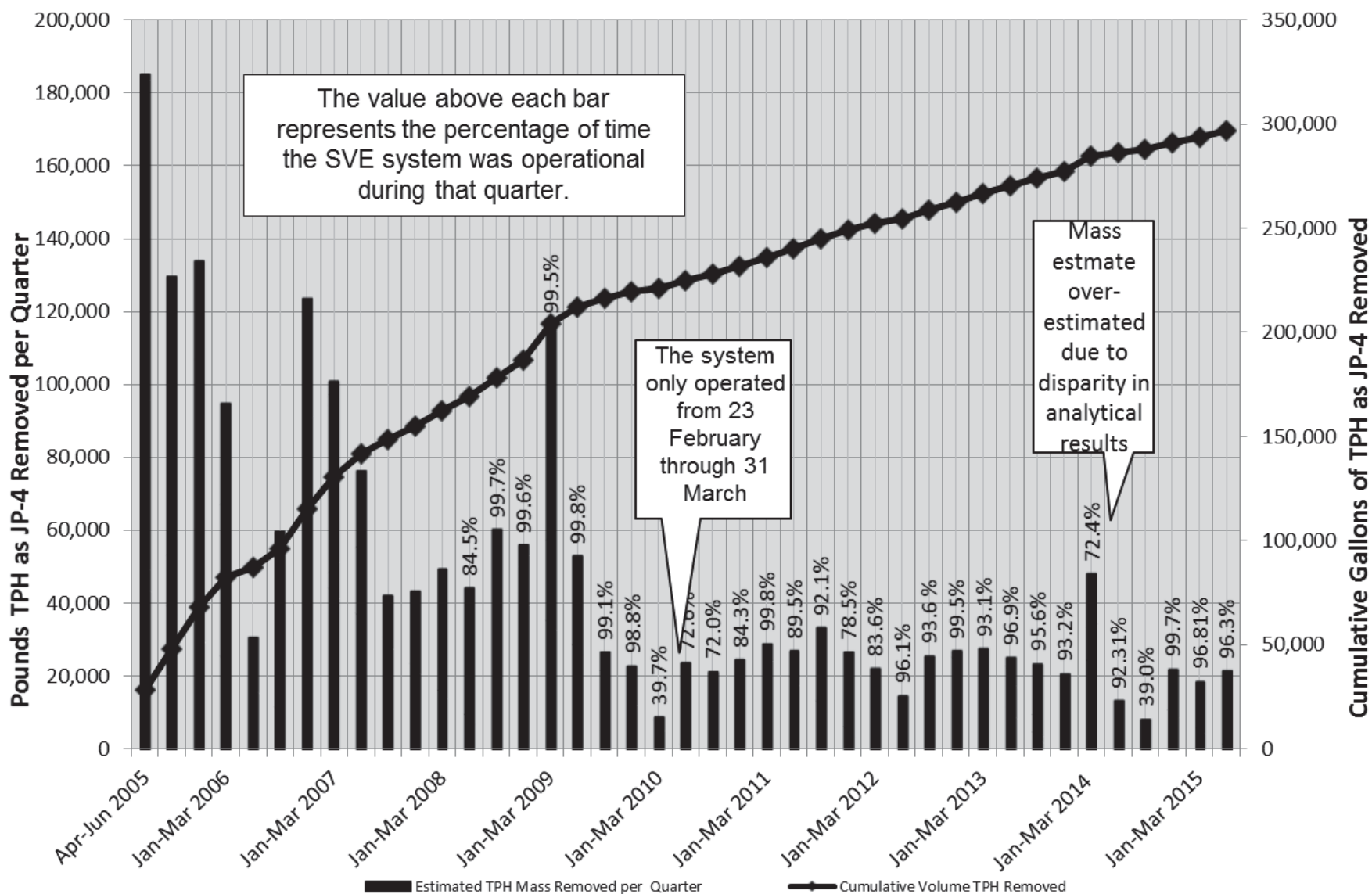
Apr – Jun 2015

- 96% operational uptime
- TPH removed – 21,300 or 3,200 gallons
- High temperature observed in SVE-01M. Likely related to a steam leak at injection well LSZ-07. SVE-01M disconnected from SVE system and reconnected to SEE extraction system.





Site ST012 SVE System Performance





Site ST012 SVE System Summary

- **TPH removed through Jun 2015 – 297,000 gallons**
- **SVE performance monitoring – Aug 2015 – sample collected, results pending**
- **Mass removal for the SVE system has increased slightly during SEE operations**

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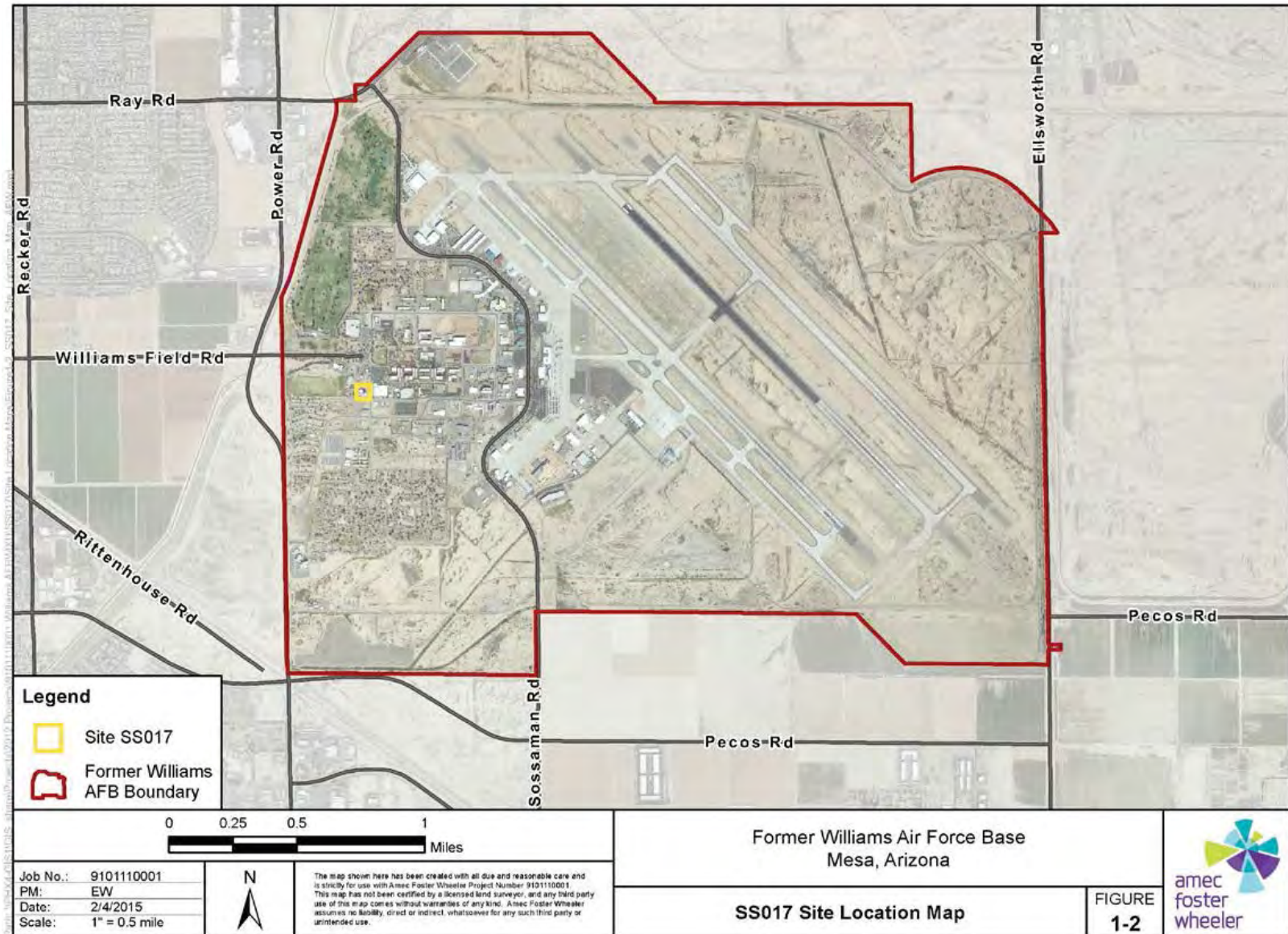
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**Site SS017,
Old Pesticide/
Paint Shop**



Site SS017 Site Location Map





Site SS017 Background

- Old pesticide/paint shop
- Soil and GW COC - Dieldrin
- Removal action for soil completed in 2000
- Ongoing annual GW monitoring
- Groundwater monitoring samples analyzed by two laboratories for the Jul monitoring event
- Performance samples (known dieldrin concentrations) provided to each laboratory to assess laboratory



Aug 2014 and Jul 2015 Groundwater Summary

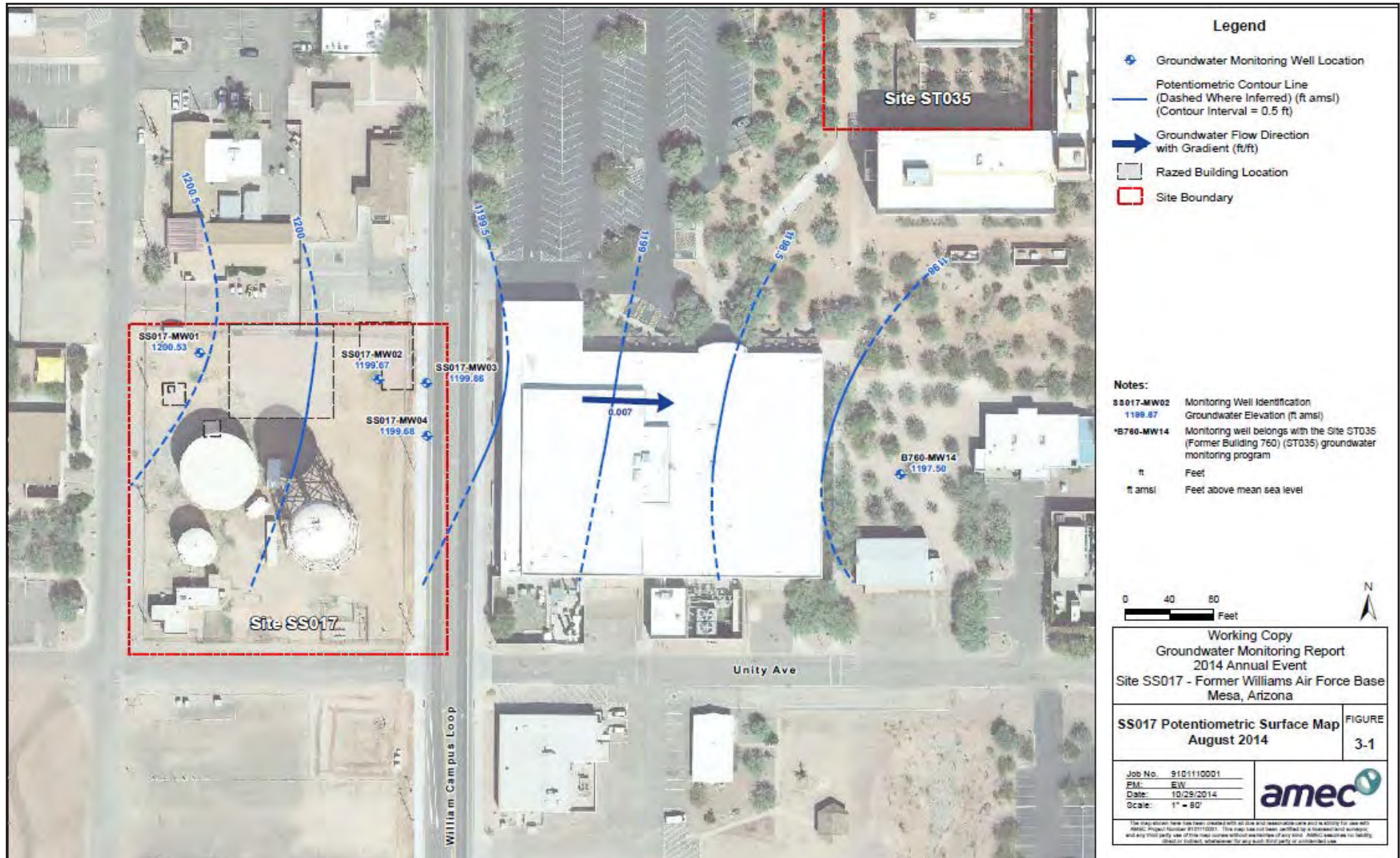
- **Groundwater Flow Direction**
 - **Aug 2014 – predominantly east**
 - **Aug 2015 – predominantly east**

- **Diieldrin exceeded the EPA screening level of 0.0017 µg/L in Jul 2015 at 3 wells (same wells as Aug 2014 & Aug 2013)**
 - **MW02**
 - **MW03**
 - **MW04**



Site SS017 Groundwater Monitoring Update

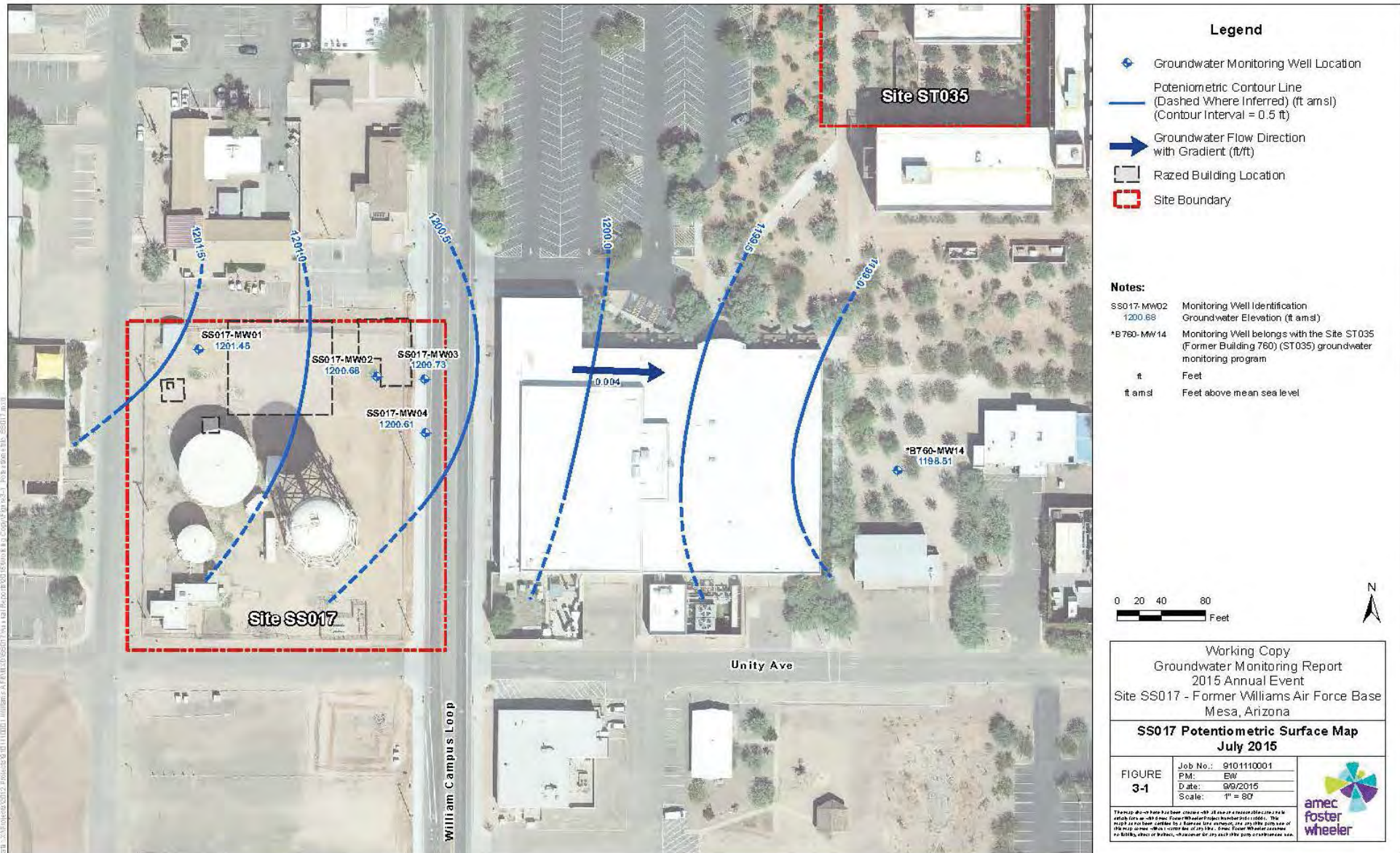
Flow Direction – Aug 2014





Site SS017 Groundwater Monitoring Update

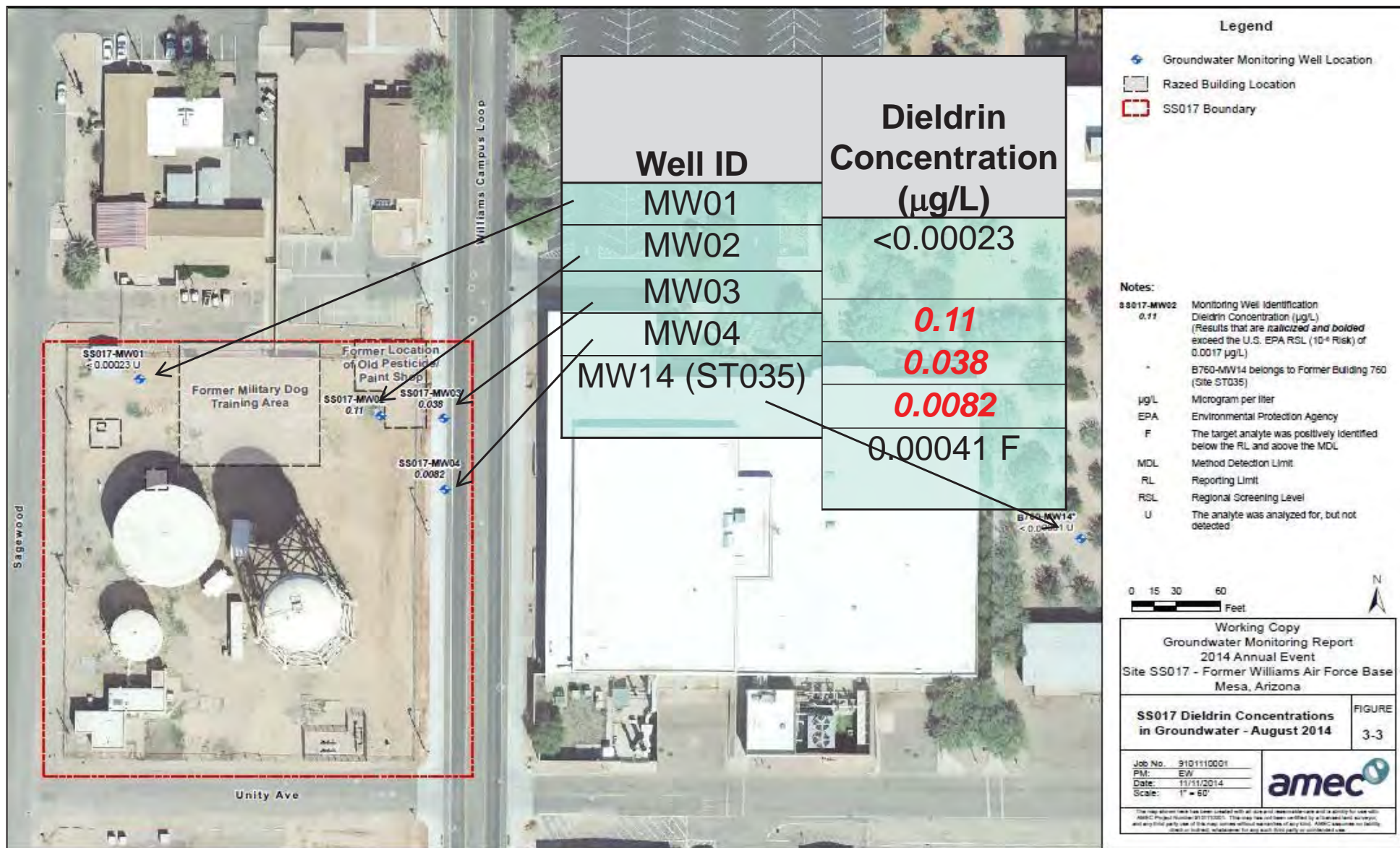
Flow Direction – Jul 2015





Site SS017 Groundwater Monitoring Update

Dieldrin Results – Aug 2014





Comparison of Analytical Results for 2014 and 2015

- **SS017-MW01**: Non-detect in 2015 and 2014 (Non-detect since Apr 1999)
- **SS017-MW02**: 2015 ALS result (0.11 µg/L) same as 2014; 2015 Spectrum result slightly lower (0.066 µg/L)
- **SS017-MW03**: 2015 ALS result (0.018 µg/L) and 2015 Spectrum result (0.17 µg/L) both lower than ALS result from 2014 (0.038 µg/L)
- **SS017-MW04**: 2015 results (0.0077 µg/L ALS; 0.0095 µg/L Spectrum) similar to 2014 results (0.0082 µg/L ALS)
- **B760-MW14**: Non-detect in 2014 and 2015
- Performance Evaluation (PE) Samples sent to both labs to assess analytical accuracy; both labs analyzed PE samples within acceptable QA/QC parameters



Site SS017 Path Forward

- **Final Supplemental Risk Assessment for Site SS017 - Sep 2014**
- **Air Force submitted 2014 Amended Proposed Plan with No Further Action as the preferred alternative - Jan 2015**
- **Regulatory agencies disagree with No Further Action preferred alternative and invoked formal dispute resolution – 20 Feb 2015**
- **Dispute resolution is proceeding in accordance with Federal Facility Agreement**
 - **Dispute Resolution Committee (DRC) made up of senior Air Force and regulatory agency representatives**
 - **DRC meetings held in May, Jul, and Aug to resolve outstanding issues. A technical meeting between AF, ADEQ, and EPA representatives was held in Jun 2015**
 - **Dispute resolution is expected by end of year**

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**Site ST035,
Former Building 760
Underground Storage
Tanks (USTs)**



Site ST035 Location Map



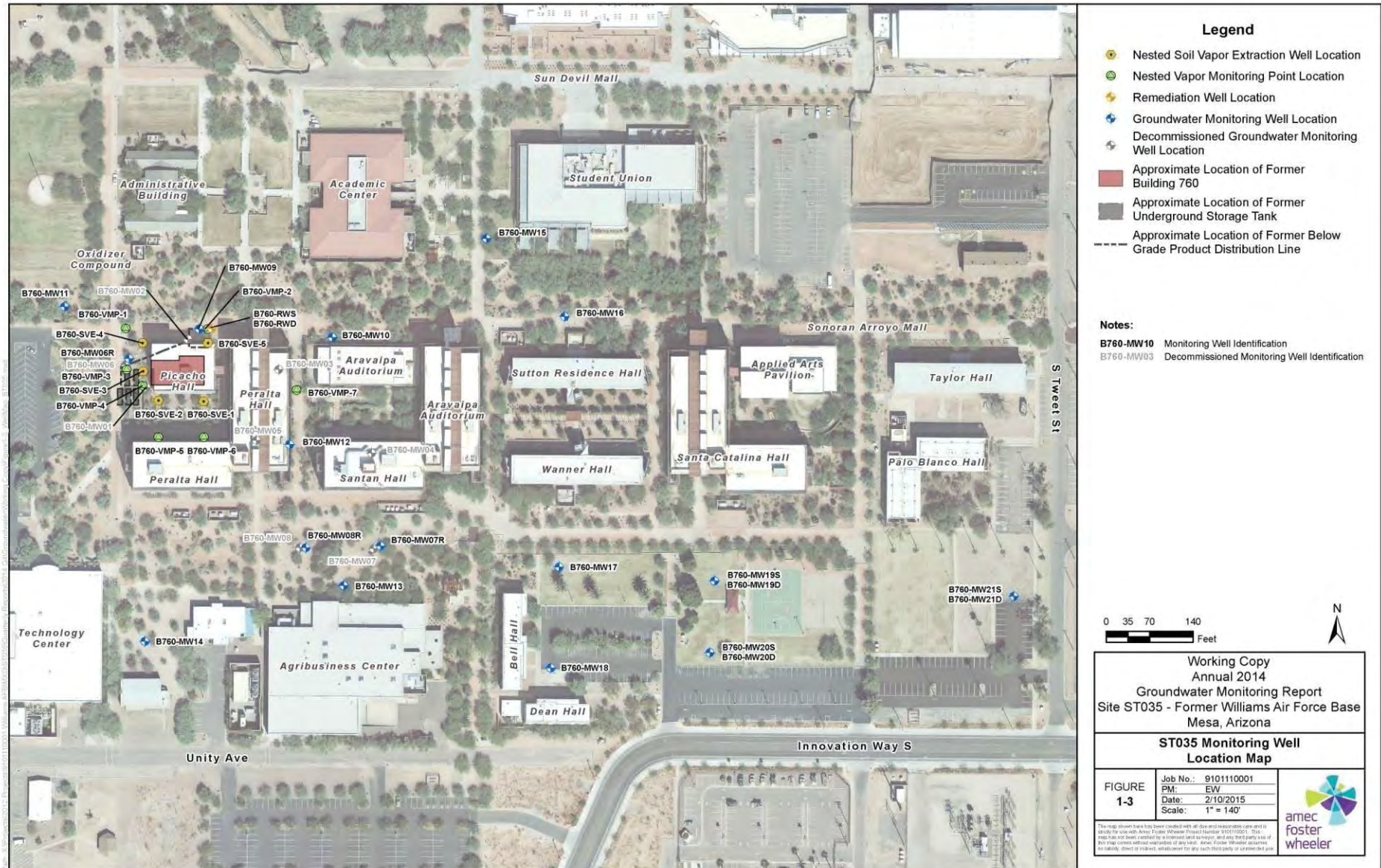


Site ST035 Site Background

- **Building 760 gas station & oil/water separator**
 - Gas dispensing until 1986
 - Tank & dispensing equipment removed in 1993-1994
 - Oil/water separator removed in 1996
- **Vadose zone soil COCs**
 - Benzene
 - 1,2-Dibromoethane (EDB)
- **Groundwater COCs**
 - Benzene, toluene, ethylbenzene, xylenes (BTEX)
 - EDB
 - Methyl tertiary butyl ether (MTBE)
 - 1,2-Dichloroethane (DCA)
- **SVE system to treat COCs in vadose zone soil shut down for rebound monitoring**
- **Site cleanup regulated by ADEQ under Leaking Underground Storage Tank (LUST) regulation (R18-12-263)**
- **Ongoing quarterly GW monitoring**



Site ST035 Well Location Map





Site ST035 Closure Strategy

The Air Force is pursuing ST035 Site closure under Arizona's Groundwater Leaking Underground Storage Tank (LUST) Case Closures Regulation R18-12-263.04. The closure strategy includes three components:

- 1. Remediation of the vadose zone source by the existing SVE system**
- 2. Demonstration of natural attenuation processes for residual contamination**
- 3. Demonstration of plume stability**



Site ST035 Closure Update

■ Corrective Action – Soil Vapor Extraction (SVE)

Operated Oct 2010 – Dec 2013

- System monitored for one year post-shutdown
- Rebound testing indicated majority of contamination has been removed and residual levels of COCs will not pose threat to indoor air or groundwater
- Soil vapor survey conducted with ADEQ UST Program direction to support a vapor intrusion risk assessment

■ Routine Groundwater Monitoring Continues

- 1,2-DCA plume is stable and attenuating
- Isolated detections of benzene and MTBE at concentrations exceeding Tier 1 Standards (only MTBE observed at RW-D in Feb 2015)



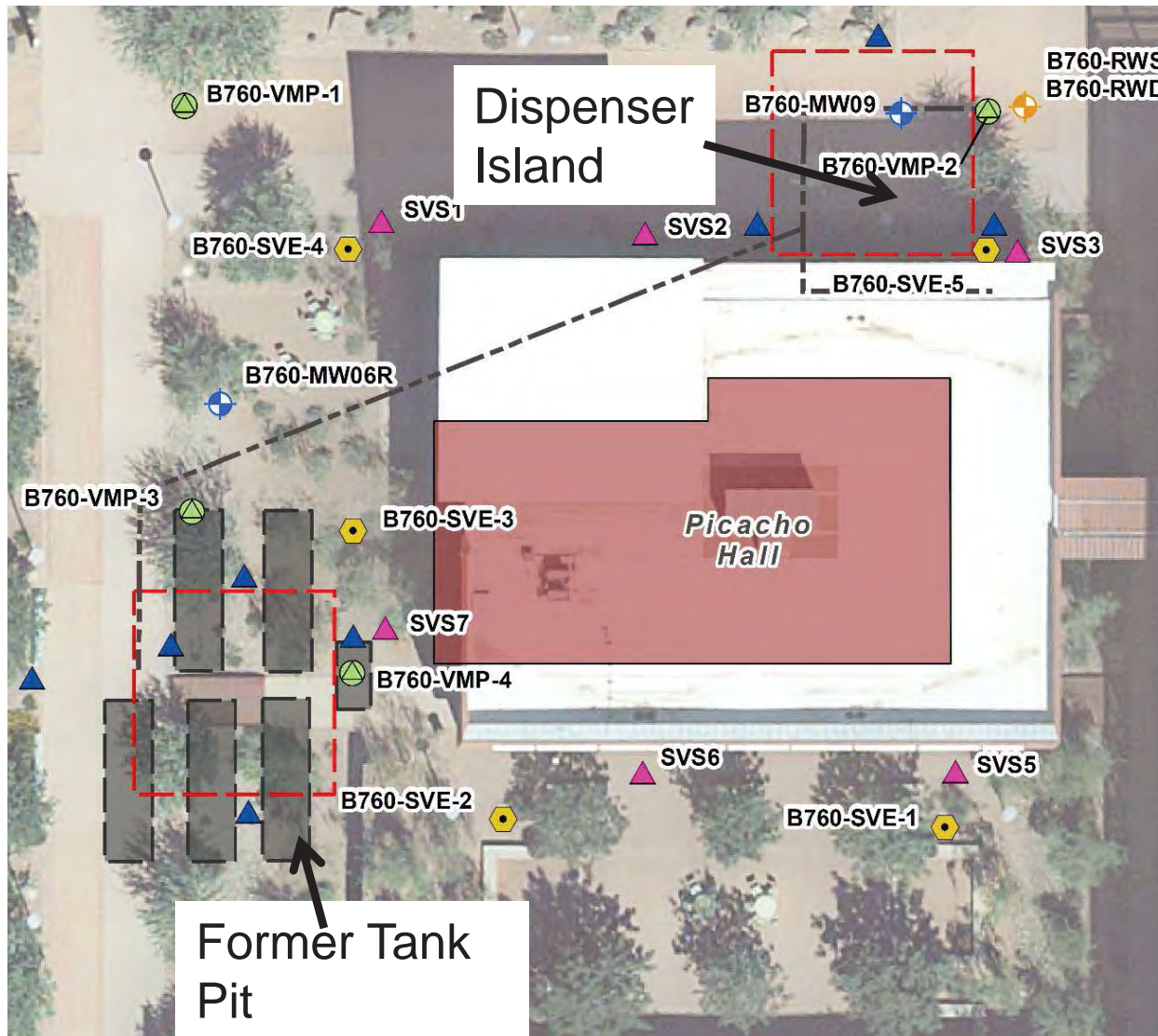
Site ST035 Soil Vapor Survey

Vapor Intrusion Assessment

- **Evaluation of Vapor Intrusion into Hypothetical Residential Structures Located Over Source Areas (Apr 2015)**
 - **Data collected from former tank pit and dispenser island area evaluated separately**
 - ✓ **Former Tank Pit – Highest concentrations observed near VMP-4**
 - ✓ **Dispenser Island – Highest concentrations observed next to SVE-5**
 - **Modeling indicates risk/hazard below thresholds**



Site ST035 Soil Vapor Survey Sample Locations



- Data collected from former tank pit and dispenser island area evaluated separately
 - Former Tank Pit – Highest concentrations observed near VMP-4
 - Dispenser Island – Highest concentrations observed next to SVE-5
- Modeling indicates risk/hazard below thresholds



Site ST035 Path Forward

■ Next Steps

- Documentation of soil vapor survey results for regulatory review
- Documentation of groundwater sampling results
- Development of Site Closure Report

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FORMER WILLIAMS AIR FORCE BASE Five-Year Review

**RAB Meeting
15 September 2015**



Five-Year Review

- **Five-year reviews required under CERCLA to assess that remedies remain protective of human health and environment**
- **Fourth five-year review initiated**
 - **Review period**
Sep 2015- Sep 2016
- **Site inspections planned in Dec 2015**
- **Public notice to be published Dec 2015 in the East Valley Tribune, Gilbert Independent, and East Mesa Independent**



Five-Year Review

- **Survey participation**
 - **RAB members**
 - **BCT members**
 - **Key Stakeholders (PMGAA, GRIC, ASU, City of Mesa, City of Gilbert)**
- **Participation will be made available via in-person interviews, telephone interviews, or online survey tools**
- **Tentative schedule**
 - **Draft submittal in May 2016**
 - **Agency review May/Jun 2016**
 - **Comment resolution Jun/Jul 2016**
 - **Final in Aug 2016**

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Meeting Wrap-Up

Presented by:
Mr. Len Fuchs/ Ms. Catherine Jerrard
RAB Community Co-Chairs
and Scott Johnston



Meeting Wrap-Up

- Review action items
- Call for agenda items for next RAB meeting
- Next RAB meeting 15 Mar 2016
- Meeting adjourned

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ADMINISTRATIVE RECORD

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