



# WILLIAMS AFB ARIZONA

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## ADMINISTRATIVE RECORD COVER SHEET

AR File Number 462637



**DEPARTMENT OF THE AIR FORCE**  
**AIR FORCE CIVIL ENGINEER CENTER**

AFCEC/CIBW  
706 Hangar Road  
Rome, NY 13441

16 June 2015

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, 16 September 2014, 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 16 September 2014, at the Arizona State University Polytechnic Campus (Peralta Hall #132) in Mesa, Arizona. These minutes were approved by the RAB at the 24 March 2015 RAB meeting. Included with the minutes are the attendee list and presentations slides.

Please contact me at (315) 356-0810 or [catherine.jerrard@us.af.mil](mailto: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".

CATHERINE JERRARD, PE  
BRAC Environmental Coordinator

Attachment:

Meeting Minutes: Restoration Advisory Board Meeting, 16 September 2014, Former Williams Air Force Base, Mesa, Arizona

- c: ADEQ - Wayne Miller (2 and 1 CD)
- Administrative Record – Terie Glaspey (1 and 1 CD)
- AFCEC –Catherine Jerrard (1 and 1 CD)
- ASU Libraries – Dan Stanton (1 and 1CD)
- CNTS – Geoff Watkin (1 and 1 CD)
- TechLaw – Bill Mabey (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 16, 2014, 6 p.m.  
Arizona State University Polytechnic Campus  
Peralta Hall #132  
7171 E. Sonoran Arroyo Mall  
Mesa, AZ**

**Attendees:**

<b><i>Name</i></b>	<b><i>Organization</i></b>
Ms. Cathy Jerrard	Air Force Civil Engineer Center (AFCEC)/Base Realignment and Closure (BRAC) Environmental Coordinator (BEC)/Air Force Co-chair
Ms. Linda Geissinger	AFCEC, Public Affairs
Mr. Scott Johnston	Sytsma Group, Public Affairs support contractor
Ms. Rhoni Andres	Sytsma Group, Public Affairs support contractor
Mr. Geoff Watkin	Cherokee Nation Technology Solutions, AFCEC technical support contractor
Mr. Everett Wessner	AMEC, AFCEC remediation contractor
Mr. Don Smallbeck	AMEC, AFCEC remediation contractor
Ms. Carolyn d'Almeida	RAB member/U.S. Environmental Protection Agency (USEPA), Region 9, Remedial Project Manager (RPM)
Ms. Beverly Selvage	RAB member/Mesa resident
Mr. Brandon Selvage	Community member
Mr. Richard Dyer	Mesa Independent newspaper reporter
Ms. Latonja West	RAB member, Arizona State University, Real Estate manager
Ms. Wendy Flood	Arizona Department of Environmental Quality (ADEQ)
Mr. Wayne Miller	RAB member/Arizona Department of Environmental Quality (ADEQ), RPM
Mr. Steve Willis	UXO Pro, Arizona Department of Environmental Quality (ADEQ) contractor
Mr. Thom Schuett	Promanage, LLC
Ms. Eva Davis	U.S. Environmental Protection Agency (USEPA), Kerr Laboratory
Mr. Steven Hunter	Arizona State University, Assoc. Dir. Environ. Health and Safety
Mr. John Herrera	Arizona State University, Assoc. Dir. Facilities Management Residential Facilities
Mr. Ben Mitsuda	Arizona State University, Associate General Counsel
Ms. Mary Reker	RAB member, Phoenix-Mesa Gateway Airport, Environmental and Archaeological Coordinator

Ms. Cathy Jerrard called the meeting to order at 6 p.m. and reminded everyone to please provide their contact information on the sign-in sheet (Attachment 1). The March 26, 2014 RAB minutes were approved.

RAB attendees were shown a brief video that highlighted the construction of the Steam Enhanced Extraction (SEE) remedy at ST012. Attendees were then driven to the site for a tour. Mr. Don Smallbeck gave a presentation at the site explaining how the SEE system was installed and how it will work. Attendees were also given the opportunity to view the site from an observation platform.

Following the tour, attendees returned to the ASU meeting room for a summary of the additional environment cleanup sites at the former base.

Ms. Jerrard provided a brief introduction and reminded the attendees that the RAB presentation would be abbreviated due to the tour. Ms. Jerrard introduced Ms. Eva Davis and Ms. Carolyn d'Almeida from the USEPA and Mr. Wayne Miller and Ms. Wendy Flood from ADEQ.

Ms. Jerrard provided a summary briefing and detailed handout (Attachment 2) for the Munitions Response Site XU403 Area 1.

As background, Ms. Jerrard explained that in 2010 during the initial munition removal action, a chemical identification test kit was found that the Air Force had previously used for training associated with testing for chemical agents. Intrusive work was halted at that time and resumed in 2014 to complete munitions removal and determine if potential chemical agents were present at the site. Ms. Jerrard stated that remedial activities at the Munitions Response Site XU403 Area 1 took place from March until August 2014. Inspections and training were performed in April prior to the commencement of field operations. Areas previously identified with anomalies present were investigated as well as existing stockpiles from the previous activities. Additionally, investigations were performed in areas not evaluated during the initial work activities to ensure that no munitions were buried.

Ms. Jerrard stated that due to heat and the procedures that had to be followed, the schedule for the project took longer than expected. On 29 May, digging began on pit F1/F2 that had not been finished in 2010. Items were found at pits F1/F2 and B2/B3 (see Attachment 2 for a summary of the items found). No chemical agents were identified by sampling or air monitoring. Samples were collected from both pits' bottom, sidewalls and stockpiles. The samples were analyzed for environmental contaminants, chemical agents and explosives; and evaluated for potential risks. Based on the risk evaluation, onsite stockpiles will be returned to the open pit areas or disposed offsite. A report of the field activities, sample results, and evaluation is currently in preparation and will be submitted for regulatory review and approval. The goal of the project is to achieve site closure.

**Questions asked during Munition Response Site XU403 Area 1 update:**

There were none.

Ms. Jerrard then turned the presentation over to Mr. Everett Wessner.

***Site Status Updates***

Mr. Wessner presented summary status updates for Sites FT002, LF004 and ST012; see attached slides (Attachment 3) for more information. RAB and community discussions for the summary updates are presented below. A detailed slide handout (Attachment 4) was also provided with additional supporting information for the summary updates as well for Sites SS017 and ST035.

***FT002 Former Fire Training Area No. 2***

Mr. Wessner stated that the contaminants of concern (COCs) at this site are benzene, chloroform, and 1,4-dichlorobenzene and that additional petroleum related soil contamination was found during sampling completed in 2013. Remediation wells and equipment were installed in May to address the remaining contamination with soil vapor extraction (SVE). The wells were commissioned and operations began in June. The SVE operations will continue until December 2014.

The SVE unit has been operating more than 95% of the time and has removed 300 gallons of petroleum contaminants to date. Mr. Wessner stated that soil concentrations are anticipated to be at acceptable levels by the end of 2014.

**Questions asked during FT002 presentation:**

There were none.

***LF004, Former Solid Waste Landfill***

Mr. Wessner provided background and a status update for LF004.

The Record of Decision Amendment (RODA) was signed in May and the Remedial Design/Remedial Action work plan is nearly finalized. The remedy for the site is In-Well Air Stripping, SVE and oxidant injection. System construction is complete and treatment operations have commenced. The system is anticipated to operate through September 2017. Throughout its operation, progress of the treatment system will be evaluated and a Groundwater Model Update/Remedial Action Optimization evaluation will be provided in October-December 2015.

**Questions asked during LF004 presentation:**

There were none.

***ST012, Former Liquid Fuels Storage Operation***

Mr. Wessner summarized the slides presenting the site background, contaminants, cleanup methods in place, and the path forward.

Mr. Wessner stated that the RODA was finalized in September 2013. The RD/RA work plan was finalized in May 2014. Horizontal well abandonment was completed in March 2014, well drilling/abandonment and baseline groundwater sampling was completed in April 2014, a replacement gate was installed for the Army Reserve facility in May 2014, and all major remediation equipment was installed in July 2014. Remediation system start up is in progress and expected to be completed by the end of September.

Mr. Wessner stated that the first phase of startup is to establish hydraulic control of the site, followed by steam injection and extraction. The cell phone lot closure will end in December 2015.

**Questions asked during ST012 presentation:**

Ms. Flood asked if the remediation equipment took into account the heat and high temperature common in the area. She stated that on other sites that has been a reason to not use it.

Mr. Smallbeck responded that the remedial design and construction of the system accounted for ultraviolet (UV) exposure and heat common to the area. Exposed piping and equipment have UV protection. Although there will be heat generated throughout the process, the heat will be dispersed quickly. Mr. Smallbeck stated that piping and storage containers that are used for recovery of the fuel products have secondary containment and protection from ignition sources. Additionally, heat exchangers will be used to cool the heated groundwater as it passes through the various treatment systems before reinjection on site or off site discharge. Mr. Smallbeck stated that he doesn't anticipate any problems with system operation through the summer months.

***Meeting Wrap-up***

Mr. Schuett asked if there will be an update for SS017 and if the Final Supplemental Risk Assessment that was scheduled to take place in September was completed.

Ms. Jerrard stated that the Supplemental Risk Assessment was just sent out and the Amended Proposed Plan was sent out as well. Information on both will be provided at the 24 March 2015 RAB meeting.

That concluded the information portion of the evening.

Mr. Johnston adjourned the meeting at 7:20 p.m.

The next Williams RAB meeting is scheduled for Tuesday, March 24, 2015 at 7 p.m. at the Arizona State University Polytechnic Campus. (*Note: meeting time was subsequently changed to 7 p.m.*)

***Attachments:***

1. Sign in sheet
2. HGL Parcel N, Debris Area 1, Project Update slide presentation
3. Sept. 16, 2014 RAB meeting slide presentation (Summary)
4. Sept. 16, 2014 RAB meeting slide handout (Detailed)

Date: 16 September, 2014

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

	<u>NAME/ORGANIZATION</u>
1.	RICHARD DYER
2.	GEOFF WATKIN
3.	Steven Hunter
4.	LINDA GEISSINGER
5.	Don Smallbeck
6.	Katanga West
7.	JOHN HERRERA
8.	Cory J. Almeida
9.	Eva Davis
10.	Mary Refier
11.	Beverly Selvage
12.	Thom Schoen
13.	Wendy Flood
14.	Ben Witzada
15.	Wayne Miller



# ***Headquarters U.S. Air Force***

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## **Former Williams AFB Restoration Advisory Board (RAB)**



16 September 2014

Arizona State Polytechnic Campus  
Peralta Hall Room 132  
7171 E. Sonoran Arroyo Mall Rd.  
Mesa, AZ



# ***Welcome & Introductions***

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- 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

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<u>Time</u>	<u>Topic</u>	<u>Presenter</u>
6:00 PM	<u>RAB Meeting Convenes</u> <ul style="list-style-type: none"><li>• Welcome and Introductions</li><li>• Community Co-chair Remarks</li><li>• Review March 2014 Meeting Minutes and Action Items</li></ul>	Mr. Len Fuchs Ms. Catherine Jerrard Mr. Scott Johnston
6:05-6:20 PM	<u>Program Updates</u> Summary Briefing and Detailed Handout Munitions Response Site XU 403 Area 1 FT002 Status Update <ul style="list-style-type: none"><li>• Remedial Action Update</li></ul> LF004 Status Update <ul style="list-style-type: none"><li>• Remedial Action Update</li></ul> ST012 Status Update <ul style="list-style-type: none"><li>• Remedial Action Update</li><li>• Video</li></ul>	Ms. Catherine Jerrard Mr. Everett Wessner



# ***Agenda Continued***

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<u>Time</u>	<u>Topic</u>	<u>Presenter</u>
6:20-6:30 PM	<u>Meeting wrap-up</u> <ul style="list-style-type: none"><li>• Review action items for next meeting</li><li>• Call for agenda items for next meeting</li><li>• Propose next RAB meeting – 24 Mar 2015</li></ul>	Ms. Catherine Jerrard
6:30 PM	Adjourn to ST012 Site Tour	Mr. Len Fuchs
6:30-7:30 PM	<u>ST012 Tour</u>	Mr. Everett Wessner Mr. Scott Johnston

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## **Program Updates**

**Munitions Response Site XU 403  
Area 1, FT002, LF004, and ST012**

Presented by:  
Ms. Catherine Jerrard, AFCEC  
Mr. Everett Wessner, AMEC

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## **Munitions Response Site XU 403 Area 1**

Presented by:  
Ms. Catherine Jerrard  
AFCEC



## ***Parcel N, Debris Area 1 Field Activities April 2014***

**Training Activities April 8, 2014**



**Training Activities, Rescue Operation  
April 11, 2014**



- **Huntsville Survey  
(April 8<sup>th</sup> -11<sup>th</sup>)**
- **Team training continued**
- **Department of the Army  
pre-operational survey  
(April 28<sup>th</sup> – May 2<sup>th</sup>)**
- **Response to survey  
feedback (May 5<sup>th</sup> – May 9<sup>th</sup>)**
- **Notice to proceed with  
intrusive operations  
received May 9<sup>th</sup>**





## ***Parcel N, Debris Area 1 Field Activities May 2014***

- Investigation of the 49 single point anomalies
- Pre-existing stockpile from pit B5 uncovered and sifted
- Pre-existing stockpiles from pit F1/F2 uncovered and sifted
- Intrusive excavation of pit F1/F2 began May 29<sup>th</sup>



**Top: F1B Stockpile sifting**

**Center: Representative munitions debris from F1A stockpile**

**Bottom: F1B Stockpile soil sampling**





## ***Parcel N, Debris Area 1 Field Activities – Pit Excavations***

### **F1/F2 from May 29<sup>th</sup> to July 18<sup>th</sup>**

- **Munitions and explosives of concern (MEC) found: two partial M128 flares and one suspect fuze booster, and small arms ammunition (Eleven .50 caliber rounds)**
- **1,444 pounds of munitions debris removed**
- **163.5 pounds of cultural debris (nails, wire, scrap metal, trash) removed**

### **B2/B3 from July 23<sup>rd</sup> to July 28<sup>th</sup>**

- **No MEC found**
- **10.6 pounds of munitions debris removed**
- **4.05 pounds of cultural debris (nails, wire, scrap metal, trash) removed**
- **7 pounds of chemical agent identification set (CAIS) and related glass debris, including 139 glass pieces, 9 empty, intact bottles**



**Samples collected from both pits: pit bottom, sidewalls, and stockpiles and analyzed for environmental contaminants, including chemical agents and explosives**



## ***Parcel N, Debris Area 1 Field Activities August 2014***

- **Pits completely excavated and extents confirmed**
- **Incremental and discrete soil sampling within Area 1**
  - **Explosives, metals, and perchlorate**
- **Intrusive investigation of targets in Grid 1-Grid 6**
- **Surface sweep for propellant within Area 1**
- **All stockpile sampling completed and results compiled**
  - **“Clean” soils will be backfilled**
  - **Soils with screening level exceedances will be evaluated for proper disposal**
- **Archaeological findings to date include pottery shards**



B2/B3 Pit activities



## **Parcel N, Debris Area 1**

### ***Next Activities***

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- **Final 2014 Reports document the removal of munitions, CWM, and hazardous waste**
  - Site Inspection Report, Oct/Nov 2014
  - Archaeological Monitoring Report, Oct/Nov 2014
  - After Action Report, Oct/Nov 2014
  - No Further Action Explosives Safety Submission
- **Project Goal: Recommendation for Site Closure**
- **For more information, contact the Air Force Civil Engineer Center**
  - **Linda Geissinger**  
**Air Force Civil Engineering Center Public Affairs**  
**916-643-1250, Ext. 109**  
**[afrpa.west.pa@us.af.mil](mailto:afrpa.west.pa@us.af.mil)**  
**<http://www.afcec.af.mil/brac/williams/index.asp>**
- **Questions?**



# ***FT002 REMEDIAL ACTION PROGRESS***

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## **REMEDIAL ACTION IS IN PLACE**

- Remediation Well Drilling May 2014
- All Major Equipment Installed May 2014
- Commissioning Jun 2014
- Soil Vapor Extraction Operations Jun-Dec 2014



## ***Site FT002 Soil Vapor Extraction System Update***

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**Jun-Aug 2014**

- Run time > 95%
- TPH removed – approximately 1834 pounds or 300 gallons<sup>1</sup>



<sup>1</sup>Based on field PID readings



# ***LF004 REMEDIAL ACTION PROGRESS***

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## **REMEDIAL ACTION IS IN PLACE**

■ Final RODA	May 2014
■ Final RD/RA Work Plan	Sep 2014
■ Well Drilling/Installation	Apr – May 2014
■ Baseline Sampling Complete	May – Jun 2014
■ Equipment Manufacture	May – Jul 2014
■ Equipment Installation	Jun – Aug 2014
■ System Startup	Aug – Sep 2014





# ***LF004 REMEDIAL ACTION PROGRESS***



W17 Area Treatment Enclosure



LF01-RW01B IWAS Wellhead



# ***LF004 UPCOMING REMEDIAL ACTION SCHEDULE***

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- **System Operation** **Sep 2014 – Sep 2017**
  - **In Well Air Stripping (IWAS)**
  - **Soil Vapor Extraction**
  - **Oxidant Addition**
- **Groundwater Model Update/  
Remedial Action Optimization** **Oct –Dec 2015**





# ***ST012 REMEDIAL ACTION PROGRESS***

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## **REMEDIAL ACTION IN PLACE 22 Sep 2014**

- **Signed Record of Decision  
Amendment (RODA) Sep 2013**
- **Final Remedial Design/Remedial  
Action(RD/RA) Work Plan May 2014**
- **Horizontal Well Abandonment Complete Mar 2014**
- **Well Drilling/Abandonment Complete Apr 2014**
- **Baseline Groundwater Sampling Complete Apr 2014**
- **Army Reserve Gate Upgrade May 2014**
- **All Major Equipment Installed Jul 2014**



# ***ST012 REMEDIAL ACTION PROGRESS***

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- |                                         |          |
|-----------------------------------------|----------|
| ■ Pump Eductors Installed               | Aug 2014 |
| ■ Utility Connections Complete          | Aug 2014 |
| ■ Well field Piping Complete            | Aug 2014 |
| ■ Process Equipment and Piping Complete | Aug 2014 |
| ■ City of Mesa Discharge Permit         | Aug 2014 |
| ■ SEE Commissioning and Startup         | Sep 2014 |



# ST012 RA PROGRESS





## ***ST012 RA PROGRESS VIDEO***

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- **Additional information on remediation process will be discussed during the tour**



# ***ST012 UPCOMING REMEDIAL ACTION SCHEDULE***

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- |                                         |                   |
|-----------------------------------------|-------------------|
| ■ Operations Commencement               | Sep 22 2014       |
| ■ Establish Pneumatic/Hydraulic Control | Sep 22-27 2014    |
| ■ Start Steam Injection                 | Sep 30 2014       |
| ■ Steam Heating and Extraction          | Oct 2014-Aug 2015 |
| ■ Post Steam Extraction                 | Aug 2015-Nov 2015 |
| ■ Road and Cell Phone Lot Closure Ends  | Dec 2015          |

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## **Meeting Wrap-Up**

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



## ***Meeting Wrap-Up***

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- **Review action items**
- **Call for agenda items for next RAB meeting**
- **Next RAB meeting 24 Mar 2015**
- **Meeting adjourned to ST012 Site Tour**



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## **Former Williams AFB Restoration Advisory Board (RAB)**



16 September 2014

Arizona State Polytechnic Campus  
Peralta Hall Room 132  
7171 E. Sonoran Arroyo Mall Rd.  
Mesa, AZ



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## **Welcome & Introductions**

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



## ***Welcome & Introductions***

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- 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
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# ***Headquarters U.S. Air Force***

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## **Program Updates**

**Munitions Response Site XU 403  
Area 1, FT002, LF004, ST012,  
SS017, and ST035**



Presented by:  
Ms. Catherine Jerrard, AFCEC  
Mr. Everett Wessner, AMEC

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## **Munitions Response Site XU 403 Area 1**

Presented by:  
Ms. Catherine Jerrard  
AFCEC

# ***Headquarters U.S. Air Force***

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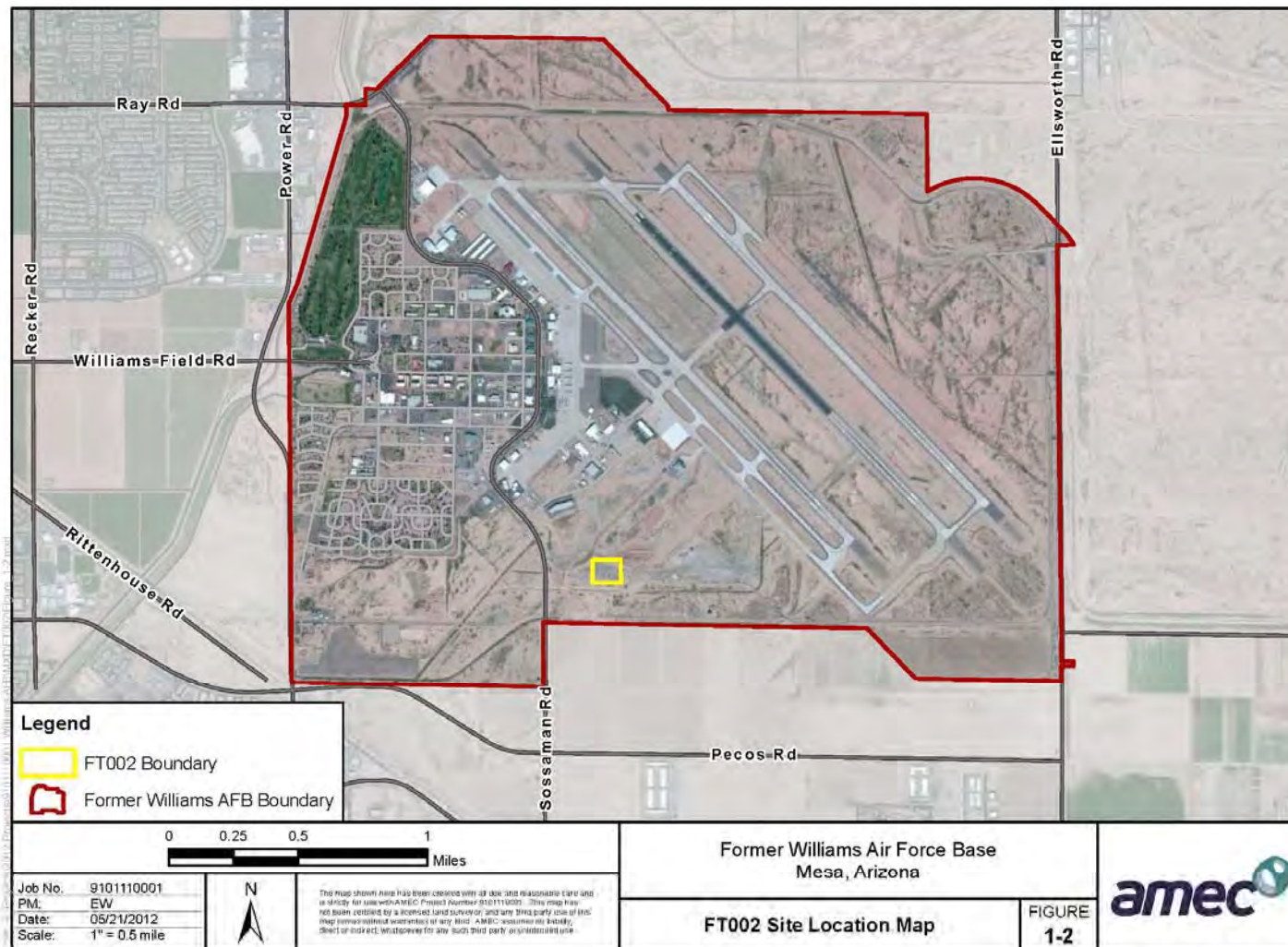
**Site FT002, Fire  
Training Area**

**REMEDIAL ACTION**





# Site FT002 Location Map







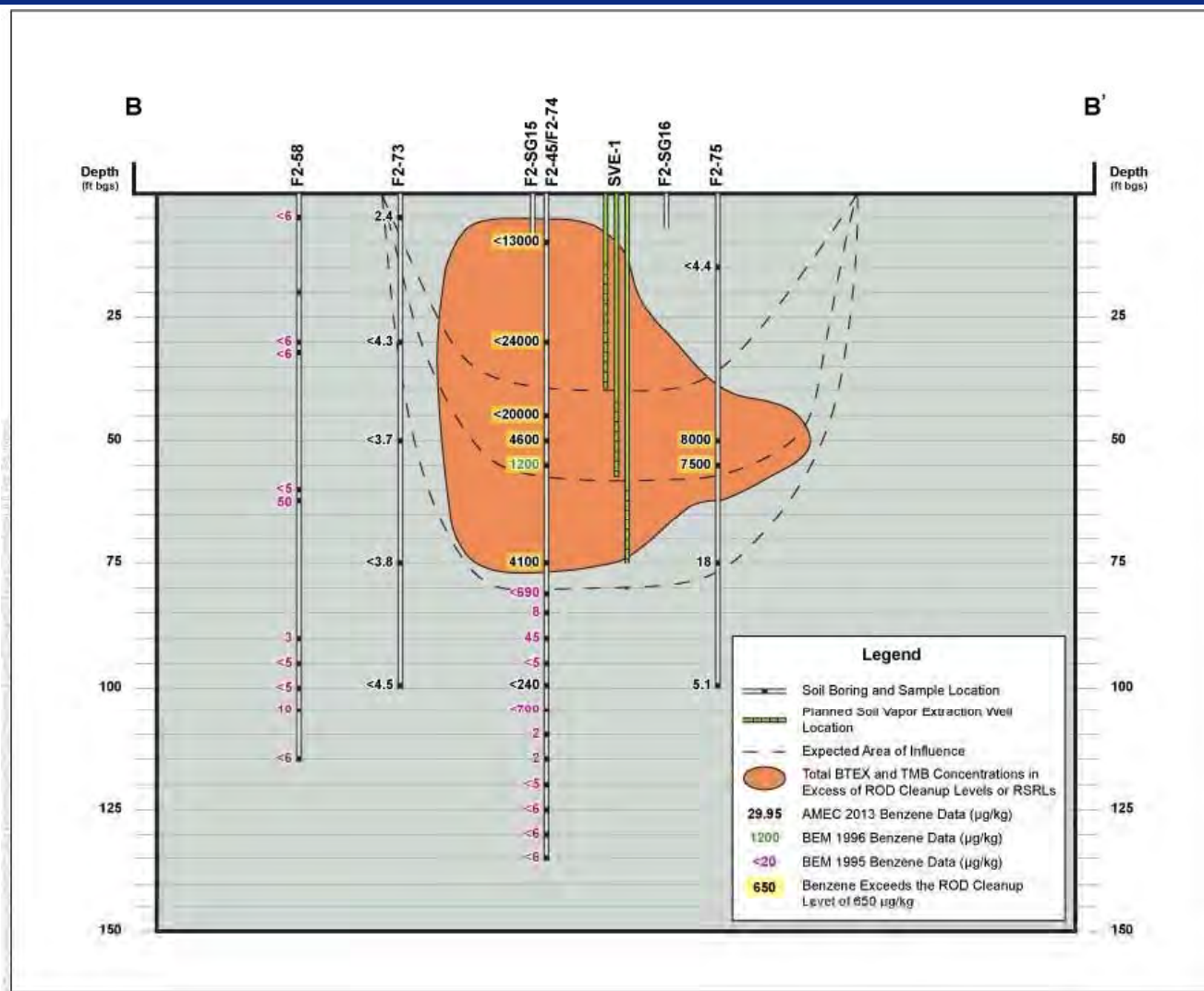
## ***Site FT002 Site Background***

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- Fire protection training activities (1958-1991)
- Soil COC: 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



# Site FT002 Update





# ***FT002 REMEDIAL ACTION PROGRESS***

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## **REMEDIAL ACTION IS IN PLACE**

- Remediation Well Drilling May 2014
- All Major Equipment Installed May 2014
- Commissioning Jun 2014
- Soil Vapor Extraction Operations Jun-Dec 2014



# **Site FT002**

## **Soil Vapor Extraction System Update**

### **System Description**

- One nested SVE well with three screen intervals - shallow (S), middle (M) and deep (D)
- Treatment system: Combination thermal oxidizer (for concentrations exceeding 2000 ppmv) and electric catalytic oxidizer (for concentrations less than 2000 ppmv)

### **Jun-Aug 2014 Operation**

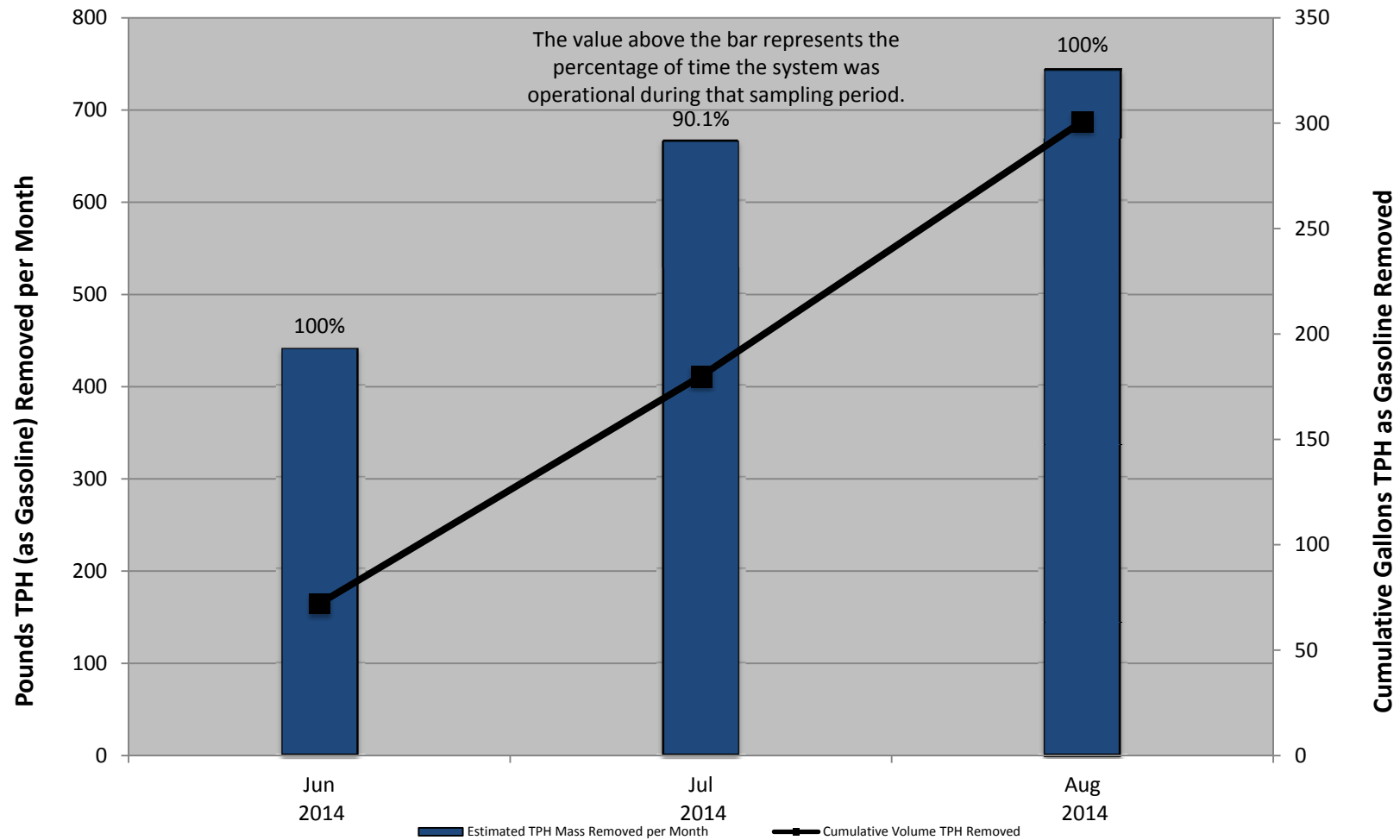
- Run time > 95%
- TPH removed – approximately 1834 pounds or 300 gallons<sup>1</sup>

<sup>1</sup>Based on field PID readings





## Site FT002 SVE System Performance



TPH removal based on field PID readings.

# ***Headquarters U.S. Air Force***

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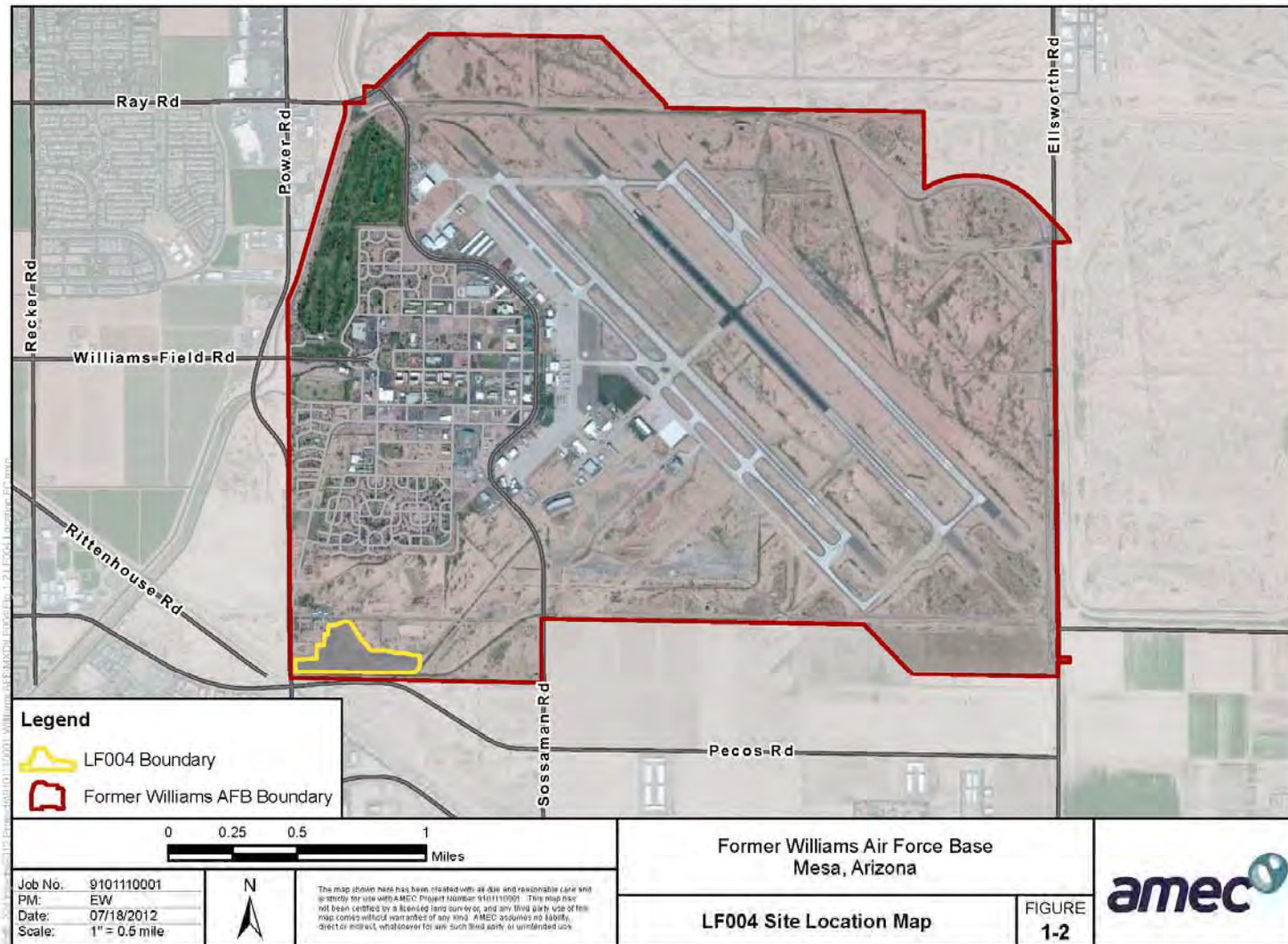
***SITE LF004,  
LANDFILL***

***REMEDIAL ACTION***





# Site LF004 Site Location Map





## ***Site LF004 Site Background***

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### **■ 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**

### **■ COCs**

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





# ***LF004 REMEDIAL ACTION PROGRESS***

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## **REMEDIAL ACTION IS IN PLACE**

■ Final RODA	May 2014
■ Final RD/RA Work Plan	Sep 2014
■ Well Drilling/Installation	Apr – May 2014
■ Baseline Sampling Complete	May – Jun 2014
■ Equipment Manufacture	May – Jul 2014
■ Equipment Installation	Jun – Aug 2014
■ System Startup	Aug – Sep 2014



# ***LF004 REMEDIAL ACTION PROGRESS***



**W17 Area Treatment Enclosure**



**LF01-RW01B IWAS Wellhead**



# ***LF004 UPCOMING REMEDIAL ACTION SCHEDULE***

---

- **System Operation** **Sep 2014 – Sep 2017**
  - **In Well Air Stripping (IWAS)**
  - **Soil Vapor Extraction**
  - **Oxidant Addition**
- **Groundwater Model Update/  
Remedial Action Optimization** **Oct –Dec 2015**



## ***Site LF004 Groundwater Monitoring Update May 2014 Sampling Event***

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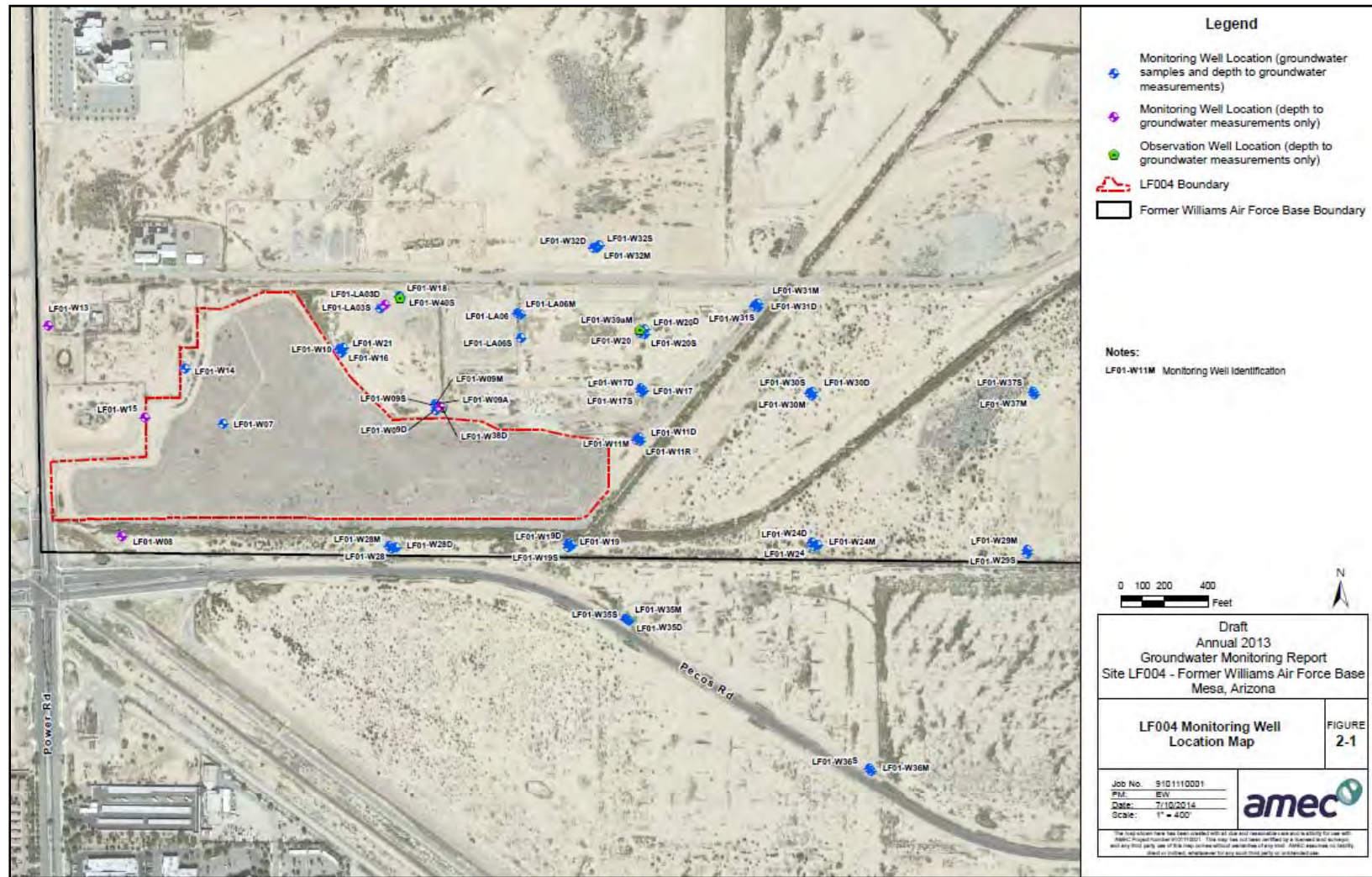
- 49 wells sampled (PDBs)
- Groundwater Flow Direction – due east
- TCE & PCE only contaminants above EPA Maximum Contaminant Levels (MCLs) & Arizona Aquifer Water Quality Standards (AWQS) (AWQS/MCL) = 5 µg/L

Concentrations > AWQS		
Event	TCE No. of Wells >5 µg/L	PCE No. of Wells >5 µg/L
Nov 2013	12	14
May 2014	13	12





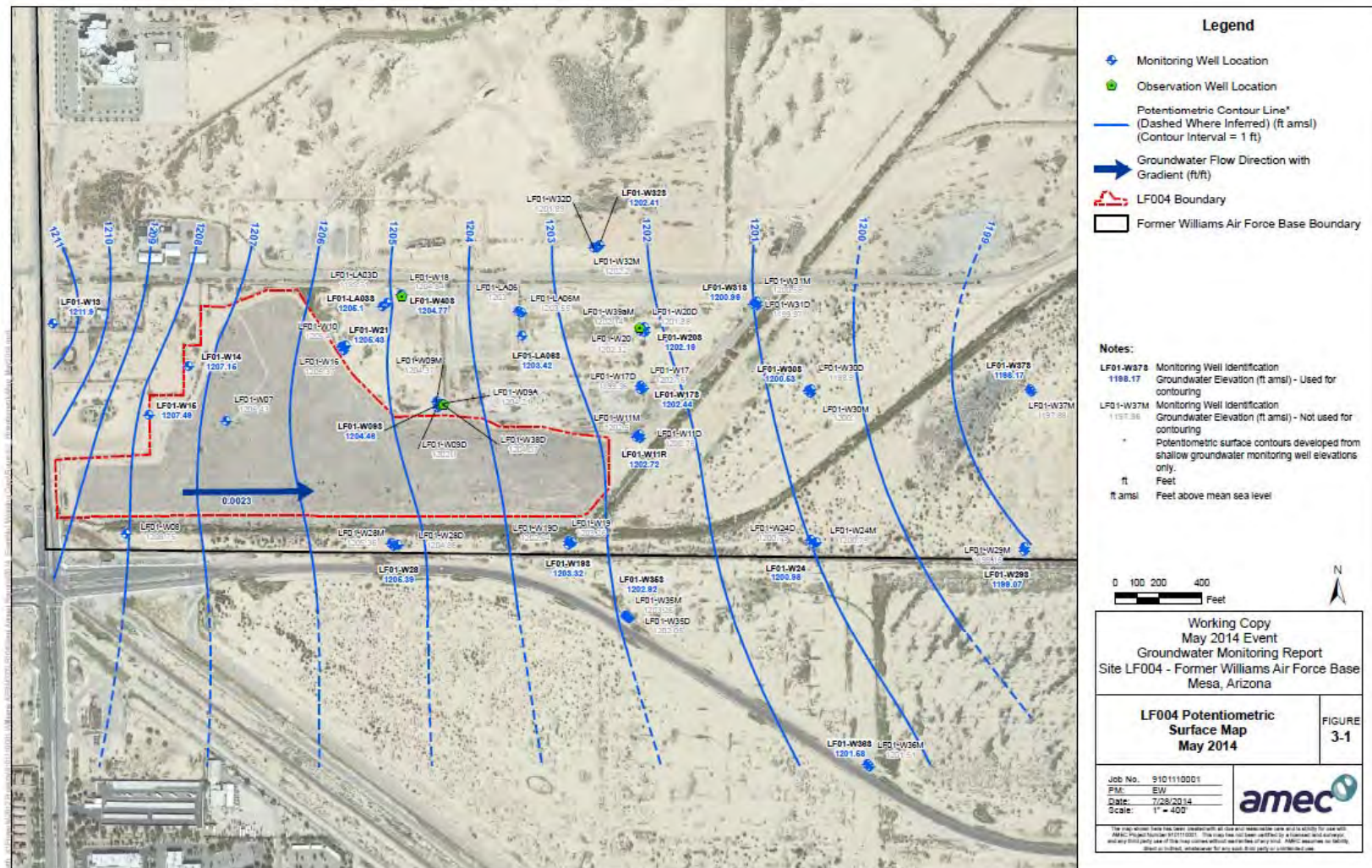
# Site LF004 Groundwater Monitoring Update Well Locations







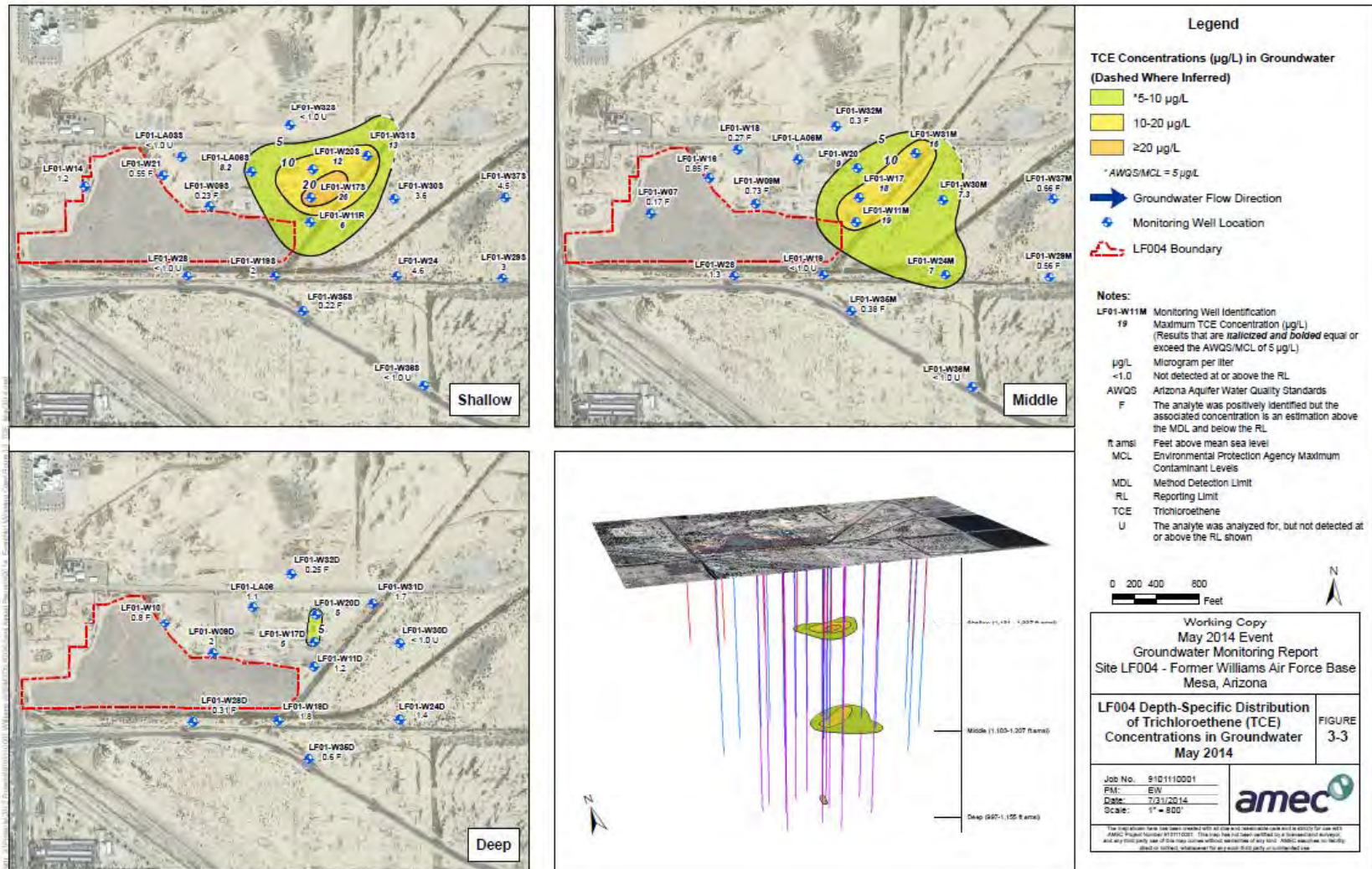
# Site LF004 Groundwater Monitoring Update Flow Direction - May 2014





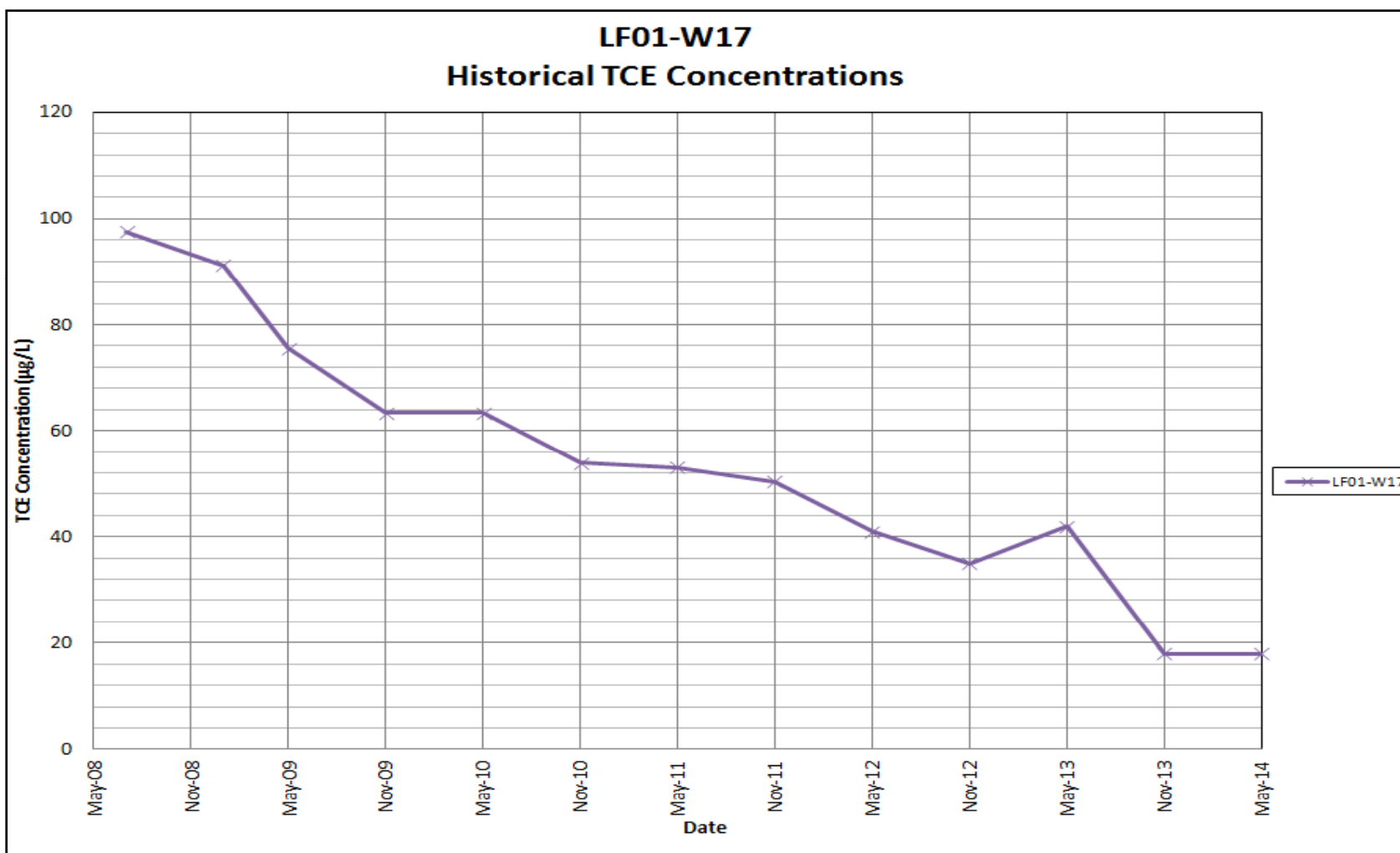


# Site LF004 Groundwater Monitoring Update TCE Isoconcentration Map - May 2014





# Site LF004 TCE Source Area Concentrations Since 2008

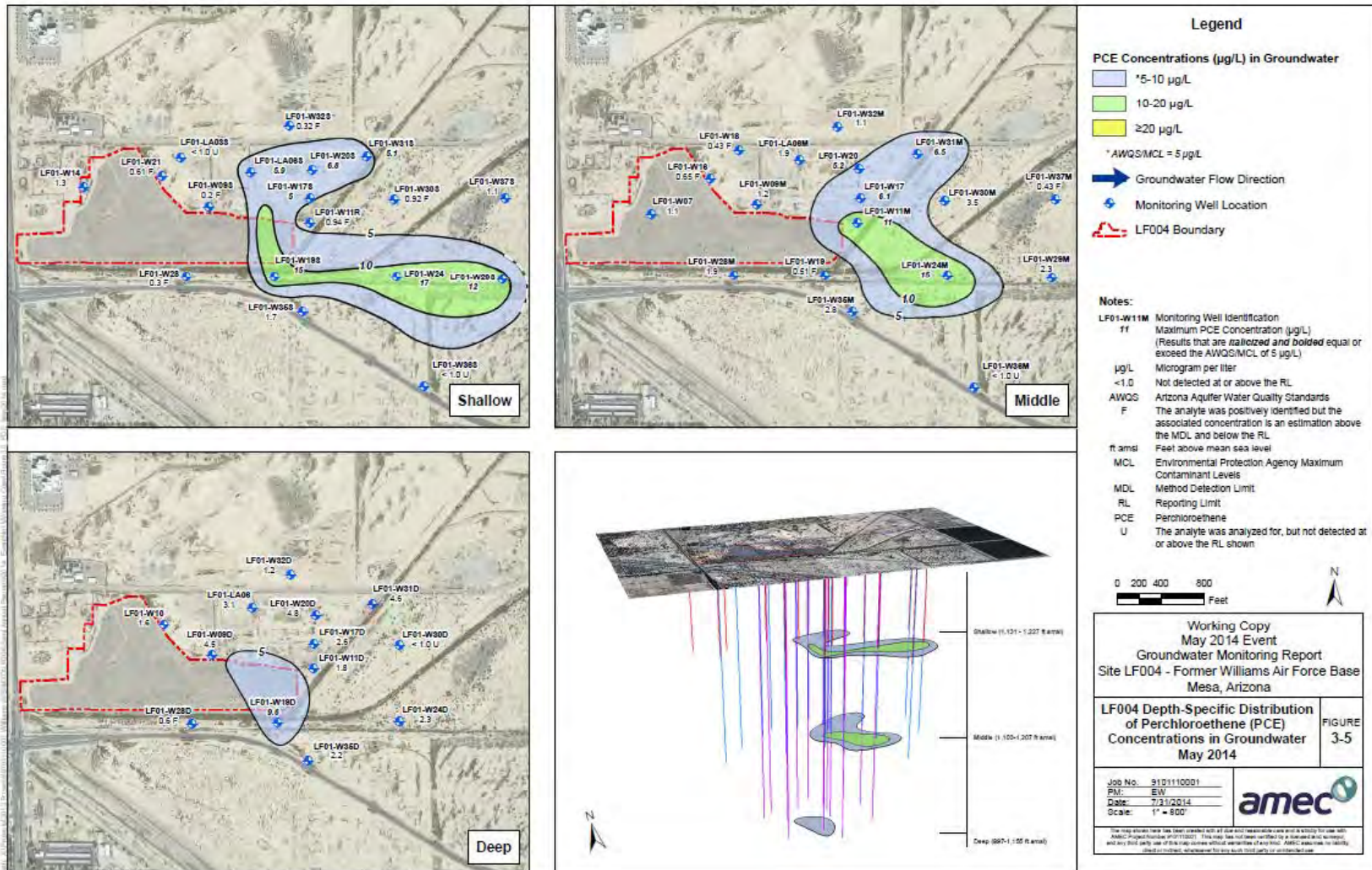






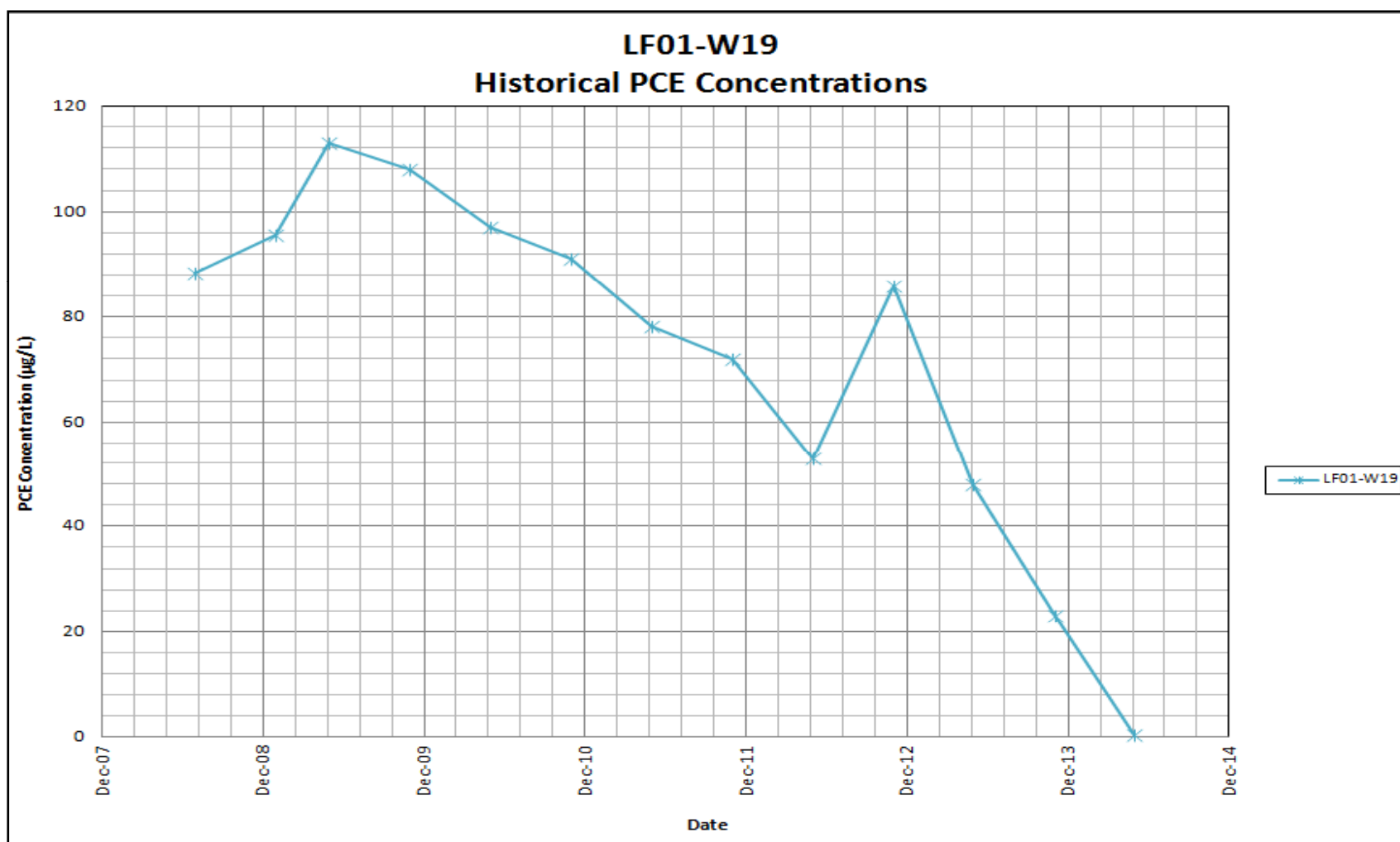
# Site LF004 Groundwater Monitoring Update

## PCE Isoconcentration Map – May 2014





# Site LF004 PCE Source Area Concentrations Since 2008





## ***Site LF004***

### ***May 2014 Summary***

---

- **Groundwater results indicate downward trending concentrations of TCE & PCE in hot spot areas**
- **TCE & PCE plume footprints decreased in size from May 2013 to May 2014**
- **Next groundwater sampling event – Nov 2014**



## ***Site LF004 Path Forward***

---

- Remedial system startup and operations – Aug 2014
- Continue landfill maintenance
- Continue groundwater sampling to monitor the contaminant plumes and assess remedial system performance

# ***Headquarters U.S. Air Force***

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***SITE ST012,  
FORMER LIQUID FUELS  
STORAGE AREA***

***REMEDIAL ACTION***



# ***ST012 REMEDIAL ACTION PROGRESS***

---

## **REMEDIAL ACTION IN PLACE 22 Sep 2014**

- **Signed Record of Decision  
Amendment (RODA) Sep 2013**
- **Final Remedial Design/Remedial  
Action(RD/RA) Work Plan May 2014**
- **Horizontal Well Abandonment Complete Mar 2014**
- **Well Drilling/Abandonment Complete Apr 2014**
- **Baseline Groundwater Sampling Complete Apr 2014**
- **Army Reserve Gate Upgrade May 2014**
- **All Major Equipment Installed Jul 2014**





# ***ST012 REMEDIAL ACTION PROGRESS***

---

- |                                         |          |
|-----------------------------------------|----------|
| ■ Pump Eductors Installed               | Aug 2014 |
| ■ Utility Connections Complete          | Aug 2014 |
| ■ Well field Piping Complete            | Aug 2014 |
| ■ Process Equipment and Piping Complete | Aug 2014 |
| ■ City of Mesa Discharge Permit         | Aug 2014 |
| ■ SEE Commissioning and Startup         | Sep 2014 |



# ***ST012 RA PROGRESS***







# ***ST012 UPCOMING REMEDIAL ACTION SCHEDULE***

---

- |                                         |                   |
|-----------------------------------------|-------------------|
| ■ Operations Commencement               | Sep 22 2014       |
| ■ Establish Pneumatic/Hydraulic Control | Sep 22-30 2014    |
| ■ Start Steam Injection                 | Sep 30 2014       |
| ■ Steam Heating and Extraction          | Oct 2014-Aug 2015 |
| ■ Post Steam Extraction                 | Aug 2015-Nov 2015 |
| ■ Road and Cell Phone Lot Closure Ends  | Dec 2015          |



# Site ST012 SVE System Update

## Jan – Mar 2014

- 72.4% operational uptime
- TPH removed – 55,000 pounds or 8,400 gallons<sup>1</sup> (3,100 gallons in Oct – Dec 2013)

## Apr – Jun 2014

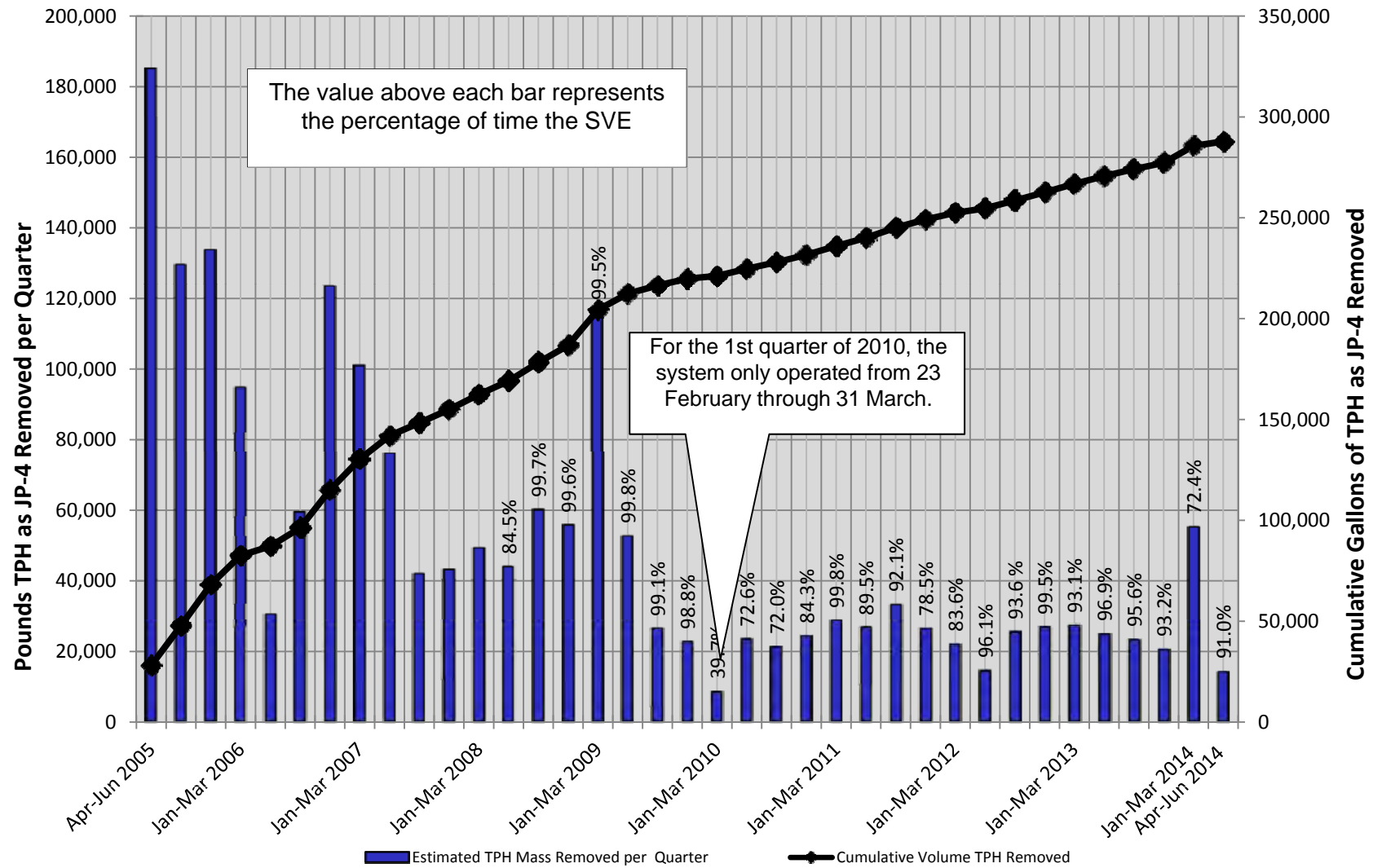
- 91.0% operational uptime
- TPH removed – 14,000 pounds or 2,200 gallons
- 9 of 27 SVE wells operating (same as Oct – Dec 2013)



<sup>1</sup> Confirmation samples taken in Apr-Jun quarter indicate mass removed for Jan-Mar was likely an overestimate



# Site ST012 SVE System Performance





## ***Site ST012 SVE System Summary***

---

- **TPH removed thru June 2014 – 287,300 gallons**
- **SVE Operations shut down in February for SEE utility installation (restarted on 17 Mar 2014)**
- **Deep SVE wells disconnected in Aug 2014; new SVE wells will be added to SVE operations in Sep 2014**
- **Next SVE performance monitoring – Sep 2014**
- **Mass removal for the SVE system is likely to increase during SEE operations.**

# ***Headquarters U.S. Air Force***

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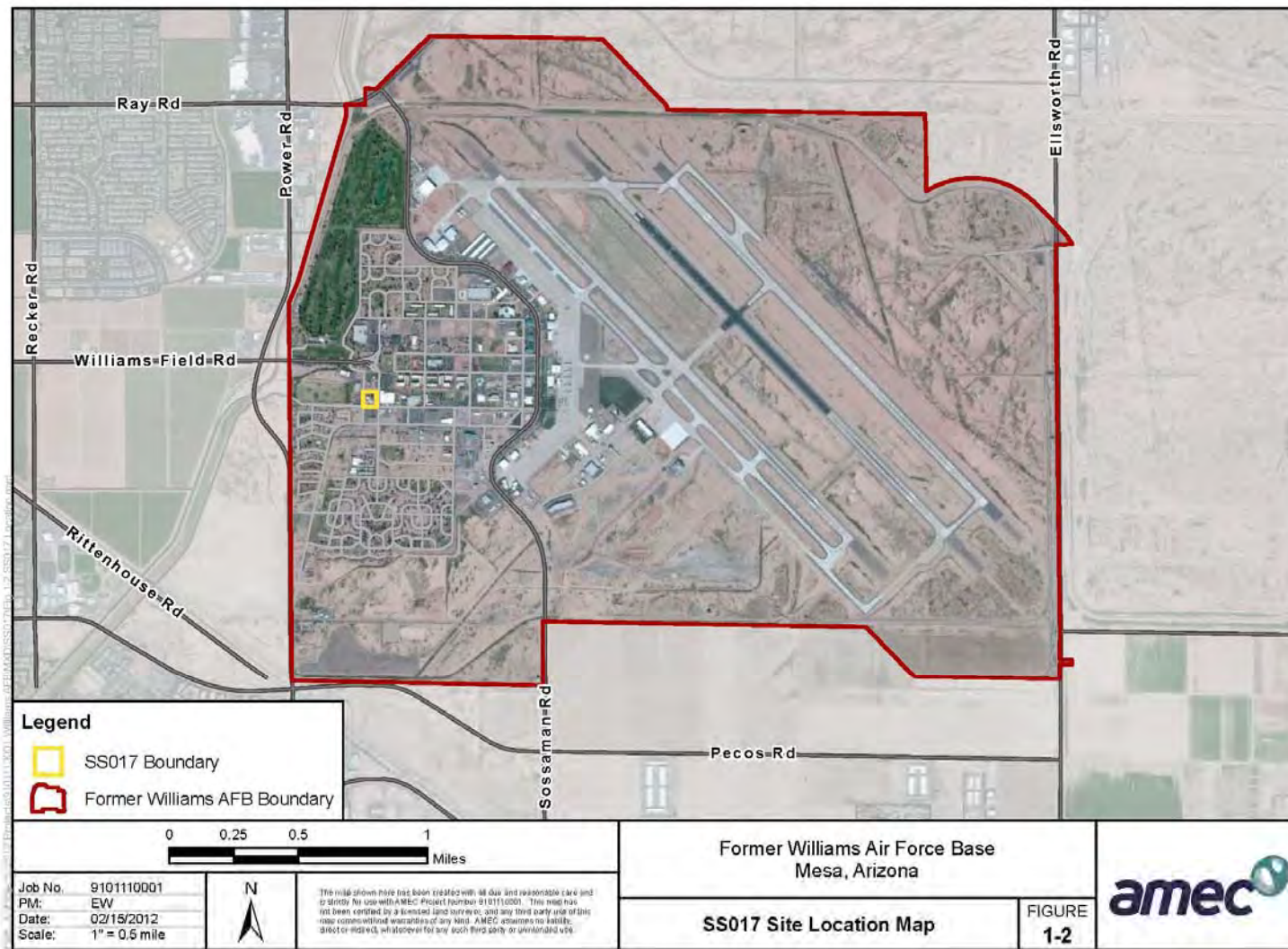
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**Site SS017, Old  
Pesticide/Paint  
Shop**



# Site SS017 Site Location Map







## ***Site SS017 Background***

---

- **Old pesticide / paint shop**
- **Soil & groundwater COC: Dieldrin**
- **Removal action for soil completed in 2000**
- **Ongoing annual groundwater monitoring (August) –  
4 onsite wells plus additional downgradient well**
- **Draft OU-6 ROD March 2012**





## ***Site SS017 Path Forward***

---

- **Air Force provided responses to agency comments and submitted Final Supplemental Risk Assessment for Site SS017 - September 2014**
- **Air Force submitted 2014 Amended Proposed Plan proposing No Further Action as the preferred alternative at Site SS017 for agency review - September 2014**
- **Next steps will be based on resolution of agency comments on 2014 Amended Proposed Plan**
- **Ongoing annual groundwater monitoring**
  - **Annual sampling event – Aug 27-28, 2014**

# ***Headquarters U.S. Air Force***

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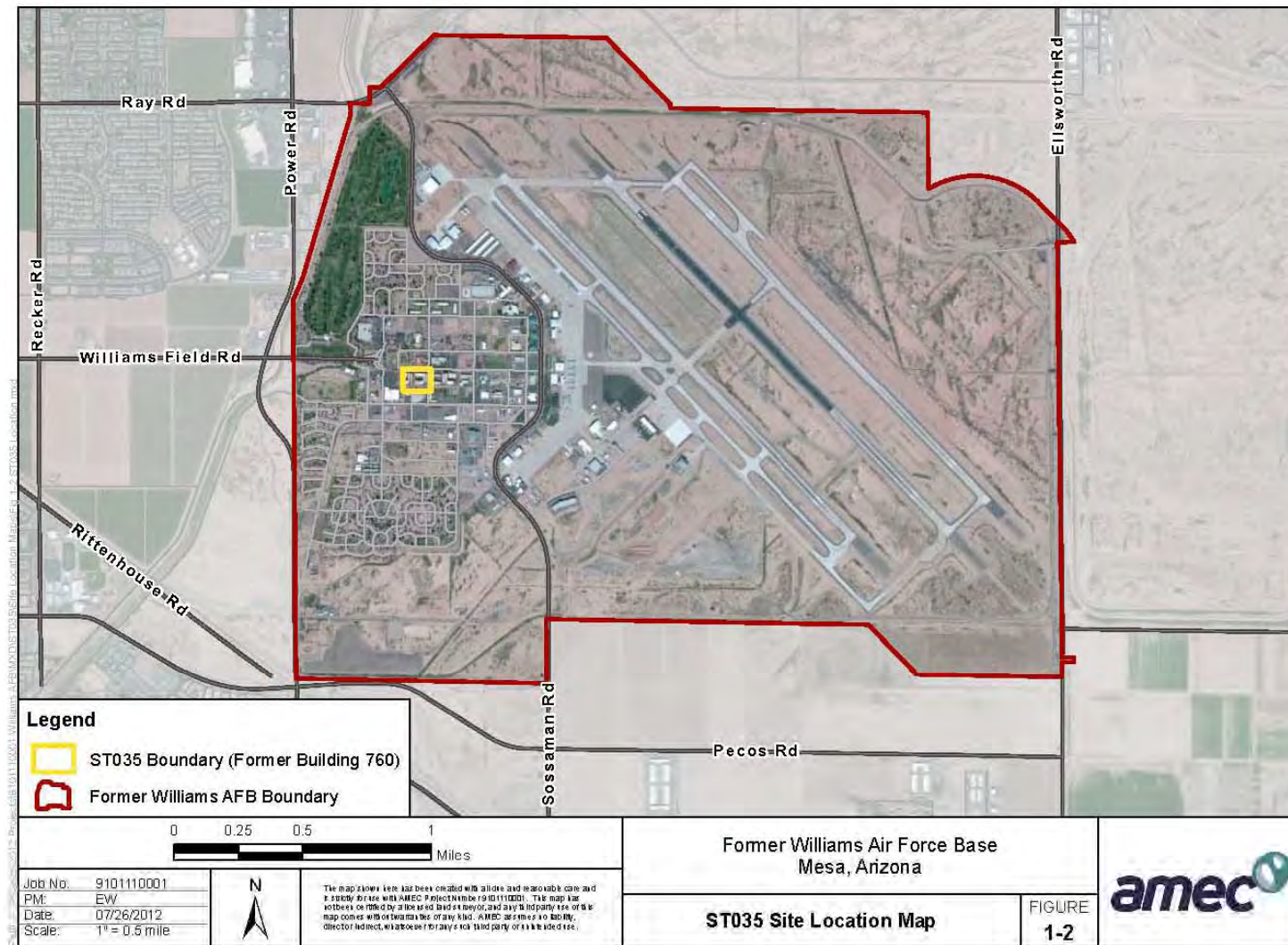
***Integrity - Service - Excellence***



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



# Site ST035 Location Map





## ***Site ST035 Site Background***

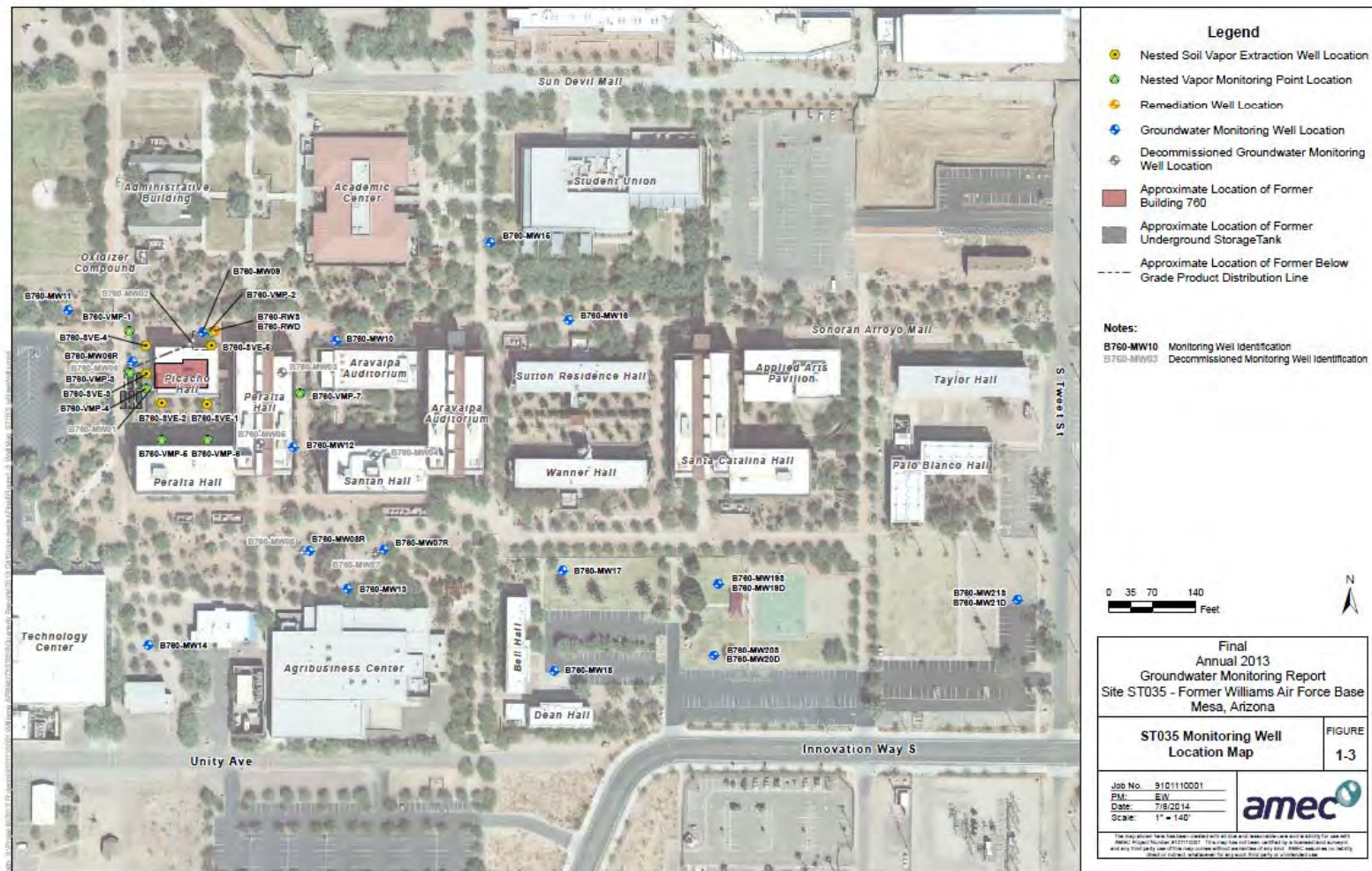
---

- **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 chemicals of concern (COCs)**
  - Benzene
  - 1,2-Dibromoethane (EDB)
- **Groundwater COCs**
  - Benzene, toluene, ethylbenzene, xylenes (BTEX)
  - EDB
  - Methyl tertiary butyl ether (MTBE)
  - 1,2-Dichloroethane (DCA)
- **Soil Vapor Extraction (SVE) system to treat COCs in vadose zone soil in operation**
- **Site cleanup regulated by ADEQ under Leaking Underground Storage Tank (LUST) regulation (R18-12-263)**
- **Ongoing quarterly groundwater monitoring**





# Site ST035 Well Location Map





## ***Site ST035 Groundwater Monitoring Update Feb & May 2014 Sampling Events***

---

- 21 wells sampled
- Groundwater Flow Directions:
  - Feb 2014 – due east
  - May 2014 – predominantly east
- Exceedances shown below:

Concentrations > Standards		
Event	1,2-DCA* No. of Wells >5 µg/L	MTBE** No. of Wells >94 µg/L
Feb 2014	3	0
May 2014	5	1

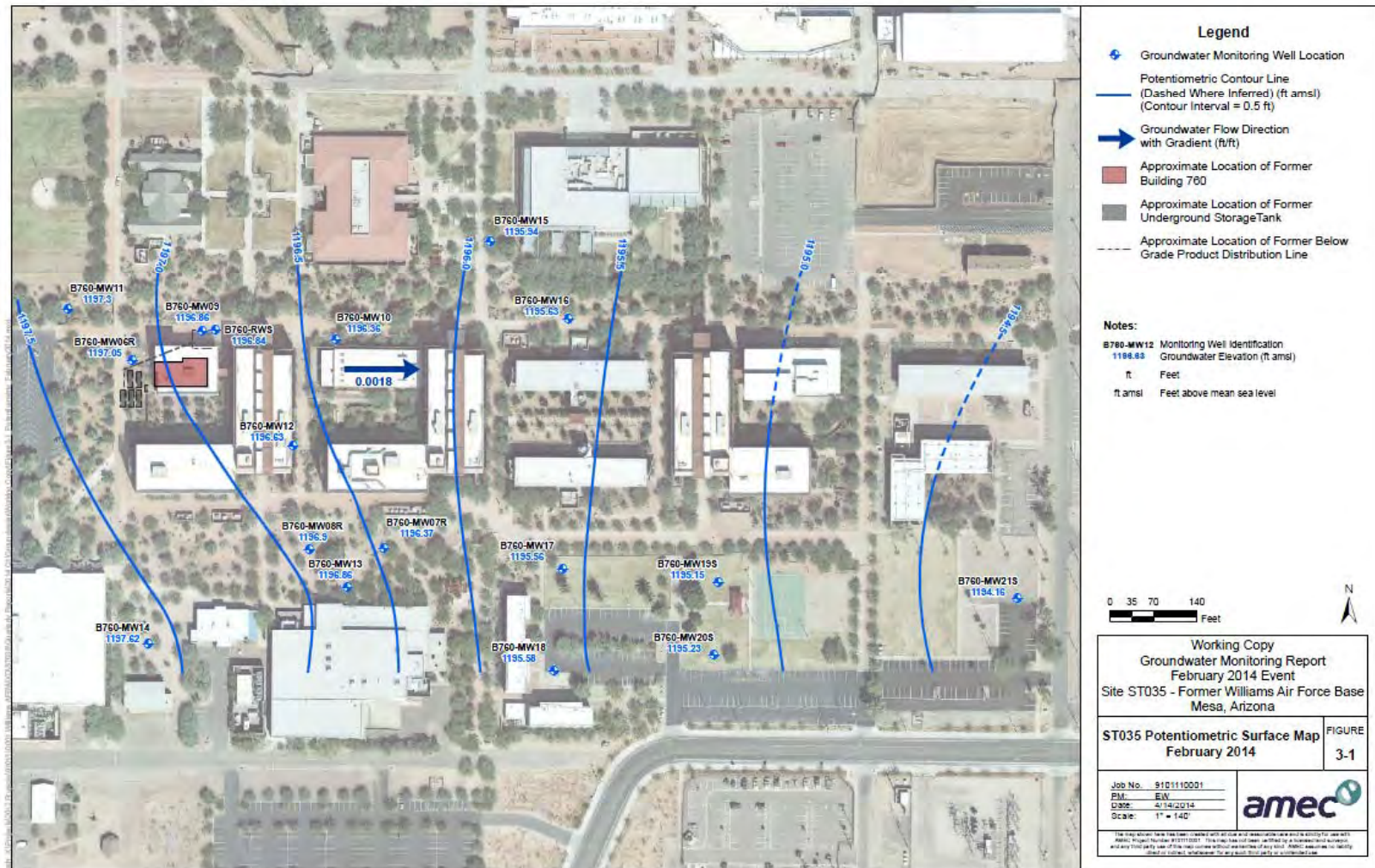
\*Tier 1 Standard

\*\*Corrective Action Standard





# Site ST035 Groundwater Monitoring Update Flow Direction – Feb 2014

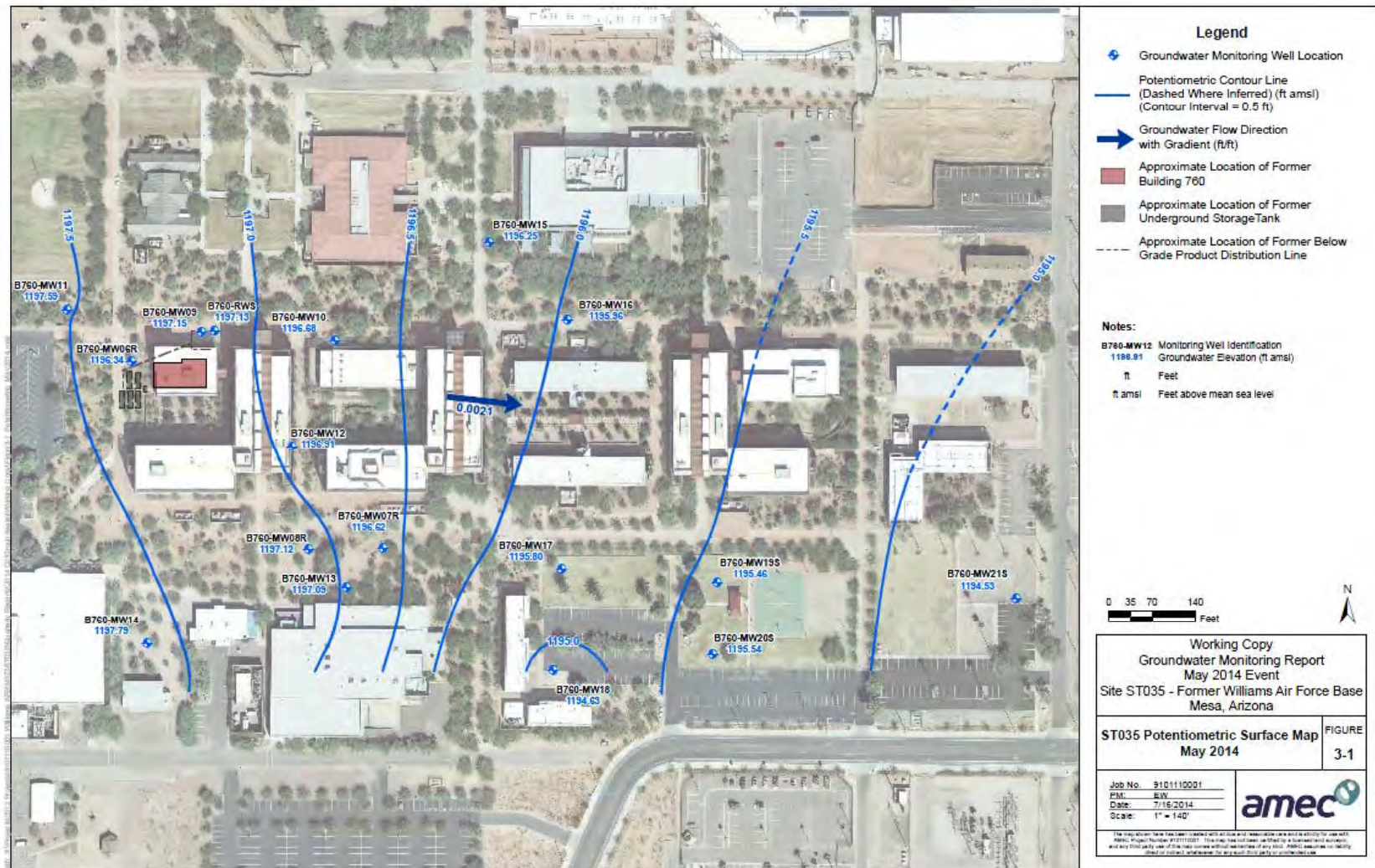






# ***Site ST035 Groundwater Monitoring Update***

## ***Flow Direction – May 2014***







# Site ST035 Groundwater Monitoring Update Results > Tier 1 Standards Feb 2014



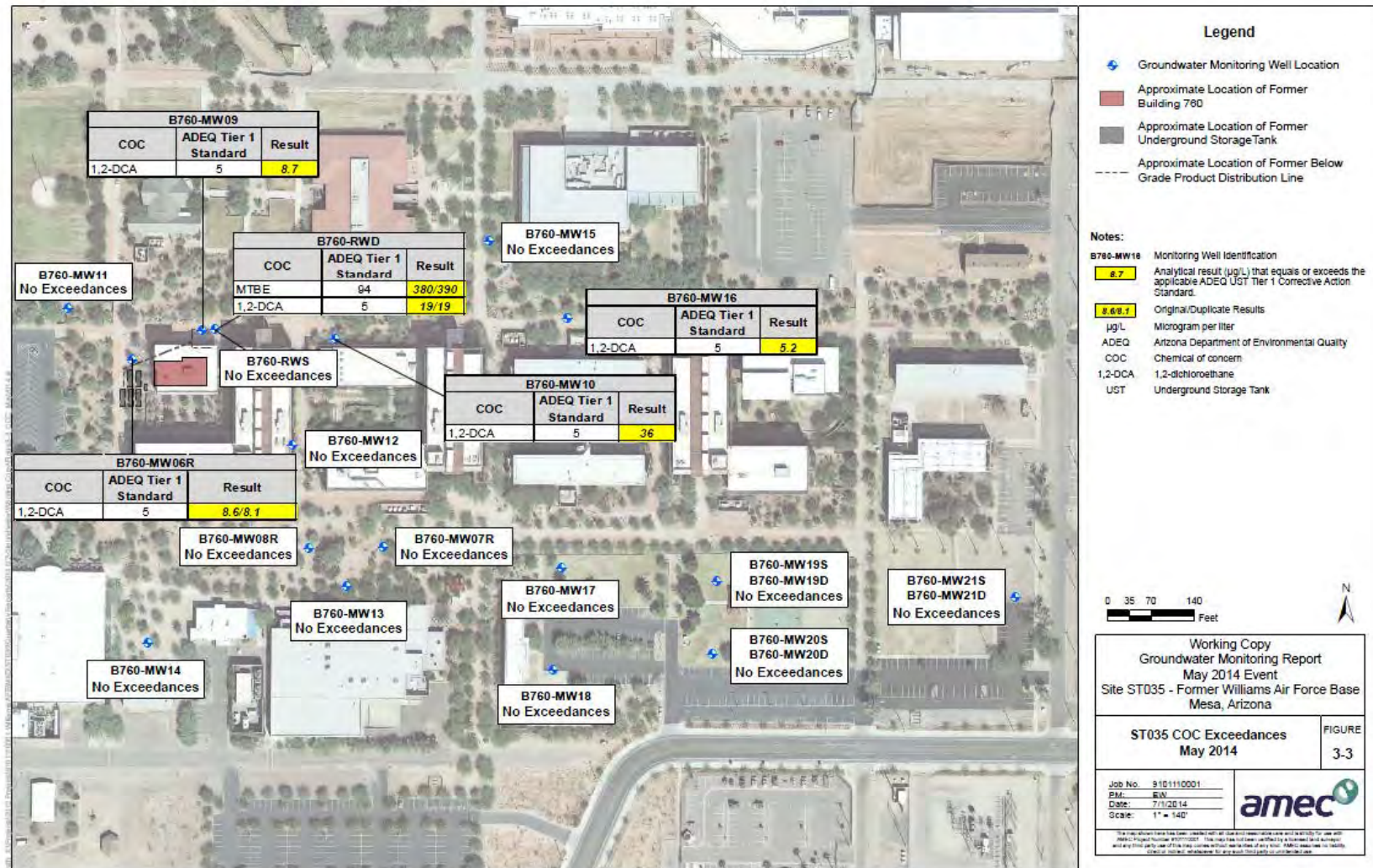




# Site ST035 Groundwater Monitoring Update

## Results > Tier 1 Standards

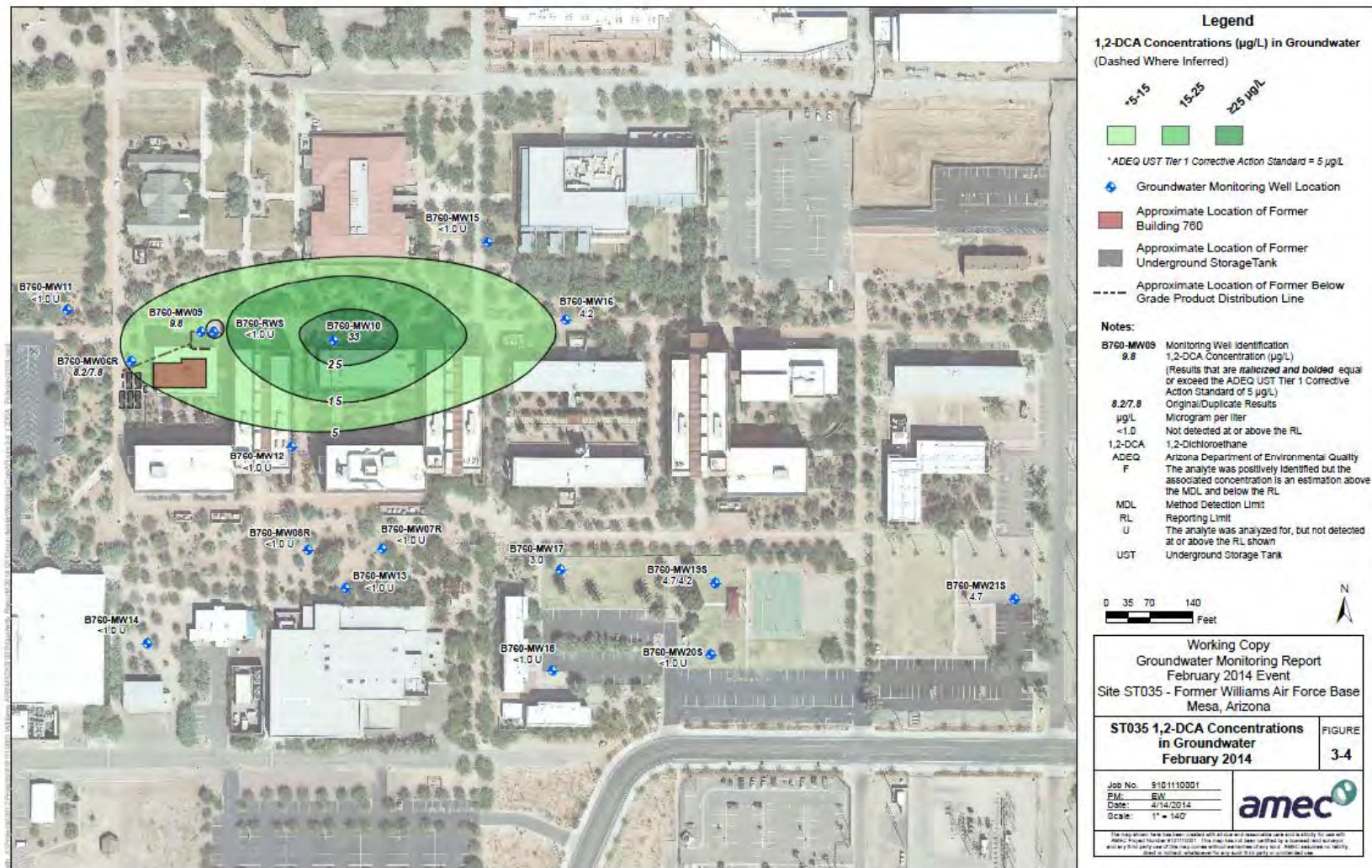
### May 2014







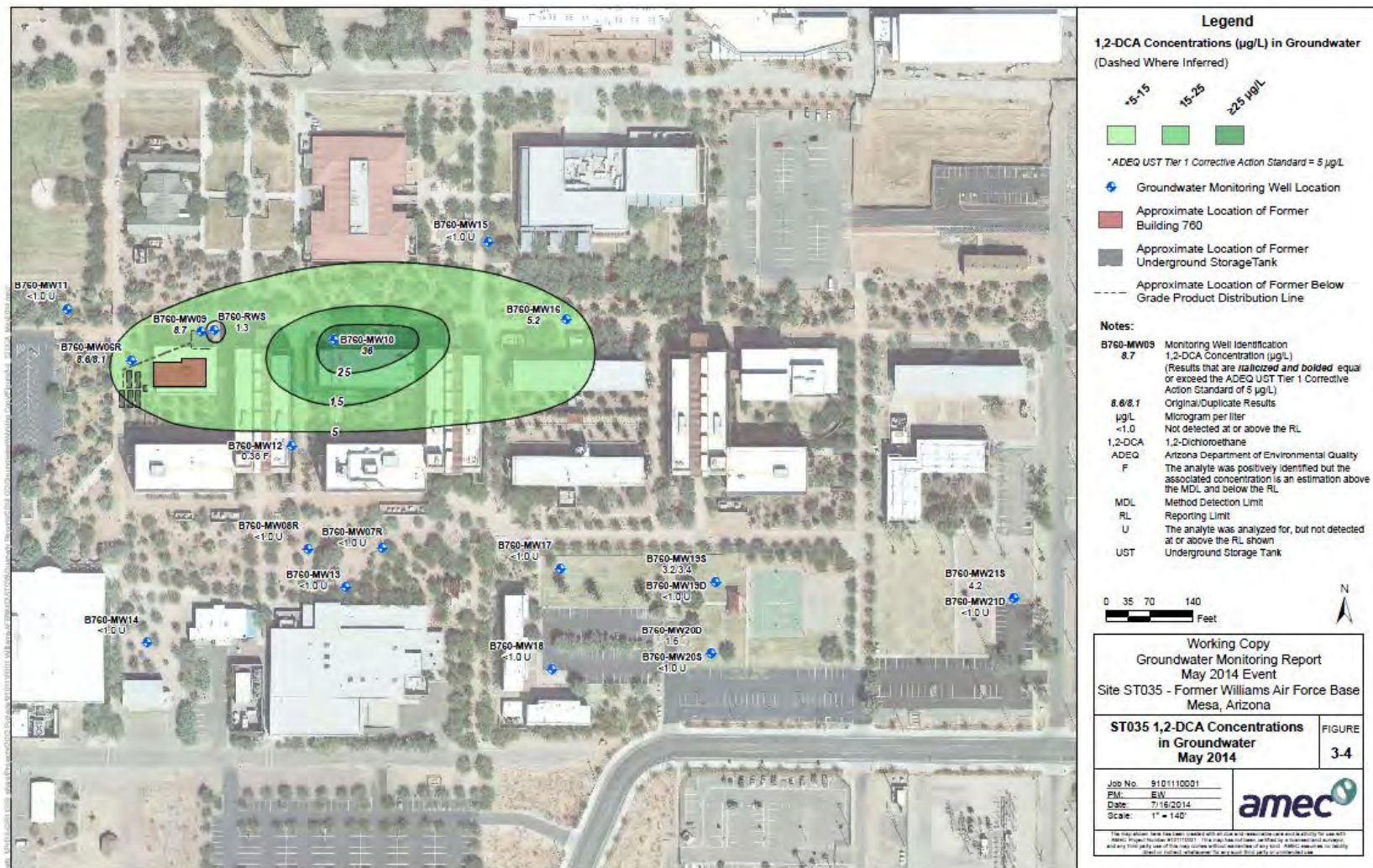
# Site ST035 Groundwater Monitoring Update 1,2-DCA Isoconcentration Map Feb 2014







# Site ST035 Groundwater Monitoring Update 1,2-DCA Isoconcentration Map May 2014







## ***Site ST035***

### ***Feb & May 2014 Groundwater Summary***

---

#### ■ **Benzene**

- All wells < Tier 1 Standard
- Concentrations in former source area have significantly decreased since SVE startup (2010)

#### ■ **Toluene, Xylenes, & EDB**

- All wells < Tier 1 Standards

#### ■ **MTBE**

- All wells < Corrective Action Standard, except: B760-RWD (May 2014 = 390 µg/L)
  - ❖ B760-RWD: Screened from 162-172 ft bgs



## ***Site ST035***

### ***Feb & May 2014 Groundwater Summary***

---

#### ■ **1,2-DCA**

- Concentrations in former source area & immediate downgradient area have significantly decreased since August 2011
- Exceedances remain at 3 wells in Feb & 5 wells in May
  - ❖ Feb 2014 - Furthest downgradient exceedance @ B760-MW10
  - ❖ May 2014 - Furthest downgradient exceedance @ B760-MW16



# ***ST035 SVE REBOUND TEST***

## **Test Objectives**

---

### ■ Rebound Test conducted to:

#### ➤ Assess Remedial Progress in the Source Area

- ❖ Estimate quantity and location of remaining mass in vadose zone
- ❖ Compare residual concentrations to remedial goals

#### ➤ Identify Path Forward

- ❖ Estimate duration required to achieve remedial goals
- ❖ Optimize system operations and configuration
- ❖ Evaluate level of biological activity in vadose zone



# ***ST035 SVE REBOUND TEST***

## **Test Plan Overview**

---

- **Collect vapor samples from individual SVE wells during:**
  - **SVE operations**
  - **After shutting down SVE operations**
  - **During restart of SVE operations (if required)**
- **Analyze vapor samples for:**
  - **VOCs and fixed gases (oxygen [O<sub>2</sub>], carbon dioxide [CO<sub>2</sub>], and methane [CH<sub>4</sub>]) in the field**
  - **Total Petroleum Hydrocarbons (TPH) as gasoline and volatile organic compounds (VOCs)**



# ***ST035 SVE REBOUND TEST***

## **Test Status**

---

- **Rebound Test began in December 2013 and is Currently Ongoing**
  - **Pre-shutdown samples collected on 13 Dec 2013 while the system was operating**
  - **Shutdown occurred on 15 Dec 2013**
  - **Fixed gas monitoring conducted Dec 2013 through Feb 2014**
  - **Post-shutdown samples collected on the following dates:**
    - ❖ **23 Dec 2013**
    - ❖ **21 Jan 2014**
    - ❖ **12 Feb 2014**
    - ❖ **4 and 11 Apr 2014**
    - ❖ **30 Jun 2014**



## ***ST035 SVE REBOUND TEST***

### **Evaluation of Test Results**

---

- **Low rebound in soil gas concentrations suggests the majority of contamination has been removed with SVE**
  
- **Risk evaluations are being conducted to assess whether extent of source removal is protective of site receptors:**
  - **Indoor air risk due to vapor intrusion**
  
  - **Groundwater impact risk due to:**
    - ❖ **Soil leaching**
    - ❖ **Vapor migration**





## ***ST035 SVE REBOUND TEST***

### **Planned Activities**

---

- **Conduct soil vapor sampling in September 2014**
- **Continue routine groundwater monitoring to evaluate contaminated vapor risk to groundwater**



## ***Site ST035 Path Forward***

---

- **Collect quarterly groundwater samples and soil vapor samples from SVE and VMP wells – Sep 2014**
- **Conduct shallow soil gas survey (November/December 2014 timeframe) to demonstrate shallow vapors do not pose a vapor intrusion risk**
- **Assuming collected data demonstrate source has been adequately addressed and groundwater plume is stable - Achieve site closure per LUST regulations (R18-12-263.04)**

# ***Headquarters U.S. Air Force***

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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 24 Mar 2015**
- **Meeting adjourned**



## ***Meeting Wrap-Up***

---

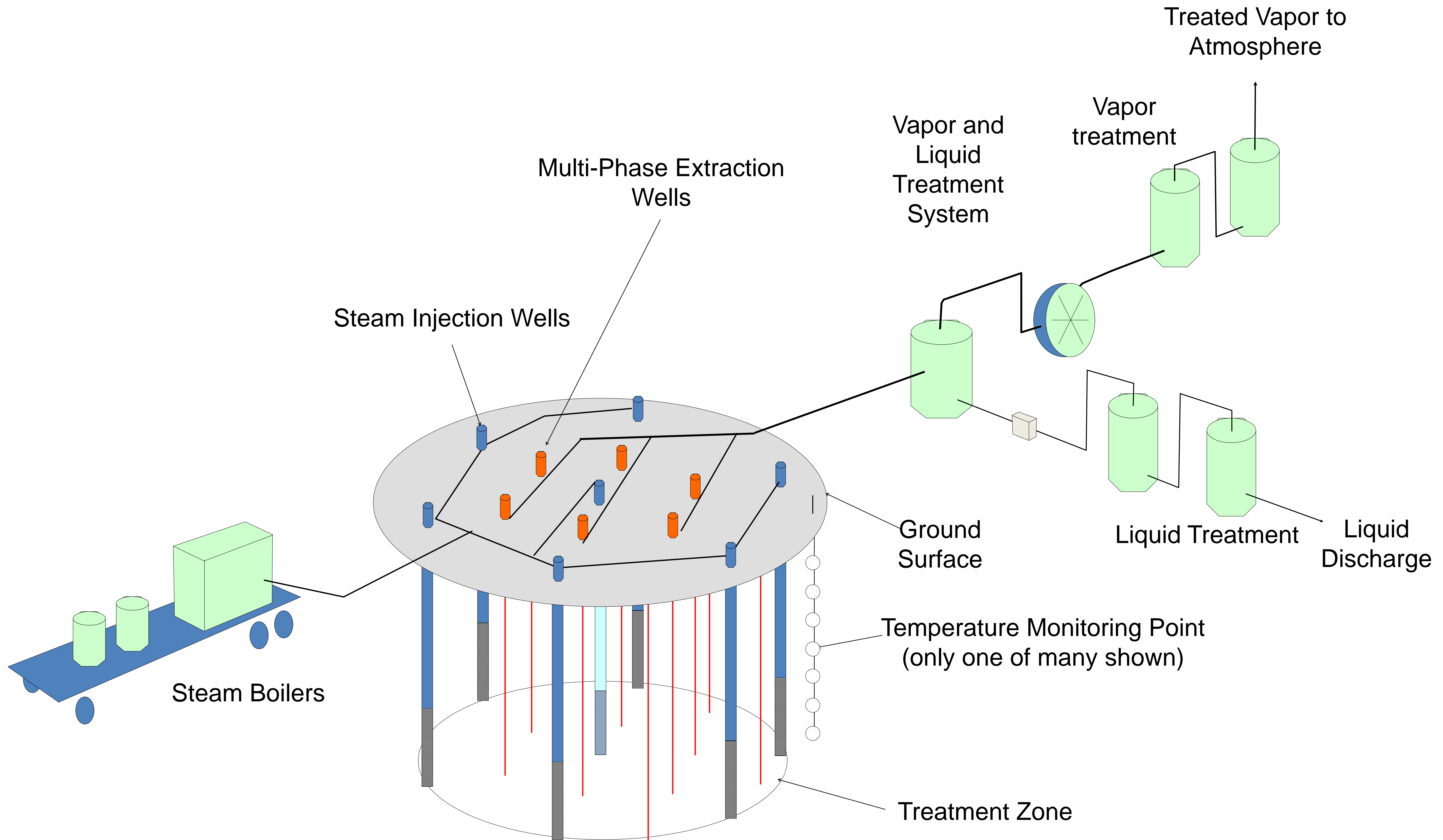
- For questions contact

**Catherine Jerrard or Linda Geissinger**

[Catherine.jerrard@us.af.mil](mailto:Catherine.jerrard@us.af.mil)

[Linda.Geissinger@us.af.mil](mailto:Linda.Geissinger@us.af.mil)

# Steam Enhanced Extraction System Process Overview





# Steam Enhanced Extraction System

August 28, 2014



Emergency  
Generator

System Control  
Room

Steam  
Injection /  
Multi-Phase  
Extraction  
Well

Liquid Phase  
Heat  
Exchangers

Sediment  
Tanks

Vapor, Liquid  
and Steam  
Conveyance  
Piping

Liquid Phase  
Cooling  
Towers

Eductor  
Pumps

Oil/Water  
Separators

Vapor Phase  
Heat  
Exchangers

LNAPL  
Holding Tank

Discharge  
Tank

Vapor Phase  
Cooling  
Towers

LNAPL  
Holding Tank

GAC  
Tanks

Air  
Strippers

Thermal  
Accelerators

Steam  
Boilers

Recovered Product Storage  
Tanks







**Boiler**



**Steam Injection Well**



**Multi-Phase Extraction Well**



**Eductor Pumps**



**Liquid Phase Bag Filters/ Heat Exchangers/ Cooling Towers**



**Oil/Water Separators**



**Air Strippers**

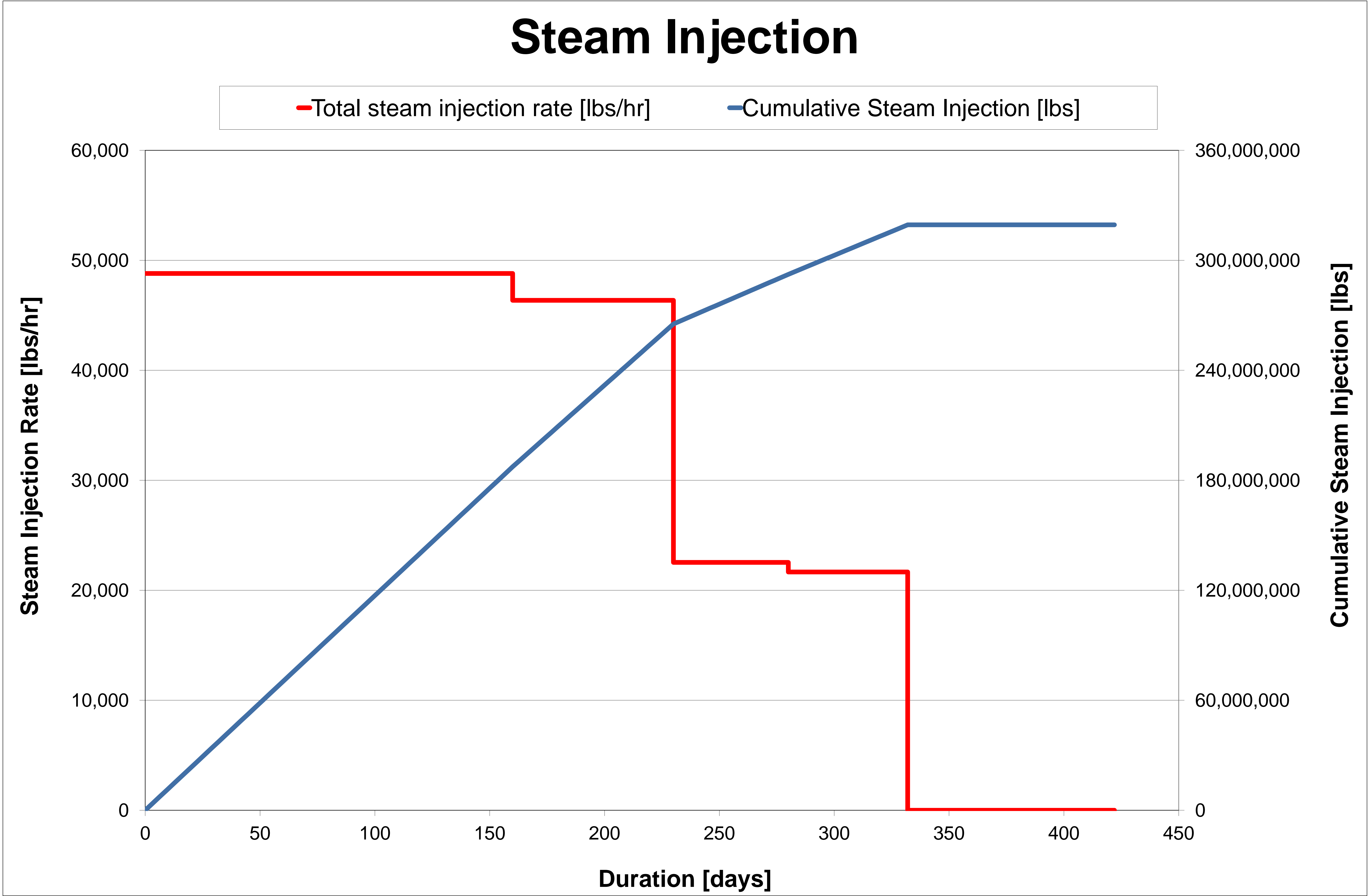
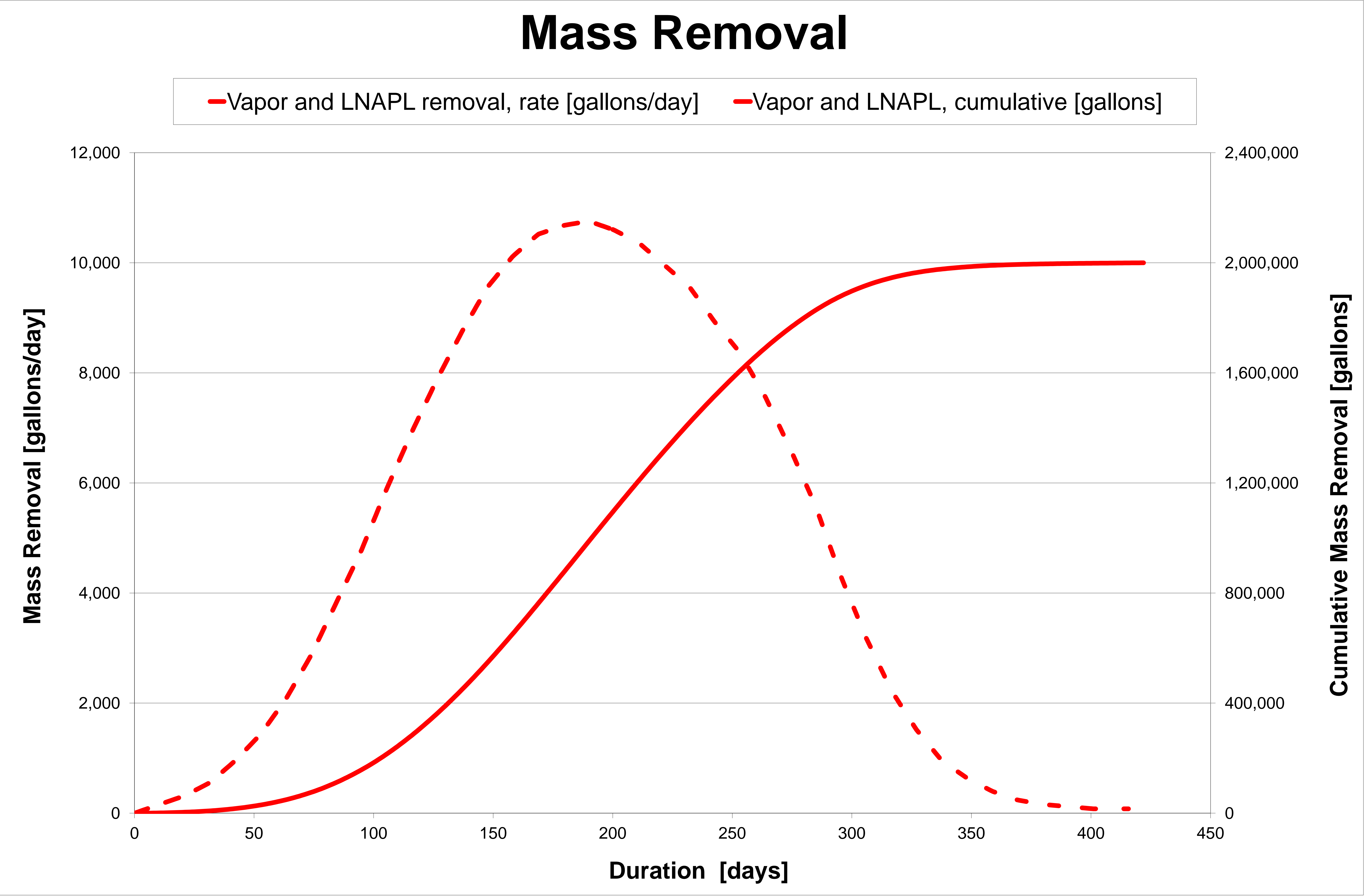


**GAC Tanks**



**Thermal Accelerators**





**FINAL PAGE**

**ADMINISTRATIVE RECORD**

**FINAL PAGE**