Air Force Real Property Agency

Integrity - Service - Excellence

Kelly Restoration Advisory Board

October 13, 2009

Port San Antonio
907 Billy Mitchell Blvd.
San Antonio, TX 78226
6:30 - 8:30 p.m.

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Welcome and Overview

- 6:30 – 6:35 Welcome and Overview
- 6:35 – 6:40 RAB Administrative Items
- 6:40 – 7:00 RAB Membership
- 7:00 – 7:45 Environmental Update
- 7:45 – 8:00 Property Transfer
- 8:00 – 8:20 Public Comment Period
- 8:20 – 8:30 Suggested Agenda Items for next RAB
- 8:30 Meeting Adjournment

Kelly RAB Administrative Items

Jose Martinez
Facilitator

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RAB Administrative Items

- **Newspaper Announcements**
  - San Antonio Express-News: October 9 & 12, 2009
  - La Prensa: October 7 & 11, 2009
- **Newspaper Articles**
  - Air Force Print News Today: July 1, 2009
  - Kelly Observer: July 9, 2009
  - Examiner.com: July 24, 2009

Kelly RAB Membership

Armando Perez
Public Affairs Officer

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Kelly RAB Membership

- **Selection Process**
  - Selection Committee
  - Installation Commander Appointment
- **New Members**
  - Mr. Jose P. Arzola
  - Ms. Lidia M. Martinez
  - Mr. Eloy P. Garcia, Jr.
- **Membership Guidelines**

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Environmental Update

- Updates: Site MP, Building 360 and Building 301
- Semiannual Groundwater Compliance Plan Report

Site MP Update: Former Metal Plating Shop, Building 171 Parking Lot

Brian Howard
TETRA TECH

Restoration Advisory Board Presentation for Remediation of Source Contamination at IRP Site SS040, Former Kelly AFB, Texas

October 13, 2009

TETRA TECH

Agenda

Remediation of Source Contamination at IRP Site SS040

- Introductions
- Summary of Work Completed to Date
- Annual Groundwater Sampling Results
- Remaining Work to be Completed
- Conclusion

Introductions

- **Tetra Tech Project Team**
  - Project Manager - Bill Norton
  - Technical Leads - Brian Howard and Larry Tyner
- **Air Force Personnel**
  - Mark Davis, AFCEE COR
  - Paul Carroll, AFRPA (BRAC Environmental Coordinator for Former Kelly AFB)
  - Luis Medina, AFRPA Environmental Project Manager

Summary of Work Completed to Date

Remediation of Source Contamination at IRP Site SS040

- Completed all initial site field activities including mobilization, set up of field office and utilities, installation of perimeter fencing, and submission of project work plans.
- Completed utility rerouting and abandonment, initial surveying, and construction of lay down area and decontamination facility.
- Completed the geophysical survey, initial site characterization/drilling effort, and well abandonment.
- Conducted baseline groundwater sampling and analyses for 10 existing monitoring wells.
- Removed and recycled 1,275 cubic yards of asphalt.
- Removed and disposed of 3,380 cubic yards of concrete.
- Removed and disposed of 46,580 cubic yards of Class II soils from 0.5 to 45 feet bgs.
- Removed and disposed of 370 cubic yards of hazardous soils from 0.5 to 45 feet bgs.
- Installed shoring from 0 to 30 feet bgs.

Summary of Work Completed to Date - continued

Remediation of Source Contamination at IRP Site SS040

- Completed dewatering effort which required removal of 907,950 gallons of contaminated groundwater.
- Installed 6 horizontal *in situ* groundwater remediation bioreactors ranging from 35 to 45 ft bgs.
- Installed a 60 ft section of sheet piling within the existing slurry wall on the southeast side of the excavation to depths ranging from 42 to 49 ft bgs.
- Completed site restoration activities which included placement of 24,533 cubic yards of backfill material, replacement of the asphalt parking area and curbs disturbed during construction, and striping the asphalt parking lot.
- Installed 6 new groundwater monitoring wells.
- Completed first round of Annual groundwater sampling.
- Submitted the Draft Corrective Measures Completion Report (CMCR) for Air Force review.

Figure 1 – Soil Excavation Photograph

Remediation of Source Contamination at IRP Site SS040

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Figure 2 – Bioreactor Installation / Dewatering

Remediation of Source Contamination at IRP Site SS040

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Figure 3- Site Restoration Activities Photograph

Remediation of Source Contamination at IRP Site SS040

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Figure 4 – Current Site Conditions Photograph

Remediation of Source Contamination at IRP Site SS040

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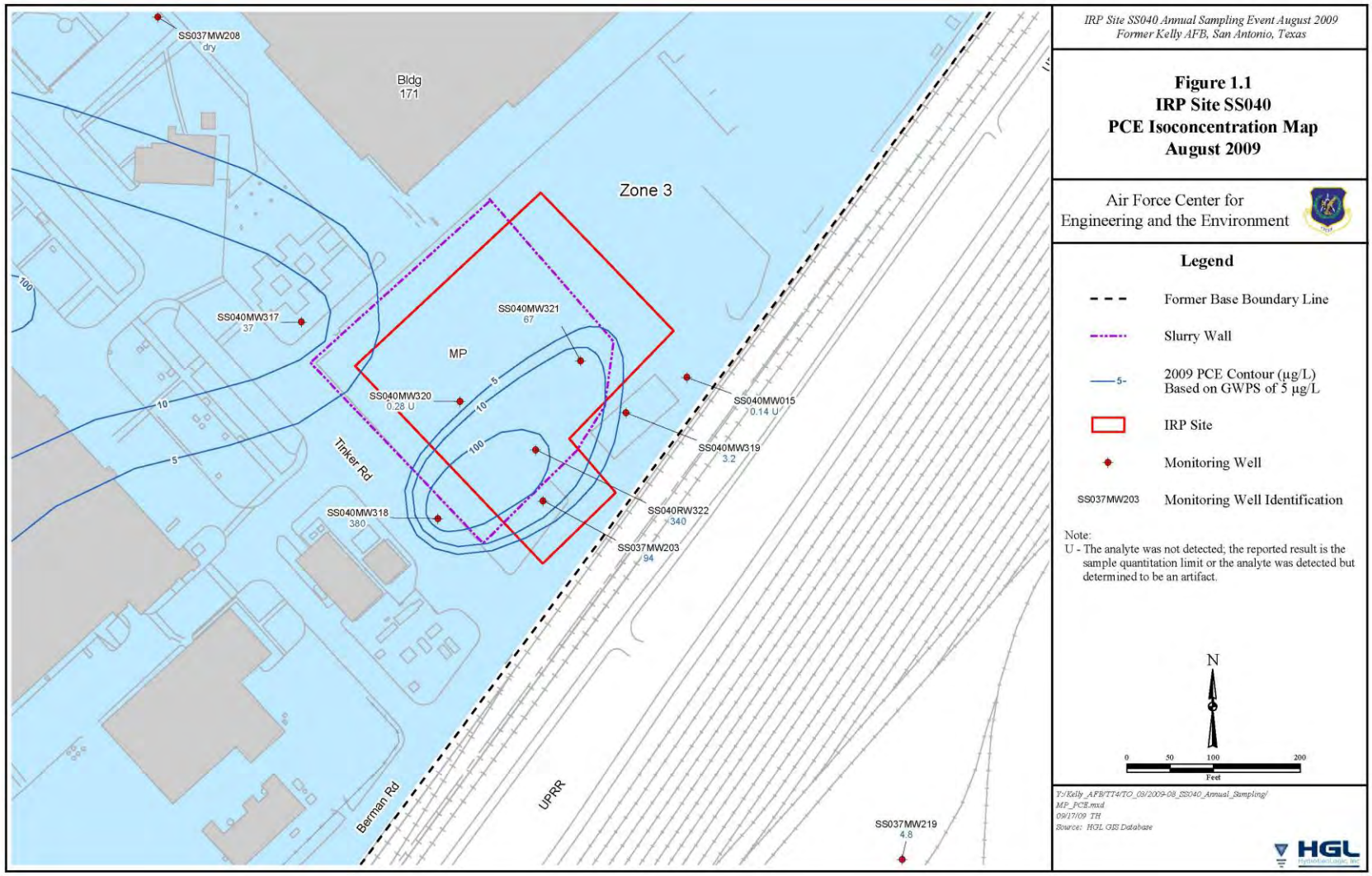
Annual Groundwater Sampling Results

Remediation of Source Contamination at IRP Site SS040

- Groundwater samples were collected from 3 existing and 6 newly installed groundwater monitoring wells (MW208 well was dry at time of sampling event).
- Analytical results were compared to results from the Baseline groundwater sampling event.
- Analytical results showed significant decrease in levels of PCE at the two new replacement wells within the slurry wall. MW320 (current ND, baseline 12,000 ppb) MW321 (current 67 ppb, baseline 230 ppb).
- The third new well inside the slurry wall was 340 ppb (MW322).
- Analytical results from wells located immediately outside the slurry wall were 3.2 ppb (MW319), 94 ppb (MW203) and 380 ppb (MW318).
- Biodegradation of the primary contaminants, PCE/TCE, was noted within the wells as indicated by the presence of cis-1,2-DCE and vinyl chloride.

Current PCE Groundwater Plume Map

Remediation of Source Contamination at IRP Site SS040



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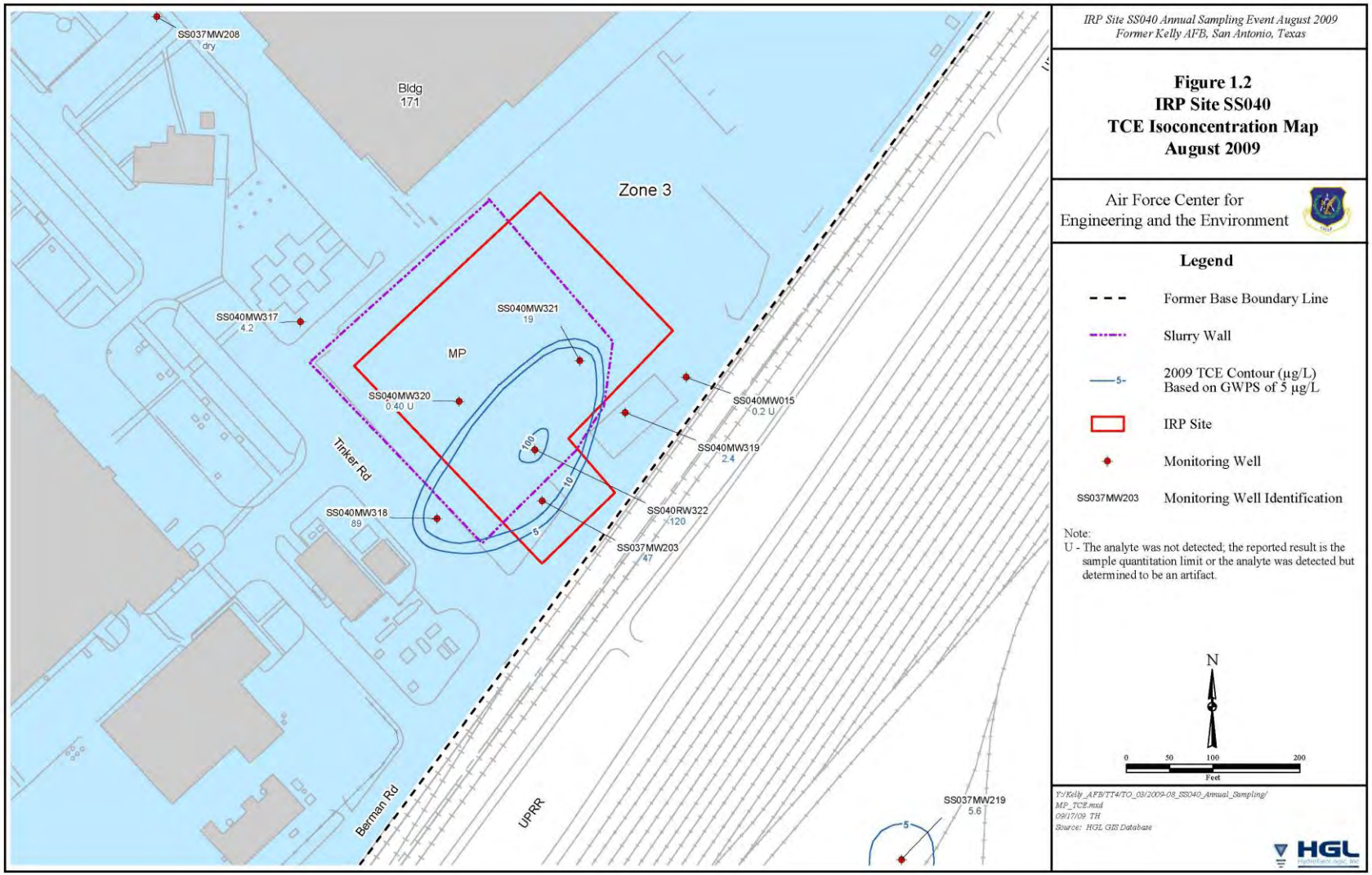
Current TCE Groundwater Plume Map

Remediation of Source Contamination at IRP Site SS040



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Remaining Work to be Completed

Remediation of Source Contamination at IRP Site SS040

- Submit Final Corrective Measure Completion Report for soils to Air Force and Regulatory Personnel for approval.
- Conduct two additional rounds of Annual groundwater sampling (September 2010, and 2011).
- Prepare Site Closure Report after completion of two additional rounds of Annual groundwater sampling.

Conclusion

Remediation of Source Contamination at IRP Site SS040

- Questions?

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AFRPA / Kelly
Building 360
Soil Vapor Intrusion Study

Paul Carroll
BRAC Environmental Coordinator

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Investigation Summary

- AFRPA installed 30 vapor monitoring points (VMPs) beyond the known historical vertical and horizontal extent of contamination beneath Building 360.
- Soils were sampled during VMP installation to provide a current assessment of the vertical and lateral extent of PCE; TCE; 1,2 total DCE; and VC.
- Vacuum pressures were measured at each VMP to assess the B360 SVE System Radius of Influence (ROI).
- The SVE system's ROI was compared to soil contamination data to determine if the SVE system is adequately addressing the known sources of contamination.
- Soil vapor samples were collected from the VMP points and analyzed for PCE; TCE; 1,2 total DCE; and vinyl chloride.

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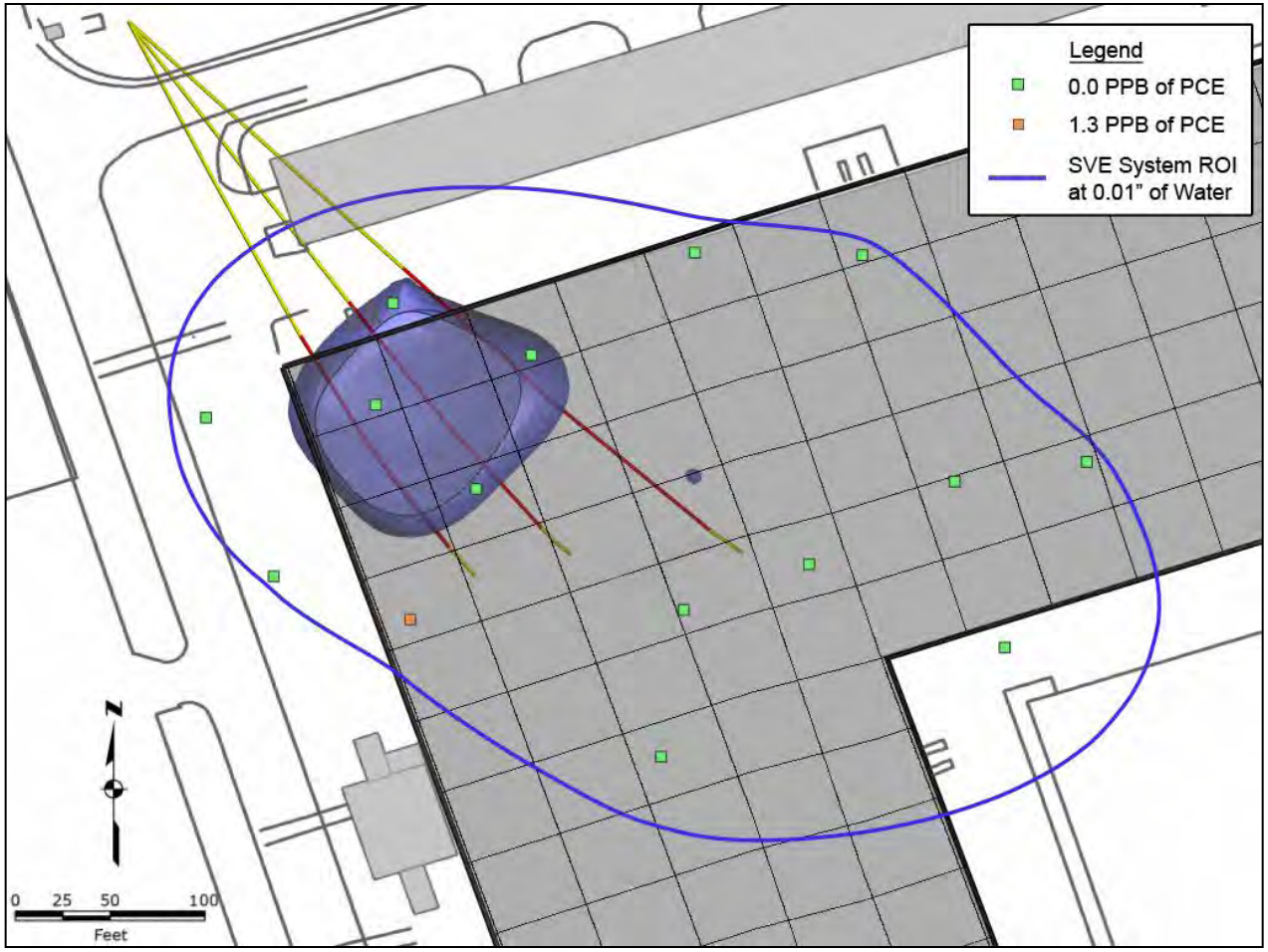
Current and Historical PCE Concentrations vs. System Radius of Influence

- This figure shows the **current soil non-detects (green squares) and detected (orange square) PCE concentrations** from the April/May 2009 sampling event in relation to the SVE System ROI (blue line).
- The current PCE concentrations and ROI results are superimposed on top of the PCE historical data (500 PPB).
- Concentrations are below PCE regulatory limit of 500 PPB.



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Vapor Sampling Results

- Vapor samples obtained from less than 10-feet below ground surface (bgs) had lower contaminant concentrations than the vapor samples obtained from greater than 10-feet bgs.

Contaminant of Concern	Soil Vapor Max Conc. (<= 10 ft bgs) (µg/m3)	Depth (ft bgs)	Soil Vapor Max Conc. (> 10 ft bgs) (µg /m3)	Depth (ft bgs)	Soil Max Conc. (mg/kg)	Depth (ft bgs)	Groundwater Max Conc. (mg/L)	Depth (ft bgs)
Tetrachloroethene	830	4-5	2,300	14-15	0.0013 J	3-5	1.60	~ 19
Trichloroethene	350	4-5	1,200	14-15	ND	---	0.08	~ 19
cis-1,2-Dichloroethene	5,400	4-5	3,700	14-15	NA	NA	2.10	~ 19
trans-1,2-Dichloroethene	310	4-5	130	11-12	NA	NA	0.09	~ 19
total-1,2-Dichloroethene	---	---	---	---	0.0831	1-5	2.10	~ 19
Vinyl Chloride	150	3-4	13	16.5-17.5	ND	---	0.03	~ 19

PCE Soil Vapor Concentrations

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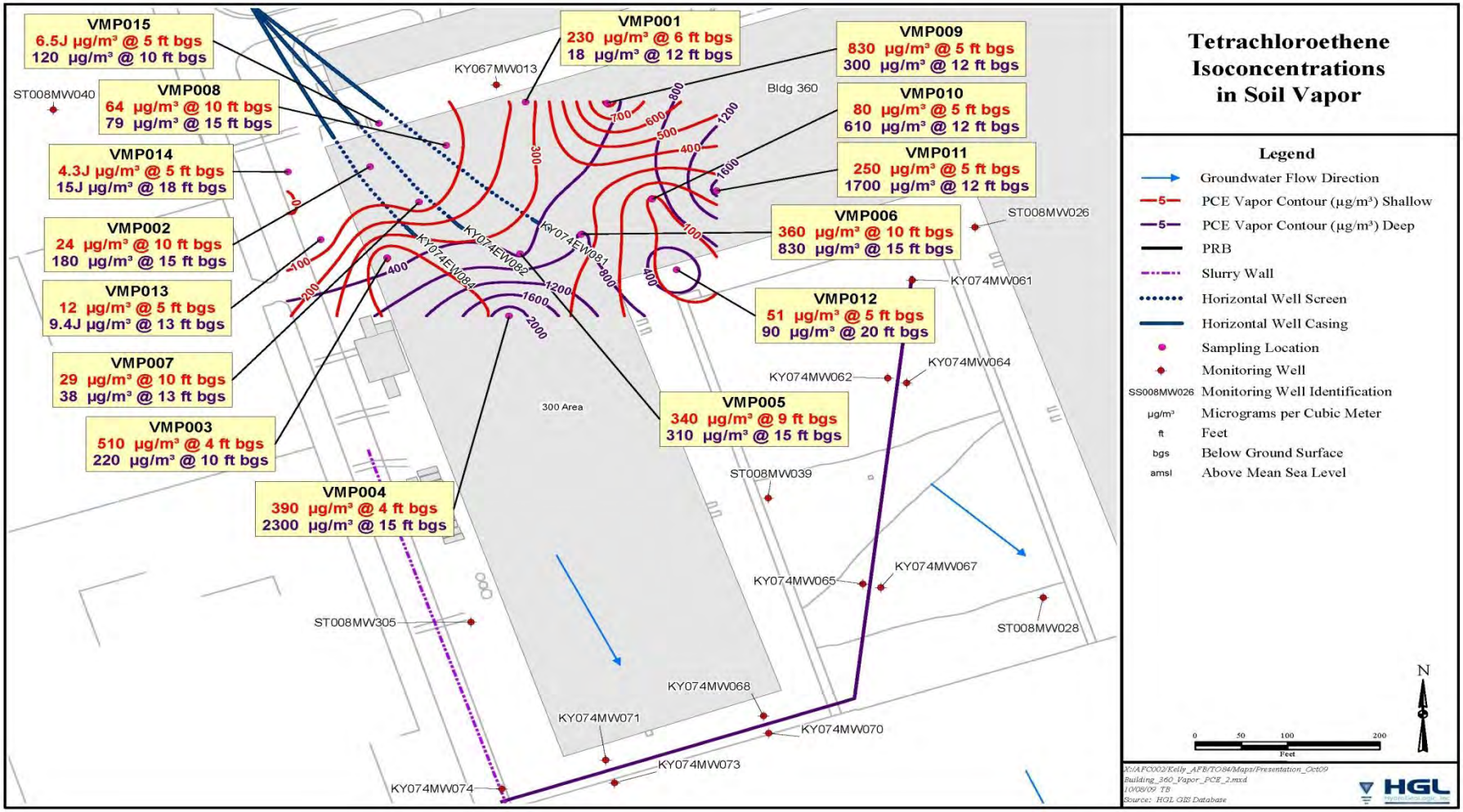

TCE Soil Vapor Concentrations

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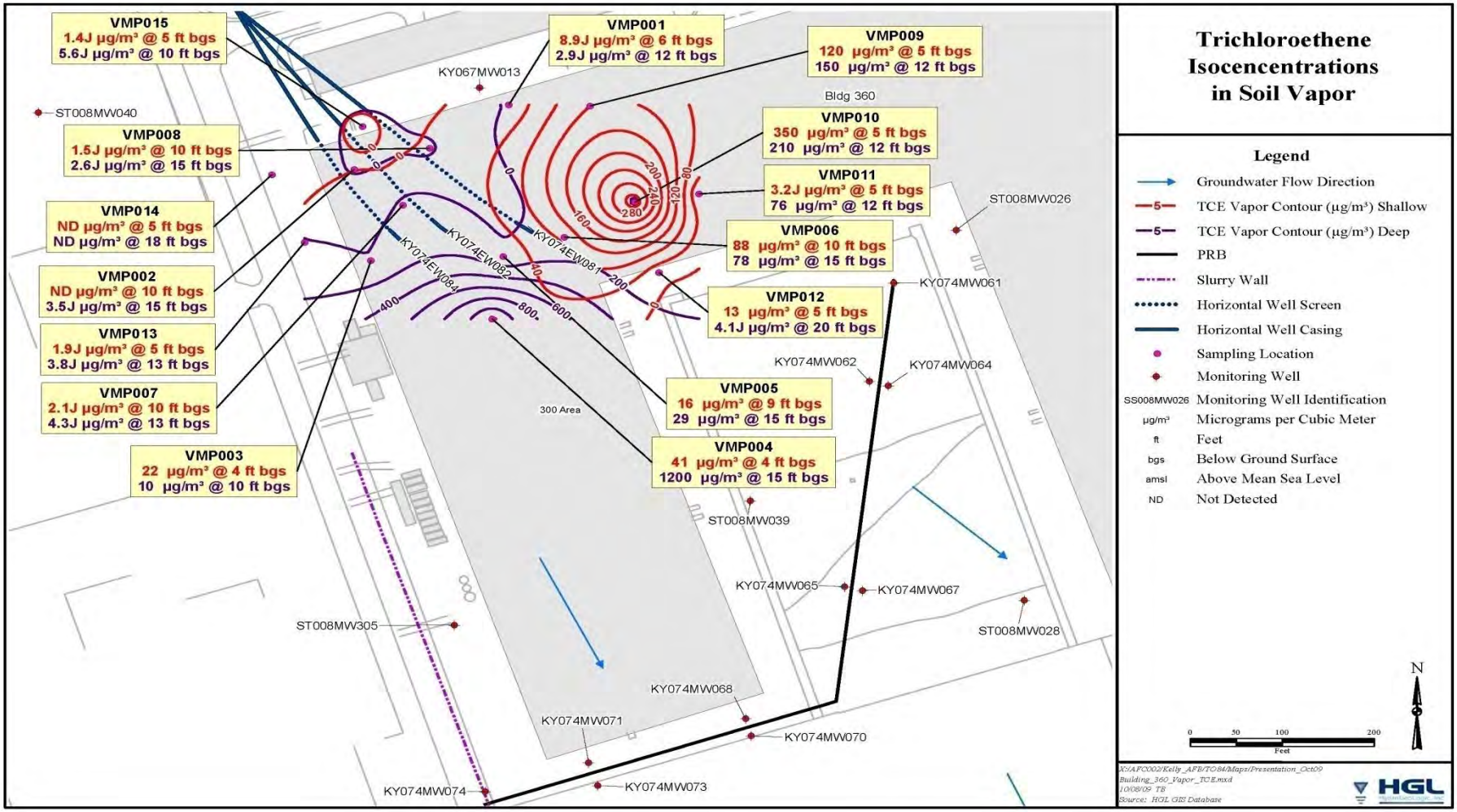

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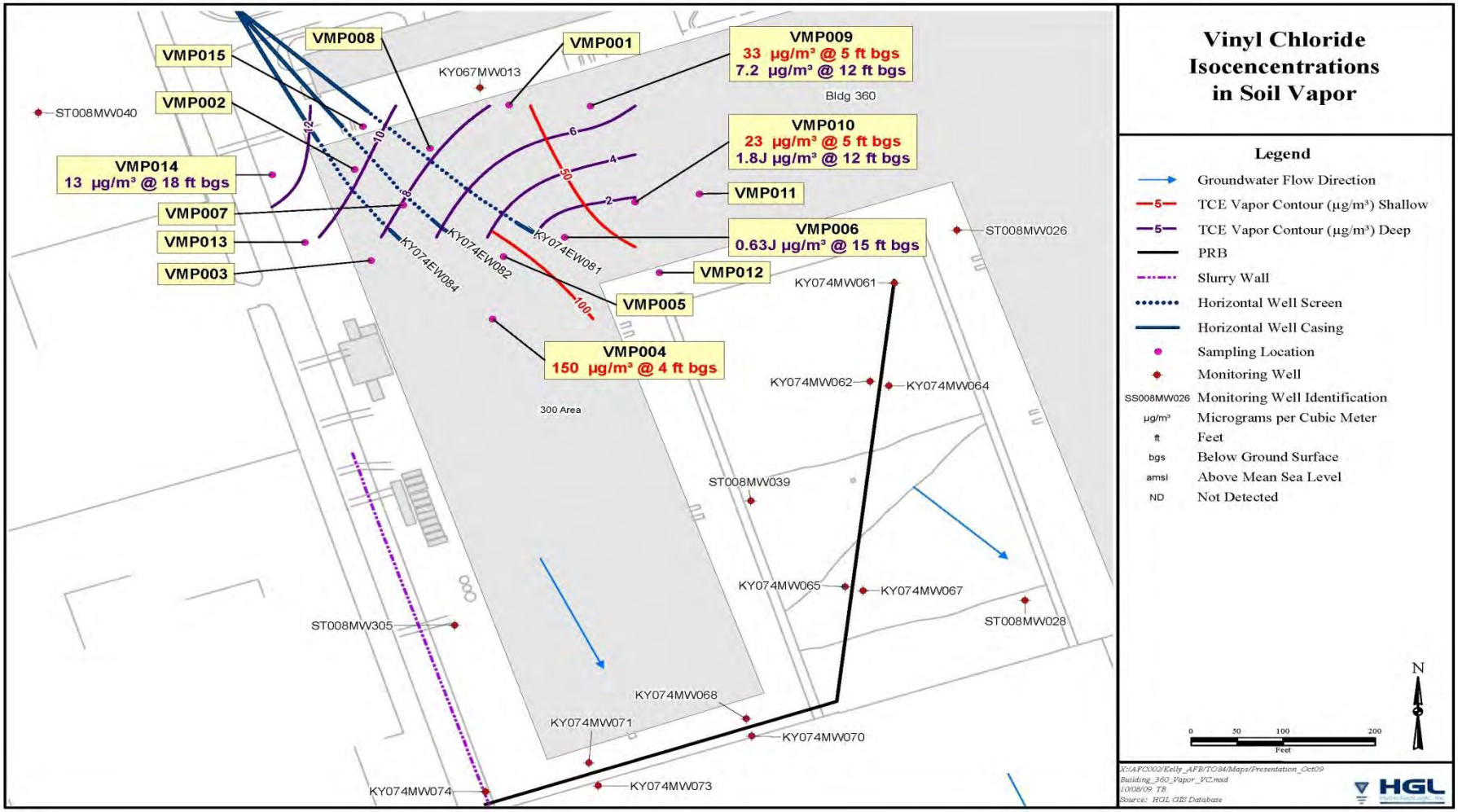
Vinyl Chloride Soil Vapor Concentrations



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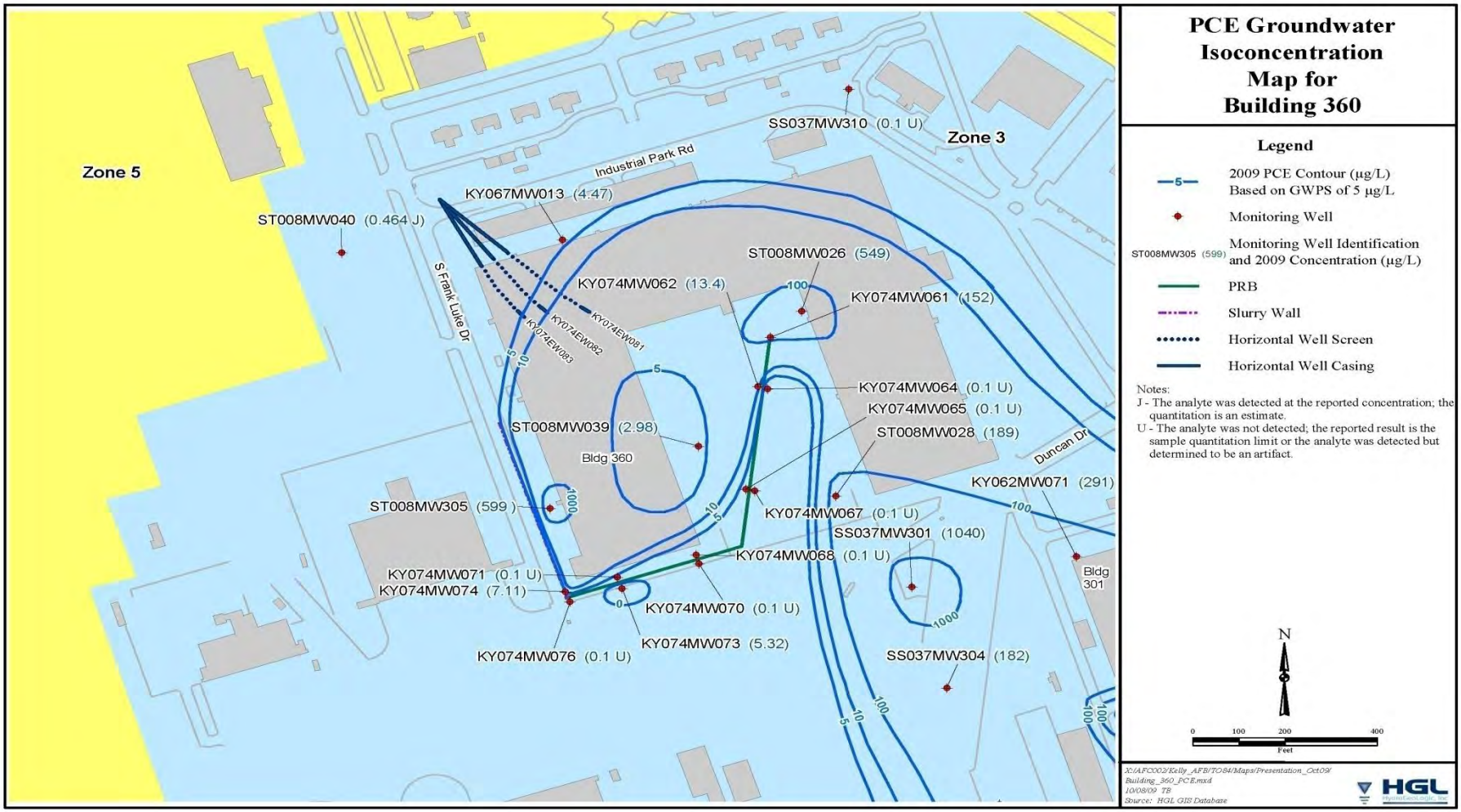
PCE Groundwater Concentrations



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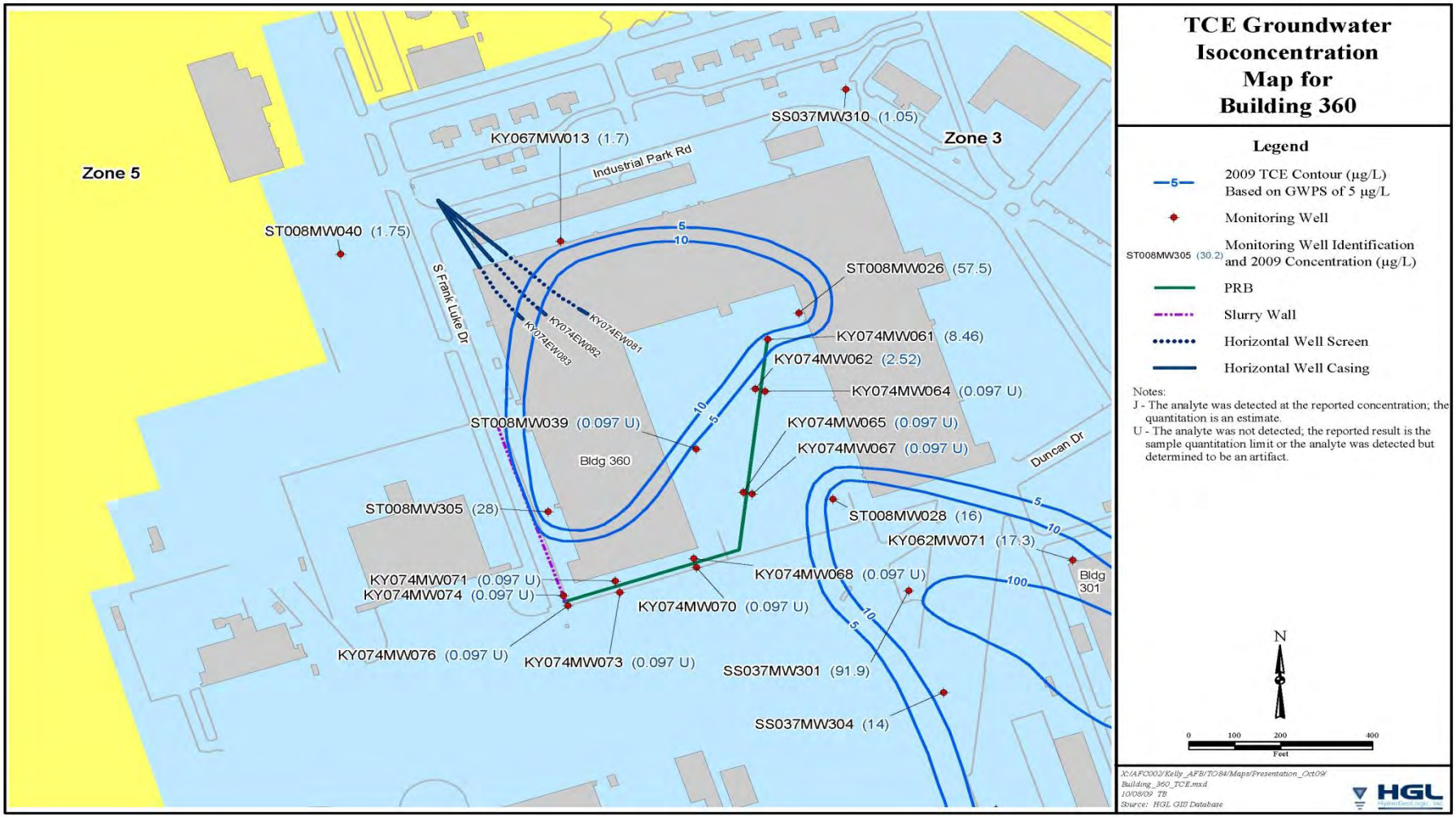
TCE Groundwater Concentrations



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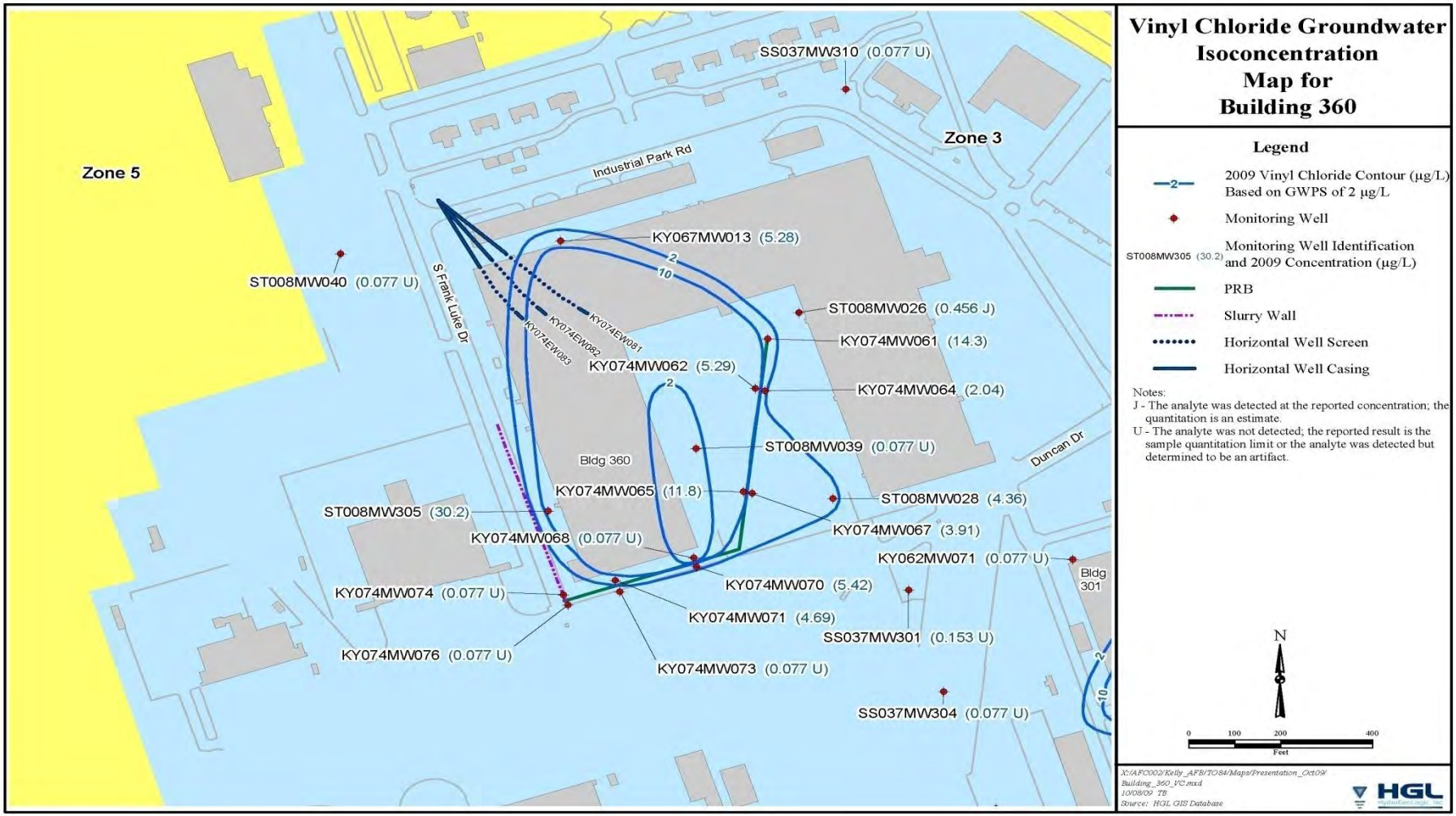
Vinyl Chloride Groundwater Concentrations



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Conclusions

- Each of the 30 soil samples from the April/May 2009 sampling event were below the TCEQ regulatory limits.
- The 2009 sampling results show that the SVE system is effectively removing VOC contaminants from the soil under Building 360 as designed.
- The 2009 Soil Vapor concentration results may be attributable to groundwater contamination.
- The Building 360 PRB is effectively treating the groundwater contamination.

Former Building 301
Electric Resistive Heat (ERH)

Paul Carroll
BRAC Environmental Coordinator

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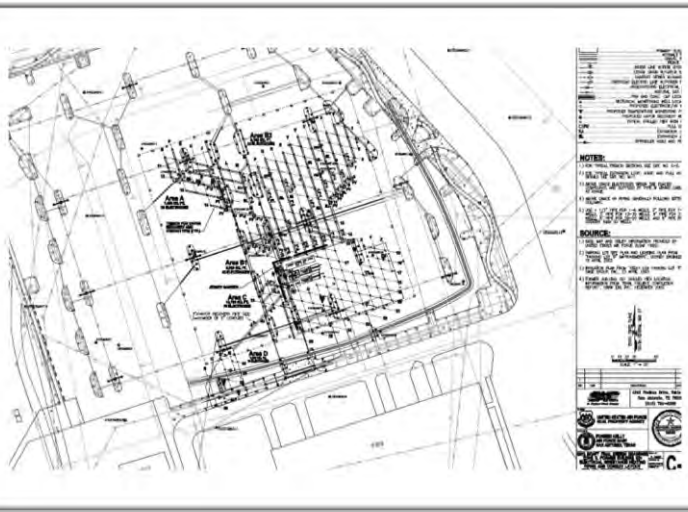
Remedial Action at Former Building 301

- The ERH system was brought online July 2008 and achieved cleanup goals September 2009.
- Soil temperatures were heated from 27.0° C to the designed target temperature of 92.0°C (197.6°F).
- Over 1,200 lbs of chlorinated solvents were removed during the operation of the ERH system.



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100% Confirmation Sampling

- Confirmation samples collected in Areas A, B, C, and D have been determined to be below Texas Risk Reduction Standard #2 regulatory standards.
- Remediation goals for this site have been met and the Air Force has received approval from TCEQ to shut down the ERH system.
- Cape is in process of demolition and abandonment of all ERH system components at the Building 301 site.
- The Air Force anticipates the restoration of the Building 301 site and paving to be complete no later than November 16, 2009.

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Building 301 Confirmation Sampling Locations

Figure 2: Confirmation Sample Locations

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AFRPA / Kelly Semiannual Compliance Plan Report January through June 2009

Paul Carroll
BRAC Environmental Coordinator

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Activities Covered by the Report

- Basewide groundwater monitoring well gauging performed in March 2009
- Groundwater Sampling at RCRA Sites (Site E-3 and Site S-8) performed in January 2009
- Leon Creek Sampling (Zones 1 and 2) performed in January 2009
  - Stream elevation measurements
  - Stream flow measurements
  - Surface water, outfall, and seep sampling
  - Sediment sampling
- Reporting activities were in accordance with the requirements of the renewed Hazardous Waste Permit issued by TCEQ in April 2009.

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Basewide Groundwater Gauging Findings

- Groundwater flow direction and gradients were similar to previous years.
- Groundwater levels showed an average decrease of approximately 2.4 feet basewide compared to 2008 due to drought conditions.

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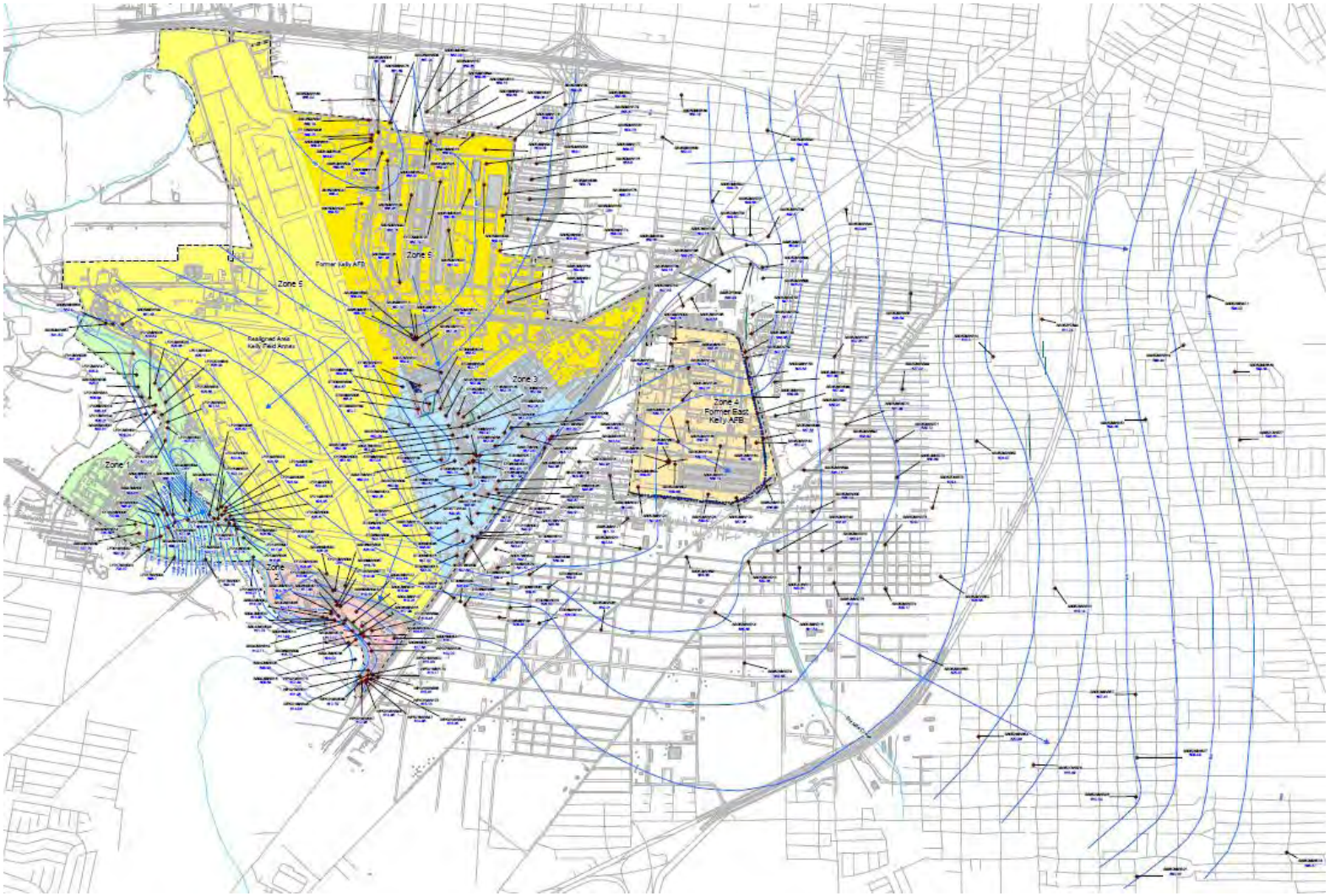
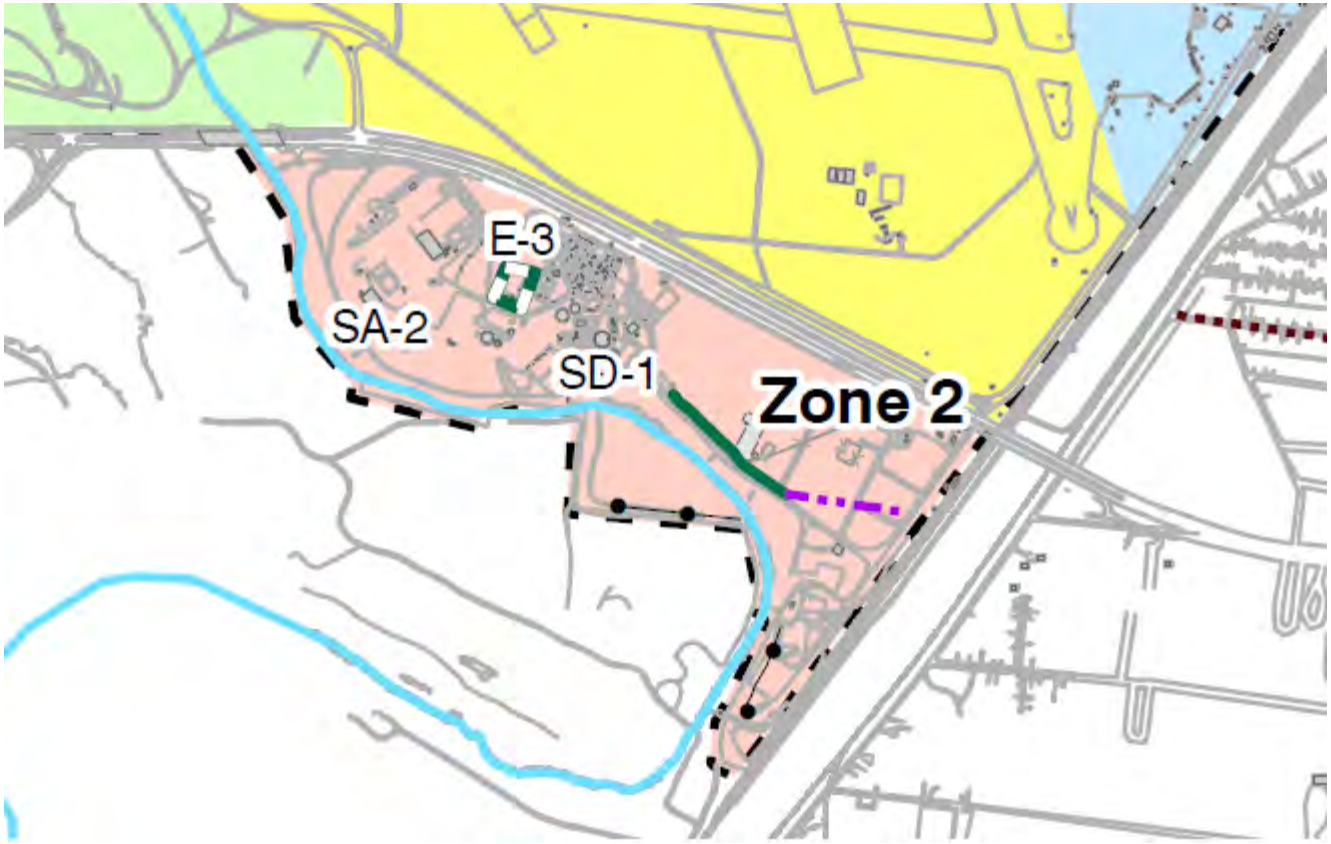
Basewide Groundwater Potentiometric Map



RCRA Site E-3

- Site E-3 is a former chemical evaporation pit located in the northwestern portion of Zone 2



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RCRA Site E-3

- Groundwater monitoring network consists of 9 wells:
  - Three point of compliance (POC) Wells
  - Three background (BKG) wells
  - Three observation (OBS) wells
- Each well was gauged for depth to water prior to purging and sampling. Wells were sampled for:
  - Volatile Organic Compounds (VOC)
  - Semivolatile Organic Compounds (SVOC)
  - Metals
  - Cyanide
  - Total Petroleum Hydrocarbons
  - Pesticides
  - Polychlorinated Biphenyls (PCB)

RCRA Site E-3
Potentiometric Map, January 2009

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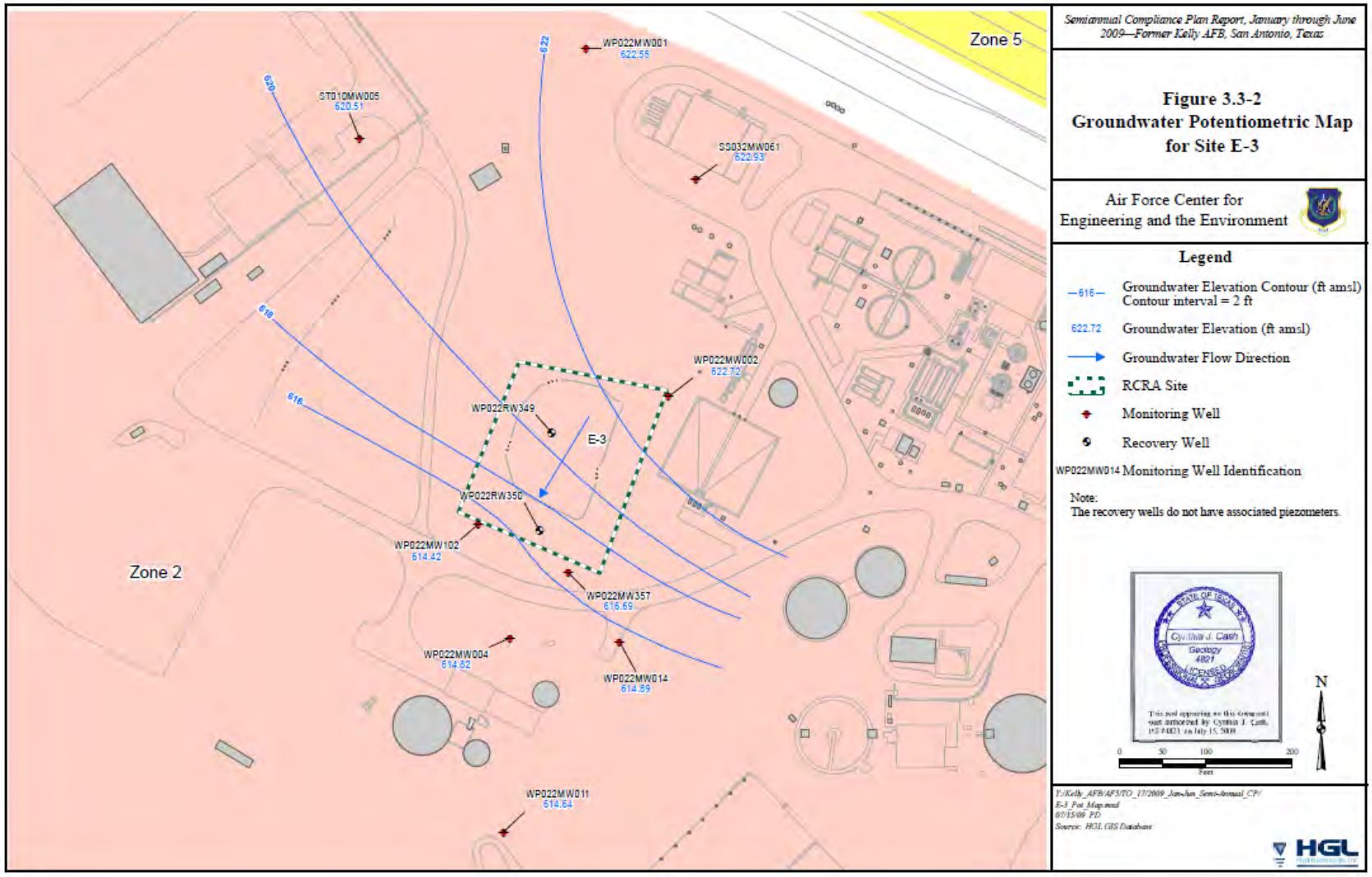

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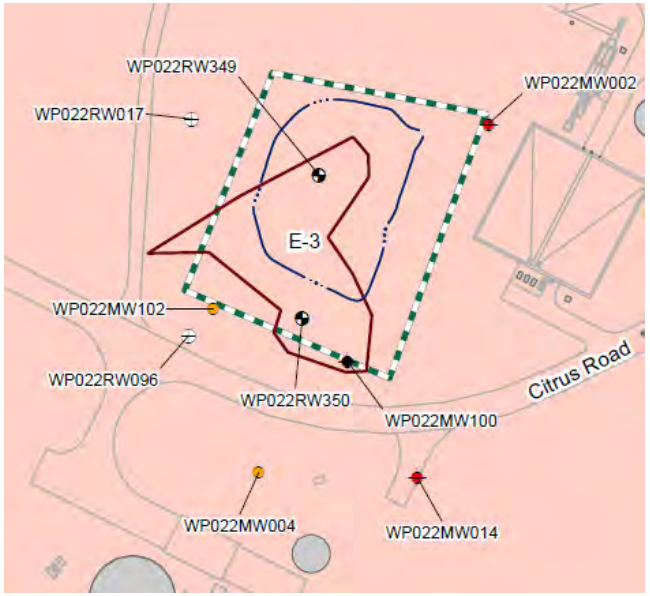
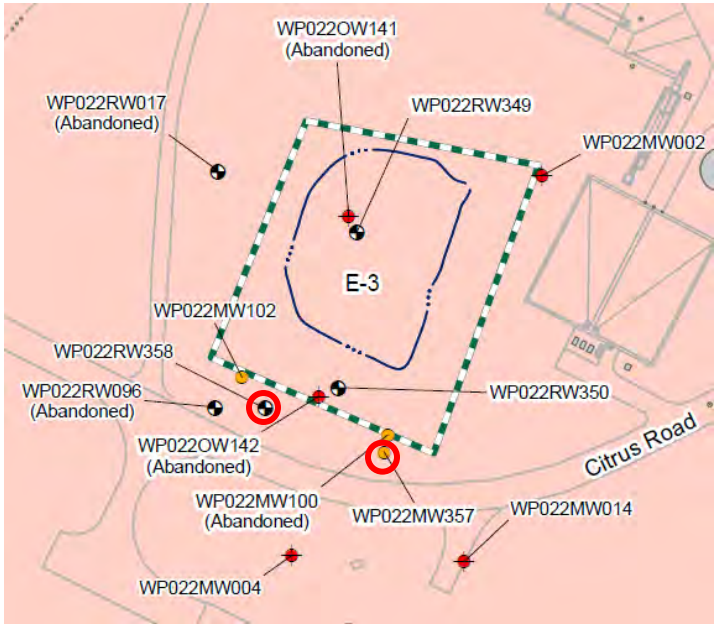
RCRA Site E-3

- Actions occurring at Site E-3 within the past 1-2 years.
  - Excavation of impacted soil was completed in 2008 (brown outline).





- Groundwater monitoring well WP022MW357 was installed to replace POC well WP022MW100
- Recovery well WP022RW358 was installed to optimize the groundwater recovery system.

RCRA Site E-3
Chlorobenzene Isoconcentration Map

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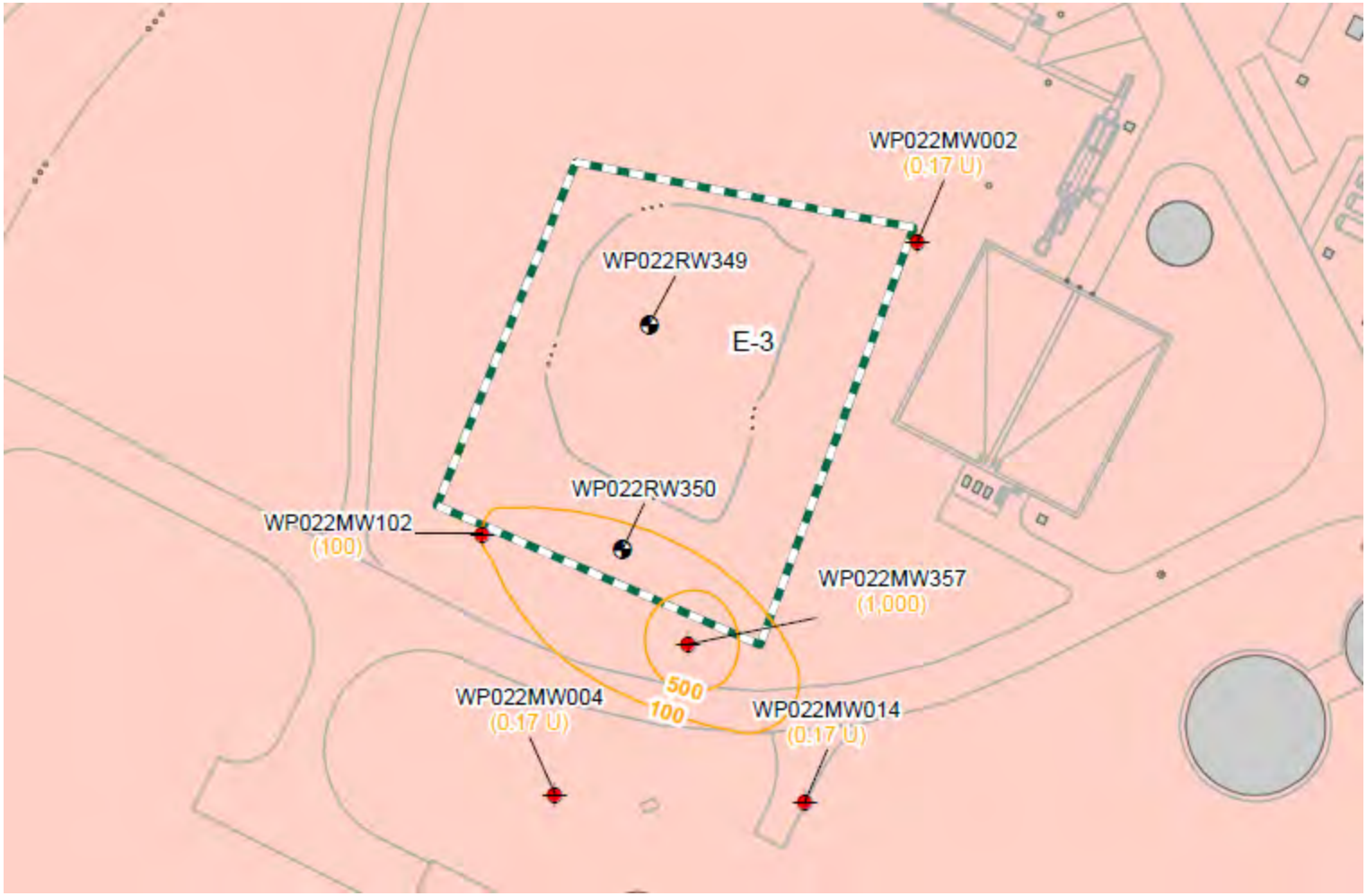

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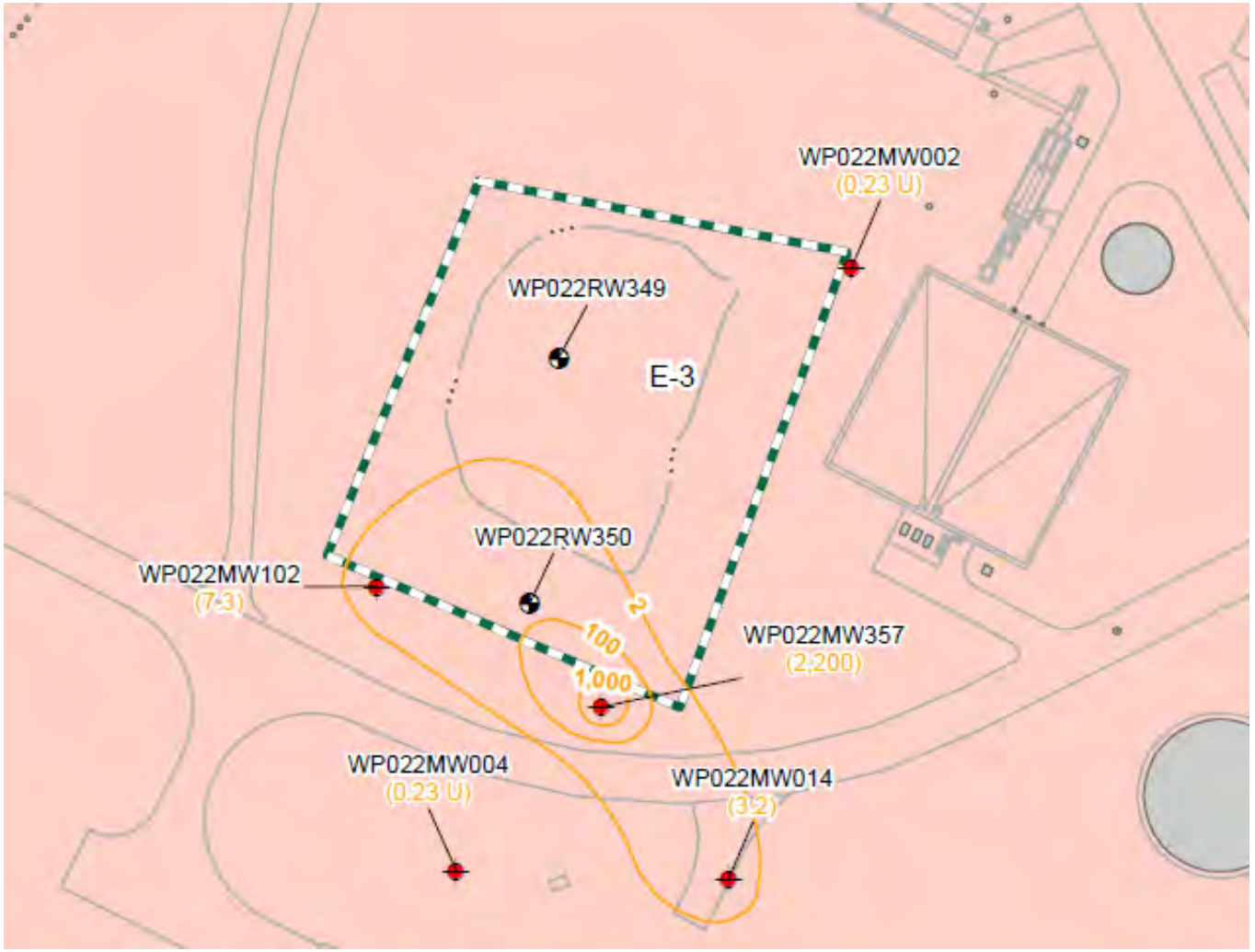
RCRA Site E-3
Vinyl Chloride Isoconcentration Map



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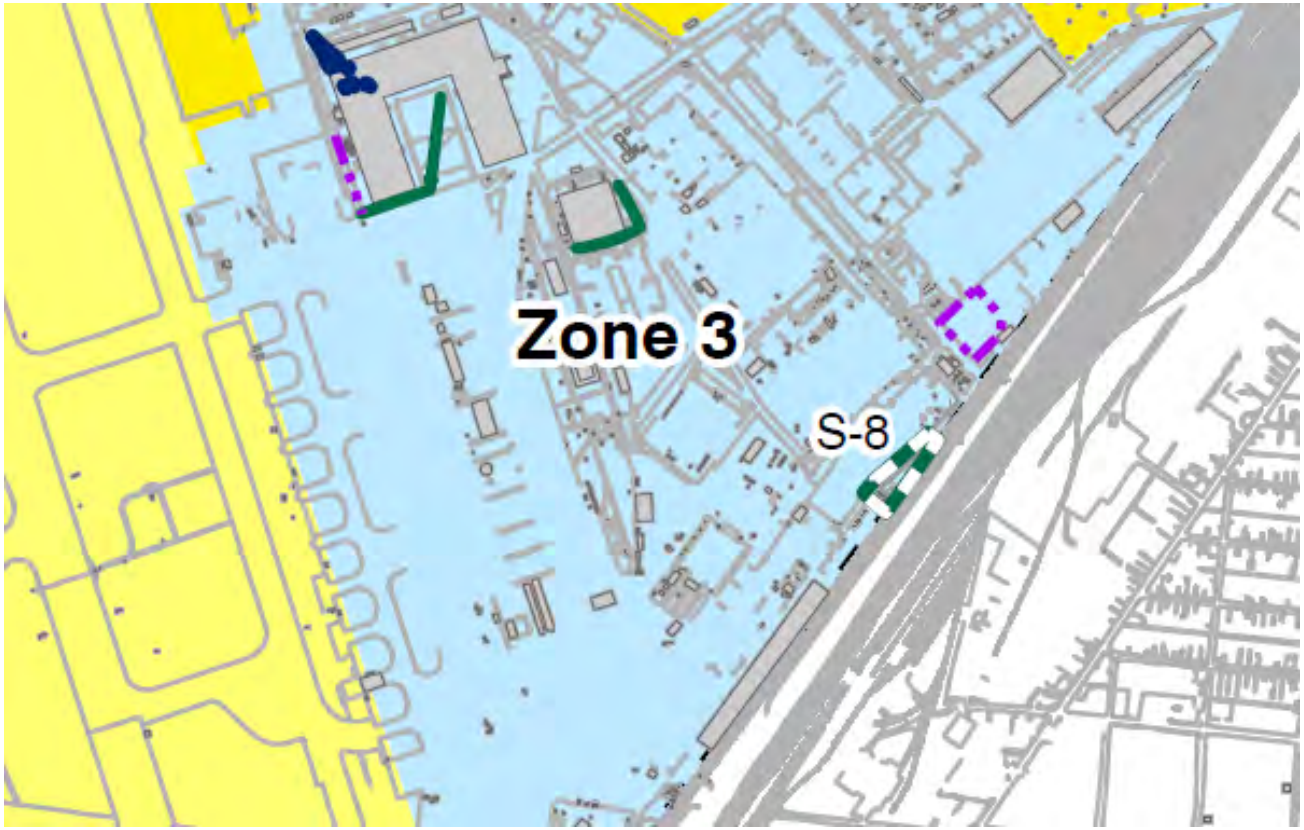
RCRA Site E-3
Findings and Conclusions

- Comparison to pre-excavation (July 2007) data:
  - Chlorobenzene concentrations in wells WP022MW100 / WP022MW357, located southeast of the site, were reported at 14,000 µg/L prior to excavation activities and 1,000 µg/L after excavation activities.
  - Vinyl chloride and total 1,2-DCE concentrations in well WP022MW357 showed an increase to 2,200 µg/L and 2,100 µg/L in January 2010, respectively; believed to be associated with increased degradation of PCE and TCE at the site following excavation activities.

RCRA Site S-8

- RCRA Site S-8 is a former automated engine parts cleaning facility located in the eastern portion of Zone 3



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RCRA Site S-8

- Groundwater monitoring network consists of 11 wells:
  - Three point of compliance (POC) Wells
  - Two background (BKG) wells
  - Six observation (OBS) wells
- Each well was gauged for depth to water prior to purging and sampling. Wells were sampled for:
  - Volatile Organic Compounds (VOC)
  - Semivolatile Organic Compounds (SVOC)
  - Metals
  - Cyanide
  - Total Petroleum Hydrocarbons
  - Pesticides
  - Polychlorinated Biphenyls (PCB)

RCRA Site S-8
Potentiometric Map, January 2009

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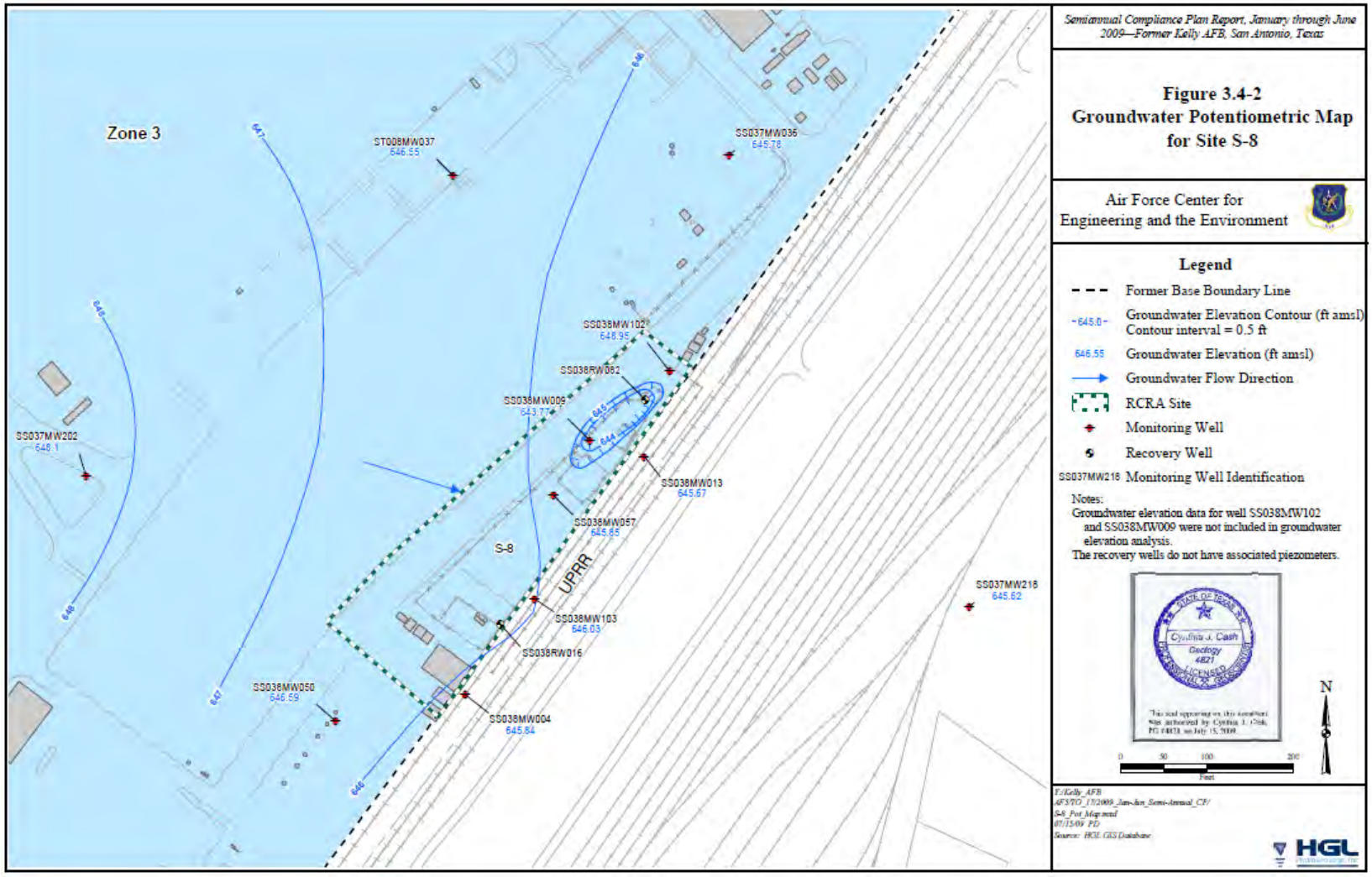

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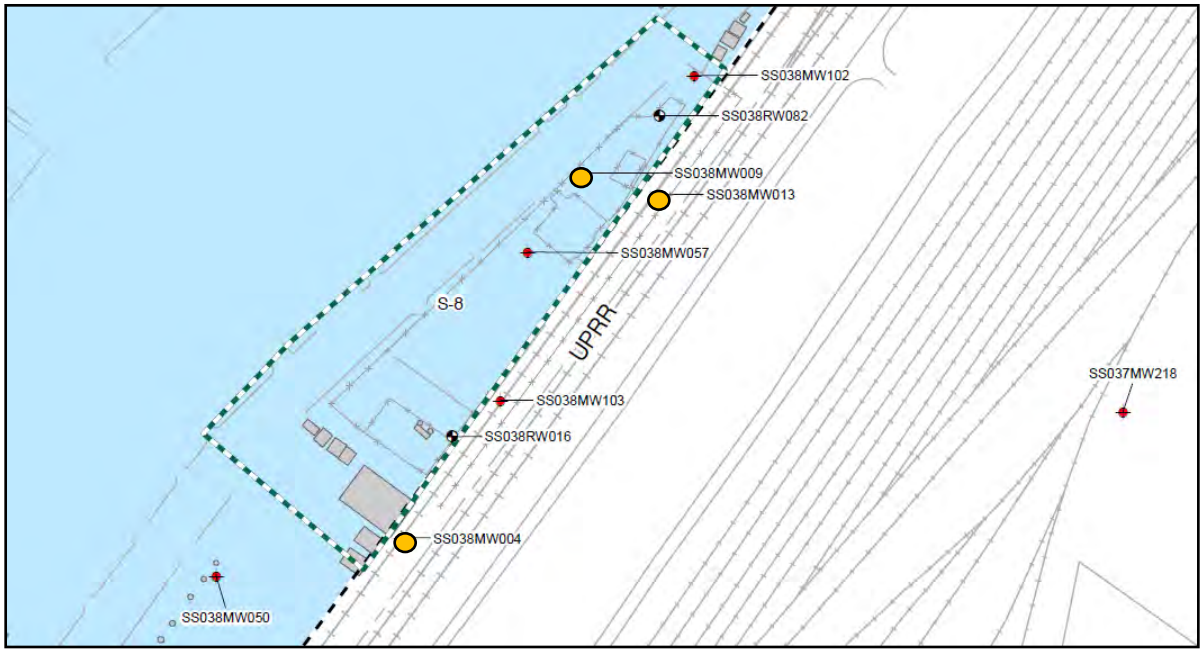
RCRA Site S-8 LNAPL

- Light Non-Aqueous Phase Liquid (LNAPL) in three on-site wells:
  - POC well SS038MW004 contained 0.04 feet of LNAPL
  - OBS well SS038MW009 contained 2.26 feet of LNAPL
  - POC well SS038MW013 contained 0.09 feet of LNAPL
- Manual removal of LNAPL has been occurring on a weekly basis and has reduced volume of LNAPL to minimal amounts in each well.



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RCRA Site S-8 Findings and Conclusions

- Analytes that exceeded GWPS include:
  - Chlorobenzene (maximum 390 µg/L compared to GWPS of 100 µg/L)
  - Benzene (maximum 25 µg/L compared to GWPS of 5 µg/L)
  - Vinyl chloride (maximum 25 µg/L compared to GWPS of 2 µg/L)
  - Arsenic (maximum 370 µg/L compared to GWPS of 10 µg/L)

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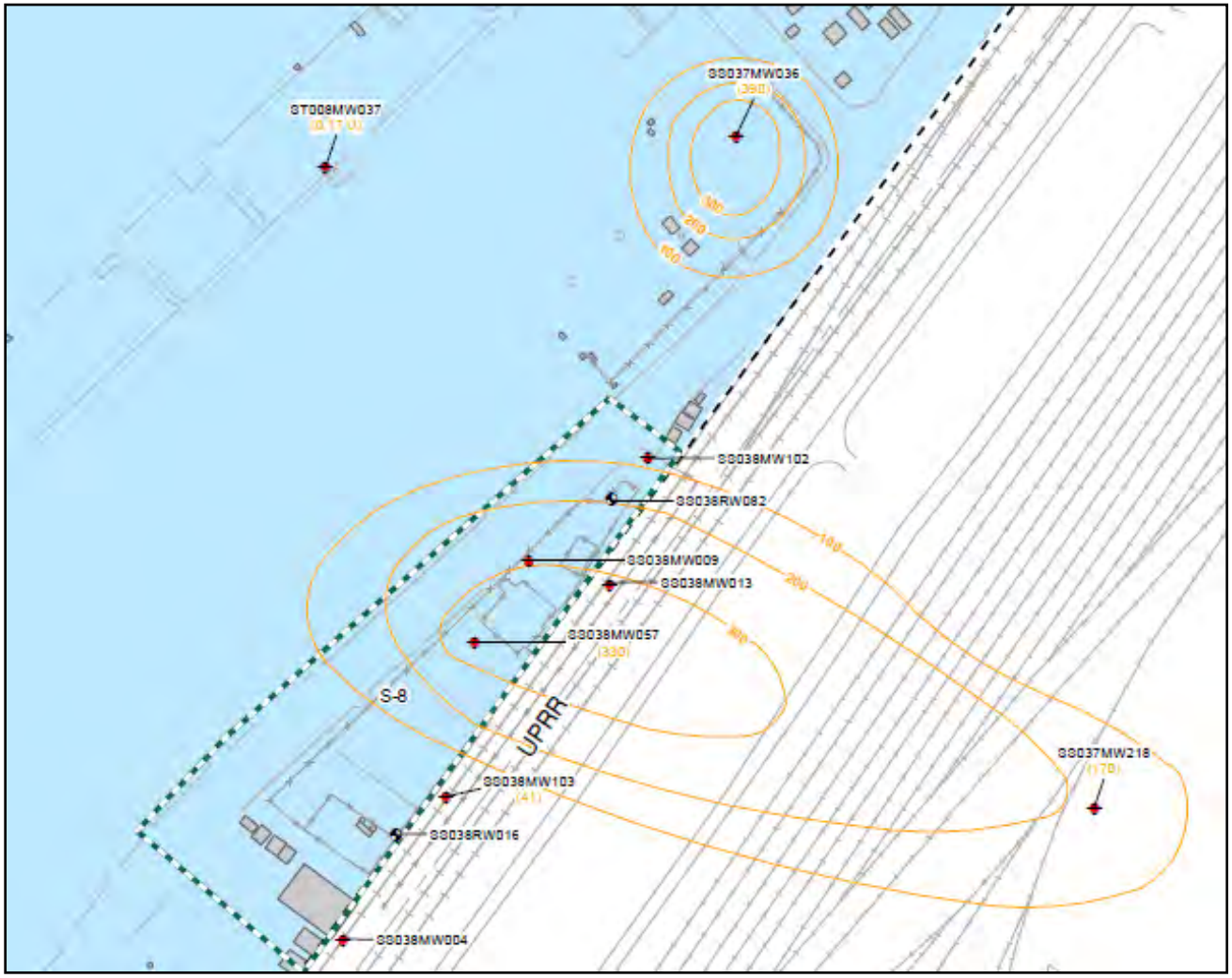
RCRA Site S-8
Chlorobenzene Isoconcentration Map



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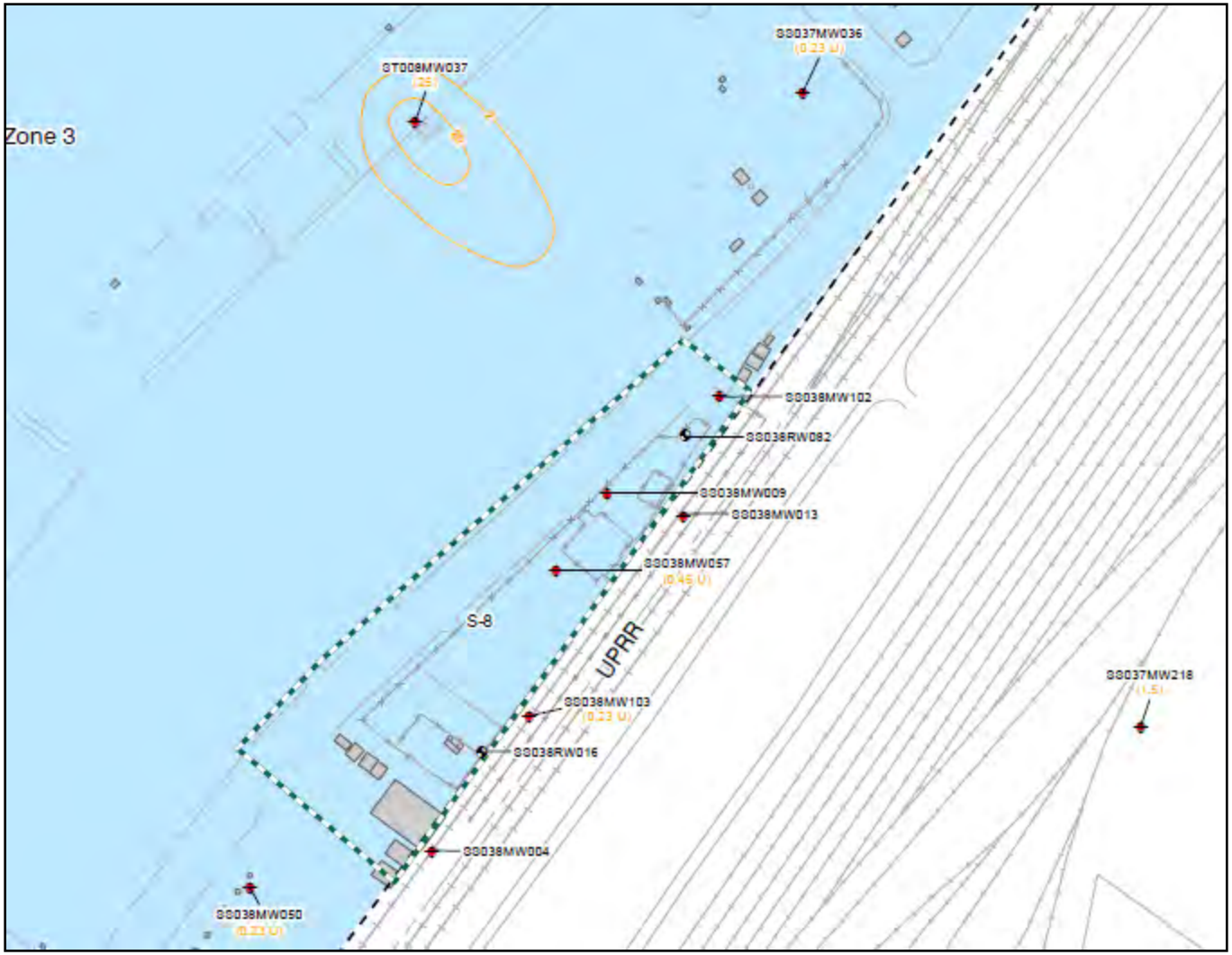
RCRA Site S-8
Benzene Isoconcentration Map

RCRA Site S-8
Vinyl Chloride Isoconcentration Map



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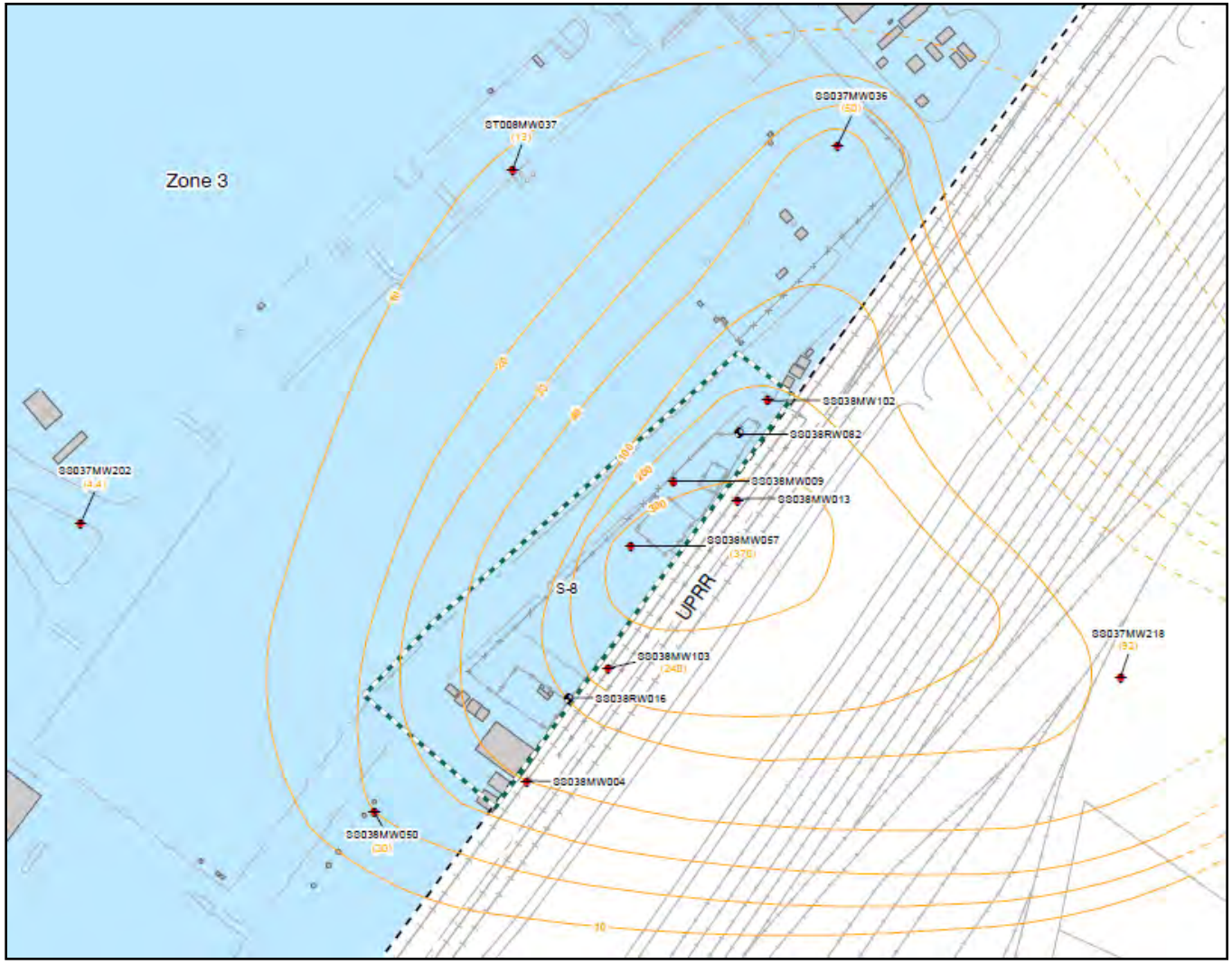
RCRA Site S-8
Arsenic Isoconcentration Map



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RCRA Site S-8 Findings and Conclusions

- Non-compliance wells outside the influence of the recovery well system's capture zone:
  - SS037MW036, located north of the site, reported chlorobenzene and benzene exceedances. Area is proposed for additional investigation.
  - SS037MW218, located east of the site in the UPRR, reported chlorobenzene and benzene exceedances. Area is also proposed for additional investigation.
  - SS038MW013 reported LNAPL. January 2008 data reported benzene and chlorobenzene concentrations of 16 µg/L and 440 µg/L, respectively, in groundwater which are not high enough to suggest NAPL.

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Leon Creek Monitoring

- Total of 57 sample stations were monitored:
  - 56 stations within the boundaries of the former Kelly AFB
  - 1 reference station at Salado Creek located 12 miles east of Leon Creek
- Leon Creek is divided into 4 segments:
  - Section 1: Extends 3.4 miles from Interstate Highway 90 to the northern boundary of the former Kelly AFB;
  - Section 2: Extends from the Section 1 boundary southeast approximately 1.7 miles to SW Military Drive;
  - Section 3: Extends from the Section 2 boundary southeast approximately 0.9 miles to the City of San Antonio stormwater discharge pipe on Leon Creek; and
  - Section 4: Extends from the Section 3 boundary southward approximately 0.8 miles downstream.

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Leon Creek Monitoring

- Leon Creek is further divided into upstream and downstream segments:
  - Upstream segments are located upstream of the northern boundary of the former Kelly AFB;
  - Downstream segments are located within the borders of the former Kelly AFB and downstream of the former Kelly AFB.

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Leon Creek Monitoring
Surface Water Elevation/Flow

- Surface water elevations were collected at 22 stations (including 2 seeps and four outfalls)
- Hydrologic budget for the period January through June 2009 indicates:
  - Segments 1 and 3 showed water gains presumed to be from groundwater inflow to the creek;
  - Segments 2 and 4 showed water losses that are most likely related to infiltration.

Leon Creek Monitoring
Surface Water and Sediment Sampling

- Surface water samples were collected from 37 stations, including 29 in-stream locations, four seeps, three outfalls, and the one reference station.
  - Surface water results were compared against Texas Water Quality Standards (TWCS) acute and chronic aquatic life criteria and human health criteria.
- Sediment samples were collected from 21 stations, including 19 in-stream locations, one outfall and the one reference station.
  - Sediment sample results were compared against TWQS human health criteria.

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Leon Creek Monitoring Surface Water Findings

- The following analyte exceeded one or more TWQS criteria:
  - p,p'DDT at downstream location KY030LC069 was reported at 0.19 µg/L, exceeding the TWQS chronic acute life value of 0.001 µg/L.

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Leon Creek Monitoring Seep Sampling Findings

- The following analytes exceeded one or more TWQS criteria:
  - PCE exceeded the human health criteria of 5 µg/L at two seep locations located near the Zone 2 GWTP.
  - TCE exceeded the human health criteria of 5 µgL at one seep location also located near the Zone 2 GWTP.

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Leon Creek Monitoring Sediment Findings

- Sediment sample results from in-stream locations resulted in SVOCs, pesticides, metals, and PCB that exceeded the TWQS human health criteria.
- Of all the analytes reported as exceeding regulatory criteria, only PCE and TCE have been reported in groundwater samples from Zones 1 and 2 over the past several years.
- The reported SVOCs, pesticides, PCBs, and metals exceedances reported in surface water and/or sediment samples are believed to be coming from an alternate source other than groundwater. Several stormwater outfalls are also present within the stream reach bounded by Kelly AFB.

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Leon Creek Monitoring Findings and Conclusions

- The renewed Compliance Plan issued April 2009 indicates “If Leon Creek monitoring program indicates an increase in contaminant concentrations in surface water samples, stream sediment samples, or bioassessment samples, the Permittee shall investigate the source and impact of the increase and, if necessary, propose additional corrective action measures.”
- Those analytes showing an increase are being investigated for potential source(s), including stormwater outfalls.

Leon Creek Monitoring

Questions?

AFRPA Property Transfer Progress

Paul Carroll
BRAC Environmental Coordinator

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Kelly Property Transfer Progress

- **The Air Force Successfully transferred 72 acres in September 2009 to Port San Antonio for beneficial reuse.**
- **TCEQ and EPA approved environmental documentation required for the transfer, including:**
  - TCEQ Class 1-1 Permit Modification
  - Zone 2 Operating Properly and Successfully (OPS) Demonstration,
  - Finding of Suitability to Transfer (FOST), and
  - Supplemental Environmental Baseline Survey (SEBS)

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Kelly Property Transfer Progress

- **The Air Force is currently working with EPA and TCEQ to ensure remedies are in place and to demonstrate Operating Properly and Successfully (OPS) in Zone 3 in order to transfer the remaining 368 acres of remaining property in FY10.**
  - Zone 3 includes most of the original industrial area at former Kelly AFB.
- Transfer of Zone 3 will complete the ***Whole Base Transfer*** milestone of former Kelly AFB to Port San Antonio.

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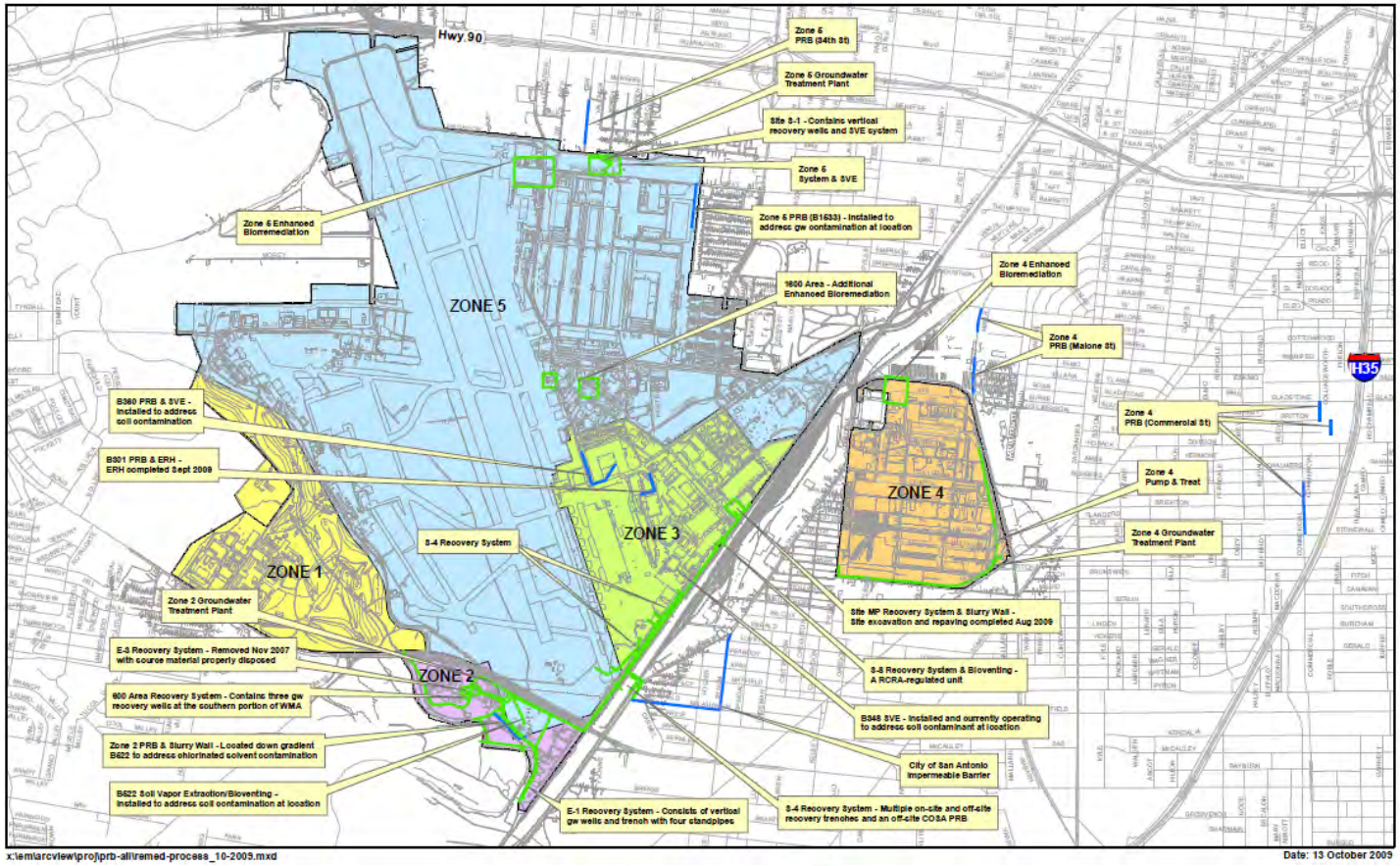
Kelly Remediation Systems

Remediation Systems / Processess October 2009



Kelly Property Transfer Progress

Questions?

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Property Transfer

- Progress Report
- Zone 2 Transfer

Public Comment Period

- **Public Comment Period**

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Suggested Agenda Items for January 12, 2010 RAB

- **Suggested Agenda Items for next RAB**

Meeting Adjournment

- **Meeting Adjournment**

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Notes – Upcoming Meetings

- **Next RAB Meeting**
  - **January 12, 2010, 6:30 p.m.**
  - **Port San Antonio Boardroom**
    907 Billy Mitchell Blvd., San Antonio, TX 78226

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For More Information

- **Contact AFRPA Public Affairs:**
  - Public Information Line: 210-925-0956
  - Fax: 210-925-3636
  - Email: AFRPA.PA@lackland.af.mil
- **Documents are available electronically or in hard copy:**
  - Administrative Record Site: https://afrpaar.lackland.af.mil/ar/docsearch.aspx
  - San Antonio Central Library

    Government Documents Section (2nd Floor)

    600 North Soledad, San Antonio, TX 78205