ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
Tank Programs Division
Underground Storage Tank (UST) Program

DOCUMENT SUBMITTAL FORM

[use as COVER SHEET when submitting the documents listed below]

ADEQ use only

UST FACILITY INFORMATION:

Honeywell Engines Product Center
Facility Name

0-002227
Facility ID

111 South 34th Street
Street Address

0393.02 - .10, .15-.17
LUST Number(s)

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City

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Zip Code

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PERSON RESPONSIBLE FOR SUBMITTING DOCUMENT:

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PERSON CATEGORY	ADEQ ID #
X UST owner	4875
☐ UST operator	
☐ UST volunteer	
☐ Property owner	

LUST, RELEASE OR CORRECTIVE ACTION DOCUMENT: (check all that apply; * indicates document requires signed certification statement)

- ☐* 14 day report (suspected release)
- ☐* 90 day report (suspected release)
- ☐* 14 day report (confirmed release)
- ☐* 90 day report (confirmed release)
- ☐* LUST site classification form
- ☐* Site characterization report (SCR)
- ☐* Free Product Report
- ☐* Tier 2 risk evaluation
- ☐* Tier 3 risk evaluation
- ☐* Corrective action plan (CAP)
- X * Periodic site status report (includes groundwater monitoring reports)
- ☐* LUST case closure request w/corrective action completion report
- ☐* Addendum (check related document type)
- ☐ Other: (please specify)

UST DOCUMENT: X

SAF DOCUMENT: ☐ Application #: _____

INFORMAL APPEAL:
- ☐ LUST
- ☐ SAF
- ☐ UST

CERTIFICATION STATEMENT OF UST OWNER, OPERATOR OR VOLUNTEER: (for only documents designated above by *)

"I hereby certify, under penalty of law, which this submittal and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

Signature of UST owner, operator or volunteer

12/01/08
Date

Troy J. Kennedy
Name of UST owner, operator or volunteer (printed)

Remediation Portfolio Director
Title

Revised 8/05

Honeywell

Health, Safety, Environment and Remediation
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December 1, 2008

By Hand Delivery

Mark W. Lucas
Case Manager – LUST Enforcement Unit
TPD/Corrective Action Section
Arizona Department of Environmental Quality
1110 W. Washington Street, #4415A-3
Phoenix, AZ 85007

Re: *Third Quarter Status Report for 2008*
LUST File #0393.02-.10, .15-.17
Facility ID #0-002227

Dear Mr. Lucas:

Honeywell is submitting this *Third Quarter Status Report for 2008* in accordance with requirements in the Arizona Department of Environmental Quality's (ADEQ) Corrective Action Plan (CAP) Final Approval letter dated October 7, 2005, and CAP modification approval letters dated December 20, 2005, March 7, 2006, September 28, 2006, March 27, 2007, and February 29, 2008.

On November 7, 2008, ADEQ approved the Site Characterization Report for LUST File Numbers 0393.18, 0393.19, and 0393.20. ADEQ's letter states, "Remediation of Releases #0393.18, 0393.19, and 0393.20 shall henceforth be included under the current CAP, and all submittals related to the CAP and contaminant remediation shall refer to Releases #0393.02 through #0393.10 and #0393.15 through #0393.20." Therefore, beginning with Honeywell's Fourth Quarter Status Report for 2008, scheduled for submittal to ADEQ on or before March 2, 2009, all future Honeywell status reports will refer to LUST File #0393.02-.10, .15-.20.

If you should have any questions or require discussion, please contact me at 973-455-4279 or Jeff Mieth at 480-377-6265. For your convenience, my e-mail address is troy.j.meyer@honeywell.com and Jeff's is jeffrey.mieth@ch2m.com.

Sincerely,

Troy J. Kennedy
Honeywell - Health, Safety, Environment and Remediation
Remediation Portfolio Director

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Final Report

Third Quarter Status Report for 2008

Honeywell 34th Street Facility
Phoenix, Arizona
Facility ID No. 0-002227
LUST File Nos. 0393.02-.10, .15-.17

Prepared for

Honeywell International Inc.

December 2008

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ARIZONA, U.S.A.

Expires 6-30-2009

Prepared by

CH2MHILL

Contents

Section **Page**

Acronyms and Abbreviations ..... **vii**

1.0 Introduction **1-1**
1.1 Scope and Purpose 1-1
1.2 Background 1-1
1.3 Summary of Activities 1-2

2.0 Site Characterization Activities **2-1**
2.1 Soil Sampling—Second Quarter and Third Quarter 2008 2-2
2.1.1 Total Petroleum Hydrocarbons 2-3
2.1.2 Benzene 2-3
2.1.3 Methyl Tert-butyl Ether 2-4
2.1.4 Naphthalene 2-4
2.2 Second Quarter 2008 Monitoring Activities 2-5
2.2.1 Groundwater Elevations and Free Product 2-5
2.2.2 Groundwater Quality 2-6
2.3 Third Quarter 2008 Monitoring Activities 2-10
2.3.1 Groundwater Elevations 2-10
2.3.2 Free Product 2-11
2.3.3 Groundwater Quality 2-14

3.0 Site Remediation Activities **3-1**
3.1 Free-product Recovery 3-1
3.2 Biologically-enhanced Soil-vapor Extraction 3-1
3.2.1 BSVE Construction Activities—Honeywell Facility (Phases A and B) 3-2
3.2.2 BSVE Construction Activities—PSHIA (Phases C and D) 3-2
3.2.3 BSVE Permitting 3-2
3.2.4 BSVE Design Activities (Phase C) 3-2
3.2.5 BSVE Design Activities (Phase D) 3-3

4.0 Summary of Planned Work **4-1**
4.1 Phases A and B 4-1
4.2 Phase C 4-1
4.3 Phase D 4-2
4.4 Groundwater Sampling Event 4-2

5.0 Summary of Problems and Delays **5-1**

6.0 Status of Deliverables **6-1**

7.0 References **7-1**

Tables

2-1 Summary of SW8260 and 8015AZR1 Detected Analytical Results for Soil Samples, Second and Third Quarter 2008
2-2 Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Second Quarter 2008
2-3 Summary of Additional Detected Analytical Results for Groundwater Quality Samples, Second Quarter 2008
2-4 Summary of NAIP Analytical Results for Groundwater Quality Samples, Second Quarter 2008
2-5 Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Third Quarter 2008
2-6 Summary of Additional Detected Analytical Results for Groundwater Quality Samples, Third Quarter 2008
2-7 Summary of NAIP Analytical Results for Groundwater Quality Samples, Third Quarter 2008
2-8 Comparison between June 2008 and September 2008 Water-level Elevations, Third Quarter 2008
2-9 Summary of Free-product Thickness Measurements, Third Quarter 2008
2-10 Summary of Free-product Thickness Measurements for Monitoring Well ASE-67A, Third Quarter 2008
2-11 Comparison of Historical Maximum Free-product Thickness Measurements to September 2008 Free-product Thickness Measurements, Third Quarter 2008
3-1 Summary of Free-product Recovery, Third Quarter 2008

Figures

1-1 Facility Location and Layout
2-1 TPH - Shallow (<40 ft) Through September 2008 Soil Sample Parameters
2-2 TPH - Deep (>40 ft) Through September 2008 Soil Sample Parameters
2-3 Benzene - Shallow (<40 ft) Through September 2008 Soil Sample Parameters
2-4 Benzene - Deep (>40 ft) Through September 2008 Soil Sample Parameters
2-5 Methyl Tert-Butyl Ether - Shallow (<40 ft) Through September 2008 Soil Sample 2-Parameters
2-6 Methyl Tert-Butyl Ether - Deep (>40 ft) Through September 2008 Soil Sample Parameters
2-7 Naphthalene - Shallow (<40 ft) Through September 2008 Soil Sample Parameters
2-8 Naphthalene - Deep (>40 ft) Through September 2008 Soil Sample Parameters
2-9 Benzene July 2008 Groundwater Parameters
2-10 Methyl Tert-Butyl Ether July 2008 Groundwater Parameters
2-11 Naphthalene July 2008 Groundwater Parameters
2-12 Total Recoverable Petroleum Hydrocarbons (TRPH) July 2008 Groundwater Parameters
2-13 Water Level Contours September 2008
2-14 Free-Product Thickness September 2008
2-15 Free-Product Thickness (Maximum)
2-16 Benzene September 2008 Groundwater Parameters
2-17 Methyl Tert-Butyl Ether September 2008 Groundwater Parameters
2-18 Naphthalene September 2008 Groundwater Parameters

2-19 Total Recoverable Petroleum Hydrocarbons (TRPH) September 2008 Groundwater Parameters
3-1 Honeywell Facility Location and Remediation Phases

Appendixes

A Well Installation Report
B Data Validation and Soil Laboratory Analytical Reports
C Data Validation and Groundwater Laboratory Analytical Reports – July 2008
D Hydrographs
E Data Validation and Groundwater Laboratory Analytical Reports – September 2008

Acronyms and Abbreviations

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
ADEQ	Arizona Department of Environmental Quality
bgs	below ground surface
BSVE	biologically-enhanced soil-vapor extraction
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COP	City of Phoenix
CMR	Construction Manager at Risk
Facility	Honeywell 34th Street Facility
Honeywell	Honeywell International Inc.
LUST	leaking understand storage tank
LUST FSP	Leaking Underground Storage Tank Field Sampling Plan
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MTBE	methyl tert-butyl ether
OU	Operable Unit
PSHIA	Phoenix Sky Harbor International Airport
SRL	soil remediation level
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

SECTION 1.0

Introduction

1.1 Scope and Purpose

This quarterly status report summarizes the ongoing contaminant characterization and remediation activities conducted during the third quarter 2008 for Leaking Underground Storage Tank (LUST) File Nos. 0393.02-.10, .15-.17, Facility ID No. 0-002227 at the Honeywell International Inc. (Honeywell) 34th Street Facility (Facility or Honeywell facility). This report also incorporates groundwater monitoring results received during the third quarter of 2008 associated with second quarter 2008 sampling activities and soil sampling results associated with drilling activities conducted during the second and third quarters of 2008.

This report is being submitted pursuant to reporting requirements in the Arizona Department of Environmental Quality (ADEQ) letter, dated October 7, 2005 (ADEQ, 2005a), issuing final approval of Honeywell's Corrective Action Plan (CAP) (CH2M HILL, 2004a-b) and in accordance with ADEQ's CAP modification approval letters dated December 20, 2005 (ADEQ, 2005b); March 7, 2006 (ADEQ, 2006a); September 28, 2006 (ADEQ, 2006b); March 27, 2007 (ADEQ, 2007); and February 29, 2008 (ADEQ, 2008a).

1.2 Background

The Honeywell facility is located within Operable Unit (OU) 2 at 111 South 34th Street in Phoenix, Arizona. Figure 1-1 illustrates the Facility location and layout. (All figures are provided at the end of this report.) The Honeywell facility has been used as a manufacturing and testing facility for the production of aircraft engines and auxiliary equipment since 1951.

The United States Environmental Protection Agency (USEPA) and ADEQ's Superfund Programs Section are currently overseeing the characterization and remediation of soil and groundwater contaminated with chlorinated volatile organic compounds (VOCs) within the Motorola 52nd Street Superfund Site. ADEQ has been delegated the lead for facility investigations within OU2, including the Honeywell facility. During the Superfund investigation, petroleum hydrocarbons were detected at the Honeywell facility, and a parallel investigation was initiated under ADEQ's Underground Storage Tank (UST) Corrective Action Section. Since that time, Honeywell has investigated the extent of contamination, initiated corrective actions to recover free product, and developed a CAP. The approved CAP (CH2M HILL, 2004a-b) recommends the following remedial actions:

- Remediate soil contamination in the vadose zone, the petroleum hydrocarbon smear zone, and the free-phase petroleum hydrocarbon pool using biologically-enhanced soil-vapor extraction (BSVE).
- Supplement BSVE remediation by selectively removing free product from existing groundwater monitoring wells.

- Treat the remaining dissolved-phase groundwater contamination with monitored natural attenuation after aggressive source removal is complete. ADEQ is withholding approval of this remediation technology pending completion of free-product removal to the maximum extent practicable (ADEQ, 2005a).

1.3 Summary of Activities

This quarterly status report summarizes the activities conducted or completed as part of the UST corrective action from July 2008 through September 2008:

- The second quarter 2008 groundwater sampling event scheduled for June 2008 was conducted from July 14, 2008 through July 24, 2008. As reported in the *Second Quarter Status Report for 2008*, the second quarter 2008 sampling event was completed in July because of the substantial drilling effort that was conducted for the BSVE system during the end of the second quarter 2008 (June). In addition, a one-time groundwater sample was collected from each of the newly-installed BSVE process and sentinel monitoring wells on Phoenix Sky Harbor International Airport (PSHIA) property during the July 2008 groundwater sampling event at the request of the City of Phoenix (COP).
- The third quarter 2008 groundwater sampling event was conducted from September 8, 2008 through September 26, 2008.
- Honeywell conducted three monthly water-level measurements and two additional rounds of manual free-product-specific monitoring/recovery during the third quarter 2008. As described in Section 2.2, the free-product monitoring/recovery schedule is based on the measured free-product thicknesses in individual monitoring wells in accordance with the *LUST Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan* (LUST FSP) (CH2M HILL, 2005).
- Honeywell continued operation of an automated free-product skimming system, with weekly maintenance checks, in monitoring well ASE-67A.
- Honeywell completed the installation of the sentinel soil-vapor monitoring well network on PSHIA property with the installation of the two remaining sentinel soil-vapor monitoring wells in July 2008. The sentinel soil-vapor monitoring well network on PSHIA property now consists of seven monitoring wells.
- Honeywell completed the first baseline soil-vapor monitoring and sampling event on July 31, 2008 (the event began on June 10, 2008). Details of this monitoring and sampling event were documented in the *First Baseline Soil Vapor Sampling Report* (CH2M HILL, 2008a) submitted to ADEQ on October 24, 2008 and will not be discussed further in this quarterly status report.
- The installation of process piping interconnecting the BSVE equipment began in mid-July and continued throughout the third quarter. A canopy was erected over the equipment and the installation of fire suppression system piping was initiated. Late in the third quarter, jack-and-bore work below the Union Pacific Railroad (UPRR) tracks was initiated for the installation of three pipe sleeves that will connect the piping network north of Air Lane with the piping network south of Air Lane.

- The BSVE construction team coordinated with APS, the COP, and Southwest Gas regarding utility connections (electricity, water, wastewater, and natural gas) for the BSVE system.
- Progress was made on obtaining various permits, such as right-of-way permits and the wastewater discharge permit, to continue construction activities or to prepare for initial startup of the BSVE system.
- Honeywell coordinated with the COP Aviation Department to conduct potholing in the area north of Runway 8-26 to determine the proper piping alignment. The proposed pothole locations were identified and accepted by the COP during a preconstruction planning meeting on September 18, 2008. Runway closure was secured, and potholing was conducted on September 22, 23, 28, and 29, 2008.
- An evaluation of the use of abandoned underground utilities that cross Runway 8-26 was performed to connect the area south of the runway to the rest of the BSVE system, if necessary. As part of this evaluation, three abandoned utilities below the runway were identified within the vicinity of the BSVE target treatment area, and video logging of two of the utilities was performed.

SECTION 2.0

Site Characterization Activities

This section describes soil, groundwater, and free-product data collected as part of Honeywell's ongoing UST monitoring program. New soil data presented in this section were generated primarily from soil borings drilled between May 29, 2008 and July 9, 2008 on PSHIA property. This drilling was part of the BSVE system process and sentinel monitoring well network installation and included soil sampling per discussion with the COP. Drilling and sampling occurred during the second and third quarters of 2008; however, because not all the drilling and sampling was completed by the end of the second quarter, ADEQ and Honeywell agreed, via telephone and e-mail communication on June 6, 2008 (ADEQ, 2008b), that all soil data from the newly-installed wells on PSHIA property would be reported and discussed in this quarterly status report. A summary of the detected compounds in soil samples collected between April and July 2008 is provided in Table 2-1. (All tables are provided at the end of this report.)

Soil contaminants discussed in this section include:

- Total petroleum hydrocarbons (TPH) carbon range C_{10} to C_{32} (C_{10} to C_{32}).
- Benzene.
- Methyl tert-butyl ether (MTBE).
- Naphthalene.

Groundwater data presented in this section were generated from samples collected during the second and third quarter groundwater sampling rounds conducted in July 2008 and in September 2008, in accordance with the LUST FSP (CH2M HILL, 2005). As described earlier, the regularly scheduled quarterly groundwater sampling event for June 2008 (second quarter) was postponed to July 2008 to accommodate the installation and sampling of additional wells on PSHIA property. In addition, a one-time groundwater sample was collected from each of the newly-installed BSVE process and sentinel monitoring wells on PSHIA property in July 2008. Groundwater data obtained from these undeveloped BSVE monitoring wells are discussed in Section 2.2.2.

Groundwater contaminants include:

- Benzene.
- MTBE.
- Naphthalene.
- Total recoverable petroleum hydrocarbons (TRPH).

A summary of the detected compounds in groundwater samples, collected in July 2008 and September 2008 as part of Honeywell's UST monitoring program, is provided in Table 2-2 through Table 2-4 (July) and in Table 2-5 through Table 2-7 (September). Further discussions of non-fuel VOC detections, including detections of chlorinated VOCs at and around the Honeywell facility are included in Honeywell's groundwater monitoring reports associated with the Facility's remedial investigation and its obligations under the Administrative Order on Consent with the ADEQ Federal Projects Unit (ADEQ, 1999). The most recent

groundwater monitoring report was submitted to ADEQ's Federal Projects Unit on February 15, 2008 (CH2M HILL, 2008b). These reports are submitted to ADEQ's Federal Projects Unit annually, with the next groundwater monitoring report scheduled to be submitted to ADEQ in January/February 2009.

This section also discusses groundwater elevations and free-product thickness measurements collected on September 3, 2008 and the historical maximum free-product thicknesses measured in Honeywell's UST monitoring wells since free product was first encountered in a monitoring well at the Facility in 1999. Data regarding Honeywell's free-product recovery efforts and recovered free-product volumes through third quarter 2008 are presented in Section 3.0.

Finally, this section includes groundwater and soil data generated from the drilling and installation of new monitoring well ASE-130A (drilled from July 12 to July 13, 2008) as part of Honeywell's Building 102 Blade Tip Grinder excavation investigation. This monitoring well is located within the area associated with the BSVE system and has therefore been subsequently added to Honeywell's UST monitoring program. Additional details regarding the installation of monitoring well ASE-130A and the Blade Tip Grinder excavation investigation is presented in the *Building 102 Blade Tip Grinder Excavation Site Assessment Report Addendum* (CH2M HILL, 2008c).

2.1 Soil Sampling—Second Quarter and Third Quarter 2008

Between April 16, 2008 and July 10, 2008, Honeywell drilled and installed three multiport process monitoring wells and seven multiport sentinel monitoring wells on PSHIA property in accordance with the update to the *Non-process Soil Vapor Monitoring Program* report (CH2M HILL, 2008d). In addition, following discussion with COP personnel, Honeywell installed one new groundwater monitoring well on PSHIA property. The locations of these new wells are shown in Figure A-1 of the Well Installation Report, which is provided as Appendix A. During the drilling of these borings, Honeywell collected soil samples from nine of the 11 borings, beginning at approximately 50 feet below ground surface (bgs) (two multiport sentinel monitoring wells were not drilled deeper than 50 feet bgs). Honeywell also collected soil samples during the drilling and installation of new monitoring well ASE-130A as described above. Analytical data from these new borings are summarized in Table 2-1, and the laboratory reports and data quality evaluation report are included in Appendix B.

Analytical data from the new soil borings, along with the historical soil data from Honeywell's other borings associated with the UST investigation, are presented in Figure 2-1 through Figure 2-8 and are discussed below. Historical soil data are presented in the figures for completeness and to provide a comparison to newly-acquired data. A more detailed discussion of historical soil data (prior to April 2008) is included in the *First Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15* (CH2M HILL, 2006a); the *Site Characterization Report, LUST Case File #0393.16, Honeywell 34th Street Facility, Facility ID No. 0-002227* (CH2M HILL, 2006b); and the *Site Characterization Report Addendum, LUST Case File #0393.16, Honeywell 34th Street Facility, Facility ID No. 0-002227* (CH2M HILL, 2006c). Soil analytical data associated with LUST Case File Numbers 0393.16 and 0393.17 (Building 211 area) are not included in the figures in this

quarterly status report for clarity. Those data are presented and discussed in CH2M HILL 2006b and 2006c.

For discussion and illustration purposes consistent with previous reports, the soil data were divided into a shallow zone (shallower than 40 feet bgs) and a deep zone (greater than 40 feet bgs). Of the new locations, shallow-zone samples were only collected from monitoring well ASE-130A; samples collected on PSHIA property were collected beginning at 50 feet bgs. The concentration values for both new and previously sampled borings presented in the figures represent the maximum concentration detected within the associated zone for each location. Each occurrence is also indicated as belonging to one of three categories: Not Detected, Detected (but below the regulatory standard where applicable), and Regulatory Standard Exceeded (for those compounds with regulatory standards). For soil, the regulatory standards used for this determination in the figures are ADEQ's residential soil remediation levels (SRLs), which were promulgated in May 2007.

2.1.1 Total Petroleum Hydrocarbons

2.1.1.1 Shallow

TPH was not detected in any of the seven shallow-zone soil samples collected during the drilling of monitoring well ASE-130A. As presented in Figure 2-1, historical soil data collected from the shallow zone indicate that seven locations contained detectable TPH concentrations, with a maximum concentration of 6,700 milligrams per kilogram (mg/kg) (ASE-111A). As indicated in Figure 2-1, the majority of soil samples collected from the shallow zone have not contained concentrations of TPH above the laboratory detection limit.

2.1.1.2 Deep

TPH was detected at six of the 10 locations where soil samples were collected from the deep zone between April 2008 and July 2008, as shown in Figure 2-2. Detectable concentrations ranged from 8.6 mg/kg (SMW-11) to 2,463 mg/kg (PMW-13). It should be noted that the reporting limit for soil samples collected at PSHIA in 2008 was significantly lower (6.8 mg/kg) than the historical reporting limit (130 mg/kg). This is due to the fact that a different laboratory was used to analyze the 2008 PSHIA samples.

Historical soil data collected from the deep zone indicate that numerous locations have contained detectable concentrations of TPH, with a maximum concentration of 12,000 mg/kg (ASE-92A), as shown in Figure 2-2.

2.1.2 Benzene

2.1.2.1 Shallow

Benzene was detected in shallow-zone soil collected during the drilling of monitoring well ASE-130A at a concentration of 3.4J micrograms per kilogram (µg/kg). As presented in Figure 2-3, historical soil data collected from the shallow zone indicate that two locations (ASE-111A and A2FF-C), both associated with the investigation of a JP-4 fuel release from the Area 2 fuel farm, contained benzene concentrations greater than the residential SRL of 650 µg/kg and the groundwater protection level of 710 µg/kg. Benzene was detected at concentrations of 46,000 and 68,000 µg/kg in soil borings ASE-111A and A2FF-C,

respectively. These are the only two locations where benzene was historically detected above the laboratory detection limit in the shallow zone, in addition to the recent detection from monitoring well ASE-130A, as shown in Figure 2-3.

2.1.2.2 Deep

Benzene was detected at one of the 10 locations where soil samples were collected from the deep zone between April 2008 and July 2008, as shown in Figure 2-4. Benzene was detected in deep-zone soil collected during the drilling of monitoring well ASE-130A at a concentration of 180 µg/kg, which is well below the residential SRL of 620 µg/kg and the groundwater protection level of 710 µg/kg.

Historical soil data collected from the deep zone indicate that three locations (ASE-53A, ASE-105A, and ASE-111A) contained benzene concentrations greater than the residential SRL of 620 µg/kg and the groundwater protection level of 710 µg/kg, with the maximum concentration of 17,000 µg/kg occurring in soil boring ASE-111A, as shown in Figure 2-4.

2.1.3 Methyl Tert-butyl Ether

2.1.3.1 Shallow

MTBE was not detected in any of the seven shallow-zone soil samples collected during the drilling of monitoring well ASE-130A. As presented in Figure 2-5, historical soil data indicate that MTBE has not been detected in any soil sample collected from the shallow zone.

2.1.3.2 Deep

MTBE was detected at one of the 10 locations where soil samples were collected from the deep zone between April 2008 and July 2008, as shown in Figure 2-6. MTBE was detected in deep-zone soil collected during the drilling of BSVE process monitoring well PMW-11 at a concentration of 8.2 µg/kg, which is well below the residential SRL for MTBE of 320,000 µg/kg.

Historical soil data collected from the deep zone indicate that only two locations contained a detectable concentration of MTBE. Soil borings A2FF-SB-1 and ASE-111A, both drilled to investigate the lateral extent of the JP-4 release from the Area 2 fuel farm, contained MTBE concentrations of 320 µg/kg and 2,900 µg/kg, respectively, as shown in Figure 2-6.

2.1.4 Naphthalene

2.1.4.1 Shallow

Naphthalene was not detected in any of the seven shallow-zone soil samples collected during the drilling of monitoring well ASE-130A, as shown in Figure 2-7. Historical soil data collected from the shallow zone indicate that naphthalene was detected at three locations (ASE-51A, ASE-111A, and A2FF-C), with a maximum concentration of 44,000 µg/kg (ASE-111A), which is below the residential SRL of 56,000 µg/kg.

2.1.4.2 Deep

Naphthalene was detected at three of the 10 locations where soil samples were collected from the deep zone between April 2008 and July 2008, as shown in Figure 2-8. Detectable concentrations ranged from 3,500 µg/kg (PMW-13) to 12,000 µg/kg (PMW-11). A naphthalene concentration of 7,000 µg/kg was detected in soil collected during the installation of monitoring well ASE-130A. Each of these concentrations are well below the residential SRL for naphthalene of 56,000 µg/kg

Historical soil data collected from the deep zone indicate that naphthalene was generally detected throughout the area associated with the free-product pool. As shown in Figure 2-8, detectable concentrations ranged from 120 µg/kg (ASE-46A) to a maximum of 27,000 µg/kg (ASE-111A), approximately two orders of magnitude lower than the residential SRL.

2.2 Second Quarter 2008 Monitoring Activities

This section describes the groundwater sampling event associated with the second quarter 2008 that was conducted in July 2008. As previously stated, the second quarter 2008 groundwater sampling event scheduled for June 2008 was postponed until July 2008 due to the substantial drilling effort that was conducted for the BSVE system during that month. As described above, groundwater samples were collected from the lowermost port of newly-installed BSVE process monitoring wells (PMW-11, PMW-12, and PMW-13) and BSVE sentinel monitoring wells (SMW-9, SMW-10, SMW-11, SMW-13, and SMW-14) during the July 2008 groundwater sampling event on a one-time basis at the request of the COP. These ports (2-inch-diameter polyvinyl chloride) include well screens spanning the water table (55 feet to 95 feet bgs); however, these wells were not developed upon completion or designed for groundwater monitoring purposes. Therefore, analytical results from these wells, while presented in this report with samples collected from Honeywell's dedicated UST groundwater monitoring wells for completeness, are not directly comparable to the samples collected from the dedicated groundwater monitoring wells and were not used for contouring in Figure 2-9 through Figure 2-11.

In addition, the July 2008 groundwater sampling event was the first sampling event, following approval from ADEQ, to no longer collect groundwater quality samples from any monitoring well that contains free product. This protocol was approved as a modification to the 2005 LUST FSP (CH2M HILL, 2005) via email on May 8, 2008 (ADEQ, 2008c). As such, groundwater samples were not collected from monitoring wells ASE-19A, ASE-51A, ASE-67A, ASE-90A, ASE-91A, ASE-102A, ASE-107A, ASE-111A, and ASE-115A in July 2008 because these wells contained free product at the time of sampling.

2.2.1 Groundwater Elevations and Free Product

Groundwater elevation and free-product thickness data for the second quarter 2008 were collected in June 2008 and were presented in the *Second Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17* (CH2M HILL, 2008e), submitted to ADEQ on August 26, 2008.

In summary, water levels rose in all monitoring wells associated with the CAP from March 2008 to June 2008, with increases ranging from 1.39 feet (PL-2102) to 5.19 feet (ASE-98A),

with an average rise of approximately 3.42 feet over the 3-month period across the monitored area. Changes were generally greatest in monitoring wells located in the southern portion of the area associated with the CAP, the area closest to the Salt River. Free product was observed in 10 monitoring wells in June 2008 and, during the reporting period, free product was observed for the first time in monitoring well ASE-58A in May 2008. Free product was not observed in monitoring well ASE-58A during the following monthly round in June. As of June 2008, free product historically had been observed in 31 different monitoring wells located on the Honeywell facility and PSHIA property. Further details of groundwater elevations and free-product thickness measurements collected in second quarter 2008 are presented in the *Second Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17* (CH2M HILL, 2008e).

2.2.2 Groundwater Quality

Groundwater quality sampling associated with the second quarter of 2008 was conducted from July 14, 2008 through July 24, 2008. This event included the sampling of fifty-seven monitoring wells as part of the quarterly UST monitoring program, plus the one-time sampling of eight undeveloped BSVE process and sentinel monitoring wells. Analytical results from these monitoring wells are discussed in Section 2.2.2.1 through Section 2.2.2.4 and are presented in Table 2-2 through Table 2-4 and Figure 2-9 through Figure 2-12. Complete laboratory analytical and data validation reports are contained in Appendix C.

A groundwater sample was not collected from monitoring well BC-18 during the July 2008 sampling event because this well was dry (monitoring well BC-18 has been dry since December 2001), and a groundwater sample was not collected in July 2008 from monitoring well ASE-67A due to the ongoing operation of an automated free-product skimmer system in the well. In addition, as described above, groundwater samples were not collected from eight other monitoring wells due to the presence of free product in the well casing at the time of sampling.

Figure 2-9 through Figure 2-12 are plan-view maps that contain posted water quality data. Concentration contours are presented along with the posted data for the benzene, MTBE, naphthalene, and TRPH. These contours delineate areas exceeding regulatory standards and standard laboratory detection limits. Ethylbenzene, which has been presented in previous quarterly status reports, has not been observed in groundwater samples at concentrations above its USEPA maximum contaminant level (MCL) of 700 micrograms per liter (µg/L) since June 2007, when a minor exceedance of 720 µg/L was observed in monitoring well ASE-63A. Due to the length of time that ethylbenzene concentrations have remained below the MCL in monitored wells, related discussion and figures are not included with this report. If concentrations exceeding the MCL are observed during future events, then ethylbenzene will be addressed as in previous reports.

2.2.2.1 Benzene

Benzene was detected in groundwater throughout the eastern portion of the Honeywell facility and on PSHIA property in July 2008, generally consistent with the historical areal extent of the free-product pool.

The maximum concentration of benzene in July 2008 occurred in monitoring well ASE-63A (2,100 µg/L), as shown in Figure 2-9. This concentration was lower than the previous

quarter's maximum benzene concentration of 2,600 µg/L, which occurred in monitoring well ASE-115A (CH2M HILL, 2008f). Consistent with the data from March 2008 and prior sampling rounds, the highest benzene concentrations in July 2008 occurred in monitoring wells associated with the Area 2 fuel farm (ASE-63A, 2,100 µg/L; ASE-38A, 710 µg/L; and ASE-39A, 440 µg/L). In addition, benzene concentrations of 480 µg/L and 450 µg/L were detected in monitoring wells ASE-57A and ASE-56A, respectively, located west of the area directly associated with the Area 2 fuel farm. Concentrations of benzene exceeding its MCL of 5 µg/L were detected both on the Honeywell facility and beneath the northern portion of PSHIA in July 2008, as shown in Figure 2-9.

In general, the changes between the March 2008 and July 2008 benzene concentrations were highly variable, with some fairly large increases and decreases in concentration across the monitoring well network. The largest increase in benzene concentration was observed in monitoring well ASE-63A, located in the parking lot south-southwest (downgradient) of the Area 2 fuel farm, which increased from 1,500 µg/L in March 2008 to 2,100 µg/L in July 2008. This portion of the Honeywell facility is within the target treatment area of the BSVE system and near one of the primary source areas. In addition, an increase from 2.0 µg/L to 160 µg/L occurred in monitoring well ASE-92A located at the southern boundary of the Honeywell facility.

The most significant decrease in benzene concentration was observed in monitoring well ASE-57A, located west of the area directly associated with the Area 2 fuel farm, which decreased from 720 µg/L in March 2008 to 480 µg/L in July 2008. Additionally, the benzene concentration in monitoring well ASE-105A decreased from 32 µg/L in March 2008 to 1.3 µg/L in July 2008. Monitoring well ASE-105A was installed in February 2005, and the sample collected in July 2008 represented the first time this well contained a dissolved-phase benzene concentration below the MCL.

Given the south-southwesterly direction of groundwater flow in the area, the extent of benzene concentrations exceeding the MCL continues to be delineated in all directions. The upgradient (northeast) extent is delineated by monitoring wells ASE-59A, ASE-53A, ASE-60A, and ASE-61A. The cross-gradient extent is delineated by monitoring wells ASE-66A, PL-2101, and ASE-54A to the northwest and by monitoring wells ASE-127A and BC-7A to the southeast, as illustrated in Figure 2-9. The downgradient (south-southwest) extent of benzene exceeding the MCL is delineated by monitoring wells ASE-58A, PL-201A, ASE-62A, ASE-65A, ASE-126A, ASE-97A, BC-8B, ASE-95A, ASE-124A, ASE-96A, ASE-106A, ASE-99A, ASE-110A, ASE-114A, and ASE-113A, as shown in Figure 2-9. Additional monitoring wells downgradient of the Honeywell facility did not contain detectable levels of benzene, as indicated in Figure 2-9.

2.2.2.2 Methyl tert-butyl Ether

Consistent with previous sampling rounds, MTBE was detected in groundwater samples collected from the eastern portion of the Honeywell facility and PSHIA property in July 2008. The maximum concentration of MTBE in July 2008 occurred in monitoring well ASE-92A (370 µg/L), located southwest (downgradient) of the Area 2 fuel farm and near the southern boundary of the Honeywell facility, as shown in Figure 2-10. This concentration was lower than the March 2008 maximum MTBE concentration of 740 µg/L, detected in

monitoring well ASE-115A (CH2M HILL, 2008f). The MTBE concentration in monitoring well ASE-92A in March 2008 was 100 µg/L.

In July 2008, additional elevated (≥200 µg/L) MTBE concentrations of 290 µg/L and 200 µg/L were detected in monitoring wells ASE-96A and ASE-63A, respectively. Monitoring well ASE-96A is located on the northern portion of PSHIA property south of Runway 8-26, and monitoring well ASE-63A is located downgradient of the Area 2 fuel farm just south of Air Lane. Concentrations of MTBE exceeding its ADEQ-recommended Tier 1 remedial level of 94 µg/L—the remedial level that should be used when an existing drinking water receptor is not affected or is not potentially affected by MTBE (ADEQ, 2002)—were detected both on the Honeywell facility and beneath the northern portion of PSHIA, as shown in Figure 2-10.

Changes in concentrations of MTBE in July 2008 were variable as compared to the previous sampling period for monitoring wells located on the Honeywell facility and PSHIA property. The area that exceeded the Tier 1 remedial level of 94 µg/L decreased on PSHIA property due to the decreases in concentration from 110 µg/L and 220 µg/L in March 2008 to 67 µg/L and 2.4 µg/L in July 2008 in monitoring wells ASE-95A and ASE-106A, respectively. Conversely, the area that exceeded the Tier 1 remedial level of 94 µg/L increased on the Honeywell facility due to increases in concentration from 8.1 µg/L and 28 µg/L in March 2008 to 170 µg/L and 110 µg/L in July 2008 in monitoring wells ASE-57A and PL-105A, respectively. Overall, the distribution of MTBE changed, resulting in slightly higher concentrations occurring in monitoring wells on the Honeywell facility and slightly lower concentrations occurring in monitoring wells on PSHIA property.

In July 2008, MTBE was not detected in one monitoring well that had detectable concentrations of MTBE during the previous sampling round (ASE-101A, 18 µg/L). Consequently, the extent of the July 2008 MTBE plume was reduced slightly to the north in the vicinity of this monitoring well, as shown in Figure 2-10. Conversely, MTBE was detected in seven monitoring wells in July 2008 (ASE-53A, 42 µg/L; ASE-62A, 6.9 µg/L; ASE-66A, 5.3 µg/L; ASE-97A, 15 µg/L; ASE-127A, 1.0 µg/L; PL-201A, 16 µg/L; PL-2101, 1.2 µg/L) that did not have detectable concentrations of MTBE during the previous sampling round. The north, east, and western extent of MTBE in July 2008 was therefore expanded slightly to account for these detections.

Given the south-southwesterly direction of groundwater flow in the area, the extent of MTBE concentrations exceeding its Tier 1 remedial level is delineated in all directions. The upgradient (northeast) extent is delineated by monitoring wells ASE-52A, ASE-53A, ASE-60A, and ASE-61A. The cross-gradient extent is delineated by monitoring wells ASE-68A, ASE-20A, and ASE-56A to the northwest and by monitoring wells ASE-38A, ASE-37A, ASE-127A, and ASE-64A to the southeast. The downgradient (south-southwest) extent of MTBE exceeding its Tier 1 remedial level is delineated by monitoring wells ASE-41A, ASE-46A, ASE-108A, BC-8B, ASE-95A, ASE-124A, ASE-100A, ASE-101A, ASE-106A, ASE-114A, and ASE-105A, as shown in Figure 2-10. Additional monitoring wells on and downgradient of the Honeywell facility did not contain detectable levels of MTBE.

Based on the July 2008 data, the extent of the MTBE plume on PSHIA property continues to be delineated to ADEQ's investigative level of 20 µg/L by monitoring wells ASE-97A, ASE-126A, ASE-125A, ASE-103A, and ASE-100A to the west and southwest and by

monitoring wells ASE-101A, ASE-99A, ASE-106A, ASE-114A, ASE-113A, and ASE-105A to the south, southeast, and east.

2.2.2.3 Naphthalene

Naphthalene was detected in groundwater throughout the eastern portion of the Honeywell facility and beneath PSHIA property, as shown in Figure 2-11. This distribution was generally consistent with the historical extent of the free-product pool.

The maximum concentration of naphthalene in July 2008 occurred in monitoring well ASE-57A (400 µg/L), located southwest and downgradient of the original Area 2 fuel farm (southwest corner of Building 230), as shown in Figure 2-11. This concentration is equal to the March 2008 naphthalene concentration observed in this monitoring well and represents the only location sampled in July 2008 where the health-based guidance level of 280 µg/L was exceeded. Previous exceedances of naphthalene's health-based guidance level occurred in monitoring wells ASE-51A and ASE-115A; however, those monitoring wells were not sampled in July 2008 due to the presence of free product in the well casing at the time of sampling. The 280 µg/L contour was not modified in the area of these two monitoring wells. The concentration of naphthalene in monitoring well ASE-56A decreased from 290 µg/L in March 2008 to 230 µg/L in July 2008, thus slightly decreasing the primary area where the naphthalene concentrations exceeded the health-based guidance level. Other detectable concentrations of naphthalene in July 2008 ranged from 2.5 µg/L (ASE-20A) to 230 µg/L (ASE-56A).

Naphthalene was not detected in any groundwater monitoring well in July 2008 that did not have detections of naphthalene during the previous sampling round. Naphthalene, however, was not detected in July 2008 in six monitoring wells (ASE-62A, ASE-65A, ASE-66A, ASE-105A, ASE-112A, and BC-8B) that had detectable levels of naphthalene during the previous sampling round. As a result of the decrease in naphthalene concentrations in these monitoring wells, the contour in Figure 2-11, which illustrates the extent of naphthalene detections for July 2008, does not extend as far north, east, or west as compared to the March 2008 naphthalene extent (CH2M HILL, 2008f). Figure 2-11 also indicates that the area where naphthalene concentrations exceeded the health-based guidance level is limited and is defined by the Honeywell UST monitoring well network.

2.2.2.4 Total Recoverable Petroleum Hydrocarbons

TRPH consists of the sum of compounds with the carbon range C_{10} to C_{32}. TRPH compounds were detected throughout the area associated with the CAP in July 2008. In general, there was an overall increase in concentrations of TRPH in July 2008 as compared to the March 2008 concentrations. The maximum TRPH concentration in July 2008 was 140,000J µg/L in monitoring well ASE-55A, located adjacent to the Area 1 fuel farm, as shown in Figure 2-12. This high concentration of TRPH in the July 2008 sample from monitoring well ASE-55A is probably due to the presence of trace amounts of free product in the sample and is not representative of the dissolved-phase concentration of TRPH in groundwater at that location. In March 2008, the TRPH concentration in monitoring well ASE-55A was 1,200 µg/L. The maximum concentration of TRPH in the previous monitoring round was detected in monitoring well ASE-51A (440,000 µg/L) (CH2M HILL, 2008f). Monitoring well ASE-51A was not sampled in July 2008 due to the presence of free product

in the well casing at the time of sampling. Significant increases in TRPH concentration (from non-detect and 450 µg/L in March 2008 to 1,959J µg/L and 2,883J µg/L in July 2008) were observed in monitoring wells ASE-108A and PL-105A, respectively. Both monitoring wells are located on the Honeywell facility in proximity to one another.

TRPH concentrations exceeding or equal to 1,000 µg/L were detected in 13 monitoring wells in July 2008, with 12 of the 13 wells located on the Honeywell facility. Unlike the benzene distribution, the highest TRPH concentrations were not found in the area adjacent to the Area 2 fuel farm. Rather, the majority of the maximum concentrations were detected in monitoring wells located downgradient of a known historical fuel release from the original Area 2 fuel farm (southwest corner of Building 230), as shown in Figure 2-12. Eighteen of the 27 monitoring wells located on PSHIA property did not contain detectable levels of TRPH in July 2008, compared with 15 (of 26) monitoring wells in March 2008.

TRPH was detected in July 2008 in seven monitoring wells that did not have detections of TRPH during the previous sampling round, with concentrations ranging from 49J µg/L (PL-2101) to 1,959J µg/L (ASE-108A). Six of these seven monitoring wells (ASE-58A, ASE-62A, ASE-65A, ASE-108A, PL-201A, and PL-2101) are all located on the western portion of area associated with Honeywell's UST program on the Honeywell facility. The remaining monitoring well (ASE-53A) is located immediately downgradient (southwest) of the Area 2 fuel farm.

2.3 Third Quarter 2008 Monitoring Activities

This section describes groundwater and free-product data collected as part of Honeywell's ongoing UST monitoring program for the third quarter of 2008 (July 1, 2008 through September 30, 2008). Water level and free-product thickness measurements were collected on September 3, 2008, and groundwater quality samples were collected between September 8, 2008 and September 26, 2008.

2.3.1 Groundwater Elevations

Honeywell collects monthly water-level measurements in monitoring wells associated with the CAP (CH2M HILL, 2005). As part of the overall groundwater monitoring program for the Honeywell facility, water levels are also measured quarterly in all other Honeywell groundwater monitoring wells. This section presents the results of the September 2008 evaluation of the groundwater levels and related groundwater flow directions in the area associated with the CAP. Hydrographs illustrating water level elevations over time for each of Honeywell's UST monitoring wells are included in Appendix D.

Groundwater elevations for all existing non-dry UST monitoring wells at and near the Honeywell facility were measured on September 3, 2008. Water-level measurements were not obtained from monitoring wells ASE-19A, ASE-41A, ASE-56A, and ASE-68A during the September water-level round; see Section 5.0 for details. The September 2008 groundwater elevations and associated water-level contours are presented in Figure 2-13 for the eastern portion of the Honeywell facility and PSHIA property. Similar to previous time periods, the overall direction of groundwater flow in this area was to the southwest, with a more westerly direction of groundwater flow in the northern portion of the Honeywell facility and south of Runway 8-26, as shown in Figure 2-13.

A comparison of water-level elevations collected in June 2008 and September 2008 shows that water levels rose in all monitoring wells associated with the CAP during that time, as shown in Table 2-8. Anomalous water-level measurements were reported for monitoring wells ASE-55A and ASE-20A in September 2008; these measurements were not considered in the water-level comparison discussion. Water-level increases ranged from 0.94 foot (ASE-127A) to 1.83 feet (ASE-112A), with an average rise of approximately 1.39 feet over the 3-month period across the monitored area. Water-level changes were generally greatest in monitoring wells located in the southern portion of the area associated with the CAP. These wells are located closest to the Salt River which, as reported in previous quarterly status reports, has been the primary source of the localized rising and fluctuating water levels that have occurred since 2005. Groundwater elevations at and close to the Honeywell facility are generally influenced by discharges to, and flow within, the Salt River, which is located approximately 1 mile south of the Facility, in addition to infrequent localized heavy precipitation events.

Water levels in the vicinity of the Honeywell facility rose through the first and second quarter of 2008 (CH2M HILL, 2008e-f). Water levels continued to rise in every monitoring well associated with the CAP during the third quarter of 2008, averaging increases of 0.34 foot (June to July), 0.56 foot (July to August), and 0.61 foot (August to September) in the subsequent months. As explained above, these changes resulted in water levels increasing in all monitoring wells associated with Honeywell's CAP between the second and third quarters of 2008. Hydrographs presented in Appendix D illustrate these water-level elevation changes in Honeywell's UST monitoring wells; the hydrographs also illustrate the anomalous measurements collected in September 2008 in monitoring wells ASE-55A and ASE-20A.

As reported in previous quarterly reports, water levels at the Honeywell facility and the northern portion of PSHIA in recent years have not followed the long-term trend of regional decline. Honeywell's evaluation of water-level changes since 2005 has indicated that the general water-level trend in the vicinity of the Honeywell facility is relatively stable, with fluctuating water levels occurring throughout the year as a result of periodic discharges by the City of Mesa and City of Tempe to the Salt River, and occasionally large precipitation events. However, since approximately the beginning of 2008, the general water-level trend in the area associated with the CAP has been increasing. Many monitoring wells in the southern portion of the area associated with the CAP have seen increases in water levels by over 10 feet since January 2008. The rising water levels in all monitoring wells associated with the CAP during 2008 are evident in the hydrographs included in Appendix D. It is unclear at this time if this rising trend will continue, but with the coming winter, it is possible that this rising trend will continue well into 2009. Honeywell will continue to monitor water levels in the area associated with the CAP and will report these findings in subsequent quarterly monitoring reports.

2.3.2 Free Product

Historically, free product has been observed in 31 monitoring wells located on the Honeywell facility and PSHIA property. As discussed below, during this reporting period, free product was observed for the first time in newly-installed monitoring well ASE-130A at the minimum measurable thickness of 0.01 foot. Honeywell monitors the thickness of free

product in these and other monitoring wells near the free-product pool either monthly or biweekly. The monitoring schedule is based on the measured free-product thicknesses and is in accordance with the LUST FSP (CH2M HILL, 2005). In general, any monitoring well with a free-product thickness less than 0.1 foot is measured monthly, and any monitoring well with a free-product thickness greater than 0.1 foot is measured biweekly.

During the reporting period, monitoring wells ASE-107A, ASE-111A, and ASE-115A were measured approximately biweekly, as indicated in Table 2-9. The free-product thickness in monitoring well ASE-67A was measured approximately weekly, as indicated in Table 2-10, because this well contains an automated free-product recovery system that requires weekly inspections. By design, the automated free-product skimmer system in monitoring well ASE-67A controlled the free-product thickness in the well, so the reported free-product thicknesses for monitoring well ASE-67A are not representative of equilibrium conditions.

Free-product thicknesses are illustrated in this quarterly status report for measurements collected on September 3, 2008 (the last complete monitoring round of the reporting period) and for historical maximum thicknesses, as shown in Figure 2-14 and Figure 2-15, respectively. Table 2-9 and Table 2-10 provide free-product thickness measurements collected during the reporting period for all monitoring wells where free product has been observed historically.

2.3.2.1 September 2008 Free-product Thicknesses

On September 3, 2008, Honeywell observed free product in 10 monitoring wells located on its property and PSHIA property, as shown in Figure 2-14. Eight of the 10 monitoring wells containing free product on September 3, 2008 also contained free product during the previous quarter's measurements, obtained between June 3 and 5, 2008. Monitoring wells ASE-64A and ASE-130A, which did not contain free product during the previous quarter's measurement, contained free product on September 3, 2008 at thicknesses of 0.03 foot and 0.01 foot, respectively. Monitoring well ASE-64A has previously contained as much as 1.85 feet of free product. Monitoring well ASE-130 was installed as part of the Blade Tip Grinder excavation investigation in July 2008 and is located in the west-central portion of the historical extent of free product. Therefore, detection of free product in this monitoring well was not unexpected. Monitoring wells ASE-51A and ASE-55A contained free product in June 2008 but not in September 2008. The maximum free-product thickness observed in any monitoring well on September 3, 2008 was 0.42 foot in monitoring well ASE-107A, as shown in Figure 2-14. The free-product thickness in monitoring well ASE-107A on September 3, 2008 was less than the maximum free-product thickness observed in this well prior to that date. All of the monitoring wells containing free product on September 3, 2008 previously contained free product at thicknesses greater than those measured in September 2008, with the exception of recently-installed monitoring well ASE-130A.

A comparison to the previous quarter's free-product thickness measurements (collected between June 3 and June 5, 2008) shows that free-product thicknesses were very similar and changes were minor between June 2008 and September 2008 (CH2M HILL, 2008e). Of the monitoring wells containing free product in one or both of the June 2008 and September 2008 full monitoring rounds (prior to installation of monitoring well ASE-130A), the thickness of product increased in five monitoring wells (ASE-64A, ASE-67A, ASE-89A, ASE-111A, and ASE-115A), decreased in three monitoring wells (ASE-51A, ASE-55A, and

ASE-91A), and remained the same in three monitoring wells (ASE-90A, ASE-102A, and ASE-107A).

The September 2008 free-product thickness measurements indicate that the free product was limited to two separate areas, generally similar to previous reporting periods, as shown in Figure 2-14. North of Air Lane on the Honeywell facility, free product was detected in monitoring wells ASE-67A, ASE-111A, and ASE-115A. South of Air Lane and onto PSHIA property, free product was detected in monitoring wells ASE-64A, ASE-89A, ASE-90A ASE-91A, ASE-102A, ASE-107A, and ASE-130A. Both of these free-product areas are delineated further by monitoring wells that did not contain free product, as shown in Figure 2-14.

2.3.2.2 Historical Free-product Thicknesses and Extent

On September 3, 2008, free product was observed for the first time in monitoring well ASE-130A at the minimum measurable thickness of 0.01 foot. Monitoring well ASE-130A was installed in July 2008 and is located downgradient of monitoring well ASE-41A, a well that historically contained free product at a maximum thickness of 3.50 feet, as shown in Figure 2-15. Because monitoring well ASE-130A is located within the historical extent of free product, the boundary defining this extent was not changed due to this detection. With the September 2008 detection of free product in monitoring well ASE-130A, free product has now been observed historically in 32 different monitoring wells located on the Honeywell facility and PSHIA property.

The maximum free-product thickness measured in any of Honeywell's monitoring wells since April 1999—when free product was first encountered in a monitoring well at the Honeywell facility—was 4.52 feet in monitoring well ASE-67A on July 26, 2005, as shown in Figure 2-15. For monitoring wells that historically contained free product prior to September 2008, none of the free product thickness measurements collected during the third quarter 2008 reporting period exceeded the maximum historical thicknesses for any monitoring well. This is indicated in Table 2-11, which compares the maximum historical free-product thicknesses in each monitoring well to the free-product thickness measurements collected in September 2008.

The historical free-product thickness measurements show that the cross-gradient extent of the free-product pool can be defined historically by groundwater monitoring wells ASE-54A and ASE-66A to the northwest and by monitoring wells BC-7A and ASE-127A to the southeast. The upgradient (northeast) extent of the free-product pool can be delineated by monitoring wells ASE-59A, ASE-60A, and ASE-61A. According to the historical thickness measurements, the downgradient (south-southwest) extent of the free-product pool can be defined by monitoring wells ASE-46A, PL-201A, ASE-62A, ASE-65A, ASE-126A, ASE-97A, BC-8B, ASE-95A, ASE-124A, ASE-106A, ASE-100A, ASE-101A, ASE-128A, ASE-98A, ASE-99A, ASE-110A, ASE-109A, ASE-123A, ASE-122A, ASE-112A, and ASE-105A, as shown in Figure 2-15.

Monitoring wells ASE-108A (installed in March 2005) and ASE-116A (installed in December 2005) have never contained free product but, given their locations either very near a monitoring well containing free product (ASE-108A) or between sets of monitoring wells containing free product (ASE-116A), these wells remain within the historical extent of

free-product delineation illustrated in Figure 2-15 and as part of the target treatment area for the approved remedy.

2.3.2.3 Corrective Action Plan Metric Exceedances

As shown in Table 2-9 and Table 2-10, during the third quarter 2008, there were no confirmed exceedances of the 0.75-foot metric established in the CAP (CH2M HILL, 2004a-b) and the LUST FSP (CH2M HILL, 2005). Free-product was measured above 0.75 foot in one monitoring well (ASE-107A, 1.34 foot) on July 30, 2008; however, none of the subsequent measurements during the subsequent 6-week period exceeded that metric. Therefore, in accordance with the CAP and LUST FSP, the July 30, 2008 measurement was considered anomalous, and the metric was not considered to have been exceeded.

2.3.3 Groundwater Quality

As stated above, in accordance with Honeywell's LUST FSP (CH2M HILL, 2005), Honeywell performs quarterly evaluations of the groundwater quality in the area associated with the CAP.

Water quality samples were collected from 148 monitoring wells between September 8, 2008 and September 26, 2008 because the third quarter UST water quality sampling round coincides with the sitewide Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) annual groundwater sampling event. Sixty-one of these monitoring wells were sampled as part of the quarterly UST monitoring program. Analytical results from these monitoring wells are discussed below and are presented in Table 2-5 through Table 2-7 and Figure 2-16 through Figure 2-19. Complete laboratory analytical and data validation reports are contained in Appendix E. A groundwater sample was not collected from monitoring well BC-18 during the September 2008 sampling event because there was not a sufficient amount of groundwater in the monitoring well casing to collect a representative sample. Groundwater samples were not collected from monitoring wells ASE-19A, ASE-41A, ASE-56A, and ASE-68A in September 2008 due to access issues; see Section 5.0 for details. In addition, a groundwater sample was not collected in September 2008 from monitoring well ASE-67A due to the ongoing operation of an automated free-product skimmer system in the well. Because of the coincidence of the third quarter UST water quality sampling event and the sitewide CERCLA annual groundwater sampling event, monitoring wells containing free product were sampled; the approval to no longer collect groundwater quality samples from any monitoring well that contains free product does not currently extend to the CERCLA sampling event. Results from monitoring wells containing free product at the time of sampling are posted on the figures, but these results are flagged accordingly.

Figure 2-16 through Figure 2-19 are plan-view maps that contain posted water quality data. Concentration contours are presented along with the posted data for benzene, MTBE, naphthalene, and TRPH. These contours delineate areas exceeding regulatory standards and standard laboratory detection limits.

2.3.3.1 Benzene

Benzene was detected in groundwater throughout the eastern portion of the Honeywell facility and on the PSHIA property in September 2008, generally consistent with the

historical areal extent of the free-product pool. The maximum concentration of benzene in September 2008 occurred in monitoring well ASE-63A (2,700 µg/L), as shown in Figure 2-16. This concentration was higher than the previous quarter's maximum benzene concentration of 2,100 µg/L, which also occurred in monitoring well ASE-63A. Consistent with the data from July 2008 and prior sampling rounds, the highest benzene concentrations in September 2008 occurred in monitoring wells associated with the Area 2 fuel farm (ASE-63A, 2,700 µg/L; ASE-115A, 1,800 µg/L; ASE-111A, 810 µg/L; ASE-38A, 720 µg/L). Concentrations of benzene exceeding the USEPA MCL of 5 µg/L were detected both on the Honeywell facility and beneath the northern portion of PSHIA in September 2008, as shown in Figure 2-16.

The September 2008 benzene concentrations were generally similar to the July 2008 benzene concentrations, with some variability across the monitored area. The most significant increase in benzene concentration was observed in monitoring well ASE-52A, located on the north side of Building 212, which increased from 210 µg/L in July 2008 to 490 µg/L in September 2008. This portion of the Honeywell facility was recently investigated as part of the site characterization for LUST Case File Numbers 0393.18, 0393.19, and 0393.20 and is located within the target treatment area of the BSVE system. Monitoring well ASE-52A has also historically contained free product at a maximum thickness of 1.80 feet, as shown in Figure 2-15.

The most significant decrease in benzene concentration was observed in monitoring well ASE-116A, located south of the Area 2 fuel farm, which decreased from 250 µg/L in July 2008 to 55 µg/L in September 2008. Benzene was not detected above the minimum reporting limit of 1 µg/L in one monitoring well in September 2008, which had detectable levels of benzene in July 2008 (ASE-105A, 1.3 µg/L).

Given the southwesterly direction of groundwater flow in the area, the extent of benzene concentrations exceeding the MCL continues to be delineated in all directions. The upgradient (northeast) extent is delineated by monitoring wells ASE-59A, ASE-60A, and ASE-61A. The cross-gradient extent is delineated by monitoring wells ASE-66A, PL-2101, and ASE-54A to the northwest and by monitoring wells ASE-127A and BC-7A to the southeast, as illustrated in Figure 2-16. The downgradient (south-southwest) extent of benzene exceeding the MCL is delineated by monitoring wells ASE-58A, PL-201A, ASE-62A, ASE-65A, ASE-126A, ASE-97A, BC-8B, ASE-95A, ASE-124A, ASE-96A, ASE-106A, ASE-102A, ASE-110A, ASE-114A, and ASE-113A, as shown in Figure 2-16. Additional monitoring wells downgradient of the Honeywell facility did not contain detectable levels of benzene, as indicated in Figure 2-16.

2.3.3.2 Methyl Tert-butyl Ether

Consistent with previous sampling rounds, MTBE was detected in groundwater samples collected from the eastern portion of the Honeywell facility and PSHIA property in September 2008. The maximum concentration of MTBE in September 2008 occurred in monitoring well ASE-115A (620 µg/L), located adjacent to the Area 2 fuel farm, as shown in Figure 2-17. This concentration was higher than the July 2008 maximum MTBE concentration of 370 µg/L, which was detected in monitoring well ASE-92A. The previous MTBE concentration measured in monitoring well ASE-115A was 740 µg/L in March 2008.

Monitoring well ASE-115A was not sampled in July 2008 due to the presence of free product in the well casing at the time of sampling.

In September 2008, additional elevated (≥200 µg/L) MTBE concentrations were detected on the Honeywell facility in monitoring wells ASE-52A (280 µg/L), ASE-92A (270 µg/L), and in ASE-111A (270 µg/L). Monitoring wells ASE-90A (390 µg/L) and ASE-96A (230 µg/L), located on the northern portion of PSHIA property, also had elevated (≥200 µg/L) MTBE concentrations in September 2008. Concentrations of MTBE exceeding its ADEQ-recommended Tier 1 remedial level of 94 µg/L—the remedial level that should be used when an existing drinking water receptor is not affected or is not potentially affected by MTBE (ADEQ, 2002)—were detected both on the Honeywell facility and beneath the northern portion of PSHIA, as shown in Figure 2-17.

In general, changes in concentrations of MTBE in September 2008 were variable as compared to the previous quarter for monitoring wells located on the Honeywell facility and PSHIA property. The area that exceeded the Tier 1 remedial level of 94 µg/L increased slightly to the north and west on the Honeywell facility relative to the previous quarter, with contour adjustments resulting from the increase in MTBE concentration in monitoring well ASE-52A (62 µg/L in July 2008 to 280 µg/L in September 2008) and monitoring well ASE-130A (60 µg/L in July 2008 to 180 µg/L in September 2008). Conversely, the area that exceeded the Tier 1 remedial level of 94 µg/L decreased on PSHIA property due to a decrease in concentration from 140 µg/L in July 2008 to 76 µg/L 110 µg/L in September 2008 in monitoring well ASE-89A.

In September 2008, MTBE was not detected in one monitoring well that had detectable concentrations of MTBE during the previous sampling round (ASE-106A, 2.4 µg/L). Consequently, the extent of the September 2008 MTBE plume was reduced slightly to the southeast in the vicinity of this monitoring well, as shown in Figure 2-17. Conversely, MTBE was detected in two monitoring wells in September 2008 (ASE-51A, 3.3 µg/L and ASE-101A, 7.0 µg/L) that did not have detectable concentrations of MTBE during the previous sampling round for each well (ASE-51A was last sampled in March 2008 and was non-detect for MTBE). The northern and southern extents of MTBE in September 2008 were therefore expanded slightly to account for these detections.

Given the south-southwesterly direction of groundwater flow in the area, the extent of MTBE concentrations exceeding its Tier 1 remedial level is delineated in all directions. The upgradient (northeast) extent is delineated by monitoring wells ASE-59A, ASE-53A, ASE-60A, and ASE-61A. The cross-gradient extent is delineated by monitoring wells ASE-66A and ASE-20A to the northwest and by monitoring wells ASE-38A, ASE-37A, ASE-127A, and ASE-64A to the southeast. The downgradient (south-southwest) extent of MTBE exceeding its Tier 1 remedial level is delineated by monitoring wells ASE-46A, ASE-108A, BC-8B, ASE-95A, ASE-124A, ASE-100A, ASE-101A, ASE-106A, ASE-107A, and ASE-105A, as shown in Figure 2-17. Additional monitoring wells on and downgradient of the Honeywell facility did not contain detectable levels of MTBE.

Based on the July 2008 data, the extent of the MTBE plume on PSHIA property continues to be delineated to ADEQ's investigative level of 20 µg/L by monitoring wells ASE-125A, ASE-129A, ASE-103A, and ASE-124A to the west and southwest and by monitoring wells ASE-101A, ASE-99A, ASE-106A, ASE-107A, and ASE-105A to the south, southeast, and east.

An estimated concentration of 31J µg/L was detected in monitoring well ASE-126A located in the western portion of the area associated with the CAP on PSHIA property, as shown in Figure 2-17. Honeywell will continue to monitor MTBE concentrations in this well and will take additional actions related to delineating MTBE to ADEQ's investigative level of 20 µg/L in this area, if necessary.

2.3.3.3 Naphthalene

Naphthalene was detected in groundwater throughout the eastern portion of the Honeywell facility and beneath PSHIA property, as shown in Figure 2-18. This distribution was generally consistent with the historical extent of the free-product pool, although the naphthalene plume extended further west in September 2008.

The maximum concentration of naphthalene in September 2008 occurred in monitoring well ASE-51A (270 µg/L), located adjacent to the original Area 2 fuel farm (southwest corner of Building 230), as shown in Figure 2-18. This concentration was lower than the July maximum naphthalene concentration of 400 µg/L that was detected in nearby monitoring well ASE-57A. Monitoring well ASE-51A was not sampled in July 2008 due to the presence of free product in the well casing at the time of sampling. Other naphthalene concentrations detected in monitoring wells in September 2008 ranged from 2.2 µg/L (ASE-108A) to 260 µg/L (ASE-57A) and did not exceed the health-based guidance level of 280 µg/L. As such, there is no 280 µg/L contour illustrated in Figure 2-18.

Naphthalene was detected at low concentrations in four monitoring wells in September 2008 that did not have detections of naphthalene during the previous sampling round (ASE-53A, 7.4 µg/L; ASE-62A, 3.7 µg/L; ASE-65A, 2.4 µg/L; ASE-127A, 2.9 µg/L). Consequently, the contour illustrating the extent of naphthalene detections for September 2008 was extended just beyond these monitoring wells, as shown in Figure 2-18. Naphthalene was not detected in two monitoring wells (ASE-90A and ASE-111A) in September 2008 that had detectable levels of naphthalene during the previous sampling round for those wells (March 2008). As a result of the decrease in naphthalene concentration in monitoring well ASE-90A from March 2008 (5.7 µg/L), the contour in Figure 2-18 illustrating the extent of naphthalene detections for September 2008 does not extend as far south in that area as compared to the July 2008 naphthalene extent.

2.3.3.4 Total Recoverable Petroleum Hydrocarbons

TRPH consists of the sum of compounds with the carbon range C_{10} to C_{32}. TRPH compounds were detected throughout the area associated with the CAP in September 2008. In general, changes in concentrations of TRPH in September 2008 were variable as compared to the previous quarter. The maximum TRPH concentration in September 2008 was 31,320 µg/L in monitoring well ASE-55A, located adjacent to the Area 1 fuel farm, as shown in Figure 2-19. The maximum concentration of TRPH in the previous monitoring round (July 2008) was also detected in monitoring well ASE-55A (140,000J µg/L).

TRPH concentrations exceeding or equal to 1,000 µg/L were detected in 15 monitoring wells in September 2008, with 14 of the 15 wells located on the Honeywell facility. Unlike the benzene distributions, the highest TRPH concentrations were not found in the area adjacent to the Area 2 fuel farm. Rather, the majority of the maximum concentrations were detected in monitoring wells located downgradient of a known historical fuel release from the

original Area 2 fuel farm (southwest corner of Building 230), as shown in Figure 2-19. Fifteen of the 27 monitoring wells located on PSHIA property did not contain detectable levels of TRPH in September 2008.

TRPH was detected in three monitoring wells in September 2008 that did not have detections of TRPH during the previous sampling round, with concentrations ranging from 62 µg/L (BC-8B) to 140 µg/L (ASE-101A). These three monitoring wells (BC-8B, ASE-101A, and ASE-129A) are all located on the northern portion of PSHIA property.

SECTION 3.0

Site Remediation Activities

This section summarizes the scope and results of activities associated with remediation of the Honeywell facility that were conducted during the third quarter 2008.

3.1 Free-product Recovery

During the third quarter 2008, Honeywell continued biweekly manual recovery of free product from monitoring wells with free-product thicknesses greater than 0.1 foot. A portable free-product pump, the Spill Buddy Pro™ from Clean Earth Technology, was used to manually recover the free product.

Free product was also recovered from monitoring well ASE-67A using an automatic free-product skimming pump that is installed in the well. The pump, the Magnum Spill Buster™ from Clean Earth Technology, was installed in monitoring well ASE-67A on December 24, 2005 in conformance with the CAP free-product monitoring and recovery requirements. Honeywell will continue weekly monitoring of this system and will continue to provide operation updates in future quarterly status reports.

Approximately 5.1 gallons of free product, including 3.0 gallons from monitoring well ASE-67A, were recovered during the third quarter 2008, as indicated in Table 3-1. This compares to the approximate 8.1 gallons recovered during the second quarter 2008, 5.0 gallons recovered during the first quarter 2008, 13.7 gallons recovered during the fourth quarter 2007, and 11.5 gallons recovered during the third quarter 2007 (CH2M HILL, 2008e). Approximately 7,267 gallons have been recovered using skimming technologies since free-product recovery efforts began on June 1, 1999. Table 3-1 summarizes the amount of free product recovered at each monitoring well that historically has had measurable free product.

3.2 Biologically-enhanced Soil-vapor Extraction

At the request of the COP Aviation Department, the BSVE project is now addressed as four phases as shown in Figure 3-1 and is presented below:

- Phase A – Honeywell-owned parcels north of Air Lane
- Phase B – Honeywell-property leased from the COP south of Air Lane
- Phase C – PSHIA property north of Runway 8-26
- Phase D – PSHIA property south of Runway 8-26 and north of Taxiway C

Figure A-1 located in the Well Installation Report provided as Appendix A shows all of the BSVE wells that have been installed as of September 2008. Field monitoring and analytical results of these wells as part of the first BSVE baseline soil-vapor monitoring event were reported separately to ADEQ in the *First Baseline Soil Vapor Sampling Report, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-*.17 (CH2M HILL,

2008a). The second round of baseline soil vapor monitoring was initiated on September 29, 2008, and the results will be reported to ADEQ in a separate deliverable in late December.

3.2.1 BSVE Construction Activities—Honeywell Facility (Phases A and B)

In mid-April 2008, the CH2M HILL BSVE construction team and subcontractors mobilized to the Honeywell facility for initiation of construction on Phases A and B. During the second quarter 2008, CH2M HILL's drilling subcontractor, Layne Christensen, completed 40 of 41 injection/extraction (process), process monitoring, and sentinel soil-vapor monitoring wells on the Honeywell facility. The last BSVE system well was completed in early July.

During third quarter 2008, the installation of aboveground and belowground piping continued, and the process equipment was delivered to the Honeywell facility in mid-July. The installation of process piping interconnecting the equipment began in mid-July and continued throughout the third quarter. A canopy was erected over the equipment, and the installation of fire suppression system piping was initiated. Late in the third quarter, jack-and-bore work below the Union Pacific Railroad tracks that run parallel to Air Lane was initiated for the installation of three pipe sleeves that will connect the piping network north of Air Lane with the piping network south of Air Lane. The BSVE construction team coordinated with APS, the COP, and Southwest Gas regarding utility connections (electricity, water, wastewater, and natural gas) for the BSVE system. Natural gas service for the BSVE process requires an extension of the existing pipeline that supplies the Honeywell facility, and administrative delays associated with this extension occurred during the third quarter. These delays impacted the planned start date for testing the thermal oxidizer.

3.2.2 BSVE Construction Activities—PSHIA (Phases C and D)

Three BSVE process monitoring wells and one new groundwater monitoring well (ASE-129A) were installed on PSHIA property as proposed in the update to the *Non-process Soil Vapor Monitoring Program* report (CH2M HILL, 2008d), submitted by CH2M HILL on behalf of Honeywell on April 18, 2008. Appendix A describes well installation activities associated with the soil-vapor monitoring program and includes all the lithologic logs and well completion diagrams for the BSVE wells installed in 2008.

3.2.3 BSVE Permitting

During the third quarter 2008, progress was made on obtaining various permits, such as right-of-way permits and the wastewater discharge permit, to continue construction activities or prepare for initial startup of the BSVE process.

3.2.4 BSVE Design Activities (Phase C)

During the third quarter 2008, Honeywell coordinated with the COP Aviation Department to conduct potholing in the area north of Runway 8-26 to determine the piping alignment. The proposed pothole locations were identified the night of September 10, 2008 and were accepted by the COP during a preconstruction planning meeting on September 18, 2008. Runway closure was secured for the nights of September 22, 2008 and September 23, 2008, and potholing was conducted at that time. Surveying work was not completed and will be conducted during the fourth quarter 2008. Once survey data are available and the proposed

piping alignment is discussed with the COP's Design and Construction Services group, work on the 60 percent design package by CH2M HILL can continue.

The COP will coordinate construction of BSVE Phases C and D using their Construction Manager at Risk (CMR) process. The CMR role for Phases C and D was advertised in a special edition of the COP's Engineering and Architectural Services newsletter on September 19, 2008. The goal is to have the CMR under contract in time to review the Phase C 60-percent design package in the first quarter 2009.

3.2.5 BSVE Design Activities (Phase D)

At the same time potholing work was performed for Phase C, an evaluation of the use of abandoned underground utilities that cross beneath Runway 8-26 was performed to connect the area south of the runway to the rest of the system located north of the runway, if necessary. As part of this evaluation, three abandoned utilities below Runway 8-26 were identified within the vicinity of the BSVE target treatment area. During the night of September 22, 2008, two abandoned storm drains (18 inches and 21 inches in diameter) were videologged. As a result of this video logging, only minor amounts of moisture and sediment were found, indicating that these drains may be useable as pipe sleeves. The third abandoned utility is a 12-inch-diameter sanitary sewer line that runs from the PSHIA terminal area north toward the Honeywell facility. This line is accessible via a manhole in the parking lot east of Building 101 at the Honeywell facility; however, videologging was hindered by the presence of sludge in this sewer line. Coordination with the COP was initiated to prepare for cleaning this line so that videologging can be performed during the fourth quarter 2008.

SECTION 4.0

Summary of Planned Work

Activities planned between October 2008 and December 2008 are described below by type of work, or by phase, in the case of BSVE-related tasks.

4.1 Phases A and B

During fourth quarter 2008, jack-and-bore work associated with the installation of three pipe sleeves below the Union Pacific Railroad will be completed. This will allow pipes to be installed so that the piping network north of Air Lane can be connected to the piping network south of Air Lane. Connection of utilities for electricity, water, sanitary sewer, and natural gas will also be completed during the fourth quarter. The BSVE process stack will be erected in early November 2008.

Also during fourth quarter 2008, an Operation and Maintenance Plan for the BSVE system will be submitted to ADEQ prior to functional testing of the system, which is planned for mid-November. COP Aviation Department staff will receive a draft version of the Operation and Maintenance Plan, and their comments will be incorporated, as applicable, into the final version submitted to ADEQ.

Functional testing of the thermal oxidizer will lag behind the rest of the system due to delays in providing natural gas service to the BSVE process. Upon successful completion of functional testing, BSVE process wells will be brought online sequentially beginning in December. Construction activities at the Honeywell facility will continue as functional testing of process equipment and initial startup occurs. Substantial completion of construction is anticipated by the end of fourth quarter 2008 with demobilization to occur in early 2009.

The scheduled quarterly field measurement monitoring event for oxygen, carbon dioxide, methane, and percent lower explosive limit at the PSHIA monitoring wells and subsurface utility vaults used for soil-vapor monitoring began on September 29, 2008 as part of the second BSVE baseline soil-vapor monitoring event. The second BSVE baseline soil-vapor monitoring event includes the collection of soil-vapor samples from the new PSHIA and Honeywell monitoring wells, as well as the collection of soil-vapor samples from the PSHIA and Honeywell subsurface utility vaults, as described in the *Non-process Soil Vapor Monitoring Program* report (CH2M HILL, 2008d).

4.2 Phase C

Surveying work associated with potholing north of Runway 8-26 at PSHIA will be completed during October 2008. The proposed piping alignment will be discussed with the COP's Design and Construction Services group staff during the fourth quarter 2008 to allow the Phase C 60-percent design package to be submitted to the COP for review in early first quarter 2009.

Based on the CMR advertisement in the COP's Engineering and Architectural Services newsletter, qualification packages were due to the COP by October 10, 2008. A pre-submittal meeting with prospective bidders was held on October 2, 2008 at PSHIA. The COP reviewed the qualification packages and conducted interviews on November 18, 2008. Contract negotiations between the COP and the successful CMR will occur in the latter half of the fourth quarter 2008 and it is anticipated that the CMR will be under contract and available to review the Phase C 60-percent design package early in the first quarter 2009.

4.3 Phase D

Based on successful videologging of the two abandoned storm drains that cross beneath Runway 8-26, Honeywell will coordinate with the COP to begin the process of securing regulatory approvals required to use these lines in the future, if their use is necessary to remediate the area south of the runway. With regard to the abandoned 12-inch sanitary sewer, Honeywell will work with staff from the COP Water Services Department and Aviation Environmental Group to collect a sample from the line. Based on sample analyses, a plan will be submitted to the COP for cleaning the line prior to videologging in late fourth quarter 2008.

In addition to the tasks specified above by phase, planned BSVE-related field tasks for fourth quarter 2008 include conducting field parameter monitoring from select PSHIA and Honeywell subsurface utility vaults and conducting quarterly soil-vapor field parameter monitoring at monitoring wells ASE-105A, ASE-112A, ASE-113A, ASE-114A, and BC-8B.

4.4 Groundwater Sampling Event

Honeywell will conduct the fourth quarter groundwater sampling event for 2008 (tentatively scheduled for December 8 through December 15, 2008), monthly water-level measurements, and biweekly and monthly free-product monitoring and recovery in accordance with the LUST FSP. A revised version of the LUST FSP was submitted to ADEQ on October 3, 2008 (CH2M HILL, 2008g) and was approved by ADEQ on October 21, 2008 (ADEQ, 2008d). Subsequent UST sampling activities will be performed in accordance with the 2008 LUST FSP. Weekly free-product monitoring and equipment inspections of the automated free-product skimming system installed in monitoring well ASE-67A will be also continued during the fourth quarter 2008.

SECTION 5.0

Summary of Problems and Delays

As described previously, the second quarter 2008 groundwater sampling event was postponed one month, from June 2008 to July 2008, due to the substantial drilling effort that was conducted for the BSVE system during June 2008. As a result, water-quality data associated with the second quarter 2008 groundwater sampling event is included and discussed in this quarterly status report.

A groundwater sample was not collected from monitoring well BC-18 during the July 2008 sampling event because this well was dry (monitoring well BC-18 has been dry since December 2001), and a groundwater sample was not collected in July 2008 from monitoring well ASE-67A due to the ongoing operation of an automated free-product skimmer system in the well.

Water levels and groundwater quality samples were not collected from monitoring wells ASE-19A, ASE-41A, ASE-56A, and ASE-68A during the third quarter due to access restrictions. Monitoring well BC-18 was not sampled in September 2008 because there was not a sufficient amount of groundwater in the monitoring well casing to collect a representative sample, and a groundwater sample was not collected in September 2008 from monitoring well ASE-67A due to the ongoing operation of an automated free-product skimmer system in the well.

For BSVE Phase A and B, there were delays in finalizing agreements and permits associated with the various utilities associated with the BSVE project. The most significant was the three-way agreement between Honeywell, the COP, and Southwest Gas for extending the natural gas header down Air Lane to supply the thermal oxidizer. The agreement is anticipated to be finalized during the fourth quarter 2008. Functional testing of the BSVE process equipment is scheduled to begin on November 17, 2008; however, testing of the thermal oxidizer will lag by approximately 2 to 3 weeks due to the delay in providing natural gas service. A minor delay to completion of the canopy occurred as a result of a severe monsoon storm that struck the area the night of August 28, 2008. Numerous roof panels were damaged and replacement panels needed to be shipped from the supplier to complete the canopy. There were delays in the early part of the third quarter 2008 due to performance issues with the excavation subcontractor. An additional excavation subcontractor with multiple work crews was brought onboard to mitigate the delays caused by the first excavation subcontractor. Lastly, there was a minor delay in trenching and laying pipe in August 2007 due to encountering a subsurface concrete conduit in a parking lot north of Air Lane and west of Building 224. ADEQ was notified immediately and soil sampling and removal of the concrete conduit occurred within one day. Details regarding the sampling effort were documented in a technical memorandum titled, *Investigation of Concrete Conduit Encountered During BSVE Construction, Honeywell 34th Street Facility, Phoenix, Arizona*, submitted to ADEQ on September 26, 2008 (CH2M HILL, 2008h).

For BSVE Phase C, there were minor delays in conducting and completing the potholing work north of Runway 8-26 due to conflicts with other projects at PSHIA and runway

closure schedules. However, the schedule for the Phase C 60-percent design is consistent with the COP's schedule for procuring the CMR, who will assist the COP with review of the design package.

For BSVE Phase D, the presence of sludge in a 12-inch sanitary sewer that crosses beneath Runway 8-26 hindered completion of videologging of this sewer line. It is expected that the sludge will be removed and videologging will be conducted during the fourth quarter 2008.

SECTION 6.0

Status of Deliverables

The following is a list of deliverables submitted through third quarter 2008 since the *Site Characterization Report,* dated August 23, 2002:

- On September 26, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ a technical memorandum titled, *Investigation of Concrete Conduit Encountered During BSVE Construction, Honeywell 34th Street Facility, Phoenix, Arizona*.
- On August 26, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Second Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17.*
- On June 17, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Honeywell 34th Street Facility, BSVE North of Runway 8-26 Phase Design Basis Report (PSHIA side), Facility ID #0-002227, LUST File #0393.02.-10, .15-.17.*
- On May 23, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *First Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17.*
- On April 18, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ an update to the *Non-Process Soil Vapor Monitoring Program, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17.*
- On February 26, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Fourth Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*
- On February 20, 2008, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Biologically-Enhanced Soil Vapor Extraction Underground Process Pipeline Installation – Soil Observation Plan*.
- On February 19, 2008, Honeywell submitted a letter to ADEQ requesting approval for modification to the approved CAP to revise the BSVE remediation project schedule based on receipt of Maricopa County's approval of Honeywell's air permit modification.
- On November 21, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Third Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*
- On August 22, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Second Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*
- On August 17, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Non-Process Soil Vapor Monitoring Program, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*

- On August 17, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ a courtesy copy of the revised BSVE design package that was submitted to the COP Development Services Department on August 9, 2007 and the Aviation Department's Tenant Improvement group on August 10, 2007. This package was composed of design drawings, specifications, and a Tenant Improvement Plan.
- On May 23, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *First Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*
- On May 15, 2007, Honeywell submitted to ADEQ a technical memorandum titled, *Evaluation of Well Dilution Effects, Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport, Phoenix, Arizona.*
- On April 30, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ a courtesy copy of the BSVE design package that was submitted to the COP Development Services Department and the Aviation Department's Tenant Improvement group. This package was composed of design drawings, specifications, and a Tenant Improvement Plan.
- On March 19, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Biologically Enhanced SVE with Product Recovery System Design Basis Report Honeywell International 34th Street Facility*, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.
- On February 27, 2007, Honeywell submitted a letter to ADEQ requesting approval for modification to the approved CAP to reflect delays in obtaining the BSVE air permit and adjust the frequency of manual free-product monitoring and recovery.
- On February 27, 2007, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Fourth Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17.*
- On November 29, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Third Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.*
- On November 29, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Field Sampling Plan for PSHIA Subsurface Utility Vaults for Baseline Air Sampling Using EPA Method TO-15, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.*
- On October 20, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Air Injection Pilot Test Report Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.*
- On September 15, 2006, Honeywell submitted a letter to ADEQ proposing to modify the scheduled submittal dates of quarterly status reports such that future reports are submitted to ADEQ no later than 60 days following the end of each calendar quarter.

- On August 3, 2006, Honeywell submitted to ADEQ a letter "Modification to Final Air Injection Pilot Test Work Plan, dated October 4, 2005," that explained the method for conducting a short-term pilot test and the plan for implementation on PSHIA Property.
- On July 20, 2006, Honeywell submitted to ADEQ a letter that explained the status of the pilot test, Honeywell's agreement with the City of Phoenix to evaluate the BSVE design (assuming 8 percent oxygen utilization rate) and the status of the air permit applications.
- On July 14, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Second Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.*
- On April 14, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *First Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.*
- On March 2, 2006, Honeywell submitted to ADEQ the *Proposed Modification to Honeywell's Groundwater Sampling, Free Product Monitoring and Recovery Plan – Total Recoverable Petroleum Hydrocarbons Analytical Method, LUST File #0393.02-.10, .15, Facility ID #0-002227.*
- On January 16, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Quarterly Status Report, Quarter 1 (October 17, 2005 to January 15, 2006), Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15.*
- On January 13, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Soil Vapor Field Sampling Report, Honeywell 34th Street Facility, 111 S. 34th Street, Phoenix, Arizona.*
- On December 9, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *LUST Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan*.
- On December 7, 2005, CH2M HILL, on behalf of Honeywell, submitted to Maricopa County (1) the Revised Air Permit Application for BSVE and (2) the Air Permitting Evaluation for Air Injection Pilot Study. On December 19, 2005, copies of the Revised Air Permit Application for BSVE were sent to ADEQ, City of Phoenix Aviation Department, and USEPA.
- On November 17, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ's LUST Enforcement Unit a letter that explained the reasons for the differences in the timeline for "Startup and Initial Testing" presented in the revised schedule (Revised Figure 32, attachment to the November 2, 2005 letter) and the original schedule in the CAP.
- On November 2, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ's LUST Enforcement Unit a letter that provided a status update on several aspects of the CAP implementation and on the conditions established in ADEQ's October 7, 2005 CAP approval letter. Attachments to this letter included (1) revised Figure 32—Remedial Alternative 3 Implementation Schedule, (2) free-product thickness map, October 2005, (3) list of site characterization activities since submittal of the *Site Characterization Report*,

(4) updated site characterization figures and tables, (5) boring logs, and (6) a CD containing analytical and monitoring well measurement data.

- On October 20, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Work Plan for Additional Characterization of LUST File #0393.15 – JP-4 Fuel Pipeline Release at the Honeywell 34th Street Facility*.
- On October 4, 2005, Honeywell submitted to ADEQ the *Final Air Injection Pilot Test Work Plan, Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport North Airfield, Phoenix, Arizona*.
- On September 19, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Quality Assurance Project Plan, Honeywell 34th Street Facility.*
- On September 7, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Work Plan for Phase III Monitoring Well Installation on Honeywell Leasehold and Phoenix Sky Harbor International Airport, Honeywell 34th Street Facility*.
- On August 22, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Work Plan for Installation of Multi Level Soil Vapor Monitoring Wells and Shallow/Sub-slab Soil Vapor Monitoring Points, Honeywell 34th Street Facility*.
- On July 11, 2005, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *Soil Vapor Baseline Sampling and Analysis Plan, Honeywell 34th Street Facility.*
- On July 1, 2005, Honeywell submitted to ADEQ's Tank Programs Division the *Free Product Report – LUST File #0393.15 – JP-4 Fuel Line from UST #203.*
- On June 13, 2005, Honeywell submitted to ADEQ's Tank Programs Division the *Initial Site Characterization Report – LUST File #0393.15 – JP-4 Fuel Line from UST #203*.
- On March 29, 2005, Honeywell submitted to ADEQ's Tank Programs Division the *14-day Report – LUST File #0393.15 – JP-4 Fuel Line from UST #203.*
- On November 15, 2004, CH2M HILL, on behalf of Honeywell, submitted to ADEQ's UST Corrective Action Section responses to ADEQ's September 30, 2004 comments on Honeywell's July 30, 2004 *Revised Corrective Action Plan.* The corresponding replacement pages of the revised text, tables, and figures of the Revised CAP were also submitted.
- On July 30, 2004, CH2M HILL, on behalf of Honeywell, submitted the *Revised Corrective Action Plan* to ADEQ's UST Corrective Action Section. The revised CAP supersedes and replaces the original July 18, 2003, CAP.
- On May 27, 2004, Honeywell submitted a three-ring binder to ADEQ's UST Corrective Action Section titled *Supporting Material, UST Informal Settlement Conference, May 28, 2004*.
- On May 7, 2003, CH2M HILL, on behalf of Honeywell, submitted to ADEQ a technical memorandum titled *Summary of Results from the Bioventing/SVE Pilot Study February 24 through March 1, 2003*.

- On May 1, 2003, Honeywell submitted to ADEQ's UST Corrective Action Section the *Free-product Report, Honeywell International Inc., 34th Street Facility, Phoenix, Arizona, Facility ID# 0-002227, LUST File Nos. 0393.02 -.10*.
- On December 18, 2002, Honeywell submitted to ADEQ's UST Corrective Action Section *Supplemental Site Characterization Information for the Honeywell International Inc., 34th Street Facility, Phoenix, Arizona, Facility ID# 0-002227, LUST File Nos. 0393.02 -.10*.
- On August 23, 2002, CH2M HILL, on behalf of Honeywell, submitted to ADEQ's UST Corrective Action Section the *Site Characterization Report*.

The following are deliverables planned for submittal after the end of the third quarter of 2008:

- *Fourth Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17*. This report is currently scheduled for submittal to ADEQ on or before March 2, 2009.
- The BSVE O&M Plan will be submitted to ADEQ prior to initial BSVE startup, which is currently planned for mid-fourth quarter 2008 (plan was delivered on November 7, 2008).
- A revision to the *Groundwater Sampling and Free-product Monitoring and Recovery Plan*. This report is scheduled to be submitted to ADEQ in early October (report was delivered on October 3, 2008).
- *First Baseline Soil Vapor Sampling Report*. This report is scheduled to be submitted to ADEQ in late October (report was delivered on October 24, 2008).
- *Second Baseline Soil Vapor Sampling Report*. This report is scheduled to be delivered to ADEQ in late December, 2008.

SECTION 7.0

References

Arizona Department of Environmental Quality (ADEQ). 1999. Administrative Order on Consent, Statement of Work for Focused Remedial Investigation. September 19.

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_____. 2005b. Letter from Mr. Mark W. Lucas and Mr. Joseph Karl Drosendahl/ADEQ to Ms. Troy Meyer/Honeywell. "Corrective Action Plan Modification Approval, LUST File #0393.02-.10, .15, Facility ID #0-002227; Honeywell, 111 South 34th Street, Phoenix, Arizona." December 20.

_____. 2006a. Letter from Mr. Mark W. Lucas and Mr. Joseph Karl Drosendahl/ADEQ to Ms. Troy Meyer/Honeywell. "Corrective Action Plan Modification Approval, LUST File No. #0393.02-.10, .15, Facility ID #0-002227; Honeywell, 111 South 34th Street, Phoenix, Arizona." March 7.

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_____. 2008c. Email from Mr. Mark W. Lucas and Mr. Eric M. Wilson/ADEQ to Mr. Robert Frank/CH2M HILL. "Re: Request to Discontinue Sampling Wells Containing Free Product at Honeywell." May 8.

_____. 2008d. Letter from Mr. Mark W. Lucas and Mr. Eric M. Wilson/ADEQ to Ms. Troy Kennedy/Honeywell. "Field Sampling Plan Approval, LUST File No. #0393.02-.10, .15-.17, Facility ID #0-002227; Honeywell, 111 South 34th Street, Phoenix, Arizona." October 21.

CH2M HILL. 2004a. *Revised Corrective Action Plan, Honeywell 34th Street Facility, Phoenix, Arizona. ADEQ Facility No 0-002227, LUST File Nos. 0393.02 through 0393.10.* July.

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_____. 2006c. *Site Characterization Report Addendum, LUST Case File #0393.16, Honeywell 34th Street Facility, Facility ID No. 0-002227.* October 25.

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Tables

TABLE 2-1
Summary of SW8260 and 8015AZR1 Detected Analytical Results for Soil Samples, Second and Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	Sample Depth (feet)	1122PCA	112TCA	124TMBZ	135TMBZ	ACT	BBZ	BZ	C12DCE	CD	DCA	EBZ	IPBZ	MEK	NAPH	n-PBZ	p-IPT	s-BBZ	TCE	TPH C10C22	TPH C10C32	TPH C22C32	XYL
ASE-129A	06/15/08	53 - 53.5	<6.2	<6.2	<6.2	<6.2	<31	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<6.2	<12	<6.2	<6.2	<6.2	<6.2	<6.2	<1.0	--	<5.2	<6.2
ASE-129A	06/15/08	68 - 68.5	<5.5	<5.5	<5.5	<5.5	<28	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<5.5	<11	<5.5	<5.5	<5.5	<5.5	<5.5	<1.0	--	<5.1	<5.5
ASE-129A	06/15/08	78 - 78.5	<4.6	<4.6	<4.6	<4.6	<23	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	15	<4.6	<4.6	<4.6	<4.6	<4.6	<1.1	--	<5.4	<4.6
ASE-129A	06/18/08	80 - 80.5	<4.3	<4.3	<4.3	<4.3	<22	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<8.7	<4.3	<4.3	<4.3	<4.3	<4.3	<1.1	--	<5.3	<4.3
ASE-129A	06/19/08	93 - 93.5	<4.4	<4.4	<4.4	<4.4	<22	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<8.8	<4.4	<4.4	<4.4	<4.4	<4.4	<1.1	--	<5.4	<4.4
ASE-129A	06/19/08	103 - 103.5	<4.7	<4.7	<4.7	<4.7	<24	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<9.5	<4.7	<4.7	<4.7	<4.7	<4.7	<1.1	--	<5.7	<4.7
ASE-130A	07/12/08	10 - 10.5	<1.8	<1.8	<1.8	<1.8	25	<4.6	<1.8	<1.8	<4.6	<1.8	<1.8	<1.8	<9.2	<4.6	<1.8	<1.8	<4.6	<1.8	<30	<130	<100	<9.2
ASE-130A	07/12/08	14.5 - 15	<1.7	<1.7	<1.7	<1.7	37J	<4.2	3.4J	<1.7	<4.2	<1.7	<1.7	<1.7	<8.3	<4.2	<1.7	<1.7	<4.2	<1.7	<30	<130	<100	<8.3
ASE-130A	07/12/08	19.5 - 20	<1.8	<1.8	<1.8	<1.8	<23	<4.5	<1.8	<1.8	<4.5	<1.8	<1.8	<1.8	<9.1	<4.5	<1.8	<1.8	<4.5	<1.8	<30	<130	<100	<9.1
ASE-130A	07/12/08	24.5 - 25	<1.9	<1.9	<1.9	<1.9	<24	<4.8	<1.9	<1.9	<4.8	<1.9	<1.9	<1.9	<9.7	<4.8	<1.9	<1.9	<4.8	<1.9	<30	<130	<100	<9.7
ASE-130A	07/12/08	29.5 - 30	<1.9	<1.9	<1.9	<1.9	<24	<4.8	<1.9	3.1	<4.8	2.8	<1.9	<1.9	<9.7	<4.8	<1.9	<1.9	<4.8	6.1	<30	<130	<100	<9.7
ASE-130A	07/12/08	34.5 - 35	<1.7	<1.7	<1.7	<1.7	<21	<4.2	<1.7	<1.7	<4.2	<1.7	<1.7	<1.7	<8.4	<4.2	<1.7	<1.7	<4.2	<1.7	<30	<130	<100	<8.4
ASE-130A	07/12/08	39.5 - 40	<1.7	<1.7	<1.7	<1.7	22	<4.3	<1.7	<1.7	<4.3	2.1	<1.7	<1.7	<8.5	<4.3	<1.7	<1.7	<4.3	<1.7	<30	<130	<100	<8.5
ASE-130A	07/12/08	44.5 - 45	<1.7	<1.7	<1.7	<1.7	<21	<4.2	<1.7	<1.7	<4.2	<1.7	<1.7	<1.7	<8.4	<4.2	<1.7	<1.7	<4.2	<1.7	<30	<130	<100	<8.4
ASE-130A	07/12/08	49.5 - 50	<2.0	<2.0	<2.0	<2.0	<25	<5.0	<2.0	<2.0	<5.0	7.2	<2.0	<2.0	<10	<5.0	<2.0	<2.0	<5.0	<2.0	<30	<130	<100	<10
ASE-130A	07/12/08	54.5 - 55	<1.6	<1.6	<1.6	<1.6	<20	<3.9	<1.6	<1.6	<3.9	<1.6	<1.6	<1.6	<7.8	<3.9	<1.6	<1.6	<3.9	<1.6	<30	<130	<100	<7.8
ASE-130A	07/12/08	59.5 - 60	<120	230	8,400	1,900	<3,000	3,400	<120	<120	<300	<120	1,900	1,000	<1,200	6,600	1,800	1,500	1,400	<120	300	300	<100	1,500
ASE-130A	07/12/08	64.5 - 65	<130	<130	2,900	640	<3,300	980	<130	<130	<330	<130	690	350	<1,300	2,200	630	510	410	<130	1,200	1,400	160	600
ASE-130A	07/12/08	69.5 - 70	140	<120	3,200	<120	<3,100	3,000	180	<120	<310	<120	2,800	1,600	<1,200	7,000	2,800	1,600	1,600	<120	1,200	1,200	<100	<120
PMW-11	06/26/08	53 - 53.5	<5.9	<5.9	<5.9	<5.9	<30	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<12	<5.9	<5.9	<5.9	<5.9	<5.9	<1.1	--	<5.4	<5.9
PMW-11	06/26/08	69 - 69.5	<4.6	<4.6	<4.6	<4.6	<23	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<9.2	<4.6	<4.6	<4.6	<4.6	<4.6	<1.1	--	<5.3	<4.6
PMW-11	06/27/08	78 - 78.5	<4.7	<4.7	<4.7	<4.7	<24	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<9.5	<4.7	<4.7	<4.7	<4.7	<4.7	20	--	<5.4	<4.7
PMW-11	06/27/08	85 - 85.5	<8,400	<8,400	<8,400	<8,400	<42,000	10,000	<8,400	<8,400	<8,400	<8,400	<8,400	<8,400	<17,000	12,000	<8,400	<8,400	<8,400	<8,400	2,300	--	81	<8,400
PMW-11	06/27/08	93 - 93.5	<4.5	<4.5	<4.5	<4.5	<22	5.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<8.9	<4.5	<4.5	<4.5	<4.5	<4.5	2.8	--	<5.6	<4.5
PMW-12	06/27/08	52.5 - 55	<4.7	<4.7	<4.7	<4.7	<24	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<9.5	<4.7	<4.7	<4.7	<4.7	<4.7	<1.1	--	<5.4	<4.7
PMW-12	06/27/08	62 - 62.5	<5.4	<5.4	<5.4	<5.4	27	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<11	<5.4	<5.4	<5.4	<5.4	<5.4	<1.1	--	<5.5	<5.4
PMW-12	06/27/08	77.5 - 78	<4.6	<4.6	<4.6	<4.6	<23	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<9.2	<4.6	<4.6	<4.6	<4.6	<4.6	12	--	<5.5	<4.6
PMW-12	06/27/08	81.5 - 82	<880	<880	<880	<880	<4,400	<880	<880	<880	<880	<880	<880	<880	<1,800	<880	<880	<880	<880	<880	730	--	<5.4	<880
PMW-12	06/28/08	93.5 - 94	<3.9	<3.9	<3.9	<3.9	<19	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<3.9	<7.8	<3.9	<3.9	<3.9	<3.9	<3.9	1.2	--	<5.6	<3.9
PMW-13	06/17/08	59.5 - 60	<4.9	<4.9	<4.9	<4.9	<24	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<9.7	<4.9	<4.9	<4.9	<4.9	<4.9	<1.1	--	<5.3	<4.9
PMW-13	06/17/08	69 - 69.5	<4.8	<4.8	<4.8	<4.8	<24	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<9.7	<4.8	<4.8	<4.8	<4.8	<4.8	<1.1	--	<5.3	<4.8
PMW-13	06/17/08	69.5 - 70	<4.5	<4.5	<4.5	<4.5	<22	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<8.9	<4.5	<4.5	<4.5	<4.5	<4.5	<1.1	--	<5.3	<4.5
PMW-13	06/17/08	71.5 - 72	<4.8	<4.8	<4.8	<4.8	<24	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<9.5	<4.8	<4.8	<4.8	<4.8	<4.8	<1.1	--	<5.5	<4.8
PMW-13	06/17/08	81.5 - 82	<310	<310	<310	<310	<1,500	<310	<310	<310	<310	<310	<310	<310	<620	<310	<310	<310	<310	<310	520	--	50	<310
PMW-13	06/17/08	87.5 - 88	<130	<5.1	<130	<130	<26	550	<5.1	<5.1	8.6	<5.1	<5.1	160	<10	<130	290	<130	400	<5.1	310	--	14	<5.1
PMW-13	06/17/08	94.5 - 95	<3,400	<3,400	<3,400	<3,400	<17,000	6,000	<3,400	<3,400	<3,400	<3,400	<3,400	<3,400	<6,700	3,500	<3,400	<3,400	3,400	<3,400	2,400	--	63	<3,400
SMW-10	06/01/08	51 - 51.5	<4.9	<4.9	<4.9	<4.9	<25	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<9.8	<4.9	<4.9	<4.9	<4.9	<4.9	<1.1	--	<5.4	<4.9
SMW-10	06/01/08	66 - 66.5	<4.5	<4.5	<4.5	<4.5	<23	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<9.1	<4.5	<4.5	<4.5	<4.5	<4.5	<1.1	--	<5.4	<4.5
SMW-10	06/01/08	73 - 73.5	<5.2	<5.2	<5.2	<5.2	<26	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<10	<5.2	<5.2	<5.2	<5.2	<5.2	<1.1	--	<5.3	<5.2
SMW-10	06/01/08	87 - 87.5	<4.5	<4.5	<4.5	<4.5	<22	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<8.9	<4.5	<4.5	<4.5	<4.5	<4.5	<1.1	--	<5.5	<4.5
SMW-10	06/01/08	94 - 94.5	<4.1	<4.1	<4.1	<4.1	<21	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<8.2	<4.1	<4.1	<4.1	<4.1	<4.1	<1.1	--	<5.7	<4.1
SMW-11	06/06/08	50 - 50.5	<5.1	<5.1	<5.1	<5.1	<26	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<5.1	<5.1	<5.1	<5.1	<5.1	<1.1	--	<5.5	<5.1
SMW-11	06/06/08	64 - 64.5	<4.3	<4.3	<4.3	<4.3	<21	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<8.5	<4.3	<4.3	<4.3	<4.3	<4.3	1.3	--	7.3	<4.3
SMW-11	06/06/08	71 - 71.5	<4.7	<4.7	<4.7	<4.7	<24	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<9.4	<4.7	<4.7	<4.7	<4.7	<4.7	<1.0	--	<5.2	<4.7
SMW-11	06/11/08	86.5 - 87	<4.5	<4.5	<4.5	<4.5	<22	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<5.0	<8.9	<4.5	<4.5	<4.5	<4.5	<4.5	<1.1	--	<5.5	<4.5
SMW-11	06/11/08	87 - 87.5	<4.7	<4.7	<4.7	<4.7	<23	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<4.7	<9.4	<4.7	<4.7	<4.7	<4.7	<4.7	<1.1	--	<5.4	<4.7
SMW-11	06/11/08	94.5 - 95	<5.0	<5.0	<5.0	<5.0	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	--	<5.1	<5.0
SMW-13	05/31/08	54.5 - 55	<5	<5	<5	<5	<25	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<1.0	--	<5.2	<5
SMW-13	05/31/08	63.5 - 64	<5.6	<5.6	<5.6	<5.6	<28	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<5.6	<11	<5.6	<5.6	<5.6	<5.6	<5.6	<1.1	--	<5.4	<5.6
SMW-13	06/01/08	71.5 - 72	<5.9	<5.9	<5.9	<5.9	<29	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<12	<5.9	<5.9	<5.9	<5.9	<5.9	<1.1	--	<5.4	<5.9
SMW-13	06/01/08	83.5 - 84	<4.4	<4.4	<4.4	<4.4	<22	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<8.8	<4.4	<4.4	<4.4	<4.4	<4.4	<1.1	--	<5.7	<4.4

TABLE 2-1
Summary of SW8260 and 8015AZR1 Detected Analytical Results for Soil Samples, Second and Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	Sample Depth (feet)	1122PCA	112TCA	124TMBZ	135TMBZ	ACT	BBZ	BZ	C12DCE	CD	DCA	EBZ	IPBZ	MEK	NAPH	n-PBZ	p-IPT	s-BBZ	TCE	TPH C10C22	TPH C10C32	TPH C22C32	XYL
SMW-13	06/01/08	96.5 - 97	<8.6	<8.6	<8.6	<8.6	<43	<8.6	<8.6	<8.6	<8.6	<8.6	<8.6	<8.6	<17	<8.6	<8.6	<8.6	<8.6	<8.6	<1.1	--	<5.5	<8.6
SMW-14	06/28/08	58 - 58.5	<5.2	<5.2	<5.2	<5.2	49	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	<5.2	15	<5.2	<5.2	<5.2	<5.2	<5.2	1.5	--	20	<5.2
SMW-14	06/29/08	66 - 66.5	<4.4	<4.4	<4.4	<4.4	<22	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<4.4	<8.9	<4.4	<4.4	<4.4	<4.4	<4.4	<1.1	--	<5.3	<4.4
SMW-14	06/30/08	74 - 74.5	<5.1	<5.1	<5.1	<5.1	<25	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<10	<5.1	<5.1	<5.1	<5.1	<5.1	<1.1	--	<5.4	<5.1
SMW-14	06/30/08	81 - 81.5	<6.8	<6.8	<6.8	<6.8	<34	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<14	<6.8	<6.8	<6.8	<6.8	<6.8	<1.1	--	<5.6	<6.8
SMW-14	06/30/08	91 - 91.5	<5.7	<5.7	<5.7	<5.7	<29	<5.7	<5.7	<5.7	<5.7	<5.7	<5.7	<5.7	<11	<5.7	<5.7	<5.7	<5.7	<5.7	<1.1	--	<5.3	<5.7
SMW-9	06/05/08	58 - 58.5	<5	<5	<5	<5	<25	<5	<5	<5	<5	<5	<5	<5	<10	<5	<5	<5	<5	<5	<1.0	--	<5.2	<5
SMW-9	06/06/08	68 - 68.5	<4.8	<4.8	<4.8	<4.8	<24	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<9.6	<4.8	<4.8	<4.8	<4.8	<4.8	<1.1	--	<5.3	<4.8
SMW-9	06/06/08	71 - 71.5	<4.6	<4.6	<4.6	<4.6	<23	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<9.2	<4.6	<4.6	<4.6	<4.6	<4.6	<1.0	--	<5.1	<4.6
SMW-9	06/06/08	85 - 85.5	<4.5	<4.5	<4.5	<4.5	<22	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<9	<4.5	<4.5	<4.5	<4.5	<4.5	<1.1	--	<5.7	<4.5
SMW-9	06/06/08	93.5 - 94	<4	<4	<4	<4	<20	<4	<4	<4	<4	<4	<4	<4	<8	<4	<4	<4	<4	<4	<1.1	--	<5.7	<4

NOTES:
TPH results displayed in milligrams per liter. All other results displayed in micrograms per liter.
1122PCA = tetrachloroethane.
112TCA = 1,1,2-trichloroethane.
124TMBZ = 1,2,4-trimethylbenzene.
135TMBZ = 1,3,5-trimethylbenzene.
ACT = acetone
BBZ = butylbenzene.
BZ = benzene.
C12DCE = cis-1,2-dichloroethene.
CD = carbon disulfide
DCA = 1,1-dichloroethane.
EBZ = ethylbenzene.
IPBZ = isopropylbenzene.
MEK = methyl ethyl ketone
NAPH = naphthalene.
n-PBZ = n-propylbenzene.
o-XYL = o-xylene.
p-IPT = p-isopropyltoluene.
PCE = tetrachloroethene.
s-BBZ = sec-butylbenzene.
TCE = trichloroethene.
TPH C10C22 = total petroleum hydrocarbons, carbon range C_{10} to C_{22}.
TPH C10C32 = total petroleum hydrocarbons, carbon range C_{10} to C_{32}.
TPH C22C32 = total petroleum hydrocarbons, carbon range C_{22} to C_{32}.
VC = vinyl chloride.
XYL = total xylenes.

TABLE 2-2
Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Second Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	111TCA	124TMBZ	135TMBZ	BBZ	BZ	C12DCE	CET	CHCL3	DCA	DCE	EBZ	IPBZ	mp-XYL	MTBE	NAPH	n-PBZ	o-XYL	PCE	p-IPT	s-BBZ	t-BBZ	TCE	TOL	TPH C10C22	TPH C22C32	VC	XYL
ASE-20A	07/22/08	<0.5	0.6	<0.5	2.2	6.9	1.2	3.5	<0.5	26	<0.5	6.8	16	<0.5	18	2.5	4.0	<0.5	<0.5	<0.5	5.6	1.0	1.0	<0.5	450	<300	7.3	<0.5
ASE-37A	07/21/08	<0.5	8.4	0.5	1.7	67	0.8	<1.0	<0.5	0.6	<0.5	5.7	9.8	<0.5	10	10	8.0	<0.5	0.6	0.6	2.8	0.5	2.0	<0.5	280	<300	<0.5	<0.5
ASE-38A	07/24/08	<0.5	5.8	0.9	<0.5	710	0.7	<1.0	<0.5	<0.5	0.5	97	26	4.8	41	47	18	<0.5	<5.0	<0.5	2.7	<0.5	1.3	<0.5	930	<300	<0.5	4.8
ASE-39A	07/24/08	<2.5	<2.5	<2.5	<2.5	440	<2.5	<5.0	<2.5	<2.5	<2.5	25	26	3.2	160	38	16	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	520	<300	<2.5	3.2
ASE-41A	07/21/08	1	1.4	<0.5	3.2	42	0.9	3.4	<0.5	20	<0.5	13	7.2	<0.5	12	28	7.8	0.5	3.2	2.1	3.7	0.7	1	0.8	12,000	1,500	1.9	0.5
ASE-46A	07/14/08	<0.5	<0.5	<0.5	<0.5	6.1	4.1	4.6	<0.5	39	<0.5	<0.5	2.3	<0.5	53	<2.0	0.9	<0.5	<0.5	<0.5	0.7	<0.5	0.9	0.7	150	<300	11	<0.5
ASE-52A	07/22/08	<0.5	50	6.8	3.2	210	2.2	1.9	1	12	1.9	30	6.0	32	62	42	5.9	<0.5	1.3	2.4	2.6	<0.5	3.8	<0.5	1,300	<300	1	32
ASE-53A	07/22/08	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	<1.0	<0.5	0.6	0.6	<0.5	<0.5	<0.5	42	<2.0	<0.5	<0.5	1.5	<0.5	<0.5	<0.5	1.1	<0.5	71	<300	<0.5	<0.5
ASE-54A	07/14/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<50	<300	<0.5	<0.5
ASE-55A	07/22/08	<0.5	<0.5	<0.5	13	19	2.1	8.0	<0.5	67	1.2	0.7	15	<0.5	22	18	14	<0.5	<0.5	0.8	9.6	1.1	<0.5	<0.5	140,000J	<3,000	8.7	<0.5
ASE-56A	07/23/08	<3.1	<3.1	<3.1	15	450	<3.1	6.3	<3.1	50	<3.1	7.8	45	<3.1	36	230	54	<3.1	<3.1	<3.1	7.6	<3.1	<3.1	<3.1	3,800	120J	8.9	<3.1
ASE-57A	07/23/08	<4.2	<4.2	<4.2	24	480	<4.2	<8.3	<4.2	4.7	<4.2	8.5	53	<4.2	170	400	62	<4.2	<4.2	<4.2	13	<4.2	<4.2	<4.2	14,000	190J	<4.2	<4.2
ASE-58A	07/14/08	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<1.0	<0.5	12	<0.5	<0.5	<0.5	<0.5	6.4	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	75	<300	1.1	<0.5
ASE-59A	07/21/08	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<1.0	1.8	43	1.7	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	5.8	<0.5	<50	<300	<0.5	<0.5
ASE-60A	07/21/08	<0.5	<0.5	<0.5	<0.5	<0.5	1.1	<1.0	4.6	0.6	1.7	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	9.4	<0.5	<50	<300	<0.5	<0.5
ASE-61A	07/21/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	1.3	0.9	2.4	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	1.4	<0.5	<50	<300	<0.5	<0.5
ASE-62A	07/22/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	12	<0.5	<0.5	0.8	<0.5	6.9	<2.0	1	<0.5	<0.5	<0.5	0.6	<0.5	1.0	<0.5	100	<300	1.1	<0.5
ASE-63A	07/23/08	<13	<13	<13	<13	2,100	<13	<25	<13	<13	<13	<13	74	<13	200	180	50	<13	<13	<13	<13	<13	<13	<13	1,500	140J	<13	<13
ASE-64A	07/23/08	<0.5	18	6.8	4.6	12	<0.5	<1.0	<0.5	<0.5	<0.5	39	56	36	<0.5	38	31	<0.5	<0.5	2.0	7.0	1.2	<0.5	<0.5	1,300	<300	<0.5	36
ASE-65A	07/22/08	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<1.0	0.8	1.3	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	3.0	<0.5	52	<300	<0.5	<0.5
ASE-66A	07/22/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	6.9	<0.5	<0.5	<0.5	<0.5	5.3	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	76	<300	<0.5	<0.5
ASE-68A	07/22/08	<0.5	1.4	<0.5	1.2	32J	6.5	<1.0	<0.5	15J	0.6	1.2	1.8	<0.5	36	2.6	2.0	<0.5	0.6	<0.5	1.4	0.5	3.0	<0.5	1,500	<300	7.4	<0.5
ASE-89A	07/18/08	<0.5	<0.5	<0.5	18	480	1	<1.0	<0.5	1.4	<0.5	2.3	38	<0.5	140	25	50	<0.5	<0.5	<0.5	16	1.4	<0.5	<0.5	2,600	<300	<0.5	<0.5
ASE-92A	07/22/08	<1.7	<1.7	<1.7	2.8	160	<1.7	<3.3	<1.7	4.0	<1.7	<1.7	4.9	<1.7	370	41	4.9	<1.7	<1.7	<1.7	1.8	<1.7	<1.7	<1.7	1,100	<300	<1.7	<1.7
ASE-95A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	67	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-96A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	290	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-97A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<1.0	<0.5	24	4.1	<0.5	<0.5	<0.5	15	4.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	150J	<300	1.9	<0.5
ASE-98A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-99A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-100A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.9	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-101A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.2	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-103A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-105A	07/17/08	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	1.0	<0.5	2.5	<2.0	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	150J	<300	<0.5	<0.5
ASE-106A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.4	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-108A	07/21/08	3.4	<0.5	<0.5	3.2	20	1.5	7.1	<0.5	47	4.4	0.7	7.4	<0.5	49	9.0	5.3	<0.5	<0.5	<0.5	3.5	0.5	2.0	<0.5	1,900	59J	6.0	<0.5
ASE-109A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-110A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-112A	07/16/08	<0.5	<0.5	<0.5	<0.5	2.8	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	4.1	<0.5	<0.5	<2.0	1.3	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	240	49J	<0.5	<0.5
ASE-113A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-114A	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	170	<300	<0.5	<0.5
ASE-116A	07/24/08	<2.0	3.7	<2.0	<2.0	250	<2.0	<4.0	<2.0	<2.0	<2.0	29	33	2.5	53	54	24	<2.0	<2.0	<2.0	2.6	<2.0	3.2	<2.0	450	<300	<2.0	2.5
ASE-122A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-123A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-124A	07/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	1.3	<0.5	<0.5	<0.5	<0.5	25	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-125A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-126A	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<1.0	<0.5	20	3.9	<0.5	<0.5	<0.5	18	<2.0	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	1.9	<0.5	160J	<300	1.8	<0.5
ASE-127A	07/21/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<2.0	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-128A	07/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-129A	07/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-130A	07/18/08	<1.7	96	20	17	130	2.7	19	<1.7	26	<1.7	120	32	66	60	230	43	<1.7	<1.7	8.1	9.6	<1.7	<1.7	<1.7	4,900	74J	4.1	66
BC-7A	07/21/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	0.5	<0.5	<50	<300	<0.5	<0.5

TABLE 2-2
Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Second Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	111TCA	124TMBZ	135TMBZ	BBZ	BZ	C12DCE	CET	CHCL3	DCA	DCE	EBZ	IPBZ	mp-XYL	MTBE	NAPH	n-PBZ	o-XYL	PCE	p-IPT	s-BBZ	t-BBZ	TCE	TOL	TPH C10C22	TPH C22C32	VC	XYL
BC-8B	07/18/08	<0.5	<0.5	<0.5	<0.5	3.0	2.0	<1.0	<0.5	17	1.6	<0.5	0.6	<0.5	40	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.3	<0.5	<50	<300	1.9	<0.5
PL-101A	07/21/08	<1.0	<1.0	<1.0	6.3	110	<1.0	<2.0	<1.0	<1.0	<1.0	63	35	<1.0	6.5	20	24	<1.0	<1.0	<1.0	8.6	1.7	<1.0	<1.0	640	<300	<1.0	<1.0
PL-105A	07/22/08	<1.0	<1.0	<1.0	3.2	41	<1.0	8.1	<1.0	51	<1.0	<1.0	7.7	<1.0	110	32	6.2	<1.0	<1.0	<1.0	3.5	<1.0	<1.0	<1.0	2,800	83J	5.3	<1.0
PL-201A	07/14/08	<0.5	<0.5	<0.5	<0.5	0.8	0.7	4.3	<0.5	45	<0.5	<0.5	<0.5	<0.5	16	<2.0	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	630	160J	3.3	<0.5
PL-2101	07/14/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	6.5	<0.5	<0.5	<0.5	<0.5	1.2	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<50	49J	2.0	<0.5
PL-2102	07/14/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
PMW-11	07/17/08	<0.5	11	1.6	23	48	<0.5	2.5	<0.5	3.5	<0.5	5.7	39	2.0	63	94	49	<0.5	<0.5	8.5	16	1.3	<0.5	<2.3	17,000	870	<0.5	2.0
PMW-12	07/15/08	<0.7	65	3.0	44	<0.7	<0.7	<1.4	<0.7	<0.7	<0.7	2.9	35	12	<0.7	110	34	1.7	<0.7	10	32	2.0	<0.7	<0.7	30,000	220J	<0.7	14
PMW-13	07/15/08	<0.5	6.1	1	14	0.9	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	9.5	0.8	<1.7	19	10	<0.5	<0.5	2.0	12	0.7	<0.5	<0.5	7,100	230J	<0.5	0.8
SMW-9	07/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	60J	<300	<0.5	<0.5
SMW-10	07/17/08	<0.5	0.5	<0.5	0.5	0.6	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	1.5	<0.5	<0.5	4.1	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	57J	<300	<0.5	<0.5
SMW-11	07/16/08	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	3.2	<0.5	<0.5	<0.5	<0.5	300	66J	<0.5	<0.5
SMW-13	07/15/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	91	42J	<0.5	<0.5
SMW-14	07/15/08	<0.5	1.9	<0.5	<0.5	0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	1.2	0.6	<0.5	3.0	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	500	160J	<0.5	0.6

NOTES:
All results in micrograms per liter.
111TCA = 1,1,1-trichloroethane.
124TMBZ = 1,2,4-trimethylbenzene.
135TMBZ = 1,3,5-trimethylbenzene.
BBZ = butylbenzene.
BZ = benzene.
C12DCE = cis-1,2-dichloroethene.
CET = chloroethane.
CHCL3 = chloroform.
DCA = 1,1-dichloroethane.
DCE = 1,1-dichloroethene.
EBZ = ethylbenzene.
IPBZ = isopropylbenzene.
mp-XYL = xylenes, M & P.
MTBE = methyl tert-butyl ether.
NAPH = naphthalene.
n-PBZ = n-propylbenzene.
o-XYL = o-xylene.
PCE = tetrachloroethene.
p-IPT = p-isopropyltoluene.
s-BBZ = sec-butylbenzene.
t-BBZ = tert-butylbenzene.
TCE = trichloroethene.
TOL = toluene.
TPH-C10C22 = total petroleum hydrocarbons, carbon range C_{10} to C_{22}.
TPH-C22C32 = total petroleum hydrocarbons, carbon range C_{22} to C_{32}.
VC = vinyl chloride.
XYL = total xylenes.

TABLE 2-3
Summary of Additional Detected Analytical Results for Groundwater Quality Samples, Second Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	TDS	CL	F	As	As-D	Cr	Fe	Mn	Mn-D	Ni	2MNAPH	DEHP	NAPH	Phenol	Ac	Acl	Fl	NAPH	PHEN
ASE-129A	07/18/08	1,010,000J	270,000	120	4.9	4.9	1.7	<50	40	35	1.4	<10	<10	<10	<10	<0.1	<0.1	<0.1	<0.1	<0.1
ASE-130A	07/18/08	--	0.5J	<0.1	--	--	--	--	--	--	--	--	0.8J	--	--	170J	--	0.2J	--	--
PMW-11	07/17/08	--	--	--	--	--	--	--	--	--	--	89J	<47	48J	<47	--	--	--	--	--
PMW-12	07/15/08	--	--	--	--	--	--	--	--	--	--	<470	<470	<470	<470	<0.9	<0.9	1.3	31	<0.9
PMW-13	07/15/08	--	--	--	--	--	--	--	--	--	--	<51	<51	<51	<51	0.2J	0.2J	0.4J	14J	0.2J
SMW-9	07/17/08	--	--	--	--	--	--	--	--	--	--	<9.6	170	<9.6	54	--	--	--	--	--
SMW-10	07/17/08	--	--	--	--	--	--	--	--	--	--	<9.4	<9.4	<9.4	19	--	--	--	--	--
SMW-11	07/16/08	--	--	--	--	--	--	--	--	--	--	<18	<18	<18	<18	<0.09	<0.09	<0.09	0.6	<0.09
SMW-13	07/15/08	--	--	--	--	--	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	<0.1	<0.1	<0.1	<0.1	<0.1
SMW-14	07/15/08	--	--	--	--	--	--	--	--	--	--	<9.5	<9.5	<9.5	<9.5	<0.1	<0.1	<0.1	2.7J	<0.1

NOTES:
All results in micrograms per liter.
2MNAPH = 2-methylnaphthalene.
Ac = acenaphthene.
Acl = acenaphthylene.
As = arsenic.
As-D = arsenic (dissolved).
CL = chloride.
Cr = chromium.
DEHP = bis(2-ethylhexyl)phthalate.
F = fluoride.
Fe = iron.
Fl = fluorene.
Mn = manganese.
Mn-D = manganese (dissolved).
NAPH = naphthalene.
Ni = nickel.
PHEN = phenanthrene.
PHENOL = phenol.
TDS = total dissolved solids

TABLE 2-4
Summary of NAIP Analytical Results for Groundwater Quality Samples, Second Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	NO_3	SO_4	CARBALK	HCARB	CH_4	ETAN	Fe
ASE-129A	07/18/08	5,700J	170,000	--	--	<5	<5	--
ASE-130A	07/18/08	--	--	--	--	--	--	3,700J
PMW-11	07/17/08	<50	<500	530,000	530,000	5,600	<5	14,000
PMW-12	07/15/08	12,000	130,000	280,000	280,000	300	<5	15,000
PMW-13	07/15/08	880	120,000	340,000	340,000	500	<5	2,500
SMW-9	07/17/08	3,600	76,000	340,000	340,000	<5	<5	880
SMW-10	07/17/08	4,100	200,000	230,000	230,000	8	<5	<100
SMW-11	07/16/08	21,000	140,000	280,000	280,000	20	19	3,000
SMW-13	07/15/08	6,100	170,000	240,000	240,000	<5	<5	<100
SMW-14	07/15/08	3,900	200,000	260,000	260,000	11	7	26,000

NOTES:

All results in micrograms per liter.

CARBALK = Carbonate alkalinity.

CH_4 = methane.

ETAN = ethane.

Fe = iron.

HCARB = hydrogen carbonate.

NO_3 = nitrate.

SO_4 = sulfate.

TABLE 2-5
Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	111TCA	124TMBZ	135TMBZ	BBZ	BDCM	BZ	C12DCE	CET	DCA	DCE	EBZ	IPBZ	mp-XYL	MTBE	NAPH	n-PBZ	o-XYL	PCE	p-IPT	s-BBZ	t-BBZ	TCE	TPH C10C22	TPH C22C32	VC	XYL
ASE-20A	09/26/08	<0.5	0.6	<0.5	2.9	<0.5	13	1.3	4.9	31	<0.5	3.7	18	0.6	23	19	7.7	<0.5	<0.5	<0.5	5.7	1	1.3	1,000	<300	9.2	0.6
ASE-37A	09/26/08	<0.5	10	<0.5	1.7	<0.5	35	<0.5	<1.0	<0.5	<0.5	11	11	<0.5	3.7	12	9.6	<0.5	0.7	0.7	2.7	<0.5	1.9	260	<300	<0.5	<0.5
ASE-38A	09/26/08	<4.2	<4.2	<4.2	<4.2	<4.2	720	<4.2	<8.3	<4.2	<4.2	76	16	<4.2	22	34	12	<4.2	<4.2	<4.2	<4.2	<4.2	<4.2	470	<300	<4.2	<4.2
ASE-39A	09/26/08	<3.1	4.1	<3.1	<3.1	<3.1	450	<3.1	<6.3	<3.1	<3.1	45	27	6.1	130	55	20	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	420	<300	<3.1	6.1
ASE-46A	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	7.5	2.8	7.3	59	<0.5	<0.5	3.1	<0.5	49	<2.0	1.0	<0.5	<0.5	<0.5	0.8	<0.5	1.4	1,400	330	5.9	<0.5
ASE-51A	09/25/08	<1.0	55	8.8	24	<1.0	41	<1.0	<2.0	3.3	<1.0	68	32	11	3.3	270	39	<1.0	<1.0	4.7	14	1.3	<1.0	7,000	<130	<1.0	11
ASE-52A	09/25/08	<3.1	28	3.6	<3.1	<3.1	490	<3.1	<6.3	35	<3.1	19	4.7	10	280	36	4.3	<3.1	<3.1	<3.1	<3.1	<3.1	<3.1	760	<300	<3.1	10
ASE-53A	09/25/08	<0.5	0.8	<0.5	<0.5	<0.5	5.2	<0.5	<1.0	<0.5	0.5	14	2.8	<0.5	24	7.4	3.5	<0.5	1.5	<0.5	0.7	<0.5	1.4	71	<300	<0.5	<0.5
ASE-54A	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	1.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<50	<300	<0.5	<0.5
ASE-55A	09/11/08	<0.5	1.3	<0.5	12	<0.5	6.8	<0.5	<2.0	6.8	<0.5	1.4	27	<0.5	2.9	110	24	<0.5	<0.5	<0.5	9.8	1.1	<0.5	31,000	320	<0.5	<0.5
ASE-57A	09/26/08	<4.2	<4.2	<4.2	<4.2	<4.2	440	<4.2	<8.3	<4.2	<4.2	7.7	48	<4.2	150	260	55	<4.2	<4.2	<4.2	11	<4.2	<4.2	8,700J	80J	<4.2	<4.2
ASE-58A	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<1.0	14	<0.5	<0.5	<0.5	<0.5	8.6	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<50	<300	2.2	<0.5
ASE-59A	09/08/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	32	1.4	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	5.1	<50	<300	<0.5	<0.5
ASE-60A	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1	<1.0	0.5	1.3	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	9.0	<50	<300	<0.5	<0.5
ASE-61A	09/08/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	0.6J	1.9J	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	2.1J	<0.5	<0.5	<0.5	1.4J	<50	<300	<0.5	<0.5
ASE-62A	09/11/08	<0.5	0.7	<0.5	0.7	<0.5	<0.5	0.6	<1.0	12	<0.5	<0.5	1.2	<0.5	8.2	3.7	1.4	<0.5	<0.5	<0.5	0.8	<0.5	1.3	94	280J	1.4	<0.5
ASE-63A	09/12/08	<25	<25	<25	<25	<25	2,700	<25	<50	<25	<25	<25	61	<25	190	190	47	<25	<25	<25	<25	<25	<25	1,700	<300	<25	<25
ASE-64A	09/12/08	<0.5	14	6.2	3.4	8.3	6.6	<0.5	<1.0	<0.5	<0.5	22	44	18	<0.5	19	19	<0.5	<0.5	2.0	6.3	1.1	<0.5	1,500	240J	<0.5	18
ASE-65A	09/11/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<1.0	1.3	<0.5	<0.5	0.5	<0.5	<0.5	2.4	0.8	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	<50	<300	<0.5	<0.5
ASE-66A	09/10/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	7.8	0.5	<0.5	<0.5	<0.5	5.1	<2.0	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	3.9	<50	<300	<0.5	<0.5
ASE-89A	09/17/08	<2.0	<2.0	<2.0	15	<2.0	390	<2.0	<4.0	<2.0	<2.0	<2.0	28	<2.0	76	21	35	<2.0	<2.0	<2.0	11	<2.0	<2.0	2,700	<300	<2.0	<2.0
ASE-90A	09/17/08	<0.5	<0.5	<0.5	0.9	<0.5	33	1	2.0	4.1	<0.5	<0.5	6.6	<0.5	390	<13	5.1	<0.5	<0.5	<0.5	1.7	<0.5	0.9	820	<300	0.8	<0.5
ASE-91A	09/12/08	<0.5	<0.5	<0.5	4.7	<0.5	75	0.7	4.3	24	<0.5	0.7	14	<0.5	130	59	11	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	1,100	<300	1.7	<0.5
ASE-92A	09/12/08	<0.5	<0.5	<0.5	2.6	<0.5	200	<0.5	<5.0	2.2	<0.5	0.9	5.0	<0.5	270	38	4.2	<0.5	<0.5	<0.5	2.0	0.6	<0.5	630	<300	0.6	<0.5
ASE-95A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	0.7	<0.5	<0.5	<0.5	<0.5	34	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-96A	09/16/08	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<2.5	<1.3	<1.3	<1.3	<1.3	<1.3	230	<5.0	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<50	<300	<1.3	<1.3
ASE-97A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	<1.0	22	4.3	1.3	1.1	<0.5	17	6.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.7	240	<300	1.8	<0.5
ASE-98A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-99A	09/17/08	<0.5	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-100A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-101A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	7.0	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	140	<300	<0.5	<0.5
ASE-102A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	410	49J	<0.5	<0.5
ASE-103A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-105A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	0.8	<0.5	1.1	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	76	<300	<0.5	<0.5
ASE-106A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-107A	09/16/08	<0.5	<0.5	<0.5	2.6	<0.5	20	<0.5	<1.0	<0.5	<0.5	1.2	8.8	<0.5	6.6	18	5.3	<0.5	<0.5	<0.5	4.2J	<0.5	<0.5	370	<300	<0.5	<0.5
ASE-108A	09/11/08	2.9	1.0	<0.5	2.1	<0.5	29	1.2	4.5	33	3.9	0.6	7.2	<0.5	61	2.2	3.4	<0.5	<0.5	<0.5	3.5	0.6	2.1	1,500	43J	3.5	<0.5
ASE-109A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-110A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-111A	09/25/08	<4.2	7.3	2.0	<4.2	<4.2	810	<4.2	<8.3	<4.2	<4.2	23	2.2	8.7	270	<17	1.5	<4.2	1.6	0.5	<4.2	<4.2	1.4	1,000	<300	<4.2	8.7
ASE-112A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<1.0	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<2.0	0.7	<0.5	0.7	<0.5	1.0J	<0.5	<0.5	110	<300	<0.5	<0.5
ASE-113A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-114A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	0.7	<0.5	0.6J	<0.5	<0.5	170	<300	<0.5	<0.5
ASE-115A	09/25/08	<13	<13	<13	<13	<13	1,800	<13	<25	<13	<13	470	59	<13	620	230	54	<13	<13	<13	<13	<13	<13	2,900	<60	<13	<13
ASE-116A	09/26/08	<0.5	0.9	<0.5	<0.5	<0.5	55	<0.5	<1.0	<0.5	<0.5	7.0	9.9	<0.5	14	19	7.4	<0.5	1.2	<0.5	1.4	<0.5	3.9	130	<300	<0.5	<0.5
ASE-122A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-123A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-124A	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	0.7	<0.5	<0.5	<0.5	<0.5	14	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5

TABLE 2-5
Summary of SW8260 and 8015B Detected Analytical Results for Groundwater Quality Samples, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	111TCA	124TMBZ	135TMBZ	BBZ	BDCM	BZ	C12DCE	CET	DCA	DCE	EBZ	IPBZ	mp-XYL	MTBE	NAPH	n-PBZ	o-XYL	PCE	p-IPT	s-BBZ	t-BBZ	TCE	TPH C10C22	TPH C22C32	VC	XYL
ASE-125A	09/16/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-126A	09/17/08	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	1.4	<1.0	16J	1.9	<0.5	1.1	<0.5	31J	<2.0	<0.5	<0.5	<0.5	<0.5	2.7	0.6	1.0J	660	56J	1.7	<0.5
ASE-127A	09/12/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	2.9	0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-128A	09/17/08	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<300	<0.5	<0.5
ASE-129A	09/18/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	70J	<0.5	<0.5
ASE-130A	09/11/08	<1.7	41	8.2	8.7	<1.7	110	1.9	5.2	8.9	<1.7	46	16	22	180	100	17	<1.7	<1.7	3.9	4.8	<1.7	<1.7	1,700	64J	1.9	22
BC-7A	09/12/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	0.5	<0.5	0.9	<0.5	<0.5	<0.5	0.6	<50	<300	<0.5	<0.5
BC-8B	09/17/08	<0.5	<0.5	<0.5	<0.5	<0.5	2.6	1.4	<1.0	11	1.2	<0.5	0.7	<0.5	57	<2.0	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	4.9	62	<300	1.2	<0.5
PL-101A	09/26/08	<0.5	1.8	<0.5	6.9	<0.5	76	<0.5	<1.0	<0.5	<0.5	54	42	<0.5	2.1	15	26	<0.5	<0.5	<0.5	12	2.3	<0.5	640	<300	<0.5	<0.5
PL-105A	09/11/08	<0.5	2.8	0.7	4.4	<0.5	67	0.6	5.0	39	<0.5	2.0	10	1.1	97	32	8.3	0.6	<0.5	<0.5	4.6	0.9	<0.5	1,700	46J	4.3	1.6
PL-201A	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	1.5	0.9	6.8	70	<0.5	<0.5	0.7	<0.5	23	<2.0	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	1,300	300	3.9	<0.5
PL-2101	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	6.6	<0.5	<0.5	<0.5	<0.5	2.2	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<50	<300	1.4	<0.5
PL-2102	09/09/08	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<50	<300	<0.5	<0.5

NOTES:
All results in micrograms per liter.
111TCA = 1,1,1-trichloroethane.
124TMBZ = 1,2,4-trimethylbenzene.
135TMBZ = 1,3,5-trimethylbenzene.
BBZ = butylbenzene.
BDCM = bromodichloromethane.
BZ = benzene.
C12DCE = cis-1,2-dichloroethene.
CET = chloroethane.
DCA = 1,1-dichloroethane.
DCE = 1,1-dichloroethene.
EBZ = ethylbenzene.
IPBZ = isopropylbenzene.
mp-XYL = xylenes, M & P.
MTBE = methyl tert-butyl ether.
NAPH = naphthalene.
n-PBZ = n-propylbenzene.
o-XYL = o-xylene.
PCE = tetrachloroethene.
p-IPT = p-isopropyltoluene.
s-BBZ = sec-butylbenzene.
t-BBZ = tert-butylbenzene.
TCE = trichloroethene.
TPH-C10C22 = total petroleum hydrocarbons, carbon range C_{10} to C_{22}.
TPH-C22C32 = total petroleum hydrocarbons, carbon range C_{22} to C_{32}.
VC = vinyl chloride.
XYL = total xylenes.

TABLE 2-6
Summary of Additional Detected Analytical Results for Groundwater Quality Samples, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	Ac	Acl	Fl	NAPH
ASE-129A	09/18/08	<0.09	<0.09	<0.09	<0.09
ASE-130A	09/11/08	0.2J	0.1J	0.3J	62J

NOTES:
All results in micrograms per liter.
Ac = acenaphthene.
Acl = acenaphthylene.
Fl = fluorene.
NAPH = naphthalene.

TABLE 2-7
Summary of NAIP Analytical Results for Groundwater Quality Samples, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	CARBALK	CH_4	ETH	Fe	HCARB	NO_3	SO_4
ASE-20A	09/26/08	400,000	5,100	7	270	400,000	<50	13,000
ASE-37A	09/26/08	310,000	1,500	<5	260	310,000	730	48,000
ASE-38A	09/26/08	310,000	2,900	<5	470	310,000	2,300	54,000
ASE-39A	09/26/08	410,000	4,100	<5	1,200	410,000	70	10,000
ASE-46A	09/09/08	410,000	2,800	<5	2,100	410,000	<50	54,000
ASE-51A	09/25/08	360,000	12,000	<25	5,000	360,000	1,200	20,000
ASE-52A	09/25/08	330,000	3,000	<5	400	330,000	3,300	51,000
ASE-53A	09/25/08	270,000	160	<5	<100	270,000	7,000	80,000
ASE-54A	09/09/08	280,000	<5	<5	<100	280,000	3,000	100,000
ASE-55A	09/11/08	570,000	1,700	<5	5,200	570,000	<50	16,000
ASE-57A	09/26/08	480,000	13,000J	<25	7,000	480,000	<50	<500
ASE-58A	09/09/08	350,000	1,200	<5	<100	350,000	1,400J	79,000
ASE-59A	09/08/08	240,000	6	<5	<100	240,000	5,600	84,000
ASE-60A	09/09/08	220,000	<5	<5	<100	220,000	5,400J	84,000
ASE-61A	09/08/08	230,000	<5	<5	<100	230,000	6,400	82,000
ASE-62A	09/11/08	340,000	680	<5	<100	340,000	1,100	81,000
ASE-63A	09/12/08	470,000	11,000	<25	970	470,000	110J	7,600
ASE-64A	09/12/08	410,000	6,000	<25	250	410,000	80J	70,000
ASE-65A	09/11/08	300,000	<5	<5	<100	300,000	3,400	130,000
ASE-66A	09/10/08	280,000	120	<5	<100	280,000	2,200	65,000
ASE-89A	09/17/08	470,000	15,000	<5	2,000	470,000	<50	<500
ASE-90A	09/17/08	410,000	3,200	<5	1,100	410,000	<50	24,000
ASE-91A	09/12/08	430,000	6,100	<10	1,100	430,000	<50	21,000
ASE-92A	09/12/08	370,000	3,100	<5	1,400	370,000	<50	5,300
ASE-95A	09/16/08	320,000	170	<5	150	320,000	4,900	110,000
ASE-96A	09/16/08	380,000	670	<5	190	380,000	520	25,000
ASE-97A	09/17/08	360,000	280	<5	380	360,000	80J	67,000
ASE-98A	09/17/08	210,000	<5	<5	<100	210,000	3,000J	140,000
ASE-99A	09/17/08	200,000	<5	<5	<100	200,000	2,900J	140,000
ASE-100A	09/18/08	270,000	<5	<5	<100	270,000	5,400	180,000
ASE-101A	09/18/08	340,000	1,900	<5	150	340,000	4,600	110,000
ASE-102A	09/18/08	260,000	220	<5	<100	260,000	9,000	180,000
ASE-103A	09/18/08	250,000	<5	<5	<100	250,000	6,400	190,000
ASE-105A	09/16/08	340,000	3,100	<5	<100	340,000	2,900	88,000
ASE-106A	09/17/08	270,000	<5	<5	<100	270,000	11,000J	150,000
ASE-107A	09/16/08	300,000	2,500	<5	290	300,000	8,400	110,000
ASE-108A	09/11/08	490,000	5,000	<10	580	490,000	1,500	85,000
ASE-109A	09/18/08	260,000	<5	<5	<100	260,000	11,000	190,000
ASE-110A	09/17/08	230,000	<5	<5	<100	230,000	4,900J	190,000
ASE-111A	09/25/08	270,000	830	<5	580	270,000	7,700	81,000
ASE-112A	09/16/08	350,000	3,500	<10	<100	350,000	20,000	100,000
ASE-113A	09/16/08	260,000	<5	<5	<100	260,000	15,000	150,000
ASE-114A	09/16/08	260,000	36	<5	<100	260,000	16,000	150,000
ASE-115A	09/25/08	350,000	8,300	<5	2,600	350,000	1,100	14,000

TABLE 2-7
Summary of NAIP Analytical Results for Groundwater Quality Samples, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Sample Date	CARBALK	CH_4	ETH	Fe	HCARB	NO_3	SO_4
ASE-116A	09/26/08	300,000	1,400	<5	<100	300,000	1,600	64,000
ASE-122A	09/17/08	260,000	<5	<5	<100	260,000	13,000J	160,000
ASE-123A	09/18/08	250,000	<5	<5	<100	250,000	11,000	210,000
ASE-124A	09/17/08	340,000	43	<5	<100	340,000	5,100J	100,000
ASE-125A	09/16/08	260,000	<5	<5	<100	260,000	5,800	160,000
ASE-126A	09/17/08	390,000	1,100J	<5	<100	390,000	1,900J	48,000
ASE-127A	09/12/08	270,000	12	<5	<100	270,000	7,900J	97,000
ASE-128A	09/17/08	220,000	<5	<5	<100	220,000	4,200J	150,000
ASE-129A	09/18/08	250,000	<5	<5	<100	250,000	5,800	170,000
ASE-130A	09/11/08	410,000	4,300	<10	2,300	410,000	<50	20,000
BC-7A	09/12/08	250,000	<5	<5	410	250,000	13,000J	110,000
BC-8B	09/17/08	360,000	1,100	<5	<100	360,000	1,200J	69,000
PL-101A	09/26/08	360,000	4,700	<5	290	360,000	<50	9,500
PL-105A	09/11/08	560,000	4,600	<10	2,200	560,000	120	120,000
PL-201A	09/09/08	430,000	2,400	<5	<100	430,000	120J	18,000
PL-2101	09/09/08	280,000	180	<5	460	280,000	1,800	72,000
PL-2102	09/09/08	270,000	<5	<5	650	270,000	2,800	110,000

NOTES:
All results in micrograms per liter.
CARBALK = carbonate alkalinity.
CH_4 = methane.
ETH = ethene.
Fe = iron.
HCARB = hydrogen carbonate.
NO_3 = nitrate.
SO_4 = sulfate.

TABLE 2-8
Comparison between June 2008 and September 2008 Water-level Elevations, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Groundwater Elevation 6/4/2008[a] (ft amsl)	Groundwater Elevation 9/3/2008 (ft amsl)	Difference[b] (feet)
ASE-19A	1053.97	1055.01	1.04
ASE-20A	1052.54	1050.88	-1.66
ASE-37A	1057.49	NM	--
ASE-38A	1057.83	NM	--
ASE-39A	1057.09	1058.49	1.40
ASE-41A	1052.07	NM	--
ASE-46A	1050.70	1052.00	1.30
ASE-51A	1055.07	1056.17	1.10
ASE-52A	1056.91	1058.08	1.17
ASE-53A	1057.57	1058.90	1.33
ASE-54A	1052.00	1053.00	1.00
ASE-55A	1048.34	1057.06	8.72
ASE-56A	1051.59	1052.91	1.32
ASE-57A	1053.11	NM	--
ASE-58A	1050.51	1051.56	1.05
ASE-59A	1057.22	1058.27	1.05
ASE-60A	1058.28	1059.60	1.32
ASE-61A	1058.75	1060.14	1.39
ASE-62A	1048.66	1049.76	1.10
ASE-63A	1056.08	1057.34	1.26
ASE-64A	1051.99	1053.56	1.57
ASE-65A	1038.36	1039.98	1.62
ASE-66A	1053.07	1054.14	1.07
ASE-67A	1057.01	1058.37	1.36
ASE-68A	1052.90	NM	--
ASE-89A	1051.02	1052.47	1.45
ASE-90A	1049.93	1051.36	1.43
ASE-91A	1050.25	1051.52	1.27
ASE-92A	1050.76	1052.05	1.29
ASE-95A	1040.28	1041.79	1.51
ASE-96A	1049.22	1050.74	1.52
ASE-97A	1039.84	1041.44	1.60
ASE-98A	1044.85	1046.47	1.62
ASE-99A	1046.72	1048.29	1.57
ASE-100A	1041.32	1042.90	1.58
ASE-101A	1044.60	1046.33	1.73
ASE-102A	1048.10	1049.69	1.59
ASE-103A	1039.47	1041.04	1.57
ASE-105A	1051.44	1053.13	1.69
ASE-106A	1049.32	1050.86	1.54
ASE-107A	1050.69	1052.32	1.63
ASE-108A	1049.00	1050.22	1.22

TABLE 2-8
Comparison between June 2008 and September 2008 Water-level Elevations, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Groundwater Elevation 6/4/2008[a] (ft amsl)	Groundwater Elevation 9/3/2008 (ft amsl)	Difference[b] (feet)
ASE-109A	1051.91	1053.54	1.63
ASE-110A	1050.36	1051.93	1.57
ASE-111A	1057.85	1059.10	1.25
ASE-112A	1051.64	1053.47	1.83
ASE-113A	1052.18	1053.85	1.67
ASE-114A	1051.55	1053.01	1.46
ASE-115A	1058.00	1059.25	1.25
ASE-116A	1057.70	NM	--
ASE-122A	1053.02	1054.66	1.64
ASE-123A	1053.34	1054.99	1.65
ASE-124A	1040.80	1042.45	1.65
ASE-125A	1036.72	1038.35	1.63
ASE-126A	1038.42	1040.08	1.66
ASE-127A	1056.03	1056.97	0.94
ASE-128A	1044.88	1046.51	1.63
ASE-129A	NM	1039.30	--
ASE-130A	NM	1052.33	--
BC-7A	1056.78	1058.16	1.38
BC-8B	1049.09	1050.36	1.27
BC-18	NM	1039.13	--
PL-101A	1057.95	1059.15	1.20
PL-105A	1049.34	1050.59	1.25
PL-201A	1049.64	1050.71	1.07
PL-2101	1052.43	1053.44	1.01
PL-2102	1052.10	1053.07	0.97

Notes:

[a] Water levels in monitoring wells ASE-41A, ASE-46A, ASE-54A, ASE-55A, ASE-58A, ASE-62A, ASE-91A, ASE-92A, ASE-108A, PL-105A, PL-2101, and PL-2102 were measured on June 3, 2008. The water level in monitoring well ASE-67A was measured on June 5, 2008.

[b] Difference column calculated by subtracting June 2008 water-level elevations from September 2008 water-level elevations. Positive results indicate higher water-level elevations in September, which signify a rising water table over the reporting period.

-- = not calculated.
ft amsl = feet above mean sea level.
NM = not measured.

TABLE 2-9
Summary of Free-product Thickness Measurements, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Well	2-Jul	30-Jul	15-Aug	21-Aug	3-Sep
ASE-19A	0	NM	0	NM	0
ASE-20A	0	NM	0	NM	0
ASE-37A	0	NM	0	NM	0
ASE-38A	0	NM	0	NM	0
ASE-39A	0	NM	0	NM	0
ASE-41A	0	NM	0	NM	0
ASE-51A	0.04	0.02	0.03	NM	0
ASE-52A	0	NM	0	NM	0
ASE-53A	0	NM	0	NM	0
ASE-55A	0	NM	0	NM	0
ASE-56A	0	NM	0	NM	0
ASE-57A	0	NM	0	NM	0
ASE-58A	0	NM	0	NM	0
ASE-63A	0	NM	0	NM	0
ASE-64A	0	NM	0.01	NM	0.03
ASE-68A	0	NM	0	NM	0
ASE-89A	0	NM	0.02	NM	0.03
ASE-90A	0	NM	0	NM	0.01
ASE-91A	0.04	NM	0.02	NM	0.02
ASE-92A	0	NM	0	NM	0
ASE-96A	0	NM	0	NM	0
ASE-102A	0	NM	0.05	NM	0.04
ASE-107A	0.01	1.34	0	0.59	0.42
ASE-111A	0.02	0.07	0.07	0.07	0.08
ASE-113A	0	NM	0	NM	0
ASE-114A	0.02	NM	0	NM	0
ASE-115A	0.09	0.09	0.19	0.21	0.15
ASE-130A	NM	NM	0	NM	0.01
PL-101A	0	NM	0	NM	0
PL-105A	0	NM	0	NM	0
PL-2101	0	NM	0	NM	0

Notes:

This table includes all monitoring wells that historically have had measurable free product, except monitoring well ASE-67A. Free-product thickness measurements for monitoring well ASE-67A are presented in Table 2-10.

Monitoring wells with a free-product thickness less than 0.1 foot are measured monthly. Monitoring wells with a free-product thickness greater than 0.1 foot are measured biweekly.

NM = Free-product thickness was not measured.

TABLE 2-10
Summary of Free-product Thickness Measurements for Monitoring Well ASE-67A, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Date	ASE-67A Free-product Thickness (feet)
07/03/08	0.08
07/11/08	0.07
07/17/08	0.09
07/21/08	0.09
07/28/08	0.12
08/04/08	0.08
08/15/08	0.07
08/22/08	0.11
08/30/08	0.10
09/03/08	0.11
09/11/08	0.12
09/18/08	0.16
09/25/08	0.11

TABLE 2-11
Comparison of Historical Maximum Free-product Thickness Measurements to September 2008 Free-product Thickness Measurements, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Well	Historical Maximum Free-product Thickness		September 2008 Free-product Thickness Measurements			
	Date	Thickness	3-Sep	11-Sep	18-Sep	25-Sep
Monitoring Wells Located on Honeywell Property North of Air Lane						
ASE-19A	02/10/2000	3.00	0	NM	NM	NM
ASE-20A	01/07/2003	2.20	0	NM	NM	NM
ASE-37A	01/20/2005	0.53	0	NM	NM	NM
ASE-38A	07/21/2004	1.73	0	NM	NM	NM
ASE-39A	11/28/2001	1.33	0	NM	NM	NM
ASE-51A	12/19/2001	3.42	0	NM	NM	NM
ASE-52A	02/22/2002[a]	1.80	0	NM	NM	NM
ASE-53A	11/28/2001	1.79	0	NM	NM	NM
ASE-56A	03/21/2002[a]	1.90	0	NM	NM	NM
ASE-57A	03/20/2002	3.07	0	NM	NM	NM
ASE-67A	07/26/2005	4.52	0.11	0.12	0.16	0.11
ASE-68A	06/27/2002	3.13	0	NM	NM	NM
ASE-111A	10/03/2007	2.25	0.08	NM	NM	NM
ASE-115A	11/28/2007	0.41	0.15	NM	NM	NM
PL-101A	03/06/2002	1.41	0	NM	NM	NM
PL-2101	06/14/2000	0.44	0	NM	NM	NM
Monitoring Wells Located on Honeywell Property South of Air Lane						
ASE-41A	07/09/2003	3.50	0	NM	NM	NM
ASE-55A	10/19/2005	0.81	0	NM	NM	NM
ASE-58A	05/07/2008	0.01	0	NM	NM	NM
ASE-63A	09/09/2004	0.02	0	NM	NM	NM
ASE-64A	07/09/2003	1.95	0.03	NM	NM	NM
ASE-91A	10/03/2007	0.05	0.02	NM	NM	NM
ASE-92A	11/03/2004[a]	0.24	0	NM	NM	NM
ASE-130A	09/03/2008	0.01	0.01	NM	NM	NM
PL-105A	04/30/2003	1.07	0	NM	NM	NM
Monitoring Wells Located on PSHIA Property						
ASE-89A	08/02/2004	1.60	0.03	NM	NM	NM
ASE-90A	10/06/2004	1.23	0.01	NM	NM	NM
ASE-96A	11/03/2004	0.48	NM	NM	NM	NM
ASE-102A	01/26/2005	4.27	0.04	NM	NM	NM
ASE-107A	07/04/2007	1.87	0.42	NM	NM	NM
ASE-113A	05/18/2005	0.01	NM	NM	NM	NM
ASE-114A	09/07/2005	0.01	NM	NM	NM	NM

Notes:

This table includes all monitoring wells that historically have had measurable free product.

Monitoring wells with a free-product thickness less than 0.1 foot are measured monthly. Monitoring wells with a free-product thickness greater than 0.1 foot are measured biweekly.

NM = Free-product thickness was not measured.

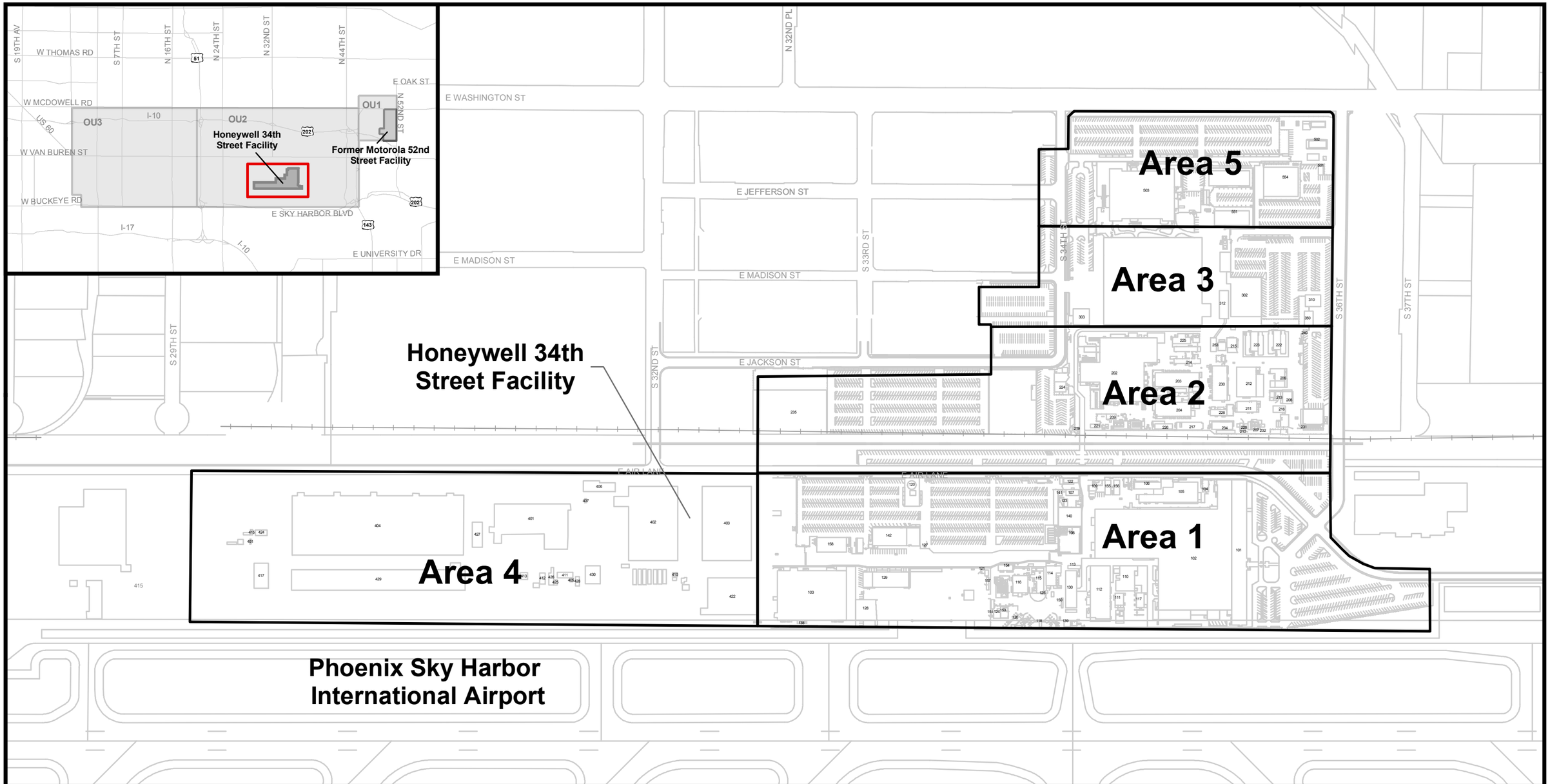
[a] Date listed is the most recent date on which the historical maximum free-product thickness was measured. The same free-product thickness was also measured on one or more previous dates.

TABLE 3-1
Summary of Free-product Recovery, Third Quarter 2008
Honeywell 34th Street Facility, Phoenix, Arizona

Well	Gallons Recovered during Third Quarter 2008	Total Gallons Recovered via Skimming through Third Quarter 2008
ASE-19A	0	49.6
ASE-20A	0	4103.8
ASE-37A	0	1.8
ASE-38A	0	46.9
ASE-39A	0	0.7
ASE-41A	0	27.3
ASE-51A	0	105.3
ASE-52A	0	19.5
ASE-53A	0	481.1
ASE-55A	0	3.1
ASE-56A	0	663
ASE-57A	0	685.2
ASE-58A	0	0
ASE-63A	0	0
ASE-64A	0	31.7
ASE-67A	3.0	348.5
ASE-68A	0	74.7
ASE-89A	0	139.3
ASE-90A	0	6.7
ASE-91A	0	0
ASE-92A	0	0
ASE-96A	0	1
ASE-102A	0	146.6
ASE-107A	1.7	18.95
ASE-111A	0	13.25
ASE-113A	0	0
ASE-114A	0	0
ASE-115A	0.4	2.4
ASE-130A	0	0
PL-101A	0	291
PL-105A	0	5.5
PL-2101	0	0.02
Total	**5.1**	**7266.92**

Notes:
This table includes all wells that historically have had measurable free product.
Rounding may affect totals shown in far right column and totals at bottom of table.

Figures



Legend

- Street and Airport Features
- Railroad
- Operational Area Boundaries
- Honeywell Buildings

N
W E
S

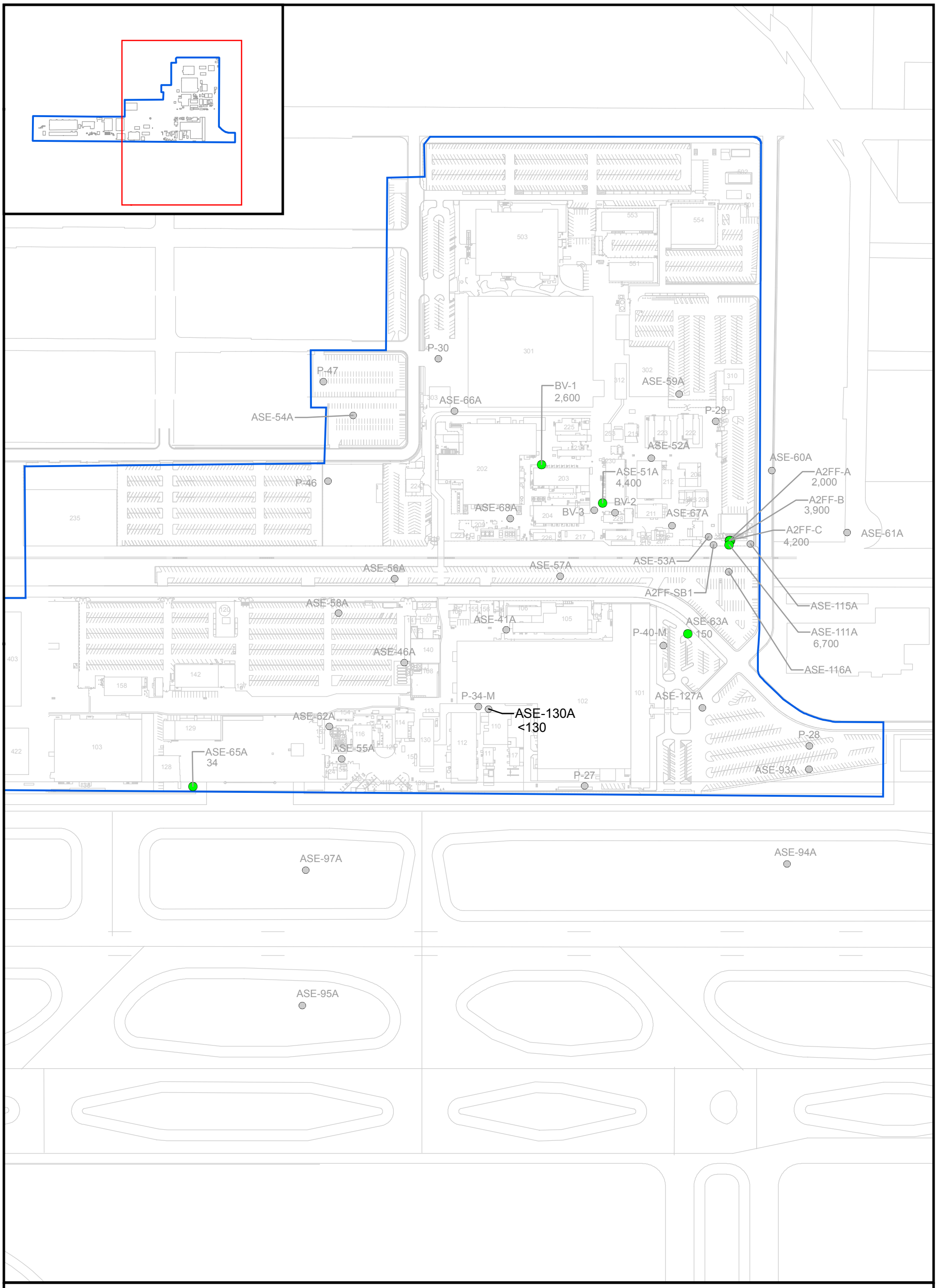
0 200 400 800 Feet

FIGURE 1-1
FACILITY LOCATION AND LAYOUT

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\1ST QRT MAR 2008\MAPFILES\FIG1-1_FACILITYLOCATIONLAYOUT.MXD CVF 7/18/2008 11:41:44



Legend

- Compound Not Detected
- Compound Detected (mg/kg)
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

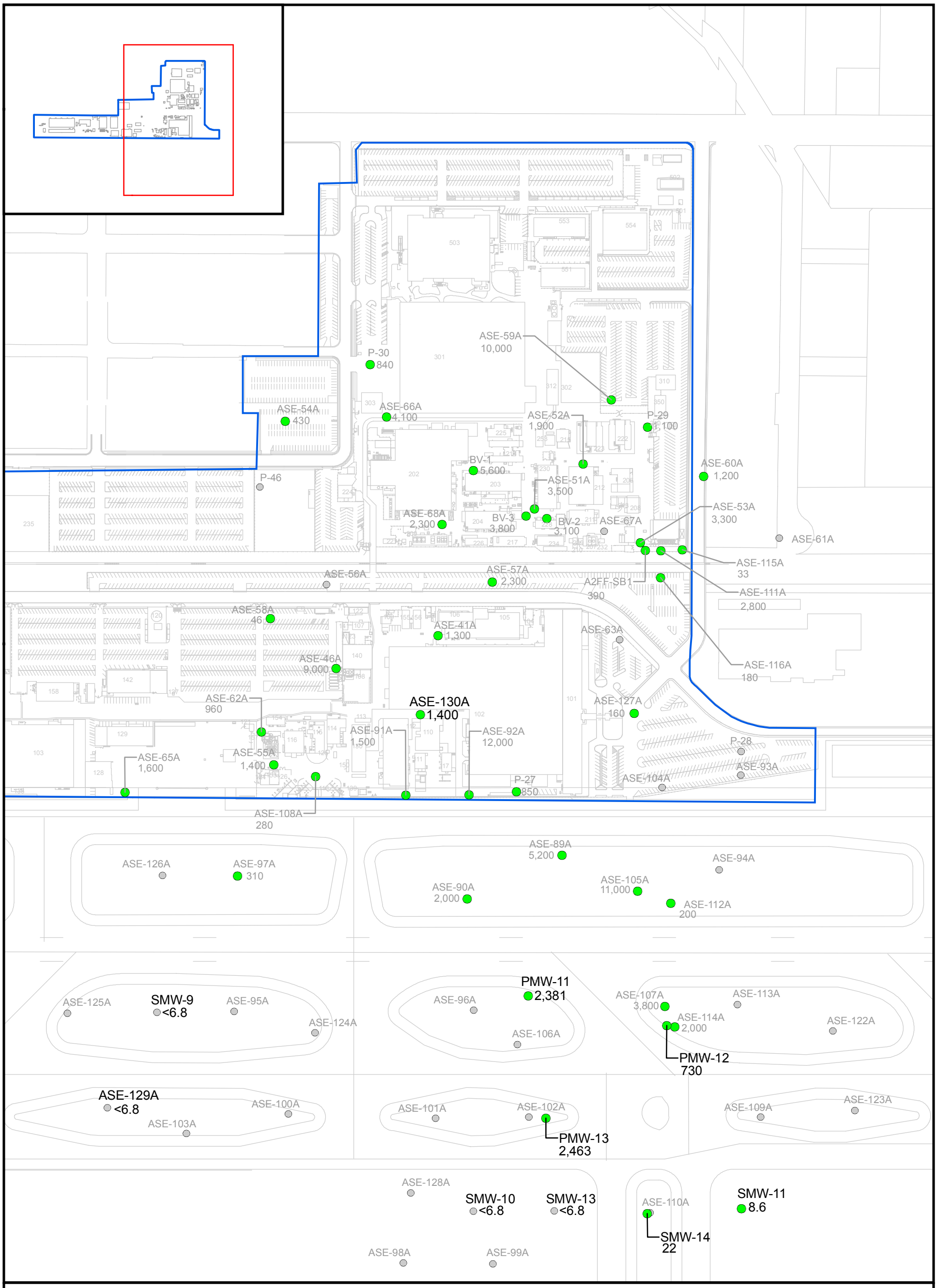
Notes:
1. TPH = Total Petroleum Hydrocarbons (C10-C32).
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-1
TPH - SHALLOW (<40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-1_SOIL-TPH_SHALLOW.MXD CVF 11/12/2008 09:33:42



Legend

- Compound Not Detected
- Compound Detected (mg/kg)
- Street and Airport Features
- Honeywell Facility

N
W E
S

0 150 300 600 Feet

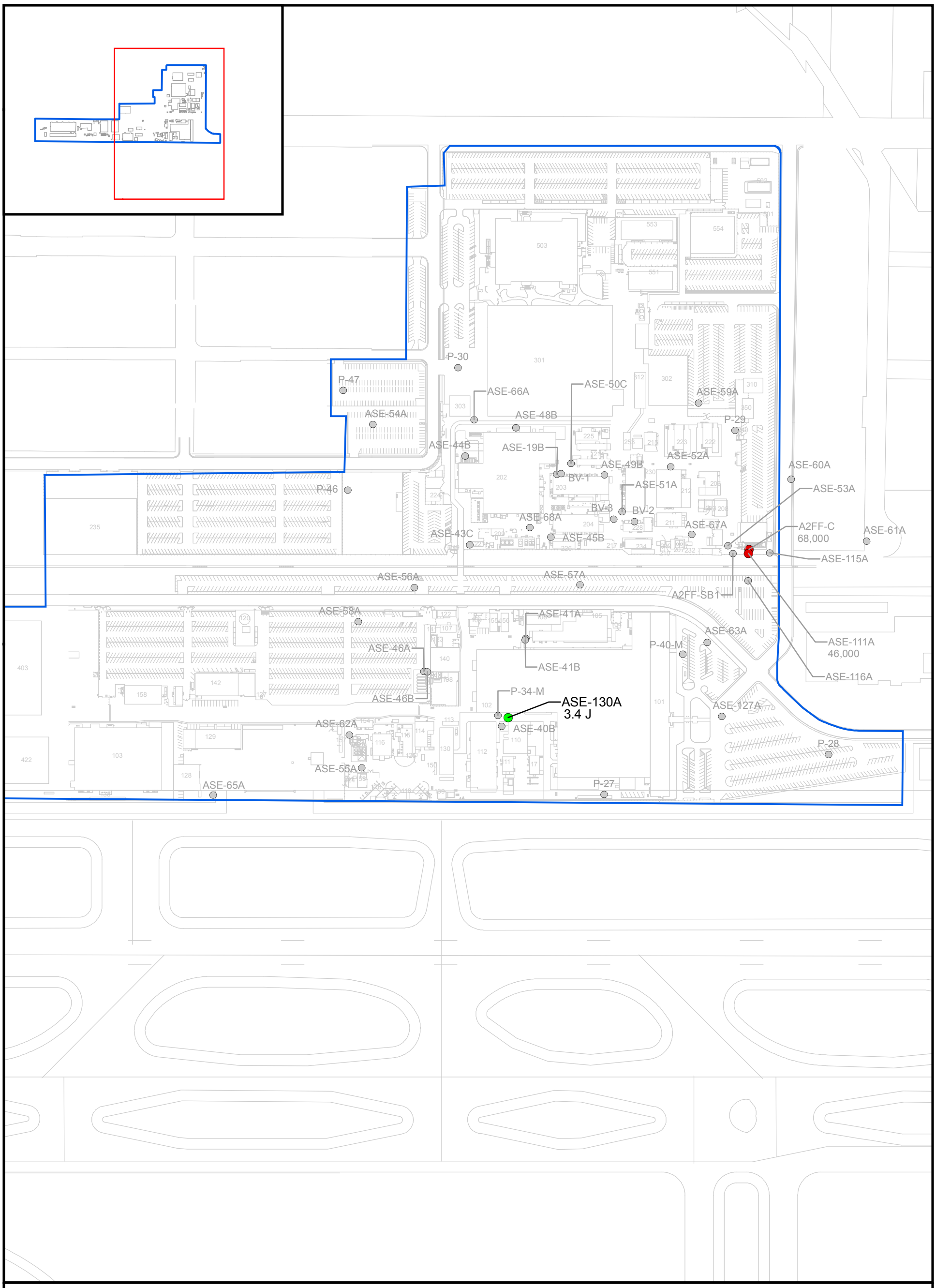
Notes:
1. TPH = Total Petroleum Hydrocarbons (C10-C32)
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-2
TPH - DEEP (>40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-2_SOIL-TPH_DEEP.MXD CVF 11/6/2008 14:49:52



Legend

- Compound Not Detected
- Compound Detected (ug/kg)
- Regulatory Standard Exceeded
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

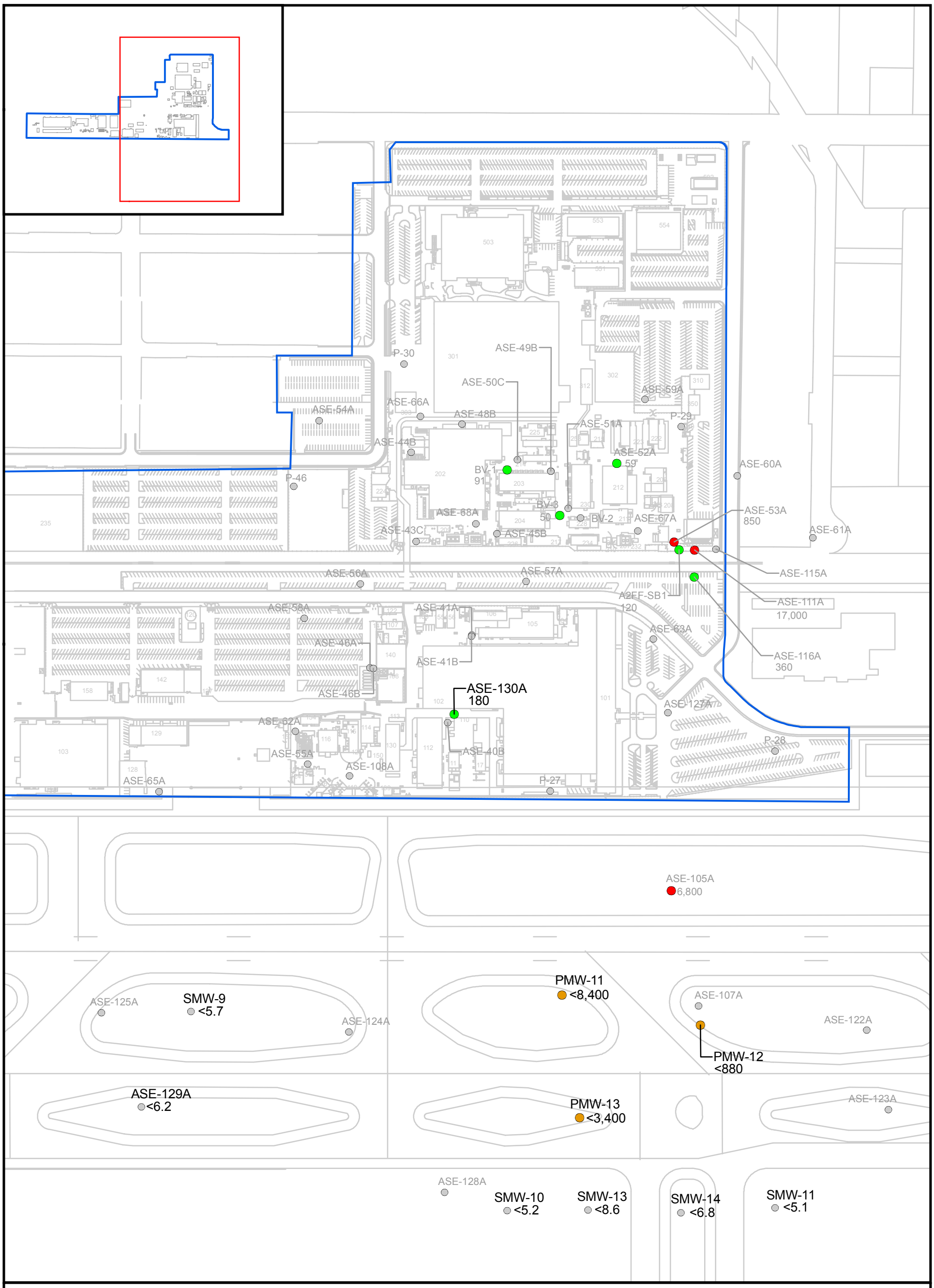
Notes:
1. Exceedance value is 650 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.
4. J = Analyte detected but concentration estimated by laboratory.

FIGURE 2-3
BENZENE - SHALLOW (<40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-3_SOIL-BENZENE_SHALLOW.MXD CVF 11/6/2008 14:58:23



Legend

- Compound Not Detected
- Compound Detected (ug/kg)
- Laboratory Reporting Limit Exceeds Regulatory Standards
- Regulatory Standard Exceeded
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

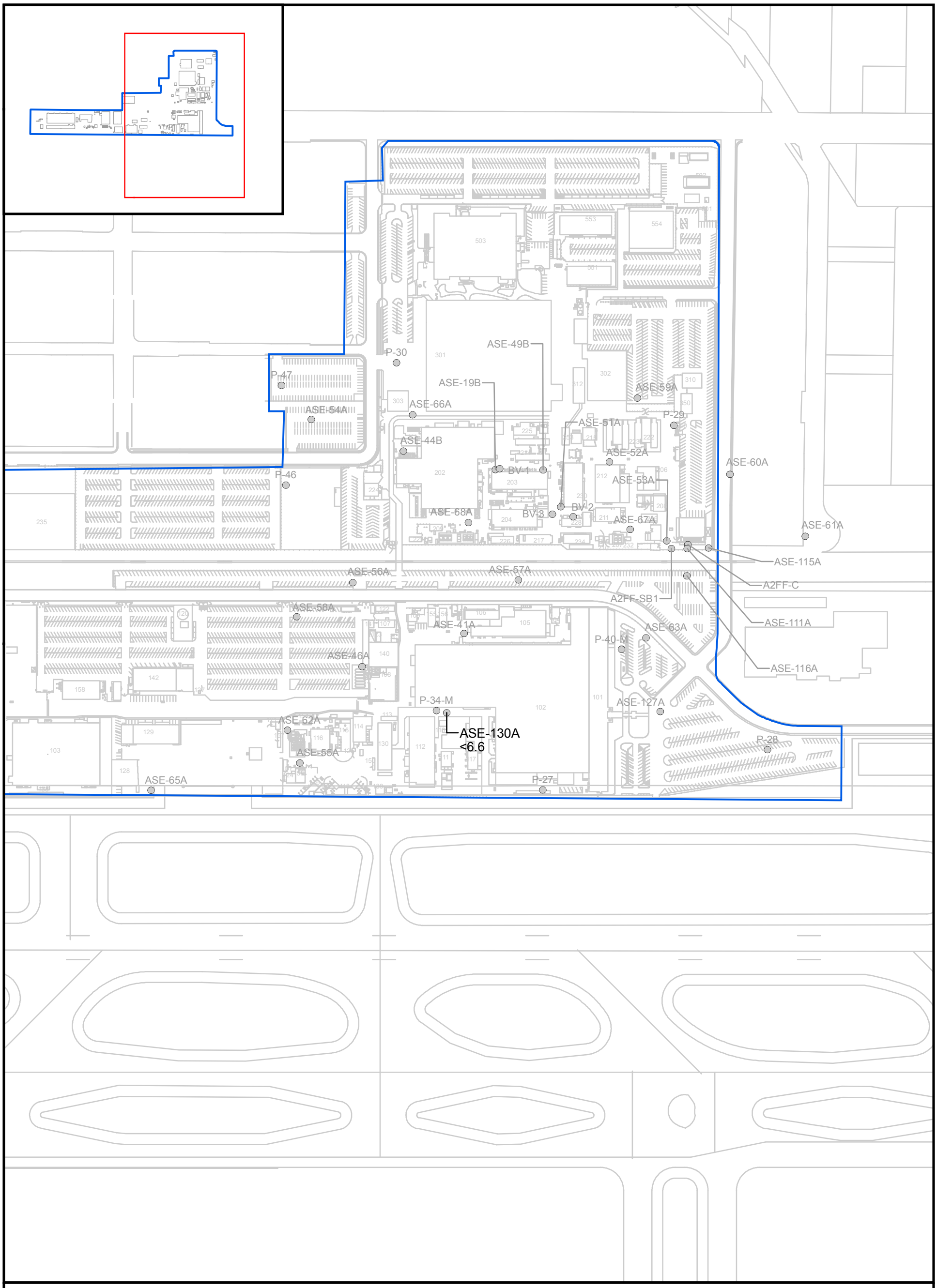
Notes:
1. Exceedance value is 650 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-4
BENZENE - DEEP (>40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-4_SOIL-BENZENE_DEEP.MXD CVF 11/17/2008 10:51:41



Legend

- Compound Not Detected
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

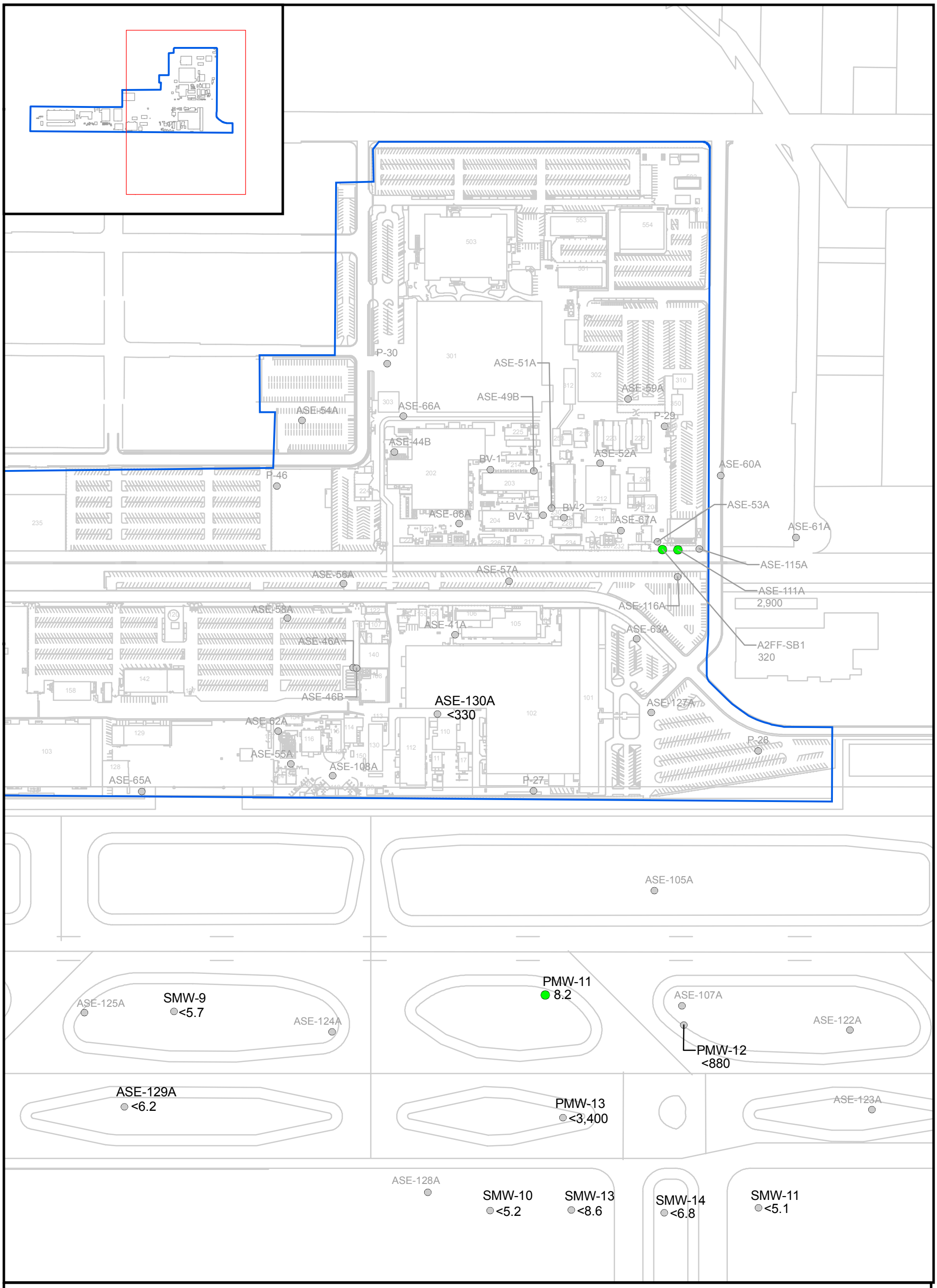
Notes:
1. Exceedance value is 320,000 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-5
METHYL TERT-BUTYL ETHER - SHALLOW (<40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-5_SOIL-MTBE_SHALLOW.MXD CVF 11/6/2008 15:21:11



Legend

- Compound Detected (ug/kg)
- Compound Not Detected
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

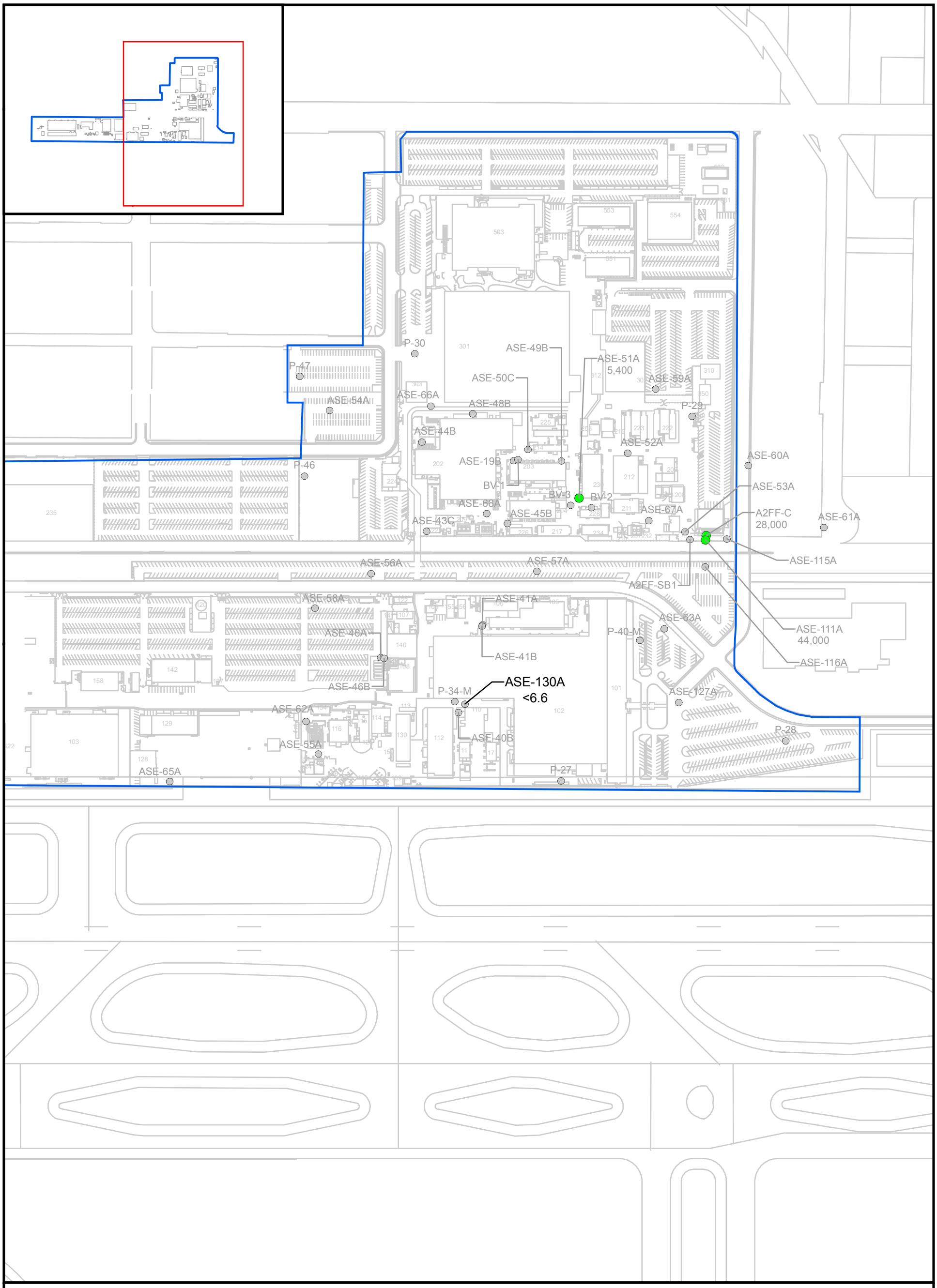
Notes:
1. Exceedance value is 320,000 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-6
METHYL TERT-BUTYL ETHER - DEEP (>40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-6_SOIL-MTBE_DEEP.MXD CVF 11/6/2008 15:34:15



Legend

- Compound Detected (ug/kg)
- Compound Not Detected
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

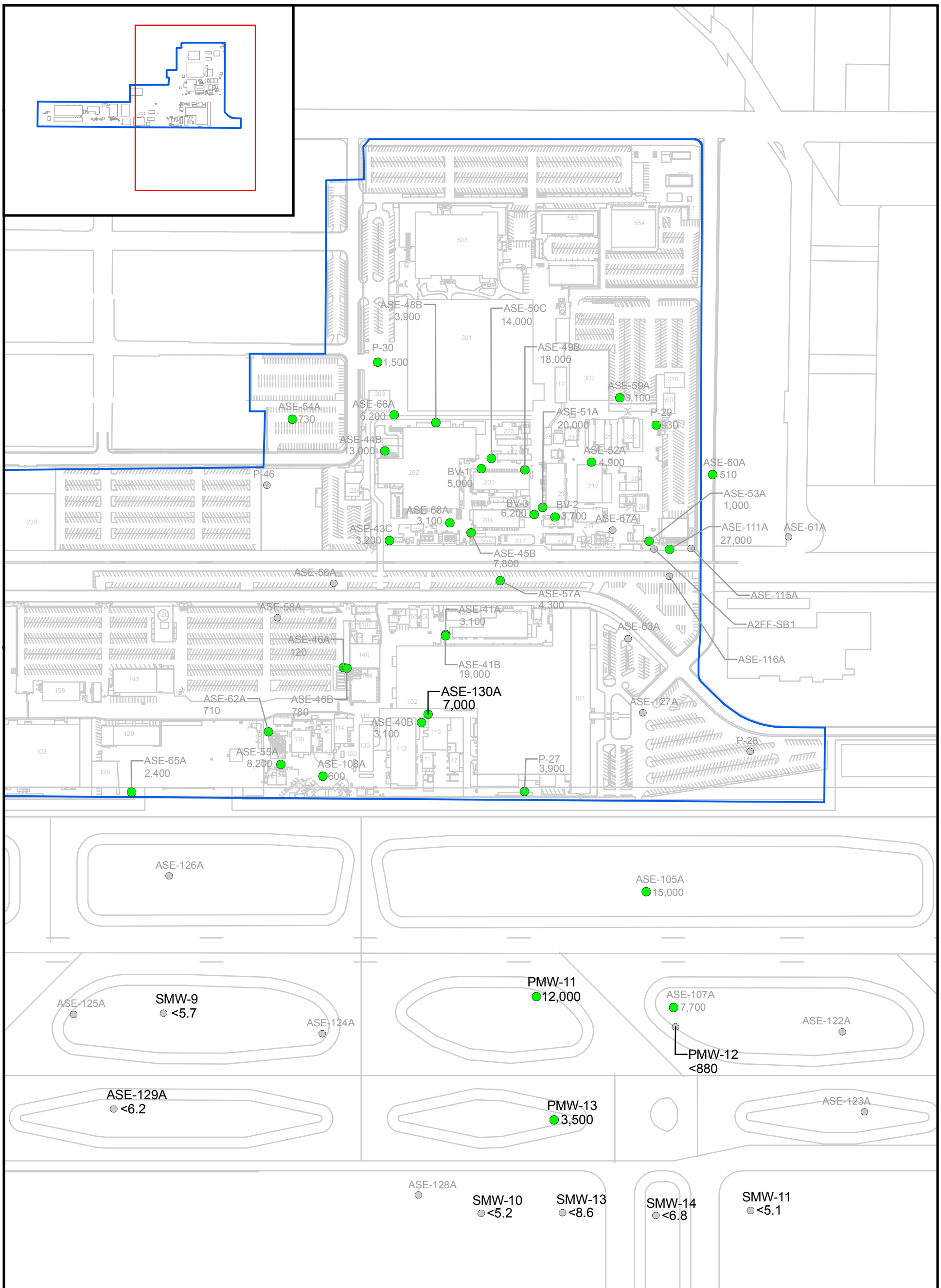
Notes:
1. Exceedance value is 56,000 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-7
NAPHTHALENE - SHALLOW (<40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-7_SOIL-NAPTHALENE_SHALLOW.MXD CVF 11/6/2008 16:00:12



Legend

- Compound Detected (ug/kg)
- Compound Not Detected
- Street and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

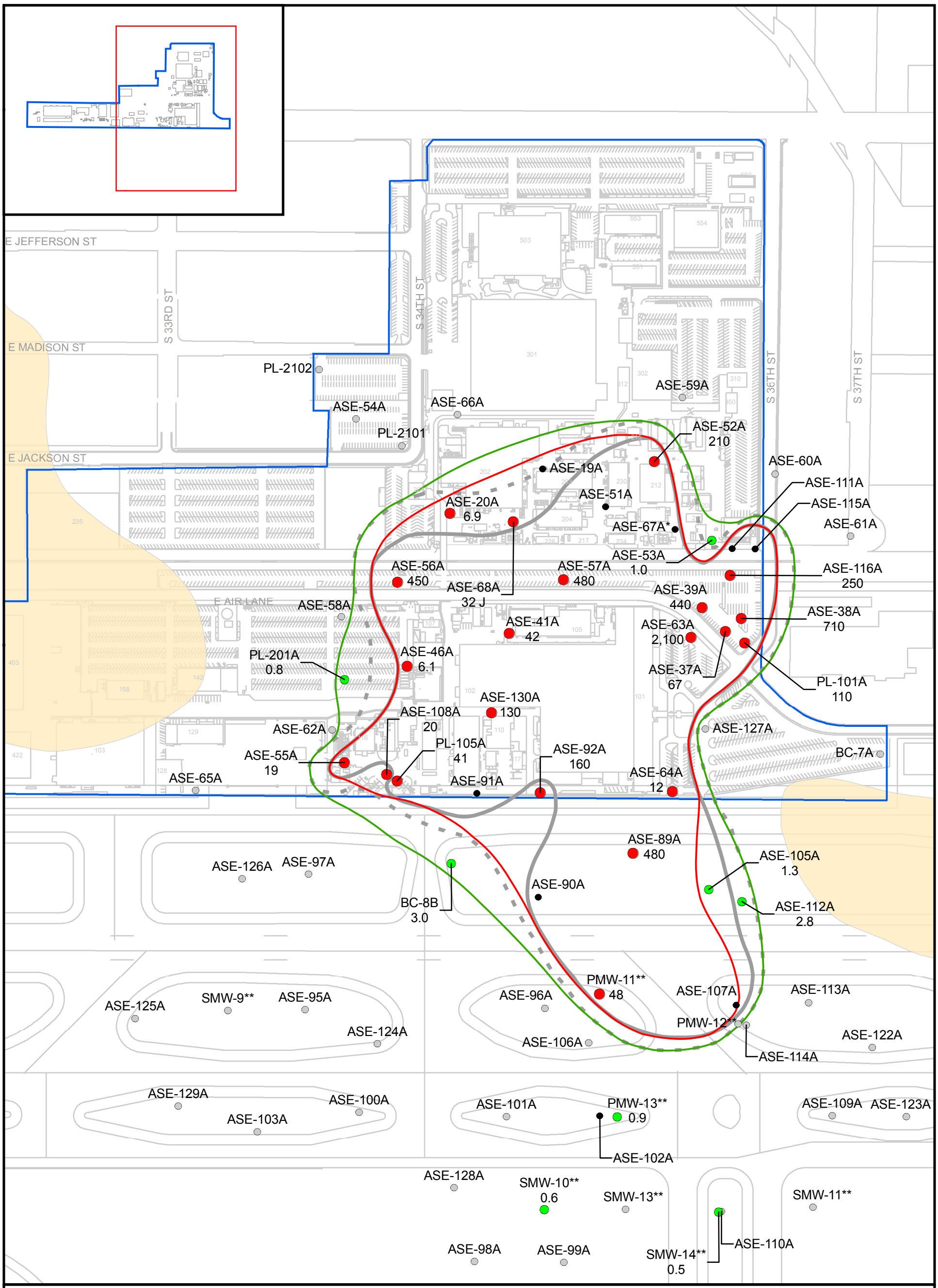
Notes:
1. Exceedance value is 56,000 ug/kg.
2. Gray Results = Historical Data.
3. Black Results = June through July 2008 Data.

FIGURE 2-8
NAPHTHALENE - DEEP (>40 ft)
THROUGH SEPTEMBER 2008
SOIL SAMPLE PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-8_SOIL-NAPTHALENE_DEEP.MXD CVF 11/6/2008 16:13:31



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Regulatory Standard Exceeded
- Wells Not Sampled Due to Presence of Free Product
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

July 2008

- Not Detected Above Reporting Limit
- 5 µg/L

March 2008

- Not Detected Above Reporting Limit
- 5 µg/L

N W E S

0 150 300 600 Feet

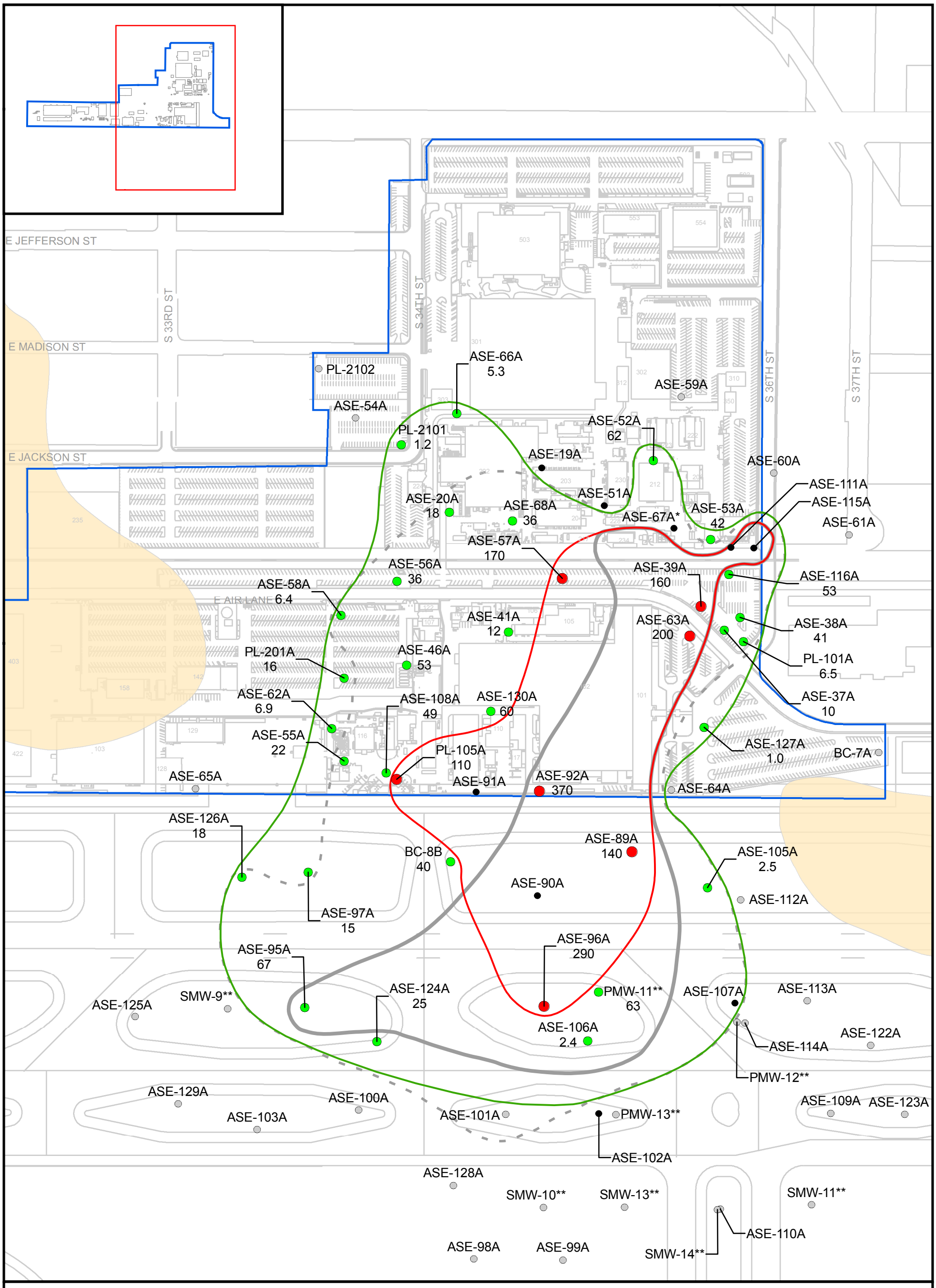
Notes:
1. Exceedance value is 5 µg/L.
2. Samples collected between July 14, 2008 and July 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. J = Analyte detected but concentration estimated by laboratory.
5. Monitoring wells containing free product were not sampled per ADEQ (2008b).
6. ** Indicates well was not developed and was not used for contouring. See text for details.

FIGURE 2-9
BENZENE
JULY 2008
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-9_GW_BENZENE-JULY2008.MXD CVF 11/20/2008 09:25:08



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Regulatory Standard Exceeded
- Wells Not Sampled Due to Presence of Free Product
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

July 2008

- Not Detected Above Reporting Limit
- 94 µg/L

March 2008

- Not Detected Above Reporting Limit
- 94 µg/L

N W E S

0 150 300 600 Feet

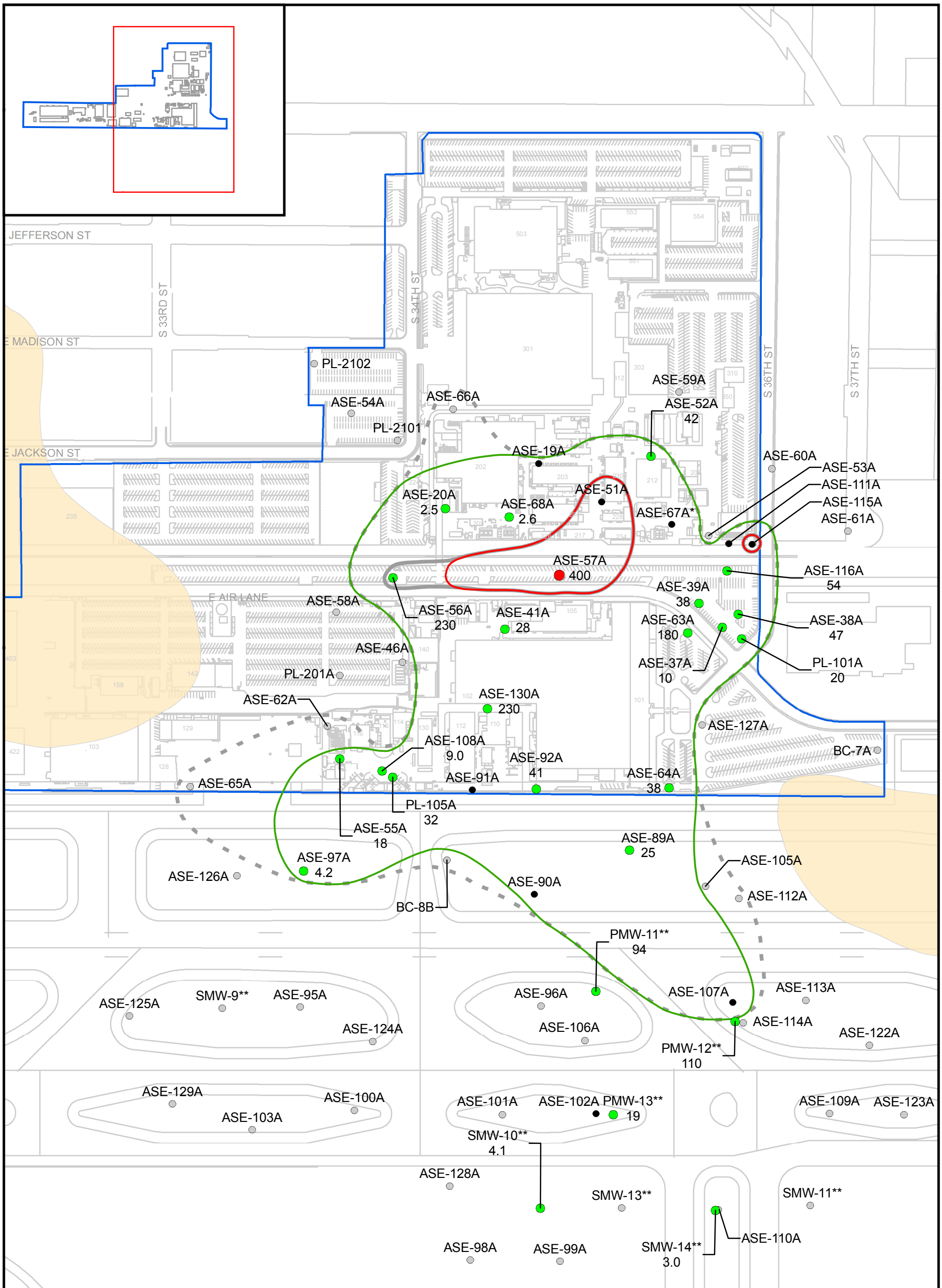
Notes:
1. Exceedance value is 94 ug/L.
2. Samples collected between July 14, 2008 and July 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. Monitoring wells containing free product were not sampled per ADEQ (2008b).
5. ** Indicates well was not developed and was not used for contouring. See text for details.

FIGURE 2-10
METHYL TERT-BUTYL ETHER JULY 2008 GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-10_GW_MTBE-JULY2008.MXD CVF 11/20/2008 09:31:08



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Regulatory Standard Exceeded
- Wells Not Sampled Due to Presence of Free Product
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

July 2008

- Not Detected Above Reporting Limit
- 280 µg/L

March 2008

- Not Detected Above Reporting Limit
- 280 µg/L

N W E S

0 150 300 600 Feet

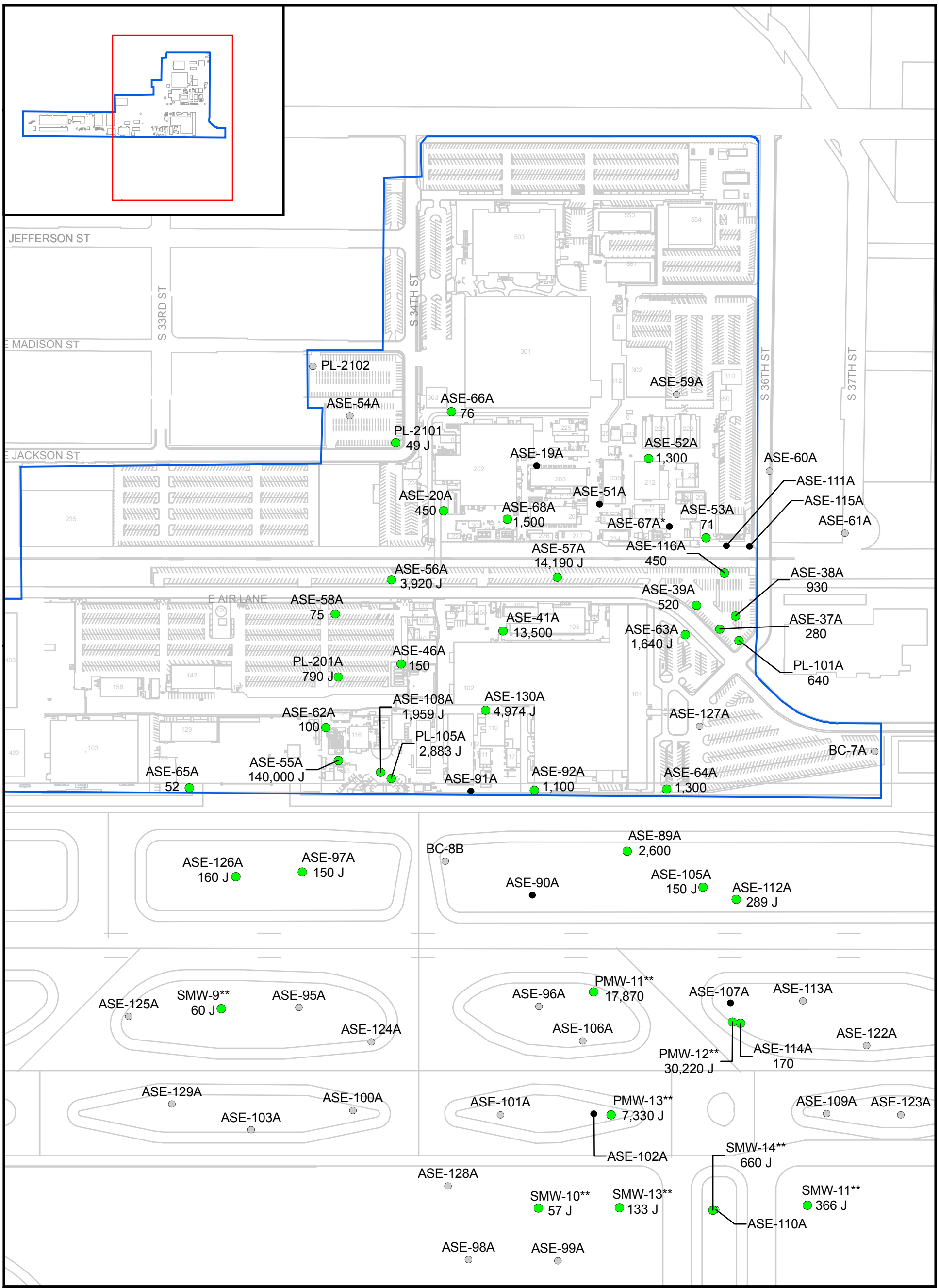
Notes:
1. Exceedance value is 280 ug/L.
2. Samples collected between July 14, 2008 and July 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. Monitoring wells containing free product were not sampled per ADEQ (2008b).
5. ** Indicates well was not developed and was not used for contouring. See text for details.

FIGURE 2-11
NAPHTHALENE
JULY 2008
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-11_GW_NAPHTHALENE-JULY2008.MXD CVF 11/20/2008 09:40:09



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Wells Not Sampled Due to Presence of Free Product
- Street and Airport Features
- Honeywell Facility

N W E S

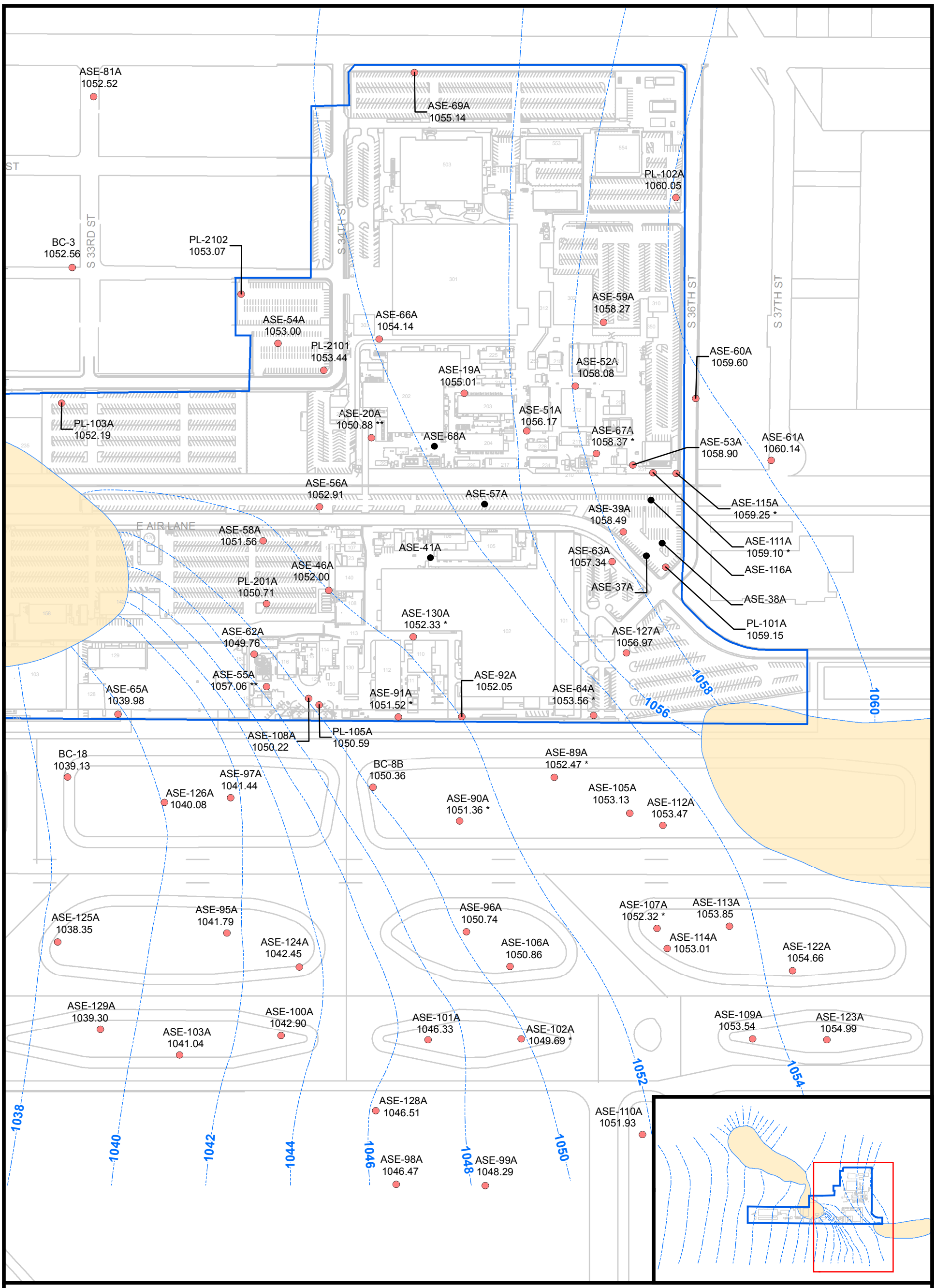
0 150 300 600 Feet

Notes:
1. TRPH is the sum of C10 through C32 Compounds.
2. Samples collected between July 14, 2008 and July 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. J = Analyte detected but concentration estimated by laboratory.
5. Monitoring Wells containing free product were not sampled per ADEQ (2008b).
6. ** Indicates well was not developed and was not used for contouring. See text for details.

FIGURE 2-12
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH)
JULY 2008
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-12_GW_TRPH-JULY2008.MXD CVF 11/20/2008 09:45:07



Legend

ASE-124A Well Identifier
1042.45 Water Level Elevation, in feet above mean sea level

Water Level Not Measured. See Text.

Water Level Contours (ft amsl) - Sub-unit A

Honeywell Facility

Honeywell Bedrock Rise

N W E S

0 150 300 600 Feet

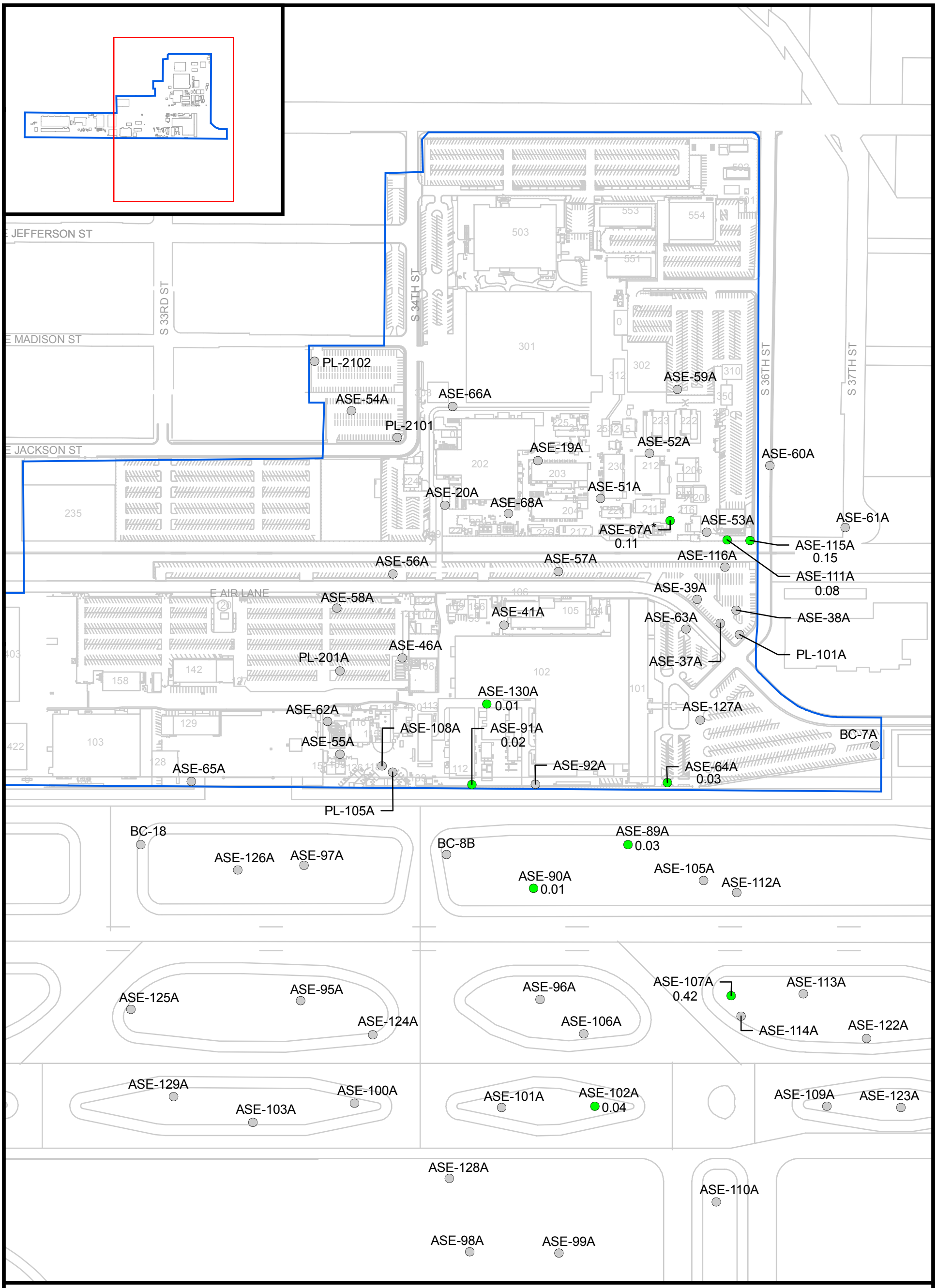
Notes:
1. All measurements recorded on September 3, 2008.
* Monitoring well contained free product. Value represents corrected water level elevation based on a free-product specific gravity of 0.81. Value not used to produce contours.
** Anomalous data point. Value not used to produce contours.

FIGURE 2-13
WATER LEVEL CONTOURS
SEPTEMBER 2008
SUB-UNIT A

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-13_WATER LEVEL CONTOURS-SEPTEMBER2008-SRG.MXD CVF 11/17/2008 11:29:55



Legend

- Free Product Detected (thickness provided in feet)
- Free Product Not Detected
- Street and Airport Features
- Honeywell Facility

N W E S

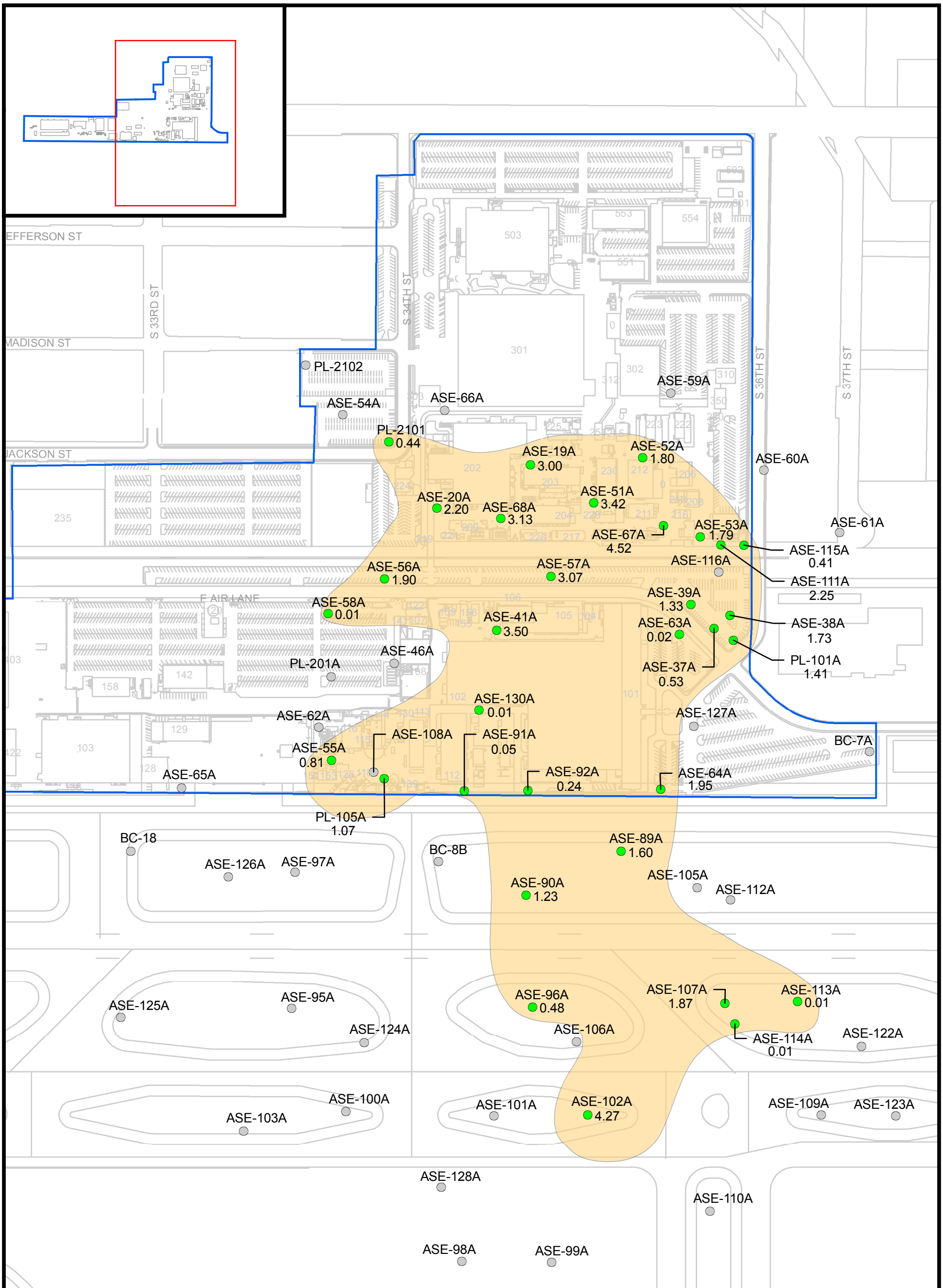
0 150 300 600 Feet

Notes:
1. All measurements recorded on September 3, 2008.
2. * Indicates that an automated free-product skimmer system is installed and operating in the well.

FIGURE 2-14
FREE-PRODUCT THICKNESS
SEPTEMBER 2008
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-14_FREEPRODUCTTHICKNESS-SEPTEMBER2008.MXD CVF 11/17/2008 11:34:06



Legend

- Free Product Detected (thickness provided in feet)
- Free Product Not Detected
- Street and Airport Features
- Honeywell Facility
- Historical Free Product Extent (as of September 25, 2008)

N W E S

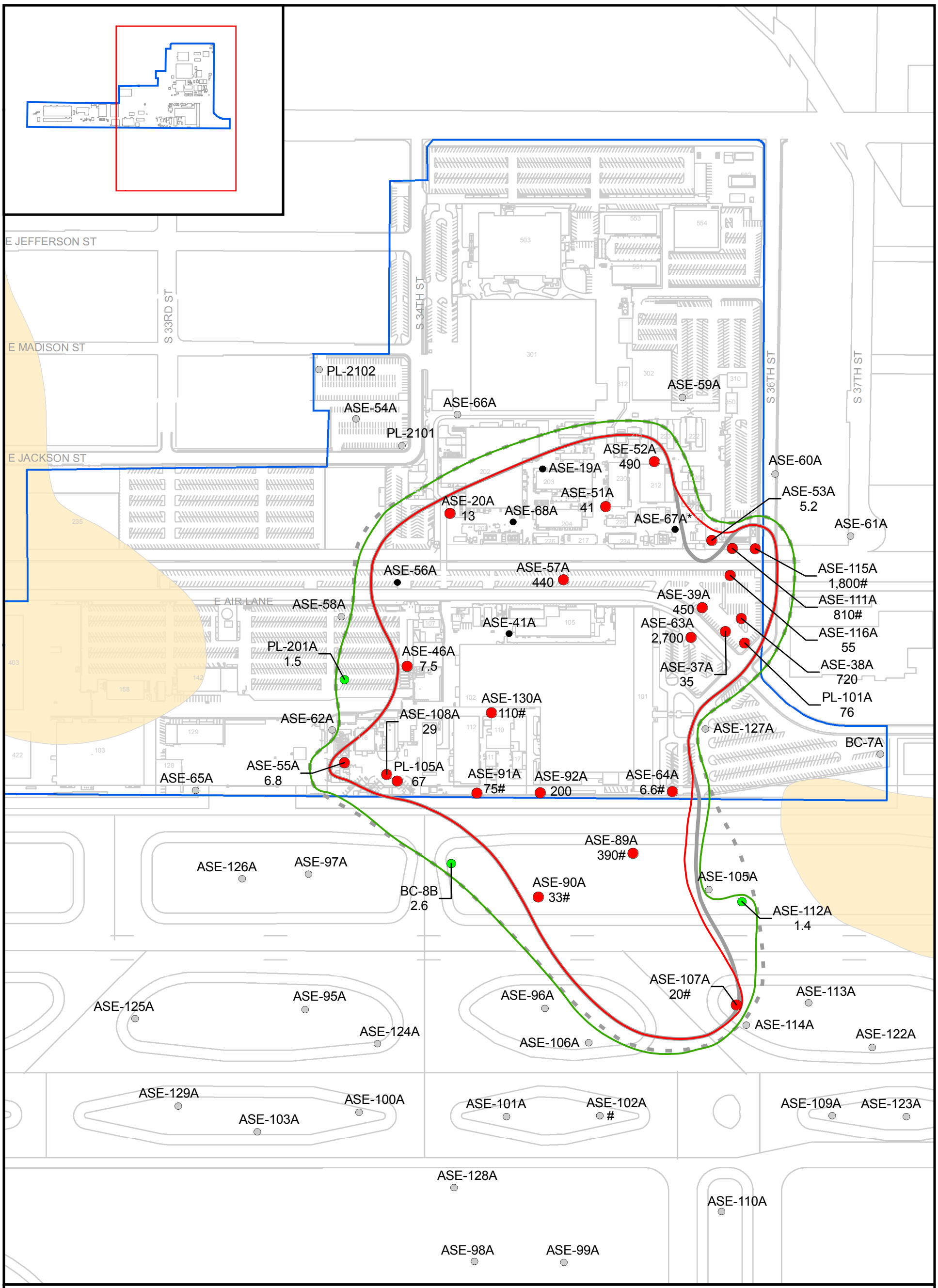
0 150 300 600 Feet

FIGURE 2-15
FREE-PRODUCT THICKNESS (MAXIMUM)

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-15_FREEPRODUCT THICKNESS (MAXIMUM).MXD CVF 11/17/2008 11:38:07



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Regulatory Standard Exceeded
- Well Not Sampled
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

September 2008

- Not Detected Above Reporting Limit
- 5 µg/L

July 2008

- Not Detected Above Reporting Limit
- 5 µg/L

N W E S

0 150 300 600 Feet

Notes:

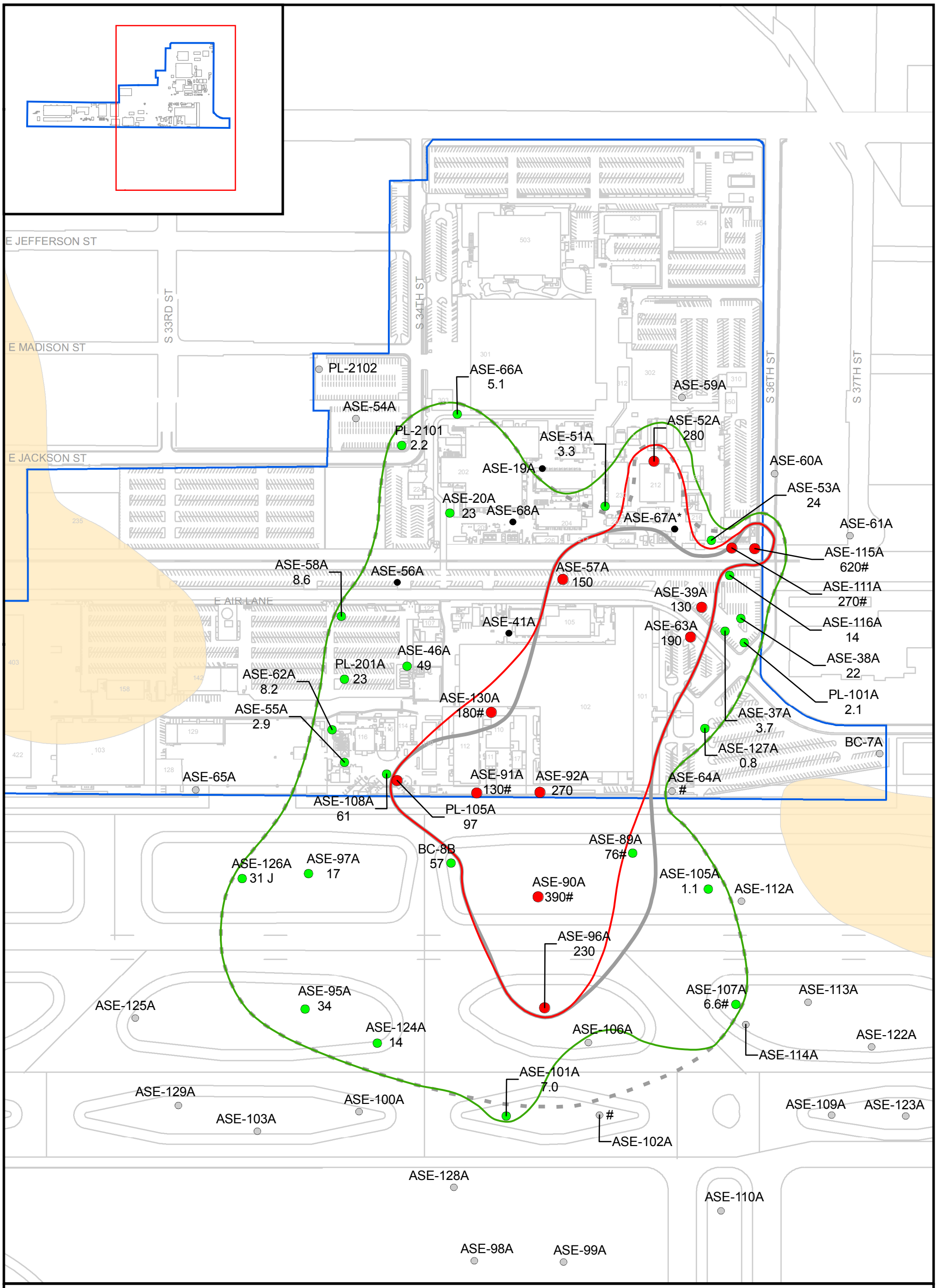
1. Exceedance value is 5 µg/L.
2. Samples collected between September 14, 2008 and September 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. # indicates that the monitoring well contained free product at the time of sampling.

FIGURE 2-16
BENZENE
SEPTEMBER 2008
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-16_GW_BENZENE-SEPTEMBER2008.MXD CVF 11/20/2008 09:48:17



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Regulatory Standard Exceeded
- Well Not Sampled
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

September 2008

- Not Detected Above Reporting Limit
- 94 µg/L

July 2008

- Not Detected Above Reporting Limit
- 94 µg/L

N W E S

0 150 300 600 Feet

Notes:

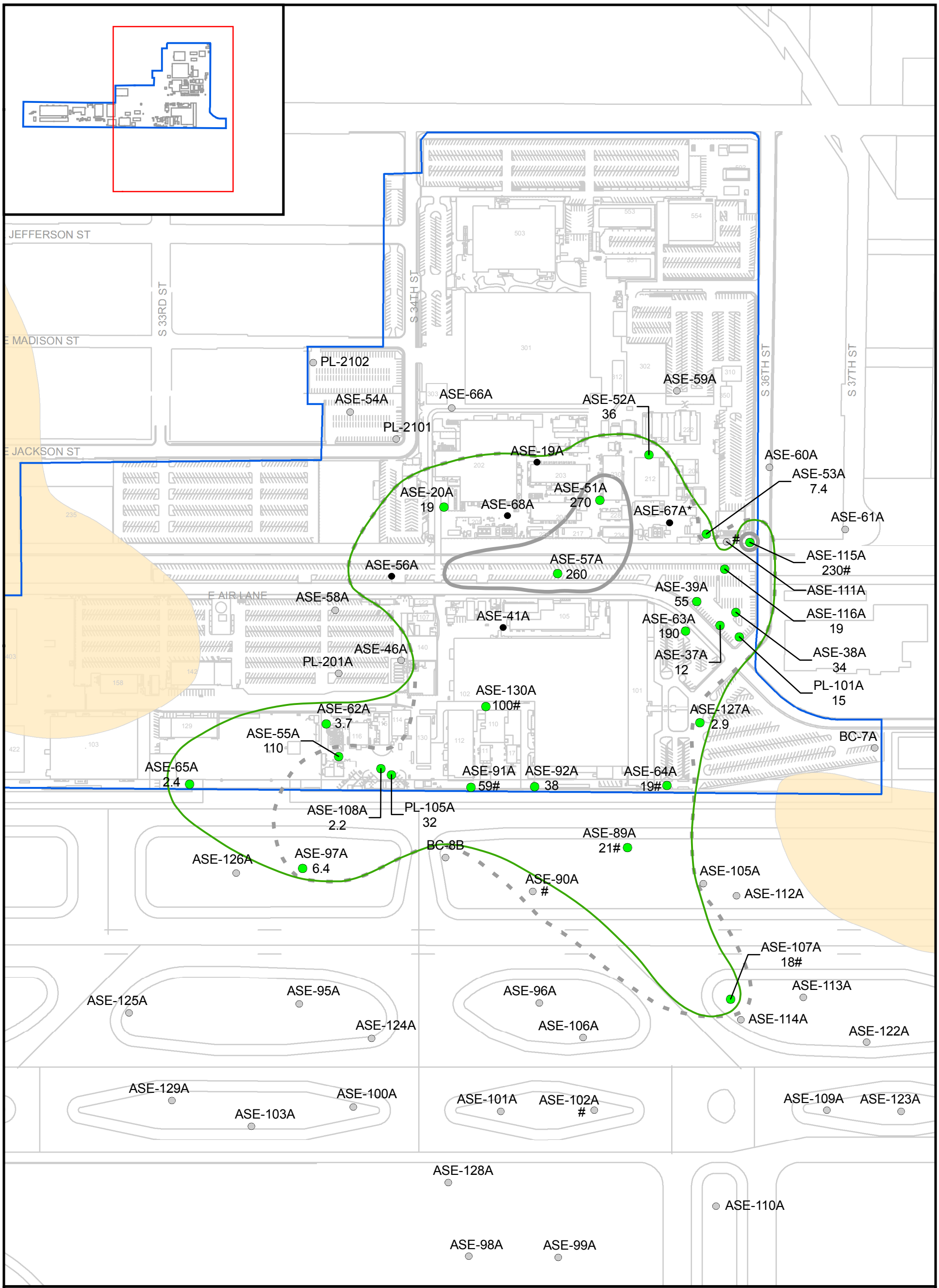
1. Exceedance value is 94 ug/L.
2. Samples collected between September 14, 2008 and September 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. J = Analyte detected but concentration estimated by laboratory.
5. # indicates that the monitoring well contained free product at the time of sampling.

FIGURE 2-17
METHYL TERT-BUTYL ETHER
SEPTEMBER 2008
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-17_GW_MTBE-SEPTEMBER2008.MXD CVF 11/20/2008 09:49:06



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Well Not Sampled
- Street and Airport Features
- Honeywell Facility
- Honeywell Bedrock Rise

Not Detected Above Reporting Limit

July 2008

Not Detected Above Reporting Limit

280 µg/L

N W E S

0 150 300 600 Feet

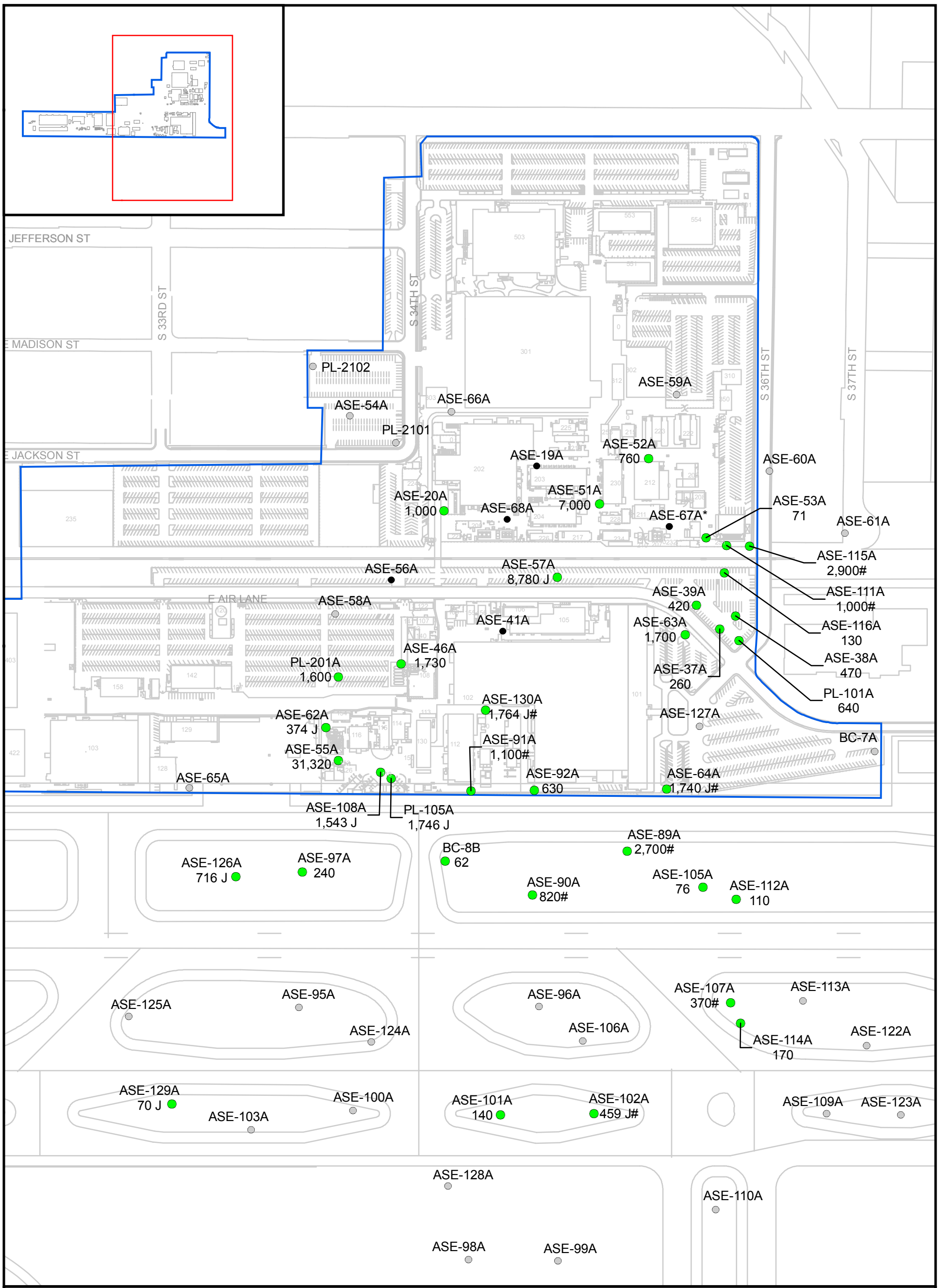
Notes:
1. Exceedance value is 280 ug/L.
2. Samples collected between September 14, 2008 and September 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. # indicates that the monitoring well contained free product at the time of sampling.

FIGURE 2-18
NAPHTHALENE
SEPTEMBER 2008
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-18_GW_NAPHTHALENE-SEPTEMBER2008.MXD CVF 11/20/2008 09:49:49



Legend

- Compound Not Detected
- Compound Detected (µg/L)
- Well Not Sampled
- Street and Airport Features
- Honeywell Facility

N
W E
S

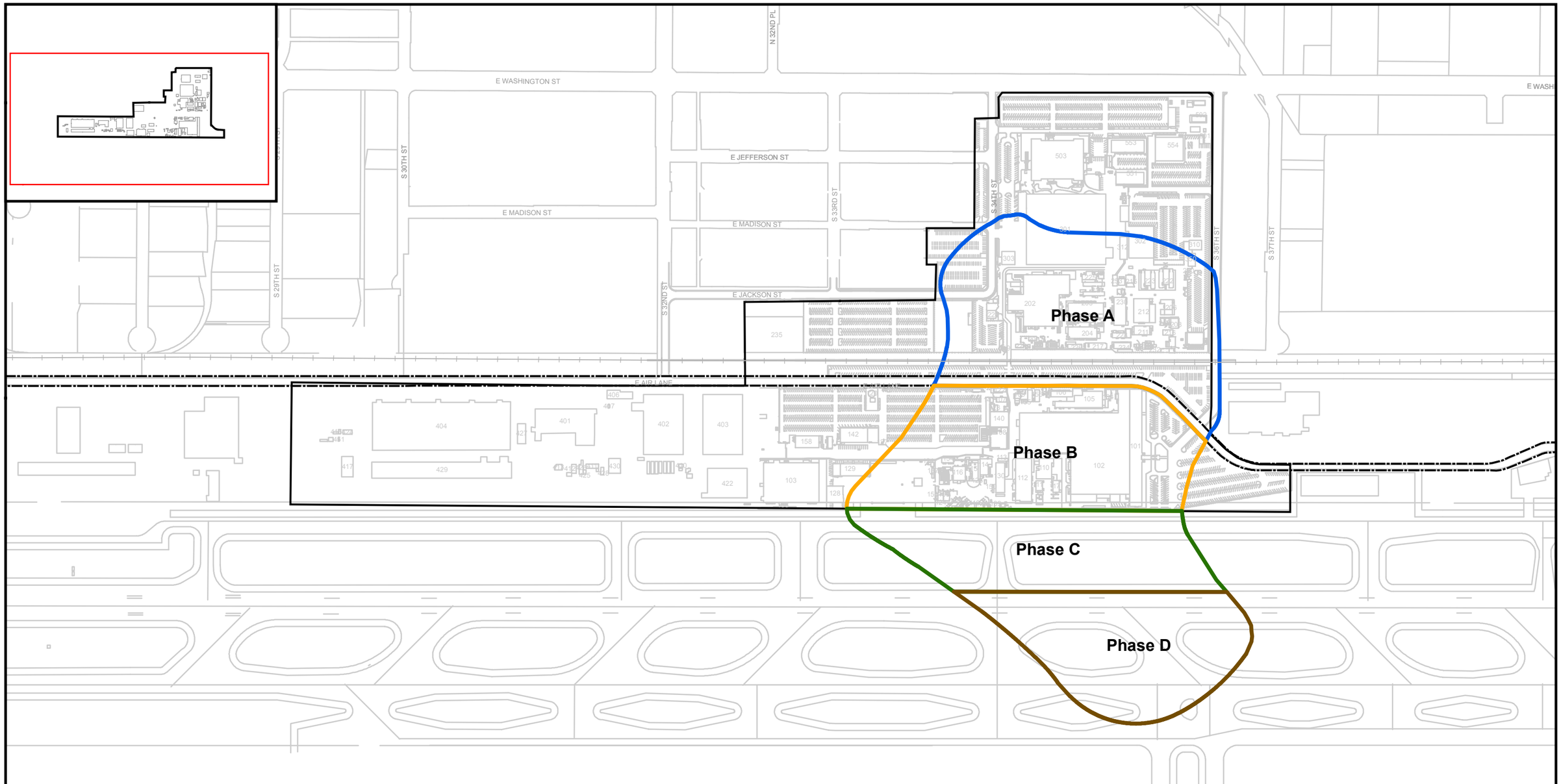
0 150 300 600 Feet

Notes:
1. TRPH is the sum of C10 through C32 Compounds.
2. Samples collected between September 14, 2008 and September 24, 2008.
3. * Indicates that an automated free-product skimmer system is installed and operating in the well.
4. J = Analyte detected but concentration estimated by laboratory.
5. # indicates that the monitoring well contained free product at the time of sampling.

FIGURE 2-19
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH) SEPTEMBER 2008 GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG2-19_GW_TRPH-SEPTEMBER2008.MXD CVF 11/17/2008 11:56:22



Legend

- Railroad
- Street and Airport Features
- Air Lane Right-of-Way
- Honeywell Facility
- Honeywell Owned Property, Phase A
- Honeywell Leased Property, Phase B
- PSHIA Property North of Runway 8-26, Phase C
- PSHIA Property South of Runway 8-26, Phase D

N W E S

0 250 500 1,000 Feet

FIGURE 3-1
HONEYWELL FACILITY LOCATION AND REMEDIATION PHASES

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIG3-1_REMEDIATION_PHASES.MXD CVF 11/17/2008 12:04:27

Appendix A
Well Installation Report
April through July 2008

APPENDIX A

Well Installation Report, April through July 2008

A.1 Introduction

This document presents a discussion of the drilling and construction of the biologically-enhanced soil vapor extraction (BSVE) system injection/extraction (process) and monitoring wells conducted at the Honeywell 34th Street facility (Honeywell facility) and on Phoenix Sky Harbor International Airport (PSHIA) in Phoenix, Arizona from April through July 2008. Forty-one wells were installed at the Honeywell facility, and 11 monitoring wells were installed on PSHIA property. This well installation report documents field activities performed in accordance with the following two separate documents:

- *Work Plan for Phoenix Sky Harbor International Airport Drilling, Well Installation, and Soil Sampling* (CH2M HILL, 2008a)
- *Specifications for the Construction of the Biologically-Enhanced Soil Vapor Extraction/Injection Wells and Soil Vapor Monitoring Wells* (CH2M HILL, 2007)

The objectives of the field activities pursuant to each of the aforementioned documents are described below.

A.1.1 Honeywell Facility BSVE Well Installation

As part of the BSVE system, a network of 41 extraction/injection and monitoring wells were installed at the Honeywell facility. Of these 41 wells, 24 were extraction/injection wells, 10 were process monitoring wells, and seven were sentinel monitoring wells. These wells were installed during the initial construction of Phase A (Honeywell facility, north of Air Lane) and Phase B (Honeywell facility, south of Air Lane) of the BSVE system.

A.1.2 PSHIA BSVE Well Installation

Following discussion with personnel from the COP Aviation Department, CH2M HILL submitted, on behalf of Honeywell, an update to the *Non-process Soil Vapor Monitoring Program* report (CH2M HILL, 2008b) on April 18, 2008. The *Non-process Soil Vapor Monitoring Program* report was updated to increase the number of monitoring points at PSHIA to provide additional information in support of the design for the southern portion (south of Runway 8-26) of the BSVE system. Initially, the non-process soil vapor monitoring program included the installation of five sentinel soil-vapor monitoring wells with a total of 11 monitoring ports. Based on discussions with the City of Phoenix, the updated *Non-process Soil Vapor Monitoring Program* report included the installation of seven sentinel soil-vapor monitoring wells with a total of 19 monitoring ports. In addition, the submittal of the updated report described plans to install three BSVE process monitoring wells and one new groundwater monitoring well (ASE-129A) on PSHIA property as part of the field mobilization for the sentinel soil-vapor monitoring well installation.

A.2 Field Activities

During the period from April 16 to July 10, 2008, 24 extraction/injection wells, 10 multiport process monitoring wells, and seven multiport sentinel monitoring wells were installed at the Honeywell facility, while three multiport process monitoring wells, seven multiport sentinel monitoring wells, and one groundwater monitoring well were installed on PSHIA property, as shown in Figure A-1. The work conducted on PSHIA property also included the collection of soil samples for chemical analysis during drilling.

A.2.1 Drilling Methods

This section describes the procedures that were followed while drilling the boreholes. All wells were installed in accordance with the procedures described in each applicable work plan or specification referenced above. In summary, the procedures common to all drilling activities were as follows:

- Prior to drilling, all boring locations were cleared for underground utilities.
- All down-hole tools, drill rods, bits, and pipe were steam cleaned before advancing each boring. All decontamination rinsate was contained.
- All soil cuttings, groundwater, and decontamination water generated during drilling were properly containerized and handled.
- The field hydrogeologist maintained a record of field activities in field notebooks. A log of the lithologic and hydrogeologic conditions encountered was also maintained during drilling.

The Becker-type air percussion drilling method was used during the drilling and installation of the injection/extraction wells and multiport BSVE process and sentinel monitoring wells at the Honeywell facility. The Becker-type air-percussion method uses a pile driver and drive shoe to advance dual-walled casing and reverse air to clear the drill cuttings. The air-percussion drilling method was selected due to the drilling rig's ability of advancing the borehole quickly through very coarse-grained alluvium, as is typically encountered in this area.

Drilling and installation of the multiport BSVE process and sentinel monitoring wells and the groundwater monitoring well on PSHIA property was completed using the Rotosonic drilling method. The Rotosonic drilling method consists of a dual-cased drilling system and a hydraulically-powered Rotosonic drill head, or oscillator, which generates adjustable high-frequency vibration forces that are transmitted through the drill string to the face of the drill bit. A core barrel 6 inches in diameter and 10 feet long was used during the drilling of the monitoring wells on PSHIA property. The Rotosonic drilling method is capable of collecting continuous core samples of coarse-grained alluvium (i.e., the cobbles, boulders, and caliche layers). The Rotosonic drilling method was selected for the wells on PSHIA property due to the requirement that soil samples be collected during the advancement of the borehole and the very coarse-grained alluvium typically encountered in the area.

A.2.2 PSHIA Soil Sampling

The Rotosonic drilling method does not use air, mud, or water like traditional drilling methods, hence this method is capable of collecting representative, relatively undisturbed soil samples that can be screened for potential contamination. During the drilling of each of the multiport process and sentinel monitoring wells and the groundwater monitoring well, soil samples were collected and submitted to a laboratory for analysis of total petroleum hydrocarbons using Arizona Department of Health Services Method 8015AZR1, total volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method SW8260B, total polynuclear aromatic hydrocarbons (PAHs) using USEPA Method 8270C-SIM, toxicity characteristic leaching procedure (TCLP) VOCs using USEPA Method SW1311/8260B, TCLP semivolatile organic compounds using USEPA Method SW1311/8270C, TCLP metals using USEPA Method SW1311/SW6010B/7470A, pH using USEPA Method SW9045, and percent solids using USEPA Method E160.3.

During the drilling of the multiport process and sentinel monitoring wells and the groundwater monitoring well, the drilling subcontractor (Boart Longyear) provided 10-foot cores for screening and sampling starting at 50 feet below ground surface (bgs) and continuing to total depth. The 10-foot cores were bagged in 2.5-foot intervals. Drill cores were screened with a photoionization detector (PID) and a flame ionization detector (FID) at least every 2 feet along the provided cores. The portion of the drill core with the highest PID and FID readings was targeted for sampling. If the PID and FID readings were consistent throughout the core, the sample was collected from the middle of the interval. The soil samples were collected directly from the drill core bag by cutting the liner at the desired interval, removing the outermost layer of the soil core to expose the interior of the core. A Terracore® sampler and a pre-cleaned disposable scoop were used to extract the sample from the core.

Samples were not collected during the drilling of BSVE sentinel monitoring wells SMW-8 and SMW-12 because the final completion depth of each well was 27 feet bgs, which was 23 feet above the designated sampling commencement depth of 50 feet bgs.

The quality assurance/quality control requirements for sampling, sample handing and custody, and analytical methods, as specified in the *Quality Assurance Project Plan, Honeywell International Inc., Sky Harbor 34th Street Facility, 111 S. 34th Street, Phoenix, Arizona* (CH2M HILL, 2005; Honeywell, 2006), were followed.

A.3 Well Design and Construction

The general design and installation procedures for the BSVE injection/extraction wells and BSVE process and sentinel monitoring wells are discussed below.

A.3.1 BSVE Injection/Extraction Wells

A 10-inch-diameter borehole was drilled from ground surface to the target depth of 112 feet bgs. A 4-inch-diameter polyvinyl chloride (PVC) blank casing and a 4-inch diameter 0.020-inch slotted PVC well screen were installed in each borehole. A maximum of 50 feet of well screen was installed in each of the wells. The annular space surrounding the well screen was filled with a #10-20 Colorado silica sand filter pack to a minimum of 3 feet above

the top of the screened interval. Next, #60 silica transition sand was placed to a minimum of 1 foot above the silica sand filter pack. A bentonite-pellet seal a minimum of 5 feet thick was placed above the transition sand. The depth to the top of the bentonite-pellet seal was confirmed following hydration of the pellets. A cement grout with 5-percent bentonite was placed from the top of the bentonite-pellet seal to approximately 5 feet bgs. All annular materials were placed as the drill casing was gradually pulled out of the borehole. A 5-foot long steel temporary casing was installed above the cement grout. The steel temporary casing's annular space was then filled with #10-20 Colorado silica sand and a watertight, flush-mounted, traffic-rated temporary well vault was installed. Once the permanent vaults for the individual wells are installed, the steel temporary casings are removed at that time.

Table A-1 presents construction details for the BSVE injection/extraction wells. Boring logs and well construction diagrams for the monitoring wells are presented in this appendix following the tables and Figure A-1.

A.3.2 Multiport Process Monitoring Wells

At the Honeywell facility, each process monitoring well (PMW) was constructed with four nested monitoring ports, with the exception of PMW-10, which consists of three nested monitoring ports due to encountering bedrock at 83 feet bgs. Table A-1 provides a summary of these well installations. PMWs installed on PSHIA property were constructed with three nested monitoring ports. Table A-2 provides a summary of the monitoring wells installed on PSHIA property. Well construction diagrams and boring logs for the PMWs are presented following the tables and Figure A-1.

Each PMW with four nested monitoring ports was constructed with two 2-inch-diameter Schedule 80 PVC blank casings with 0.020-inch slotted well screens, and two 0.5-inch-diameter Schedule 80 PVC blank casings with 0.020-inch slotted well screens. The 2-inch-diameter blank casing and well screens were placed at the deepest intervals. The annular space surrounding the well screen was filled with #10-20 Colorado silica sand filter pack in the interval between 2 to 3 feet above the top of the well screen and the total depth of each borehole.

In zones where the #60 transition sand was able to be used, approximately 1 foot of sand was installed on top of each filter pack to prevent sealant materials from penetrating the filter pack. A bentonite-pellet seal was then placed above the transition sand or above the filter pack at thicknesses ranging from 1 to 5 feet. The depth to the top of the bentonite-pellet seal was confirmed following hydration of the pellets. A 5-percent bentonite cement grout ranging from 3.5 to 19 feet thick was placed above the bentonite-pellet seal. All annular materials were placed as the drill casing was gradually pulled out of the borehole. A thermocouple was installed in the middle of the well screen on the M (middle) port (23 feet bgs), ML (middle-lower) port (65 feet bgs), and L (lower) port (97 feet bgs) of each well installed at the Honeywell facility, with the exception of PMW-10 due to encountering bedrock at 83 feet bgs. Details of the PMW construction are presented in Table A-1 and shown on the well construction diagrams for each of the PMWs in this appendix following the tables and Figure A-1.

The PMWs constructed on PSHIA property contained three nested monitoring ports. The boreholes, approximately 9 inches in diameter, were advanced to 97 feet bgs. Similar to the

four nested monitoring ports installed at the Honeywell facility, the PMWs with three nested monitoring ports were installed using two 0.5-inch-diameter Schedule 80 PVC blank casings with 0.020-inch slotted well screens in the upper ports, and one 2-inch-diameter Schedule 80 PVC blank casing with 0.020-inch slotted well screen on the deepest port. The same annular space material and thicknesses used for the PMWs at the Honeywell facility was used for the PMWs on PSHIA property. Two thermocouples were installed on the L port, one at 60 feet bgs and one at 90 feet bgs.

After the well seal was set, a watertight, traffic-rated, and flush-mounted well vault was installed at each location at the Honeywell facility. The watertight, flush-mounted vaults used on PSHIA property were aircraft-rated.

A.3.3 Multiport Sentinel Monitoring Wells

To install the multiport sentinel monitoring wells (SMW) a borehole approximately 10-inches in diameter was advanced to approximately 97 feet bgs for monitoring wells with three ports (SMW-1, SMW-3, SMW-4, SMW-6, SMW-7, and SMW-9), 27 feet bgs for wells with two ports (SMW-5, SMW-8, and SMW-12), and 27 feet bgs for the well with a single port (SMW-2). Each sentinel monitoring well was constructed using 0.5-inch-diameter Schedule 80 PVC blank casing with 0.020-inch slotted well screen for the U (upper) port and M port, while the L port used 2-inch Schedule 80 PVC with 0.020-inch slotted well screen. A #10/20 silica sand filter pack was placed in the annulus from the bottom of the borehole to 1 to 3 feet above the top of the well screen, and 1 foot of #60 transition sand was placed above the filter pack. Bentonite pellets were installed above the filter pack and the depth to the top of the bentonite-pellet seal was confirmed following hydration of the pellets. A watertight, traffic-rated, and flush-mounted well vault was installed at the ground surface for monitoring wells located at the Honeywell facility. A watertight, aircraft-rated, flush-mounted well vault was installed at the ground surface for the wells located on PSHIA property.

A.3.4 Groundwater Monitoring Well

One groundwater monitoring well was installed on PSHIA property (ASE-129A). A borehole of approximately 9 inches was advanced to 112 feet bgs. A 4-inch-diameter PVC blank casing with a 0.020-inch slotted screen was installed in the borehole. Fifty feet of well screen were installed in the monitoring well, and the annular space surrounding the well screen was filled with a #10-20 Colorado silica sand filter pack to a minimum of 3 feet above the top of the screened interval. Number 60 silica transition sand was placed to a minimum of 1 foot above the silica sand filter pack. A bentonite-pellet seal a minimum of 5 feet thick was placed above the transition sand. A cement grout with 5-percent bentonite was placed from the top of the bentonite-pellet seal to near ground surface. After the grout had properly cured, a watertight, flush-mounted, aircraft rated well vault was installed.

A.3.5 Lithology

The lithology of the alluvium was evaluated by comparing the types of soils described in the boring logs from monitoring wells drilled during these phases of work to the boring logs from previous investigations at the Honeywell facility. Review of the boring logs of the drill cuttings collected during drilling of the BSVE injection/extraction and process and sentinel

monitoring wells indicates that the lithologic conditions encountered at these locations are consistent with the conditions encountered throughout the area surrounding the Honeywell facility and PSHIA property. The alluvium is composed of predominantly coarse-grained soils in the unsaturated zone and the shallow portion of the alluvial aquifer. The soil types encountered in the unsaturated zone include sandy gravel, gravelly sand, silty sand, and lenses of sandy silt. Unified Soil Classification System soil types include GW, GM, SG, SW, SP, SM, and ML.

A.3.6 Investigation-derived Waste Handling

Investigation-derived wastes, including drill cuttings, drilling fluids, and development water generated during borehole drilling and monitoring well construction and development, were contained, characterized, and disposed of according to the Comprehensive Environmental Response, Compensation, and Liability Act Off-Site Rule (Title 40 Code of Federal Regulations 300.440). Approval was requested of and received from the Arizona Department of Environmental Quality and USEPA prior to disposal, and all Comprehensive Environmental Response, Compensation, and Liability Act wastes, whether hazardous or nonhazardous, were disposed of at a USEPA-approved facility.

Drilling wastewater was contained in a Baker tank located in the designated laydown yard north of Building 101 at the Honeywell facility. The results of the wastewater analysis were provided to the City of Phoenix, who authorized the discharge of the wastewater into the sanitary sewer under Honeywell's wastewater discharge permit via a manhole located at the southeast corner of Building 417 at the Facility.

Drill cuttings were temporarily stored in roll-off bins for temporary storage. When each roll-off bin was filled, samples of the drill cuttings in each roll-off bin were collected for waste characterization. The samples were analyzed for the following list of compounds: total petroleum hydrocarbons using Arizona Department of Health Services Method 8015AZR1; VOCs using USEPA Method 8260B; polynuclear aromatic hydrocarbons using USEPA Method 8310; benzene, toluene, ethylbenzene, and xylene using USEPA Method 8021; and the TCLP for the eight Resource Conservation and Recovery Act metals. In accordance with the analytical results of the waste characterization samples, the drill cuttings were disposed of at the Waste Management, Inc. Butterfield Facility in Mobile, Arizona.

Groundwater pumped to the surface during drilling and water generated from development of groundwater monitoring well ASE-129A was contained in portable storage tanks. After the drilling and development were completed, a sample of the groundwater and purge water in the storage tank was collected and analyzed for VOCs using USEPA Method 624. The groundwater/purge water analysis was provided to the City of Phoenix for authorization to discharge the groundwater into the sanitary sewer system through a manhole located at the southeast corner of Building 417 at the Honeywell facility, under Honeywell's existing wastewater discharge permit.

A.4 Monitoring Well Location and Elevation Survey

The horizontal location and elevation of each new soil-vapor monitoring well and the groundwater monitoring well was determined by a survey conducted by Arizona-licensed

surveyor Aztec Engineering, Inc., Phoenix, Arizona. The monitoring wells were surveyed to establish horizontal location using state plane coordinates. The surveyor was required to establish the horizontal location to an accuracy of 1-foot horizontal variation based on the NAD27 datum. The surveyor also determined the elevation of the top of the flush-mounted vault and a permanently-marked measuring point on the top of the well casing. The surveyor established the elevation of these points to an accuracy of 0.01-foot vertical variation based on the NGVD29 datum. The surveyed elevation of the permanent measuring point will be used to ensure consistency of any depth measurements in the wells.

A.5 References

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Honeywell International Inc. (Honeywell). 2006. *Response to Comments on the Quality Assurance Project Plan dated September 2005; Honeywell International Inc. Sky Harbor 34th Street Facility*. July 13.

TABLE A-1
Summary of Honeywell Facility BSVE Well Installations
Honeywell 34th Street Facility, Phoenix, Arizona

								Single Port[a]		U Port[b]		M Port[c]		ML Port[d]		L Port[e]	
Well ID	**Well Type**	**Northing**	**Easting**	**Install Date**	**Reference Elevation**	**Total Depth**	**Bedrock Contact Depth**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**
BV-1N	Injection/Extraction Well	888424.95	472522.69	5/14/2008	1117.93	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-2N	Injection/Extraction Well	888642.7	472543.54	5/9/2008	1118.57	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-3N	Injection/Extraction Well	888911.82	472388.52	4/28/2008	1117.33	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-4N	Injection/Extraction Well	888666.95	472886.66	6/1/2008	1119.71	111.4	NA	55-105	52-111	--	--	--	--	--	--	--	--
BV-6N	Injection/Extraction Well	889598.61	472865.53	5/21/2008	1121.00	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-7N	Injection/Extraction Well	889466.5	473277.46	4/16/2008	1121.41	111	NA	55-105	52-111	--	--	--	--	--	--	--	--
BV-8N	Injection/Extraction Well	889456.89	473536.08	5/1/2008	1121.97	106	106	55-100	52-106	--	--	--	--	--	--	--	--
BV-9N	Injection/Extraction Well	888735.69	472451.21	4/29/2008	1117.86	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-10N	Injection/Extraction Well	888425.86	472161.81	5/22/2008	1117.31	101	101	55-95	52-101	--	--	--	--	--	--	--	--
BV-11N	Injection/Extraction Well	888547.64	473315.73	5/8/2008	1119.38	100	100	55-95	52-100	--	--	--	--	--	--	--	--
BV-12N	Injection/Extraction Well	888776.95	473323.12	5/9/2008	1119.27	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-13N	Injection/Extraction Well	888721.49	472330.25	4/22/2008	1117.26	102	102	55-95	52-102	--	--	--	--	--	--	--	--
BV-14N	Injection/Extraction Well	889600.61	473032.05	5/20/2008	1121.41	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-15N	Injection/Extraction Well	888577.91	473457.64	5/1/2008	1119.41	95.5	95.5	55-85	52-96	--	--	--	--	--	--	--	--
BV-16N	Injection/Extraction Well	889763.85	473153.16	5/19/2008	1120.10	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-17N	Injection/Extraction Well	889096.08	472705.61	4/30/2008	1119.25	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-18N	Injection/Extraction Well	888895.68	473125.08	5/10/2008	1119.09	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-19N	Injection/Extraction Well	888402.08	472736.48	5/13/2008	1118.39	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-20N	Injection/Extraction Well	888402.17	472930.76	5/8/2008	1118.31	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-21N	Injection/Extraction Well	889273.88	472823.41	4/23/2008	1120.48	111	NA	55-105	52-111	--	--	--	--	--	--	--	--
BV-22N	Injection/Extraction Well	888638	472744.67	6/3/2008	1118.92	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-23N	Injection/Extraction Well	889399.46	472447.26	5/31/2008	1120.03	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-24N	Injection/Extraction Well	889683.2	472434.12	5/7/2008	1119.50	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
BV-25N	Injection/Extraction Well	889757.49	472662.59	6/14/2008	1120.34	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
PMW-1	Multiport Process Monitoring Well	889671.29	472652.88	6/1/2008	1121.15	112	NA	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-2	Multiport Process Monitoring Well	889456.97	472578.59	6/9/2008	1120.35	112	NA	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-3	Multiport Process Monitoring Well	889214.84	472508.5	5/19/2008	1119.65	112	NA	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-4	Multiport Process Monitoring Well	889209.19	473385.23	6/11/2008	1120.58	112	NA	--	--	4.5-9	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-5	Multiport Process Monitoring Well	889010.89	473583.61	5/30/2008	1122.46	112	NA	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-6	Multiport Process Monitoring Well	889089.22	472960.15	5/12/2008	1119.92	112	NA	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-110	83-112
PMW-7	Multiport Process Monitoring Well	888734.93	473475.67	5/29/2008	1120.60	108	108	--	--	5-10	4.5-11	20-25	19-27	55-75	52-77	85-105	83-108
PMW-8	Multiport Process Monitoring Well	888411.18	472929.98	6/30/2008	1118.77	112	NA	--	--	5-10	4.5-11	21-26	19-27	55-75	52-77	85-110	83-112

TABLE A-1
Summary of Honeywell Facility BSVE Well Installations
Honeywell 34th Street Facility, Phoenix, Arizona

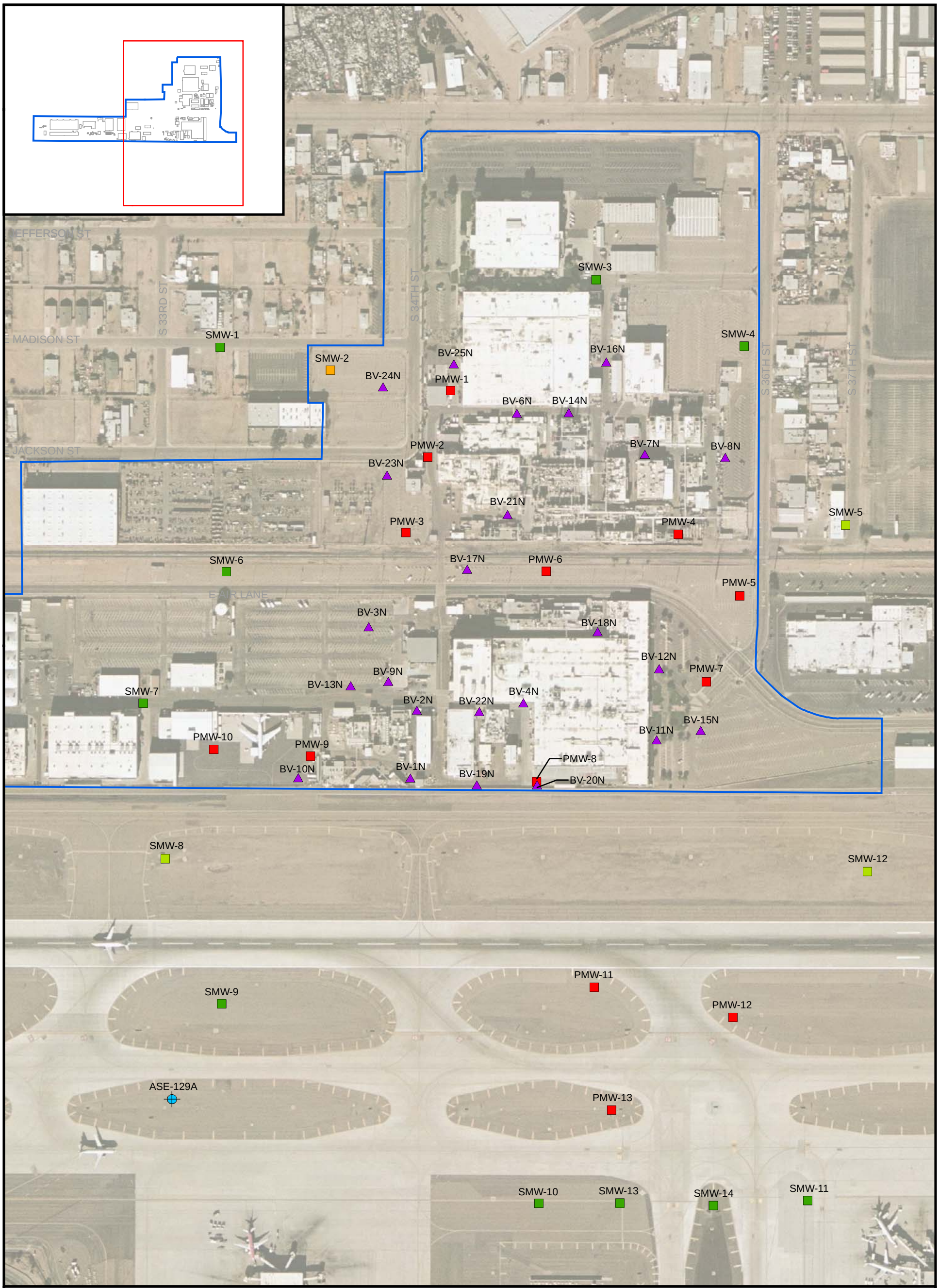
								Single Port[a]		U Port[b]		M Port[c]		ML Port[d]		L Port[e]	
Well ID	**Well Type**	**Northing**	**Easting**	**Install Date**	**Reference Elevation**	**Total Depth**	**Bedrock Contact Depth**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**
PMW-9	Multiport Process Monitoring Well	888495.34	472202.04	5/19/2008	1117.86	96	NA	--	--	5-9	4.5-11	21-26	19-28	52-72	49-72	80-95	78-96
PMW-10	Multiport Process Monitoring Well	888516.07	471890.09	5/28/2008	1117.32	83	83	--	--	5-10	4.5-11	20-25	19-27	--	--	55-80	52-83
SMW-1	Multiport Sentinel Monitoring Well	889810.07	471910.77	6/4/2008	1117.34	97	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-97
SMW-2	Multiport Sentinel Monitoring Well	889737.2	472265.35	5/7/2008	1119.26	27	NA	20-25	19-27	--	--	--	--	--	--	--	--
SMW-3	Multiport Sentinel Monitoring Well	890028.4	473120.1	6/18/2008	1121.05	97	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-97
SMW-4	Multiport Sentinel Monitoring Well	889814.09	473597.69	5/7/2008	1123.33	97	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-97
SMW-5	Multiport Sentinel Monitoring Well	889238.01	473924.1	6/2/2008	1121.86	27	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	--	--
SMW-6	Multiport Sentinel Monitoring Well	889088	471930.67	4/30/2008	1118.20	98	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-98
SMW-7	Multiport Sentinel Monitoring Well	888665.13	471662.96	6/16/2008	1117.59	66	66	--	--	5-10	4.5-11	20-25	19-27	--	--	55-65	47-66

Notes:
[a] Single Port wells are 4-inch-diameter casing.
[b] Upper Port wells are 0.5-inch-diameter casing.
[c] Middle Port wells are 0.5-inch-diameter casing.
[d] Middle/lower port wells are 2-inch-diameter casing.
[e] Lower port wells are 2-inch-diameter casing.
NA = not applicable.

TABLE A-2
Summary of PSHIA BSVE Well Installations
Honeywell 34th Street, Phoenix, Arizona

								Single Port[a]		U Port[b]		M Port[c]		ML Port[d]		L Port[e]	
Well ID	**Well Type**	**Northing**	**Easting**	**Install Date**	**Reference Elevation**	**Total Depth**	**Bedrock Contact Depth**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**	**Screen Interval (ft)**	**Filter Pack Interval (ft)**
ASE-129A	Groundwater Monitoring Well	887390.3	471756	6/20/2008	1113.87	112	NA	55-105	52-112	--	--	--	--	--	--	--	--
PMW-11	Multiport Process Monitoring Well	887751.3	473114.3	6/27/2008	1120.74	97	NA	--	--	5-9	4.5-11	20-25	19-27	--	--	55-95	52-97
PMW-12	Multiport Process Monitoring Well	887654.6	473561.1	6/28/2008	1120.68	97	NA	--	--	5-9	5-11	20-25	19-27	--	--	55-95	52-97
PMW-13	Multiport Process Monitoring Well	887355.4	473170.8	6/19/2008	1119.59	97	NA	--	--	5-9	5-11	20-25	19-28	--	--	55-95	
SMW-8	Multiport Sentinel Monitoring Well	888164.5	471733.3	7/1/2008	1115.23	28	NA	--	--	5-9	5-11	20-25	19-28	--	--	--	--
SMW-9	Multiport Sentinel Monitoring Well	887697.8	471915.9	6/6/2008	1115.24	97	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-97
SMW-10	Multiport Sentinel Monitoring Well	887055.6	472936.5	6/3/2008	1119.89	97	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-97
SMW-11	Multiport Sentinel Monitoring Well	887064.1	473802.4	6/11/2008	1125.10	97	NA	--	--	5-10	5-11	20-25	19-27	--	--	55-95	52-97
SMW-12	Multiport Sentinel Monitoring Well	888123.9	473994.9	6/30/2008	1120.55	27.5	NA	--	--	5-9	5-11	20-25	19-28	--	--	--	--
SMW-13	Multiport Sentinel Monitoring Well	887056.8	473197.9	6/1/2008	1121.13	97.2	NA	--	--	5-10	5-10	20-25	18-27	--	--	55-95	52-97
SMW-14	Multiport Sentinel Monitoring Well	887048.4	473498.1	7/9/2008	1121.99	98	NA	--	--	5-10	4.5-11	20-25	19-27	--	--	55-95	52-98

Notes:
[a] Single Port wells are 4-inch-diameter casing.
[b] Upper Port wells are 0.5-inch-diameter casing.
[c] Middle Port wells are 0.5-inch-diameter casing.
[d] Middle/lower port wells are 2-inch-diameter casing.
[d] Lower port wells are 2-inch-diameter casing.
NA = not applicable.



Legend

Injection/Extraction Wells

- BSVE Injection/Extraction Wells

Monitoring Wells

- Sentinel Monitoring Wells (Shallow, Intermediate, and Deep Ports)
- Sentinel Monitoring Wells (Shallow and Intermediate Ports)
- Sentinel Monitoring Wells (Intermediate Ports Only)
- Process Monitoring Wells (i.e. convertible)
- Groundwater Monitoring Well
- Honeywell Facility

N W E S

0 150 300 Feet

Notes:
1. Aerial Image provided by: Landiscor Inc.
2. Flight Date: January 2007.

FIGURE A-1
HONEYWELL 34TH STREET FACILITY AND PHOENIX SKY HARBOR INTERNATIONAL AIRPORT WELL INSTALLATION LOCATIONS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

\\MADISON\GROUPS\EMS\GIS_LIBRARY\HONEYWELL PROJECTS\UST QUARTERLY REPORTS\3RD QRT SEPT 2008\MAPFILES\FIGA-1_HW&PSHIA_INSTALLATION_WELLLOCS.MXD TJW 9/8/2008 10:34:12

Boring Logs and Well Construction Diagrams

PROJECT NUMBER:	BORING NUMBER:
376821	ASE-129A SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1113.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/2008

END : 6/20/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT.		Well Vault
					POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) brown (7.5YR 4/4), ~50% sand, fine to coarse; ~40% gravel, fine to coarse; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		4" ID SCH 40 PVC Blank Casing Cement Grout 5% Bentonite
5							
10							
15							
20					**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/4), ~55% sand, fine to coarse; ~30% gravel, fine to coarse; ~15% fines; dry to moist, loose, with cobbles, no odor, no staining.		
					POORLY GRADED SAND WITH GRAVEL (SP) brown (7.5YR 4/4), ~70% sand, fine to coarse; ~25% gravel, fine to coarse; ~5% fines; dry to moist, loose, with cobbles, no odor, no staining.		
25					**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/4), ~45% sand, fine to coarse; ~40% gravel, fine to coarse; ~15% fines; dry to moist, loose, with cobbles, no odor, no staining.		
					POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) brown (7.5YR 4/4), ~50% sand, fine to coarse; ~40% gravel, fine to coarse; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		
					Soil Description on next page		
30							

PROJECT NUMBER:	BORING NUMBER:
376821	ASE-129A SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1113.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/2008

END : 6/20/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					POORLY GRADED SAND WITH GRAVEL (SP) reddish brown (5YR 5/4), ~65% sand, medium, subangular; ~30% gravel, fine to coarse; ~5% fines; dry to moist, loose, with cobbles, no odor, no staining.(Soil Description Repeated)		
35					**SILTY GRAVEL WITH SAND (GM)** dark reddish gray (5YR 4/2), ~40% gravel, fine to coarse; ~30% sand, fine to coarse; ~30% fines; dry to moist, loose, with cobbles, with boulders, no odor, no staining.		
40					**SILTY GRAVEL WITH SAND (GM)** black (7.5YR 2.5/1), ~40% gravel, fine to coarse; ~40% fines; ~20% sand, fine to coarse; dry to moist, loose, with cobbles, with boulders, no odor, no staining.		
					SILTY GRAVEL WITH SAND (GM) dark reddish gray (5YR 4/2), ~40% gravel, fine to coarse; ~30% sand, fine to coarse; ~30% fines; dry to moist, medium dense, with cobbles, with boulders, no odor, no staining.		
45					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse; ~40% sand, fine to medium, subangular; ~15% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		Hydrated Bentonite Pellet Seal
50			PID = 10.7				#60 Mesh Silica Transistion Sand
	53.0		PID = 9.7				#10-20 Colorado Silica Sand
	53.5	ASE-129A-01					
55			PID = 10.8				4" ID SCH 40 PVC Slotted Casing 0.020
			PID = 5.1				
60			PID = 10.2				

PROJECT NUMBER:	BORING NUMBER:
376821	ASE-129A SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1113.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/2008

END : 6/20/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			PID = 2.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to medium, subangular; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		
			PID = 8.7		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse; ~35% sand, fine to medium, subangular; ~20% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
65			PID = 3.6				
			PID = 8.3				
	68.0		PID = 23.5				
	68.5	ASE-129A-02					
70					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/2), ~45% gravel, fine to coarse; ~30% fines; ~25% sand, fine to medium, subangular; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
			PID = 10.6				
			PID = 13.2				
75					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to medium, subangular; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		
	78.0				**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse; ~35% sand, fine to medium, subangular; ~20% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
	78.5	ASE-129A-03					
80	80.0				**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
	80.5	ASE-129A-04	FID = 12 LEL = 5 PID = 0				
			FID = 11.6 LEL = 7 PID = 0				
			FID = 10.1 LEL = 0 PID = 0				
85					**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
			FID = 8.9 LEL = 0 PID = 0				
			FID = 2.8 LEL = 0 PID = 0				
90							

PROJECT NUMBER:	BORING NUMBER:
376821	ASE-129A SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1113.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/2008

END : 6/20/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			FID = 2.9 LEL = 0 PID = 0		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.(Soil Description Repeated)		
	93.0 93.5	ASE-129A-05	FID = 7.6 LEL = 6 PID = 0				
95							
			FID = 6.4 LEL = 6 PID = 0				
100					**POORLY GRADED SAND WITH GRAVEL (SP)** brown (7.5YR 4/3), ~55% sand, fine to medium; ~40% gravel, fine to coarse; ~5% fines; dry to moist, loose to medium dense, no, no odor, no staining.		
			FID = 5.6 LEL = 19 PID = 0				
	103.0 103.5	ASE-129A-06	FID = 6.7 LEL = 0 PID = 0				
105			FID = 3.4 LEL = 0 PID = 0		**POORLY GRADED SAND (SP)** brown (7.5YR 4/3), ~95% sand, fine to medium; ~5% fines; ~0% gravel; dry to moist, loose to medium dense, no, no odor, no staining.		#10-20 Colorado Silica Sand
			FID = 2.3 LEL = 0 PID = 0		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~55% gravel, fine to medium; ~40% sand, fine to coarse; ~5% fines; dry to moist, loose to medium dense, no, no odor, no staining.		
			FID = 0 LEL = 9 PID = 0				
110					**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~55% gravel, fine to medium; ~30% sand, fine to coarse; ~15% fines; dry to moist, loose to medium dense, no, no odor, no staining.		Bottom cap #10-20 Colorado Silica Sand
			FID = 0 LEL = 12 PID = 0		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~55% gravel, fine to medium; ~40% sand, fine to coarse; ~5% fines; dry to moist, loose to medium dense, no, no odor, no staining.	Boring terminated at 112'	
115							
120							

PROJECT NUMBER:	BORING NUMBER:
371451	BV-1N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 69.2 ft bgs after drilling ▼

START : 5/13/08 08:45

END : 5/14/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		TempWellVault 4" ID SCH 40 PVC Blank Casing Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining, Large cobbles to boulders.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-1N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 69.2 ft bgs after drilling ▼

START : 5/13/08 08:45

END : 5/14/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining, Large cobbles to boulders.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining, Large cobbles to boulders.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining, Large cobbles to boulders.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-1N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 69.2 ft bgs after drilling ▼

START : 5/13/08 08:45

END : 5/14/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining, Large cobbles to boulders.		
65				
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining, Large cobbles to boulders.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining, Large cobbles to boulders.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-1N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 69.2 ft bgs after drilling

START : 5/13/08 08:45

END : 5/14/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining, Large cobbles to boulders.		
95		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/4), ~70% fines; ~30% sand, fine to medium; saturated, medium stiff, no staining.		
100		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/4), ~70% fines; ~30% sand, fine to medium; saturated, medium stiff, no staining.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-2N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/9/08 12:34 END : 5/9/08 14:55 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM) yellowish brown (10YR 5/4), ~50% sand, fine to coarse; ~40% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		4" ID SCH 40 PVC Blank Casing Well Vault #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~60% sand, fine to coarse; ~30% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
15				
20		**POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)** yellowish brown (10YR 5/4), ~60% sand, medium; ~30% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-2N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/9/08 12:34 END : 5/9/08 14:55 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM) dusky brown (5YR 2/2), ~60% sand, fine to coarse; ~30% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~50% sand, fine to coarse; ~40% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~50% sand, fine to coarse; ~40% gravel, fine to coarse; ~10% fines; moist, loose, with cobbles, hydrocarbon odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-2N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/9/08 12:34 END : 5/9/08 14:55 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED GRAVEL WITH SAND (GW)** yellowish brown (10YR 5/4), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, hydrocarbon odor, no staining.		
70		**WELL GRADED GRAVEL WITH SAND (GW)** yellowish brown (10YR 5/4), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		
75				
80		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~60% sand, fine to coarse; ~30% gravel, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-2N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/9/08 12:34 END : 5/9/08 14:55 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SILTY SAND WITH GRAVEL (SM) yellowish brown (10YR 5/4), ~60% sand, fine; ~20% gravel, fine to coarse; ~20% fines; saturated, loose, with cobbles, no odor, no staining.		
95				
100		**SILT WITH SAND (SM)** reddish brown (5YR 4/4), ~80% fines; ~20% sand, fine to medium; ~0% gravel; moist, no odor, no staining.		
105				4" ID SCH 40 PVC Blank Casing
110				#10-20 Colorado Silica Sand Bottom cap
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-3N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.5 ft bgs after drilling

START : 4/25/08 08:19

END : 4/28/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 4/4), ~60% sand, fine to coarse; ~30% gravel, fine to coarse; dry, with cobbles, no, no odor, no staining.		Temporary Casing TempWellVault 4" ID SCH 40 PVC Blank Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; dry, with cobbles, no, no odor, no staining.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; dry, with cobbles, no, no odor, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-3N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.5 ft bgs after drilling ▼

START : 4/25/08 08:19

END : 4/28/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; dry, with cobbles, no, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; dry, with cobbles, no, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~50% gravel, medium to coarse; ~40% sand, medium to coarse; ~0% fines; dry, with cobbles, no, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC 0.020" Slotted Casing
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-3N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.5 ft bgs after drilling ▼

START : 4/25/08 08:19

END : 4/28/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/4), ~50% gravel, medium to coarse; ~40% sand, medium to coarse; ~0% fines; dry, with cobbles, no, no odor, no staining.		
65				
			▼	
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~50% gravel, medium to coarse; ~40% sand, medium to coarse; ~0% fines; wet, with cobbles, no, no odor, no staining.		
				#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~50% gravel, medium to coarse; ~40% sand, medium to coarse; ~0% fines; wet, with cobbles, no, no odor, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-3N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.5 ft bgs after drilling ▼

START : 4/25/08 08:19

END : 4/28/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SILTY SAND WITH GRAVEL (SM) olive (5Y 4/4), ~50% sand, fine to coarse; ~35% gravel; ~15% fines; wet, no odor.		
		SANDY SILT (ML) reddish brown (5YR 4/3), ~65% fines; ~35% sand; ~0% gravel; wet, no odor.		
95				
100		**SANDY SILT (ML)** reddish brown (5YR 4/3), ~65% fines; ~35% sand; ~0% gravel; wet, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-4N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling

START : 5/31/08 08:10

END : 6/1/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		4" ID SCH 40 PVC Blank Casing TempWellVault Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-4N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling

START : 5/31/08 08:10

END : 6/1/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
35		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-4N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling ▼

START : 5/31/08 08:10

END : 6/1/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
65				
			▼	
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
75				#10-20 Colorado Silica Sand
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, with cobbles, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-4N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling ▼

START : 5/31/08 08:10

END : 6/1/08 07:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, with cobbles, no staining.		
95				
		LEAN CLAY WITH SAND (CL) reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine to medium; ~0% gravel; wet, medium stiff, no staining.		
100				
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 111.4'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-6N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling

START : 5/21/08 09:18

END : 5/22/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (2.5YR 5/3), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		Temporary Casing Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~60% sand; ~30% gravel; ~10% fines; dry, loose, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-6N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling ▼

START : 5/21/08 09:18

END : 5/22/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-6N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling

START : 5/21/08 09:18

END : 5/22/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
65				
70		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
75				#10-20 Colorado Silica Sand
80		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; moist, loose, little cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-6N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling ▼

START : 5/21/08 09:18

END : 5/22/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		FAT CLAY WITH SAND (CH) reddish brown (2.5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		
95				
100		**FAT CLAY WITH SAND (CH)** reddish brown (2.5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110		**FAT CLAY WITH SAND (CH)** reddish brown (2.5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-7N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.5 ft bgs after drilling

START : 4/15/08 08:00

END : 4/16/08 09:45

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SILTY GRAVEL WITH SAND (GM) reddish brown (5YR 5/4), ~40% gravel, fine to coarse; ~30% sand, fine to coarse; ~30% fines; dry, loose, with cobbles.		Temporary Casing TempWellVault 4" ID SCH 40 PVC Blank Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**CLAYEY GRAVEL WITH SAND (GC)** reddish brown (5YR 5/4), ~40% gravel, fine to coarse; ~30% sand, fine to coarse; ~30% fines; dry, loose, with cobbles.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** light brownish gray (10YR 6/2), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-7N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.5 ft bgs after drilling ▼

START : 4/15/08 08:00

END : 4/16/08 09:45

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) light brownish gray (10YR 6/2), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** light brownish gray (10YR 6/2), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** light brownish gray (10YR 6/2), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-7N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.5 ft bgs after drilling

START : 4/15/08 08:00

END : 4/16/08 09:45

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		
65		**WELL GRADED GRAVEL WITH SAND (GW)** pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, hydrocarbon odor.		
70		**WELL GRADED GRAVEL WITH SAND (GW)** pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, hydrocarbon odor.		#10-20 Colorado Silica Sand
75				
80		**CLAYEY GRAVEL WITH SAND (GC)** pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~20% sand, fine to coarse; ~20% fines; saturated, loose, with cobbles, hydrocarbon odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-7N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.5 ft bgs after drilling

START : 4/15/08 08:00

END : 4/16/08 09:45

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
95				
100		**WELL GRADED GRAVEL WITH SAND (GW)** pale brown (10YR 6/3), ~60% gravel, medium to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 111'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-8N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.3 ft bgs after drilling

START : 4/30/08 10:30

END : 5/1/08 09:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		POORLY GRADED SAND (SP) light olive brown (2.5Y 5/4), ~90% sand; ~10% gravel; dry, loose, no odor.		Well Vault Temporary Casing #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~85% sand; ~15% gravel; dry, loose, some cobbles, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-8N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.3 ft bgs after drilling ▼

START : 4/30/08 10:30

END : 5/1/08 09:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~70% sand; ~30% gravel; dry, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~60% sand; ~40% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-8N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.3 ft bgs after drilling ▼

START : 4/30/08 10:30

END : 5/1/08 09:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/4), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
65			▼	
70		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~65% sand; ~35% gravel; dry, loose, trace cobbles, no odor.		
75				#10-20 Colorado Silica Sand
80		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~65% sand; ~35% gravel; dry, loose, little cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-8N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.3 ft bgs after drilling ▼

START : 4/30/08 10:30

END : 5/1/08 09:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (2.5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
95				
100		**WELL GRADED SAND (SW)** reddish brown (2.5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; dry, loose, no odor.		4" ID SCH 40 PVC Blank Casing
105				Bottom Cap #10-20 Colorado Silica Sand
			Bedrock encountered @ 106' Boring terminated at 106'	
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-9N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.33 ft bgs after drilling

START : 4/28/08 08:32

END : 4/29/08 08:10

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 5/3), light ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		Temporary Casing TempWellVault 4" ID SCH 40 PVC Blank Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**CLAYEY GRAVEL WITH SAND (GC)** reddish brown (5YR 5/3), light reddish brown ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; dry, loose, with cobbles.		
15				
20		**POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC)** reddish brown (5YR 5/3), ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; dry, medium dense, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-9N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.33 ft bgs after drilling

START : 4/28/08 08:32

END : 4/29/08 08:10

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 5/3), light reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 5/3), light reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 5/3), light reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-9N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.33 ft bgs after drilling

START : 4/28/08 08:32

END : 4/29/08 08:10

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 5/3), light reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 5/3), light reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 5/3), light reddish gray ~60% gravel, fine to coarse; ~20% sand, fine to coarse; ~20% fines; wet, medium dense, with cobbles.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-9N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.33 ft bgs after drilling

START : 4/28/08 08:32

END : 4/29/08 08:10

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC) reddish brown (5YR 4/3), light reddish gray ~60% gravel, fine to coarse; ~20% sand, fine to coarse; ~20% fines; wet, medium dense, with cobbles.		
95				
100		**POORLY GRADED GRAVEL WITH CLAY AND SAND (GP-GC)** reddish brown (5YR 4/3), light reddish gray ~60% gravel, fine to coarse; ~20% sand, fine to coarse; ~20% fines; wet, medium dense, with cobbles.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-10N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 74.3 ft bgs after drilling

START : 5/21/08 09:22

END : 5/22/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, no staining.		4" ID SCH 40 PVC Blank Casing TempWellVault Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-10N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 74.3 ft bgs after drilling

START : 5/21/08 09:22

END : 5/22/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
45		**WELL GRADED SAND (SW)** dark reddish gray (5YR 4/2), ~80% sand, fine to coarse; ~10% gravel, fine to coarse; ~10% fines; dry, very loose, no staining.		Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-10N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 74.3 ft bgs after drilling ▼

START : 5/21/08 09:22

END : 5/22/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no staining.		
65				
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		#10-20 Colorado Silica Sand
75			▼	
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-10N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 74.3 ft bgs after drilling ▼

START : 5/21/08 09:22

END : 5/22/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
95		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		4" ID SCH 40 PVC Blank Casing
100				Bottom Cap #10-20 Colorado Silica Sand
			Bedrock encountered @ 101' Boring terminated at 101'	
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-11N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.3 ft bgs after drilling

START : 5/7/08 15:19

END : 5/9/08 07:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY (SW-SC) reddish brown (5YR 5/3), ~80% sand; ~10% gravel; ~10% fines; moist, loose, no odor.		Temporary Casing Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**POORLY GRADED SAND WITH GRAVEL (SP)** light reddish brown (5YR 6/3), ~75% sand; ~15% gravel; ~10% fines; moist, loose, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/4), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-11N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.3 ft bgs after drilling ▼

START : 5/7/08 15:19

END : 5/9/08 07:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/4), ~85% sand; ~15% gravel; dry, loose, some cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/4), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/4), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-11N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.3 ft bgs after drilling ▼

START : 5/7/08 15:19

END : 5/9/08 07:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) light reddish brown (5YR 6/4), ~90% sand; ~10% gravel; wet, loose, trace cobbles, no odor.		
65				
		▼		
70		**WELL GRADED SAND (SW)** light reddish brown (5YR 6/4), ~90% sand; ~10% gravel; wet, loose, trace cobbles, no odor.		
				#10-20 Colorado Silica Sand
75				
80		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/4), ~85% sand; ~15% gravel; wet, loose, some cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-11N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

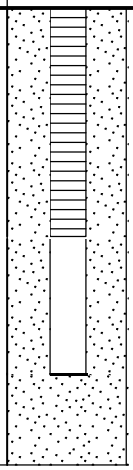
DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.3 ft bgs after drilling

START : 5/7/08 15:19

END : 5/9/08 07:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/4), ~75% sand; ~15% gravel; ~10% fines; moist, loose, trace clay, no odor.		 4" ID SCH 40 PVC Blank Casing Bottom Cap #10-20 Colorado Silica Sand
95				
100			Bedrock encountered at 100' Boring terminated at 100'	
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-12N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66 ft bgs after drilling

START : 5/9/08 08:10

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; dry, loose, trace clay, trace cobbles, no odor.		Temporary Casing Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND (SW)** reddish brown (5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; dry, loose, little clay, little cobbles, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, trace clay, trace cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-12N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66 ft bgs after drilling

START : 5/9/08 08:10

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~85% sand; ~15% gravel; dry, loose, some cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-12N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66 ft bgs after drilling

START : 5/9/08 08:10

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~75% sand; ~25% gravel; wet, loose, trace cobbles, no odor.		
65				
70		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~75% sand; ~25% gravel; wet, loose, trace cobbles, no odor.		#10-20 Colorado Silica Sand
75				
80		**CLAYEY SAND (SC)** reddish brown (2.5YR 5/4), ~60% sand; ~30% fines; ~10% gravel; wet, loose, some clay, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-12N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66 ft bgs after drilling

START : 5/9/08 08:10

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY SAND (SC) reddish brown (2.5YR 5/4), ~60% sand; ~30% fines; ~10% gravel; wet, loose, some clay, no odor.		
95				
100		**CLAYEY SAND (SC)** reddish brown (2.5YR 5/4), ~60% sand; ~35% fines; ~5% gravel; wet, loose, some clay, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110		**WELL GRADED SAND (SW)** reddish brown (5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; moist, loose, trace cobbles, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-13N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 4/21/08 11:54

END : 4/22/08 14:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) pale red (10R 6/2), ~60% sand; ~38% gravel; ~2% fines; dry, loose, with.		Temporary Casing Well Vault 4" ID SCH 40 PVC Blank Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH GRAVEL (SW)** pale red (10R 6/2), ~50% sand; ~40% gravel; ~10% fines; dry, loose.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** weak red (10R 4/2), ~60% gravel; ~30% sand; ~10% fines; dry, loose.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-13N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 4/21/08 11:54

END : 4/22/08 14:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) weak red (10R 4/2), ~60% gravel; ~30% sand; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** weak red (10R 4/2), ~60% gravel; ~30% sand; ~10% fines; dry, very loose, with cobbles.		
45				Hydrated Bentonite Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** weak red (10R 4/2), ~60% gravel; ~30% sand; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-13N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 4/21/08 11:54

END : 4/22/08 14:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED SAND WITH GRAVEL (SW)** weak red (10R 4/2), ~70% sand; ~20% gravel; ~10% fines; wet, loose, little cobbles, no odor.		
70		**WELL GRADED SAND WITH GRAVEL (SW)** weak red (10R 4/2), ~70% sand; ~30% gravel; wet, loose, with cobbles, no odor.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED SAND WITH GRAVEL (SW)** weak red (10R 4/2), ~70% sand; ~20% gravel; ~10% fines; wet, loose, trace cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-13N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 4/21/08 11:54

END : 4/22/08 14:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) weak red (10R 4/2), ~60% sand; ~20% gravel; ~20% fines; wet, loose, with cobbles, no odor.		
95				4" ID SCH 40 PVC Blank Casing
100		**WELL GRADED SAND WITH GRAVEL (SW)** weak red (10R 4/2), ~60% sand; ~20% gravel; ~20% fines; wet, loose, with, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Bedrock encountered at 102' Boring terminated at 102'	
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-14N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 5/20/08 08:50

END : 5/21/08 07:45

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; dry, loose, trace clay, some cobbles, no odor.		Temporary Casing Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND (SW)** light reddish brown (5YR 6/3), ~85% sand; ~15% fines; dry, loose, little cobbles, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace clay, trace cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-14N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 5/20/08 08:50

END : 5/21/08 07:45

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~60% sand; ~25% gravel; ~15% fines; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND (SW)** light reddish brown (5YR 6/3), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-14N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 5/20/08 08:50

END : 5/21/08 07:45

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
65				
70		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		#10-20 Colorado Silica Sand
75				
80		**FAT CLAY WITH SAND (CH)** reddish brown (2.5YR 5/3), ~80% fines; ~10% gravel; ~10% sand; wet, soft, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-14N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68 ft bgs after drilling

START : 5/20/08 08:50

END : 5/21/08 07:45

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		FAT CLAY WITH SAND (CH) reddish brown (2.5YR 5/3), ~80% fines; ~10% gravel; ~10% sand; wet, soft, no odor.		
95				
100		**FAT CLAY WITH SAND (CH)** reddish brown (2.5YR 5/3), ~90% fines; ~10% sand; wet, soft, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110		**FAT CLAY WITH SAND (CH)** reddish brown (2.5YR 5/3), ~90% fines; ~10% sand; wet, soft, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-15N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 4/30/08 07:58 END : 5/1/08 12:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC) brown (10YR 4/3), ~50% sand; ~40% gravel, fine to medium; ~10% fines; dry, loose.		Temporary Casing TempWellVault 4" ID SCH 40 PVC Blank Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~40% sand, medium to coarse; ~0% fines; dry, very loose.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-15N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 4/30/08 07:58 END : 5/1/08 12:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-15N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 4/30/08 07:58 END : 5/1/08 12:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
85		**WELL GRADED GRAVEL WITH SAND (GW)** pale red (10R 6/3), ~80% gravel, fine to coarse; ~15% sand, fine to coarse; ~5% fines; dry, medium dense, with cobbles.		4" ID SCH 40 PVC Blank Casing
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-15N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 4/30/08 07:58 END : 5/1/08 12:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
95		**WELL GRADED GRAVEL WITH SAND (GW)** pale red (10R 6/3), ~80% gravel, fine to coarse; ~15% sand, fine to coarse; ~5% fines; dry, medium dense, with cobbles.		Bottom Cap #10-20 Colorado Silica Sand
			Bedrock encountered at 95.5' Boring terminated at 95.5'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-16N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.2 ft bgs after drilling

START : 5/19/08 08:12

END : 5/20/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/3), ~75% sand; ~25% gravel; dry, loose, trace clay, little cobbles, no odor.		Temporary Casing Well Vault #60 Mesh Silica Transition Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/3), ~75% sand; ~25% gravel; dry, loose, trace clay, little cobbles, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; dry, loose, some cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-16N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.2 ft bgs after drilling ▼

START : 5/19/08 08:12

END : 5/20/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~60% sand; ~25% fines; ~15% gravel; moist, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC)** light brown (7.5YR 6/3), ~60% sand; ~25% fines; ~15% gravel; moist, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-16N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.2 ft bgs after drilling

START : 5/19/08 08:12

END : 5/20/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		
65				
70		**WELL GRADED SAND (SW)** light brown (7.5YR 6/3), ~70% sand; ~20% fines; ~10% gravel; wet, loose, little clay, little cobbles, no odor.		#10-20 Colorado Silica Sand
75				
80		**CLAYEY SAND (SC)** reddish brown (5YR 5/4), ~60% sand; ~40% fines; wet, loose, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-16N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.2 ft bgs after drilling ▼

START : 5/19/08 08:12

END : 5/20/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY SAND (SC) reddish brown (5YR 5/4), ~60% sand; ~40% fines; wet, loose, no odor.		
95				
100		**CLAYEY SAND (SC)** reddish brown (5YR 5/4), ~60% sand; ~40% fines; wet, loose, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110		**CLAYEY SAND (SC)** reddish brown (5YR 5/4), ~60% sand; ~40% fines; wet, loose, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-17N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 4/29/08 08:30

END : 4/30/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) reddish brown (5YR 4/4), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		Temporary Casing TempWellVault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-17N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 4/29/08 08:30

END : 4/30/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**CLAYEY GRAVEL WITH SAND (GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~20% sand, fine to coarse; ~20% fines; dry, medium dense, with cobbles.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** dark reddish gray (5YR 4/2), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-17N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 4/29/08 08:30

END : 4/30/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) dark reddish gray (5YR 4/2), ~70% gravel, fine to coarse; ~20% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
65				
			▼	
70		**WELL GRADED GRAVEL WITH SAND (GW)** dark reddish gray (5YR 4/2), ~70% gravel, fine to coarse; ~20% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** dark reddish gray (5YR 4/2), ~70% gravel, fine to coarse; ~20% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-17N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 4/29/08 08:30

END : 4/30/08 07:20

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY GRAVEL WITH SAND (GC) reddish brown (5YR 4/3), ~40% gravel; ~30% sand, fine to coarse; ~30% fines; wet, medium dense, with cobbles.		
95				
100		**CLAYEY GRAVEL WITH SAND (GC)** reddish brown (5YR 4/3), ~40% gravel; ~30% sand, fine to coarse; ~30% fines; wet, medium dense, with cobbles.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-18N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66.2 ft bgs after drilling ▼

START : 5/10/08 07:04

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) brown (7.5YR 4/3), ~90% sand; ~10% gravel; dry, loose, trace clay, trace cobbles, no odor.		Temporary Casing Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH GRAVEL (SW)** brown (7.5YR 4/3), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-18N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66.2 ft bgs after drilling

START : 5/10/08 07:04

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~60% sand; ~40% gravel; dry, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-18N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66.2 ft bgs after drilling ▼

START : 5/10/08 07:04

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
65			▼	
70		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~60% sand; ~40% gravel; dry, loose, little cobbles, no odor.		
75				#10-20 Colorado Silica Sand
80		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/4), ~60% fines; ~40% sand; wet, soft, some clay, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-18N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 66.2 ft bgs after drilling ▼

START : 5/10/08 07:04

END : 5/12/08 07:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SANDY FAT CLAY (CH) reddish brown (5YR 5/4), ~60% fines; ~40% sand; wet, soft, no odor.		
95				
100		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/4), ~70% fines; ~30% sand; wet, soft, no odor.		
105				4" ID SCH 40 PVC Blank Casing
110		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/4), ~70% fines; ~30% sand; wet, soft, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-19N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.6 ft bgs after drilling

START : 5/12/08 08:35

END : 5/13/08 07:30

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY GRAVEL WITH SAND (GC) reddish brown (5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		TempWellVault 4" ID SCH 40 PVC Blank Casing Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-19N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.6 ft bgs after drilling ▼

START : 5/12/08 08:35

END : 5/13/08 07:30

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-19N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.6 ft bgs after drilling

START : 5/12/08 08:35

END : 5/13/08 07:30

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
65		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-19N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.6 ft bgs after drilling

START : 5/12/08 08:35

END : 5/13/08 07:30

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.(Soil Description Repeated)		
		SANDY LEAN CLAY (CL) reddish brown (5YR 4/4), ~70% fines; ~30% sand, fine to medium; wet, medium stiff.		
95				
100		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/4), ~70% fines; ~30% sand, fine to medium; wet, medium stiff.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-20N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/8/08 10:47 END : 5/8/08 15:05 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM) yellowish brown (10YR 5/4), ~60% sand, fine to coarse, rounded; ~30% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		4" ID SCH 40 PVC Blank Casing Well Vault #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~50% sand, fine to coarse, rounded; ~40% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
15				
20				
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-20N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/8/08 10:47 END : 5/8/08 15:05 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) yellowish brown (10YR 5/4), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** yellowish brown (10YR 5/4), ~50% sand, fine to coarse, rounded; ~40% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-20N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: ---

START : 5/8/08 10:47

END : 5/8/08 15:05

LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) yellowish brown (10YR 5/4), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no odor, no staining.		
65				
70		**WELL GRADED GRAVEL WITH SAND (GW)** yellowish brown (10YR 5/4), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; moist, loose, with cobbles, hydrocarbon odor, no staining.		#10-20 Colorado Silica Sand
75				
80				
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-20N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/8/08 10:47 END : 5/8/08 15:05 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) yellowish brown (10YR 5/4), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no odor, no staining.		
95		**LEAN CLAY (CL)** dark yellowish brown (10YR 4/4), ~90% fines; ~10% sand, fine to medium; wet, no odor, no staining.		
100				
105				4" ID SCH 40 PVC Blank Casing
110				Bottom cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-21N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.67 ft bgs after drilling

START : 4/22/08 07:50

END : 4/23/08 09:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) reddish brown (5YR 5/3), pale reddish brown ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		Temporary Casing TempWellVault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 5/3), pale reddish brown ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-21N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.67 ft bgs after drilling

START : 4/22/08 07:50

END : 4/23/08 09:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		
45			Slight hydrocarbon odor	Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55			Strong hydrocarbon odor	4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-21N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.67 ft bgs after drilling

START : 4/22/08 07:50

END : 4/23/08 09:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish gray (5YR 5/2), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor.		
65				
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish gray (5YR 5/2), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-21N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

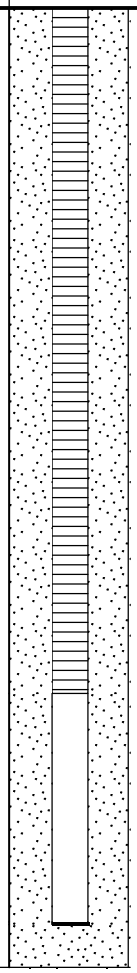
WATER LEVEL: 68.67 ft bgs after drilling

START : 4/22/08 07:50

END : 4/23/08 09:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish gray (5YR 5/2), pale reddish gray ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles.		
		CLAYEY SAND WITH GRAVEL (SC) reddish brown (5YR 5/3), pale reddish brown ~50% sand, fine to coarse; ~40% fines; ~10% gravel, fine; saturated, medium dense.	Clay layer	
95				
100		**CLAYEY SAND WITH GRAVEL (SC)** reddish brown (5YR 5/3), pale reddish brown ~50% sand, fine to coarse; ~40% fines; ~10% gravel, fine; saturated, medium dense.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 111'	
115				
120				



PROJECT NUMBER:	BORING NUMBER:
371451	BV-22N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling

START : 6/1/08 07:31

END : 6/3/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) dark yellowish brown (10YR 4/4), ~50% gravel, fine to coarse; ~45% sand, fine to coarse; ~5% fines; dry, loose, no staining.		TempWellVault 4" ID SCH 40 PVC Blank Casing Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** dark yellowish brown (10YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-22N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 6/1/08 07:31

END : 6/3/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-22N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.5 ft bgs after drilling ▼

START : 6/1/08 07:31

END : 6/3/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
65		**POORLY GRADED SAND WITH GRAVEL (SP)** reddish brown (5YR 4/3), ~70% sand, fine to medium; ~20% gravel, medium to coarse; ~10% fines; moist, loose, no cobbles, hydrocarbon odor, no staining.		
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-22N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

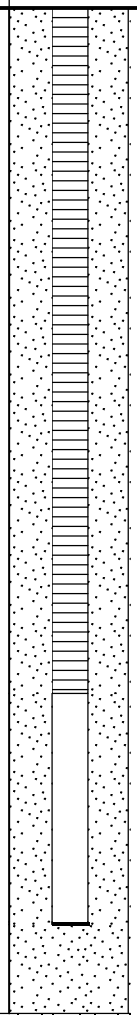
WATER LEVEL: 68.5 ft bgs after drilling

START : 6/1/08 07:31

END : 6/3/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no staining.		
95		**LEAN CLAY WITH SAND** reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine to medium; ~0% gravel; wet, medium stiff, no odor, no staining.		
100		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~80% fines; ~15% sand, fine to medium; ~5% gravel; wet, medium stiff, no odor, no staining.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				



PROJECT NUMBER:	BORING NUMBER:
371451	BV-23N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.4 ft bgs after drilling

START : 5/30/08 08:07

END : 5/31/08 08:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~50% gravel, fine to coarse; ~45% sand, fine to coarse; ~5% fines; dry, loose, no staining.		TempWellVault 4" ID SCH 40 PVC Blank Casing Temporary Casing #10-20 Colorado Silica Sand
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
15				
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-23N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.4 ft bgs after drilling

START : 5/30/08 08:07

END : 5/31/08 08:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-23N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.4 ft bgs after drilling ▼

START : 5/30/08 08:07

END : 5/31/08 08:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor, no staining.		
65				
		▼		
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-23N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.4 ft bgs after drilling

START : 5/30/08 08:07

END : 5/31/08 08:00

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor, no staining.		
95				
		LEAN CLAY WITH SAND (CL) reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine to medium; ~0% gravel; wet, medium stiff, no staining.		
100				
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-24N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/1/08 14:26 END : 5/7/08 14:10 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) brown (10YR 4/3), ~50% gravel; ~40% sand, fine to coarse; ~10% fines; dry, loose.		Temporary Casing TempWellVault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-24N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/1/08 14:26 END : 5/7/08 14:10 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-24N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/1/08 14:26 END : 5/7/08 14:10 LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~50% gravel; ~40% sand, fine to coarse; ~10% fines; moist, loose, with cobbles.		
65				
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** dark grayish brown (10YR 4/2), ~50% gravel; ~40% sand, fine to coarse; ~10% fines; moist, loose, with cobbles.		#10-20 Colorado Silica Sand
75				
80				
85		**SANDY SILT (ML)** dark grayish brown (10YR 4/2), ~50% fines; ~40% sand, fine to coarse; ~10% gravel, fine to medium; moist, with cobbles.		
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-24N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: ---

START : 5/1/08 14:26

END : 5/7/08 14:10

LOGGER : L Peterson

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SANDY SILT (ML) dark grayish brown (10YR 4/2), ~50% fines; ~40% sand, fine to coarse; ~10% gravel, fine to medium; moist, with cobbles.(Soil Description Repeated)		
95				
100				
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-25N SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 6/14/08 06:00

END : 6/14/08 08:06

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Well Vault #10-20 Colorado Silica Sand 4" ID SCH 40 PVC Blank Casing Temporary Casing
5				Cement Grout 5% Bentonite
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
15				
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
25				
30				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-25N SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 6/14/08 06:00

END : 6/14/08 08:06

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
35		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				4" ID SCH 40 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-25N SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling ▼

START : 6/14/08 06:00

END : 6/14/08 08:06

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~45% sand, fine to coarse; ~0% fines; wet, very loose, with cobbles, no odor, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	BV-25N SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 6/14/08 06:00

END : 6/14/08 08:06

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
95		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~75% fines; ~20% sand, fine to coarse; ~5% gravel, fine; wet, medium stiff, no odor, no staining.		
100		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~75% fines; ~20% sand, fine to coarse; ~5% gravel, fine; wet, medium stiff, no odor, no staining.		
105				4" ID SCH 40 PVC Blank Casing
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-1 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 5/31/08 08:35

END : 6/1/08 07:55

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) light reddish brown (5YR 6/3), ~90% sand; ~10% gravel; dry, loose, no odor.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~80% sand; ~20% gravel; dry, loose, no odor.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-1 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 5/31/08 08:35

END : 6/1/08 07:55

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~80% sand; ~20% gravel; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~80% sand; ~20% gravel; dry, loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-1 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 5/31/08 08:35

END : 6/1/08 07:55

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~85% sand; ~15% gravel; dry, loose, trace cobbles, no odor.		
65				Thermocouple
70		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~75% sand; ~25% gravel; moist, loose, little cobbles, no odor.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; wet, loose, little clay, trace cobbles, no odor.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-1 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.2 ft bgs after drilling

START : 5/31/08 08:35

END : 6/1/08 07:55

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		FAT CLAY WITH SAND (CH) reddish brown (5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		
95				Thermocouple
100		**FAT CLAY WITH SAND (CH)** reddish brown (5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		
105				
110		**FAT CLAY WITH SAND (CH)** reddish brown (5YR 5/3), ~80% fines; ~20% sand; wet, soft, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-2 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/9/08 06:10 END : 6/9/08 09:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC) reddish brown (5YR 4/4), ~45% gravel, fine to coarse; ~45% sand, coarse; ~10% fines; dry, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; dry, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; dry, with cobbles, no odor, no staining.		Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-2 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/9/08 06:10 END : 6/9/08 09:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; dry, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; dry, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; dry, with cobbles, hydrocarbon odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-2 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/9/08 06:10 END : 6/9/08 09:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
65				Thermocouple
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-2 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.4 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/9/08 06:10 END : 6/9/08 09:00 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, coarse; ~30% sand, coarse; ~10% fines; wet, with cobbles, hydrocarbon odor, no staining.		
95		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/3), ~70% fines; ~30% sand, fine to medium; ~0% gravel; wet, medium stiff, no odor, no staining.		Thermocouple
100		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/3), ~70% fines; ~30% sand, fine to medium; ~0% gravel; wet, medium stiff, no odor, no staining.		
105				
110				#10-20 Colorado Silica Sand Bottom Cap
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-3 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/14/08 12:02

END : 5/19/08 15:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; dry, loose, little clay, trace cobbles, no odor.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~85% sand; ~15% gravel; dry, loose, little cobbles, no odor.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~80% sand; ~20% gravel; dry, loose, some cobbles, no odor.		Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-3 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling ▼

START : 5/14/08 12:02

END : 5/19/08 15:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND (SW)** reddish brown (5YR 5/4), ~90% sand; ~10% gravel; dry, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/4), ~70% sand; ~20% gravel; ~10% fines; dry, loose, little clay, some cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-3 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/14/08 12:02

END : 5/19/08 15:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/4), ~70% sand; ~20% gravel; ~10% fines; dry, loose, little clay, some cobbles, no odor.		
65				Thermocouple
70		**WELL GRADED SAND WITH GRAVEL (SW)** brown (7.5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; dry, loose, little clay, some cobbles, hydrocarbon odor.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**WELL GRADED SAND WITH GRAVEL (SW)** brown (7.5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; wet, loose, little clay, some cobbles, hydrocarbon odor.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-3 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/14/08 12:02

END : 5/19/08 15:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) brown (7.5YR 5/3), ~70% sand; ~15% gravel; ~15% fines; wet, loose, little clay, some cobbles, hydrocarbon odor.		
95				Thermocouple
100		**FAT CLAY WITH SAND (CH)** reddish brown (5YR 5/3), ~80% fines; ~20% sand; wet, soft, trace gravel, no odor.		
105				
110		**FAT CLAY WITH SAND (CH)** reddish brown (5YR 5/3), ~80% fines; ~20% sand; wet, soft, trace gravel, no odor.		#10-20 Colorado Silica Sand Bottom Cap
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-4 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 63.7 ft bgs after drilling

START : 6/11/08 06:42

END : 6/11/08 09:25

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC) reddish brown (5YR 4/4), ~60% sand, fine to coarse; ~30% gravel, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Slotted Casing 0.020 Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-4 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 63.7 ft bgs after drilling

START : 6/11/08 06:42

END : 6/11/08 09:25

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-4 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 63.7 ft bgs after drilling

START : 6/11/08 06:42

END : 6/11/08 09:25

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, hydrocarbon odor, no staining.		
65				Thermocouple
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, hydrocarbon odor, no staining.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
85		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/3), ~70% fines; ~30% sand; ~0% gravel; wet, medium stiff, no odor, no staining, medium plasticity.		2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-4 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 63.7 ft bgs after drilling ▼

START : 6/11/08 06:42

END : 6/11/08 09:25

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SANDY LEAN CLAY (CL) reddish brown (5YR 4/3), ~70% fines; ~30% sand; ~0% gravel; wet, medium stiff, no odor, no staining, medium plasticity.		
95				Thermocouple
100		**SANDY LEAN CLAY (CL)** reddish brown (5YR 4/3), ~70% fines; ~30% sand; ~0% gravel; wet, medium stiff, no odor, no staining, medium plasticity.		
105				
110				#10-20 Colorado Silica Sand Bottom Cap
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-5 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 64.8 ft bgs after drilling

START : 5/29/08 09:26

END : 5/30/08 12:48

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; dry, very loose, trace cobbles, no odor.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**POORLY GRADED SAND WITH GRAVEL (SP)** light reddish brown (5YR 6/3), ~85% sand; ~15% gravel; dry, very loose, little cobbles, no odor.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
20		**WELL GRADED SAND WITH GRAVEL** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		0.5" ID SCH 80 PVC Slotted Casing 0.020 Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-5 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 64.8 ft bgs after drilling

START : 5/29/08 09:26

END : 5/30/08 12:48

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL** light reddish brown (5YR 6/3), ~80% sand; ~20% gravel; dry, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~60% sand; ~25% gravel; ~15% fines; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-5 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 64.8 ft bgs after drilling

START : 5/29/08 09:26

END : 5/30/08 12:48

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~60% sand; ~25% gravel; ~15% fines; dry, loose, little cobbles, no odor.		
65				Thermocouple
70		**CLAYEY SAND WITH GRAVEL** pinkish gray (5YR 6/2), ~50% sand; ~30% fines; ~20% gravel; wet, loose, no odor.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/4), ~70% fines; ~30% sand; wet, soft, no odor.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-5 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1122.5 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 64.8 ft bgs after drilling

START : 5/29/08 09:26

END : 5/30/08 12:48

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SANDY FAT CLAY (CH) reddish brown (5YR 5/4), ~70% fines; ~30% sand; wet, soft, no odor.		
95				Thermocouple
100		**WELL GRADED SAND WITH CLAY (SW-SC)** reddish brown (5YR 5/4), ~50% sand; ~40% fines; ~10% gravel; wet, loose, little silt, no odor.		
105				
110		**WELL GRADED SAND WITH CLAY (SW-SC)** reddish brown (5YR 5/4), ~50% sand; ~40% fines; ~10% gravel; wet, loose, little silt, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-6 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling

START : 5/12/08 09:48

END : 5/14/08 08:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY SAND (SC) reddish brown (5YR 5/3), ~50% sand; ~40% fines; ~10% gravel; very moist, loose, no odor.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**CLAYEY SAND WITH GRAVEL (SC)** light brown (7.5YR 6/3), ~50% sand; ~30% fines; ~20% gravel; very moist, loose, trace cobbles, no odor.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal
20		**POORLY GRADED SAND WITH GRAVEL (SP)** reddish brown (5YR 5/3), ~85% sand; ~15% gravel; dry, very loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
				Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-6 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling ▼

START : 5/12/08 09:48

END : 5/14/08 08:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (5YR 5/3), ~60% sand; ~40% gravel; dry, loose, trace clay, little cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (5YR 5/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**POORLY GRADED SAND (SP)** reddish brown (5YR 5/3), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-6 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling ▼

START : 5/12/08 09:48

END : 5/14/08 08:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		POORLY GRADED SAND (SP) reddish brown (5YR 5/3), ~90% sand; ~10% gravel; dry, loose, little cobbles, no odor.		
65				Thermocouple
			▼	
70		**CLAYEY SAND (SC)** reddish brown (5YR 5/3), ~70% sand; ~20% fines; ~10% gravel; very moist, loose, little clay, trace cobbles, no odor.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**CLAYEY SAND WITH GRAVEL (SC)** reddish brown (5YR 5/3), ~45% fines; ~40% sand; ~15% gravel; very moist, loose, and clay, trace cobbles, no odor.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-6 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 67.8 ft bgs after drilling

START : 5/12/08 09:48

END : 5/14/08 08:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		SANDY FAT CLAY (CH) reddish brown (5YR 5/3), ~70% fines; ~20% sand; ~10% gravel; wet, soft, no odor.		
95				Thermocouple
100		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/3), ~60% fines; ~40% sand; wet, soft, no odor.		
105				
110		**SANDY FAT CLAY (CH)** reddish brown (5YR 5/3), ~60% fines; ~40% sand; wet, soft, no odor.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-7 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65 ft bgs after drilling

START : 5/22/08 08:34

END : 5/29/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (2.5YR 5/4), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED SAND (SW)** reddish brown (2.5YR 5/4), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED SAND (SW)** reddish brown (2.5YR 5/4), ~90% sand; ~10% gravel; dry, loose, trace clay, trace cobbles, no odor.		Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-7 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65 ft bgs after drilling

START : 5/22/08 08:34

END : 5/29/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) reddish brown (2.5YR 5/4), ~90% sand; ~10% gravel; dry, loose, trace clay, trace cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 5/4), ~70% sand; ~15% gravel; ~15% fines; dry, loose, little cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH CLAY (SW-SC)** reddish brown (2.5YR 5/4), ~60% sand; ~30% fines; ~10% gravel; very moist, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-7 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65 ft bgs after drilling

START : 5/22/08 08:34

END : 5/29/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/4), ~70% sand; ~15% gravel; ~15% fines; moist, loose, little cobbles, no odor.		
65				Thermocouple
70		**WELL GRADED SAND (SW)** reddish brown (2.5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; moist, loose, trace clay, trace cobbles, no odor.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**WELL GRADED SAND (SW)** reddish brown (2.5YR 5/4), ~80% sand; ~10% gravel; ~10% fines; very moist, loose, trace clay, no odor.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-7 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65 ft bgs after drilling

START : 5/22/08 08:34

END : 5/29/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 5/4), ~80% sand; ~20% gravel; very moist, loose, trace cobbles, no odor.		
95				Thermocouple
100		**POORLY GRADED SAND WITH CLAY (SP-SC)** reddish brown (2.5YR 5/4), ~60% sand; ~30% fines; ~10% gravel; moist, loose, some clay, no odor.		
105				Bottom Cap #10-20 Colorado Silica Sand
110			Bedrock encountered at 108' Boring terminated at 108'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-8 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.8 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling

START : 6/30/08 05:30

END : 6/30/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#10-20 Colorado Silica Sand Bottom Cap Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		0.5" ID SCH 80 PVC Slotted Casing 0.020 Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-8 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.8 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling

START : 6/30/08 05:30

END : 6/30/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-8 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.8 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling ▼

START : 6/30/08 05:30

END : 6/30/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		
65				Thermocouple
			▼	
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
75				Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
85				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 2" ID SCH 80 PVC Slotted Casing 0.020
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-8 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.8 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 68.3 ft bgs after drilling

START : 6/30/08 05:30

END : 6/30/08 09:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
95				Thermocouple
100		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine to medium; ~0% gravel; wet, medium stiff, no odor, no staining.		
105				
110				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 112'	
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-9 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.2 ft bgs after drilling

START : 5/19/08 11:22

END : 5/19/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SILT AND SAND (GW-GM) brown (10YR 5/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**CLAYEY GRAVEL WITH SAND (GC)** reddish brown (2.5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		0.5" ID SCH 80 PVC Slotted Casing 0.020 Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-9 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.2 ft bgs after drilling

START : 5/19/08 11:22

END : 5/19/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		Hydrated Bentonite Pellet Seal
45				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
55				
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-9 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.2 ft bgs after drilling

START : 5/19/08 11:22

END : 5/19/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		Thermocouple
65				
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		Bottom Cap #10-20 Colorado Silica Sand Hydrated Bentonite Pellet Seal
75				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
85				Thermocouple
90				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-9 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.2 ft bgs after drilling

START : 5/19/08 11:22

END : 5/19/08 14:35

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/3), ~60% gravel; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no staining.		
		SANDY LEAN CLAY (CL) reddish brown (5YR 4/4), ~50% sand, fine to medium; ~50% fines; wet, medium stiff.		
95				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 96'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-10 SHEET 1 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 77.9 ft bgs after drilling

START : 5/28/08 07:45

END : 5/28/08 10:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~65% gravel, fine to coarse; ~30% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		Thermocouple
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-10 SHEET 2 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 77.9 ft bgs after drilling ▼

START : 5/28/08 07:45

END : 5/28/08 10:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
35				
40		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	PMW-10 SHEET 3 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 77.9 ft bgs after drilling ▼

START : 5/28/08 07:45

END : 5/28/08 10:15

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH SAND (GW) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no staining.		
65				Thermocouple
70		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no staining.		
75			▼	
80		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; wet, loose, with cobbles, no staining.		Bottom Cap #10-20 Colorado Silica Sand
85			Bedrock encountered at 83' Boring terminated at 83'	
90				

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-11 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/24/08 22:45

END : 6/29/08 02:45

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT. **SILTY SAND (SM)** brown (7.5YR 4/2), ~70% sand, fine to medium, subangular; ~30% fines; wet, loose, no odor, no staining.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal
5						#3 sand was used instead of #10x20 for the filter pack	#3 Monterey Beach Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
10					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15							Hydrated Bentonite Pellet Seal
20						#3 sand was used instead of #10x20 for the filter pack.	#60 Mesh Silica Transition Sand #3 Monterey Beach Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~35% sand, fine to coarse; ~15% fines; moist to dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand
					POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		Cement Grout 5% Bentonite
30					Soil Description on next page		

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-11 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation
LOCATION : Phoenix Sky Harbor International Airport
ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona
DRILLING CONTRACTOR : Boart Longyear
DRILLING METHOD AND EQUIPMENT : Rotosonic Method
WATER LEVEL: ---
START : 6/24/08 22:45
END : 6/29/08 02:45
LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					SILTY GRAVEL WITH SAND (GM) brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~35% sand, fine to coarse; ~15% fines; moist to dry, loose, with cobbles, no odor, no staining.(Soil Description Repeated)		
35					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~30% fines; ~20% sand, fine to coarse; moist to dry, medium dense, with cobbles, no odor, no staining.		
					POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		
40					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		
					SILTY GRAVEL WITH SAND (GM) brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; moist to dry, loose, with cobbles, no odor, no staining.		
45					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		Hydrated Bentonite Pellet Seal
50			FID = 10.3 LEL = 0 O2 = 20.9 PID = 0		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, medium dense, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
	53.0 53.5	PMW-11-01	FID = 161 LEL = 3 O2 = 19.8 PID = 0.9		**POORLY GRADED SAND WITH GRAVEL (SP)** brown (7.5YR 4/3), ~75% sand, medium, subangular; ~20% gravel, fine to coarse; ~5% fines; moist to dry, medium dense, with cobbles, no odor, no staining.		
55					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; moist to dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Slotted Casing 0.020
			FID = 18 LEL = 9 O2 = 20.3 PID = 0				
			FID = 12.2 LEL = 3 O2 = 20.3 PID = 0		**SILTY GRAVEL WITH SAND (GM)** dark brown (7.5YR 3/2), ~50% gravel, fine to coarse; ~25% sand, fine to coarse; ~25% fines; moist to dry, loose, with cobbles, no odor, no staining.		
60							

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-11 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation
LOCATION : Phoenix Sky Harbor International Airport
ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona
DRILLING CONTRACTOR : Boart Longyear
DRILLING METHOD AND EQUIPMENT : Rotosonic Method
WATER LEVEL: ---
START : 6/24/08 22:45
END : 6/29/08 02:45
LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			FID = 34 LEL = 7 O2 = 19 PID = 0				Thermocouple
			FID = 39 LEL = 2 O2 = 20.6 PID = 0		**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist to dry, loose, with cobbles, no odor, no staining.		
65			FID = 14 LEL = 1 O2 = 20.9 PID = 2 FID = 96 LEL = 14 O2 = 19.7 PID = 1 FID = 270 LEL = 14 O2 = 20.5 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~35% sand, fine to coarse; ~15% fines; moist to dry, loose, with cobbles, no odor, no staining.		
	69.0 69.5	PMW-11-02	FID = 1470 LEL = 19 O2 = 19.9 PID = 0.2 FID = 1200 LEL = 65 O2 = 18.4 PID = 4.7				
70			FID = 80 LEL = 6 O2 = 19.2 PID = 1 FID = 1796 LEL = 1 O2 = 20.9 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; moist, loose, with cobbles, no odor, no staining. **POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~40% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		
75			FID = 168 LEL = 0 O2 = 20.7 PID = 0.4 FID = 1912 LEL = 0 O2 = 20.9 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/2), ~50% gravel, fine to coarse; ~30% sand, fine to coarse; ~20% fines; moist, loose, with cobbles, hydrocarbon odor, no staining.		
	78.0 78.5	PMW-11-03	FID = 3700 LEL = 4 O2 = 20.6 PID = 49				
80			FID = 2700 LEL = 7 O2 = 20.9 PID = 105		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~35% sand, fine to coarse; ~15% fines; moist, loose, with cobbles, hydrocarbon odor, no staining.		
			FID = 1000 LEL = 40 O2 = 19.9 PID = 168				
85	85.0 85.5	PMW-11-04	FID = 4500 LEL = 24 O2 = 20.6 PID = 239				
			FID = 3788 LEL = 40 O2 = 20.3 PID = 178				
90			FID = 3780 LEL = 65 O2 = 19.9		Soil Description on next page		

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-11 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/24/08 22:45

END : 6/29/08 02:45

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			PID = 212		**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~60% gravel, fine to coarse, well rounded; ~30% sand, fine to medium, subangular; ~10% fines; saturated, loose to very loose, with cobbles, hydrocarbon odor, no staining.(Soil Description Repeated)		Thermocouple
			FID = 1020 LEL = 7 O2 = 20.9 PID = 166				
	93.0						
	93.5	PMW-11-05	FID = 2180 LEL = 7 O2 = 20.9 PID = 53				
	94.0	PSHIA-DA-02					
95			FID = 414 LEL = 4 O2 = 20.9 PID = 35 FID = 450 LEL = 0 O2 = 20.9 PID = 13				Bottom Cap #10-20 Colorado Silica Sand
						Boring terminated at 97'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-12 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 69.53 ft bgs after drilling

START : 6/19/08 23:54

END : 6/29/08 03:50

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	WELL DETAILS
					ASPHALT. **SILTY SAND (SM)** dark yellowish brown (10YR 4/4), ~60% sand, fine; ~35% fines; ~5% gravel; moist, with mica, no staining, low plasticity, fill material.		Well Vault; 0.5" ID SCH 80 PVC Blank Casing; 2" ID SCH 80 PVC Blank Casing; Cement Grout 5% Bentonite; Hydrated Bentonite Pellet Seal; #10-20 Colorado Silica Sand; 0.5" ID SCH 80 PVC Slotted Casing 0.020
5							
10					**POORLY GRADED GRAVEL WITH SAND (GP)** brown (10YR 4/3), ~55% gravel, fine to coarse, well rounded; ~40% sand, fine to coarse; ~5% fines; moist, loose, no staining, silt content increases with depth.		Bottom cap; #10-20 Colorado Silica Sand; Cement Grout 5% Bentonite
15					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** ~50% gravel, fine to coarse, rounded; ~40% sand, fine to coarse; ~10% fines; moist, loose to medium dense, no staining.		Hydrated Bentonite Pellet Seal; #60 Mesh Silica Transition Sand; #10-20 Colorado Silica Sand; 0.5" ID SCH 80 PVC Slotted Casing 0.020
20							
25					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3) to dark brown (7.5YR 3/3), to ~45% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse; ~15% fines; moist, medium dense, trace clay, no staining, silt content increases with depth. Well indurated silt @ 55'.		Bottom cap; #10-20 Colorado Silica Sand; Cement Grout 5% Bentonite
30							

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-12 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 69.53 ft bgs after drilling

START : 6/19/08 23:54

END : 6/29/08 03:50

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					SILTY GRAVEL WITH SAND (GM) brown (7.5YR 4/3) to dark brown (7.5YR 3/3), to ~45% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse; ~15% fines; moist, medium dense, trace clay, no staining, silt content increases with depth. Well indurated silt @ 55'.(Soil Description Repeated)		
35							
40							
45			FID = 390.4 LEL = 22 PID = 33.4				Hydrated Bentonite Pellet Seal
			FID = 56.5 LEL = 12 PID = 75.5				
			FID = 256.2 LEL = 84 PID = 27.5				
50							
			FID = 105.9 LEL = 56 PID = 106				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
	52.5 53.0	PMW-12-001	FID = 561.6 LEL = 43 PID = 109 FID = 16.4 LEL = 2 PID = 37				
55					**POORLY GRADED GRAVEL WITH SAND (GP)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse; ~5% fines; moist, medium dense, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
			FID = 194.5 LEL = 4 PID = 16.9				
			FID = 228.2 LEL = 0 PID = 19.3				
60					Soil Description on next page		

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-12 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 69.53 ft bgs after drilling

START : 6/19/08 23:54

END : 6/29/08 03:50

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
	62.0–62.5	PMW-12-002	FID = 118.3 LEL = 0 PID = 4.1 FID = 70.6 LEL = 3 PID = 12.8 FID = 79.8 LEL = 4 PID = 10.7		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse; ~15% fines; moist, medium dense, trace clay, no staining, some dark staining at @ 62'.(Soil Description Repeated)		Thermocouple
65			FID = 44.4 LEL = 0 PID = 20.1 FID = 17.2 LEL = 6 PID = 5.5 FID = 29 LEL = 4 PID = 11		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~50% gravel, fine to coarse, rounded; ~40% sand, fine to coarse; ~10% fines; very moist, medium dense, no staining.		
70			FID = 23.2 LEL = 5 PID = 10.7 FID = 26.7 LEL = 5 PID = 14.7 FID = 456.8 LEL = 0 PID = 9.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~35% sand, fine to coarse; ~20% fines; saturated, medium dense to dense, trace clay, hydrocarbon odor, hydrocarbon staining, cuttings wet @ 73'. Boulders 84-86'.		
75			FID = 722.3 LEL = 7 PID = 68.3				
	77.5–78.0	PMW-12-003	FID = 1881 LEL = 7 PID = 61.8				
80			FID = 1444 LEL = 6 PID = 101				
	81.5–82.0	PMW-12-004	FID = 3600 LEL = 3 PID = 316				
85			FID = 3600 LEL = 11 PID = 306 FID = 2295 LEL = 10 PID = 170				
90			FID = 3600 LEL = 5 PID = 157				

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-12 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.7 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 69.53 ft bgs after drilling

START : 6/19/08 23:54

END : 6/29/08 03:50

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			FID = 3600 LEL = 25 PID = 115 FID = 49.6 LEL = 0 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~35% sand, fine to coarse; ~20% fines; saturated, medium dense to dense, trace clay, hydrocarbon odor, hydrocarbon staining, cuttings wet @ 73'. Boulders 84-86'.(Soil Description Repeated)		Thermocouple
	93.5 94.0	PMW-12-005	FID = 35.7 LEL = 0 PID = 0 FID = 56.9 LEL = 6 PID = 12.8 FID = 37.9 LEL = 0 PID = 0				Bottom cap #10-20 Colorado Silica Sand
95							
			FID = 42 LEL = 0 PID = 0			Boring terminated at 97'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-13 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/08 00:18

END : 6/19/08 04:38

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT. **SILTY SAND (SM)** dark yellowish brown (10YR 4/4), ~60% sand, fine; ~35% fines; ~5% gravel; moist, with mica, no staining, Fill material.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite
5					**POORLY GRADED GRAVEL WITH SAND (GP)** dark reddish brown (5YR 3/3) and brown (7.5YR 4/3), and ~50% gravel, fine to coarse, rounded; ~45% sand, fine to coarse; ~5% fines; moist, medium dense, no staining, Air knife refusal @ 9.5'. Boulders @ 13'.		Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
10					**POORLY GRADED GRAVEL WITH SAND (GP)** dark reddish brown (5YR 3/3) and brown (7.5YR 4/3), and ~50% gravel, fine to coarse, rounded; ~45% sand, fine to coarse; ~5% fines; moist, medium dense, no staining, Boulders @ 13'.		Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15							Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand
20					**SILTY GRAVEL WITH SAND (GM)** reddish brown (5YR 4/3), 5YR 4/ ~45% gravel, fine to medium, subangular; ~40% sand, fine to medium; ~15% fines; dry to moist, medium dense, no staining.		#10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25							Bottom cap #10-20 Colorado Silica Sand
30					Soil Description on next page		Cement Grout 5% Bentonite

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-13 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/08 00:18

END : 6/19/08 04:38

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					POORLY GRADED GRAVEL WITH SAND (GP) reddish brown (5YR 4/3) and brown (7.5YR 4/3), and ~50% gravel, fine to coarse, rounded; ~45% sand, fine to coarse; ~5% fines; moist, medium dense, iron oxide staining, Boulders @ 13'.(Soil Description Repeated)		
35			FID = 25.7 PID = 2.5		**SILTY GRAVEL WITH SAND (GM)** reddish brown (5YR 4/3), 5YR 4/ ~45% gravel, fine to medium, subangular; ~40% sand, fine to medium; ~15% fines; dry to moist, medium dense to dense, no staining, Sl rx to HCl @ 48'. Angular gravels 44' to 51'. Cuttings saturated @ 74'. Strong HC odor @ 80'.		
40			FID = 115.3 PID = 8.8				
45			FID = 66 PID = 13.1				Hydrated Bentonite Pellet Seal
50			FID = 35.4 PID = 13.1				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
			FID = 38.1 PID = 19.6				
			FID = 38.4 PID = 10.1				
55			FID = 48.4 PID = 32.7				2" ID SCH 80 PVC Slotted Casing 0.020
			FID = 166.8 PID = 35.6				
	59.5						
60	60.0						

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-13 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation
LOCATION : Phoenix Sky Harbor International Airport
ELEVATION : 1119.6 ft NAD_1927_StatePlane_Arizona
DRILLING CONTRACTOR : Boart Longyear
DRILLING METHOD AND EQUIPMENT : Rotosonic Method
WATER LEVEL: ---
START : 6/13/08 00:18
END : 6/19/08 04:38
LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		PMW-13-001	FID = 246.7 PID = 29.9 FID = 353.4 PID = 5.9 FID = 873.2 PID = 12.8		**SILTY GRAVEL WITH SAND (GM)** reddish brown (5YR 4/3), 5YR 4/ ~45% gravel, fine to medium, subangular; ~40% sand, fine to medium; ~15% fines; dry to moist, medium dense to dense, no staining, Sl rx to HCl @ 48'. Angular gravels 44' to 51'. Cuttings saturated @ 74'. Strong HC odor @ 80'.(Soil Description Repeated)		Thermocouple
65			FID = 974.6 PID = 7.4 FID = 148.3 PID = 5.4 FID = 746.5 PID = 7.3				
	69.0 69.5 70.0	PSHIA-DB-002 PMW-13-002	FID = 3312 PID = 13.2				
70	71.5 72.0	PMW-13-003	FID = 1928 PID = 14.7 FID = 1324 PID = 10.7				#10-20 Colorado Silica Sand
75			FID = 636 PID = 6.5 FID = 730 PID = 6.2				
80	81.5 82.0	PMW-13-004	FID = 1288 PID = 20.2 FID = 2289 PID = 312 FID = 3312 PID = 148		**POORLY GRADED SAND WITH GRAVEL (SP)** reddish brown (5YR 4/3) and brown (7.5YR 4/3), and ~45% gravel, fine to coarse, subrounded; ~45% sand, fine to coarse, rounded; ~10% fines; saturated, medium dense, hydrocarbon odor, iron oxide staining.		
85			FID = 2354 PID = 106				
	87.5 88.0	PMW-13-005	FID = 3312 PID = 128				
90							

PROJECT NUMBER:	BORING NUMBER:
376821	PMW-13 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/13/08 00:18

END : 6/19/08 04:38

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			FID = 3312 PID = 80.7 FID = 5442 PID = 147 FID = 8102 PID = 122		**POORLY GRADED SAND WITH GRAVEL (SP)** reddish brown (5YR 4/3) and brown (7.5YR 4/3), and ~45% gravel, fine to coarse, subrounded; ~45% sand, fine to coarse, rounded; ~10% fines; saturated, medium dense, hydrocarbon odor, iron oxide staining.(Soil Description Repeated)		Thermocouple
	94.5						
95	95.0	PMW-13-006	FID = 10235 PID = 140 FID = 112.1 PID = 50.1				Bottom cap #10-20 Colorado Silica Sand
						Boring terminated at 97'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-1 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/4/08 08:32 END : 6/4/08 10:33 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		CLAYEY SAND WITH GRAVEL (SC) reddish brown (5YR 4/4), ~50% sand, fine to coarse; ~30% fines; ~20% gravel, fine to coarse; dry, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-1 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/4/08 08:32 END : 6/4/08 10:33 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-1 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/4/08 08:32 END : 6/4/08 10:33 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
65				
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-1 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/4/08 08:32 END : 6/4/08 10:33 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
95		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/4), ~80% fines; ~20% sand, fine to medium; ~0% gravel; wet, medium stiff, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 97'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-2 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1119.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 5/1/08 14:37 END : 5/7/08 08:00 LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) reddish brown (2.5YR 4/4), ~55% sand; ~45% gravel; dry, loose, trace cobbles, no odor.		Well Vault 0.5" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite
5				
10		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 4/4), ~60% sand; ~25% gravel; ~15% fines; dry, loose, little cobbles, no odor.		Hydrated Bentonite Pellet Seal
15				
20		**WELL GRADED SAND WITH GRAVEL (SW)** reddish brown (2.5YR 4/4), ~60% sand; ~25% gravel; ~15% fines; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 27'	
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-3 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.1 ft bgs after drilling

START : 6/18/08 05:44

END : 6/18/08 08:05

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC) reddish brown (5YR 4/4), ~45% gravel, fine to coarse; ~45% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-3 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.1 ft bgs after drilling ▼

START : 6/18/08 05:44

END : 6/18/08 08:05

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-3 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.1 ft bgs after drilling ▼ START : 6/18/08 05:44 END : 6/18/08 08:05 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		
65		▼		
70		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		#10-20 Colorado Silica Sand
75				
80		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; wet, loose, with cobbles, no odor, no staining.		
85		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine; ~0% gravel; wet, medium stiff, no odor, no staining.		
90				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-3 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.1 ft bgs after drilling

START : 6/18/08 05:44

END : 6/18/08 08:05

LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
95		**LEAN CLAY WITH SAND (CL)** reddish brown (5YR 4/3), ~80% fines; ~20% sand, fine; ~0% gravel; wet, medium stiff, no odor, no staining.(Soil Description Repeated)		Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 97'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-4 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1123.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/6/08 10:45

END : 5/7/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Slotted Casing 0.020 Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		#10-20 Colorado Silica Sand Hydrated Bentonite Chips
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		
25				#10-20 Colorado Silica Sand Hydrated Bentonite Chips
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-4 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1123.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/6/08 10:45

END : 5/7/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~70% sand; ~30% gravel; dry, loose, some cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-4 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1123.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling ▼

START : 5/6/08 10:45

END : 5/7/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light reddish brown (5YR 6/3), ~85% sand; ~15% gravel; dry, loose, little, no odor.		
65			▼	
70		**WELL GRADED SAND WITH GRAVEL (SW)** light reddish brown (5YR 6/3), ~75% sand; ~25% gravel; dry, loose, trace cobbles, no odor.		
75				#10-20 Colorado Silica Sand
80		**WELL GRADED SAND (SW)** light reddish brown (5YR 6/3), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-4 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1123.3 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 65.8 ft bgs after drilling

START : 5/6/08 10:45

END : 5/7/08 14:00

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) light reddish brown (5YR 6/3), ~90% sand; ~10% gravel; dry, loose, trace cobbles, no odor.		
95				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 97'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-5 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1121.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/2/08 08:40 END : 6/2/08 09:17 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH CLAY AND GRAVEL (SW-SC) reddish brown (5YR 4/4), ~45% gravel, fine to coarse; ~45% sand; ~10% fines; dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel; ~30% sand; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
25				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 27'	
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-6 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.6 ft bgs after drilling ▼

START : 4/29/08 09:20

END : 4/30/08 09:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, no odor.		0.5" ID SCH 80 PVC Blank Casing Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~60% sand; ~40% gravel; dry, loose, some cobbles, no odor.		#10-20 Colorado Silica Sand Hydrated Bentonite Chips
15				Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~75% sand; ~25% gravel; dry, loose, little cobbles.		
25				#10-20 Colorado Silica Sand Hydrated Bentonite Chips
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-6 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.6 ft bgs after drilling ▼

START : 4/29/08 09:20

END : 4/30/08 09:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~70% sand; ~30% gravel; dry, loose, trace cobbles, no odor.		
35				
40		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
45				Hydrated Bentonite Pellet Seal
50		**WELL GRADED SAND (SW)** light brown (7.5YR 6/3), ~80% sand; ~10% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
55				2" ID SCH 80 PVC Slotted Casing 0.020
60				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-6 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.6 ft bgs after drilling ▼

START : 4/29/08 09:20

END : 4/30/08 09:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND (SW) light brown (7.5YR 6/3), ~70% sand; ~20% gravel; ~10% fines; dry, loose, trace cobbles, no odor.		
65				
70		**WELL GRADED SAND (SW)** light brown (7.5YR 6/3), ~80% sand; ~10% gravel; ~10% fines; wet, loose, trace cobbles, no odor. ▼		
75				#10-20 Colorado Silica Sand
80		**WELL GRADED SAND WITH GRAVEL (SW)** light brown (7.5YR 6/3), ~75% sand; ~25% gravel; wet, loose, little cobbles, no odor.		
85				
90				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-6 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1118.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: 71.6 ft bgs after drilling ▼

START : 4/29/08 09:20

END : 4/30/08 09:30

LOGGER : N Alkov

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED SAND WITH GRAVEL (SW) light brown (7.5YR 6/3), ~75% sand; ~25% gravel; wet, loose, little cobbles, no odor.		
95				Bottom Cap #10-20 Colorado Silica Sand
			Boring terminated at 98'	
100				
105				
110				
115				
120				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-7 SHEET 1 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/16/08 06:40 END : 6/16/08 08:30 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5				
10		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~55% gravel, fine to coarse; ~35% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15				Hydrated Bentonite Pellet Seal
20		**WELL GRADED GRAVEL WITH SAND (GW)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~35% sand, fine to coarse; ~5% fines; dry, loose, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25				Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-7 SHEET 2 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/16/08 06:40 END : 6/16/08 08:30 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
		WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC) reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		
35				
40		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		Hydrated Bentonite Pellet Seal
45				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
50		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; dry, loose, with cobbles, no odor, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
55				
60				

PROJECT NUMBER:	BORING NUMBER:
371451	SMW-7 SHEET 3 OF 3

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Honeywell 34th Street Facility, Phoenix, AZ

ELEVATION : 1117.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Layne Christiansen

DRILLING METHOD AND EQUIPMENT : AP 1000 Becker Hammer Rig, air percussion method

WATER LEVEL: --- START : 6/16/08 06:40 END : 6/16/08 08:30 LOGGER : D Roraback

DEPTH BELOW GROUND SURFACE (ft)	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
65		**WELL GRADED GRAVEL WITH CLAY AND SAND (GW-GC)** reddish brown (5YR 4/4), ~60% gravel, fine to coarse; ~30% sand, fine to coarse; ~10% fines; moist, loose, with cobbles, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand
			Bedrock encountered at 66' Boring terminated at 66'	
70				
75				
80				
85				
90				

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-8 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1115.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/30/08 22:48

END : 7/1/08 04:30

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					CRUSHED STONE Asphalt millings. **SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to medium, rounded; ~35% sand, fine to coarse; ~15% fines; dry, medium dense, no staining. **SILTY SAND WITH GRAVEL (SM)** dark yellowish brown (10YR 3/4), ~45% sand, fine to medium; ~35% fines; ~20% gravel, fine to medium, rounded; moist, no staining, sand stringers (SP) @ 16 and 18'.		Well Vault 0.5" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020 Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020 Bottom cap #10-20 Colorado Silica Sand
5							
10							
15							
20					**SILTY GRAVEL WITH SAND (GM)** reddish brown (5YR 4/3), ~45% gravel, fine to coarse, rounded; ~40% sand, fine to coarse; ~15% fines; dry to moist, medium dense, no staining, boulder @ 22'.		
25							
30						Boring terminated at 28'	

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-9 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1115.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/4/08 23:06

END : 6/6/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT.		Flush Mounted Well Vault
					POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) reddish brown (5YR 4/3), ~50% gravel, fine to coarse, subangular; ~40% sand, medium, subangular; ~10% fines; dry to moist, loose to very loose, with cobbles, no staining.		0.5" ID SCH 80 PVC Blank Casing 0.5" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5							
10							Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15							
					SILT WITH GRAVEL (ML) brown (7.5YR 4/3), ~75% fines; ~20% gravel, coarse, well rounded; ~5% sand, fine, angular; very moist, soft to medium stiff, with cobbles, no staining.		Hydrated Bentonite Pellet Seal
					POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) reddish brown (5YR 4/3), ~50% gravel, fine to coarse, subangular; ~40% sand, medium, subangular; ~10% fines; dry to moist, loose to medium dense, with cobbles, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20							
					SILTY GRAVEL WITH SAND (GM) reddish brown (5YR 4/3), ~60% gravel, fine to coarse; ~20% sand, medium, subangular; ~20% fines; moist, loose to very loose, with cobbles, no staining.		
25							#10-20 Colorado Silica Sand Bottom Cap
					SILTY GRAVEL WITH SAND (GM) dark brown (7.5YR 3/2), ~50% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~25% fines; moist, medium dense to dense, with cobbles, no staining.		Cement Grout 5% Bentonite
30							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-9 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1115.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/4/08 23:06

END : 6/6/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					SILTY GRAVEL WITH SAND (GM) dark brown (7.5YR 3/2), ~50% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~25% fines; moist, medium dense to dense, with cobbles, no staining.(Soil Description Repeated)		
35							
40							
					SILTY GRAVEL WITH SAND (GM) dark brown (7.5YR 3/2), ~50% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~25% fines; moist, dense, with cobbles, no staining.		
45							
					SILTY GRAVEL WITH SAND (GM) brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~35% sand, fine to coarse, subangular; ~15% fines; moist, medium dense to dense, with cobbles, no staining.		Hydrated Bentonite Pellet Seal
50							
					SILTY GRAVEL WITH SAND (GM) brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~25% fines; moist, dense, with cobbles, no staining.		#60 Mesh Silica Transition Sand
			LEL = 0 PID = 1.1				#10-20 Colorado Silica Sand
			LEL = 0 PID = 0.6				
55							
			LEL = 0 PID = 14.9		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/4), ~40% gravel, fine to coarse; ~35% sand, fine to coarse, subangular; ~25% fines; moist, dense, with cobbles, no odor, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
	58.0						
	58.5	SMW-9-01	LEL = 0 PID = 15.2				
60							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-9 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1115.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/4/08 23:06

END : 6/6/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 3.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/4), ~40% gravel, fine to coarse; ~35% sand, fine to coarse, subangular; ~25% fines; moist, dense, with cobbles, no odor, no staining.(Soil Description Repeated)		
			LEL = 0 PID = 2.9				
65							
			LEL = 0 PID = 1.7		**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse; ~35% sand, fine to coarse, subangular; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		
	68.0 68.5	SMW-9-02	LEL = 0 PID = 13.9				
70							
	71.0 71.5	SMW-9-03	LEL = 0 PID = 4.3				
			LEL = 0 PID = 3.9		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~20% fines; dry to moist, medium dense to dense, with cobbles, no odor, no staining.		
75			LEL = 0 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse; ~30% fines; ~20% sand, fine to coarse, subangular; dry to moist, medium dense to dense, with cobbles, no odor, no staining, Water level = 77 feet, bgs.		
			LEL = 0 PID = 0.1				
80			LEL = 0 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse; ~30% sand, fine to coarse, subangular; ~15% fines; saturated, loose, with cobbles, no odor, no staining.		
			LEL = 0 PID = 1.4				
85	85.0 85.5	SMW-9-04	LEL = 0 PID = 5.9				
			LEL = 0 PID = 0.1				
90					Soil Description on next page		

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-9 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1115.2 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/4/08 23:06

END : 6/6/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 0		**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~60% gravel, fine to coarse; ~30% sand, fine to coarse, subangular; ~10% fines; saturated, loose, with cobbles, no odor, no staining.(Soil Description Repeated) **SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse; ~30% sand, fine to coarse, subangular; ~15% fines; saturated, loose, with cobbles, no odor, no staining.		
	93.5 94.0	SMW-9-05	LEL = 0 PID = 0				
95			LEL = 0 PID = 0				Bottom Cap #10-20 Colorado Silica Sand
			LEL = 0 PID = 0			Boring terminated at 97'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-10 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 5/28/08 20:55

END : 6/3/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT.		Flush Mounted Well Vault
					POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) brown (7.5YR 4/3), ~60% sand, fine to medium, subangular; ~30% gravel, fine to medium; ~10% fines; dry to moist, loose to very loose, with cobbles, hydrocarbon odor, no staining.		Cement Grout 5% Bentonite 0.5" ID SCH 80 PVC Blank Casing 0.5" ID SCH 80 PVC Blank Casing Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5							
					POORLY GRADED SAND WITH GRAVEL (SM) brown (7.5YR 4/3), ~50% sand, fine to coarse, subangular; ~35% gravel, fine to coarse; ~15% fines; dry to moist, loose to very loose, no odor, no staining.		Bottom Cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
10			LEL = 0 PID = 0				
15							Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand 0.5" ID SCH 80 PVC Blank Casing 0.5" ID SCH 80 PVC Slotted Casing 0.020
20			LEL = 0 PID = 0				
25							#10-20 Colorado Silica Sand Bottom Cap Cement Grout 5% Bentonite
30							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-10 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 5/28/08 20:55

END : 6/3/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 0		**POORLY GRADED SAND WITH GRAVEL (SM)** brown (7.5YR 4/3), ~50% sand, fine to coarse, subangular; ~35% gravel, fine to coarse; ~15% fines; dry to moist, loose to very loose, no odor, no staining.(Soil Description Repeated)		
35							
					SILTY SAND WITH GRAVEL (SM) brown (7.5YR 4/2), ~55% sand, fine to coarse, subangular; ~30% gravel, fine to coarse; ~15% fines; dry to moist, loose to medium dense, no staining.		
40			LEL = 0 PID = 0				
					SILTY GRAVEL WITH SAND (GM) very dark gray (7.5YR 3/1), ~55% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~20% fines; dry to moist, medium dense, no staining.		
					POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) brown (7.5YR 4/3), ~60% sand, fine to medium, subangular; ~30% gravel, fine to medium; ~10% fines; dry to moist, loose, no odor, no staining.		
45					**SILTY SAND WITH GRAVEL (SM)** reddish brown (5YR 5/3), ~25% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; ~20% fines; dry to moist, no staining.		Hydrated Bentonite Pellet Seal
					SILTY GRAVEL WITH SAND (GM) reddish brown (5YR 4/4), ~50% gravel, fine to coarse; ~35% fines; ~15% sand, fine to coarse; dry to moist, medium dense to dense, no staining.		
50					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), ~45% gravel, fine to coarse, angular; ~35% sand, fine to coarse, angular; ~20% fines; dry to moist, medium dense to dense, no staining.		
	51.0 51.5	SMW-10-01	LEL = 0 PID = 29		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), ~45% gravel, fine to coarse, angular; ~35% sand, fine to coarse, angular; ~15% fines; dry to moist, medium dense to dense, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
			LEL = 0 PID = 1.6				
55			LEL = 0 PID = 5		**SILTY GRAVEL WITH SAND (GM)** black (7.5YR 2.5/1), ~55% gravel, fine to coarse; ~30% fines; ~15% sand, fine to coarse, subangular; dry to moist, dense, no staining.		2" ID SCH 80 PVC Slotted Casing 0.020
			LEL = 0 PID = 0.7		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), 7.5YR 5/ ~50% gravel, fine to coarse, subangular; ~25% sand, fine to coarse, subangular; ~25% fines; dry to moist, dense to medium dense, no staining.		
					Soil Description on next page		
			LEL = 0 PID = 0.6				
60							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-10 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 5/28/08 20:55

END : 6/3/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
	61.0–61.5	SMW-10-02	LEL = 0 PID = 8.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), 7.5YR 5/ ~55% gravel, fine to coarse, subangular; ~30% sand, fine to coarse, subangular; ~15% fines; dry to moist, dense to medium dense, no staining.(Soil Description Repeated)		
			LEL = 0 PID = 0				
65			LEL = 0 PID = 12.9				
			LEL = 0 PID = 11.9				
70			LEL = 0 PID = 9.3				
	73.0–73.5	SMW-10-03	LEL = 0 PID = 24.1				#10-20 Colorado Silica Sand
75			LEL = 0 PID = 3.1				
			LEL = 0 PID = 6.5				
			LEL = 0 PID = 0				
80			LEL = 0 PID = 0.9		**POORLY GRADED SAND WITH SILT (SP-SM)** brown (7.5YR 5/3), 7.5YR 5/ ~90% sand, fine to medium, subangular; ~10% fines; ~0% gravel; saturated, loose.		
			LEL = 0 PID = 0.6		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), 7.5YR 5/ ~55% gravel, fine to coarse, subangular; ~30% sand, fine to coarse, subangular; ~10% fines; saturated, dense to medium dense, no staining.		
85			LEL = 0 PID = 0				
	87.0–87.5	SMW-10-04	LEL = 0 PID = 4				
90			LEL = 0 PID = 8.4				

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-10 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1119.9 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 5/28/08 20:55

END : 6/3/2008

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 8.3		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% fines; ~30% gravel, fine to coarse; ~25% sand, fine to coarse, subangular; saturated, loose to very loose, no staining.		
	94.0 94.5	SMW-10-05	LEL = 0 PID = 8.3				
95			LEL = 0 PID = 2.6		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel; ~25% sand, fine to coarse, subangular; ~25% fines; saturated, medium dense, no odor, no staining.	Boring terminated at 97'	Bottom Cap #10-20 Colorado Silica Sand
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-11 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1125.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 74 ft bgs after drilling

START : 6/3/08 23:20

END : 6/12/2008

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					CONCRETE.		Flush Mounted Well Vault 0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Slotted Casing 0.020 Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
					POORLY GRADED SAND (SP) very loose, No recovery. Potholed to 12'.		
5							
10							Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
					POORLY GRADED SAND (SP) brown (7.5YR 4/4), ~75% sand, fine to medium; ~15% fines; ~10% gravel, fine to medium, subrounded; moist, very loose, no staining.		
15							Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20							
25							Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
					POORLY GRADED GRAVEL WITH SAND (GP) pale brown (10YR 6/3), ~50% gravel, fine to coarse, subrounded; ~40% sand, medium to coarse; ~10% fines; moist, loose to medium dense, trace, no staining, Boulders from 21 to 26.		
30							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-11 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1125.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 74 ft bgs after drilling

START : 6/3/08 23:20

END : 6/12/2008

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					POORLY GRADED GRAVEL WITH SAND (GP) pale brown (10YR 6/3), ~50% gravel, fine to coarse, subrounded; ~40% sand, medium to coarse; ~10% fines; moist, loose to medium dense, trace, no staining, Boulders from 21 to 26.(Soil Description Repeated)		
35					**SILTY GRAVEL WITH SAND (GM)** light brownish gray (10YR 6/2) to very dark brown (10YR 2/2), to ~50% gravel, medium to coarse, rounded; ~35% sand, fine to medium; ~15% fines; moist, medium dense, some clayey silt, no staining, Cuttings saturated @ 74'.		
40			LEL = 0 PID = 45.7				
			LEL = 0 PID = 6.5				
45			LEL = 0 PID = 15.3				
			LEL = 0 PID = 15.4				Hydrated Bentonite Pellet Seal
50	50.0						
	50.5	SMW-11-001	LEL = 0 PID = 21.4				
			LEL = 0 PID = 16.4				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
			LEL = 0 PID = 21				
55							2" ID SCH 80 PVC Slotted Casing 0.020
			LEL = 0 PID = 7				
			LEL = 0 PID = 2.1				
60							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-11 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1125.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 74 ft bgs after drilling

START : 6/3/08 23:20

END : 6/12/2008

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 14.7		**SILTY GRAVEL WITH SAND (GM)** light brownish gray (10YR 6/2) to very dark brown (10YR 2/2), to ~50% gravel, medium to coarse, rounded; ~35% sand, fine to medium; ~15% fines; moist, medium dense, some clayey silt, no staining, Cuttings saturated @ 74'.(Soil Description Repeated)		
			LEL = 0 PID = 27.5				
	64.0						
	64.5	SMW-11-002	LEL = 0 PID = 35.8				
65							
			LEL = 0 PID = 11.8				
			LEL = 0 PID = 6.4				
70			LEL = 0 PID = 8.3				
	71.0						
	71.5	SMW-11-003	LEL = 0 PID = 10.7				#10-20 Colorado Silica Sand
			LEL = 0 PID = 9.7				
			LEL = 0 PID = 6.8				
75			LEL = 0 PID = 6				
			LEL = 0 PID = 4.9				
			LEL = 0 PID = 4.7				
80							
			LEL = 0 PID = 10.7				
			LEL = 0 PID = 11.2				
85			LEL = 0 PID = 9.9				
	86.5						
	87.0						
	87.5	PSHIA-DB-001	LEL = 0 PID = 35.7				
	87.6	SMW-11-004	LEL = 0 PID = 0.4		Soil Description on next page		
90			LEL = 0 PID = 0.6				

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-11 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1125.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 74 ft bgs after drilling

START : 6/3/08 23:20 END : 6/12/2008 LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 0.2		**WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM)** reddish brown (5YR 4/4), ~60% sand, fine to medium; ~30% gravel, fine to medium, rounded; ~10% fines; saturated, no staining.(Soil Description Repeated)		
			LEL = 0 PID = 0.2				
			LEL = 0 PID = 0.6				
			LEL = 0 PID = 0.1		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/2) to dark brown (10YR 3/3), to ~45% gravel, medium to coarse, rounded; ~40% sand, fine to coarse; ~15% fines; saturated, medium dense, no staining.		
	94.5		LEL = 0 PID = 1				
95	95.0	SMW-11-005	LEL = 0 PID = 1.1				Bottom cap #10-20 Colorado Silica Sand
			LEL = 0 PID = 0.5				
			LEL = 0 PID = 0.6			Boring terminated at 97'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-12 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1120.6 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/29/08 23:40

END : 6/30/08 03:30

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					CRUSHED STONE Vacuum excavation to 12' bls. **SILTY GRAVEL WITH SAND (GM)** ~45% gravel, medium to coarse, well rounded; ~40% sand, fine to medium; ~15% fines; dry, medium dense, no staining. **SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/2), ~50% sand, fine to coarse; ~30% gravel, fine to medium, subangular; ~20% fines; dry, medium dense, no staining.		Well Vault 0.5" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5							
10							Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15					**SANDY SILT (ML)** very dark brown (7.5YR 2.5/3), ~60% fines; ~40% sand, fine; ~0% gravel; moist, medium stiff, no staining, low plasticity.		Hydrated Bentonite Pellet Seal
20					**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 5/3), ~45% gravel; ~40% sand, fine to coarse; ~15% fines; moist, medium dense, no staining, Cobbles @ 19' and 22'.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
25					**POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 5/3), ~50% gravel, fine to coarse, rounded; ~45% sand, medium to coarse; ~5% fines; moist, loose, no staining.	Boring terminated at 27.5'	Bottom cap #10-20 Colorado Silica Sand
30							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-13 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 76 ft bgs after drilling

START : 5/30/08 00:00

END : 6/1/08 22:27

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Flush Mounted Well Vault Cement Grout 5% Bentonite Hydrated Bentonite Pellet Seal #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5					**SILTY SAND WITH GRAVEL (SM)** dark reddish brown (5YR 3/3), ~45% sand, medium to coarse, subrounded; ~30% gravel, medium to coarse, subrounded; ~25% fines; moist, loose, no odor, low plasticity.		
10			LEL = 0 PID = 0.9				Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15			LEL = 0 PID = 5.4		**POORLY GRADED SAND (SP)** brown (7.5YR 4/4), ~75% sand, fine to medium; ~15% fines; ~10% gravel, fine to medium, subrounded; moist, fine to coarse sand, no staining.		Hydrated Bentonite Pellet Seal #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20							
25			LEL = 0 PID = 24 LEL = 0 PID = 15				Bottom cap #10-20 Colorado Silica Sand
30			LEL = 0 PID = 7.5				Hydrated Bentonite Pellet Seal

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-13 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 76 ft bgs after drilling

START : 5/30/08 00:00 END : 6/1/08 22:27 LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 4		**POORLY GRADED SAND (SP)** brown (7.5YR 4/4), ~75% sand, fine to medium; ~15% fines; ~10% gravel, fine to medium, subrounded; moist, fine to coarse sand, no staining.(Soil Description Repeated)		
			LEL = 0 PID = 2		**POORLY GRADED SAND WITH GRAVEL (SP)** brown (7.5YR 5/3), ~50% sand, fine to coarse, subrounded; ~35% gravel, medium to coarse, subrounded; ~15% fines; dry to moist, loose to medium dense, no staining.		
35			LEL = 0 PID = 1.9				
40			LEL = 0 PID = 14.7				
			LEL = 0 PID = 18.2		**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse, subrounded; ~10% fines; moist, loose to medium dense, no odor, no staining.		
45			LEL = 0 PID = 18.8				
			LEL = 0 PID = 10.3		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 5/4), ~45% sand, fine to coarse, subrounded; ~40% gravel, fine to medium, subrounded; ~15% fines; moist, loose to medium dense, no odor, no staining.		Bentonite Pellet Seal
50			LEL = 0 PID = 4.7				
			LEL = 0 PID = 8.4				#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
	54.5		LEL = 0 PID = 5.4				
55	55.0	SMW-13-001	LEL = 0 PID = 17				2" ID SCH 80 PVC Slotted Casing 0.020
			LEL = 0 PID = 9				
			LEL = 0 PID = 16				
60							

PROJECT NUMBER: 376821	BORING NUMBER: SMW-13	SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 76 ft bgs after drilling

START : 5/30/08 00:00

END : 6/1/08 22:27

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 16		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 5/4), ~45% sand, fine to coarse, subrounded; ~40% gravel, fine to medium, subrounded; ~15% fines; moist, loose to medium dense, no odor, no staining.(Soil Description Repeated)		
			LEL = 0 PID = 12				
	63.5						
	64.5	SMW-13-002	LEL = 0 PID = 28				
65							
			LEL = 0 PID = 3.5				
			LEL = 0 PID = 3.5		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/3), ~50% sand, fine to coarse, subrounded; ~30% gravel, fine to medium, rounded; ~20% fines; moist to saturated, loose to medium dense, trace clay, no odor, no staining, Water @ 76'.		
70			LEL = 0 PID = 16				
	71.5						
	72.0	SMW-13-003	LEL = 0 PID = 21				#10-20 Colorado Silica Sand
			LEL = 0 PID = 16				
75							
			LEL = 0 PID = 6				
			LEL = 0 PID = 8				
80			LEL = 0 PID = 7				
			LEL = 0 PID = 17				
	83.5						
	84.0	SMW-13-004	LEL = 0 PID = 21				
85							
			LEL = 0 PID = 19				
			LEL = 0 PID = 7		Soil Description on next page		
90							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-13 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1121.1 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: 76 ft bgs after drilling

START : 5/30/08 00:00

END : 6/1/08 22:27

LOGGER : M Wiese

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			LEL = 0 PID = 4		**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** dark brown (7.5YR 3/3) very dark gray (10YR 3/1), ~50% gravel, fine to coarse, rounded; ~40% sand, fine to coarse; ~10% fines; saturated, medium dense to dense, no staining, low plasticity.(Soil Description Repeated)		
			LEL = 0 PID = 0.6				
			LEL = 0 PID = 2				
95			LEL = 0 PID = 6.7				Bottom cap #10-20 Colorado Silica Sand
	96.5 97.0	SMW-13-005	LEL = 0 PID = 9.4			Boring terminated at 97.2'	
100							
105							
110							
115							
120							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-14 SHEET 1 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/27/08 23:50

END : 7/9/08 04:30

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					ASPHALT.		Well Vault
					POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM) brown (7.5YR 4/3), ~60% sand, fine to coarse, subangular; ~30% gravel, fine to coarse, subrounded; ~10% fines; medium dense, with cobbles, no odor, no staining.		0.5" ID SCH 80 PVC Blank Casing 2" ID SCH 80 PVC Blank Casing Cement Grout 5% Bentonite Hydrated Bentonite Chips #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
5							
10					**SANDY SILT (ML)** brown (7.5YR 4/3), ~60% fines; ~40% sand, fine, subangular; dry to moist, medium stiff, no odor, no staining. **SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~35% sand, fine to coarse; ~20% fines; dry to moist, medium dense, with cobbles, no odor, no staining. **POORLY GRADED GRAVEL WITH SAND (GP)** brown (7.5YR 4/3), ~50% gravel, fine to coarse, subangular; ~40% sand, fine to coarse, subangular; ~10% fines; medium dense, with cobbles, no odor, no staining.		Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
15					**POORLY GRADED SAND WITH SILT (SP-SM)** brown (7.5YR 4/3), ~90% sand, fine to medium, subangular; ~10% fines; ~0% gravel; dry to moist, loose, no odor, no staining. **POORLY GRADED SAND WITH SILT AND GRAVEL (SP-SM)** brown (7.5YR 4/3), ~70% sand, fine to medium, subangular; ~20% gravel, fine to coarse, rounded; ~10% fines; dry to moist, loose, with cobbles, no odor, no staining.		Hydrated Bentonite Chips #60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand 0.5" ID SCH 80 PVC Slotted Casing 0.020
20					**POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM)** reddish brown (5YR 4/3), ~50% gravel, fine to coarse, subrounded; ~40% sand, fine to medium, subangular; ~10% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.		
25							Bottom cap #10-20 Colorado Silica Sand Cement Grout 5% Bentonite
30							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-14 SHEET 2 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/27/08 23:50

END : 7/9/08 04:30

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
					POORLY GRADED GRAVEL WITH SILT AND SAND (GP-GM) reddish brown (5YR 4/3), ~50% gravel, fine to coarse, subrounded; ~40% sand, fine to medium, subangular; ~10% fines; dry to moist, loose to medium dense, with cobbles, no odor, no staining.(Soil Description Repeated)		
35							
					SILTY GRAVEL WITH SAND (GM) reddish brown (5YR 4/3), ~50% gravel, fine to coarse, subrounded; ~30% sand, fine to medium, subangular; ~20% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		
40							
45							Hydrated Bentonite Chips
50							
			FID = 80 LEL = 70 O2 = 18.3 PID = 26		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~55% gravel, fine to coarse, subrounded; ~30% sand, fine to coarse; ~15% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		#60 Mesh Silica Transition Sand #10-20 Colorado Silica Sand
			FID = 29 O2 = 20.9 PID = 0.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~35% sand, fine to coarse, subrounded; ~20% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		
55							2" ID SCH 80 PVC Slotted Casing 0.020
			FID = 35.5 LEL = 1 O2 = 20.8 PID = 0				
	58.0 58.5	SMW-14-01	FID = 95 LEL = 16 O2 = 20.1 PID = 0.6				
60							

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-14 SHEET 3 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/27/08 23:50

END : 7/9/08 04:30

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
			FID = 65 LEL = 8 O2 = 20.5 PID = 0		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~45% gravel, fine to coarse, subrounded; ~35% sand, fine to coarse, subrounded; ~20% fines; dry to moist, medium dense, with cobbles, no odor, no staining.(Soil Description Repeated)		
65			FID = 35 LEL = 2 O2 = 19.8 PID = 0.2		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to coarse, subrounded; ~25% sand, fine to coarse, subrounded; ~25% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		
	66.0 66.5	SMW-14-02	FID = 80 LEL = 4 O2 = 20.6 PID = 0.2				
70			FID = 37 LEL = 4 O2 = 20.1 PID = 0.4				
			FID = 42 LEL = 5 O2 = 20.9 PID = 0.4		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/3), ~40% sand, fine to coarse, subrounded; ~30% gravel, fine to coarse, subrounded; ~30% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		
	74.0 74.5	SMW-14-03	FID = 18 LEL = 0 O2 = 20.9 PID = 33				
75			FID = 18 LEL = 0 O2 = 20.7 PID = 0		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/3), ~40% gravel, fine to coarse, subrounded; ~40% sand, fine to coarse, subrounded; ~20% fines; moist, medium dense, with cobbles, no odor, no staining.		
			FID = 0 LEL = 0 O2 = 20.9 PID = 6		**SILTY SAND WITH GRAVEL (SM)** brown (7.5YR 4/3), ~55% sand, fine to medium, subangular; ~30% gravel, fine to coarse, subrounded; ~15% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		
80	81.0 81.4	SMW-14-04	FID = 24 LEL = 4 O2 = 20.1 PID = 3.8				
85			FID = 13 LEL = 19 O2 = 19.6 PID = 9				
			FID = 6 LEL = 4 O2 = 20.3 PID = 11				
90			FID = 30 LEL = 0 O2 = 20.9		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to medium, subangular; ~25% sand, fine to medium, subangular; ~25% fines; dry to moist, medium dense, with cobbles, no odor, no staining.		

PROJECT NUMBER:	BORING NUMBER:
376821	SMW-14 SHEET 4 OF 4

SOIL BORING LOG

PROJECT : Honeywell BSVE Well Installation

LOCATION : Phoenix Sky Harbor International Airport

ELEVATION : 1122.0 ft NAD_1927_StatePlane_Arizona

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT : Rotosonic Method

WATER LEVEL: ---

START : 6/27/08 23:50

END : 7/9/08 04:30

LOGGER : J Yentes

DEPTH BELOW GROUND SURFACE (ft)	INTERVAL (ft)	Sample ID	ENVIRONMENTAL DATA	GRAPHIC LOG	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR,MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, & INSTRUMENTATION	COMMENTS: WELL DETAILS
	91.0 91.5	SMW-14-05	PID = 73 FID = 26 LEL = 0 O2 = 20.9 PID = 0 FID = 0 LEL = 0 O2 = 20.9 PID = 0 FID = 0 LEL = 0 O2 = 20.9		**SILTY GRAVEL WITH SAND (GM)** brown (7.5YR 4/3), ~50% gravel, fine to medium, subangular; ~25% sand, fine to medium, subangular; ~25% fines; dry to moist, medium dense, with cobbles, no odor, no staining.(Soil Description Repeated)		Bottom cap #10-20 Colorado Silica Sand
95							
						Boring terminated at 98'	
100							
105							
110							
115							
120							

Appendix B
Data Validation and Soil Laboratory Analytical Reports

APPENDIX B

Data Quality Evaluation Report Underground Storage Tank Soil Sampling June – July 2008

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for soil samples collected as part of continuing characterization associated with the Honeywell 34th Street facility (Honeywell facility). Samples were collected and analyzed in an effort to continue providing a framework for long-term monitoring of the Honeywell facility. The data may also be used to support future activities such as feasibility studies, risk assessments, fate and transport modeling and remedial actions. The basis for this assessment includes: individual method requirements, guidelines from the United States Environmental Protection Agency (USEPA) *Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review* (USEPA, 1999), the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), and the *Honeywell International Inc., Sky Harbor 34th Street Facility Quality Assurance Project Plan* (QAPP) (CH2M HILL, 2005 and Honeywell, 2006). This DQE report is intended as a general data quality assessment designed to summarize data issues.

Honeywell submitted to the Arizona Department of Environmental Quality (ADEQ) an updated QAPP entitled *Master Quality Assurance Project Plan, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona* on September 20, 2007 (CH2M HILL, 2007). Honeywell is currently awaiting ADEQ's approval of this document.

Analytical Data

This DQE report covers 64 normal samples (REG), 7 field duplicates (FD), and 13 trip blanks (TB). A list of samples and collection dates is included in Attachment A at the end of this report. Samples were collected between May 31, 2008 and July 12, 2008. These sample results were reported as 11 sample delivery groups (SDG) listed in Table 1. The analyses were performed by Curtis & Tompkins Laboratory in Berkeley, California (CTBERK) and TestAmerica Analytical Testing Corporation in Irvine, California (TAMI).

Table 1 – SDGs by Laboratory

SDG	Laboratory
203689	CTBERK
203719	CTBERK
203816	CTBERK
203918	CTBERK

Table 1 – SDGs by Laboratory	
204056	CTBERK
204126	CTBERK
204309	CTBERK
204336	CTBERK
204369	CTBERK
IRG1202	TAMI
IRG1211	TAMI

Eleven methods were used to analyze the environmental samples. Samples were collected and shipped by overnight carrier to the laboratories for analysis. Selected samples were analyzed for one or more of the following analytes/methods listed in Table 2.

Table 2 – Analytical Parameters		
Parameter	**Method**	**Laboratory**
Volatile Organic Compounds (VOC)	SW8260	CTBERK and TAMI
Toxicity Characteristic Leaching Potential (TCLP) VOC	SW1311/SW8260	CTBERK
TCLP Semi-Volatile Organic Compounds	SW1311/SW8270	CTBERK
Total Petroleum Hydrocarbons (diesel range and motor oil range)	SW8015AZR1	CTBERK and TAMI
Polynuclear Aromatic Hydrocarbons	SW8270-SIM	CTBERK and TAMI
Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag)	SW6010	TAMI
TCLP Metals (As, Ba, Cd, Cr, Pb, Se, Ag)	SW1311/SW6010	CTBERK
Mercury	SW7471	TAMI
TCLP Mercury	SW1311/SW7470	CTBERK
Hexavalent Chromium	SW3060-SW7196	TAMI
pH	SW9045	CTBERK

Data validation was performed in accordance with the USEPA *Contract Laboratory NFG for Organic Data Review* (USEPA, 1999) and the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), substituting the calibration and quality control (QC) requirements specified in the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006) for those specified in the NFG.

The assessment of data includes a review of: (1) the chain-of-custody documentation; (2) holding-time compliance; (3) the required field and laboratory QC samples; (4) flagging for method blanks; (5) laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries; (6) surrogate spike recoveries for organic analyses; and, (7) matrix spike/matrix spike duplicate samples (MS/MSD).

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs and TBs.

Data flags are assigned according to the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006). These flags, as well as the reason for each flag, are entered into the electronic database. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are defined below:

- J = Analyte was present but reported value may not be accurate or precise.
- R = The result was rejected.
- U = Analyte was analyzed but not detected at the specified detection limit.
- UJ = Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample

Findings

The overall summaries of the data validation findings are contained in the following sections below and summarized in Table 6.

Holding Times

All holding-time criteria were met.

Sample Quantitation

All methods were reported to the reporting limit (RL) with the exception of method SW8015AZR1 which was reported to the method detection limit. All Honeywell QAPP objectives were met for undiluted analyses with the exceptions listed in Table 3. The laboratory RLs listed in Table 3 were submitted by the laboratory as variances to the Honeywell QAPP with the exception of acetone. The variances submitted were accepted by CH2M HILL. The difference between the QAPP and laboratory RLs for acetone does not affect data quality or usability.

Table 3 – QAPP Reporting Limit Objectives Not Met for Undiluted Analyses

Method	Analyte	QAPP RL (ug/Kg)	Laboratory RL (ug/Kg)
SW8260	1,1,1-Trichloroethane	2	5
SW8260	1,1,2,2-Tetrachloroethane	2	5
SW8260	1,1,2-Trichloroethane	2	5
SW8260	1,1-Dichloroethane	2	5
SW8260	1,1-Dichloropropene	2	5
SW8260	1,2,4-Trimethylbenzene	2	5
SW8260	1,2-Dichlorobenzene	2	5
SW8260	1,2-Dichloroethane	2	5

Table 3 – QAPP Reporting Limit Objectives Not Met for Undiluted Analyses			
Method	**Analyte**	**QAPP RL (ug/Kg)**	**Laboratory RL (ug/Kg)**
SW8260	1,2-Dichloropropane	2	5
SW8260	1,3,5-Trimethylbenzene	2	5
SW8260	1,3-Dichlorobenzene	2	5
SW8260	1,3-Dichloropropane	2	5
SW8260	1,4-Dichlorobenzene	2	5
SW8260	2,2-Dichloropropane	2	5
SW8260	4-Methyl-2-Pentanone	5	10
SW8260	Acetone	20	25
SW8260	Benzene	2	5
SW8260	Bromodichloromethane	2	5
SW8260	Bromomethane	5	10
SW8260	Chlorobenzene	2	5
SW8260	Chloroethane	5	10
SW8260	Chloroform	2	5
SW8260	Chloromethane	5	10
SW8260	cis-1,2-Dichloroethene	2	5
SW8260	cis-1,3-Dichloropropene	2	5
SW8260	Dibromochloromethane	2	5
SW8260	Dibromomethane	2	5
SW8260	Ethylbenzene	2	5
SW8260	Freon 12	5	10
SW8260	Isopropylbenzene	2	5
SW8260	para-Isopropyl Toluene	2	5
SW8260	Propylbenzene	2	5
SW8260	Styrene	2	5
SW8260	Tetrachloroethene	2	5
SW8260	Toluene	2	5
SW8260	trans-1,2-Dichloroethene	2	5
SW8260	trans-1,3-Dichloropropene	2	5
SW8260	Trichloroethene	2	5
SW8260	Vinyl Acetate	5	50
SW8260	Vinyl Chloride	2	10
SW8260	Xylene (total)	4	5

Several samples required dilution due to high analyte concentrations and matrix interference. The RLs for non-detected analytes in the diluted samples were raised accordingly. Table 4 lists the methods and samples analyzed at a dilution.

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
SW6010	726-2-061908	10
SW6010	756-2-060608	10
SW8015AZR1	PMW-11-04	10

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
SW8015AZR1	PMW-13-006	10
SW8015AZR1	B102-ASE-130A-12	5
SW8015AZR1	B102-ASE-130A-13	5
SW8260	B102-ASE-130A-11	122
SW8260	B102-ASE-130A-12	132
SW8260	B102-ASE-130A-13	124
SW8260	PMW-11-04	1511
SW8260	PMW-12-004	160.3
SW8260	PMW-13-004	55.56
SW8260	PMW-13-005	23.15
SW8260	PMW-13-006	571.4
SW8270C-SIM	B102-ASE-130A-11	5
SW8270C-SIM	B102-ASE-130A-12	10
SW8270C-SIM	B102-ASE-130A-13	25
SW8270C-SIM	756-2-060608	3
SW8270C-SIM	PMW-11-04	20
SW8270C-SIM	PMW-12-004	10
SW8270C-SIM	PMW-13-006	10

Calibration

The recoveries of five analytes were below criteria in the initial calibration verifications (ICV) for method SW8260, indicating associated sample results are possibly biased low. One-hundred two (102) associated non-detected results were qualified as estimated and flagged “UJ”.

The recoveries of six analytes were below criteria in the continuing calibration verifications (CCV) for method SW8260, indicating associated sample results are possibly biased low. Forty-six associated non-detected results were qualified as estimated and flagged “UJ”.

Method Blanks

Method blanks were analyzed at the required frequency and were generally free of contamination.

1,2,4-trichlorobenzene and n-butylbenzene were detected above the RLs in the method blanks for method SW8260. Associated samples were not qualified because they did not contain reportable levels of these analytes or were detected greater than five times the concentrations detected in the blanks.

Field Blanks

TBs were collected as required and were free of contamination.

Field Duplicates

Seven FD sets were collected and analyzed with this event. A list of FDs and associated parent sample identifications (IDs) is included in Table 5.

Table 5 – List of Field Duplicates	
Field Duplicate Sample ID	**Associated Parent Sample ID**
B102-D01-071208	B102-ASE-130A-02
B102-D02-071208	B102-ASE-130A-05
PSHIA-DA-01	SMW-9-03
PSHIA-DB-001	SMW-11-004
PSHIA-DA-02	ASE-129A-04
PSHIA-DA-02-062708	PMW-11-05
PSHIA-DB-002	PMW-13-002

All relative percent difference (RPD) criteria were met with the following exceptions:

The RPDs of barium and chromium were above criteria in FD set B102-ASE-130A-05/B102-D02-071208 for method SW6010. Four associated detected results in the normal and FD were qualified as estimated and flagged "J".

The RPDs of benzene and acetone were above criteria in FD set B102-ASE-130A-02/B102-D01-071208 for method SW8260. Three associated detected results in the normal and FD were qualified as estimated and flagged "J"; one associated non-detected result was qualified as estimated and flagged "UJ".

The RPD of naphthalene was above criteria in FD set B102-ASE-130A-05/B102-D02-071208 for method SW8270C-SIM. One associated detected result in the normal sample was qualified as estimated and flagged "J"; one associated non-detected result was qualified as estimated and flagged "UJ".

Surrogates

Surrogates were recovered within laboratory established QC limits with one exception.

A surrogate recovery was above criteria in six samples for method SW8270C-SIM, indicating associated sample results are possibly biased high. Fourteen associated detected results were qualified as estimated and flagged "J".

Laboratory Control Samples

LCS/LCSDs were analyzed as required. Precision and accuracy criteria were met with the following exceptions:

The recoveries of four analytes were below criteria in the LCSs and/or LCSDs for method SW8260, indicating associated sample results are possibly biased low. Twenty associated non-detected results were qualified as estimated and flagged "UJ".

Matrix Spikes

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. MS/MSD recoveries and the associated RPD met criteria with the following exceptions:

Diesel-range organics (C10-C22) was recovered above criteria in one MSD set for method SW8015AZR1, indicating the associated parent sample result is possibly biased high. The associated detected parent sample result was qualified as estimated and flagged "J".

Barium was recovered below criteria in one MS set for method SW6010, indicating the associated parent sample result is possibly biased low. The associated detected parent sample result was qualified as estimated and flagged "J".

The recoveries of 56 analytes were below criteria in the MSs and/or MSDs of three samples for method SW8260, indicating the associated parent sample results are possibly biased low. One hundred fifteen (115) associated non-detected results in the parent samples were qualified as estimated and flagged "UJ".

Internal Standards

All internal standard criteria were met.

Tentatively Identified Compounds

Tentatively identified compounds were not reported by the laboratory.

Chain of Custody

Each sample was documented on a completed chain-of-custody form and received at the laboratory in good condition.

Overall Assessment

The goal of this assessment was to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision-making process. The procedures for assessing the precision, accuracy, representativeness, completeness, and comparability parameters were based on the Honeywell QAPP. The following summary highlights the precision, accuracy, representativeness, completeness, and comparability parameters findings for the above-defined events:

1. No data were rejected and completeness was 100 percent.
2. No data were qualified due to low-level blank contamination.
3. Samples were analyzed diluted for methods SW6010, SW8015AZR1, SW8260 and SW8270C-SIM resulting in raised RLs for non-detected analytes.
4. ICV and CCV recovery exceedances were observed for method SW8260, resulting in 144 results qualified as estimated.

5. Surrogate recovery exceedances were observed for method SW8270C-SIM, resulting in 14 results qualified as estimated.
6. FD RPD exceedances were observed for methods SW6010, SW8260 and SW8270C-SIM, resulting in 10 results qualified as estimated.
7. LCS/LCSD recovery exceedances were observed for method SW8260, resulting in 20 results qualified as estimated.
8. MS/MSD recovery exceedances were observed for methods SW8015AZR1, SW6010 and SW8260, resulting in 117 results qualified as estimated.
9. Overall, the precision and accuracy of the data, as measured by field and laboratory QC indicators, suggest that the project goals have been met.

References

CH2M HILL. 2005. *Honeywell International Inc., Sky Harbor 34th Street Facility, 111 South 34th Street, Phoenix, Arizona; Quality Assurance Project Plan.* September.

_____. 2007. *Master Quality Assurance Project Plan, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona*. September.

Honeywell International, Inc. 2006. *Response to Comments on the Quality Assurance Project Plan dated September 2005; Honeywell International Inc. Sky Harbor 34th Street Facility*. July 13.

United States Environmental Protection Agency (USEPA). 1999. *Contract Laboratory National Functional Guidelines for Organic Data Review.* October.

_____. 2004. *Contract Laboratory National Functional Guidelines for Inorganic Data Review.* October.

Table 6 – Validation Findings

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW6010	B102-ASE-130A-01	Barium	64	mg/kg	J	MSL
SW6010	B102-ASE-130A-05	Barium	250	mg/kg	J	FD
SW6010	B102-ASE-130A-05	Chromium	17	mg/kg	J	FD
SW6010	B102-D02-071208	Barium	360	mg/kg	J	FD
SW6010	B102-D02-071208	Chromium	9.9	mg/kg	J	FD
SW8015	726-2-061908	Diesel C10-C22	140	mg/kg	J	MSDH
SW8260	ASE-129A-01	Freon 12	12	ug/kg	UJ	ICVSL
SW8260	ASE-129A-01	Iodomethane	6.2	ug/kg	UJ	CCVL
SW8260	ASE-129A-02	1,1-Dichloroethene	5.5	ug/kg	UJ	MSL
SW8260	ASE-129A-02	Freon 12	11	ug/kg	UJ	ICVSL
SW8260	ASE-129A-02	Propylbenzene	5.5	ug/kg	UJ	MSL MSDL
SW8260	ASE-129A-02	Vinyl Acetate	55	ug/kg	UJ	MSL MSDL
SW8260	ASE-129A-03	Freon 12	9.2	ug/kg	UJ	ICVSL
SW8260	ASE-129A-04	2-Butanone	8.7	ug/kg	UJ	CCVL
SW8260	ASE-129A-04	Bromomethane	8.7	ug/kg	UJ	ICVSL
SW8260	ASE-129A-04	Carbon Disulfide	4.3	ug/kg	UJ	ICVSL CCVL
SW8260	ASE-129A-04	Freon 12	8.7	ug/kg	UJ	ICVSL
SW8260	ASE-129A-04	Iodomethane	4.3	ug/kg	UJ	ICVSL
SW8260	ASE-129A-04	trans-1,2-Dichloroethene	4.3	ug/kg	UJ	LCSL
SW8260	ASE-129A-04	Vinyl Acetate	43	ug/kg	UJ	LCSL LCSDL CCVL
SW8260	ASE-129A-05	2-Butanone	8.8	ug/kg	UJ	CCVL
SW8260	ASE-129A-05	Bromomethane	8.8	ug/kg	UJ	ICVSL
SW8260	ASE-129A-05	Carbon Disulfide	4.4	ug/kg	UJ	ICVSL CCVL
SW8260	ASE-129A-05	Freon 12	8.8	ug/kg	UJ	ICVSL
SW8260	ASE-129A-05	Iodomethane	4.4	ug/kg	UJ	ICVSL
SW8260	ASE-129A-05	trans-1,2-Dichloroethene	4.4	ug/kg	UJ	LCSL
SW8260	ASE-129A-05	Vinyl Acetate	44	ug/kg	UJ	LCSL LCSDL CCVL
SW8260	ASE-129A-06	2-Butanone	9.5	ug/kg	UJ	CCVL
SW8260	ASE-129A-06	Bromomethane	9.5	ug/kg	UJ	ICVSL
SW8260	ASE-129A-06	Carbon Disulfide	4.7	ug/kg	UJ	ICVSL CCVL
SW8260	ASE-129A-06	Freon 12	9.5	ug/kg	UJ	ICVSL
SW8260	ASE-129A-06	Iodomethane	4.7	ug/kg	UJ	ICVSL
SW8260	ASE-129A-06	trans-1,2-Dichloroethene	4.7	ug/kg	UJ	LCSL
SW8260	ASE-129A-06	Vinyl Acetate	47	ug/kg	UJ	LCSL LCSDL CCVL
SW8260	B102-ASE-130A-02	Acetone	21	ug/kg	UJ	FD
SW8260	B102-ASE-130A-02	Benzene	1.8	ug/kg	J	FD
SW8260	B102-D01-071208	Acetone	37	ug/kg	J	FD
SW8260	B102-D01-071208	Benzene	3.4	ug/kg	J	FD
SW8260	PMW-11-01	Acetone	30	ug/kg	UJ	ICVSL
SW8260	PMW-11-01	Bromomethane	12	ug/kg	UJ	ICVSL
SW8260	PMW-11-01	Carbon Disulfide	5.9	ug/kg	UJ	ICVSL
SW8260	PMW-11-01	Iodomethane	5.9	ug/kg	UJ	ICVSL
SW8260	PMW-11-02	Acetone	23	ug/kg	UJ	ICVSL
SW8260	PMW-11-02	Bromomethane	9.2	ug/kg	UJ	ICVSL
SW8260	PMW-11-02	Carbon Disulfide	4.6	ug/kg	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PMW-11-02	Iodomethane	4.6	ug/kg	UJ	ICVSL
SW8260	PMW-11-03	Acetone	24	ug/kg	UJ	ICVSL
SW8260	PMW-11-03	Bromomethane	9.5	ug/kg	UJ	ICVSL
SW8260	PMW-11-03	Carbon Disulfide	4.7	ug/kg	UJ	ICVSL
SW8260	PMW-11-03	Iodomethane	4.7	ug/kg	UJ	ICVSL
SW8260	PMW-11-04	Acetone	42000	ug/kg	UJ	ICVSL
SW8260	PMW-11-04	Bromomethane	17000	ug/kg	UJ	ICVSL
SW8260	PMW-11-04	Carbon Disulfide	8400	ug/kg	UJ	ICVSL
SW8260	PMW-11-04	Iodomethane	8400	ug/kg	UJ	ICVSL
SW8260	PMW-11-05	Acetone	22	ug/kg	UJ	ICVSL
SW8260	PMW-11-05	Bromomethane	8.9	ug/kg	UJ	ICVSL
SW8260	PMW-11-05	Carbon Disulfide	4.5	ug/kg	UJ	ICVSL
SW8260	PMW-11-05	Iodomethane	4.5	ug/kg	UJ	ICVSL
SW8260	PMW-12-001	Freon 12	9.5	ug/kg	UJ	ICVSL
SW8260	PMW-12-002	Freon 12	11	ug/kg	UJ	ICVSL
SW8260	PMW-12-003	Freon 12	9.2	ug/kg	UJ	ICVSL
SW8260	PMW-12-004	Freon 12	1800	ug/kg	UJ	ICVSL
SW8260	PMW-12-004	Iodomethane	880	ug/kg	UJ	CCVL
SW8260	PMW-12-005	1,1,1,2-Tetrachloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1,1-Trichloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1,2,2-Tetrachloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1,2-Trichloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1-Dichloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1-Dichloroethene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,1-Dichloropropene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2,3-Trichlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2,3-Trichloropropane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2,4-Trichlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2,4-Trimethylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2-Dibromo-3-Chloropropane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2-Dibromoethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2-Dichlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2-Dichloroethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,2-Dichloropropane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,3,5-Trimethylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,3-Dichlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,3-Dichloropropane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	1,4-Dichlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	2,2-Dichloropropane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	2-Chlorotoluene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	4-Chlorotoluene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Acetone	19	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Benzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Bromobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Bromochloromethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Bromodichloromethane	3.9	ug/kg	UJ	MSL, MSDL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PMW-12-005	Bromoform	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Carbon Tetrachloride	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Chlorobenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Chloroform	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	cis-1,2-Dichloroethene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	cis-1,3-Dichloropropene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Dibromochloromethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Dibromomethane	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Ethylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Freon 12	7.8	ug/kg	UJ	ICVSL
SW8260	PMW-12-005	Hexachlorobutadiene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Isopropylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	m,p-Xylenes	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Methylene Chloride	16	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Naphthalene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	n-Butylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	o-Xylene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	para-Isopropyl Toluene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Propylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	sec-Butylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Styrene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	tert-Butylbenzene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Tetrachloroethene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Toluene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	trans-1,2-Dichloroethene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	trans-1,3-Dichloropropene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Trichloroethene	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Vinyl Acetate	39	ug/kg	UJ	MSL, MSDL
SW8260	PMW-12-005	Xylene (total)	3.9	ug/kg	UJ	MSL, MSDL
SW8260	PMW-13-001	1,2,3-Trichloropropane	4.9	ug/kg	UJ	CCVL
SW8260	PMW-13-001	1,2-Dibromo-3-Chloropropane	4.9	ug/kg	UJ	CCVL
SW8260	PMW-13-001	2-Butanone	9.7	ug/kg	UJ	CCVL
SW8260	PMW-13-001	Bromomethane	9.7	ug/kg	UJ	ICVSL
SW8260	PMW-13-001	Carbon Disulfide	4.9	ug/kg	UJ	ICVSL CCVL
SW8260	PMW-13-001	Freon 12	9.7	ug/kg	UJ	ICVSL
SW8260	PMW-13-001	Iodomethane	4.9	ug/kg	UJ	ICVSL
SW8260	PMW-13-001	Vinyl Acetate	49	ug/kg	UJ	LCSL CCVL
SW8260	PMW-13-002	1,2,3-Trichloropropane	4.5	ug/kg	UJ	CCVL
SW8260	PMW-13-002	1,2-Dibromo-3-Chloropropane	4.5	ug/kg	UJ	CCVL
SW8260	PMW-13-002	2-Butanone	8.9	ug/kg	UJ	CCVL
SW8260	PMW-13-002	Bromomethane	8.9	ug/kg	UJ	ICVSL
SW8260	PMW-13-002	Carbon Disulfide	4.5	ug/kg	UJ	ICVSL CCVL
SW8260	PMW-13-002	Freon 12	8.9	ug/kg	UJ	ICVSL
SW8260	PMW-13-002	Iodomethane	4.5	ug/kg	UJ	ICVSL
SW8260	PMW-13-002	Vinyl Acetate	45	ug/kg	UJ	LCSL CCVL
SW8260	PMW-13-003	Freon 12	9.5	ug/kg	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PMW-13-003	Iodomethane	4.8	ug/kg	UJ	CCVL
SW8260	PMW-13-003	Vinyl Acetate	61	ug/kg	UJ	LCSL CCVL
SW8260	PMW-13-004	1,2,3-Trichloropropane	310	ug/kg	UJ	CCVL
SW8260	PMW-13-004	1,2-Dibromo-3-Chloropropane	310	ug/kg	UJ	CCVL
SW8260	PMW-13-004	2-Butanone	620	ug/kg	UJ	CCVL
SW8260	PMW-13-004	Bromomethane	620	ug/kg	UJ	ICVSL
SW8260	PMW-13-004	Carbon Disulfide	310	ug/kg	UJ	ICVSL CCVL
SW8260	PMW-13-004	Freon 12	620	ug/kg	UJ	ICVSL
SW8260	PMW-13-004	Iodomethane	310	ug/kg	UJ	ICVSL
SW8260	PMW-13-004	Vinyl Acetate	3100	ug/kg	UJ	LCSL CCVL
SW8260	PMW-13-005	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	PMW-13-006	1,2,3-Trichloropropane	3400	ug/kg	UJ	CCVL
SW8260	PMW-13-006	1,2-Dibromo-3-Chloropropane	3400	ug/kg	UJ	CCVL
SW8260	PMW-13-006	2-Butanone	6700	ug/kg	UJ	CCVL
SW8260	PMW-13-006	Bromomethane	6700	ug/kg	UJ	ICVSL
SW8260	PMW-13-006	Carbon Disulfide	3400	ug/kg	UJ	ICVSL CCVL
SW8260	PMW-13-006	Freon 12	6700	ug/kg	UJ	ICVSL
SW8260	PMW-13-006	Iodomethane	3400	ug/kg	UJ	ICVSL
SW8260	PMW-13-006	Vinyl Acetate	34000	ug/kg	UJ	LCSL CCVL
SW8260	PSHIA-DA-01	Freon 12	11	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02	2-Butanone	8.6	ug/kg	UJ	CCVL
SW8260	PSHIA-DA-02	Bromomethane	8.6	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02	Carbon Disulfide	4.3	ug/kg	UJ	ICVSL CCVL
SW8260	PSHIA-DA-02	Freon 12	8.6	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02	Iodomethane	4.3	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02	trans-1,2-Dichloroethene	4.3	ug/kg	UJ	LCSL
SW8260	PSHIA-DA-02	Vinyl Acetate	43	ug/kg	UJ	LCSL LCSDL CCVL
SW8260	PSHIA-DA-02-062708	Acetone	22	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02-062708	Bromomethane	8.6	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02-062708	Carbon Disulfide	4.3	ug/kg	UJ	ICVSL
SW8260	PSHIA-DA-02-062708	Iodomethane	4.3	ug/kg	UJ	ICVSL
SW8260	PSHIA-DB-001	Freon 12	9.4	ug/kg	UJ	ICVSL
SW8260	PSHIA-DB-002	1,2,3-Trichloropropane	4.8	ug/kg	UJ	CCVL
SW8260	PSHIA-DB-002	1,2-Dibromo-3-Chloropropane	4.8	ug/kg	UJ	CCVL
SW8260	PSHIA-DB-002	2-Butanone	9.7	ug/kg	UJ	CCVL
SW8260	PSHIA-DB-002	Bromomethane	9.7	ug/kg	UJ	ICVSL
SW8260	PSHIA-DB-002	Carbon Disulfide	4.8	ug/kg	UJ	ICVSL CCVL
SW8260	PSHIA-DB-002	Freon 12	9.7	ug/kg	UJ	ICVSL
SW8260	PSHIA-DB-002	Iodomethane	4.8	ug/kg	UJ	ICVSL
SW8260	PSHIA-DB-002	Vinyl Acetate	48	ug/kg	UJ	LCSL CCVL
SW8260	SMW-10-01	Carbon Disulfide	4.9	ug/kg	UJ	ICVSL
SW8260	SMW-10-01	Freon 12	9.8	ug/kg	UJ	ICVSL
SW8260	SMW-10-02	Carbon Disulfide	4.5	ug/kg	UJ	ICVSL
SW8260	SMW-10-02	Freon 12	9.1	ug/kg	UJ	ICVSL
SW8260	SMW-10-03	Carbon Disulfide	5.2	ug/kg	UJ	ICVSL
SW8260	SMW-10-03	Freon 12	10	ug/kg	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	SMW-10-04	Carbon Disulfide	4.5	ug/kg	UJ	ICVSL
SW8260	SMW-10-04	Freon 12	8.9	ug/kg	UJ	ICVSL
SW8260	SMW-10-05	Carbon Disulfide	4.1	ug/kg	UJ	ICVSL
SW8260	SMW-10-05	Freon 12	8.2	ug/kg	UJ	ICVSL
SW8260	SMW-11-001	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	SMW-11-002	Freon 12	8.5	ug/kg	UJ	ICVSL
SW8260	SMW-11-003	Freon 12	9.4	ug/kg	UJ	ICVSL
SW8260	SMW-11-004	Freon 12	8.9	ug/kg	UJ	ICVSL
SW8260	SMW-11-005	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	SMW-13-001	Freon 12	10	ug/kg	UJ	LCSL ICVSL
SW8260	SMW-13-002	Freon 12	11	ug/kg	UJ	LCSL ICVSL
SW8260	SMW-13-003	Freon 12	12	ug/kg	UJ	LCSL ICVSL
SW8260	SMW-13-004	Freon 12	8.8	ug/kg	UJ	LCSL ICVSL
SW8260	SMW-13-005	Freon 12	17	ug/kg	UJ	LCSL ICVSL
SW8260	SMW-14-01	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	SMW-14-01	Iodomethane	5.2	ug/kg	UJ	CCVL
SW8260	SMW-14-02	Freon 12	8.9	ug/kg	UJ	ICVSL
SW8260	SMW-14-02	Iodomethane	4.4	ug/kg	UJ	CCVL
SW8260	SMW-14-03	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	SMW-14-03	Iodomethane	5.1	ug/kg	UJ	CCVL
SW8260	SMW-14-04	Freon 12	14	ug/kg	UJ	ICVSL
SW8260	SMW-14-04	Iodomethane	6.8	ug/kg	UJ	CCVL
SW8260	SMW-14-05	1,1,1,2-Tetrachloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1,1-Trichloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1,2,2-Tetrachloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1,2-Trichloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1-Dichloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1-Dichloroethene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,1-Dichloropropene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2,3-Trichlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2,3-Trichloropropane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2,4-Trichlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2,4-Trimethylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2-Dibromo-3-Chloropropane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2-Dibromoethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2-Dichlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2-Dichloroethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,2-Dichloropropane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,3,5-Trimethylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,3-Dichlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,3-Dichloropropane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	1,4-Dichlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	2,2-Dichloropropane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	2-Chlorotoluene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	4-Chlorotoluene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Acetone	29	ug/kg	UJ	MSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	SMW-14-05	Benzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Bromobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Bromochloromethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Bromodichloromethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Bromoform	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Carbon Tetrachloride	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Chlorobenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Chloroform	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	cis-1,2-Dichloroethene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	cis-1,3-Dichloropropene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Dibromochloromethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Dibromomethane	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Ethylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Freon 12	11	ug/kg	UJ	ICVSL
SW8260	SMW-14-05	Hexachlorobutadiene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Iodomethane	5.7	ug/kg	UJ	CCVL
SW8260	SMW-14-05	Isopropylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	m,p-Xylenes	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Methylene Chloride	23	ug/kg	UJ	MSL
SW8260	SMW-14-05	Naphthalene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	n-Butylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	o-Xylene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	para-Isopropyl Toluene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Propylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	sec-Butylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Styrene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	tert-Butylbenzene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Tetrachloroethene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Toluene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	trans-1,2-Dichloroethene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	trans-1,3-Dichloropropene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Trichloroethene	5.7	ug/kg	UJ	MSL
SW8260	SMW-14-05	Vinyl Acetate	57	ug/kg	UJ	MSL
SW8260	SMW-14-05	Xylene (total)	5.7	ug/kg	UJ	MSL
SW8260	SMW-9-01	Freon 12	10	ug/kg	UJ	ICVSL
SW8260	SMW-9-02	Freon 12	9.6	ug/kg	UJ	ICVSL
SW8260	SMW-9-03	Freon 12	9.2	ug/kg	UJ	ICVSL
SW8260	SMW-9-04	Freon 12	9	ug/kg	UJ	ICVSL
SW8260	SMW-9-05	Freon 12	8	ug/kg	UJ	ICVSL
SW8270	726-2-061908	Hexachlorobenzene	100	ug/l	UJ	LCSL LCSDL
SW8270C-SIM	B102-ASE-130A-05	Naphthalene	6	ug/kg	UJ	FD
SW8270C-SIM	B102-ASE-130A-11	Fluorene	38	ug/kg	J	SSH
SW8270C-SIM	B102-ASE-130A-11	Naphthalene	520	ug/kg	J	SSH
SW8270C-SIM	B102-ASE-130A-12	Fluorene	76	ug/kg	J	SSH
SW8270C-SIM	B102-ASE-130A-12	Naphthalene	1700	ug/kg	J	SSH
SW8270C-SIM	B102-D02-071208	Acenaphthene	24	ug/kg	J	SSH

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8270C-SIM	B102-D02-071208	Acenaphthylene	25	ug/kg	J	SSH
SW8270C-SIM	B102-D02-071208	Fluorene	15	ug/kg	J	SSH
SW8270C-SIM	B102-D02-071208	Naphthalene	50	ug/kg	J	SSH FD
SW8270C-SIM	726-2-061908	Fluorene	11	ug/kg	J	SSH
SW8270C-SIM	726-2-061908	Naphthalene	43	ug/kg	J	SSH
SW8270C-SIM	PMW-13-004	Acenaphthene	9.9	ug/kg	J	SSH
SW8270C-SIM	PMW-13-005	Acenaphthene	9.7	ug/kg	J	SSH
SW8270C-SIM	PMW-13-005	Fluorene	9.1	ug/kg	J	SSH
SW8270C-SIM	PMW-13-005	Naphthalene	30	ug/kg	J	SSH

Notes:

CCVL = Continuing calibration verification recovery greater than the upper control limit

ICVSL = Initial calibration verification recovery less than the lower control limit

FD = Relative percent difference criterion exceeded

LCSL = Laboratory control sample recovery less than the lower control limit

LCSDL = Laboratory control sample duplicate recovery less than the lower control limit

MSDH = Matrix spike duplicate recovery greater than the upper control limit.

MSDL = Matrix spike duplicate recovery less than the lower control limit.

MSL = Matrix spike recovery less than the lower control limit.

SSH – Surrogate recovery greater than the upper control limit.

Attachment A

Samples Associated with DQE			
SampleID	**Matrix**	**Sample Date**	**Sample Type**
PSHIA-DA-02-062708	SOIL	06/27/2008	FD
PSHIA-DB-001	SOIL	06/11/2008	FD
PSHIA-DB-002	SOIL	06/17/2008	FD
PSHIA-DA-01	SOIL	06/06/2008	FD
PSHIA-DA-02	SOIL	06/19/2008	FD
B102-D01-071208	SOIL	07/12/2008	FD
B102-D02-071208	SOIL	07/12/2008	FD
SMW-13-001	SOIL	05/31/2008	REG
SMW-13-002	SOIL	05/31/2008	REG
SMW-10-01	SOIL	06/01/2008	REG
SMW-10-02	SOIL	06/01/2008	REG
SMW-10-03	SOIL	06/01/2008	REG
SMW-10-04	SOIL	06/01/2008	REG
SMW-10-05	SOIL	06/01/2008	REG
SMW-13-003	SOIL	06/01/2008	REG
SMW-13-004	SOIL	06/01/2008	REG
SMW-13-005	SOIL	06/01/2008	REG
SMW-9-01	SOIL	06/05/2008	REG
756-1-060608	SOIL	06/06/2008	REG
756-2-060608	SOIL	06/06/2008	REG
SMW-11-001	SOIL	06/06/2008	REG
SMW-11-002	SOIL	06/06/2008	REG
SMW-11-003	SOIL	06/06/2008	REG
SMW-9-02	SOIL	06/06/2008	REG
SMW-9-03	SOIL	06/06/2008	REG
SMW-9-04	SOIL	06/06/2008	REG
SMW-9-05	SOIL	06/06/2008	REG
SMW-11-004	SOIL	06/11/2008	REG
SMW-11-005	SOIL	06/11/2008	REG
ASE-129A-01	SOIL	06/15/2008	REG
ASE-129A-02	SOIL	06/15/2008	REG
ASE-129A-03	SOIL	06/15/2008	REG
PMW-13-001	SOIL	06/17/2008	REG
PMW-13-002	SOIL	06/17/2008	REG
PMW-13-003	SOIL	06/17/2008	REG
PMW-13-004	SOIL	06/17/2008	REG
PMW-13-005	SOIL	06/17/2008	REG
PMW-13-006	SOIL	06/17/2008	REG
726-1-061908	SOIL	06/19/2008	REG
726-2-061908	SOIL	06/19/2008	REG
ASE-129A-04	SOIL	06/19/2008	REG

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
ASE-129A-05	SOIL	06/19/2008	REG
ASE-129A-06	SOIL	06/19/2008	REG
PMW-11-01	SOIL	06/26/2008	REG
PMW-11-02	SOIL	06/26/2008	REG
PMW-11-03	SOIL	06/27/2008	REG
PMW-11-04	SOIL	06/27/2008	REG
PMW-11-05	SOIL	06/27/2008	REG
PMW-12-001	SOIL	06/27/2008	REG
PMW-12-002	SOIL	06/27/2008	REG
PMW-12-003	SOIL	06/27/2008	REG
PMW-12-004	SOIL	06/27/2008	REG
PMW-12-005	SOIL	06/28/2008	REG
SMW-14-01	SOIL	06/28/2008	REG
SMW-14-02	SOIL	06/29/2008	REG
SMW-14-03	SOIL	06/30/2008	REG
SMW-14-04	SOIL	06/30/2008	REG
SMW-14-05	SOIL	06/30/2008	REG
B102-ASE-130A-01	SOIL	07/12/2008	REG
B102-ASE-130A-02	SOIL	07/12/2008	REG
B102-ASE-130A-03	SOIL	07/12/2008	REG
B102-ASE-130A-04	SOIL	07/12/2008	REG
B102-ASE-130A-05	SOIL	07/12/2008	REG
B102-ASE-130A-06	SOIL	07/12/2008	REG
B102-ASE-130A-07	SOIL	07/12/2008	REG
B102-ASE-130A-08	SOIL	07/12/2008	REG
B102-ASE-130A-09	SOIL	07/12/2008	REG
B102-ASE-130A-10	SOIL	07/12/2008	REG
B102-ASE-130A-11	SOIL	07/12/2008	REG
B102-ASE-130A-12	SOIL	07/12/2008	REG
B102-ASE-130A-13	SOIL	07/12/2008	REG
TB-053108-B	WATER	05/31/2008	TB
TB-060108A	WATER	06/01/2008	TB
TB-060508-A	WATER	06/05/2008	TB
TB-060508-B	WATER	06/05/2008	TB
TB-061008-B	WATER	06/10/2008	TB
TB-061508-A	WATER	06/15/2008	TB
TB-061608-B	WATER	06/16/2008	TB
TB-061808-A	WATER	06/18/2008	TB
TB-062608-A	WATER	06/26/2008	TB
TB-062708-B	WATER	06/27/2008	TB
TB_062808-A	WATER	06/28/2008	TB
TB-071208A	WATER	07/12/2008	TB
TB-071208B	WATER	07/12/2008	TB

Appendix B

Laboratory analytical reports can be viewed in folder
"Appendix B – Laboratory Analytical Reports".

Appendix C
Data Validation and Groundwater Laboratory Analytical Reports – July 2008

APPENDIX C

Data Quality Evaluation Report – Second Quarter 2008 Underground Storage Tank Groundwater Monitoring

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected during July 2008 in support of the second quarter 2008 monitoring period at the Honeywell 34th Street facility (Honeywell facility). Samples were collected and analyzed in an effort to continue providing a framework for long-term monitoring of the Honeywell facility. The data may also be used to support future activities such as feasibility studies, risk assessments, fate and transport modeling and remedial actions. The basis for this assessment includes: individual method requirements, guidelines from the United States Environmental Protection Agency (USEPA) *Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review* (USEPA, 1999), the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), and the *Honeywell International Inc., Sky Harbor 34th Street Facility Quality Assurance Project Plan* (QAPP) (CH2M HILL, 2005 and Honeywell, 2006). This DQE report is intended as a general data quality assessment designed to summarize data issues.

Honeywell submitted to the Arizona Department of Environmental Quality (ADEQ) an updated QAPP entitled *Master Quality Assurance Project Plan, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona* on September 20, 2007 (CH2M HILL, 2007). Honeywell is currently awaiting ADEQ's approval of this document.

Analytical Data

This DQE report covers 64 normal samples (reg), 7 field duplicates (FD), 9 equipment blanks (EB), and 9 trip blanks (TB). A list of samples and collection dates is included in Attachment A at the end of this report. Samples were collected between July 14, 2008 and July 24, 2008. These sample results were reported as nine sample delivery groups (SDG) listed in Table 1. The analyses were performed by Curtis & Tompkins Laboratory in Berkeley, California.

Table 1 – SDGs
204647
204676
204712
204713
204829
204830
204853

Table 1 – SDGs
204854
204877

Eleven methods were used to analyze the environmental samples. Samples were collected and shipped by overnight carrier to the laboratory for analysis. Selected samples were analyzed for one or more of the following analytes/methods listed in Table 2.

Table 2 – Analytical Parameters	
Parameter	**Method**
Volatile Organic Compounds	SW8260
Total Petroleum Hydrocarbons (diesel range and motor oil range)	SW8015AZR1
Semi-Volatile Organic Compounds	SW8270
Polynuclear Aromatic Hydrocarbons	SW8270-SIM
Total Iron	SW6010
Total Metals (As, Be, Cr, Fe, Mn, Ni)	SW6020
Mercury	SW7470
Dissolved Gases (methane, ethane ethene)	RSK-175
Alkalinity	E310.1
Anions (chloride, fluoride, nitrate, sulfate)	E300.0
Total Dissolved Solids (TDS)	E160.1

Data validation was performed in accordance with the USEPA *Contract Laboratory NFG for Organic Data Review* (USEPA, 1999) and the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), substituting the calibration and quality control (QC) requirements specified in the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006) for those specified in the NFG.

The assessment of data includes a review of: (1) the chain-of-custody documentation; (2) holding-time compliance; (3) the required field and laboratory QC samples; (4) flagging for method blanks; (5) laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries; (6) surrogate spike recoveries for organic analyses; and, (7) matrix spike/matrix spike duplicate samples (MS/MSD).

Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs, EBs, and TBs.

Data flags are assigned according to the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006). These flags, as well as the reason for each flag, are entered into the electronic database. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is

applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are defined below:

- J = Analyte was present but reported value may not be accurate or precise.
- R = The result was rejected.
- U = Analyte was analyzed but not detected at the specified detection limit.
- UJ = Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample

Findings

The overall summaries of the data validation findings are contained in the following sections below and summarized in Table 7.

Holding Times

All holding-time criteria were met with the following exceptions:

Sample ASE-129A-8B1 was analyzed outside of holding time by three days for nitrate by method E300.0. The associated detected result was qualified as estimated and flagged "J".

The laboratory experienced a contamination problem in several SW8015AZR1 analytical batches for both diesel range and motor oil range hydrocarbons. Twenty project samples were included in the affected analytical batches. These 20 samples were re-extracted outside of holding time. Seven associated detected results were qualified as estimated and flagged "J"; 33 associated non-detected results were qualified as estimated and flagged "UJ".

Sample Quantitation

All methods were reported to the reporting limit (RL) with the exception of method SW8015AZR1 which was reported to the method detection limit. All Honeywell QAPP objectives were met for undiluted analyses with the exceptions listed in Table 3. The laboratory RLs listed in Table 3 were submitted by the laboratory as variances to the Honeywell QAPP. The variances were accepted by CH2M HILL.

Table 3 – QAPP Reporting Limit Objectives Not Met for all Samples

Method	Analyte	QAPP RL (ug/L)	Report RL (ug/L)
SW8260	Methylene Chloride	5	10
SW8270	2-Nitroaniline	10	20
SW8270	2-Nitrophenol	10	20
SW8270	3-Nitroaniline	10	20
SW8270	3,3'-Dichlorobenzidine	10	20
SW8270	4-Nitroaniline	10	20

Table 3 – QAPP Reporting Limit Objectives Not Met for all Samples			
Method	**Analyte**	**QAPP RL (ug/L)**	**Report RL (ug/L)**
SW8270	4,6-Dinitro-2-methylphenol	10	20

There was insufficient volume of sample SMW-11-8B1 to extract the full one liter for method SW8270. The decreased sample extraction volume resulted in raised RL for all analytes. The analytes listed in Table 4 did not meet Honeywell QAPP RL objectives for sample SMW-11-8B1.

Table 4 – QAPP Reporting Limit Objectives Not Met for Sample SMW-11-8B1			
Method	**Analyte**	**QAPP RL (ug/L)**	**Report RL (ug/L)**
SW8270	1,2,4-Trichlorobenzene	10	18
SW8270	1,2-Dichlorobenzene	10	18
SW8270	1,3-Dichlorobenzene	10	18
SW8270	1,4-Dichlorobenzene	10	18
SW8270	2,4-Dinitrotoluene	10	18
SW8270	2,6-Dinitrotoluene	10	18
SW8270	2,4,5-Trichlorophenol	10	18
SW8270	2,4,6-Trichlorophenol	10	18
SW8270	2,4-Dichlorophenol	10	18
SW8270	2,4-Dimethylphenol	10	18
SW8270	2-Chloronaphthalene	10	18
SW8270	2-Chlorophenol	10	18
SW8270	2-Methyl-4,6-Dinitrophenol	20*	36
SW8270	2-Methylphenol	10	18
SW8270	2-Nitroaniline	20*	36
SW8270	2-Nitrophenol	20*	36
SW8270	3-Nitroaniline	20*	36
SW8270	3,3'-Dichlorobenzidine	20*	36
SW8270	4-Chloro-3-methylphenol	10	18
SW8270	4-Chloroaniline	10	18
SW8270	4-Chlorophenyl phenyl ether	10	18
SW8270	4-Methylphenol	10	18
SW8270	4-Nitroaniline	20*	36
SW8270	Bis (2-chloroethoxy) methane	10	18
SW8270	Bis (2-chloroethyl) ether	10	18
SW8270	Bis (2-chloroisopropyl) ether	10	18
SW8270	Butyl benzyl phthalate	10	18
SW8270	Dibenzofuran	10	18
SW8270	Diethyl phthalate	20	18
SW8270	Dimethyl phthalate	10	18
SW8270	Di-n-butyl phthalate	10	18
SW8270	Di-n-octyl phthalate	20	18
SW8270	Hexachlorobenzene	10	18
SW8270	Hexachlorocylopentadiene	20	36

Table 4 – QAPP Reporting Limit Objectives Not Met for Sample SMW-11-8B1			
Method	**Analyte**	**QAPP RL (ug/L)**	**Report RL (ug/L)**
SW8270	Hexachloroethane	10	18
SW8270	Nitrobenzene	10	18
SW8270	n-Nitroso-di-n-propylamine	10	18
SW8270	Pentachlorophenol	30	36
SW8270	Phenol	10	18
SW8270	Acenaphthene	10	18
SW8270	Acenaphthylene	10	18
SW8270	Anthracene	10	18
SW8270	Benzo (a) anthracene	10	18
SW8270	Benzo(b)fluoranthene	10	18
SW8270	Benzo(k)fluoranthene	10	18
SW8270	Benzoic Acid	50	91
SW8270	Benzyl Alcohol	10	18
SW8270	Chrysene	10	18
SW8270	Fluoranthene	10	18
SW8270	Fluorene	10	18
SW8270	Indeno(1,2,3-c,d)pyrene	10	18
SW8270	Naphthalene	10	18
SW8270	Phenanthrene	10	18
SW8270	Pyrene	10	18
SW8270	Pyridine	10	18

* Variance to QAPP RL

Several samples required dilution due to high analyte concentrations and matrix interference. The RLs for non-detected analytes in the diluted samples were raised accordingly. Table 5 lists the methods and samples analyzed at a dilution.

Table 5 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
E310.1	PMW-11-8B1	6.7
E310.1	PMW-12-8B1	6.7
E310.1	PMW-13-8B1	6.7
E310.1	SMW-10-8B1	6.7
E310.1	SMW-11-8B1	6.7
E310.1	SMW-13-8B1	6.7
E310.1	SMW-14-8B1	6.7
E310.1	SMW-9-8B1	6.7
SW6020	ASE-129A-8B1	5
SW8015AZR1	ASE-55A-8B1	10
SW8260	ASE-116A-8B1	4
SW8260	ASE-38A-8B1	10
SW8260	ASE-39A-8B1	5
SW8260	ASE-52A-8B1	5
SW8260	ASE-56A-8B1	6.25
SW8260	ASE-57A-8B1	8.333

Table 5 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
SW8260	ASE-63A-8B1	25
SW8260	ASE-89A-8B1	10
SW8260	ASE-92A-8B1	3.333, 10
SW8260	ASE-96A-8B1	5
SW8260	PL-101A-8B1	2
SW8260	PL-105A-8B1	2
SW8260	PL-512-8B1	4, 10
SW8260	PL-515-8B1	10
SW8260	PMW-12-8B1	1.429
SW8270	PMW-11-8B1	5, 8.33
SW8270	PMW-12-8B1	50
SW8270	PMW-13-8B1	5
SW8270	SMW-9-8B1	3
SW8270-SIM	PMW-12-8B1	10
SW8270-SIM	PMW-13-8B1	5

Calibration

The recoveries of vinyl acetate and Freon 12 were below criteria in an initial calibration verification (ICV) for method SW8260, indicating associated sample results are possibly biased low. Ten associated non-detected results were qualified as estimated and flagged "UJ".

The recoveries of 10 analytes were below criteria in the continuing calibration verifications (CCV) for method SW8260, indicating associated sample results are possibly biased low. One-hundred eighteen (118) associated non-detected results were qualified as estimated and flagged "UJ".

The recoveries of seven analytes were below criteria in the CCVs for method SW8270, indicating associated sample results are possibly biased low. Twenty-three associated non-detected results were qualified as estimated and flagged "UJ".

The recovery of benzo(a)anthracene was below criteria in a CCV for method SW8270-SIM, indicating associated sample results are possibly biased low. One associated non-detected result was qualified as estimated and flagged "UJ".

Method Blanks

Method blanks were analyzed at the required frequency and were generally free of contamination.

Diesel-range organics (C10-C22) was detected above the RL in several method blanks for method SW8015AZR1. Associated samples were not qualified because they were either not detected or contained concentrations greater than five times the concentrations detected in the method blanks.

Field Blanks

EBs and TBs were collected as required and were free of contamination with two exceptions.

MTBE and toluene were detected above the RL in the EBs for method SW8260. Five associated samples were detected less than five times the blank concentrations. The results were qualified as not detected and flagged "U".

Several additional analytes were detected above the RL in the EBs for method SW8260. Associated samples were not qualified because they were either not detected or contained concentrations of these analytes greater than five times the concentrations detected in the method blanks.

Diesel-range organics (C10-C22) and Motor oil-range organics (C22-C32) were detected above the RL in several EBs. These detections were attributed to laboratory contamination (as discussed under holding times) and associated data were not qualified.

Field Duplicates

Seven FD sets were collected and analyzed with this event. A list of FDs and associated parent sample identifications (ID) is included in Table 6.

Table 6 – List of Field Duplicates

Field Duplicate Sample ID	Associated Parent Sample ID
PL-502-8B1	ASE-58A-8B1
PL-505-8B1	ASE-97A-8B1
PL-507-8B1	BC-8B-8B1
PL-508-8B1	ASE-99A-8B1
PL-510-8B1	ASE-59A-8B1
PL-512-8B1	ASE-92A-8B1
PL-515-8B1	ASE-38A-8B1

All relative percent difference (RPD) criteria were met.

Surrogates

Surrogates were recovered within laboratory established QC limits with the following exceptions:

Several surrogate recoveries were below criteria in sample PMW-11-8B for method SW8270, indicating associated sample results are possibly biased low. Two associated detected results were qualified as estimated and flagged "J"; 65 associated non-detected results were qualified as estimated and flagged "UJ".

A surrogate recovery was above criteria in sample PMW-13-8B1 for method SW8270-SIM, indicating associated sample results are possibly biased high. Five associated detected results were qualified as estimated and flagged "J".

Surrogate recoveries were below criteria in sample SMW-14-8B1 for method SW8270-SIM, indicating associated sample results are possibly biased low. One associated detected result

was qualified as estimated and flagged "J"; 16 associated non-detected results were qualified as estimated and flagged "UJ".

Laboratory Control Samples

LCS/LCSDs were analyzed as required. Precision and accuracy criteria were met with the following exceptions:

TDS was recovered below criteria in an LCS for method E160.1, indicating associated sample results are possibly biased low. One associated detected result was qualified as estimated and flagged "J".

Diesel-range organics (C10-C22) was recovered above criteria in an LCS for method SW8015AZR1, indicating associated sample results are possibly biased high. One associated detected result was qualified as estimated and flagged "J".

Five analytes were recovered below criteria in the LCSs and/or LCSDs for method SW8260, indicating associated sample results are possibly biased low. Fifteen associated non-detected results were qualified as estimated and flagged "UJ".

Hexachlorocyclopentadiene was recovered below criteria and below 10 percent in a LCS/LCSD for method SW8260, indicating associated sample results are possibly biased significantly low. One associated non-detected result was rejected for project use and flagged "R".

Matrix Spikes

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. MS/MSD recoveries and the associated RPD met criteria with the following exceptions:

The recoveries of three analytes were below criteria in the MSD of sample ASE-68A-8B1 for method SW8260, indicating the associated parent sample results are possibly biased low. One non-detected result in the parent sample was qualified as estimated and flagged "UJ"; two detected results in the parent sample were qualified as estimated and flagged "J".

Internal Standards

All internal standard criteria were met.

Tentatively Identified Compounds

Tentatively identified compounds were not reported by the laboratory.

Chain of Custody

Each sample was documented on a completed chain-of-custody form and received at the laboratory in good condition.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the

decision-making process. The procedures for assessing the precision, accuracy, representativeness, completeness, and comparability parameters were based on the Honeywell QAPP. The following summary highlights the precision, accuracy, representativeness, completeness, and comparability findings for the above-defined events:

1. One result was rejected for method SW8270 due to low LCS/LCSD recoveries. Completeness for this method/analyte combination was 89 percent which did not meet the goal of 95 percent. Overall completeness for method SW8270 was met.
2. Completeness for all other method analyte combinations was 100 percent.
3. Less than one percent of the SW8260 data were qualified due to low-level field blank contamination. The degree to which blank contamination was observed is within reasonable method expectations.
4. One sample was analyzed outside of holding time for nitrate by method E300.0 due to laboratory error.
5. Twenty samples were analyzed outside of holding time for method SW8015AZR1. A contamination problem at the laboratory required re-extraction and reanalysis.
6. Samples were analyzed diluted for methods E310.1, SW6020, SW8015AZR1, SW8260, SW8270 and SW8270-SIM resulting in raised RLs for non-detected analytes.
7. Surrogate recovery exceedances were observed in one sample for method SW8270 and two samples for method SW8270-SIM.
8. LCS/LCSD recovery exceedances were observed for methods E160.1, SW8015AZR1 and SW8260.
9. MSD recovery exceedances were observed for method SW8260, resulting in three results qualified as estimated.
10. Overall, the precision and accuracy of the data, as measured by field and laboratory QC indicators, suggest that the project goals have been met.

References

CH2M HILL. 2005. *Honeywell International Inc., Sky Harbor 34th Street Facility, 111 South 34th Street, Phoenix, Arizona; Quality Assurance Project Plan.* September.

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Honeywell International, Inc. 2006. *Response to Comments on the Quality Assurance Project Plan dated September 2005; Honeywell International Inc. Sky Harbor 34th Street Facility*. July 13.

United States Environmental Protection Agency (USEPA). 1999. *Contract Laboratory National Functional Guidelines for Organic Data Review.* October.

_____. 2004. *Contract Laboratory National Functional Guidelines for Inorganic Data Review*. October.

Table 7 – Validation Findings

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
E160.1	ASE-129A-8B1	Total Dissolved Solids	1010	mg/l	J	LCSL
E300.0	ASE-129A-8B1	Nitrogen, Nitrate	5.7	mg/l	J	HTA
SW8015AZR1	ASE-105A-8B1	Diesel C10-C22	150	ug/l	J	HTP
SW8015AZR1	ASE-105A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-106A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-106A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-109A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-109A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-124A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-124A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-126A-8B1	Diesel C10-C22	160	ug/l	J	HTP
SW8015AZR1	ASE-126A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-55A-8B1	Diesel C10-C22	140000	ug/l	J	HTP
SW8015AZR1	ASE-55A-8B1	Motor Oil C22-C32	3000	ug/l	UJ	HTP
SW8015AZR1	ASE-59A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-59A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-95A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-95A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-96A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-96A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-97A-8B1	Diesel C10-C22	150	ug/l	J	HTP LCSH
SW8015AZR1	ASE-97A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-98A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-98A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	ASE-99A-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	ASE-99A-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	BC-8B-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	BC-8B-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	PL-505-8B1	Diesel C10-C22	120	ug/l	J	HTP
SW8015AZR1	PL-505-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	PL-507-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	PL-507-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	PL-508-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	PL-508-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	PL-509-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	PL-509-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	PL-513-8B1	Diesel C10-C22	50	ug/l	UJ	HTP
SW8015AZR1	PL-513-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	SMW-10-8B1	Diesel C10-C22	57	ug/l	J	HTP
SW8015AZR1	SMW-10-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8015AZR1	SMW-9-8B1	Diesel C10-C22	60	ug/l	J	HTP
SW8015AZR1	SMW-9-8B1	Motor Oil C22-C32	300	ug/l	UJ	HTP
SW8260	ASE-100A-8B1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-100A-8B1	MTBE	0.9	ug/l	U	EBH
SW8260	ASE-100A-8B1	Vinyl Acetate	10	ug/l	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-101A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-101A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-101A-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-101A-8B1	MTBE	5.2	ug/l	U	EBH
SW8260	ASE-101A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-103A-8B1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-103A-8B1	Vinyl Acetate	10	ug/l	UJ	ICVSL
SW8260	ASE-105A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-106A-8B1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-106A-8B1	Vinyl Acetate	10	ug/l	UJ	ICVSL
SW8260	ASE-109A-8B1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-109A-8B1	Vinyl Acetate	10	ug/l	UJ	ICVSL
SW8260	ASE-110A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-110A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-110A-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-110A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-112A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-112A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-113A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-113A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-113A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-113A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-113A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-114A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-114A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-114A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-114A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-114A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-116A-8B1	1,2-Dibromo-3-Chloropropane	8	ug/l	UJ	CCVL
SW8260	ASE-116A-8B1	1,2-Dichloropropane	2	ug/l	UJ	LCSL
SW8260	ASE-116A-8B1	2-Butanone	40	ug/l	UJ	CCVL
SW8260	ASE-116A-8B1	2-Hexanone	40	ug/l	UJ	CCVL
SW8260	ASE-122A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-122A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-122A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-122A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-122A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-123A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-123A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-123A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-123A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-123A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-125A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-125A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-125A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-125A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-125A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-126A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-128A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-128A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-128A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-128A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-128A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-20A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-38A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-38A-8B1	1,2-Dichloropropane	0.5	ug/l	UJ	LCSL
SW8260	ASE-38A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-38A-8B1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-39A-8B1	1,2-Dibromo-3-Chloropropane	10	ug/l	UJ	CCVL
SW8260	ASE-39A-8B1	1,2-Dichloropropane	2.5	ug/l	UJ	LCSL
SW8260	ASE-39A-8B1	2-Butanone	50	ug/l	UJ	CCVL
SW8260	ASE-39A-8B1	2-Hexanone	50	ug/l	UJ	CCVL
SW8260	ASE-46A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-46A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-46A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-54A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-54A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-54A-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-54A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-55A-8B1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-56A-8B1	Freon 12	6.3	ug/l	UJ	CCVL
SW8260	ASE-57A-8B1	Freon 12	8.3	ug/l	UJ	CCVL
SW8260	ASE-58A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-58A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-58A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	2-Butanone	250	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	2-Hexanone	250	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	4-Methyl-2-Pentanone	250	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	Acetone	250	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	Freon 12	25	ug/l	UJ	CCVL
SW8260	ASE-63A-8B1	Methylene Chloride	250	ug/l	UJ	CCVL
SW8260	ASE-64A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-68A-8B1	1,1-Dichloroethane	15	ug/l	J	MSDL
SW8260	ASE-68A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-68A-8B1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-68A-8B1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-68A-8B1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-68A-8B1	Benzene	32	ug/l	J	MSDL
SW8260	ASE-68A-8B1	Freon 12	1	ug/l	UJ	MSDL CCVL
SW8260	ASE-68A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-95A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-95A-8B1	2-Butanone	10	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-95A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-95A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-95A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-96A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-96A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-96A-8B1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-96A-8B1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-96A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-97A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-98A-8B1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-98A-8B1	Vinyl Acetate	10	ug/l	UJ	ICVSL
SW8260	ASE-99A-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-201A-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-201A-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-201A-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	PL-201A-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-2101-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-2101-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-2101-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	PL-2101-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-2102-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-2102-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-2102-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	PL-2102-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-502-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-502-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-502-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	PL-502-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-505-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-513-8B1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-515-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-515-8B1	1,2-Dichloropropane	0.5	ug/l	UJ	LCSL
SW8260	PL-515-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-515-8B1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PMW-11-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PMW-11-8B1	Toluene	2.3	ug/l	U	EBH
SW8260	PMW-13-8B1	MTBE	1.7	ug/l	U	EBH
SW8260	SMW-11-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	SMW-11-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	SMW-11-8B1	Toluene	0.5	ug/l	U	EBH
SW8260	SMW-13-8B1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	SMW-13-8B1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	SMW-13-8B1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	SMW-13-8B1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	SMW-9-8B1	Freon 12	1	ug/l	UJ	CCVL
SW8270	ASE-129A-8B1	4-Nitrophenol	20	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8270	ASE-129A-8B1	Chrysene	10	ug/l	UJ	CCVL
SW8270	ASE-129A-8B1	Pyrene	10	ug/l	UJ	CCVL
SW8270	PMW-11-8B1	1,2,4-Trichlorobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	1,2-Dichlorobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	1,3-Dichlorobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	1,4-Dichlorobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4,5-Trichlorophenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4,6-Trichlorophenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4-Dichlorophenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4-Dimethylphenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4-Dinitrophenol	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,4-Dinitrotoluene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2,6-Dinitrotoluene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2-Chloronaphthalene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2-Chlorophenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2-Methylnaphthalene	89	ug/l	J	SSL
SW8270	PMW-11-8B1	2-Methylphenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2-Nitroaniline	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	2-Nitrophenol	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	3,3'-Dichlorobenzidine	94	ug/l	UJ	CCVL SSL
SW8270	PMW-11-8B1	3-Nitroaniline	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4,6-Dinitro-2-methylphenol	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Bromophenyl-phenylether	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Chloro-3-methylphenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Chloroaniline	47	ug/l	UJ	LCSL SSL
SW8270	PMW-11-8B1	4-Chlorophenyl-phenylether	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Methylphenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Nitroaniline	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	4-Nitrophenol	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Acenaphthene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Acenaphthylene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Anthracene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Azobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Benzo(a)anthracene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Benzo(a)pyrene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Benzo(b)fluoranthene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Benzo(g,h,i)perylene	47	ug/l	UJ	CCVL SSL
SW8270	PMW-11-8B1	Benzo(k)fluoranthene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Benzoic acid	240	ug/l	UJ	CCVL SSL
SW8270	PMW-11-8B1	Benzyl alcohol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	bis(2-Chloroethoxy)methane	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	bis(2-Chloroethyl)ether	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	bis(2-Chloroisopropyl) ether	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	bis(2-Ethylhexyl)phthalate	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Butylbenzylphthalate	47	ug/l	UJ	CCVL SSL
SW8270	PMW-11-8B1	Chrysene	47	ug/l	UJ	SSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8270	PMW-11-8B1	Dibenz(a,h)anthracene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Dibenzofuran	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Diethylphthalate	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Dimethylphthalate	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Di-n-butylphthalate	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Di-n-octylphthalate	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Fluoranthene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Fluorene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Hexachlorobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Hexachlorobutadiene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Hexachlorocyclopentadiene	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Hexachloroethane	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Indeno(1,2,3-cd)pyrene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Isophorone	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Naphthalene	48	ug/l	J	SSL
SW8270	PMW-11-8B1	Nitrobenzene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	N-Nitroso-di-n-propylamine	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	N-Nitrosodiphenylamine	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Pentachlorophenol	94	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Phenanthrene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Phenol	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Pyrene	47	ug/l	UJ	SSL
SW8270	PMW-11-8B1	Pyridine	47	ug/l	UJ	SSL
SW8270	PMW-12-8B1	3,3'-Dichlorobenzidine	940	ug/l	UJ	CCVL
SW8270	PMW-12-8B1	4-Chloroaniline	470	ug/l	UJ	LCSDL
SW8270	PMW-12-8B1	Benzo(g,h,i)perylene	470	ug/l	UJ	CCVL
SW8270	PMW-12-8B1	Benzoic acid	2400	ug/l	UJ	CCVL
SW8270	PMW-12-8B1	Butylbenzylphthalate	470	ug/l	UJ	CCVL
SW8270	PMW-13-8B1	4-Chloroaniline	51	ug/l	UJ	LCSDL
SW8270	SMW-10-8B1	3,3'-Dichlorobenzidine	19	ug/l	UJ	CCVL
SW8270	SMW-10-8B1	4-Chloroaniline	9.4	ug/l	UJ	LCSL
SW8270	SMW-10-8B1	Benzo(g,h,i)perylene	9.4	ug/l	UJ	CCVL
SW8270	SMW-10-8B1	Benzoic acid	47	ug/l	UJ	CCVL
SW8270	SMW-10-8B1	Butylbenzylphthalate	9.4	ug/l	UJ	CCVL
SW8270	SMW-11-8B1	3-Nitroaniline	36	ug/l	UJ	LCSL LCSDL
SW8270	SMW-11-8B1	4-Chloroaniline	18	ug/l	UJ	LCSL LCSDL
SW8270	SMW-11-8B1	4-Nitroaniline	36	ug/l	UJ	LCSL LCSDL
SW8270	SMW-11-8B1	Acenaphthylene	18	ug/l	UJ	LCSDL
SW8270	SMW-11-8B1	Benzoic acid	91	ug/l	UJ	CCVL
SW8270	SMW-11-8B1	Hexachlorocyclopentadiene	36	ug/l	R	LCSL LCSDL
SW8270	SMW-13-8B1	3,3'-Dichlorobenzidine	19	ug/l	UJ	CCVL
SW8270	SMW-13-8B1	4-Chloroaniline	9.5	ug/l	UJ	LCSDL
SW8270	SMW-13-8B1	Benzo(g,h,i)perylene	9.5	ug/l	UJ	CCVL
SW8270	SMW-13-8B1	Benzoic acid	48	ug/l	UJ	CCVL
SW8270	SMW-13-8B1	Butylbenzylphthalate	9.5	ug/l	UJ	CCVL
SW8270	SMW-14-8B1	3,3'-Dichlorobenzidine	19	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8270	SMW-14-8B1	4-Chloroaniline	9.5	ug/l	UJ	LCSDL
SW8270	SMW-14-8B1	Benzo(g,h,i)perylene	9.5	ug/l	UJ	CCVL
SW8270	SMW-14-8B1	Benzoic acid	48	ug/l	UJ	CCVL
SW8270	SMW-14-8B1	Butylbenzylphthalate	9.5	ug/l	UJ	CCVL
SW8270	SMW-14-8B1	Pyrene	9.5	ug/l	UJ	CCVL
SW8270	SMW-9-8B1	4-Chloroaniline	9.6	ug/l	UJ	LCSL
SW8270	SMW-9-8B1	Benzoic acid	48	ug/l	UJ	CCVL
SW8270	SMW-9-8B1	Pyrene	9.6	ug/l	UJ	CCVL
SW8270-SIM	PMW-13-8B1	Acenaphthene	0.2	ug/l	J	SSH
SW8270-SIM	PMW-13-8B1	Acenaphthylene	0.2	ug/l	J	SSH
SW8270-SIM	PMW-13-8B1	Benzo(a)anthracene	0.1	ug/l	UJ	CCVL
SW8270-SIM	PMW-13-8B1	Fluorene	0.4	ug/l	J	SSH
SW8270-SIM	PMW-13-8B1	Naphthalene	14	ug/l	J	SSH
SW8270-SIM	PMW-13-8B1	Phenanthrene	0.2	ug/l	J	SSH
SW8270-SIM	SMW-14-8B1	1,4-Dioxane	0.96	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Acenaphthene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Acenaphthylene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Anthracene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Benzo(a)anthracene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Benzo(a)pyrene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Benzo(b)fluoranthene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Benzo(g,h,i)perylene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Benzo(k)fluoranthene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Chrysene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Dibenz(a,h)anthracene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Fluoranthene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Fluorene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Indeno(1,2,3-cd)pyrene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Naphthalene	2.7	ug/l	J	SSL
SW8270-SIM	SMW-14-8B1	Phenanthrene	0.1	ug/l	UJ	SSL
SW8270-SIM	SMW-14-8B1	Pyrene	0.1	ug/l	UJ	SSL

Notes:

CCVL = Continuing calibration verification recovery greater than the upper control limit

EBH = Equipment blank concentration above the reporting limit

HTA = Analytical holding time exceeded

HTP = Extraction holding time exceeded

ICVSL = Initial calibration verification recovery less than the lower control limit

LCSH = Laboratory control sample recovery greater than the upper control limit

LCSL = Laboratory control sample recovery less than the lower control limit

LCSDL = Laboratory control sample duplicate recovery less than the lower control limit

MSDL = Matrix spike duplicate recovery less than the lower control limit.

SSH – Surrogate recovery greater than the upper control limit.

SSL – Surrogate recovery less than the lower control limit.

Attachment A

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
PL-501-8B1	WATER	07/14/2008	EB
PL-504-8B1	WATER	07/15/2008	EB
PL-503-8B1	WATER	07/16/2008	EB
PL-506-8B1	WATER	07/17/2008	EB
PL-509-8B1	WATER	07/18/2008	EB
PL-511-8B1	WATER	07/21/2008	EB
PL-513-8B1	WATER	07/22/2008	EB
PL-514-8B1	WATER	07/23/2008	EB
PL-516-8B1	WATER	07/24/2008	EB
PL-502-8B1	WATER	07/14/2008	FD
PL-505-8B1	WATER	07/17/2008	FD
PL-508-8B1	WATER	07/17/2008	FD
PL-507-8B1	WATER	07/18/2008	FD
PL-510-8B1	WATER	07/21/2008	FD
PL-512-8B1	WATER	07/22/2008	FD
PL-515-8B1	WATER	07/24/2008	FD
ASE-46A-8B1	WATER	07/14/2008	REG
ASE-54A-8B1	WATER	07/14/2008	REG
ASE-58A-8B1	WATER	07/14/2008	REG
PL-201A-8B1	WATER	07/14/2008	REG
PL-2101-8B1	WATER	07/14/2008	REG
PL-2102-8B1	WATER	07/14/2008	REG
ASE-100A-8B1	WATER	07/15/2008	REG
ASE-101A-8B1	WATER	07/15/2008	REG
ASE-103A-8B1	WATER	07/15/2008	REG
ASE-110A-8B1	WATER	07/15/2008	REG
ASE-113A-8B1	WATER	07/15/2008	REG
ASE-114A-8B1	WATER	07/15/2008	REG
PMW-12-8B1	WATER	07/15/2008	REG
PMW-13-8B1	WATER	07/15/2008	REG
SMW-13-8B1	WATER	07/15/2008	REG
SMW-14-8B1	WATER	07/15/2008	REG
ASE-112A-8B1	WATER	07/16/2008	REG
ASE-122A-8B1	WATER	07/16/2008	REG
ASE-123A-8B1	WATER	07/16/2008	REG
ASE-125A-8B1	WATER	07/16/2008	REG
ASE-128A-8B1	WATER	07/16/2008	REG
ASE-95A-8B1	WATER	07/16/2008	REG
ASE-96A-8B1	WATER	07/16/2008	REG
SMW-11-8B1	WATER	07/16/2008	REG
ASE-105A-8B1	WATER	07/17/2008	REG

Samples Associated with DQE			
SampleID	**Matrix**	**Sample Date**	**Sample Type**
ASE-106A-8B1	WATER	07/17/2008	REG
ASE-109A-8B1	WATER	07/17/2008	REG
ASE-126A-8B1	WATER	07/17/2008	REG
ASE-97A-8B1	WATER	07/17/2008	REG
ASE-98A-8B1	WATER	07/17/2008	REG
ASE-99A-8B1	WATER	07/17/2008	REG
PMW-11-8B1	WATER	07/17/2008	REG
SMW-10-8B1	WATER	07/17/2008	REG
SMW-9-8B1	WATER	07/17/2008	REG
ASE-124A-8B1	WATER	07/18/2008	REG
ASE-129A-8B1	WATER	07/18/2008	REG
ASE-89A-8B1	WATER	07/18/2008	REG
BC-8B-8B1	WATER	07/18/2008	REG
ASE-108A-8B1	WATER	07/21/2008	REG
ASE-127A-8B1	WATER	07/21/2008	REG
ASE-37A-8B1	WATER	07/21/2008	REG
ASE-41A-8B1	WATER	07/21/2008	REG
ASE-59A-8B1	WATER	07/21/2008	REG
ASE-60A-8B1	WATER	07/21/2008	REG
ASE-61A-8B1	WATER	07/21/2008	REG
BC-7A-8B1	WATER	07/21/2008	REG
PL-101A-8B1	WATER	07/21/2008	REG
ASE-20A-8B1	WATER	07/22/2008	REG
ASE-52A-8B1	WATER	07/22/2008	REG
ASE-53A-8B1	WATER	07/22/2008	REG
ASE-55A-8B1	WATER	07/22/2008	REG
ASE-62A-8B1	WATER	07/22/2008	REG
ASE-65A-8B1	WATER	07/22/2008	REG
ASE-66A-8B1	WATER	07/22/2008	REG
ASE-68A-8B1	WATER	07/22/2008	REG
ASE-92A-8B1	WATER	07/22/2008	REG
PL-105A-8B1	WATER	07/22/2008	REG
ASE-56A-8B1	WATER	07/23/2008	REG
ASE-57A-8B1	WATER	07/23/2008	REG
ASE-63A-8B1	WATER	07/23/2008	REG
ASE-64A-8B1	WATER	07/23/2008	REG
ASE-116A-8B1	WATER	07/24/2008	REG
ASE-38A-8B1	WATER	07/24/2008	REG
ASE-39A-8B1	WATER	07/24/2008	REG
TB-071408	WATER	07/14/2008	TB
TB-071508	WATER	07/15/2008	TB
TB-071608	WATER	07/15/2008	TB
TB-071708-8B1	WATER	07/17/2008	TB
TB-071808A	WATER	07/18/2008	TB
TB-072108	WATER	07/21/2008	TB
TB-072208	WATER	07/22/2008	TB

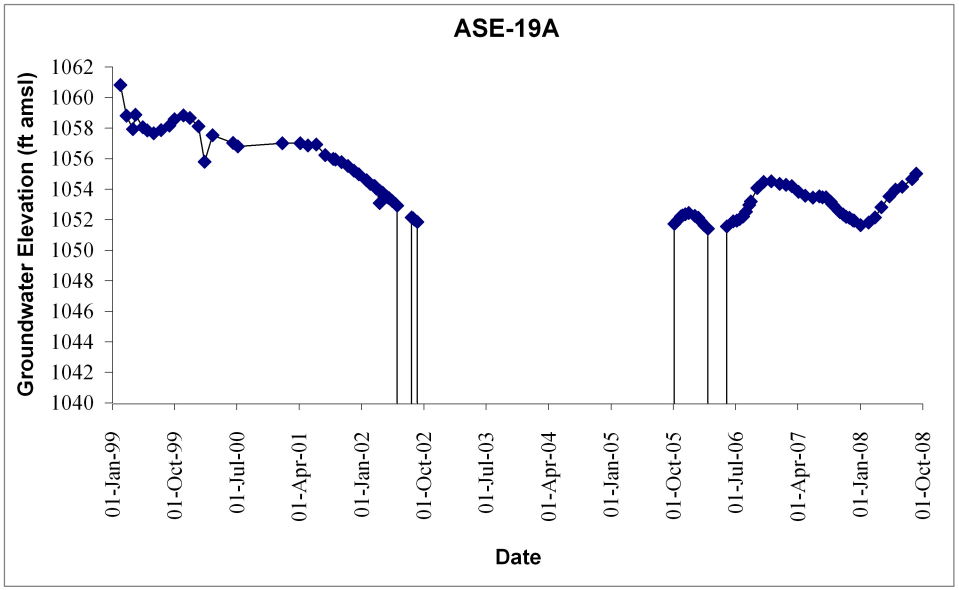
Samples Associated with DQE			
SampleID	**Matrix**	**Sample Date**	**Sample Type**
TB-072308	WATER	07/23/2008	TB
TB-072408	WATER	07/24/2008	TB

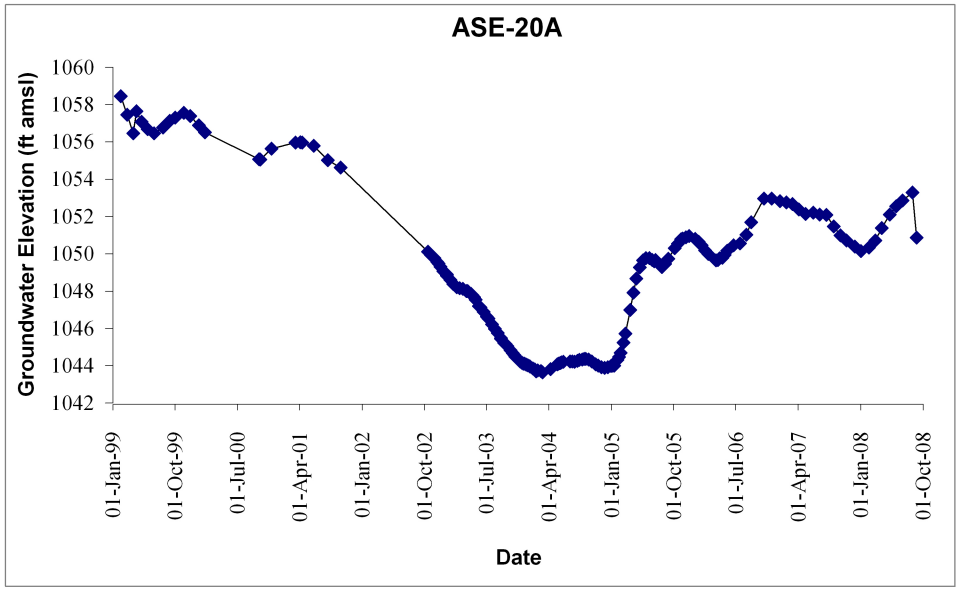
Appendix C

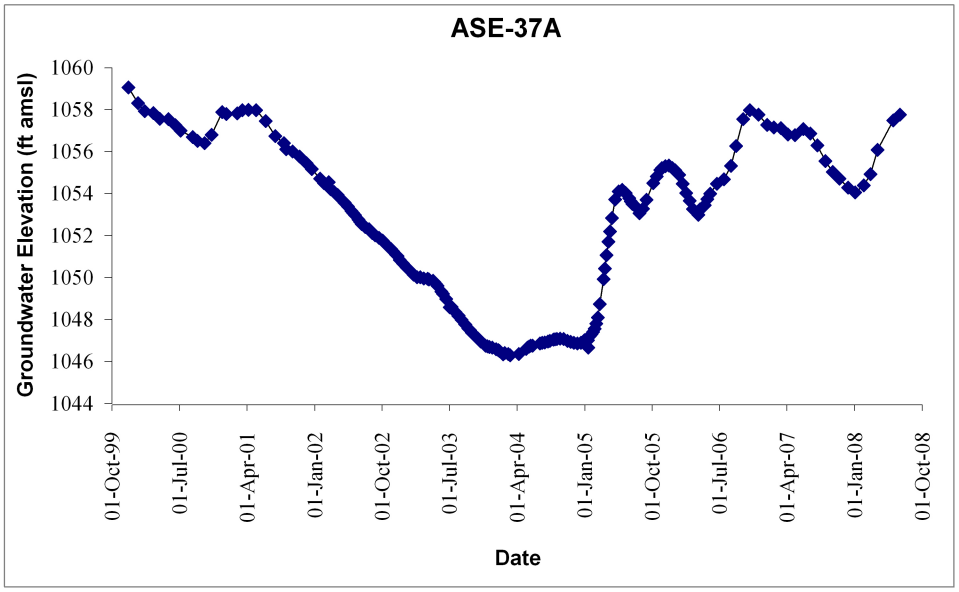
Laboratory analytical reports can be viewed in folder
"Appendix C – Laboratory Analytical Reports".

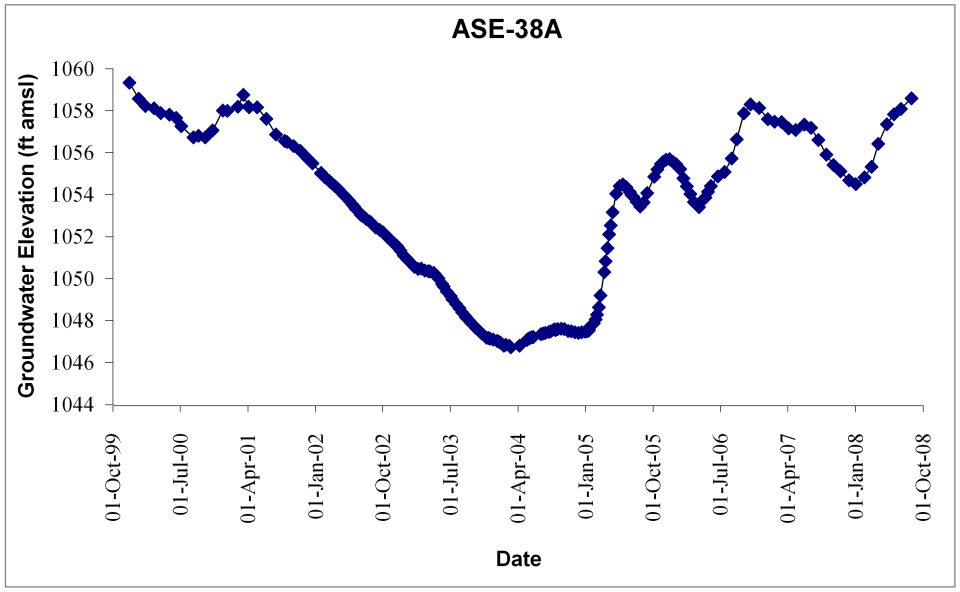
Appendix D
Hydrographs

HYDROGRAPHS









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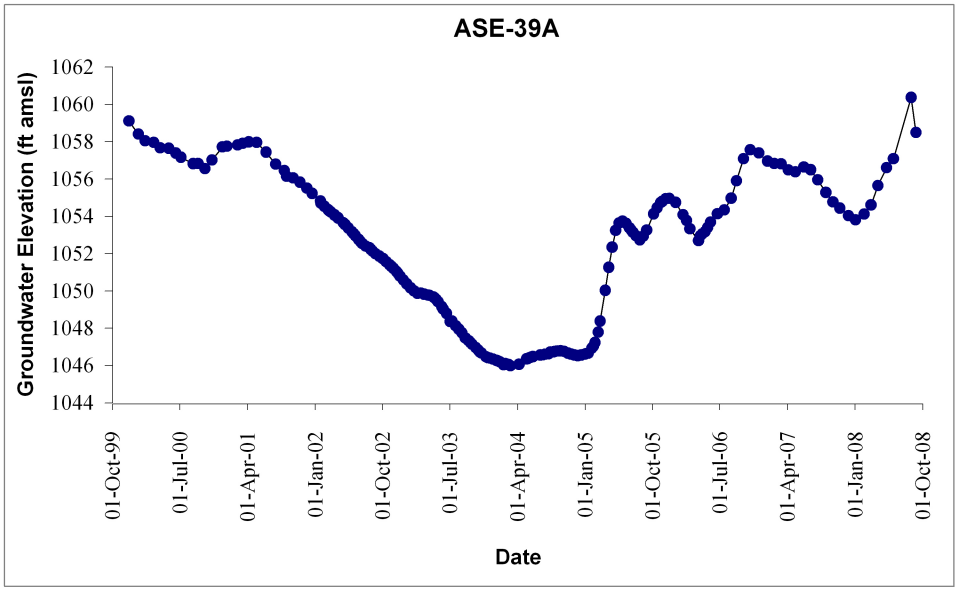

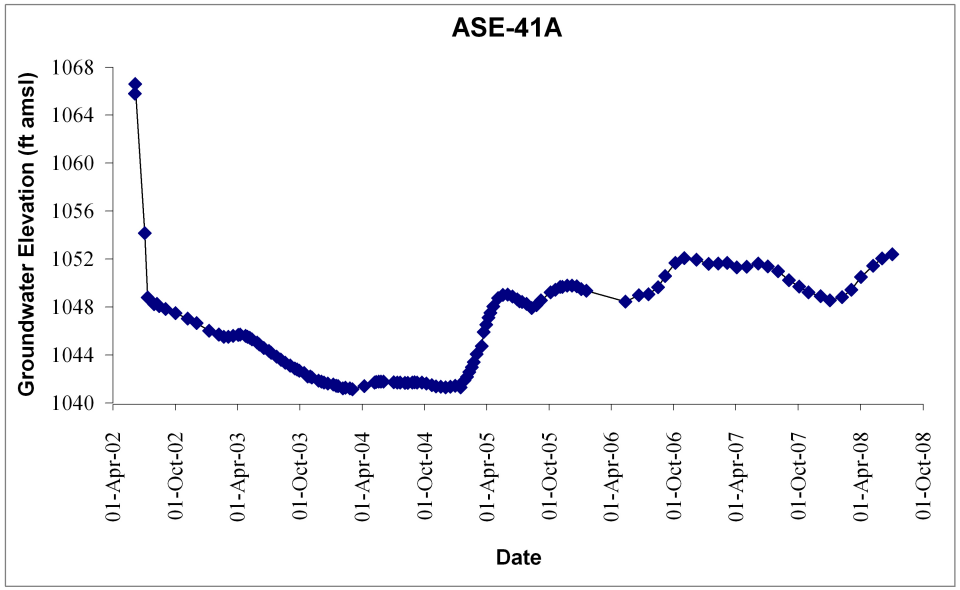

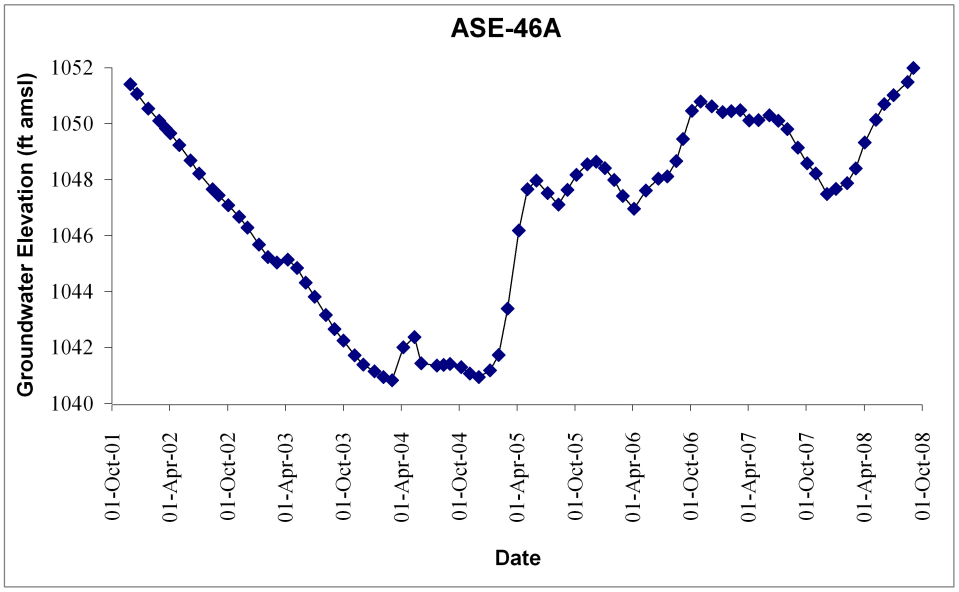

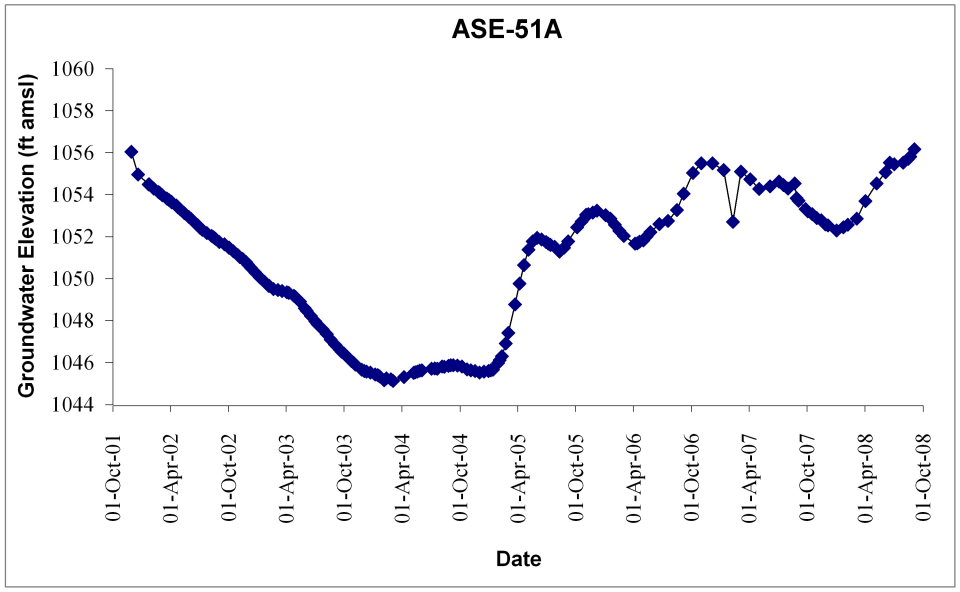

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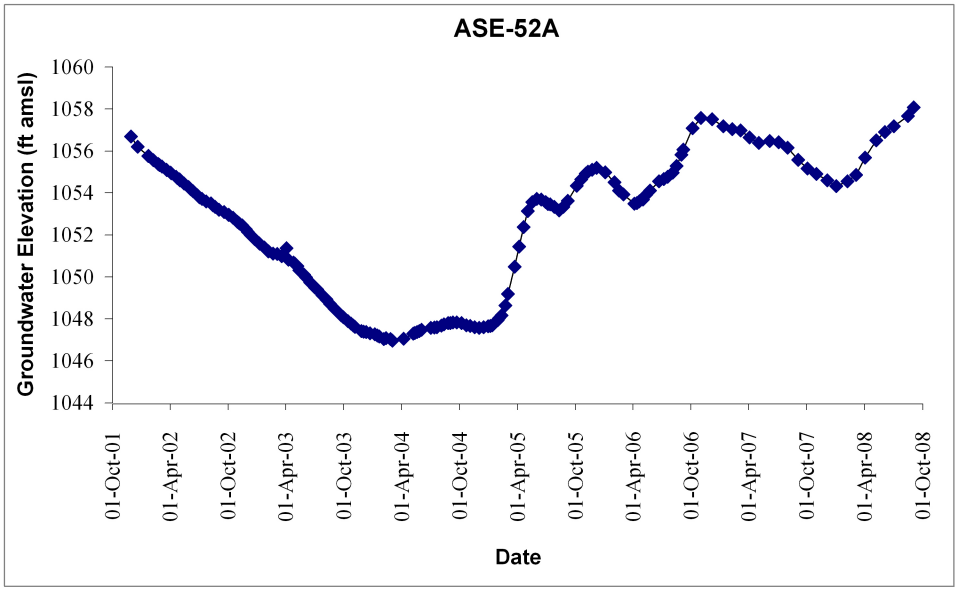

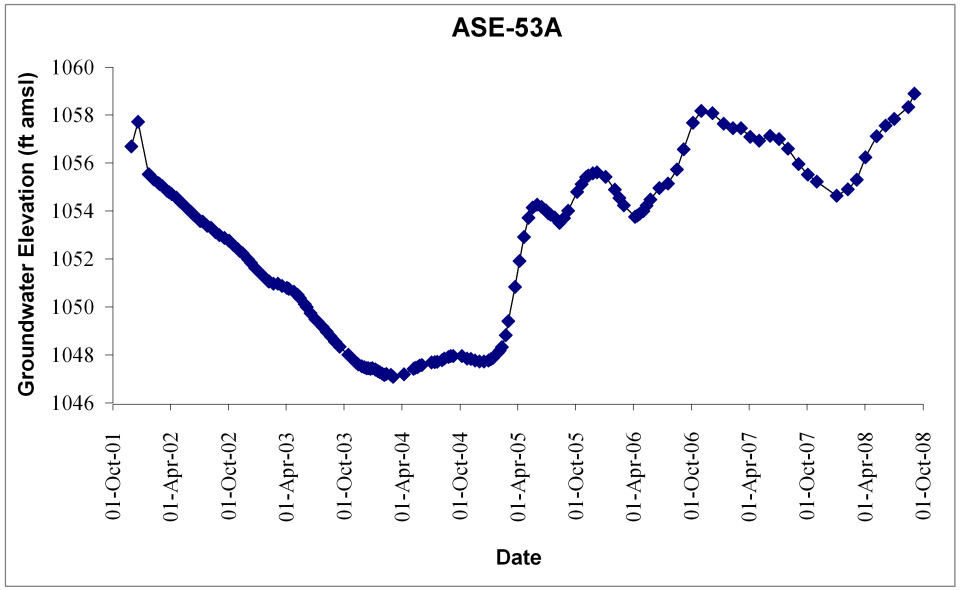

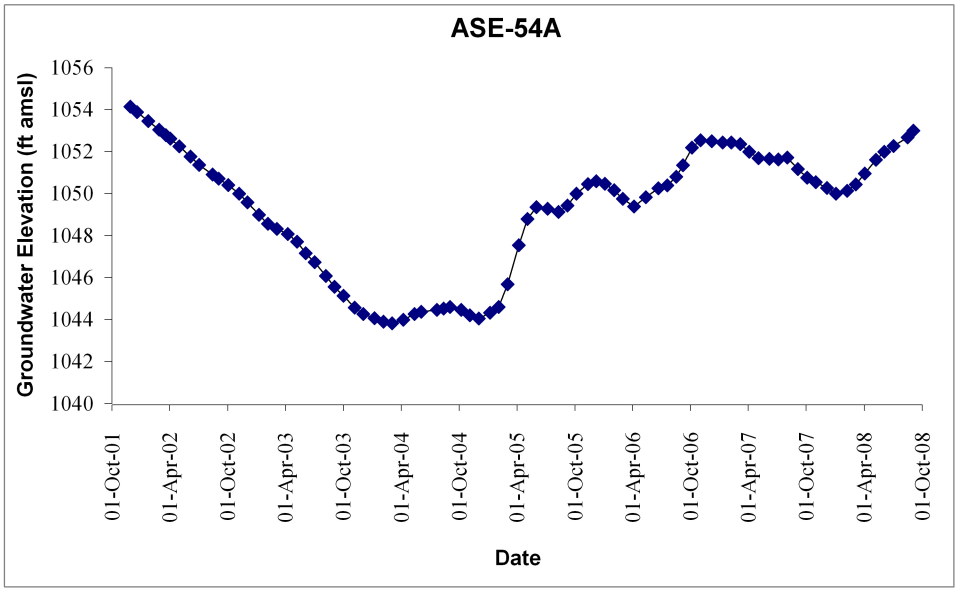

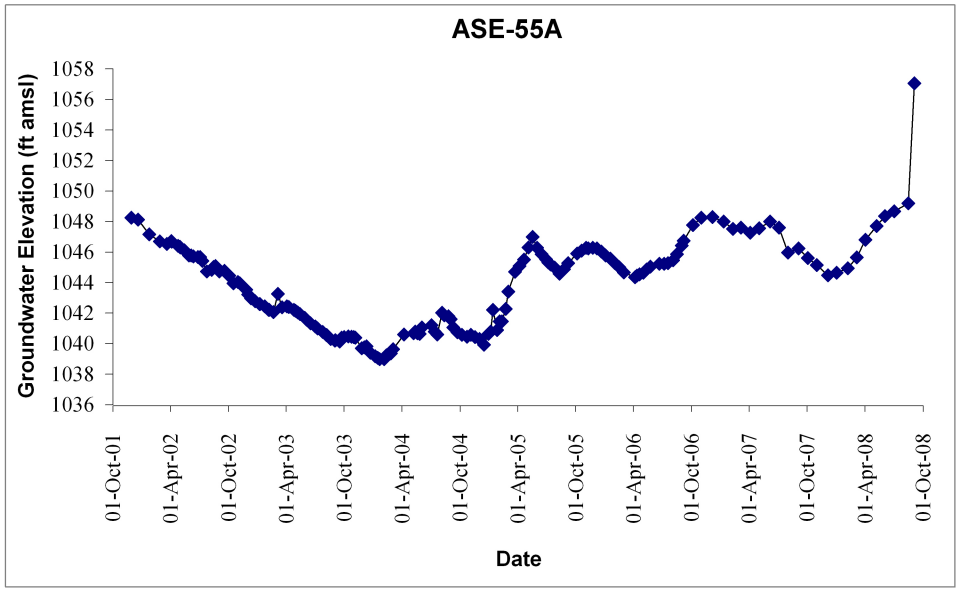

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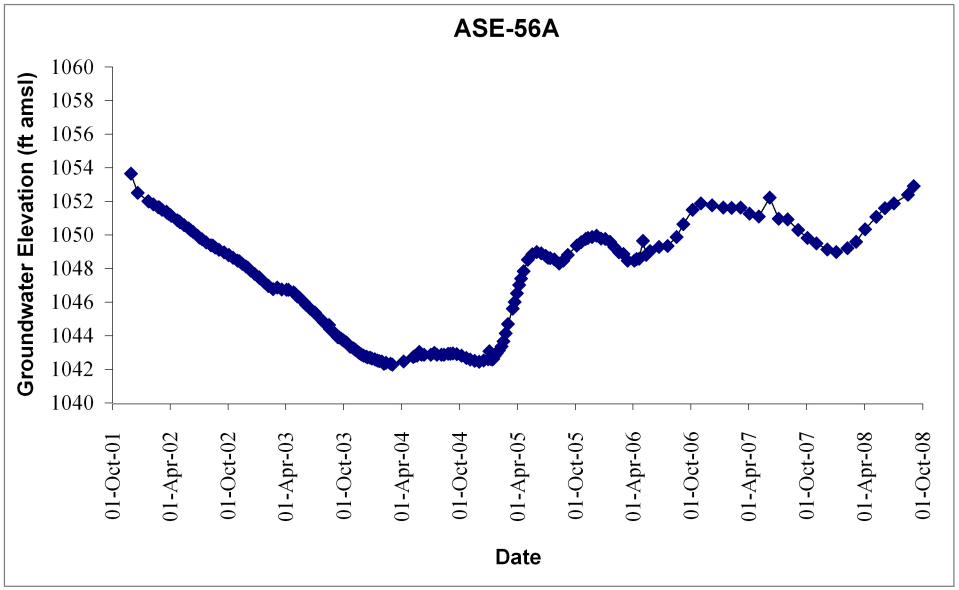

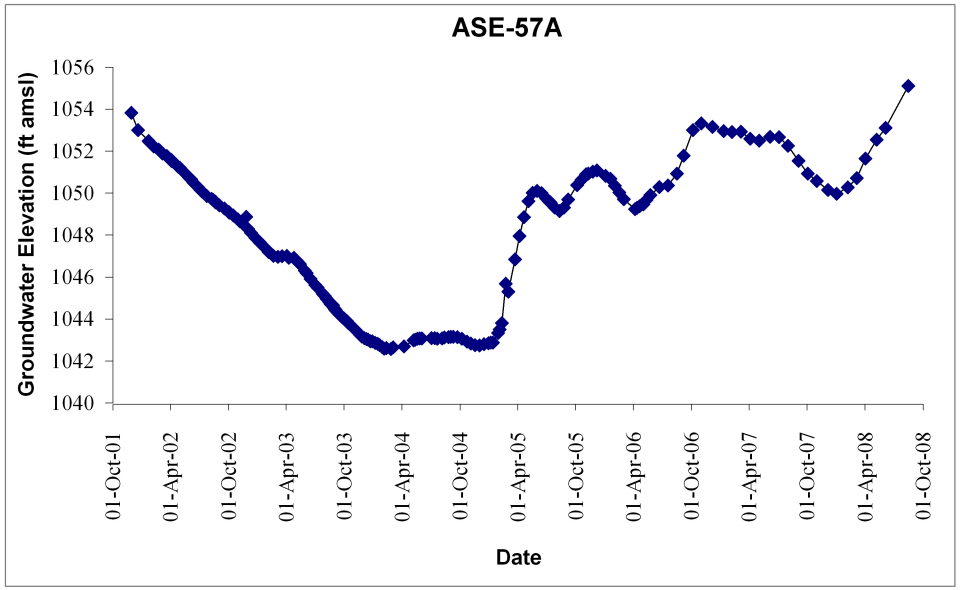

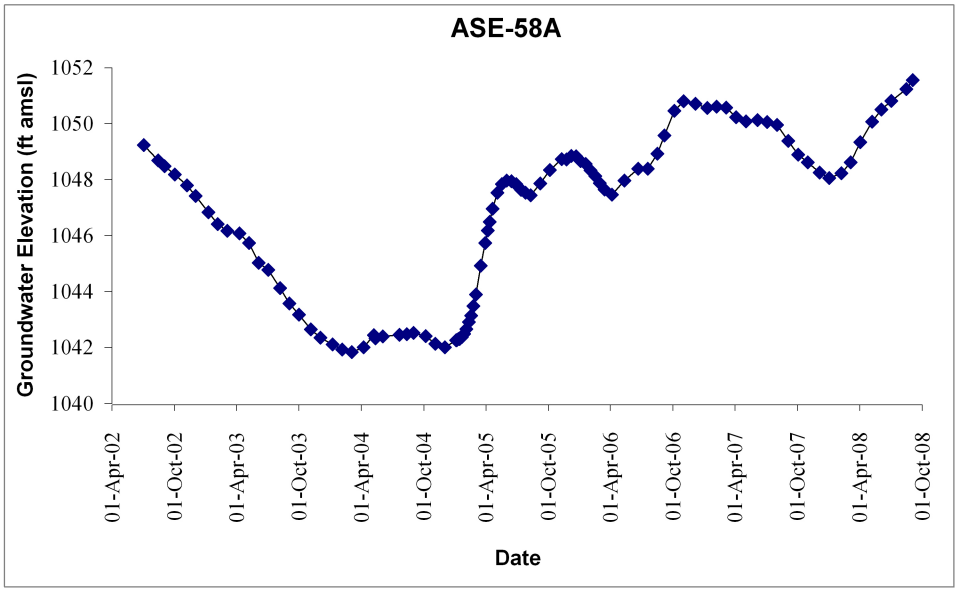

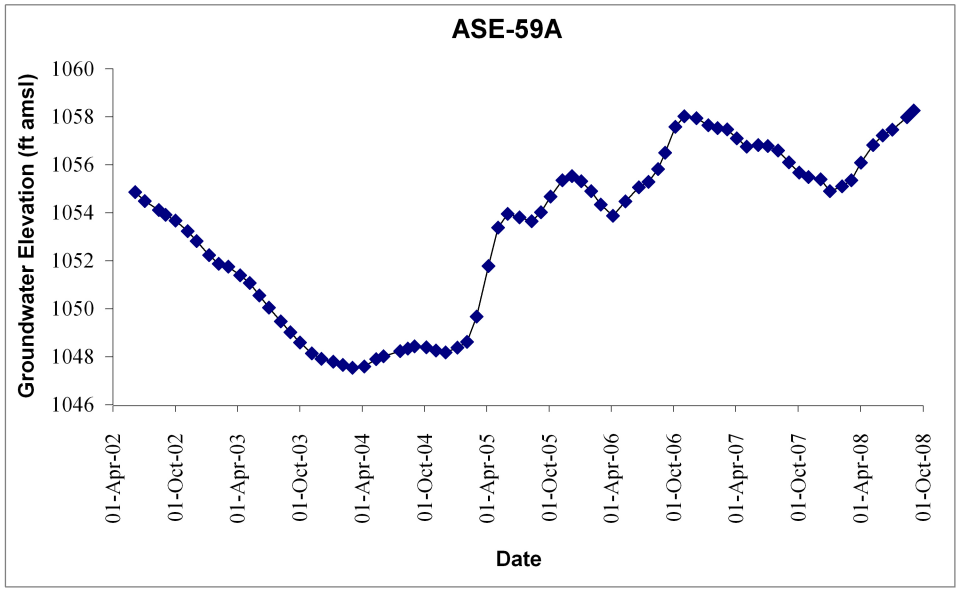

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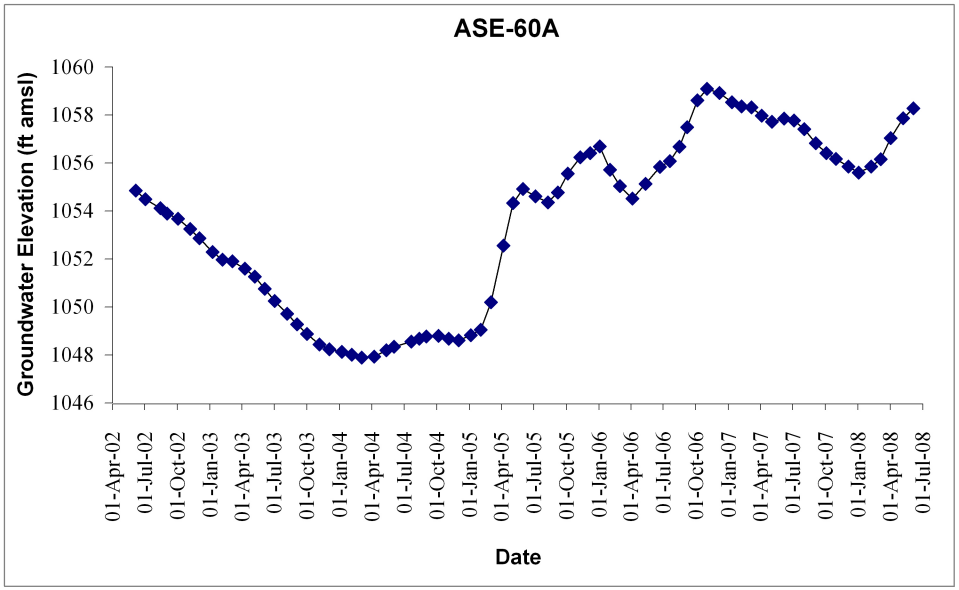

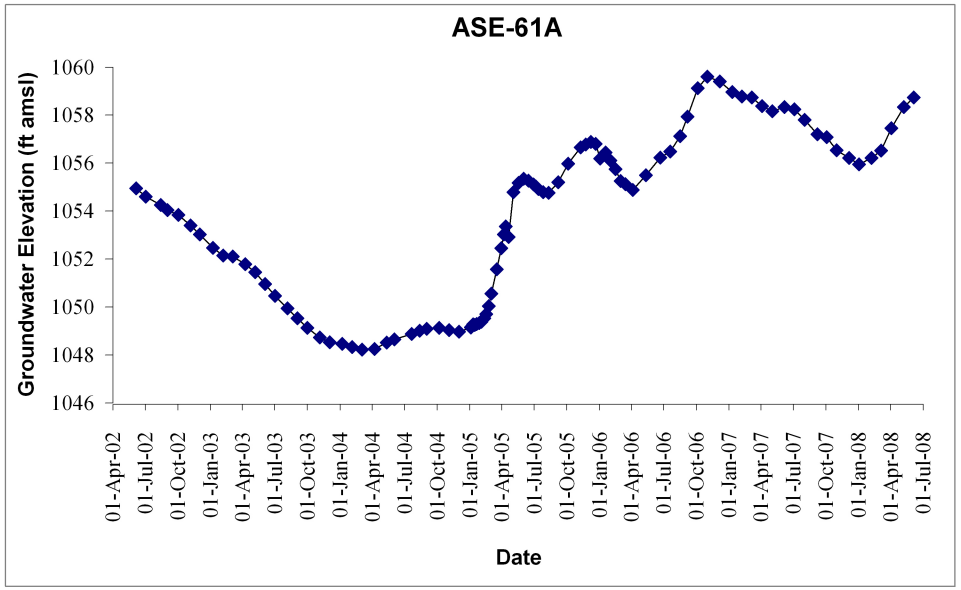

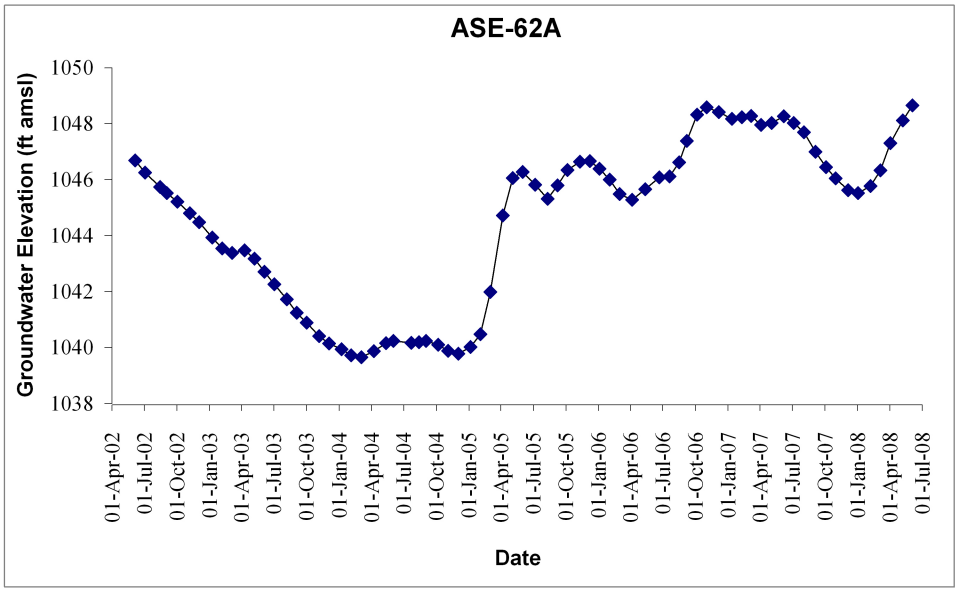

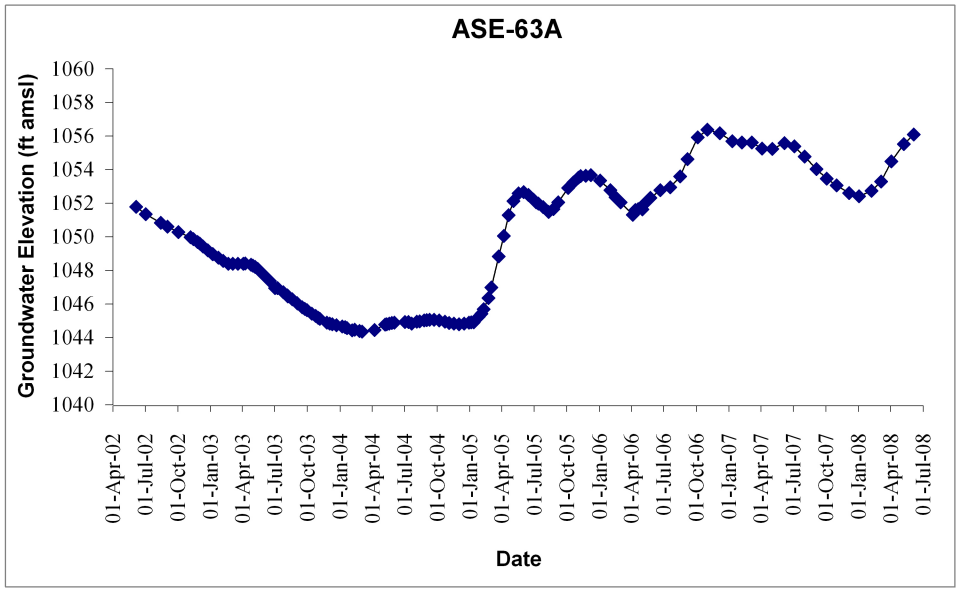

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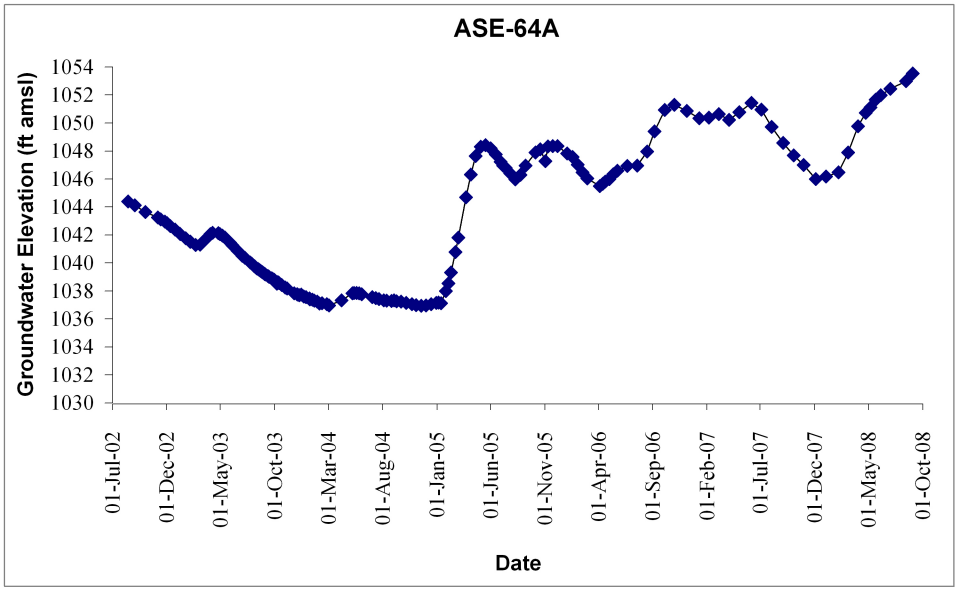

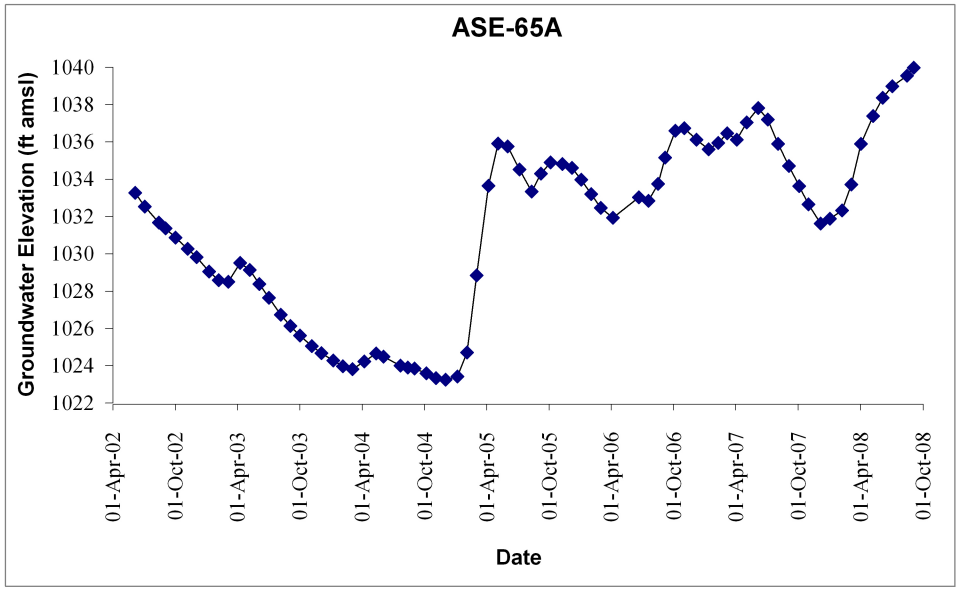

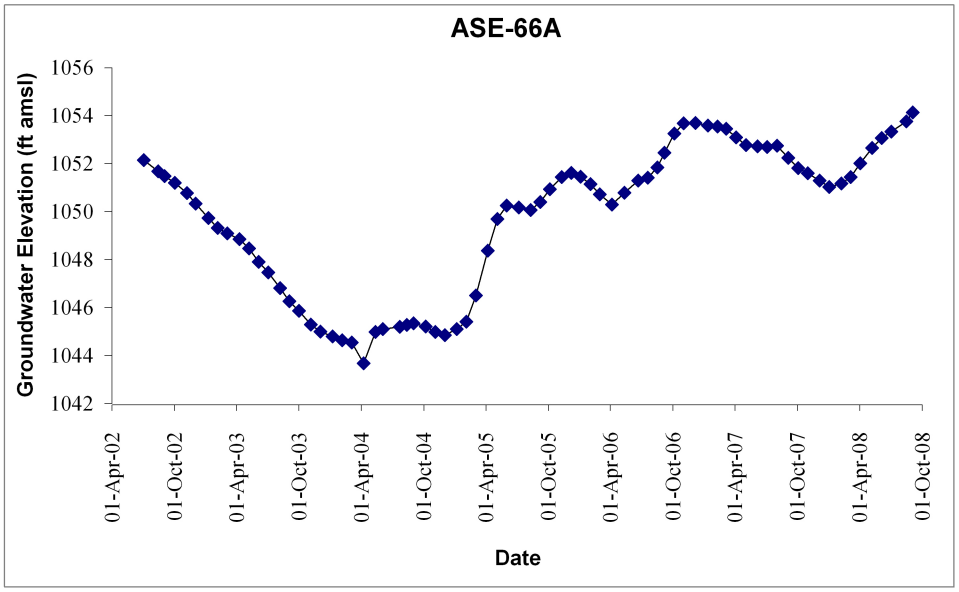

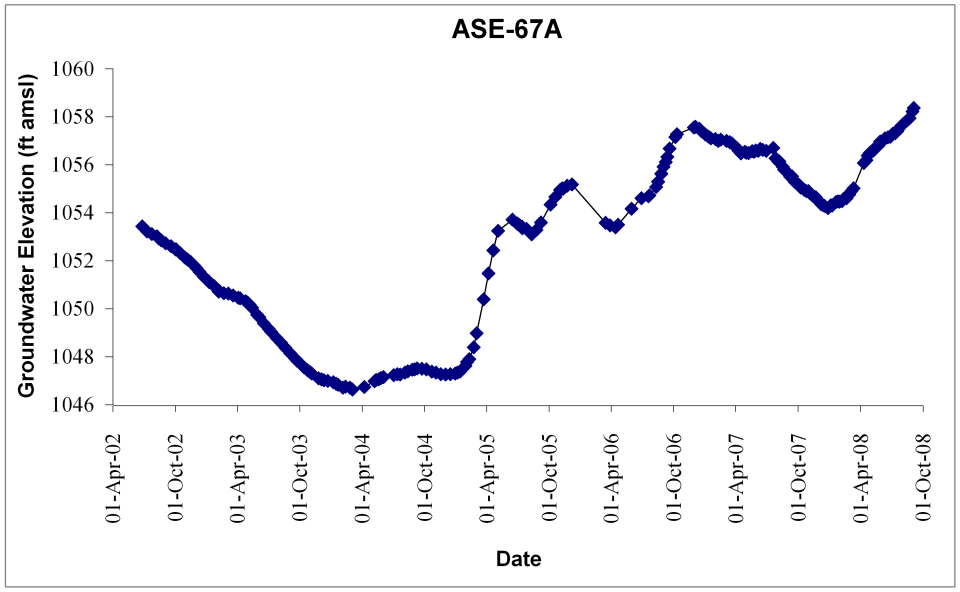

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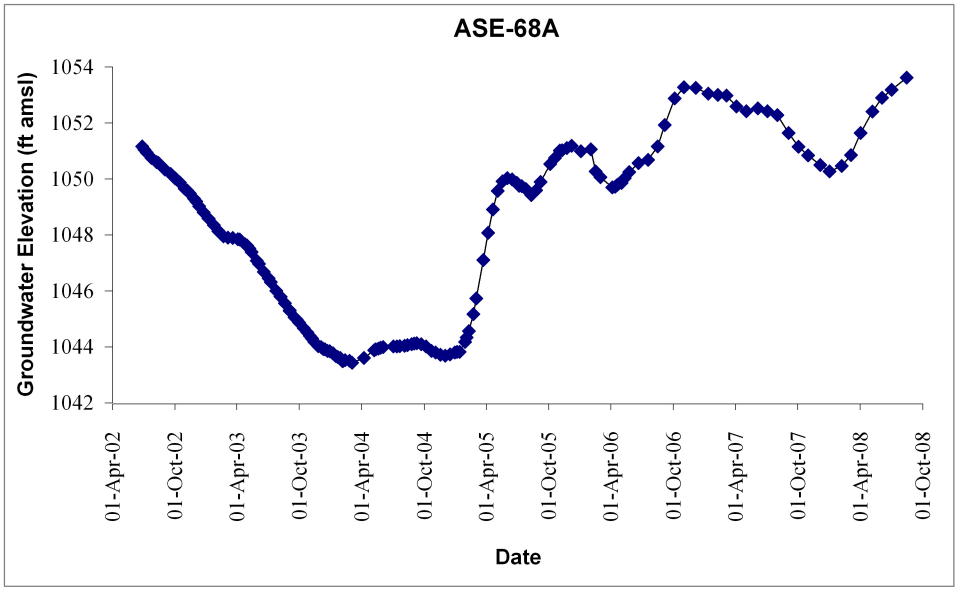

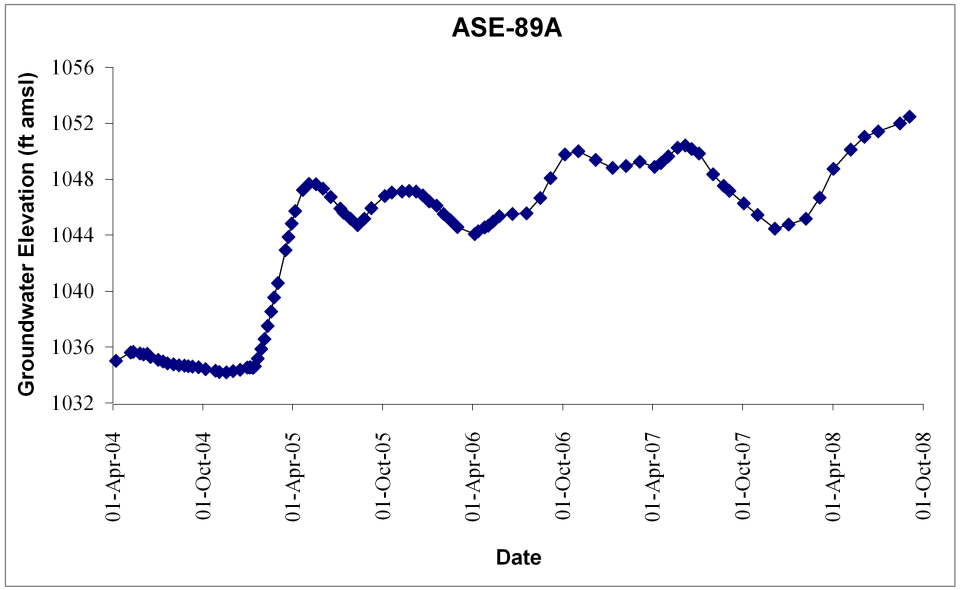

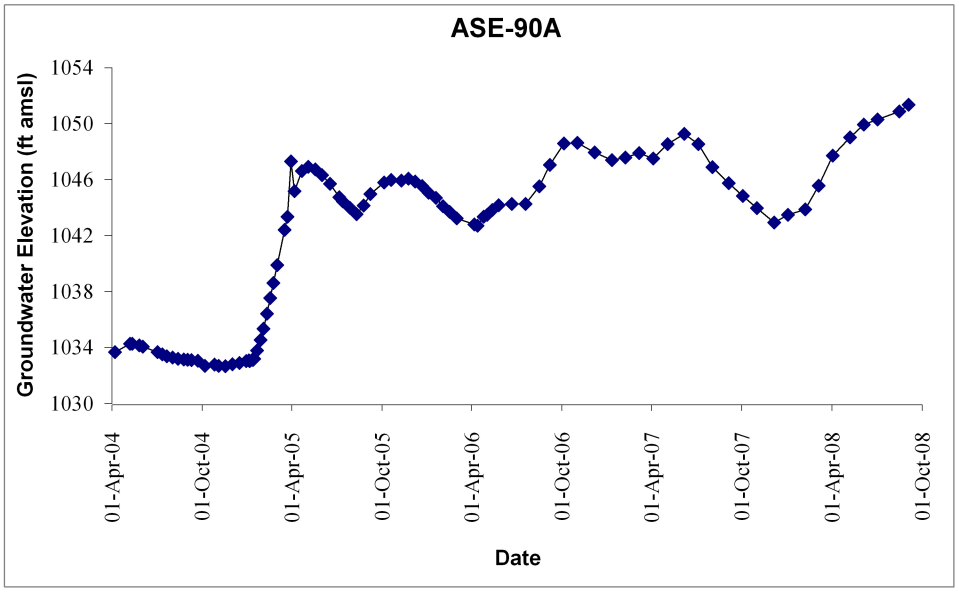

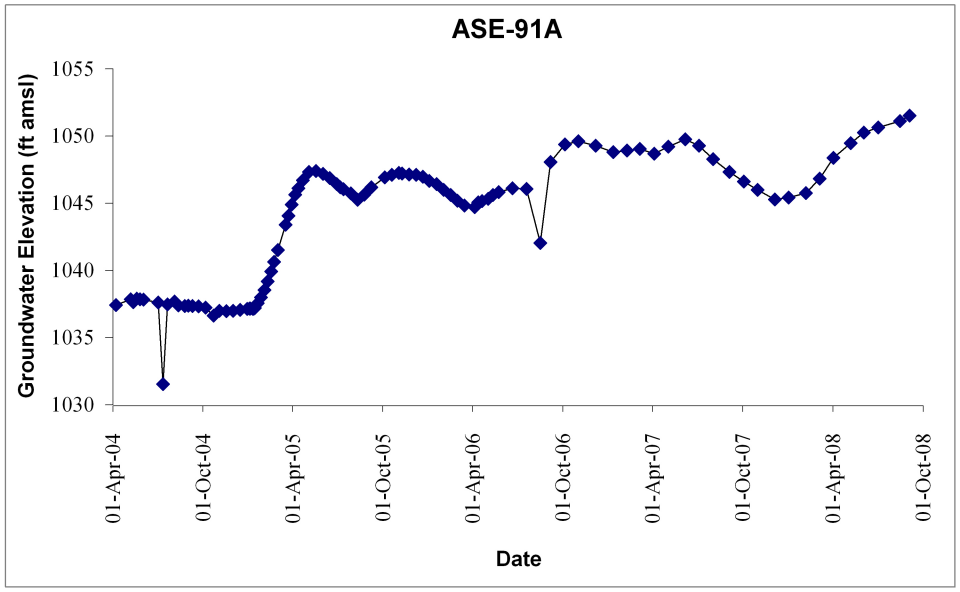

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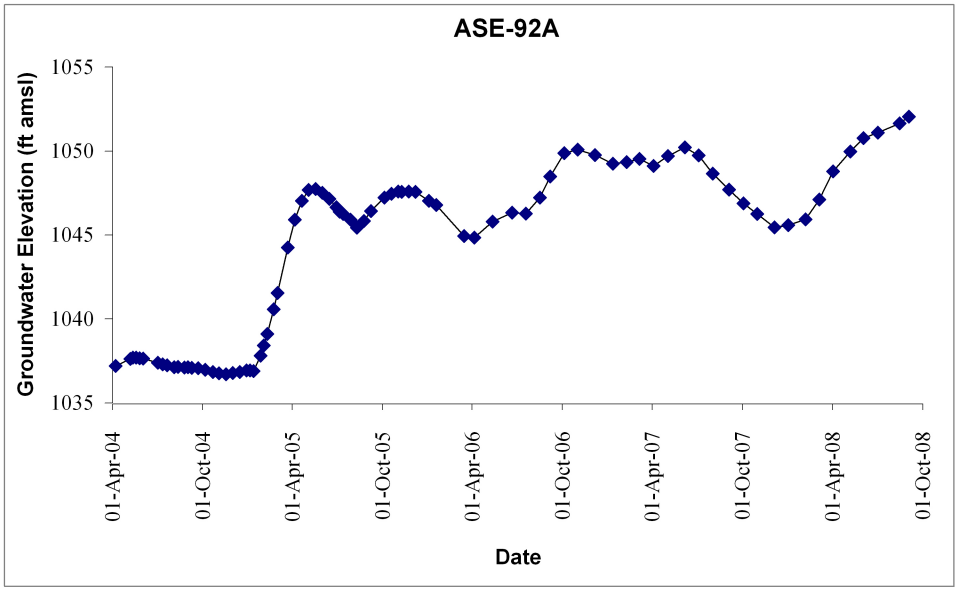
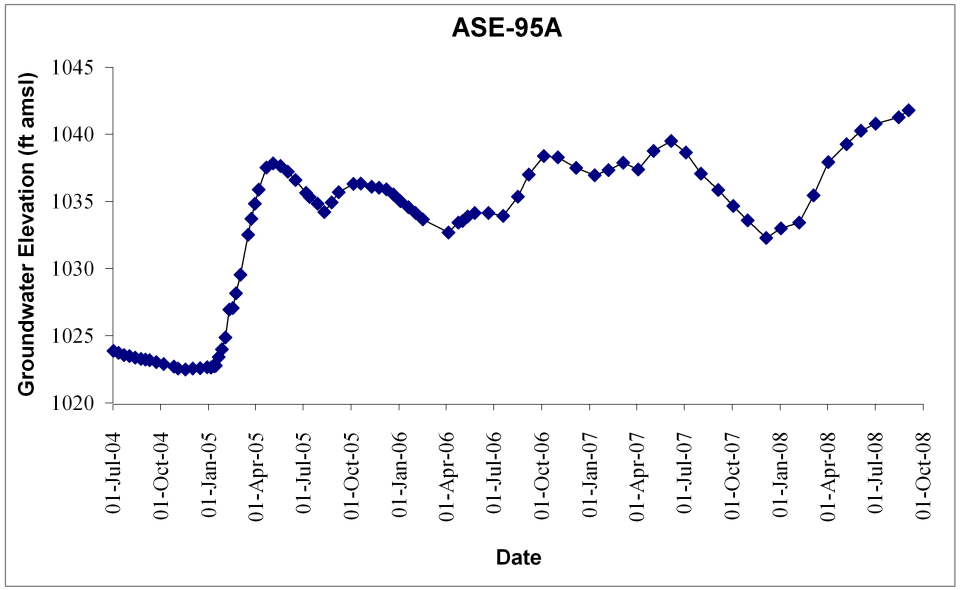
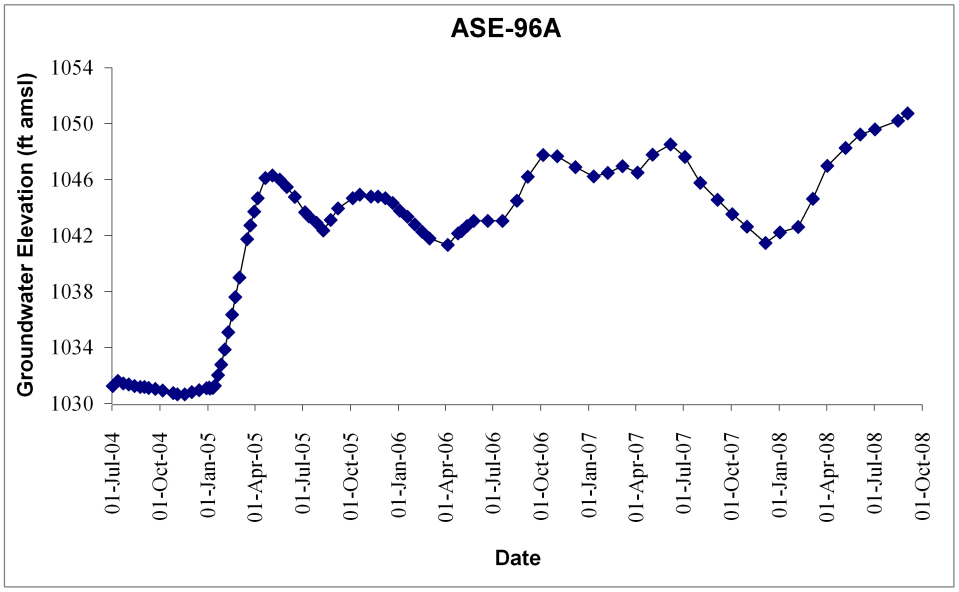
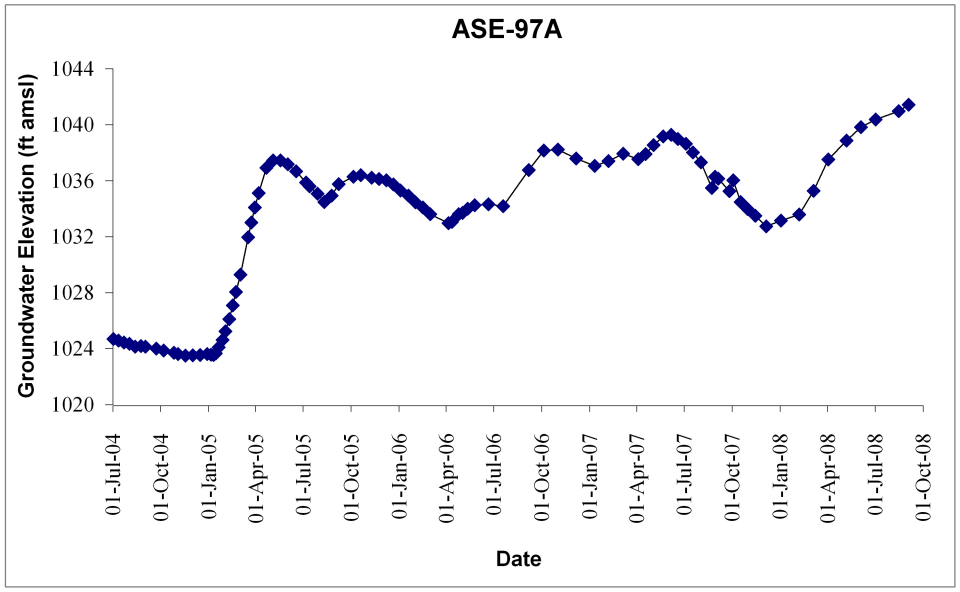
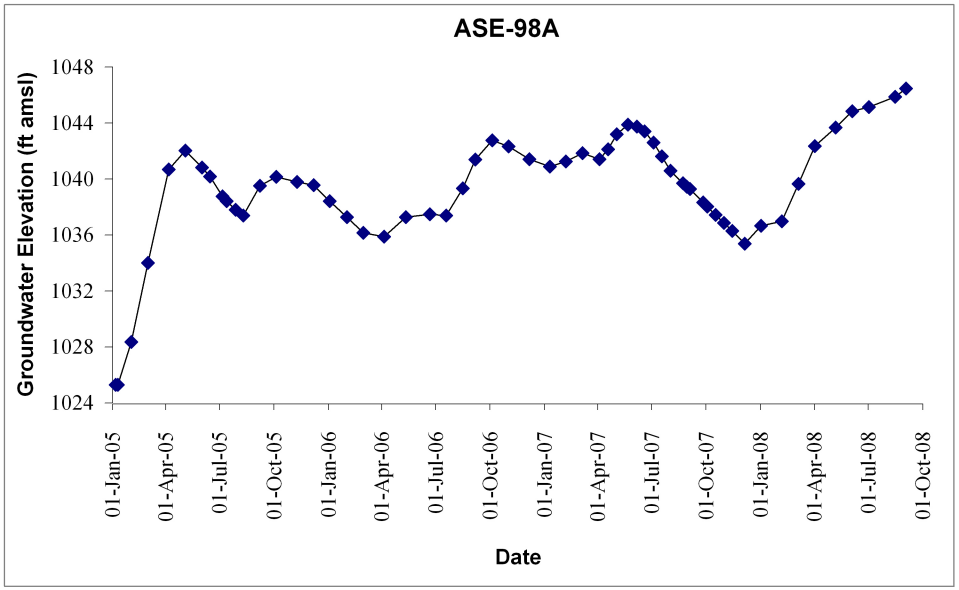


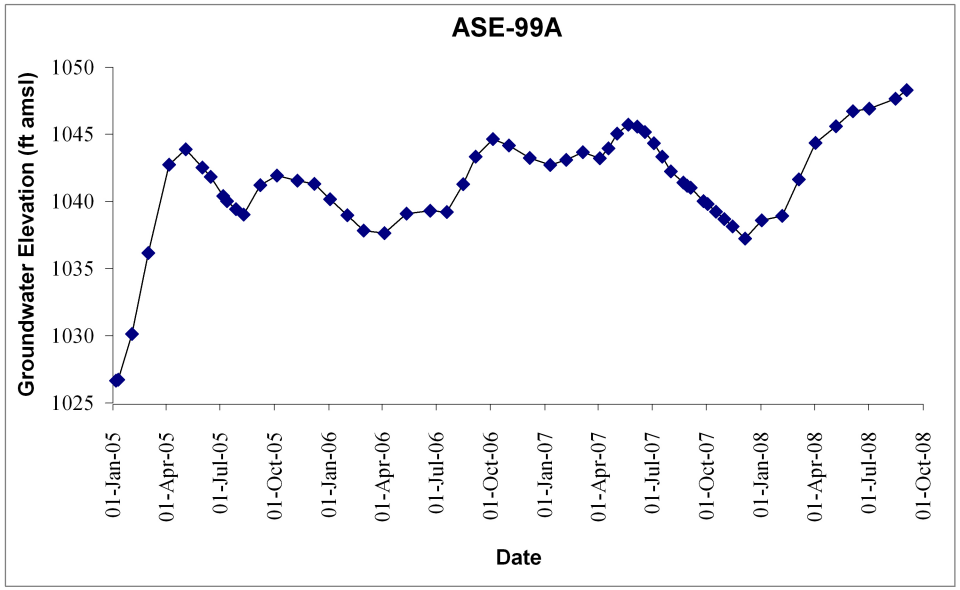


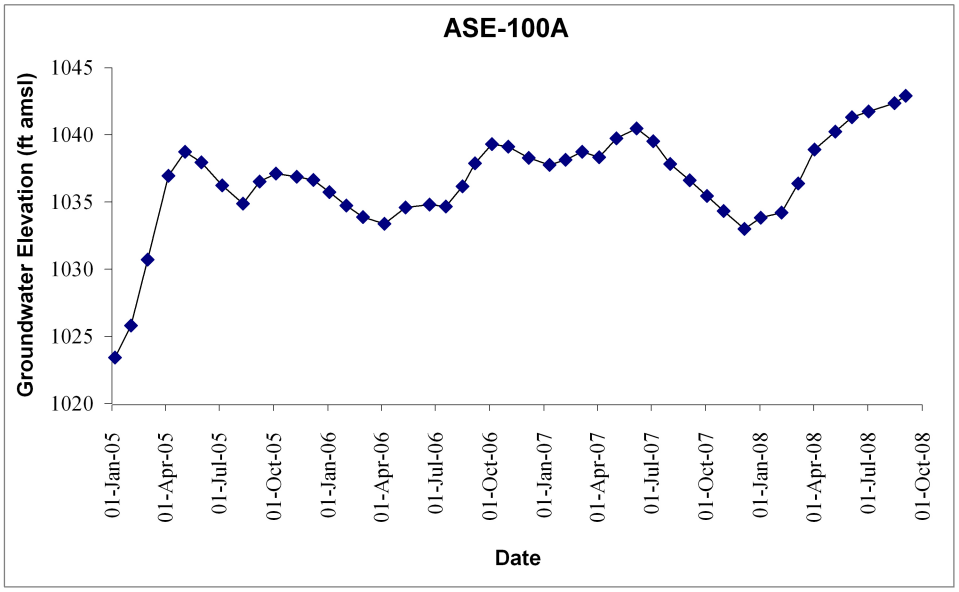


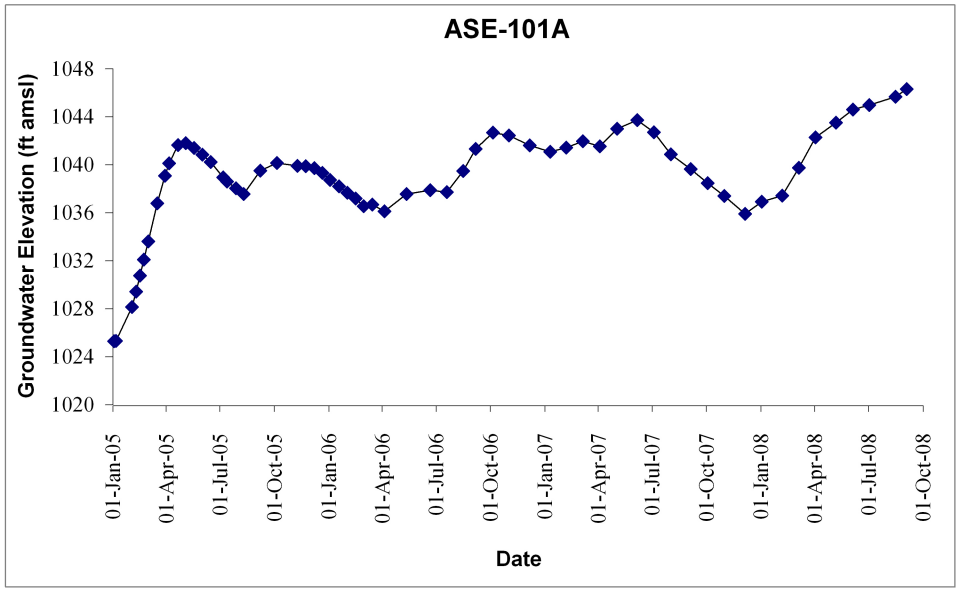


HYDROGRAPHS









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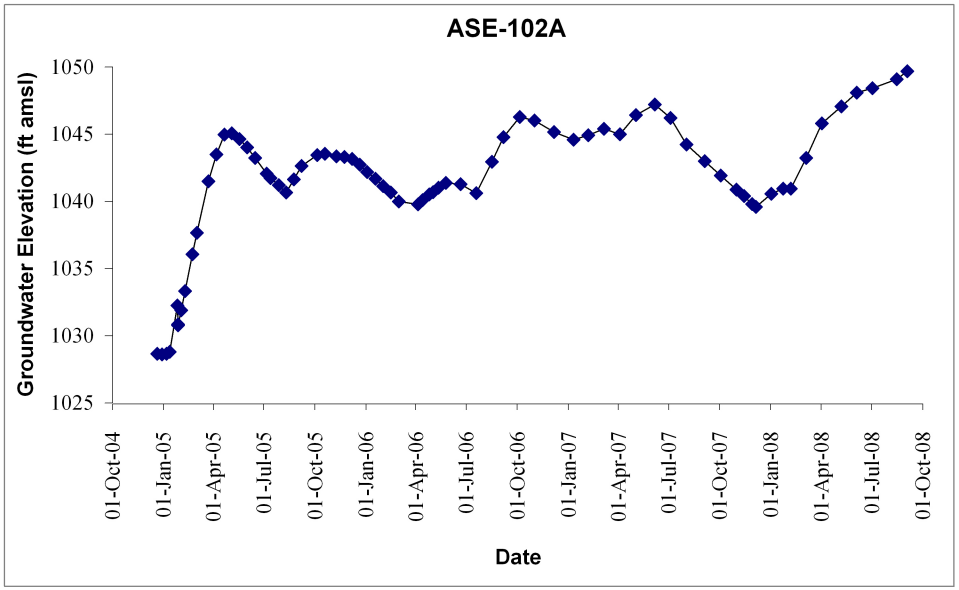

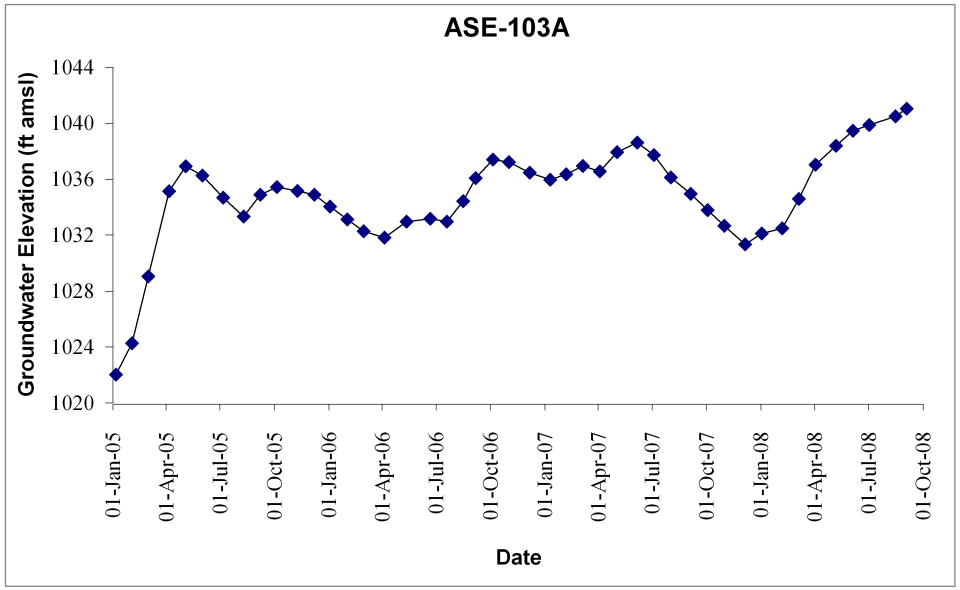

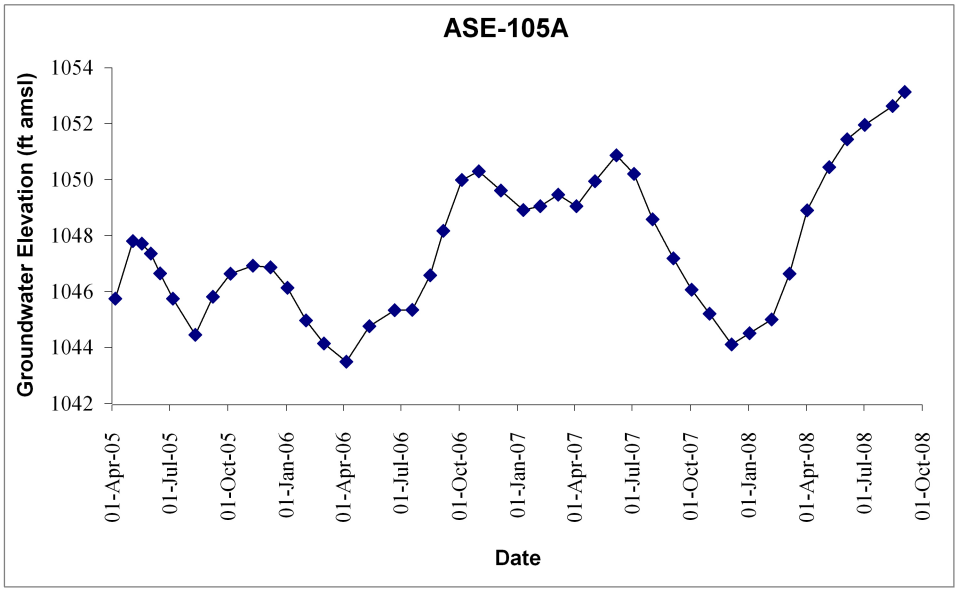

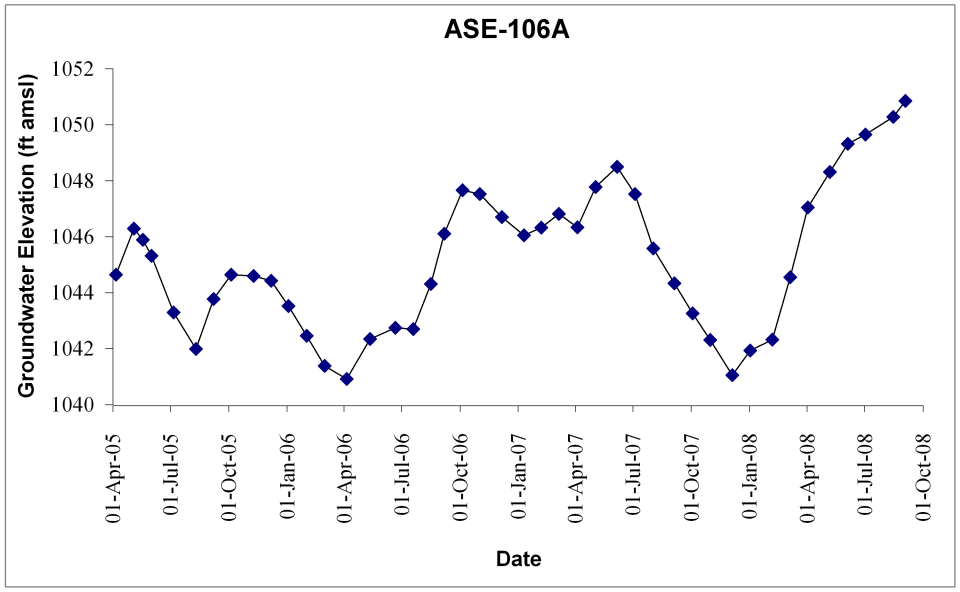

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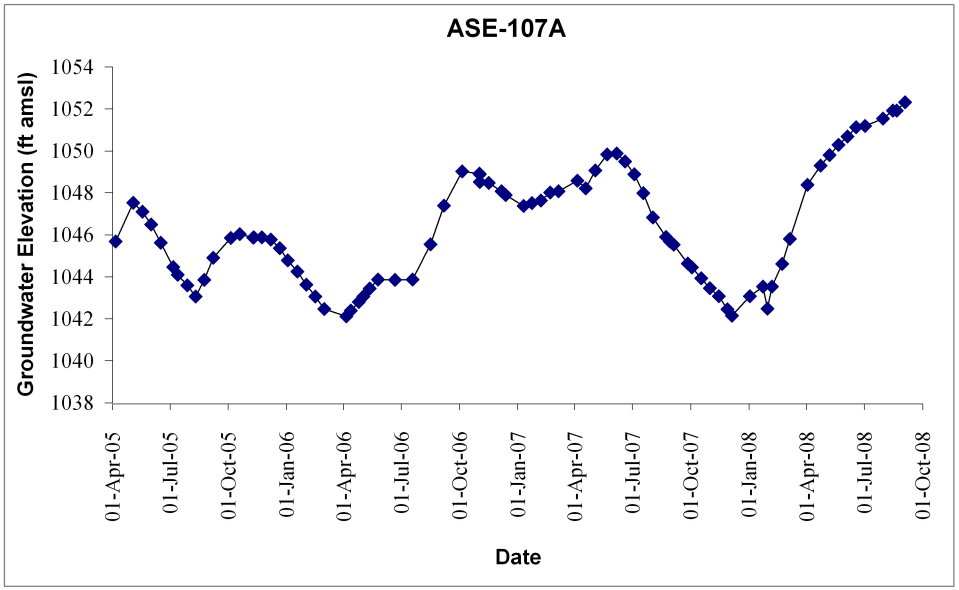

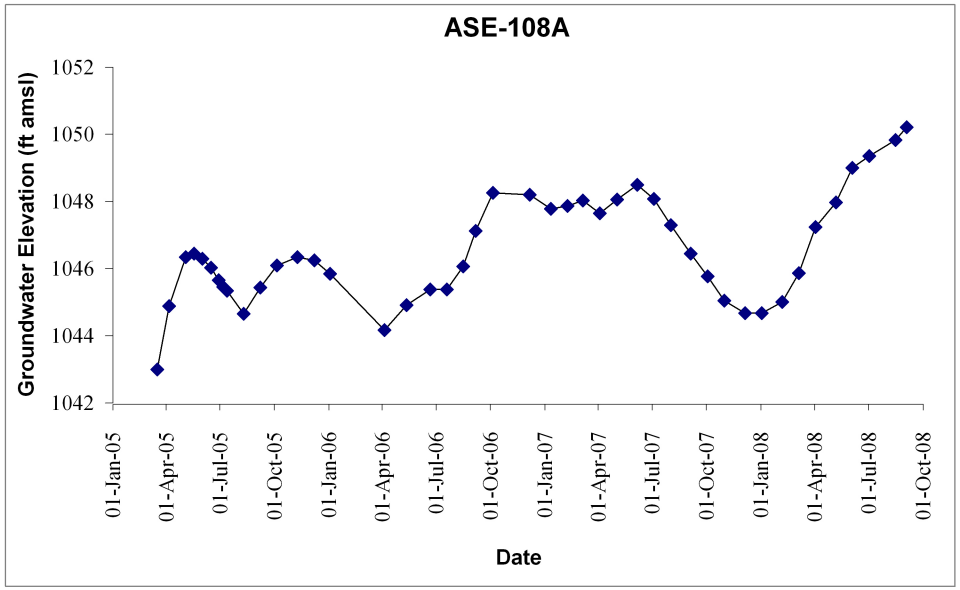

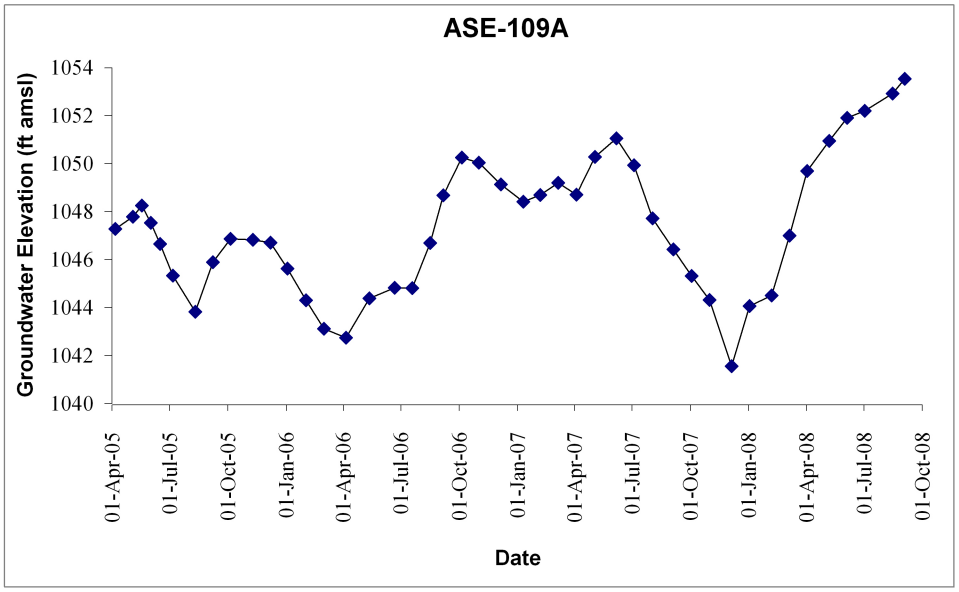

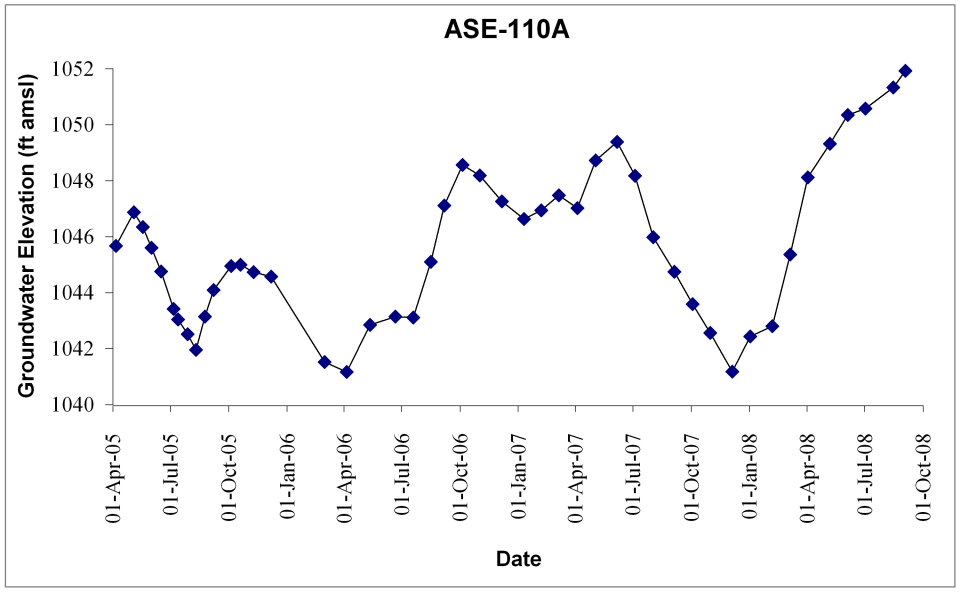

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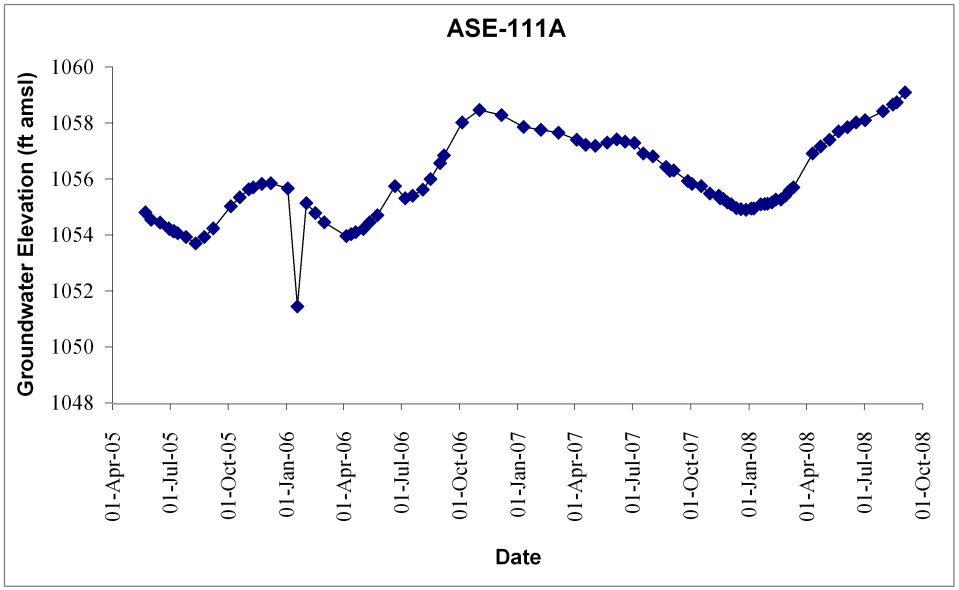

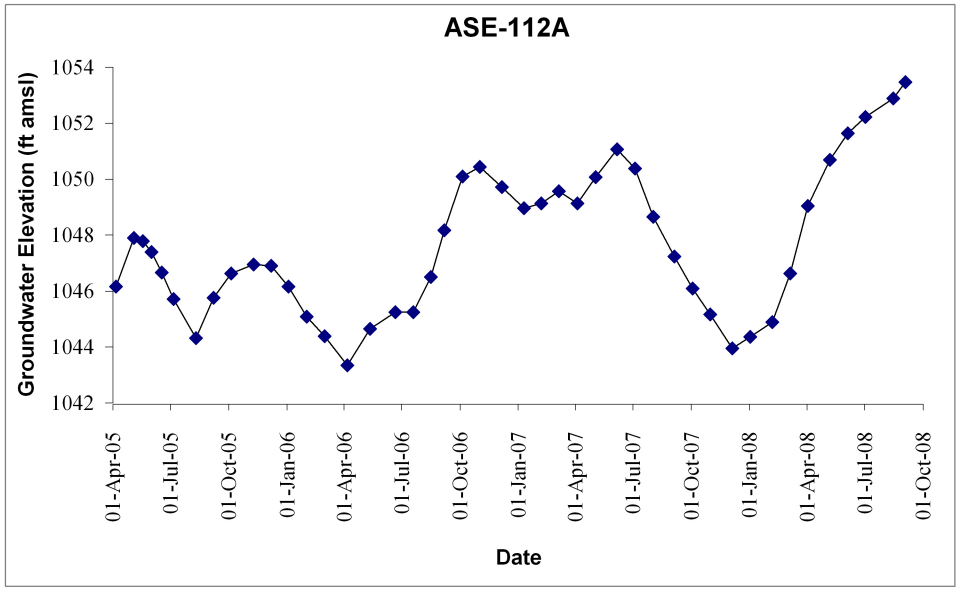

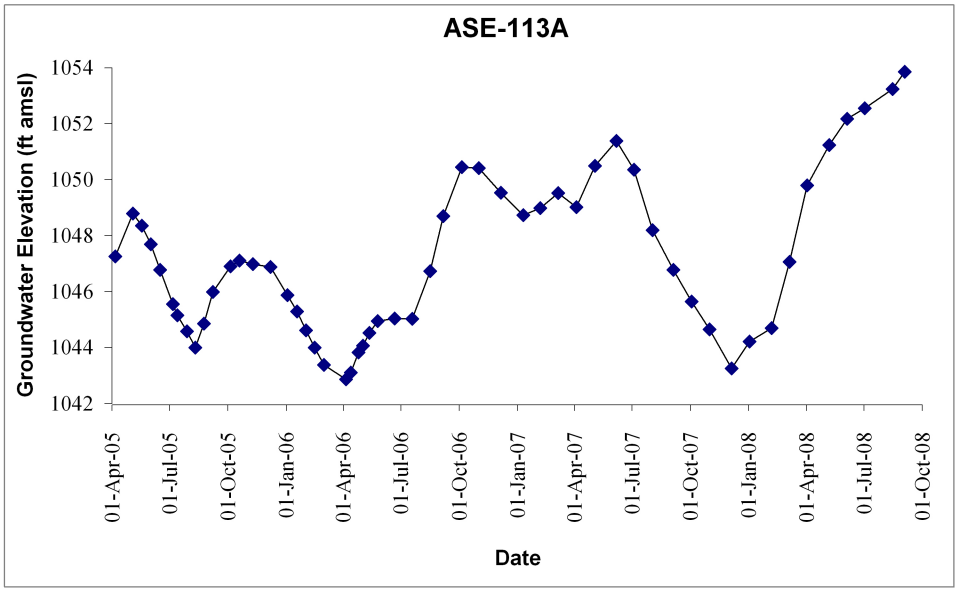

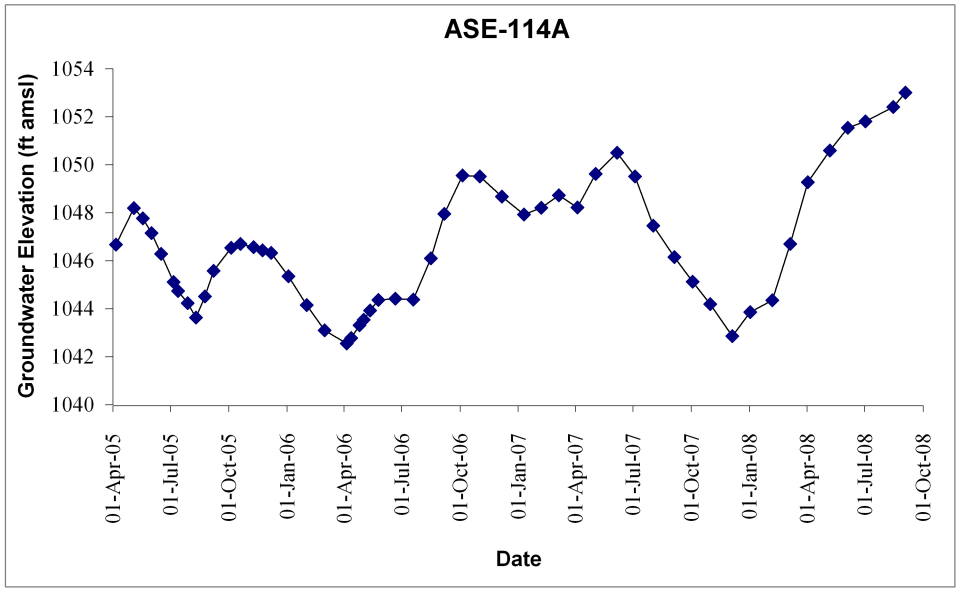

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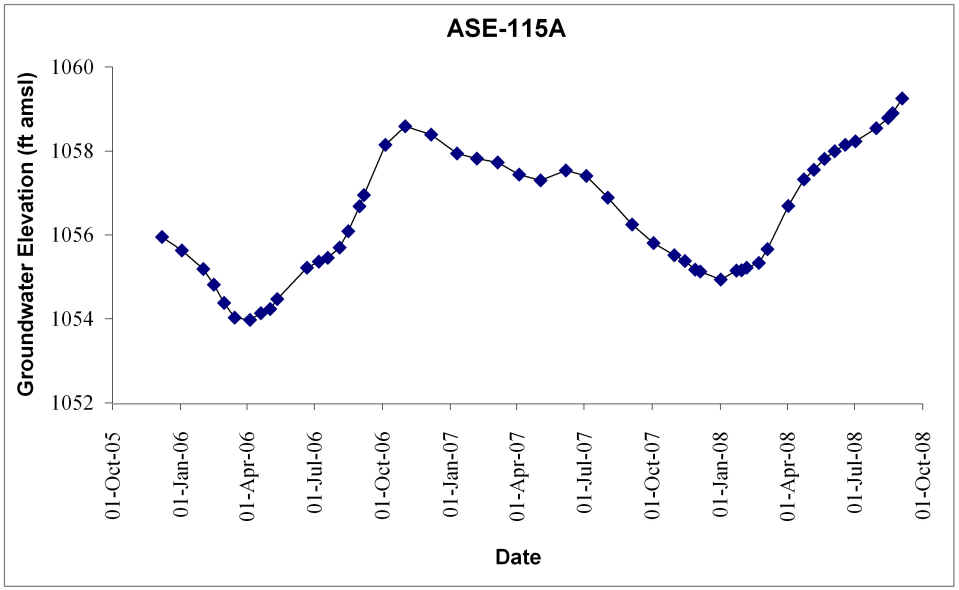

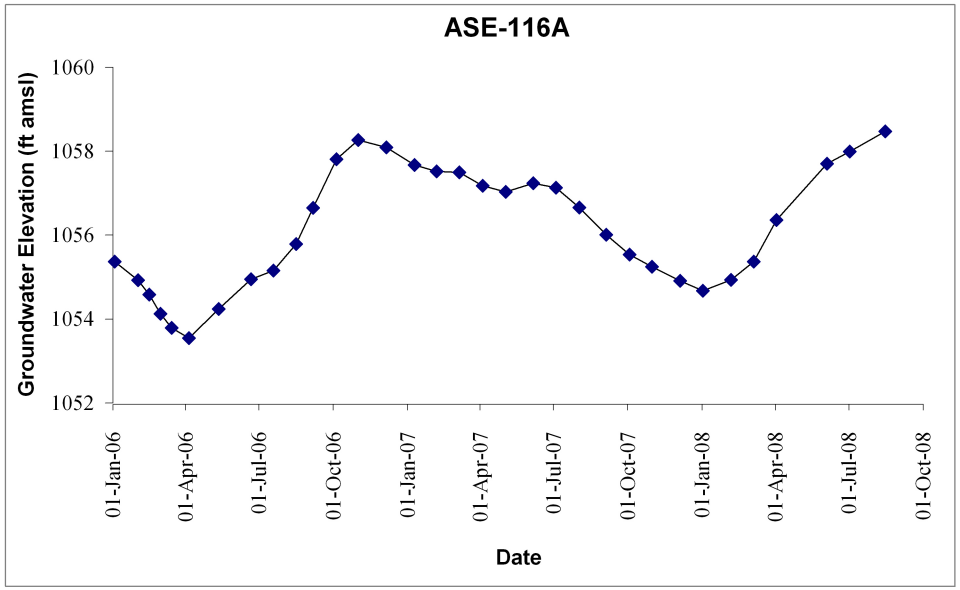

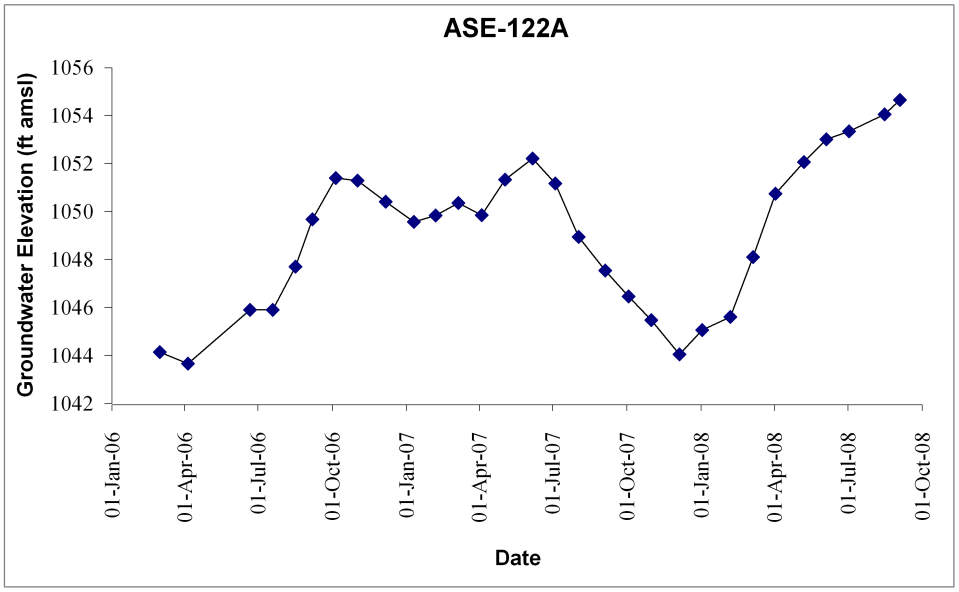

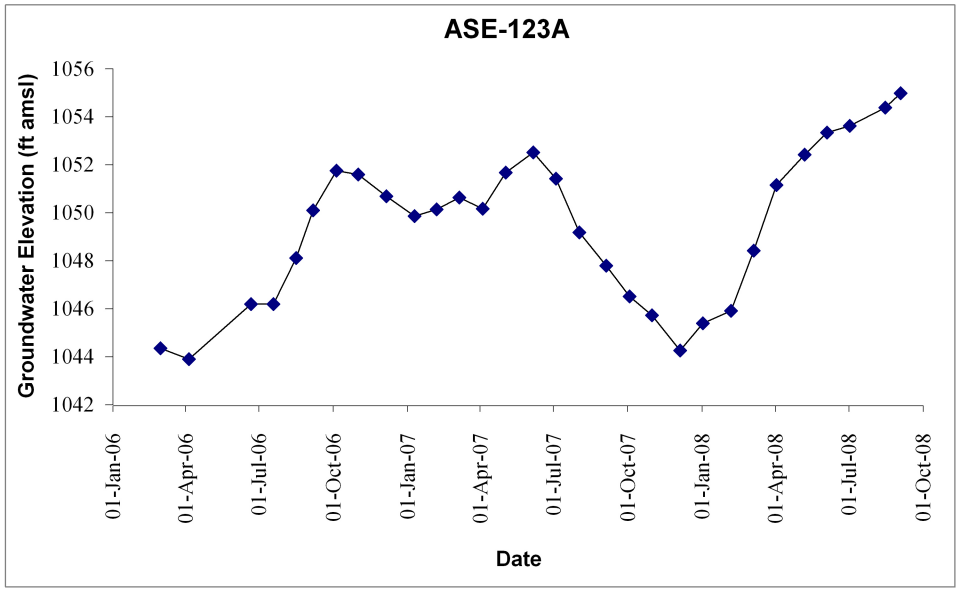

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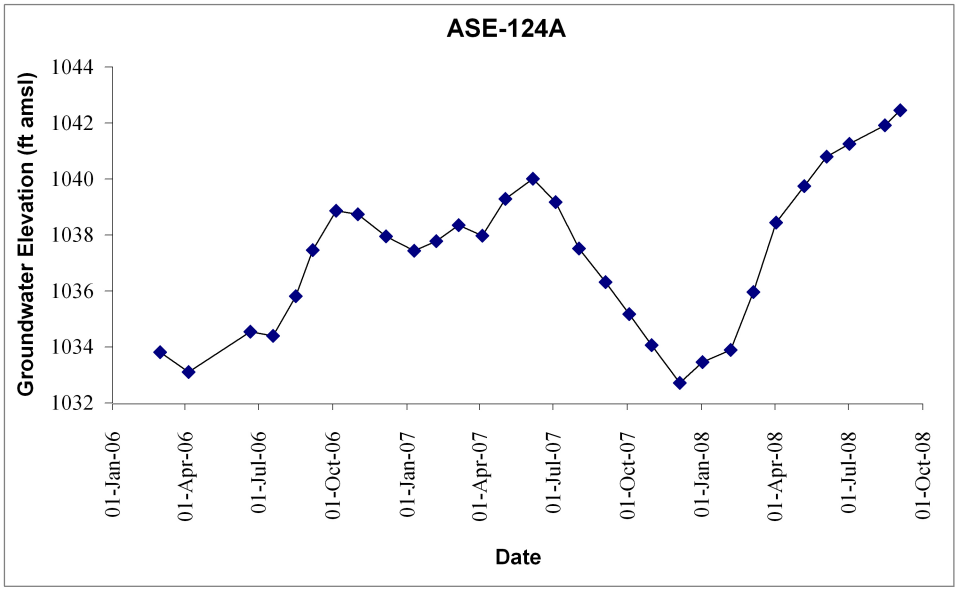

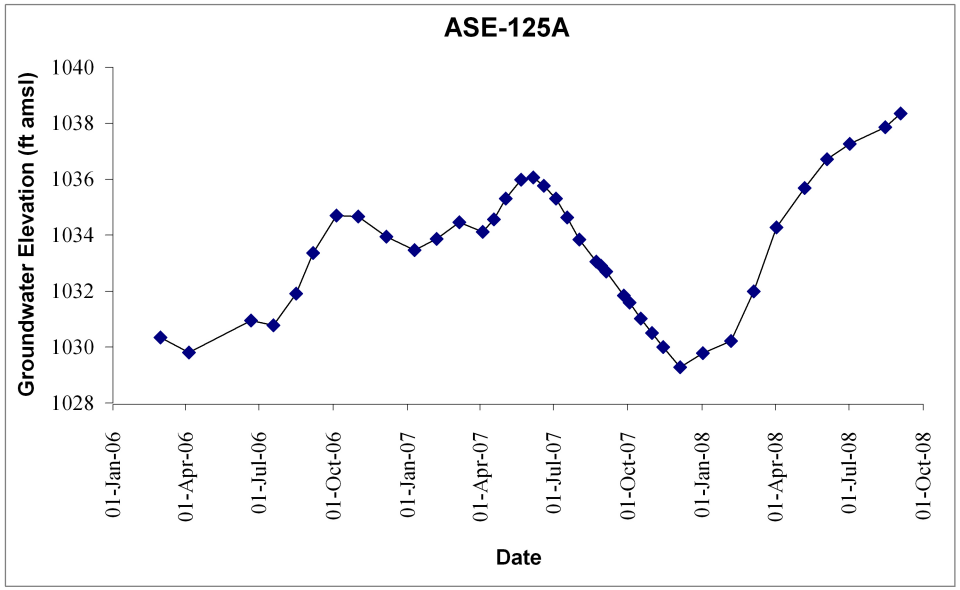

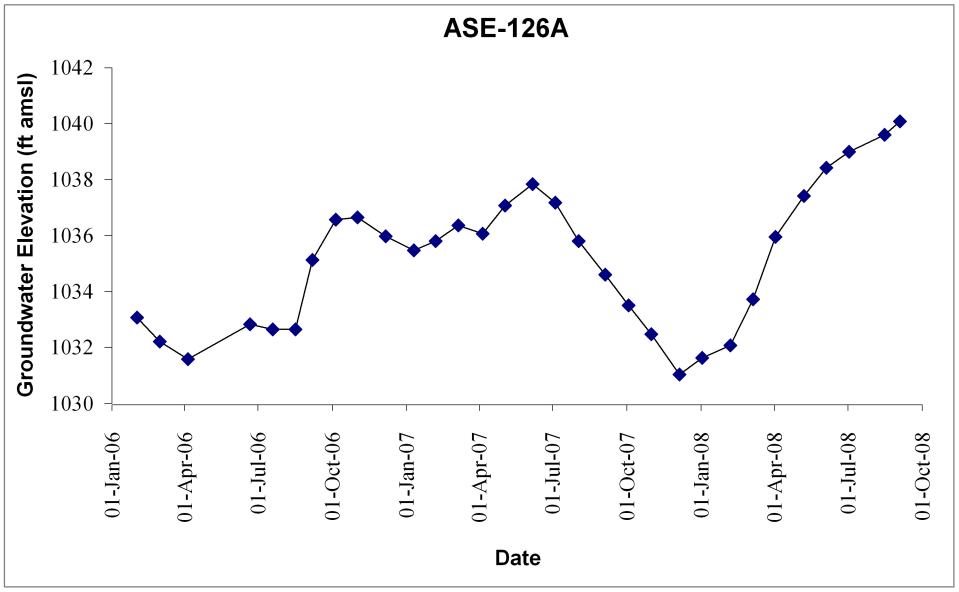

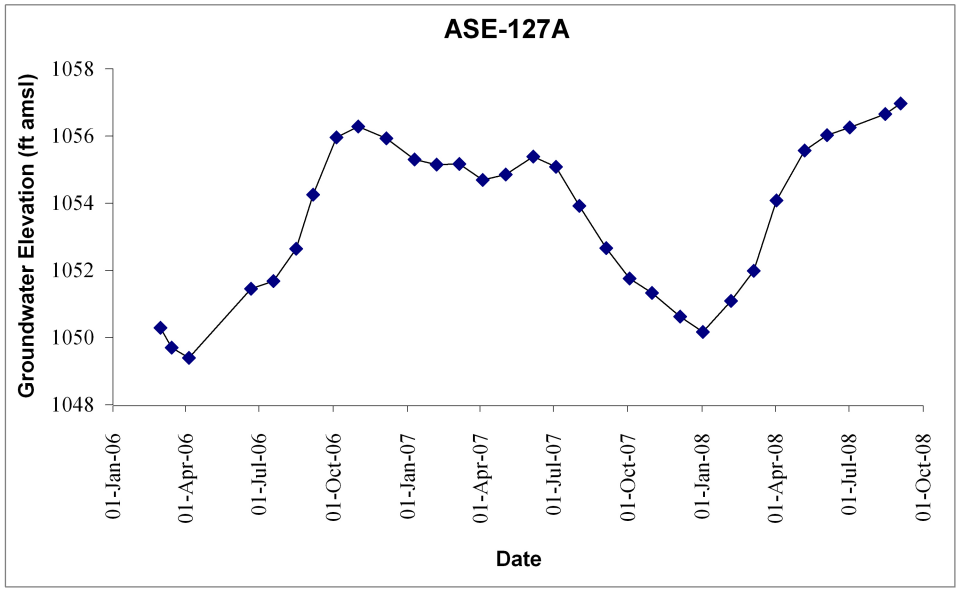

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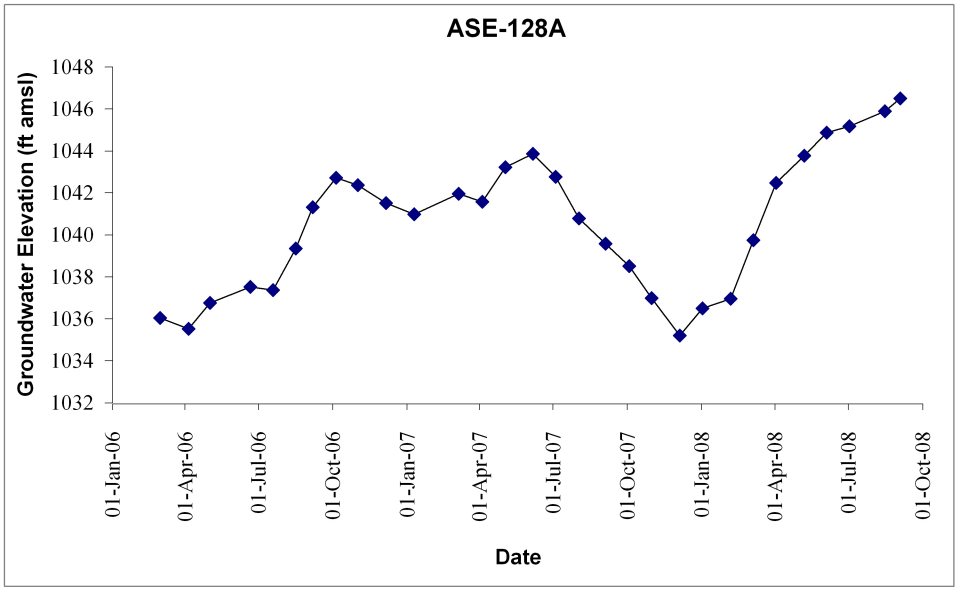

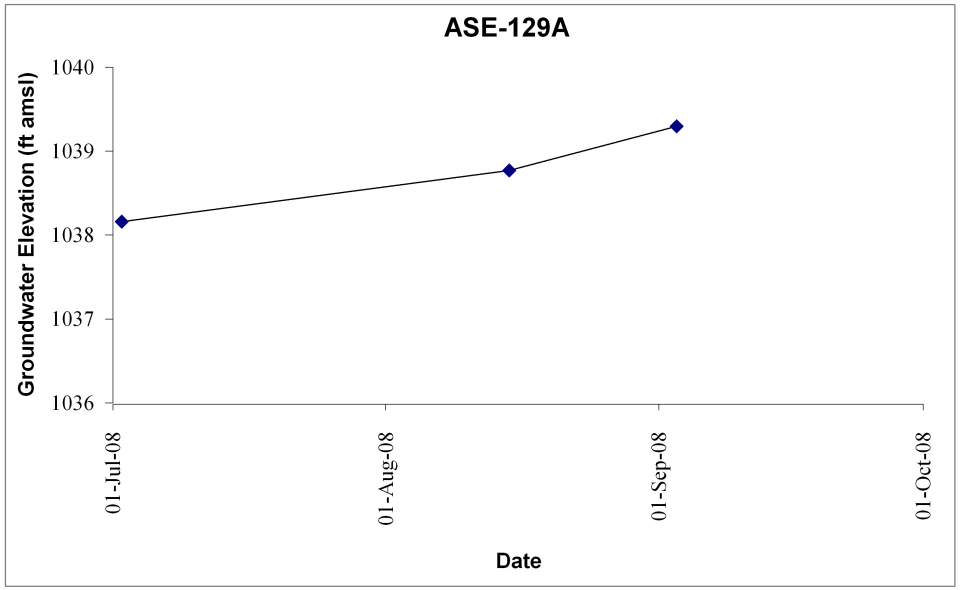

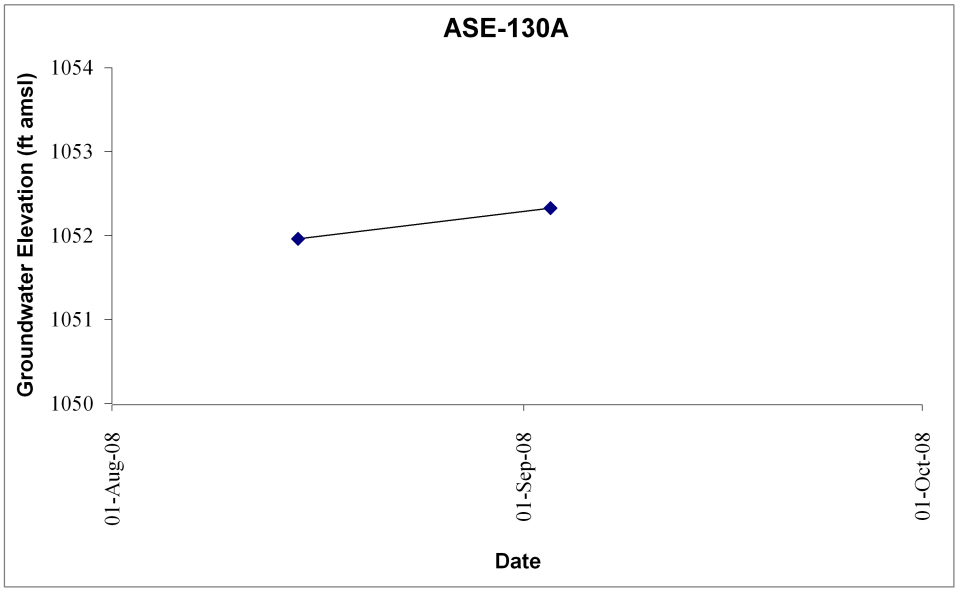

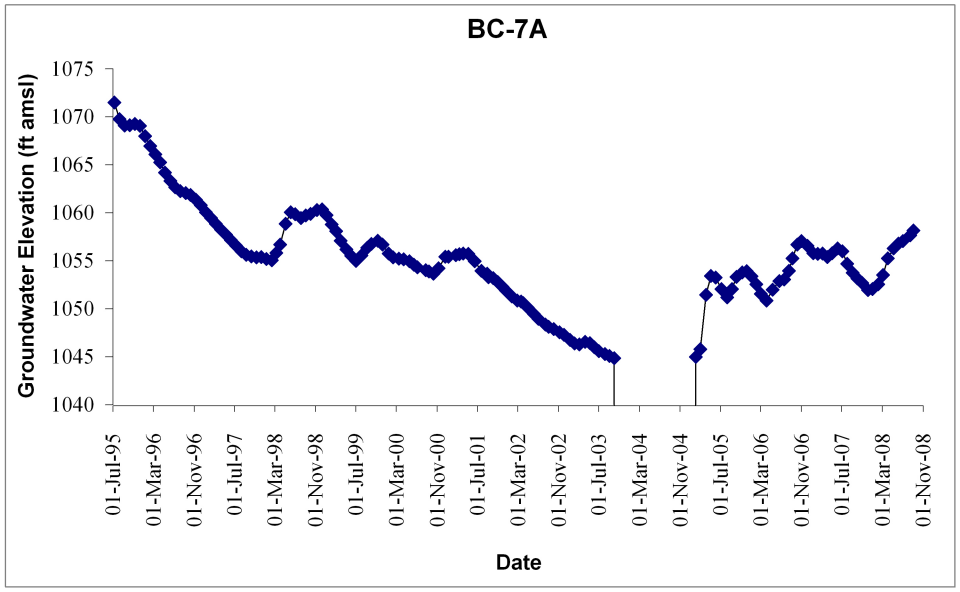

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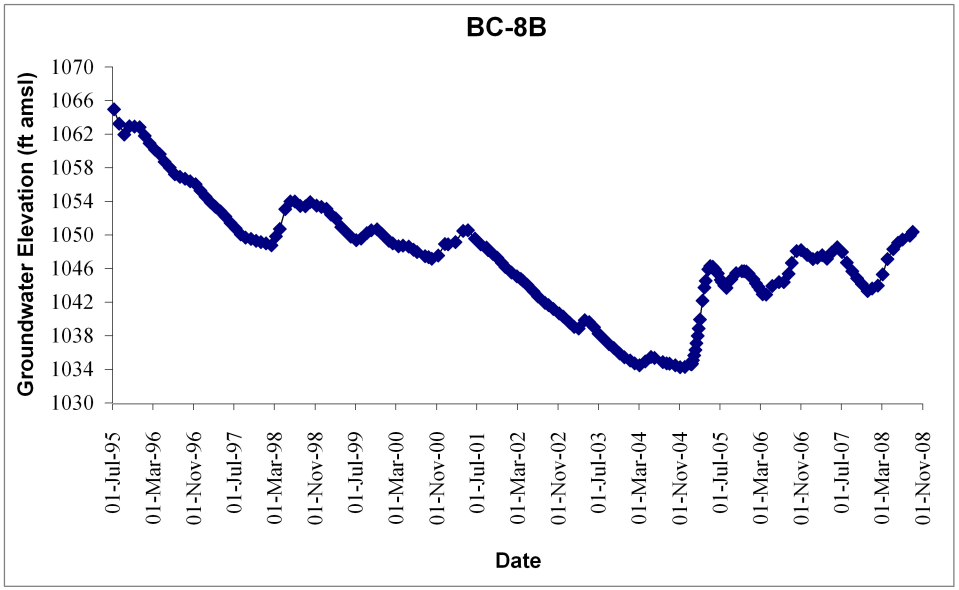

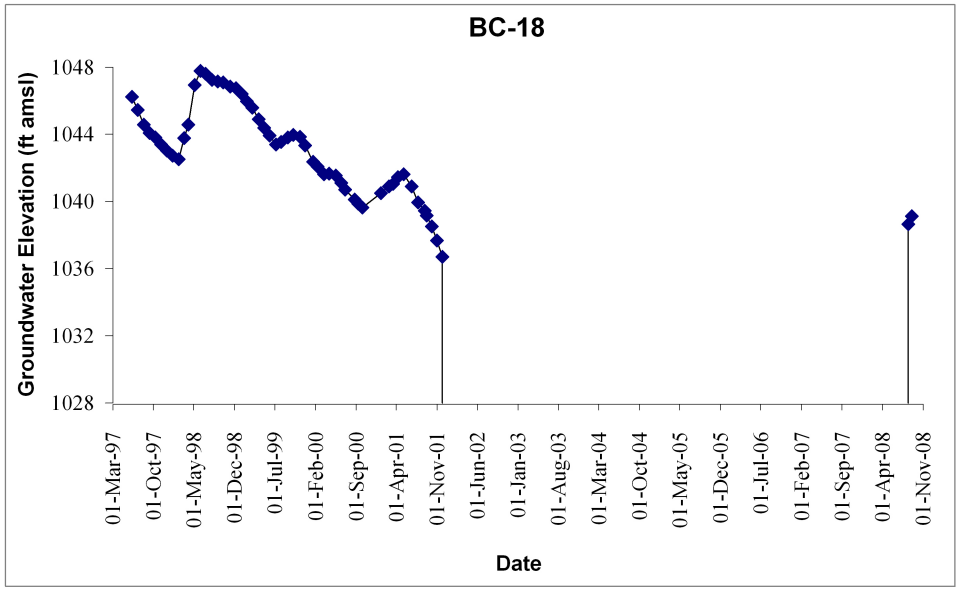

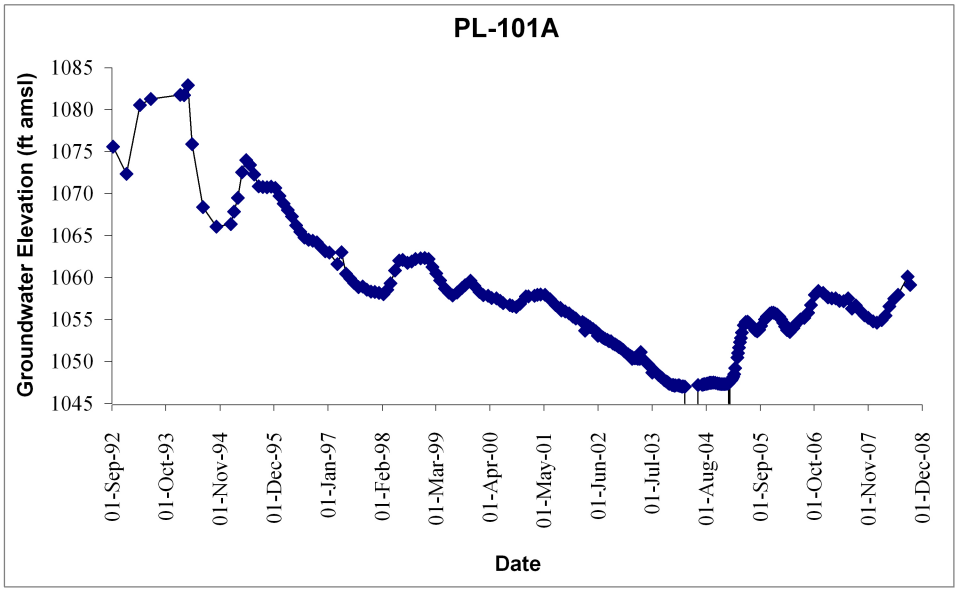

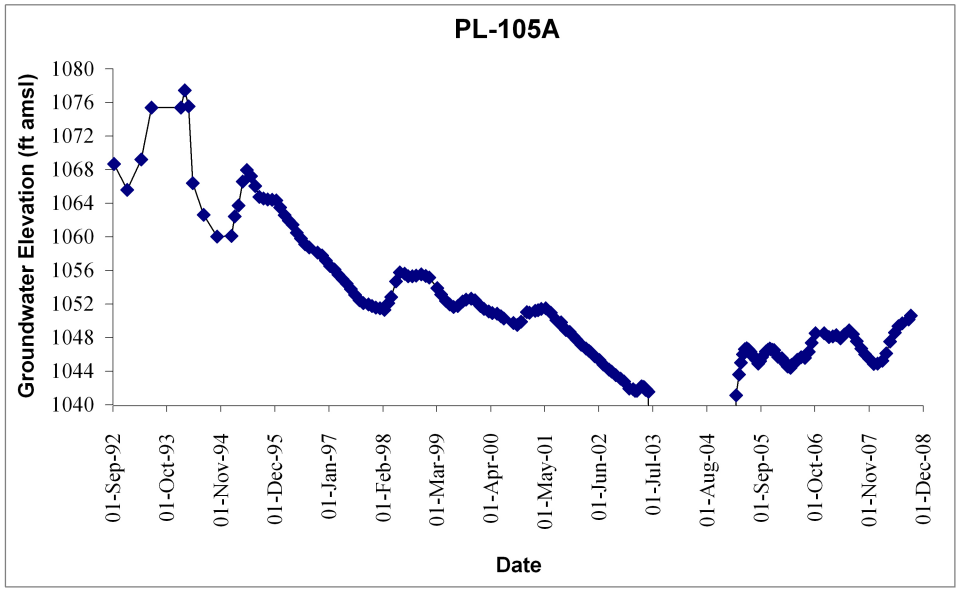

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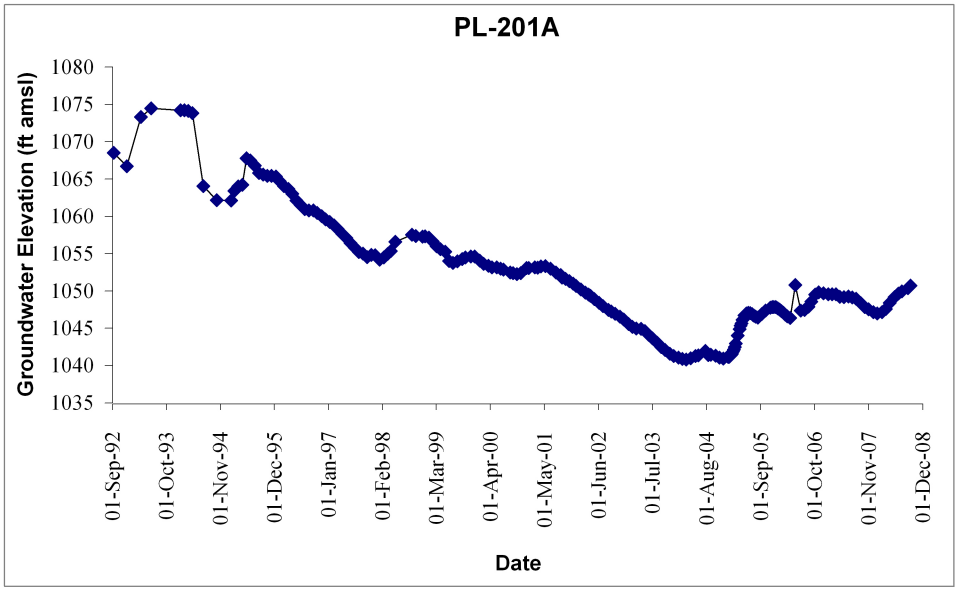

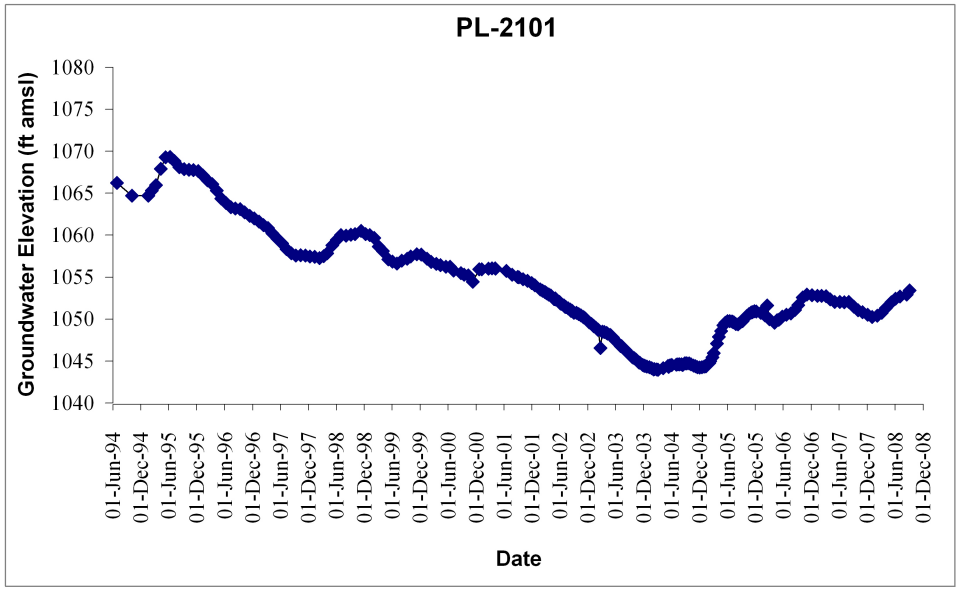

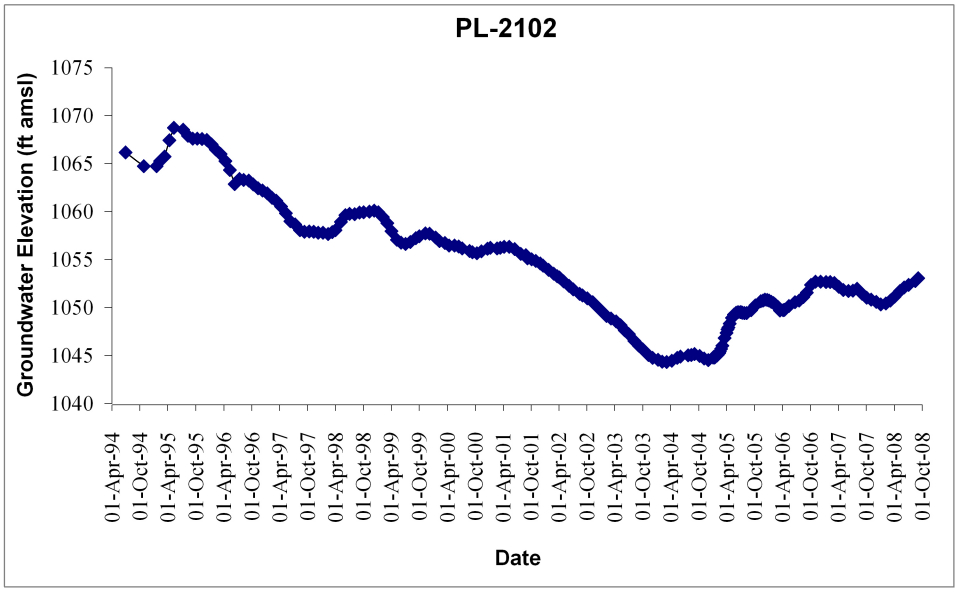

Appendix E
Data Validation and Groundwater Laboratory Analytical Reports – September 2008

APPENDIX E

Data Quality Evaluation Report – Third Quarter 2008 Underground Storage Tank Groundwater Monitoring

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected during September 2008 for the third quarter 2008 monitoring period at the Honeywell 34th Street facility (Honeywell facility). This DQE includes all samples collected in Samples were collected and analyzed in an effort to continue providing a framework for long-term monitoring of the Honeywell facility. The data may also be used to support future activities such as feasibility studies, risk assessments, fate and transport modeling and remedial actions. The basis for this assessment includes: individual method requirements, guidelines from the United States Environmental Protection Agency (USEPA) *Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review* (USEPA, 1999), the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), and the *Honeywell International Inc., Sky Harbor 34th Street Facility Quality Assurance Project Plan* (QAPP) (CH2M HILL, 2005 and Honeywell, 2006). This DQE report is intended as a general data quality assessment designed to summarize data issues.

Honeywell submitted to the Arizona Department of Environmental Quality (ADEQ) an updated QAPP entitled *Master Quality Assurance Project Plan, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona* on September 20, 2007 (CH2M HILL, 2007). Honeywell is currently awaiting ADEQ's approval of this document.

Analytical Data

This DQE report covers 148 normal samples (REG), 16 field duplicates (FD), 18 equipment blanks (EB), and 18 trip blanks (TB). A list of samples and collection dates is included in Attachment A at the end of this report. Samples were collected between September 8, 2008 and September 26, 2008. These sample results were reported as 15 sample delivery groups (SDG) listed in Table 1. The analyses were performed by Curtis & Tompkins Laboratory in Berkeley, California.

Table 1 – SDGs
205905
205958
205987
205988
205989

Table 1 – SDGs
206027
206028
206029
206099
206170
206171
206275
206276
206367
206410

Eight methods were used to analyze the environmental samples. Samples were collected and shipped by overnight carrier to the laboratory for analysis. Selected samples were analyzed for one or more of the following analytes/methods listed in Table 2.

Table 2 – Analytical Parameters	
Parameter	**Method**
Volatile Organic Compounds	SW8260
Total Petroleum Hydrocarbons (diesel and motor oil)	SW8015AZR1
Polynuclear Aromatic Hydrocarbons	SW8270-SIM
Chromium, Iron, Nickel	SW6010
Chromium	SW6020
Dissolved Gases (methane, ethane ethene)	RSK-175
Alkalinity	E310.1
Anions (nitrate, sulfate)	E300.0

Data validation was performed in accordance with the USEPA *Contract Laboratory NFG for Organic Data Review* (USEPA, 1999) and the USEPA *Contract Laboratory NFG for Inorganic Data Review* (USEPA, 2004), substituting the calibration and quality control (QC) requirements specified in the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006) for those specified in the NFG.

Ninety percent of the data were validated per Level II data validation requirements which include the following items:

- A review of the data set narrative to identify any issues that the lab reported in the data deliverable.
- A check of sample integrity (sample collection, preservation, and holding times).
- An evaluation of basic QC measurements used to assess the accuracy, precision and representativeness of data including QC blanks, laboratory control sample/laboratory control sample duplicates (LCS/LCSD), matrix spikes/matrix spike duplicates

(MS/MSD), surrogate recovery when applicable, and field or laboratory duplicate results.

- A review of sample results, target compound lists, and detection limits to verify that project analytical requirements are met.
- Field samples were also reviewed to ascertain field compliance and data quality issues. This included a review of FDs, EBs, and TBs.
- Initiation of corrective actions, as necessary, based on the data review findings.
- Qualification of the data using appropriate qualifier flags, as necessary, to reflect data usability limitations.

Ten percent of the data were validated per Level IV data validation requirements which include the Level II requirements plus the following items:

- Evaluation of calibration and quality control summary results against the project requirements.
- Other method specific QC requirements.
- Verification of analyte identification and calculations.

Data flags are assigned according to the Honeywell QAPP (CH2M HILL, 2005 and Honeywell, 2006). These flags, as well as the reason for each flag, are entered into the electronic database. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are defined below:

- J = Analyte was present but reported value may not be accurate or precise.
- R = The result was rejected.
- U = Analyte was analyzed but not detected at the specified detection limit.
- UJ = Analyte was not detected above the detection limit objective. However, the reported detection limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample

Findings

The overall summaries of the data validation findings are contained in the following sections below and summarized in Table 6.

Holding Times

All holding-time criteria were met with the following exceptions:

Twenty-four samples were analyzed outside of the USEPA recommended holding time for nitrate by method E300.0. The samples were received at the laboratory outside of holding time or were received so close to holding-time expiration that laboratory could not perform the analysis in time. Eighteen associated detected results were qualified as estimated and flagged "J"; six associated non-detected results were qualified as estimated and flagged "UJ".

Sample Quantitation

All methods were reported to the reporting limit (RL) with the exception of method SW8015AZR1 which was reported to the method detection limit. All Honeywell QAPP objectives were met for undiluted analyses with the exception listed in Table 3. The laboratory RL listed in Table 3 was submitted by the laboratory as a variance to the Honeywell QAPP. The variance was accepted by CH2M HILL.

Table 3 – Variance to QAPP Reporting Limit Objective

Method	Analyte	QAPP RL (ug/L)	Laboratory RL (ug/L)
SW8260	Methylene Chloride	5	10

Several samples required dilution due to high analyte concentrations and matrix interference. The RLs for non-detected analytes in the diluted samples were raised accordingly. Table 4 lists the methods and samples analyzed at a dilution.

Table 4 – Samples Analyzed Diluted

Method	Sample ID	Dilution Factor
E300.0	ASE-100A-8C1	5
E300.0	ASE-101A-8C1	2, 5
E300.0	ASE-102A-8C1	5
E300.0	ASE-103A-8C1	5
E300.0	ASE-105A-8C1	5, 25
E300.0	ASE-106A-8C1	5
E300.0	ASE-107A-8C1	5
E300.0	ASE-108A-8C1	5
E300.0	ASE-109A-8C1	5
E300.0	ASE-110A-8C1	2, 5
E300.0	ASE-111A-8C1	5, 25
E300.0	ASE-112A-8C1	10
E300.0	ASE-113A-8C1	10
E300.0	ASE-114A-8C1	10
E300.0	ASE-116A-8C1	5
E300.0	ASE-122A-8C1	5
E300.0	ASE-123A-8C1	5, 25

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
E300.0	ASE-124A-8C1	5
E300.0	ASE-125A-8C1	5
E300.0	ASE-126A-8C1	25
E300.0	ASE-127A-8C1	5
E300.0	ASE-128A-8C1	2, 5
E300.0	ASE-129A-8C1	5
E300.0	ASE-38A-8C1	5
E300.0	ASE-46A-8C1	5
E300.0	ASE-52A-8C1	5
E300.0	ASE-53A-8C1	5
E300.0	ASE-54A-8C1	5, 25
E300.0	ASE-57A-8C1	25
E300.0	ASE-58A-8C1	5
E300.0	ASE-59A-8C1	20
E300.0	ASE-59A-8C1	2
E300.0	ASE-60A-8C1	5
E300.0	ASE-61A-8C1	2
E300.0	ASE-62A-8C1	5
E300.0	ASE-64A-8C1	5
E300.0	ASE-65A-8C1	5
E300.0	ASE-66A-8C1	5
E300.0	ASE-95A-8C1	10
E300.0	ASE-97A-8C1	5
E300.0	ASE-98A-8C1	5
E300.0	ASE-99A-8C1	5
E300.0	BC-7A-8C1	10
E300.0	BC-8B-8C1	5
E300.0	PL-105A-8C1	5
E300.0	PL-2101-8C1	5
E300.0	PL-2102-8C1	5
E300.0	PL-527-8C1	2, 5
E300.0	PL-528-8C1	5
E300.0	PL-531-8C1	2, 5
E310.1	ASE-100A-8C1	6.7
E310.1	ASE-101A-8C1	6.7
E310.1	ASE-102A-8C1	6.7
E310.1	ASE-103A-8C1	6.7
E310.1	ASE-105A-8C1	4, 6.7
E310.1	ASE-106A-8C1	6.7
E310.1	ASE-107A-8C1	6.7
E310.1	ASE-108A-8C1	6.7
E310.1	ASE-109A-8C1	6.7
E310.1	ASE-110A-8C1	6.7
E310.1	ASE-111A-8C1	6.7
E310.1	ASE-112A-8C1	6.7

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
E310.1	ASE-113A-8C1	6.7
E310.1	ASE-114A-8C1	6.7
E310.1	ASE-115A-8C1	6.7
E310.1	ASE-116A-8C1	6.7
E310.1	ASE-122A-8C1	6.7
E310.1	ASE-123A-8C1	4, 6.7
E310.1	ASE-124A-8C1	6.7
E310.1	ASE-125A-8C1	6.7
E310.1	ASE-126A-8C1	4, 6.7
E310.1	ASE-127A-8C1	6.7
E310.1	ASE-128A-8C1	6.7
E310.1	ASE-129A-8C1	6.7
E310.1	ASE-130A-8C1	6.7
E310.1	ASE-20A-8C1	6.7
E310.1	ASE-37A-8C1	6.7
E310.1	ASE-38A-8C1	6.7
E310.1	ASE-39A-8C1	6.7
E310.1	ASE-46A-8C1	6.7
E310.1	ASE-51A-8C1	6.7
E310.1	ASE-52A-8C1	6.7
E310.1	ASE-53A-8C1	6.7
E310.1	ASE-54A-8C1	6.7
E310.1	ASE-55A-8C1	6.7
E310.1	ASE-57A-8C1	4, 6.7
E310.1	ASE-58A-8C1	6.7
E310.1	ASE-59A-8C1	6.7
E310.1	ASE-60A-8C1	4, 6.7
E310.1	ASE-61A-8C1	6.7
E310.1	ASE-62A-8C1	6.7
E310.1	ASE-63A-8C1	6.7
E310.1	ASE-64A-8C1	6.7
E310.1	ASE-65A-8C1	6.7
E310.1	ASE-66A-8C1	6.7
E310.1	ASE-89A-8C1	6.7
E310.1	ASE-90A-8C1	6.7
E310.1	ASE-91A-8C1	6.7
E310.1	ASE-92A-8C1	6.7
E310.1	ASE-95A-8C1	6.7
E310.1	ASE-96A-8C1	6.7
E310.1	ASE-97A-8C1	6.7
E310.1	ASE-98A-8C1	6.7
E310.1	ASE-99A-8C1	6.7
E310.1	BC-7A-8C1	6.7
E310.1	BC-8B-8C1	6.7
E310.1	PL-101A-8C1	6.7

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
E310.1	PL-105A-8C1	6.7
E310.1	PL-201A-8C1	6.7
E310.1	PL-2101-8C1	6.7
E310.1	PL-2102-8C1	6.7
E310.1	PL-513-8C1	6.7
E310.1	PL-527-8C1	6.7
E310.1	PL-528-8C1	6.7
E310.1	PL-531-8C1	6.7
E310.1	PL-532-8C1	6.7
RSK-175	ASE-108A-8C1	2
RSK-175	ASE-112A-8C1	2
RSK-175	ASE-115A-8C1	5
RSK-175	ASE-130A-8C1	2
RSK-175	ASE-20A-8C1	5
RSK-175	ASE-39A-8C1	2
RSK-175	ASE-51A-8C1	5
RSK-175	ASE-57A-8C1	5
RSK-175	ASE-63A-8C1	5
RSK-175	ASE-64A-8C1	5
RSK-175	ASE-89A-8C1	5
RSK-175	ASE-90A-8C1	2
RSK-175	ASE-91A-8C1	2
RSK-175	PL-101A-8C1	2
RSK-175	PL-105A-8C1	2
RSK-175	PL-513-8C1	2
RSK-175	PL-532-8C1	5
SW6020	ASE-61A-8C1	5
SW6020	PL-102A-8C1	5
SW6020	PL-202N-8C1	5
SW8260	ASE-111A-8C1	8.333
SW8260	ASE-115A-8C1	25
SW8260	ASE-130A-8C1	3.333
SW8260	ASE-22B-8C1	4
SW8260	ASE-23B-8C1	2
SW8260	ASE-33A-8C1	2
SW8260	ASE-38A-8C1	8.333
SW8260	ASE-39A-8C1	6.25
SW8260	ASE-51A-8C1	2, 5
SW8260	ASE-52A-8C1	6.25
SW8260	ASE-55A-8C1	2
SW8260	ASE-57A-8C1	8.333
SW8260	ASE-63A-8C1	50
SW8260	ASE-72B-8C1	4
SW8260	ASE-76B-8C1	2.5
SW8260	ASE-85B-8C1	2

Table 4 – Samples Analyzed Diluted		
Method	**Sample ID**	**Dilution Factor**
SW8260	ASE-89A-8C1	4
SW8260	ASE-90A-8C1	6.25
SW8260	ASE-91A-8C1	3.333
SW8260	ASE-92A-8C1	5
SW8260	ASE-96A-8C1	2.5
SW8260	BC-11A-8C1	2
SW8260	PL-103C-8C1	2
SW8260	PL-105A-8C1	1.429
SW8260	PL-202N-8C1	2
SW8260	PL-513-8C1	3.333
SW8260	PL-528-8C1	10
SW8260	PL-532-8C1	2, 5
SW8260	PZ-1B-8C1	1.429, 5
SW8270-SIM	ASE-130A-8C1	20
SW8270-SIM	PL-513-8C1	10

Calibration

The recoveries of five analytes were below criteria in the initial calibration verifications (ICV) for method SW8260, indicating associated sample results are possibly biased low. Two associated detected results were qualified as estimated and flagged "J"; 130 associated non-detected results were qualified as estimated and flagged "UJ".

The recoveries of 19 analytes were below criteria in the continuing calibration verifications (CCV) for method SW8260, indicating associated sample results are possibly biased low. One associated detected result was qualified as estimated and flagged "J"; 571 associated non-detected results were qualified as estimated and flagged "UJ".

Method Blanks

Method blanks were analyzed at the required frequency and were generally free of contamination.

Three analytes were detected above the RL in the method blanks for method SW8260. Associated samples were not qualified because they did not contain reportable levels of these analytes.

Field Blanks

EBs and TBs were collected as required and were free of contamination with the following exceptions:

Motor oil-range organics (C22-C32) was detected below the RL in the EBs for method SW8015AZR1. Three associated samples were detected less than five times the blank concentrations. The results were qualified as not detected and flagged "U".

Chloroform and bromodichloromethane were detected above the RL in the EBs for method SW8260. Twenty-seven associated samples were detected less than five times the blank concentrations. The results were qualified as not detected and flagged "U".

Chloroform was detected above the RL in a TB for method SW8260. Three associated samples were detected less than five times the blank concentrations. The results were qualified as not detected and flagged "U".

Several additional analytes were detected above the RL in the EBs for method SW8260. Associated samples were not qualified because they were either not detected or contained concentrations of these analytes greater than five times the concentrations detected in the EBs.

Field Duplicates

Sixteen FD sets were collected and analyzed with this event. A list of FDs and associated parent sample identifications (ID) is included in Table 5.

Table 5 – List of Field Duplicates

Field Duplicate Sample ID	Associated Parent Sample ID
PL-503-8C1	ASE-27A-8C1
PL-504-8C1	ASE-21A-8C1
PL-505-8C1	ASE-46B-8C1
PL-506-8C1	ASE-69A-8C1
PL-509-8C1	ASE-83B-8C1
PL-512-8C1	ASE-45B-8C1
PL-513-8C1	ASE-130A-8C1
PL-516-8C1	ASE-71A-8C1
PL-519-8C1	ASE-75A-8C1
PL-520-8C1	ASE-86A-8C1
PL-523-8C1	ASE-84C-8C1
PL-524-8C1	ASE-11B-8C1
PL-527-8C1	ASE-124A-8C1
PL-528-8C1	ASE-111A-8C1
PL-531-8C1	ASE-101A-8C1
PL-532-8C1	ASE-51A-8C1

All relative percent difference (RPD) criteria were met.

Surrogates

Surrogates were recovered within laboratory established QC limits with two exceptions.

A surrogate recovery was above criteria in two samples for method SW8260, indicating associated sample results are possibly biased high. Six associated detected results were qualified as estimated and flagged "J".

A surrogate recovery was above criteria in two samples for method SW8270-SIM, indicating associated sample results are possibly biased high. Seven associated detected results were qualified as estimated and flagged "J".

Laboratory Control Samples

LCS/LCSDs were analyzed as required. Precision and accuracy criteria were met with the following exceptions:

Freon 12 and sec-butylbenzene were recovered below criteria in the LCSs and/or LCSDs for method SW8260, indicating associated sample results are possibly biased low. Three associated detected results were qualified as estimated and flagged "J"; 30 associated non-detected results were qualified as estimated and flagged "UJ".

Tetrachloroethane was recovered above criteria in a LCS for method SW8260, indicating associated sample results are possibly biased high. Four associated detected result were qualified as estimated and flagged "J".

Matrix Spikes

The results of MS/MSD analyses provide information about the possible influence of the matrix on either accuracy or precision of the measurements. MS/MSD recoveries and the associated RPD met criteria with the following exceptions:

Methane was recovered above criteria in one MS/MSD set for method RSK-175, indicating the associated parent sample result is possibly biased high. Methane was recovered below criteria in another MS/MSD set, indicating the associated parent sample result is possibly biased low. Two associated detected results were qualified as estimated and flagged "J".

Diesel-range organics (C10-C22) was recovered above criteria in one MS/MSD set for method SW8015AZR1, indicating the associated parent sample result is possibly biased high. The associated detected parent sample result was qualified as estimated and flagged "J".

The recoveries of three analytes were above criteria in the MS and/or MSD of two samples for method SW8260, indicating the associated parent sample results are possibly biased high. Four associated detected results in the parent samples were qualified as estimated and flagged "J".

The recoveries of four analytes were below criteria in the MS and/or MSD of three samples for method SW8260, indicating the associated parent sample results are possibly biased low. Five associated non-detected results in the parent samples were qualified as estimated and flagged "UJ".

Internal Standards

All internal standard criteria were met.

Tentatively Identified Compounds

Tentatively identified compounds were not reported by the laboratory.

Level IV Validation

Level IV validation was performed on SDGs 205987, 205988, 205989 and 206027. Findings are included in the appropriate section of this DQE report.

Chain of Custody

Each sample was documented on a completed chain-of-custody form and received at the laboratory in good condition.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision-making process. The procedures for assessing the precision, accuracy, representativeness, completeness, and comparability parameters were based on the Honeywell QAPP. The following summary highlights the precision, accuracy, representativeness, completeness, and comparability findings for the above-defined events:

1. No data were rejected and completeness is 100 percent.
2. Less than one percent of the SW8260 and SW8015AZR1 data were qualified due to low-level blank contamination. The degree to which blank contamination was observed is within reasonable method expectations.
3. Twenty-four samples were analyzed outside of holding time for nitrate by method E300.0 because the samples were received at the laboratory with insufficient holding time remaining.
4. Samples were analyzed diluted for methods E300, E310.1, SW6020, RSK-175, SW8260, and SW8270-SIM resulting in raised RLs for non-detected analytes.
5. ICV and CCV recovery exceedances were observed for method SW8260, resulting in 654 results qualified as estimated. This represents approximately five percent of the SW8260 data.
6. Surrogate recovery exceedances were observed for methods SW8260 and SW8270-SIM, resulting in 13 results qualified as estimated.
7. LCS/LCSD recovery exceedances were observed for method SW8260, resulting in 37 results qualified as estimated.
8. MS/MSD recovery exceedances were observed for methods RSK-175, SW8015AZR1 and SW8260, resulting in 12 results qualified as estimated.
9. Overall, the precision and accuracy of the data, as measured by field and laboratory QC indicators, suggest that the project goals have been met.

References

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Table 6 – Validation Findings

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
E300.0	ASE-106A-8C1	Nitrogen, Nitrate	11	mg/l	J	HTA
E300.0	ASE-110A-8C1	Nitrogen, Nitrate	4.9	mg/l	J	HTA
E300.0	ASE-122A-8C1	Nitrogen, Nitrate	13	mg/l	J	HTA
E300.0	ASE-124A-8C1	Nitrogen, Nitrate	5.1	mg/l	J	HTA
E300.0	ASE-126A-8C1	Nitrogen, Nitrate	1.9	mg/l	J	HTA
E300.0	ASE-127A-8C1	Nitrogen, Nitrate	7.9	mg/l	J	HTA
E300.0	ASE-128A-8C1	Nitrogen, Nitrate	4.2	mg/l	J	HTA
E300.0	ASE-46A-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	ASE-58A-8C1	Nitrogen, Nitrate	1.4	mg/l	J	HTA
E300.0	ASE-60A-8C1	Nitrogen, Nitrate	5.4	mg/l	J	HTA
E300.0	ASE-63A-8C1	Nitrogen, Nitrate	0.11	mg/l	J	HTA
E300.0	ASE-64A-8C1	Nitrogen, Nitrate	0.08	mg/l	J	HTA
E300.0	ASE-89A-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	ASE-90A-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	ASE-91A-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	ASE-92A-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	ASE-97A-8C1	Nitrogen, Nitrate	0.08	mg/l	J	HTA
E300.0	ASE-98A-8C1	Nitrogen, Nitrate	3	mg/l	J	HTA
E300.0	ASE-99A-8C1	Nitrogen, Nitrate	2.9	mg/l	J	HTA
E300.0	BC-7A-8C1	Nitrogen, Nitrate	13	mg/l	J	HTA
E300.0	BC-8B-8C1	Nitrogen, Nitrate	1.2	mg/l	J	HTA
E300.0	PL-201A-8C1	Nitrogen, Nitrate	0.12	mg/l	J	HTA
E300.0	PL-517-8C1	Nitrogen, Nitrate	0.05	mg/l	UJ	HTA
E300.0	PL-527-8C1	Nitrogen, Nitrate	5	mg/l	J	HTA
RSK-175	ASE-126A-8C1	Methane	1.1	mg/l	J	MSH MSDH
RSK-175	ASE-57A-8C1	Methane	13	mg/l	J	MSL MSDL
SW8015AZR1	ASE-115A-8C1	Motor Oil C22-C32	60	ug/l	U	EBL
SW8015AZR1	ASE-51A-8C1	Motor Oil C22-C32	130	ug/l	U	EBL
SW8015AZR1	ASE-57A-8C1	Diesel C10-C22	8700	ug/l	J	MSH MSDH
SW8015AZR1	PL-532-8C1	Motor Oil C22-C32	95	ug/l	U	EBL
SW8260	ASE-100A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-100A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-100A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-100A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-101A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-101A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-101A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-101A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-102A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-102A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-102A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-102A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-103A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-103A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-103A-8C1	Chloromethane	1	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-103A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-105A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-105A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-105A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-105A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-106A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-106A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-106A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-106A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-107A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-107A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-107A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-107A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-107A-8C1	sec-Butylbenzene	4.2	ug/l	J	LCSDL
SW8260	ASE-108A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-108A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-108A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-109A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-109A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-109A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-109A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-110A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-110A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-110A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-110A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	1,2,3-Trichlorobenzene	4.2	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	1,2,4-Trichlorobenzene	4.2	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Acetone	83	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Carbon Disulfide	4.2	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Chloroethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Chloromethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Freon 12	8.3	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Methylene Chloride	83	ug/l	UJ	CCVL
SW8260	ASE-111A-8C1	Naphthalene	17	ug/l	UJ	CCVL
SW8260	ASE-112A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-112A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-112A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-112A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-112A-8C1	sec-Butylbenzene	1	ug/l	J	LCSDL
SW8260	ASE-113A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-113A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-113A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-113A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-113A-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-113A-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	ASE-114A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-114A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-114A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-114A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-114A-8C1	sec-Butylbenzene	0.6	ug/l	J	LCSDL
SW8260	ASE-115A-8C1	1,2,3-Trichlorobenzene	13	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	1,2,4-Trichlorobenzene	13	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Acetone	250	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Carbon Disulfide	13	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Chloroethane	25	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Chloromethane	25	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Freon 12	25	ug/l	UJ	CCVL
SW8260	ASE-115A-8C1	Methylene Chloride	250	ug/l	UJ	CCVL
SW8260	ASE-116A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-116A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-116A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-116A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-116A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-122A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-122A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-122A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-122A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-123A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-123A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-123A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-123A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-124A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-124A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-124A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-124A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-125A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-126A-8C1	1,1-Dichloroethane	16	ug/l	J	MSH
SW8260	ASE-126A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-126A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-126A-8C1	MTBE	31	ug/l	J	MSH
SW8260	ASE-126A-8C1	Trichloroethene	1	ug/l	J	MSH
SW8260	ASE-126A-8C1	Trichlorofluoromethane	1	ug/l	UJ	MSL
SW8260	ASE-127A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-127A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-127A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-128A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-128A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-128A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-128A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-129A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-129A-8C1	n-Butylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-130A-8C1	Chloromethane	3.3	ug/l	UJ	ICVSL CCVL
SW8260	ASE-130A-8C1	Freon 12	3.3	ug/l	UJ	ICVSL
SW8260	ASE-130A-8C1	Iodomethane	33	ug/l	UJ	ICVSL
SW8260	ASE-19B-8C1	Freon 12	1	ug/l	UJ	LCSDL ICVSL
SW8260	ASE-19B-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-19C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-19C-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-19C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-19C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-20A-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-20A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-20A-8C1	Freon 12	1	ug/l	UJ	LCSL LCSDL CCVL
SW8260	ASE-20B-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-20B-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-20B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-20C-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-20C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-20C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-21C-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-21C-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-22A-8C1	Chloroform	0.7	ug/l	U	EBH
SW8260	ASE-22A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-22A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-22A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-22B-8C1	Freon 12	4	ug/l	UJ	CCVL
SW8260	ASE-22B-8C1	Iodomethane	40	ug/l	UJ	ICVSL
SW8260	ASE-22B-8C1	Naphthalene	8	ug/l	UJ	CCVL
SW8260	ASE-22C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-22C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-22C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-23B-8C1	Chloroform	0.6	ug/l	U	EBH
SW8260	ASE-23B-8C1	Freon 12	1.4	ug/l	J	ICVSL
SW8260	ASE-23B-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-25C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-25C-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-25C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-26A-8C1	Chloromethane	1	ug/l	UJ	MSL MSDL ICVSL CCVL
SW8260	ASE-26A-8C1	Freon 12	1	ug/l	UJ	MSL MSDL ICVSL
SW8260	ASE-26A-8C1	Iodomethane	10	ug/l	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-26A-8C1	Vinyl Acetate	10	ug/l	UJ	MSL MSDL
SW8260	ASE-27A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-27A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-29A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-29A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-29A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-29A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-33A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-33A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-33A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-33A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-34A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-34B-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-34B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-34B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-35A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-35A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-35A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-35A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-36A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-36A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-36A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-36A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-37A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-37A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-37A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-37A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-37A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-38A-8C1	Bromomethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-38A-8C1	Chloromethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-38A-8C1	Freon 12	8.3	ug/l	UJ	LCSL LCSDL CCVL
SW8260	ASE-39A-8C1	Bromomethane	6.3	ug/l	UJ	CCVL
SW8260	ASE-39A-8C1	Chloromethane	6.3	ug/l	UJ	CCVL
SW8260	ASE-39A-8C1	Freon 12	6.3	ug/l	UJ	LCSL LCSDL CCVL
SW8260	ASE-40B-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-40B-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-40B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-40B-8C1	Freon 12	1	ug/l	UJ	LCSL LCSDL CCVL
SW8260	ASE-42C-8C1	Chloroform	0.5	ug/l	U	EBH
SW8260	ASE-42C-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-42C-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-42C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-43B-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	2-Butanone	10	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-43B-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-43B-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	ASE-43B-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-43C-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-43C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-43C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-43C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-44B-8C1	Freon 12	1	ug/l	UJ	LCSDL ICVSL
SW8260	ASE-44B-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-45B-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-45B-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	ASE-45B-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-46A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-46A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-46A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-46A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-46B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-46B-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-46B-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-47B-8C1	Chloroform	0.8	ug/l	U	EBH
SW8260	ASE-47B-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-47B-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-48B-8C1	Freon 12	1	ug/l	UJ	LCSDL ICVSL
SW8260	ASE-48B-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-48B-8C1	Trichloroethene	4.7	ug/l	J	MSH
SW8260	ASE-49B-8C1	Freon 12	1	ug/l	UJ	LCSDL ICVSL
SW8260	ASE-49B-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-50C-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	Chloroethane	1	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-50C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-50C-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	ASE-50C-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-51A-8C1	Chloromethane	2	ug/l	UJ	CCVL
SW8260	ASE-51A-8C1	Freon 12	2	ug/l	UJ	CCVL
SW8260	ASE-52A-8C1	Chloromethane	6.3	ug/l	UJ	CCVL
SW8260	ASE-52A-8C1	Freon 12	6.3	ug/l	UJ	CCVL
SW8260	ASE-53A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-53A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-53A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-53A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-53A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-54A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-54A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-54A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-55A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	ICVSL CCVL
SW8260	ASE-55A-8C1	1,3-Dichloropropane	0.5	ug/l	UJ	ICVSL
SW8260	ASE-55A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-55A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-55A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-57A-8C1	Bromomethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-57A-8C1	Chloroethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-57A-8C1	Chloromethane	8.3	ug/l	UJ	CCVL
SW8260	ASE-57A-8C1	Freon 12	8.3	ug/l	UJ	LCSL LCSDL MSL CCVL
SW8260	ASE-57A-8C1	Methylene Chloride	83	ug/l	UJ	CCVL
SW8260	ASE-58A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-58A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-58A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-59A-8C1	Chloroform	1.7	ug/l	U	EBH
SW8260	ASE-59A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-59A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-60A-8C1	Chloroform	3.8	ug/l	U	TBH
SW8260	ASE-60A-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	ASE-60A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-61A-8C1	1,1-Dichloroethane	0.6	ug/l	J	SSH
SW8260	ASE-61A-8C1	1,1-Dichloroethene	1.9	ug/l	J	SSH
SW8260	ASE-61A-8C1	Chloroform	1	ug/l	U	EBH
SW8260	ASE-61A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-61A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-61A-8C1	Tetrachloroethene	2.1	ug/l	J	SSH
SW8260	ASE-61A-8C1	Trichloroethene	1.4	ug/l	J	SSH
SW8260	ASE-62A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-62A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-62A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-63A-8C1	1,2-Dibromo-3-Chloropropane	100	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-63A-8C1	2-Butanone	500	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	2-Hexanone	500	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	4-Methyl-2-Pentanone	500	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	Acetone	500	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	Carbon Disulfide	25	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	Chloromethane	50	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	Freon 12	50	ug/l	UJ	CCVL
SW8260	ASE-63A-8C1	Iodomethane	500	ug/l	UJ	ICVSL
SW8260	ASE-63A-8C1	Vinyl Acetate	500	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-64A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-64A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-65A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	ICVSL CCVL
SW8260	ASE-65A-8C1	1,3-Dichloropropane	0.5	ug/l	UJ	ICVSL
SW8260	ASE-65A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-65A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-65A-8C1	Chloroform	0.6	ug/l	U	EBH
SW8260	ASE-65A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-65A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-66A-8C1	Freon 12	1	ug/l	UJ	LCSDL ICVSL
SW8260	ASE-66A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-69A-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	ASE-69A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-70A-8C1	Chloroform	0.9	ug/l	U	EBH
SW8260	ASE-70A-8C1	Hexachlorobutadiene	2	ug/l	UJ	CCVL
SW8260	ASE-71A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-71A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-71A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-71A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-71B-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-71B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-71B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-71B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-72A-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-72A-8C1	Chloroform	0.7	ug/l	U	EBH
SW8260	ASE-72A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-72A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-72A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-72B-8C1	1,2,3-Trichlorobenzene	2	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-72B-8C1	Chloroform	2.2	ug/l	U	EBH
SW8260	ASE-72B-8C1	Chloromethane	4	ug/l	UJ	CCVL
SW8260	ASE-72B-8C1	Freon 12	4	ug/l	UJ	CCVL
SW8260	ASE-72B-8C1	Naphthalene	8	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	1,2,4-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-73A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	1,2,4-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-73B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	1,2,4-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	ASE-73C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-75A-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	ASE-75B-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-75B-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-75B-8C1	Chloroform	0.5	ug/l	U	EBH
SW8260	ASE-75B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-75B-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-75B-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	ASE-75C-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-75C-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-75C-8C1	Chloromethane	1	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-75C-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-75C-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	ASE-76A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-76A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-76A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-76B-8C1	Chloromethane	2.5	ug/l	UJ	CCVL
SW8260	ASE-76B-8C1	Freon 12	2.5	ug/l	UJ	CCVL
SW8260	ASE-76B-8C1	Naphthalene	5	ug/l	UJ	CCVL
SW8260	ASE-77A-8C1	Chloroform	0.5	ug/l	U	EBH
SW8260	ASE-77A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-77A-8C1	Freon 12	1.2	ug/l	J	CCVL
SW8260	ASE-77A-8C1	Tetrachloroethene	2.6	ug/l	J	LCSH
SW8260	ASE-77B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-77B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-78B-8C1	Chloroform	0.6	ug/l	U	EBH
SW8260	ASE-78B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-78B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-78B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-79C-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	ASE-79C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-79C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-79C-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-81A-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	ASE-81A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-82C-8C1	Chloroform	3.5	ug/l	U	TBH
SW8260	ASE-82C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-82C-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-82C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-83A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-83A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-83A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-83B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-83B-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-83B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-83C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-83C-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-83C-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-84A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-84A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-84A-8C1	Chloroform	0.7	ug/l	U	EBH
SW8260	ASE-84A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-84A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-84C-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-84C-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-84C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-84C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-85A-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-85A-8C1	Chloroform	0.9	ug/l	U	EBH
SW8260	ASE-85A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-85A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-85A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	ASE-85B-8C1	Chloroform	1.2	ug/l	U	EBH
SW8260	ASE-85B-8C1	Chloromethane	2	ug/l	UJ	CCVL
SW8260	ASE-85B-8C1	Freon 12	2	ug/l	UJ	CCVL
SW8260	ASE-85B-8C1	Naphthalene	4	ug/l	UJ	CCVL
SW8260	ASE-86A-8C1	Chloroform	1.8	ug/l	U	EBH
SW8260	ASE-86A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-86A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-86A-8C1	Tetrachloroethene	2.5	ug/l	J	LCSH
SW8260	ASE-87A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	ASE-87A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	ASE-88B-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-88B-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-88B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-88B-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	ASE-88B-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	ASE-89A-8C1	1,2-Dibromo-3-Chloropropane	8	ug/l	UJ	CCVL
SW8260	ASE-89A-8C1	2-Hexanone	40	ug/l	UJ	CCVL
SW8260	ASE-89A-8C1	Chloromethane	4	ug/l	UJ	CCVL
SW8260	ASE-89A-8C1	Freon 12	4	ug/l	UJ	CCVL
SW8260	ASE-90A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-90A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-90A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-91A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-91A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	ASE-92A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	ASE-92A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-92A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	ASE-92A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	ASE-92A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	ASE-95A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-96A-8C1	Freon 12	2.5	ug/l	UJ	CCVL
SW8260	ASE-97A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-97A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-98A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-98A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-98A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-98A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	ASE-99A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	ASE-99A-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	ASE-99A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	ASE-99A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-10A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-10A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-10A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	BC-10A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-10B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-10B-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	BC-10B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-10C-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-10C-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-10C-8C1	Chloroform	0.6	ug/l	U	EBH
SW8260	BC-10C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-10C-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	BC-10C-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	BC-11A-8C1	1,2,3-Trichlorobenzene	1	ug/l	UJ	CCVL
SW8260	BC-11A-8C1	Chloromethane	2	ug/l	UJ	CCVL
SW8260	BC-11A-8C1	Freon 12	2	ug/l	UJ	CCVL
SW8260	BC-11A-8C1	Naphthalene	4	ug/l	UJ	CCVL
SW8260	BC-11B-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	BC-11B-8C1	Chloroform	0.6	ug/l	U	EBH
SW8260	BC-11B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-11B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-11B-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-12-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	BC-12-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-12-8C1	Freon 12	1	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	BC-12-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-13-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	BC-13-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-14-8C1	1,1,1-Trichloroethane	0.9	ug/l	J	SSH
SW8260	BC-14-8C1	1,1-Dichloroethene	0.7	ug/l	J	SSH
SW8260	BC-14-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	BC-14-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	BC-14-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-14-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-14-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-14-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-15-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	BC-15-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-16-8C1	Chloroform	1.7	ug/l	U	EBH
SW8260	BC-16-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-16-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-16-8C1	Tetrachloroethene	1.7	ug/l	J	LCSH
SW8260	BC-17-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-17-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	BC-17-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-17-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	BC-17-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	BC-17-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	BC-17-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	BC-17-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-17-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	BC-17-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	BC-1-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	BC-1-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	BC-2-8C1	Chloroform	0.7	ug/l	U	EBH
SW8260	BC-2-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	BC-2-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	BC-3-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-3-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	BC-3-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-3-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	BC-3-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	BC-3-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	BC-3-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	BC-3-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-3-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	BC-3-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	BC-4-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	BC-4-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-4-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	BC-6-8C1	Chloroform	0.6	ug/l	U	TBH

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	BC-6-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-6-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	BC-6-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-7A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-7A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	BC-7A-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	BC-8A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-8A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-8A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-8A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-8B-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	BC-8B-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-8B-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-8B-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-8C-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	BC-8C-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	BC-8C-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-8C-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-9-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	BC-9-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	BC-9-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	BC-9-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-101A-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	PL-101A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	PL-101A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-101A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-101A-8C1	Iodomethane	10	ug/l	UJ	CCVL
SW8260	PL-102A-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	PL-102A-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	PL-103A-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	PL-103A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-103A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-103A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-103C-8C1	Chloromethane	2	ug/l	UJ	CCVL
SW8260	PL-105A-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	ICVSL CCVL
SW8260	PL-105A-8C1	1,3-Dichloropropane	0.5	ug/l	UJ	ICVSL
SW8260	PL-105A-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PL-105A-8C1	Chloromethane	1	ug/l	UJ	ICVSL CCVL
SW8260	PL-105A-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PL-201A-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-201A-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-201A-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-201A-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-202C-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	PL-202C-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	PL-202N-8C1	Chloroform	1.3	ug/l	U	EBH
SW8260	PL-202N-8C1	Freon 12	2.2	ug/l	J	ICVSL
SW8260	PL-202N-8C1	Iodomethane	20	ug/l	UJ	ICVSL CCVL
SW8260	PL-2101-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-2101-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	PL-2101-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-2102-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	PL-2102-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-2103-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-2103-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-2103-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-503-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	PL-503-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	PL-504-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	PL-504-8C1	Iodomethane	10	ug/l	UJ	ICVSL CCVL
SW8260	PL-505-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-505-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	PL-505-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-506-8C1	Freon 12	1	ug/l	UJ	LCSL
SW8260	PL-506-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-509-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-509-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-509-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-510-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-510-8C1	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	PL-510-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-510-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-511-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	PL-512-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-512-8C1	2-Butanone	10	ug/l	UJ	CCVL
SW8260	PL-512-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PL-512-8C1	4-Methyl-2-Pentanone	10	ug/l	UJ	CCVL
SW8260	PL-512-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	PL-512-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	PL-512-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	PL-512-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-512-8C1	Freon 12	1	ug/l	UJ	LCSL CCVL
SW8260	PL-512-8C1	Vinyl Acetate	10	ug/l	UJ	CCVL
SW8260	PL-513-8C1	Chloromethane	3.3	ug/l	UJ	ICVSL CCVL
SW8260	PL-513-8C1	Freon 12	3.3	ug/l	UJ	ICVSL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PL-513-8C1	Iodomethane	33	ug/l	UJ	ICVSL
SW8260	PL-515-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	ICVSL
SW8260	PL-515-8C1	1,3-Dichloropropane	0.5	ug/l	UJ	ICVSL
SW8260	PL-515-8C1	Chloromethane	1	ug/l	UJ	ICVSL
SW8260	PL-515-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	PL-516-8C1	Bromomethane	1	ug/l	UJ	CCVL
SW8260	PL-516-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-516-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-516-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-519-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-519-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PL-519-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-519-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-519-8C1	Isopropylbenzene	0.5	ug/l	UJ	CCVL
SW8260	PL-519-8C1	sec-Butylbenzene	0.5	ug/l	UJ	LCSDL
SW8260	PL-520-8C1	Chloroform	1.9	ug/l	U	EBH
SW8260	PL-520-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-520-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-520-8C1	Tetrachloroethene	2.4	ug/l	J	LCSH
SW8260	PL-523-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	CCVL
SW8260	PL-523-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PL-523-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-523-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-524-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	PL-524-8C1	Chloroform	0.5	ug/l	U	EBH
SW8260	PL-524-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-524-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-524-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	PL-527-8C1	2-Hexanone	10	ug/l	UJ	CCVL
SW8260	PL-527-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	PL-527-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-527-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-528-8C1	1,2,3-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	PL-528-8C1	1,2,4-Trichlorobenzene	0.5	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Acetone	10	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-528-8C1	Methylene Chloride	10	ug/l	UJ	CCVL
SW8260	PL-531-8C1	Carbon Disulfide	0.5	ug/l	UJ	CCVL
SW8260	PL-531-8C1	Chloroethane	1	ug/l	UJ	CCVL
SW8260	PL-531-8C1	Chloromethane	1	ug/l	UJ	CCVL
SW8260	PL-531-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	PL-532-8C1	Chloromethane	2	ug/l	UJ	CCVL
SW8260	PL-532-8C1	Freon 12	2	ug/l	UJ	CCVL

Method	NativeID	Analyte	Final Result	Units	Final Flag	Validation Reason
SW8260	PZ-1A-8C1	Bromodichloromethane	0.8	ug/l	U	EBH
SW8260	PZ-1A-8C1	Chloroform	5.6	ug/l	U	EBH
SW8260	PZ-1A-8C1	Hexachlorobutadiene	2	ug/l	UJ	CCVL
SW8260	PZ-1B-8C1	Chloroform	2.3	ug/l	U	EBH
SW8260	PZ-1B-8C1	Vinyl Acetate	14	ug/l	UJ	CCVL
SW8260	TB-091008-8C1	Freon 12	1	ug/l	UJ	CCVL
SW8260	TB-091008-8C1	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	TB-091008-8C1	Naphthalene	2	ug/l	UJ	CCVL
SW8260	TB091108-8C1	1,2-Dibromo-3-Chloropropane	2	ug/l	UJ	ICVSL
SW8260	TB091108-8C1	1,3-Dichloropropane	0.5	ug/l	UJ	ICVSL
SW8260	TB091108-8C1	Chloromethane	1	ug/l	UJ	ICVSL
SW8260	TB091108-8C1	Freon 12	1	ug/l	UJ	ICVSL
SW8260	TB-91008A	Freon 12	1	ug/l	UJ	ICVSL CCVL
SW8260	TB-91008A	Iodomethane	10	ug/l	UJ	ICVSL
SW8260	TB-91008A	Naphthalene	2	ug/l	UJ	CCVL
SW8270-SIM	ASE-130A-8C1	Acenaphthene	0.2	ug/l	J	SSH
SW8270-SIM	ASE-130A-8C1	Acenaphthylene	0.1	ug/l	J	SSH
SW8270-SIM	ASE-130A-8C1	Fluorene	0.3	ug/l	J	SSH
SW8270-SIM	ASE-130A-8C1	Naphthalene	62	ug/l	J	SSH
SW8270-SIM	PL-513-8C1	Acenaphthene	0.2	ug/l	J	SSH
SW8270-SIM	PL-513-8C1	Fluorene	0.3	ug/l	J	SSH
SW8270-SIM	PL-513-8C1	Naphthalene	58	ug/l	J	SSH

Notes:

CCVL = Continuing calibration verification recovery greater than the upper control limit

EBH = Equipment blank concentration above the reporting limit

EBH = Equipment blank concentration below the reporting limit

HTA = Analytical holding time exceeded

ICVSL = Initial calibration verification recovery less than the lower control limit

LCSH = Laboratory control sample recovery greater than the upper control limit

LCSL = Laboratory control sample recovery less than the lower control limit

LCSDL = Laboratory control sample duplicate recovery less than the lower control limit

MSH = Matrix spike recovery greater than the upper control limit.

MSL = Matrix spike recovery less than the lower control limit.

MSDH = Matrix spike duplicate recovery greater than the upper control limit.

MSDL = Matrix spike duplicate recovery less than the lower control limit.

SSH – Surrogate recovery greater than the upper control limit.

TBH – Trip blank concentration above the reporting limit.

Attachment A

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
PL-501-8C1	WATER	09/08/2008	EB
PL-502-8C1	WATER	09/08/2008	EB
PL-508-8C1	WATER	09/09/2008	EB
PL-507-8C1	WATER	09/09/2008	EB
PL-510-8C1	WATER	09/10/2008	EB
PL-511-8C1	WATER	09/10/2008	EB
PL-515-8C1	WATER	09/11/2008	EB
PL-514-8C1	WATER	09/11/2008	EB
PL-517-8C1	WATER	09/12/2008	EB
PL-518-8C1	WATER	09/12/2008	EB
PL-521-8C1	WATER	09/15/2008	EB
PL-525-8C1	WATER	09/16/2008	EB
PL-529-8C1	WATER	09/17/2008	EB
PL-533-8C1	WATER	09/18/2008	EB
PL-522-8C1	WATER	09/22/2008	EB
PL-526-8C1	WATER	09/23/2008	EB
PL-530-8C1	WATER	09/25/2008	EB
PL-534-8C1	WATER	09/26/2008	EB
PL-503-8C1	WATER	09/08/2008	FD
PL-504-8C1	WATER	09/08/2008	FD
PL-506-8C1	WATER	09/09/2008	FD
PL-505-8C1	WATER	09/09/2008	FD
PL-509-8C1	WATER	09/10/2008	FD
PL-512-8C1	WATER	09/11/2008	FD
PL-513-8C1	WATER	09/11/2008	FD
PL-516-8C1	WATER	09/12/2008	FD
PL-519-8C1	WATER	09/15/2008	FD
PL-523-8C1	WATER	09/17/2008	FD
PL-527-8C1	WATER	09/17/2008	FD
PL-531-8C1	WATER	09/18/2008	FD
PL-520-8C1	WATER	09/22/2008	FD
PL-524-8C1	WATER	09/23/2008	FD
PL-528-8C1	WATER	09/25/2008	FD
PL-532-8C1	WATER	09/25/2008	FD
ASE-21C-8C1	WATER	09/08/2008	REG
ASE-61A-8C1	WATER	09/08/2008	REG
PL-202N-8C1	WATER	09/08/2008	REG
PL-202C-8C1	WATER	09/08/2008	REG
ASE-59A-8C1	WATER	09/08/2008	REG
PL-102A-8C1	WATER	09/08/2008	REG
ASE-87A-8C1	WATER	09/08/2008	REG

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
ASE-27A-8C1	WATER	09/08/2008	REG
ASE-23B-8C1	WATER	09/08/2008	REG
BC-1-8C1	WATER	09/08/2008	REG
BC-2-8C1	WATER	09/08/2008	REG
ASE-54A-8C1	WATER	09/09/2008	REG
BC-14-8C1	WATER	09/09/2008	REG
BC-13-8C1	WATER	09/09/2008	REG
PL-201A-8C1	WATER	09/09/2008	REG
PL-2101-8C1	WATER	09/09/2008	REG
PL-2102-8C1	WATER	09/09/2008	REG
ASE-58A-8C1	WATER	09/09/2008	REG
PL-2103-8C1	WATER	09/09/2008	REG
BC-15-8C1	WATER	09/09/2008	REG
ASE-82C-8C1	WATER	09/09/2008	REG
ASE-69A-8C1	WATER	09/09/2008	REG
ASE-46B-8C1	WATER	09/09/2008	REG
ASE-46A-8C1	WATER	09/09/2008	REG
ASE-60A-8C1	WATER	09/09/2008	REG
ASE-25C-8C1	WATER	09/09/2008	REG
BC-6-8C1	WATER	09/09/2008	REG
BC-4-8C1	WATER	09/10/2008	REG
ASE-24C-8C1	WATER	09/10/2008	REG
ASE-22A-8C1	WATER	09/10/2008	REG
ASE-83C-8C1	WATER	09/10/2008	REG
ASE-66A-8C1	WATER	09/10/2008	REG
ASE-83A-8C1	WATER	09/10/2008	REG
ASE-44B-8C1	WATER	09/10/2008	REG
ASE-48B-8C1	WATER	09/10/2008	REG
ASE-49B-8C1	WATER	09/10/2008	REG
ASE-83B-8C1	WATER	09/10/2008	REG
ASE-19B-8C1	WATER	09/10/2008	REG
ASE-22B-8C1	WATER	09/10/2008	REG
ASE-22C-8C1	WATER	09/10/2008	REG
ASE-20B-8C1	WATER	09/10/2008	REG
ASE-20C-8C1	WATER	09/10/2008	REG
ASE-19C-8C1	WATER	09/10/2008	REG
ASE-47B-8C1	WATER	09/11/2008	REG
ASE-130A-8C1	WATER	09/11/2008	REG
ASE-45B-8C1	WATER	09/11/2008	REG
ASE-43B-8C1	WATER	09/11/2008	REG
ASE-50C-8C1	WATER	09/11/2008	REG
ASE-55A-8C1	WATER	09/11/2008	REG
ASE-108A-8C1	WATER	09/11/2008	REG
ASE-65A-8C1	WATER	09/11/2008	REG
ASE-62A-8C1	WATER	09/11/2008	REG
ASE-81A-8C1	WATER	09/11/2008	REG

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
ASE-26A-8C1	WATER	09/11/2008	REG
BC-17-8C1	WATER	09/11/2008	REG
BC-3-8C1	WATER	09/11/2008	REG
PL-105A-8C1	WATER	09/11/2008	REG
ASE-64A-8C1	WATER	09/12/2008	REG
ASE-43C-8C1	WATER	09/12/2008	REG
ASE-79C-8C1	WATER	09/12/2008	REG
BC-12-8C1	WATER	09/12/2008	REG
PL-103A-8C1	WATER	09/12/2008	REG
ASE-71A-8C1	WATER	09/12/2008	REG
BC-7A-8C1	WATER	09/12/2008	REG
BC-9-8C1	WATER	09/12/2008	REG
ASE-71B-8C1	WATER	09/12/2008	REG
ASE-127A-8C1	WATER	09/12/2008	REG
ASE-63A-8C1	WATER	09/12/2008	REG
ASE-33A-8C1	WATER	09/12/2008	REG
ASE-91A-8C1	WATER	09/12/2008	REG
ASE-92A-8C1	WATER	09/12/2008	REG
PL-103C-8C1	WATER	09/12/2008	REG
ASE-29A-8C1	WATER	09/12/2008	REG
ASE-42C-8C1	WATER	09/12/2008	REG
ASE-75C-8C1	WATER	09/15/2008	REG
ASE-75B-8C1	WATER	09/15/2008	REG
ASE-75A-8C1	WATER	09/15/2008	REG
BC-10B-8C1	WATER	09/15/2008	REG
ASE-36A-8C1	WATER	09/15/2008	REG
BC-10A-8C1	WATER	09/15/2008	REG
ASE-88B-8C1	WATER	09/15/2008	REG
BC-10C-8C1	WATER	09/15/2008	REG
ASE-107A-8C1	WATER	09/16/2008	REG
ASE-105A-8C1	WATER	09/16/2008	REG
ASE-112A-8C1	WATER	09/16/2008	REG
ASE-113A-8C1	WATER	09/16/2008	REG
ASE-114A-8C1	WATER	09/16/2008	REG
ASE-125A-8C1	WATER	09/16/2008	REG
ASE-34B-8C1	WATER	09/16/2008	REG
ASE-34A-8C1	WATER	09/16/2008	REG
ASE-95A-8C1	WATER	09/16/2008	REG
ASE-96A-8C1	WATER	09/16/2008	REG
ASE-122A-8C1	WATER	09/17/2008	REG
ASE-128A-8C1	WATER	09/17/2008	REG
ASE-110A-8C1	WATER	09/17/2008	REG
ASE-126A-8C1	WATER	09/17/2008	REG
ASE-84C-8C1	WATER	09/17/2008	REG
ASE-35A-8C1	WATER	09/17/2008	REG
ASE-106A-8C1	WATER	09/17/2008	REG

Samples Associated with DQE			
SampleID	Matrix	Sample Date	Sample Type
ASE-124A-8C1	WATER	09/17/2008	REG
BC-8A-8C1	WATER	09/17/2008	REG
BC-8B-8C1	WATER	09/17/2008	REG
ASE-99A-8C1	WATER	09/17/2008	REG
ASE-98A-8C1	WATER	09/17/2008	REG
ASE-97A-8C1	WATER	09/17/2008	REG
ASE-90A-8C1	WATER	09/17/2008	REG
ASE-89A-8C1	WATER	09/17/2008	REG
ASE-84A-8C1	WATER	09/17/2008	REG
BC-8C-8C1	WATER	09/17/2008	REG
ASE-102A-8C1	WATER	09/18/2008	REG
ASE-129A-8C1	WATER	09/18/2008	REG
ASE-103A-8C1	WATER	09/18/2008	REG
ASE-123A-8C1	WATER	09/18/2008	REG
ASE-100A-8C1	WATER	09/18/2008	REG
ASE-101A-8C1	WATER	09/18/2008	REG
ASE-109A-8C1	WATER	09/18/2008	REG
ASE-78B-8C1	WATER	09/22/2008	REG
ASE-77B-8C1	WATER	09/22/2008	REG
ASE-77A-8C1	WATER	09/22/2008	REG
ASE-76B-8C1	WATER	09/22/2008	REG
ASE-76A-8C1	WATER	09/22/2008	REG
BC-16-8C1	WATER	09/22/2008	REG
ASE-86A-8C1	WATER	09/22/2008	REG
BC-11B-8C1	WATER	09/23/2008	REG
BC-11A-8C1	WATER	09/23/2008	REG
ASE-72A-8C1	WATER	09/23/2008	REG
ASE-72B-8C1	WATER	09/23/2008	REG
ASE-85A-8C1	WATER	09/23/2008	REG
ASE-85B-8C1	WATER	09/23/2008	REG
PZ-1B-8C1	WATER	09/25/2008	REG
PZ-1A-8C1	WATER	09/25/2008	REG
ASE-111A-8C1	WATER	09/25/2008	REG
ASE-73B-8C1	WATER	09/25/2008	REG
ASE-115A-8C1	WATER	09/25/2008	REG
ASE-73C-8C1	WATER	09/25/2008	REG
ASE-73A-8C1	WATER	09/25/2008	REG
ASE-53A-8C1	WATER	09/25/2008	REG
ASE-52A-8C1	WATER	09/25/2008	REG
ASE-51A-8C1	WATER	09/25/2008	REG
ASE-70A-8C1	WATER	09/25/2008	REG
ASE-116A-8C1	WATER	09/26/2008	REG
ASE-40B-8C1	WATER	09/26/2008	REG
ASE-39A-8C1	WATER	09/26/2008	REG
ASE-38A-8C1	WATER	09/26/2008	REG
ASE-20A-8C1	WATER	09/26/2008	REG

Samples Associated with DQE			
SampleID	**Matrix**	**Sample Date**	**Sample Type**
ASE-37A-8C1	WATER	09/26/2008	REG
PL-101A-8C1	WATER	09/26/2008	REG
ASE-57A-8C1	WATER	09/26/2008	REG
TB-090808B	WATER	09/08/2008	TB
TB-090808A	WATER	09/08/2008	TB
TB-090908-8C1	WATER	09/09/2008	TB
TB-090908A	WATER	09/09/2008	TB
TB-091008-8C1	WATER	09/10/2008	TB
TB-91008A	WATER	09/10/2008	TB
TB-091108A	WATER	09/11/2008	TB
TB091108-8C1	WATER	09/11/2008	TB
TB-091208A	WATER	09/12/2008	TB
TB-091208-8C1	WATER	09/12/2008	TB
TB-091508B	WATER	09/15/2008	TB
TB091608-B	WATER	09/16/2008	TB
TB-091708B	WATER	09/17/2008	TB
TB-091808B	WATER	09/18/2008	TB
TB-092208A	WATER	09/22/2008	TB
TB-092308-B	WATER	09/23/2008	TB
TB-092508A	WATER	09/25/2008	TB
TB-092608A	WATER	09/26/2008	TB

Appendix E

Laboratory analytical reports can be viewed in folder
"Appendix E – Laboratory Analytical Reports".