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July 14, 2006

By Hand Delivery

Mark W. Lucas
Case Manager – LUST Enforcement Unit
TPD/Corrective Action Section
Arizona Department of Environmental Quality
1110 W. Washington Street, 4415B-1
Phoenix, AZ 85007

Re: *Second Quarter Status Report for 2006*
LUST File #0393.02-.10, .15
Facility ID #0-002227

Dear Mr. Lucas:

Honeywell is submitting this *Second Quarter Status Report for 2006* in accordance with requirements in the Arizona Department of Environmental Quality's (ADEQ) *Corrective Action Plan Final Approval* letter dated October 7, 2005.

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 jeff.mieth@ch2m.com.

Sincerely,

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

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CH2M HILL Project File

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 34th Street Facility — Facility Name
0-002227 — Facility ID
111 South 34th Street — Street Address
0393.02 - .10, .15 — LUST Number(s)
Phoenix — City
85034 — Zip Code
Maricopa — County

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

7/14/06
Date

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

Remediation Portfolio Director
Title

Revised 8/05

Report

Second Quarter Status Report for 2006

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

Prepared for

Honeywell International Inc.

July 2006

REGISTERED GEOLOGIST
CERTIFICATE NO.
35022
ROBERT J.
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ARIZONA U.S.A.

Prepared by

CH2MHILL

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Acronyms and Abbreviations

%LEL	percent of Lower Explosive Limit
µg/L	micrograms per liter
ADEQ	Arizona Department of Environmental Quality
bgs	below ground surface
BSVE	bioenhanced soil-vapor extraction
BTEX	total benzene, toluene, ethylbenzene, and xylenes
CAP	Corrective Action Plan
cis-1,2-DCE	cis-1,2-dichloroethene
CO_2	carbon dioxide
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
Facility	Honeywell 34th Street Facility
FID	flame ionization detector
Honeywell	Honeywell International Inc.
MTBE	methyl tert-butyl ether
O_2	oxygen
1,1,1-TCA	1,1,1-trichloroethane
TCE	trichloroethylene
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 ongoing contaminant characterization and remediation activities conducted during second quarter 2006, for LUST File Nos. 0393.02-.10, .15, Facility ID No. 0-002227, Honeywell 34th Street Facility (Facility or Honeywell facility). This report also incorporates groundwater monitoring results received during second quarter 2006 associated with first quarter 2006 sampling activities. Air injection pilot test results for activities that began during first quarter 2006 and were completed during second quarter 2006 are also included.

This report is being submitted pursuant to reporting requirements in the Arizona Department of Environmental Quality's (ADEQ) letter dated October 7, 2005 (ADEQ 2005), issuing final approval of Honeywell's Corrective Action Plan (CAP) (CH2M HILL 2004a-b).

1.2 Background

The Facility is located within Operable Unit 2 of the Motorola 52nd Street Superfund Site at 111 South 34th Street in Phoenix, Arizona. Figure 1-1 illustrates the Facility location and layout. The Facility has been used as a manufacturing and testing facility for the production of aircraft engines since 1951.

The United States Environmental Protection Agency (USEPA) and ADEQ Superfund Programs Section are currently overseeing the characterization and remediation of soil and groundwater contaminated with chlorinated compounds within the Superfund Site. During the Superfund investigation, petroleum hydrocarbons were detected at the Facility, and a parallel investigation was initiated under the ADEQ Underground Storage Tank (UST) Corrective Action Section. Since that time, Honeywell International Inc. (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 free-phase hydrocarbon smear zone, and the free-phase hydrocarbon pool with bioenhanced 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 2005).

1.3 Summary of Activities

This quarterly status report summarizes the activities conducted or completed as part of the UST correction action between April 2006 and June 2006:

- Honeywell began the second quarter 2006 groundwater sampling event on June 28, 2006 because access to the monitoring wells on Sky Harbor Airport property was not available until that time. As such, the sampling event was not completed by the end of June. Honeywell will complete the quarterly groundwater sampling event in the first half of July and provide the results in the third quarter status report for 2006.
- Honeywell conducted three monthly water level measurements, and seven rounds of free-product monitoring/recovery during second quarter 2006. The timing of the free-product monitoring/recovery events ranged from weekly to biweekly for the majority of the monitoring wells during the reporting period. Some monitoring wells, specifically ones located on Sky Harbor Airport property, were monitored as access to the Airport was available. The free product monitoring schedule was temporarily adjusted during second quarter 2006 to evaluate thickness trends on a weekly basis (as opposed to biweekly) for approximately a 5-week period. As described in Section 2.1 below, the typical free product monitoring 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* (CH2M HILL 2005a).
- Honeywell completed Phase 3 of the Pilot Test (air injection) at monitoring well ASE-41A on April 18, 2006.
- Honeywell began and completed Phase 4 (respiration testing) for selected monitoring wells associated with monitoring well ASE-41A between April 18 and May 12, 2006. Honeywell continued to monitor Facility subsurface utility vaults for oxygen (O_2), carbon dioxide (CO_2), methane, and percent of lower explosive limit (%LEL) until May 30, 2006, when monitoring was discontinued. Sky Harbor Airport subsurface utility vault monitoring for O_2, CO_2, methane, and %LEL is still in progress; however, the frequency has been reduced to monthly.
- Honeywell conducted helium gas tracer tests during the week of June 26, 2006, to determine well dilution effects from ambient air during soil-gas sampling at monitoring wells P-17 and BV-4.

SECTION 2.0

Site Characterization Activities

This section describes groundwater and free-product data collected as part of Honeywell's ongoing UST monitoring program. Because there were no soil samples collected during the reporting period (April 1, 2006 to June 30, 2006), this section does not include a discussion of soil data. For a discussion of historical soil data, see 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). Groundwater data presented in this section were generated from samples collected during the quarterly groundwater sampling round in March 2006 (with some samples collected in April 2006), in accordance with the *LUST Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan* (CH2M HILL 2005a).

Consistent with Honeywell's *Site Characterization Report Update – October 2005* (CH2M HILL 2005b), this section presents a discussion of dissolved-phase contaminant concentrations and distribution, along with associated plan view plots, of:

- Benzene.
- Methyl-tert-butyl-ether (MTBE).
- Naphthalene.
- Benzo(a)pyrene.
- Total benzene, toluene, ethylbenzene, and xylenes (BTEX).
- Total recoverable petroleum hydrocarbons (TRPH).
- Total volatile organic compounds (VOCs).
- Total non-fuel VOCs.
- Total trichloroethylene (TCE).
- Total 1,1,1-trichloroethane (TCA).

This section also discusses free-product thickness measurements collected on June 21, 2006 and the historical maximum free-product thicknesses measured in Honeywell's UST monitoring wells since 1999. Data regarding Honeywell's free-product recovery efforts and recovered product volumes through second quarter 2006 are presented in Section 3.0.

2.1 Free Product

Historically, free product has been observed in 28 monitoring wells located on the Honeywell facility and Sky Harbor Airport property. As discussed below, free product was observed for the first time in recently-installed monitoring well ASE-115A during the reporting period. 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 Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan* (CH2M HILL 2005a). 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.

Free-product thicknesses are illustrated in this quarterly status report for measurements collected on June 21, 2006 (the last complete monitoring round of the reporting period), as well as the historical maximum thicknesses. Free-product thickness measurements for all monitoring wells where free product historically has been observed are provided in Table 2-1.

On June 21, 2006, as part of its UST monitoring program, Honeywell observed free product in 10 monitoring wells located on its property and Sky Harbor Airport property (Figure 2-1). Except for monitoring well ASE-111A, these monitoring wells had previously contained free product at thicknesses greater than those measured on June 21, 2006, including monitoring well ASE-115A, installed in October/November 2005 to investigate a JP-4 jet fuel release at the Area 2 Fuel Farm. Free product was first encountered in monitoring well ASE-115A on April 5, 2006 at a thickness of 0.30 foot (Table 2-1). On June 21, 2006, the maximum free-product thickness observed in any monitoring well was 0.63 foot in monitoring well ASE-111A, located on the Honeywell facility immediately south of the Area 2 fuel farm (Figure 2-1). The free-product thickness in monitoring well ASE-111A on June 21, 2006 represented the maximum thickness observed in this monitoring well to date. The previous maximum free-product thickness was 0.61 foot, measured on May 23, 2005.

A comparison to the previous quarter's measurements on March 1, 2006 shows that in general, free-product thicknesses in June 2006 were slightly less than those measured in March 2006 (CH2M HILL 2006a). Of the 10 monitoring wells containing free product on June 21, 2006, the thickness of product decreased in seven wells (ASE-51A, ASE-52A, ASE-55A, ASE-67A, ASE-89A, ASE-102A, and ASE-107A) and increased in three wells (ASE-19A, ASE-111A, and ASE-115A), from the measurements collected on March 1, 2006. Free product was encountered in monitoring well ASE-115A on June 21, 2006; this well did not contain free product on March 1, 2006. As described above, free product was first encountered in monitoring well ASE-115A on April 5, 2006. On the other hand, free product was not encountered in monitoring wells ASE-57A, ASE-64A, or ASE-90A on June 21, 2006; these wells each contained free product on March 1, 2006.

The June 21, 2006 free-product thickness measurements indicate that the free product is currently limited to three separate areas similar to the previous reporting period (Figure 2-1). North of Air Lane on the Honeywell facility, free product was detected in monitoring wells ASE-19A, ASE-51A, ASE-52A, ASE-67A, ASE-111A, and ASE-115A. South of Air Lane on the Honeywell facility, free product was detected in monitoring well ASE-55A located in the western portion of the area associated with the UST investigation. On Sky Harbor Airport property, free product was detected in monitoring wells ASE-89A, ASE-102A, and ASE-107A. Each of these free-product areas is delineated further by monitoring wells that did not contain free product (Figure 2-1).

As stated above, free product has now been observed historically in 29 monitoring wells (28 historical, plus monitoring well ASE-115A during this reporting period) located on the Honeywell facility and Sky Harbor Airport property. The maximum free-product thickness measured in any of these wells since April 1999 when free product was first encountered in a monitoring well at Honeywell was 4.52 feet in monitoring well ASE-67A on July 26, 2005 (Figure 2-2). Maximum free product thicknesses for monitoring wells ASE-107A (0.73 foot; April 5, 2006), ASE-111A (0.63 foot; June 21, 2006), and ASE-115A (0.30 foot; April 5, 2006) were measured during second quarter 2006 (Table 2-1 and Figure 2-2).

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 well BC-7A to the southeast. The upgradient 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 extent of the free-product pool can be defined by monitoring wells ASE-58A, ASE-46A, ASE-65A, ASE-126A, ASE-97A, BC-8B, ASE-95A, ASE-124A, ASE-100A, ASE-101A, ASE-128A, ASE-98A, ASE-99A, ASE-110A, ASE-109A, ASE-123A, ASE-122A, ASE-112A, and ASE-105A (Figure 2-2).

2.2 Groundwater

In accordance with Honeywell's *LUST Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan* (CH2M HILL 2005a), Honeywell evaluates the groundwater quality in the area associated with the UST investigation quarterly. In addition, Honeywell measures groundwater levels in monitoring wells associated with the UST investigation monthly, as presented in the above-referenced plan (CH2M HILL 2005a). As part of the Focused Remedial Investigation of the Honeywell facility, groundwater levels were also measured in all other Honeywell groundwater monitoring wells monthly; however, following submittal of a revised sampling and monitoring plan and recent discussions with ADEQ, this monitoring schedule was modified to quarterly (CH2M HILL 2006b). The first site-wide quarterly water level monitoring round for Honeywell took place in June to coincide with the quarterly UST water quality sampling event. An evaluation of the groundwater levels and associated groundwater flow directions in June 2006, in the area related to the UST investigation, is presented below.

Because the March UST water quality sampling round coincides with the site-wide semiannual sampling event, water quality samples were collected from 151 monitoring wells in March 2006. Fifty-nine of these monitoring wells were sampled as part of the UST monitoring program, including Honeywell's recently-installed monitoring wells ASE-122A through ASE-128A. Analytical results from these monitoring wells are presented in this quarterly status report on plan view maps and discussed below. Results from the second quarter 2006 groundwater sampling event were not available at the time of this report and will be included in the third quarter status report for 2006.

This section includes plan view maps with posted water quality data for:

- Benzene.
- MTBE.
- Naphthalene.
- Benzo(a)pyrene.
- Total BTEX.
- TRPH.
- Total VOCs.
- Total non-fuel VOCs.
- Total TCE.
- Total TCA.

Concentration contours are presented along with the posted data for the individual compounds (benzene, MTBE, naphthalene, and benzo(a)pyrene). These contours delineate areas exceeding regulatory standards and laboratory detection limits.

2.2.1 Water Level Elevations

Groundwater elevations for all monitoring wells at and near the Honeywell facility were measured on June 21, 2006. These elevations and associated groundwater level contours are presented on Figure 2-3 for the eastern portion of the Honeywell facility and Sky Harbor Airport property. Similar to previous time periods, the direction of groundwater flow in this area is to the south-southwest (Figure 2-3). A comparison of water level elevations collected in March and June 2006 shows that water levels rose in every monitoring well associated with the UST investigation (Table 2-2). The rise in water level elevation between March and June 2006 ranged from 0.41 foot (ASE-56A) to 1.84 feet (ASE-123A), with an average rise of approximately 0.92 foot. It is not clear at this time why the water levels rose in every monitoring well during the reporting period, given the ongoing drought in the Phoenix area and limited precipitation that occurred during the reporting period. Hydrographs illustrating water level elevations over time for each of Honeywell's UST monitoring wells are included as an appendix.

2.2.2 Benzene

Benzene was detected in groundwater throughout the eastern portion of the Honeywell facility and onto Sky Harbor Airport property in March 2006, consistent with the historical areal extent of the free-product pool. The maximum concentration of benzene in March 2006 occurred in monitoring well ASE-63A (2,300 micrograms per liter [µg/L]) (Figure 2-4). This concentration was lower than the previous quarter's maximum of 6,800 µg/L, which also occurred in monitoring well ASE-63A. Consistent with the data from December 2005, the highest benzene concentrations in March 2006 occurred in monitoring wells associated with the Area 2 fuel farm (ASE-63A, 2,300 µg/L; ASE-116A, 940 µg/L; ASE-38A, 890 µg/L; ASE-39A, 820 µg/L), although the March concentrations in these wells were markedly lower than the concentrations detected in December 2005. Concentrations of benzene exceeding the USEPA maximum contaminant level of 5 µg/L were detected both on the Honeywell facility and beneath the northern portion of Sky Harbor Airport in March 2006 (Figure 2-4).

In general, the March 2006 benzene concentrations were lower than those in December 2005, with some increases seen in monitoring wells on Sky Harbor Airport property. Most significant of these increases was the detection of benzene at 32 µg/L in monitoring well ASE-97A, where previously it had not been detected above 2 µg/L. The concentration of 32 µg/L was detected in the field duplicate sample; benzene was not detected above the detection limit of 1 µg/L in the regular sample collected from monitoring well ASE-97A. The benzene concentration in monitoring well ASE-112A increased significantly as well (from 11 µg/L to 260 µg/L); however, similar to monitoring well ASE-97A, the regular sample result (260 µg/L) and field duplicate result (<1 µg/L) were not consistent. Honeywell will continue to monitor the analytical results in these wells closely in future sampling events to help evaluate the discrepancy between the regular and duplicate samples.

Given the south-southwesterly direction of groundwater flow in the area, the extent of benzene concentrations exceeding the maximum contaminant level is 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 PL-2101, ASE-66A, and ASE-54A to the northwest and by monitoring wells ASE-127A and BC-7A to the southeast (Figure 2-4). The downgradient (south-southwest) extent of benzene exceeding the maximum contaminant level is delineated by monitoring wells ASE-58A, PL-201A, ASE 62A, ASE-65A, ASE-126A, ASE-125A, ASE-95A, BC-8B, ASE-124A, ASE-96A, ASE-101A, ASE-102A, ASE-114A, and ASE-113A (Figure 2-4). Additional monitoring wells downgradient of the Honeywell facility did not contain detectable levels of benzene, as indicated on Figure 2-4.

2.2.3 Methyl Tert-Butyl Ether

MTBE was detected in groundwater throughout the eastern portion of the Honeywell facility and onto Sky Harbor Airport property in March 2006. The maximum concentration of MTBE in March 2006 occurred in monitoring well ASE-89A (1,000 µg/L), located just south of the Honeywell facility on Sky Harbor Airport property (Figure 2-5). This concentration was equal to the concentration detected in this monitoring well in December 2005 and represented the maximum MTBE concentration that occurred during the December 2005 event. In December 2005, an MTBE concentration of 1,000 µg/L was also detected in monitoring well ASE-115A, located just east of the Area 2 fuel farm. In March 2006, the MTBE concentration in monitoring well ASE-115A was 110 µg/L. In March 2006, elevated (>500 µg/L) MTBE concentrations of 810 µg/L and 770 µg/L were detected south of the Area 2 fuel farm in monitoring wells ASE-63A and ASE-39A, respectively. 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 Sky Harbor Airport (Figure 2-5).

Overall, the March 2006 sampling results indicate some shifting of the detections of MTBE, with a general increase in some of the monitoring wells on Sky Harbor Airport property. However, the area that exceeded the Tier 1 remedial level of 94 µg/L remained the same as in the previous quarter. There was only one monitoring well (ASE-111A) whose MTBE concentration exceeded 94 µg/L in December 2005 (190 µg/L) but did not exceed that standard in March 2006 (8.6 µg/L). Similarly, there was only one monitoring well (ASE-112A) whose December 2005 concentration (5.2 µg/L) was less than 94 µg/L but whose March 2006 concentration (310 µg/L) exceeded the Tier 1 standard. It should be noted that, as was the case with benzene, the MTBE concentration in the regular sample collected from monitoring well ASE-112A (310 µg/L) was not consistent with the MTBE concentration in the field duplicate sample collected from the same well (<5 µg/L).

Data from March 2006 also showed an increase in MTBE concentration in monitoring well ASE-97A from <5 µg/L in December 2005 to 71 µg/L in March 2006, extending the MTBE plume to the west (Figure 2-5). MTBE had not been detected in this monitoring well prior to the March 2006 result. As discussed with regards to benzene concentrations, there is an inconsistency between the results of the regular sample and the field duplicate sample in some wells, most notably monitoring wells ASE-112A and ASE-97A. In this case, while the

field duplicate result in monitoring well ASE-97A was 71 µg/L, the regular sample result was <5 µg/L. Honeywell will continue to monitor the analytical results in these wells in future sampling events to help evaluate the discrepancy between the regular and duplicate samples.

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-51A, ASE-52A, ASE-53A, ASE-60A, ASE-111A, and ASE-61A; the cross-gradient extent is delineated by monitoring wells ASE-66A, PL-2101, ASE-20A, and ASE-56A to the northwest and by monitoring wells ASE-127A, and BC-7A to the southeast (Figure 2-5). The downgradient (south-southwest) extent of MTBE exceeding its Tier 1 remedial level is delineated by monitoring wells ASE-46A, ASE-62A, ASE-55A, PL-105A, ASE-91A, BC-8B, ASE-90A, ASE-96A, ASE-101A, ASE-102A, ASE-107A, and ASE-113A (Figure 2-5). Additional monitoring wells downgradient of the Honeywell facility did not contain detectable levels of MTBE, as indicated on Figure 2-5.

In December 2005, the MTBE concentration in monitoring well ASE-95A exceeded the ADEQ-recommended investigation level of 20 µg/L. This prompted Honeywell to install a new monitoring well, ASE-125A, approximately 600 feet west of monitoring well ASE-95A, in January 2006. In March 2006, MTBE was not detected in monitoring well ASE-125A. Based on the March 2006 data, the extent of the MTBE plume was delineated to ADEQ's investigative level of 20 µg/L by monitoring wells ASE-126A, ASE-125A, ASE-103A, and ASE-100A to the west and by monitoring wells ASE-128A, ASE-102A, ASE-110A, ASE-109A, ASE-123A, ASE-122A, and ASE-113A to the south (Figure 2-5).

2.2.4 Naphthalene

Naphthalene was detected in groundwater throughout the eastern portion of the Honeywell facility and onto Sky Harbor Airport property, generally consistent with the extent of the free-product pool. The maximum concentration of naphthalene in March 2006 occurred in monitoring well ASE-57A (500 µg/L), located in the parking lot north of Air Lane (Figure 2-6). In addition, monitoring well PL-101A (290 µg/L), located south of the Area 2 fuel farm, contained a naphthalene concentration of 290 µg/L (Figure 2-6). These two monitoring wells represent the only locations where the naphthalene concentrations exceeded the health-based guidance level of 280 µg/L in March 2006. The naphthalene concentration in monitoring well ASE-56A previously exceeded the health based guidance level, but the concentration in this well dropped below this standard in March 2006. Other detectable levels of naphthalene in March 2006 ranged from 3.2 µg/L (ASE-106A) to 250 µg/L (ASE-56A). As indicated on Figure 2-6, the areas where naphthalene concentrations exceeded the health-based guidance level are limited and defined by the Honeywell UST monitoring well network.

2.2.5 Benzo(a)pyrene

Benzo(a)pyrene was not detected in any monitoring well sampled in March 2006 (Figure 2-7).

2.2.6 Total Benzene, Toluene, Ethylbenzene, and Xylenes

Total BTEX consists of the sum of concentrations of benzene, toluene, ethylbenzene, and total xylenes (*meta*, *para*, and *ortho* isomers). BTEX components were detected throughout the area associated with the UST investigation in March 2006, with a maximum total BTEX concentration of 2,663 µg/L in monitoring well ASE-63A (Figure 2-8). Total BTEX concentrations exceeding 500 µg/L were detected in a north-south direction from the Area 2 fuel farm (from monitoring well ASE-52A to the north, to monitoring well ASE-64A to the south), and to the west of the Area 2 fuel farm in monitoring wells ASE-56A (840 µg/L) and ASE-57A (990 µg/L) (Figure 2-8). This is generally the same concentration pattern as the previous quarter (December 2005), although the concentrations detected in March 2006 are lower and the extent is not as far south. Eighteen of the 26 monitoring wells located on Sky Harbor Airport property did not contain detectable levels of BTEX components in March 2006 (Figure 2-8).

2.2.7 Total Recoverable Petroleum Hydrocarbons

TRPH consists of the sum of compounds with the carbon range C_{13} to C_{32}. Analysis of TRPH using USEPA Method 8015M was approved in a letter from ADEQ to Honeywell dated March 7, 2006 (ADEQ 2006) and therefore, the March 2006 UST quarterly groundwater sampling event represents the initial data set using this analytical method. ADEQ's approval came with the condition that "a demonstration of performance-based measurement should be conducted by the analytical laboratory" and that this information "be performed and submitted with each periodic report." The requested information regarding the analysis of TRPH using USEPA Method 8015B is being submitted concurrently by Honeywell under separate cover and therefore is not included in this report as requested by ADEQ. Note that "modified" ("M") has been removed from the method title because the latest revision ("B") to USEPA Method 8015 addresses using this method for fuels determinations.

TRPH compounds were detected throughout the area associated with the UST investigation in March 2006, with a maximum TRPH concentration of 72,000 µg/L in monitoring well ASE-57A (Figure 2-9). TRPH concentrations exceeding 1,000 µg/L were detected in five monitoring wells in March 2006, with four of the five wells located on the Honeywell facility. Unlike the BTEX compounds, the highest concentrations were not found in the area associated with the Area 2 fuel farm. Rather, the maximum concentration was detected in a monitoring well (ASE-57A) located downgradient of a known historical fuel release from the original Area 2 fuel farm (southwest corner of Building 230) (Figure 2-9).

Figure 2-9 indicates that the extent of TRPH is delineated in all directions and is roughly limited to the historical extent of the free-product pool. Seventeen of the 26 monitoring wells located on Sky Harbor Airport property did not contain detectable levels of TRPH in March 2006; therefore, these wells form a boundary defining the downgradient extent of the TRPH plume from the Honeywell facility.

2.2.8 Total Volatile Organic Compounds

Total VOCs consists of the sum of detected concentrations from the USEPA Method 8260 analyte list. VOCs were detected in the majority of monitoring wells sampled in March 2006, with a maximum total VOC concentration of 3,592.8 µg/L in monitoring well ASE-63A

(Figure 2-10). Total VOC concentrations exceeding 750 µg/L were detected in roughly the same pattern and primarily in the same monitoring wells as those containing concentrations of total BTEX greater than 500 µg/L (Figure 2-8), although the extent is slightly further to the south (Figure 2-10). In general, total VOC concentrations are lower in March 2006 than in the previous quarter (December 2005), but the general extent of detectable VOCs is similar from December 2005 to March 2006. Nine of the 26 monitoring wells located on Sky Harbor Airport property (ASE-125A, ASE-103A, ASE-100A, ASE-128A, ASE-98A, ASE-99A, ASE-110A, ASE-109A, and ASE-123A) did not contain detectable levels of VOCs in March 2006 (Figure 2-10).

2.2.9 Total Non-fuel Volatile Organic Compounds

Total non-fuel VOCs consists of the sum of detected concentrations from a list of analytes prepared by a CH2M HILL chemist (Table 2-3). The analytes listed in Table 2-3 represent compounds not related to releases of petroleum hydrocarbons (e.g., jet fuel). Similar to the previous quarter (December 2005), non-fuel VOCs were detected in the majority of monitoring wells sampled in March 2006 but at much lower concentrations than total VOCs. This is consistent with the location of the sampled monitoring wells, which are in an area primarily contaminated with fuel-related compounds. The maximum total non-fuel VOC concentration in March 2006 was 222 µg/L in monitoring well ASE-91A (Figure 2-11). Total non-fuel VOC concentrations exceeding 100 µg/L were limited to four monitoring wells in the western portion of the area associated with the UST investigation (ASE-68A, ASE-46A, ASE-55A, and ASE-91A) (Figure 2-11). Monitoring well ASE-63A, which contained the highest concentrations of benzene, total BTEX, and total VOCs, only contained a total non-fuel VOC concentration of 21.8 µg/L (i.e., the majority of the detectable compounds were fuel-related). In addition, 14 of the 26 monitoring wells located on Sky Harbor Airport property did not contain detectable levels of non-fuel VOCs in March 2006 (Figure 2-11). Detection limits for total non-fuel VOCs were generally less than 25 µg/L, although in some instances, elevated detection limits for certain parameters were necessary. For example, while the detection limits for most non-fuel VOC parameters for the water quality sample collected from monitoring well ASE-57A were less than 100 µg/L, some detection limits were as high as 500 µg/L (vinyl acetate) and 400 µg/L (acetone).

2.2.10 Total Trichloroethylene

Total TCE consists of the sum of detected concentrations of TCE and its daughter products, cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride. Calculating values of total TCE allows for an evaluation of the distribution of compounds related to releases of TCE, where the parent compound (TCE) may have degraded to its daughter products. In March 2006, compounds related to TCE were detected at relatively low concentrations throughout the area associated with the UST investigation on the Honeywell facility, with some low (<10 µg/L) detections observed in monitoring wells located on Sky Harbor Airport property (Figure 2-12). The maximum total TCE concentration in March 2006 was observed in monitoring well ASE-20A (65.4 µg/L), located within the historical free-product pool on the eastern portion of the area associated with the UST investigation (Figure 2-12). Total TCE concentrations exceeding 50 µg/L were only detected in two monitoring wells: ASE-20A (65.4 µg/L) and ASE-68A (59.3 µg/L) (Figure 2-12). No total TCE concentration exceeded 10 µg/L on Sky Harbor Airport property (maximum of 8.5 µg/L in monitoring well ASE-97A),

and 21 of the 26 monitoring wells located on Sky Harbor Airport property did not contain detectable levels of TCE-related compounds (Figure 2-12). Detection limits for total TCE were generally less than 2 µg/L, although in some cases, higher detection limits were necessary. For example, the detection limits for compounds related to TCE for the water quality sample collected from monitoring well ASE-57A were 40 µg/L for TCE and cis-1,2-DCE and 34 µg/L for vinyl chloride. Detection limits were also slightly higher for the water quality samples collected from monitoring wells ASE-38A, ASE-39A, ASE-56A, ASE-89A, and PL-101A. The detection limits for these samples were 20 µg/L for TCE and cis-1,2-DCE, and 17 µg/L for vinyl chloride.

2.2.11 Total 1,1,1-trichloroethane

Total TCA consists of the sum of detected concentrations of 1,1,1-TCA and its daughter products, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and chloroethane. Similar to total TCE, calculating values of total TCA allows for an evaluation of the distribution of compounds related to releases of 1,1,1-TCA where the parent compound (1,1,1-TCA) may have degraded to its daughter products. Compounds related to 1,1,1-TCA were detected in monitoring wells located in the western portion of the area associated with the UST investigation in March 2006, with a maximum total TCA concentration of 203 µg/L in monitoring well ASE-91A (Figure 2-13). Total TCA concentrations exceeding 100 µg/L were only detected in three monitoring wells: ASE-46A (101 µg/L), ASE-55A (120 µg/L), and ASE-91A (203 µg/L), and 17 of the 26 monitoring wells located on Sky Harbor Airport property did not contain detectable levels of 1,1,1-TCA-related compounds (Figure 2-13). Similar to total TCE, detection limits for total TCA were generally less than 5 µg/L, although in some cases, higher detection limits were necessary. For example, the detection limits for compounds related to 1,1,1-TCA for the water quality sample collected from monitoring well ASE-57A were 100 µg/L for 1,1,1-TCA and 1,1-DCE and 40 µg/L for 1,1-DCA and chloroethane. Detection limits were also slightly higher for the water quality samples collected from monitoring wells ASE-38A, ASE-39A, ASE-56A, ASE-89A, and PL-101A. The detection limits for these samples were 50 µg/L for 1,1,1-TCA and 1,1-DCE and 20 µg/L for 1,1-DCA and chloroethane.

SECTION 3.0

Site Remediation Activities

This section summarizes the scope and results of site remediation activities conducted during second quarter 2006, including results of the air injection pilot test that began during first quarter 2006.

3.1 Free-product Recovery

During second quarter 2006, Honeywell continued to recover free product manually on a biweekly basis 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 automated free-product skimming pump, the *Magnum Spill Buster*™ from Clean Earth Technology, installed on December 24, 2005. The pump was installed in monitoring well ASE-67A in conformance with CAP free-product monitoring and recovery requirements. The requirement to install the pump was triggered by free-product thicknesses in monitoring well ASE-67A in excess of 0.75 foot on November 2, 2005 (1.15 feet) and November 9, 2005 (1.34 feet).

As reported in the *First Quarter Status Report for 2006* (CH2M HILL 2006a), on March 28, 2006, during operation and maintenance procedures, Honeywell determined that the skimming pump was not operating properly because the free-product thickness in monitoring well ASE-67A was 1.4 feet. Under normal operating conditions, the pump maintains free-product thicknesses below approximately 0.4 foot. On April 13, 2006, Honeywell performed troubleshooting activities and found that the pump was missing from the pump housing. It was determined that the pump had fallen to the bottom of the well and that it would be necessary to replace the pump rather than attempt to recover it. Approximately 3.6 gallons of free product were manually recovered from monitoring well ASE-67A on April 13, 2006 with the *Spill Buddy Pro*™ while troubleshooting the automated system. A new pump was ordered through Clean Earth Technology and installed on April 21, 2006.

Approximately 62 gallons of free product, including 59.4 gallons recovered from monitoring well ASE-67A, were recovered during second quarter 2006. This compares to the approximate 22 gallons recovered during first quarter 2006 and approximate 4.9 gallons recovered during fourth quarter 2005. Approximately 7,132 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 has historically had measurable free product.

3.2 Bioenhanced Soil Vapor Extraction

3.2.1 Bioenhanced Soil Vapor Extraction Air Permitting

As presented in the *First Quarter Status Report for 2006* (CH2M HILL 2006a), on March 24, 2006, Honeywell submitted a request for accelerated processing for the BSVE permit application. As of the date of this status report, Honeywell understands from Maricopa County that they are still in the process of selecting a consultant to review the permit application. Once a consultant is selected, the County and their consultant will then have 30 days to review the application for completeness. At the end of the completeness review, the County will notify Honeywell if additional information must be submitted for the County to process the application. After the consultant has been selected, the approximate timeline for issuing a final permit could be approximately 1 year based on information received from Maricopa County. This includes time for:

- Review of the permit application by the consultant (this may include a public pre-hearing on the permit).
- Issuance of a draft permit to Honeywell for comment.
- Finalization of the draft permit.
- Public notice.
- Public hearing and response to comments.
- Revision of the draft permit.
- USEPA review of the permit.

At the present time, it is difficult to assess the impact that the BSVE air permit timeline may have on the overall CAP timeline. Honeywell will continue to follow up with Maricopa County and provide the status to ADEQ in future Quarterly Status Reports.

3.2.2 Air Injection Pilot Test

During second quarter 2006, Honeywell completed Phase 3 (air injection) of the air injection pilot test that began on February 27, 2006. On April 18, 2006, monitoring well ASE-41A was shut down after almost 7 weeks of continuous air injection and Phase 4 (*in-situ* respiration monitoring) began at monitoring wells associated with ASE-41A (BV-4, P-4, P-17, and P-20). Phase 4 continued until May 12, 2006, achieving the objectives of the *Final Air Injection Pilot Test Work Plan* (Honeywell 2005) for monitoring well ASE-41A. Table 3-2 presents a summary of the soil vapor monitoring conducted during Phase 3 and Phase 4 of the air injection pilot testing. During respiration testing, O_2 concentrations at some monitoring wells were observed to increase for a short time and then resume their decreasing trends. As such, long-term purge tests were performed at select monitoring wells associated with pilot test injection wells ASE-41A, ASE-92A, and ASE-108A to eliminate suspected well dilution effects. In addition to the long-term purge tests, helium gas tracer tests were conducted during the week of June 26, 2006 to determine well dilution effects from ambient air at wells P-17 and BV-4. Figures 3-1 through 3-3A and 3-3B present the maximum detected methane

concentrations and associated O_2, CO_2, %LEL, and flame ionization detector (FID) concentrations for monitoring wells and vaults sampled during Phase 3 and Phase 4 of the air injection pilot test (February 27, 2006 to May 12, 2006). The final round of soil vapor samples was collected during the week of April 3, 2006 from the vapor intrusion monitoring points and submitted for laboratory analysis using USEPA Method TO-15. Maximum concentrations for benzene, vinyl chloride, BTEX, total VOCs, total non-fuel VOCs, total TCE, and total TCA detected during the Phase 3 air injection pilot test for the shallow, intermediate, and deep soil vapor monitor locations are posted on Figures 3-4 through 3-25.

Note that in the *First Quarter Status Report for 2006* (CH2M HILL 2006a) and *Site Characterization Report Update – October 2005* (CH2M HILL 2005b), field parameter and VOC concentrations were reported for only shallow and deep soil vapor monitoring locations, with "shallow" defined as well locations with screen intervals less than 40 feet below ground surface (bgs) and "deep" defined as well locations with screen intervals greater than 40 feet bgs. For the purposes of the human health risk assessment and to develop a tiered system when evaluating Tier 1 and Tier 2 vapor action levels, the intervals for soil vapor monitoring wells have been redefined and are presented in this status report as follows:

- *Shallow Well Locations* – wells with screen intervals less than 9 feet bgs. If a screen interval is perforated across 9 feet bgs, the well location is still considered a shallow location.
- *Intermediate Well Locations* – wells with screen intervals located between 9 feet bgs and 30 feet bgs. If a screen interval is perforated across 30 feet bgs, the well location is still considered an intermediate location.
- *Deep Well Locations* – wells with screen intervals greater than 30 feet bgs.

Validated analytical results for Phase 3 showed:

- No exceedance of Tier 2 vapor action levels at the vapor intrusion monitoring points.
- One exceedance of Tier 1 vapor action levels for tetrachloroethene (PCE) in a sub-slab monitoring point (P-35), located inside Building 102 on the Honeywell facility. The exceedance occurred during first quarter 2006. Figures 3-26 through 3-29 show trend plots for validated PCE levels from samples collected at P-35 and nearby sub-slab points P-33, P-37, and P-38 as of April 6, 2006. Validated results from samples collected at P-35 on April 6, 2006, show concentrations of PCE lower than the Tier 1 vapor action level.

A complete presentation and discussion of air injection pilot test results (including Phase 3 and Phase 4 activities conducted during second quarter 2006) will be included in an Air Injection Pilot Test Report, currently scheduled for submittal to ADEQ in fourth quarter 2006.

As presented in the *First Quarter Status Report for 2006* (CH2M HILL 2006a), air injection at two injection wells (ASE-92A and ASE-108A) was shut down on March 9, 2006 because of confirmed readings of %LEL above the trigger level of 20%LEL in one electrical vault (ELE-VLT-03) located on Sky Harbor Airport property, north of the northern runway (see Figure 3-4 for Phoenix Sky Harbor Airport vault locations). After shutdown of the air injection, two additional subsurface utility vaults (ELE-VLT-06 and FBO-VLT-01) on Sky Harbor Airport property, also located north of the northern runway, were monitored with

readings of %LEL above the trigger level of 20%LEL. Since March 10, 2006, after air injection was stopped at ASE-92A and ASE-108A, methane concentrations and %LEL at Sky Harbor Airport subsurface utility vaults have remained at zero percent. Thirteen Sky Harbor Airport subsurface utility vaults were monitored on a frequency from daily to twice each week, depending on field measurements collected during continued air injection at ASE-41A; this frequency was reduced to once per week after air injection at ASE-41A was stopped on April 18, 2006. On June 14, 2006, Honeywell received approval via email from the City of Phoenix to reduce the subsurface utility monitoring frequency to once per month. The next anticipated field measurement sampling event for O_2, CO_2, methane, and %LEL at Sky Harbor Airport subsurface utility vaults is anticipated to be in mid-July 2006. Figures 3-30 through 3-32 depict trend plots of O_2, %LEL, and CO_2 in the three airport vaults where readings of >20%LEL were measured.

On April 4 and April 11, 2006, Honeywell conducted a Sky Harbor Airport utility vault inspection for vaults located in the northern infields and tested various sensors and transmitters. The purpose of the inspection was to evaluate vault mitigation options and to place remote LEL sensors inside vaults on the Honeywell facility and the Sky Harbor Airport property. Based on verbal feedback from the City of Phoenix and Federal Aviation Administration personnel in attendance during the vault inspections and sensor testing, it does not appear that a reasonable mitigation option exists within the timeframe of the pilot test that would allow for injection only, without coincidental extraction, for the multiple weeks needed for the pilot test at ASE-92A or ASE-108A.

Thirty-four subsurface utility vaults were monitored at the Honeywell facility (see Figure 3-4 for vault locations). As presented in the *First Quarter Status Report for 2006* (CH2M HILL 2006a), readings of >20%LEL were measured in six of the subsurface utility vaults. Prior to the start of the pilot test on February 27, 2006, baseline monitoring for O_2, CO_2, methane, and %LEL was conducted in mid-February at each of the 34 subsurface utility vault locations. Three utility vaults (1164, B102-N-1, and B102-N-4) had %LEL concentrations greater than zero percent.

In addition to the field parameter measurements, CH2M HILL field personnel detected a faint odor indicative of the mercaptan additive that is added to natural gas in an access port for the natural gas pipeline in the vicinity of utility vault B102-N-4 on the Honeywell facility. As a result of these detections and field observations, and the proximity of the vaults to a natural gas pipeline, Honeywell began investigating to determine the source of the elevated readings. Air samples were then collected from the vaults and speciation analysis was conducted using SUMMA® canisters and analyzed using EPA Method TO-3M (C_1-C_6 speciation) to determine if the air within the vaults contained C_2-C_6 compound in addition to methane (C_1). Results indicated that both methane and the C_2-C_6 compounds were present which are indicative of natural gas. The natural gas pipeline was then shut down and a failed section of the pipeline was abandoned. Subsequent vault monitoring showed %LEL results decreased to zero percent.

Since March 15, 2006, all monitored subsurface utility vaults located on the Honeywell facility have remained at zero percent for methane concentrations and %LEL. Figures 3-33 through 3-38 show trend plots of O_2, %LEL, and CO_2 in the six vaults on the Honeywell facility where readings of >20%LEL were measured. On May 30, 2006, Honeywell

discontinued monitoring the Honeywell facility subsurface utility vaults because methane concentrations and %LEL have remained at zero percent for more than two months.

On May 15, 2006, the methane trigger or action level was reevaluated and adjusted downward to 10%LEL. Future pilot testing will implement this revised trigger level and will require notifications when methane readings at or greater than 10%LEL are confirmed in vaults and other structures.

On June 8, 2006, Honeywell and the City of Phoenix met to discuss the pilot test results, the impacts on the BSVE design, preliminary evaluation of methane and VOC monitoring data obtained during the pilot test, and the path forward. Below is the path forward set forth at the meeting:

- Consensus was reached between Honeywell and the City of Phoenix that data collected from pilot test activities to date are adequate to allow for refinement and completion of the BSVE design on the Honeywell facility. As such, no additional pilot testing will be conducted on the Facility. In consultation with the City of Phoenix, Honeywell will proceed with preparation of the Pilot Test Report with pilot test data from the Honeywell facility and plan to submit to ADEQ by fourth quarter 2006. The pilot test report will include the pilot test results, the limitations encountered during the pilot test, recommendations for additional monitoring, and impacts to the BSVE design for the Honeywell facility. Concurrent with the pilot test report, Honeywell will proceed with updating the existing 60 percent BSVE design for the Honeywell facility with the pilot test results, and plan to submit the 100 percent BSVE design to ADEQ.
- On Sky Harbor Airport property, the City of Phoenix has indicated pilot test activities are still desirable. Because of limitations encountered in the field and potential vault mitigation considerations, a revised and separate work plan and implementation plan for upcoming short term pilot testing on Sky Harbor Airport property will be prepared by Honeywell. The work plan will be forwarded to ADEQ within a few weeks of the date of this status report. Subsequent to the pilot test, results will be incorporated either into the aforementioned Pilot Test Report or into an addendum to the Pilot Test Report. Honeywell and its consultant, CH2M HILL, will work collaboratively with the City of Phoenix and Hydro Geo Chem, Inc. to evaluate the Sky Harbor Airport pilot test results and incorporate the results into the BSVE design for the Sky Harbor Airport side of the system.

SECTION 4.0

Summary of Planned Work

The following activities are planned for the period between July 2006 and September 2006:

- Complete second quarterly groundwater sampling event for 2006 that began on June 28, 2006. Coordination with City of Phoenix personnel to gain access to Sky Harbor Airport property will begin following the July 4, 2006 holiday.
- Conduct third quarterly groundwater sampling event for 2006 (tentatively scheduled for September 11 to September 22, 2006), monthly water level measurements, and biweekly and monthly free-product monitoring and recovery in accordance with the *LUST Field Sampling Plan – Groundwater Sampling, Free Product Monitoring and Recovery Plan* (CH2M HILL 2005a).
- Conduct helium gas tracer tests to determine well dilution effects from ambient air at monitoring wells ASE-41A, ASE-55A, P-4, P-14, P-15, P-16, and PL-105A. Results will be incorporated into the data evaluation section of the Pilot Test report.
- Conduct monitoring for select Sky Harbor Airport subsurface utility vaults in July 2006. Vault monitoring will include field parameter measurements and USEPA Method TO-15 analysis. The results will be used for the human health risk assessment.
- Prepare pilot test report to present data collected on the Honeywell facility and Sky Harbor Airport property (if available) and plan to submit to ADEQ by fourth quarter 2006.
- Prepare a work plan for short term air injection pilot testing on the Sky Harbor Airport property; plan to submit to ADEQ in July/August 2006.
- Prepare a work plan to propose installation of additional soil vapor monitoring wells; plan to submit to ADEQ by fourth quarter 2006.
- Continue to follow up with Maricopa County on the progress of the BSVE air permit application review and submit any requested supplemental material in a timely manner.

SECTION 5.0

Summary of Problems and Delays

The following is a summary of problems and delays that occurred during second quarter 2006:

- Sky Harbor Airport has continued the implementation of additional restrictions on access to locations within the airport hold-bar (291 feet from the runway centerline). Access to these locations requires advanced scheduling with Airport Operations, the availability of an Airport Operations escort, and completing the work (monitoring, sampling, and free-product recovery) between the hours of 11:00 p.m. to 6:00 a.m. These restrictions affected some free-product thickness monitoring and recovery on the Sky Harbor Airport property during the reporting period, and resulted in a schedule modification for the second quarterly groundwater sampling event for 2006.
- Per the June 8 meeting between Honeywell and City of Phoenix, Honeywell does not believe that air injection pilot testing at ASE-92 and ASE-108A should be resumed without coincidental extraction and therefore has postponed pilot test activities for these wells indefinitely. This represents a deviation from the *Final Air Injection Pilot Test Work Plan* (Honeywell 2005). ADEQ was notified of this condition initially in an email from Honeywell on April 27, 2006, and subsequently via a telephone conversation with CH2M HILL on June 22, 2006.
- On Sky Harbor Airport property, the City of Phoenix has indicated pilot test activities are still desirable. Because of limitations encountered in the field and potential vault mitigation considerations, a revised and separate work plan and implementation plan for upcoming short term pilot testing on the Sky Harbor Airport property will be prepared by Honeywell. The work plan will be forwarded to ADEQ within a few weeks of the date of this status report.

SECTION 6.0

Status of Deliverables

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

- On April 14, 2006, CH2M HILL, on behalf of Honeywell, submitted to ADEQ the *First Quarter 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, COP 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 set forth in ADEQ's October 7, 2005 CAP approval letter. Attachments to this letter include (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 3-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 the *Site Characterization Report* to ADEQ's UST Corrective Action Section.

The following are deliverables planned for submittal:

- Work plan for short term air injection pilot testing on Sky Harbor Airport property. This work plan is currently scheduled for submittal to ADEQ in July/August 2006.
- Work plan to propose installation of additional soil vapor monitoring wells. This work plan is currently scheduled for submittal to ADEQ in fourth quarter 2006.
- *Third Quarter Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.* This report is currently scheduled for submittal to ADEQ on October 12, 2006.
- *Air Injection Pilot Test Report for the Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.* This report is currently scheduled for submittal to ADEQ in fourth quarter 2006.

SECTION 7.0

References

Arizona Department of Environmental Quality (ADEQ). 2002. *Release Reporting and Corrective Action Guidance*. Revision 0. State of Arizona Department of Environmental Quality Underground Storage Tank Program. August 20.

_____. 2005. Letter from Mr. Mark W. Lucas and Mr. Joseph Karl Drosendahl to Ms. Troy Meyer, Honeywell, re: Corrective Action Plan Final Approval, LUST File No. #0393.02-.10, .15, Facility ID #0-002227; Honeywell, 111 South 34th Street, Phoenix, Arizona. October 7.

_____. 2006. Letter from Mr. Mark W. Lucas and Mr. Joseph Karl Drosendahl to Ms. Troy Meyer, Honeywell, re: 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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_____. 2004b. Letter from Thomas J. Mooney, CH2M HILL, on behalf of Honeywell, to Mr. Mark Lucas, ADEQ, re: Response to ADEQ comments dated September 30, 2004 on Honeywell's Revised Corrective Action Plan, dated July 30, 2004, Honeywell 34th Street Facility, Phoenix, Arizona. November 15.

_____. 2005a. *LUST Field Sampling Plan – Groundwater Sampling, Free-product Monitoring and Recovery Plan, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15*. December 8.

_____. 2005b. *Site Characterization Report Update—October 2005.* November 2.

_____. 2006a. *First Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.* April.

_____. 2006b. *Field Sampling Plan, Honeywell International Inc., 34th Street Facility,*

Honeywell International Inc. (Honeywell). 2005. *Final Air Injection Pilot Test Work Plan, Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport North Airfield, Phoenix, Arizona*. October 4.

Tables

TABLE 2-1
Summary of Free-product Thickness Measurements, 2006
Honeywell 34th Street Facility, Phoenix, Arizona

Well	Free-product Thickness (feet)							
	04/05 - 04/06	04/12 - 04/13	04/20	04/25	05/02	05/12	05/24 - 05/25	06/21
ASE-19A	Dry	Dry	Dry	NM	Dry	Dry	0.21	0.17
ASE-20A	0	0	0	NM	0	0	0	0
ASE-37A	0	0	0	NM	0	0	0	0
ASE-38A	0	0	0	NM	0	0	0	0
ASE-39A	0	0	0	NM	0	0	0	0
ASE-41A	NM	NM	NM	NM	NM	0	NM	0
ASE-51A	0.13	0.14	0.13	NM	0.04	0.04	0.04	0.04
ASE-52A	0.04	0.04	0.04	NM	0.03	0.07	0.09	0.10
ASE-53A	0	0	0	NM	0	0	0	0
ASE-55A	0.05	0.05	0.05	NM	0.16	0.15	0.11	0.11
ASE-56A	0	0	0	NM	0	0	0	0
ASE-57A	0	0	0	NM	0	0	0	0
ASE-63A	0	0	0	NM	0	0	0	0
ASE-64A	0	0	0	NM	0	0	0	0
ASE-67A	NM	1.93	1.57	NM	NM	NM	0.11*	NM
ASE-68A	0	0	0	NM	0	0	0	0
ASE-89A	0.08	0.07	NM	0.07	0.07	0.06	0.07	0.04
ASE-90A	0	0	NM	0	0	0	0	0
ASE-92A	0	NM	NM	NM	NM	0.01	NM	0
ASE-96A	0	NM	NM	0	0	0	0	0
ASE-102A	0.02	0.03	NM	0.03	0.04	0.04	0.02	0.04
ASE-107A	0.73	0.72	NM	0.01	0.01	0.01	0.03	0.04
ASE-111A	0.38	0.53	0.53	NM	0.38	0.15	0.18	0.63
ASE-113A	0	0	NM	0	0	0	0	0
ASE-114A	0	0	NM	0	0	0	0	0
ASE-115A	0.30	NM	0.17	NM	0.14	0.09	NM	0.03
ASE-122A	0	NM	NM	NM	NM	NM	NM	0
ASE-123A	0	NM	NM	NM	NM	NM	NM	0
ASE-124A	0	NM	NM	NM	NM	NM	NM	0
ASE-125A	0	NM	NM	NM	NM	NM	NM	0
ASE-126A	0	NM	NM	NM	NM	NM	NM	0
ASE-127A	0	NM	NM	NM	NM	NM	NM	0
ASE-128A	0	NM	NM	NM	0	NM	NM	0
PL-101A	0	0	0	NM	0	0	0	0
PL-105A	0	0	0	NM	0	0	0	0
PL-2101	0	NM	0	NM	0	0	0	0

Notes:

This table includes all wells that have historically had measurable free product, plus the seven recently-installed groundwater monitoring wells (ASE-122A – ASE-128A).

NM — Free product thickness not measured.
*Measurement collected on May 30, 2006.

TABLE 2-2
Comparison between March 2006 and June 2006 Water Level Elevations
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Groundwater Elevation 3/1/2006 (ft amsl)	Groundwater Elevation 6/21/2006 (ft amsl)	Difference (feet)
ASE-19A	1051.42	1051.90	0.48
ASE-20A	1049.99	1050.45	0.46
ASE-37A	1053.66	1054.47	0.81
ASE-38A	1054.03	1054.88	0.85
ASE-39A	1053.33	1054.13	0.80
ASE-41A	NM	1049.01	NA
ASE-46A	1047.41	1048.03	0.62
ASE-51A	1052.04	1052.60	0.56
ASE-52A	1053.94	1054.56	0.62
ASE-53A	1054.25	1054.96	0.71
ASE-54A	1049.76	1050.25	0.49
ASE-55A	1044.67	1045.24	0.57
ASE-56A	1048.88	1049.29	0.41
ASE-57A	1049.72	1050.29	0.57
ASE-58A	1047.88	1048.39	0.51
ASE-59A	1054.34	1055.06	0.72
ASE-60A	1055.03	1055.83	0.80
ASE-61A	1055.26	1056.23	0.97
ASE-62A	1045.49	1046.08	0.59
ASE-63A	1052.05	1052.77	0.72
ASE-64A	1046.04	1046.92	0.88
ASE-65A	1032.46	1033.03	NA
ASE-66A	1050.72	1051.29	0.57
ASE-67A	NM	NM	NA
ASE-68A	1050.07	1050.57	0.50
ASE-89A	1044.57	1045.53	0.96
ASE-90A	1043.23	1044.27	1.04
ASE-91A	1045.19	1046.10	0.91
ASE-92A	NM	1046.33	NA
ASE-95A	NM	1034.15	NA
ASE-96A	1041.80	1043.06	1.26
ASE-97A	1033.62	1034.33	0.71
ASE-98A	1036.15	1037.48	1.33
ASE-99A	1037.84	1039.32	1.48
ASE-100A	1033.87	1034.82	0.95
ASE-101A	1036.56	1037.88	1.32
ASE-102A	1040.00	1041.29	1.29
ASE-103A	1032.28	1033.16	0.88

TABLE 2-2
Comparison between March 2006 and June 2006 Water Level Elevations
Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	Groundwater Elevation		Difference (feet)
	3/1/2006 (ft amsl)	6/21/2006 (ft amsl)	
ASE-105A	1044.15	1045.33	1.18
ASE-106A	1041.38	1042.75	1.37
ASE-107A	1042.47	1043.87	1.40
ASE-108A	NM	1045.38	NA
ASE-109A	1043.12	1044.83	1.71
ASE-110A	1041.52	1043.15	1.63
ASE-111A	1054.45	1055.74	1.29
ASE-112A	1044.39	1045.25	0.86
ASE-113A	1043.38	1045.04	1.66
ASE-114A	1043.10	1044.42	1.32
ASE-115A	1054.38	1055.22	0.84
ASE-116A	1054.13	1054.95	0.82
ASE-122A	1044.14	1045.91	1.77
ASE-123A	1044.36	1046.20	1.84
ASE-124A	1033.81	1034.55	0.74
ASE-125A	1030.34	1030.95	0.61
ASE-126A	1032.22	1032.83	0.61
ASE-127A	1050.29	1051.45	1.16
ASE-128A	1036.05	1037.53	1.48
BC-7A	1051.55	1052.88	1.33
BC-8B	1043.45	1044.39	0.94
PL-101A	1054.15	1055.02	0.87
PL-103A	1048.93	1049.40	0.47
PL-105A	1044.87	1045.63	0.76
PL-201A	1046.82	1047.35	0.53
PL-2101	1049.99	1050.52	0.53
PL-2102	1050.08	1050.57	0.49

Notes:

Difference column calculated by subtracting March 2006 water level elevation from June 2006 water level elevation. Positive result indicates higher water level elevation in June signifying a rising water table over the reporting period.

ft amsl-Feet above mean sea level.
NM-Water level elevation not measured.
NA-Not applicable; difference cannot be calculated.

TABLE 2-3
Non-fuel Volatile Organic Compound List
Honeywell 34th Street Facility, Phoenix, Arizona

SOIL VAPOR	GROUNDWATER	SOIL
1,1,1-Trichloroethane	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,1-Trichloroethane
1,1,2-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
1,1,2-Trichlorotrifluoroethane	1,1,2-Trichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethane	1,1,2-Trichlorotrifluoroethane	1,1,2-Trichlorotrifluoroethane
1,1-Dichloroethene	1,1-Dichloroethane	1,1-Dichloroethane
1,2-Dichlorobenzene	1,1-Dichloroethene	1,1-Dichloroethene
1,2-Dichloropropane	1,1-Dichloropropene	1,1-Dichloropropene
1,2-Dichlorotetrafluoroethane	1,2,3-Trichloropropane	1,2,3-Trichloropropane
1,3-Butadiene	1,2-Dibromo-3-Chloropropane	1,2-Dibromo-3-Chloropropane
1,3-Dichlorobenzene	1,2-Dichlorobenzene	1,2-Dichlorobenzene
1,4-Dichlorobenzene	1,2-Dichloropropane	1,2-Dichloropropane
2-Butanone	1,3-Dichlorobenzene	1,3-Dichlorobenzene
2-Hexanone	1,3-Dichloropropane	1,3-Dichloropropane
4-Methyl-2-Pentanone	1,4-Dichlorobenzene	1,4-Dichlorobenzene
Acetone	2,2-Dichloropropane	2,2-Dichloropropane
Allyl Chloride	2-Butanone	2-Butanone
Bromodichloromethane	2-Hexanone	2-Chloroethyl Vinyl Ether
Bromoethene	4-Methyl-2-Pentanone	2-Hexanone
Bromoform	Acetone	4-Methyl-2-Pentanone
Bromomethane	Bromochloromethane	Acetone
Carbon Disulfide	Bromodichloromethane	Bromochloromethane
Carbon Tetrachloride	Bromoform	Bromodichloromethane
Chlorobenzene	Bromomethane	Bromoform

TABLE 2-3
Non-Fuel Volatile Organic Compound List
Honeywell 34th Street Facility, Phoenix, Arizona

SOIL VAPOR	GROUNDWATER	SOIL
Chlorodibromomethane	Carbon Disulfide	Bromomethane
Chloroethane	Carbon Tetrachloride	Carbon Disulfide
Chloroform	Chlorobenzene	Carbon Tetrachloride
Chloromethane	Chlorodibromomethane	Chlorobenzene
cis-1,2-Dichloroethene	Chloroethane	Chlorodibromomethane
cis-1,3-Dichloropropene	Chloroform	Chloroethane
Cyclohexane	Chloromethane	Chloroform
Dichlorodifluoromethane	cis-1,2-Dichloroethene	Chloromethane
Ethyl Acetate	cis-1,3-Dichloropropene	cis-1,2-Dichloroethene
Hexachlorobutadiene	Dibromomethane	cis-1,3-Dichloropropene
Isopropanol	Dichlorodifluoromethane	Dibromomethane
Methylene Chloride	Hexachlorobutadiene	Dichlorodifluoromethane
Propylene	Iodomethane	Hexachlorobutadiene
Tetrachloroethene	Methylene Chloride	Iodomethane
Tetrahydrofuran	Styrene	Methylene Chloride
trans-1,2-Dichloroethene	Tetrachloroethene	Styrene
trans-1,3-Dichloropropene	trans-1,2-Dichloroethene	Tetrachloroethene
Trichloroethene	trans-1,3-Dichloropropene	trans-1,2-Dichloroethene
Trichlorofluoromethane	Trichloroethene	trans-1,3-Dichloropropene
Vinyl Acetate	Trichlorofluoromethane	Trichloroethene
Vinyl Chloride	Vinyl Acetate	Trichlorofluoromethane
	Vinyl chloride	Vinyl Acetate
		Vinyl chloride

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

Well	Gallons Recovered during Second Quarter 2006	Total Gallons Recovered via Skimming through Second Quarter 2006
ASE-19A	0.0	48.6
ASE-20A	0.0	4,103.8
ASE-37A	0.0	1.8
ASE-38A	0.0	46.9
ASE-39A	0.0	0.7
ASE-41A	0.0	27.3
ASE-51A	0.3	105.0
ASE-52A	0.0	18.9
ASE-53A	0.0	481.1
ASE-55A	0.1	3.1
ASE-56A	0.0	663.0
ASE-57A	0.0	685.2
ASE-63A	0.0	0.0
ASE-64A	0.0	31.6
ASE-67A	59.4	245.4
ASE-68A	0.0	74.7
ASE-89A	0.0	139.1
ASE-90A	0.0	6.7
ASE-92A	0.0	0.0
ASE-96A	0.0	1.0
ASE-102A	0.0	146.5
ASE-107A	0.5	2.7
ASE-111A	1.4	2.2
ASE-113A	0.0	0.0
ASE-114A	0.0	0.0
ASE-115A	0.2	0.2
PL-101A	0.0	291.0
PL-105A	0.0	5.5
PL-2101	0.0	0.02
Total	**61.9**	**7,132**

Notes:

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

TABLE 3-2
Summary of Soil Vapor Monitoring During Phase 3 and Phase 4 Air Injection Pilot Testing
Honeywell 34th Street Facility, Phoenix, Arizona

Monitoring Location	Parameter	Test Method
Monitoring wells[a,b]	O_2, CO_2,TPH, %LEL, methane, and pressure/vacuum	TVA 1000, GEM 2000, and magnehelic gauge
Shallow soil-vapor monitoring points[b]	O_2, CO_2,TPH, %LEL, methane, and VOCs	TVA 1000, GEM 2000, and EPA TO-15
Sentinel wells[b]	O_2, CO_2,TPH, %LEL, methane, and VOCs	TVA 1000, GEM 2000, and EPA TO-15
Subslab soil-vapor monitoring points[b]	O_2, CO_2,TPH, %LEL, methane, and VOCs	TVA 1000, GEM 2000, and EPA TO-15
Utility vaults within the radius of influence of the injection well[c]	O_2, CO_2, %LEL, and methane	GEM 2000

[a] Some of the monitoring wells located on the Phoenix Sky Harbor International Airport (PSHIA) property were found to be submerged (i.e., top of well screen was below groundwater level). Hence, soil vapor samples were not collected from these wells.

[b] Monitoring locations are presented in the *Final Air Injection Pilot Test Work Plan, Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport North Airfield, Phoenix, Arizona* (Honeywell 2005).

[c] Utility vaults on PSHIA property and the Honeywell facility were monitored for O_2, CO_2, %LEL, and methane during the air injection (Phase 3), respiration testing (Phase 4), and after air injection pilot test activities were completed. Honeywell discontinued monitoring the Honeywell facility vaults on May 30, 2006. As of June 14, 2006, PSHIA vaults are being monitored on a monthly basis for O_2, CO_2, %LEL, and methane. See Figure 3-4 for monitored vaults on the Honeywell facility and on PSHIA.

Notes:

%LEL - percent of Lower Explosive Limit.

EPA TO-15 - analytical method used to quantify VOCs.

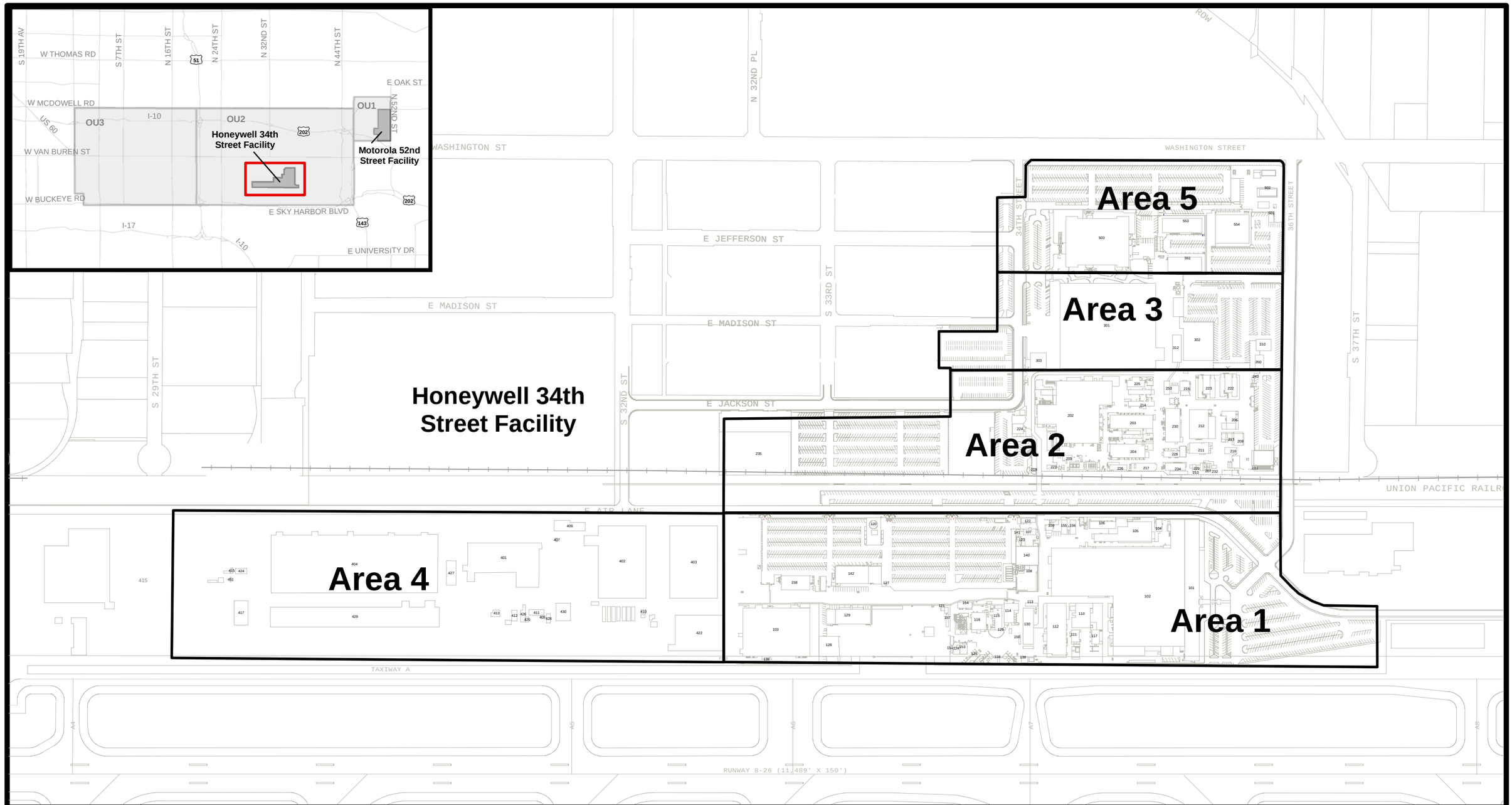
TVA 1000/GEM 2000 - field instruments

O_2 – oxygen.

CO_2 - carbon dioxide.

TPH - total petroleum hydrocarbons.

Figures



Legend

- Operational Area Boundaries
- Honeywell Buildings
- Streets and Airport Features

N
W E
S

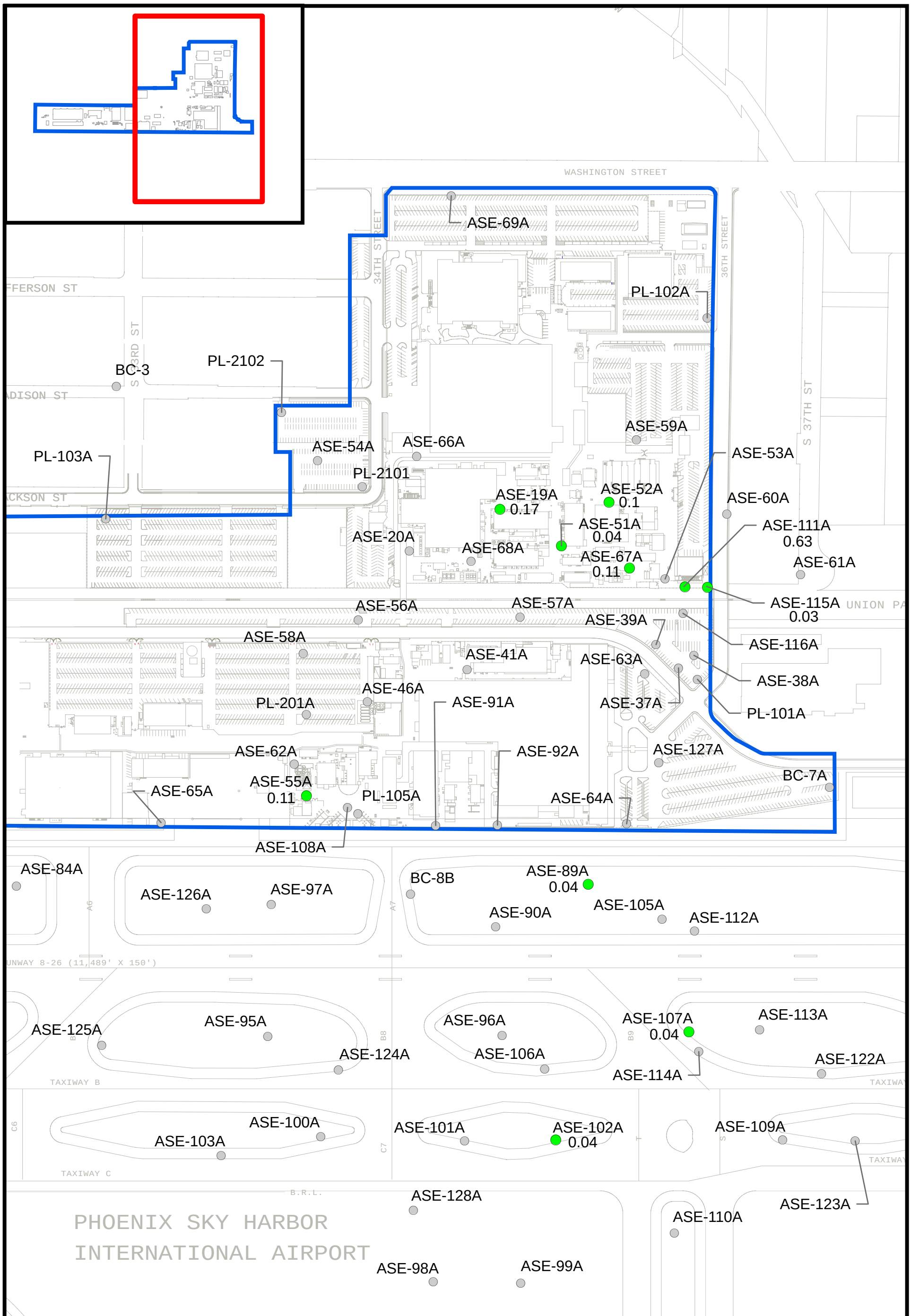
400 200 0 400
Feet

FIGURE 1-1
FACILITY LOCATION AND LAYOUT

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG1-1_FACILITYLOCATIONLAYOUT.MXD CVF 7/5/2006 09:18:30



Legend

- Free Product Detected (feet)
- Free Product Not Detected
- Facility Boundary

Note: All measurements collected on June 21, 2006 except ASE-67A which was collected on May 30, 2006.

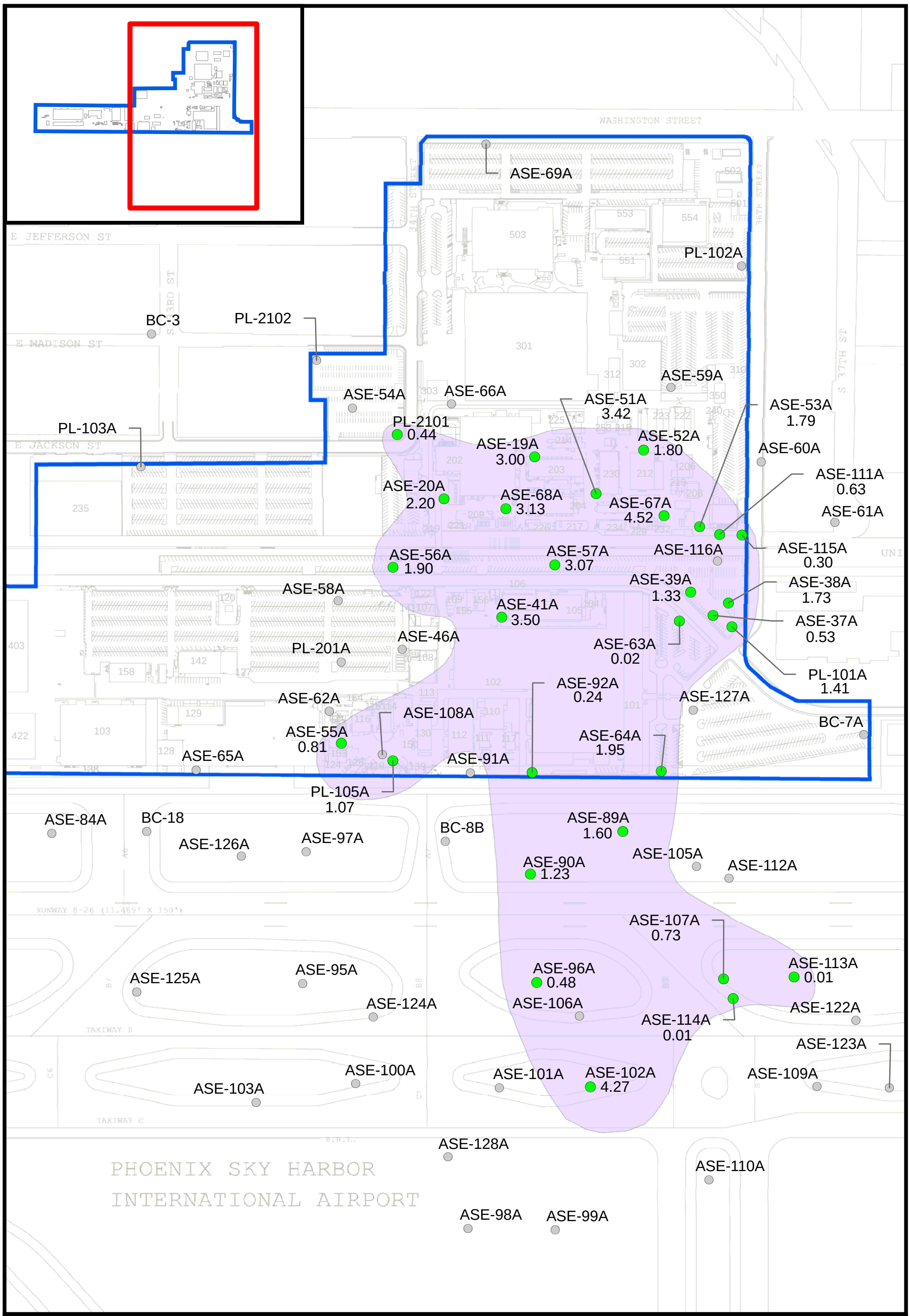
N W E S

0 150 300 600 Feet

FIGURE 2-1
FREE PRODUCT THICKNESS
JUNE 2006
HONEYWELL 34TH STREET FACILITY
PHOENIX, ARIZONA

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-1_FREEPRODUCTTHICKNESS.MXD CVF 6/13/2006 10:15:25



Legend

- Free Product Thickness (feet)
- Free Product Not Detected
- Facility Boundary
- Historical Free Product Extent (as of June 21, 2006)

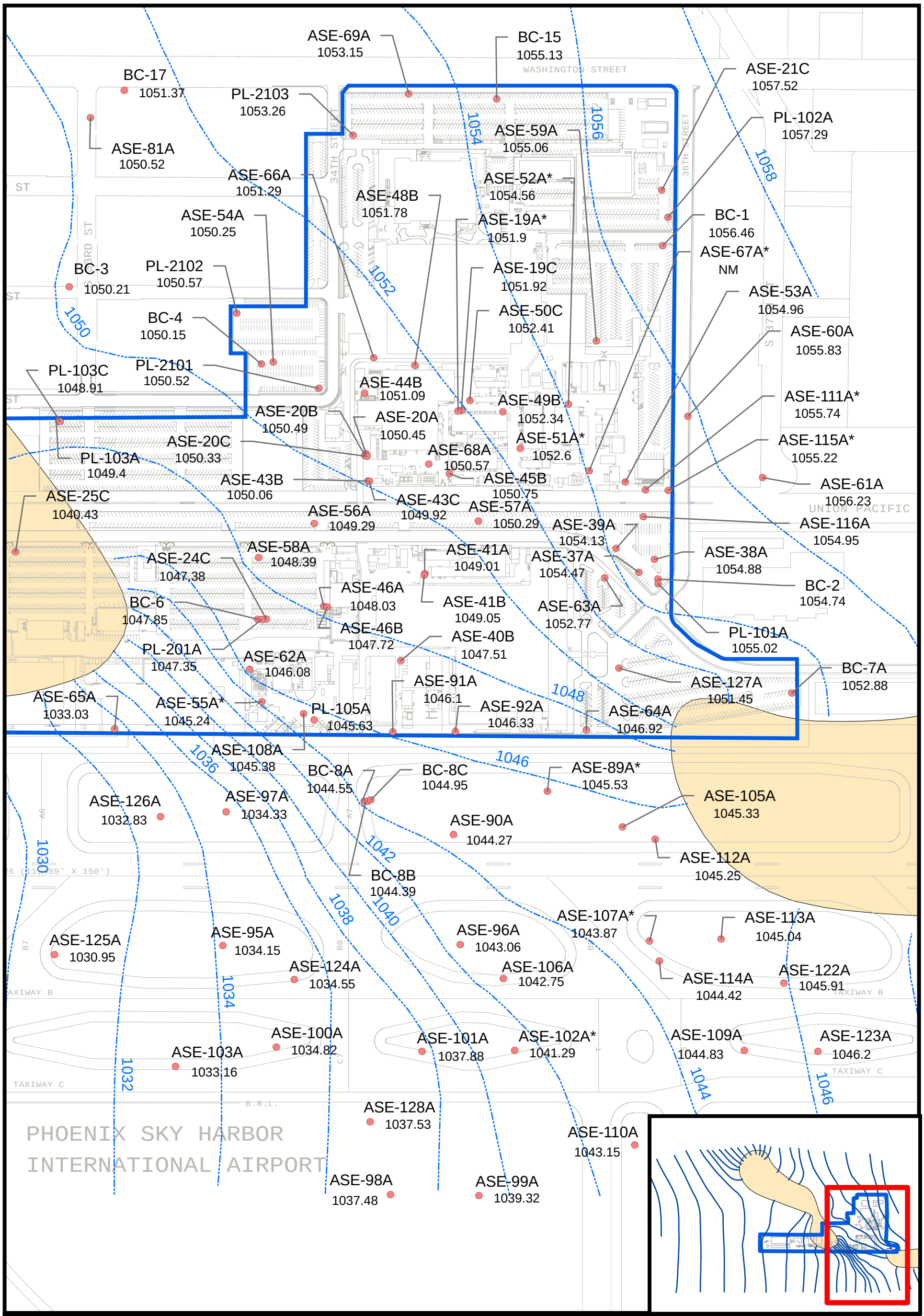
N W E S

0 150 300 600 Feet

FIGURE 2-2
FREE PRODUCT THICKNESS (MAXIMUM)
HONEYWELL 34TH STREET FACILITY
PHOENIX, ARIZONA

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-2_FREEPRODUCTTHICKNESSMAX.MXD CVF 6/13/2006 16:34:33



Legend

ASE-124A Well Identifier
1034.55 Water Level Elevation, in feet above mean sea level

Water Level Contours (Ft) - SRG

Honeywell Bedrock Rise

Facility Boundary

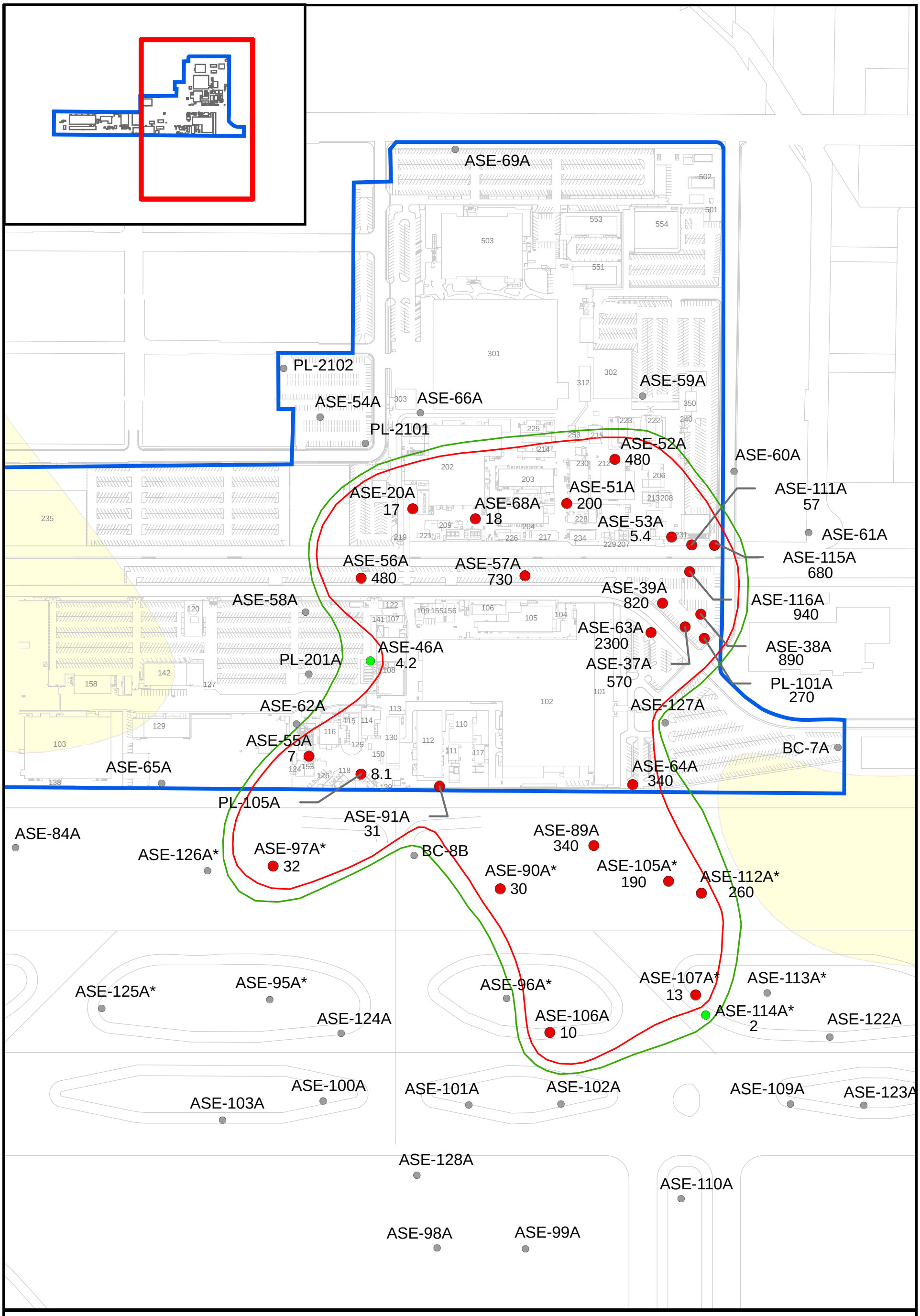
Notes:
-All measurements taken on June 21, 2006
-*Monitoring well contained free product. Value represents corrected water level elevation based on a free product specific gravity of 0.81. Groundwater levels from wells with free product were not used to produce contours.
-NM = Not Measured

0 150 300 600 Feet

FIGURE 2-3
WATER LEVEL CONTOURS
JUNE 2006
SALT RIVER GRAVELS SUB-UNIT
HONEYWELL 34TH STREET FACILITY
PHOENIX, ARIZONA

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-3_WATER LEVEL CONTOURS-SRG.MXD CVF 7/5/2006 11:46:32



Legend

- Compound Not Detected
- Compound Detected (ug/L)
- Regulatory Standard Exceeded
- Streets and Airport Features
- Honeywell Facility
- Bedrock Rise Outline

Contours

- ND
- 5 ug/L

N W E S

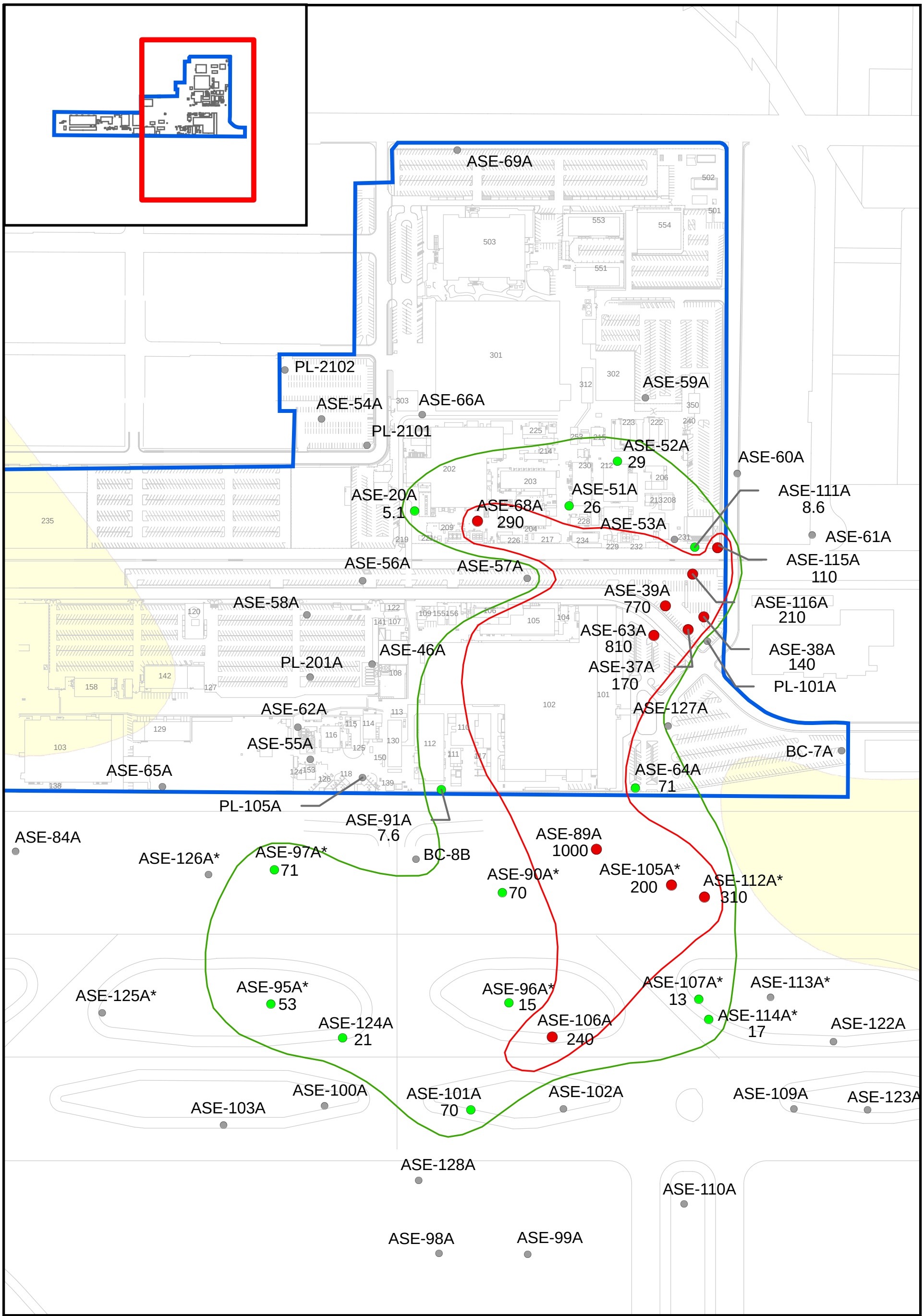
0 150 300 600 Feet

Note:
Exceedance value is 5 ug/L
All points sampled in March 2006 except * which were sampled in April 2006
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test

FIGURE 2-4
BENZENE
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-4_GW_BENZENE.MXD CVF 6/14/2006 15:03:07



Legend

- Compound Not Detected
- Compound Detected (ug/L)
- Regulatory Standard Exceeded
- Streets and Airport Features
- Honeywell Facility
- Bedrock Rise Outline

Contours

- ND
- 94 ug/L

N W E S

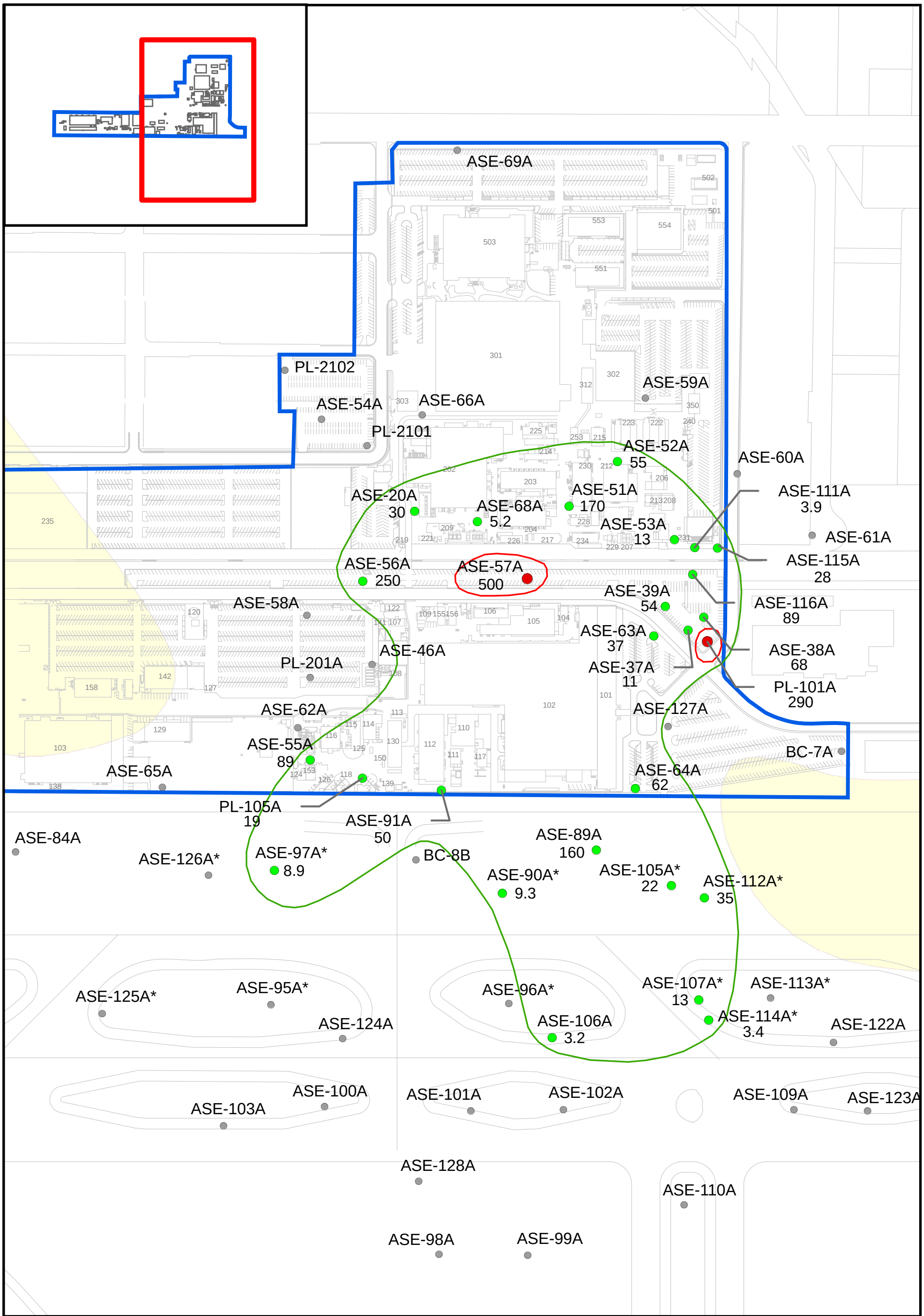
0 150 300 600 Feet

Note:
Exceedance value is 94 ug/L
All points sampled in March 2006 except * which were sampled in April 2006
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test

FIGURE 2-5
METHYL TERT-BUTYL ETHER
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-5_GW_MTBE.MXD CVF 6/14/2006 15:51:37



Legend

- Compound Not Detected
- Compound Detected (ug/L)
- Regulatory Standard Exceeded
- Streets and Airport Features
- Honeywell Facility
- Bedrock Rise Outline

Contour

- ND
- 280 ug/L

N W E S

0 150 300 600 Feet

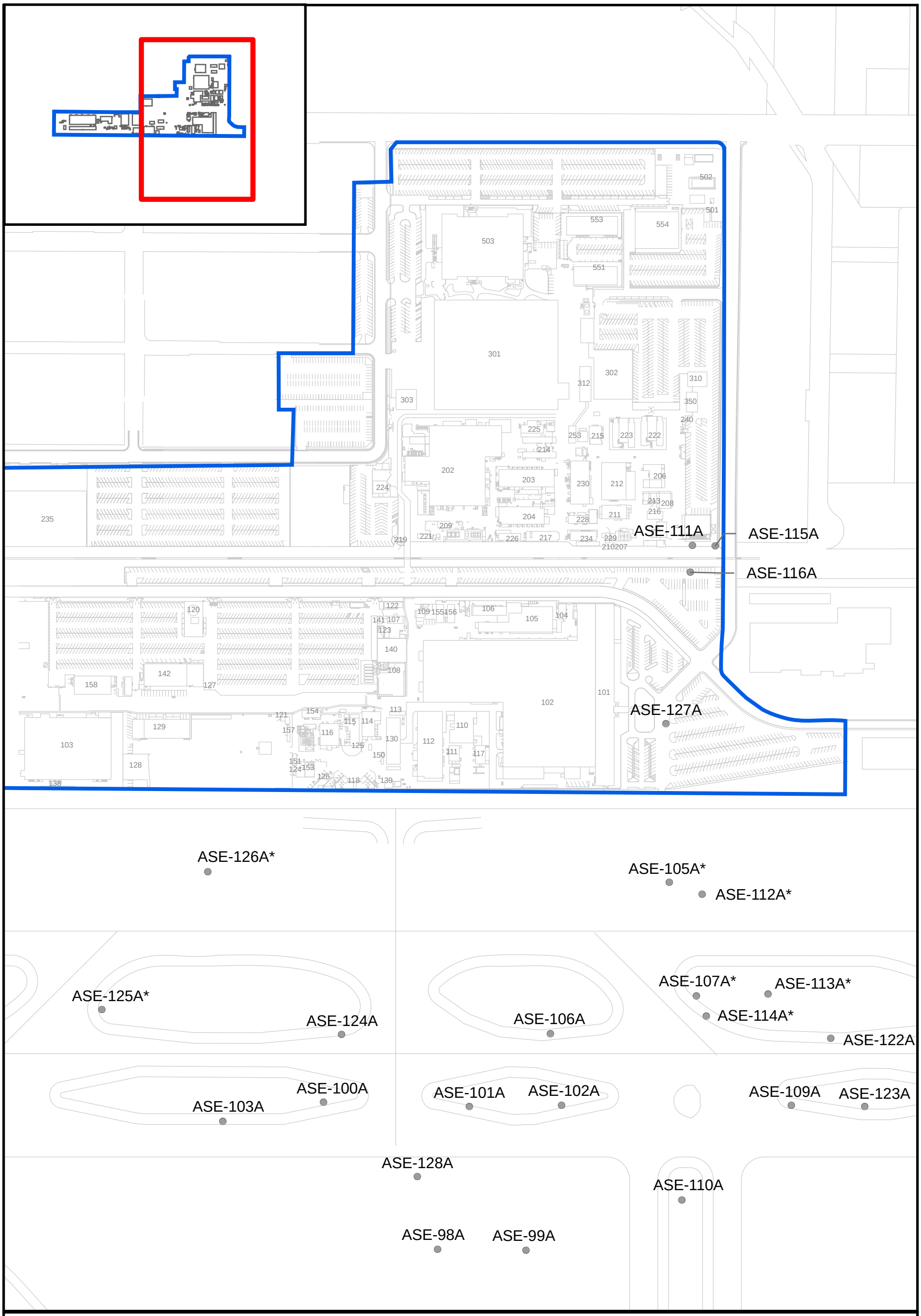
Note:
Exceedance value is 280 ug/L
All points sampled in March 2006 except * which were sampled in April 2006
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test

FIGURE 2-6
NAPHTHALENE
MARCH 2006
GROUNDWATER PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-6_GW_NAPHTHALENE.MXD CVF 6/14/2006 15:56:16



Legend

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

N W E S

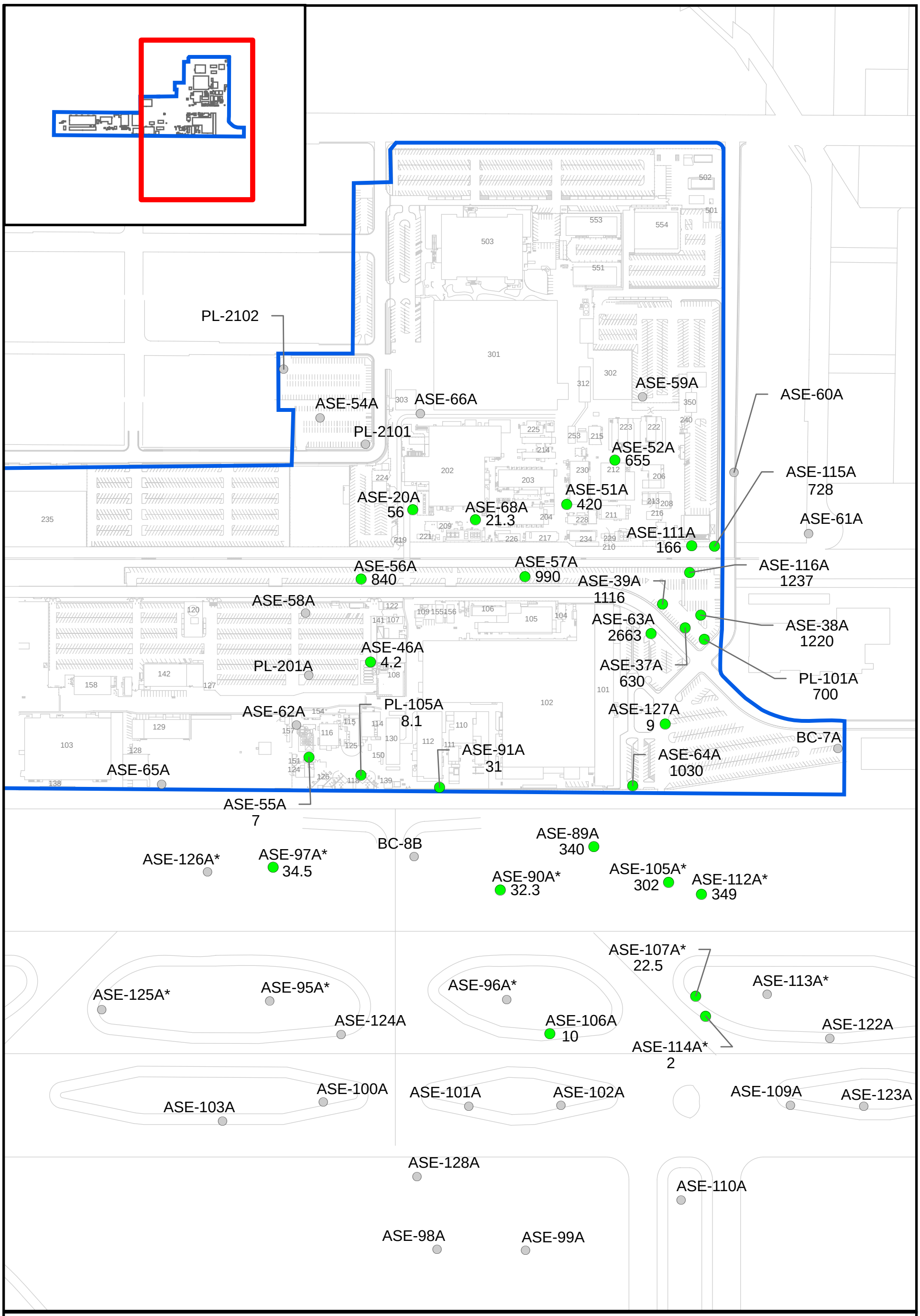
0 150 300 600 Feet

Note:
Exceedance value is 0.2 ug/L
All points sampled in March 2006 except * which were sampled in April 2006.
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-7
BENZO(A)PYRENE
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-7_GW_BENZO(A)PYRENE.MXD CVF 6/14/2006 16:42:14



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

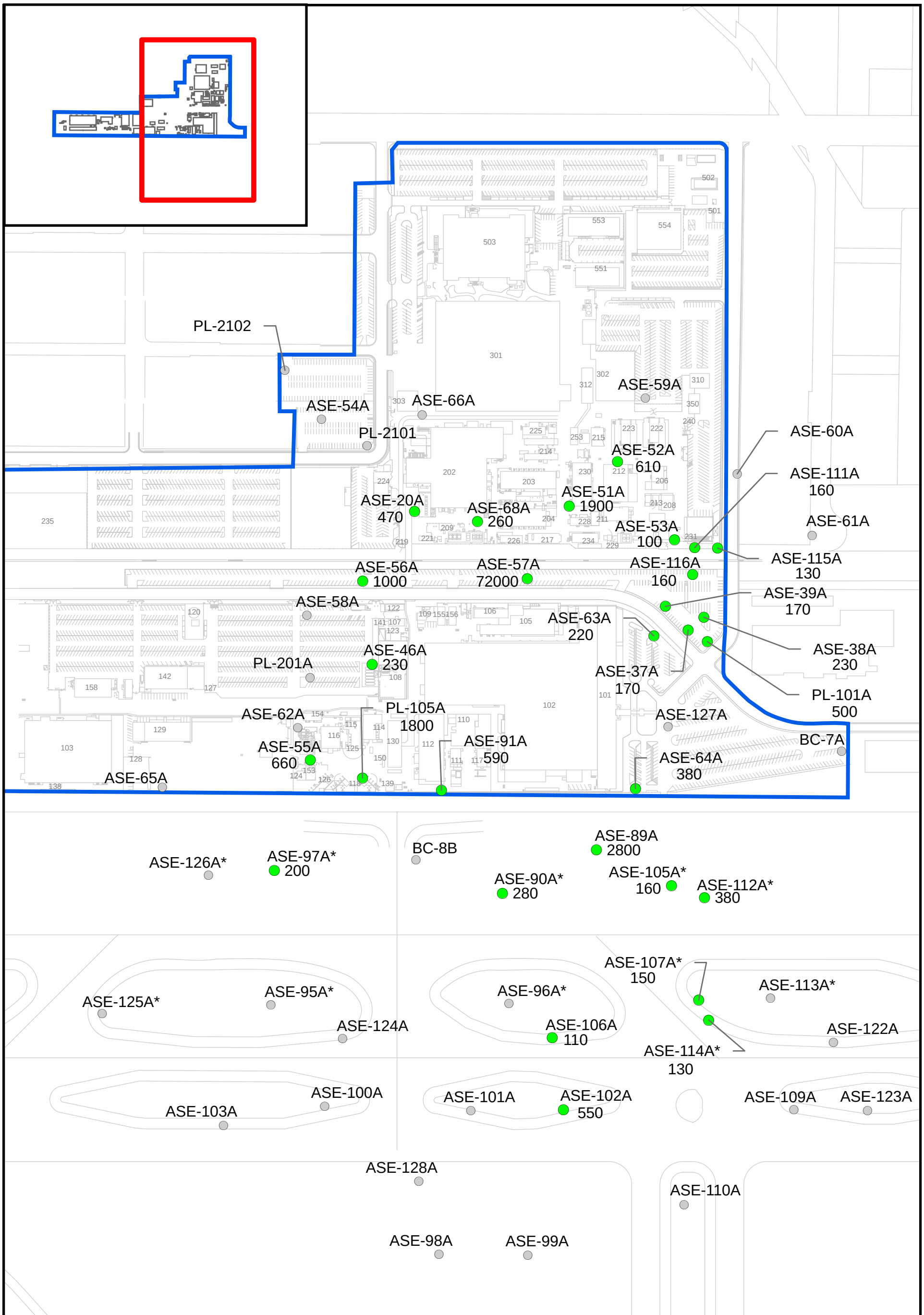
0 150 300 600 Feet

Note: Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, and Xylenes. All points sampled in March 2006 except * which were sampled in April 2006. Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-8
TOTAL BTEX
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-8_GW_TOTAL_BTEX.MXD CVF 6/20/2006 16:47:46



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

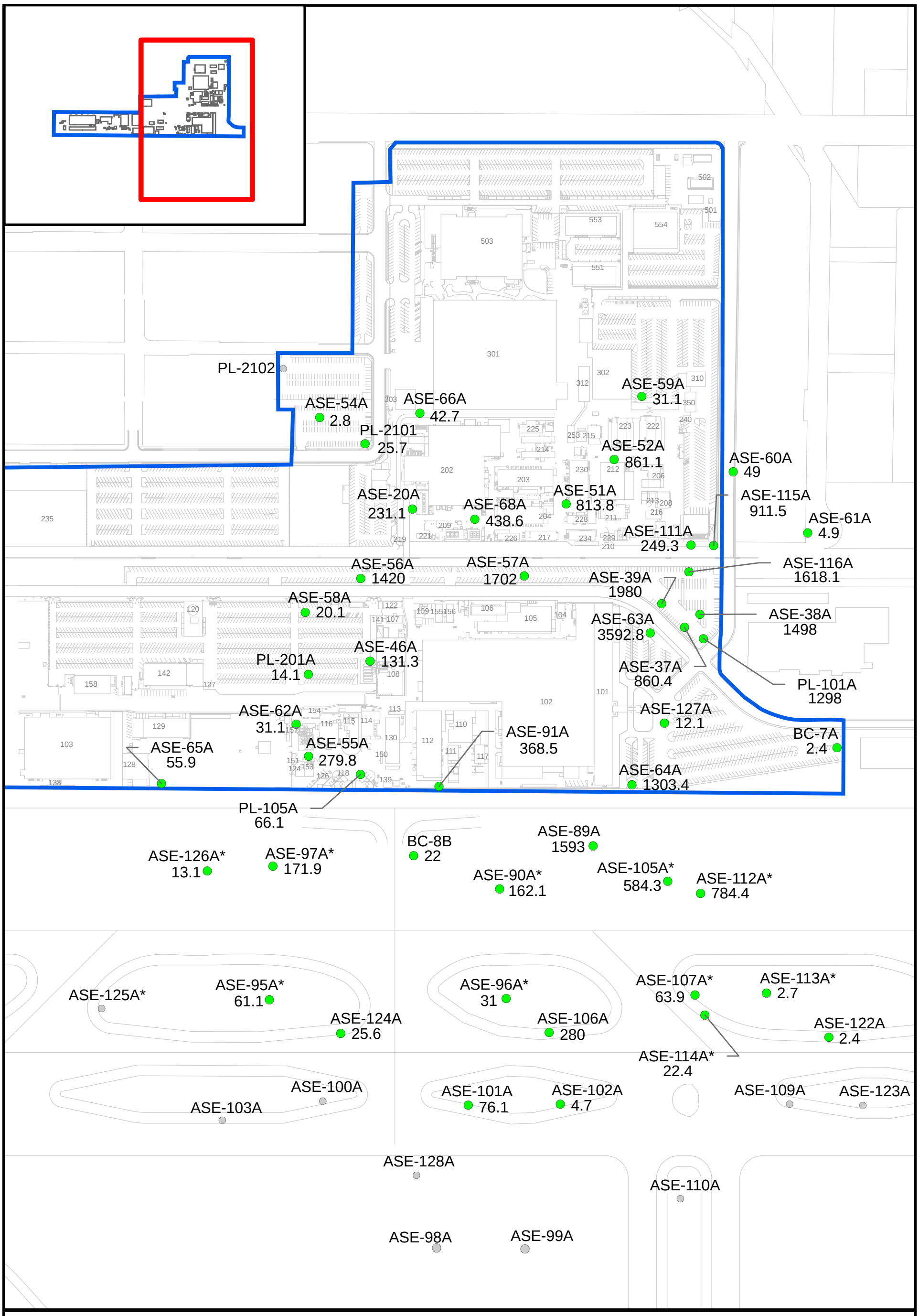
0 150 300 600 Feet

Note: Total TRPH is the sum of C13-C22 Compounds and C23-C32 Compounds. All points sampled in March 2006 except * which were sampled in April 2006. Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-9
TOTAL RECOVERABLE PETROLEUM HYDROCARBONS (TRPH)
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\FIG2-4_GW_BENZENE.MXD CVF 6/6/2006 14:35:27



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

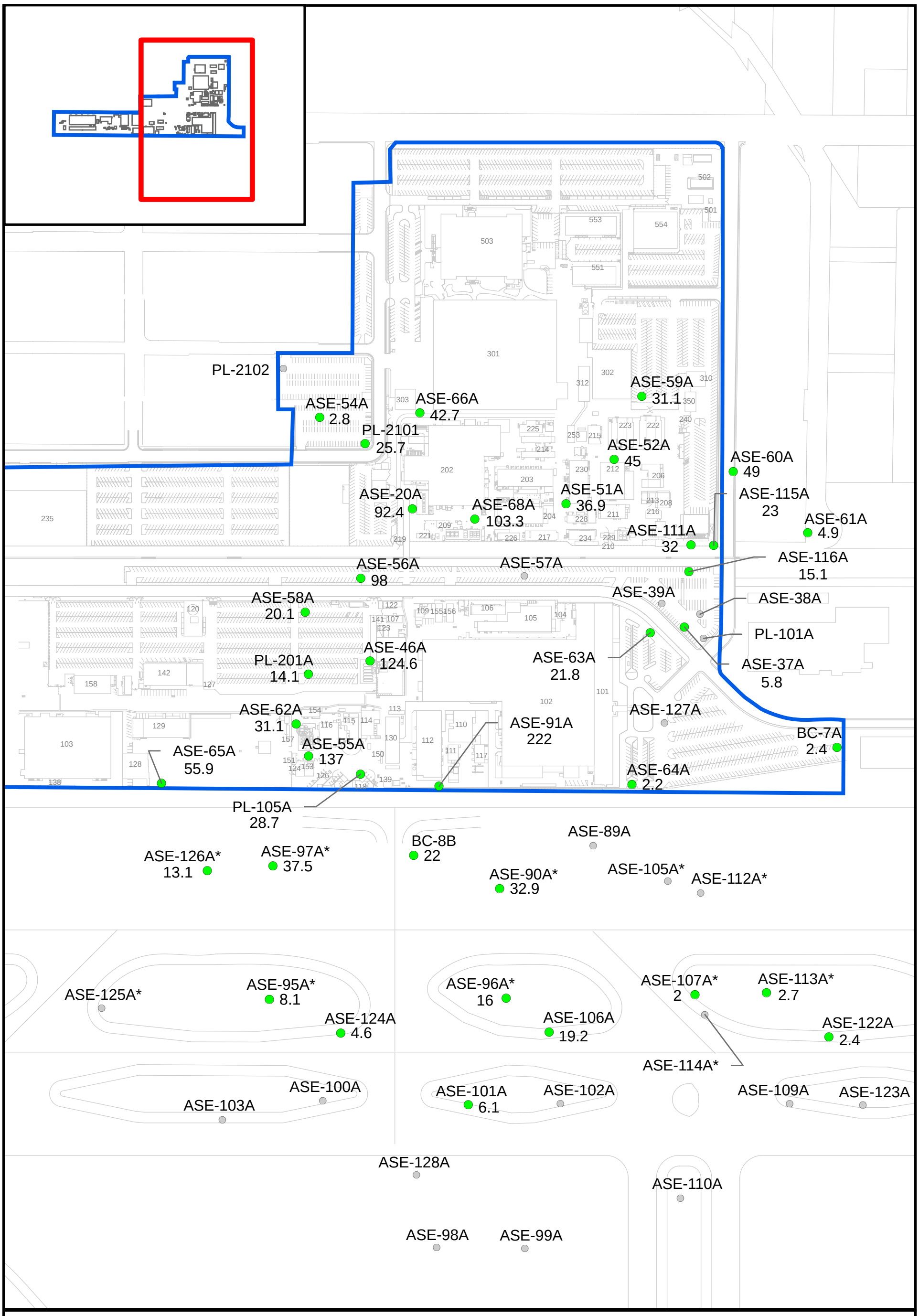
0 150 300 600 Feet

Note: Total VOCs is the sum of all detections for EPA Method 8260B analyte list. All points sampled in March 2006 except * which were sampled in April 2006. Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-10
TOTAL VOCs
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-10_GW_TOTAL_VOC'S.MXD CVF 6/20/2006 16:03:20



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

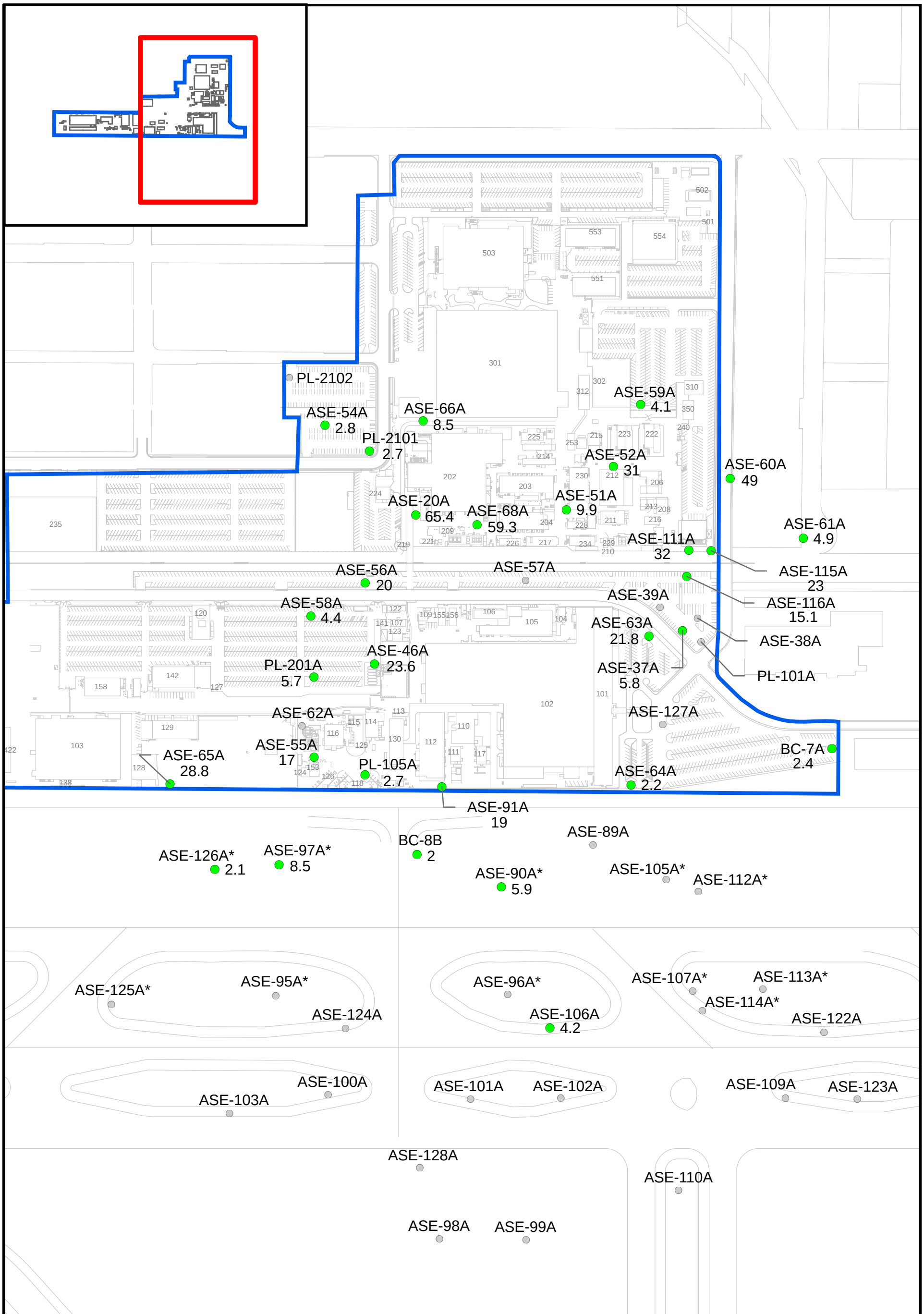
0 150 300 600 Feet

Note: Total Non-Fuel VOCs is the sum of the compounds listed on table 2-3 (prepared by CH2M HILL chemist).
All points sampled in March 2006 except * which were sampled in April 2006.
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-11
TOTAL NON-FUEL VOCs
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-10_GW_TOTAL_NON-FUEL_VOC'S.MXD CVF 6/20/2006 10:27:43



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

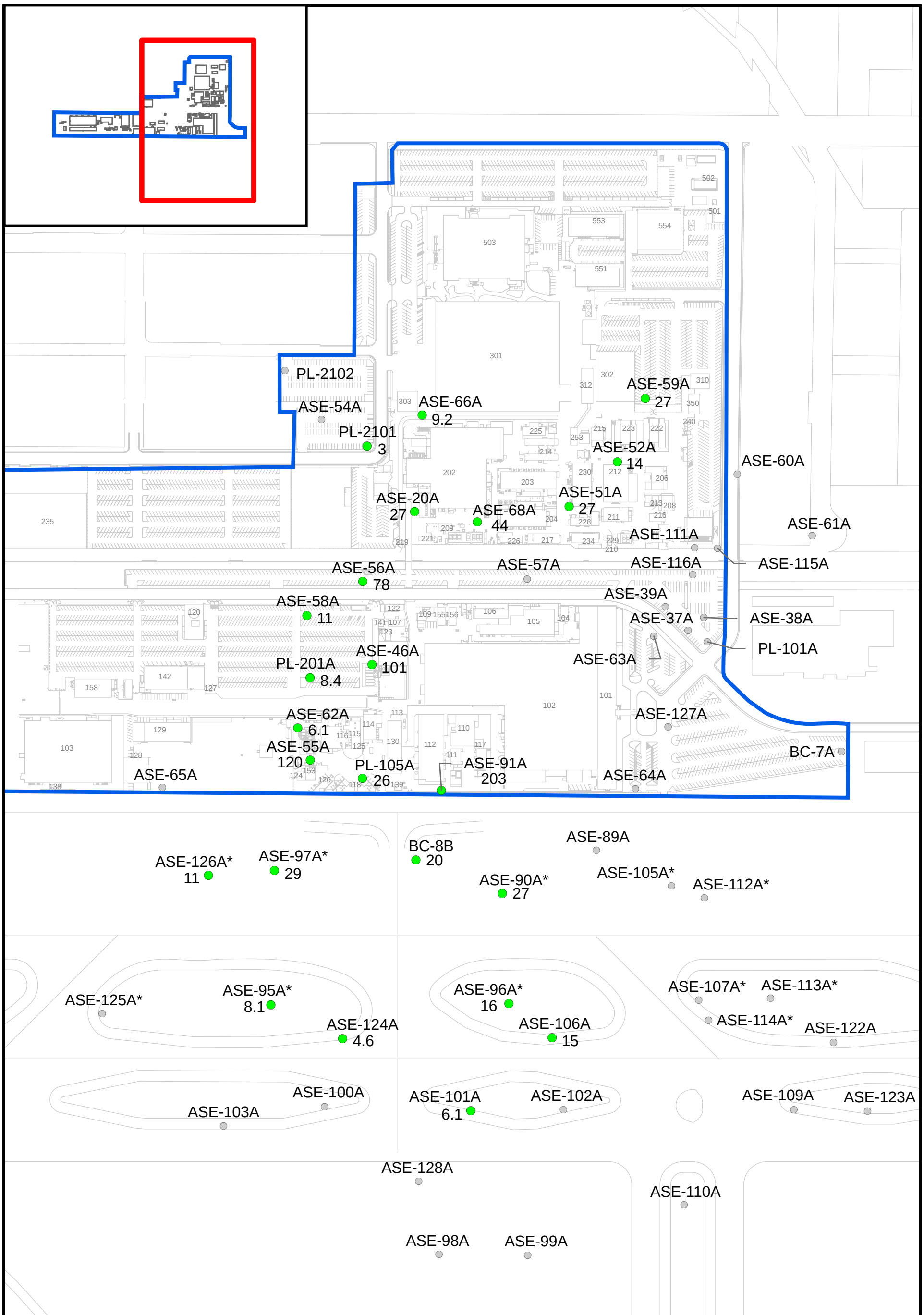
0 150 300 600 Feet

Note: Total TCE is the sum of TCE, cis-1,2-DCE, and Vinyl Chloride.
All points sampled in March 2006 except * which were sampled in April 2006.
Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-12
TOTAL TCE
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-11_GW_TOTAL_TCE.MXD CVF 6/20/2006 10:31:41



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

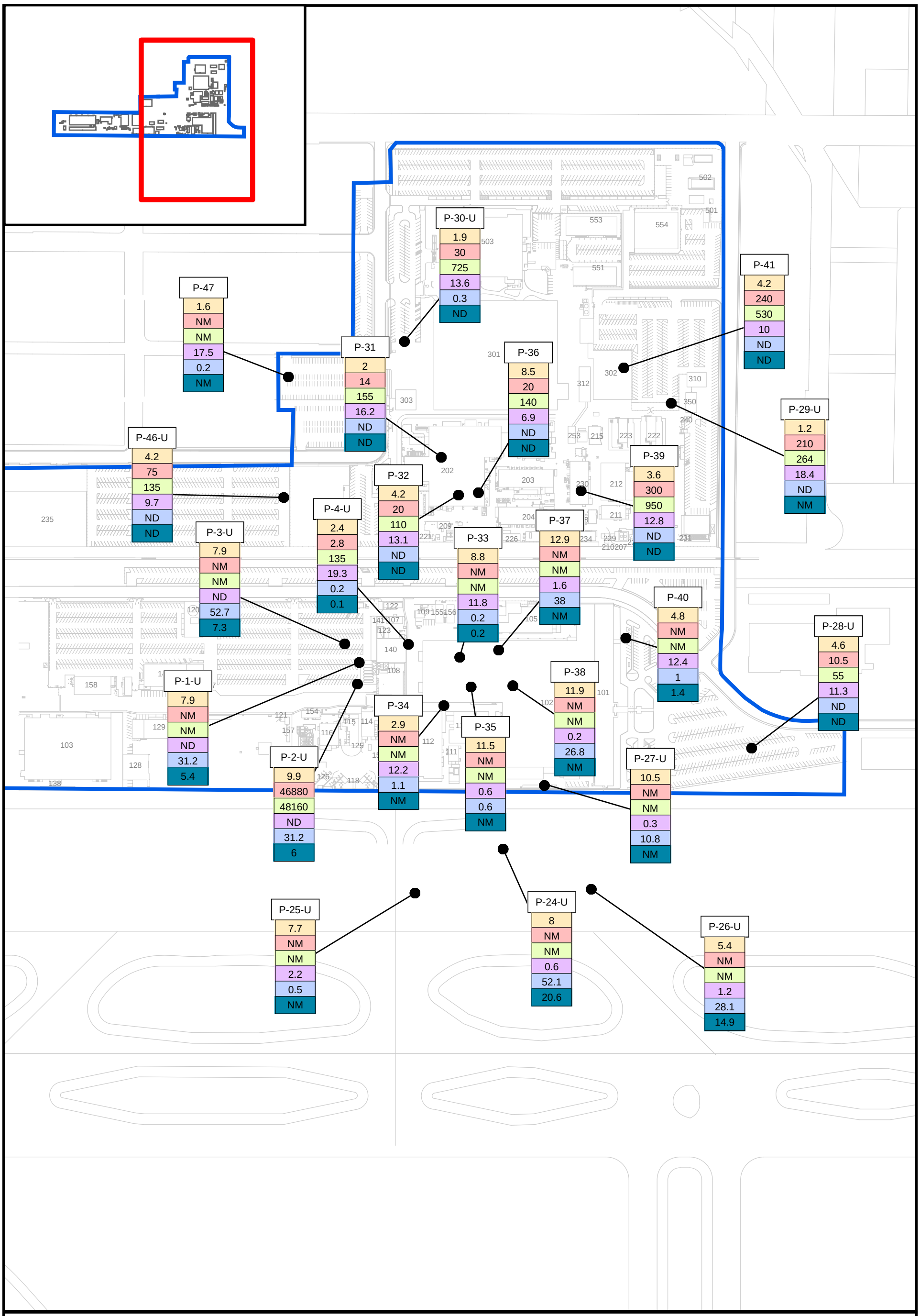
0 150 300 600 Feet

Note: Total TCA is the sum of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and Chloroethane. All points sampled in March 2006 except * which were sampled in April 2006. Monitoring wells ASE-41A, ASE-92A, and ASE-108A were not sampled in March 2006 due to their involvement in the BSVE pilot test.

FIGURE 2-13
TOTAL TCA
MARCH 2006
GROUNDWATER PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\GW_MXD\FIG2-12_GW_TOTAL_TCA.MXD CVF 6/20/2006 10:37:54



Legend

- Soil Vapor Wells
- Streets and Airport Features
- Honeywell Facility

Note: ND = Non-Detect
NM = Not Measured
FID = Flame Ionizing Detector

Parameters

- CO2 (%)
- FID-W-ADJ (ppm)
- FID-WO-ADJ (ppm)
- O2 (%)
- Methane-WO (%)
- Methane-W (%)

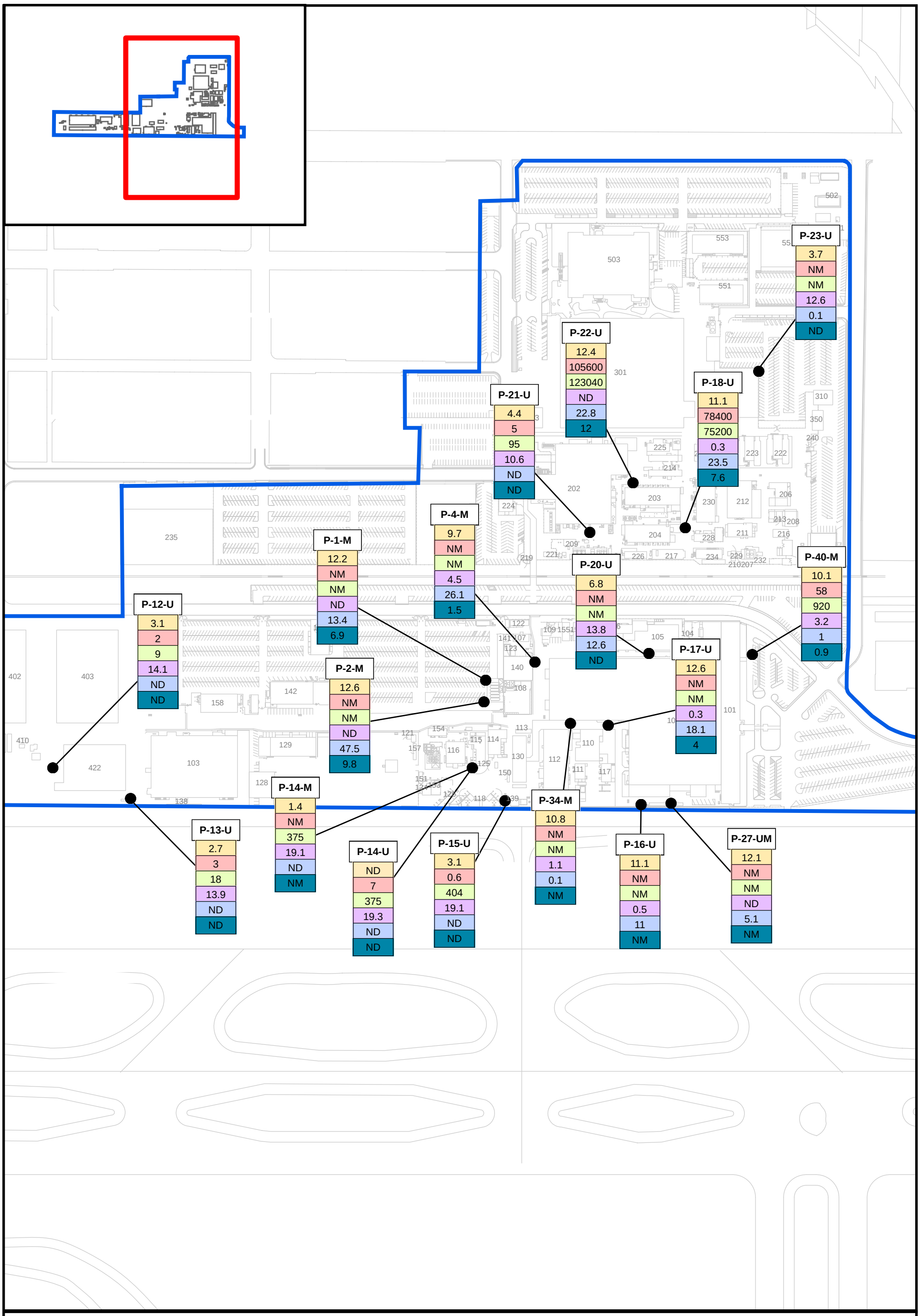
N W E S

0 150 300 600 Feet

FIGURE 3-1
O2, CO2, METHANE, FID - SHALLOW (<9 ft)
THROUGH MAY 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-1_SV_O2_CO2_METHANE_FID_SHALLOW.MXD CVF 6/22/2006 14:04:38



Legend

- Soil Vapor Wells
- Streets and Airport Features
- Honeywell Facility

Note: ND = Non-Detect
NM = Not Measured
FID = Flame Ionizing Detector

Parameters

- CO2 (%)
- FID-W-ADJ (ppm)
- FID-WO-ADJ (ppm)
- O2 (%)
- Methane-WO (%)
- Methane-W (%)

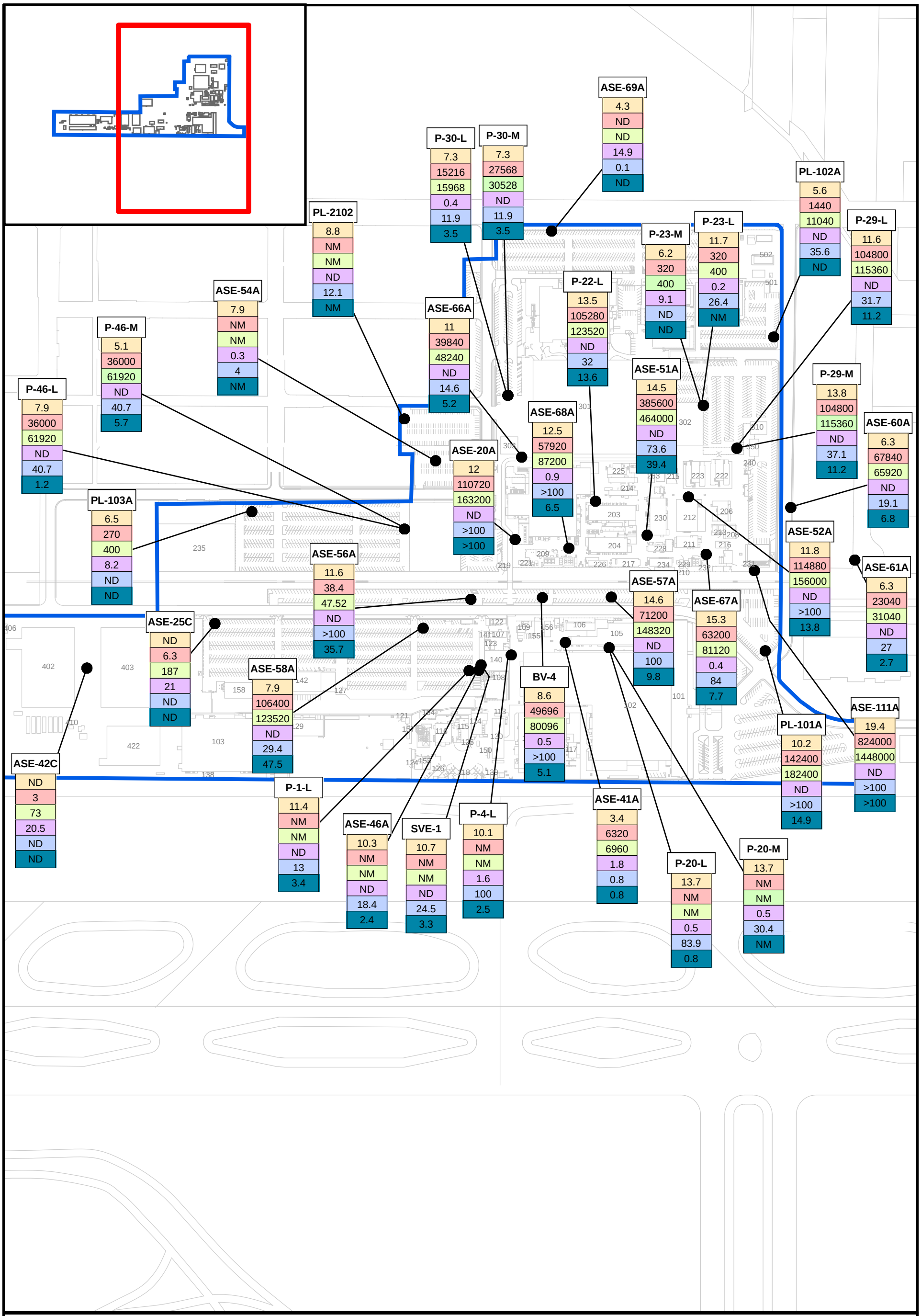
N W E S

0 150 300 600 Feet

FIGURE 3-2
O2, CO2, METHANE, FID - INTERMEDIATE (>9 ft, <30 ft)
THROUGH MAY 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-2_SV_O2_CO2_METHANE_FID_INTERMEDIATE.MXD CVF 6/22/2006 14:06:45



Legend

- Soil Vapor Wells
- Streets and Airport Features
- Honeywell Facility

Note: ND = Non-Detect
NM = Not Measured
FID = Flame Ionizing Detector

Parameters

- CO2 (%)
- FID-W-ADJ (ppm)
- FID-WO-ADJ (ppm)
- O2 (%)
- Methane-WO (%)
- Methane-W (%)

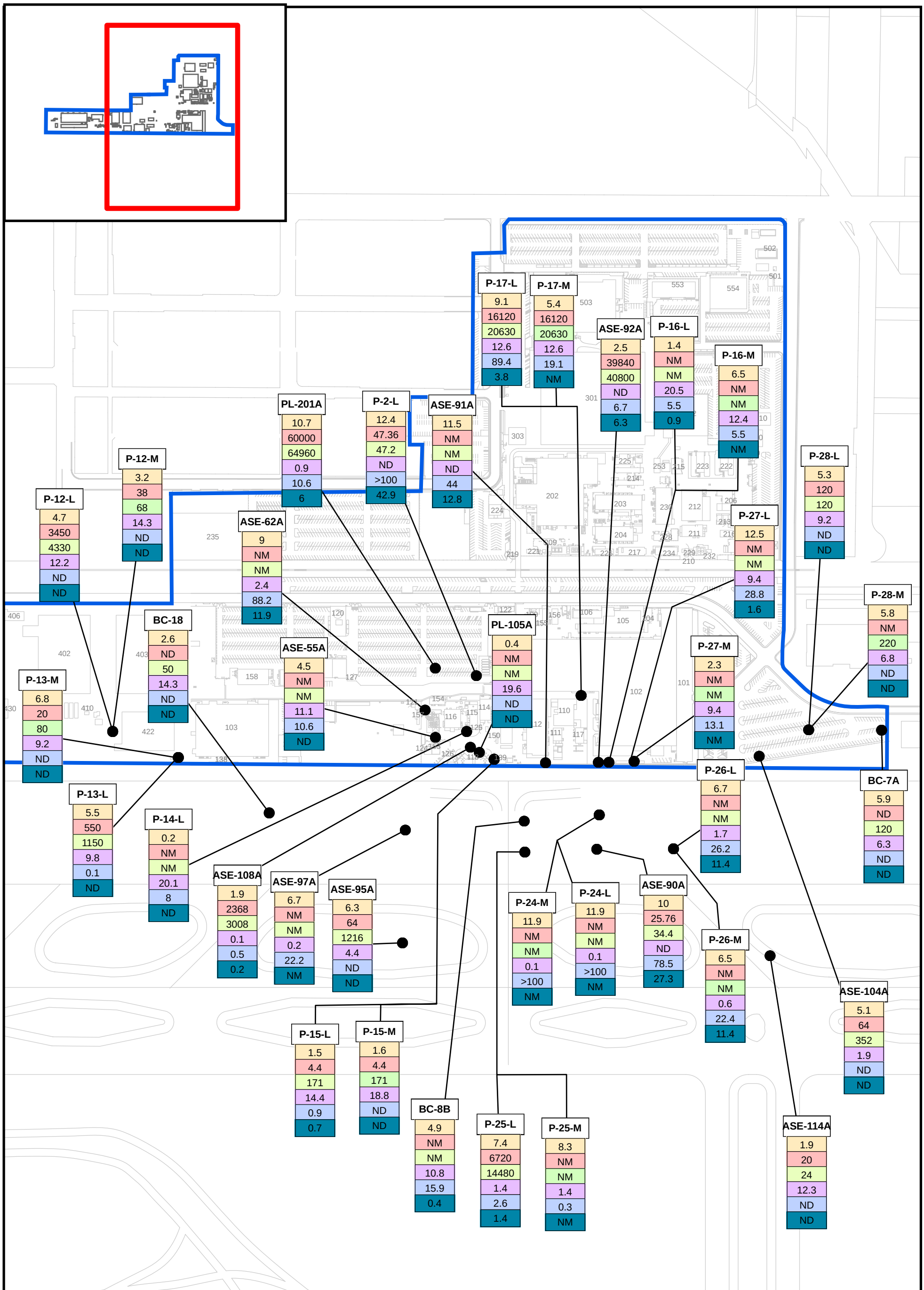
N W E S

0 175 350 700 Feet

FIGURE 3-3A
O2, CO2, METHANE, FID - DEEP (>30 ft)
THROUGH MAY 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-3A_SV_O2_CO2_METHANE_FID_DEEP.MXD CVF 6/22/2006 14:07:59



Legend

- Soil Vapor Wells
- Streets and Airport Features
- Honeywell Facility

Note: ND = Non-Detect
NM = Not Measured
FID = Flame Ionizing Detector

Parameters

- CO2 (%)
- FID-W-ADJ (ppm)
- FID-WO-ADJ (ppm)
- O2 (%)
- Methane-WO (%)
- Methane-W (%)

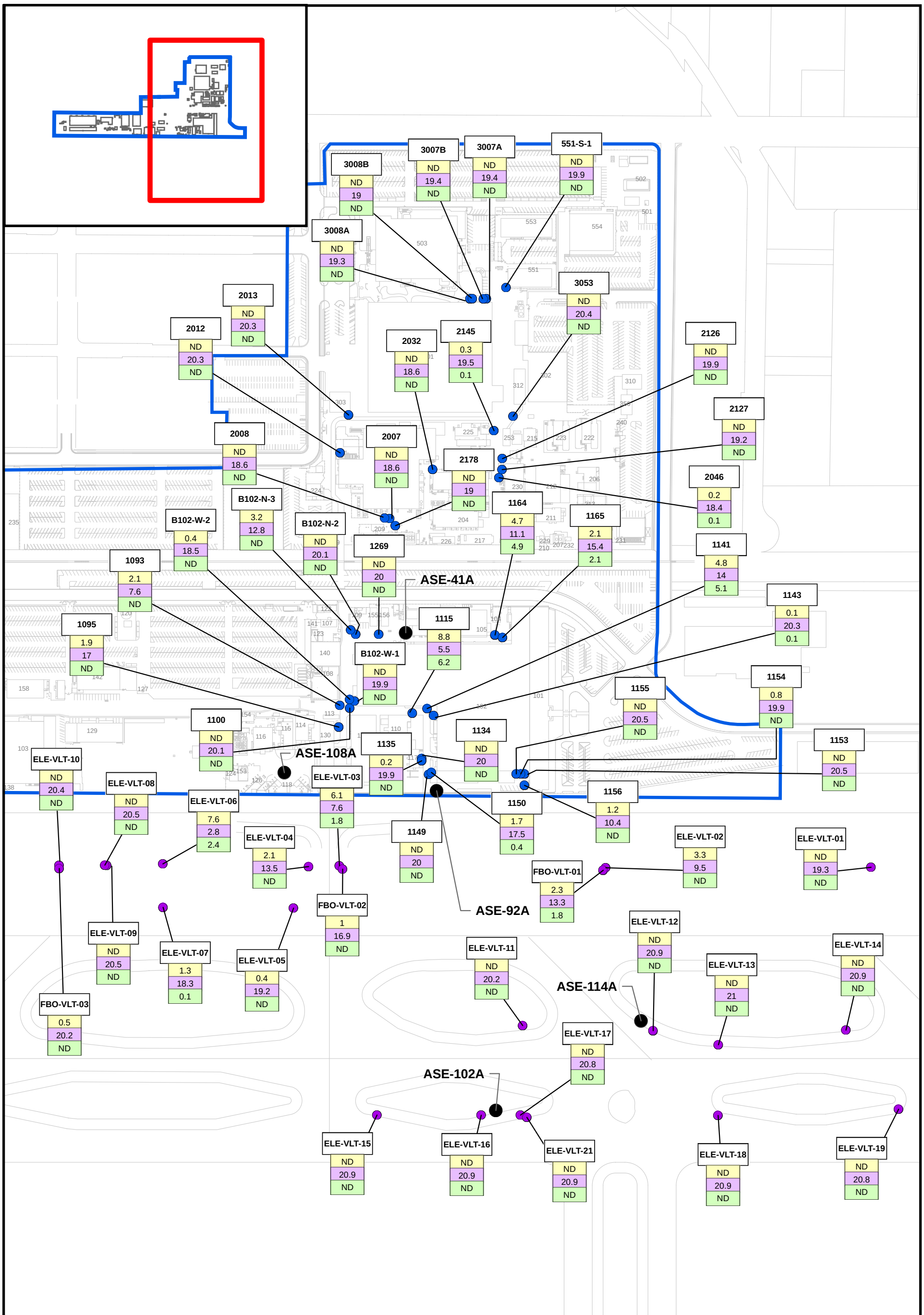
N W E S

0 175 350 700 Feet

FIGURE 3-3B
O2, CO2, METHANE, FID - DEEP (>30 ft)
THROUGH MAY 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-3B_SV_O2_CO2_METHANE_FID_DEEP.MXD CVF 6/22/2006 14:08:57



Legend

- HW VLT
- PSHIA VLT
- Air Injection Wells
- Streets and Airport Features
- Honeywell Facility

Parameters

- CO2 (%)
- O2 (%)
- Methane-without filters (%)

N W E S

0 150 300 600 Feet

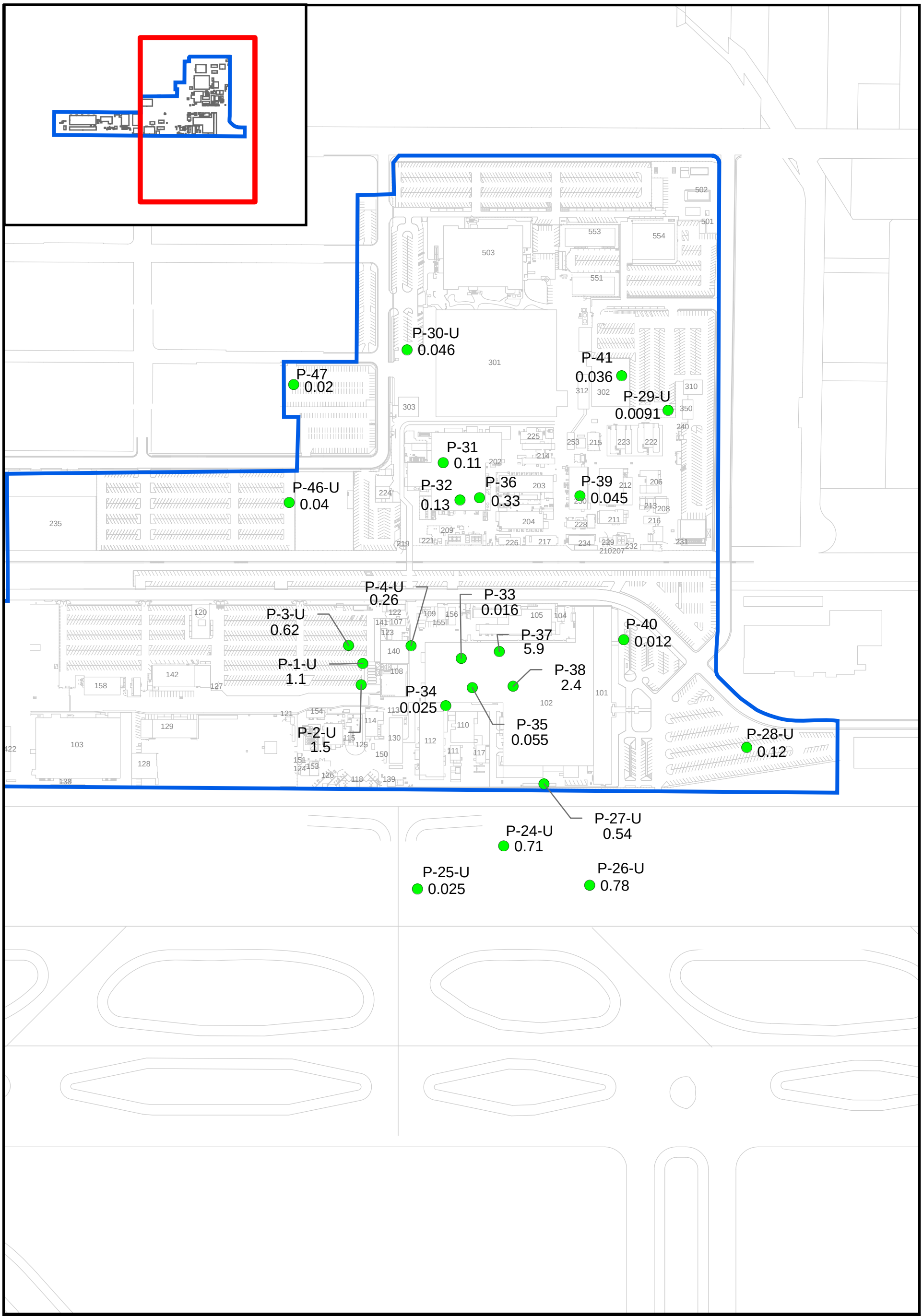
Note: NM = Not Measured
ND = Not Detected

FIGURE 3-4
SUBSURFACE UTILITY VAULTS THROUGH JUNE 2006 SOIL VAPOR PARAMETERS

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-4_SV_PARAMETERS_SUBSURFACE_UTILITY_VAULTS.MXD CVF 6/22/2006 14:10:14



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

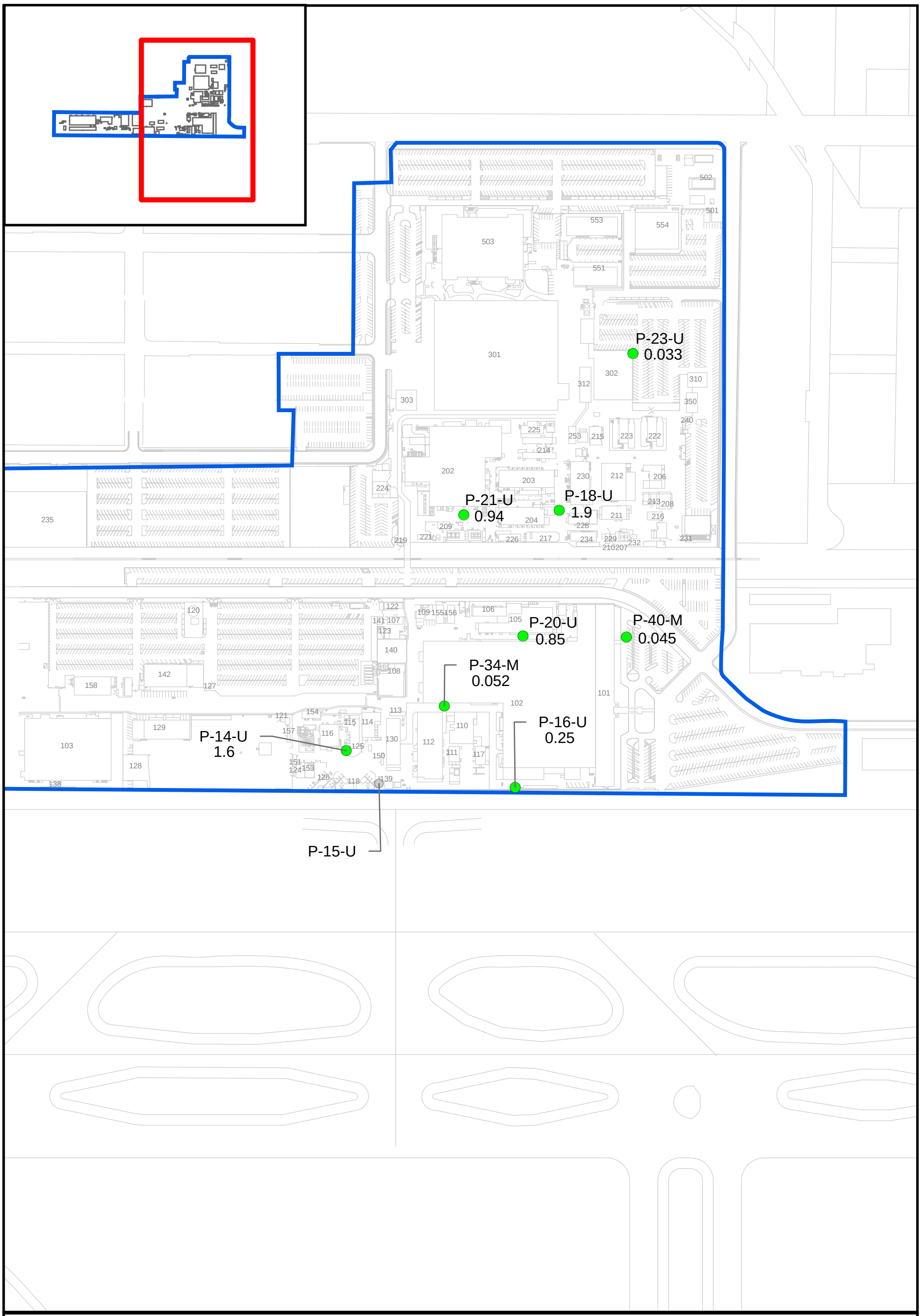
N
W E
S

0 150 300 600
Feet

FIGURE 3-5
BENZENE - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPORS PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-5_SV_BENZENE_SHALLOW.MXD CVF 6/22/2006 14:15:50



Legend

- Compound Detected (ug/L)
- Compounds Not Detected
- Streets and Airport Features
- Honeywell Facility

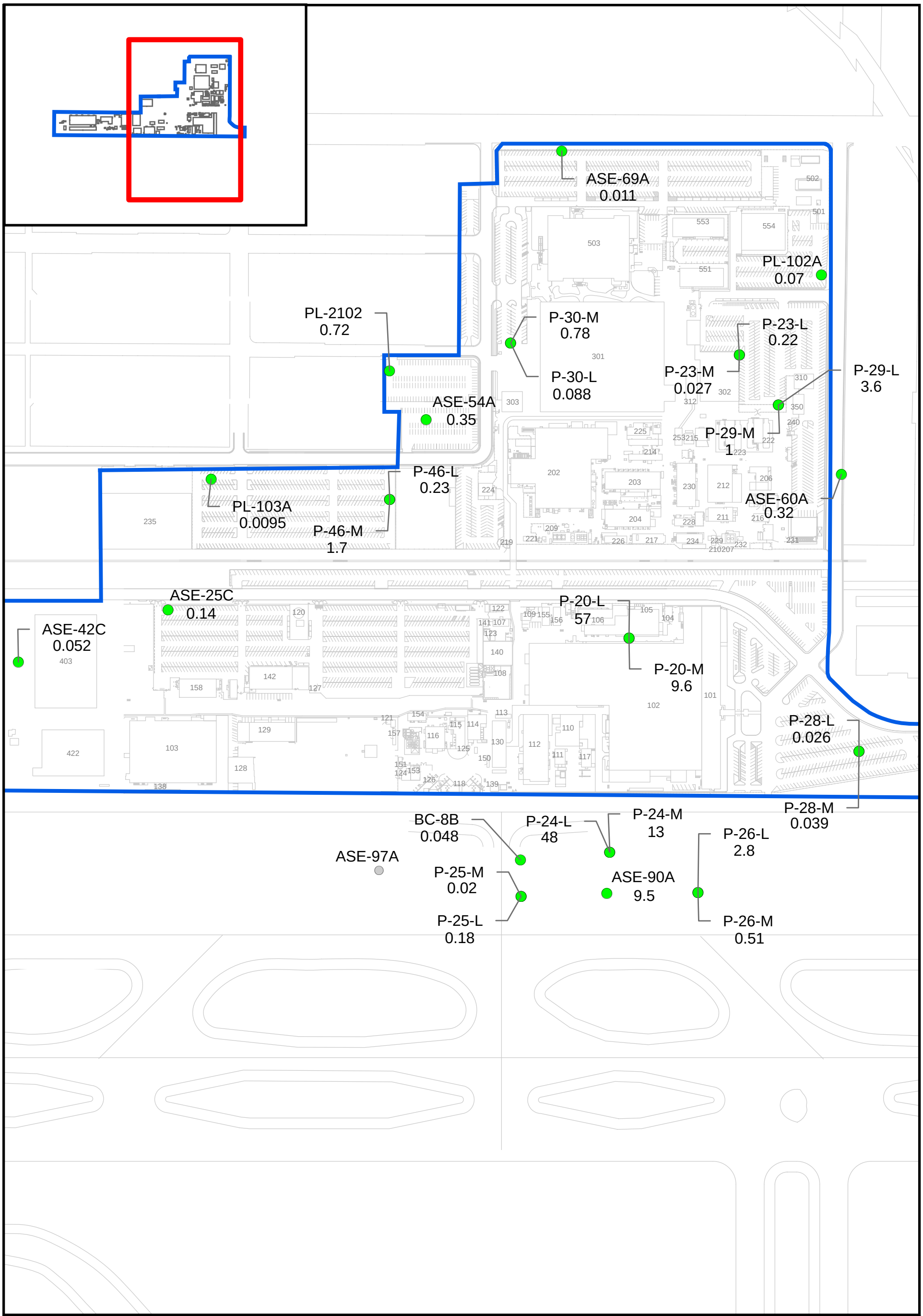
N W E S

0 150 300 600 Feet

FIGURE 3-6
BENZENE - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-6_SV_BENZENE_INTERMEDIATE.MXD CVF 6/22/2006 14:17:10



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

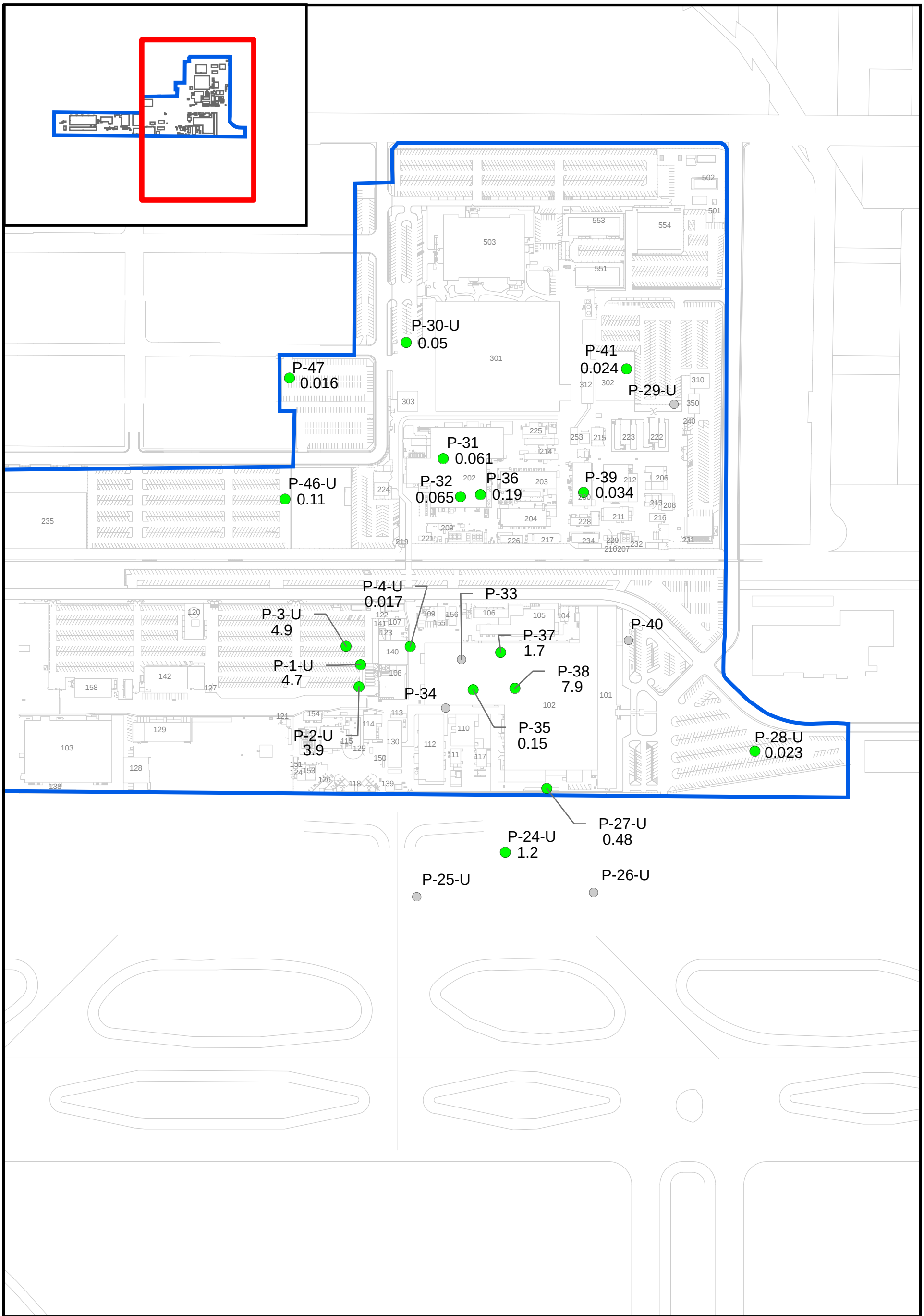
N W E S

0 150 300 600 Feet

FIGURE 3-7
BENZENE - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-7_SV_BENZENE_DEEP.MXD CVF 6/22/2006 14:20:39



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

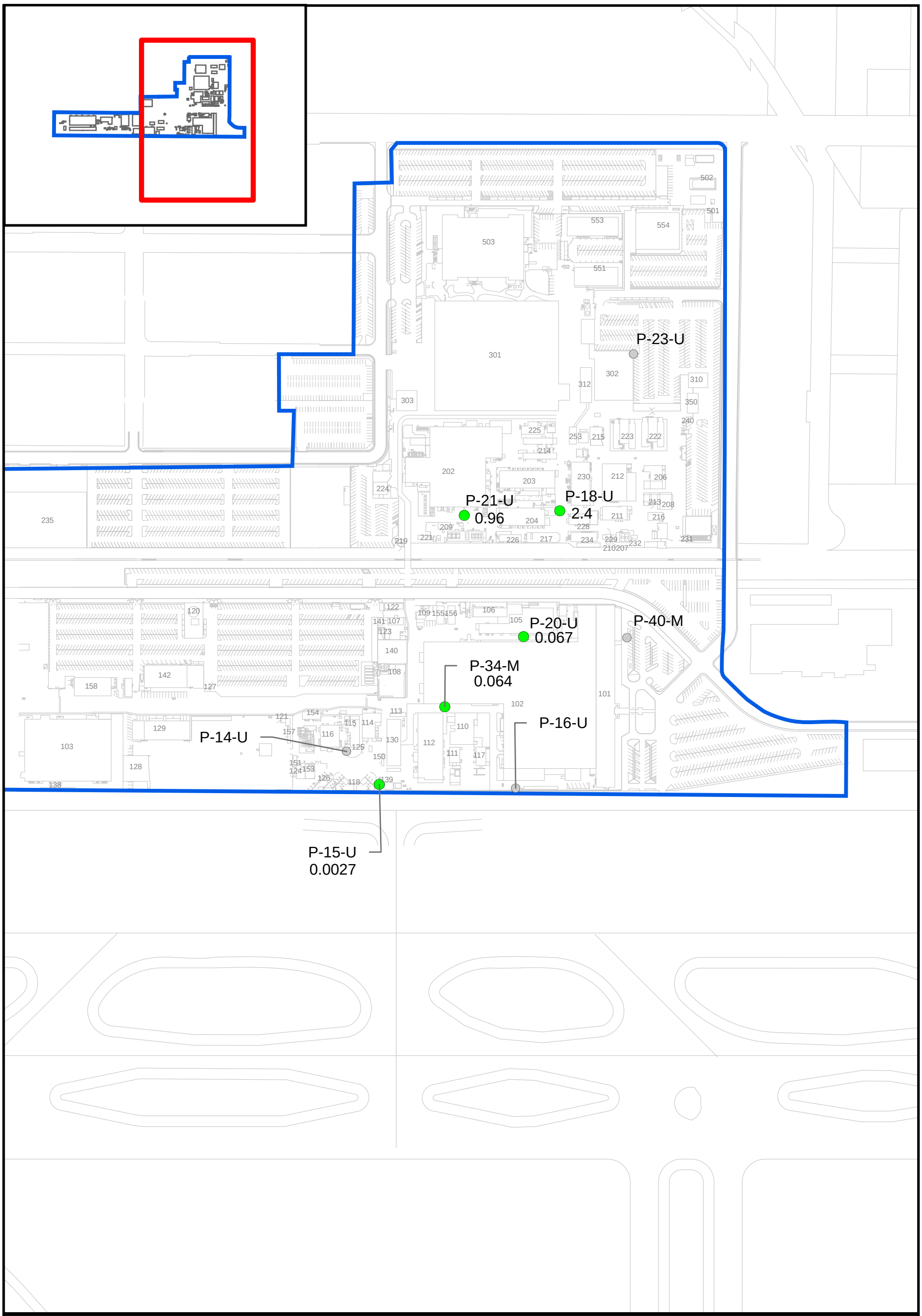
N W E S

0 150 300 600 Feet

FIGURE 3-8
VINYL CHLORIDE - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-8_SV_VINYL_CHLORIDE_SHALLOW.MXD CVF 6/22/2006 14:21:49



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

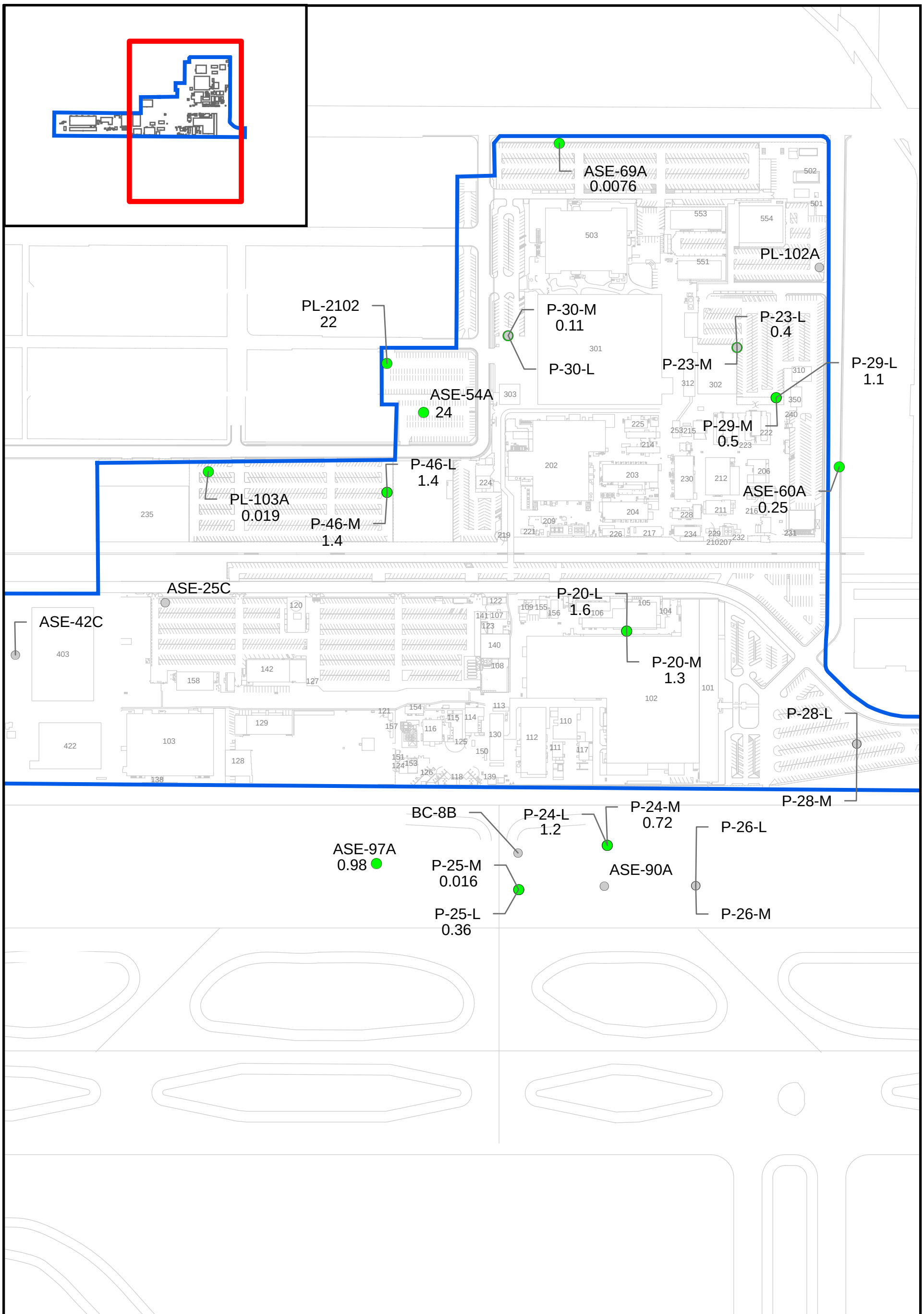
N W E S

0 150 300 600 Feet

FIGURE 3-9
VINYL CHLORIDE - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-9_SV_VINYL_CHLORIDE_INTERMEDIATE.MXD CVF 6/22/2006 14:25:24



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

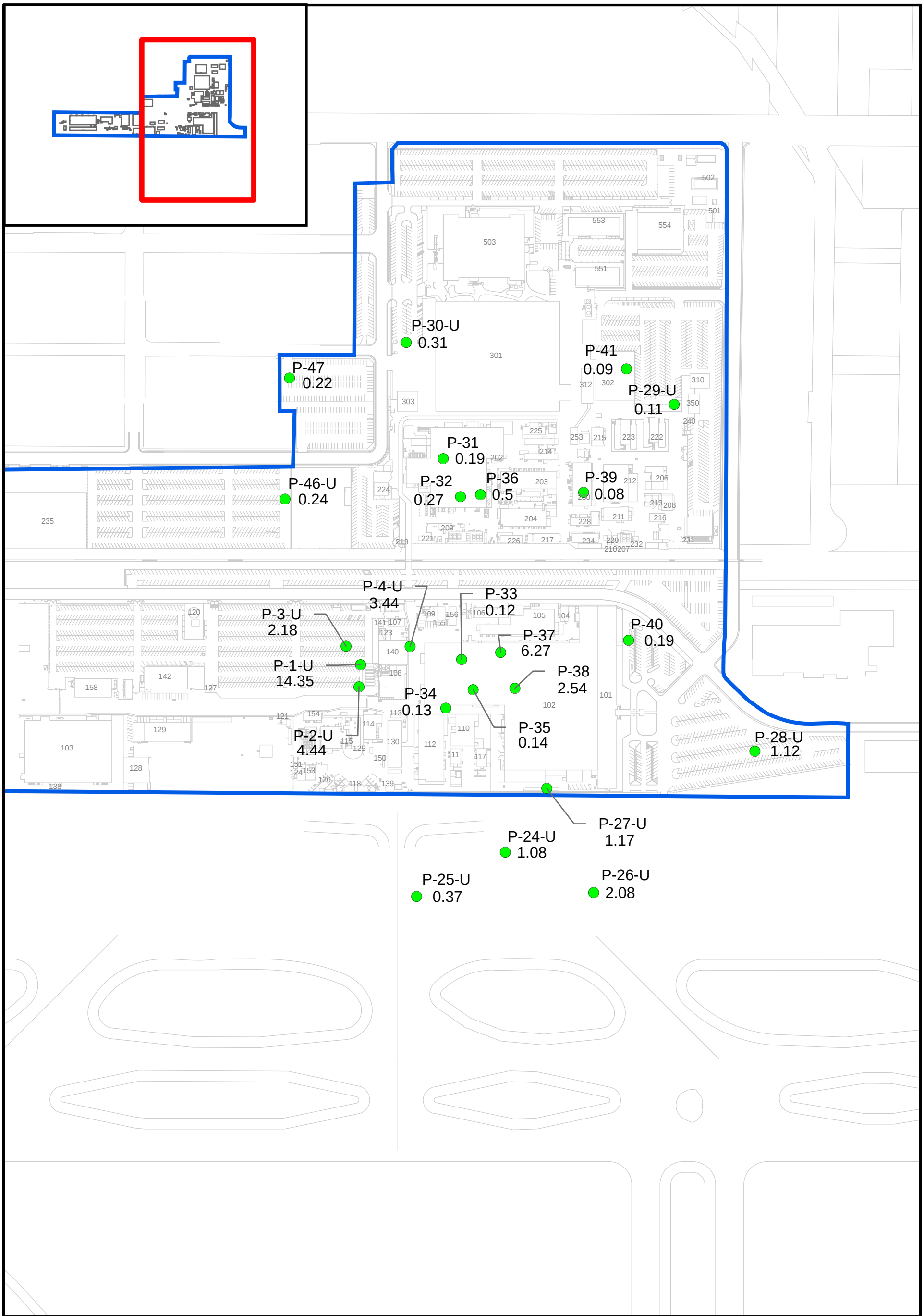
N W E S

0 150 300 600 Feet

FIGURE 3-10
VINYL CHLORIDE - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-10_SV_VINYL_CHLORIDE_DEEP.MXD CVF 6/22/2006 14:28:42



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

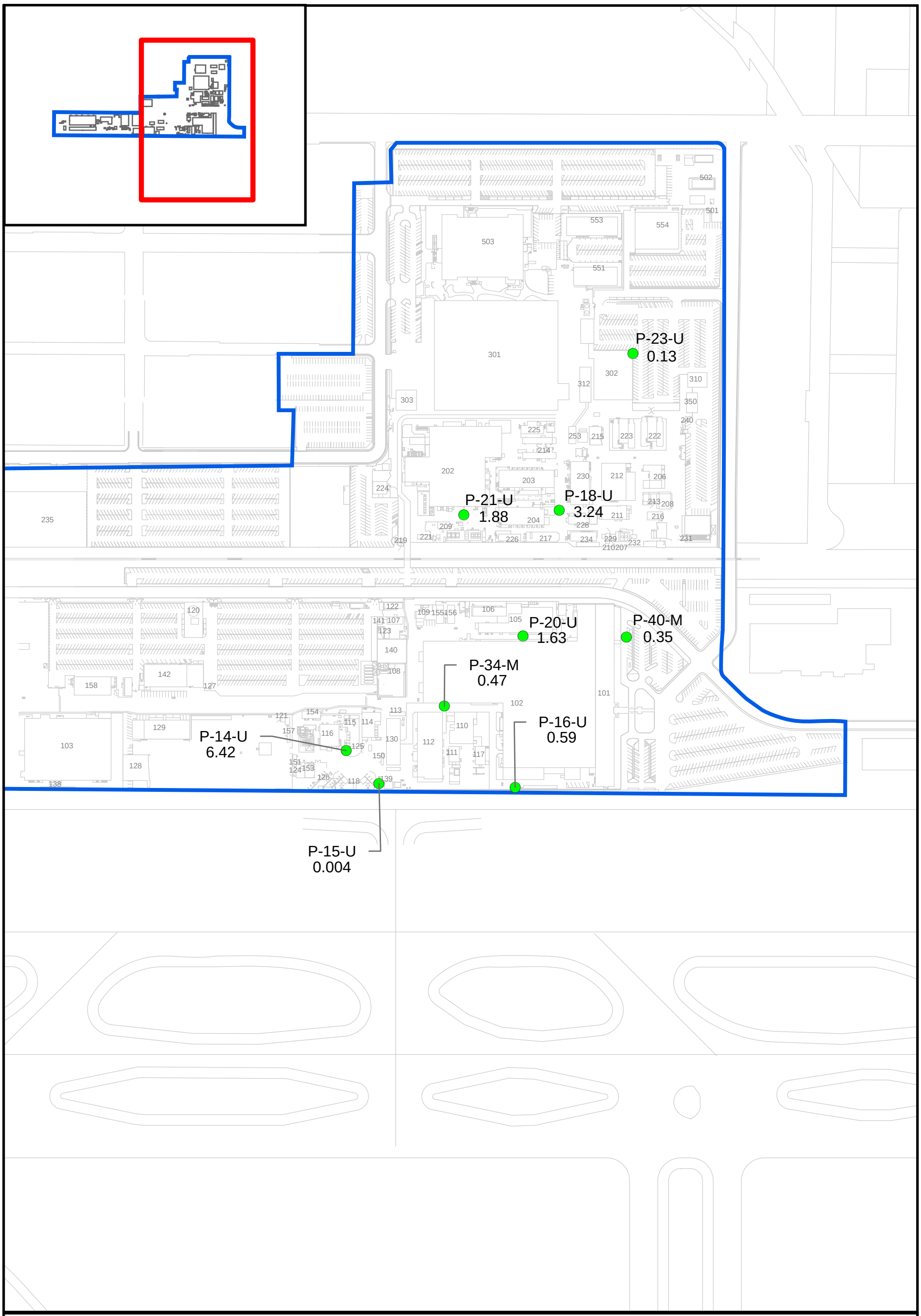
0 150 300 600 Feet

Note: Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, and Xylenes.

FIGURE 3-11
BTEX - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-11_SV_BTEX_SHALLOW.MXD CVF 6/22/2006 14:29:34



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

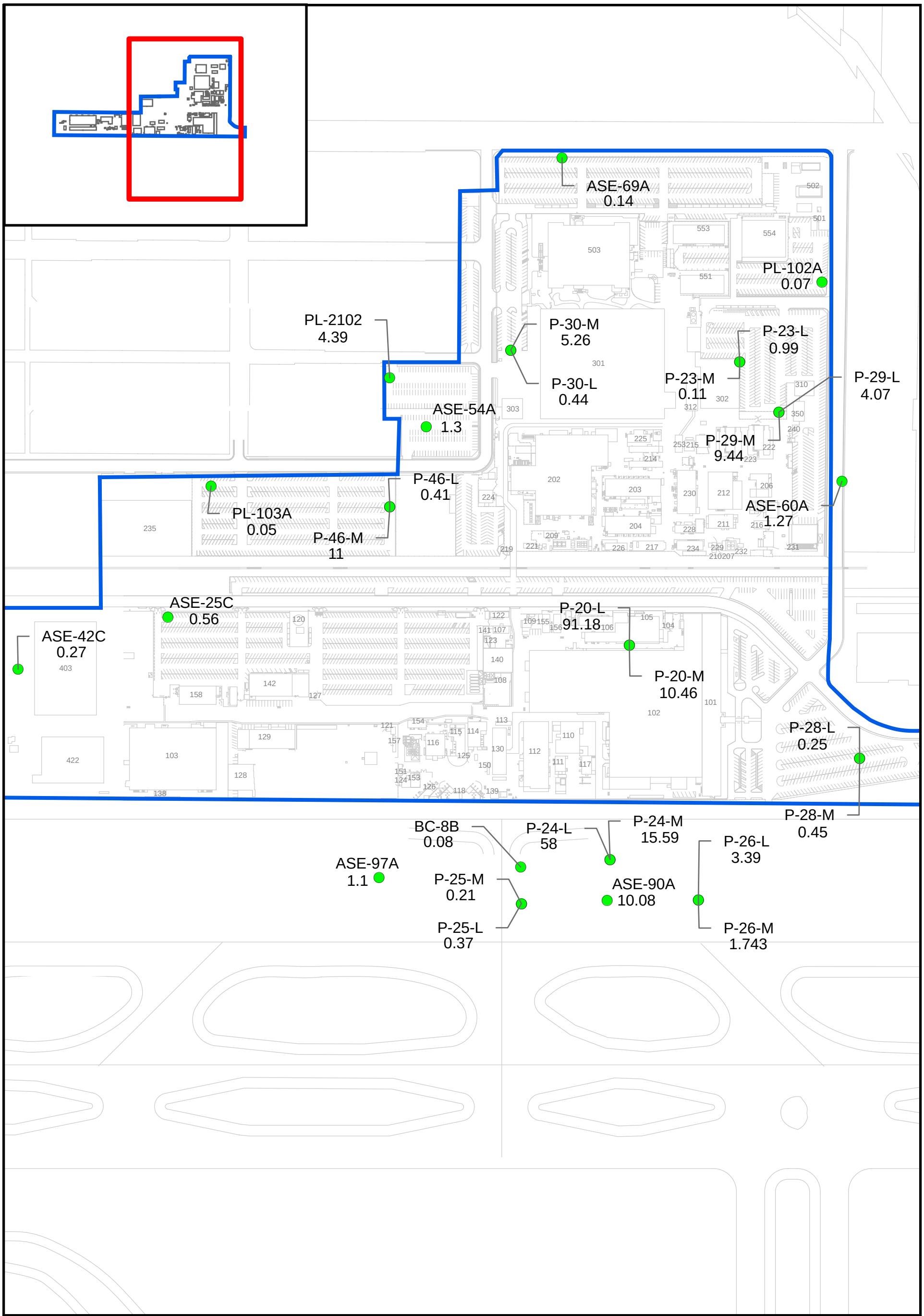
0 150 300 600 Feet

FIGURE 3-12
BTEX - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, and Xylenes.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-12_SV_BTEX_INTERMEDIATE.MXD CVF 6/22/2006 14:30:38



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

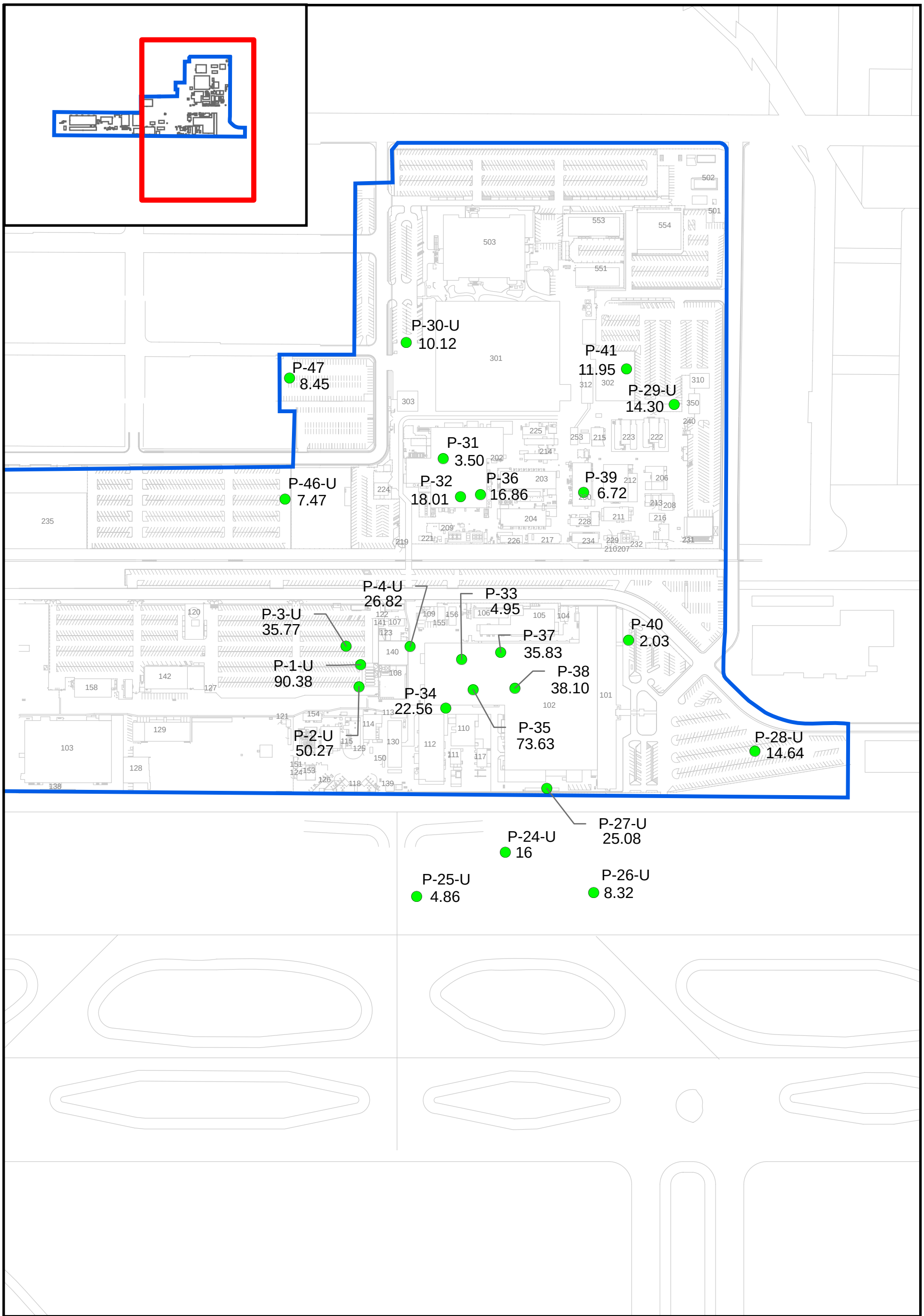
0 150 300 600 Feet

Note: Total BTEX is the sum of Benzene, Toluene, Ethylbenzene, and Xylenes.

FIGURE 3-13
BTEX - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-13_SV_BTEX_DEEP.MXD CVF 6/22/2006 14:31:32



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

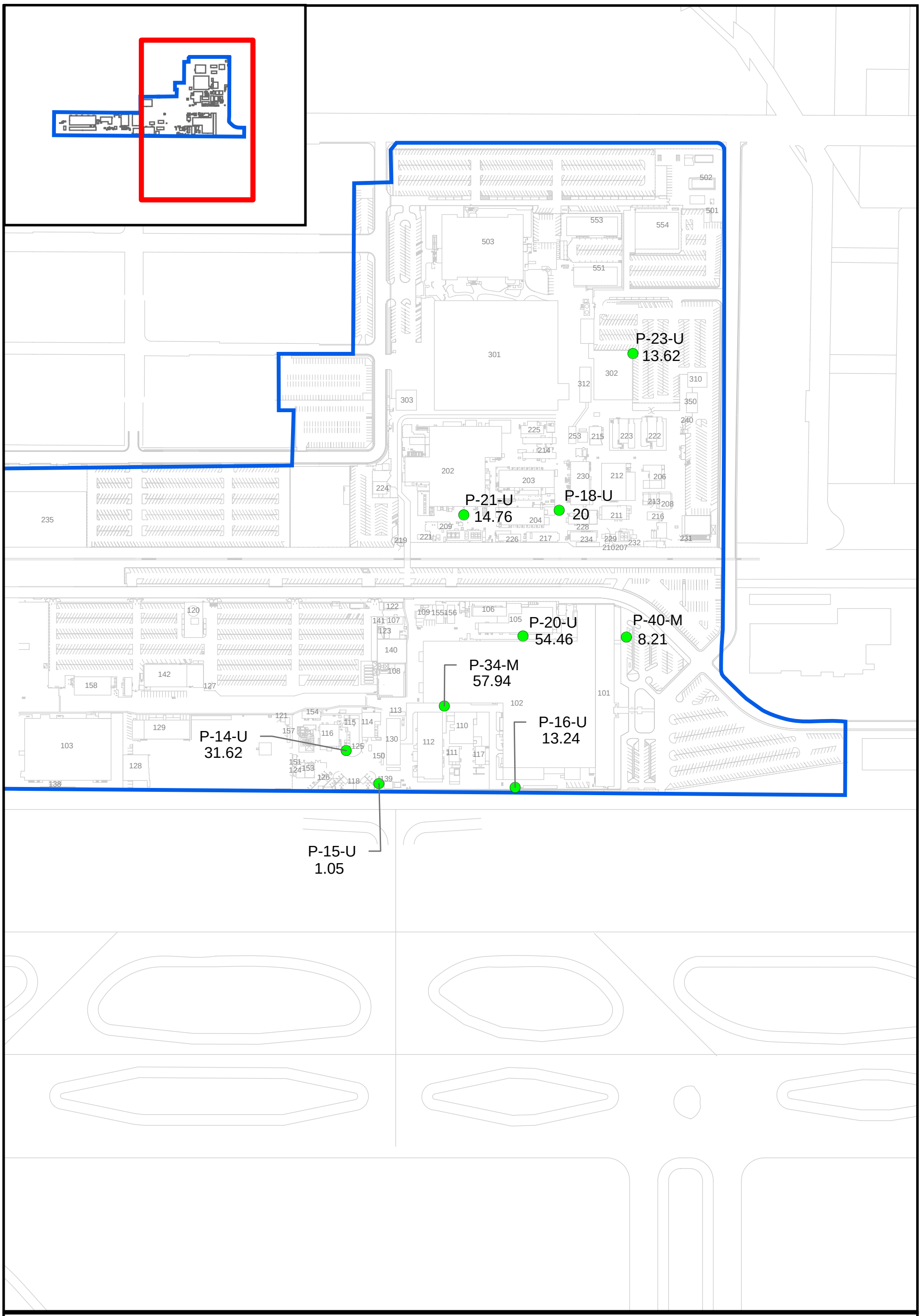
0 150 300 600 Feet

FIGURE 3-14
TOTAL VOCs - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total VOCs is the sum of all detections for EPA Method 8260B analyte list.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-14_SV_TOTAL_VOCS_SHALLOW.MXD CVF 6/22/2006 14:32:24



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

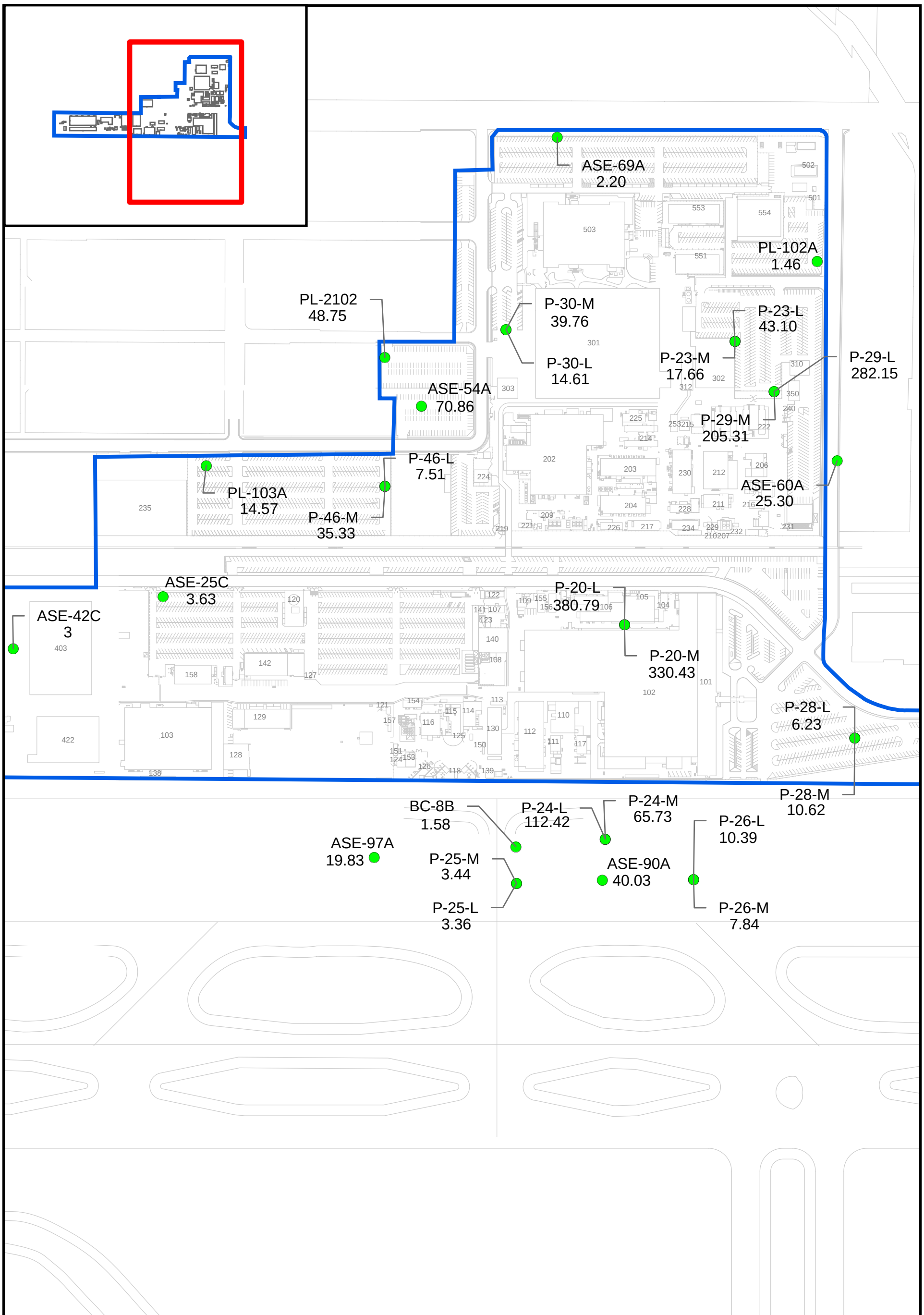
0 150 300 600 Feet

Note: Total VOCs is the sum of all detections for EPA Method 8260B analyte list.

FIGURE 3-15
TOTAL VOCs - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-15_SV_TOTAL_VOCS_INTERMEDIATE.MXD CVF 6/22/2006 14:33:15



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

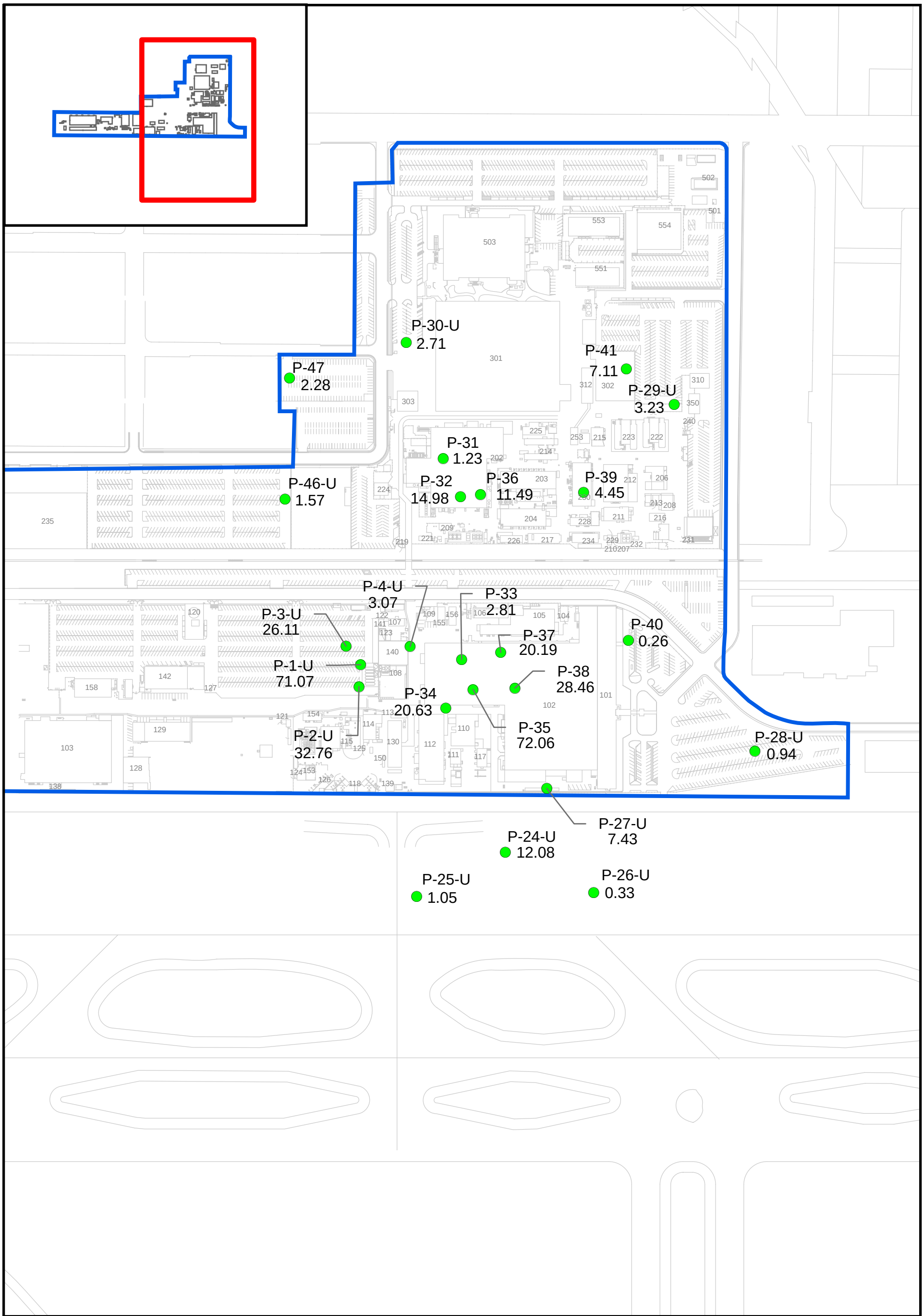
0 150 300 600 Feet

FIGURE 3-16
TOTAL VOCs - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total VOCs is the sum of all detections for EPA Method 8260B analyte list.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-16_SV_TOTAL_VOCS_DEEP.MXD CVF 6/22/2006 14:36:36



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

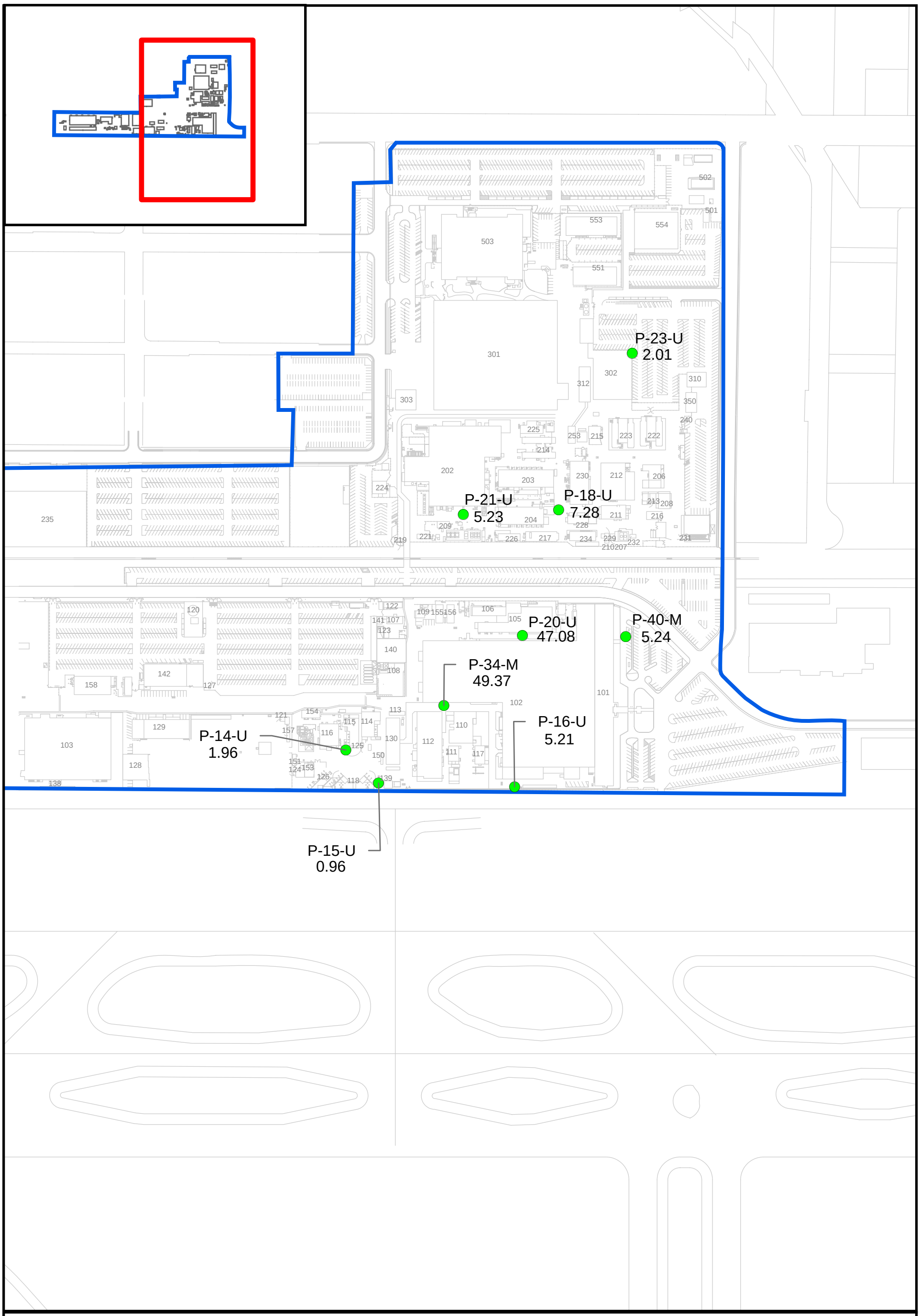
0 150 300 600 Feet

Note: Total Non-Fuel VOCs is the sum of the compounds listed on Table 2-3 (prepared by CH2M HILL chemist).

FIGURE 3-17
TOTAL NON-FUEL VOCs - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-17_SV_TOTAL_NFVOCS_SHALLOW.MXD CVF 6/22/2006 14:37:37



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

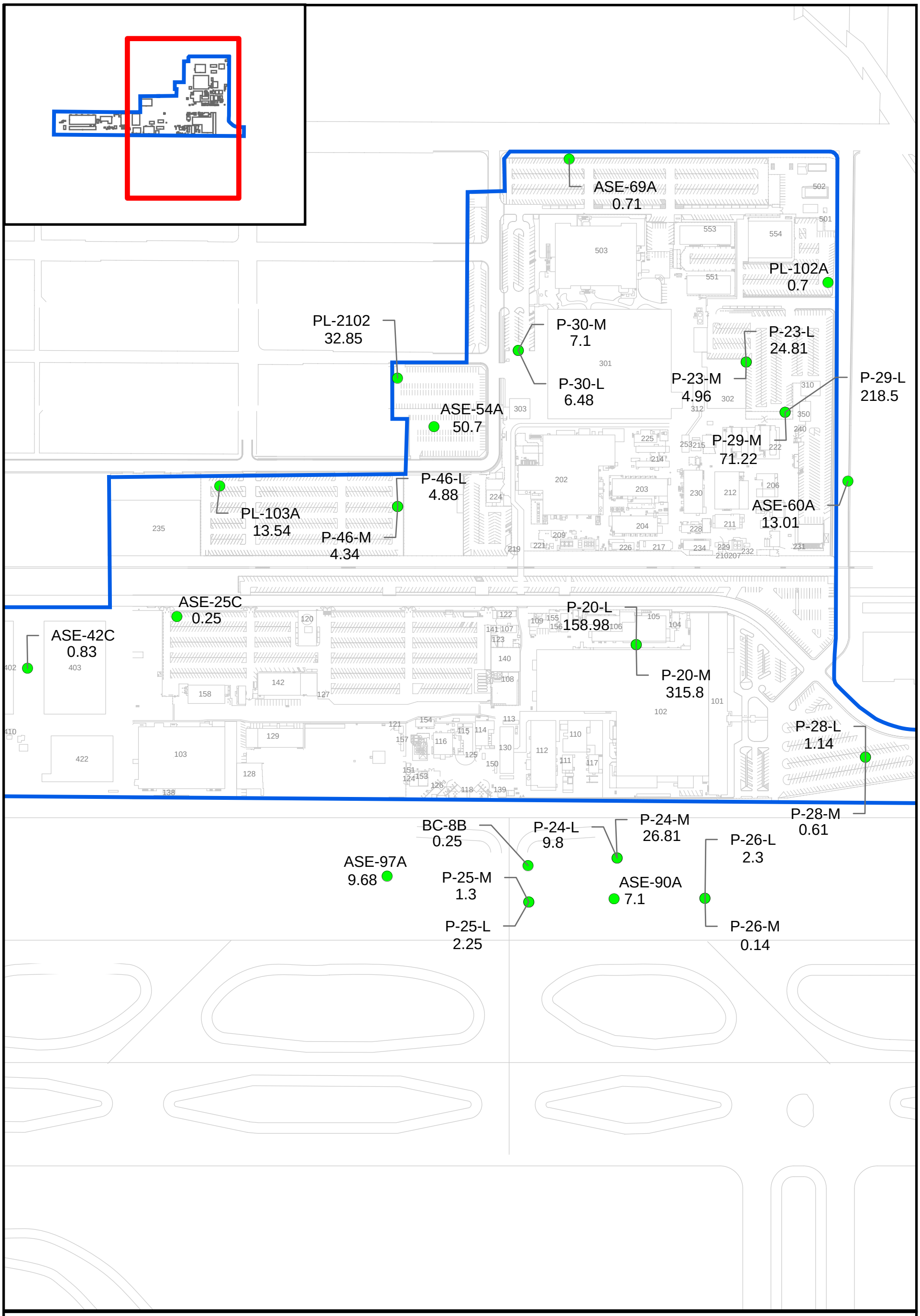
0 150 300 600 Feet

Note: Total Non-Fuel VOCs is the sum of the compounds listed on Table 2-3 (prepared by CH2M HILL chemist).

FIGURE 3-18
TOTAL NON-FUEL VOCs - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-18_SV_TOTAL_NFVOCS_INTERMEDIATE.MXD CVF 6/22/2006 14:38:48



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

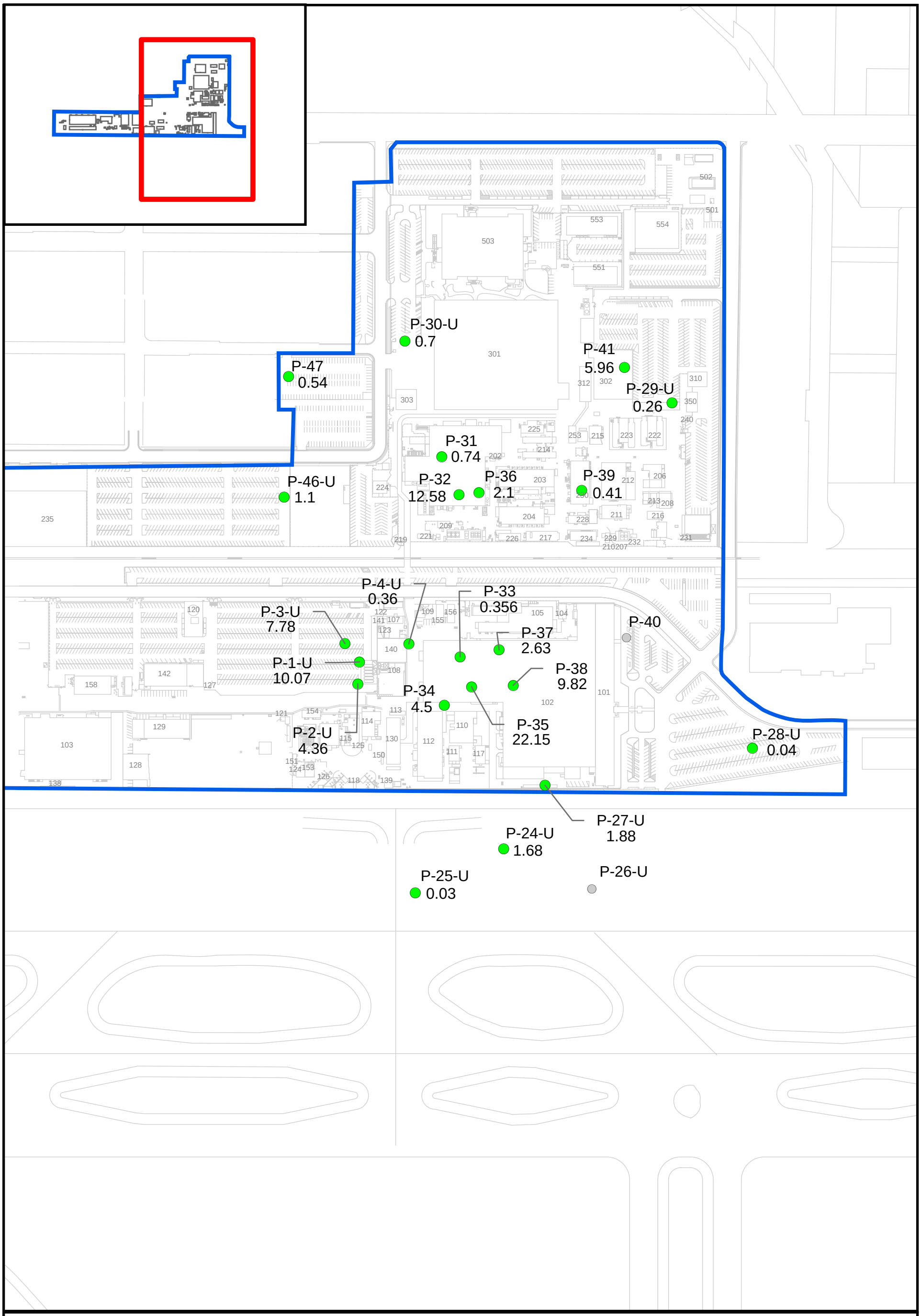
0 150 300 600 Feet

Note: Total Non-Fuel VOCs is the sum of the compounds listed on Table 2-3 (prepared by CH2M HILL chemist).

FIGURE 3-19
TOTAL NON-FUEL VOCs - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-19_SV_TOTAL_NFVOCS_DEEP.MXD CVF 6/22/2006 14:39:57



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

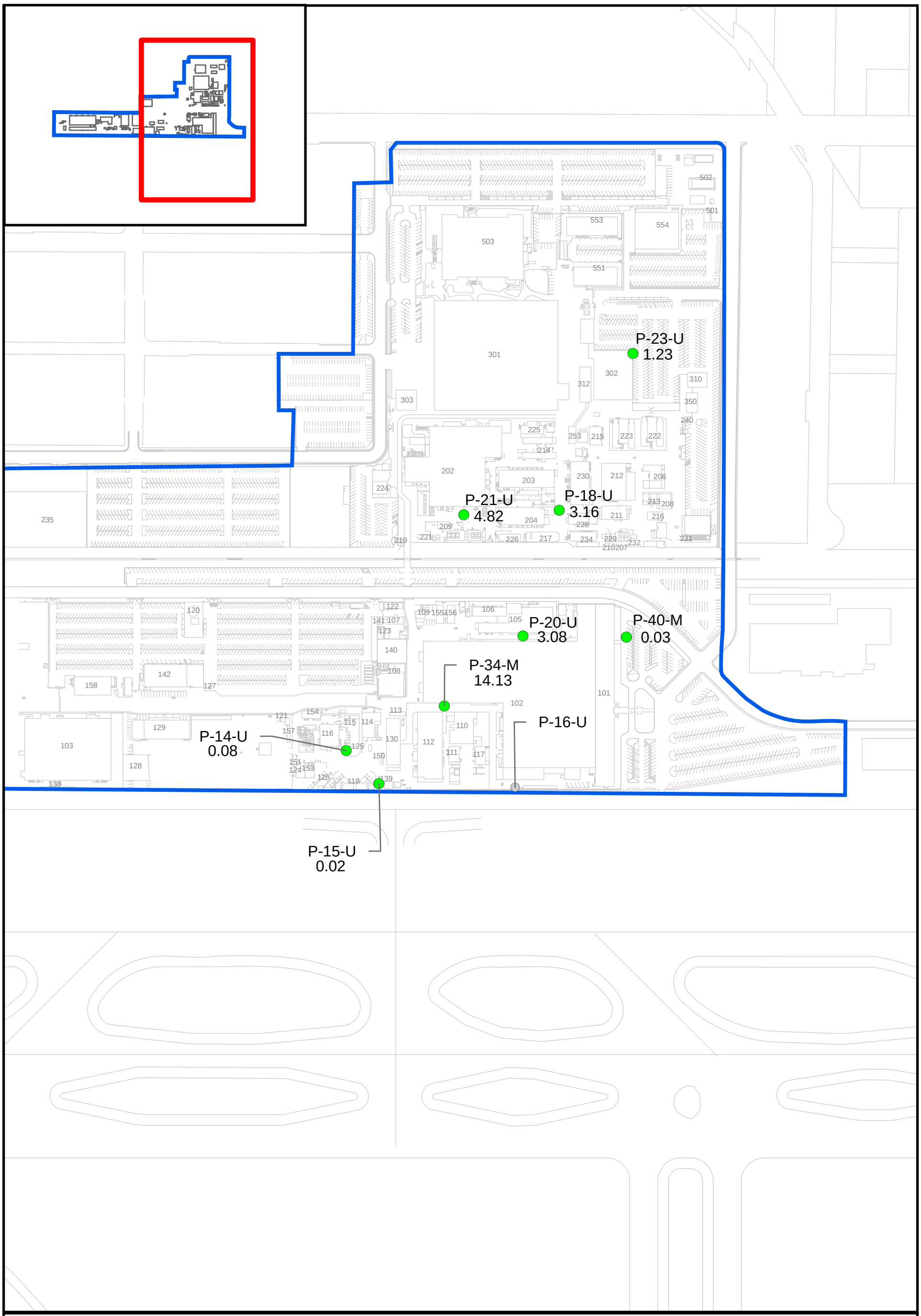
0 150 300 600 Feet

Note: Total TCE is the sum of TCE, cis-1,2-DCE, and Vinyl Chloride.

FIGURE 3-20
TOTAL TCE - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-20_SV_TOTAL_TCE_SHALLOW.MXD CVF 6/22/2006 14:41:01



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

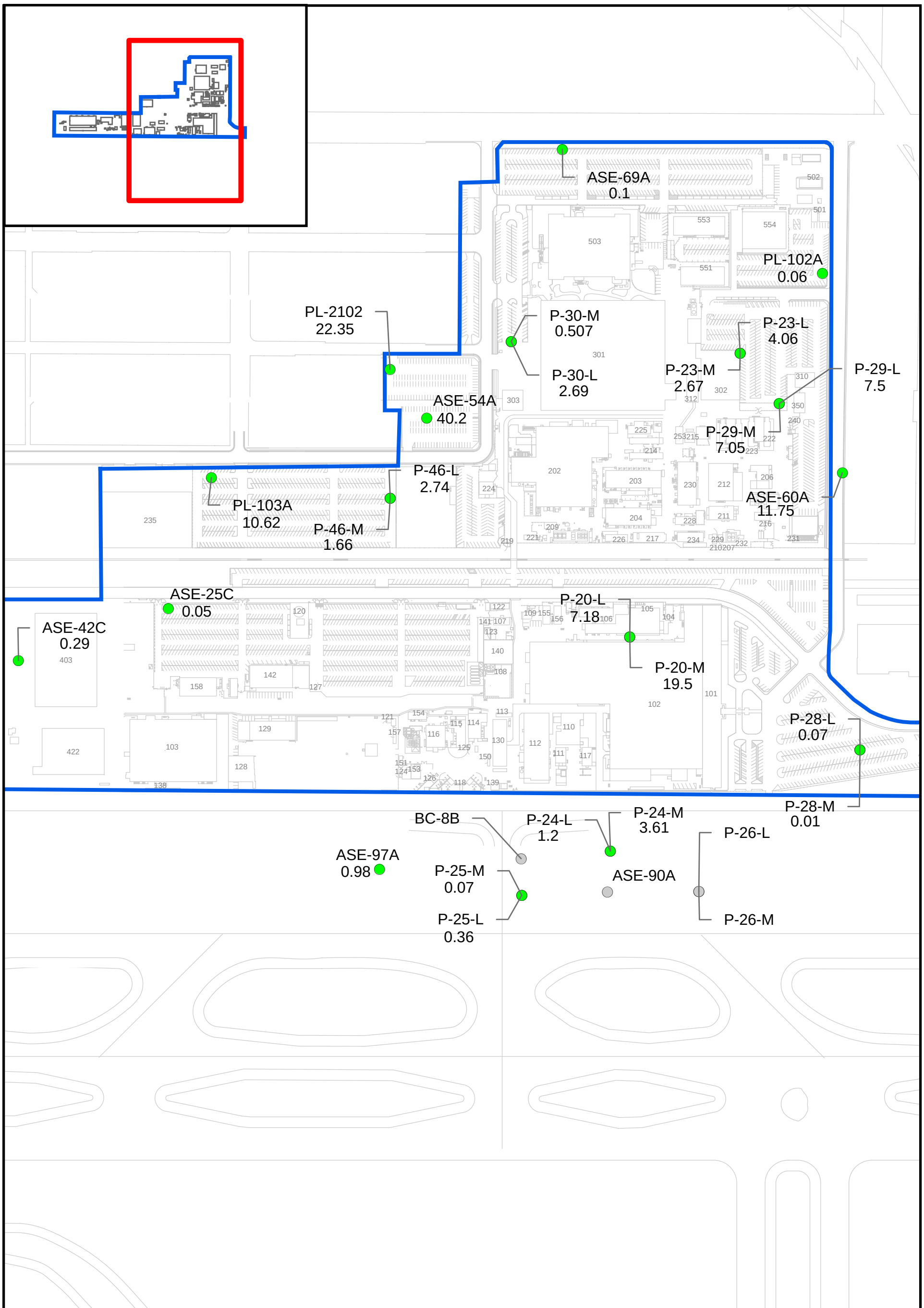
0 150 300 600 Feet

Note: Total TCE is the sum of TCE, cis-1,2-DCE, and Vinyl Chloride.

FIGURE 3-21
TOTAL TCE - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-21_SV_TOTAL_TCE_INTERMEDIATE.MXD CVF 6/22/2006 14:42:11



Legend

- Compound Detected (ug/L)
- Compound Not Detected
- Streets and Airport Features
- Honeywell Facility

N W E S

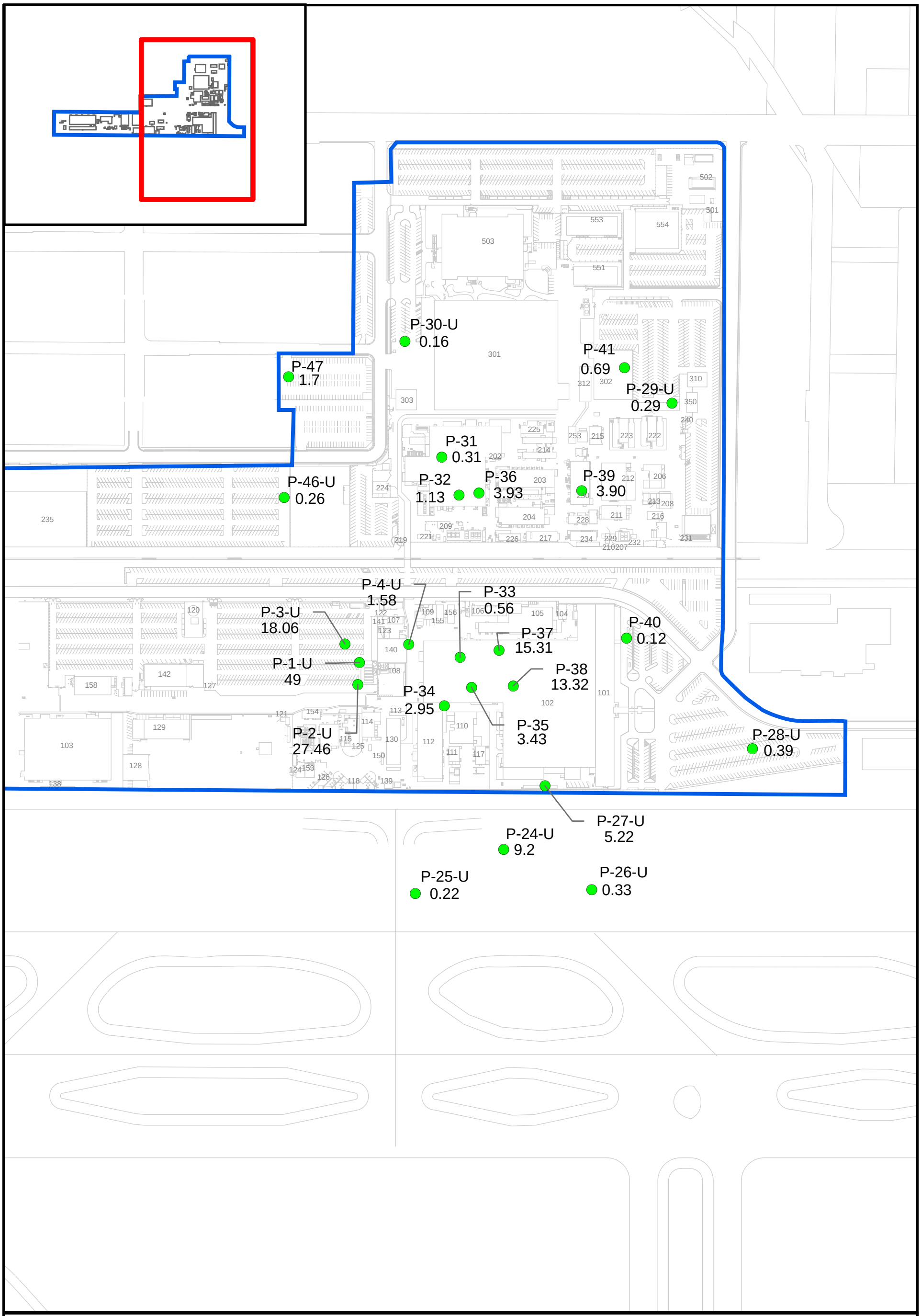
0 150 300 600 Feet

FIGURE 3-22
TOTAL TCE - DEEP (>30 ft)
THROUGH APRIL 2006
SOILS VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total TCE is the sum of TCE, cis-1,2-DCE, and Vinyl Chloride.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-22_SV_TOTAL_TCE_DEEP.MXD CVF 6/22/2006 14:43:13



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

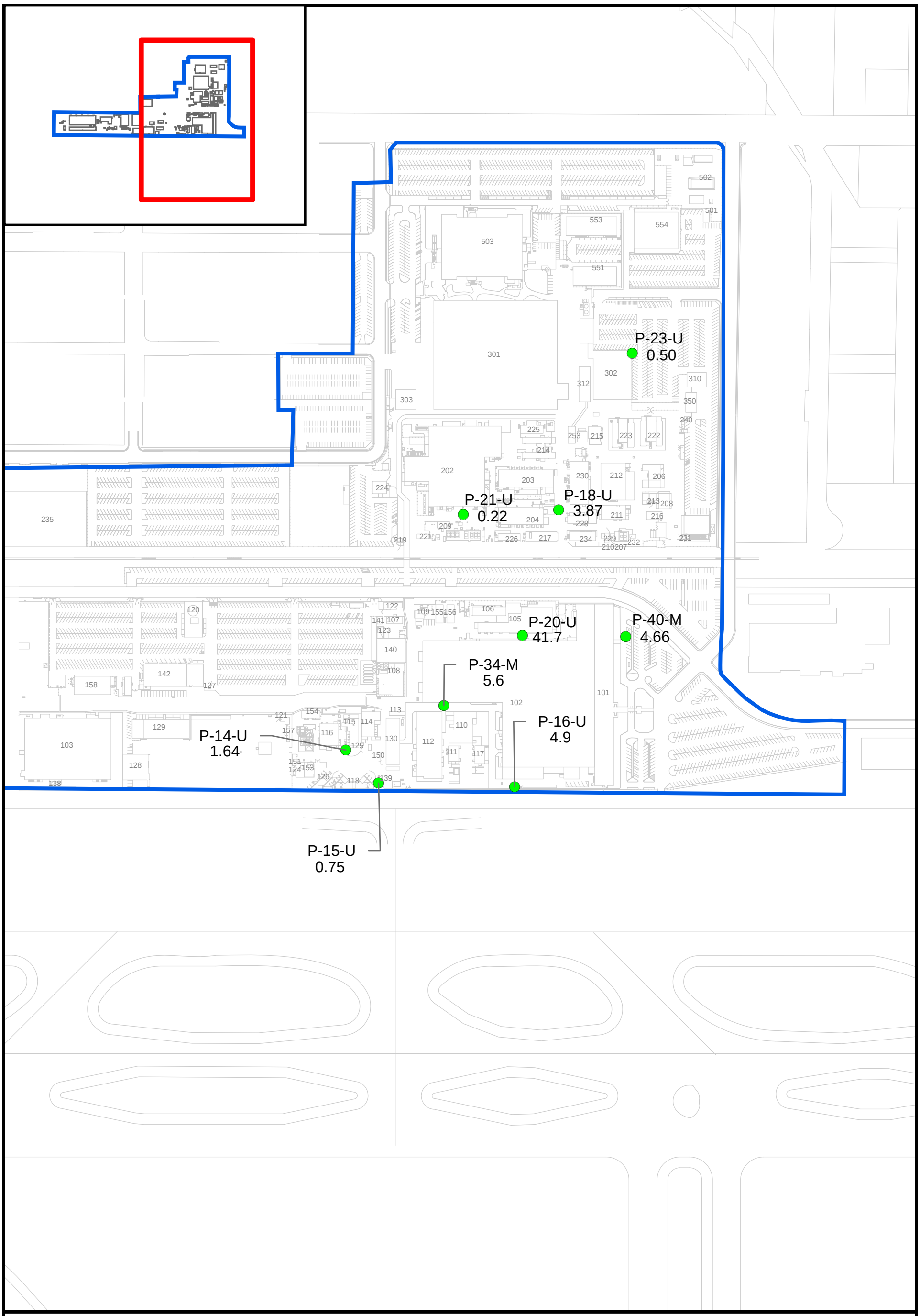
0 150 300 600 Feet

FIGURE 3-23
TOTAL TCA - SHALLOW (<9 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total TCA is the sum of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and Chloroethane.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-23_SV_TOTAL_TCA_SHALLOW.MXD CVF 6/22/2006 14:44:14



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

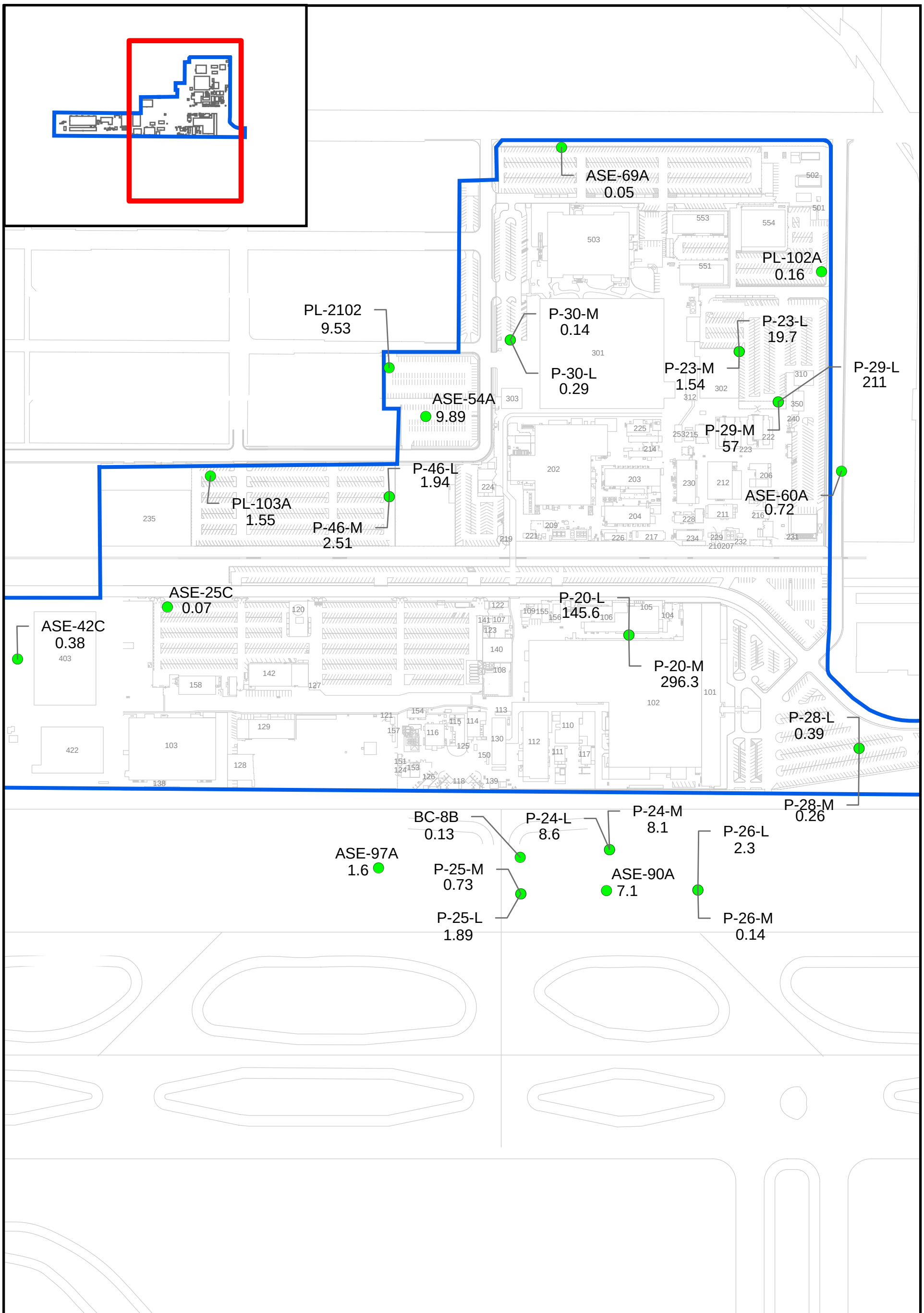
0 150 300 600 Feet

Note: Total TCA is the sum of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and Chloroethane.

FIGURE 3-24
TOTAL TCA - INTERMEDIATE (>9 ft, <30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERS
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-24_SV_TOTAL_TCA_INTERMEDIATE.MXD CVF 6/22/2006 14:49:38



Legend

- Compound Detected (ug/L)
- Streets and Airport Features
- Honeywell Facility

N W E S

0 150 300 600 Feet

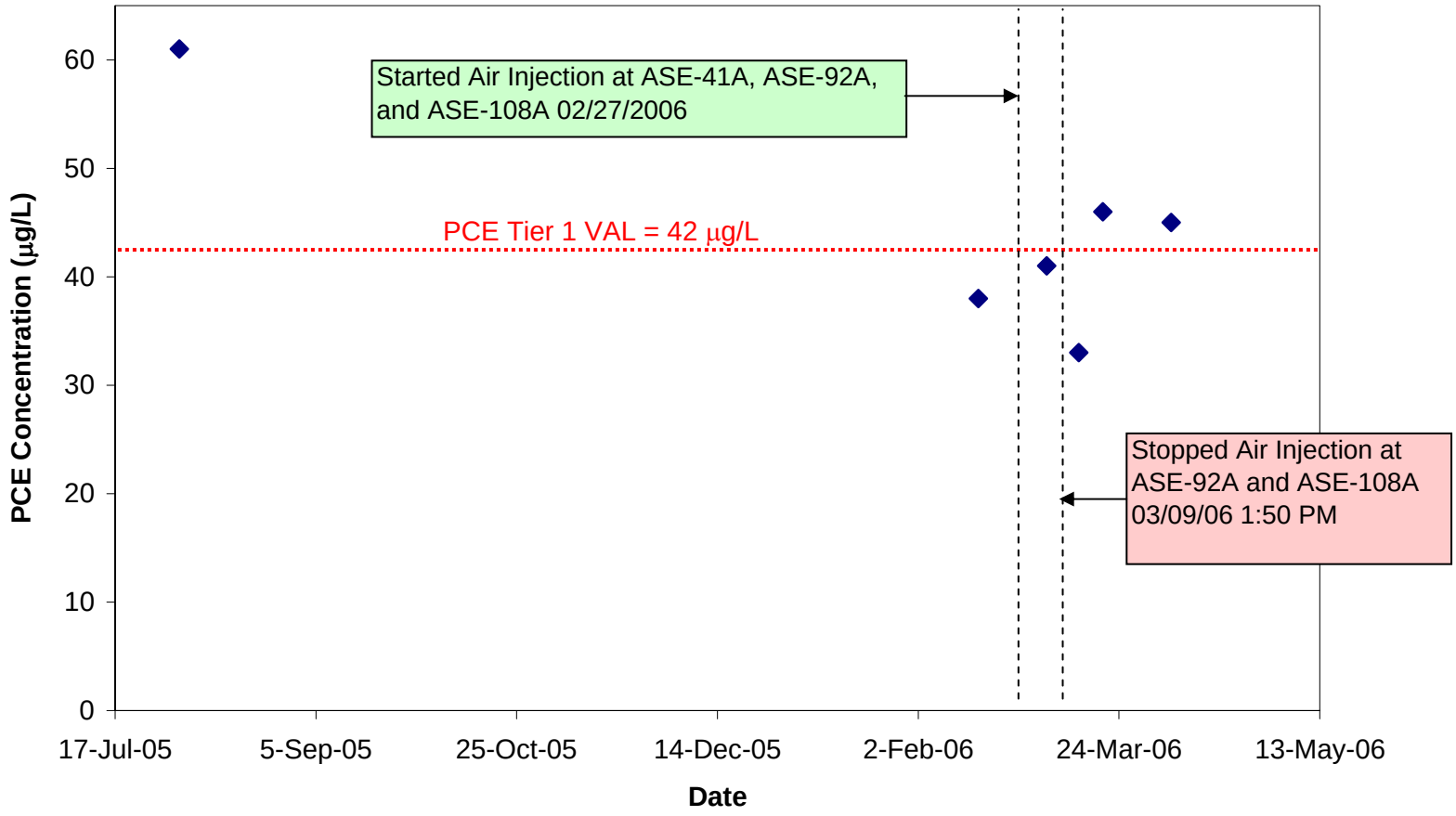
FIGURE 3-25
TOTAL TCA - DEEP (>30 ft)
THROUGH APRIL 2006
SOIL VAPOR PARAMETERES

Honeywell 34th Street Facility
Phoenix, Arizona

Note: Total TCA is the sum of 1,1,1-TCA, 1,1-DCA, 1,1-DCE, and Chloroethane.

CH2MHILL

PHX \\PHOENIX\PROJ\337711\BV-BIOVENTING AND UST\50\52\10 - ADEQ RPTING\2006 - Q2\GIS SOURCE FILES\SV_MXD\FIG3-25_SV_TOTAL_TCA_DEEP.MXD CVF 6/22/2006 14:52:36



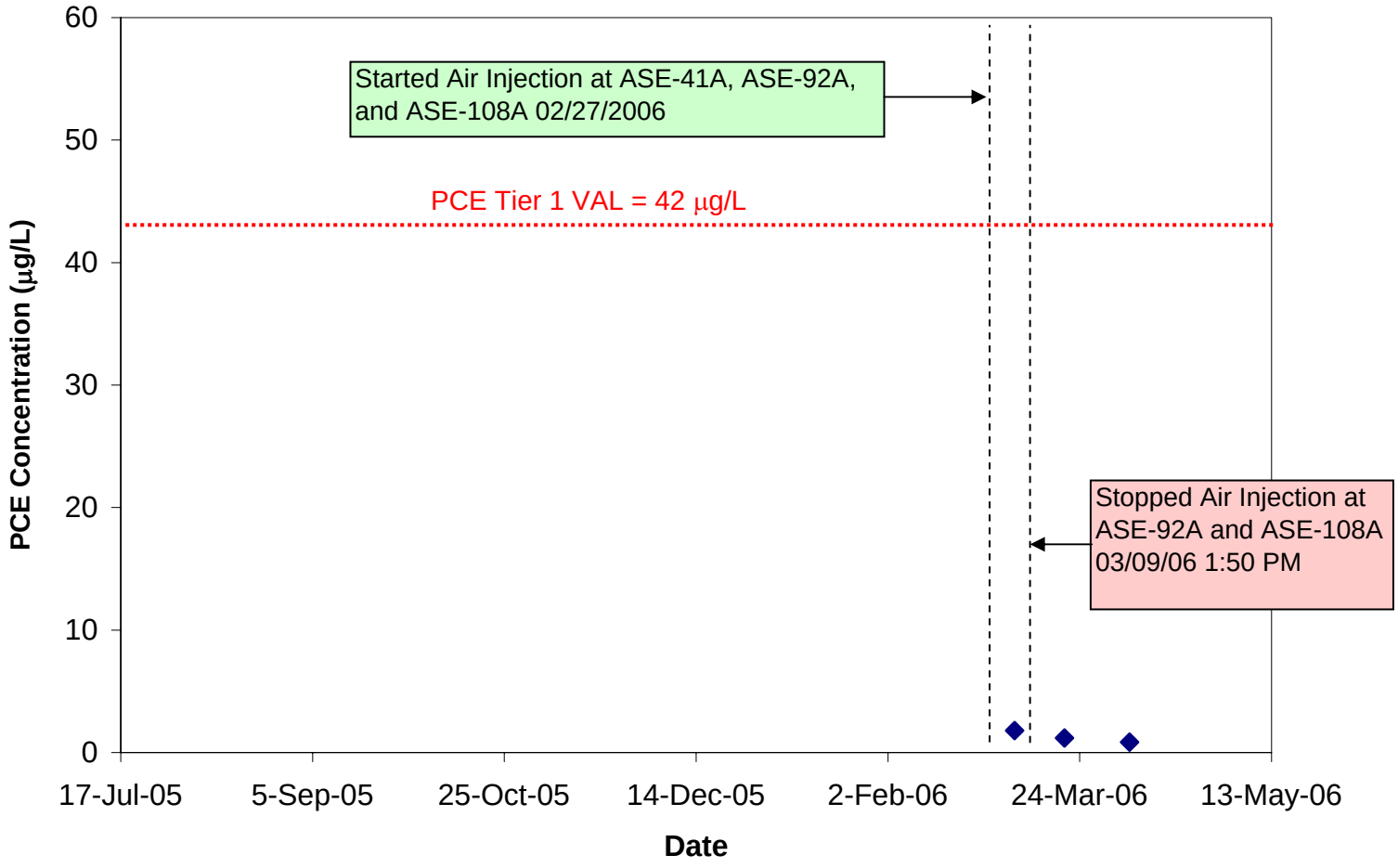
LEGEND

- ◆ P-35 PCE Analytical Results (ug/L)
- ····· Tier 1 Vapor Intrusion Action Level (VAL) is the Tier 1 Risk Based Concentration (RBC) at 5 feet below ground surface. Tier 1 RBCs are based on a 10^{-6} risk of HQ of 1, a exposure duration of 1 year, building is assumed to be located on top of the injection point, and the surface flux is assumed to be 0.001 scfm per square feet.

FIGURE 3-26
PCE MONITORING RESULTS, P-35

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL



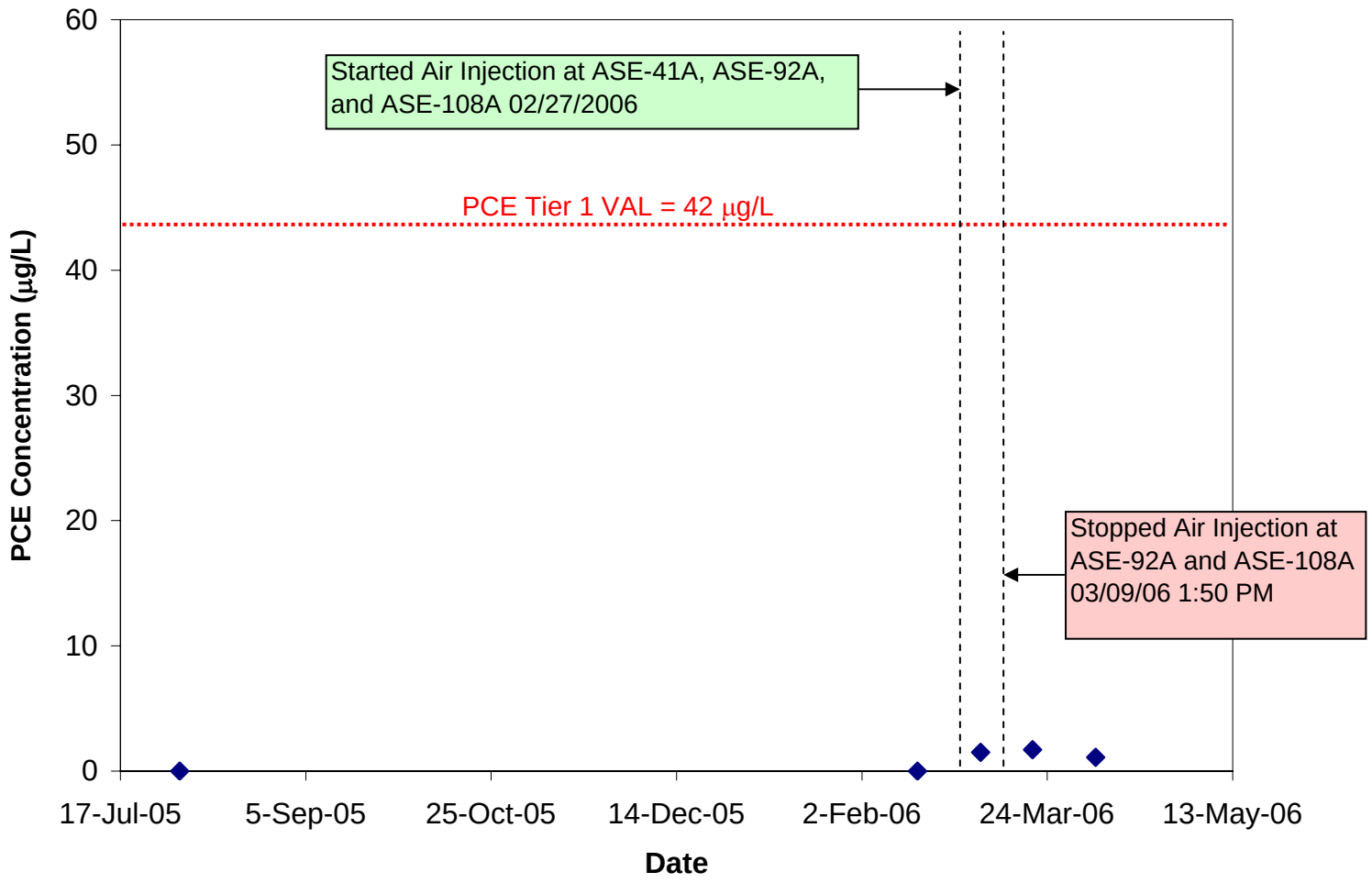
LEGEND

- ◆ P-33 PCE Analytical Results (ug/L)
- ····· Tier 1 Vapor Intrusion Action Level (VAL) is the Tier 1 Risk Based Concentration (RBC) at 5 feet below ground surface. Tier 1 RBCs are based on a 10^{-6} risk of HQ of 1, a exposure duration of 1 year, building is assumed to be located on top of the injection point, and the surface flux is assumed to be 0.001 scfm per square feet.

FIGURE 3-27
PCE MONITORING RESULTS, P-33

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL



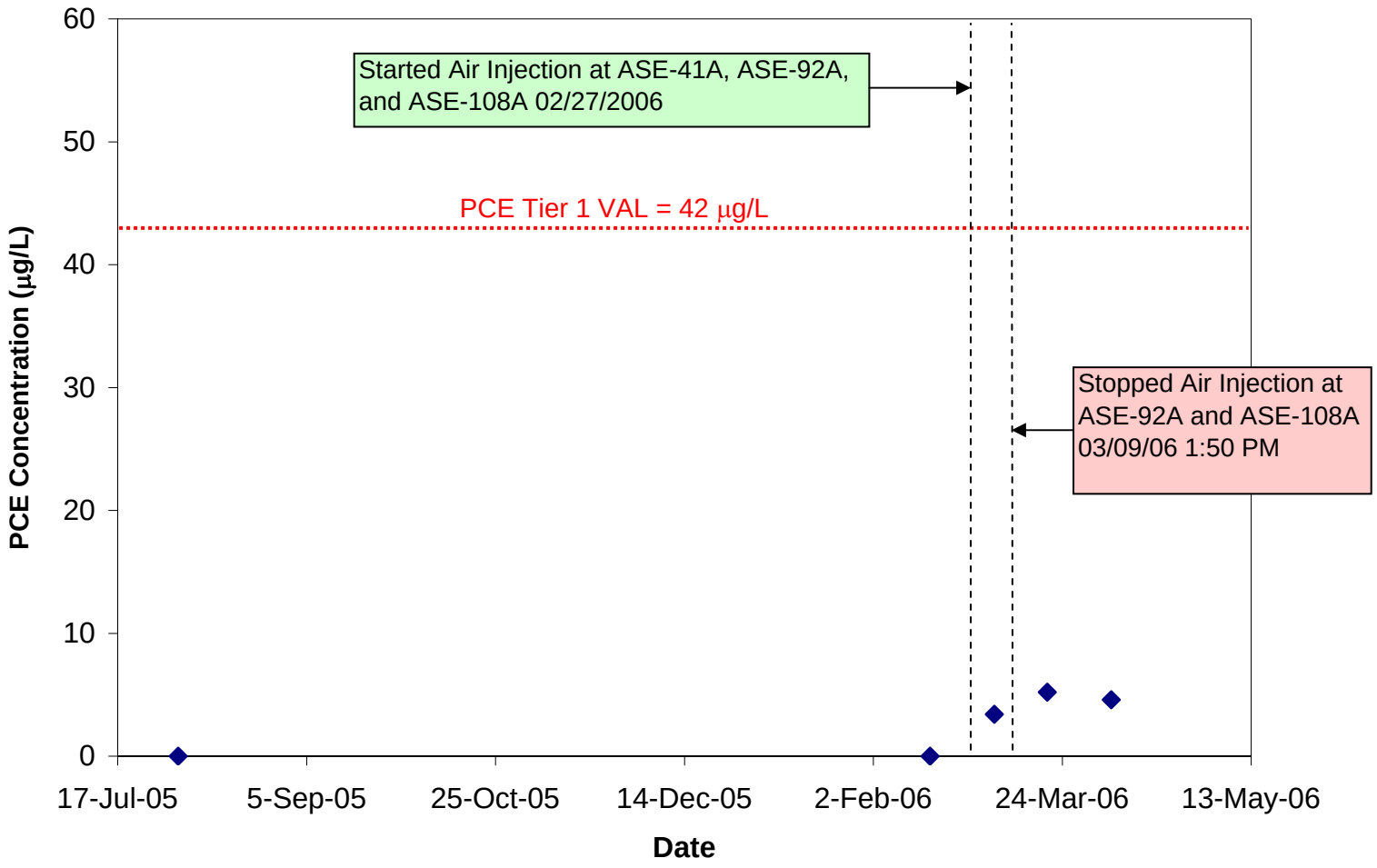
LEGEND

- ◆ P-37 PCE Analytical Results (ug/L)
- ····· Tier 1 Vapor Intrusion Action Level (VAL) is the Tier 1 Risk Based Concentration (RBC) at 5 feet below ground surface. Tier 1 RBCs are based on a 10^{-6} risk of HQ of 1, a exposure duration of 1 year, building is assumed to be located on top of the injection point, and the surface flux is assumed to be 0.001 scfm per square feet.

FIGURE 3-28
PCE MONITORING RESULTS, P-37

Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL



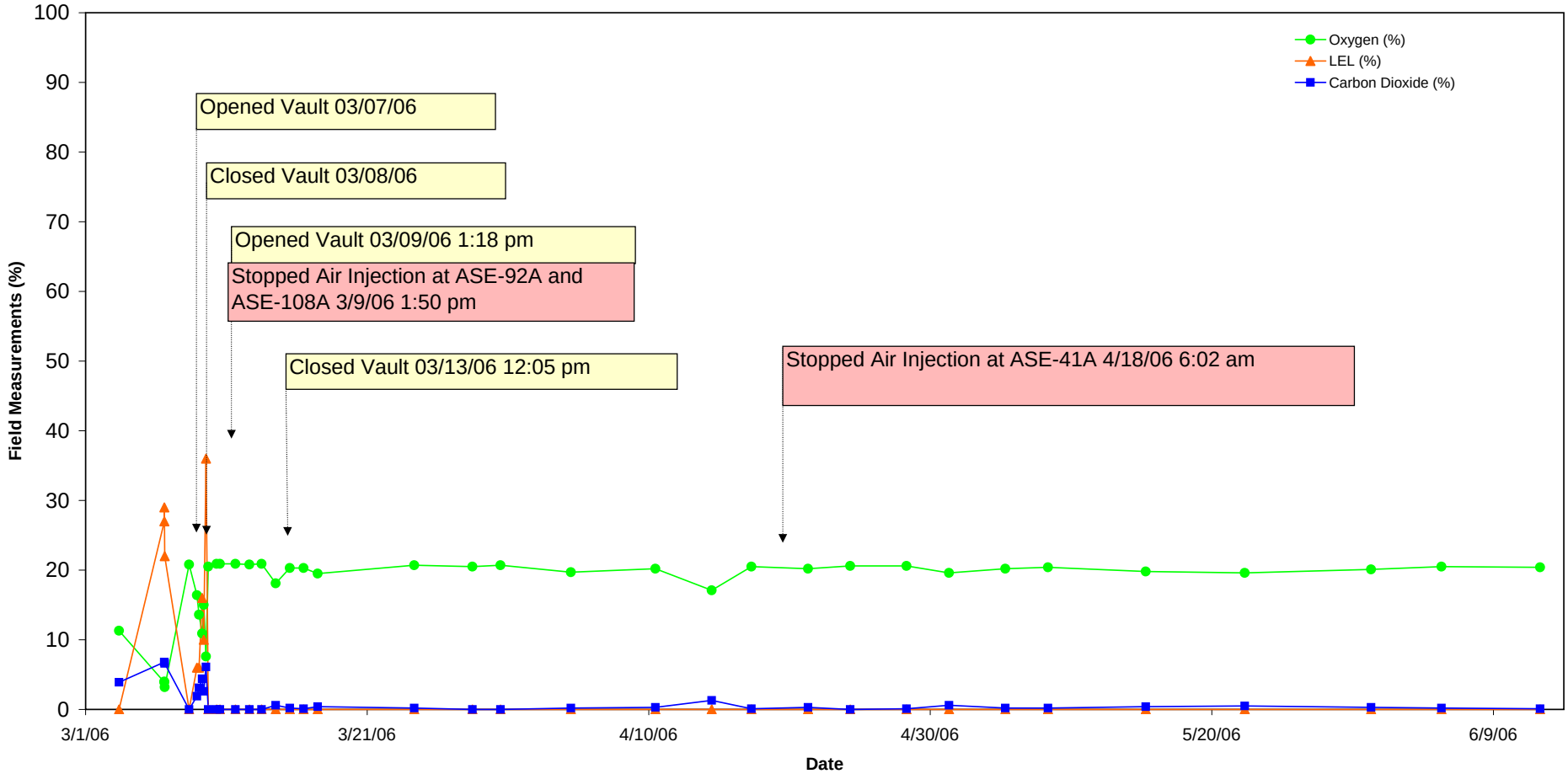
LEGEND

- ◆ P-38 PCE Analytical Results (ug/L)
- ····· Tier 1 Vapor Intrusion Action Level (VAL) is the Tier 1 Risk Based Concentration (RBC) at 5 feet below ground surface. Tier 1 RBCs are based on a 10^{-6} risk of HQ of 1, a exposure duration of 1 year, building is assumed to be located on top of the injection point, and the surface flux is assumed to be 0.001 scfm per square feet.

FIGURE 3-29
PCE MONITORING RESULTS, P-38

Honeywell 34th Street Facility
Phoenix, Arizona

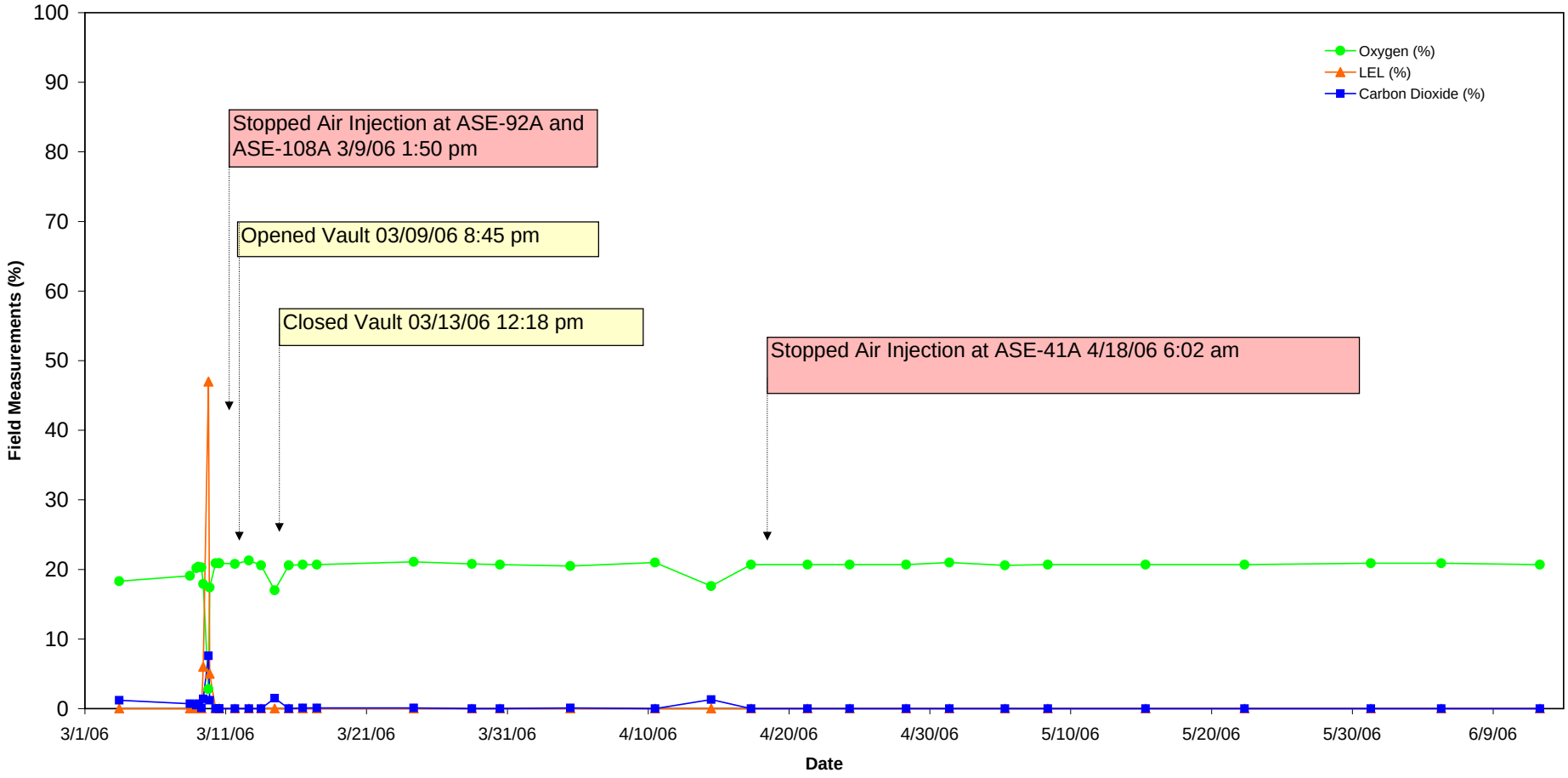
CH2MHILL



NOTE: Started Air Injection at ASE-41A, ASE-92A, and ASE-108A on February 27, 2006.

FIGURE 3-30
O2, CO2, % LEL MONITORING RESULTS
SKY HARBOR AIRPORT VAULT NO. ELE-VLT-03
Honeywell 34th Street Facility
Phoenix, Arizona

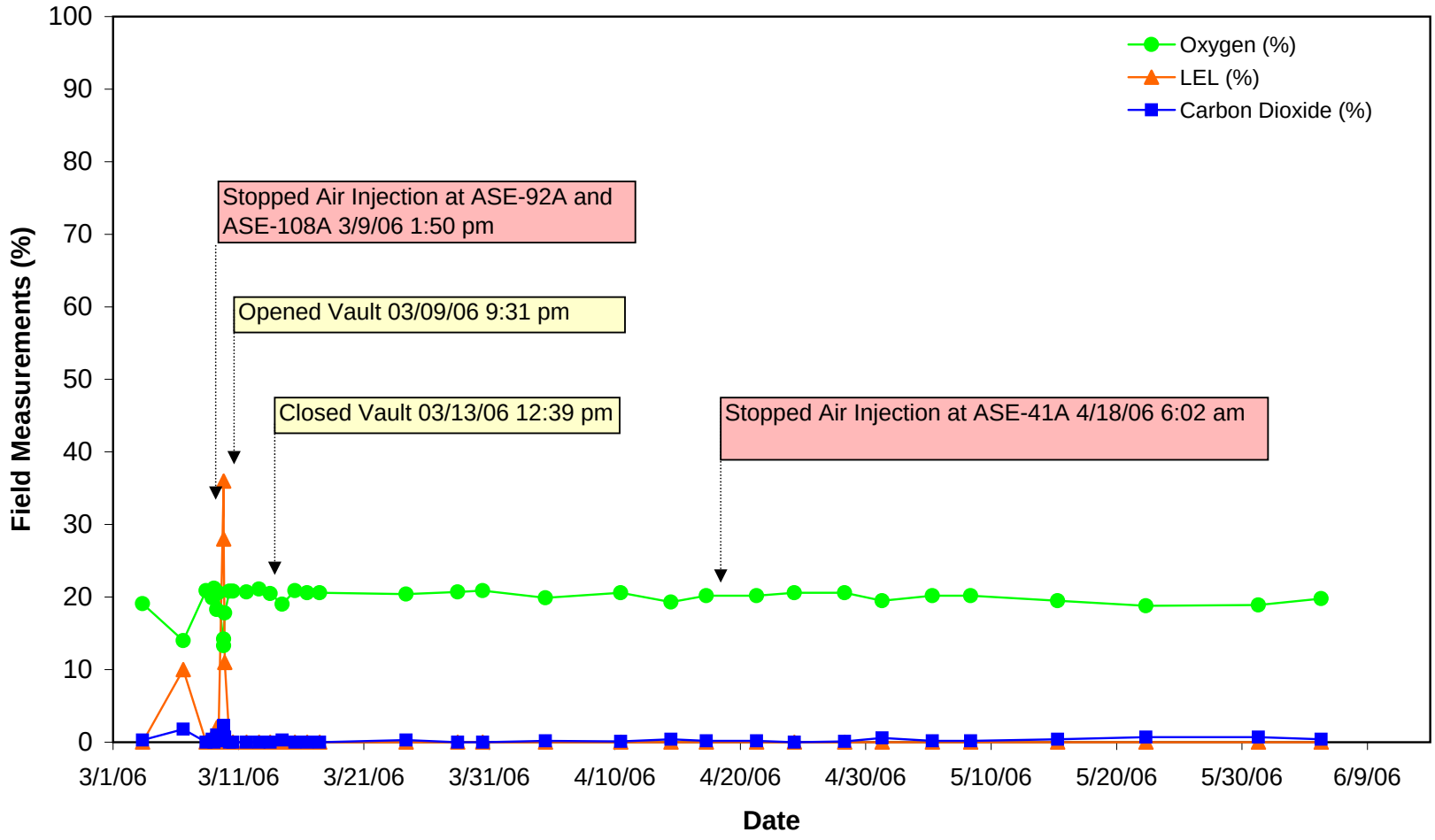
CH2MHILL



NOTE: Started Air Injection at ASE-41A, ASE-92A, and ASE-108A on February 27, 2006.

FIGURE 3-31
O2, CO2, % LEL MONITORING RESULTS
SKY HARBOR AIRPORT VAULT NO. ELE-VLT-06
Honeywell 34th Street Facility
Phoenix, Arizona

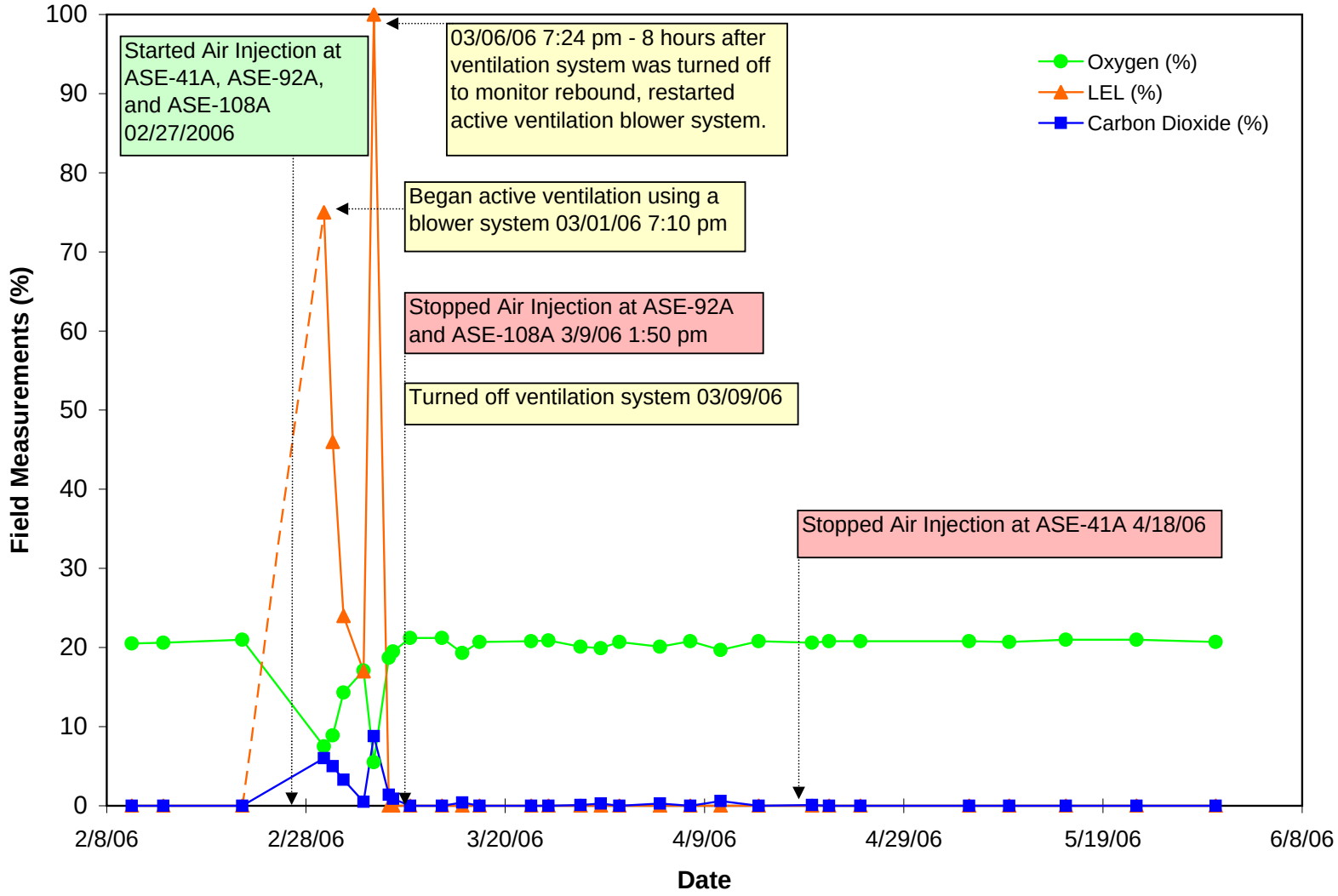
CH2MHILL



NOTE: Started Air Injection at ASE-41A, ASE-92A, and ASE-108A on February 27, 2006.

FIGURE 3-32
O2, CO2, % LEL MONITORING RESULTS
SKY HARBOR AIRPORT VAULT NO. FBO-VLT-01
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL



NOTE: Started Air Injection at ASE-41A, ASE-92A, and ASE-108A on February 27, 2006.

FIGURE 3-33
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. 1115
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

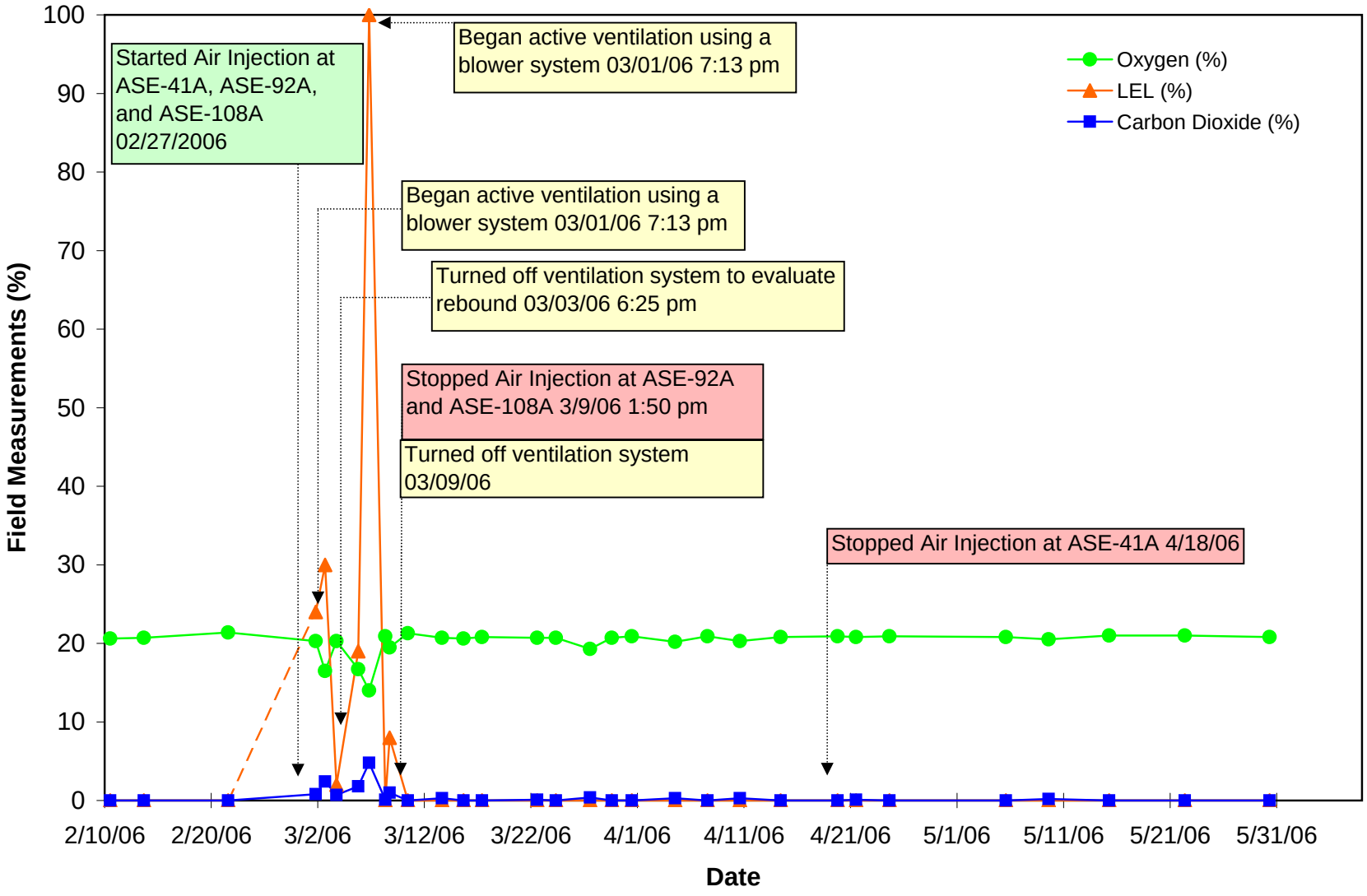


FIGURE 3-34
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. 1141
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

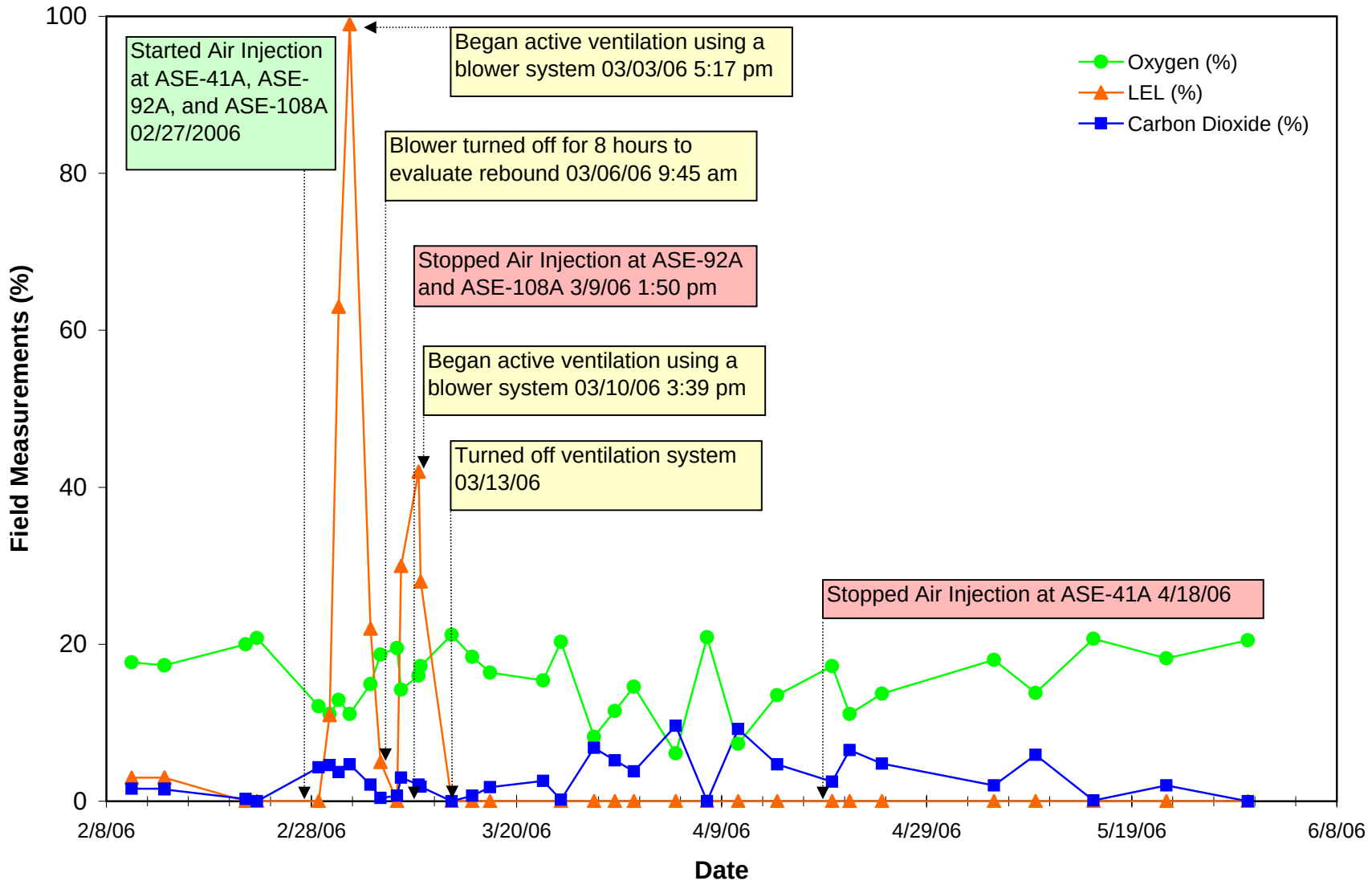


FIGURE 3-35
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. 1164
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

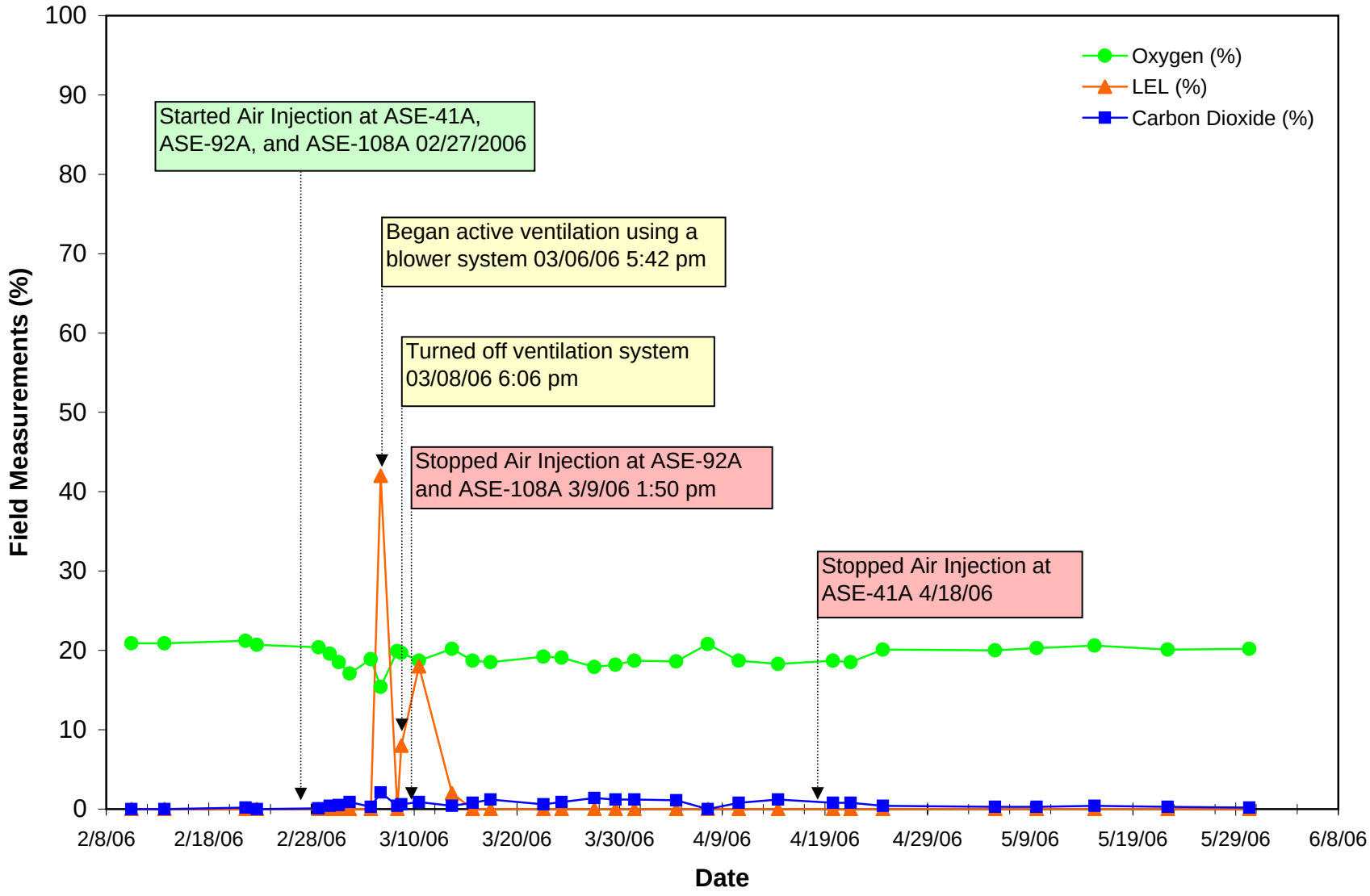


FIGURE 3-36
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. 1165
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

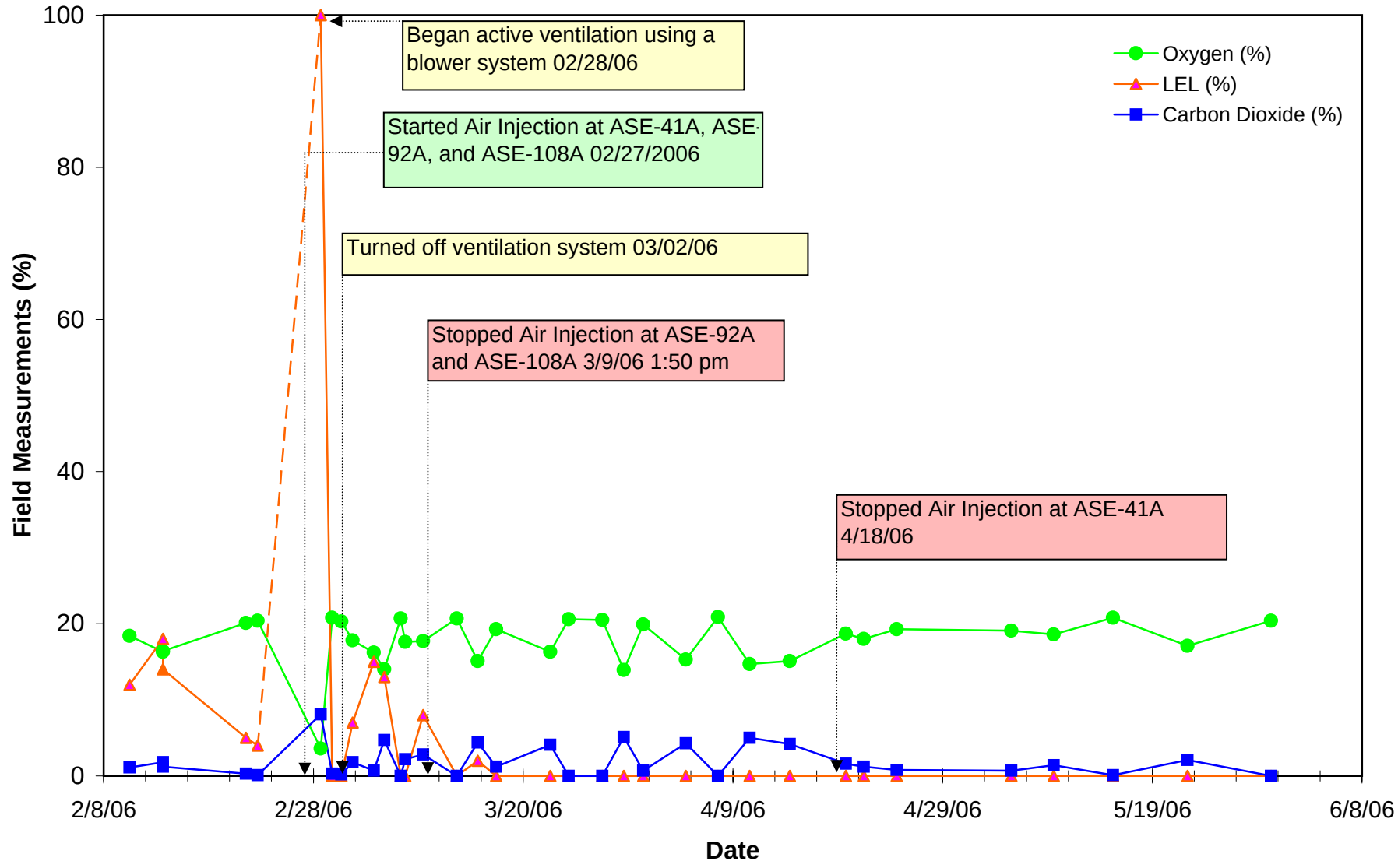


FIGURE 3-37
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. B102-N-1
Honeywell 34th Street Facility
Phoenix, Arizona

CH2MHILL

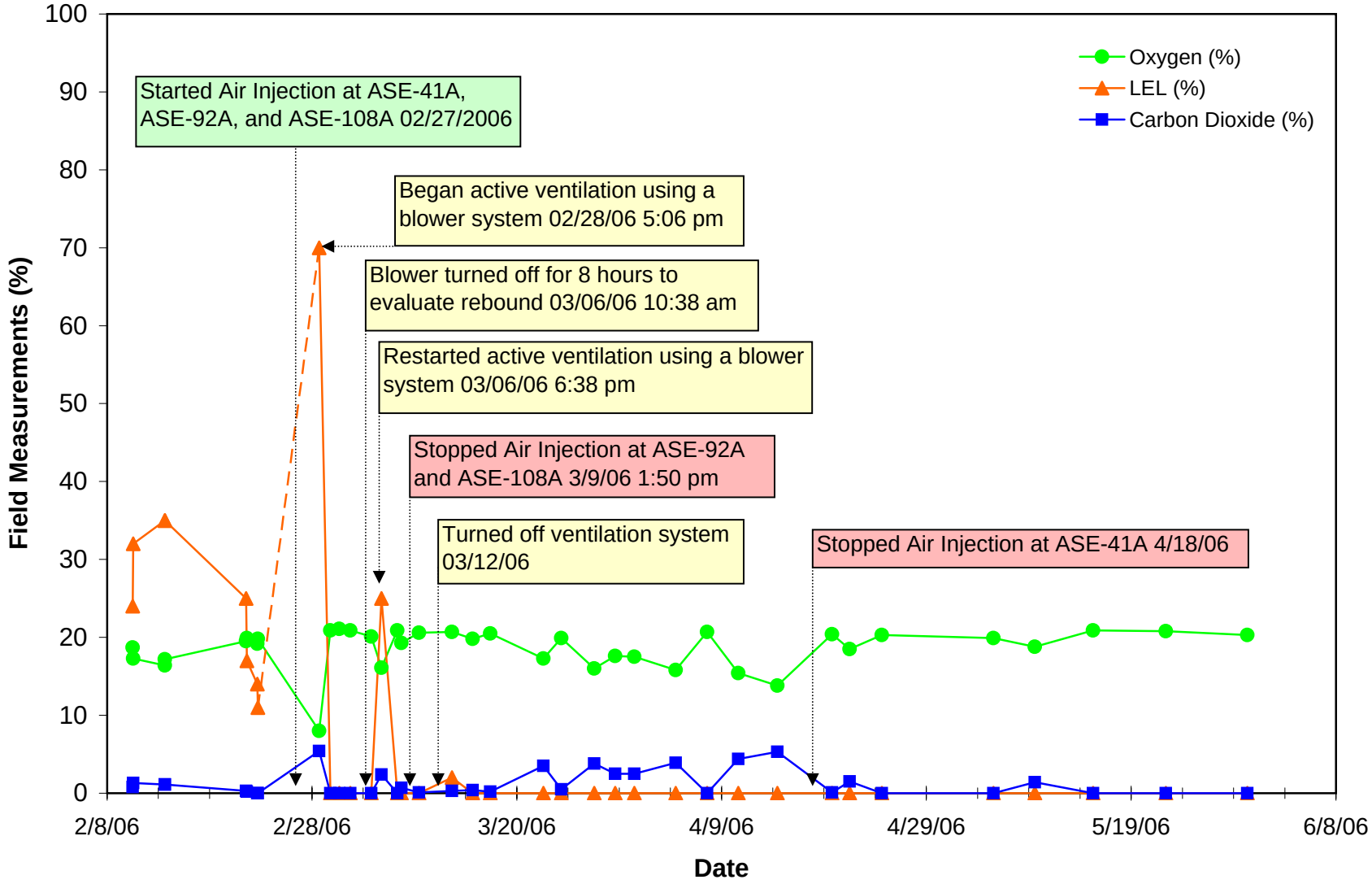
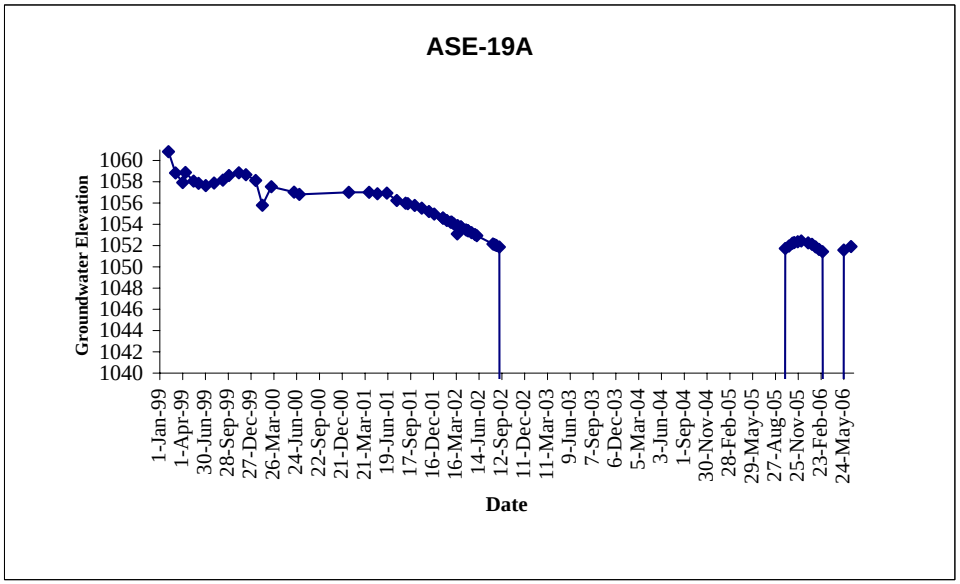


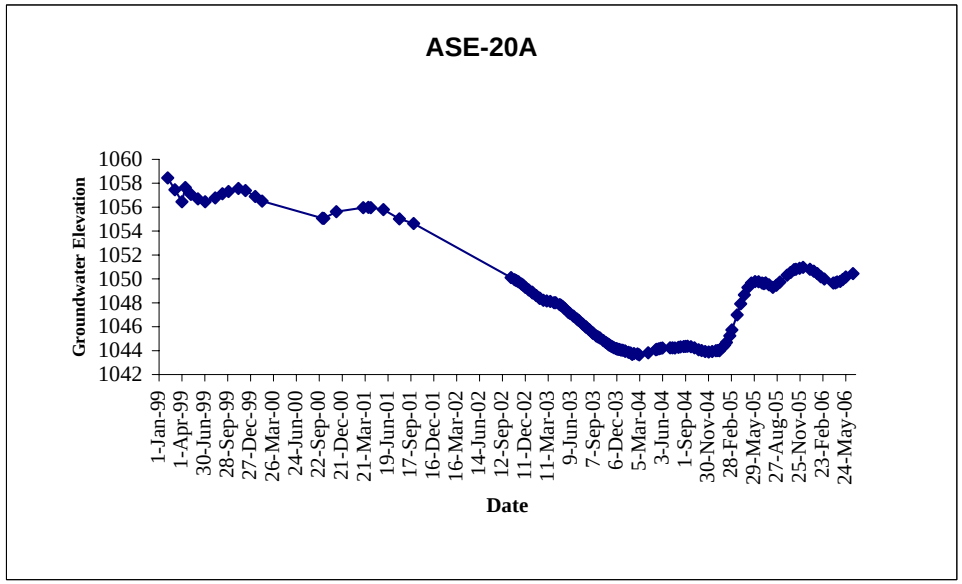
FIGURE 3-38
O2, CO2, % LEL MONITORING RESULTS
HONEYWELL SUBSURFACE UTILITY VAULT NO. B102-N-4
Honeywell 34th Street Facility
Phoenix, Arizona

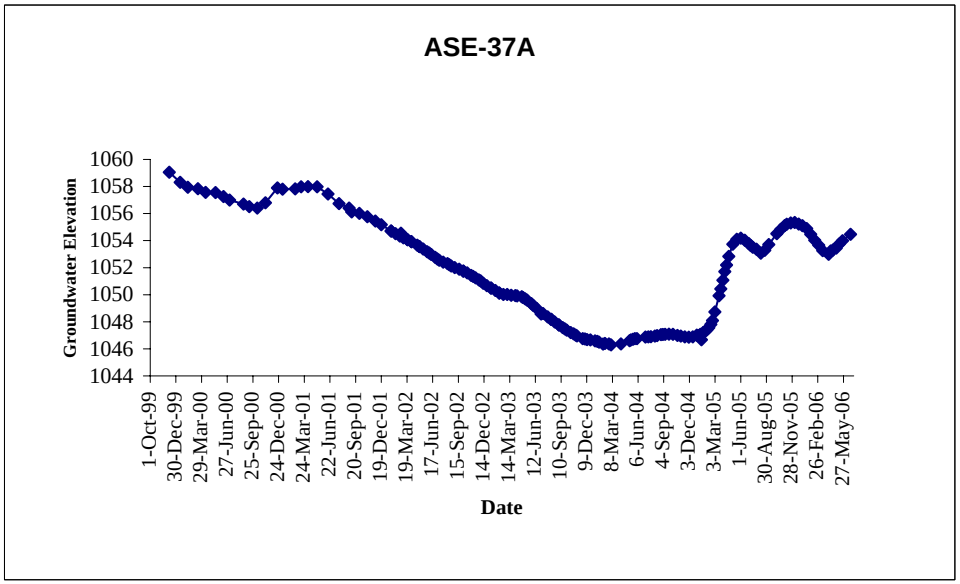
CH2MHILL

Appendix
Hydrographs

FIGURE 1
HYDROGRAPHS







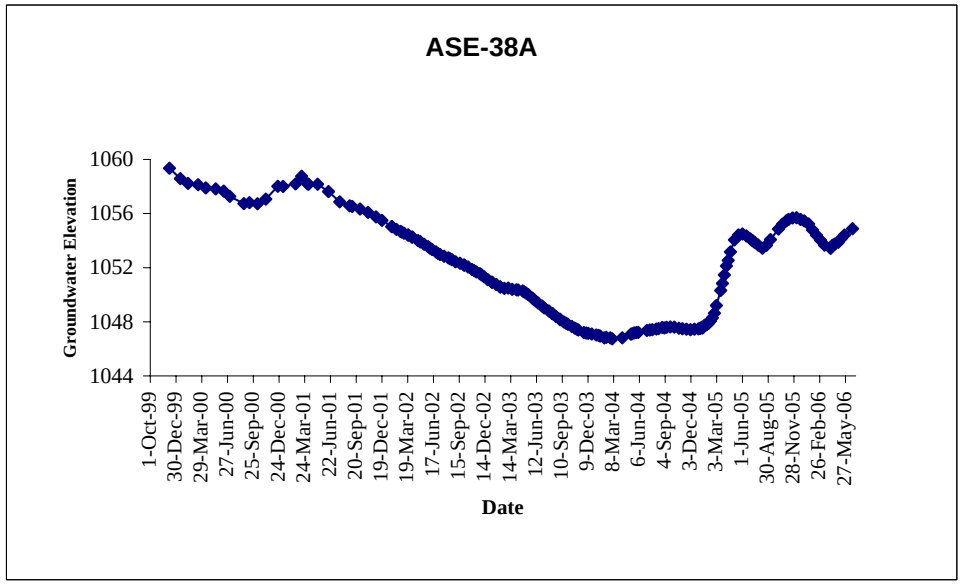
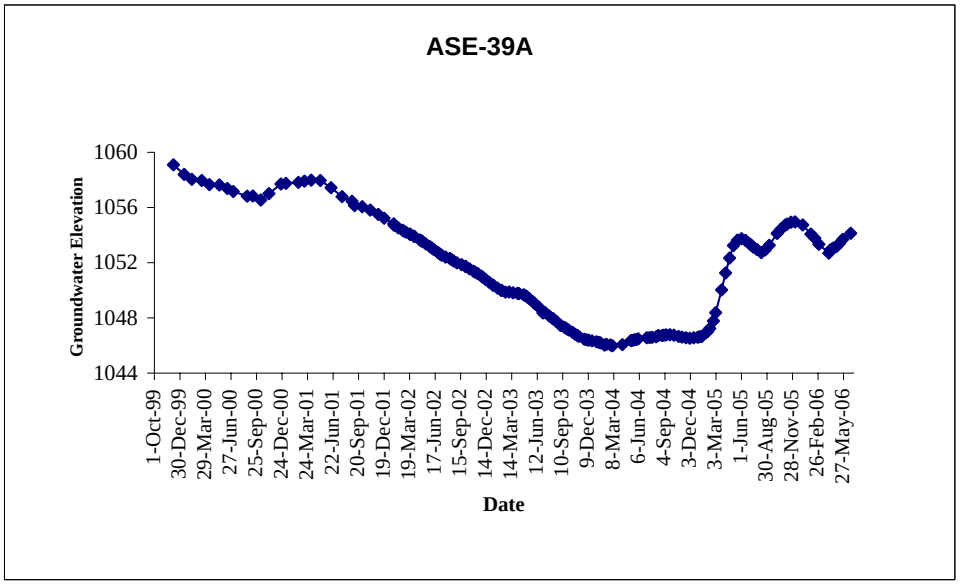
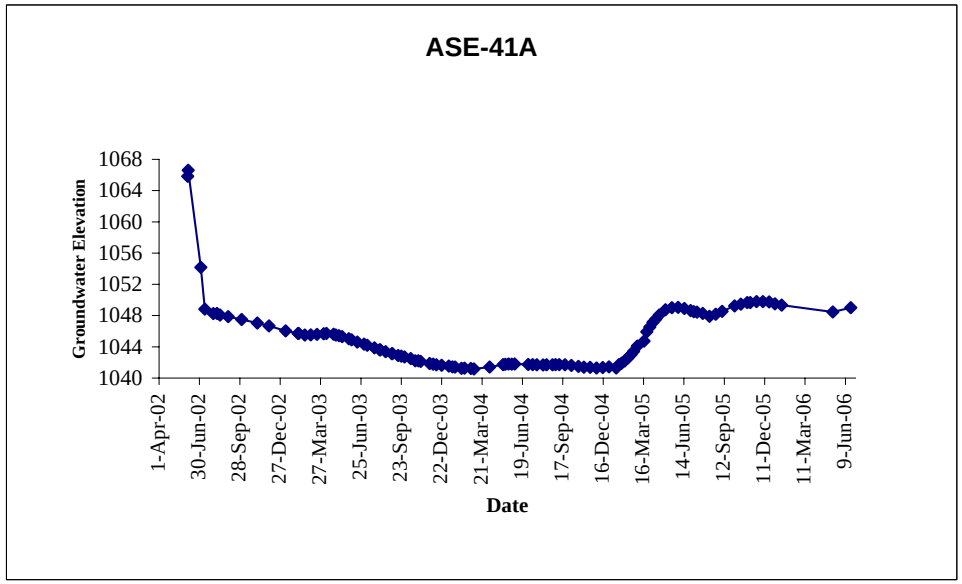
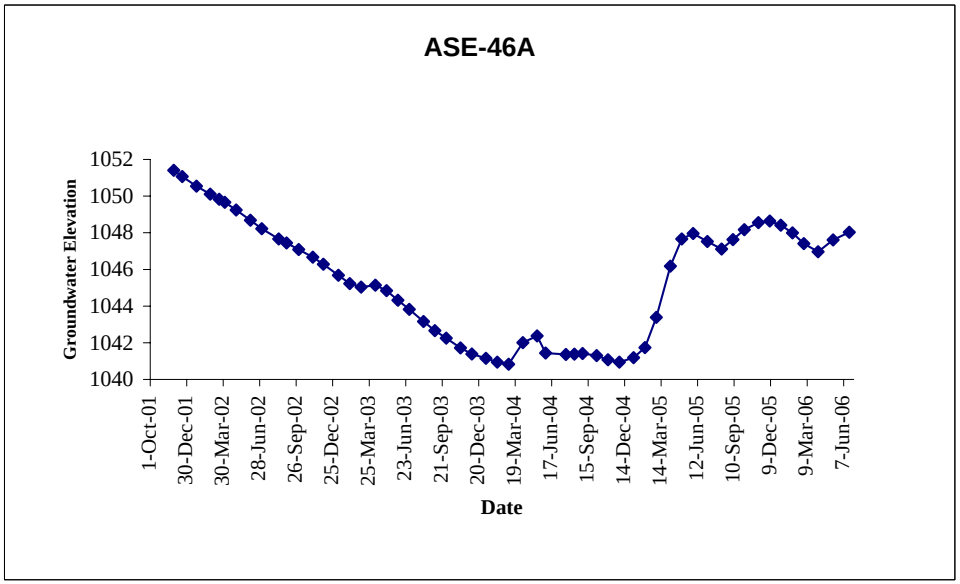


FIGURE 1
HYDROGRAPHS







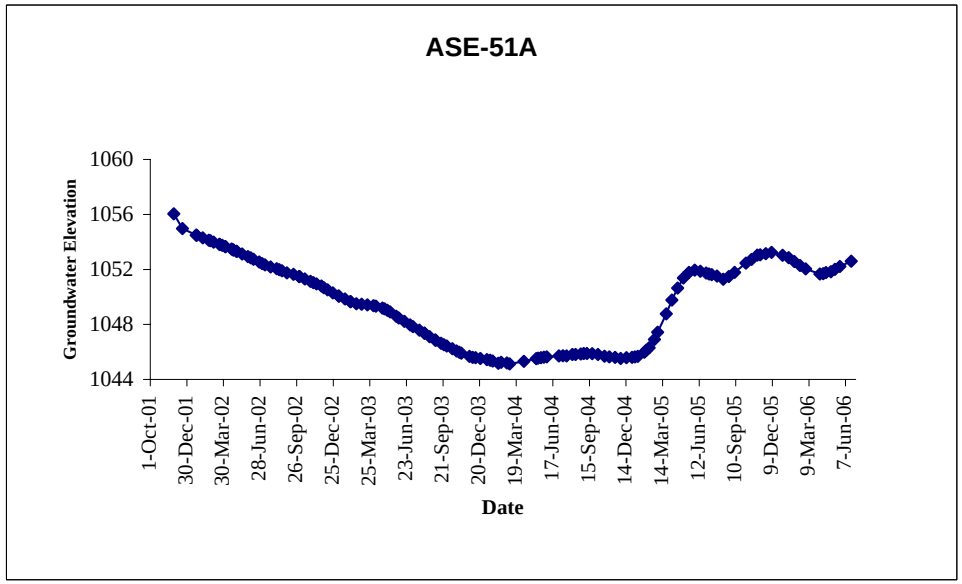
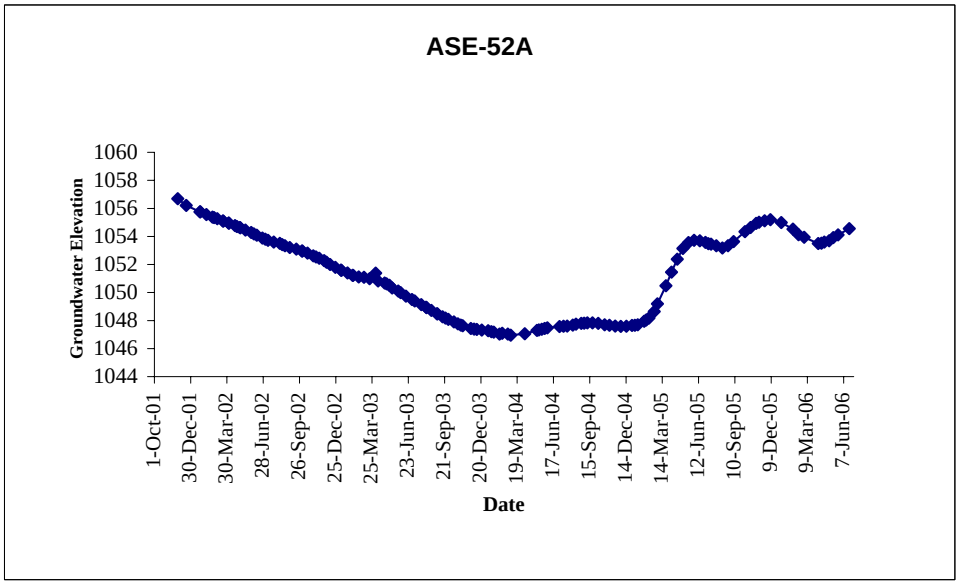
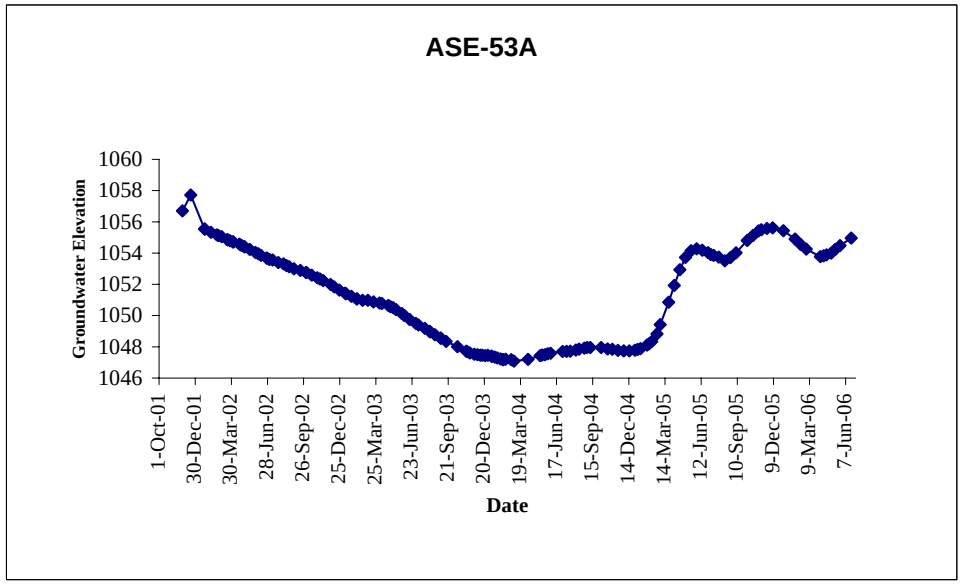
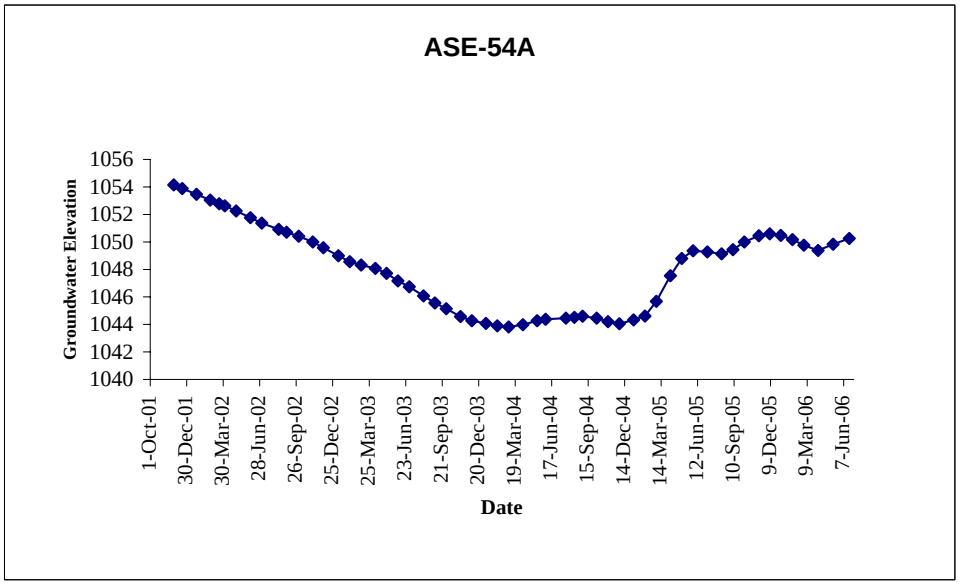


FIGURE 1
HYDROGRAPHS







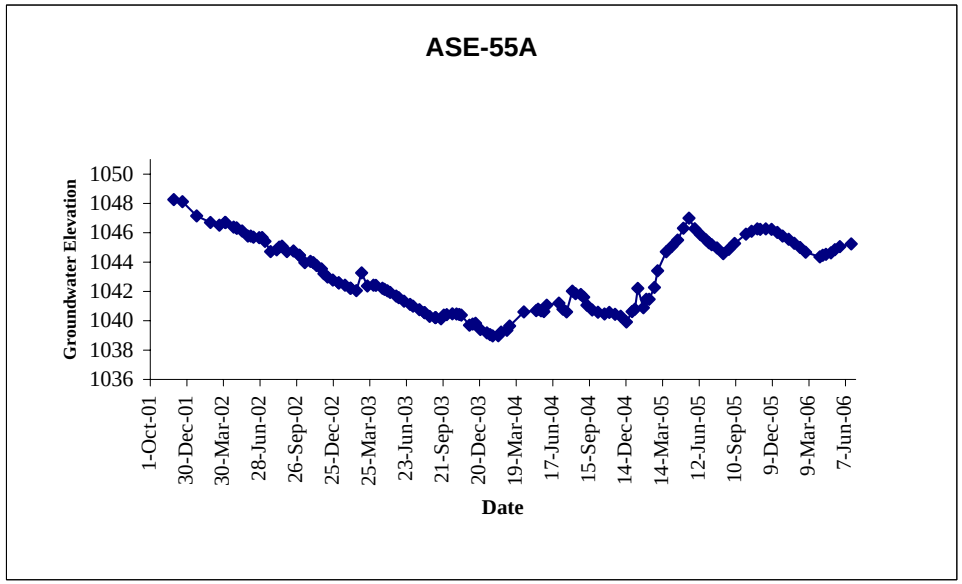
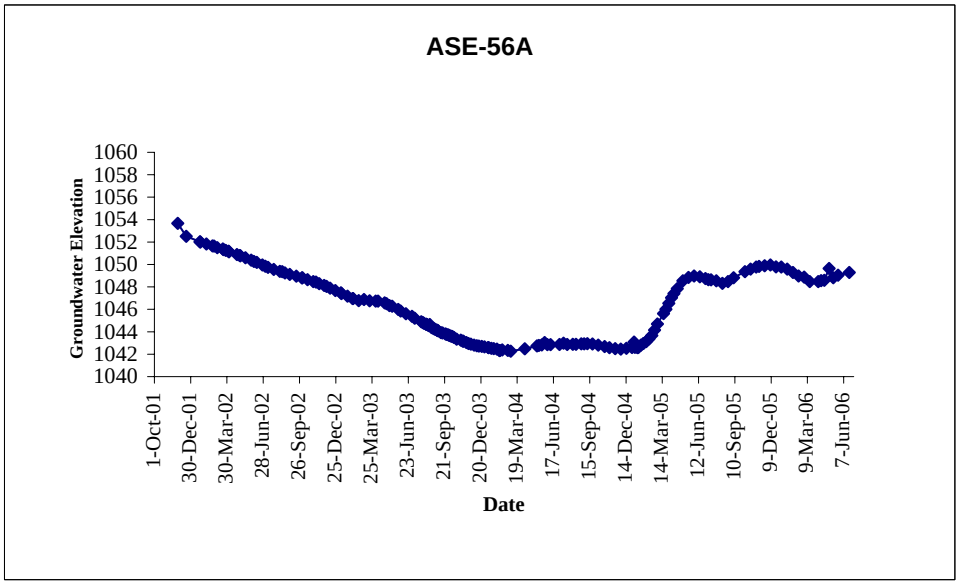
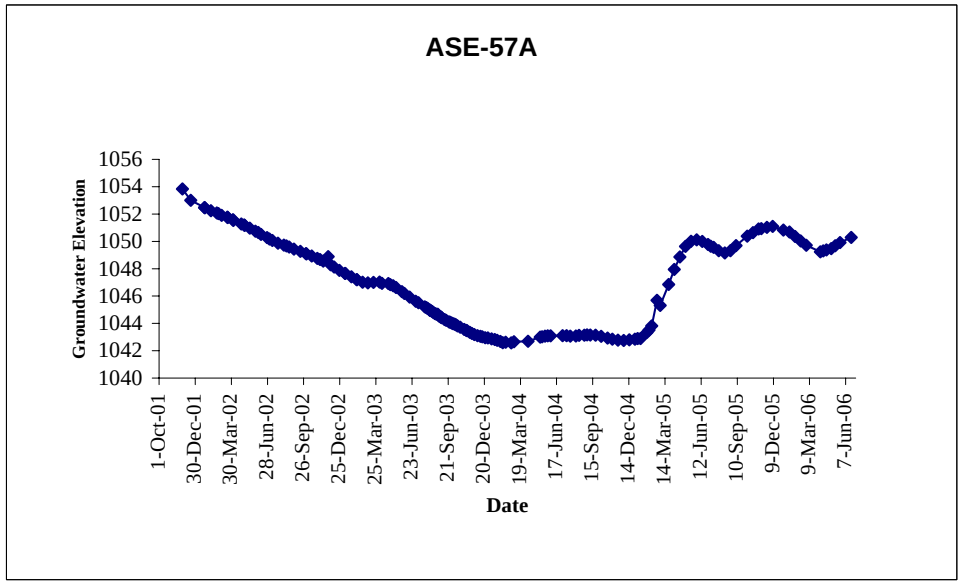
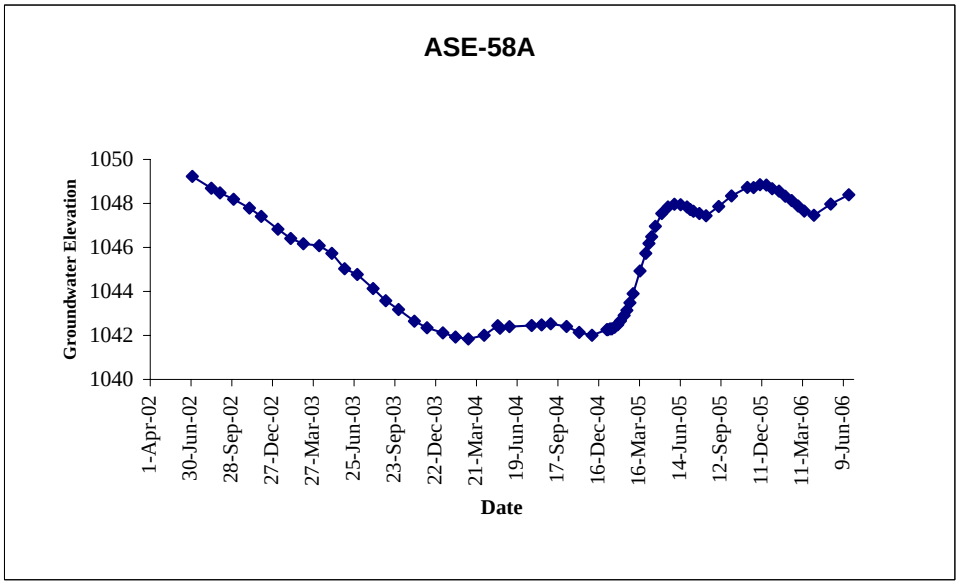


FIGURE 1
HYDROGRAPHS







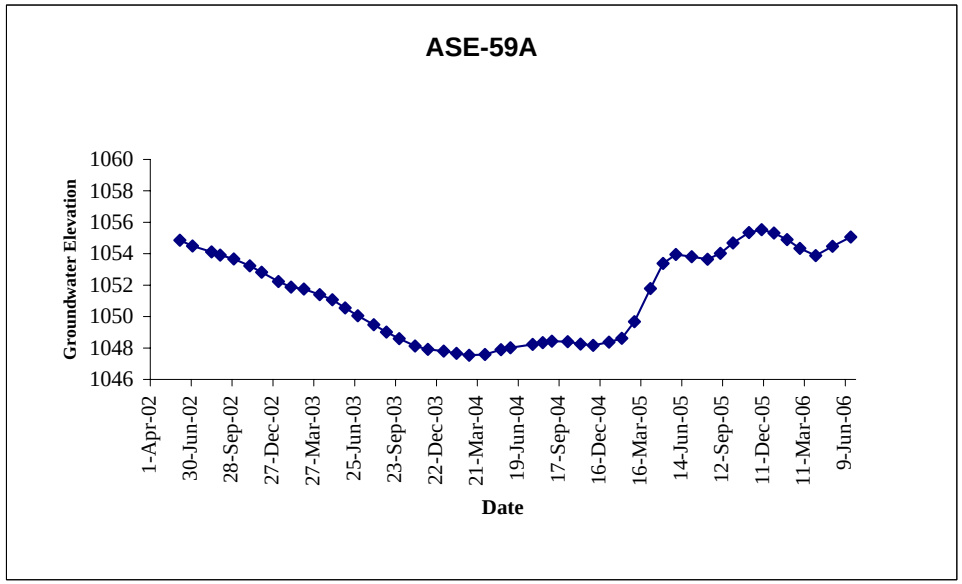
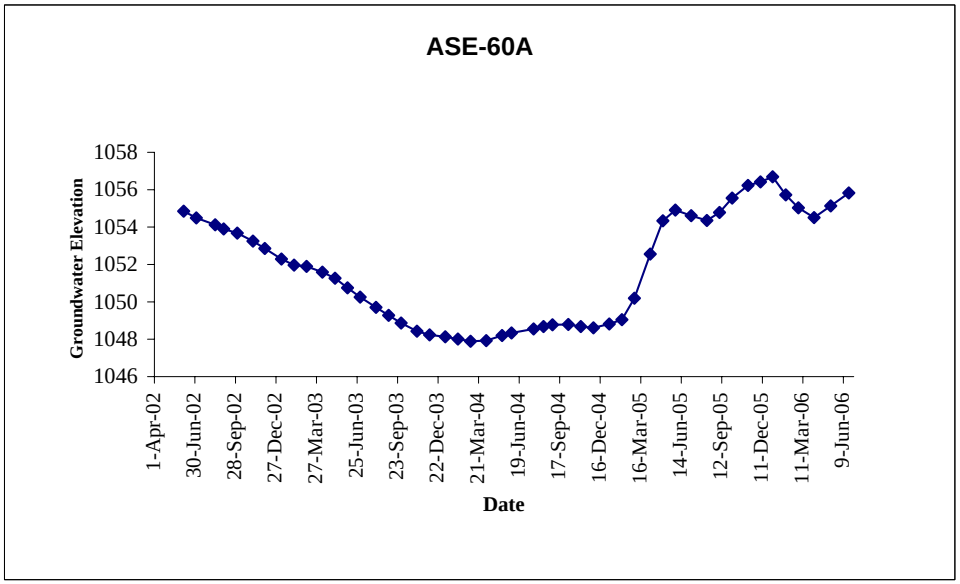
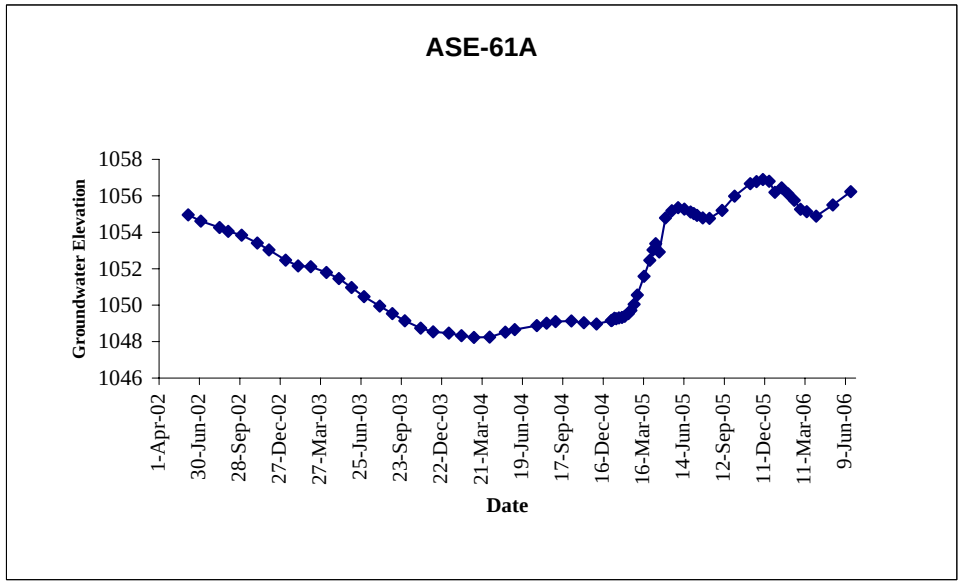
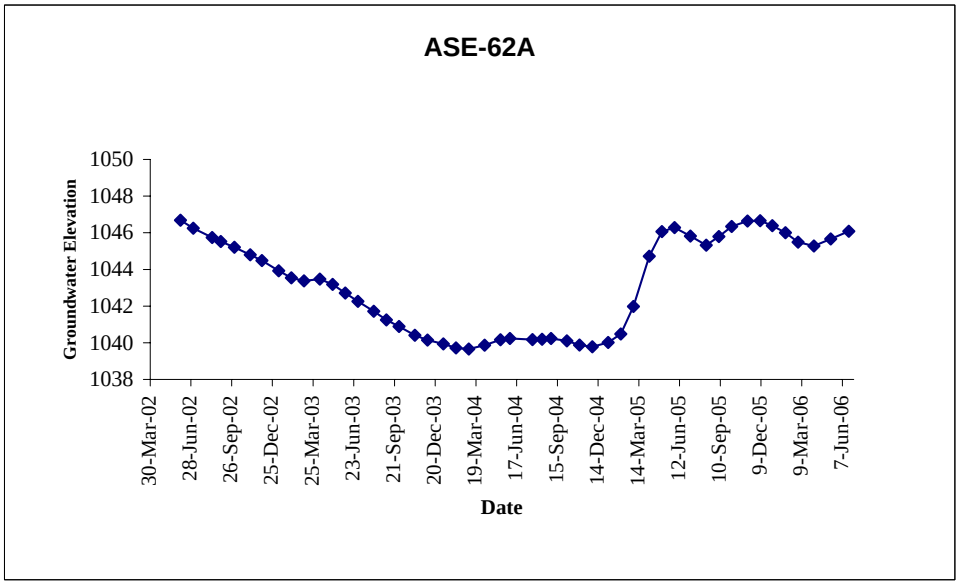


FIGURE 1
HYDROGRAPHS







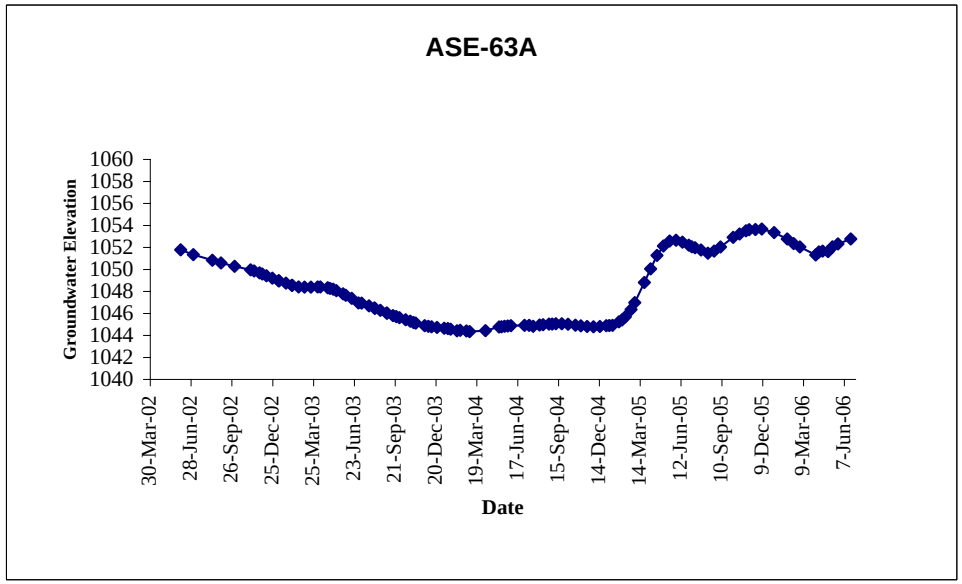
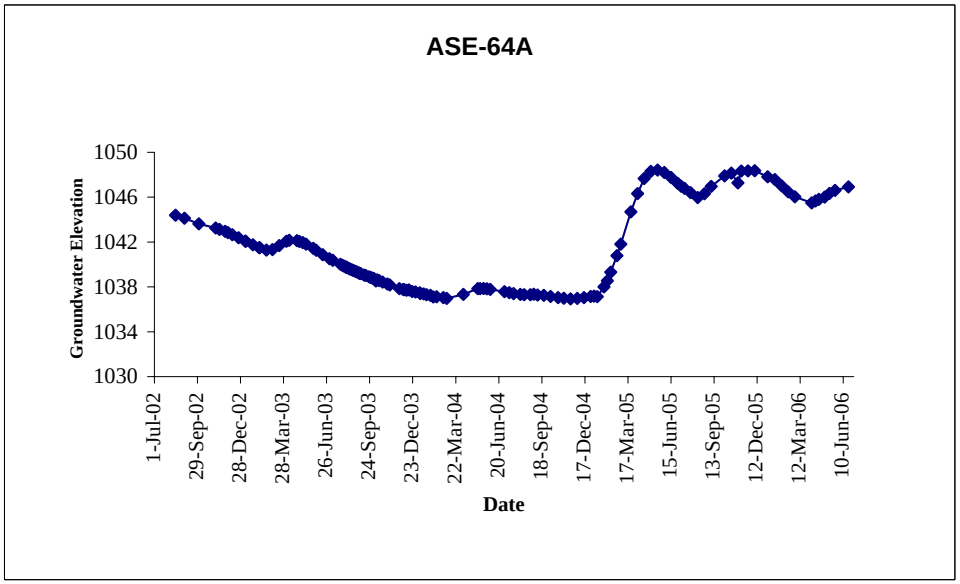
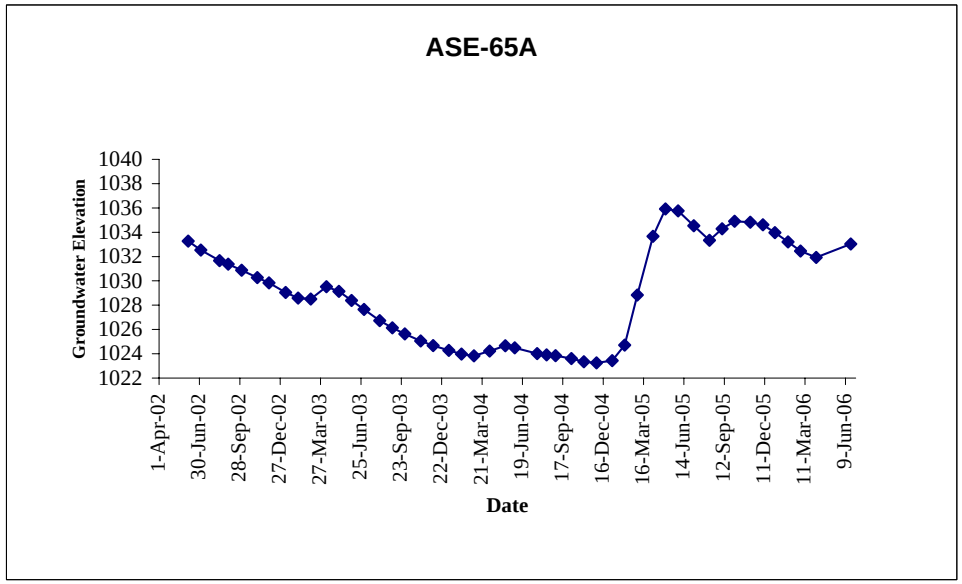
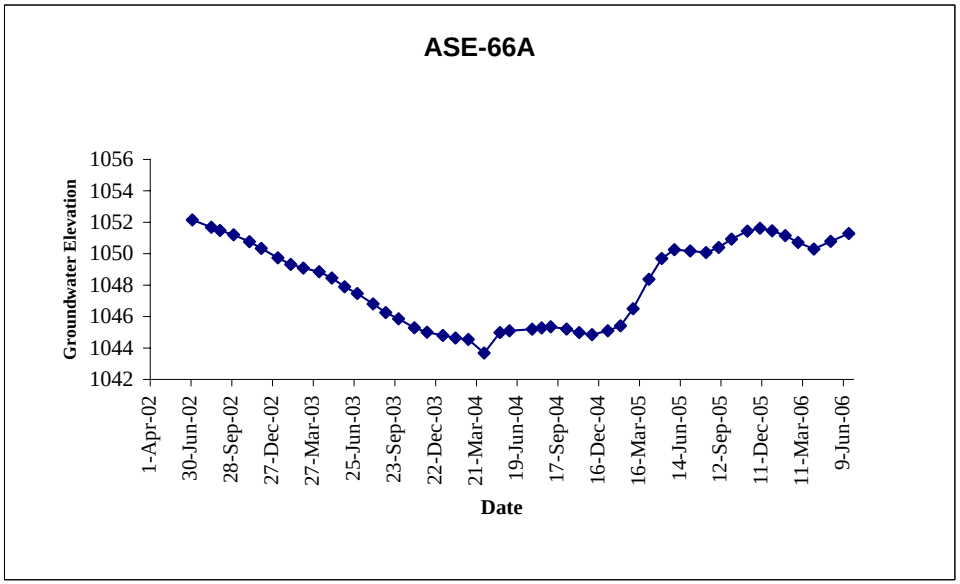
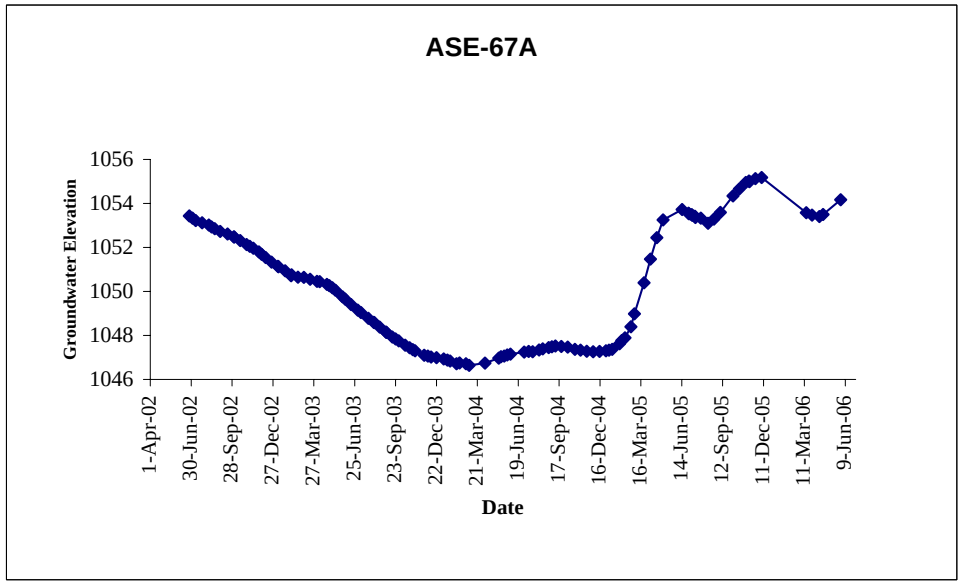


FIGURE 1
HYDROGRAPHS









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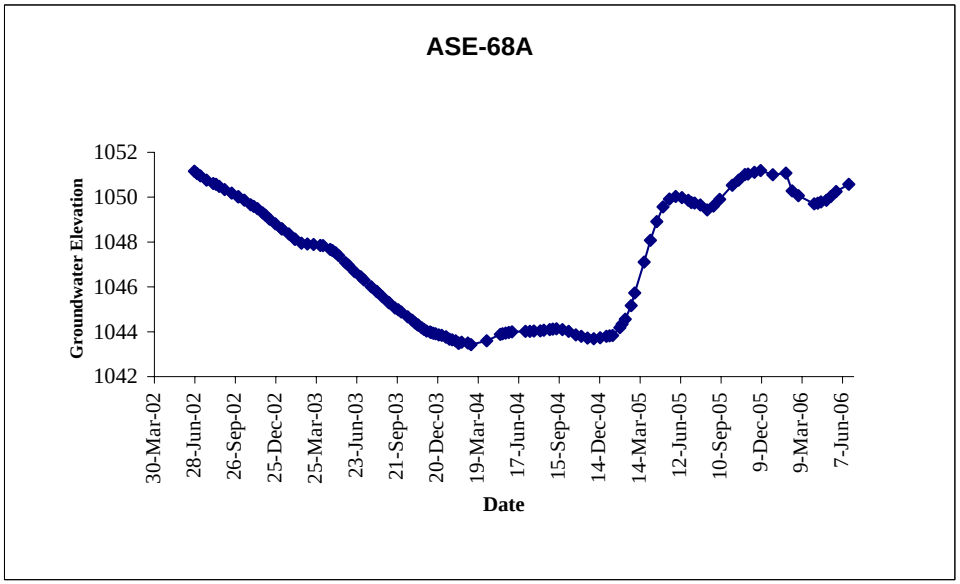
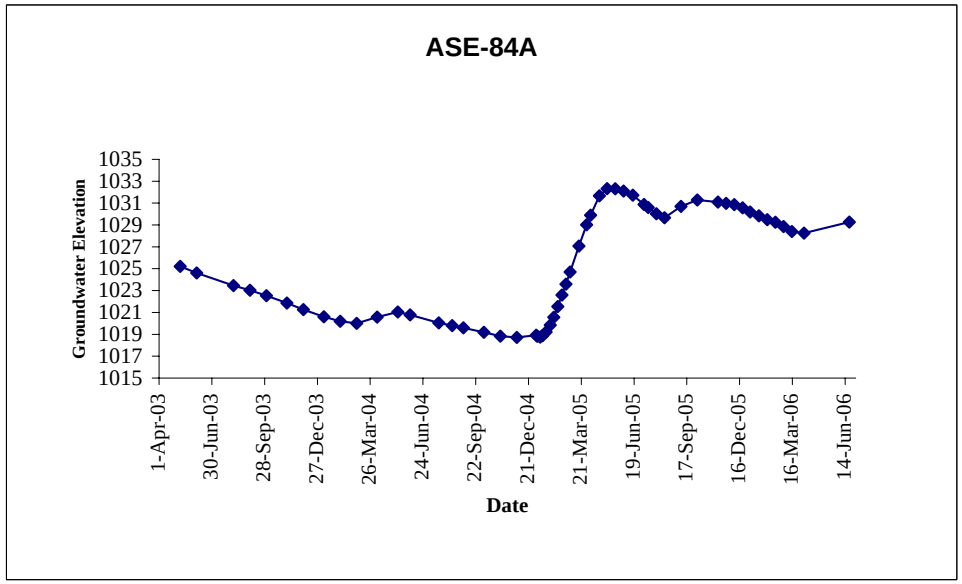
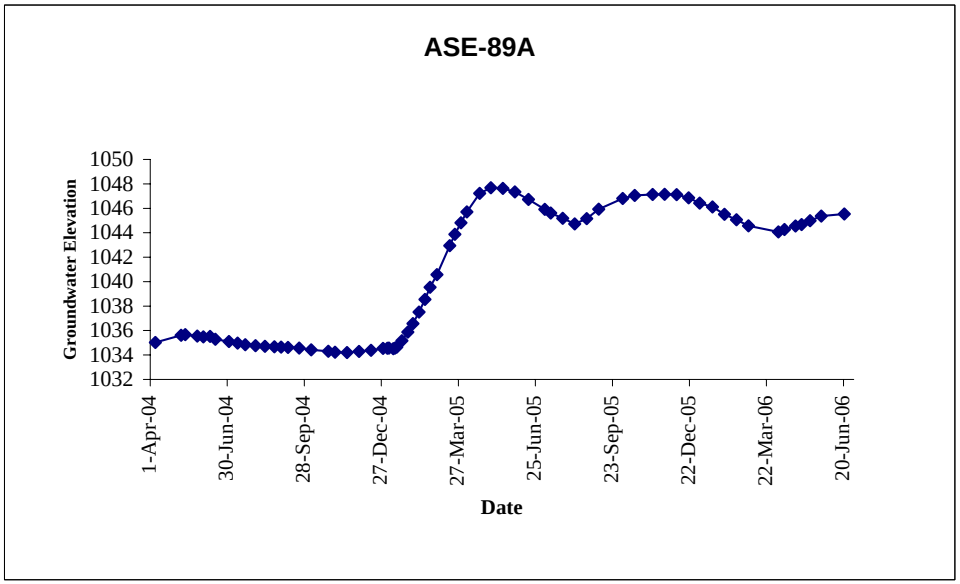
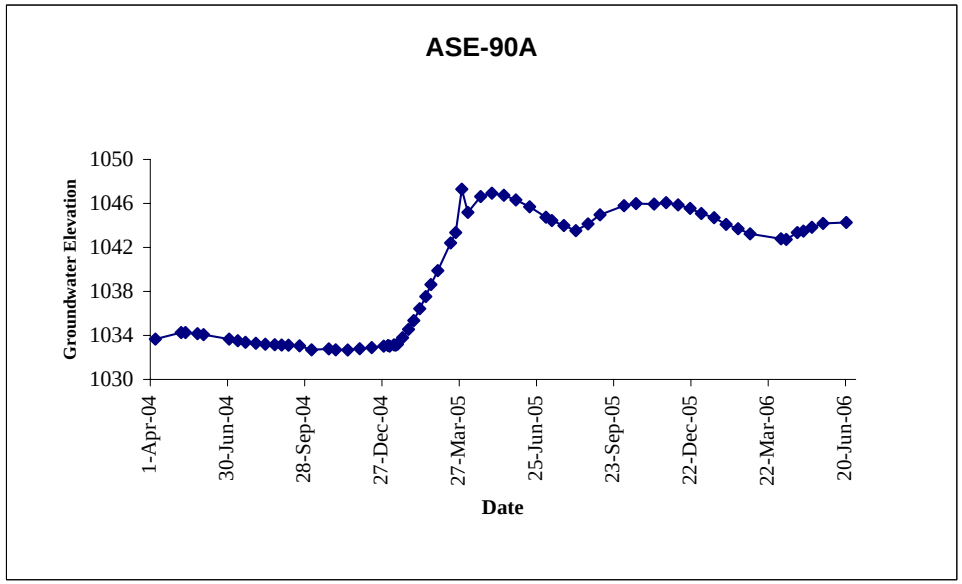
HYDROGRAPHS









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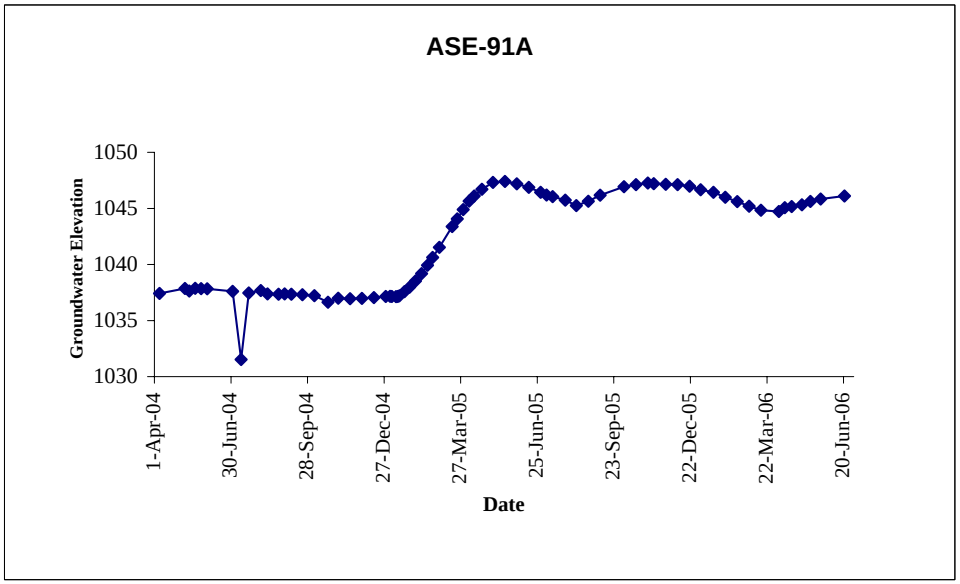

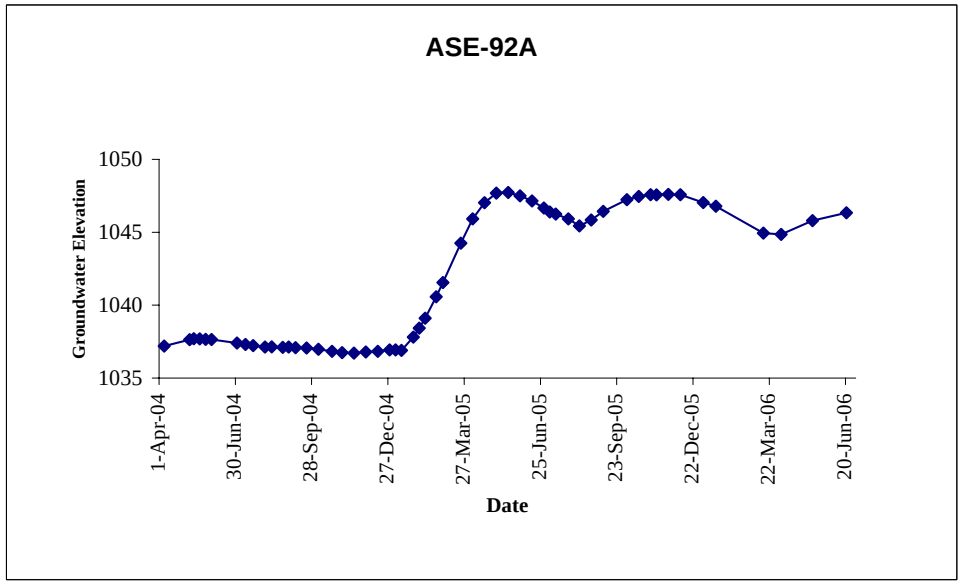

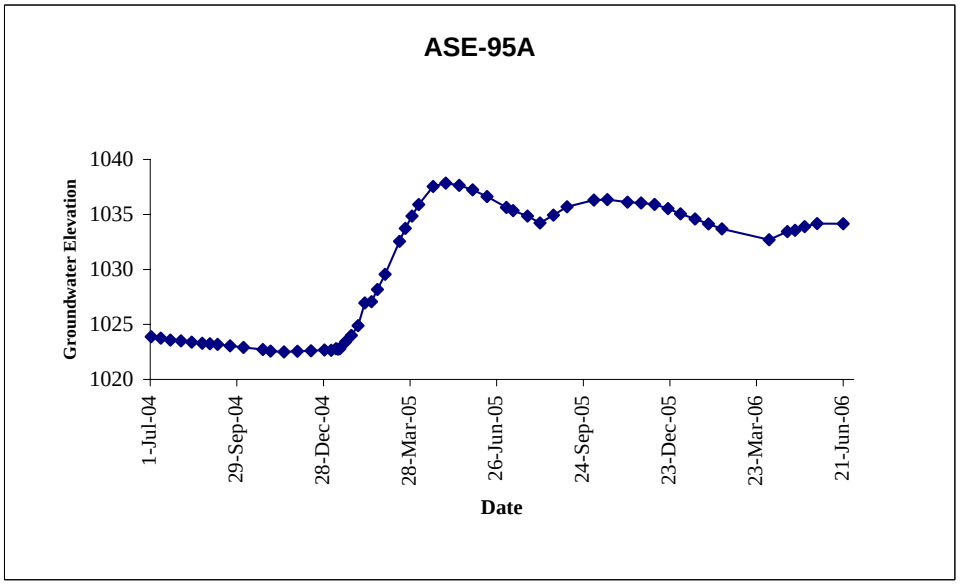

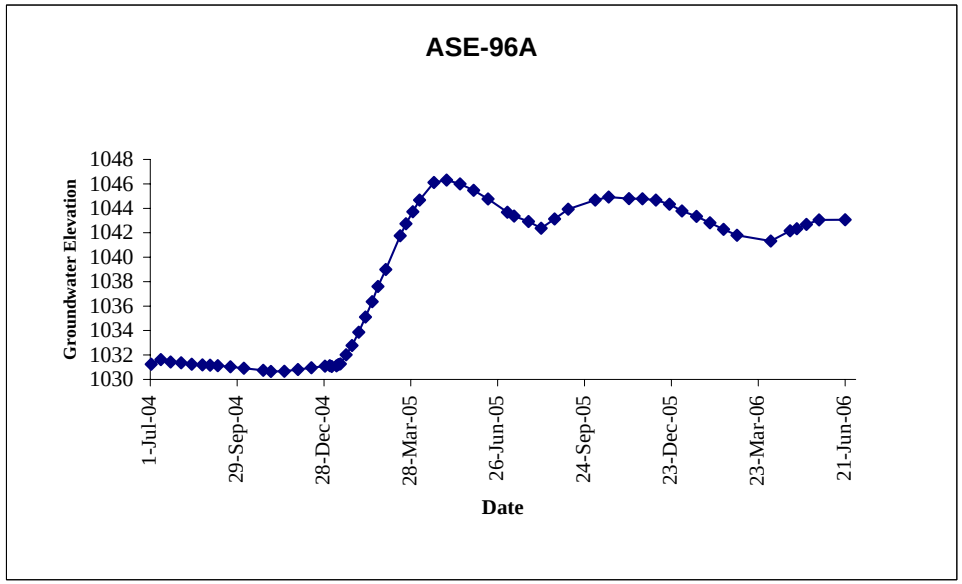

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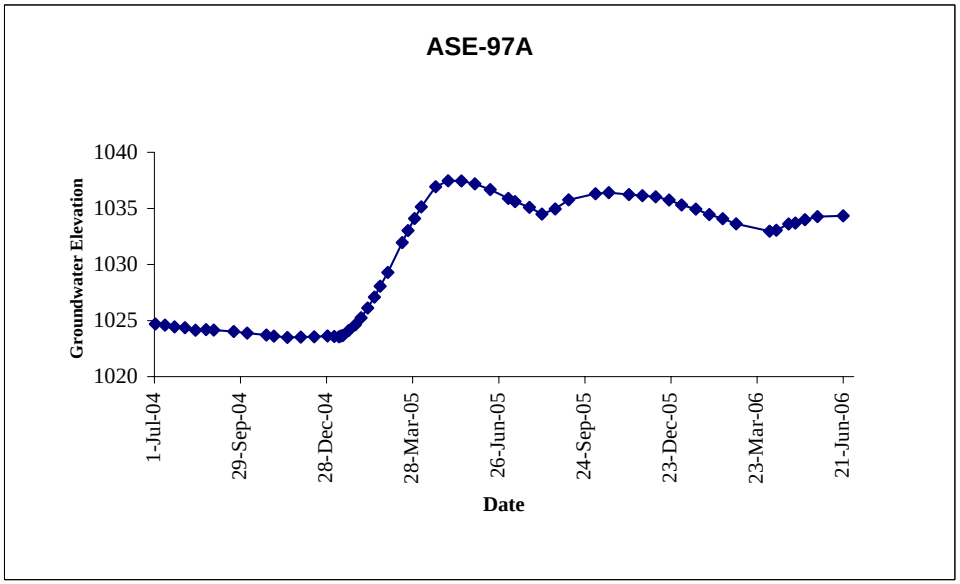

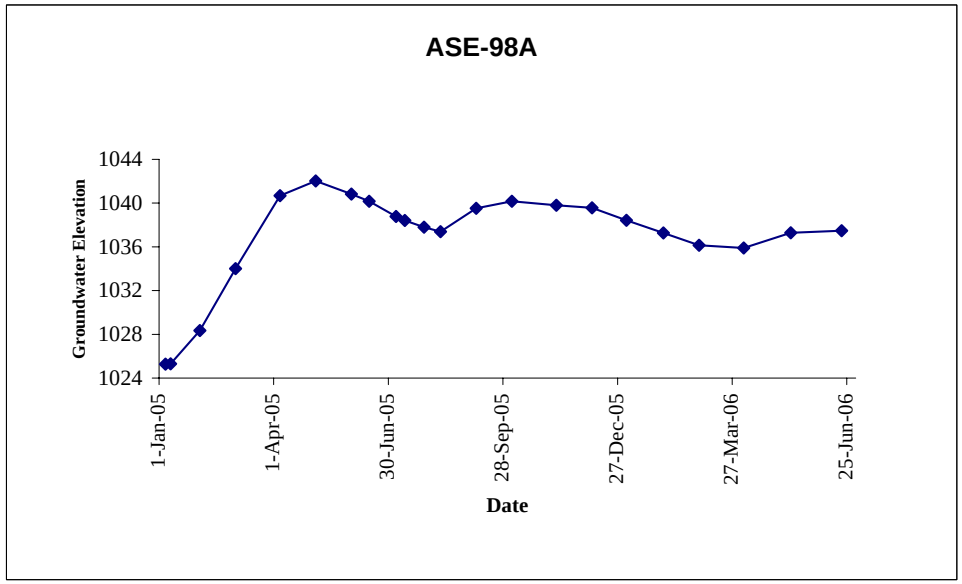

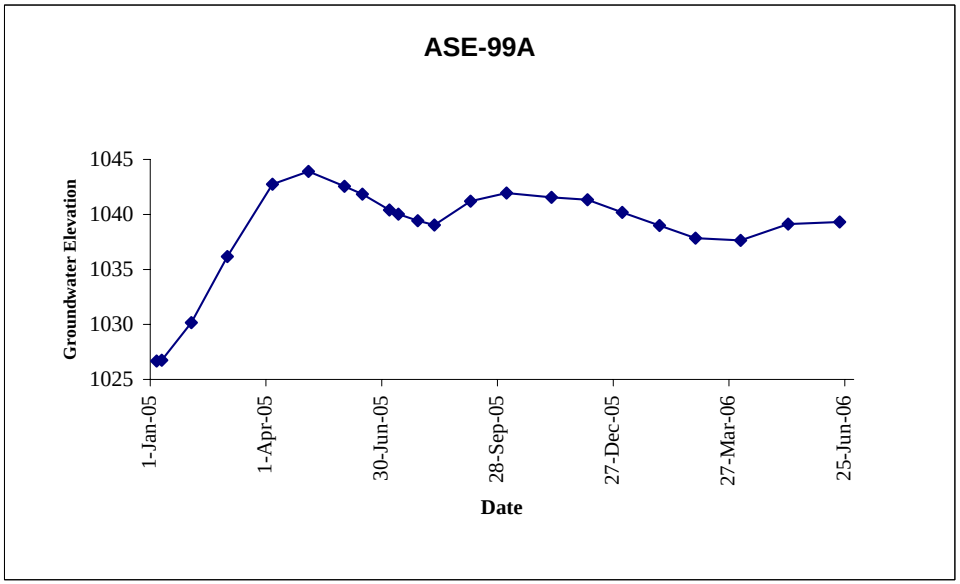

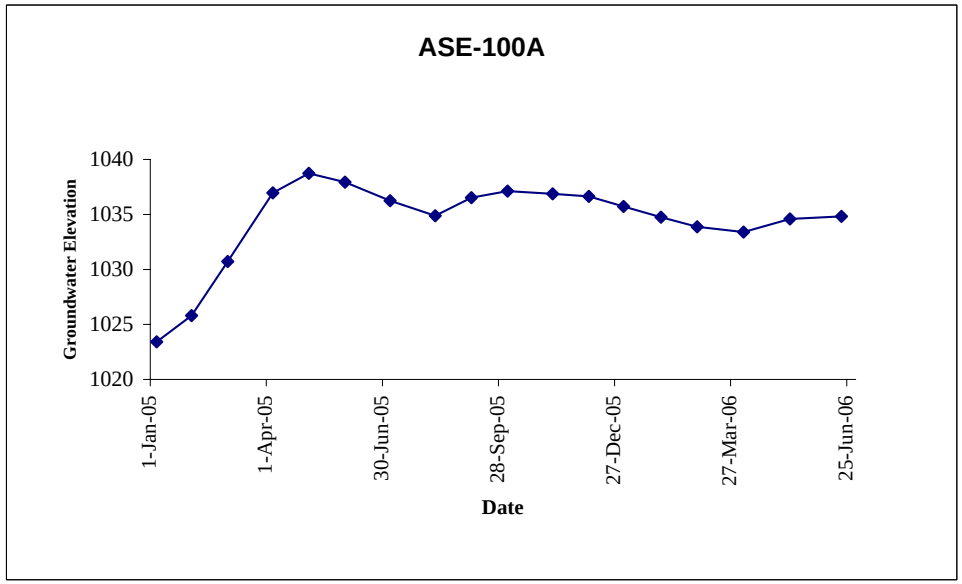

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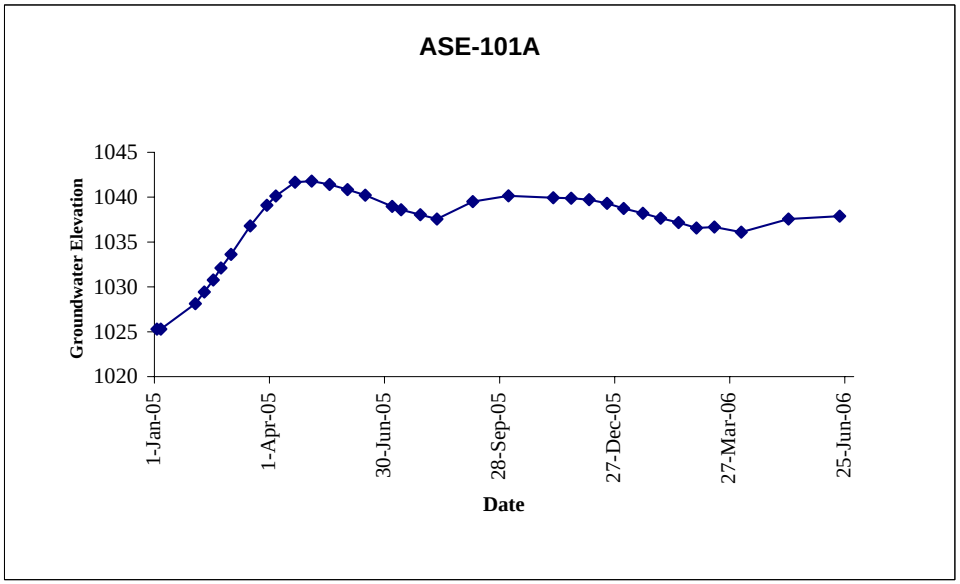

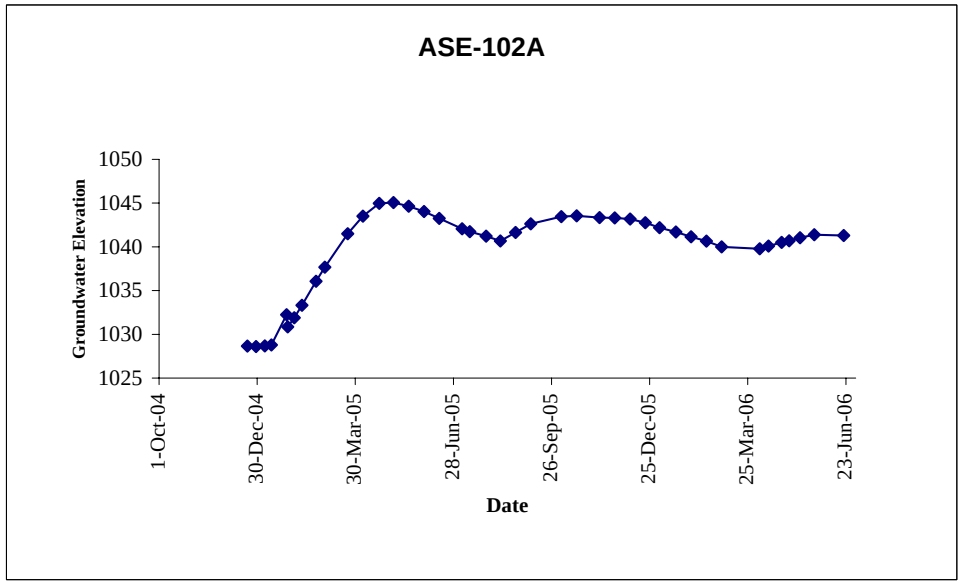

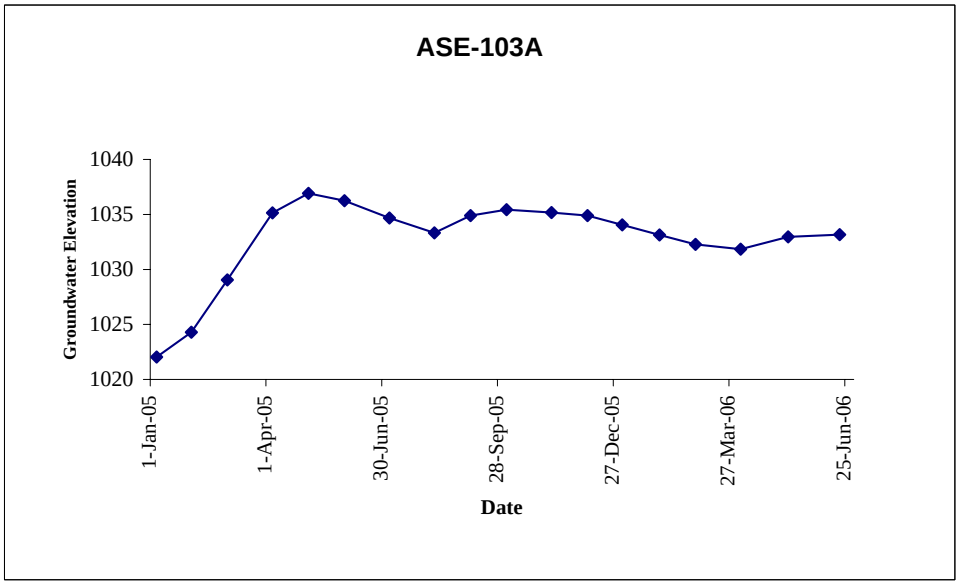

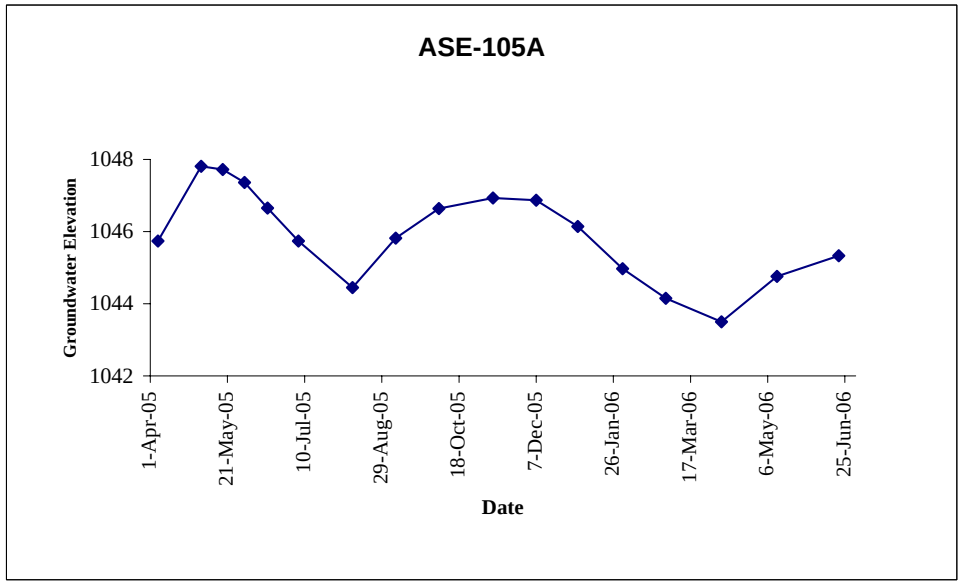

FIGURE 1
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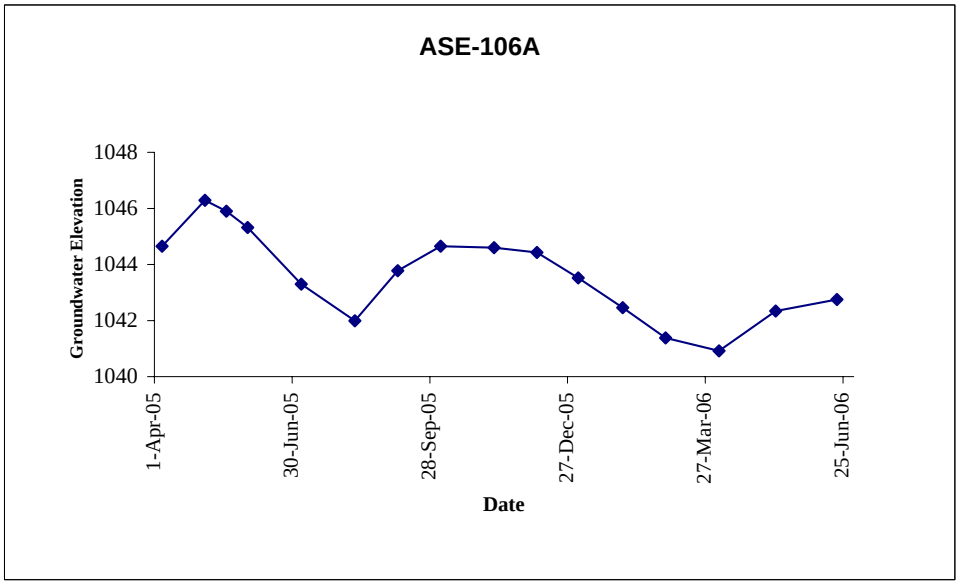

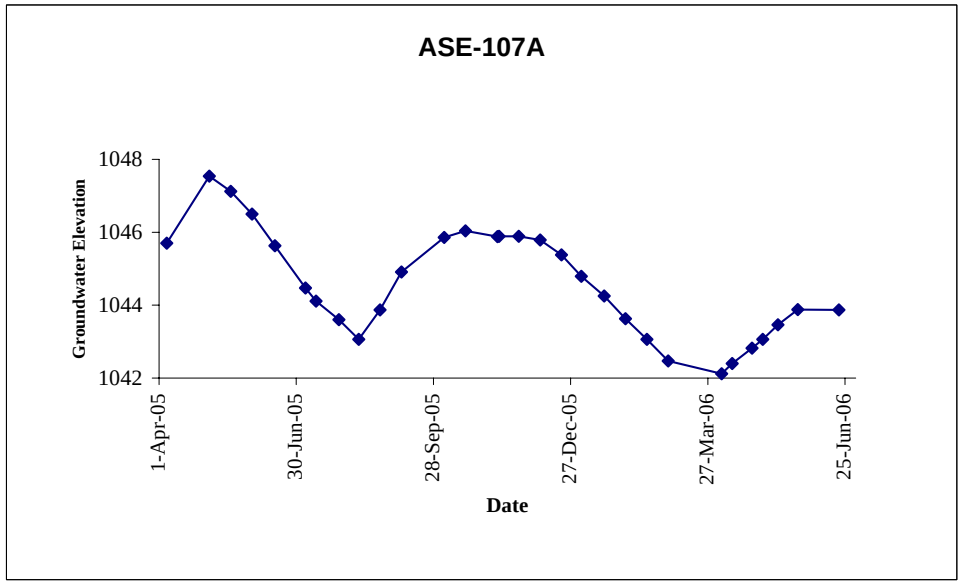

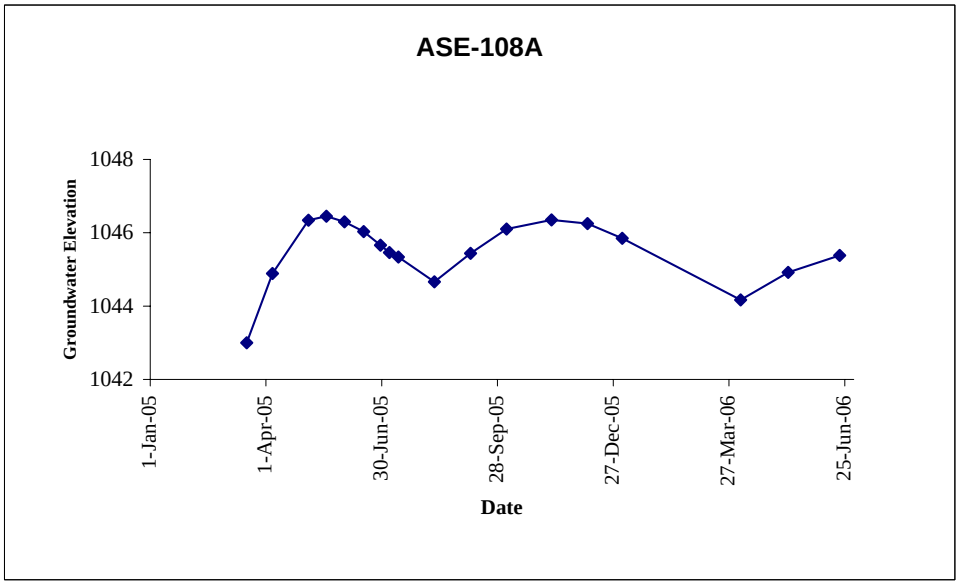

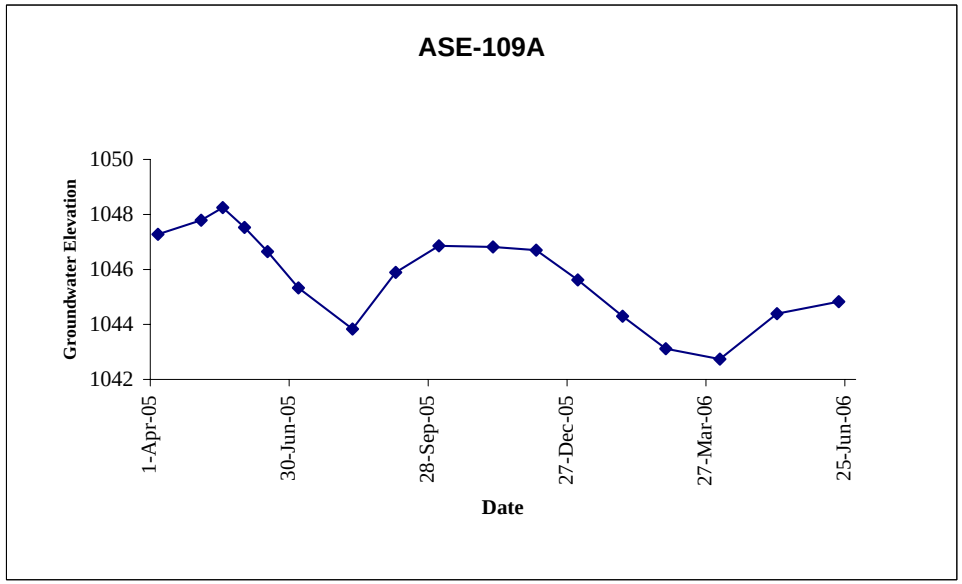

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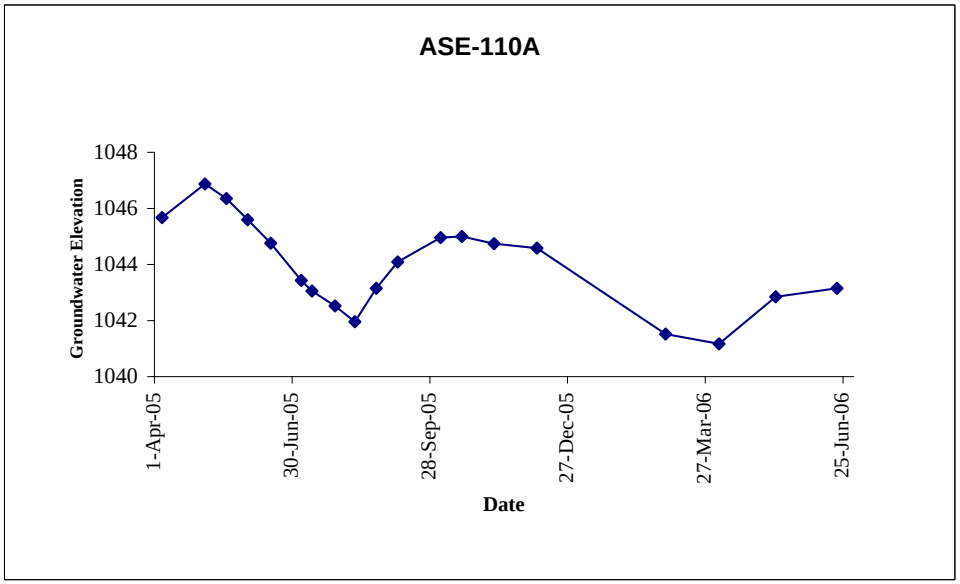
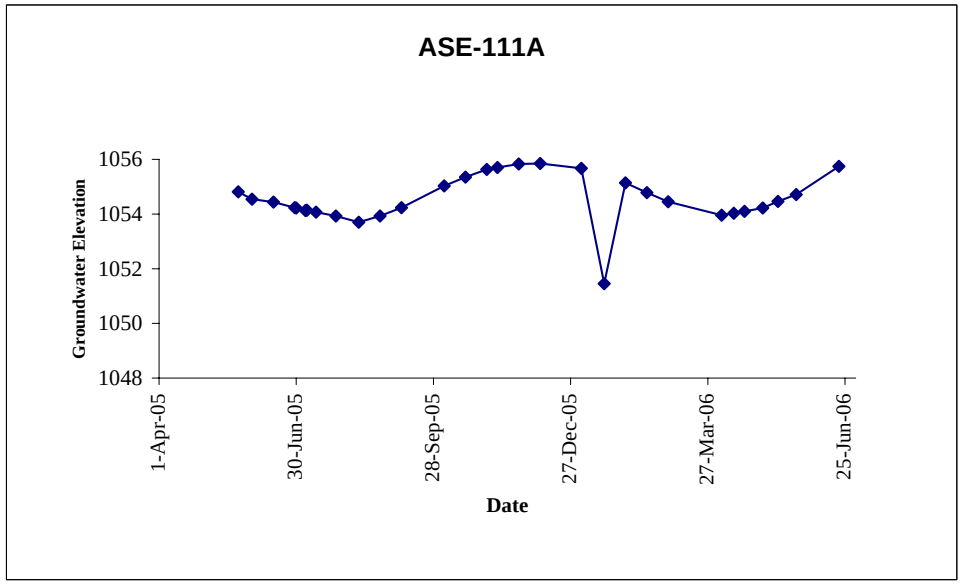
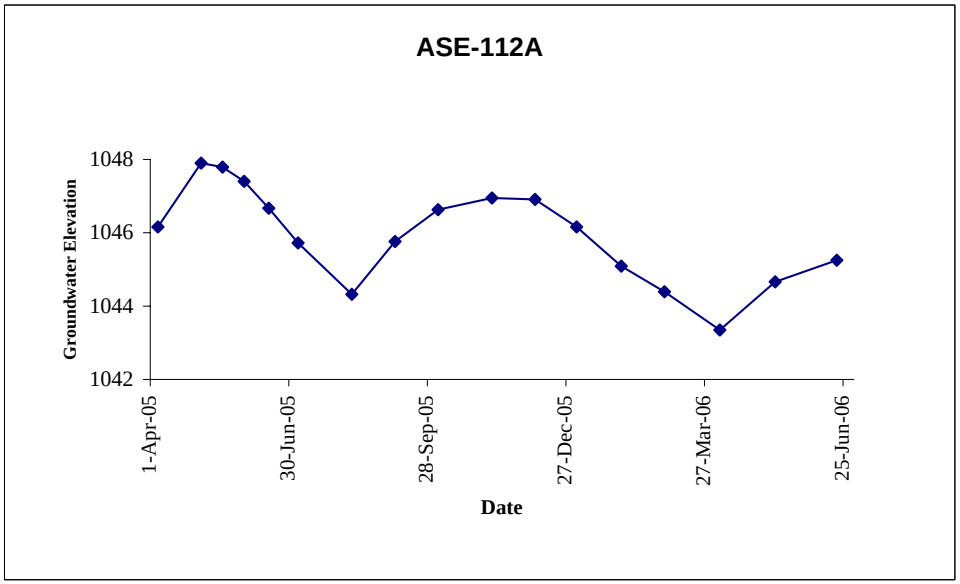






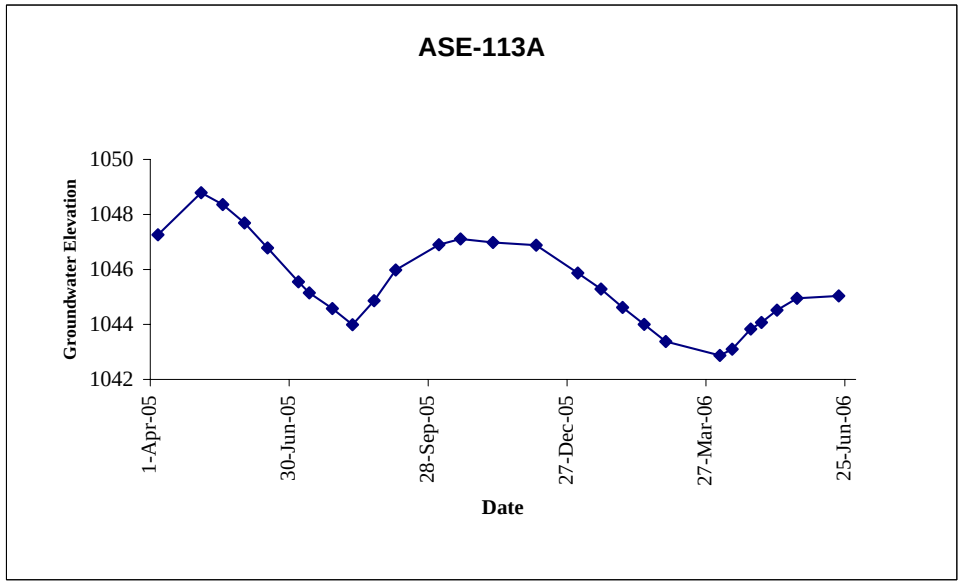
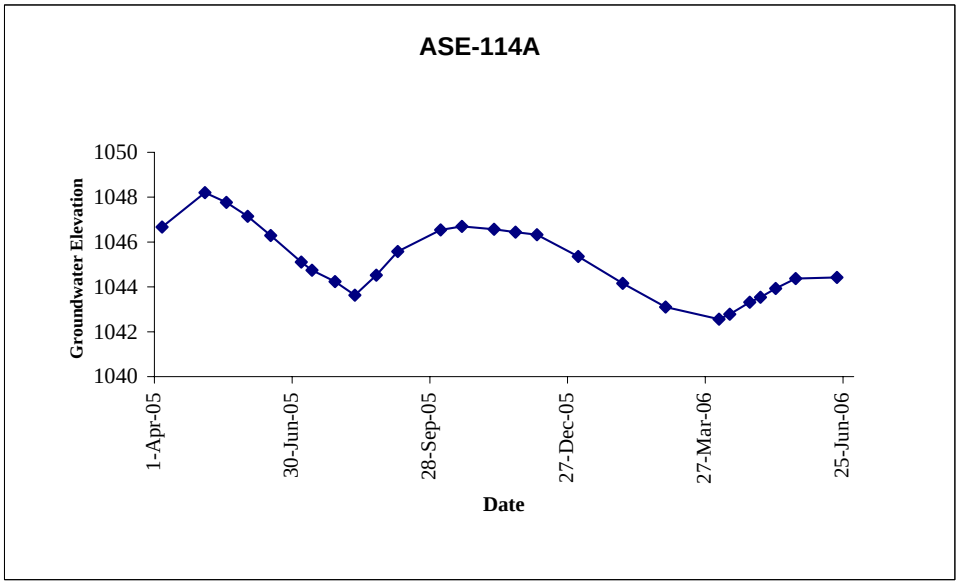
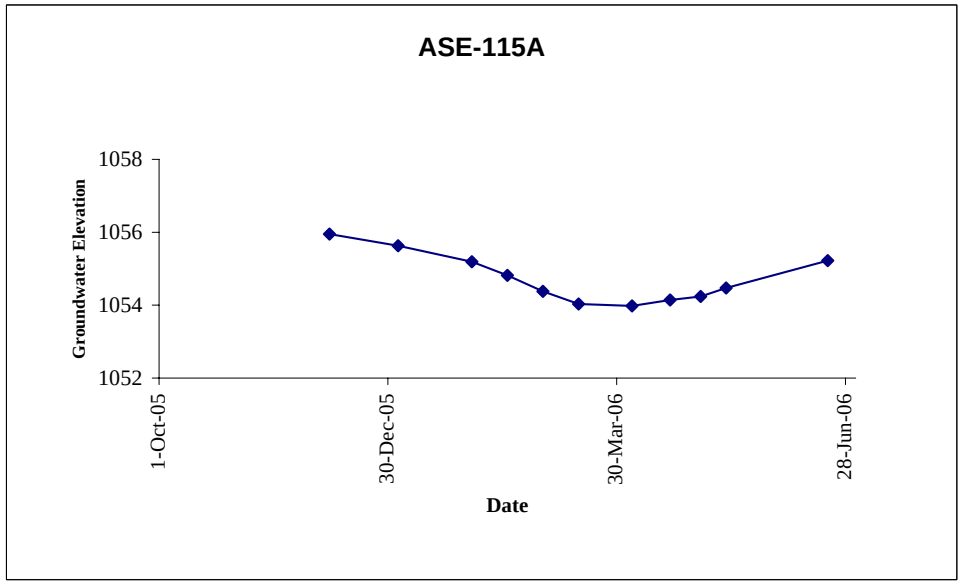
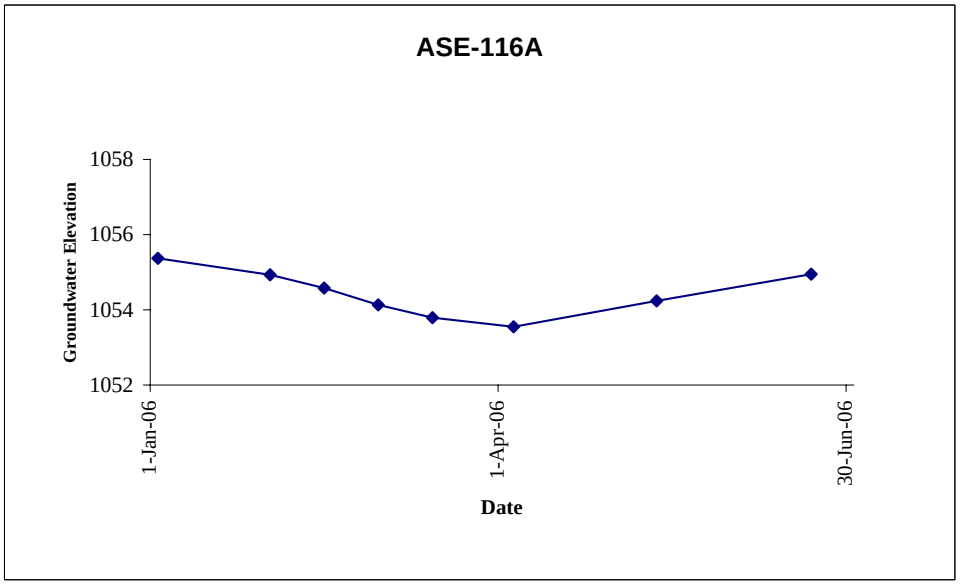
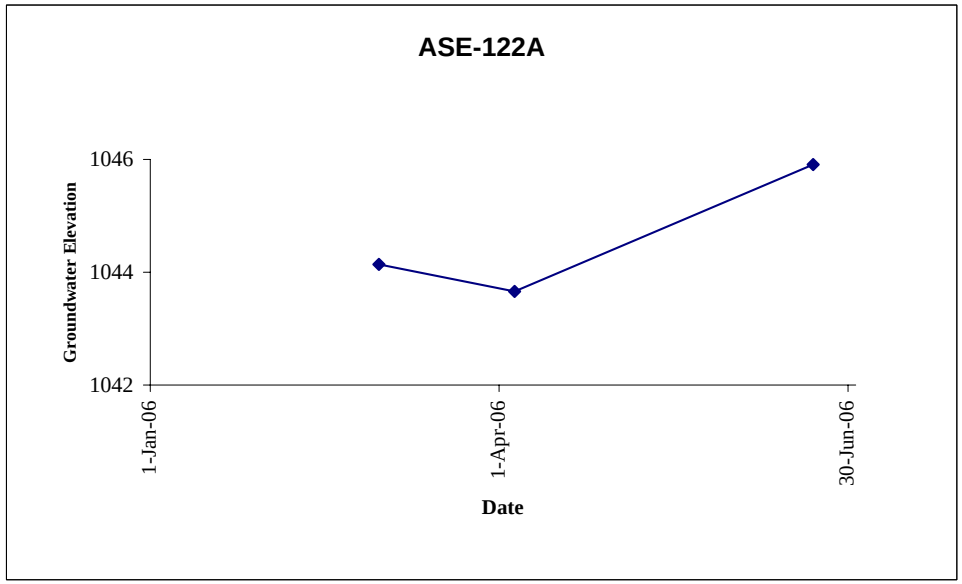


FIGURE 1
HYDROGRAPHS









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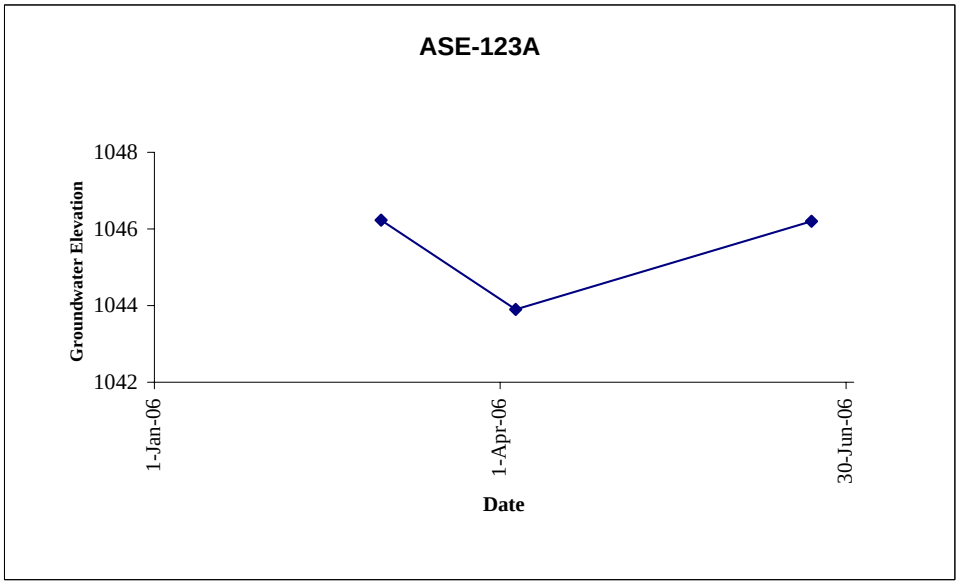
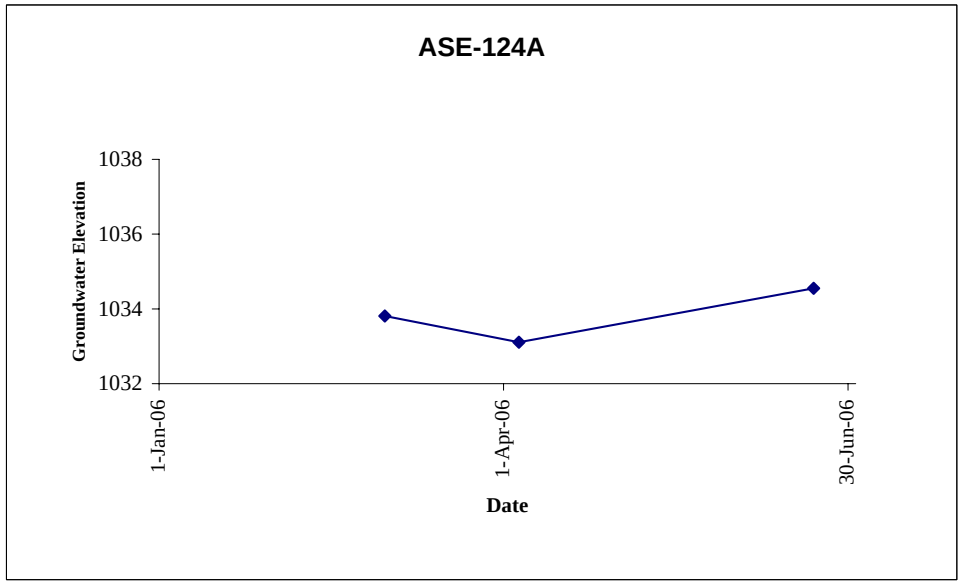
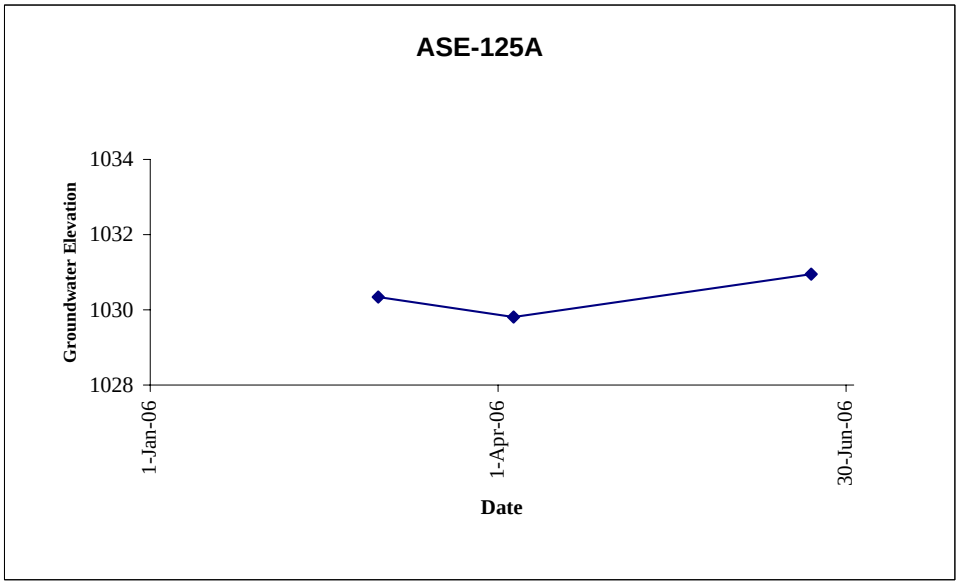
HYDROGRAPHS







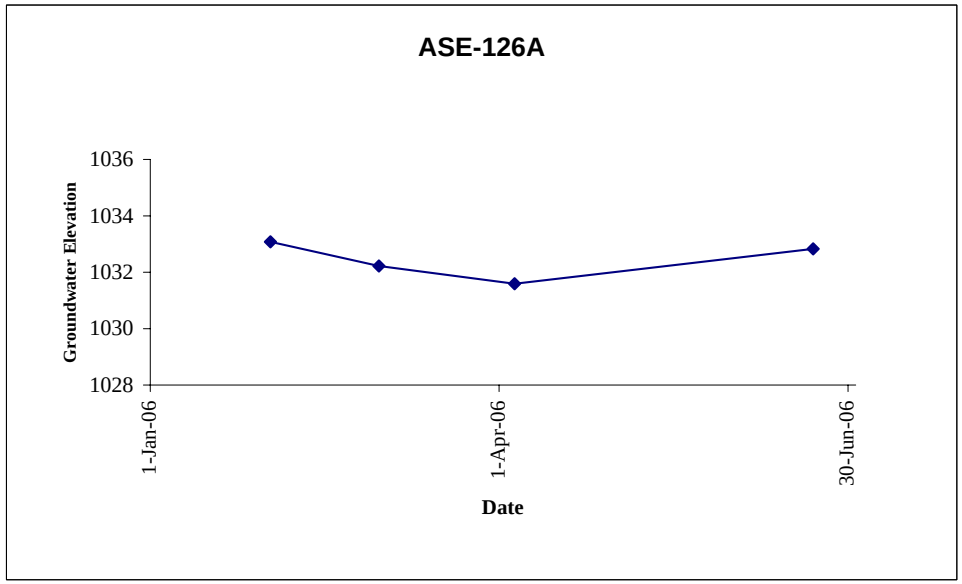
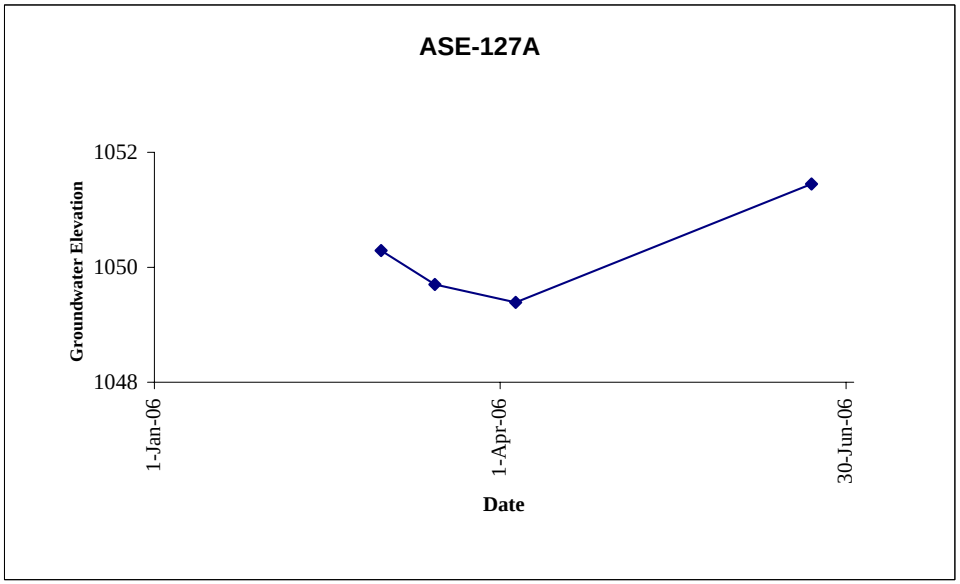
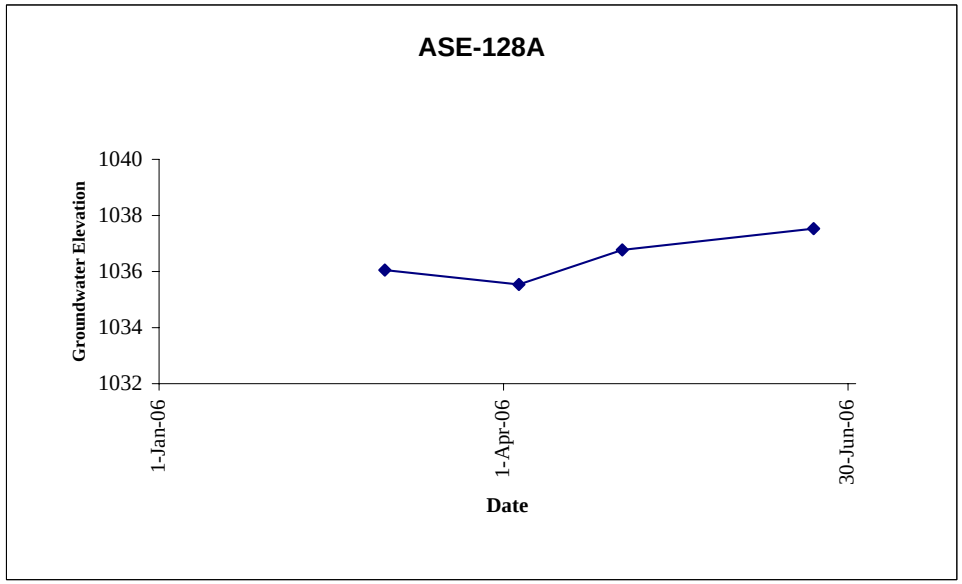
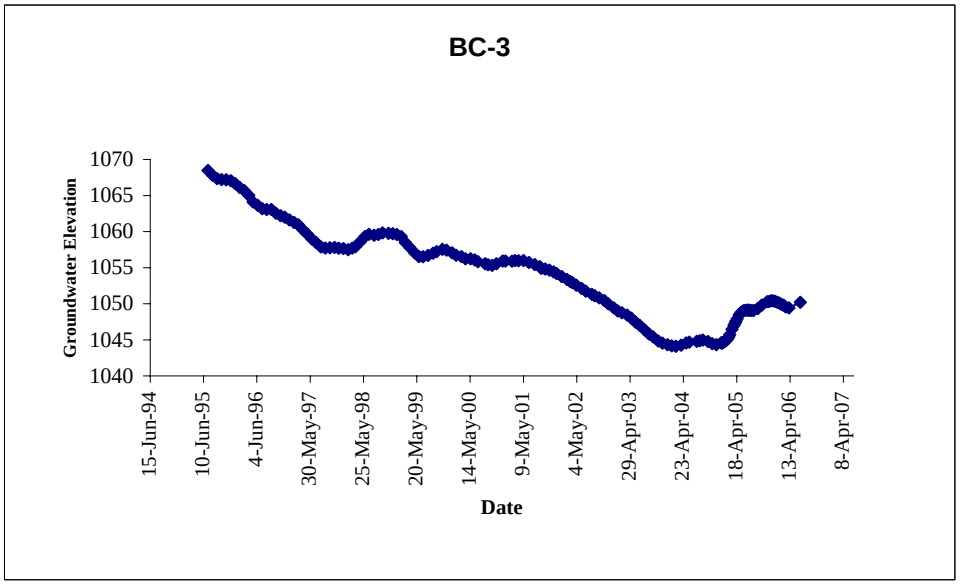


FIGURE 1
HYDROGRAPHS







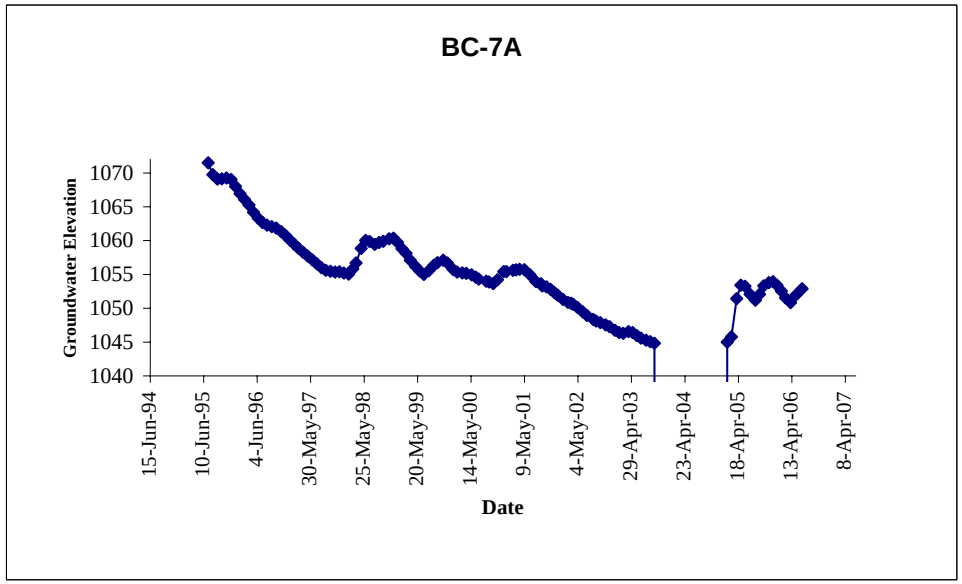
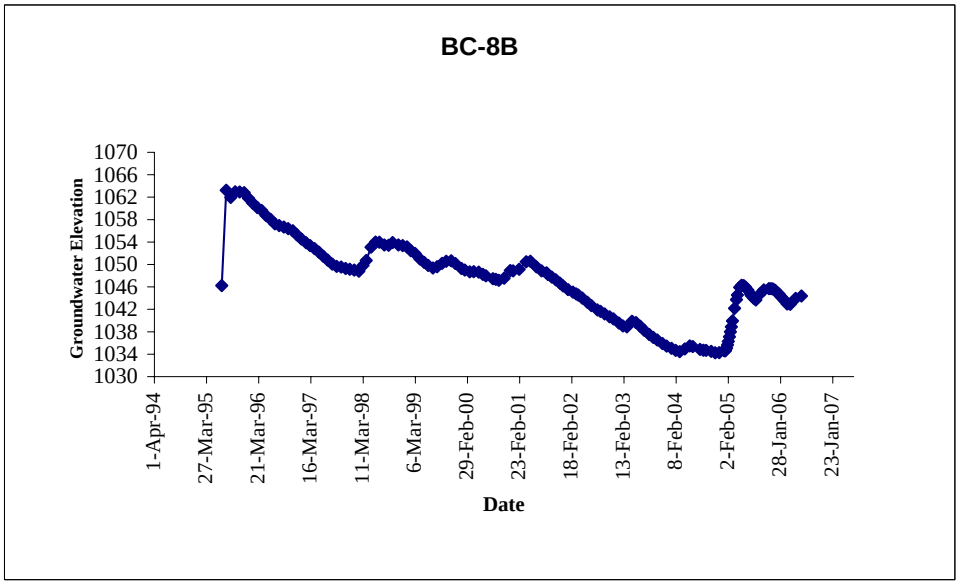
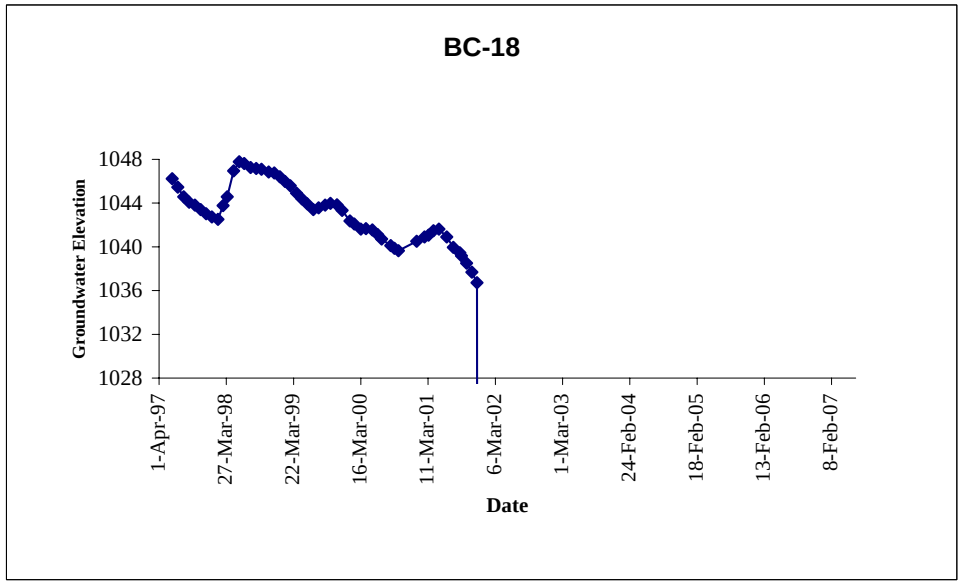
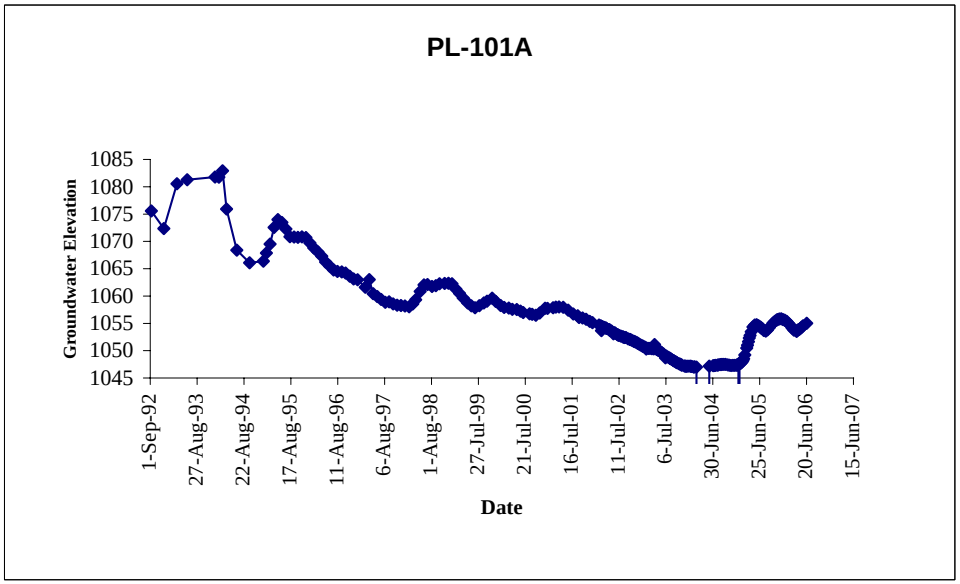
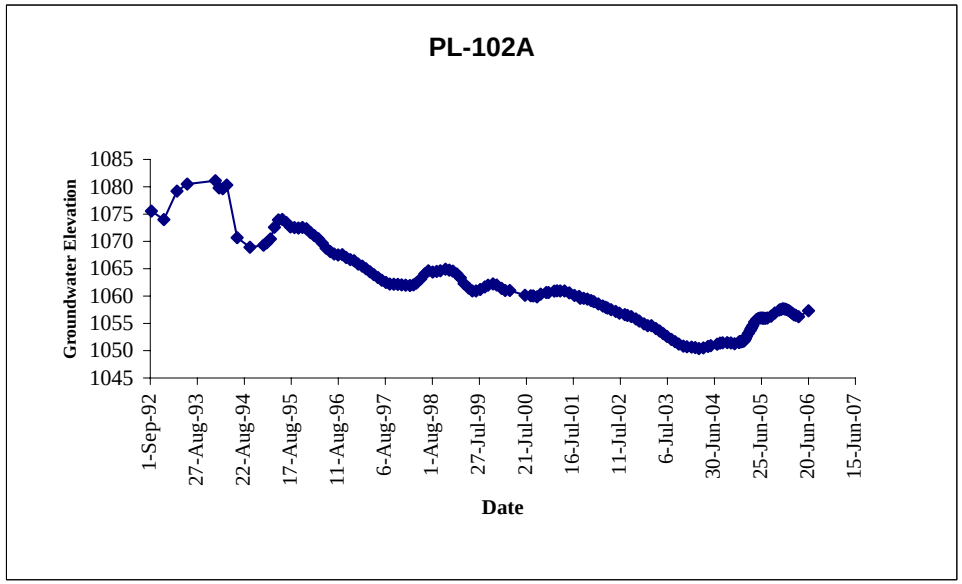


FIGURE 1
HYDROGRAPHS









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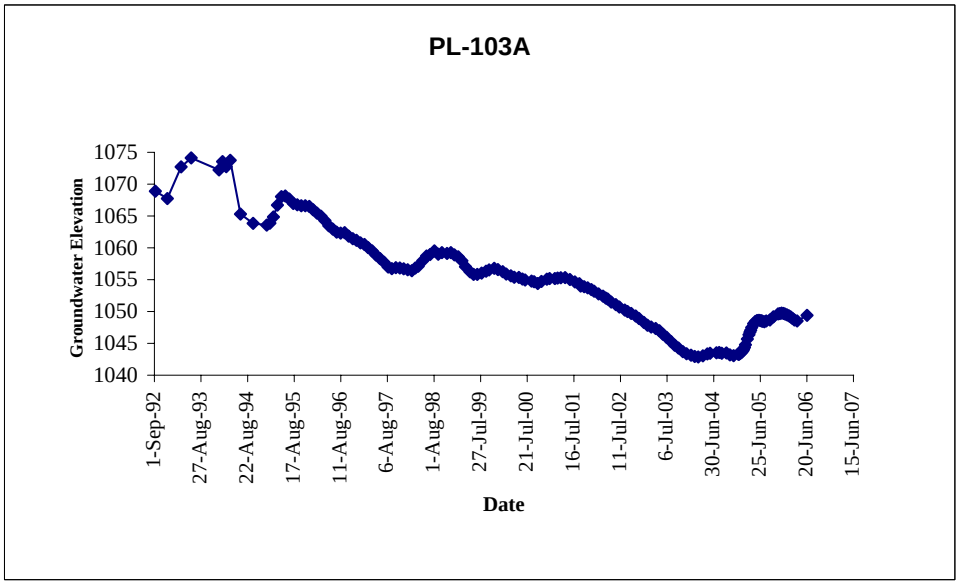

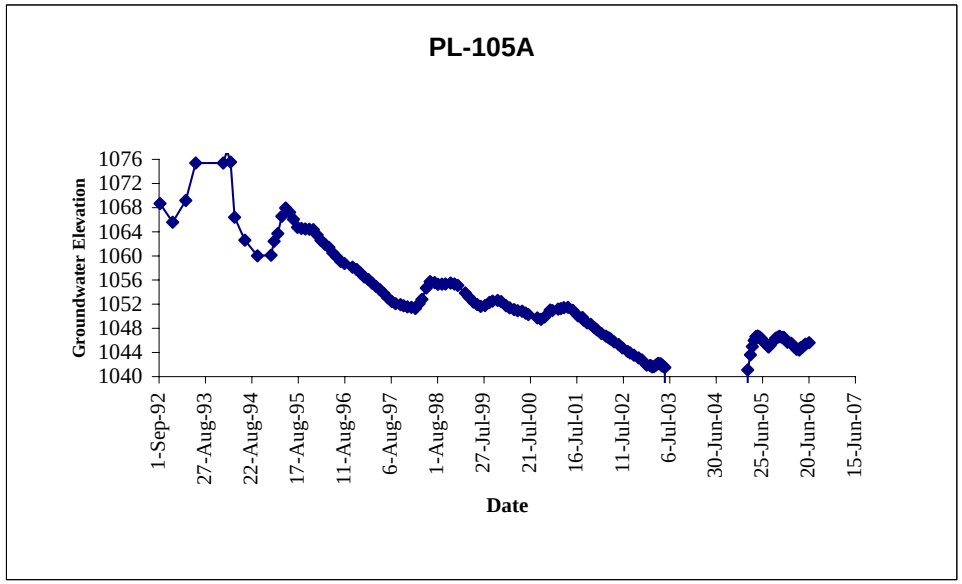

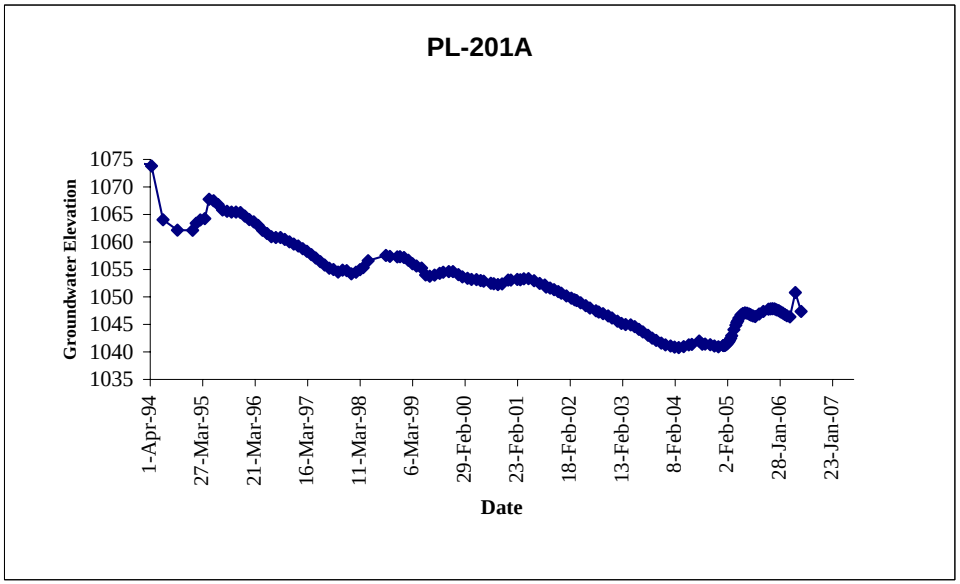

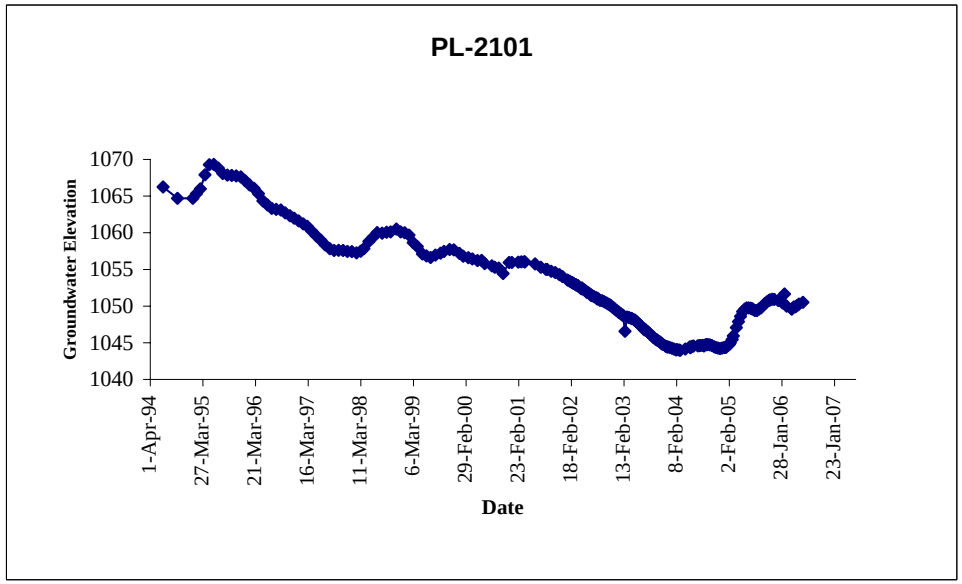
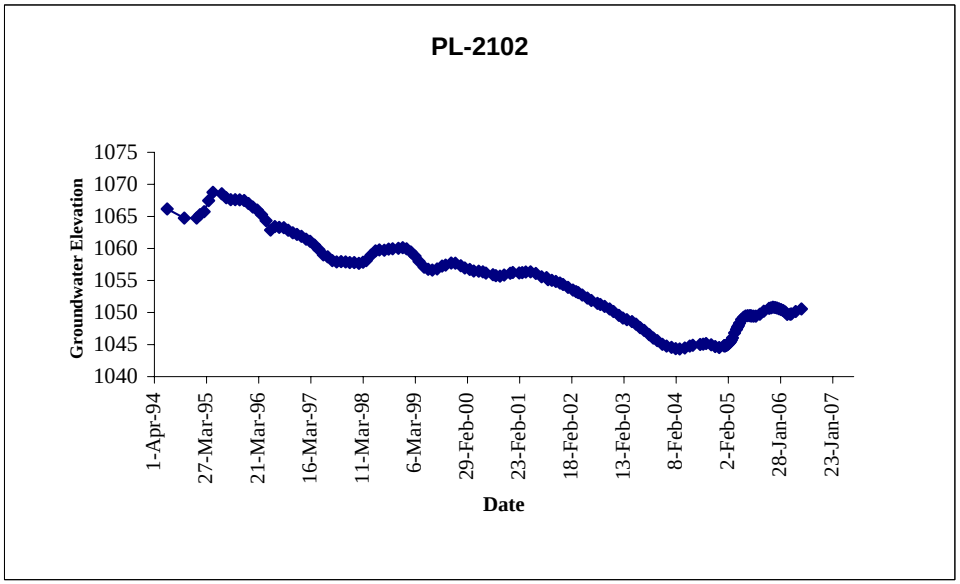
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