EXECUTIVE SUMMARY

On behalf of Crane Energy Flow Solutions (Crane), AMEC Foster Wheeler Environment & Infrastructure, Inc. (AMEC) has implemented a multi-phased, comprehensive affected property assessment (APA) at the former Crane facility located at 1202/1212 Hahlo Street, in Houston, Texas (Site). The Site is located approximately 1.0 mile north of Buffalo Bayou, 1.0 mile south of Interstate Highway 10 (IH10), and approximately 3 miles east-northeast of the center of Houston.

Crane utilized the site, beginning in 1962, as a manufacturing and repair plant for valves and actuators. In 2014, Crane sold the property to RAH Warehouses, LTD. The property is currently occupied by Furmanite Corp. Furmanite continues to utilize the site for industrial operations similar to those formerly used by Crane (i.e., valve repair and maintenance).

The APA was performed in response to certain environmental conditions that were identified during a March 2012 screening-level assessment performed by AWARE Environmental Inc. (AEI). The AEI assessment was performed on behalf of a company considering the purchase of the subject property and/or business. The results of the AEI assessment were documented in a draft letter report dated *April 11, 2012.*

Based on the results of the March 2012 AEI screening-level assessment, the APA focused on evaluating the Site for COCs consisting of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and heavy metals. The APA has included testing for COCs in soil, groundwater, and soil vapor. The assessment involved the installation and testing of 14 permanent groundwater monitoring wells (12 on-site and 2 off-site), collection and testing of 15 soil samples (including 5 background sample locations), and testing for soil vapor accumulations at six locations beneath the facility's main operations building (Building No. 1). The APA also included an assessment to confirm the site meets the TCEQ's Tier 1 Ecological Checklist with regard to potential ecological receptors.

Pursuant to the Texas Commission on Environmental Quality's (TCEQ's) Texas Risk Reduction Program (TRRP) regulations, as codified in Texas Administrative Code (TAC) Chapter 350, the APA analytical results were compared to applicable residential assessment levels (RALs) and protective concentration levels (PCLs) to evaluate the extent to which detected COC concentrations may warrant additional action. A summary of the key APA findings is provided as follows:

- The subject property is located at the corner of Hahlo and Larimer Street. Property use in the area is mixed, including industrial and residential settings. Within 0.5 mile of the

property, two existing Municipal Setting Designation (MSD) sites are known to exist. Both MSD sites are associated with chlorinated compounds in shallow groundwater.

- For purposes of this MSD application, the designated property consists of three contiguous tracts of land located south of Larimer Street, along the west side of Hahlo St. The designated property includes three large operations/administration buildings, parking areas, and a small landscaped area.
- The Site is the location of a well documented Leaking Petroleum Storage Tank (LPST) site that was entered into the TCEQ's LPST Program in 1990. The LPST site was situated in the extreme northwest corner of the main property. Tank removal and soil/groundwater remedial actions were implemented pursuant to applicable TCEQ Petroleum Storage Tank (PST) regulations during the 1990s. The LPST case was closed by the TCEQ in 1998. The data obtained during the APA do not indicate materially different petroleum hydrocarbon conditions in soil or groundwater from those known to exist at the time of TCEQ closure.
- The surface of the uppermost groundwater zone beneath the Site is present at depths ranging from approximately 11 feet to 15 feet below ground level (bgl), depending on surface elevation. The groundwater appears to be under unconfined conditions. Pursuant to applicable TRRP classification criteria, the uppermost groundwater zone is considered a Class 2 groundwater resource. There are no public water supply wells located within 0.5 miles of the facility and, more generally, the upper groundwater zone is not used locally. In addition, there are no municipalities other than the City of Houston, within 0.5 mile of the property.
- Groundwater flow direction at the Site is predominantly to the south to southwest. This interpretation of flow direction is supported by documented COC distribution in groundwater.
- Analytical results for metals in soil yielded arsenic, chromium, lead, selenium and mercury at concentrations in certain locations exceeding their respective "default" Texas-Specific Soil Background Concentrations (TSBC) and/or TRRP RALs, However, based on a comparison to site-specific background concentrations and/or based on groundwater testing results, metals do not exceed an applicable PCL. Accordingly, no additional actions appear necessary with regard to metal COCs in soils.
- Analytical results for metals in groundwater did not reveal metal concentrations exceeding the most conservative PCLs with the exception of Arsenic. Arsenic has only been detected in one of the site monitoring wells (AB-2) at a concentration of 0.0125 milligrams per liter (mg/L), which is slightly above its PCL of 0.010 mg/L. The elevated arsenic is present at a location immediately downgradient of the former LPST site and, accordingly, is attributable to geochemically reduced conditions in the subsurface associated with the historic petroleum hydrocarbon release. There are no other known or suspected sources on-site for arsenic in groundwater. The petroleum hydrocarbon release was fully addressed as part of the past LPST case and the case was closed by the TCEQ in 1998.
- Benzene was the only VOC found in soil with concentrations exceeding its RAL/PCL. This only occurred in the soil boring located at the location of the former LPST site. As described above for arsenic, the presence of benzene is related to the historic closed LPST site.

- Several chlorinated constituents, including parent and degradation (i.e., daughter) compounds consisting of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-Dichloroethene (Cis DCE) , 1,1,2-Trichlorethane (TCA), Vinyl Chloride (VC), 1,1-Dichloroethene (DCE), and 1,2-Dichloroethane (DCA), were found in groundwater at concentrations exceeding their respective RALs and/or PCLs. Benzene was also found in one groundwater location at a concentration exceeding its RAL/PCL. The presence of benzene, however, is attributed to the closed LPST site.
- Each of the site COC PCL Exceedance Zones (PCLE Zones) has been delineated laterally and vertically.
- The COCs are present primarily in the northern portion of the property, which is consistent with the location of primary historic chemical handling operations, as well as the historic LPST site. Based on the presence of several degradation compounds (e.g., VC, Cis DCE, etc.), it is apparent natural attenuation processes (e.g., reductive de-chlorination) are occurring at the Site. Based on groundwater monitoring that has occurred beginning in 2012, all site COC PCLE Zones appear to be stable or declining. This is demonstrated through statistical evaluation (e.g., Mann Kendall), and a review of concentration versus time graphs.
- A receptor survey confirmed there are no hospitals, nursing homes, churches, or schools located within 500 feet of the designated property. In addition, no potential ecological receptors were identified within 500 feet of the Site and, accordingly, the Site passes the TCEQ's Tier 1 Ecological Checklist.

Based on site characterization, as summarized above, Crane is pursuing a MSD for the purpose of eliminating the potential for future ingestion of the groundwater from within the documented PCLE Zones. Because there are no COC exceedances of the non-ingestion groundwater PCLs, the MSD will eliminate all potential risks associated with the documented groundwater impact.

Appendix A

1. *Provide a legal description of the boundaries of the designated property, including metes and bounds, and a copy of the deed for the property. A professional surveyor currently registered with the Texas Board of Professional Surveying must certify that all property descriptions with metes and bounds are accurate.*

   As described in the attached legal description and shown in the attached survey map, the designated property is an approximately 3.5-acre tract of land. The property is bordered to the west by a narrow strip of land, with a railroad spur, owned by Union Pacific Railroad, to the north by the City of Houston's (COH) Larimer St., to the east by COH's Hahlo St., and to the south by a private industry (Southair Filter Fabricators, Inc.).

DESCRIPTION

OF 3.5254 ACRES OF LAND BEING ALL OF A CALLED 3.5254 ACRE TRACT, CONVEYED BY DEED DATED DECEMBER 31, 2007 TO MCC HOLDINGS, INC., AS RECORDED IN HARRIS COUNTY CLERK'S FILE No. 20080003686 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS. SAID 3.5254 ACRES BEING SITUATED IN THE HARRIS & WILSON TWO LEAGUE GRANT, HARRIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS (All bearings are based on the east line of said deed recorded in H.C.C.F.No.20080003686)

BEGINNING at a 5/8 inch iron rod found for the northeast corner of said 3.5254 acres, said iron rod being in the south right-of-way line of Larimar Street (based on a 60' right-of-way) and the west line of Hahlo Street (based on a 60' right-of-way);

THENCE South, along the west right-of-way line of said Hahlo Street, for a distance of 559.44 feet to a 5/8 inch iron rod found for the corner;

THENCE West, along the south line of said 3.5254 acres, same being the north line of a called 43,950 square feet tract of land conveyed by deed dated December 27, 2001 to New Choice Builders, Inc., as recorded in Harris County Clerk's File No. 529082549 of the Deed Records of Harris County, Texas, for a distance of 274.50 feet, to a 5/8 inch iron rod with cap set for corner;

THENCE North along the west line of said 3.5254, same being the east line of a called 0.989 acre tract of land conveyed by deed dated February 13, 1962 to Texas & New Orleans Railroad Co. and Houston Belt & Terminal Railway Co. as recorded in Volume 4633, Page 477 of the Deed Records of Harris County, Texas, for a distance of 559.44 feet to a P.K. nail set for corner;

THENCE East, along the south line of said Larimar Street, for a distance of 274.50 feet to the **PLACE OF BEGINNING** of the herein described tract of land and containing within these calls 3.5254 acres or 153,566 square feet of land.

WITNESS MY HAND AND SEAL THIS THE 24th DAY OF OCTOBER, 2013

Scot Lowe
Registered Professional Land Surveyor No. 5007

STATE OF TEXAS
REGISTERED
SCOT LOWE
5007
PROFESSIONAL
LAND SURVEYOR

Note: Description prepared in conjunction with boundary survey
Project No. 13037, EHS005-1301 dated 10/24/2013

20140377542
08/25/2014 ER $32.00

WD
ETC
N

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OF THE FOLLOWING INFORMATION FROM THIS INSTRUMENT BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER

SPECIAL WARRANTY DEED
WITH VENDOR'S LIEN IN FAVOR OF MORTGAGEE

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

ER 060 - 32 - 1104

THAT **MCC Holdings, Inc.**, a Delaware corporation (hereinafter called "**Grantor**"), for and in consideration of the sum of TEN DOLLARS ($10.00) and other good and valuable consideration in hand paid to Grantor by **RAH Warehouses, Ltd.**, a Texas limited partnership (hereinafter called "**Grantee**," whether one or more), whose address for notice hereunder is 4808 Gibson, 3rd Floor, Houston, Texas 77007, the receipt of which is hereby acknowledged, and the further consideration of the execution and delivery by Grantee of that one certain Promissory Note of even date herewith, in the principal sum of **TWO MILLION TWO HUNDRED THOUSAND AND NO/100 ($2,200,000.00) DOLLARS** (herein called the "**Note**"), payable to the order of **THE CHASEWOOD BANK** (herein called "**Mortgagee**"), bearing interest and being payable as therein provided and containing provisions for attorney's fees, the payment of such Note being secured by the vendor's lien herein retained, and being additionally secured by a Deed of Trust of even date herewith from Grantee to **BOB TYER, TRUSTEE**, containing provisions for foreclosure under power of sale, has GRANTED, SOLD AND CONVEYED, and by these presents does GRANT, SELL AND CONVEY unto Grantee, the real property located in Harris County, Texas described in **Exhibit "A"** attached hereto and incorporated herein by this reference, together with (i) all buildings, improvements, and fixtures, and (ii) all rights, privileges, and appurtenances pertaining to the Property, including Grantor's right, title and interest, if any, in any minerals, utilities, adjacent streets, alleys, strips, gores, and rights-of-way (the "**Property**").

1EE
ASG
1EE
1OR

This Special Warranty Deed and the conveyance hereinabove set forth is executed by Grantor and accepted by Grantee subject to the following:

(a) the matters described in Exhibit "B" attached hereto and incorporated herein by this reference, to the extent the same are validly existing and applicable to the Property (hereinafter referred to collectively as the "**Permitted Exceptions**"); and

(b) a reservation, for the benefit of Grantor, and Grantor's successors, personal representatives, consultants, engineers, contractors and assigns, of a temporary easement across the Property, beneath its surface and under the improvements for the purposes of ongoing and periodic Corrective Action (defined below) and related access purposes (hereinafter referred to collectively as the "**Special Reservation**"). Grantee acknowledges and agrees that the use and enjoyment of the Property by Grantee, its successors and assigns are subordinate to the rights to perform Corrective Action by the persons and entities set forth above, and that the use of and activities on the Property by Buyer, its successors and assigns are restricted to the full extent

FILED BY
ALAMO TITLE COMPANY
ATCH 14042033

necessary to permit Grantor to discharge its duty to obtain Closure Approval (defined below). Once Closure Approval has been obtained, (a) this Special Reservation shall terminate and be of no further force and effect and (b) Grantor shall provide to Grantee, or its successors, or Mortgagee a written release of the Special Reservation within thirty (30) days after receipt of a written request therefor. "*Closure Approval*" means the issuance of a no further action letter, final Voluntary Clean-Up Program (under 30 Tex. Admin. Code Chapter 333) Certificate of Completion, or other similar document from the Texas Commission on Environmental Quality stating that all Corrective Action has been completed. "*Corrective Action*" means any investigation, sampling, analysis, monitoring, abatement, demolition, dismantlement, removal, decontamination, remediation, cleanup, treatment, storage, disposal or other actions related to releases of those pollutants, contaminants, chemicals or toxic, hazardous or petroleum hydrocarbon substances or wastes, including petroleum products and any fraction thereof, that are regulated under applicable current federal, state, county and local law relating to the protection of the environment, natural resources, wildlife or human health.

TO HAVE AND TO HOLD, the Property unto the Grantees and their heirs, successors and assigns forever. The Grantor shall warrant and defend title to the Property unto the Grantees, against every person lawfully claiming or to claim the whole or any part thereof by, through, or under the Grantor, but not otherwise; provided that Grantor's covenant to warrant and defend title to the Property shall not extend to the Permitted Exceptions or the Special Reservation.

BUT IT IS EXPRESSLY AGREED AND STIPULATED that the vendor's lien against and superior title to the Property is hereby retained until the Note and all accrued interest thereon, and all renewals and/or extensions thereof, together with all interest thereon, is fully paid according to its face and tenor, effect and reading, and together with all additional sums which may become due and payable by the terms of said Note and/or by the terms of the aforesaid Deed of Trust, at which time this Special Warranty Deed shall become absolute. Grantor does hereby assign and transfer, without recourse to Grantor, the vendor's lien and superior title to the Property unto Mortgagee, its successors and assigns, in the same manner and to the same extent as if the Note had been payable to the order of Grantor and by said Grantor assigned to said Mortgagee without recourse.

[*Signature Page Follows*]

ER 060 - 32 - 1105

IN WITNESS WHEREOF, Grantor has executed this Special Warranty Deed to be effective as of August 20 _____, 2014.

GRANTOR:

1OR

MCC Holdings, Inc.,
a Delaware corporation

By (signature): _____
Printed Name: Ed Switter
Title: Vice President, Taxes

STATE OF Connecticut §

COUNTY OF Fairfield §

BEFORE ME, the undersigned authority, on this day personally appeared Edward S. Switter, Vice President, Taxes of MCC Holdings, Inc., a Delaware corporation, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that the same is the act of said entity.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, this 18th of August, 2014.

Sharon A. Michalewicz
NOTARY PUBLIC IN AND FOR
THE STATE OF ~~TEXAS~~ CONNECTICUT

SHARON A. MICHALEWICZ
NOTARY PUBLIC OF CONNECTICUT
My Commission Expires 3/31/2015

ER 060 - 32 - 1106

EXHIBIT "A"

Legal Description of the Real Property

TRACT 1:

3.5254 ACRES OF LAND BEING ALL OF A CALLED 3.5254 ACRE TRACT, CONVEYED BY DEED DATED DECEMBER 31, 2007 TO MCC HOLDINGS, INC., AS RECORDED IN HARRIS COUNTY CLERK'S FILE No. 20080003686 OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS. SAID 3.5254 ACRES BEING SITUATED IN THE HARRIS & WILSON TWO LEAGUE GRANT, HARRIS COUNTY, TEXAS, AND BEING MORE PARTICULARLY DESCRIBED BY METES AND BOUNDS AS FOLLOWS (All bearings are based on the east line of said deed recorded in H.C.C.F.No.20080003686) D +

BEGINNING at a 5/8 inch iron rod found for the northeast corner of said 3.5254 acres, said iron rod being in the south right-of-way line of Larimar Street (based on a 60' right-of-way) and the west line of Hahlo Street (based on a 60' right-of-way);

THENCE South, along the west right-of-way line of said Hahlo Street, for a distance of 559.44 feet to a 5/8 inch iron rod found for the corner;

THENCE West, along the south line of said 3.5254 acres, same being the north line of a called 43,950 square feet tract of land conveyed by deed dated December 27, 2001 to New Choice Builders, Inc., as recorded in Harris County Clerk's File No. 529082549 of the Deed Records of Harris County, Texas, for a distance of 274.50 feet, to a 5/8 inch iron rod with cap found for corner;

THENCE North along the west line of said 3.5254, same being the east line of a called 0.989 acre tract of land conveyed by deed dated February 13, 1962 to Texas & New Orleans Railroad Co. and Houston Belt & Terminal Railway Co. as recorded in Volume 4633, Page 477 of the Deed Records of Harris County, Texas, for a distance of 559.44 feet to a P.K. nail found for corner;

THENCE East along the south line of said Larimar Street, for a distance of 274.50 feet to the **PLACE OF BEGINNING** of the herein described tract of land and containing within these calls 3.5254 acres or 153,566 square feet of land.

NOTE: THIS COMPANY DOES NOT REPRESENT THE ABOVE ACREAGE OR SQUARE FOOTAGE CALCULATIONS ARE CORRECT.

TRACT 2:

ALL OF LOTS 21, 22, 23, AND 24, BLOCK 9, of DENVER ADDITION ACCORDING TO THE MAP OR PLAT THEREOF RECORDED IN VOLUME 55, PAGE 160, OF THE DEED RECORDS OF HARRIS COUNTY, TEXAS.

ER 060 - 32 - 1107

EXHIBIT "B"

Permitted Exceptions

1. Railroad track spur along portion of Southwesterly property line as referenced in Deeds recorded under Harris County Clerk's File Nos. U788338 and 20080003686. (As to Tract 1)

2. Power lines and power poles as shown on survey dated July 14, 2014, prepared by Scot Lowe, R.P.L.S. No. 5007. (As to Tract 2)

3. Rights of Furmanite America, Inc. as a tenant under that Lease Agreement dated June 29, 2012 between Furmanite America, Inc. and MCC Holdings, Inc..

ER 060 - 32 - 1108

ER 060 - 32 - 1109

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08/25/2014 08:46:06 AM
e-Filed & e-Recorded in the
Official Public Records of
HARRIS COUNTY
STAN STANART
COUNTY CLERK
Fees 32.00

RECORDERS MEMORANDUM
This instrument was received and recorded electronically and any blackouts, additions or changes were present at the time the instrument was filed and recorded.

Any provision herein which restricts the sale, rental, or use of the described real property because of color or race is invalid and unenforceable under federal law.
THE STATE OF TEXAS
COUNTY OF HARRIS
I hereby certify that this instrument was FILED in File Number Sequence on the date and at the time stamped hereon by me; and was duly RECORDED in the Official Public Records of Real Property of Harris County, Texas.

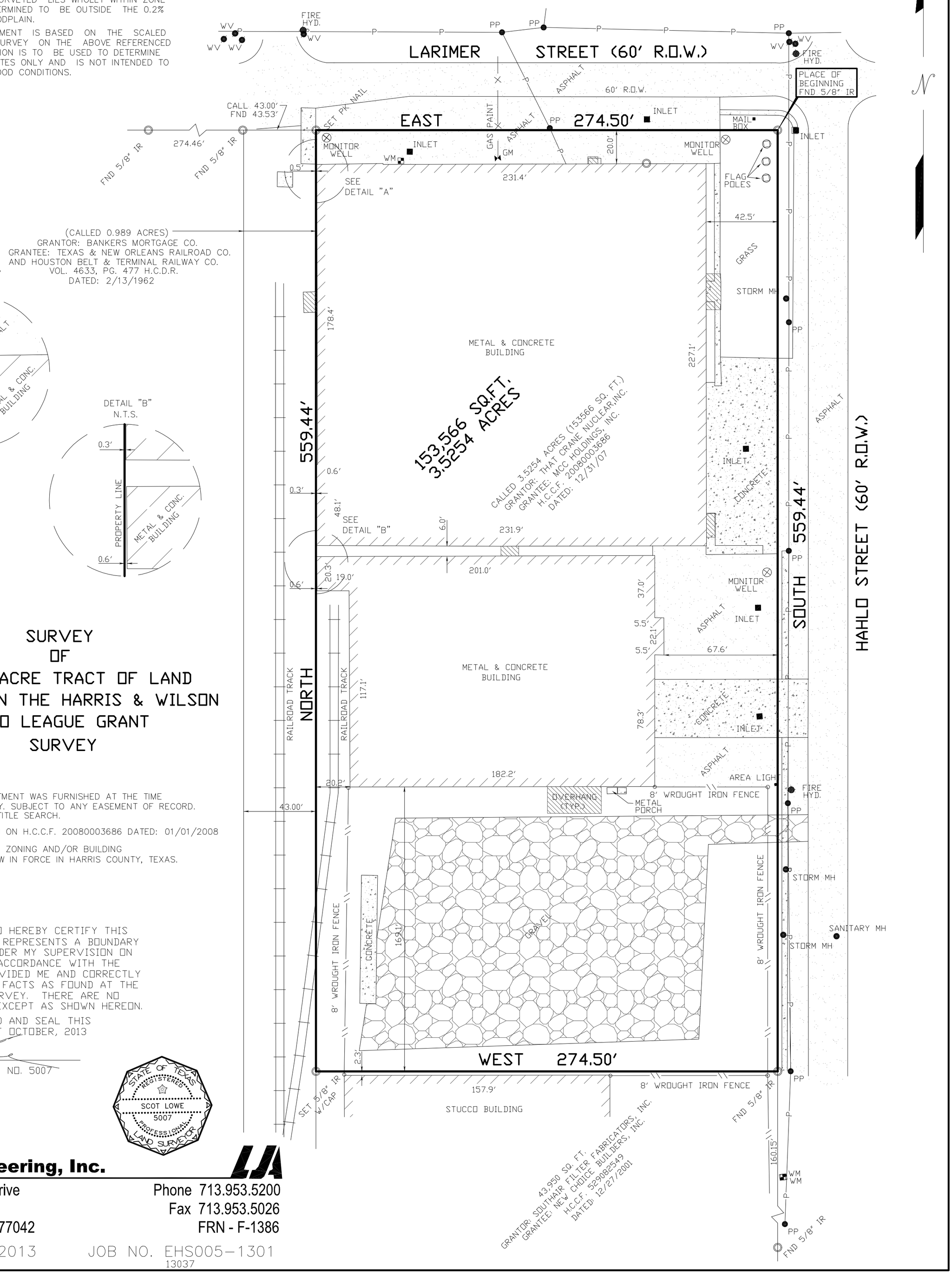
Stan Stanart
COUNTY CLERK
HARRIS COUNTY, TEXAS

SCALE 1" = 40'

FLOOD STATEMENT:

BASED ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 48201C0695 L. DATED JUNE 18, 2007 THE TRACT HEREBY SURVEYED LIES WHOLLY WITHIN ZONE "X" OR AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

NOTE: THIS STATEMENT IS BASED ON THE SCALED LOCATION OF SAID SURVEY ON THE ABOVE REFERENCED MAP. THIS INFORMATION IS TO BE USED TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOOD CONDITIONS.



SURVEY OF 3.5254 ACRE TRACT OF LAND LOCATED IN THE HARRIS & WILSON TWO LEAGUE GRANT SURVEY

NOTE:

1) NO TITLE COMMITMENT WAS FURNISHED AT THE TIME OF THIS SURVEY. SUBJECT TO ANY EASEMENT OF RECORD. WE SUGGEST A TITLE SEARCH.
2) BEARINGS BASED ON H.C.C.F. 20080003686 DATED: 01/01/2008
3) SUBJECT TO THE ZONING AND/OR BUILDING ORDINANCES NOW IN FORCE IN HARRIS COUNTY, TEXAS.

I, SCOT LOWE, DO HEREBY CERTIFY THIS PLAT CORRECTLY REPRESENTS A BOUNDARY SURVEY MADE UNDER MY SUPERVISION ON THE GROUND, IN ACCORDANCE WITH THE INFORMATION PROVIDED ME AND CORRECTLY REPRESENTS THE FACTS AS FOUND AT THE TIME OF THIS SURVEY. THERE ARE NO ENCROACHMENTS EXCEPT AS SHOWN HEREON.

WITNESS MY HAND AND SEAL THIS THE 24TH DAY OF OCTOBER, 2013

SCOT LOWE R.P.L.S. NO. 5007

STATE OF TEXAS REGISTERED SCOT LOWE 5007 PROFESSIONAL LAND SURVEYOR

LJA Engineering, Inc.

2929 Briarpark Drive
Suite 600
Houston, Texas 77042

Phone 713.953.5200
Fax 713.953.5026
FRN - F-1386

OCTOBER 2013 JOB NO. EHS005-1301

13037

Appendix B

2. *A description of the current use and, to the extent known, the anticipated use(s) of the designated property and properties within 500 feet of the boundary of the designated property.*

The designated Site is located in a mixed-use area, including industrial/commercial and residential settings. Based on a review of the City of Houston's Municipal Setting Designation (MSD) Website, there are two existing MSDs located with 0.5 mile of the Former Crane site. These MSD sites are identified as the Former Rheem Manufacturing Company property (application number MSD#2009-017-FRM) located at 1025 Lockwood Drive, and the Cameron International Corporation (Cameron) property (application number MSD#2009-022-FCE) located at 1111 Lockwood Drive.

Currently, the Site is in industrial use to repair, diagnose, and clean valves and related equipment. Operations at the facility utilize a wide variety of equipment and machines including diagnostic equipment, grinders, weld-machines, and other specialized tooling machines.

A majority of the Property is covered by three on-site buildings:

- ***Building No. 1 is approximately 30,000 square feet (ft^2) and is constructed of steel I-beams and corrugated metal, situated on a concrete slab.***
- ***Building No. 2 is approximately 22,000 ft^2 and is constructed of steel I-beams and corrugated metal, situated on a concrete slab.***
- ***Building No. 3 is approximately 25,000 ft^2 and is constructed of steel I-beams and corrugated metal, situated on a concrete slab.***

The southern-most portion of the Property is undeveloped (i.e., dirt and/or grass covered) and is generally used for equipment storage.

Surrounding property use within 500 feet of the Property includes industrial/commercial and residential settings. Larimer Street borders the Site to the north, followed by a baseball field and a residential area. Hahlo Street borders the Site to the east, beyond which are a logistics company and a surplus clothing wholesaler. A construction services company bounds the site to the south, followed by two plastics fabrication companies. To the west are a rail spur (Union Pacific), then a large warehouse-type building occupied by Asia Chemical, and a pallet supplier.

Groundwater in the area is not used for domestic or industrial purposes.
No changes to current Site or surrounding property usage are anticipated.

Appendix C

A site map showing:

a. *The location of the designated property.*

   The location of the designated property is shown on Figure C-1 – Property Map

b. *The topography of the designated property as indicated on publicly available sources, which must note the watershed including the nearest surface water body and whether the designated property is located in a floodplain or floodway, as those terms are defined in Chapter 19 of the Code of Ordinances.*

   The topography of the designated property is shown on Figure C-2. As indicated on this figure, the nearest surface water body is Buffalo Bayou, which is located approximately 1 mile to the south of the property. The site is located in the Buffalo Bayou watershed, as indicated on Figure C-3. As shown in Figure C-4, the site is not located in a floodplain or floodway.

c. *The detected area of groundwater contamination.*

   Affected groundwater has been detected primarily on-site, although a portion of the plume also extends slightly off-site to the east and west. Figures C-8 through C-15 illustrate the areas where COCs have been detected in groundwater, including delineation of the COC-specific Protective Concentration Level Exceedance (PCLE) Zones.

   As indicated by the location of the primary COC presence, the sources of the COCs consist of:

   - ***A former leaking petroleum storage tank (LPST) site located in the northwest corner of the property. This source accounts for the presence of the small benzene PCLE zone, and also the small arsenic PCLE zone. The arsenic PCLE zone is actually a secondary feature caused by the dissolution of naturally occurring arsenic under chemically-reduced aquifer conditions in the presence of the petroleum hydrocarbons (e.g., benzene). In other words, the presence of arsenic in the groundwater is not a result of an arsenic release at the site.***

   - ***Historic site operations – The site has been operational for several decades and during this time, various chlorinated cleaning solutions were utilized in the operations. The primary chemical handling operations occur in the northern portion of Building 1, which is consistent with the chlorinated COC PCLE zones that have been identified. No evidence of one or more large-quantity spill events has been identified. Instead, the COCs in groundwater are believed to have been the result of many years of minor operational releases. There are no known on-going sources for chlorinated COC releases.***

d. *The location of all soil sampling locations and all groundwater monitoring wells.*

The location of all soil samples and groundwater monitoring wells are illustrated in Figure C-5. Apart from the site investigation and closure work performed in regard to the former LPST site (circa 1990s), the most recent site investigation activities began in 2012 as part of a pre-acquisition environmental due diligence. An initial screening level assessment was performed by AWARE Environmental Inc. (AEI), on behalf of a perspective buyer. Based on the findings of the AEI assessment, AMEC was retained by Crane to perform a more comprehensive affected property assessment (APA), and based on those findings, to enter the site into the TCEQ's Voluntary Cleanup Program (VCP).

e. *Groundwater gradients, to the extent known, and direction of groundwater flow.*

Figure C-6 depicts the groundwater gradient and flow direction based on the sampling event performed on April 28, 2014. As shown, groundwater flow is relatively flat across the site with a gradient of approximately 0.01 ft/ft. Flow direction is predominately to the south to southwest.

f. *The ingestion protective concentration level exceedance zone for each contaminant of concern, to the extent known.*

Figures C-8 though C-15 illustrate the PCLE Zones for each of the site COCs that have been detected above its ingestion PCL. As shown, the site COCs that have been confirmed to be present above their critical PCL consist of the following:

- ***Arsenic***
- ***Benzene***
- ***1,2-dichloroethane (1,2-DCA)***
- ***1,1-dichloroethene (DCE)***
- ***Cis-1,2 DCE***
- ***Tetrachloroethene (PCE)***
- ***1,1,2-trichloroethane (TCA)***
- ***Trichloroethene (TCE)***
- ***Vinyl Chloride (VC)***

g. *Depth to groundwater for each affected zone.*

Depth to the groundwater beneath the Site begins approximately 11 to 15 feet below ground level (bgl), depending on surface elevation (greater depths are located inside the buildings where the surface elevation is higher due to the building foundations).

In the immediate area of the site, soils within the upper 600 or more feet are the undifferentiated clays, silts, and fine sands of the Beaumont Formation. These materials are

colloquially known as the "Beaumont Clay" because of the predominance of clay in the formation. The Beaumont Clay comprises sediments that were deposited by streams and distributaries along the coastal margin.

Shallow groundwater (at depths generally less than 100 feet) exists in small, generally discontinuous lenses of silt and fine sand. The groundwater-bearing unit in the upper 100 feet near the site is referred to as the Upper Chicot. Production rates for wells in these materials are generally very low (commonly less than 150 gallons per day).

The vertical extent of affected groundwater at the site has been established based on the site lithology, and based on groundwater and soil sampling results from the 200-foot deep monitoring well AB-14. The lithologic conditions (determined while drilling AB-14) includes a confining clay layer that is at least 60 feet thick, beginning at a depth of approximately 127 feet bgl (see boring/well construction log for AB-14). After encountering this clay, the AB-14 borehole and soil cores remained essentially dry while drilling to the total depth of 200 feet bgl. However, within 24 hours of constructing the well, groundwater did enter the well and rise to a level approximately 87 feet bgl. The groundwater likely resides at the very base of the 200-foot well, where the clay was observed to become slightly softer and included some silt content. A sample of the clay at the 200-ft depth was collected and tested for volatile organic compounds (VOCs) and all COCs were non-detect (See Table G-1)

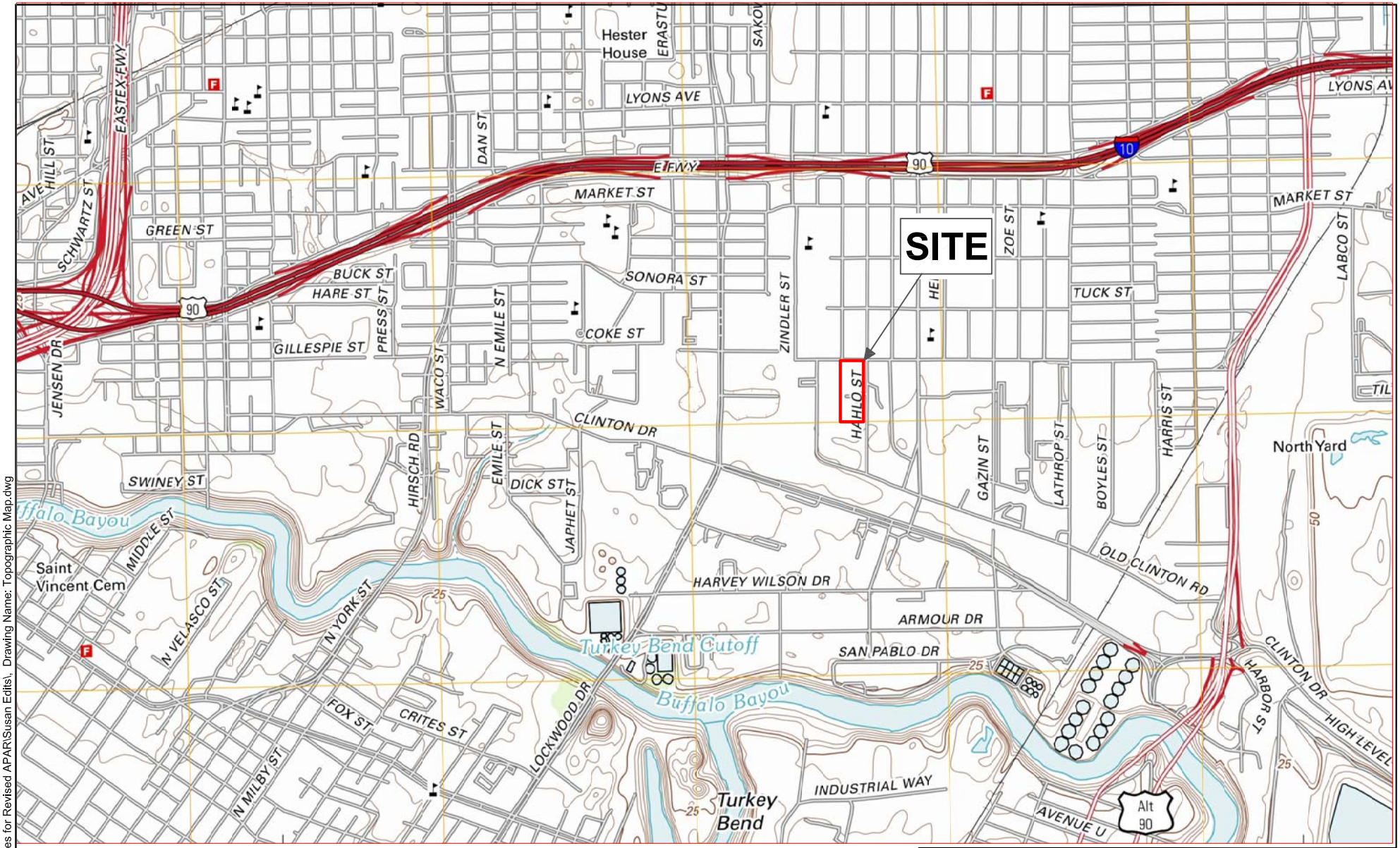
While the presence of a 60-foot thick highly plastic clay layer is a strong demonstration of vertical extent, the groundwater that entered this well was also subsequently sampled and tested for the presence of Site COCs. With only one exception, the analytical results confirmed that no site COCs are present above a regulatory level. The exception is benzene, which was detected at a concentration of 0.007 mg/l which is only slightly above its regulatory level of 0.005 mg/l. However, more importantly, the presence of benzene in the sample collected from this well is considered an outlier. This is based on the fact that benzene is not present in either of the next two more shallow monitoring wells (i.e., AB-13 and AB-12). The outlier nature of the benzene result will be confirmed as part of the on-going groundwater monitoring program.

Based the above, the actual vertical extent of COC impacts is likely the depth at which the confining clay is encountered (i.e., approximately 127 feet bgs). However, as a conservative measure, and for purposes of this MSD application, the vertical extent for site COCs is defined by the 200-ft groundwater sample.

PROPERTY MAP
CRANE FACILITY
1202/1212 HAHLO ST., HOUSTON, TEXAS

By: SLB	Date: 7/8/2014	Project No. HO10160250
amec		Appendix C-1

Source: Google Earth



EXPLANATION

Site Location (Buffalo Bayou Watershed)

Contour Interval = 5 Feet

Basemap modified from 2013 7.5-minute Settegast quadrangle map. USGS

TOPOGRAPHIC MAP
Crane Facility
1202/1212 Hahlo St. Houston, Texas

By: SLB	Date: 6/12/2014	Project No. HO10160250
amec		Appendix C-2

Plot Date: 07/08/14 - 2:34pm, Plotted by: susan.l.brown
Drawing Path: P:\CraneHahlo\APAR_Files for Revised APAR\Susan Edits\, Drawing Name: Topographic Map.dwg

DRAINAGE AREA	WATERSHED POPULATION	OPEN CHANNEL MILES
102	444,602	106 MILES

EXPLANATION

Site Location (Buffalo Bayou Watershed)

Basemap modified from Harris County Flood Control District

WATERSHED MAP
Crane Facility
1202/1212 Hahlo St. Houston, Texas

By: SLB	Date: 6/12/2014	Project No. HO10160250
amec		Appendix C-3

Plot Date: 07/08/14 - 2:33pm, Plotted by: susan.l.brown
Drawing Path: P:\CraneHahlo\APAR_Files for Revised APAR\Susan Edits\, Drawing Name: Topographic Map.dwg

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevation** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevation (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum (NAVD). Users of this FIRM should be aware that coastal flood elevations may also be provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is Universal Tranverse Mercator (UTM) zone 15. The **horizontal datum** is NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit their website at www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the Harris Galveston Area Council and was revised and enhanced by Harris County.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

An accompanying Flood Insurance Study report, Letters of Map Revision or Letters of Map Amendment revising portions of this panel, and digital versions of this PANEL may be available. Contact the **FEMA Map Service Center** at the following phone numbers and Internet address for infomation on all related products available from FEMA:

Phone: 800-358-9616
FAX: 800-358-9620
www.fema.gov/msc

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at www.fema.gov.

This map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

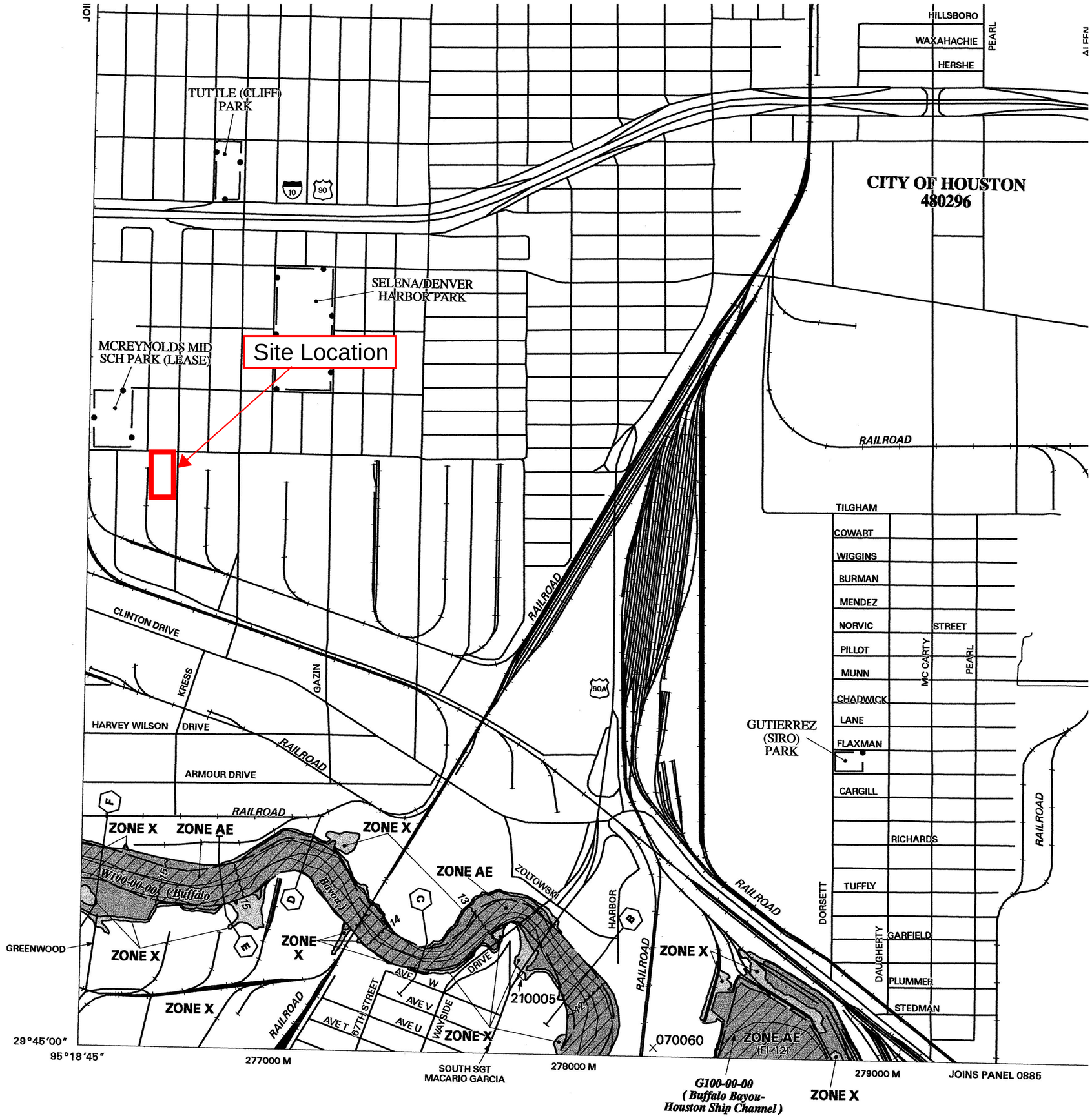
Vertical Datum Adjustment due to subsidence is the 2001 adjustment.

Benchmarks shown on this map were provided by either Harris County or the National Geodetic Survey. To obtain elevation, description, and location information for benchmarks provided by Harris County, please contact the Permits Office of the Public Infrastructure Departement at (713) 956-3000 or visit their website at http://www.eng.hctx.net/permits. For information regarding the benchmarks provided by the National Geodetic Survey, please see note above.

Some bridges and other structures shown on the detailed studied streams are not labeled. See corresponding flood profile for appropriate name.

Floodplain Map
Crane Facility
1202/1212 Hahlo St.
Houston, Texas

Appendix C-4



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.
ZONE A99	Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross Section Line
23 - - - - 23	Transect Line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000M	1000-meter Universal Transverse Mercator grid values, zone 15
600000 FT	5000-foot grid ticks
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel).
• M1.5	River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
SEPTEMBER 28, 1990

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

SEPTEMBER 30, 1992
NOVEMBER 6, 1996
APRIL 20, 2000
JUNE 18, 2007: to change base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to reflect updated topographic information, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0695L

FIRM
FLOOD INSURANCE RATE MAP
HARRIS COUNTY,
TEXAS
AND INCORPORATED AREAS

PANEL 695 OF 1150

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

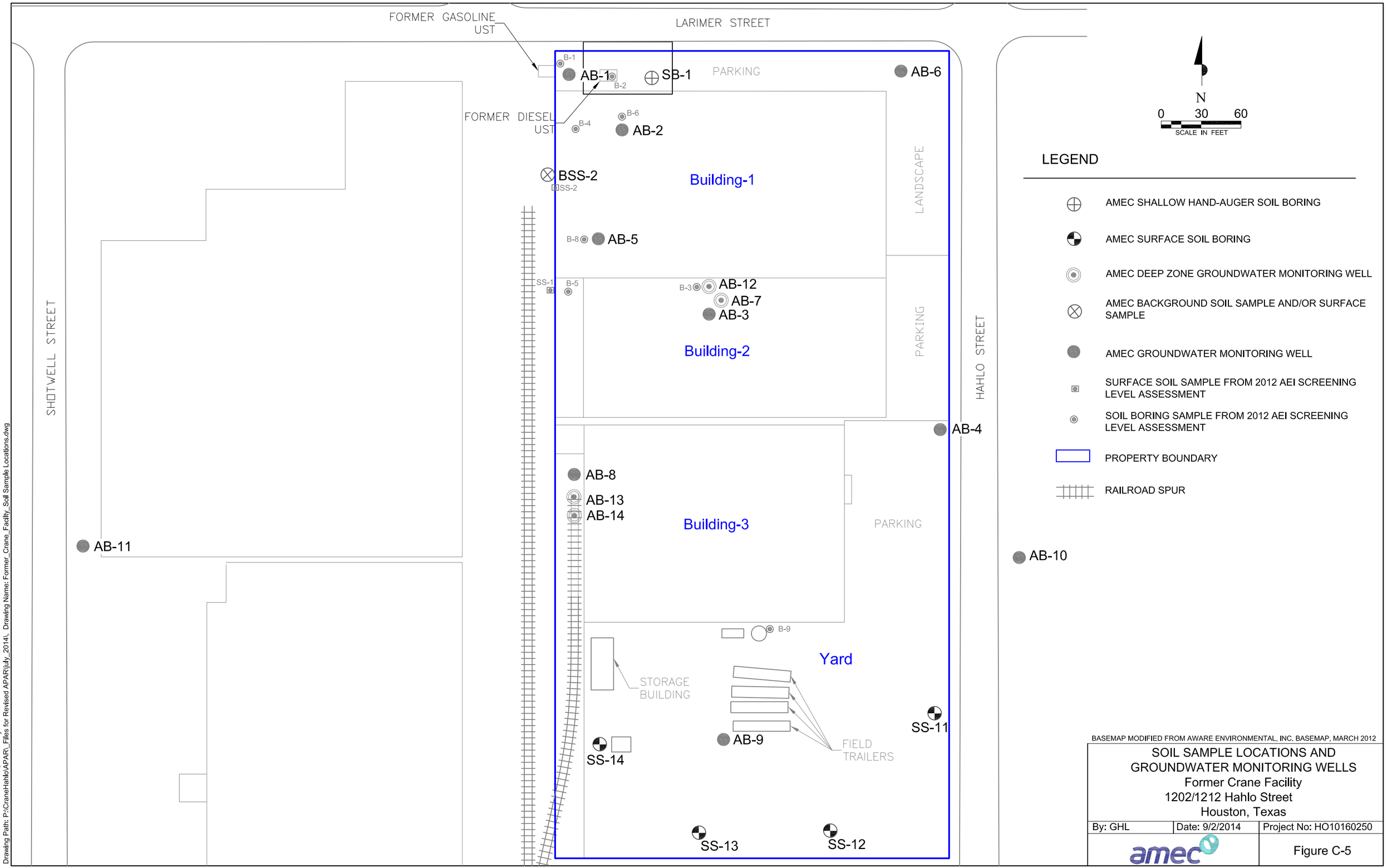
COMMUNITY	NUMBER	PANEL	SUFFIX
HOUSTON, CITY OF	480296	0695	L
JACINTO CITY, CITY OF	480299	0695	L
GALENA PARK, CITY OF	480293	0695	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
48201C0695L

MAP REVISED:
JUNE 18, 2007

Federal Emergency Management Agency



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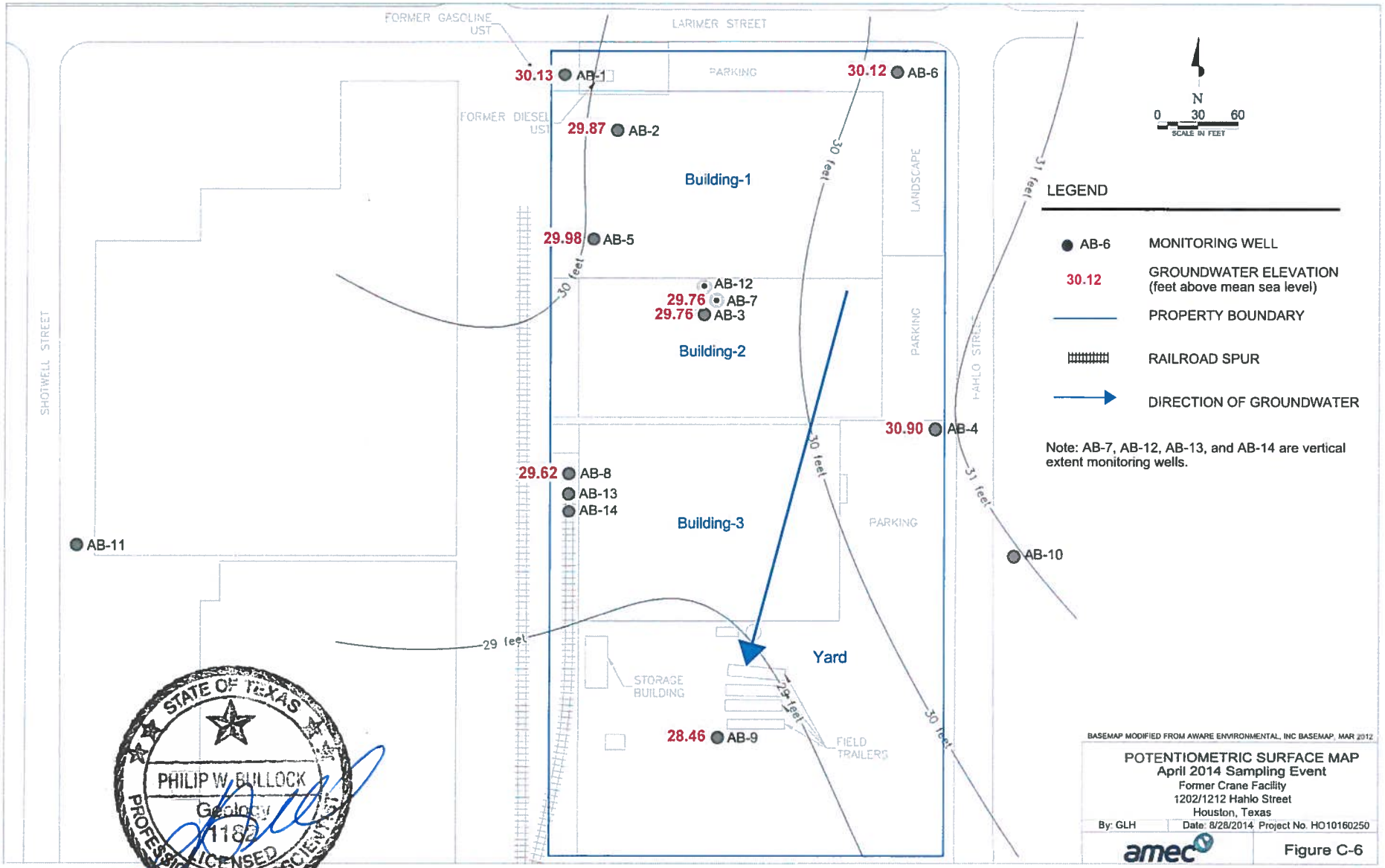
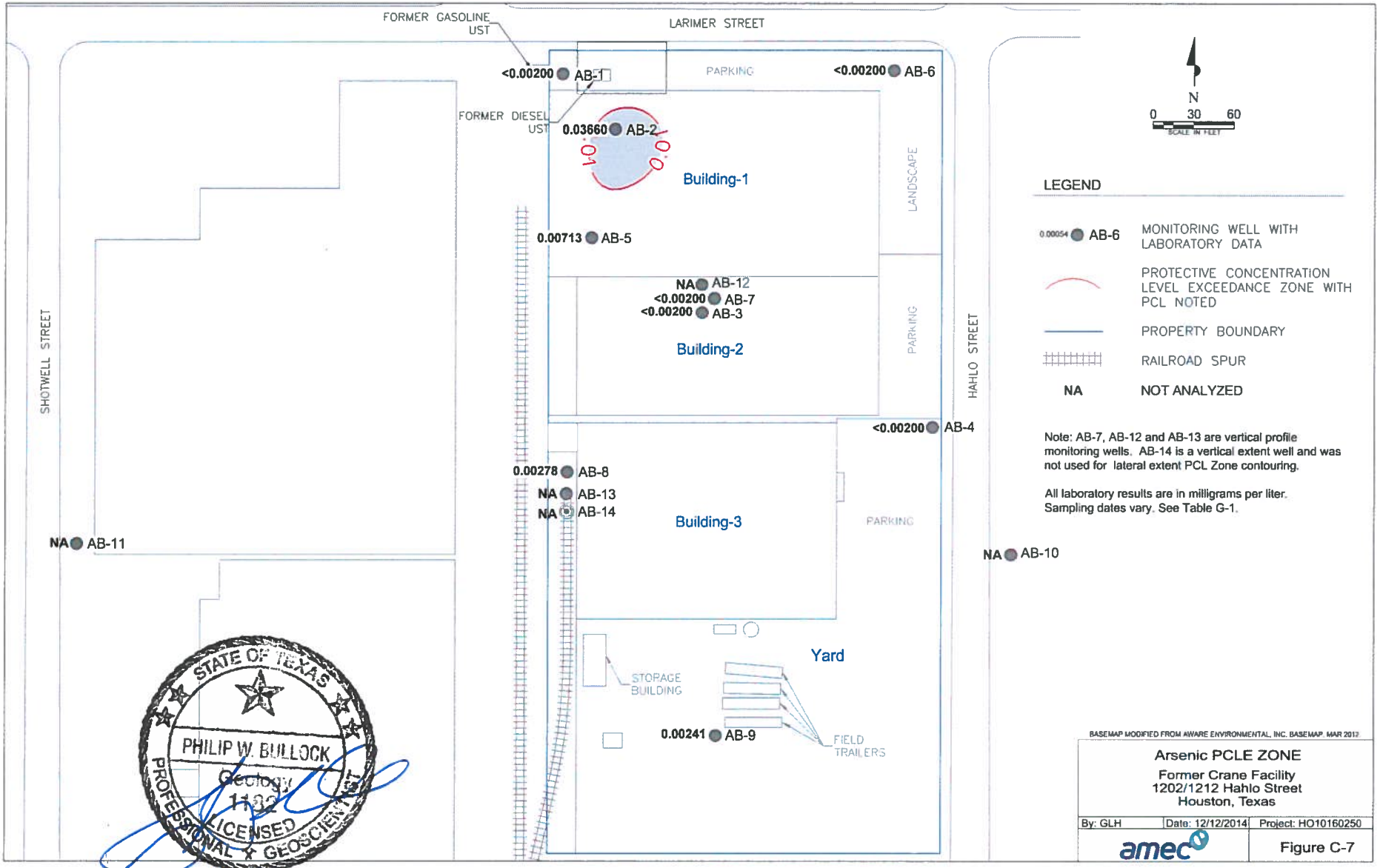


STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1182
LICENSED
PROFESSIONAL GEOSCIENTIST

1/9/15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LARIMER STREET
<0.00200 AB-1
PARKING
<0.00200 AB-6
FORMER DIESEL UST
0.03660 AB-2
1.0
0.0
Building-1
LANDSCAPE
0.00713 AB-5
NA AB-12
<0.00200 AB-7
<0.00200 AB-3
Building-2
PARKING
HAHLO STREET
SHOTWELL STREET
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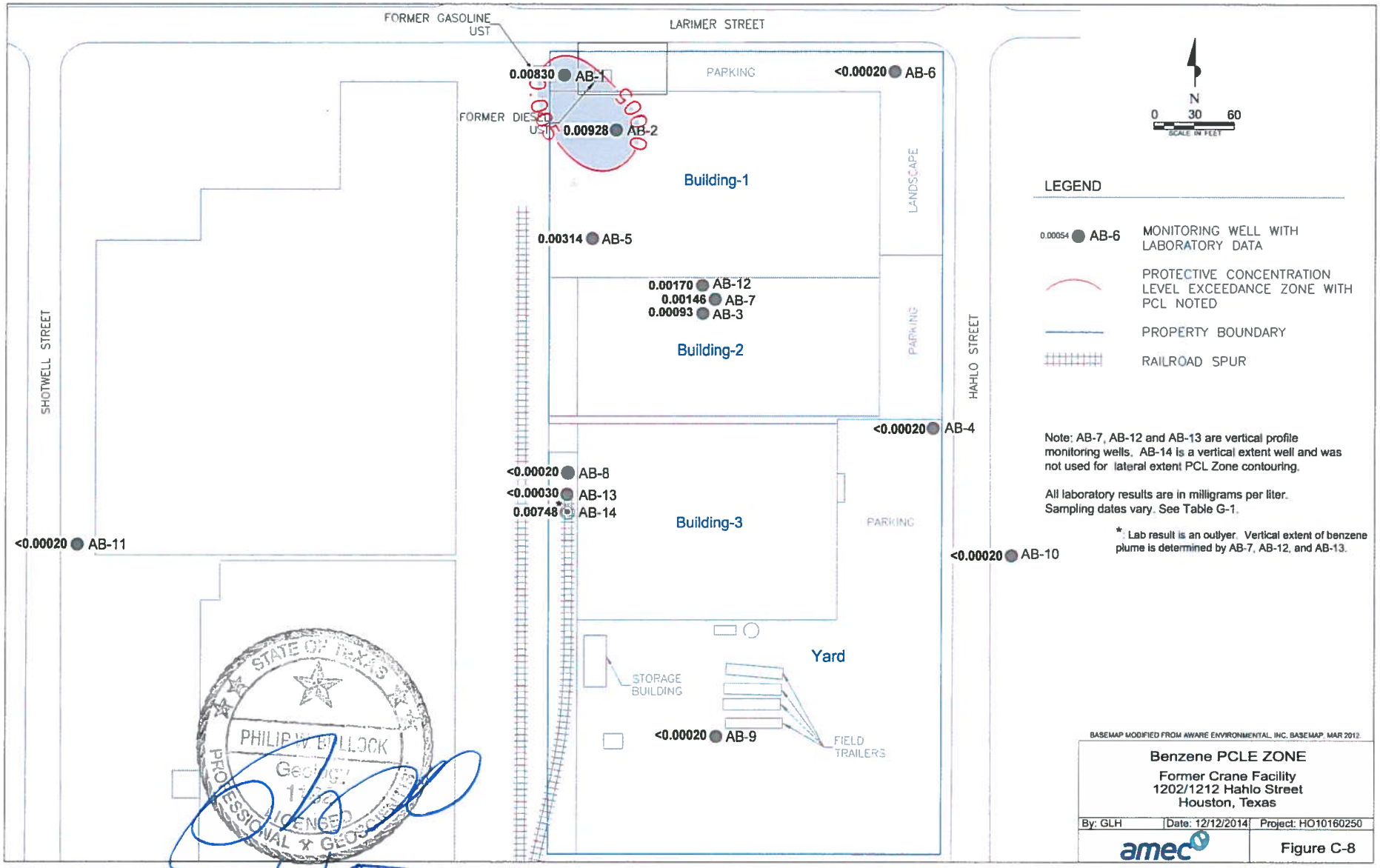
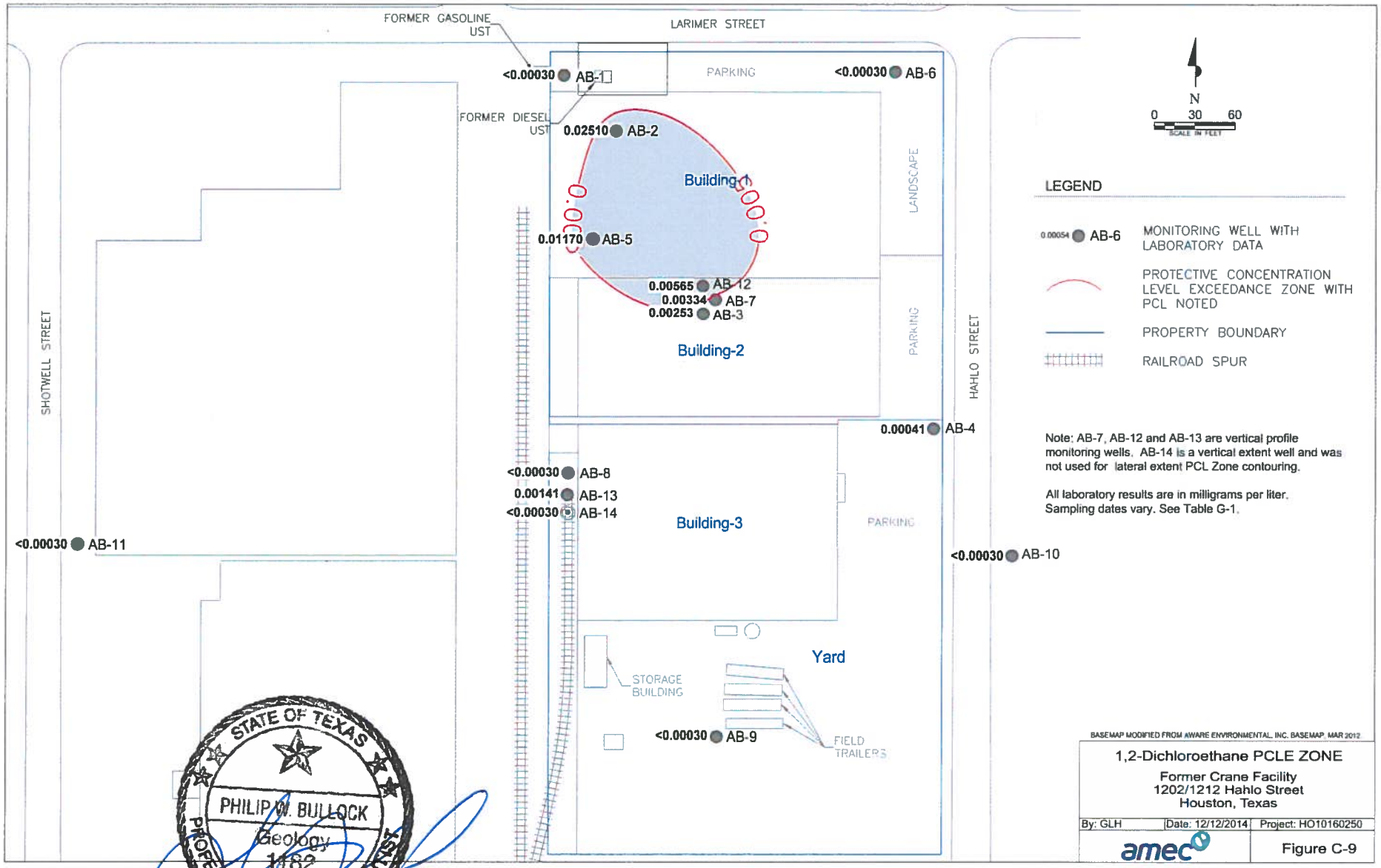
0.00278 AB-8
NA AB-13
NA AB-14
Building-3
PARKING
NA AB-11
NA AB-10
Yard
STORAGE BUILDING
0.00241 AB-9
FIELD TRAILERS
N
0 30 60
SCALE IN FEET
LEGEND
0.00054 AB-6 MONITORING WELL WITH LABORATORY DATA
PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE ZONE WITH PCL NOTED
PROPERTY BOUNDARY
RAILROAD SPUR
NA NOT ANALYZED
Note: AB-7, AB-12 and AB-13 are vertical profile monitoring wells. AB-14 is a vertical extent well and was not used for lateral extent PCL Zone contouring.
All laboratory results are in milligrams per liter. Sampling dates vary. See Table G-1.
BASEMAP MODIFIED FROM AWARE ENVIRONMENTAL, INC. BASEMAP. MAR 2012
Arsenic PCLE ZONE
Former Crane Facility
1202/1212 Hahlo Street
Houston, Texas
By: GLH
Date: 12/12/2014
Project: HO10160250
amec
Figure C-7
STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1132
LICENSED
PROFESSIONAL GEOSCIENTIST
1/9/15



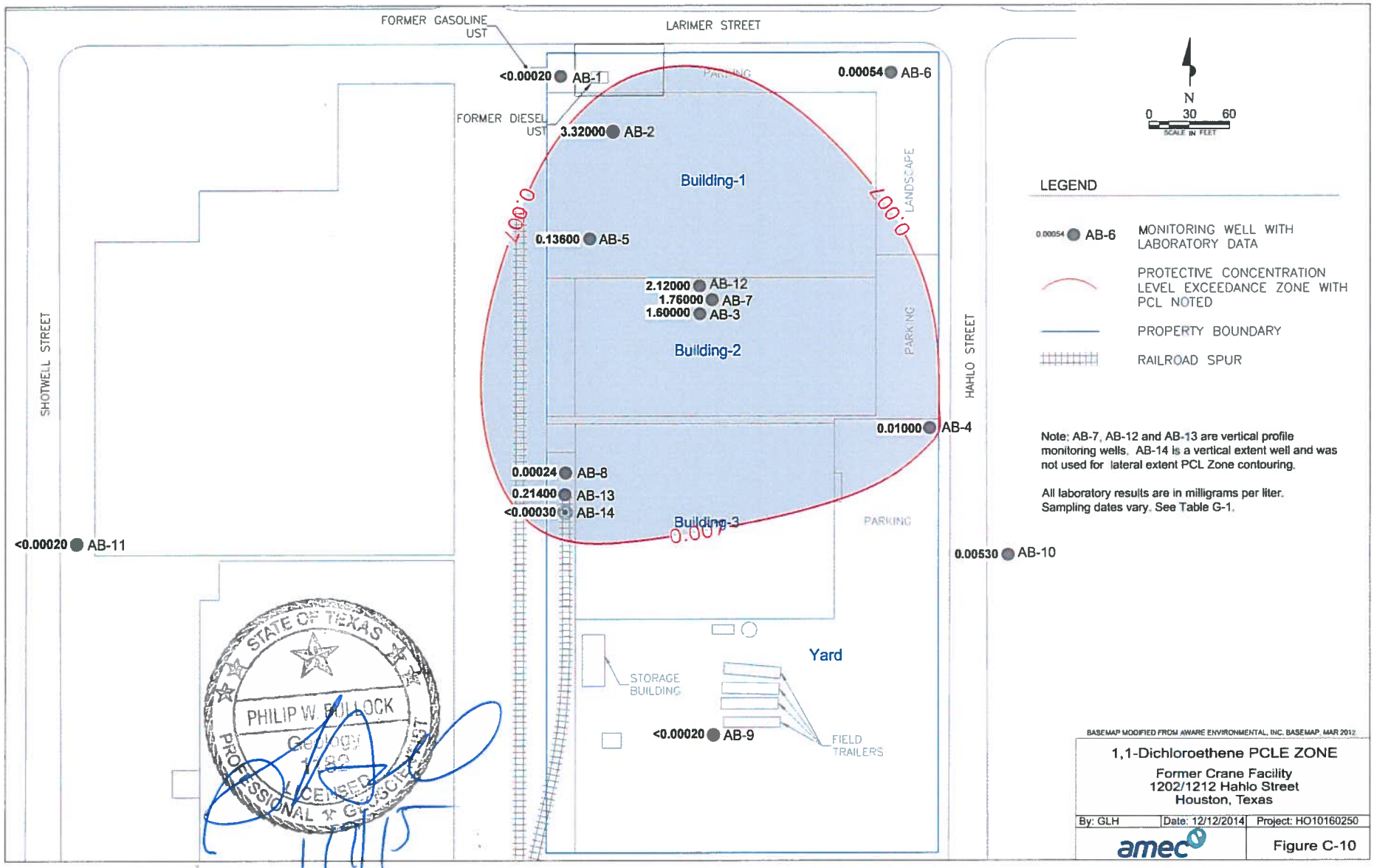
STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1732
LICENSED
PROFESSIONAL GEOSCIENTIST

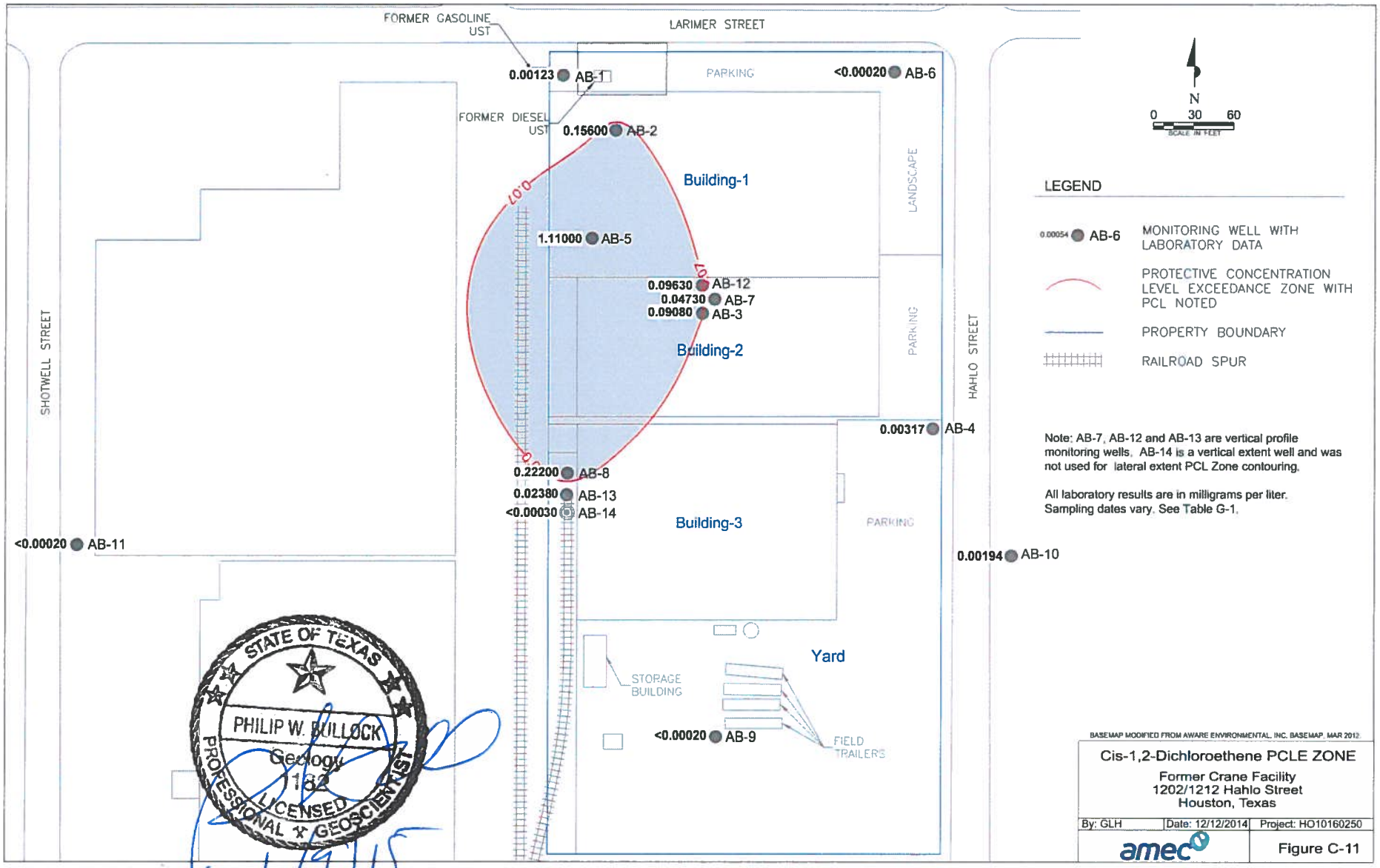
1/9/15



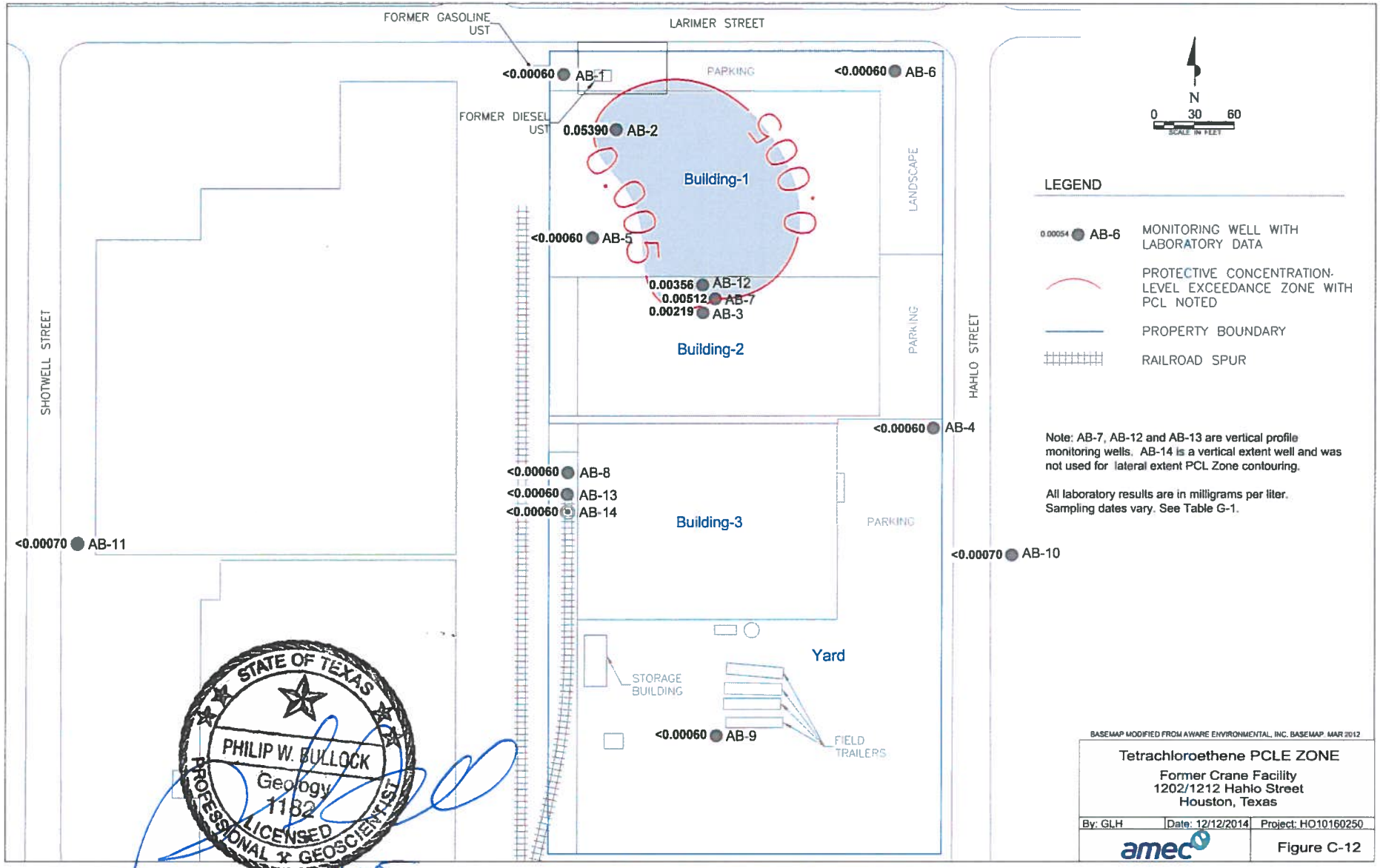
STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1182
LICENSED
PROFESSIONAL GEOSCIENTIST

1/9/15


FORMER GASOLINE UST
LARIMER STREET
<0.00020 AB-1
FORMER DIESEL UST
3.32000 AB-2
0.00054 AB-6
PARKING
Building-1
LANDSCAPE
0.007
0.13600 AB-5
2.12000 AB-12
1.76000 AB-7
1.60000 AB-3
Building-2
PARKING
HAHLO STREET
SHOTWELL STREET
0.01000 AB-4
0.00024 AB-8
0.21400 AB-13
<0.00030 AB-14
Building-3
PARKING
<0.00020 AB-11
0.00530 AB-10
Yard
STORAGE BUILDING
<0.00020 AB-9
FIELD TRAILERS
N
0 30 60
SCALE IN FEET
LEGEND
0.00054 AB-6 MONITORING WELL WITH LABORATORY DATA
PROTECTIVE CONCENTRATION LEVEL EXCEEDANCE ZONE WITH PCL NOTED
PROPERTY BOUNDARY
RAILROAD SPUR
Note: AB-7, AB-12 and AB-13 are vertical profile monitoring wells. AB-14 is a vertical extent well and was not used for lateral extent PCL Zone contouring.
All laboratory results are in milligrams per liter. Sampling dates vary. See Table G-1.
STATE OF TEXAS
PHILIP W. BULLOCK
GEOLOGY
1182
LICENSED
PROFESSIONAL GEOSCIENTIST
BASEMAP MODIFIED FROM AWARE ENVIRONMENTAL, INC. BASEMAP, MAR 2012
1,1-Dichloroethene PCLE ZONE
Former Crane Facility
1202/1212 Hahlo Street
Houston, Texas
By: GLH
Date: 12/12/2014
Project: HO10160250
amec
Figure C-10

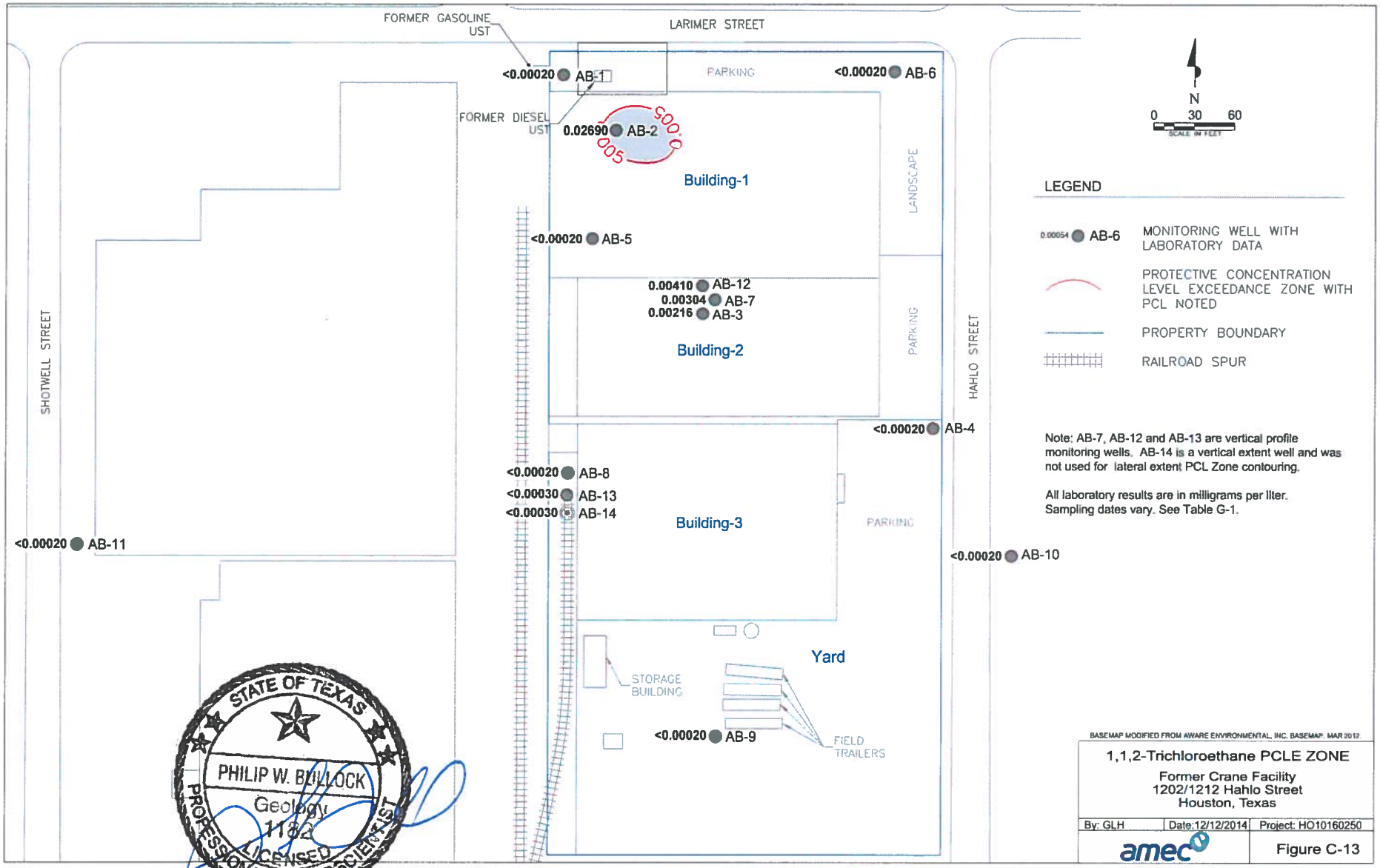


STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1122
LICENSED
PROFESSIONAL GEOSCIENTIST
1/9/15

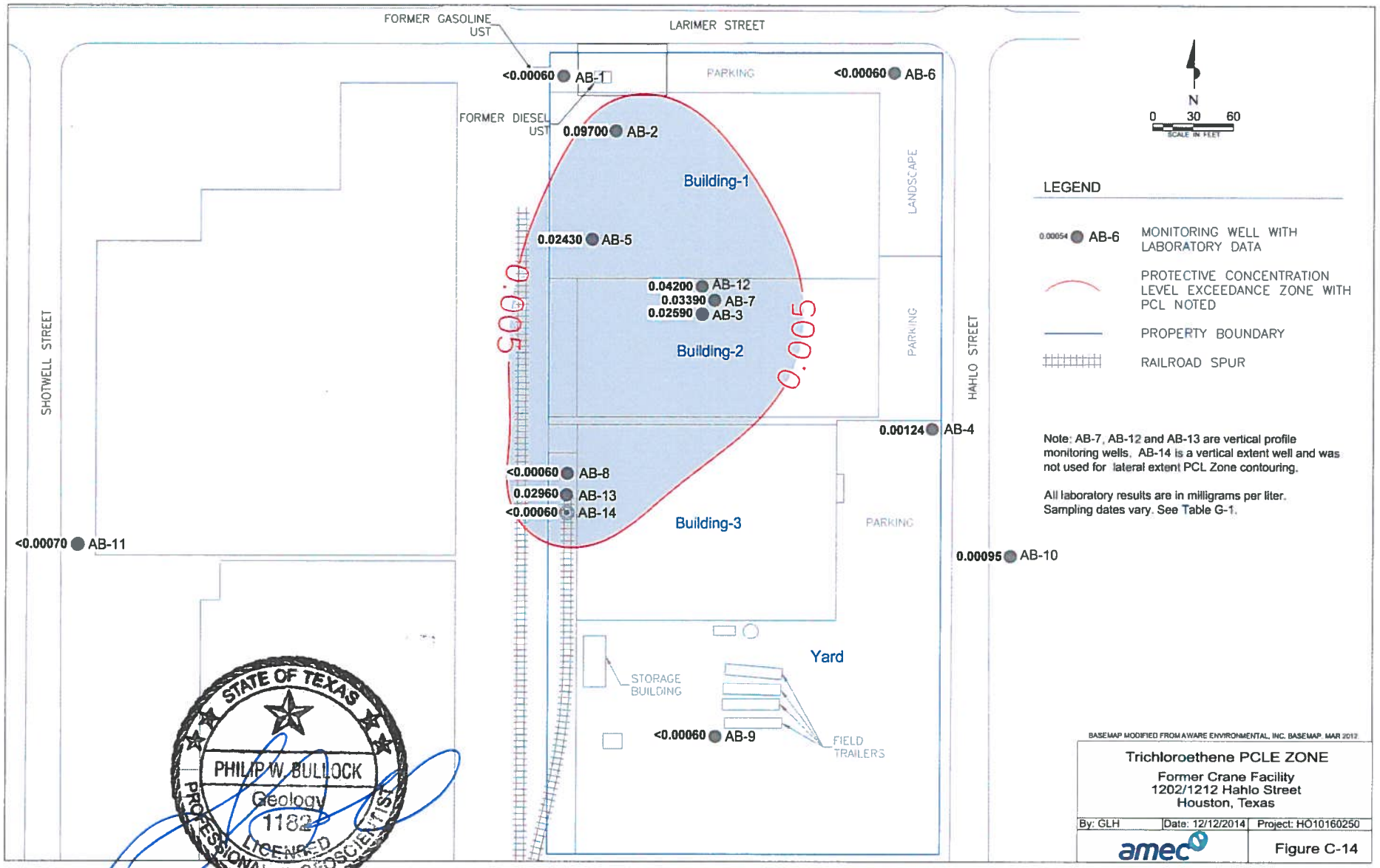


STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1182
LICENSED
PROFESSIONAL GEOSCIENTIST

1/9/15

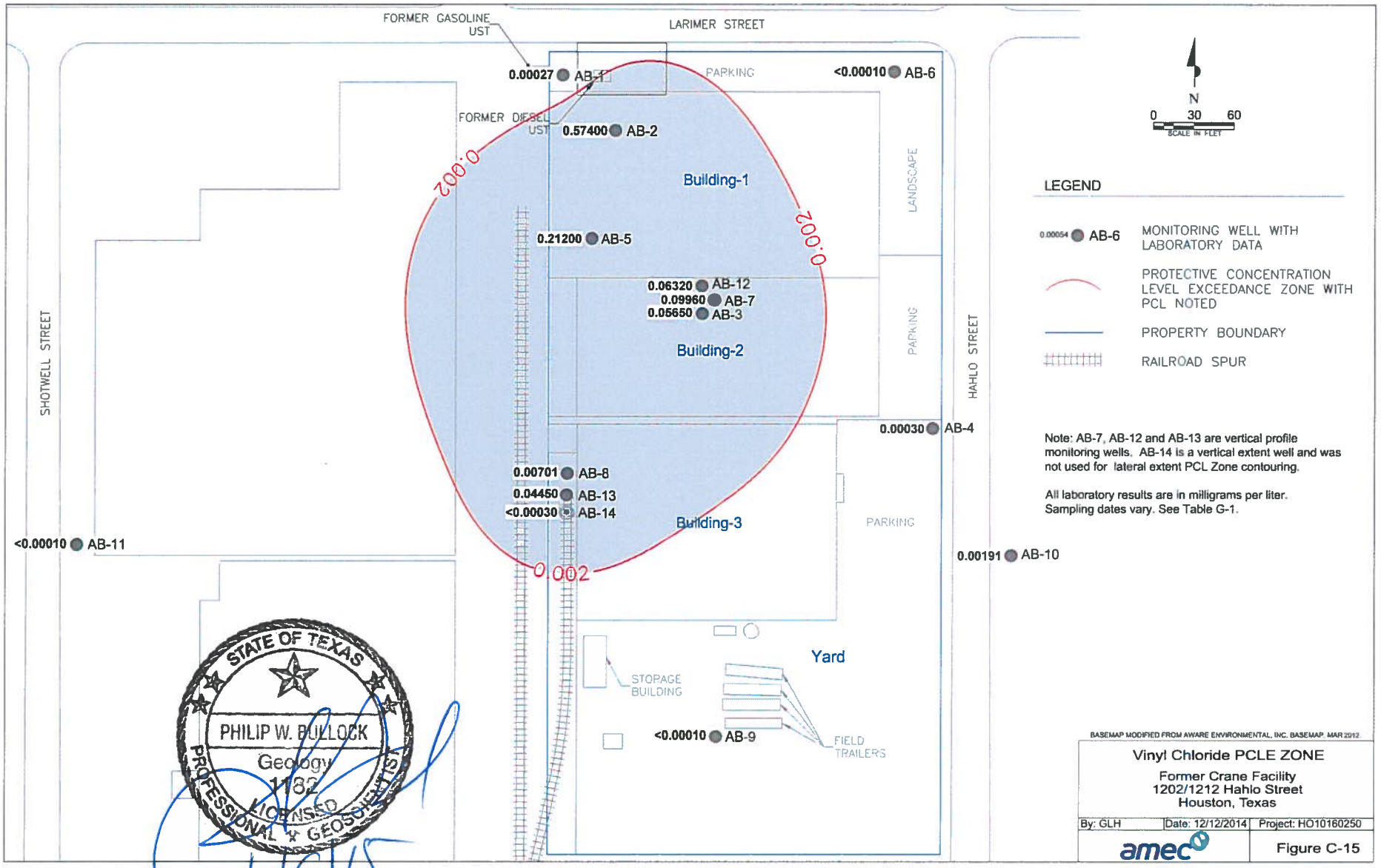


STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1132
LICENSED
PROFESSIONAL GEOSCIENTIST



STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1182
LICENSED
PROFESSIONAL GEOSCIENTIST

1/9/15



STATE OF TEXAS
PHILIP W. BULLOCK
Geology
1182
LICENSED
PROFESSIONAL GEOSCIENTIST

1/19/15

Appendix D

4. Provide for each contaminant of concern within the designated groundwater:

a. A description of the ingestion protective concentration level exceedance zone and the non-ingestion protective concentration level exceedance zone, including a specification of the horizontal area and the minimum and maximum depth below ground surface.

b. The level of contamination, the ingestion protective concentration level, and the non-ingestion protective concentration level, all expressed as mg/L units.

c. Its basic geochemical properties (e.g., whether the contaminant of concern migrates with groundwater, floats or is soluble in water).

The following Chemicals of Concern (COCs) have been detected at the site at concentrations that exceed their respective groundwater ingestion protective concentration levels (PCLs): arsenic, benzene, 1,2-dichloroethane (DCA), 1,1-dichloroethene (DCE), cis-1,2-dichloroethene (cis-DCE), tetrachloroethene (PCE), 1,1,2-trichlorethane (TCA), trichloroethene (TCE), and vinyl chloride (VC). None of these COCs exceed their respective non-ingestion (i.e., groundwater-to-air) PCLs.

Descriptions of these COCs and their associated PCL exceedance (PCLE) zones are presented below, and illustrated in figures presented in Appendix C. The groundwater PCLs listed below are taken from the most recent (November 12, 2014), Texas Risk Reduction Program (TRRP) tables. Ingestion PCLs reflect the residential $^{GW}GW_{Ing}$ pathway. Non-ingestion PCLs listed reflect the 0.5-acre residential $^{Air}GW_{Inh-V}$ pathway.

<u>Arsenic</u>

Range in concentrations: <0.002 to 0.045 milligrams per liter (mg/L)
TRRP Groundwater Ingestion PCL: 0.01 mg/L
TRRP Non-ingestion PCL: None

Basic geochemical properties: Arsenic is a naturally occurring metal that is generally insoluble and relatively immobile in groundwater, but can dissolve under anoxic/reduced conditions. It is not volatile, so there is no non-ingestion (i.e., inhalation) PCL.

At this site, the presence of arsenic in groundwater is attributed to the historic petroleum hydrocarbon conditions associated with a former leaking petroleum storage tank (LPST) site located in the northwest portion of the property, which was closed by the TCEQ in 1997. The presence of petroleum hydrocarbons in the subsurface creates anoxic/reduced aquifer conditions, which in turn results in the dissolution of naturally occurring arsenic in the aquifer matrix.

The horizontal extent of the arsenic area is estimated to be approximately 60 feet in diameter. Vertically, the extent of the arsenic PCLE zone is limited to less than 35 feet bgl (based on monitoring well AB-7).

Benzene

Range in concentrations: <0.001 to 0.009 mg/L
TRRP Groundwater Ingestion PCL: 0.005 mg/L
TRRP Non-ingestion PCL: 180 mg/L

Basic geochemical properties: In its pure phase, benzene is less dense than, and immiscible with, water and, therefore, floats on top of the water surface. At this site, however, benzene is only present in a dissolved-phase and at relatively low concentrations (i.e., only slightly above its groundwater ingestion PCL). While benzene does migrate with water, it is highly subject to natural attenuation processes (e.g., biodegradation, sorption, etc.) and, therefore, does not typically migrate long distances from the source.

The ingestion PCLE zone for benzene is limited to the on-site area immediately surrounding monitoring well AB-1, in the northwestern corner of the Site. As with arsenic, the presence of benzene is attributed to the former LPST site which was closed in 1997. The horizontal extent of this area is estimated to be approximately 75 feet in diameter. Vertically, the extent of the benzene PCLE zone is limited to less than 35 feet bgl (based on monitoring well AB-7).

1,2-Dichloroethane (DCA)

Range in concentrations: <0.001 to 0.025 mg/L
TRRP Groundwater Ingestion PCL: 0.005 mg/L
TRRP Non-ingestion PCL: 33 mg/L

Basic geochemical properties: In its pure phase, DCA is more dense than water, however, at this site, DCA is only present in a dissolved-phase and at relatively low concentrations (i.e., only slightly above its groundwater ingestion PCL). While DCA does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for DCA exists in the on-site area encompassing monitoring wells AB-2 and AB-5 in the northern portion of the Site. The horizontal extent of this area is estimated to be approximately 150 feet in diameter. Vertically, the extent of the 1,2-DCA PCLE zone is limited to less than 35 feet bgl (based on monitoring well AB-7).

1,1-Dichloroethene (DCE)

Range in concentrations: <0.001 to 3.34 mg/L
TRRP Groundwater Ingestion PCL: 0.007 mg/L
Non-ingestion PCL: 1,700 mg/L

Basic geochemical properties: In its pure phase, DCE is more dense than water, however, at this site, DCE is only present in a dissolved-phase. While DCE does migrate with water, it is subject to natural attenuation processes (e.g., bioremediation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for DCE exists in the on-site area encompassing monitoring wells AB-2, AB-3, AB-4, AB-5 and AB-7 in the northern portion of the Site. While the DCE PCLE zone appears to extend some distance off-site to the east and west, its limits are delineated in these directions by monitoring wells MW-10 and MW-11, respectively. The horizontal extent of this area is estimated to be approximately 350 feet in diameter.

Vertically, the extent of the DCE PCLE zone is limited to less than 200 feet bgl (based on monitoring well AB-14).

<u>Cis-1,2-Dichloroethene (cis-DCE)</u>

Range in concentrations: <0.001 to 1.33 mg/L
TRRP Groundwater Ingestion PCL: 0.07 mg/L
Non-ingestion PCL: 1,200 mg/L

Basic geochemical properties: In its pure phase, cis-DCE is more dense than water, however, at this site, Cis-DCE is likely a daughter (i.e., breakdown) product of TCE and/or PCE and is only present in a dissolved-phase and at relatively low concentrations. While cis-DCE does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for cis-DCE is present in the on-site area encompassing monitoring wells AB-3, AB-5 and AB-8, in the west-central portion of the Site. While the cis-DCE PCLE zone also appears to extend some distance off-site to the east and west, its limits are delineated in these directions by monitoring wells MW-10 and MW-11, respectively. The horizontal extent of this area is estimated to be approximately 250 feet in diameter. Vertically, the extent of the Cis-DCE PCLE zone is limited to less than 80 feet bgl (based on monitoring well AB-13).

<u>Tetrachloroethene (PCE)</u>

Range in concentrations: <0.001 to 0.054 mg/L
TRRP Groundwater Ingestion PCL: 0.005 mg/L
Non-ingestion PCL: 500 mg/L

Basic geochemical properties: In its pure phase, PCE is more dense than water, however, at this site, PCE is only present in a dissolved-phase and at relatively low concentrations. While PCE does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for PCE is limited to the on-site area immediately surrounding monitoring well AB-2, which is located near the northern boundary of the Site. The horizontal extent of this area is estimated to be approximately 150 feet in diameter. Vertically, the extent of the PCE PCLE zone is limited to less than 55 feet bgl (based on monitoring well AB-12).

<u>1,1,2-Trichlorethane (TCA)</u>

Range in concentrations: <0.001 to 0.027 mg/L
TRRP Groundwater Ingestion PCL: 0.005 mg/L
Non-ingestion PCL: 80 mg/L

Basic geochemical properties: In its pure phase, TCA is more dense than water, however, at this site, TCA is only present in a dissolved-phase, and at relatively low concentrations. While TCA does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for TCA is limited to the on-site area immediately surrounding monitoring well AB-2, which is located near the northern boundary of the Site. The horizontal extent of this area is estimated to be approximately 50 feet in diameter.

Vertically, the extent of the TCA PCLE zone is limited to less than 35 feet bgl (based on monitoring well AB-7).

Trichloroethene (TCE)

Range in concentrations: <0.001 to 0.097 mg/L
TRRP Groundwater Ingestion PCL: 0.005 mg/L
Non-ingestion PCL: 24 mg/L

Basic geochemical properties: In its pure phase, TCE is more dense than water, however, at this site, TCE is only present in a dissolved-phase and at relatively low concentrations. While TCE does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, reductive dechlorination, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for TCE exists in the on-site area encompassing monitoring wells AB-2, AB-3, AB-5 and AB-7, in the northern portion of the Site. The horizontal extent of this area is estimated to be approximately 275 feet in diameter. Vertically, the extent of the TCE PCLE zone is limited to less than 200 feet bgl (based on monitoring well AB-14).

Vinyl Chloride (VC)

Range in concentrations: <0.001 to 0.574 mg/L
TRRP Groundwater Ingestion PCL: 0.002 mg/L
Non-ingestion PCL: 3.8 mg/L

Basic geochemical properties: In its pure phase, VC is less dense than water, however, at this site, VC is likely a daughter (i.e., breakdown) product of TCE and/or PCE and is only present in a dissolved-phase. While VC does migrate with water, it is subject to natural attenuation processes (e.g., biodegradation, oxidation, sorption, etc.), which naturally limits its migration.

The ingestion PCLE zone for VC exists in the on-site area encompassing monitoring wells AB-2, AB-3, AB-5, AB-7 and AB-8 in the northern half of the Site. While the VC PCLE zone appears to extend some distance off-site to the east and west, its limits are delineated in these directions by monitoring wells MW-10 and MW-11, respectively. The horizontal extent of this area is estimated to be approximately 350 feet in diameter. Vertically, the extent of the VC PCLE zone is limited to less than 200 feet bgl (based on monitoring well AB-14).

Appendix E

5. A table displaying the following information for each contaminant of concern, to the extent known:

a. The maximum concentration level for soil and groundwater, the ingestion protective concentration level, and the non-ingestion protective concentration level, all expressed as mg/kg for soils and mg/L for groundwater.

b. The critical protective concentration level without the municipal setting designation, highlighting any exceedances.

See attached Table E-1.

Table E-1

Chemical of Concern	Maximum Soil Concentration	Soil Ingestion/Non-Critical PCL ($^{Tot}Soil_{Comb}$)	Soil Non-Ingestion/Critical PCL ($^{GW}Soil_{Ing}$)	Soil Non-ingestion PCL ($^{Air}Soil_{Inh-V}$)	Maximum Groundwater Concentration	Groundwater Ingestion/Critical PCL (without MSD) ($^{GW}GW_{Ing}$)	Groundwater Non-ingestion PCL (Critical PCL With MSD) ($^{Air}GW_{Inh-V}$)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/L	mg/L	mg/L
Arsenic	22	24	5.0	NA	**0.045**	0.01	NA
Benzene	0.051	120	0.026	160	**0.009**	0.005	180
Dichloroethane, 1,2-	ND	11	0.014	14	**0.025**	0.005	33
Dichloroethene, 1,1-	0.0066	2300	0.05	5200	**3.34**	0.007	1700
Dichloroethene, cis-1,2-	0.0019	140	0.25	920	**1.33**	0.07	1200
Tetrachloroethene	0.016	710	0.05	940	**0.054**	0.005	500
Trichloroethane, 1,1,2-	ND	18	0.02	22	**0.027**	0.005	80
Trichloroethene	ND	18	0.034	31	**0.097**	0.005	24
Vinyl chloride	0.0042	3.7	0.022	43	**0.574**	0.002	3.8

NA = Not Applicable

ND = Not Detected

PCLs shown are from the most recent (November 12, 2014) Texas Risk Reduction Program (TRRP) tables.

Bold/Highlighted values indicate critical PCL exceedances.

Appendix F

6. *If the plume extends beyond the limits of property owners listed in this application, list the owners of the additional property beneath which the plume(s) extend(s), and a summary of interactions with those property owners about the plume(s) and this MSD application. Please Note: You are not required under this item to notify affected property owners, only to provide a summary of who affected property owners are, and if there have been any communications. "No contact" can be an acceptable answer.*

   The dimensions of certain COC PCLE Zones are interpreted to extend slightly beyond the eastern and/or western property boundaries. The City of Houston (COH) is the property owner immediately east of the Site (Hahlo Street). Union Pacific Railroad Company (UPRC) owns the property immediately west of the Site, beyond which is Asia Chemicals.

   The City of Houston has been notified of the groundwater conditions and has cooperated in the issuance of well installation permits for monitoring wells installed along Hahlo St. (MW-10) and Shotwell St. (MW-11). Crane has also notified in writing UPRC and Asia Chemicals about the existence of the groundwater plumes and has specifically discussed their plans to pursue the MSD with Asia Chemicals. The MSD has not been specifically discussed with Union Pacific or the COH.

Appendix G

7. *A statement as to whether the plume of contamination is stable (i.e. no change), or contracting, and delineated, **with the basis for that statement**. Please include historical sampling data.*

   Table G-1 provides a comprehensive summary of all groundwater analytical results obtained to date. As indicated in the table, groundwater monitoring at the site first began in 2012. Since that time, the key source area monitoring wells (AB-2, AB-3, and AB-5) and initial delineation wells (AB-1, AB-4, AB-6), have been sampled on at least four separate occasions. Additional monitoring wells (i.e., AB-7, AB-8, AB-9, AB-10, AB-11, AB-12, AB-13, and AB-14) were subsequently installed as part of the subsequent delineation efforts and these wells were then added to the monitoring program. These wells have been sampled three times (AB-7, AB-8, AB-9, and AB-12), two times (AB-10 AB-11, and AB-13), and one time (AB-14).

   To evaluate plume stability, each COC that has been detected above its groundwater ingestion PCL, and has been tested for on at least four occasions, has been statistically analyzed using the Mann Kendall methodology. As shown in the attached statistical charts, all COCs show either a stable or declining trend, with a select few showing no trend.

   As shown in Figures C-7 through C-15, the groundwater PCLE zone for each site COC has been fully delineated in all directions. Vertical extent has been determined for all Site COCs as described in Appendix D.

Table G-1
Summary of Detected Chemicals of Concern (COCs) in Groundwater
Crane Energy Flow Solutions
1202/1214 Hahlo Street, Houston, Texas

	TRRP PCLs		AB-1	AB-1	AB-1	AB-1	AB-1	AB-2	AB-2	AB-2	AB-2	AB-3	AB-3	AB-3	AB-3	AB-4	AB-4	AB-4	AB-4	AB-5
	$^{GW}GW_{Ing*}$	$^{Air}GW_{Inh-V}$	4-May-12	2-Nov-13	30-Jan-14	28-Apr-14	17-Jul-14	4-May-12	3-Nov-13	30-Jan-14	28-Apr-14	4-May-12	3-Nov-13	30-Jan-14	29-Apr-14	4-May-12	3-Nov-13	29-Jan-14	28-Apr-14	4-May-12
Arsenic	1.0E-02	—	<0.00200	0.00217 J	<0.002	NA	NA	0.0125	0.0450	0.0366	NA	<0.00200	0.00202 J	<0.002	NA	<0.00200	0.00237 J	<0.002	NA	0.00858
Barium	2.0E+00	--	0.158	0.156	0.147	NA	NA	0.404	0.335	0.205	NA	0.422	0.446	0.416	NA	0.0627	0.0618	0.0559	NA	0.206
Cadmium	5.0E-03	--	<0.000300	<0.000300	<0.0003	NA	NA	<0.000300	<0.000300	<0.0003	NA	<0.000300	<0.000300	<0.0003	NA	<0.000300	<0.000300	<0.0003	NA	<0.000300
Chromium	1.0E-01	--	<0.00200	<0.00200	<0.002	NA	NA	<0.00200	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	<0.00200
Lead	1.5E-02	--	0.00116	0.000432 J	<0.0003	NA	NA	0.00124	0.00144	0.000796 J	NA	0.000719 L	<0.000300	<0.0003	NA	0.000360 J	<0.000300	<0.0003	NA	<0.000300
Selenium	5.0E-02	--	<0.00200	<0.00200	<0.002	NA	NA	<0.00200	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	<0.00200
Silver	1.2E-01	--	<0.00100	<0.00100	<0.001	NA	NA	<0.00100	<0.00100	<0.001	NA	<0.00100	<0.00100	<0.001	NA	<0.00100	<0.00100	<0.001	NA	<0.00100
Mercury	2.0E-03	7.3E+00	<0.0000800	<0.0000800	<0.00008	NA	NA	<0.0000800	<0.0000800	<0.00008	NA	<0.0000800	<0.0000800	<0.00008	NA	<0.0000800	<0.0000800	<0.00008	NA	<0.000400
1,1,1,2-Tetrachloroethane	3.5E-02	1.1E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,1,1-Trichloroethane	2.0E-01	4.1E+04	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.00795	0.00199	0.00116 J	0.00102 J	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,1,2,2-Tetrachloroethane	4.6E-03	--	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	0.00176	0.00138 J	0.00180 J	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,1,2-Trichloroethane	5.0E-03	8.0E+01	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.0209	0.0226	0.0123	0.0269	0.00395 J	0.00272	0.00246	0.00216	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,1-Dichloroethane	4.9E+00	4.3E+04	0.00131	0.00102	0.00425	0.00263	0.00151	2.93	2.91	2.18	3.56	0.656	0.466	0.505	0.404	0.00218	0.00380	0.00684	0.00500	0.303
1,1-Dichloroethene	7.0E-03	1.7E+03	<0.000200	<0.000200	0.00621	<0.0002	<0.0002	3.34	2.55	1.38	3.32	2.49	2.09	1.65	1.60	0.00790	0.0124	0.0109	0.0100	0.136
1,1-Dichloropropene	9.1E-03	1.9E+01	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,2,3-Trichlorobenzene	7.3E-02	1.3E+02	<0.00200	<0.00200	<0.002	<0.0015	<0.002	<0.0100	<0.00200	<0.004	<0.003	<0.0100	<0.00200	<0.004	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.0200
1,2,3-Trichloropropane	3.0E-05	3.2E+01	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
1,2,4-Trichlorobenzene	7.0E-02	1.6E+02	<0.00200	<0.00200	<0.002	<0.0015	<0.002	<0.0100	<0.00200	<0.004	<0.003	<0.0100	<0.00200	<0.004	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.0200
1,2,4-Trimethylbenzene	1.2E+00	1.9E+02	<0.00200	0.0146	0.00562	0.00586	0.0123	<0.0100	<0.00200	<0.004	<0.003	<0.0100	<0.00200	<0.004	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.0200
1,2-Dibromo-3-chloropropane	2.0E-04	6.2E-01	<0.00300	<0.00300	<0.003	<0.003	<0.003	<0.0150	<0.00300	<0.006	<0.006	<0.0150	<0.00300	<0.006	<0.003	<0.00300	<0.00300	<0.003	<0.003	<0.0300
1,2-Dibromoethane	5.0E-05	5.6E+00	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,2-Dichlorobenzene	6.0E-01	1.2E+03	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	0.00335 J	0.00463	0.00282	0.00502	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
1,2-Dichloroethane	5.0E-03	3.3E+01	<0.000300	<0.000300	0.000420 J	<0.0003	<0.0003	0.0208	0.0205	0.0132	0.0251	0.00445 J	0.00346	0.00328	0.00253	<0.000300	<0.000300	0.000540 J	0.000410 J	0.0137
1,2-Dichloropropane	5.0E-03	1.2E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.00200 J	0.00289	0.00202	<0.0004	<0.00100	0.000400 J	0.000500 J	0.000340 J	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,3,5-Trimethylbenzene	1.2E+00	1.3E+02	0.00987	0.00507	0.00519	0.00613	0.00585	<0.0100	<0.00200	<0.004	<0.003	<0.0100	<0.00200	<0.004	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.0200
1,3-Dichlorobenzene	7.3E-01	1.9E+02	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	0.000380	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
1,3-Dichloropropane	9.1E-03	2.5E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
1,4-Dichlorobenzene	7.5E-02	1.7E+04	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
2,2-Dichloropropane	1.3E-02	5.7E+01	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
2-Butanone	1.5E+01	1.0E+06	<0.00500	<0.00500	0.00946 J	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
2-Chlorotoluene	4.9E-01	2.4E+04	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
2-Hexanone	1.2E-01	1.2E+04	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
4-Chlorotoluene	4.9E-01	--	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
4-Methyl-2-pentanone	2.0E+00	6.7E+05	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
Acetone	2.2E+01	1.0E+06	<0.00500	<0.00500	0.0295	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
Benzene	5.0E-03	1.8E+02	0.000820 J	0.00499	0.00683	0.00830	0.00661	0.00710	0.00668	0.00464	0.00928	0.00225 J	0.00123	0.00120 J	0.000930 J	<0.000200	<0.000200	<0.0002	<0.0002	0.00410 J
Bromobenzene	2.0E-01	2.3E+03	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Bromochloromethane	9.8E-01	--	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Bromodichloromethane	1.5E-02	--	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.00370 J	<0.000200	0.00298	<0.0004	<0.00100	<0.000200	0.000660 J	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Bromoform	1.2E-01	5.1E+03	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Bromomethane	3.4E-02	4.6E+01	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Carbon disulfide	2.4E+00	4.9E+03	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
Carbon tetrachloride	5.0E-03	2.0E+01	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Chlorobenzene	1.0E-01	1.2E+03	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.0180	0.0157	0.00998	0.0179	<0.00100	0.00124	<0.0004	0.000910 J	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Chloroethane	9.8E+00	1.2E+05	<0.000300	0.000910 J	0.00195	0.00245	0.00196	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Chloroform	2.4E-01	2.0E+01	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	0.00240 J	0.00270	0.00176 J	0.00332	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Chloromethane	7.0E-02	3.6E+01	<0.000300	<0.000300	0.000530 J	0.000940 J	<0.0003	<0.00150	<0.000300	<0.0006	0.00156 J	<0.00150	<0.000300	0.00100 J	0.000820 J	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
cis-1,2-Dichloroethene	7.0E-02	1.2E+03	0.000590 J	0.000850 J	0.000990 J	0.00123	0.000610 J	0.115	0.0989	0.0662	0.156	0.0944	0.0967	0.0925	0.0908	<0.000200	0.00112	0.00331	0.00317	1.06
cis-1,3-Dichloropropene	1.7E-03	6.9E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Dibromochloromethane	1.1E-02	--	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Dibromomethane	1.2E-01	2.4E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Dichlorodifluoromethane	4.9E+00	6.0E+01	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Ethylbenzene	7.0E-01	3.0E+04	0.0326	0.0469	0.0230	<0.0003	0.0717	0.00575	0.00248	0.00222	0.00148 J	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Hexachlorobutadiene	1.2E-02	8.9E+00	<0.00100	<0.00100	<0.001	<0.001	<0.001	<0.00500	<0.00100	<0.002	<0.002	<0.00500	<0.00100	<0.002	<0.001	<0.00100	<0.00100	<0.001	<0.001	<0.0100
Iodomethane	3.4E-02	--	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.0250	<0.00500	<0.01	<0.01	<0.0250	<0.00500	<0.01	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.0500
Isopropylbenzene	2.4E+00	4.4E+03	0.00315	0.00682	0.00159	<0.0002	0.00725	<0.00100	0.00128	0.000760 J	0.00150 J	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
m,p-Xylene	1.0E+01	9.4E+03	0.00122 J	0.0114	0.00460	0.00431	0.00975	0.00995 J	0.00471	0.00300 J	0.00594	<0.00300	<0.000600	<0.0012	<0.0006	<0.000600	<0.000600	<0.0006	<0.0006	<0.00600
Methyl tert-butyl ether	2.4E-01	4.0E+03	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	0.0345
Methylene chloride	5.0E-03	2.1E+04	<0.00250	<0.00250	<0.0025	<0.0025	<0.0025	<0.0125	<0.00250	<0.005	<0.005	<0.0125	<0.00250	<0.005	<0.0025	<0.00250	<0.00250	<0.0025	<0.0025	<0.0250
Naphthalene	4.9E-01	3.2E+02	0.00182	0.0292	0.0545	0.0101 J	0.0318	<0.00150	<0.00500	<0.01	<0.01	<0.00150	<0.00500	<0.01	<0.005	<0.000300	<0.00500	<0.005	<0.005	<0.00300
n-Butylbenzene	1.2E+00	--	0.0113	0.00302	0.000440 J	<0.0003	0.00238	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
n-Propylbenzene	9.8E-01	6.0E+03	<0.00500	0.0192	<0.0003	<0.0003	0.0196	<0.0250	<0.000300	<0.0006	<0.0006	<0.0250	<0.000300	<0.0006	<0.0003	<0.00500	<0.000300	<0.0003	<0.0003	<0.0500
o-Xylene	1.0E+01	7.6E+05	0.0355	0.00395	0.00591	0.00609	0.00137	0.0100	0.00781	0.00414	0.00836	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
p-Isopropyltoluene	2.4E+00	--	<0.000300	<0.000300	0.000350 J	0.000410 J	<0.0003	<0.00150	0.000350 J	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
sec-Butylbenzene	9.8E-01	--	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Styrene	1.0E-01	1.5E+04	0.000310 J	0.000470 J	0.000260 J	<0.0002	0.000460 J	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
tert-Butylbenzene	9.8E-01	--	<0.000300	<0.000300	<0.0003	<0.0003	<0.0003	<0.00150	<0.000300	<0.0006	<0.0006	<0.00150	<0.000300	<0.0006	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.00300
Tetrachloroethene	5.0E-03	5.0E+02	<0.000700	<0.000700	<0.0007	<0.0006	<0.0007	0.0518	0.0427	0.0300	0.0539	0.00485 J	0.00340	0.00296 J	0.00219	<0.000700	<0.000700	<0.0007	<0.0006	<0.00700
Toluene	1.0E+00	6.4E+04	0.00333	0.00229	0.00207	0.00126 J	0.000830 J	0.109	0.0510	0.0350	0.0299	<0.00350	<0.000700	<0.0014	<0.0006	<0.000700	<0.000700	<0.0007	<0.0006	<0.00700
trans-1,2-Dichloroethene	1.0E-01	7.7E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	0.00210 J	0.00238	0.00136 J	0.00350	0.00125 J	0.00204	0.00202	0.00160	<0.000200	<0.000200	<0.0002	<0.0002	0.0102
trans-1,3-Dichloropropene	9.1E-03	1.9E+02	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Trichloroethene	5.0E-03	2.4E+01	<0.000700	<0.000700	<0.0007	<0.0006	<0.0007	0.0825	0.0666	0.0374	0.0970	0.0367	0.0330	0.0281	0.0259	<0.000700	<0.000700	0.00121 J	0.00124 J	0.0357
Trichlorofluoromethane	7.3E+00	--	<0.000200	<0.000200	<0.0002	<0.0002	<0.0002	<0.00100	<0.000200	<0.0004	<0.0004	<0.00100	<0.000200	<0.0004	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.00200
Vinyl chloride	2.0E-03	3.8E+00	<0.000100	<0.000100	0.000490 J	0.000270 J	<0.0001	0.503	0.313	0.338	0.574	0.118	0.0648	0.0680	0.0565	<0.000100	<0.000100	0.000220 J	0.000300 J	0.243
1,2,4-Trichlorobenzene	7.0E-02	1.6E+02	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
1,2-Dichlorobenzene	6.0E-01	1.2E+03	NA	<0.000191	NA	NA	NA	NA	0.00290	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
1,3-Dichlorobenzene	7.3E-01	1.9E+02	NA	<0.000191	NA	NA	NA	NA	0.000210 J	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
1,4-Dichlorobenzene	7.5E-02	1.7E+04	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2,4,5-Trichlorophenol	2.4E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2,4,6-Trichlorophenol	2.4E-02	4.9E+04	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2,4-Dichlorophenol	7.3E-02	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2,4-Dimethylphenol	4.9E-01	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
2,4-Dinitrophenol	4.9E-02	--	NA	<0.000953	NA	NA	NA	NA	<0.000955	NA	NA	NA	<0.000958	NA	NA	NA	<0.000945	NA	NA	NA
2,4-Dinitrotoluene	1.3E-03	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2,6-Dichlorophenol	2.4E-02	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
2,6-Dinitrotoluene	1.3E-03	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Chloronaphthalene	2.0E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Chlorophenol	1.2E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Methylnaphthalene	9.8E-02	--	NA	0.00452	NA	NA	NA	NA	0.000630 J	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Methylphenol	1.2E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Nitroaniline	7.3E-03	4.7E+03	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
2-Nitrophenol	4.9E-02	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
3,3´-Dichlorobenzidine	2.0E-03	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
3-Nitroaniline	7.3E-03	4.7E+03	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
4,6-Dinitro-2-methylphenol	2.4E-03	--	NA	<0.000477	NA	NA	NA	NA	<0.000478	NA	NA	NA	<0.000479	NA	NA	NA	<0.000472	NA	NA	NA
4-Bromophenyl phenyl ether	6.1E-05	1.6E+00	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
4-Chloro-3-methylphenol	1.2E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
4-Chloroaniline	4.6E-03	--	NA	<0.000477	NA	NA	NA	NA	<0.000478	NA	NA	NA	<0.000479	NA	NA	NA	<0.000472	NA	NA	NA
4-Chlorophenyl phenyl ether	6.1E-05	1.2E+00	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
4-Methylphenol	1.2E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
4-Nitroaniline	4.6E-02	1.4E+05	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
4-Nitrophenol	4.9E-02	--	NA	<0.000953	NA	NA	NA	NA	<0.000955	NA	NA	NA	<0.000958	NA	NA	NA	<0.000945	NA	NA	NA
Acenaphthene	1.5E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Acenaphthylene	1.5E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Aniline	1.6E-01	1.1E+04	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Anthracene	7.3E+00	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Benzo[a]anthracene	1.3E-03	2.0E+03	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
Benzo[a]pyrene	2.0E-04	3.9E+02	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Benzo[b]fluoranthene	1.3E-03	1.6E+03	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
Benzo[g,h,i]perylene	7.3E-01	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
Benzo[k]fluoranthene	1.3E-02	9.7E+04	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
Benzyl alcohol	2.4E+00	--	NA	<0.000477	NA	NA	NA	NA	<0.000478	NA	NA	NA	<0.000479	NA	NA	NA	<0.000472	NA	NA	NA
Bis(2-chloroethoxy)methane	8.3E-04	8.0E+01	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Bis(2-chloroethyl)ether	8.3E-04	9.3E+01	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Bis(2-chloroisopropyl)ether	1.3E-02	8.7E+02	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Bis(2-ethylhexyl)phthalate	6.0E-03	--	NA	<0.000953	NA	NA	NA	NA	<0.000955	NA	NA	NA	<0.000958	NA	NA	NA	<0.000945	NA	NA	NA
Butyl benzyl phthalate	4.8E-01	--	NA	<0.00191	NA	NA	NA	NA	<0.00191	NA	NA	NA	<0.00192	NA	NA	NA	<0.00189	NA	NA	NA
Carbazole	4.6E-02	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Chrysene	1.3E-01	5.8E+05	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA
Dibenz[a,h]anthracene	1.3E-05	1.0E+02	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Dibenzofuran	9.8E-02	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Diethyl phthalate	2.0E+01	--	NA	<0.00191	NA	NA	NA	NA	<0.00191	NA	NA	NA	<0.00192	NA	NA	NA	<0.00189	NA	NA	NA
Dimethyl phthalate	2.0E+01	--	NA	<0.00191	NA	NA	NA	NA	<0.00191	NA	NA	NA	<0.00192	NA	NA	NA	<0.00189	NA	NA	NA
Di-n-butyl phthalate	2.4E+00	--	NA	<0.00191	NA	NA	NA	NA	<0.00191	NA	NA	NA	<0.00192	NA	NA	NA	<0.00189	NA	NA	NA
Di-n-octyl phthalate	2.4E-01	--	NA	<0.00191	NA	NA	NA	NA	<0.00191	NA	NA	NA	<0.00192	NA	NA	NA	<0.00189	NA	NA	NA
Fluoranthene	9.8E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA
Fluorene	9.8E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA

	AB-5	AB-5	AB-5	AB-6	AB-6	AB-6	AB-6	AB-7	AB-7	AB-7	AB-8	AB-8	AB-8	AB-9	AB-9	AB-9	AB-10	AB-10	AB-11	AB-11	AB-12	AB-12	AB-12	AB-13	AB-13	AB-14
	3-Nov-13	29-Jan-14	29-Apr-14	4-May-12	2-Nov-13	29-Jan-14	28-Apr-14	3-Nov-13	30-Jan-14	29-Apr-14	2-Nov-13	29-Jan-14	28-Apr-14	2-Nov-13	29-Jan-14	28-Apr-14	13-Jun-14	17-Jul-14	13-Jun-14	17-Jul-14	13-Jun-14	17-Jul-14	19-Aug-14	3-Sep-14	10-Sep-14	2-Dec-14
Arsenic	0.00850	0.00713	NA	<0.00200	0.00252 J	<0.002	NA	<0.00200	<0.002	NA	0.00336 J	0.00278 J	NA	<0.00200	0.00241 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	0.188	0.165	NA	0.0938	0.0983	0.115	NA	0.462	0.441	NA	0.129	0.138	NA	0.0443	0.0555	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	<0.000300	<0.0003	NA	<0.000300	<0.000300	<0.0003	NA	<0.000300	<0.0003	NA	<0.000300	<0.0003	NA	<0.000300	<0.0003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	0.00959	<0.002	NA	<0.00200	<0.002	NA	<0.00200	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.000326 J	<0.0003	NA	<0.000300	<0.000300	<0.0003	NA	0.00502	0.00274	NA	<0.000300	<0.0003	NA	<0.000300	<0.0003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	<0.00200	<0.002	NA	<0.00200	<0.00200	<0.002	NA	0.00340 J	0.00226 J	NA	<0.00200	<0.002	NA	<0.00200	<0.002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	<0.00100	<0.001	NA	<0.00100	<0.00100	<0.001	NA	<0.00100	<0.001	NA	<0.00100	<0.001	NA	<0.00100	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	<0.0000800	<0.00008	NA	<0.0000800	<0.0000800	<0.00008	NA	<0.0000800	<0.00008	NA	<0.000400	<0.00008	NA	<0.0000800	<0.00008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-Tetrachloroethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,1,1-Trichloroethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,1,2,2-Tetrachloroethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,1,2-Trichloroethane	0.00245	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	0.00347	0.00315	0.00304	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00410	0.00426	0.00440	<0.0003	<0.0003	<0.0003
1,1-Dichloroethane	0.331	0.341	0.286	<0.000200	<0.000200	<0.0002	<0.0002	0.621	0.595	0.445	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	0.00257	0.00258	<0.0002	<0.0002	0.590	0.555	0.639	0.00479	0.0740	<0.0003
1,1-Dichloroethene	0.160	0.114	0.136	0.000650 J	0.00447	0.00135	0.000540 J	2.66	1.83	1.76	0.000540 J	0.000300 J	0.000240 J	<0.000200	<0.0002	<0.0002	0.00530	0.00513	<0.0002	<0.0002	2.12	2.53	2.14	0.0155	0.214	<0.0003
1,1-Dichloropropene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,2,3-Trichlorobenzene	<0.00200	<0.002	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.003	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.0015	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0015	<0.0015	<0.0015	<0.0015
1,2,3-Trichloropropane	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
1,2,4-Trichlorobenzene	<0.00200	<0.002	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.003	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.0015	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0015	<0.0015	<0.0015	<0.0015
1,2,4-Trimethylbenzene	<0.00200	<0.002	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.003	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.0015	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0015	<0.0015	<0.0015	<0.0015
1,2-Dibromo-3-chloropropane	<0.00300	<0.003	<0.003	<0.00300	<0.00300	<0.003	<0.003	<0.00300	<0.003	<0.006	<0.00300	<0.003	<0.003	<0.00300	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
1,2-Dibromoethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,2-Dichlorobenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
1,2-Dichloroethane	0.0153	0.0125	0.0117	<0.000300	<0.000300	<0.0003	<0.0003	0.00430	0.00384	0.00334	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00565	0.00584	0.00520	<0.0003	0.00141	<0.0003
1,2-Dichloropropane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	0.000590 J	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000570 J	0.000660 J	0.000730 J	<0.0003	<0.0003	<0.0003
1,3,5-Trimethylbenzene	<0.00200	<0.002	<0.0015	<0.00200	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.003	<0.00200	<0.002	<0.0015	<0.00200	<0.002	<0.0015	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0015	<0.0015	<0.0015	<0.0015
1,3-Dichlorobenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
1,3-Dichloropropane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
1,4-Dichlorobenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
2,2-Dichloropropane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
2-Butanone	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
2-Chlorotoluene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
2-Hexanone	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
4-Chlorotoluene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
4-Methyl-2-pentanone	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acetone	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0214	<0.005	<0.005	<0.005
Benzene	0.00328	0.00288	0.00314	<0.000200	<0.000200	<0.0002	<0.0002	0.00163	0.00150	0.00146 J	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00170	0.00197	0.00213	<0.0003	<0.0003	0.00748
Bromobenzene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Bromochloromethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Bromodichloromethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Bromoform	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Bromomethane	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Carbon disulfide	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Carbon tetrachloride	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Chlorobenzene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	0.00185	0.00145	0.00172 J	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000970 J	<0.0002	0.00114	<0.0003	<0.0003	<0.0003
Chloroethane	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Chloroform	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000310 J	<0.0003	<0.0003	0.000540 J	<0.0003
Chloromethane	<0.000300	0.0289	0.0224	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	0.00102	0.00142 J	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.000960 J	<0.0003	<0.0003	<0.0003	<0.0003	0.000690
cis-1,2-Dichloroethene	1.33	0.998	1.11	<0.000200	<0.000200	<0.0002	<0.0002	0.0540	0.0425	0.0473	0.518	0.206	0.222	<0.000200	<0.0002	<0.0002	0.00194	0.00167	<0.0002	<0.0002	0.0963	0.102	0.106	0.00120	0.0238	<0.0003
cis-1,3-Dichloropropene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Dibromochloromethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Dibromomethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Dichlorodifluoromethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Ethylbenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Hexachlorobutadiene	<0.00100	<0.001	<0.001	<0.00100	<0.00100	<0.001	<0.001	<0.00100	<0.001	<0.002	<0.00100	<0.001	<0.001	<0.00100	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Iodomethane	<0.00500	<0.005	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Isopropylbenzene	0.000310 J	0.000370 J	0.000550 J	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000260 J	<0.0002	<0.0003	<0.0003	<0.0003
m,p-Xylene	<0.000600	<0.0006	<0.0006	<0.000600	<0.000600	<0.0006	<0.0006	<0.000600	<0.0006	<0.0012	<0.000600	<0.0006	<0.0006	<0.000600	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Methyl tert-butyl ether	0.0374	0.0300	0.0332	0.0566	0.0200	0.0138	0.00971	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00158	<0.0003
Methylene chloride	<0.00250	<0.0025	<0.0025	<0.00250	<0.00250	<0.0025	<0.0025	<0.00250	<0.0025	<0.005	<0.00250	<0.0025	<0.0025	<0.00250	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Naphthalene	<0.00500	<0.005	<0.005	<0.000300	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.01	<0.00500	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
n-Butylbenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
n-Propylbenzene	<0.000300	<0.0003	<0.0003	<0.00500	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
o-Xylene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
p-Isopropyltoluene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
sec-Butylbenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Styrene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
tert-Butylbenzene	<0.000300	<0.0003	<0.0003	<0.000300	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0006	<0.000300	<0.0003	<0.0003	<0.000300	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Tetrachloroethene	<0.000700	<0.0007	<0.0006	<0.000700	<0.000700	<0.0007	<0.0006	0.00584	0.00409	0.00512	<0.000700	<0.0007	<0.0006	<0.000700	<0.0007	<0.0006	<0.0007	<0.0007	<0.0007	<0.0007	0.00356	0.00433	0.00257	<0.0006	<0.0006	<0.0006
Toluene	<0.000700	<0.0007	<0.0006	<0.000700	<0.000700	<0.0007	<0.0006	<0.000700	<0.0007	<0.0012	<0.000700	<0.0007	<0.0006	<0.000700	<0.0007	<0.0006	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0007	<0.0006	<0.0006	<0.0006	0.000980
trans-1,2-Dichloroethene	0.0208	0.0145	0.0155	<0.000200	<0.000200	<0.0002	<0.0002	0.00156	0.00128	0.00134 J	0.0138	0.00472	0.00485	<0.000200	<0.0002	<0.0002	0.00167	0.00121	<0.0002	<0.0002	0.00190	0.00212	0.00212	<0.0003	<0.0003	<0.0003
trans-1,3-Dichloropropene	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Trichloroethene	0.0375	0.0272	0.0243	<0.000700	<0.000700	<0.0007	<0.0006	0.0363	0.0274	0.0339	<0.000700	<0.0007	<0.0006	<0.000700	<0.0007	<0.0006	0.000950 J	0.000760 J	<0.0007	<0.0007	0.0420	0.0448	0.0424	0.00263	0.0296	<0.0006
Trichlorofluoromethane	<0.000200	<0.0002	<0.0002	<0.000200	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0004	<0.000200	<0.0002	<0.0002	<0.000200	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003
Vinyl chloride	0.194	0.192	0.212	<0.000100	<0.000100	<0.0001	<0.0001	0.0910	0.0855	0.0996	0.0155	0.00660	0.00701	<0.000100	<0.0001	<0.0001	0.00191	0.00137	<0.0001	<0.0001	0.0632	0.0807	0.0659	0.00280	0.0445	<0.0003
1,2,4-Trichlorobenzene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dimethylphenol	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	<0.000960	NA	NA	NA	<0.000965	NA	NA	<0.000961	NA	NA	<0.000941	NA	NA	<0.000947	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dichlorophenol	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chlorophenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitrophenol	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3´-Dichlorobenzidine	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	<0.000480	NA	NA	NA	<0.000483	NA	NA	<0.000481	NA	NA	<0.000470	NA	NA	<0.000473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	<0.000480	NA	NA	NA	<0.000483	NA	NA	<0.000481	NA	NA	<0.000470	NA	NA	<0.000473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl phenyl ether	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitrophenol	<0.000960	NA	NA	NA	<0.000965	NA	NA	<0.000961	NA	NA	<0.000941	NA	NA	<0.000947	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]anthracene	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[a]pyrene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[g,h,i]perylene	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl alcohol	<0.000480	NA	NA	NA	<0.000483	NA	NA	<0.000481	NA	NA	<0.000470	NA	NA	<0.000473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroethyl)ether	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-chloroisopropyl)ether	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	<0.000960	NA	NA	NA	<0.000965	NA	NA	<0.000961	NA	NA	<0.000941	NA	NA	<0.000947	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	<0.00192	NA	NA	NA	<0.00193	NA	NA	<0.00192	NA	NA	<0.00188	NA	NA	<0.00189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz[a,h]anthracene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	<0.00192	NA	NA	NA	<0.00193	NA	NA	<0.00192	NA	NA	<0.00188	NA	NA	<0.00189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	<0.00192	NA	NA	NA	<0.00193	NA	NA	<0.00192	NA	NA	<0.00188	NA	NA	<0.00189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	<0.00192	NA	NA	NA	<0.00193	NA	NA	<0.00192	NA	NA	0.00688	NA	NA	<0.00189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octyl phthalate	<0.00192	NA	NA	NA	<0.00193	NA	NA	<0.00192	NA	NA	<0.00188	NA	NA	<0.00189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table G-1
Summary of Detected Chemicals of Concern (COCs) in Groundwater
Crane Energy Flow Solutions
1202/1214 Hahlo Street, Houston, Texas

	TRRP PCLs		AB-1	AB-1	AB-1	AB-1	AB-1	AB-2	AB-2	AB-2	AB-2	AB-3	AB-3	AB-3	AB-3	AB-4	AB-4	AB-4	AB-4	AB-5	AB-5	AB-5	AB-5	AB-6	AB-6	AB-6	AB-6	AB-7	AB-7	AB-7	AB-8	AB-8	AB-8	AB-9	AB-9	AB-9	AB-10	AB-10	AB-11	AB-11	AB-12	AB-12	AB-12	AB-13	AB-13	AB-14
			4-May-12	*2-Nov-13*	*30-Jan-14*	*28-Apr-14*	*17-Jul-14*	*4-May-12*	*3-Nov-13*	*30-Jan-14*	*28-Apr-14*	*4-May-12*	*3-Nov-13*	*30-Jan-14*	*29-Apr-14*	*4-May-12*	*3-Nov-13*	*29-Jan-14*	*28-Apr-14*	*4-May-12*	*3-Nov-13*	*29-Jan-14*	*29-Apr-14*	*4-May-12*	*2-Nov-13*	*29-Jan-14*	*28-Apr-14*	*3-Nov-13*	*30-Jan-14*	*29-Apr-14*	*2-Nov-13*	*29-Jan-14*	*28-Apr-14*	*2-Nov-13*	*29-Jan-14*	*28-Apr-14*	*13-Jun-14*	*17-Jul-14*	*13-Jun-14*	*17-Jul-14*	*13-Jun-14*	*17-Jul-14*	*19-Aug-14*	*3-Sep-14*	*10-Sep-14*	*2-Dec-14*
	$^{GW}GW_{Ing}$*	$^{Ad}GW_{Inh-V}$																																												
Hexachlorobenzene	1.0E-03	5.7E+00	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	1.2E-02	8.9E+00	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	5.0E-02	5.4E+00	NA	<0.000477	NA	NA	NA	NA	<0.000478	NA	NA	NA	<0.000479	NA	NA	NA	<0.000472	NA	NA	NA	<0.000480	NA	NA	NA	<0.000483	NA	NA	<0.000481	NA	NA	<0.000470	NA	NA	<0.000473	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	1.7E-02	7.3E+03	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	1.3E-03	9.4E+03	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	9.6E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	4.9E-01	3.2E+02	NA	0.0198	NA	NA	NA	NA	0.000287 J	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrobenzene	4.9E-02	7.2E+02	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiethylamine	6.1E-06	7.4E+00	NA	<0.000953	NA	NA	NA	NA	<0.000955	NA	NA	NA	<0.000958	NA	NA	NA	<0.000945	NA	NA	NA	<0.000960	NA	NA	NA	<0.000965	NA	NA	<0.000961	NA	NA	<0.000941	NA	NA	<0.000947	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodi-n-propylamine	1.3E-04	--	NA	<0.0000953	NA	NA	NA	NA	<0.0000955	NA	NA	NA	<0.0000958	NA	NA	NA	<0.0000945	NA	NA	NA	<0.0000960	NA	NA	NA	<0.0000965	NA	NA	<0.0000961	NA	NA	<0.0000941	NA	NA	<0.0000947	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	1.9E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	1.0E-03	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	7.3E-01	--	NA	<0.000191	NA	NA	NA	NA	<0.000191	NA	NA	NA	<0.000192	NA	NA	NA	<0.000189	NA	NA	NA	<0.000192	NA	NA	NA	<0.000193	NA	NA	<0.000192	NA	NA	<0.000188	NA	NA	<0.000189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	7.3E+00	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	7.3E-01	--	NA	<0.000381	NA	NA	NA	NA	<0.000382	NA	NA	NA	<0.000383	NA	NA	NA	<0.000378	NA	NA	NA	<0.000384	NA	NA	NA	<0.000386	NA	NA	<0.000384	NA	NA	<0.000376	NA	NA	<0.000379	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T/R Hydrocarbons: >C12-C28	9.8E-01	7.5E+03	NA	<0.687	NA	NA	NA	NA	<0.693	NA	NA	NA	<0.677	NA	NA	NA	<0.664	NA	NA	NA	<0.677	NA	NA	NA	<0.686	NA	NA	<0.676	NA	NA	<0.671	NA	NA	<0.687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T/R Hydrocarbons: >C28-C35	9.8E-01	7.5E+03	NA	<0.687	NA	NA	NA	NA	<0.693	NA	NA	NA	<0.677	NA	NA	NA	<0.664	NA	NA	NA	<0.677	NA	NA	NA	<0.686	NA	NA	<0.676	NA	NA	<0.671	NA	NA	<0.687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T/R Hydrocarbons: C6-C12	9.8E-01	1.8E+03	NA	<0.687	NA	NA	NA	NA	0.752 J	NA	NA	NA	<0.677	NA	NA	NA	<0.664	NA	NA	NA	<0.677	NA	NA	NA	<0.686	NA	NA	<0.676	NA	NA	<0.671	NA	NA	<0.687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
T/R Hydrocarbons: C6-C35	9.8E-01	7.5E+03	NA	<0.687	NA	NA	NA	NA	0.752 J	NA	NA	NA	<0.677	NA	NA	NA	<0.664	NA	NA	NA	<0.677	NA	NA	NA	<0.686	NA	NA	<0.676	NA	NA	<0.671	NA	NA	<0.687	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

* Texas Commission on Environmental Quality (TCEQ), Texas Risk Reduction Program (TRRP), Residential Protective Concentration Levels (PCLs) dated November 12, 2014.

Concentrations are reported in milligrams per liter (mg/L).

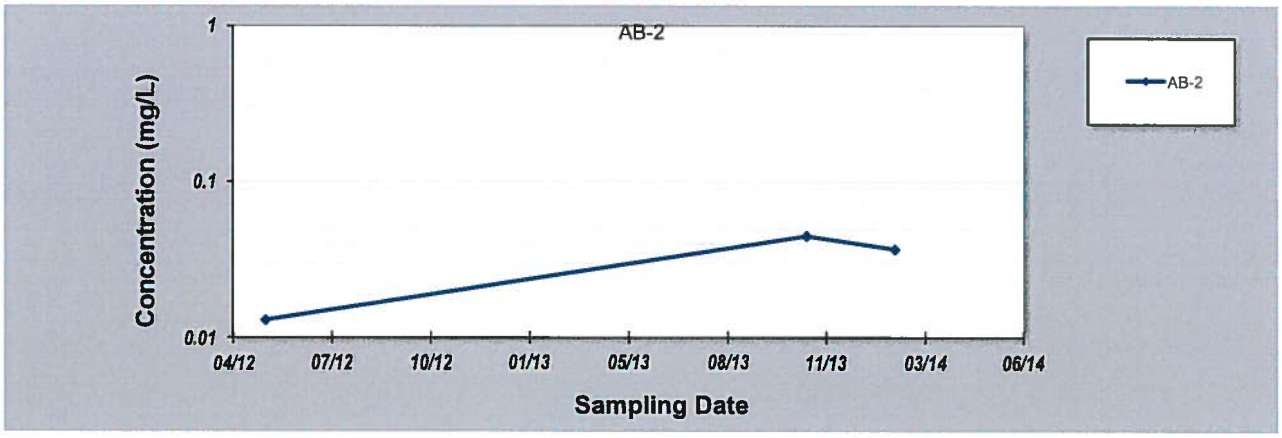
ND - Non-detect NA - Not analyzed

Bold - Indicates Result Exceeds $^{GW}GW_{Ing}$ PC

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Arsenic
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:	AB-2						
Sampling Event	Sampling Date	ARSENIC CONCENTRATION (mg/L)					
1	5/4/12	0.013					
2	11/2/13	0.045					
3	1/30/14	0.037					
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.53					
Mann-Kendall Statistic (S):		1					
Confidence Factor:							
Concentration Trend:							



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0); >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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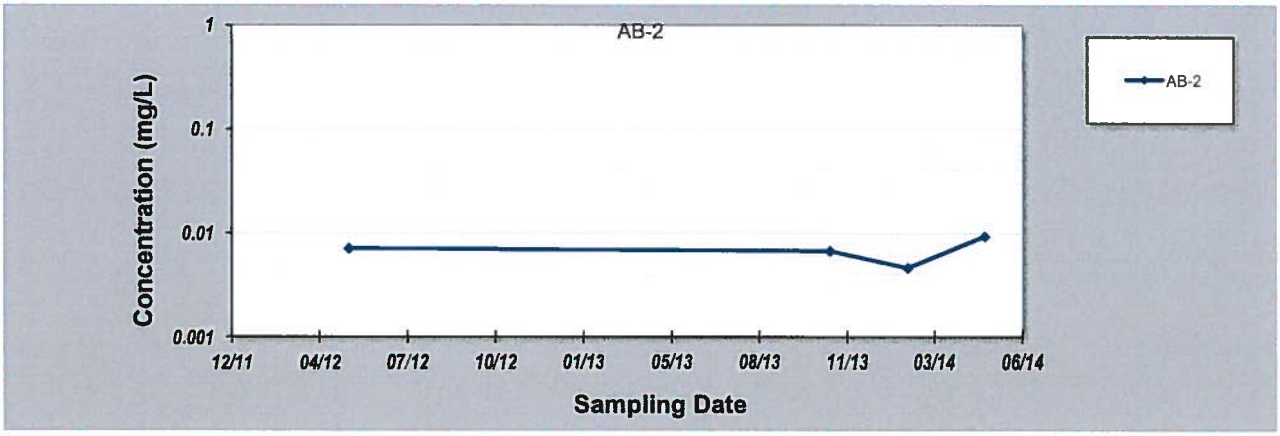
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Benzene
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:	AB-2						
Sampling Event	**Sampling Date**	**BENZENE CONCENTRATION (mg/L)**					
1	5/4/12	0.0071					
2	11/2/13	0.0067					
3	1/30/14	0.0046					
4	4/28/14	0.0093					
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.28					
Mann-Kendall Statistic (S):		0					
Confidence Factor:		37.5%					
Concentration Trend:		Stable					



Notes:

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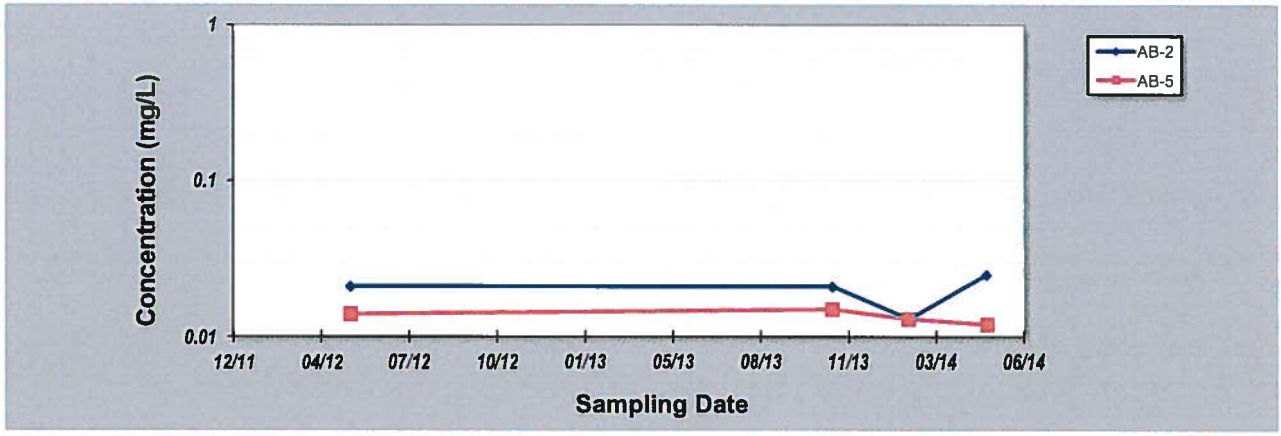
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	1,2-Dichloroethane
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:		AB-2	AB-5					
Sampling Event	Sampling Date	1,2-DICHLOROETHANE CONCENTRATION (mg/L)						
1	5/4/12	0.021	0.014					
2	11/3/13	0.021	0.015					
3	1/29/14		0.013					
4	1/30/14	0.013						
5	4/28/14	0.025						
6	4/29/14		0.012					
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.25	0.10					
Mann-Kendall Statistic (S):		1	-4					
Confidence Factor:		50.0%	83.3%					
Concentration Trend:		No Trend	Stable					



Notes:

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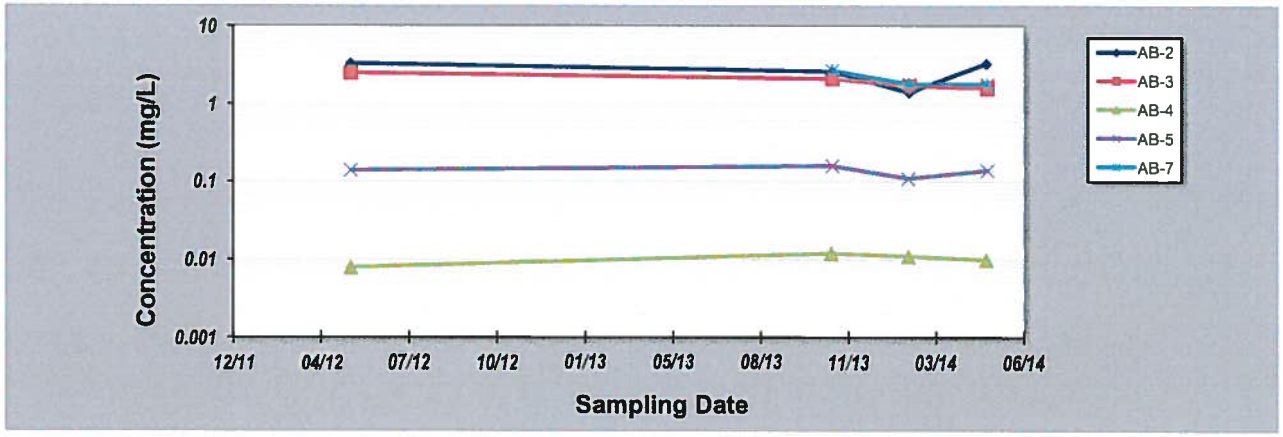
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	1,1-Dichloroethene
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:		AB-2	AB-3	AB-4	AB-5	AB-7		
Sampling Event	Sampling Date	1,1-DICHLOROETHENE CONCENTRATION (mg/L)						
1	5/4/12	3.3	2.5	0.0079	0.14			
2	11/2/13			0.012				
3	11/3/13	2.6	2.1		0.16	2.7		
4	1/29/14			0.011	0.11			
5	1/30/14	1.4	1.7			1.8		
6	4/28/14	3.3		0.01				
7	4/29/14		1.6		0.14	1.8		
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.34	0.21	0.17	0.15	0.25		
Mann-Kendall Statistic (S):		-1	-6	0	-1	-2		
Confidence Factor:		50.0%	95.8%	37.5%	50.0%			
Concentration Trend:		Stable	Decreasing	Stable	Stable			



Notes:

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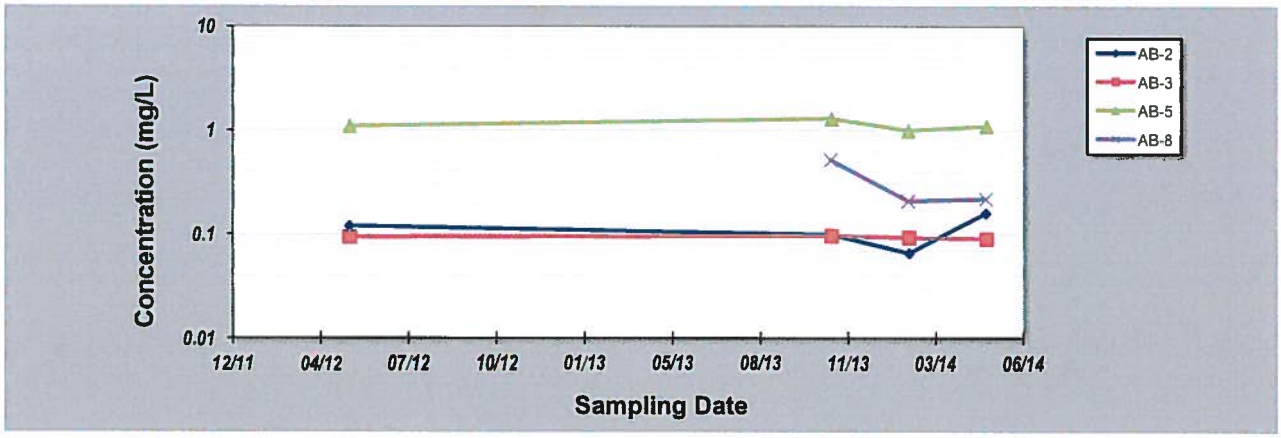
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Cis-1,2-Dichloroethene
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:		AB-2	AB-3	AB-5	AB-8			
Sampling Event	Sampling Date	CIS-1,2-DICHLOROETHENE CONCENTRATION (mg/L)						
1	5/4/12	0.12	0.094	1.1				
2	11/2/13				0.52			
3	11/3/13	0.099	0.097	1.3				
4	1/29/14			1	0.21			
5	1/30/14	0.066	0.093					
6	4/28/14	0.16			0.22			
7	4/29/14		0.091	1.1				
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.35	0.03	0.11	0.56			
Mann-Kendall Statistic (S):		0	-4	-1	-1			
Confidence Factor:		37.5%	83.3%	50.0%				
Concentration Trend:		Stable	Stable	Stable				



Notes:

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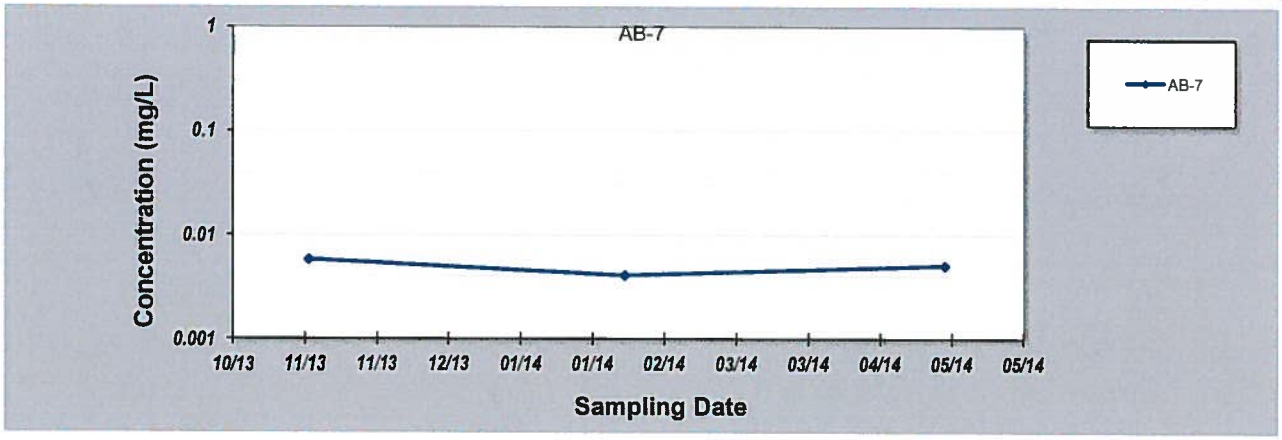
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Tetrachloroethane
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:	AB-7						
Sampling Event	**Sampling Date**	**TETRACHLOROETHANE CONCENTRATION (mg/L)**						
1	11/3/13	0.0058						
2	1/30/14	0.0041						
3	4/29/14	0.0051						
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.17						
Mann-Kendall Statistic (S):		-1						
Confidence Factor:								
Concentration Trend:								



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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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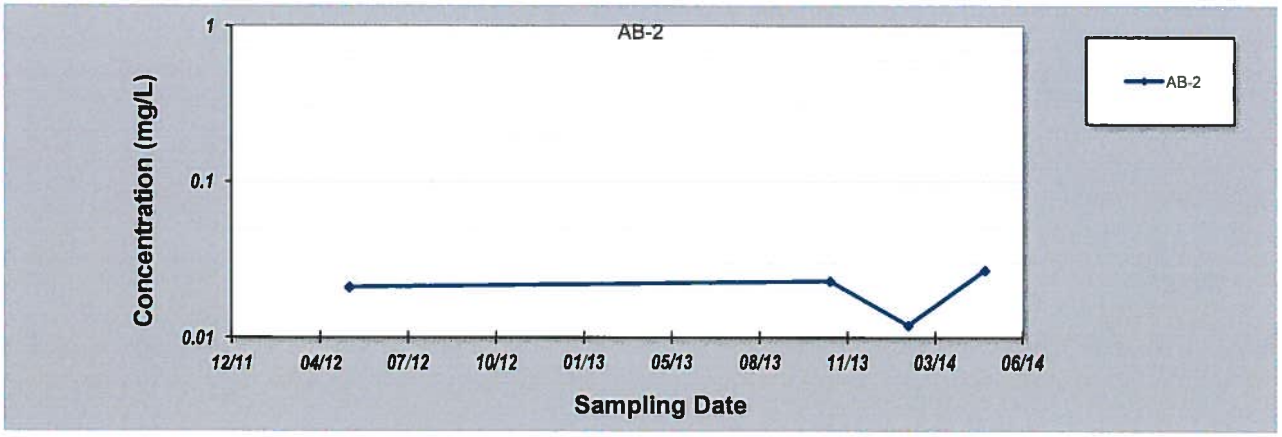
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	1,1,2-Trichloroethane
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:	AB-2						
Sampling Event	Sampling Date	1,1,2-TRICHLOROETHANE CONCENTRATION (mg/L)						
1	5/4/12	0.021						
2	11/2/13	0.023						
3	1/30/14	0.012						
4	4/28/14	0.027						
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.31						
Mann-Kendall Statistic (S):		2						
Confidence Factor:		62.5%						
Concentration Trend:		No Trend						



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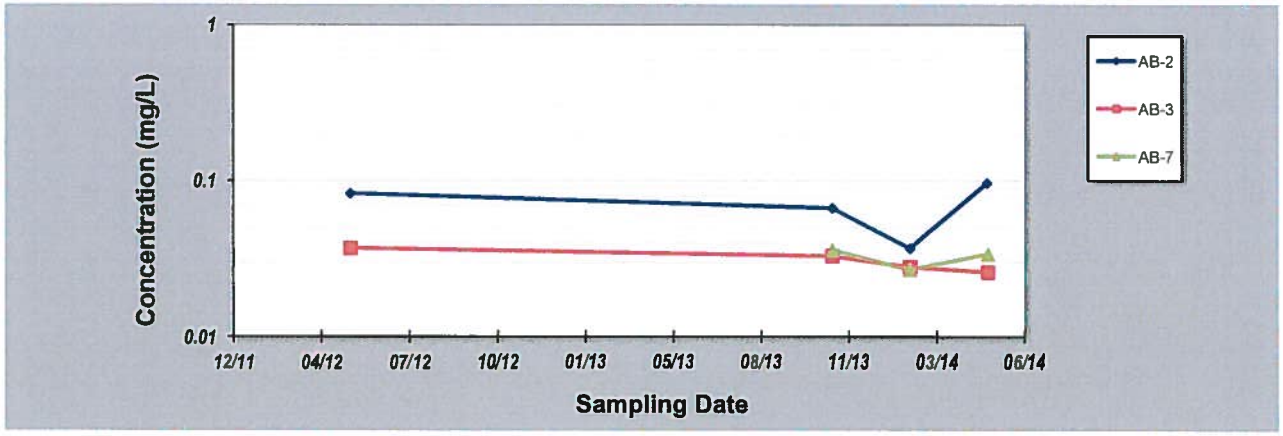
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Trichloroethene
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:		AB-2	AB-3	AB-7				
Sampling Event	Sampling Date	TRICHLOROETHENE CONCENTRATION (mg/L)						
1	5/4/12	0.083	0.037					
2	11/3/13	0.067	0.033	0.036				
3	1/30/14	0.037	0.028	0.027				
4	4/28/14	0.097						
5	4/29/14		0.026	0.034				
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.36	0.16	0.15				
Mann-Kendall Statistic (S):		0	-6	-1				
Confidence Factor:		37.5%	95.8%					
Concentration Trend:		Stable	Decreasing					



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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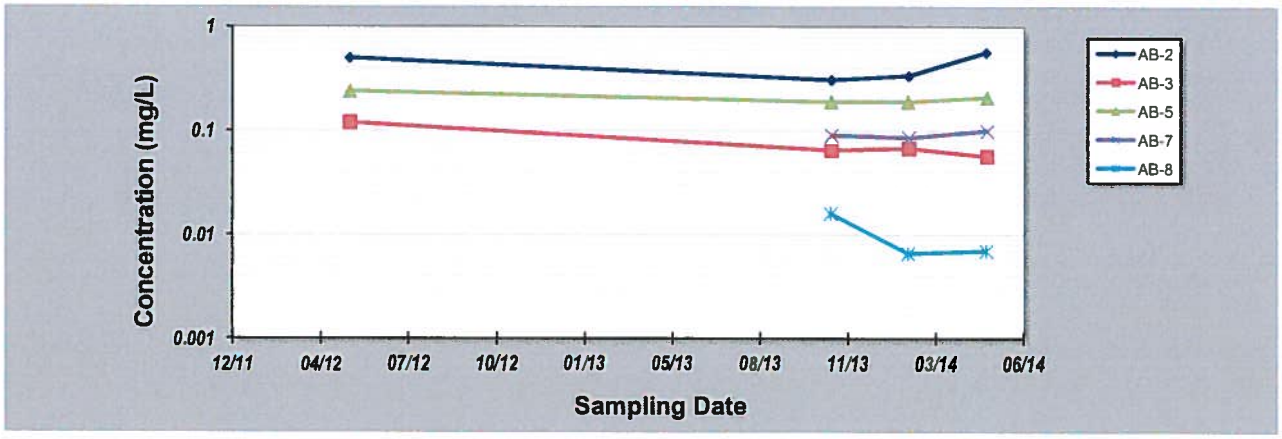
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	15-Jul-14	Job ID:	HO10160250
Facility Name:	Crane	Constituent:	Vinyl Chloride
Conducted By:	bg	Concentration Units:	mg/L

Sampling Point ID:	AB-2	AB-3	AB-5	AB-7	AB-8		
Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (mg/L)					
1	5/4/12	0.5	0.12	0.24			
2	11/2/13					0.016	
3	11/3/13	0.31	0.065	0.19	0.091		
4	1/29/14			0.19		0.0066	
5	1/30/14	0.34	0.068		0.086		
6	4/28/14	0.57				0.007	
7	4/29/14		0.057	0.21	0.1		
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.29	0.37	0.11	0.08	0.54	
Mann-Kendall Statistic (S):		2	-4	-1	1	-1	
Confidence Factor:		62.5%	83.3%	50.0%			
Concentration Trend:		No Trend	Stable	Stable			



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