ADEQ Arizona Department of Environmental Quality

PUBLIC NOTICE

PROPOSED LEAKING UST (LUST) CASE CLOSURE

The Arizona Department of Environmental Quality (ADEQ) is considering closure of the following leaking underground storage tank (LUST) cases:

LUST Case File #0792.01
Facility ID # 0-003199
Maricopa County

Former Mobil Service Station #18597
1845 E. University Road
Tempe, Arizona 85281

The former Mobil Service Station 18597 is located at the southwestern corner of the intersection of East University Drive and South Casitas Drive. The site was first developed as a gas station in 1972. In 1983, ExxonMobil (the UST owner/operator) purchased the site from Pasco Petroleum Co., Inc. In 1984, the USTs were excavated and replaced with three new fiberglass USTs. In 1989, the product lines and the northern and southern dispensers were replaced, and the center dispenser island was removed. A new station building was also constructed. In 1989, LUST case 0792.01 was opened for petroleum hydrocarbon impacts around the product line east of the center dispenser island. This LUST release impacted groundwater. A vapor extraction system operated between February and April 1990. In June 1994, a vapor extraction/air sparge (VE/AS) test was conducted using just vapor extraction and then with the air sparge. A combined VE/AS system appeared to work best. In August 1996, a product line near the northern dispenser island failed a tightness test. Excavation revealed a leak at the location of a previous piping repair. LUST case number 0792.02 was opened for soil contamination found at this location. The UST system at this facility was permanently closed in late 2003. In November 2003, LUST case number 0792.03 was opened for soil contamination associated with the western dispenser at the northern dispenser island. In October 2006, six injection wells were installed for an in-situ chemical oxidation (ISCO) pilot test for groundwater remediation using hydrogen peroxide and a catalyst. In April 2008, soil was excavated and removed from the location of the former southern dispenser island. Soil samples collected from the bottom and side walls of the excavation showed no volatile organic compounds (VOCs). Thirty intermittent high intensity targeted (HIT) soil vapor extraction (SVE) events were performed between October 2008 and August 2017 using a carbon adsorption system and thermal oxidizer. The system ran continuously between June 2016 and August 2017, when the system was shut down. LUST cases 0792.02 and .03 were closed by ADEQ on October 14, 2008.

A car wash and café currently occupy the site and were constructed between 2009 and 2011. ExxonMobil and its various consultants have conducted corrective actions at the site since June 1989 to investigate LUST release 0792.01. Numerous soil borings and monitoring wells have been installed at the site.

Groundwater on-site is currently contaminated with benzene and methyl tert butyl ether (MTBE) at concentrations that exceed applicable Tier 1 Corrective Action Standards.

Data provided by ETIC in the *Corrective Action Completion Report* received July 24, 2018, and all other available site information has been used by ADEQ to determine whether remaining levels of contaminants at the site are adequately protective of human health and the environment. A site specific risk assessment and detailed file/information search were also completed.

Based upon the results of remedial activities and site specific information, the above-referenced LUST site is eligible for alternative LUST closure under Arizona Revised Statutes (A.R.S.) §49-1005(E). Arizona Administrative Code (A.A.C.) R18-12-263.04 allows case closure of a LUST site with groundwater contamination above the Arizona AWQS or Tier 1 Corrective Action Standards. ADEQ has considered the results of a site specific assessment and the rule specific criteria below:

1. *Threatened or impacted drinking water wells*: According to the Arizona Department of Water Resources (ADWR) records, there are 86 registered wells within ½ mile of the site. Of these registered wells, there is one exempt and three non-exempt wells. Three of these wells are registered to ExxonMobil as remediation recovery wells. Salt River Project (SRP) has well #55-608364. The City of Tempe has no municipal wells within ½ mile of the site. There are 62 monitoring wells and 20 registered as other. According to the 2012 *City of Tempe Water Service Area - Water Resources Plan*, the City of Tempe relies on renewable surface water supplies, safe-yield groundwater supplies, effluent (reclaimed water), and surface water or reclaimed water that has been stored in groundwater aquifers. Renewable surface water sources make up more than 90% of Tempe's annual water supply in an average year. The City of Tempe received its first Assured Water Supply (AWS) Designation from the Arizona Department of Water Resources (ADWR) on December 31, 1997. The City of Tempe AWS Designation was modified and approved again by ADWR on September 29, 2010. Tempe's AWS Designation certifies that Tempe has demonstrated they can meet water demands for a minimum of 100 years. Tempe has an Assured Water Supply until 2025, at which time Tempe must update its projections and re-apply for the 100-Year AWS Designation. The City of Tempe has public water system number AZ0407100. The nearest City well (#55-628168) is located between ½ and 1 mile to the southeast of the site. According to ADWR records, this well pumped 418 acre-feet in 2013 as a recovery well for stored Central Arizona Project water. ADEQ sent out a Water Provider Questionnaire to the City of Tempe and Salt River Project (SRP) with the request that it be completed and returned within 30 days. SRP returned the questionnaire but the City did not.

2. *Other exposure pathways*: Historic soil data indicates VOC contamination present over applicable regulatory standards between 5 and 84 feet bgs. Exposure by direct dermal contact or ingestion of contaminated soils is not a complete exposure pathway since the shallow soil was excavated and removed from the site. After active remediation, a soil boring was installed in October 2017 to a depth of 50 feet bgs to evaluate polycyclic aromatic hydrocarbons (PAHs), tetraethyl lead (TEL) and VOCs as part of LUST case closure. The soil data indicates that no VOCs, PAHs or TEL was reported at concentrations over an applicable regulatory standard. Most of the data was reported as less than the applicable laboratory reporting limit. A soil vapor survey was also conducted in October 2017. Soil vapor samples were analyzed by EPA Method TO-15, for VOCs, and for fixed-gases by EPA Method D1946. Field and laboratory quality assurance/quality control (QA/QC) was acceptable. ETIC hired Damian Applied Toxicology, LLC (DAT) to conduct the risk evaluation. DAT used the Johnson & Ettinger model with site-specific data and model default parameters to evaluate potential human health risk under a residential land-use scenario. A cumulative cancer risk (ELCR) and a non-cancer hazard index (HI) value was calculated. The ELCR and the HI was 1.1E-06 and 8.8E-03, respectively. All of these values represent acceptable risk since they are below the target thresholds of E-06 and 1.0, respectively. Incidental dermal contact with the groundwater is considered *de minimis* risk. In a ¼ mile land use/receptor survey, there are no schools, day care centers, hospitals or other sensitive populations. The Hayden Canal is located approximately 731 feet to the south (cross/up gradient) of the site.

3. *Groundwater plume stability*: The maximum dissolved-phase VOC contamination beneath the site appear to have existed around the former northern dispenser island and have decreased in extent and

concentration between 2007 and 2018. The average depth to groundwater beneath the site has ranged from approximately 45 to 81 feet bgs from 1994 to 2018. The most recent groundwater sampling event indicates the average depth to groundwater was 60.38 feet bgs and the hydraulic gradient was to the northwest. ETIC conducted a trend analysis for benzene concentrations in several on-site monitoring wells using the GSI Mann-Kendall Toolkit for Constituent Trend Analysis. The summary of the benzene analysis indicate a statistically significant downward trend in MW6, MW9 and MW10. The benzene concentration trends suggest long-term stability of the groundwater plume. Groundwater plume stability is also demonstrated by the remaining VOC contamination present over a Tier 1 Corrective Action Standard is limited to monitoring well MW9. Based on groundwater data collected in May 2018, the benzene concentration in MW9 was 32 µg/L. MW9 had not shown benzene over the Aquifer Water Quality Standard (AWQS) for the five previous quarterly sampling events. In September 2016, the benzene concentration in MW9 was 30.5 µg/L. The highest benzene concentration in MW9 was 7,590 µg/L in March 2011. The historic VOC concentrations in groundwater have declined by several magnitudes. ETIC also evaluated plume stability using BIOSCREEN. The estimated lateral area of benzene concentrations in groundwater was approximated at 30 feet by 30 feet. The no 1st order decay model shows that the benzene contamination in MW9 will be below the AWQS of 5 µg/L at 800 feet away from the well within 5 years, 150 feet from MW9 in 10 years, and below AWQS at MW9 in approximately 13 years. This data supports that the contaminant plume will continue to shrink over time.

4. Characterization of the groundwater plume: Groundwater samples have been collected at the site since 1994 when the first five monitoring wells were installed. MW1-MW4 were abandoned in 2008. A total of eleven monitoring wells have been installed of which one (MW11) is located off site. Dissolved-phase petroleum hydrocarbons have been characterized in soil and groundwater as of December 1998. Based on groundwater data collected in May 2018, the benzene concentration in MW9 was 32 µg/L. The highest benzene concentration in MW9 was 7,590 µg/L in March 2011. Other VOC concentrations have been mostly below laboratory detection limits or slightly above, since at least 2013 with the exception of MW8, which is near MW9.

5. Natural Attenuation: Natural attenuation processes include diffusion, dispersion, sorption, volatilization, and biodegradation. A decreasing trend in chemical concentrations in groundwater has been established, which supports natural attenuation is occurring. Hydrologic and geochemical data can be used to indirectly demonstrate the type(s) of natural attenuation processes. Monitored natural attenuation (MNA) parameters were collected during the February and May 2018 groundwater monitoring events. Geochemical results for MW6, MW7 and MW9 indicate that sulfate and nitrate are depleted, iron is reducing and methanogenesis is weak. The comparison of detectable methane in MW9 and non-detect methane in MW7 and MW11 indicates that methanogenesis is occurring. Lower sulfate and nitrate concentrations in MW6 (area of former higher concentrations of contamination) and MW9 (location of current contamination) compared to concentrations in MW7 and MW11 (areas with no contamination impact) indicate that the sulfate and nitrate area being used as electron acceptors during anaerobic degradation of the hydrocarbons.

6. Removal or control of the source of contamination. In July 1989, the area under and between the sales kiosk and the northern dispenser island was excavated and 9 cubic yards of hydrocarbon contaminated soil was removed. Source control has been completed by the UST system being permanently closed in April 2003. The In-situ chemical oxidation test in 2006 treated the groundwater contamination. Approximately 3,873 pounds of vapor-phase petroleum hydrocarbons has been removed from the contaminated subsurface at the site by SVE and air sparge activities.

7. Requirements of A.R.S. §49-1005(D) and (E): The results of the corrective action completed at the site assure protection of public health, welfare and the environment, to the extent practicable, the clean-up activities competed at this site allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

8. Other information that is pertinent to the LUST case closure approval: The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system prior to removal.

Groundwater data for MW-9

Date	**Benzene AWQS is 5 µg/L**	**Depth to water**
July 2009	**23.3**	56.95
October 2009	**1,390**	55.50
September 2010	**4,400**	50.10
March 2011	**7,590**	48.65
January 2012	**1,220**	47.84
January 2013	**173**	59.16
February 2014	**99.9**	65.70
May 2014	<1.0	68.63
August 2014	<1.00	70.58
June 2015	0.442	68.86
December 2015	**5.50**	66.83
April 2016	**135**	64.96
September 2016	**30.5**	64.90
December 2016	3.70	65.42
February 2017	0.376	63.56
June 2017	0.896	59.85
September 2017	1.31	61.18
November 2017	0.611	58.98
February 2018	<2.0	59.36
May 2018	32	60.91

Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center http://www.azdeq.gov/function/assistance/records.html , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **October 5, 2018 and November 5, 2018**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, and Attention: Marcella Caldwell, 1110 W. Washington Street, Phoenix, AZ 85007.

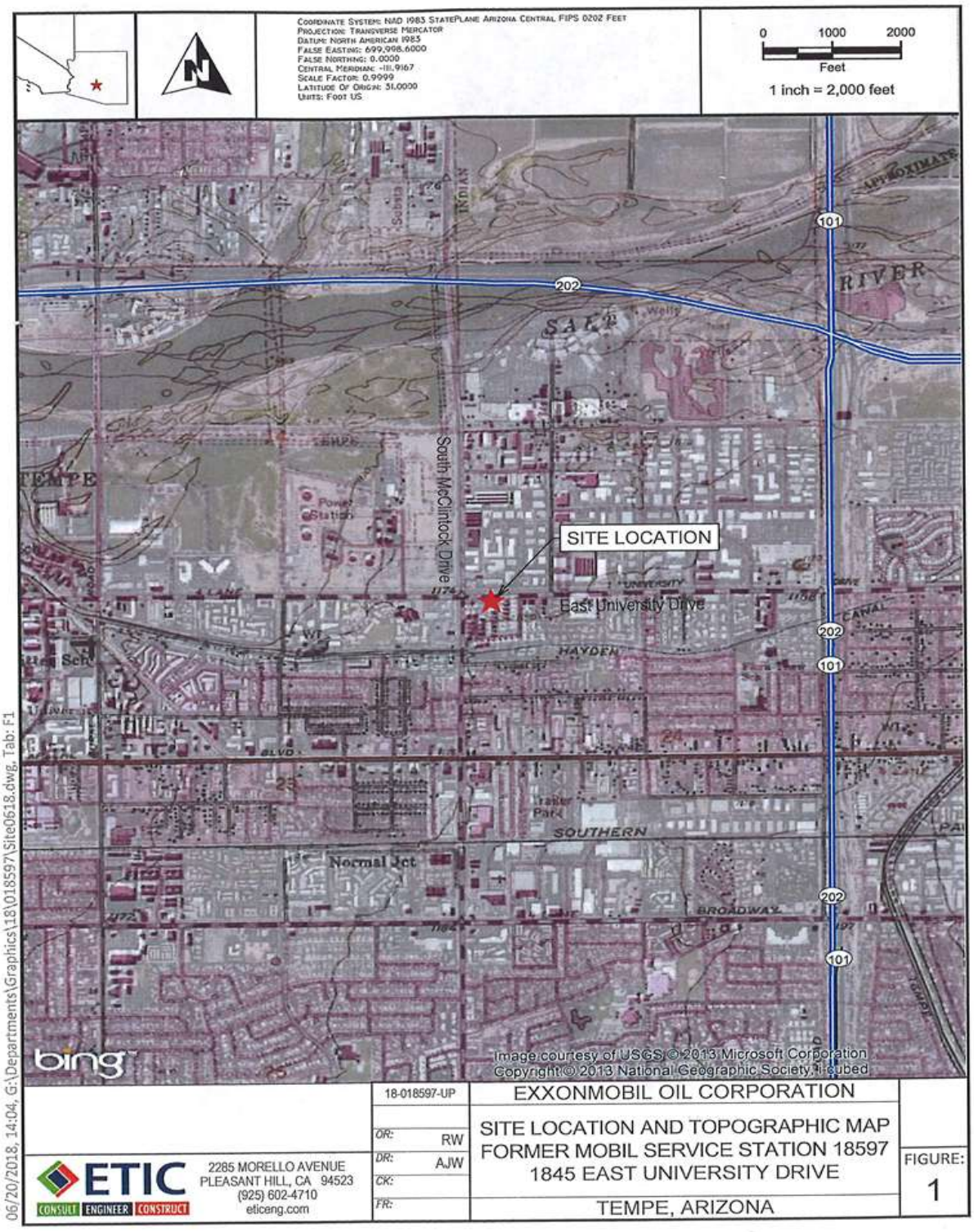
If sufficient public interest is demonstrated during the public comment period, ADEQ may announce and hold a public meeting. ADEQ will consider all submitted written comments and reserves the right to

respond to those comments following the public comment period. For more information on this notice, please contact the Case Manager, Marcella Caldwell at (602) 771-4464 or at mc13@azdeq.gov or the Sr. Risk Assessor, Debi Goodwin at (602) 771-4453 or at dg1@azdeq.gov.

Copies of the cited statutes and rules can be found at:
http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49, and
http://www.azsos.gov/public_services/Title_18/18-12.htm

ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write or understand English and/or to those with disabilities. Requests for language interpretation, ASL interpretation, CART captioning services or disability accommodations must be made at least 48 hours in advance by contacting Ian Bingham, Title VI Nondiscrimination Coordinator at 602-771-4322 or Bingham.Ian@azdeq.gov. Teleprinter services are available by calling 7-1-1 at least 48 hours in advance to make necessary arrangements.

ADEQ tomará las medidas razonables para proveer acceso a los servicios del departamento a personas con capacidad limitada para hablar, escribir o entender inglés y / o para personas con discapacidades. Las solicitudes de servicios de interpretación de idiomas, interpretación ASL, subtitulados de CART, o adaptaciones por discapacidad deben realizarse con al menos 48 horas de anticipación contactando a Ian Bingham, Coordinador de Anti-Discriminación del Título VI al 602-771-4322 o Bingham.Ian@azdeq.gov. Los servicios de teleimpresores están disponibles llamando al 7-1-1 con al menos 48 horas de anticipación para hacer los arreglos necesarios.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False Northing: 0.0000
Central Meridian: -111.9167
Scale Factor: 0.9999
Latitude Of Origin: 31.0000
Units: Foot US
0 1000 2000
Feet
1 inch = 2,000 feet
SITE LOCATION
East University Drive
South McClintock Drive
TEMPE
HAYDEN
SOUTHERN
Normal Jct
BROADWAY
RIVER
SALT
101
202
bing
Image courtesy of USGS © 2013 Microsoft Corporation
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EXXONMOBIL OIL CORPORATION
SITE LOCATION AND TOPOGRAPHIC MAP
FORMER MOBIL SERVICE STATION 18597
1845 EAST UNIVERSITY DRIVE
TEMPE, ARIZONA
FIGURE: 1
DR: RW
CK: AJW
FR:
ETIC
CONSULT ENGINEER CONSTRUCT
2285 MORELLO AVENUE
PLEASANT HILL, CA 94523
(925) 602-4710
eticeng.com
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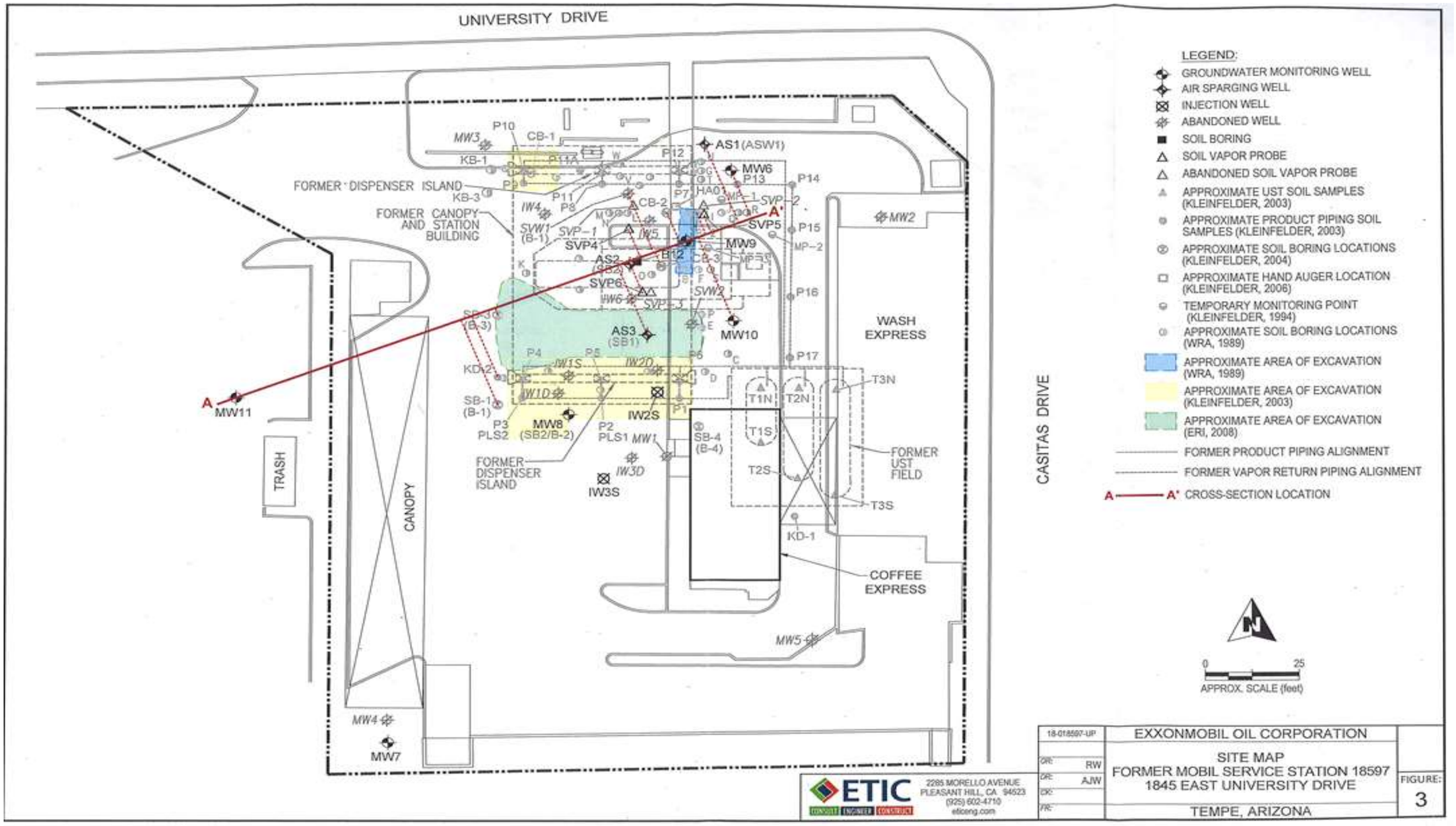
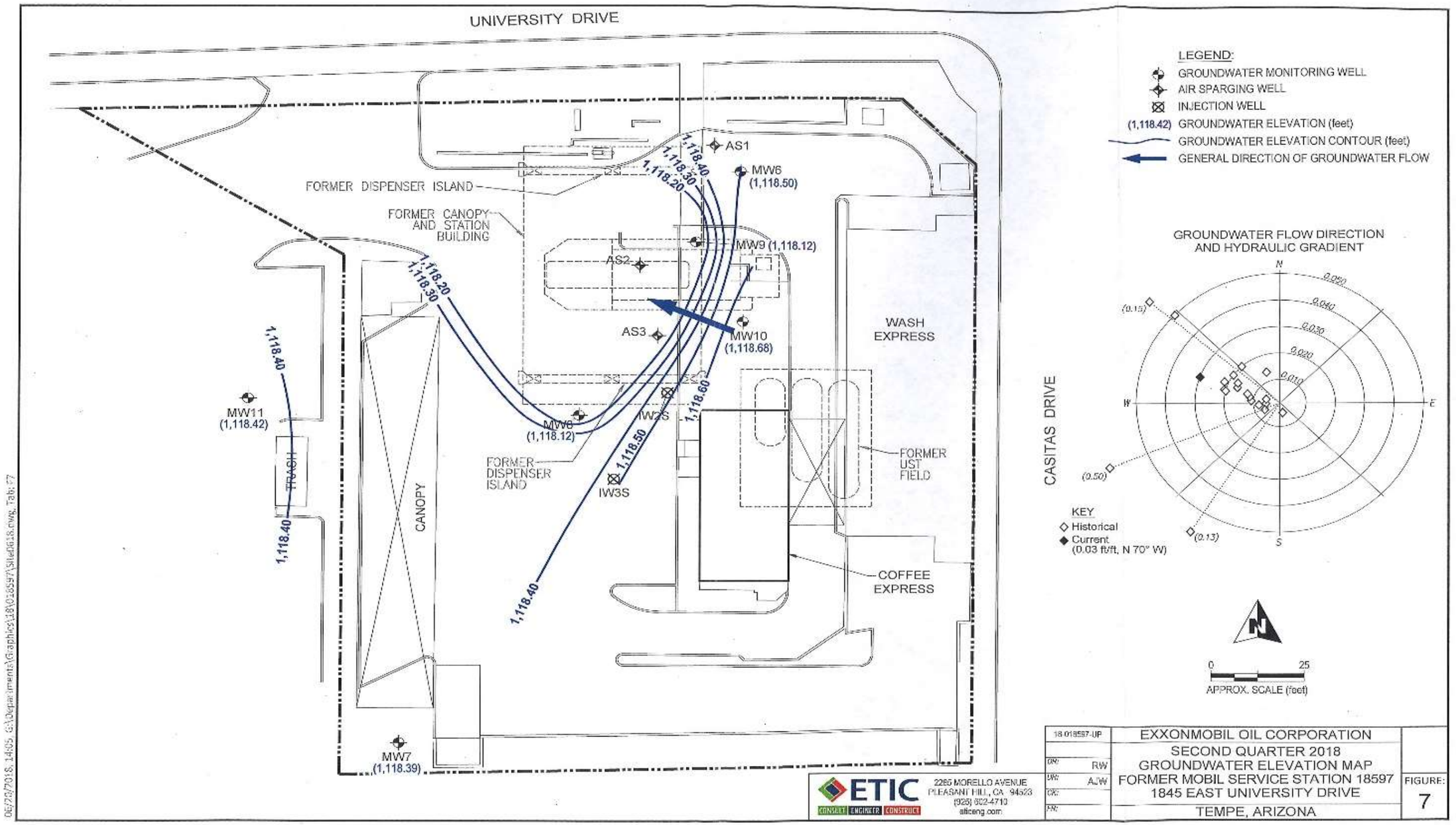
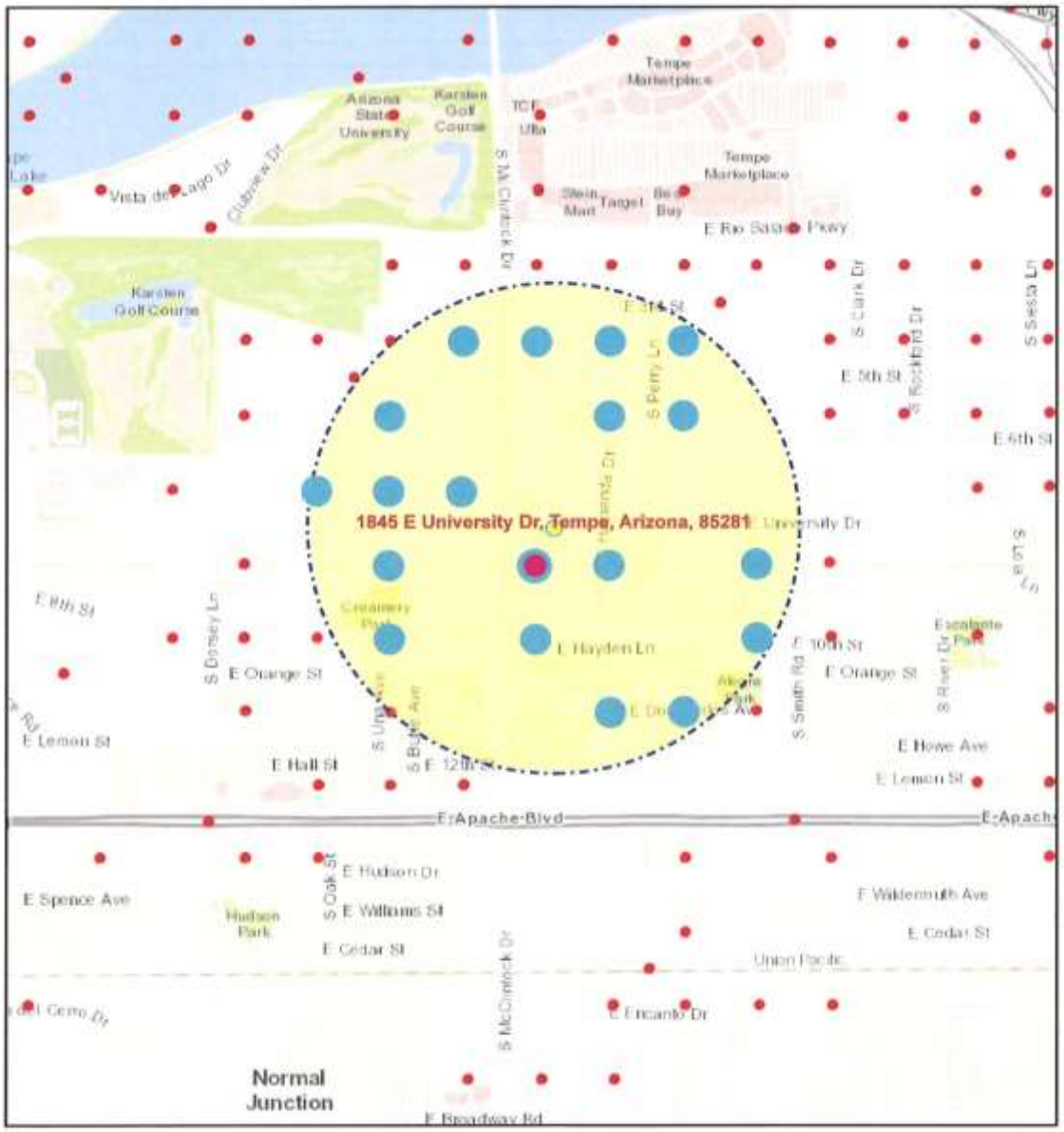

UNIVERSITY DRIVE
CASITAS DRIVE
MW3
P10
CB-1
KB-1
AS1 (ASW1)
P12
MW6
P13
P14
FORMER DISPENSER ISLAND
KB-3
P9
P11
P8
P7
HA01
CB-2
SVP-2
FORMER CANOPY AND STATION BUILDING
IW4
SVW1 (B-1)
SVP-1
IW5
SVP5
P15
MW2
SVP4
MW9
MP-2
AS2 (SB4)
SVP6
SVW2
P16
MW6
SVP-3
WASH EXPRESS
AS3 (SB1)
MW10
P4
P5
P6
P17
IW1S
IW2D
KD-2
T3N
T1N
T2N
IW1D
SB-1 (B-1)
IW2S
P3 PLS2
MW8 (SB2/B-2)
P2 PLS1
MW1
SB-4 (B-4)
T1S
FORMER UST FIELD
FORMER DISPENSER ISLAND
IW3D
IW3S
T2S
T3S
KD-1
COFFEE EXPRESS
MW5
A
MW11
A'
TRASH
CANOPY
MW4
MW7
LEGEND:
GROUNDWATER MONITORING WELL
AIR SPARGING WELL
INJECTION WELL
ABANDONED WELL
SOIL BORING
SOIL VAPOR PROBE
ABANDONED SOIL VAPOR PROBE
APPROXIMATE UST SOIL SAMPLES (KLEINFELDER, 2003)
APPROXIMATE PRODUCT PIPING SOIL SAMPLES (KLEINFELDER, 2003)
APPROXIMATE SOIL BORING LOCATIONS (KLEINFELDER, 2004)
APPROXIMATE HAND AUGER LOCATION (KLEINFELDER, 2006)
TEMPORARY MONITORING POINT (KLEINFELDER, 1994)
APPROXIMATE SOIL BORING LOCATIONS (WRA, 1989)
APPROXIMATE AREA OF EXCAVATION (WRA, 1989)
APPROXIMATE AREA OF EXCAVATION (KLEINFELDER, 2003)
APPROXIMATE AREA OF EXCAVATION (ERI, 2008)
FORMER PRODUCT PIPING ALIGNMENT
FORMER VAPOR RETURN PIPING ALIGNMENT
A — A' CROSS-SECTION LOCATION
0
25
APPROX. SCALE (feet)
ETIC
2285 MORELLO AVENUE
PLEASANT HILL, CA 94523
(925) 602-4710
eticeng.com
18-018597-UP
DR: RW
DE: AJW
CK:
PR:
EXXONMOBIL OIL CORPORATION
SITE MAP
FORMER MOBIL SERVICE STATION 18597
1845 EAST UNIVERSITY DRIVE
TEMPE, ARIZONA
FIGURE: 3



Former Mobil Service Station #18597



September 21, 2018

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0 0.2 0.4 0.8 km

Arizona Department of Water Resources

ADEQ Arizona Department of Environmental Quality

Email completed form to: dq1@azdeq.gov

UST- LUST Section

GROUNDWATER USE QUESTIONNAIRE

LUST FACILITY NAME former Mobil Service Station 18597

ADDRESS 1845 East University Drive, Tempe AZ 85281

LUST FACIITY ID 0-003199

LUST CASE NO 0792.01

Please answer all questions. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: Salt River Project

Date Questionnaire was completed: September 19, 2018

Contact Name: Karis Nelson

Title: Senior Environmental Scientist

Address: Environmental Compliance and Permitting

PAB 359, P.O. Box 52025, Phoenix, AZ 85072

Phone Number: 602-236-2916

Email address: karis.nelson@srpnet.com

1. Please indicate current or near future anticipated groundwater development by the municipality/utility within 1 mile of the above named LUST site.

   SRP operates water conveyance structures and groundwater supply wells within a 1-mile radius of the LUST site. ADEQ identified two wells within 1 mile of the site, including SRP wells #55-608364 and #55-608416. Although SRP appreciates the assistance of ADEQ to identify SRP wells in proximity of the LUST site, well #55-608416 is inactive and is not located in close proximity to the former Mobile Service Station at 1845 E. University Drive.

Therefore, well #55-608416 should not be considered for this water use questionnaire. Generally, SRP reserves the right to use inactive wells in the future, depending on several factors such as surface water availability, water quality, and water demand.

Only one SRP well is located within a 1-mile radius of the site, which is well 23E-2.9N (ADWR #55-608364). The SRP well produces water for SRP shareholder use.

For the reasonably foreseeable future groundwater development, please see the response to question #2, below.

2. What is the future use (up to 100 years) for groundwater within 1 mile of the above named LUST site?

   SRP anticipates that all of the properties in the vicinity of the subject area, including the groundwater supply wells and the conveyance structures, will remain in use over the next 100 years and that the supply wells in the vicinity will transition to both irrigation and municipal service (potable supply) within this time period.

3. Is the municipality/utility currently sampling groundwater wells within 1 mile of the above named LUST site? If so, how often is the sampling conducted? Are analytical results being submitted electronically to ADEQ's the groundwater database? If not, will you share the data with ADEQ?

   SRP conducts routine groundwater sampling of its wells. Water quality records are submitted electronically to the ADEQ groundwater database.

4. Are there any groundwater wells owned by the water provider that are known to have been affected by the above named LUST site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

   There currently are no known water quality impacts from BTEX (benzene, toluene, ethylbenzene, and total xylenes (including p-, m-, and o-xylene)) or Methyl-Tert-Butyl-Ether (MBTE) based upon recent analytical results for those compounds in SRP groundwater well 23E-2.9N (ADWR #55-608364). The most recent samples were taken in May 2016 and June 2009, respectively. All results were below detection level.

   The status of well 23E-2.9N (ADWR #55-608364) is "Active."

   As mentioned above, well #55-608416 is "Inactive" and is not located within close proximity to the LUST site.

5. What is the future use (up to 100 years) for any wells that have been impacted by the above named LUST site?

   Please see above responses to questions #2 and #4.

6. Is there any other information you wish to provide to assist ADEQ in the LUST case closure evaluation of this site?

   SRP's water supply wells are a critical resource, especially in drought conditions, and it is very important that SRP has a reliable supply of water to meet customer and shareholder needs.