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 # 1167.01	**Motorola 52nd Street- parking lot**
Facility ID # 0-006455	**5149 E. McDowell Road**
Maricopa County	**Phoenix, Arizona 85008**

Papago Auto Service, was an automotive fueling facility that operated at the former WES Trust property on the southwest corner of 52nd Street and McDowell Road in Phoenix, Arizona. Automotive fueling station structures were constructed and the site was leased to several automotive fueling entities from 1961 until the lease was terminated for Papago Auto Service on February 29, 1990. From 1990 through 1994, WES Trust removed the underground storage tanks (USTs) along with other site structures and conducted preliminary corrective actions following discovery of a fuel release during the UST removal in March 1990. ADEQ assigned LUST File No. 1167.01 based on the contamination found during the UST removal.

The adjacent and down-gradient Motorola Inc. facility began operations as a single building at 5005 East McDowell Road in 1956 but expanded to more than 20 buildings through the 1980s. Motorola purchased the WES Trust property in June 1995 and redeveloped the property into a parking lot in 1996. As part of the purchase agreement, Motorola, which became Freescale Semiconductors, Inc. (Freescale) in 2004 and now NXP USA, Inc. (NXP), agreed to continue corrective actions at the site as a cleanup volunteer. Therefore, since 1995, NXP, has been conducting corrective actions as a cleanup volunteer and designated representative for WES Trust. In a letter dated February 7, 1997, the ADEQ formally identified WES Trust as the UST owner and Papago Auto Service as the UST operator and the ADEQ received authorization from the UST owner for Motorola to take UST corrective actions at the site. Clear Creek has been conducting corrective actions at the former WES Trust property on behalf of Freescale/NXP since 2007.

After the USTs were removed and a release was confirmed to groundwater at about 25 feet below ground surface (bgs), several investigations were performed to characterize gasoline fuel impacts to soil and groundwater. ADEQ approved the site characterization in a letter dated February 16, 1996. Following characterization, Motorola completed several years of remediation activities, primarily in accordance with a *Corrective Action Plan* (CAP). Contaminants of concern during the initial investigations included benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tert butyl ether (MTBE) followed by the inclusion of, 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB) in recent groundwater monitoring events. The remediation activities utilized at the site included soil vapor extraction (SVE), manual removal of phase-separated hydrocarbons (PSH), and oxygen releasing compound (ORC®) sock installation. In a letter dated July 20, 2007 ADEQ determined that the groundwater contaminant plume was stable or shrinking and decided to terminate the CAP for the site. Since 2007, Freescale/NXP has conducted additional corrective actions to reduce residual hydrocarbon compound concentrations, including in-well aeration of groundwater, bioventing, a five-day high vacuum dual-phase extraction (HVDPE) event, and injection of an in-situ chemical oxidation (ISCO) material in select monitoring wells since May 2016.

Contaminants of concern historically identified in groundwater at the site include BTEX, MTBE, and more recently 1, 2-DCA, and EDB, after expanding the volatile organic compound (VOC) list in 2015. Currently, MTBE and benzene are the only constituents that exceed an applicable regulatory levels in a stable, attenuating groundwater plume that has receded from a maximum distance of approximately 400 feet from the former UST system in 1995 to a current distance of less than 200 feet. The site is located within the boundaries of the Motorola 52nd Street National Priorities List (NPL) site. The groundwater contaminants associated with the NPL site are tetrachloroethylene (PCE) and trichloroethylene (TCE) which are not attributable to petroleum. The former WES Trust property is located at the up-gradient end of the Motorola 52nd Street Superfund site Operational Unit One (OU1) area. Groundwater pump and treat systems have been operating within the OU1 area for decades to control groundwater impacted by solvents released at the former Motorola facility.

Clear Creek Associates, LLC prepared the *Corrective Action Completion Report* on behalf of NXP, the cleanup volunteer for the LUST site. The report was received November 15, 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: The groundwater table occurs in the bedrock material at the former UST area and in alluvial material near the former western property boundary. Based on historical data, the transition from bedrock to alluvial conditions at the water table seems to occur between Well U and the line of wells identified as M-1, M-2, and M-3. The transition is indicated by the change in hydraulic gradient. A steeper gradient is indicative of bedrock conditions, whereas a flatter gradient is indicative of alluvial conditions. The groundwater flow direction and gradient varies from east to west across the monitoring well network. In general, the groundwater flow direction on the former WES Trust property is to the southwest at a gradient of about 0.07 feet per foot. Continuing down-gradient, the flow transitions to a more westerly direction and the gradient lessens an order of magnitude. Depth to water was measured by Clear Creek with an electric oil/water interface probe to the top of the well casings on August 8 and 9, 2018. Depth to groundwater in August 2018 was approximately 37 feet bgs at the former UST area and about 52 feet bgs at the former WES Trust property boundary.

The City of Phoenix Water Services Department supplies water to the area. The sources of water include: Salt and Verde River water from the Salt River Project, Colorado River water delivered from the Central Arizona Project, reclaimed water for non-potable uses, and groundwater. In 2006, legislation was enacted that restricted the drilling of a domestic well on property if any part of the property is located within one hundred feet of the operating water distribution system of a municipal provider. The City of Phoenix operates a water distribution system within the search area so the future drilling of domestic water wells is unlikely. Clear Creek conducted a search of the Arizona Department of Water Resources (ADWR) electronic database which did not identify any water production wells within a ¼ mile radius around the former WES Trust property. A total of 163 wells were identified in the search area and were all related to monitoring or remediation at the former WES Trust property and adjacent properties including the

Arizona Department of Emergency and Military Affairs (ADEMA), the Circle K LUST site, and the former Motorola facility. ADEQ conducted a search of the ADWR database and found no registered drinking water wells within ½ mile of the LUST site. There are fifteen registered exempt wells of which one is registered to ADEMA and the remaining wells are registered to Motorola. There are five registered non-exempt wells of which four are industrial water supply wells for Motorola. The fifth well is registered to ADEMA with no water use listed. None were identified as potable water wells. There are no City of Phoenix wells within one mile of the LUST site. No water production wells are threatened or impacted by the residual contaminants originating from the former UST area at the site. Any new or replacement well located at or near this site would need to meet the criteria of A.A.C. R12-18-1302 (B) (3).

The former WES Trust property is located at the up-gradient end of the Motorola 52nd Street Superfund site OU1 area. Groundwater pump and treat systems have been operating within the OU1 area for decades to control groundwater impacted by solvents released at the former Motorola facility. In 2016, the EPA five year review (FYR) was performed for all of the OUs indicated that the COC groundwater plume within OU1 was shrinking in size and concentrations were decreasing. The interim remedy at OU1 was deemed protective of human health in the short term.

2. *Other exposure pathways*: Other exposure pathways include exposure to hydrocarbon constituents through dermal contact, ingestion of soils, or inhalation of vapors through vapor intrusion. Clear Creek performed an evaluation of other exposure pathways and presented the results in the *Periodic Site Status Report, January 2016 through June 2016, WES Trust Site* dated October 7, 2016. In summary, a review of previous investigations completed at or near the former UST area at the site indicated that hydrocarbon compounds are not present in soils from the surface to at least 15 feet bgs at concentrations above soil remediation levels. In addition, Clear Creek completed a soil vapor intrusion investigation at the former UST area in 2016 and evaluated the vapor intrusion pathway. Results of the vapor intrusion evaluation indicate that the cancer risk is less than 1e-6 and the hazard quotient is less than 1.0 which demonstrate acceptable inhalation risk. Clear Creek also searched for other sensitive receptors within ¼ mile radius of the site such as hospitals, schools, daycare facilities, or elderly housing. The Just Like Home Daycare Preschool is located just over 1,000 feet to the west and down-gradient of the former WES Trust property. The groundwater plume is stable or shrinking and remains on the former WES Trust property so it is not a threat to the preschool. In addition, ongoing pump and treat operations conducted at the adjacent former Motorola facility currently provide a capture zone and restrict migration of contaminated groundwater to the preschool. A second preschool (SEEK Early Learning Center) is located approximately ¼ mile north and cross or up-gradient of the former WES Trust property. No Salt River Project irrigation wells were identified within 1 mile of the LUST based on the ADWR database. The groundwater plume is not a threat to the second preschool.

3. *Groundwater plume stability*: The plume has effectively been reduced from a maximum extent in 1995 that included Wells M-1, M-2, and M-3 to an area that remains within 200 feet of the former UST system and within the former WES Trust property boundary. As part of a more detailed assessment of the stability of the residual plume, statistical analyses were performed for data from Wells G1 and U that continue to exhibit MTBE and/or benzene concentrations above the AWQS or Tier I Guidance Level. Times series graphs were assembled for MTBE at Wells G1 and U and for benzene at Well G1 using results from June 2014 through August 2018. The time-series graphs indicate that ISCO events may temporarily depress the concentrations of contaminants locally but the concentrations appear to rebound to near pre-ISCO event levels around six months after an event. The GSI Mann-Kendall Toolkit Microsoft Excel based software (GSI Environmental, 2012) was used to analyze the time series water

quality data using the Mann-Kendall statistical method to quantitatively determine if there are increasing, decreasing, or stable trends or to determine if no trend is apparent. The results of the Mann-Kendall tests indicate that the MTBE and benzene concentrations are decreasing at Well G1 and the MTBE concentration is stable at Well U.

4. Characterization of the groundwater plume: Results of groundwater monitoring in December 1995 indicated that a dissolved phase plume extended approximately 400 feet down-gradient and a PSH plume extended approximately 300 feet down-gradient of the former UST area. The dissolved phase plume did not reach down-gradient or cross-gradient wells W-2, W-3, W-4, M, M-4, or M-5 at concentrations greater than the AWQS or Tier I Guidance Level. The lateral extent of the groundwater plume on the north side was likely commingled with a dissolved phase and/or PSH plume originating from the Circle K LUST site at the northwest corner of 52nd Street and McDowell Road. Based on anecdotal information, several investigations were completed to quantify the impacts of the release at the Circle K LUST site on the WES Trust site but no definitive contribution was agreed upon. However, Circle K did partially compensate Motorola for the cleanup efforts at the former WES Trust property.

Clear Creek conducted non-purge groundwater sampling events and reporting for NXP on an annual basis from June 2007 through June 2014 at Wells G, N-3, U, V, M-1, M-2, M-3, and W-3 to monitor the groundwater plume. Due to declining water levels, Well G became nearly unusable for monitoring purposes during this period. Monitoring well G1 was installed in 2013 near Well G to allow continued groundwater monitoring at the former UST area. During this period of sampling (2007 – 2014) by Clear Creek, Wells G, G1, and U were the only wells that consistently exhibited levels of hydrocarbon constituents greater than AWQS or Tier I Guidance Levels. At the request of the ADEQ in a meeting on May 14, 2015, Freescale agreed to conduct future groundwater sampling events using purge techniques (compliance groundwater sampling). Two compliance groundwater sampling events were conducted at Wells G1, N-3, U, V, Q, M-1, M-2, M-3, M, N, and K during June and September 2015. Samples were analyzed for VOCs by Test Method 8260 plus tentatively identified compounds and EDB by Test Method 504.1. VOCs and EDB were not detected at concentrations greater than the reporting limits in Wells K, Q, V, M-1, M-2, and M-3 for the June and September 2015 compliance sampling events so those wells were excluded from future events. EDB was detected in Wells M and N only. Successive groundwater sampling events included Wells G1, N-3, U, M, and N only. In addition to analyzing for VOCs at each well, analysis of EDB was continued for Wells M and N. For the August 2018 event, no constituents were reported in concentrations greater than their respective AWQS or Tier I Guidance Level, if established, at Wells N-3, M, or N. The concentrations of MTBE exceeded the Tier I Guidance Level at Wells G1 and U. Sample dilution by the lab was required to determine the MTBE concentrations, which resulted in a reporting limit that was greater than the AWQS for benzene and 1, 2-DCA at Well U. The reporting limit for benzene and 1, 2-DCA was 25 ug/l at Well U, greater than the AWQS of 5.0 ug/l for both constituents. Previous non-censored data have indicated that benzene and 1, 2-DCA concentrations are less than the respective AWQS at Well U. The plume has effectively been reduced from a maximum extent in 1995 that included Wells M-1, M-2, and M-3 to an area that remains within 200 feet of the former UST system and within the former WES Trust property boundary.

5. Natural Attenuation: Natural attenuation (NA) processes that reduce hydrocarbon concentrations include nondestructive mechanisms (dispersion, dilution, sorption, and volatilization) and destructive mechanisms such as in-situ biodegradation. Biodegradation reactions are reduction / oxidation reactions, involving the transfer of electrons from a hydrocarbon compound to an electron acceptor. Oxygen is the electron acceptor for aerobic metabolism, whereas nitrate, ferric iron, sulfate, and carbon dioxide can serve as electron acceptors for alternative anaerobic pathways. The most common pattern of reactions

observed at fuel release sites is that ferrous iron and methane seems to be restricted to the source zone area, with oxygen, nitrate, and sulfate depletion occurring throughout the plume. Clear Creek collected several groundwater samples from a series of 11 wells at the former WES Trust property from July 2017 through June 2018 to evaluate the distribution of natural attenuation parameters in and near the plume. The ADEQ 2014 *Site Investigation Guidance Manual* provides a table with criteria for NA parameters indicative of degradation within a plume. NA parameter results for wells G1, U, and N-3, compared to values indicative of degradation and relative to the non-plume wells, indicate that in-situ degradation is ongoing.

6. *Removal or control of the source of contamination*. Source control has been completed by the UST system being permanently removed in 1990. Corrective actions including characterization work, remediation, and monitoring activities have been conducted at the LUST site for over 28 years. Over 100,000 pounds of hydrocarbons were removed by SVE from 1997 to 2004 alone, excluding hydrocarbons removed prior to 1996 and hydrocarbons naturally biodegraded. Prior to 2007, ORC® filter socks were installed in select wells on an intermittent basis during and after SVE operations to add dissolved oxygen to groundwater and enhance natural biodegradation of the dissolved phase hydrocarbon concentrations. Clear Creek installed the in-well aeration system during June and July 2008 which operated until June 5, 2013 when the system was shut down for the annual groundwater sampling event and was later converted to a bioventing system during August 2013. To remove additional hydrocarbons from the site, a continuous five-day/120-hour HVDPE event occurred from July 11 to July 16, 2015. As an additional method to reduce dissolved phase hydrocarbon concentrations in groundwater, Freescale initiated ISCO techniques at the site by injecting a solution of PersulfOx® at a limited number of existing monitoring wells (G, G1, U, N-3, M and N) between May 2016 and February 2018. Based on analytical laboratory results of influent samples and operational parameters, Clear Creek estimated that about 170 pounds of vapor phase hydrocarbons were removed during the event.

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 monitoring well G1 (replacement well for G source area)

Date	**Benzene AWQS is 5 µg/L**	**MTBE Tier 1 Corrective Action Standard is 94 µg/L**	**Depth to water (ft.)**
June 2015	**3010**	**86800**	33.83
September 2015	**1120**	**63700**	34.35
December 2015	**4380**	**91200**	34.16
May 2016 ISCO	---	---	---
June ISCO	---	---	---
July 2016	<1.0	0.34	33.61
October 2016	<1.0	12.5	33.81

February 2017	**1210**	**18800**	32.92
June 2017 ISCO	**---**	**---**	---
August 2017	**84.6**	**7620**	34.71
November 2017	<0.60	**132**	34.24
February 2018	**140**	**18700**	36.54
February 2018 ISCO	**---**	**---**	---
August 2018	<1.0	**137**	36.41

Groundwater data for monitoring well U (down-gradient of source area)

Date	**Benzene AWQS is 5 µg/L**	**MTBE Tier 1 Corrective Action Standard is 94 µg/L**	**Depth to water (ft.)**
June 2015	**<1000**	**38800**	44.54
September 2015	**<200**	**40700**	45.03
December 2015	**<1000**	**48500**	44.85
May 2016 ISCO	**---**	**---**	---
June ISCO	**---**	**---**	---
July 2016	**<20**	**368**	45.05
October 2016	<1.0	**30800**	45.23
December 2016 ISCO	**---**	**---**	---
February 2017	**<50**	**18900**	44.21
June 2017 ISCO	**---**	**---**	---
August 2017	**<200**	**17400**	46.07
November 2017	<0.30	**30900**	45.76
February 2018	**<50**	**40100**	46.40
February 2018 ISCO	**---**	**---**	---
August 2018	**<50**	**9920**	47.02

Groundwater data for monitoring well N (down-gradient of well U less than 100 feet)

Date	**Benzene AWQS is 5 µg/L**	**MTBE Tier 1 Corrective Action Standard is 94 µg/L**	**Depth to water (ft.)**
September 2015	<1.0	0.049	50.82
December 2015	<1.0	<0.019	50.41
June ISCO	**---**	**---**	---
July 2016	<1.0	0.95	51.04
October 2016	<1.0	<1.0	50.81
February 2017	<1.0	10.6	50.68
August 2017	NS	NS	51.08

November 2017	NS	NS	50.88
February 2018	<1.0	<1.0	51.06
August 2018	<1.0	<1.0	51.51

Groundwater data for monitoring wells M-1; M-2; M-3 (down-gradient of U)

Date	**Benzene AWQS is 5 µg/L**	**MTBE Tier 1 Corrective Action Standard is 94 µg/L**	**Depth to water (ft.)**
June 2015	<1.0	<1.0	49.12 to 51.87
September 2015	<1.0	<1.0	49.64 to 52.30
August 2018	NS	NS	51.67 to 55.18

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 **May 21, 2019 and ending June 21, 2019**. Comments may be submitted by mail or email. Written comments should be sent to:

Arizona Department of Environmental Quality
Waste Programs Division
Attn: Debi Goodwin
1110 W. Washington Street
Phoenix, AZ 85007

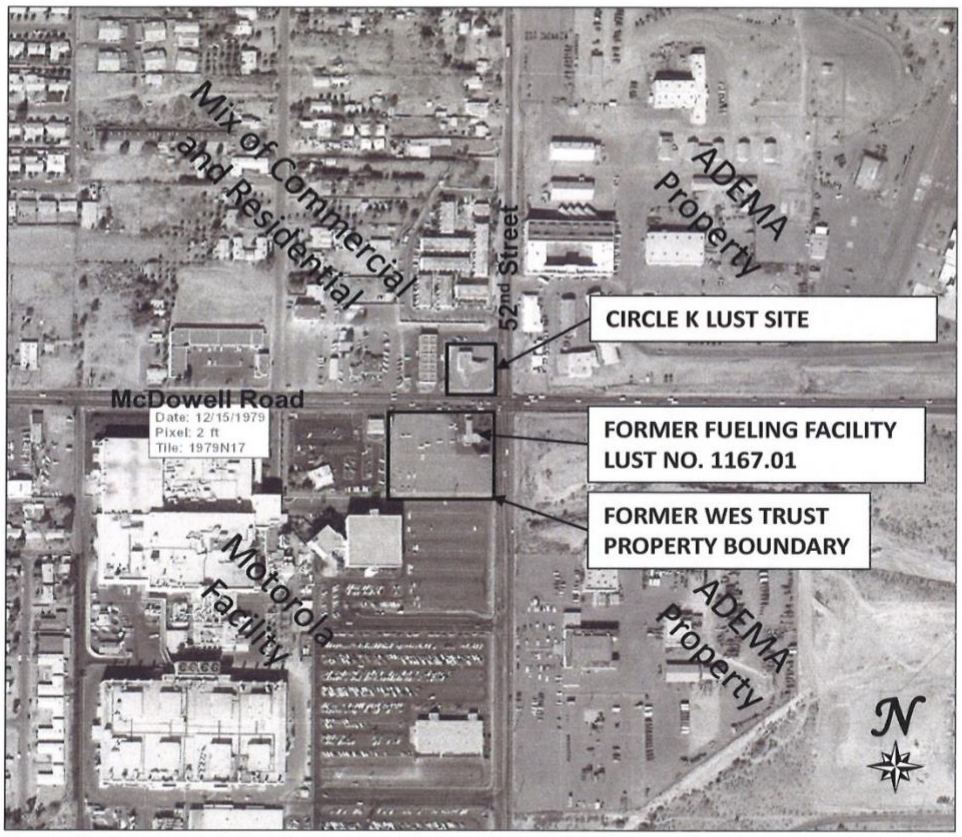
or electronically mailed to: goodwin.debi@azdeq.gov.

If sufficient public interest is demonstrated during the public comment period, ADEQ may announce and hold a public meeting. ADEQ will consider all submitted comments and reserves the right to respond to those comments following the public comment period. For more information on this notice, please contact the Sr. Risk Assessor, Debi Goodwin at (602) 771-4453 or at goodwin.debi@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.



Source: Maricopa County Online Historical Aerial Photograph, December 1979

ADEMA – Arizona Department of Emergency and Military Affairs

APPROXIMATE SCALE

0 (FEET) 500

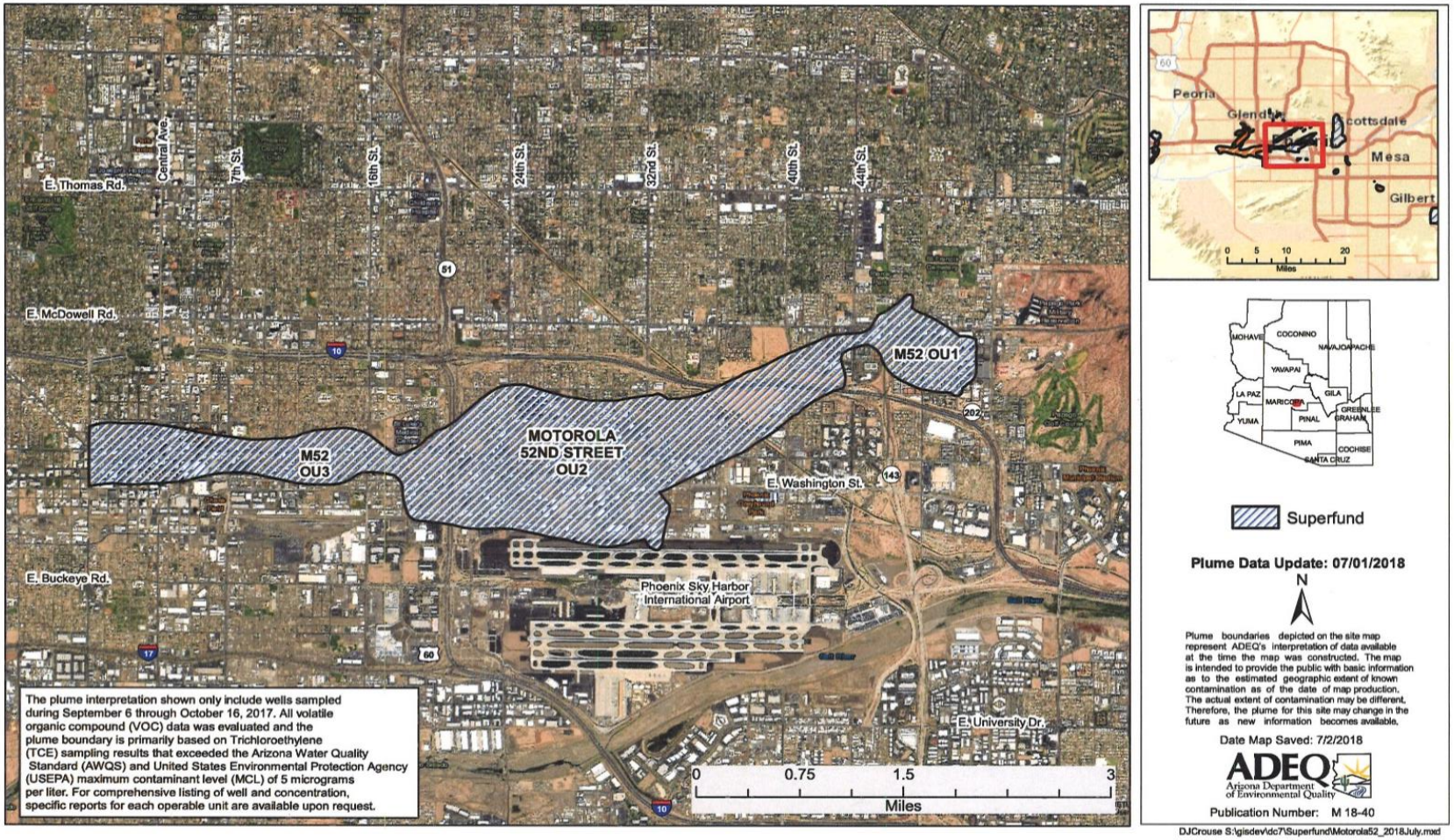
SITE LOCATION MAP
1979 AERIAL PHOTOGRAPH

Figure 1

CLEAR CREEK ASSOCIATES

FORMER WES TRUST PROPERTY
5149 East McDowell Road
Phoenix, Arizona

Motorola 52nd Street



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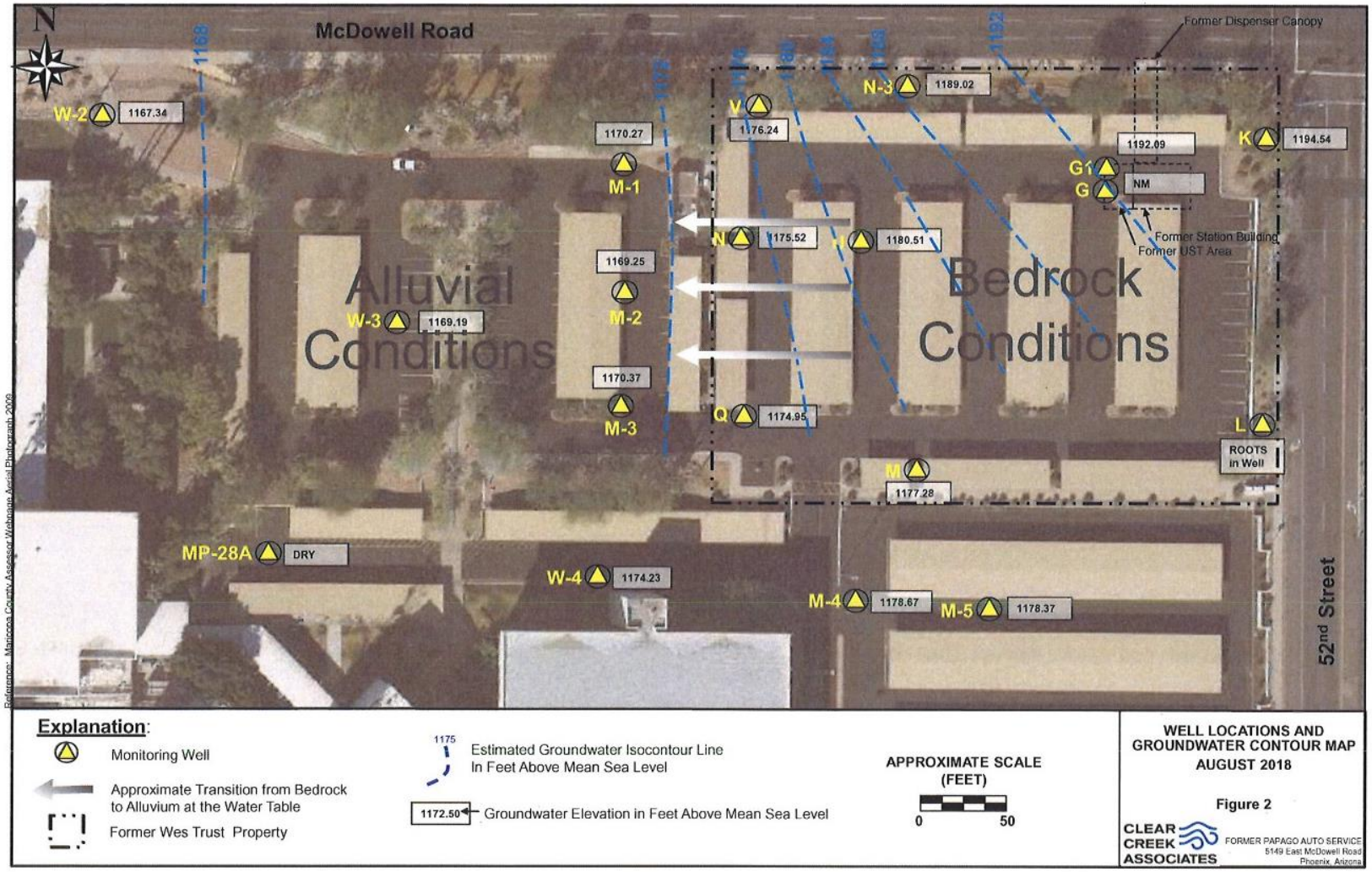

N
McDowell Road
Former Dispenser Canopy
1168
1178
1192
W-2
1167.34
1170.27
M-1
V
1176.24
N-3
1189.02
1192.09
K
1194.54
G1
G
NM
Former Station Building
Former UST Area
N
1175.52
1180.51
1169.25
M-2
W-3
1169.19
Alluvial Conditions
Bedrock Conditions
1170.37
M-3
Q
1174.95
L
ROOTS in Well
M
1177.28
MP-28A
DRY
W-4
1174.23
M-4
1178.67
M-5
1178.37
52nd Street
Reference: Maricopa County Assessor Webmap Aerial Photograph 2009
Explanation:
Monitoring Well
Approximate Transition from Bedrock to Alluvium at the Water Table
Former Wes Trust Property
1175
Estimated Groundwater Isocontour Line In Feet Above Mean Sea Level
1172.50
Groundwater Elevation in Feet Above Mean Sea Level
APPROXIMATE SCALE (FEET)
0
50
WELL LOCATIONS AND GROUNDWATER CONTOUR MAP
AUGUST 2018
Figure 2
CLEAR CREEK ASSOCIATES
FORMER PAPAGO AUTO SERVICE
5149 East McDowell Road
Phoenix, Arizona

Explanation:

- 2018 Approximate Plume Extent with Constituent(s) above AWQS or Tier I Guidance Level
- 1995 Maximum Plume Extent with Upgradient Contribution from Circle K (from Figure 3 of *Corrective Action Plan, HLA, 1996*)
- Former WES Trust Property Boundary
- Monitor Well

B = benzene
M = methyl-t-butyl ether
DCA = 1,2-dichloroethane
EDB = ethylene dibromide
NA = not analyzed
Results in ug/l

APPROXIMATE SCALE (FEET)
0 100

Note: Results in **red** indicate concentrations at or above applicable AWQS or Tier I Guidance Level.

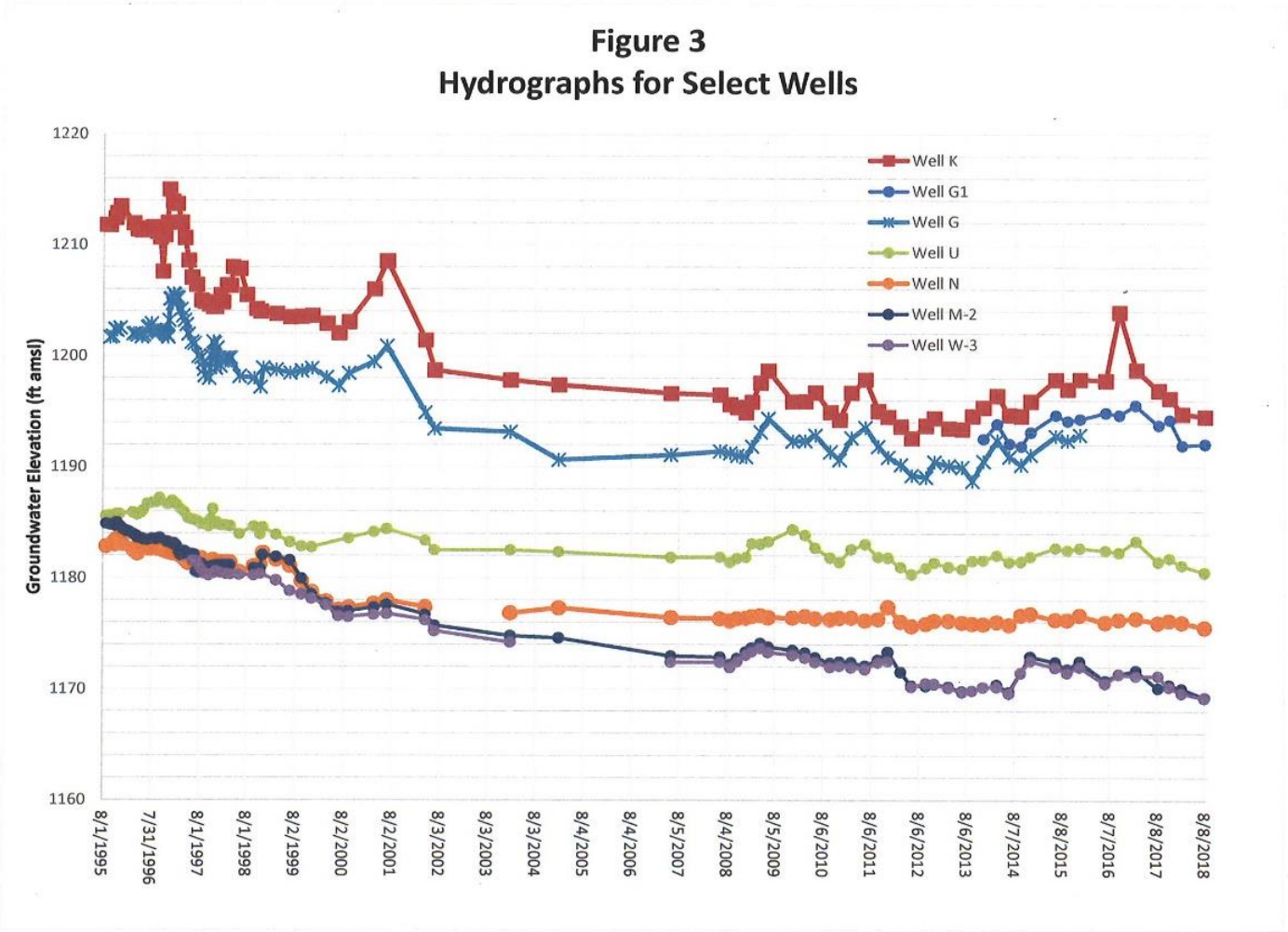
PLUME MAP
AUGUST 2018

Figure 6

CLEAR CREEK ASSOCIATES

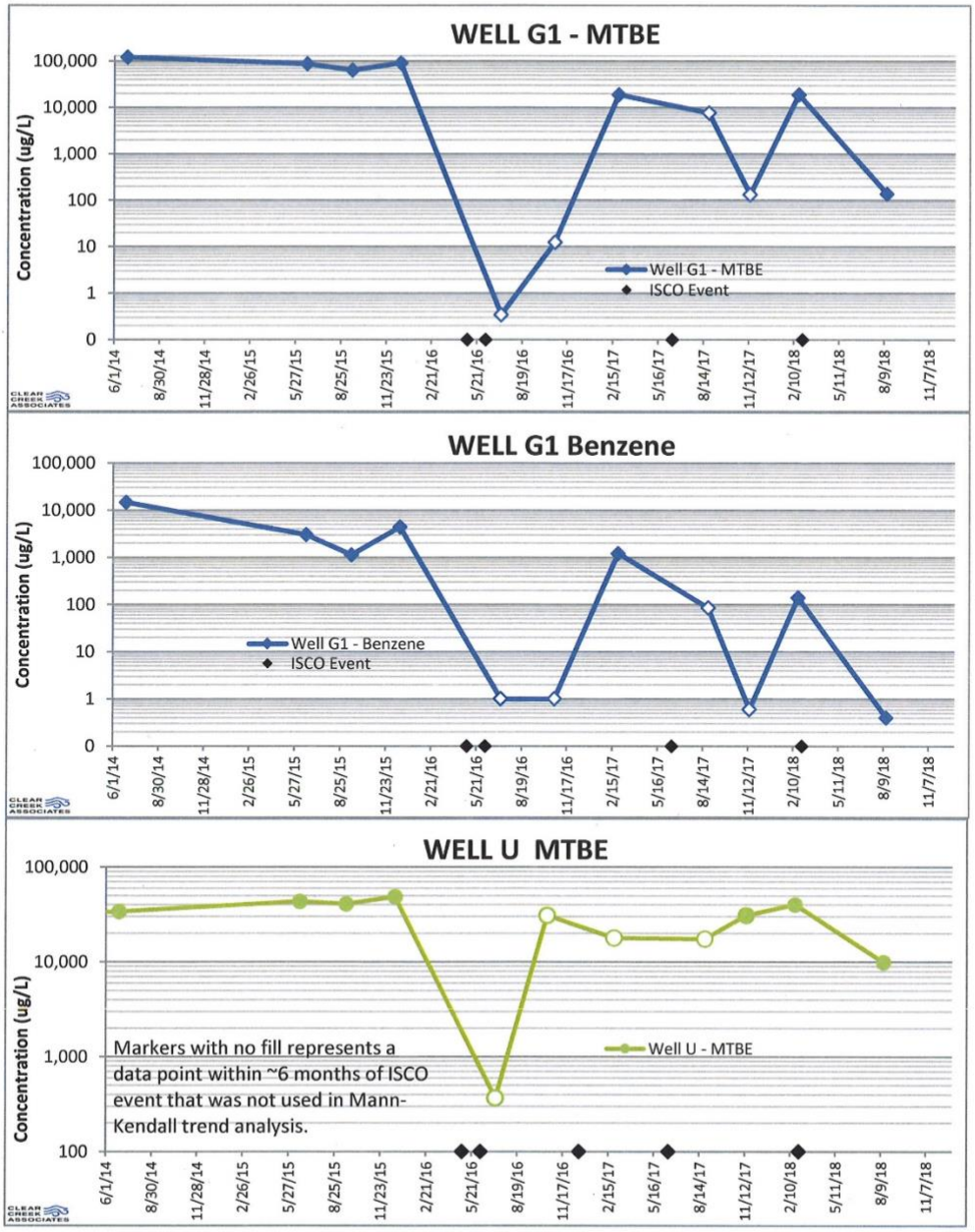
FORMER PAPAGO AUTO SERVICE
5149 East McDowell Road
Phoenix, Arizona

ADEQ Arizona Department of Environmental Quality



Corrective Action Completion Report
Former WES Trust Property
Phoenix, Arizona

FIGURE 7
Time Series Charts



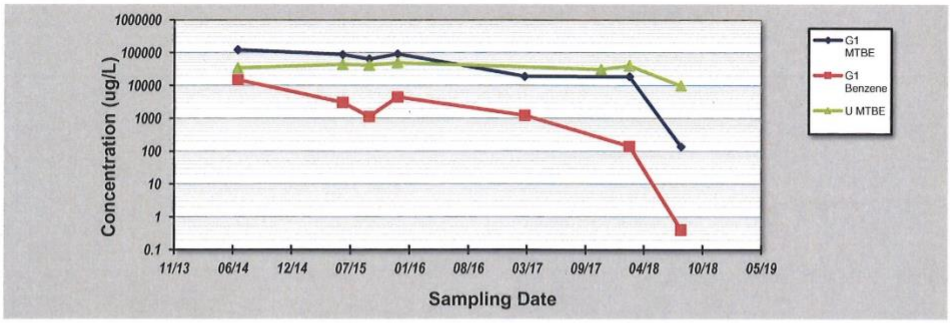
Corrective Action Completion Report
Former WES Trust Property
Phoenix, Arizona

FIGURE 8
Mann-Kendall Trend Analysis

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

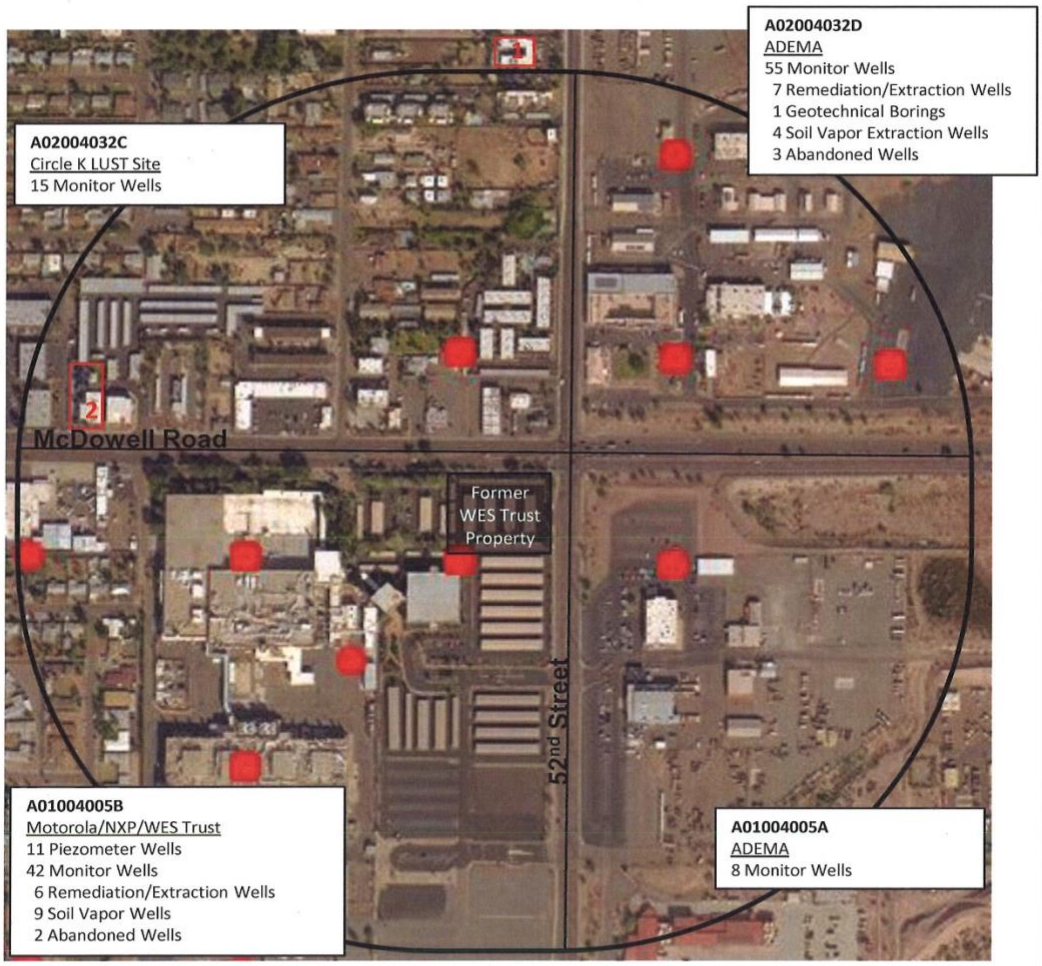
Evaluation Date: 13-Sep-18
Facility Name: Former WES Trust Property
Conducted By: Wayne Feller
Job ID:
Constituent: MTBE and Benzene
Concentration Units: ug/L

Sampling Point ID:		G1 MTBE	G1 Benzene	U MTBE				
Sampling Event	Sampling Date	MTBE AND BENZENE CONCENTRATION (ug/L)						
1	6/27/14	121,000	14,600	33,900				
2	6/19/2015	86800	3010	43500				
3	9/17/2015	63700	1120	40700				
4	12/22/2015	91200	4380	48500				
5	7/9/2016							
6	10/24/2016							
7	2/27/2017	18800	1210					
8	8/25/2017							
9	11/15/2017			30900				
10	2/20/2018	18700	140	40100				
11	8/15/2018	137	0.4	9760				
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.79	1.47	0.36				
Mann-Kendall Statistic (S):		-17	-15	-7				
Confidence Factor:		99.5%	98.5%	80.9%				
Concentration Trend:		Decreasing	Decreasing	Stable				



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.



Explanation:

Center of 10-acre section of ADWR registered well location

1 SEEK Early Learning Center
1848 N. 52nd Street

2 Just Like Home Daycare Preschool
4950 E. McDowell Road

APPROXIMATE SCALE
0 (FEET) 500

N

A02004032C Cadastral Location
ADEMA Arizona Department of Emergency and Military Affairs

ADWR Well Search conducted 9/20/18
No registered water supply wells in the ¼ mile search area.

REGISTERED WELL MAP

Figure 10

CLEAR CREEK ASSOCIATES

FORMER WES TRUST PROPERTY
5149 East McDowell Road
Phoenix, Arizona