

PROPOSED LEAKING UST (LUST) CASE CLOSURE

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

LUST Case File # 3004.03
Facility ID # 0-003229
Maricopa County

Former Mobil Station #18KDP
3141 East Thomas Road
Phoenix, Arizona 85008

The Arizona Revised Statutes (A.R.S.) §49-1005(E) and Arizona Administrative Code (A.A.C.) R18-12-263.04 allow case closure of LUST sites with groundwater contamination above the Arizona Aquifer Water Quality Standards (AWQS) if certain site specific conditions are met. For the above-referenced LUST site, ADEQ has considered the following:

1. Characterization of the groundwater plume,
2. Removal or control of the source of contamination,
3. Groundwater plume stability,
4. Natural Attenuation,
5. Threatened or impacted drinking water wells,
6. Other exposure pathways,
7. Requirements of A.R.S. §49-1005(D) and (E), and
8. Other information that is pertinent to the LUST case closure approval.

Site Summary

The LUST release was addressed by using the following remedial technologies: soil vapor extraction with air sparge, dual phase extraction, and groundwater extraction and treatment. All monitoring wells associated with the LUST case are shown in Figure 1 below. A May 2015 Arizona Department of Water Resources database search did not indicate any public water supply wells or potable or non-potable private water wells within ¼ mile. Groundwater has been reported to flow in a southwest direction.

Potential Off-site Source

Historic groundwater data shows BTEX, MTBE and 1,2-DCA at concentrations above applicable regulatory standards. As of September 2015, benzene, MTBE and 1,2-DCA concentrations exceed the applicable regulatory standard in monitoring wells (MW-1, MW-4 and MW-5) at the site. The June and September 2015 rounds of groundwater sampling show that the VOC concentration in the well located at the up-gradient side of the release (MW-4 and MW-5) continue to increase and many of the chemicals seen have not been detected since 2005. The remaining monitoring wells have no VOC contamination over an applicable regulatory standard.

This concentration increase is likely associated with a LUST site located 200 feet up-gradient of the site, since the subject site has had all USTs removed from the ground since 2006. The up-gradient site briefly ran an SVE system to extract vapor from MW-1 between March 2009 and March 2010, however groundwater data from the up-gradient site indicated VOC concentrations still remain over applicable regulatory levels based on the most recent data from August 2012. The data indicated benzene, toluene, ethylbenzene, and xylene concentrations of 5,490 µg/L, 2030 µg/L, <1,250 µg/L and 4,740 µg/L, respectively. EDB, MTBE and 1,2-DCA were all reported as <1250 µg/L. The groundwater flow direction has been to the southwest (towards the former Mobil #18KDP site) since 1995 based on LUST file information.

How to Review the Submitted Document and LUST Case File

The document titled *Corrective Action Completion Report*, dated January 13, 2016, and the remainder of the LUST case file are available for review at the ADEQ Records Center, located at 1110 West Washington Street, Suite 140, Phoenix, Arizona 85007. To review the file, you may call the Records Center at (602) 771-4380 or visit their website at <http://www.azdeq.gov/function/assistance/records.html>.

How to Submit Comments

Comments regarding the submitted document or LUST case closure for this site should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, Attention: Tiffany Yee, 1110 W. Washington Street, Phoenix, AZ 85007. Comments sent to ADEQ during **April 18, 2016 through May 18, 2016** will be considered in ADEQ's evaluation for LUST case closure.

Additional Information

If sufficient public interest is demonstrated during the public comment period, ADEQ may hold a public meeting in accordance with A.A.C. R18-12-264.01(C). If a public meeting is to be held, ADEQ will schedule and notify the public in accordance with A.A.C. R18-12-264.01(A) of the meeting time and location.

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

If you have questions regarding this notice, please contact Tiffany Yee at (602) 771-2316 or TJY@azdeq.gov.

Groundwater Depths and Concentrations for MW-1

Date of sampling	Groundwater Depth (ft bgs)	Benzene (µg/L)	1,2-DCA (µg/L)
6-25-04	61.60	456	13
9-17-04	64.31	265	<1.0
11-18-04	63.71	795	21.2
6-16-05	60.42	706	<1.0
9-8-05	59.65	377	<1.0
11-8-05	59.12	279	<1.0
2-21-06	58.80	165	<1.0
5-10-06	57.32	103	16.3
7-25-06	58.51	288	<1.0
10-19-06	58.06	307	<1.0
2-15-07	62.61	21.7	<1.0
4-19-07	63.84	275	7.05
7-10-07	65.73	1,000	5.54
10-12-07	65.50	537	2.37
6-5-08	59.45	513	<5.00
7-17-08	60.63	<1.0	<1.0
10-20-08	58.29	85	<10.0
3-5-09	58.54	<1.0	<1.0
5-28-09	60.25	67.3	4.92
7-17-09	60.48	167	3.75
10-19-09	58.80	131	<1.0
3-30-10	60.38	290	9.29
5-11-10	60.50	326	7.42
7-13-10	60.30	194	<1.0
8-4-10	58.25	57.9	<1.0
11-20-12	59.38	5.88	<1.0
6-16-15	63.64	2.0/2.01	<1.0
9-9-15	77.22	5.23/5.44	9.07/<1.0
Aquifer Water Quality Standard or Tier 1 Standard (µg/L)		5	5

Groundwater Depths and Concentrations for MW-4

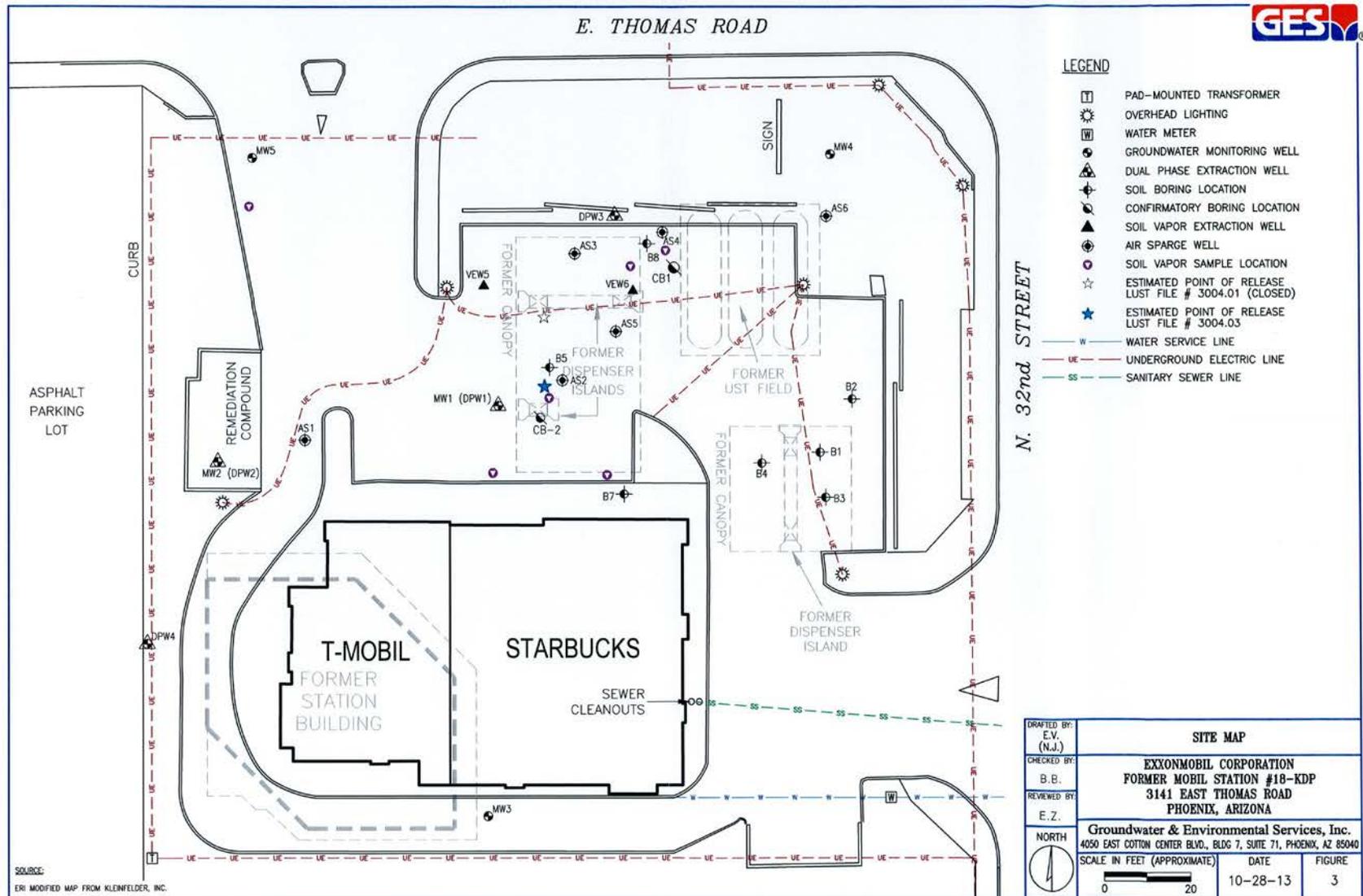
Date of sampling	Groundwater Depth (ft bgs)	Benzene ($\mu\text{g/L}$)
6-25-04	60.08	2,222
9-17-04	60.66	2,340
11-18-04	61.30	2,240
6-16-05	59.76	1,650
9-8-05	59.02	1,200
11-8-05	58.51	1,610
2-21-06	58.27	1,310
5-10-06	56.22	1,750
7-25-06	57.88	1,720
10-19-06	57.40	1,030
2-15-07	57.44	1,010
4-19-07	58.62	1,150
7-10-07	60.55	1,540
10-12-07	57.42	790
2-11-08	57.42	164
6-5-08	58.24	540
7-17-08	59.34	31.1
10-20-08	56.15	105
3-5-09	56.21	28.2
5-28-09	58.42	110
7-17-09	58.65	160
10-19-09	57.93	6.88
3-30-10	58.64	17.4
7-13-10	58.48	42.3
8-5-10	58.49	78.5
11-20-12	59.31	<1.00
6-16-15	63.79	468
9-9-15	64.07	165
Aquifer Water Quality Standard or Tier 1 Standard ($\mu\text{g/L}$)		5

Groundwater Depths and Concentrations for MW-5

Date of sampling	Groundwater Depth (ft bgs)	Benzene ($\mu\text{g/L}$)	MTBE ($\mu\text{g/L}$)
6-25-04	60.41	2,080	--
9-17-04	61.95	1,950	--
11-18-04	61.61	2,890	--
6-16-05	59.98	61.4	--
9-8-05	59.23	314	--
11-8-05	58.70	207	--
2-21-06	58.45	122	--
5-10-06	58.35	75.4	--
7-25-06	58.10	12.6	--
10-19-06	57.65	11.9	--
2-15-07	57.68	15.3	--
4-19-07	58.84	16.1	--
7-10-07	60.83	24.6	--
10-12-07	60.34	19.1	--
6-5-08	56.19	13.8	--
7-17-08	60.93	12.3	--
10-20-08	58.24	9.96	--
3-5-09	57.96	7.19	--
5-28-09	58.25	8.43	--
7-17-09	58.43	10.2	--
10-19-09	58.09	12.4	--
3-30-10	58.48	10.5	103
7-13-10	58.25	13.5	180
8-4-10	58.25	19.5	139
12-21-10	57.52	11.0	200
11-20-12	59.38	20.0	301
6-16-15	63.64	638	95.7
9-9-15	63.88	1,180	135
Aquifer Water Quality Standard or Tier 1 Standard ($\mu\text{g/L}$)		5	94

-- represents not analyzed

Figure 1: Site Map



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Figure 2A: Site Vicinity Map



- Notes:
- 1) All groundwater monitor well locations are approximate.
 - 2) Subject site benzene data was most recently collected in September 9-10, 2015.
 - 3) Up-gradient site's benzene data was most recently collected in August 31, 2012.
 - 4) The approximate groundwater flow direction is based on data collected from the subject site since 1995.

ADEQ  **Memorandum**
Arizona Department
of Environmental Quality

Date: March 11, 2016
To: LUST file
From: Debi Goodwin, UST Risk Assessor
WPD Corrective Action Section 
Subject: Corrective Action Completion Report- January 13, 2016
Former Mobil #18KDP
Facility No. 0-003229 LUST No. 3004.03

Please refer to the March 4, 2015 ADEQ memorandum for historic site information, previous sampling and data interpretation.

Background

Groundwater Environmental Services, Inc. (GES) on behalf of ExxonMobil Environmental Services Company, submitted a *Corrective Action Completion Report* dated February 15, 2013. ADEQ denied closure in a letter dated April 9, 2013, since an appropriate Tier 3 evaluation was not performed. The submittal also failed to meet the closure criteria under A.A.C. R-18-12-263.04.

GES, submitted a *Corrective Action Completion Report* with a request for LUST closure dated December 19, 2014. ADEQ responded to the submittal with a letter dated March 6, 2015 in which LUST closure was denied based on the alternate groundwater closure requirements were not met. It is noted that the soil vapor data interpretation was not done correctly, but ADEQ evaluated the correct CoCs and the cumulative cancer risk and non-cancer risk were acceptable.

Purpose

GES, on behalf of ExxonMobil Environmental Services Company, submitted a *Corrective Action Completion Report* with a request for LUST closure dated January 13, 2016. The report was received by ADEQ on January 28, 2016 and received by me on March 4, 2016. The information described above and all available information was utilized by ADEQ to determine whether levels of contaminants at the site are adequately protective of human health and the environment.

Data Evaluation

Groundwater

GES collected compliance groundwater samples in June and September 2015. The groundwater samples were analyzed by TestAmerica for VOCs by EPA Method 8260B plus TICs. Groundwater samples in MW-5 were also analyzed for EDB by EPA Method 8011 and inorganic lead. The depth to groundwater ranges from 63.79 to 69.54 feet in June 2015 and from 63.88 to 69.36 feet in September 2015. The groundwater flow direction is to the southwest.

Tier 3 Risk Evaluation

Groundwater

Benzene, MTBE and 1,2-DCA concentrations exceed the applicable regulatory standard in several wells at the site. The June and September 2015 rounds of groundwater sampling show that the VOC concentration in the wells located at the up-gradient side of the release continue to increase.

There is a LUST site (F 0-007057 L 1636.02, .03, .04) located approximately 200 feet directly up-gradient of this site. The site began operating in the early 1960's. The LUST site has three open releases that were assigned in 1996 when the USTs were removed. Groundwater data from 2000 indicated BTEX and 1,2-DCA concentrations over applicable regulatory levels. A Chevron station was constructed in 2001. In 2008, soil data indicated VOC concentrations over rSRLs at 50 feet. An SVE system briefly ran to extract vapor from MW-1 between March 2009 and March 2010. There is only one on-site well and the most recent data is from August 2012. The data indicated benzene, toluene, ethylbenzene, and xylene concentrations of 5,490 µg/L, 2030 µg/L, <1,250 µg/L and 4,740 µg/L, respectively. EDB, MTBE and 1,2-DCA were all reported as <1250 µg/L. The groundwater flow direction has been to the southwest (towards the former Mobil #1KDP site) since 1995 based on LUST file information.

Recommendations/Conclusions

Under A.A.C. R-18-7-206(D), multiple contaminants, multiple pathways of exposure, uncertainty of exposure and sensitive populations are evaluated as part of a site specific risk assessment. The petroleum related soil contamination which exceeded an applicable regulatory standard was only present in the subsurface (50 feet bgs), so there isn't a risk posed by the dermal or ingestion exposure routes. The soil vapor data from 2014 demonstrates the inhalation exposure route shows an acceptable risk from any remaining VOC contamination left in subsurface soils.

Groundwater data documents the appropriate data needed for alternative groundwater closure under A.A.C. R-18-12-263.04.

LUST closure for release 3004.03 is recommended.

I can be contacted at (602) 771-4453 or dq1@azdeq.gov if there are any questions regarding the information presented in this memo.