

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 #: 2440.01
Facility ID # 0-007935
Maricopa County

Quality Auto Sales Facility
598 E Chandler Blvd.
Chandler, Arizona 85225

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.

The plume of release related compounds was reduced by soil vapor extraction, ozone and air sparging, and in-situ chemical oxidation until onsite monitor wells, MW-1, MW-5 and MW-6, had concentrations of the following petroleum related chemical of concern exceeding the AWQS (see table below). All other monitoring wells except MW-3 are located within the facility boundary (see map). Offsite well, MW-3, is located upgradient to plume. Depth to groundwater is approximately at 103 feet below ground surface (bgs). A 2014 ADWR database search indicated no down gradient drinking water receptor well within one-quarter mile. Historically groundwater has been reported to flow in a northwest direction.

Site specific information concerning this closure is available for review during normal business hours at the <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 UST File Room at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **February 23, 2016 through March 23, 2016**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, Attention: Samar Bhuyan, 1110 W. Washington Street, Phoenix, AZ 85007.

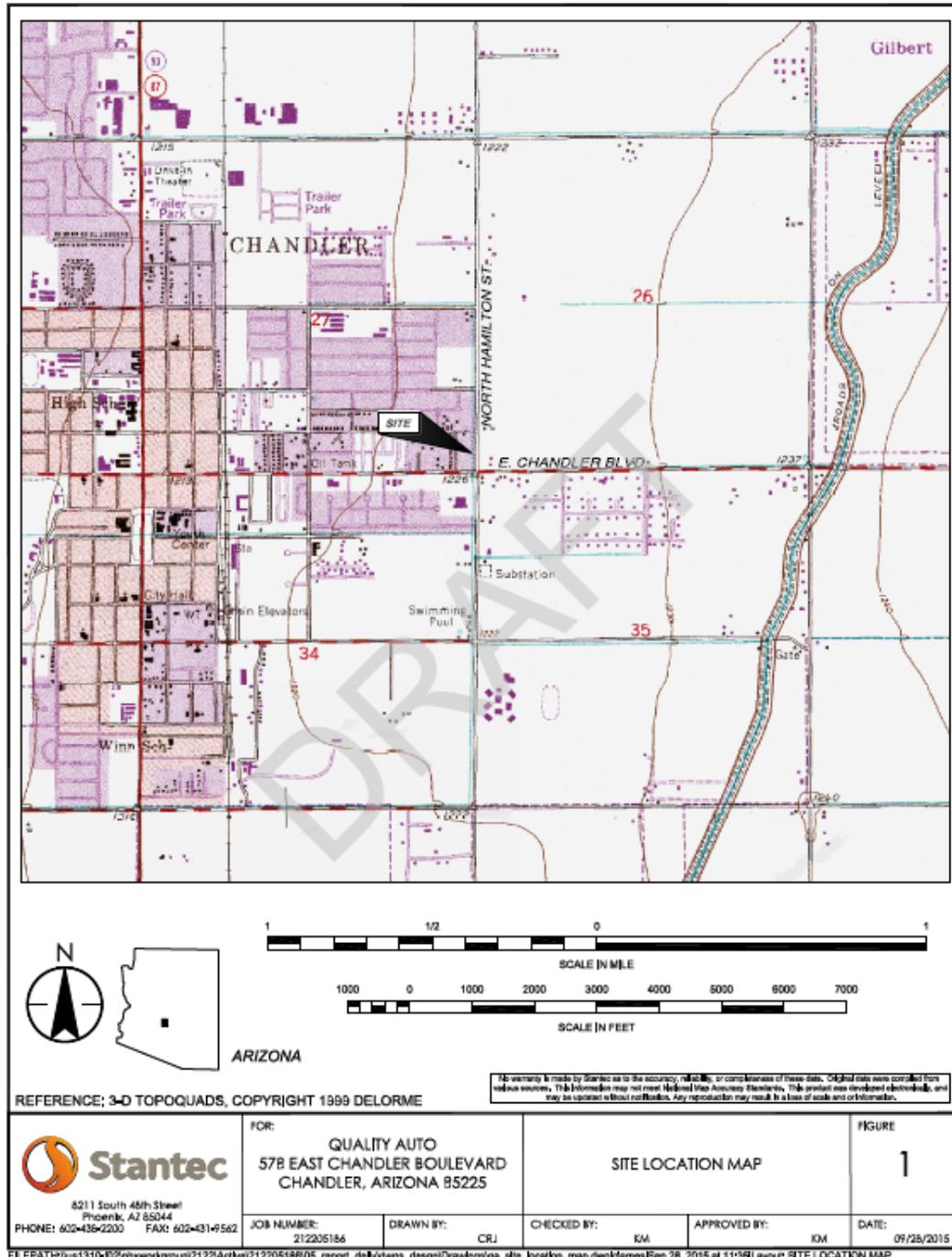
If sufficient public interest is demonstrated during the public comment period, ADEQ will announce and hold a public meeting. ADEQ will respond to written comments following the public comment period. For more information on this notice, please contact Samar Bhuyan at 602-771-4252 or 800- 234-5677 ext 771-4252 or at sjb@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

Date of sampling	Contaminant concentration in MW-1, ug/l			Contaminant concentration in MW-5, ug/l			Contaminant concentration in MW-6, ug/l		
	B*	1, 2 DCA*	EDB*	B	1, 2 DCA	EDB	B	1, 2 DCA	EDB
3/27/2014	22.2	10.1	1.85	2.09	87.4	<0.5	66.3	45.9	10.8
8/5/2014	1.37	6.31	1.25	427	121	<0.5	68.8	27.1	7.95
1/7/2015	4.7	9.2	3.8	0.19	1.7	<0.3	0.12	2.1	0.82
3/23/2015	2.0	2.8	<0.30	670	78	<0.3	810	110	15
8/28/2015	NS	NS	NS	5.7	2.7	<0.3	0.87	<0.31	9.6
10/15/2015	1.9	13.0	3.2	5.8	27	0.16	0.37	16	3.7
AWQS	5.0	5.0	0.05	5.0	5.0	0.05	5.0	5.0	0.05

*B: Benzene; 1,2 DCA: 1,2 Dichloroethane; EDB: Ethylene Dibromide; NS: Not sampled

AWQS: Aquifer Water Quality Standard



ADEQ  **Memorandum**
Arizona Department
of Environmental Quality

Date: November 24, 2015
To: LUST File
From: Debi Goodwin, UST Risk Assessor
State Lead Unit
WPD Corrective Action Section
Subject: Tier 3 Risk Assessment
Quality Auto
F 0-007935 L 2440.01

Background

An Exxon fuel station was formerly located at this Chandler site that operated a gas station from the mid-1950s to mid-1989. This site is currently used as an auto tire repairing facility. Soil sampling collected during removal of three (3) underground storage tanks (USTs) in 1992 indicated that petroleum hydrocarbons leaked from these tanks. The contamination reached groundwater. Limited site investigation was performed until 2005 by the property owner included few soil borings and well installation. Upon request from the property owner, ADEQ's State Lead took over the corrective actions in 2006. Initially, corrective actions included installation of few monitoring wells to delineate groundwater contamination. One of the wells showed free floating gasoline. In 2008, ADEQ started remediation phase by installing several groundwater and soil remediation wells. However, the project temporarily stopped until 2010 due to funding issues. The remediation system then started in September 2010 with ozone sparging and soil vapor extraction (SVE) for groundwater and soil clean up, respectively. The systems were connected to 9 groundwater sparging wells and 5 soil vapor extraction wells. The remediation system was shut down for operation between July 2012 and March 2013 due to a remediation system modification. Ten (10) additional shallow sparge wells (in January 2013) were added on due to rising groundwater table. Remediation restarted in April 2013 with air sparging and SVE systems. The SVE system was decommissioned in April 2014 due to low effluent concentration.

Purpose

Stantec, the State Lead Unit contractor, has conducted additional groundwater remediation (In-Situ Chemical Oxidation) and post-remediation activities which include soil, groundwater and soil vapor sampling.

In order to accelerate clean up in groundwater, Sodium PersulfOx chemical was injected in May and October 2014 through few groundwater monitoring wells which brought down the contamination significantly. However, additional chemical injection was needed to be done in July 2015 to address the rebound contamination.

All available data has been reviewed to determine whether remaining levels of contaminants (from the historic UST system) at the site are adequately protective of human health and the environment.

Data Evaluation: Soil

Subsurface VOC soil contamination was present when the USTs were removed in 1992. In 2013, during the installation of AS-10, soil samples indicated subsurface VOC soil contamination between 65 and 115 feet bgs at concentrations that exceed applicable rSRLs based on analytical data from EPA Method 8260B, plus TICs. Soil samples were analyzed in accordance with ADEQ's UST Analytical Requirements Information Sheet dated July 2014. All soil data collected has properly defined the extent of contamination. There is no surficial soil contamination present.

Data Evaluation: Groundwater

Groundwater data has been collected at the site between 2006 and 2015. The most recent data is from October 2015. Groundwater samples have been analyzed following ADEQ's UST Analytical Requirements Information Sheet dated July 2014. The only compounds detected on-site over an applicable AWQS are benzene, 1,2-DCA and ethylene dibromide based on analytical data from EPA Method 8260B plus TICs. The depth to water is approximately 100 feet bgs. Three separate ISCO (sodium persulfate) events were conducted between 2014 and 2015. The injections lowered the VOC concentrations.

Site Specific Tier 3 Risk Assessment

Soil

VOC contamination was present in subsurface soils prior to active remediation at concentrations that exceeded rSRLs.

Soil Vapor

A soil vapor survey was conducted in July 2014 to evaluate the inhalation exposure risk of any remaining subsurface VOC soil contamination. Soil vapor samples were collected at 5 feet bgs at all locations. Field and laboratory QA/QC requirements for a risk assessment were met.

ADEQ modeled the soil vapor data using the EPA on-line screening version of the Johnson and Ettinger (J&E) model [forward calculation]. ADEQ used the EPA Regional Screening Levels for resident air dated May 2014. The toxicity values for use in the J&E were updated using the values in the Regional Screening Level table.

ADEQ modeled the maximum concentrations of chemicals for both the cancer risk value (ELCR) and the hazard index (HI) or non-carcinogenic health hazard. The "High Indoor Air Prediction" was used. The risk assessment included all CoCs that exceed $1/10^{th}$ of the EPA Regional Screening Level for each CoC.

ADEQ evaluated the soil vapor data and ran a residential scenario and evaluated all of the petroleum and non-petroleum (chloroform and PCE) CoCs that met the modeling criteria. The non-petroleum ELCR is 7.053×10^{-6} and the HI is 0.01. The petroleum ELCR of 9.8×10^{-7} and the HI of 0.004 show acceptable risk for LUST release 2440.01.

Groundwater

Since VOCs are present in the groundwater over applicable AWQS, LUST closure is being sought under R 18-12-263.04. The groundwater plume has been characterized, the source of the contamination was removed when the USTs were removed, and soil contamination was actively remediated. Three separate ISCO events were conducted which lowered the VOC concentrations. The plume is stable since the contamination remaining is localized. There are no threatened or impacted drinking water wells.

Conclusions/Recommendations

A.A.C. R18-12-263.01(A), R18-12-263.04 and R18-7-206(D) allows for a site specific risk assessment. Under A.A.C. R18-7-206(D), multiple contaminants, multiple pathways of exposure, uncertainty of exposure and sensitive populations are evaluated as part of a site specific risk assessment.

There are no sensitive receptors in the exposed population. This site specific risk assessment shows that the petroleum related soil contamination was only present in the subsurface at the former UST location, so there isn't a risk posed by the dermal or ingestion exposure routes. The soil vapor survey demonstrates the inhalation exposure route shows an acceptable risk from any remaining VOC contamination left in subsurface soils. The current groundwater data shows contamination present over applicable AWQS. However, it is not posing an unacceptable risk since it is localized to the site and there are no impacted or threatened drinking water wells on or off site.

Based on the data presented in the submittal, and other relevant information in the LUST file, LUST release 2440.01 is recommended for closure under A.A.C. R-18-12-263.04.

If you have any questions regarding this memo, please contact me at (602) 771-4453 or dg1@azdeq.gov.