

## 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 #: 4698.01**  
**Facility ID # 0-009083**  
**Yuma County**

**Chevron/Shay #19**  
**2459 West 32<sup>nd</sup> Street**  
**Yuma, Arizona 85364**

The Site was constructed as a service station on former agricultural land in early 1997. Four USTs were installed. In May 1997, a 500 gallon unleaded gasoline discrepancy was found in the fuel inventory system. Free product was identified in leak detection well MW-3 located along the southwest corner of the UST area. Approximately 60 gallons of gasoline was recovered from the secondary container lid, filtered and returned to the UST. LUST release number 4698.01 was assigned in May 1997.

Approximately 160 gallons of gasoline were removed by pumping out free product from MW-3 in 1997. Site characterization activities started and continued through 2008 and included the installation of soil borings and eight monitoring wells. A Soil Vapor Extraction/Air Sparge system operated between June and October 1998. Under the Corrective Action Plan, Passive Biodegradation was the remedial choice after the SVE/AS system was removed in 2002. A ninth monitoring well was installed in 2016 to complete site characterization. A site specific risk assessment and detailed file/information search were also completed at the site. MTBE concentrations in groundwater in MW-4 and MW-6 remain above regulatory standards.

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 Aquifer Water Quality Standards (AWQS) or Tier 1 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 ADWR records, the wells that are identified as being within ¼ mile of the site do not appear to be in use. The closest downgradient well is identified as a domestic/industrial use well (55-613325). There is no pumping data associated with the well.
2. *Other exposure pathways:* The confirmation soil borings collected at 10 and 15 feet indicated no volatile organic compound (VOC) contamination remaining after active remediation. For the soil, there are no complete exposure pathways. The groundwater modeling of the current maximum concentration of MTBE shows an acceptable inhalation risk. The shallow water in Yuma is high in total dissolved solids, so it is not generally used as a source of potable water. Since this shallow water is not consumed, there is no unacceptable risk of ingestion. According to the EPA IRIS database, there is no RfD<sub>o</sub> value for MTBE. Since it is so volatile, there is no unacceptable risk from dermal contact with

the groundwater. There are no surface water, agricultural or ecological receptors within ¼ mile of the site.

3. *Groundwater plume stability:* Groundwater plume stability is demonstrated by the remaining VOC contamination present over a regulatory standard in groundwater is limited to MW-4 and MW-6 which are both located on-site. The groundwater flows towards MW-6 from MW-4. MW-9 is downgradient of MW-6 and has shown MTBE contamination in 2016 at 2 µg/L. MTBE does not exceed the regulatory standard in any other monitoring well. In addition, groundwater levels have dropped approximately 2 feet since 1997. In MW-4, as the depth to groundwater increases, the MTBE concentration decreases, and vice versa. The groundwater data indicates that the plume is and contained to the site.
4. *Characterization of the groundwater plume:* A total of nine monitoring wells were installed and collection of volatile organic compounds (VOCs) samples took place between 1998 and 2016. Groundwater monitoring wells and their respective sampling results indicate that the plume is characterized and contained to the site.
5. *Natural Attenuation:* Natural attention can be demonstrated by overall decreasing VOC concentrations below regulatory levels in most of the monitoring wells except for MW-4. The MTBE concentration in MW-6 has declined to right at the regulatory level. In addition, at the primary release location area, the highest historic MTBE concentration was 5,100 µg/L. MTBE concentrations have significantly decreased since that time.
6. *Removal or control of the source of contamination:* Source control and removal has been completed by the defueling and removal of the UST in 1997, and by conducting limited remedial 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 clean up activities, prior site uses and operational history of the UST system prior to removal.

Historic groundwater information: MW-4

<b>Date</b>	<b>MTBE Tier 1 is 94 µg/L</b>	<b>Depth to water (Feet)</b>
5/2016	160	9.88
3/2016	24	10.9
12/2015	63	10.39
6/2015	170	8.53
9/2014	25	NM
9/2013	11	NM
6/2013	2.7	NM
9/2012	110	NM

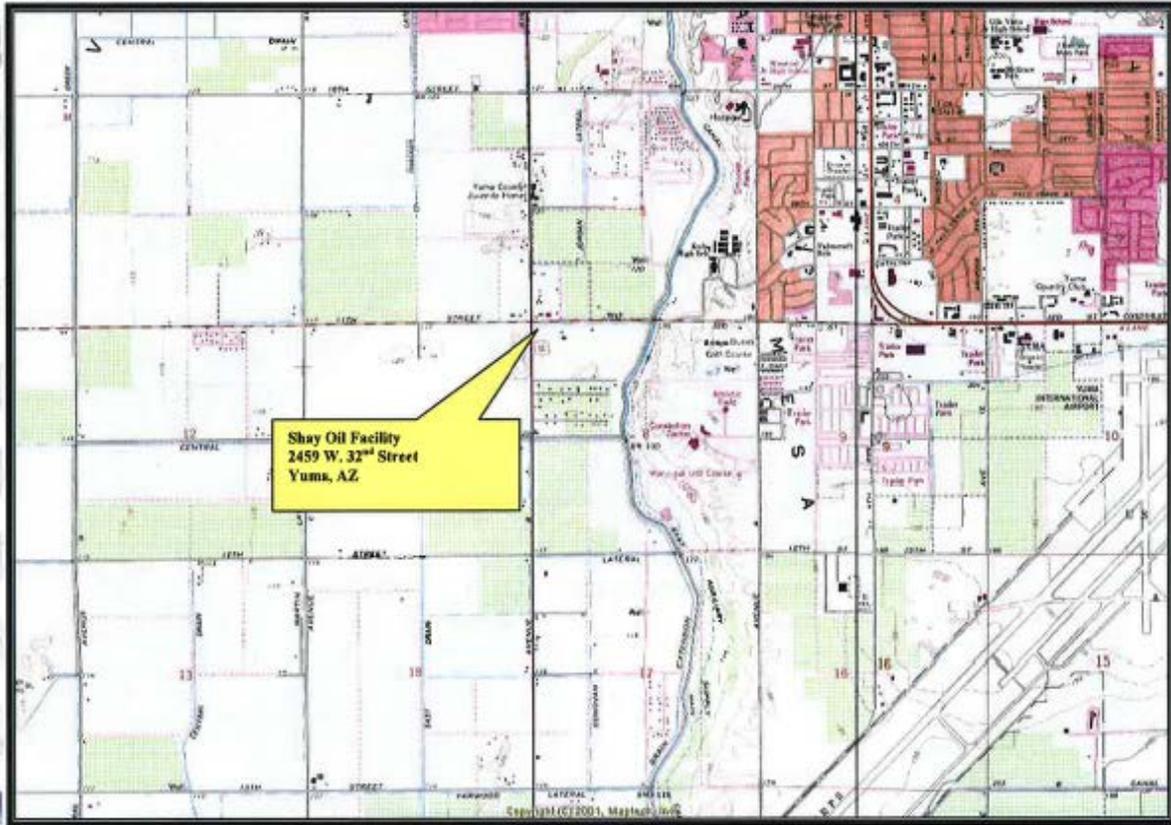
## Historic groundwater information: MW-6

<b>Date</b>	<b>MTBE Tier 1 is 94 µg/L</b>	<b>Depth to water (Feet)</b>
5/2016	95	9.1
3/2016	93	10.52
12/2015	160	9.58
6/2015	110	8.82
9/2014	160	NM
9/2013	170	NM
9/2012	130	NM

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 **July 29, 2016** and ending **August 29, 2016**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, and Attention: Debi Goodwin, 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 Debi Goodwin at 602-771-4453 or 800- 234-5677 ext. 771-4453 or at [dgl@azdeq.gov](mailto:dgl@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](http://www.azsos.gov/public_services/Title_18/18-12.htm)



**FIGURE 1**  
**SITE LOCATION MAP**  
**SHAY OIL**  
**2459 W 32<sup>ND</sup> STREET**  
**YUMA, ARIZONA**





**FIGURE 2**  
**MONITORING WELL LOCATION MAP**  
**SHAY OIL**  
**2459 W 32<sup>ND</sup> STREET**  
**YUMA, ARIZONA**



**ADEQ**  **Memorandum**  
Arizona Department  
of Environmental Quality

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**Date:** July 21, 2016  
**To:** LUST File  
**From:** Debi Goodwin, Risk Assessor  
UST-LUST Section  
**Subject:** Tier 3 Risk Assessment  
Shay Oil 32<sup>nd</sup> Street and Avenue B  
Facility No. 0-009083 LUST No. 4698.01

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**Background**

The Shay Oil Co., Chevron Service Station is located at 2459 West 32<sup>nd</sup> Street in Yuma. The site is currently a Chevron service station and Food Mart. The LUST release (unleaded gasoline) was assigned in 1997 and corrective actions began. A total of nine monitoring wells have been installed. Free product recovery in May 1997, SVE/AS from June to October 1998 and Passive Biodegradation since 1999.

**Purpose**

Shay's contractor, Nicklaus Engineering, Inc., submitted a *Corrective Action Completion Report* with a request for LUST case closure on July 13, 2015. ADEQ denied the closure request in a Notice of Decision letter dated October 26, 2015. Additional data was provided to ADEQ in a *Response to Comments on LUST Case Closure NOD and Facility Meeting* dated June 10, 2016.

The information described within 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**

**Soil**

Two confirmation soil borings were drilled in January 2015 and no VOCs were detected above laboratory reporting limits.

**Groundwater**

MW-4 and MW-6 are the only wells that show any VOC contamination over an applicable AWQS based on the May 2016 groundwater data. MTBE exceeds the AWQS in both wells. The depth to water in MW-4 was 9.88 feet bgs in May 2016. This well had the highest concentration of MTBE at 160 µg/L.

**Site Specific Tier 3 Standards and Risk Assessment**

The submittal did not provide adequate information for a Tier 3 Risk Assessment. ADEQ conducted the risk assessment.

Soil

The soil data indicated no VOCs detected.

Groundwater

For alternative groundwater closure under A.A.C. R-18-12-263.04, several criteria must be met. Existing groundwater data shows that the groundwater plume is characterized, the source of contamination (former UST system) has been removed/controlled and the groundwater plume is stable. The VOC contamination that is present in groundwater is limited on-site to MW-4 (near the source.) and MW-6, downgradient of MW-4. The other monitoring wells have no VOC contamination over an applicable AWQS. The only downgradient production well within ¼ mile of the site is owned by Cotton Oil Producers Inc. (55-613325). The ADWR records indicate domestic and industrial use. It appears the well is no longer used. The MTBE concentration in MW-4 seems to fluctuate with the depth to groundwater. The highest concentrations are seen when the depth is the shallowest indicating that some remnant MTBE is likely trapped in the capillary fringe. The MTBE contamination seen in MW-6 is hovering right at the AWQS of 94 µg/L.

The maximum MTBE concentration of 160 µg/L in MW-4 was modeled by ADEQ using the on-line screening version of the Johnson & Ettinger model to evaluate potential inhalation risk. The Hazard Risk is below 1 and the cancer risk level is  $2.26 \times 10^{-7}$  which is acceptable risk. MTBE is volatile and demonstrates acceptable risk for dermal contact. The shallow water in Yuma is high in total dissolved solids and is generally not used as a potable water source. Since the shallow water at the site is not used for potable water, there is no unacceptable ingestion risk.

Conclusions and Recommendations

The groundwater data shows only MTBE present over an applicable regulatory standard on-site only. The contamination doesn't pose a risk to any domestic or water supply wells. No threatened sensitive populations were identified. Based on the data collected, LUST release 4698.01 may be closed under A.A.C. R-118-12-263.04.

If you have any questions regarding this memo, please contact me at (602) 771-4453 or [dq1@azdeq.gov](mailto:dq1@azdeq.gov).