

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 #: 3227.01
Facility ID # 0-006503
Cochise County

Desert Videoland Oasis
10338 N. Highway 191
Elfrida, AZ 85610

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 groundwater contaminant plume of release related compounds was reduced by ozone sparging. There are only two monitor wells (MW-1A and MW-3A) on or downgradient from the above referenced property that still exceed the Arizona Aquifer Water Quality Standard for any regulated constituent (1,2-DCA; see table below). Depth to groundwater currently varies from approximately 102-109 feet at this facility. A 2016 well inventory of the ADWR database indicated no down gradient drinking water receptor wells are located within one-quarter mile of this facility. Historically groundwater flow direction has varied from north easterly to north westerly.

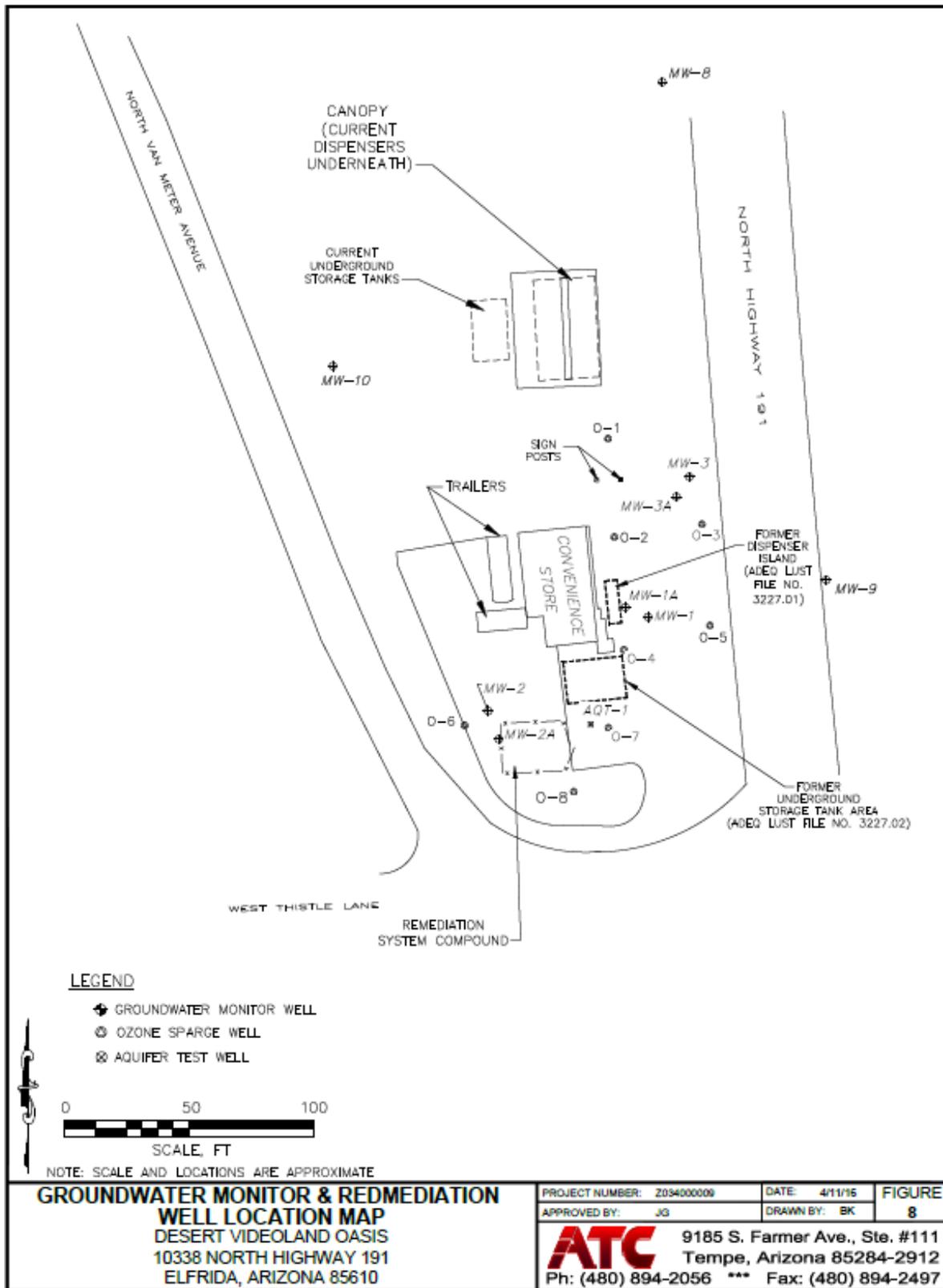
Site specific information concerning this closure is available for review during normal business hours at the <http://www.azdeq.gov/function/assistance/records.html>, 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the UST File Room at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **April 25, 2016** and ending **May 25, 2016**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste

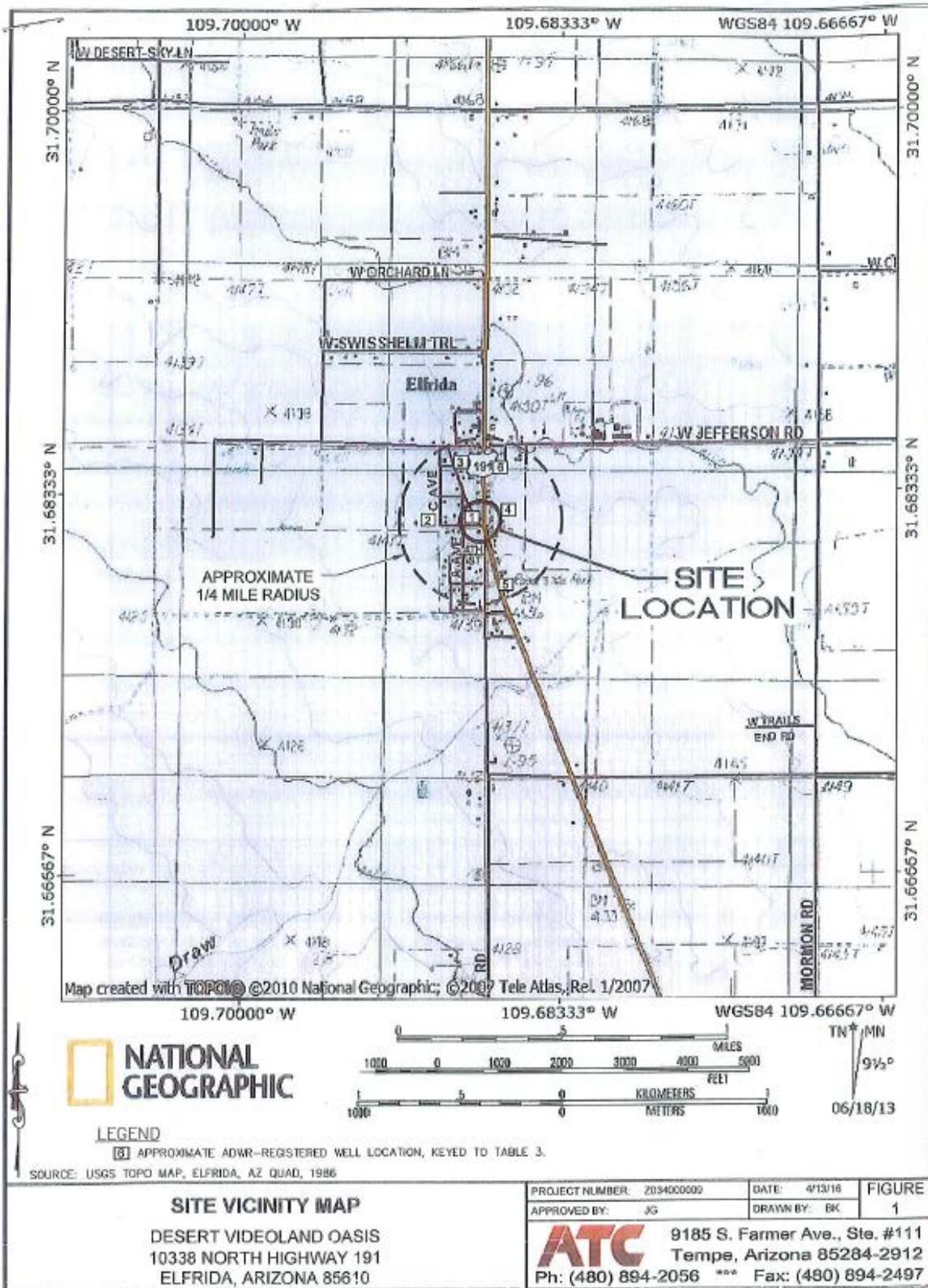
Programs Division, Attention: John Robertson, 1110 W. Washington Street, Phoenix, AZ 85007.

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 John Robertson at 602-771-4269 or 800- 234-5677 ext. 771-4269 or at jar@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	1,2-DCA contaminant levels in micrograms per liter in monitor well MW-1A	Date of sampling	1,2-DCA contaminant levels in micrograms per liter in monitor well MW-3A
July 1, 2014	62	July 1, 2014	66
October 31, 2014	26	October 31, 2014	48
February 11, 2015	12	February 11, 2015	22
May 4, 2015	20.4	May 5, 2015	30.4
September 28, 2015	18.6	September 29, 2015	22.9
December 22, 2015	13.1	December 22, 2015	18.9
Aquifer Water Quality Standard	5.0	Aquifer Water Quality Standard	5.0





ADEQ  **Memorandum**
Arizona Department
of Environmental Quality

Date: April 14, 2016

To: LUST File

From: Debi Goodwin, UST Risk Assessor
State Lead Unit
WPD Corrective Action Section 

Subject: Tier 3 Risk Assessment
Desert Videoland
Facility No. 0-006503 LUST No. 3227.01

Background

This property is located on Highway 191, within the town of Elfrida, in Cochise County, approximately 25 miles east of Tombstone, Arizona. The property currently is privately owned and consists of a video rental store and an active service station operated by Bell Gas of Arizona. ADEQ records indicate that prior to 1976 there was a UST system in which the tanks, located near today's video store, "leaked excessively". In 1976 a new owner installed two new 3,000 gallon USTs. Then in 1992, the current property owner purchased the property. The property owner reportedly stated this UST system was in good working order and was not leaking at the time he purchased the property. This property owner operated the UST system until it was taken out of service in 1998. Both USTs were discovered to have holes in them when they were removed in 1999. ADEQ assigned two releases from the previous UST systems, one from the dispenser island area of the post 1976 system, and the second from the pre-1976 tank pit. In September, 1998, Bell Gas of Arizona, installed a single 21,000 gallon partitioned FRP tank north of the store, which continues to serve the operating service station on the property. In October, 2003, the State Lead Unit took over corrective actions on the property and over the next 11 years installed a total of four monitor wells. Soil and soil vapor samples were collected in 2012. VOCs were present in the soil over applicable regulatory standards. Historic groundwater data showed benzene and 1,2-DCA concentrations over applicable AWQS in several of the monitoring wells. Eight ozone sparge wells were installed in the summer of 2013 to aggressively address the groundwater impact from the historic releases, and the ozone sparge remediation system began operation in November, 2013. It ran for one year until the hydrocarbon impact to the aquifer was cleaned up to the point where site closure could be achieved through a risk assessment based closure.

Purpose

Site characterization and post remediation data provided by ATC, contractor to the State Lead Unit, 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.

Data Evaluation

Soil

Soil samples were collected between 3 and 15 feet. The soil samples were analyzed for VOCs by EPA Method 8260B. Five confirmation borings were drilled in April 2015 to evaluate for tetra-ethyl lead due to the age of the original system, and the groundwater data has shown 1,2-DCA contamination over AWQS. The soil samples were analyzed for tetra-ethyl lead (TEL) by McCampbell Analytical

Laboratories' in-house method. Soil samples were collected between 5 and 105 feet for TEL. TEL was found over the rSRL between 35 and 45 feet bgs.

Groundwater

Groundwater samples have been collected at the site since 2006. Groundwater data collected, after the ozone sparge system operation shows that the contamination level of benzene in all monitoring wells dropped to below AWQS. Based on December 2015 data only 1,2-DCA concentrations exceed the AWQS of 5.0 µg/L in MW-1A (13.1 µg/L) and MW-3A (18.9 µg/L). In December 2015, the depth to groundwater was approximately 107 feet. The groundwater flow direction is to the northwest.

Soil Vapor

To evaluate the residual subsurface soil VOC contamination for potential inhalation exposure risk, a shallow soil vapor survey was conducted in February 2015 by ATC. Temporary soil vapor probes were installed at 5 feet. ESC analyzed the samples for VOCs by EPA Method TO-15 and did include the ADHS approved additional compounds. Laboratory and field quality assurance (QA) measures are adequate for risk assessment data quality objectives.

Tier 3 Risk Assessment

The maximum concentrations of chemicals were modeled for both the cancer risk value (ELCR) and the hazard index (HI) or non-carcinogenic health hazard. ADEQ modeled the soil vapor data using the EPA on-line screening version of the Johnson and Ettinger (J&E) model and chemicals are eliminated from inclusion in the risk assessment if they are not present at levels above 1/10th of the EPA Regional Screening Level for resident air dated November 2014, levels below the laboratory reporting limit, were a common laboratory contaminant and found at levels less than 5 times the concentration found in the field (equipment) blank, or if insufficient toxicity data is available in the Regional Screening Level table or the chemical is not listed in the chemical pull down list. The risk assessment includes all compounds of concern (CoCs) associated with the fuel release to determine cumulative risk. The High Indoor Air Prediction for the J&E Simulation Results is used as the first comparison for a conservative approach. Loam was used in the model for soil type.

Since there are carcinogens among the CoCs, the cumulative ELCR risk of 1×10^{-6} is used instead of 1×10^{-5} , for a more conservative approach. This approach is also used for soil remediation levels when dealing with carcinogens. ADEQ's results show that the ELCR for the petroleum related compounds is less than 10^{-6} the HI value for the petroleum related compounds is less than 1. These values demonstrate acceptable cancer and non-cancer inhalation risk.

TEL contamination over rSRL was found between 35 and 45 feet bgs. The TEL concentrations above and below these depths did not exceed rSRLs. TEL is not mobile, or very volatile, so there is no dermal contact, ingestion or inhalation risk.

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 by the active remediation system that operated, and the groundwater plume is stable. The VOC contamination that is present in groundwater is limited on-site to MW-1A and MW-3A. The other on-site and off-site monitoring wells have no VOC contamination over an applicable AWQS. Three domestic use wells, one irrigation well and one industrial use well was identified within ¼ mile of the site. One domestic well (55-648509) is located downgradient of the site. There are no sensitive populations within ¼ mile of the site. The nearest sensitive populations are two schools located more than ½ mile to the northeast of the site.

Conclusions and Recommendations

A.A.C. R-18-7-206(D), A.A.C. R-18-12-263.01 and A.A.C. R-18-12-263.04 allow for a site specific risk assessment. Under risk assessment. 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. Any residual petroleum related VOC soil contamination may be present in the subsurface, so there isn't a risk posed by the dermal contact or ingestion exposure routes. The soil vapor survey demonstrates the inhalation exposure route shows an acceptable risk. The TEL soil contamination is also subsurface. There is no dermal contact, ingestion or inhalation risk due to its lower volatility.

The groundwater data shows only 1,2-DCA present over an applicable regulatory standard. The contamination is confined to on-site only. The contamination doesn't pose a risk to any drinking water wells. No threatened sensitive populations were identified.

Based on the data collected, it is recommended that LUST release 3227.01 be closed under A.A.C. R-18-12.263.03 for soil and A.A.C. R-118-12-263.04 for groundwater.

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