

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 #: 0722.02

Facility ID # 0-000792
Mohave County

**Former Laughlin/Bullhead City International
Airport Fuel Facility
600 North Highway 95
Bullhead City, Arizona 86429**

This undeveloped land is located at 600 North Highway 95 in Bullhead City. The property is surrounded by commercial businesses including a Sam's Club with a fueling center. The property is owned by the Mohave County Airport Authority which is also the UST owner/operator. Site investigations were initiated in May 1989. ADEQ assigned LUST release numbers 0722.01 and .02 in May 1989 for UST #4 and #5 respectively. Between 1990 and 2003, four monitoring wells were installed. In 2004, three additional monitoring wells were installed. In 2005, eight USTs, dispensers and piping were removed and the site building and canopy were demolished. The existing monitoring and remediation wells were all removed to accommodate site redevelopment. LUST releases .03-.09 were assigned in 2006. Nine monitoring wells which include MW-P5 were installed in 2006. Eight additional monitoring wells were installed in 2007. The remaining open LUST releases were characterized in 2007. Seven of the nine LUST releases were closed in 2012 and 2013. LUST release 0722.09 was closed in March 2017. Ten wells (monitoring wells and remediation wells) were abandoned in 2013.

Historic active remediation included air sparge (AS) and soil vapor extraction with air sparge (VE/AS). Active remediation was stopped due to the limited cost-effectiveness of the system. The groundwater has also been treated with oxygen-releasing compound (ORC) and BOS-200®.

The post remediation groundwater data shows that the volatile organic compound (VOC) concentrations have significantly decreased so that the only VOC contamination remaining on site is in monitoring well MW-P6. The only remaining VOC in concentrations that exceed an applicable regulatory standard is benzene.

A site specific risk assessment and detailed file/information search have been 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 Aquifer Water Quality Standard (AWQS) or Tier 1 Corrective Action Standards. ADEQ has considered the results of the site specific assessment and the rule specific criteria below:

1. *Threatened or impacted drinking water wells:* According to the Arizona Department of Water Resources (ADWR), there are no domestic or public supply wells located within ½ mile of the site. There are 54 registered wells within ½ mile of the site. Mohave County Public Works had one exempt and one non-exempt registered well which were abandoned in 2005. Of the 54 registered wells, 27 are monitoring wells and the remaining wells are registered as other (many are remediation wells). According to the ADWR *List of Municipal Water Providers Designated as Having an Assured or Adequate Water Supply*

dated January 4, 2018, Bullhead City (inc. EPCOR, Bermuda Water (Utilities Inc.), North Mohave Valley Corporation) has DWR 41-400649.0002. 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). EPCOR Water provides drinking water to Bullhead City. EPCOR Water submitted a Water Providers Questionnaire. There are five supply wells located within 1 mile of the site which are part of two separate Public Water Systems (#04-08-062 and #04-08-068). VOC results (which included benzene) have been below laboratory reporting limits. A cursory review of water supply well logs for wells located within a two mile radius of the site indicate that these wells are constructed with perforated intervals deeper than 200 feet bgs and are likely perforated within the Colorado River Gravels, the primary aquifer in the vicinity. The potential for vertical migration of dissolved phase benzene to deeper water-bearing units is unlikely. According to the Bureau of Reclamation, 15,210 acre feet of water is the yearly allocation to Bullhead City from the Colorado River. The Colorado River is located within ¼ mile due west of the site. The groundwater flow direction continues to be to the southeast at the site. The Colorado River is recharging the aquifer so the groundwater flow direction is away from the river.

2. *Other exposure pathways:* In October 2016, confirmation boring (CB-2A) was installed near LUST release .02. Soil boring CB-2A was drilled to collect soil samples for polyaromatic hydrocarbons (PAHs) and tetraethyl lead along with VOCs, since the soil data collected in 2013 was limited to VOC analysis only. Soil samples were collected at 5, 15 and 45 feet bgs. No VOCs or tetraethyl lead was detected at concentrations exceeding laboratory method detection limits. Several PAHs were detected at concentrations exceeding their minimum laboratory detection limits, but the concentrations were below their respective rSRLs in the samples collected at 15 feet bgs in soil boring CB-2A. The dermal contact and ingestion risk is minimal since the samples were collected at 15 feet bgs, and the concentration of the PAHs detected are magnitudes below their respective rSRLs. The soil lithology at 5 feet bgs is silty sand with gravel, at 15 feet bgs it is silt with sand, and at 45 feet bgs it is clay or clayey sand with gravel. There are no sensitive receptors like schools, day care centers, etc. within ¼ mile of the site. A shallow soil vapor survey was conducted in December 2016 to evaluate inhalation exposure risk near the release area. The soil vapor data portion of the risk assessment included all compounds of concern (CoCs) associated with the fuel releases and CoCs not associated with the fuel releases. The release area was evaluated for future residential use. The excess lifetime cancer risk (ELCR) and the non-cancer or hazard index (HI) for the release areas were evaluated using the on-line version of the Screening Level Johnson and Ettinger (J&E) Model by the contractor. The ELCR does not exceed the 10^{-6} risk level. The cumulative HI is below 1 and does not exceed the acceptable inhalation risk level.

3. *Groundwater plume stability:* The benzene contamination is only present in MW-P6. The depth to groundwater is 49.27 feet bgs. Benzene has not been detected at concentrations exceeding the minimum laboratory reporting limits at down gradient monitor wells MW-P9 and MW-P11 through MW-P14, indicating the lateral extent of the impacted groundwater is defined and of limited extent. Groundwater elevation and laboratory analytical data for MW-P6 is available between its installation in September 2006 and July 2017. ATC analyzed groundwater data collected from 24 monitoring events between April 2007 and July 2017 using the Mann-Kendall statistical test. The test indicated that there is no trend in the analysis, whether that be increasing or decreasing. The groundwater plume does not extend beyond the property line and natural attenuation is expected to result in the continued reduction of benzene concentrations with time.

4. *Characterization of the groundwater plume:* Groundwater samples have been collected from MW-P6 since 2006. The groundwater at the site was characterized in 2006. The benzene concentrations have decreased from a maximum of 540 µg/L in November 2010 to the current concentration of 32 µg/L

in July 2017 in MW-P6. It is noted that the analytical data collected in October and December 2016 indicated VOC concentrations that were anomalous of the historic data trend in this well.

5. *Natural Attenuation:* ATC ran BIOSCREEN to analyze the biodegradation and transport of dissolved phase benzene at and downgradient of MW-P6. Using the first order decay rate assumption, the model predicts that the benzene plume will travel 32 to 36 lateral feet from the source area in five years. The model also predicts that the maximum extent of dissolved phase benzene at concentrations that exceeds the AWQS of 5.0 µg/L is only 16 feet downgradient of the source. This is also supported by the downgradient monitoring wells that show no benzene contamination present over laboratory reporting limits.

6. *Removal or control of the source of contamination:* In 2005, eight USTs, dispensers and piping were removed and the site building and canopy were demolished. Historic active remediation included AS in 2004 and between 2010 and 2012. SVE/AS occurred between 2010 and 2011. The VE system removed an estimated 12,190 pounds of volatile fuel hydrocarbons (gasoline). The groundwater has been treated with ORC in 2003 and again from 2012 to 2014. In 2014 BOS-200® was injected.

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 completed 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 information: **MW-P6 (* non-compliance sample)**

Date	Benzene AWQS is 5 µg/L	Depth to water (Feet)
9/27/2006	Free Product	49.26
12/18/2008	Free Product	51.04
2/23/2010	---	VE/AS System Start
11/4/2010	540*	48.83
5/4/2011	---	VE System Stop
10/12/2011	37*	48.90
1/11/2012	15*	49.87
5/12/2012	---	AS System Stop
6/27/2012	4.8	47.97
8/14/2012	15	48.70
10/24/2012	---	ORC sock placed
2/7/2013	1.4*	49.75
5/30/2013	60*	48.08
1/23/2014	130*	49.77
1/23/2014	---	ORC sock removed
4/30/2014	46*	48.07
9/4/2014	---	BOS-200® injected
11/25/2014	54	49.25
1/13/2015	66	49.65
3/11/2015	14	49.13

4/15/2015	4.2	48.26
5/28/2015	22	48.77
7/8/2015	39	48.87
6/27/2016	45.7/38.7	48.84
5/22/2017	42.8/43.5	49.27
7/26/2017	32.0/31.2	49.27

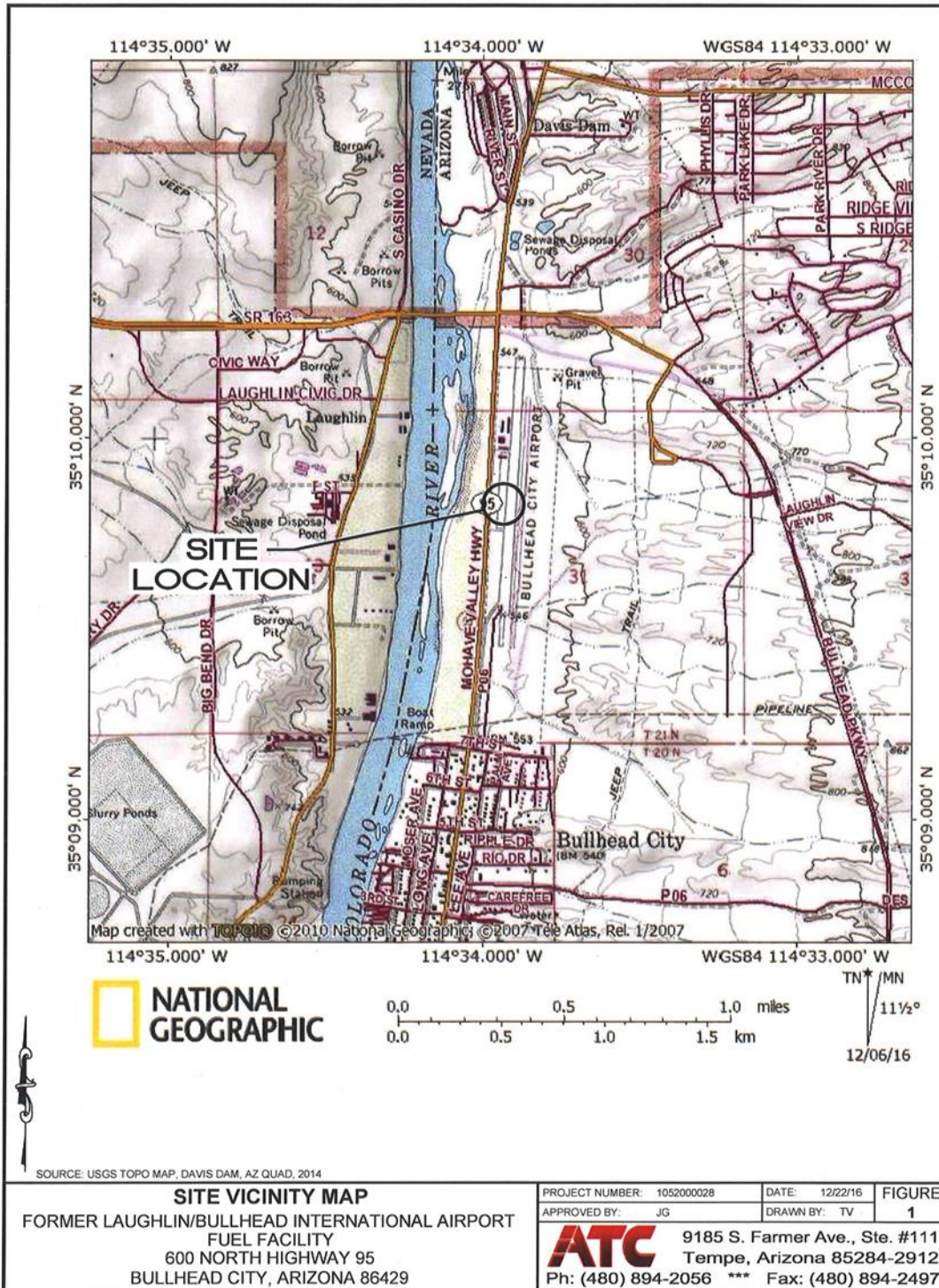
Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center <http://www.azdeq.gov/function/assistance/records.html> , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **March 23, 2018 and ending, April 23, 2018**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, Attention Heather Flowers, and 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 the Case Manager, Heather Flowers at 602-771-4451 or 800-234-5677 ext. 771-4451 or at hf2@azdeq.gov or the Sr. Risk Assessor, Debi Goodwin at 602-771-4453 or 800-234-5677 ext. 771-4453 or at dgl@azdeq.gov or

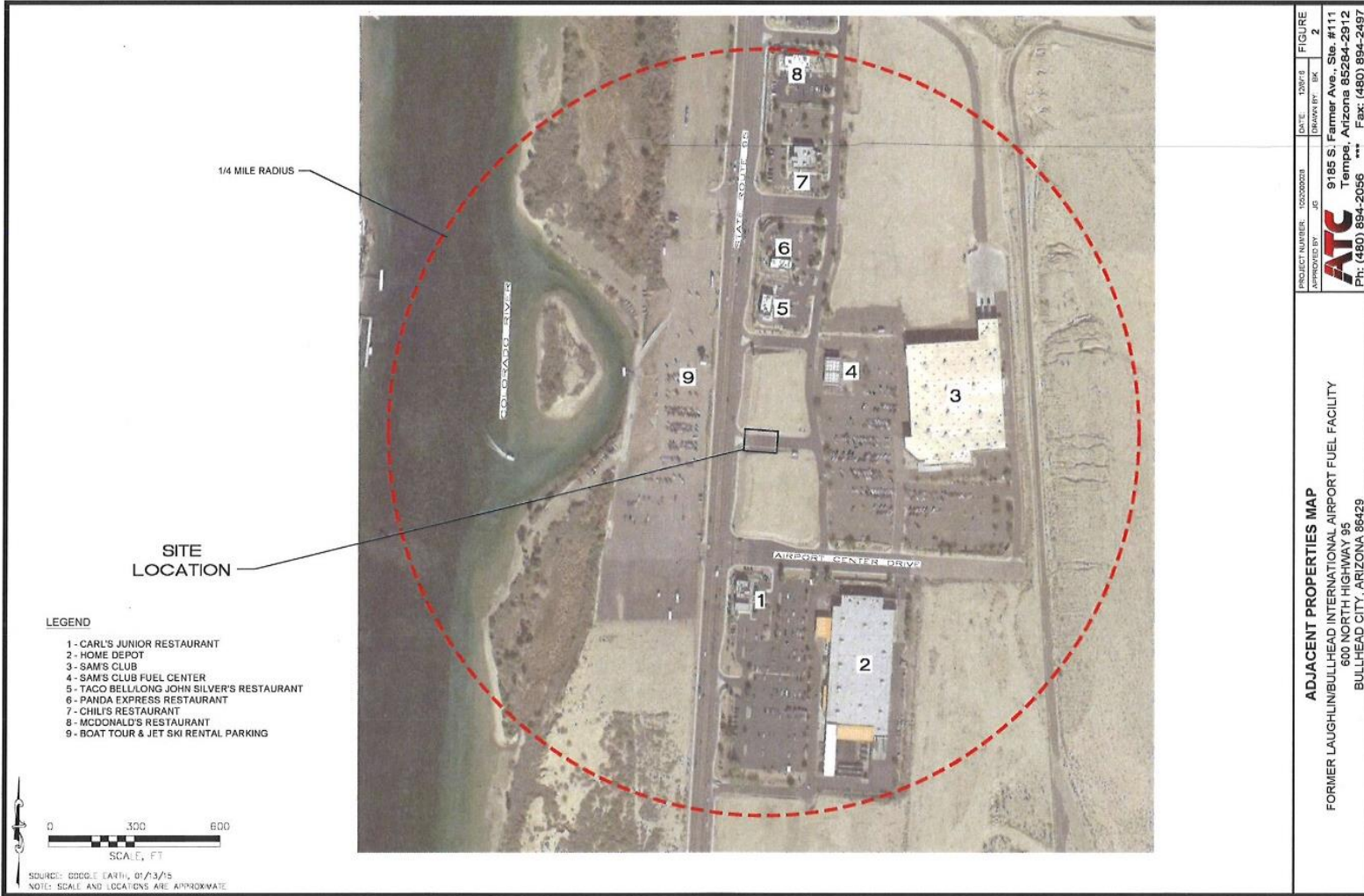
Copies of the cited statutes and rules can be found at:
<http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49>, and
http://www.azsos.gov/public_services/Title_18/18-12.html

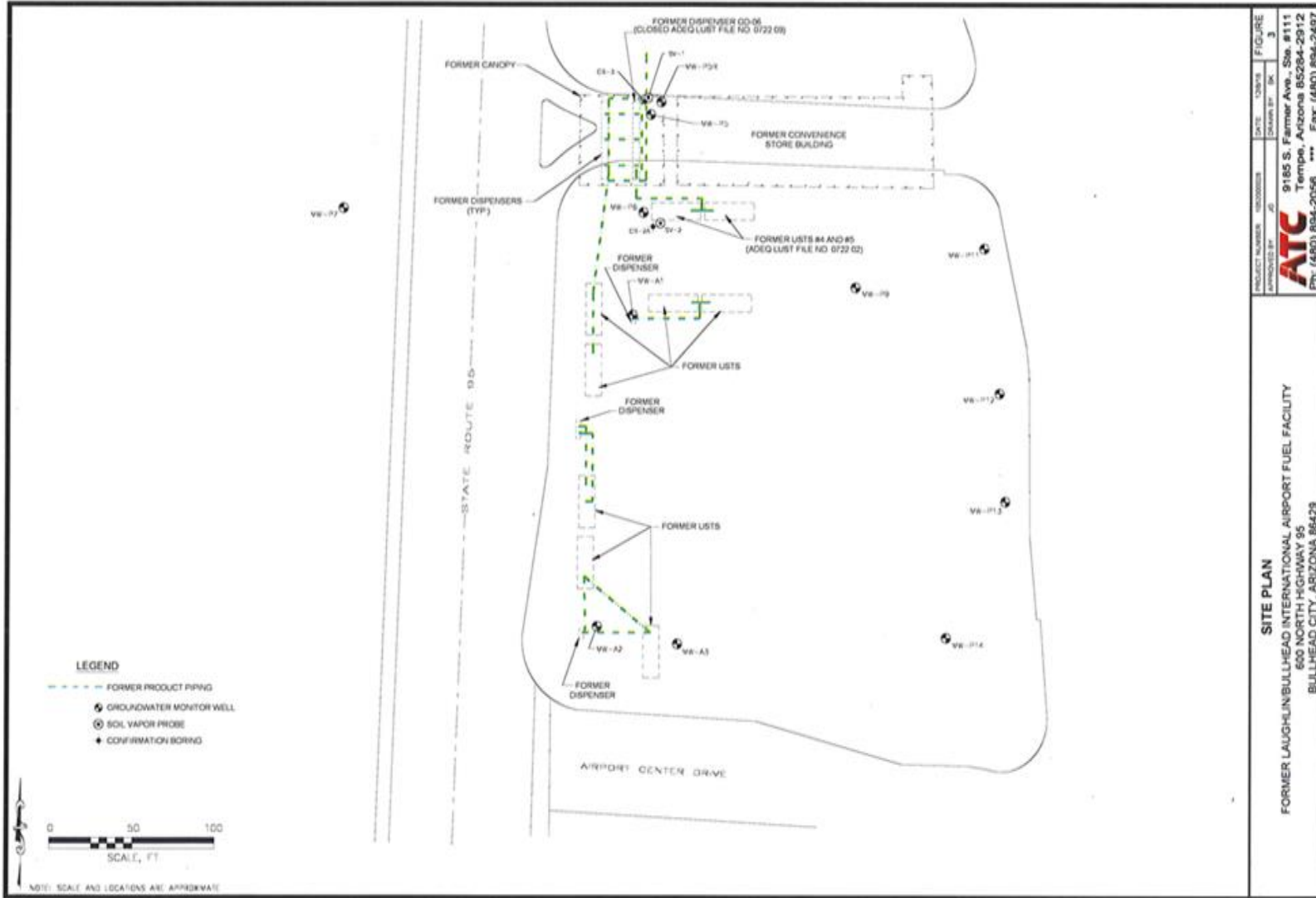
ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write, or understand English and/or to those with disabilities. Requests for language interpretation services or for disability accommodations must be made at least 48 hours in advance by contacting: 7-1-1 for TDD; (602) 771-2215 for Disability Accessibility; or Ian Bingham, Title VI Nondiscrimination Coordinator at (602) 771-4322 or idb@azdeq.gov.

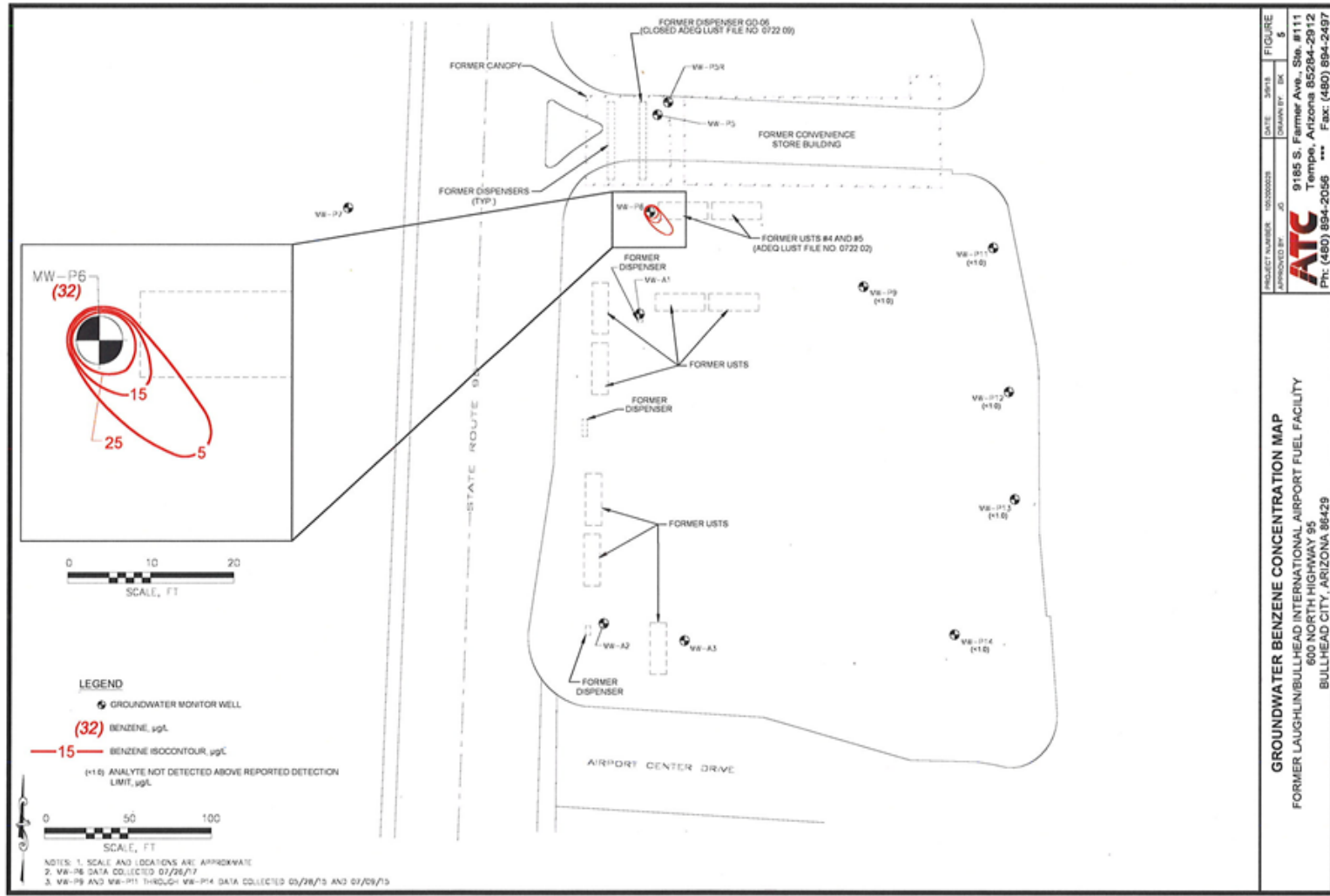
ADEQ tomará medidas razonables para proveer acceso a los servicios del departamento para personas con capacidad limitada para hablar, escribir o entender Inglés y / o para las personas con discapacidad. Las solicitudes de servicios de interpretación del lenguaje o de alojamiento de discapacidad deben hacerse por lo menos 48 horas de antelación poniéndose en contacto con Ian Bingham, Title VI Nondiscrimination Coordinator al (602) 771-4322 o idb@azdeq.gov.



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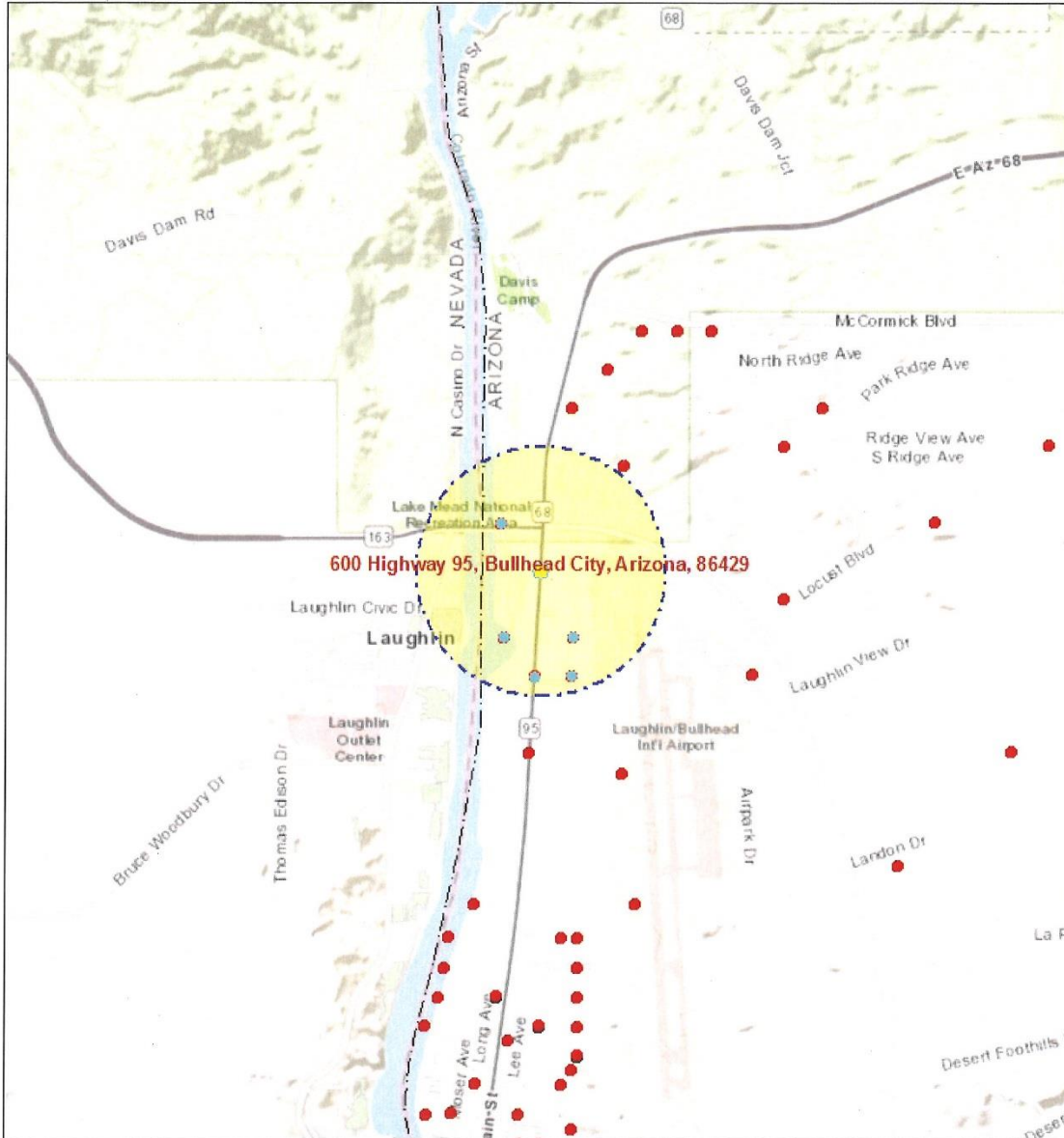






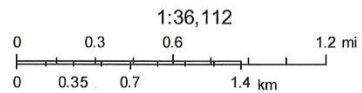
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Laughlin Bullhead City Int. Airport



March 1, 2018

- Well Registry
- County



Arizona Department of Water Resources
 Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Arizona Department of Water Resources



**ARIZONA DEPARTMENT
OF ENVIRONMENTAL
QUALITY**

*Email completed
form to (preferred):*
DG1@azdeq.gov

Or mail completed form to:
UST-LUST Section
1110 W Washington St
Phoenix, AZ 85007

GROUNDWATER USE QUESTIONNAIRE

LUST FACILITY NAME former Laughlin/Bullhead International Airport

ADDRESS 600 North Highway 95, Bullhead City, 86429

LUST FACILITY ID 0-000792

LUST CASE NO 0722.02

Please answer all questions. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: EPCOR Water

Date Questionnaire was completed: February 28, 2018

Contact Name: Tom Di Domizio

Title: Environmental Compliance Manager

Address: 8700 N. El Mirage Rd

El Mirage, AZ 85335

Phone Number: 623-445-2431

Email address: tdidomiz@epcor.com

1. Please indicate current or near future anticipated groundwater development by the municipality/utility within 1 mile of the above named LUST site.

We currently have the following wells in use within one mile of the referenced LUST Site:

North Mohave Valley Well #1 (55-608740) Located at 2410 South Ridge Ave, Bullhead City
 North Mohave Valley Well #2 (55-608741) located at 2420 Park Ridge Ave, Bullhead City
 Lake Mohave Highlands Well #1 (55-603417) Located at 3000 Locust Blvd, Bullhead City
 Lake Mohave Highlands Well #2 (55-556101) Located at 3000 Locust Blvd, Bullhead City

We have the following well that is currently inactive but could be put back into use:
 North Mohave Valley Well #8 (55-519603) located at 255 Laughlin View Dr., Bullhead City

2. What is the future use (up to 100 years) for groundwater within 1 mile of the above named LUST site?

We anticipated continued use of groundwater within 1 mile of the above named LUST Site.

3. Is the municipality/utility currently sampling groundwater wells within 1 mile of the above named LUST site? If so, how often is the sampling conducted? Are analytical results being submitted electronically to ADEQ's the groundwater database? If not, will you share the data with ADEQ?

The Lake Mohave Highland wells were not sampled individually but at the system entry point EPDS009 in 2016. The results were submitted via email to ADEQ and entered into the ADEQ SDWIS database for PWS #04-08-062. VOC results (which included BTEX) were below laboratory reporting limits. These samples were not analyzed for MTBE or petroleum hydrocarbons.

The North Mohave Valley Wells were not sampled individually but at system entry point EPDS003 in 2017. The results were submitted via email to ADEQ and entered into the ADEQ SDWIS database for PWS#04-08-068. VOC results (which included BTEX) were below laboratory reporting limits. These samples were not analyzed for MTBE or petroleum hydrocarbons.

4. Are there any groundwater wells owned by the water provider that are known to have been affected by the above named LUST site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g. shut down, still pumping)?

North Mohave Valley Well #8 (55-519603) is currently inactive and hasn't been sampled since EPCOR took ownership in 2014. It is unknown if this well has been impacted by the release.

It is unknown if the following wells have been impacted by MTBE or petroleum hydrocarbons. VOC results from combined flow of these wells have been below laboratory reporting limits:

North Mohave Valley Well #1 (55-608740) Located at 2410 South Ridge Ave, Bullhead City

North Mohave Valley Well #2 (55-608741) located at 2420 Park Ridge Ave, Bullhead City

Lake Mohave Highlands Well #1 (55-603417) Located at 3000 Locust Blvd, Bullhead City

Lake Mohave Highlands Well #2 (55-556101) Located at 3000 Locust Blvd, Bullhead City

5. What is the future use (up to 100 years) for any wells that have been impacted by the above named LUST site?

It is unknown if there has been any impact to the above referenced wells but continued future use of these wells is planned.

6. Is there any other information you wish to provide to assist ADEQ in the LUST case closure evaluation of this site?

No. It would be helpful if we were provided a contaminant plume map to evaluate potential impact on our wells from this release.