

## 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 # 0263.01-.03**  
**Facility ID # 0-001401**  
**Apache County**

**Circle K #2701383**  
**815 East Main Street**  
**Springerville, Arizona 85938**

According to the LUST file, a UST system was installed in January 1980. The UST owner/operator was Tosco/Phillips 66. ADEQ assigned LUST release 0263.01 to the product piping located between the westernmost UST and the dispenser island. A second LUST release was assigned to the dispenser island which was discovered in November 1997 during Stage II upgrade activities. The third release was assigned in December 2008 to the UST basin when the UST system was permanently closed in August 2008. A new UST system was installed after the removal of the old system. Site characterization activities included soil borings and the installation of numerous monitoring wells by ATC, consultant to Tosco/Phillips 66. Site Characterization was approved in 2000 for releases 0.1 and .02, and in 2009 for release .03. Active soil and groundwater remediation using vapor extraction (VE), multiphase extraction (MPE) and in-situ chemical oxidation (ISCO) was used between November 1998 and August 2015.

A site specific risk assessment and detailed file/information search were also completed. On-site and off-site groundwater shows volatile organic compound (VOC) contamination. On-site soil contamination shows benzene and tetraethyl lead at concentrations that exceed residential Soil Remediation Levels (rSRLs) at five and 15 feet below ground surface (bgs) respectively. The groundwater flow direction has been historically north, but it can be variable since the gradient is relatively flat. The depth to water in March 2017 was 31 feet bgs. This depth is significantly lower than the depth to groundwater in March 1987 at 16 feet bgs.

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 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:*** The Arizona Department of Water Resources (ADWR) database search shows there are 43 registered exempt or non-exempt wells within 1/2 mile of the site. Monitoring wells KW-9, KW-11, KW-21, KW-22, KW-24 and KW-25 currently do not have contamination present over laboratory reporting limits are located between the site and the registered wells. According to the Town of Springerville webpage, the Town of Springerville potable water system (AZ040103) has two pressure zones. This site is located within the West Zone. The West Zone consists of three (3) domestic underground wells, one (1) storage reservoir site and a distribution network. The water that is utilized in the West Zone is pumped primarily from the River Well and stored in the 1,000,000 gallon Cemetery Hill Reservoir. During the summer, when the water demands are higher, the Voigt Well is used and if necessary, the Forest Service Well will also be put into operation. The River Well is usually operated 24 hours a day, with the other wells operating as necessary. All three wells in the

West Zone are in good condition, but the Forest Service Well is used more often as a matter of convenience. According to the ADEQ Safe Drinking Water database, the Town of Springerville public water system was sampled in 2016 for VOCs and none were reported over laboratory reporting limits. The Town of Springerville completed the Apache Water Supply Well located approximately 350 feet northwest of the site in March 1997. ADEQ requested that the Town allow Tosco to abandon the well in case any groundwater contamination migrated off-site. The well was abandoned in October 1999. There was no indication that the well was impacted by contamination prior to its abandonment. The Town of Springerville was sent a Water Provider Questionnaire and was requested to return it within 30 days. The Town of Springerville did not respond.

**2. Other exposure pathways:** The remaining shallow soil contamination does not pose a residential risk from the dermal contact or ingestion exposure based on the risk assessment calculations conducted by ATC. The vapor intrusion risk was determined to be acceptable based on soil vapor data collected and modeled using the Johnson and Ettinger on-line screening version. Incidental dermal contact with the groundwater is considered *de minimis* risk. There are no identified sensitive receptors like schools, daycare centers etc. within ¼ mile of the site.

**Groundwater plume stability:** Groundwater plume stability is demonstrated by the remaining VOC contamination present over a regulatory standard in groundwater is limited in areal extent as demonstrated by the data in wells KW-9, KW-11, KW-21, KW-22, KW-24 and KW-25. If no degradation was to occur, the BIOSCREEN model indicated that contaminant concentration would be zero at 100 feet from the source within 20 years. Since biodegradation is occurring, the contamination will be zero at 40 feet from the source within the same time frame. Concentration trend analysis was also conducted on several wells using the Mann-Kendall Statistical Test. Many of the wells indicate that the contamination plume is either stable, shows no trend or it is decreasing. The outermost perimeter monitoring wells (KW-18, 18A, 19, 20, 23, 24, 24A, 25) have not shown any VOC contamination present since 1997.

**3. Characterization of the groundwater plume:** Sixty-three wells have been installed for this project. The collection of VOC samples has taken place between March 1987 and February 2017. No measurable phase separated hydrocarbons have been detected since March 2013. Dissolved-phase petroleum hydrocarbons have been characterized and the only petroleum related VOCs remaining over AWQS on site are benzene, methyl tert butyl ether (MTBE), 1-2 dichloroethane (1, 2-DCA) and ethylene dibromide (EDB). Three nested groundwater remediation wells (GWE-2A, GWE-3 and GWE-13) show that the VOC concentrations decrease as the sample depth increases in the well.

**4. Natural Attenuation:** The October 2017 submittal includes a summary table of post-ISCO groundwater natural attention data. The data indicates that natural attenuation is occurring based on the data indicates an oxidative state in the groundwater. It is noted that 1, 2-DCA and EDB are recalcitrant compounds so it remains long after other VOCs have been removed from the groundwater. ATC also completed a simulation using BIOSCREEN. The simulation indicated that the extent of the contaminant plume would continue to degrade and remain smaller than the existing contaminant plume. If no degradation was to occur, the model indicated that contaminant concentration would be gone within 100 feet from the source within 20 years. The 1<sup>st</sup> Order Decay model indicated the mass of contamination would be gone within 40 feet from the source within the same time frame.

**5. Removal or control of the source of contamination:** The UST system was removed in August 2008. Both contaminated groundwater and soil has been removed or controlled through the use of various remedial methods. The VE system operated between November 1998 and September 2011 and recovered

approximately 175,000 pounds (roughly 25,000 gallons of total petroleum hydrocarbons [TPH]). MPE operations recovered approximately 349,000 gallons of groundwater and 1,700 pounds (approximately 240 gallons of TPH). ISCO injections were conducted in July and August 2015 in 27 wells located on and off site. A total of 87,333 pounds of Persulfox® and 840 pounds of Oxygen Releasing Compound Advanced® (ORC-A) was mixed with approximately 48,000 gallons of clean water and injected into the upper and lower portions of the water bearing zone beneath the site.

**6. 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.

**7. 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 data: Source wells with the highest VOC contamination concentrations

Well Number	Date	Benzene AWQS is 5 µg/L	MTBE Tier 1 Standard is 94 µg/L	1,2-DCA AWQS is 5 µg/L	EDB AWQS is 0.05 µg/L	Depth to water (Feet)
GWR-2A (DPE-1)	2/2017	77	280	<10	0.25	34.42
GWR-3 (DPE-1)	2/2017	27	<100	<20	0.14	33.18
GWR-6 (DPE-1)	2/2017	70	30	<8.0	0.039	34.15
GWR-4 (DPE-1)	2/2017	23	110	<10	<0.098	33.69

Groundwater data for GWR-13 (off-site downgradient nested remediation well)

Date	Benzene AWQS is 5 µg/L	MTBE Tier 1 Standard is 94 µg/L	1,2-DCA AWQS is 5 µg/L	EDB AWQS is 0.05 µg/L	Depth to water (Feet)
3/2005	7,500	88	<1	---	37.10
2/2006	6,900	100	<1	---	37.41
9/2007	10,000	44	<1	---	37.60
2/2008	1,100	8	5	---	37.32
9/2010	200	19	7.4	---	32.70
9/2011	94.7	7.6	8.3	---	34.60
7/2012	20.4	2.2	<1.0	---	35.24
3/2014	64.2	3.1	<1.0	---	32.88
11/2014	18.3	1.1	<1.0	<0.010	35.94
2/2016	<0.50	3.0	38.4	2.0	34.45
5/2016	<0.50	<0.50	48.5	<0.50	24.93
10/2016	0.29	2.0	49.8	2.0	35.85
2/2017	<4.0/<2.0	<20/<10	41/36	1.6/1.7	35.91

Groundwater data for KW-17A (downgradient well)

Date	Benzene AWQS is 5 µg/L	MTBE Tier 1 Standard is 94 µg/L	1,2-DCA AWQS is 5 µg/L	EDB AWQS is 0.05 µg/L	Depth to water (Feet)
10/2001	86	3	54	---	24.43
8/2002	<0.50	---	---	---	21.38
2/2003	14	5	35	---	27.35
9/2005	<1	<5	<1	---	25.03
2/2006	1	<5	1	---	27.30
3/2007	<1	<5	4	---	26.78
2/2008	<1	<5	3	---	25.82
02/2012	256	11.1	4.2	---	33.73
3/2014	23.4	7.3	4.5	---	30.47
9/2014	26.7	6.7	2.7	---	25.78
2/2016	<1.0	<0.50	9.7	0.59	23.28
8/2016	<0.5	0.13	13.7	0.63	24.58
2/2017	<2.0	<10	10	0.62	23.22

Groundwater data for KW-24A (off-site downgradient well)

Date	Benzene AWQS is 5 µg/L	MTBE Tier 1 Standard is 94 µg/L	1,2-DCA AWQS is 5 µg/L	EDB AWQS is 0.05 µg/L	Depth to water (Feet)
5/1997	<0.5	---	---	---	29.14
12/1998	<1.0	---	---	---	31.99
12/1999	8.8	---	---	---	28.28
5/2000	<0.5	---	---	---	28.34
3/2001	<0.50	---	---	---	30.44
8/2002	<0.50	---	---	---	32.18
2/2003	<0.50	---	---	---	32.25
9/2008	<1	<5	2	---	34.35
8/2009	<1	<1	<1	---	35.21
11/2014	<1.0	<1.0	<1.0	<0.010	35.59
2/2016	<0.50	<0.50	2.1	<0.50	32.83
5/2016	<0.50	<0.50	1.4	<0.50	33.10
8/2016	<0.50	0.79	2.0	<0.50	34.12

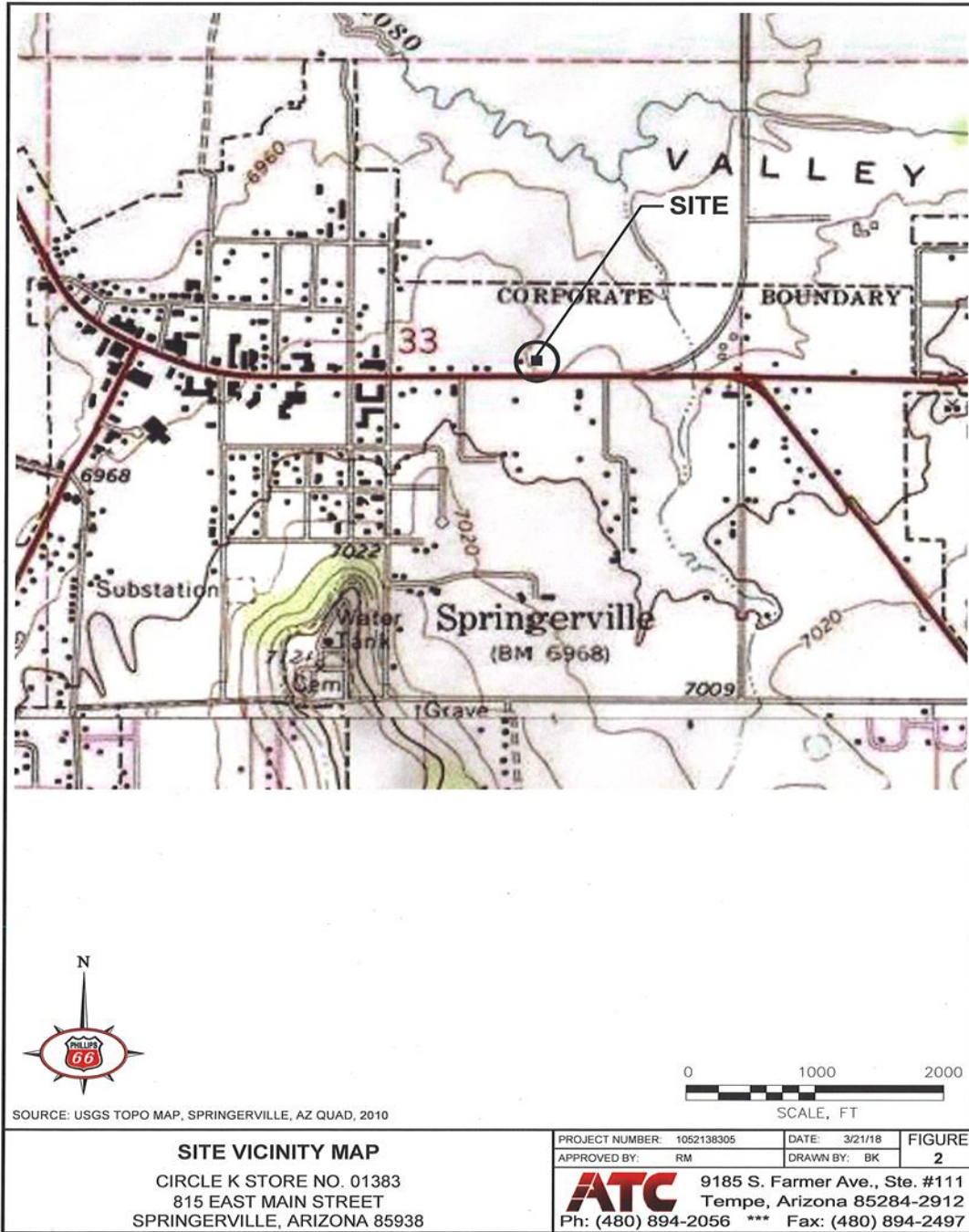
Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center <http://www.azdeq.gov/function/assistance/records.html> , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **April 18, 2018 and ending, May 18, 2018**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, Attention Jorge Espinosa, 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, Jorge Espinosa at 602-771-4258 or 800-234-5677 ext. 771-4258 or at [je5@azdeq.gov](mailto:je5@azdeq.gov). You may also contact the Sr. Risk Assessor, 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.html](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](mailto: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](mailto:idb@azdeq.gov).



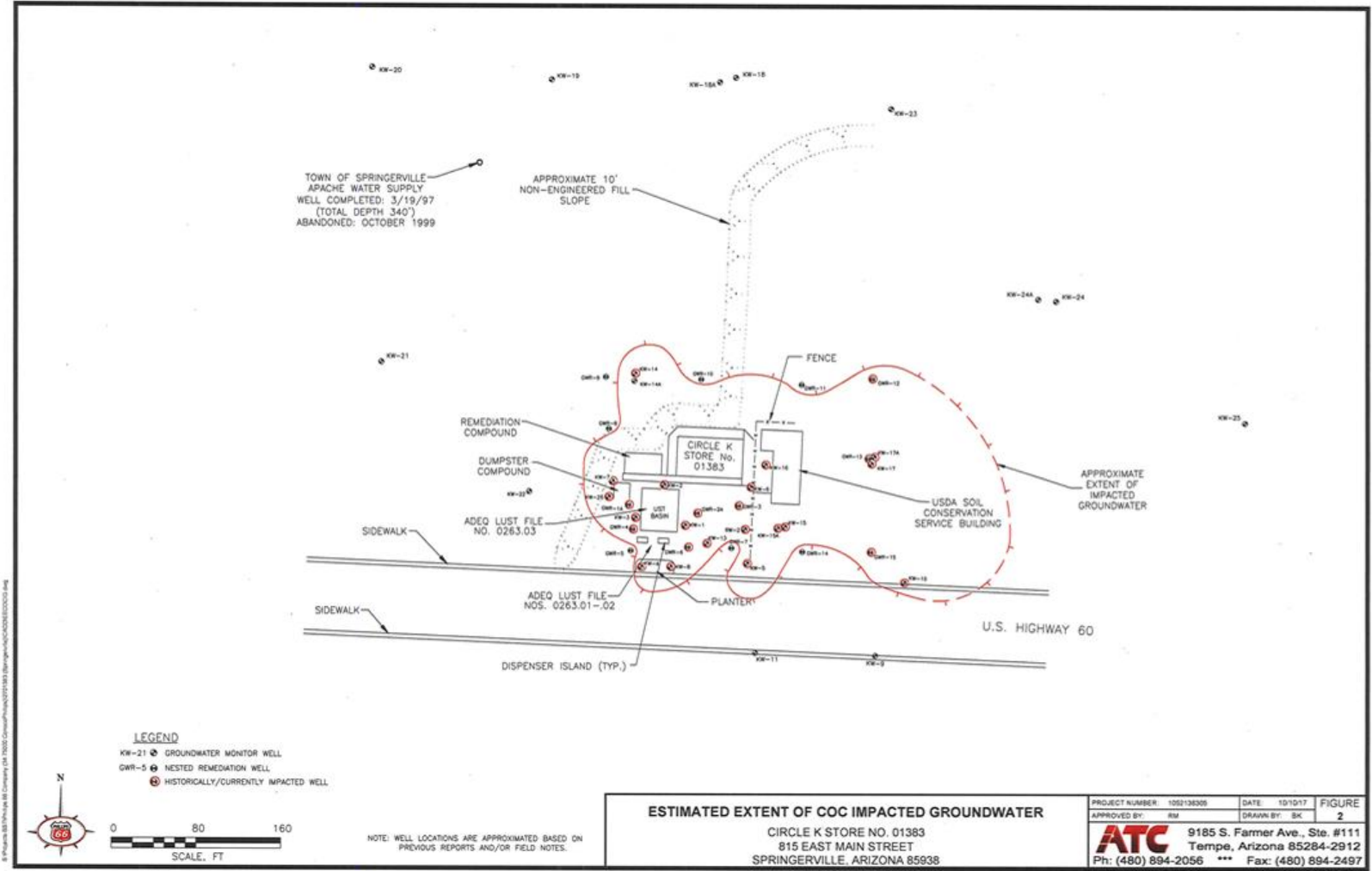
SOURCE: USGS TOPO MAP, SPRINGERVILLE, AZ QUAD, 2010

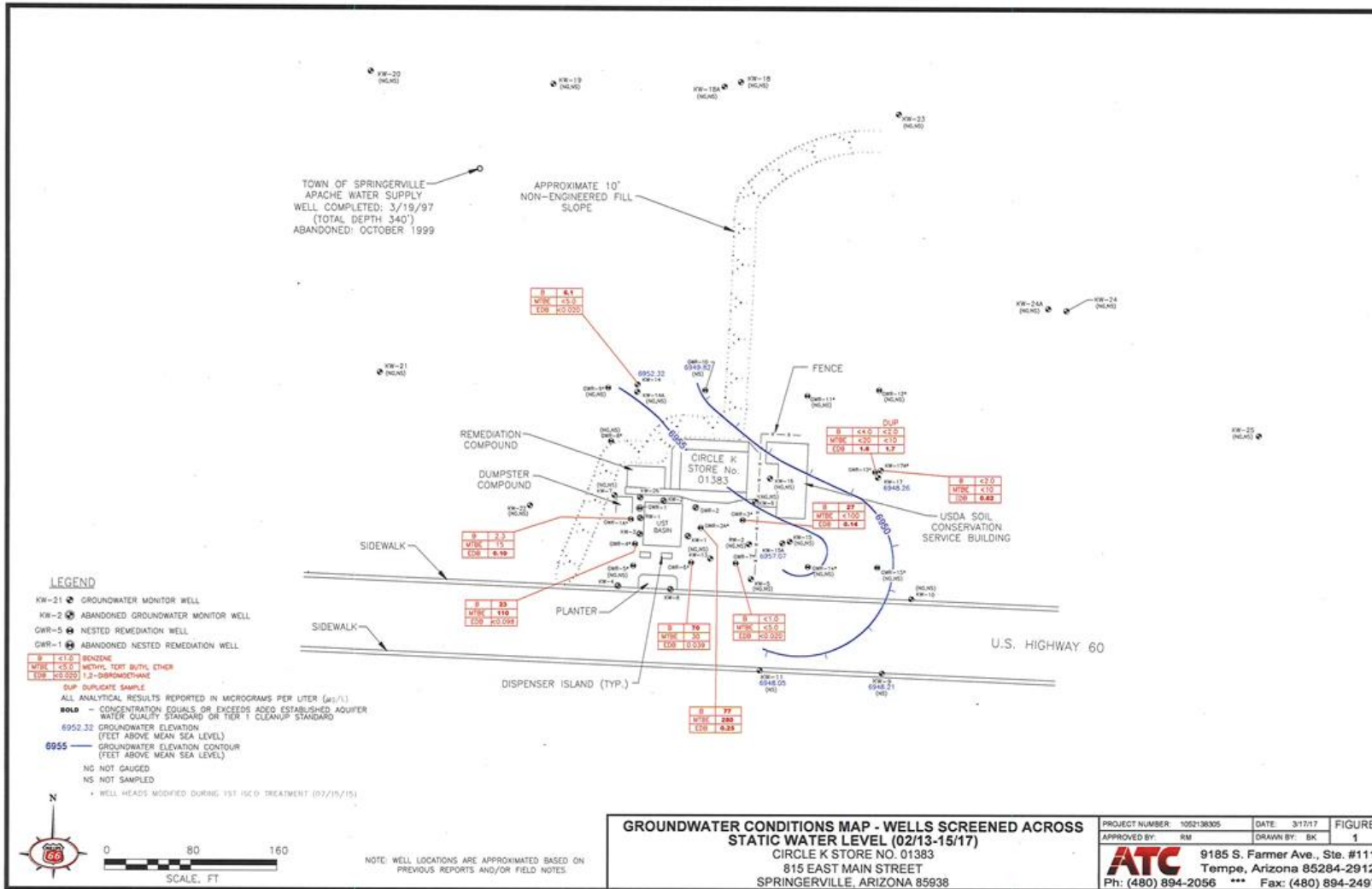


**SITE VICINITY MAP**  
 CIRCLE K STORE NO. 01383  
 815 EAST MAIN STREET  
 SPRINGERVILLE, ARIZONA 85938

PROJECT NUMBER: 1052138305	DATE: 3/21/18	FIGURE
APPROVED BY: RM	DRAWN BY: BK	2
 9185 S. Farmer Ave., Ste. #111 Tempe, Arizona 85284-2912 Ph: (480) 894-2056 *** Fax: (480) 894-2497		

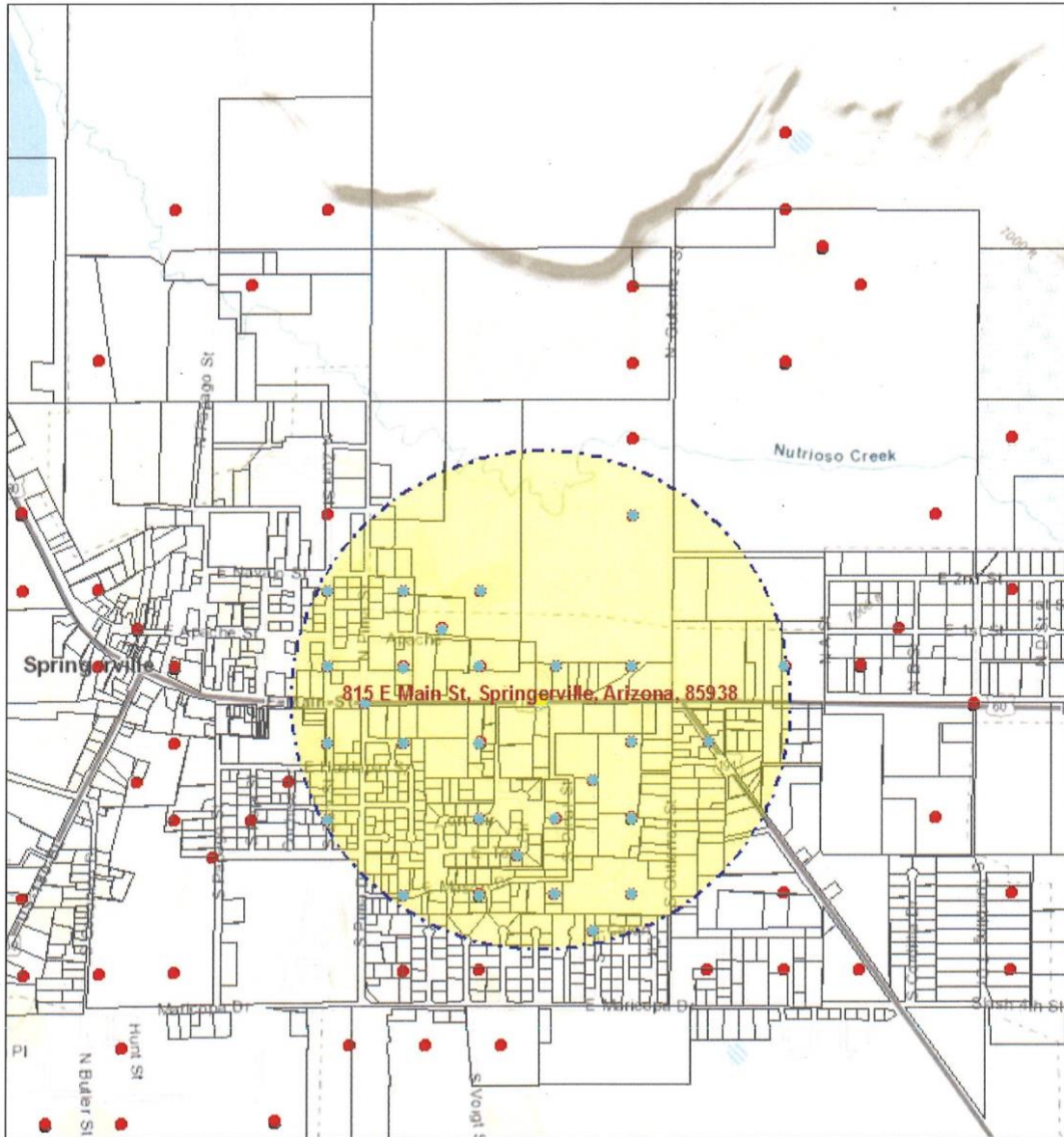
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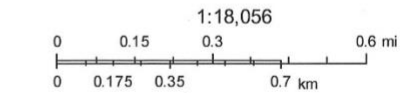


### Circle K Store No. 01383



March 20, 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

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