

Joey Pace  
Voluntary Remediation Program  
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Subject:

Request for No Further Action for the LUST-affected Groundwater at the Former  
Capitol Castings Facility, 5857 South Kyrene Road, Tempe, Arizona  
ADEQ VRP Site Code: 504426-00

ENVIRONMENT

Date:

April 25, 2019

Contact:

Christopher Shepherd

Dear Ms. Pace:

On behalf of Victoria Technology, Inc. (VTI), Arcadis is submitting this request for a No Further Action (NFA) Determination for groundwater associated with the former Leaking Underground Storage Tank (LUST) at the Former Capitol Castings Facility located at 5857 South Kyrene Road, Tempe, Arizona (the Site). The facility location is shown on Figure 1 and the LUST groundwater NFA boundary is shown on Figure 2. The Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP) Site Code is 504426-00 and the former ADEQ LUST File number is 0726.01. The vadose zone soils associated with the LUST were granted an NFA on April 5, 2011.

Phone:

602.438-0883

Email:

Christopher.Shepherd@  
arcadis.com

Our ref:

AZ000905.2019

This NFA request is for gasoline related volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and lead located within a shallow, perched aquifer from approximately 65 feet below the ground surface to 100 feet below the ground surface (S-Zone, Table 1). The ADEQ-approved LUST Groundwater Closure Assessment Report<sup>1</sup> demonstrates how the Site meets ADEQ LUST closure criteria requirements defined in Arizona Administrative Code (A.A.C.) R18-16-263.04(B) Groundwater LUST Case Closures and ADEQ's September 6, 2017 A.A.C. R18-12-263.04 Closure Guidance<sup>2</sup>. There are currently no receptors threatened by the residual gasoline-affected

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<sup>1</sup> Arcadis, 2018. LUST Groundwater Closure Assessment Report, Former Capitol Castings Facility, Tempe, Arizona ADEQ VRP Site Code: 504426-00. December 21.

<sup>2</sup> ADEQ, 2017. Memorandum from Debi Goodwin, RE: A.A.C. R18-12-263.04 Closure Guidance. September 6.

groundwater, as the remaining groundwater plume is: 1) not threatening water supply wells; 2) limited to shallow groundwater onsite; 3) naturally attenuating; and 4) shrinking based on all available groundwater data. The ADEQ's approval of the LUST closure assessment<sup>3</sup> is provided as Attachment 1.

Seven elements are required for an NFA determination as specified in the Arizona Revised Statutes (A.R.S.) §49-181(A). The seven elements and supporting information are summarized below. Additional details regarding the LUST-affected groundwater can be found in the LUST Groundwater Closure Assessment Report.

**A.R.S. §49-181(A.1) A description of the specific contaminants for which a no further action determination is being sought.**

The specific constituents for which an NFA determination is being sought include gasoline related VOCs, PAHs, and lead (Table 1). The 2018 LUST Groundwater Closure Assessment evaluated groundwater analytical data collected from December 4, 1990 through October 10, 2018.

1,2-Dichloroethane (1,2-DCA), benzene, and ethylbenzene generally have been detected greater than their respective Arizona Aquifer Water Quality Standards (AWQS) of 5, 5, and 500 microgram per liter (µg/L) since December 1993 and December 1990, respectively. However, the residual distribution and mass do not pose a threat to receptors, are attenuating, and meet the criteria of A.A.C. R18-16-263.04(B).

Toluene and total xylenes have been less than their respective AWQS of 1,000 µg/L and 10,000 µg/L since April 2015 and February 2015, respectively.

1,2-Dibromoethane (EDB) was only detected at a concentration above its AWQS of 0.05 µg/L once. The detection occurred in October 2011 at monitoring well MW-14. Since that time all results have been less than AWQS or less than laboratory detection limits, which were less than the AWQS.

Methyl-Tert-Butyl ether (MTBE) has been less than the ADEQ Underground Storage Tank (UST) Program Tier 1 Clean-up Standard<sup>4</sup> of 20 µg/L since May 2012.

Benzo (a) pyrene and lead (as tetraethyl lead) were not detected above laboratory reporting limits, which were less than the respective AWQSs, at the Site.

The boundaries for the NFA request are illustrated on Figure 2 and summarized in Table 2. The coordinates are in the 1983 North Atlantic Datum, Central Arizona State Plane international feet. Although, the NFA is restricted to the Site boundary, groundwater monitoring analytical data indicates groundwater concentrations south, and downgradient of the Site boundary are less than their respective AWQSs.

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<sup>3</sup> ADEQ, 2019. Letter to Victoria Technology RE: Proceed with Request for No Further Action Determination, Former Capitol Casting, Facility, Tempe, Arizona, Site Code: 504426-00. March 8.

<sup>4</sup> ADEQ, 2002. Arizona Department of Environmental Quality UST Program Release Reporting & Corrective Action Guidance. August 20.

**A.R.S. §49-181(A.2) A description of the actions taken to achieve remediation levels or controls determined in accordance with Section 49-175, subsection B.**

Free-phase recovery, groundwater extraction and treatment, soil-vapor extraction, in situ chemical oxidation (ISCO), and monitored natural attenuation (MNA) were utilized to remediate groundwater from 1989 to 2018. Assessments completed in 2018 indicate the residual mass of benzene and 1,2-DCA has been reduced by approximately 98 percent (%) and 97% and the dissolved-phase plumes reduced in size by approximately 93% and 91%, respectively. The remaining mass and plume extent are limited to a small area, do not extend beyond the boundary of the facility (Figure 2), and are naturally attenuating at rates faster than constituents are advecting (i.e., the plume is shrinking). The remedies are described further below.

**A.R.S. §49-181(A.3) A description of any soil, water, or soil and water treatment systems used as part of the remediation.**

Multiple active remedial actions were conducted from 1989 to 2018 and consisted of the following:

- Removed both USTs and soils beneath the USTs were over-excavated to approximately 8 feet below the tank to a depth of approximately 15 ft below ground surface in 1989
- Gasoline free product removal from the third quarter of 1989 through the second quarter of 1991
- Soil vapor extraction (SVE) with a catalytic oxidizer for emission controls from March 1991 until September 1992
- SVE with direct atmospheric discharge from May 1995 to June 1996
- SVE enhanced by groundwater dewatering was conducted from March 1996 to February 1998 (catalytic oxidation of emissions from June 1996 to September 1997 and direct atmospheric discharge from September 1997 to February 1998)
- SVE was turned off in February 1998.
- Groundwater extraction and treatment only from monitoring wells MW-10 and MW-11 occurred from February 1998 to October 2000
- Groundwater treatment system was completely shut down in October 2000
- MNA from 1998 to 2011
- ISCO injections of sodium persulfate in injection well IW-03 (source area) were conducted in August 2011 and again in April 2012 in order to further reduce residual mass. A total of 22,950 gallons of an approximately 44 grams per liter of sodium persulfate solutions was injected
- MNA from 2014 through 2018

**A.R.S. §49-181(A.4) Whenever institutional or engineering controls are placed on the site: (a) A demonstration that any engineering control or combination of engineering controls has been constructed, is functioning, and will be maintained. (b) A description of the proposed land use for the site and a demonstration that the use will not compromise the integrity of the engineering controls and will be in accordance with any institutional controls.**

No institutional or engineering controls for the LUST-affected groundwater exist or are proposed, as the residual groundwater concentrations and mass-flux do not pose a threat to receptors and the remaining LUST-affected groundwater is restricted to a shallow, perched aquifer onsite. Further, the LUST-affected groundwater is located beneath a large manufacturing building, within an industrially zoned property, and the plume is stable and naturally attenuating based on groundwater data from the monitoring wells. The plume has been stable or shrinking for over 20 years. Therefore, Elements A.4(a) and A.4(b) are not applicable.

**A.R.S. §49-181(A.5) If postremediation monitoring is proposed, a description of the type of monitoring, monitoring locations, contaminants to be monitored, monitoring frequency and sampling procedures.**

The LUST groundwater monitoring network is illustrated in Figure 2. However, post-remediation monitoring is not proposed or required for the LUST-affected groundwater; therefore, Element A-5 is not applicable.

**A.R.S. §49-181(A.6) A description of community involvement activities undertaken to meet the requirements of section 49-176.**

The area of concern is located on the ME Global property. The Draft Public Notification is attached as Attachment 2 for the ADEQ VRP's review. Following ADEQ approval the approved public notification for a NFA determination will be published in the East Valley Tribune or The Arizona Republic. The public comment period will extend 45 days from the date of the publication. The current property owner (ME Global) and local water users the Salt River Project and the City of Tempe will also be provided a copy of the public notification. The LUST Groundwater Closure Assessment Report and this document will be made available to the public for review upon written request.

**A.R.S. §49-181(A.7) A list of permits under this title obtained for the remedial action or held by the applicant pertaining to the Site.**

Injection Well IW-3 is registered as a Class V remediation well with the United States Environmental Protection Agency Underground Injection Control (UIC). The UIC registration will be closed pending the approval of the NFA. All remaining, historical permits have expired and/or were closed and are no longer used.

### Conclusions and Recommendations

The LUST-affected groundwater meets the ADEQ LUST closure criteria requirements defined in A.A.C. R18-16-263.04(B) and ADEQ's September 6, 2017 A.A.C. R18-12-263.04 Closure Guidance as demonstrated in the ADEQ-approved LUST Groundwater Closure Assessment Report<sup>5</sup>. Further the seven elements for an NFA determination (A.R.S. §49-181[A]) have been fulfilled as described by this letter and the LUST Groundwater Closure Assessment Report following satisfactory completion of the public comment period.

Following the ADEQ determination of NFA, all LUST related monitoring and remediation wells will be abandoned in accordance with Arizona Department of Water Resources guidance and rules. Based on the information provided in this letter and the LUST Groundwater Closure Assessment Report, VTI respectfully requests an NFA determination for the LUST-affected groundwater as described herein, pending public comment.

Please contact the undersigned if you have any questions.

Sincerely,

Arcadis U.S., Inc.



Christopher Shepherd, R.G.  
Principal Geologist

Copies:

Dave Cline, VTI  
Leland Roberts, Rio Tinto

Enclosures:

**Tables**

- 1 No Further Action Constituents
- 2 No Further Action Boundary Coordinates

**Figures**

- 1 Site Location
- 2 No Further Action Boundary

**Attachments**

- 1 ADEQ Approval Letter
- 2 DRAFT Public Notice

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<sup>5</sup> Arcadis, 2018.

# TABLES



**Table 1**  
**List of No Further Action Constituents**  
**Determination for LUST Affected Groundwater**  
**Former Capitol Castings Facility**  
**Tempe, Arizona**

Constituent Name	CAS #	Maximum Residual Groundwater Concentration (µg/L)	AWQS (µg/L)	ADEQ Tier 1 (µg/L)
1,2-Dibromoethane (EDB)	106-93-4	< 5.0 D1	0.05	--
1,2-Dichloroethane	107-06-2	17	5	--
Benzene	71-43-2	1,400 D1	5	--
Benzo(a)pyrene	50-32-8	< 0.2	0.2	--
Ethylbenzene	100-41-4	1,700 D1	700	--
Methyl-tert-butyl ether	1634-04-4	2.6	--	20
Toluene	108-88-3	250 D1	1,000	--
Total xylenes	1330-20-7	8,100 D1	10,000	--
Lead (as tetraethyl lead)	7439-92-1 (78-00-2)	< 0.12	50	--

**Notes:**

CAS #: Chemical Abstracts Service Number

µg/L: micrograms per liter

AWQS: Arizona numeric Aquifer Water Quality Standards (A.A.C. R18-11-406)

ADEQ Tier 1: Arizona Department of Environmental Quality UST Program Tier 1 Cleanup Standards:  
 Petroleum Products July 2017

EDB: ethylene dibromide

--: not applicable

D1: Sample required dilution due to matrix

**Table 2**  
**No Further Action Boundary Coordinates**  
**Former Capitol Castings Facility**  
**Tempe, Arizona**

NFA Boundary Corner	Northing (ft)	Easting (ft)
Northwest	862824	691931
Northeast	862824	692062
Southeast	862095	692620
Southwest	862095	691931

**Notes:**

NFA: No Further Action

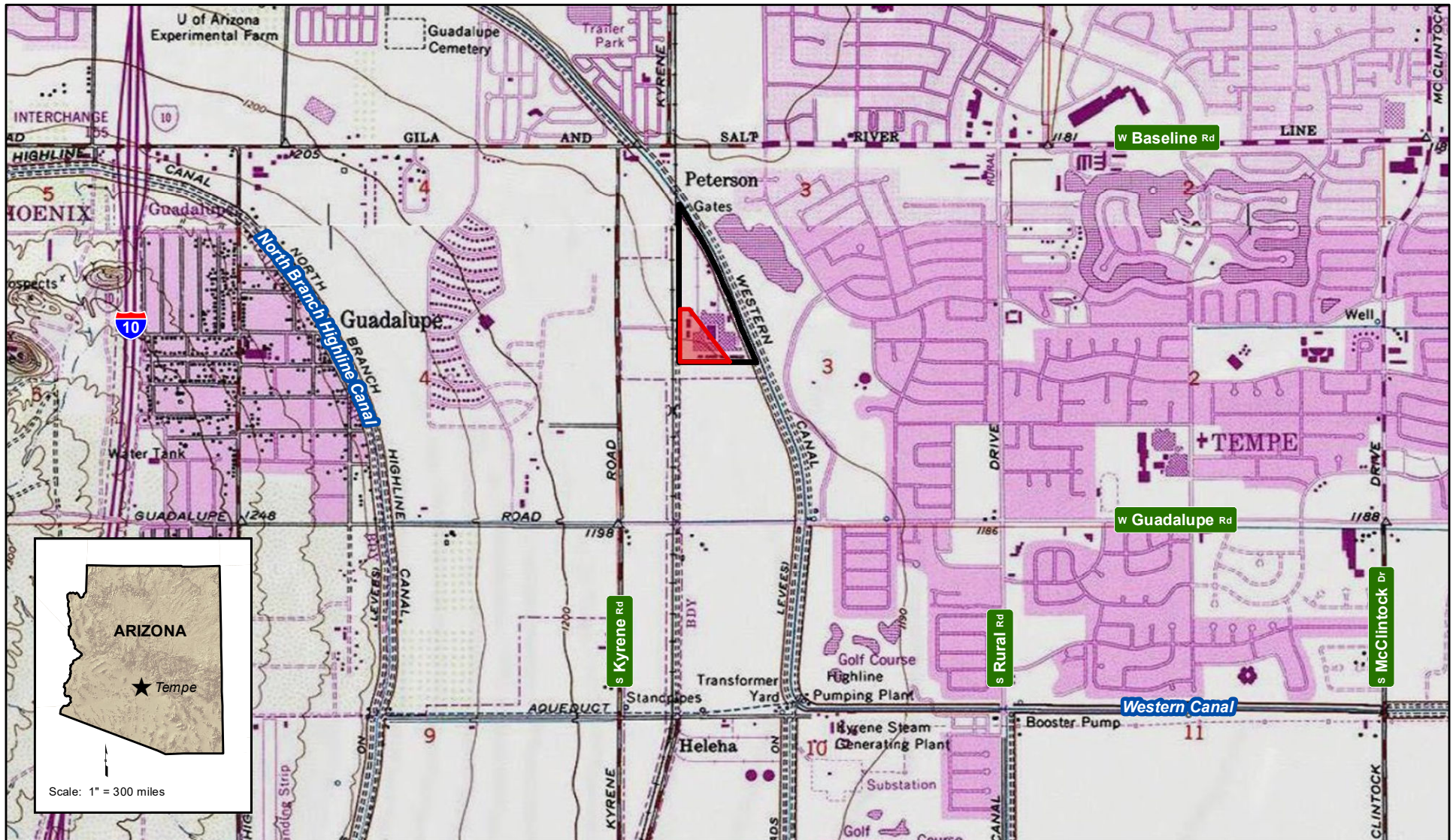
ft: Standard (US) feet

Horizontal Datum: NAD 83, Arizona State Plane, Central Zone





FIGURES



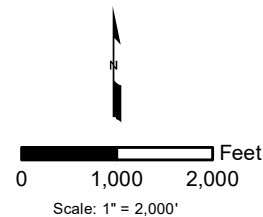


## LEGEND

-  Former facility boundary
-  No Further Action (NFA) boundary

## NOTES

- Topographic map source: ESRI USA Topo Maps.



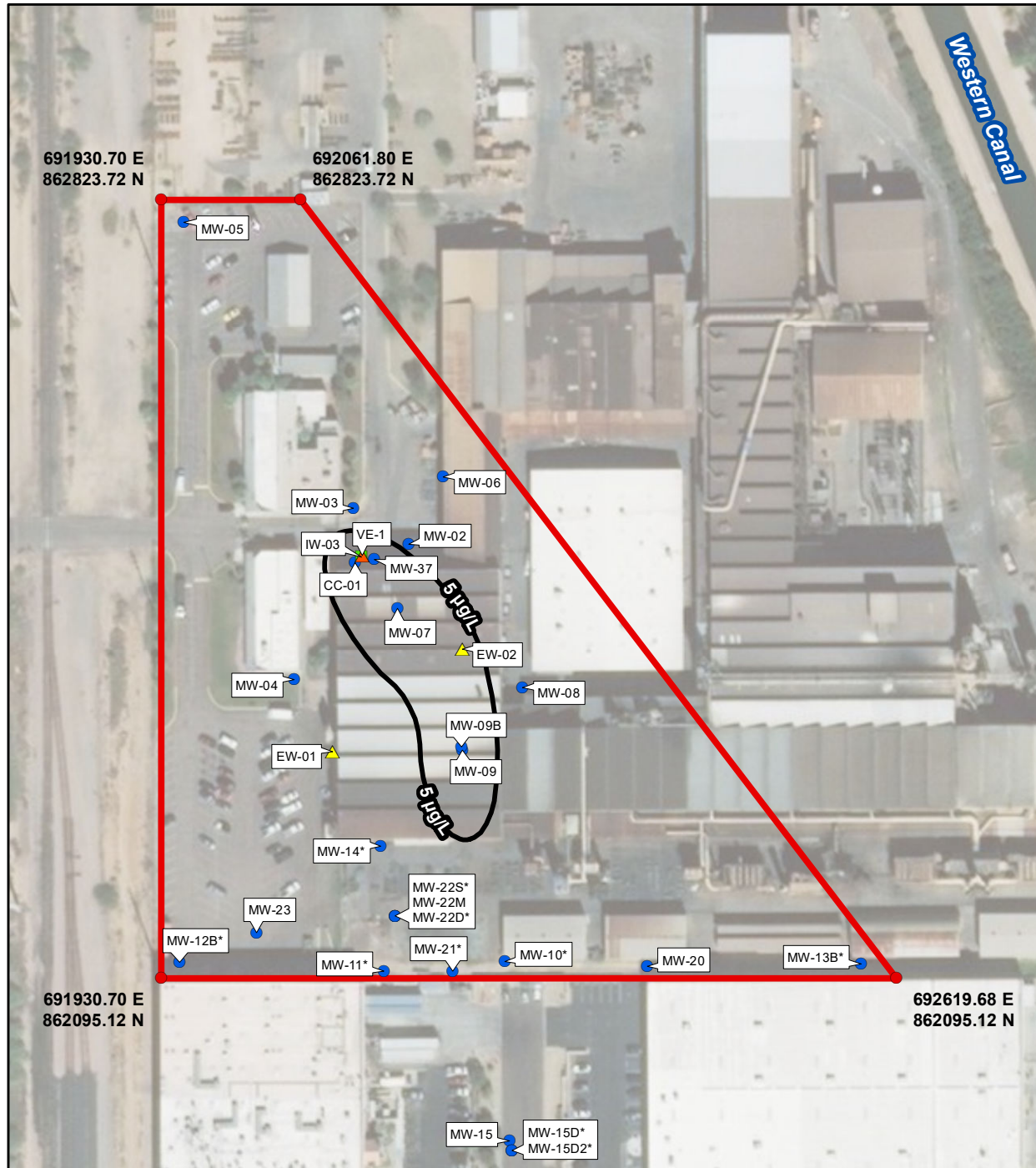
FORMER CAPITOL CASTINGS FACILITY  
TEMPE, ARIZONA

## SITE LOCATION









FIGURE  
1



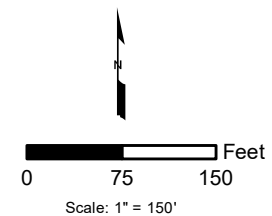


## LEGEND

-  No Further Action (NFA) boundary
-  Groundwater monitor well
-  Groundwater injection well
-  Groundwater extraction well
-  Soil vapor extraction well
-  Residual plume boundary

## NOTES

- Aerial photo source: ESRI World Imagery.
- Coordinates are expressed in NAD83 State Plane Arizona Central (US feet).
- Residual plume boundary is defined by the combined extents of benzene and 1,2-dichloroethane (1,2-DCA) exceeding the Arizona Aquifer Water Quality Standard (AWQS), which for both constituents is 5 micrograms per liter (µg/L).
- \* = 1,1-dichloroethene (1,1-DCE) monitoring well.



FORMER CAPITOL CASTINGS FACILITY  
TEMPE, ARIZONA

**WELLS WITHIN  
NO FURTHER ACTION BOUNDARY**



# ATTACHMENT 1

ADEQ Approval Letter





Douglas A. Ducey  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



Misael Cabrera  
Director

*Sent via U.S. Mail*

March 8, 2019  
VRP 19-170

David J. Cline, President  
Victoria Technology, Inc.  
C/O Rio Tinto  
4700 Daybreak Parkway  
South Jordan UT 84095

**RE: Proceed with Request for No Further Action Determination**  
Former Capitol Castings Facility, Tempe, Arizona  
VRP Site Code: 504426-00

Dear Mr. Cline:

The Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP) has reviewed the December 21, 2018 *LUST* [leaking underground storage tank] *Groundwater Closure Assessment Report* (CAR), prepared by Arcadis U.S., Inc. on behalf of Victoria Technology, Inc. (VTI) for the Former Capitol Castings facility in Tempe, Arizona.

The VRP approves the LUST CAR and grants permission for VTI to proceed with submittal of a No Further Action (NFA) Report for groundwater, based on the following information:

1. Between 1996 and 2018, the approximate areal extent of the monitored benzene and 1,2-dichloroethane (1,2-DCA) plumes have reduced in size by 83% and 91%, respectively. Modeling indicates the mass of benzene and 1,2-DCA has been reduced by 97.8% and 97.3%, respectively.
2. A risk evaluation, completed in 2018 and evaluated based on ADEQ LUST closure criteria requirements defined in Arizona Administrative Code (A.A.C.) R18-16-263.04(B), indicates there are no receptors threatened by the concentrations identified at the site, as the remaining groundwater contamination is localized to shallow zone onsite. The groundwater plume is stable and naturally attenuating based on groundwater data from the monitoring wells.
3. The 2018 risk evaluation supports the following conclusions:
  - a. The groundwater plume is stable.
  - b. Natural attenuation is occurring.
  - c. There are no threatened or impacted drinking water wells and there has been no vertical contamination to unaffected water bearing units.
  - d. There are no exposure pathways remaining for any media.

### How to Proceed

VTI should submit the following information in an NFA Report:

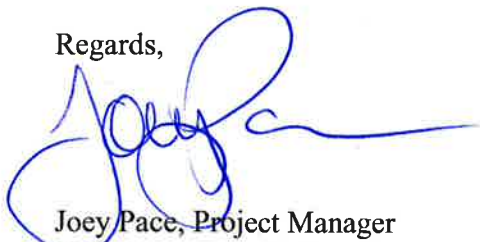
1. A summary that adequately addresses the seven requirements listed in Arizona Revised Statutes (A.R.S.) § 49-181(A). All seven requirements must be addressed in writing. If a component is not applicable to the Site, state "not applicable" for that statutory requirement.
2. A general site location map underlain by a topographic base layer.
3. A scaled map of the NFA boundary area (**clearly defined and labeled**).
4. A digital NFA boundary map. Instructions for preparing the digital submittal are located on the ADEQ VRP website.
5. A list of the contaminants for which the NFA is sought. Only contaminants for which characterization has been completed may be included.
6. A draft NFA Public Notice and the name of the newspaper where the notice will be published.

Upon receipt of the NFA Report:

- The VRP will review the NFA Report pursuant to A.R.S 49-181(B).
- The VRP will review the draft NFA Public Notice and will either provide comment or approval for publication.
- Once the draft NFA Public Notice has been approved by the VRP, it must appear for at least **one day in a daily local newspaper** of general circulation, **or for two non-consecutive days in weekly newspaper** of general circulation. Pursuant to A.R.S. § 49-176(A)(3), the public will have **45 days** to provide written comments to VTI and/or ADEQ. The VRP must be notified of the day(s) of publication, and must be provided with an Affidavit of Publication. A copy of the NFA Public Notice must be provided directly to Salt River Project.
- Upon completion of the **45-day** public comment period, the Volunteer must provide the VRP with a *Public Comment Notification Letter* and the original, copy of a signed *Certification for No Further Action Form* (located on the ADEQ VRP website). The certification form must be signed by the Volunteer of Record.
- Once all of the required documentation is received by the VRP, the documents will be reviewed and if no modifications are required, the VRP will issue an NFA for groundwater.

If you have any questions, please contact me at 602-771-4818, toll-free at 1-800-234-5677, or [jp8@azdeq.gov](mailto:jp8@azdeq.gov).

Regards,



Joey Pace, Project Manager  
Voluntary Remediation Program

cc: Leland Roberts, Rio Tinto – *sent via email*  
Christopher Shepherd, R.G., ARCADIS – *sent via email*  
Katy Brantingham, R.G., ARCADIS – *sent via email*

# ATTACHMENT 2

DRAFT Public Notice



**NOTICE OF 45-DAY PUBLIC COMMENT PERIOD  
FORMER CAPITOL CASTINGS FACILITY  
VOLUNTARY REMEDIATION PROGRAM SITE  
REQUEST FOR NO FURTHER ACTION DETERMINATION**

Pursuant to Arizona Revised Statute §49-181(A), Victoria Technology, Inc. is requesting a No Further Action (NFA) determination from the Arizona Department of Environmental Quality (ADEQ) for a portion of the property located at 5857 South Kyrene Road (the Site) in Tempe, Arizona. The Site is currently managed under the ADEQ Voluntary Remediation Program (VRP) (Proj. No. 504426-00). Historically the Site has been operated as a metals castings foundry. A leaking underground storage tank (LUST) was identified and removed in 1989. After the tanks were removed, remediation of the impacted groundwater was conducted under the oversight of the ADEQ. A groundwater closure investigation was completed in 2014 and revised in 2018, which determined that remaining groundwater plume is limited to a small area within the facility, undergoing natural attenuation, and the residual LUST-affected groundwater poses no significant threat to human health, water supply wells, or the environment.

The NFA Report is available online at: <http://azdeq.gov/notices>, and at the ADEQ Records Center, 1110 W. Washington St., Phoenix, AZ (602) 771-4380, or (800) 234-5677, ext. 602-771-4380; please call for hours of operation and to schedule an appointment.

**PARTIES WISHING TO SUBMIT WRITTEN COMMENTS** regarding the NFA request for the Former Capitol Castings Facility VRP site may do so to ADEQ, Attention: Joey Pace, Voluntary Remediation Program, 1110 W. Washington St., Phoenix, AZ 85007 or [Pace.Joey@azdeq.gov](mailto:Pace.Joey@azdeq.gov); or Attention: Katy Brantingham, Arcadis, U.S., Inc., 410 N 44<sup>th</sup> Street, Phoenix, AZ 85008 or [katy.brantingham@arcadis.com](mailto:katy.brantingham@arcadis.com) and reference this listing. **Comments must be postmarked or received by ADEQ or Arcadis U.S., Inc. by [day of week] [date], [year].**

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).

Dated this [date] day of [month], [year].