



Douglas A. Ducey  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



Misael Cabrera  
Director

January 2, 2020

VIA E-MAIL  
RPU 20-075

Mr. Damian Vickerman  
Director of Environmental Compliance  
Airgas, LLC (Airgas)  
12800 West Little York Road  
Houston, Texas 77041  
damian.vickerman@airgas.com

Re: Public Notice for No Further Action Determination for Soil  
Airgas/Air Liquide Phoenix Fill Plant Site (Consent Order Docket No. W-47-07)  
301 South 45<sup>th</sup> Ave, Phoenix, AZ  
ADEQ Facility ID #18867

Dear Mr. Vickerman:

The Arizona Department of Environmental Quality (ADEQ) has received your request for a soil No Further Action (NFA) Determination for the Airgas/Air Liquide Phoenix Fill Plant located at 301 South 45<sup>th</sup> Ave in Phoenix, Arizona (the Site). ADEQ has reviewed the information available and has determined that your request is reasonable.

Pursuant to Arizona Revised Statutes (A.R.S.) §49-287.01(F), prior to ADEQ issuing a NFA Determination, a 30-day public comment period is required. A public notice will be posted on the ADEQ website ([www.azdeq.gov](http://www.azdeq.gov)) and printed in the Arizona Business Gazette newspaper. Following the completion of the 30-day public comment period, ADEQ will make a determination on the NFA for the soil taking into account any comments received. If granted, the soil NFA Determination will be for volatile organic compounds (VOCs) in soil only. A copy of the public notice is attached for your records.

The following is a brief description of Site use and the rationale for NFA Determination at the Site:

1. Airgas and its various preceding affiliated companies have operated at the Site since 1965. Prior operations at the Site included the production of liquid oxygen and liquid nitrogen until August 1985. After August 1985, operations consisted of manufacturing acetylene gas and hydrated lime, as well as filling of gas and liquid oxygen, nitrogen argon, helium, hydrogen, propylene, carbon dioxide, and nitrous oxide. In 1998, Airgas company-wide ceased the use of the solvent 1,1,1-trichloroethane (TCA), which from

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1973 had been used as a degreaser to prevent oil and gas from reacting explosively with oxygen.<sup>(1)</sup>

2. Groundwater monitoring conducted at the Site from 2000 to 2016 utilized up to seven onsite monitor wells. Analytical results of groundwater samples collected from the Site monitor wells indicated the detection of 1,1-dichloroethene (1,1-DCE), trichloroethene (TCE) and tetrachloroethene (PCE) at concentrations exceeding the Aquifer Water Quality Standards (AWQS).<sup>(2)</sup> However, detections of TCA did not exceed the AWQS. The highest detection of TCA was 41.0 micrograms per liter ( $\mu\text{g/L}$ ) in the sample collected from well MW-1 on March 13, 2009.<sup>(2)</sup> The AWQS for TCA is 200  $\mu\text{g/L}$ .<sup>(3)</sup> The detections of TCE, PCE and 1,1-DCE were related to the regional West Van Buren WQARF site groundwater contaminant plume.<sup>(4)</sup>
3. In March 2019, additional soil gas samples collected at depths from 6 to 131 feet below ground surface (bgs) were used to vertically profile soil vapor concentrations.<sup>(5)</sup> TCA was detected in soil vapor samples collected at 6, 20, 35, 52, 70, 90, 101, 111, 121, and 131 feet bgs. The sample collected from 20 feet bgs recorded the highest detection of TCA at 39,500 micrograms per meter cubed ( $\mu\text{g/m}^3$ ). The vertical profile of TCA concentrations in soil vapor reveals a decreasing trend from 20 to 81 feet bgs, where TCA was not detected. From 91 to 131 feet bgs detected TCA soil vapor concentration ranged from 390 to 869  $\mu\text{g/m}^3$ .<sup>(5)</sup>
4. The Arizona Administrative Code (AAC) R18-7-203(C) allows for soil gas concentrations to be used to estimate total soil contaminant concentrations. The highest detected soil gas concentrations included 39,500  $\mu\text{g/m}^3$  for TCA, 1,043  $\mu\text{g/m}^3$  for TCE, 1,242  $\mu\text{g/m}^3$  for PCE, 7,380  $\mu\text{g/m}^3$  for 1,1-DCE, and 2,232  $\mu\text{g/m}^3$  for 1,1-dichloroethane (1,1-DCA). These soil gas concentrations respectively correspond to total soil concentrations of 0.050 milligrams per kilogram (mg/kg) for TCA, 0.003 mg/kg for TCE, 0.002 mg/kg for PCE, 0.005 mg/kg for 1,1-DCE<sup>(5)</sup> and 0.003 mg/kg for 1,1-DCA. These soil concentration values are below the respective current residential soil remediation levels (SRLs)<sup>(6)</sup> and minimum groundwater protection levels (GPLs).<sup>(7)</sup>
5. The highest TCA soil vapor concentrations in shallow soil were at least one order of magnitude below the applicable U.S. Environmental Protection Agency (EPA) regional screening level for composite worker ambient air, and therefore do not pose a potential health risk to on-site workers.<sup>(5)</sup>

As mentioned above, groundwater beneath the Site had concentrations of TCE, PCE and DCE that exceed the AWQS. Therefore, a NFA determination for groundwater cannot be granted for the Site at this time.

Should you have any questions, please contact me via telephone at 602.771.0200 or via email at [mdaniel.brett@azdeq.gov](mailto:mdaniel.brett@azdeq.gov).

Sincerely,



Brett McDaniel, R.G.  
Project Manager  
Federal Projects Unit

cc: Fabrizio Mascioni, Geosyntec  
Kirk Craig, Geosyntec

References:

1. ADEQ, 2007. Consent Order, Docket No. W-47-07, Air Liquide USA LLC and Air Liquide America L.P. located at 301 S. 45th Avenue, Phoenix, Maricopa County, Arizona, ADEQ Facility ID# 18867. 46 p. May 22. CTS# 159802.
2. Basin & Range Hydrogeologist, Inc., 2016. *Mid-Year Groundwater Report 2016*, Air Liquide Phoenix Fill Plant ID# 18867, Amended Consent Order Docket No. W-47-07, 301 South 45th Avenue, Phoenix, Arizona 85043. May 25. CTS# 359024.
3. Arizona Administrative Code (AAC), 2016. Title 18 Environmental Quality, Chapter 11 Department of Environmental Quality - Water Quality Standards, Supplement 16-4. R18-11-406(C) Numeric Aquifer Water Quality Standards: Drinking Water Protected Use. December 31. Retrieved from [https://apps.azsos.gov/public\\_services/Title\\_18/18-11.pdf](https://apps.azsos.gov/public_services/Title_18/18-11.pdf).
4. ADEQ (2019, July 16). *West Van Buren Site Overview*. Retrieved from <https://www.azdeq.gov/node/754>.
5. Geosyntec Consultants, 2019. Delineation of Potential Deep Vadose Zone Source Area, Airgas/Air Liquide Phoenix Fill Plant, 301 South 45<sup>th</sup> Avenue, Phoenix, Arizona. October 7. 262 p. CTS# 393614.
6. AAC, 2009. Title 18 Environmental Quality, Chapter 7 Department of Environmental Quality - Remedial Action, Supplement 09-1. R18-7-205(A) Pre-determined Remediation Standards, Appendix A Soil Remediation Levels (SRLs). March 31. Retrieved from [https://apps.azsos.gov/public\\_services/Title\\_18/18-07.pdf](https://apps.azsos.gov/public_services/Title_18/18-07.pdf).

7. ADEQ, 1996. *A Screening Method to Determine Soil Concentrations Protective of Groundwater Quality*. Prepared by the Leachability Working Group of the Cleanup Standards/Policy Task Force. September. 99 p. Retrieved from [http://static.azdeq.gov/wqarf/gpl\\_guidance.zip](http://static.azdeq.gov/wqarf/gpl_guidance.zip).