

TO: Storage Tanks, 907, Administrative

THROUGH: Eric Supey – Environmental Program Manager
Thomas Coar – Environmental Group Manager

FROM: Steven Clark – Licensed Professional Geologist

DATE: April 25, 2024

RE: ECB-Storage Tanks Program
Chapter 245 Technical Memo Summary – RACR-SSS Review
7 Eleven 23322
Facility ID#: 39-24557
Incident ID#: 52837
11 E. Susquehanna St.
Allentown City, Lehigh County

Act 2 Standard(s) Sought: The site-specific standard (SSS) via pathway elimination for soil and groundwater.

Project Site History: The facility, which occupies approximately 0.5 acres, consists of an active Mobil retail gasoline and diesel station with a 7-Eleven convenience store. It is in a primarily residential urban area. The current owner has occupied this site since at least 1989. There are two underground storage tanks (USTs) that were installed in March 2019 on the west side of the property, one 20,000-gallon UST for regular gasoline (#004), and one 20,000-gallon UST with an 8,000-gal premium unleaded gasoline compartment (#005) and a 12,000-gal diesel compartment (#006). There are two dispensers under one canopy. Two gasoline and one kerosene USTs installed in 1981 were removed in March 2019. A kerosene dispenser at the eastern boundary of the property was also removed at that time. The site and surrounding properties use municipal water.

Release Incident History:

Incident #32369: Approximately 50 gallons of gasoline were released when a vehicle struck and dislodged the delivery line during delivery to the USTs. This incident was closed under Statewide Health Standards (SWHs) on July 19, 2011.

Incident #41973: On December 21, 2010, there was extensive staining of asphalt next to the kerosene dispenser and adjacent to soil, and there was poor integrity at the asphalt to concrete contact. This incident was closed under SWH on July 19, 2011.

Incident #52837: This is the current incident. On December 17, 2018, AECOM collected a grab groundwater sample from a soil boring during waste disposal approval sampling south of the

tank field in preparation for removing USTs. The sample had a residential, used aquifer (RUA) SWH exceedance of 1,2,4-trimethylbenzene (1,2,4-TMB, 96.3 µg/L), which is no longer considered an exceedance under the revised Chapter 250 November 2021 standards. The UST system, which consisted of two 12,000-gallon unleaded gasoline tanks and one 12,000-gallon kerosene tank, was replaced in the same tank pit from March – April 2019. During excavation, no apparently contaminated soil was found, and no confirmatory soil samples had SWH exceedances. One of the two UST closure groundwater confirmation samples had an exceedance of benzene (48 µg/L).

The groundwater investigation required off-site delineation. On August 13, 2021, AECOM submitted a Site Characterization Report/Remedial Action Plan (SCR/RAP), which was disapproved for several reasons, including lack of soil and groundwater delineation. After further soil and groundwater characterization, AECOM submitted a revised SCR/RAP on June 28, 2022, which was approved on September 1, 2022. They selected the site-specific standard, with quarterly groundwater monitoring (to demonstrate plume stability following tank closure activities) as the remediation method.

Site Characterization Findings:

- a. **Conceptual site model:** The overburden groundwater SWH exceedances were discovered within the former tank field and near the southeast corner of the old tank field. Soil RUA SWH exceedances were discovered on the western side of the old tank field. The tanks, piping, and dispensers all appeared to be in good condition, so the exact cause of the release is unknown. Petroleum migrated downward into groundwater, which flows to the south. The soil impacts have been delineated and are contained on site. The groundwater impact has also been delineated. The source area well is a downgradient point of compliance (POC) well.
- b. **Site geology:** According to the Geologic Map of Pennsylvania, the site is underlain by the Cambrian Leithsville Formation, which consists of dolomite, shale, limestone, and phyllite. Bedrock was never encountered when drilling at the site, though very weathered schist was found from 20'-25' bgs. Though the topography on-site and its vicinity dips gently to the northwest, groundwater flows to the south/southeast. Groundwater is 14'-20' bgs in the southern and southeastern part of the site.
- c. **Interim actions conducted by the responsible party:** A total of 1,683 tons of presumably uncontaminated soil and debris were removed from the excavation in preparation of UST installation activities and taken to Republic Conestoga Landfill in Morgantown, PA. during the 2019 tank closure activities.
- d. **DEP response following the NORR:** DEP was notified of the release on January 2, 2019 and issued a 180-day letter on January 7, 2019.
- e. **Site characterization conclusions:**

Soil – No RUA SWH soil exceedances were found in the tank closure post-excavation samples. Twenty-four soil borings were drilled in five events between December 2018 and May 2022, during which 28 samples were collected. Soil samples within a few feet of the soil-groundwater interface for each monitoring well were collected and analyzed for petroleum short list compounds. One soil boring sample, collected on the west side of the tank field at a depth of 12.5' bgs, had RUA SWH exceedances of 1,2,4-TMB (269 mg/kg) and 1,3,5-TMB (104 mg/kg). Soil contamination is contained on site, and there were no soil direct contact RUA SWH exceedances.

Groundwater – Ten on-site and three off-site 2" monitoring wells were installed from June 2019 – January 2022. Three monitoring wells in the northwest corner of the property had continually flooded screens, so three wells with shallower screen intervals were installed adjacent to these. The well in the southeast corner of the property was frequently dry, so it was replaced with a deeper monitoring well. A downgradient POC well has been the only one with RUA SWH exceedances since quarterly monitoring began in 2019. In the most recent eight quarterly sampling events, maximum SWH exceedances included ethylbenzene (2,680 µg/L), total xylenes (13,300 µg/L), naphthalene (474 µg/L), 1,2,4-TMB (4,460 µg/L), and 1,3,5-TMB (1,100 µg/L). All of these compounds except for xylenes have had consistent exceedances since monitoring began in September 2019.

Based on the PADEP eMapPA and PaGWIS applications, no groundwater wells and no surface water intakes were identified within a 0.7-mile radius of the site.

Vapor Intrusion – The groundwater plume and soil contamination zone both exceed the 5' vertical and 30' horizontal proximity distances for petroleum compounds to the site building and off-site structures, therefore vapor intrusion is not a concern at this site.

Other – The nearest surface water body is the eastward-flowing Lehigh Creek located 2,300' to the north. Given the distance and direction to Lehigh Creek, this release is not likely to impact Lehigh Creek. According to a Pennsylvania Natural Diversity Inventory conducted on June 16, 2022, there are no known impacts to habitats or species of concern within a 2,500' radius of the site. Since the area of gasoline contamination was less than two acres, no additional ecological evaluation is required, per Chapter 250.311(b)(2).

Discussion of Remedial Action: Remedial action is summarized in (c) above.

Discussion of Demonstration of Attainment: Free product has not been found during the investigation of this incident. AECOM applied the SSS to soil and groundwater through pathway elimination. Only one monitoring well has had exceedances, a downgradient POC well (MW-6). As described above, there have been consistent SWH exceedances for four petroleum Short List compounds, all of which have stable or decreasing trends by Mann-Kendall analysis over the past ten quarters. In addition to the groundwater exceedances within MW-6, AECOM has

projected through fate and transport modelling that the 1,2,4-TMB and ethylbenzene plumes could migrate across East Susquehanna Street and into the 8 East Susquehanna Street property within thirty years.

- *Post Remediation Care Plan (PRCP)*
An environmental covenant (EC) will be used to manage and monitor pathways into the future. The post-remedial care plan is designed to ensure that all possible exposure scenarios remain incomplete. AECOM proposes that the pavement or concrete cap over the impacted area be maintained. The PRCP will require notifications of the contamination for site workers prior to any excavation activities. The site would continue to be connected to the public water source. The responsible party will conduct yearly checks to ensure that supply wells are not installed in the downgradient properties.
- *EC Waiver Requests*
AECOM submitted EC waiver requests within this RACR for 8 East Susquehanna Street and the segment of East Susquehanna Street between that address and the site.
 - 8 East Susquehanna Street – Groundwater is the only medium of concern for this property. The area is provided with a community water supply, and there is no public supply well within a 0.7-mile radius of this area. Therefore, it is highly unlikely that a drinking water supply well will be installed at this site.
 - East Susquehanna Street south of the site – Groundwater is the only medium of concern. It is improbable that a drinking water well would be installed on a city street.

These waiver requests were approved by DEP in letters dated April 25, 2024.

DEP Final Action Approval/Disapproval Letter: The January 30, 2024 document titled, “Remedial Action Completion Report: 7-Eleven Store No. 23322,” is approved on April 25, 2024.

DEP Contact: Steve Clark, P.G. **Phone:** (570) 826-5440

Site Contact: 7 Eleven, Inc. **Phone:** (937) 863-6678
c/o Mr. Samuel Kramer (Samuel.Kramer@7-11.com)
P.O. Box 711
Dallas, TX 75221-0711

Site Consultant: Kristine Crisci, P.G./Richard Firely, P.G. **Phone:** (610) 234-5402
AECOM (kristine.crisci@aecom.com; richard.firely@aecom.com)
625 West Ridge Pike, Suite E-100
Conshohocken, PA 19428