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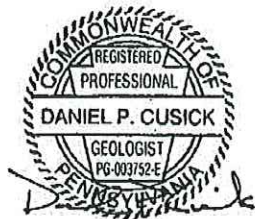


Annual Groundwater Monitoring Report - 2017

Former CE Cast Facility/Muse Project Cecil Township, Washington County, Pennsylvania

ABB, Inc.

Submitted by:



April 3, 2018

Daniel P. Cusick, P.G.
Pennsylvania PG – 003752-E

Date

By affixing my seal to this document, I am certifying that the information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information

GHD | 103 Gamma Drive Extension Suite 110 Pittsburgh Pennsylvania 15238 USA

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CE Cast discontinued chemical recovery operations approximately after 1970, but the manufacturing of additives and equipment continued until 1985. In 1985, CE sold the CE Cast business and leased the property to CastAmerica. Reportedly, CastAmerica ceased operations in May 1987. CE became a wholly owned subsidiary of ABB in 1990.

During the 1970s, CE Cast began investigating soil and the surface water in the unnamed tributary in conjunction with the Pennsylvania Department of Environmental Resources (PADER—currently known as the PADEP). Those activities culminated in a COA between the PADER and CE Cast, which was executed on May 8, 1980. The agreement required CE Cast to remove impacted soil and drums from an area along the unnamed tributary and to construct a landfill on Site to contain this material. The landfill was removed from the Site in 2009.

By the mid-1990s, over 90 ASTs and at least three underground storage tanks (USTs), which were used to store raw product and fuel, had been removed from the Site as part of the facility closure.

The Property is currently vacant open land. ABB has voluntarily monitored the groundwater at the Site since 2000. As previously mentioned, the Site has been entered into Act 2 by the Township.

2. Groundwater Monitoring Activities

The groundwater sampling schedule is summarized in Table 1. The annual groundwater monitoring event was performed on July 17 and 18, 2017, and the semiannual monitoring event was performed on December 11, 2017. The groundwater program conducted in 2017 is in accordance with the PADEP-approved groundwater monitoring program (approved in a letter dated March 17, 2010).

2.1 Groundwater Elevation Measurements

All Site monitoring wells were gauged during the July and December 2017 events. The depth to groundwater, presence of non-aqueous phase liquid (both light and dense), and total depth for each monitoring well was measured and recorded using an electronic oil/water interface probe to a precision of ± 0.01 foot. All measurements were taken from a survey reference point on the top of the well riser. The monitoring well locations are shown on Figure 2.

2.2 Groundwater Sampling

Groundwater samples were collected from the monitoring wells listed in Table 1 during the July 2017 (annual event; all monitoring wells listed in Table 1) and December 2017 (semiannual event; semiannual wells listed in Table 1 only) monitoring events. Prior to collecting each sample, each monitoring well was purged with a disposable bailer or a submersible pump and a water quality meter was used to collect field parameter data consisting of pH, temperature, specific conductivity, and turbidity (visual). The wells were purged a minimum of three well volumes and until all field parameters were stable. If the monitoring well was purged dry prior to the removal of three well volumes, the groundwater sample was collected within 24 hours of purging the well dry. The groundwater samples were collected in pre-cleaned laboratory provided containers.



3. Groundwater Monitoring Results

3.1 Groundwater Elevation Data

The groundwater elevation data from the July and December 2017 sampling events are summarized in Table 2 with historical data collected from the Site monitoring wells since 2000. A groundwater elevation contour map for groundwater elevations calculated from the December 11, 2017 event is included as Figure 3. As shown, the groundwater flow direction for the December 2017 gauging event was determined to be primarily in a south and southwest/southeast direction; consistent with historical data. The groundwater elevations in July 2017 and resulting flow direction were consistent with the December 2017 data.

3.2 Groundwater Quality

For comparison purposes, the volatile organic compound (VOC) and semi-VOC (SVOC) analytical results from the 2017 events were compared to the PADEP's Statewide Health Standards (SHS) Medium-Specific Concentrations (MSC) for organic substances in groundwater, used aquifers with total dissolved solids (TDS) $\leq 2,500$ milligrams per liter (mg/L), non-residential setting. The VOCs and SVOCs detected at concentrations greater than the MSCs in July and December 2017 are shown on Figure 4. A summary of the analytical data from July 2006 through December 2017 for VOCs and SVOCs has been included on Tables 3 and 4, respectively. The laboratory analytical reports for the July 2017 and December 2017 sampling events have been included in Appendix A.

4. Comparison of Analytical Data

The 2017 groundwater analytical data were compared to past sampling analytical data in order to evaluate constituent degradation, concentration trends, and plume stability.

The concentrations of 1,4-dioxane near the southern property boundary of the Site are less than the new (effective January 18, 2017) Pennsylvania Groundwater Statewide Health Standard Vapor Intrusion Screening Values (SV_{GW}) for residential and nonresidential. Therefore, the existing concentrations are not a concern for vapor intrusion into any occupied buildings downgradient of the Site. In addition, all downgradient residents are supplied water by the municipality and there are no potable water wells. Based on this data, there are no known potential receptors of concern for exposure to constituents in groundwater downgradient of the Site.

4.1 Volatile Organic Compounds

Historically, tetrachloroethene (PCE) and trichloroethene (TCE) were the primary VOCs detected in groundwater near the former Main Plant Area, specifically from the November 2002 data obtained for monitoring wells MW-2 and MW-204. The PCE and TCE plume extended south to monitoring well MW-6 (2002 concentrations of 55 micrograms per liter [$\mu\text{g/L}$] [PCE] and 60 $\mu\text{g/L}$ [TCE]), consistent with groundwater flow direction. The 2017 data for monitoring wells MW-2, MW-6, MW-105, and MW-204 continues to support the overall decrease in reported parent compound concentrations of PCE and TCE. The data also shows the degradation process is continuing in the

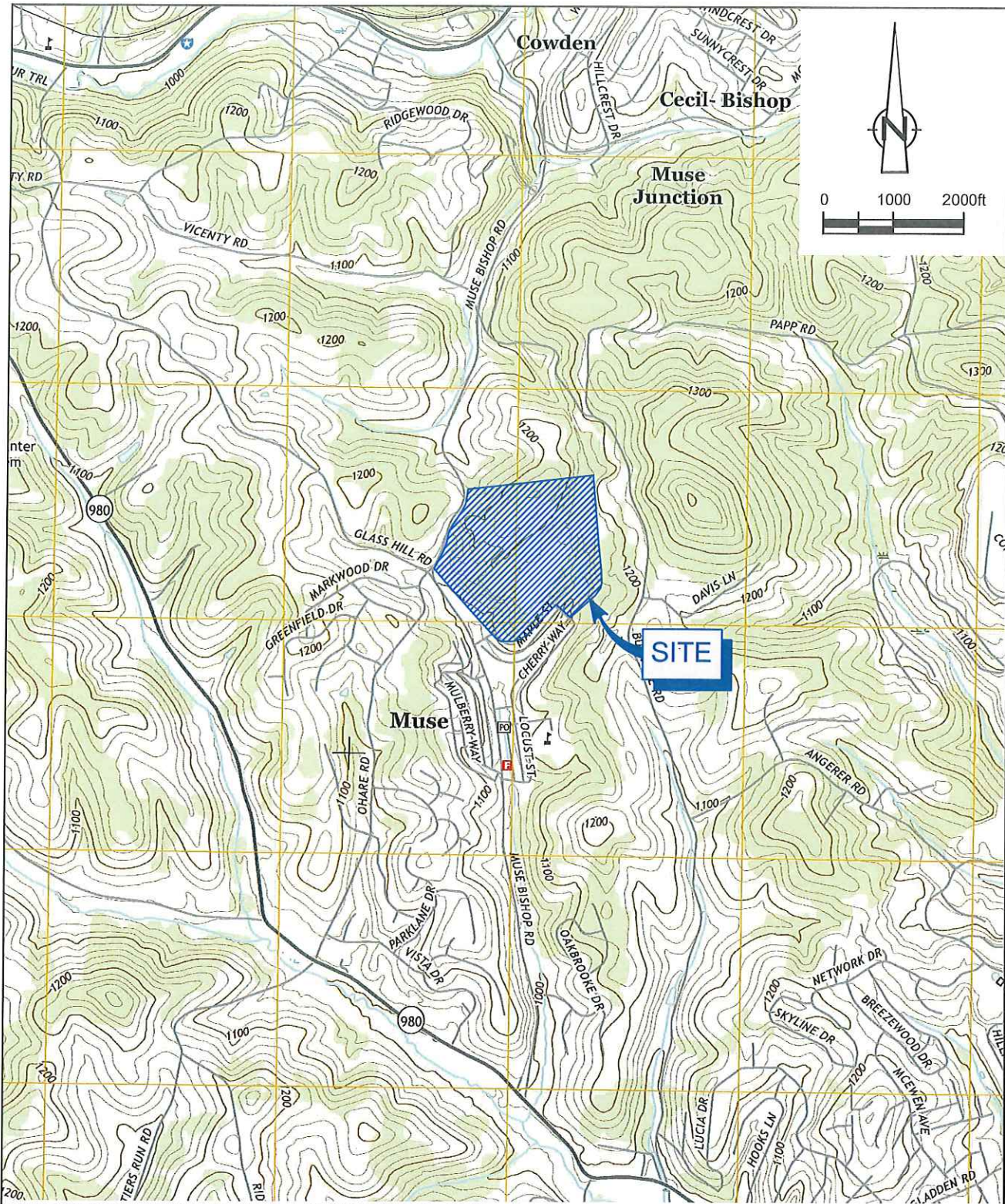


TDS \leq 2,500 mg/L, non-residential setting. The VOCs detected were generally consistent with constituents detected during the most recent sampling events. An overall decrease in parent compound concentrations of PCE and TCE has been observed, with a general increase or steady state trend in the concentrations of daughter compounds indicative of degradation for chlorinated aliphatic group VOCs. The concentrations of daughter compounds such as cis-1,2-DCE, 1,1-DCE, and vinyl chloride are generally increasing or stabilizing, while the parent compound concentrations (i.e., PCE and TCE) are generally decreasing.

One SVOC, 1,4-dioxane, continues to be present in groundwater underlying the Property. The detection of 1,4-dioxane is consistent with recent sampling events.

On January 8, 2018, PADEP, ABB (Seller), and the Township (Buyer) entered into a COA (Buyer-Seller Agreement) for the Site. The Township also submitted a NOIR to PADEP in February 2018. Therefore, the Township will be the responsible party implementing Site remedial investigation and reporting activities in accordance with Act 2.

Since the Site's groundwater will be monitored to demonstrate compliance with the Act 2 requirements, it is anticipated that this will be the final groundwater monitoring report that will be submitted by ABB.



SOURCE: USGS QUADRANGLE MAP: CANONSBURG, PA., 2016.



figure 1
 SITE LOCATION MAP
 FORMER CE CAST FACILITY
 Muse, Pennsylvania