

August 9, 2018

Dustin Armstrong  
Environmental Cleanup Program  
PA Department of Environmental Protection  
2 East Main Street  
Norristown, Pennsylvania 19401

Re: Former Bishop Tube Site  
Response to DEP's August 8, 2018 Letter

Dear Mr. Armstrong:

On behalf of the Bishop Tube Project Team ("BT Team"), Roux Associates, Inc. ("Roux Associates") submits this letter in response to the Pennsylvania Department of Environmental Protection's ("DEP") August 8, 2018 letter, which provided comments and/or approval to the following:

- The Addendum to the Discharge to Surface Water Work Plan dated July 2, 2018 ("DSWWP Addendum");
- Roux Associates' letter dated July 6, 2018; and
- Roux Associates' e-mail dated July 24, 2018.

Responses to DEP's comments are provided below.

**DSWWP Addendum and the July 24<sup>th</sup> email**

**Item 1.** No response required.

**Item 2.** Although we don't agree with the need, the 6 metals identified by DEP will be added in the interest of advancing completion of this sampling program.

**Item 3.** In accordance with Appendix A of 25 Pa. Code, Ch.16.102, Table 2A, Roux Associates will employ United States Environmental Protection Agency ("USEPA") Method 200.8/6020 (ICP/MS) for total chromium<sup>1</sup>. After assessment of additional methods and as described in Roux Associates' e-mail dated July 24, 2018, hexavalent chromium will be analyzed via USEPA Method 218.7. Please note, actual detection limits for all parameters will be dependent upon laboratory procedures and matrix interferences.

**Item 4.** For analysis of the 6 metals added by DEP, analytical methods to be employed to meet the TQLs for these compounds are listed below.

- USEPA Method 6020 for barium, beryllium, cobalt, copper and selenium; and

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<sup>1</sup> This method is also listed on Table 2A of Appendix A of 25 Pa. Code, Ch. 16.102 for hexavalent chromium. However, based on discussions with Roux Associates' analytical laboratories, USEPA Method 200.8 is not capable of meeting the TQL of 1.0 ug/l for hexavalent chromium.

- USEPA Method 6010 for boron.

### **Roux's July 6, 2018 letter**

**Item 1 (Analytical Data).** No response required.

**Item 2 (Groundwater Delineation).** No response required for paragraphs 1 and 2. Paragraph 3 requests justification for the laboratory turn-around time ("TAT") for the approved compound-specific isotope analysis ("CSIA") at select monitoring wells. The CSIA analyses to be conducted include the following:

- Carbon and chlorine isotope ratios for 1,1-dichloroethane ("DCA"), 1,1,1-trichloroethane ("TCA"), trichloroethene ("TCE"), tetrachloroethene ("PCE"), and cis-1,2-dichloroethene ("DCE"); and
- Hydrogen isotope ratios for TCE and PCE.

The only identified commercial analytical laboratory that can complete these analyses is the selected laboratory, Microbial Insights, Inc. ("Microbial Insights"). This laboratory's standard TAT is 120 days (four months) for the CSIA analyses. We previously asked Microbial Insights whether an accelerated TAT was possible, and they advised that was not possible.<sup>2</sup> In addition, there is lead time for the requisite total VOC analyses which will inform the selection of samples for CSIA analysis and associated data compilation, QA/QC, and reporting.

With respect to the example "less than 30-days" TAT for CSIA that is cited in DEP's letter, we note that this analytical work was completed by Pace Analytical ("Pace"). Roux Associates held discussions with Pace regarding its current capabilities at the time of development of the CSIA sampling plan. You may recall that Roux Associates used Pace for CSIA in 2014, so they were our logical first choice. However, the employee who conducted the CSIA work in 2014 is no longer at Pace and their CSIA abilities are consequently reduced. In our discussions, Pace advised that its CSIA capabilities with respect to DCA, TCA, TCE, PCE, and DCE were limited to:

- Carbon isotope ratios for DCA, TCA, TCE, PCE, and DCE; and
- Chlorine isotope ratios for TCE and PCE only.

Notably, hydrogen isotope ratios, included in prior CSIA sampling activities at the Site, are no longer available at Pace. Further, the CSIA capabilities for chlorine isotope ratios for Microbial Insights (all 5 compounds) exceed those of Pace (TCE and PCE only). Thus, Microbial Insights was selected as the laboratory for this sampling program to a) be consistent with prior CSIA sampling events by inclusion of hydrogen ratios; b) obtain chlorine isotope ratios for all compounds; and c) optimize the data generated under the CSIA sampling program. The inclusion of these additional isotopes may provide useful information in assessing the source of the CVOCs in the samples.

**Item 3 (Groundwater Modeling).** No response required at this time.

**Item 4 (Schedule for Completing Supplemental RIR).** Because only one laboratory was identified that is capable of conducting hydrogen isotope ratio analyses and complete chlorine analyses, no change in schedule is feasible with respect to the CSIA analytical TAT. Assuming DEP's review and final approval

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<sup>2</sup> In the event the analytical laboratory provides complete data in advance of the predicted TAT, the reporting would be able to be completed sooner.

in approximately 1 week from the date of this letter, the schedule outlined in Roux's July 6, 2018 letter would be slightly modified to:

- Late August/early September 2018: Completion of field sampling;
- Mid-September 2018: Reporting of VOC results; and
- January/February 2019: Reporting of CSIA results.

Completion of the supplemental RI activities is dependent upon the results from implementation of the DSWWP Addendum and the expanded groundwater sampling program. Should these supplemental RI activities produce results that do not indicate the need for additional field investigative activities, a reasonable estimate for submission of a Supplemental RIR would be the end of Q1 2019. Should the supplemental RI activities produce results that indicate the need for additional field investigative activities, an updated schedule can be prepared based on the anticipated duration of the supplemental field activities.

Should you have any questions or comments, please contact either of the undersigned at (856) 423-8800.

Sincerely,

**ROUX ASSOCIATES, INC.**



Justin Kowalkoski, P.G.  
Senior Geologist



Gregory D. Martin, P.G.  
Vice President/Principal Hydrogeologist

cc: Richard Staron - PADEP - E-mail  
Bonnie McClennen - PADEP - E-mail  
Bishop Tube Project Team - E-mail