



April 21, 2017

Mr. Gregory D. Martin, P.G.  
Roux Associates  
402 Heron Drive  
Logan Township, NJ 08085

Re: Bishop Tube Site  
April 14, 2017 Meeting  
Preliminary FS Screening Memorandum

Dear Mr. Martin:

The purpose of this letter is to follow-up the April 14, 2017 meeting and to provide comments on the Preliminary Feasibility Study (FS) Screening Memo that was submitted on behalf of the Bishop Tube Project Team on March 31, 2017. During the meeting, the Project Team proposed to incorporate linear regression analyses in the Supplemental Remedial Investigation (RI) Report to define the Site boundary for shallow and deep groundwater units, and to include the installation of additional sentinel wells as part of pre-remedial design activities to supplement the RI. Our comments associated with the linear regression proposal and FS Screening Memorandum are provided below.

### **Linear Regression Proposal**

The Project Team proposed using a distance versus concentration linear regression analysis to define the downgradient extent of groundwater contamination in shallow (i.e., potentially resulting in current or future vapor intrusion concern) and deep (i.e., potentially resulting in future exposure via groundwater use, vapor intrusion via discharge to shallow groundwater, and/or discharge to surface water). The Project Team has proposed performance of additional groundwater characterization activities, through installation of a sentinel monitoring network in a pre-remedial design phase to be initiated after completion of the Supplemental RI Report and FS Report.

Additionally, during the meeting, the Project Team indicated that figures derived from a similar distance versus concentration analysis had been presented for deep/bedrock groundwater with the FS Screening Memo. We were not able to locate the referenced figures in Attachment C (CD-ROM) included with the FS Screening Memo.

The Department reviewed the linear regression analysis for shallow/overburden groundwater provided with the February 6, 2017 response to our January 11, 2017 correspondence, and determined that the proposed linear regression analyses, alone, will be insufficient to

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characterize the extent of groundwater contamination as required in Paragraph 5.f of our Consent Order and Agreement (CO&A), dated August 4, 2009, which references Section 408 of the Land Recycling Program Regulations. 25 Pa. Code § 250.408 (b)(2) requires characterization of the vertical and horizontal extent of contamination above selected standards within each medium of concern, and Section 250.408 (a) allows for use of a model to sufficiently define the rate of movement and the present and future extent and fate of contaminants. To facilitate timely completion of RI activities, the Department has consistently recommended preparation of a 30-year groundwater fate and transport model in letters dated December 31, 2015, June 20, 2016, and January 11, 2017. The linear regression model presented with the Project Team's response to our January 11, 2017 letter does not meet the Sections 250.408(a) and (b)(2) regulatory requirements for an RI.

The Department does not believe that the extent of contamination as predicted by the linear regression model alone is an adequate scientific procedure. Therefore, characterization of the extent of contamination at the Bishop Tube site will not be approved based solely on this analysis.

The Department will accept two alternatives:

First, as an alternative to installing more monitoring wells prior to the previously agreed upon, RI deadline, another scientifically acceptable model may be utilized that takes advantage of the significant amount of data collected by the Bishop Tube Team including, but not limited to:

- Structural data from coring and borehole geophysics;
- Groundwater elevation gradients;
- Contaminant specific physical properties;
- Hydraulic conductivities;
- Source characteristics; and,
- Field observed contaminant rates of decay.

Second, as an alternative to modeling the current data set, the Department will accept an RI submission that includes the previously mentioned sentinel wells. These sentinel wells would need to be installed and sampled twice (a minimum of two weeks apart) to facilitate submittal of the Supplemental RI Report by July 31, 2017. Please provide a scope of work with an expedited timeline that will detail where and how you propose to install the additional sentinel wells. The Department will accept the dates proposed in the April 17, 2017 letter provided that the new sentinel wells are installed and incorporated in the RI. The Department does not want this deliverable to be part of a pre-remedial design package to be completed after submission of the RI.

By May 1, 2017, please provide a plan for completing RI activities in accordance with the approved schedule.

### **Preliminary Feasibility Study Screening Memorandum**

#### **3.2.2 Direct Exposure Groundwater**

It is not known if potable wells are present at the Site because the Department has not yet received an approvable RI that demarcates the extent of groundwater contamination at the Site.

#### **3.2.3 Direct Exposure to Surface Water**

The screening memorandum is generally dismissive of our in-stream criteria. Please note that under the Department's Regulations, surface water is protected for all uses. Therefore, the Department's numeric Human Health Criteria established under the Clean Streams Law should be referenced in the text and included in Table 1 (ARARs and TBC Evaluation). The protection and improvement of LVC remains a primary objective of our final site remedy.

#### **3.2.4 Inhalation Exposure to Indoor Air Caused by VI**

Should the FS consider this exposure pathway under a scenario where the land use does not change from non-residential to residential?

The offsite portion cannot be adequately assessed yet because the Department has not yet received an approvable RI that demarcates the extent of groundwater contamination at the Site.

### **4.2 Groundwater**

As described above, the concentration versus distance linear regression analysis is not an acceptable means of defining the extent of groundwater contamination by itself. A sufficient number of wells would need to be installed to determine the extent of contamination; however, this would have to happen relatively quickly in order to meet the July 2017 deadline. The Department has not received any plans regarding the installation of any additional wells. As detailed above, the Department would agree to an approvable numerical groundwater model so that the RI can be completed in a timely fashion. However, the Department will accept a linear regression analysis with the addition of sentinel wells provided the wells are installed and sampled in an appropriate manner to meet the July 2017 deadline.

### **4.3 Surface Water /Sediment**

Given the exceptional value stream status of Little Valley Creek (LVC), the Department considers surface water to be its own functional area. The Department recognizes that remedies addressing groundwater will likely improve LVC, however alternate remedial actions should be examined to address this functional area.

**6.1 PRGs (Surface Water/Sediment PRGs)**

As noted above, protection and improvement of LVC remain as important goals for the project and should be considered as a factor in the evaluation of groundwater remedial technologies.

**7.0 Types, Areas and Volumes of Affected Materials by Media**

Again, surface water is dismissed in the memorandum. Stream segments (and springs/seeps) where exceedances of the human health criteria are present should be identified.

**7.1 Groundwater**

For GW-1 functional areas, calculation of CVOC mass and/or mass discharge would be helpful in the evaluation of remedial alternatives.

**7.2 DNAPL**

Would creation of a DNAPL functional area be of benefit for evaluating technologies for addressing groundwater in areas where DNAPL occurs?

**8.0 Preliminary Screening of General Response Actions, Remedial Technologies, and Process Options Removal**

Groundwater Extraction and Treatment should be retained for all functional areas including the newly added Surface Water Functional Area.

**9.0 Conclusions – Retained Technologies**

All forms of active remediation seem to have been screened-out for Functional Area GW-1c. Please explain.

Hydraulic control via groundwater extraction and treatment should be retained for GW-1 Function Areas.

**Tables 2 – 5 Preliminary Screening**

For active remedial options which are retained the focus appears to be on overburden groundwater. Options for actively addressing contaminated groundwater within the bedrock aquifer must be evaluated in the FS.

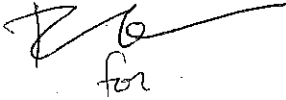
Mr. Gregory D. Martin, P.G.

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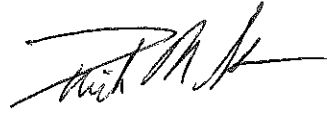
April 21, 2017

If you have any questions, please feel free to call Dustin A. Armstrong at [darmstrong@pa.gov](mailto:darmstrong@pa.gov) or by phone at 484.250.5723.

Sincerely,



for  
Dustin A. Armstrong  
Environmental Protection Specialist  
Environmental Cleanup and Brownfields



Richard Staron, P.G.  
Licensed Professional Geologist  
Environmental Cleanup and Brownfields

cc: Mr. Nagel - East Whiteland Township Manager  
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