

April 1, 2019

Mr. Matthew Gordon
Sunoco Pipeline, L.P.
535 Fritztown Road
Sinking Spring, Pennsylvania 19608

Re: Hydrogeological HDD Re-Evaluation Report
Blacklog Cr. Crossing 16" Horizontal Directional Drill Location (S2-0154-16)
Permit No. E31-234
Shirley Township, Huntingdon County

Dear Mr. Gordon:

The Pennsylvania Department of Environmental Protection (DEP) is requesting more information from Sunoco Pipeline, L.P. (SPLP) related to the HDD Re-Evaluation for the Blacklog Cr. site, HDD# S2-0154-16 and permitted under Permit E31-234, posted on the DEP Mariner East II pipeline portal webpage on February 18, 2019.

1. As required by Paragraph 4. and 5. of the Environmental Hearing Board's August 10, 2017 Corrected Stipulated Order (Order), SPLP failed to fully utilize information gathered during the HDD of the 20-inch bore as part of the HDD Re-evaluation for the 16-inch pipeline. Several inadvertent returns occurred during the HDD activities for the 20-inch bore. Please gather geologic and drilling information collected by various site personnel during the 20-inch bore which can be used to synthesize a comprehensive history of each or groupings of events. The HDD re-evaluation report should discuss the operational or geologic cause of each inadvertent return, the magnitude of the inadvertent return(s) (IRs) and associated loss of circulation, the best management practice used to contain and minimize the inadvertent return, and the drilling procedure or technique used to progress the boring. The re-evaluation should describe how the 20-inch "as-built" was used in determining the proposed 16-bore path.

The type of information described above, and any other relevant data gained in the intervening time period since the 20-inch HDD began to present, should be used to describe and support why the chosen bore path for the 16-inch pipeline was determined and how such information has been used to minimize the potential for IRs or the potential for water supply impacts to occur. Part of the discussion of construction alternatives, including why HDD activity is still the preferred and chosen methodology for pipeline construction at this location should be included in the re-evaluation report.

2. Relating to the overall HDD Re-evaluation summary and the Geologic Report:
 - a. There is no evaluation of the data and no data-based correlation for why the revised 16-inch pathway was chosen. Please provide a discussion of how the data presented was used in designing and as support for this proposed HDD bore path and profile.

- b. The root cause of the IRs is only discussed in the Executive Summary section in Attachment 1- "Geology and Hydrogeological Evaluation Report" of this HDD re-evaluation. The root cause of the IRs should be evaluated and discussed in detail from a geologic standpoint and addressed within the Conclusions section in Attachment 1.
- c. Both the Geology and Hydrogeological Evaluation Report and Horizontal Directional Drill Analysis mention ". . . fractures or groups of fractures that can be sufficiently enlarged by dissolution of the bedrock". Dissolution of shale bedrock? Please explain.
- d. It is unclear from the narrative discussions which direction the HDD will proceed. Please confirm the drilling direction is West to East, as is indicated in Figures 1-3.
- e. The table Regional Geology Summary lists "depth to rock" as 18-59 ft BGS. The soil borings and core borings show auger refusal depths ranging from 15 ft to 22 ft. Please revise or explain.
- f. Section 5.0 Geotechnical Evaluation presents a synopsis of the two core borings. The section ends with the statement "Skelly and Loy and RETTEW relied on these reports and incorporated their data into the general geologic and hydrogeologic framework of the analysis of the proposed 16-inch drill at HDD S2-0154-16 for this report." Please specify where this data was incorporated into the re-evaluation? The data is presented but is not further discussed.

Additionally, this section of the report presents information and data but no evaluation of the data and information is made in relation to the re-design the proposed 16-inch bore path.

- g. Analysis of geologic strength at profile depth:
There is no analysis in the re-evaluation report specifically tying the revised drill path to any specific zones noted on the core boring logs as having high RQDs, or why the revised 16-inch path was chosen. Please provide a discussion addressing the use of this data in designing the bore path.
- h. The table Rock Core Description Summary lists the rock classification as "limestone" while other references in the report identify the primary rock classification as Shale. Please confirm that the bedrock is Reedsville Shale. Is the site close enough to the shale's lower contact that the lower parts of the cores are limestone?
If limestone was identified as part of the geology, in accordance with the Order, conduct appropriate geophysical testing/evaluations or provide a detailed justification of for why such geologic investigations was not done.

- i. If additional geophysical data is obtained, please submit additional plan/profile maps with superimposed geophysical data.
 - j. Attachment 3 Well Location Map contains a location labelled “GES Stream Testing Location”, with GES well ID ST-09252017-614-01. Is this the same location described in Section 3.0 Hydrogeology of the Geologic Report as a spring? Was the spring sampled? If yes to either question, use and discuss any applicable and relevant data in the re-evaluation.
3. Relating to the Analysis of well production zones and use of information obtained during construction of the 20-inch pipeline;

The re-evaluation report fails to include evaluation of the information and any data collected for the one private water supply within 450 feet of the HDD, the two other nearby water supplies identified in the report, or the water supply complaint that was investigated during the construction of the 20-inch pipeline.

It is also unclear about whether the one water supply within 450 feet of the HDD or the water supply identified approximately 520 feet from the HDD is the same as the one water supply identified within 0.5 miles using the PaGWIS database.

Any private or public water supply data obtained within 450 feet or otherwise obtained in the vicinity of the 20-inch or proposed 16-inch HDD should be used and discussed as part of this HDD re-evaluation. This data should include but not be limited to any applicable water supply sampling data and any water supply complaints that SPLP may have obtained and received for water supplies within 450 of the HDD or within the general vicinity during construction of the 20-inch pipeline. The results of the SPLP’s water supply sampling program, investigation, disposition of the complaint, and any correlation or non-correlation to SPLP’s construction activities should be evaluated and discussed in the HDD re-evaluation report and used to demonstrate that the proposed 16-inch HDD activity will minimize the potential for IR’s and impacts to water supplies. Please revise the re-evaluation report to include this information.

4. Related to Pipe Stress Radius: Provide further explanation of how the following statement applies to this HDD re-evaluation: “Pipe stress allowances are an integral part of the design calculations performed for each HDD.”

Upon receipt, DEP will post SPLP's response to this letter on the DEP pipeline portal webpage for public comment. The public will have 5 additional business days from the date of posting on the website to provide DEP any additional comment.

If you have any questions or would like to discuss this letter, please contact me at scwilliams@pa.gov or 717.705.4799.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Williamson', with a long horizontal flourish extending to the right.

Scott R. Williamson
Program Manager
Waterways & Wetlands Program

cc: Larry Gremminger, Energy Transfer Partners/Sunoco Pipeline, L.P. (pdf copy)
Monica Styles, Sunoco Pipeline, L.P. (pdf copy)
Doug Hess, P.G., Skelly and Loy
Celina Seftas, Huntingdon County Conservation District (pdf copy)