

July 30, 2019

Mr. John F. Hohenstein P.E
Environmental Program Manager
Southeast Regional Office
Pennsylvania Department of Environmental Protection;
2 East Main Street
Norristown, Pennsylvania 19401-4915

**Re: Response to DEP Comments for Hydrogeological HDD Re-Evaluation Report
SPLP HDD No. S3-0631 Chester Creek (Gun Club) Crossing
PADEP Section 105 Permit No.: E23-524
Middletown and Aston Townships, Delaware County**

Dear Mr. Hohenstein,

On June 6, 2019, Sunoco Pipeline, L.P (SPLP) submitted for public review and comment a Re-Evaluation of the proposed Horizontal Direction Drill (HDD) for a segment of the Mariner East II Pipeline Project (Mariner II) known as the Chester Creek Crossing, S3-0631 as referenced above. SPLP received emailed comments from the Department dated June 28, 2019, requesting additional information relative to our analysis of this HDD. Please accept this letter as a response to your request for further information. Below you will find your specific request bolded, followed by SPLP's response.

**** The HDD Hydrogeologic Reevaluation Report (Section 2.2.7) stated that concentrations of magnetite were observed in the Wissahickon Formation at the subject site during drilling of the 16-inch HDD borehole sufficient to affect the steering of the S3-0631 pilot borehole. SPLP should indicate what precautions will be taken to minimize the effects of the magnetite on the steering of the pilot bit so the borehole does not veer off course so that pipe stress allowances are not exceeded, and which may result in a LOC and/or an IR.***

The exact statement from Section 2.2.7 of the hydrogeologic Reevaluation Report prepared by GES follows:

“The presence of magnetite in the Wissahickon Formation was confirmed in the field during the drilling of the pilot for the 16-inch line based on observations made by PGs using a magnet. The PGs and steerhand noted the concentration of magnetite was sufficient to effect steering of the S3-0631 pilot which was performed using a wire line steering mechanism at the time”

The comment by GES was conveying a field observation confirming the presence of magnetite in the geology as published by Bosbyshell in 2005, with an anecdotal comment on the steering.

As noted by GES, the steering tracking method used to drill the pilot for the 16-inch line was a wire line steering mechanism. When a surface tracking wire or "True Track" type of system is in

use with a magnetic tool, the magnetic field induced to obtain azimuth readings will almost always overwhelm any natural occurring interference as well as most manmade ones. This was the case during the drilling of the first pilot hole at this crossing.

It is not uncommon to encounter magnetic interference during a horizontal directional drill from either naturally occurring or manmade sources. When drilling using a magnetic tool without a surface tracking wire, it is possible to have the azimuth become "corrupt" when encountering interference. The inference results in the azimuth not reading true. However, this is generally readily apparent in the data received from the tool. The steering hand operating the drilling unit can tell that there are issues with the azimuth as presented and take appropriate steps to verify a truer azimuth. The use of the surface tracking wire provides a truer azimuth.

For your additional information on subject of steering an HDD, alternately, a Gyro steering system, which is a radio frequency steering tool, does not rely on magnetics and is immune to azimuth corruption by magnetic interference from any source. For that reason Gyro systems are sometimes employed during drills that have the potential for azimuth issues, or where it is physically impossible to employ a surface tracking system.

Occasionally a crossing may require both methods to insure accurate tracking, since both methods have pros and cons.

The use of the "True Track" steering system during the drilling of the first pilot hole resulted in a profile that met all the pipe stress allowances. Accordingly, SPLP is confident the second pilot hole can be successfully drilled regardless of which steering system is employed by the drilling contractor.

SPLP submits that we have been, and are, in complete compliance with the agreed terms and analysis requirements of the Order, as agreed to by the Department, and that no further analysis is required for the Department to consent to this HDD. SPLP therefore requests that the Department approve the Reevaluation Report for Chester Creek Crossing Horizontal Directional Drill (S3-0631) as soon as possible.

Sincerely,



Larry J. Gremminger, CWB
Vice-President – Environmental, Health & Safety
Energy Transfer Partners
Mariner East 2 Pipeline Project