

**PUBLIC COMMENT for
PHOENIXVILLE PIKE ROAD
PADEP SECTION 105 PERMIT NO.: E15-862
PA-CH-0290.0000-RD (SPLP HDD No. S3-0421)**

1. GENERAL COMMENT

The HDD Re-Evaluation Report submitted by Sunoco/Energy Transfer is signed by three individuals: Mr. Larry Gremminger, CWB; Mr. Richard T. Wardrop, P.G.; and Mr. Jeffrey A. Lowy, P.E. The report reflects that Mr. Gremminger, as the Geotechnical Evaluation Leader, has attributed his signature to the parts of the report “Pertaining to Horizontal Directional Drilling Practices and Procedures; Conventional Construction Alternatives; and Environmental Effects.” Mr. Wardrop has affixed his signature and professional seal “Pertaining to the practice of geology.” And finally, Mr. Lowy has affixed his signature and professional seal “Pertaining to the pipeline stress and HDD geometry.”

While reviewing multiple other HDD Re-Evaluation Reports for sites such as Middletown/Valley Road (S3-0591); Strasburg Road/Bow Tree (S3-0520); Gradyville Road (S3-0580); Eldridge Drive/N Chester Road (S3-0500), it is apparent that information provided in the portion of the reports written by Mr. Gremminger is often insufficient, outdated, lacking in detail, and often requires the DEP to request further clarification or modification. In the reports for several sites (specifically Valley Road, Bow Tree, and Edgmont Gradyville), the DEP correctly rejected the insufficient bore samples submitted by Mr. Gremminger and requested more extensive testing to be completed over the entire drill profiles. In each case, Mr. Gremminger initially resisted the DEP’s requests that SPLP perform more extensive geological testing prior to drilling, only to later reverse course and agree, in writing, to the more extensive testing suite, then later fail to perform such testing, which was a clear condition of drilling re-start (see DEP approval letters, dated 12/5/18). At Valley Road, where multiple sinkholes and subsidence has since occurred, only now is Mr. Gremminger’s team performing those tests, which should have been done over a year ago. I also include by reference the three-page November 7, 2019 Notice of Violation <http://files.dep.state.pa.us/ProgramIntegration/PA%20Pipeline%20Portal/MarinerEastII/NOV/2019/November%207.%202019%20Chester%20County.pdf> issued for Strasburg/Bow Tree HDD 520 which details **violations of the Clean Streams Law, Dam Safety and Encroachments Act, and the Oil and Gas Act of 2012** and failures by the HDD ReEvaluation Team, led by Mr. Gremminger, to inform the DEP of substantial changes in construction/installation methods and question why reports submitted by this individual continue to be accepted by the DEP.

Finally, while the DEP has made past and ongoing efforts to require that HDD Re-Evaluation Reports be signed and sealed by a PA licensed engineer and geologist, it is clear that Sunoco/ET continues to utilize the services of an unlicensed Certified Wildlife Biologist who appears to be operating in violation of the Wildlife Society Code of Ethics, specifically, §3.9 Standards for Professional Conduct: **Accept employment to perform professional services only in areas of their own competence, and consistent with the Code of Ethics. They shall seek to refer clients or**

*employers to other natural resource professionals when the expertise of such professionals **shall best serve the interests of the public, wildlife, and the client or employer**; §3.13 Standards for Professional Conduct: *Avoid performing professional services for any client or employer when such service is judged to be contrary to the Code of Ethics or detrimental to the well-being of wildlife resources and their environments*; §3.14 Standards for Professional Conduct: *Advise against an action by a client or employer which violates any statute or regulation*.*

For all of the above noted reasons, and the history of NOV's issued for sites associated with Mr. Gremminger's past reports, I urge the DEP to act in the public's best interest and reject the report submitted for S3-0421 in its entirety and require a new report to be submitted by a Pennsylvania licensed engineer appropriately qualified to attest to the HDD practices and installation sections.

2. PIPE INFORMATION

Once again, as in previous submitted reports for other sites, Sunoco fails to include any substantial supporting data for a Pipe Stress Analysis. Buried pipelines are not only subject to significant stresses during the installation process but also subject to earth movement, particularly in areas where fracture and fault zones are present. As demonstrated by the explosion of Energy Transfer's Revolution Pipeline in Beaver County, PA, and detailed in the Advisory Bulletin issued by PHMSA on May 2, 2019, warning "operators of gas and hazardous liquid pipelines of the potential for damage to pipeline facilities caused by earth movement from both landslides and subsidence in variable, steep, and rugged terrain and for varied geological conditions. These conditions can pose a threat to the integrity of pipeline facilities if those threats are not identified and mitigated." Reference: <https://www.federalregister.gov/documents/2019/05/02/2019-08984/pipeline-safety-potential-for-damage-to-pipeline-facilities-caused-by-earth-movement-and-other>

This particular site, as noted in the operator's own report, has numerous identified fracture areas and the drill profile has poor quality bedrock that is described as "highly weathered". Because a stress analysis is performed to ensure the safety and integrity of the pipe and its components, the report submitted by this operator is incomplete in that the discussion is simply limited to "the amount of curvature" the pipe may withstand during installation. Sunoco has failed to address any other types of stresses their pipe may be subject to in this geologically problematic location. The operator has also failed to provide any professional software-generated analysis of the fault-fracture area nor any information about mitigating adjustments to address pipe-soil interactions.

3. INADVERTENT RETURN DISCUSSION

It is notable that this section, in previously submitted reports, had been titled "Root Cause Analysis". The new section title suggests the Operator has abandoned the effort to submit proper root cause reports for the multiple IRs which continue to occur at the drill sites. A Root Cause Analysis exercise is meant to be a proactive problem-solving method to identify problematic issues and implement corrective actions to prevent them from occurring in the future. In previous public comments, I have noted that the Operator's Root Cause Analysis efforts were grouped together when each IR should be separately addressed. The DEP should continue to press the Operator for proper Root Cause Analysis reporting rather than a mere discussion of the IR events.

4. GEOLOGIC ANALYSIS

As this section of the HDD Re-Evaluation Report pertains to GEOLOGY it should be included as part of the report submitted by GES, under their corporate logo, bearing the signature of the licensed geologist. Since it cannot be ascertained that this portion of the report was written and submitted by the Pennsylvania licensed geologist, Mr. Richard T. Wardrop, and in fact appears outside of the GES information, it should be disregarded.

Additionally, the report states that Fracture Trace Analysis identified one fracture trace at approximately Station 13+50 on the profile and a second one intersecting the alignment at the Boot Road/Rte 202 ramp interchange at approximately Station 38+15. A map of these fractures is shown as Figure 3 in the GES report. No discussion is offered in this section of the six additional fractures that are shown in close proximity to the HDD profile. The fracture trace analysis was based on a composite of interpretations for multiple 1937-1942 aerial photographs viewed with a Topcon MS-3 Stereo Scope. In the attached GES report it is noted that MASW and seismic refraction studies were done in early 2019. The MASW data, shown on page 104, indicated three potential fault-fracture zones (at approximately Stations 4+87, 7+00, and 16+00), which do not correspond to the aerial photography observations. In situations such as this, it is recommended that further fracture trace analysis testing is performed, so there **at least three data sources**, to achieve repeatability of results, rather than drilling based on inconsistent/incompatible results. As urged in previous public comments, I submit a report of Case Studies presented by SAIC on the reliability of single vs multiple sources in Fracture Trace Analysis. The findings show that "Analysis based on a single attribute, or a combination of attributes as a stand-alone criterion for assessment can be seriously misleading." Further the report goes on to demonstrate that:

- **With fewer data sources for analysis there is less repeatability**
- **With one data source repeatability was ~20 percent (Case 1)**
- **With two data sources repeatability was ~45 percent (Case 3)**
- **With numerous data sources repeatability was ~80 percent (Case 2)**

Source:

https://mde.state.md.us/programs/water/water_supply/Source_Water_Assessment_Program/Documents/www.mde.state.md.us/assets/document/watersupply/2008symposium/M-0205-Weikel.pdf

Hydrogeology, Groundwater, and Well Production Zones

As this section pertains to hydrogeology, ground water, and well production zones it should be included as part of the report submitted by GES, under their corporate logo, bearing the signature of the PA licensed geologist. Since it cannot be ascertained that this portion of the report was written and submitted by the Pennsylvania licensed geologist, Mr. Richard T. Wardrop, and in fact appears outside of the GES information, it should be disregarded.

Of note, however is the statement that “most groundwater flow in the area of the HDD alignment is towards East Branch Chester Creek to the southwest. Some shallow groundwater flow near the southeast entry/exit may be east towards a headwater drainage of Ridley Creek.” Since the geology is highly fractured, highly weathered, and the water level is close to the surface it is a logical conclusion that the probability is high that these Pennsylvania waters may be contaminated by industrial waste from SPLP’s drilling operations.

5. CONCLUSION

Having read a number of HDD Re-Evaluation Reports for this project, the overall conclusion I have after reading this specific report is how unsuitable and unstable this location is. In fact, this is the most disturbing report I have read to date. Whether one considers the highly fractured and weathered geology; the close proximity of nearby waterways; the lack of adequate pipe stress analysis performed, or the fact that there is no detailed discussion pertaining to the petroleum odors that were present when bore sampling was performed - all of these factors lead to a conclusion that this site is not suitable for installation of a large diameter pipeline that will transport highly volatile natural gas liquids under high pressures. The fact that petroleum odors were present during sampling would suggest that the soil in this area may be contaminated from a previous incident that occurred on nearby Ship Road where approximately 70,000 to 79,000 gallons of unrefined gasoline leaked out and SUN Pipeline Company had to take remedial action. The idea that now, drilling may occur in an area that could result in IRs or waterflow migrations that could affect Pennsylvania waterways and carry contaminated soils is alarming to say the least. While the bore reports briefly note that sampling activities were halted due to the presence of nearby residents the brief statement that “HDD inspectors did not detect any petroleum affected cuttings” does not indicate that any sort of substantial soil contaminant testing was performed and no discussion of mitigating action or plan modification is provided. In fact, there is no discussion at all about possible cause(s) of the petroleum odors, no independent investigation to determine the extent of the affected area, and there is no discussion about the possible effect of contaminated soils on the pipe itself - in fact, it appears that this aspect of the geology has been completely omitted.

For the above reasons I urge the DEP to deny further activity at this site.

Thank you,
C Morley
East Goshen Township

Attachment: SUN Letter, 1994

