

November 27, 2017

By Email

ra-eppipelines@pa.gov



Re: Comments on Report for HDD PA-WM1-0088.0000-RR

To whom it may concern:

Pursuant to the Corrected Stipulated Order entered on EHB Docket No. 2017-009-L on August 10, 2017 ("Order"), and on behalf of Clean Air Council, Mountain Watershed Association, Inc., and the Delaware Riverkeeper Network ("Appellants"), please accept this comment on Sunoco Pipeline L.P.'s ("Sunoco") re-evaluation report ("Report") for the horizontal directional drilling ("HDD") indicated by drawing number PA-WM1-0088.0000-RR (the "Site").¹

The Department's Review

Pennsylvanians rely on the Department of Environmental Protection to protect them from dangerous activities that threaten their air, water, land, and health. The Department has recognized that the construction of Mariner East II has done damage to the public already. The purpose of Sunoco's re-evaluations of certain HDD sites is so that it does a better job avoiding

¹ The Order reads, in pertinent part:

§ 6(ii) "For all recommendations for which a minor permit modification is required, including, but not limited to, certain changes from HDD to an open cut or certain changes to the Limit of Disturbance ("LOD"), the Department will have 21 days to review the submission and render a determination with respect to such minor permit modification, unless Sunoco agrees to extend the 21-day time period. *Appellants and private water supply landowners, who have received notice pursuant to Paragraph 7 below, shall submit comments, if any, within 14 days of the Department's posting of Sunoco's Reports on the Department's Pennsylvania Pipeline Portal website...The Department shall consider comments received and document such consideration.*" Emphasis added.

§ 6(iii) "For all other recommendations, including, but not limited to, recommendations of no change or of changes that do not require a minor permit modification, the Department will have 21 days to review the submission and render a determination with respect thereto, unless Sunoco agrees to extend the 21-day time period. *Appellants and private water supply landowners who have received notice pursuant to Paragraph 7 below, shall submit comments, if any, within 14 days of the Department's posting of Sunoco's Reports on the Department's Pennsylvania Pipeline Portal website...The Department shall consider comments received and document such consideration.*" Emphasis added.

harm to the public and the environment in its HDD construction. The Department's role is to review and assess Sunoco's Report before deciding what action to take on it.

It is the Department's duty to review and assess the Report with protecting the public and the environment placed first and foremost. Looking at the individual circumstances at the site in question is key. Critically important is accounting for input from those who live nearby, who have a deeper connection with and greater knowledge about the land than the foreign company building the pipelines through it.

A meaningful, objective and substantive review and assessment by the Department will ensure that new or further HDD operations at the re-evaluated sites will cause minimal, if any, harm to the public and the environment. Anything less than a full, careful, and objective review would endanger the public and the environment. Pennsylvanians place their trust in the Department to do a thorough, science-based assessment, taking into account these and other comments, and approving Sunoco's recommendation only if it would protect the public and the environment from any further harm.

Comments on HDD PA-WM1-0088.0000-RR

1. Sunoco's re-evaluation report is impossible to assess due to a lack of information regarding the Site's inadvertent return(s).

It is of critical note that neither Appellants, nor the Department¹, have any record of the inadvertent return(s) referenced throughout the Report. Details regarding the spill or spills at the Site are necessary in order to meaningfully evaluate the proposed changes for the Site. Out of the 87 pages in the Report, the entirety of the discussion of the inadvertent return(s) is contained in three paragraphs—two of which are essentially redundant. One paragraph states:

On June 27, 2017, during an initial attempt to drill HDD S1B-0250, a loss of circulation occurred at approximately 910 feet out and at approximately 99 ft bgs. The driller noted a void in the boring from 910 feet to 929 feet, drilling north to south. On the same day, a release of drilling fluids was noted under the drill pad and onto the LOD. This IR was controlled after initial discovery and continued through July 2, 2017, when drilling was halted. The release was fully contained. This pilot proved difficult to steer and multiple attempts were made to pull rods back and reenter the boring on the correct alignment. At one point it was discovered that the 12-inch line was not accurately located and resurveying was required.

¹ The Department has been maintaining a list of inadvertent returns on its website, http://files.dep.state.pa.us/ProgramIntegration/PA%20Pipeline%20Portal/MarinerEastII/Sunoco_Mariner_East_II-Pipeline_Construction_Inadvertent_Returns-Waters_of_the_Commonwealth_Revised.pdf. As of the writing of this comment, no inadvertent return is listed at the Site. If the Department does, in fact, have information regarding this return, Appellants ask that documentation be sent to Appellants immediately, so that Appellants may more effectively comment on this re-evaluation per the Settlement.

The Report goes on to say in one of the additional paragraphs that, “Drilling was suspended on July 15, 2017 in order to reevaluate the drill design.”

The Report’s language is altogether unclear as to whether an inadvertent return occurred on a single day before it was contained, whether it was ongoing between June 27, 2017 and July 15, 2017, or whether there were separate returns that released periodically.² There is no mention of the quantity of fluid that was released or the full extent of locations where the inadvertent return occurred. And it appears as though the Department was never notified of either the inadvertent return or the drill design reevaluation undertaken in July 2017. There are merely site plans included in the Report that appear to be the revised July 2017 plans, with no mention of whether they were submitted to or approved by the Department.

Without more specific information regarding the inadvertent return(s) that occurred during drilling in June and July it is extremely difficult for the Department to determine whether this proposed re-evaluation adequately addresses the risk of future returns. This lack of information undermines the Department’s ability to review and approve the Report as is required in paragraph 6 of the Corrected Stipulated Order.

² The paragraphs that expressly refer to the inadvertent return(s) are:

- 1.) On p. 3: On June 27, 2017, during an initial attempt to drill this HDD, a loss of circulation occurred at approximately 910 feet out and at approximately 99 ft bgs. The driller noted a void in the boring from 910 feet to 929 feet, drilling north to south. This pilot hole proved difficult to steer and multiple attempts were made to pull rods back and reenter the boring on the correct alignment. During verification of the tracking data for the pilot hole in progress, it was discovered that the 12-inch line was not accurately located and resurveying was required. Drilling was suspended on July 15, 2017 in order to reevaluate the drill design in relation to the verified location of the Mariner I pipeline and based upon the verification data, a new profile was designed to ensure safety during installation of the proposed 20-inch pipeline;
- 2.) On p. 23: On June 27, 2017, during an initial attempt to drill HDD S1B-0250, a loss of circulation occurred at approximately 910 feet out and at approximately 99 ft bgs. The driller noted a void in the boring from 910 feet to 929 feet, drilling north to south. On the same day, a release of drilling fluids was noted under the drill pad and onto the LOD. This IR was controlled after initial discovery and continued through July 2, 2017, when drilling was halted. The release was fully contained. This pilot proved difficult to steer and multiple attempts were made to pull rods back and reenter the boring on the correct alignment. At one point it was discovered that the 12-inch line was not accurately and resurveying was required. Drilling was suspended on July 15, 2017 in order to reevaluate the drill design;
- 3.) And on p. 24: Steering was difficult during the initial pilot boring and there was uncertainty regarding the horizontal and vertical position of the active 12-inch which had to be relocated for purposes of the reevaluation. A loss of mud to the LOD did occur under and next to the drilling pad at the northern entry/exit point during the initial pilot hole; however, this IR was easily controlled and its occurrence is to be expected for any HDD when the drill bit is close to the surface in unconsolidated materials.

2. Sunoco's re-evaluation report is impossible to assess due to a lack of information regarding Sunoco's inability to accurately locate the Mariner East I line.

Similarly to the inadequate discussion of inadvertent returns at the Site, the Report also contains incomplete and vague references to an "uncertainty" regarding the location for the Mariner East I pipeline. Sunoco's inability to identify a pipeline which they installed is of concern and warrants further inquiry. First, the Report states:

"During verification of the tracking data for the pilot hole in progress, it was discovered that the 12-inch line [ME I] was not accurately located and resurveying was required. Drilling was suspended on July 15, 2017 in order to reevaluate the drill design in relation to the verified location of the Mariner I pipeline and based upon the verification data, a new profile was designed."

Later, the Report goes on to explain, "Steering was difficult during the initial pilot boring and there was uncertainty regarding the horizontal and vertical position of **the active 12-inch [ME I] which had to be relocated for purposes of the reevaluation.**" (Emphasis added). It is unclear what Sunoco meant by these statements, but at best, they seem to indicate that Sunoco started drilling without even knowing where their own existing pipeline was located. The Report could also be understood to imply that ME I was relocated which is logistically difficult to imagine and would almost certainly constitute unpermitted activity if it was the case. Sunoco needs to explain exactly what happened here. If, in fact, it did not know the location of ME I, it is important to understand whether this was due to problems with documentation, something causing a shift underground, or some other circumstance. If Sunoco did not know the location of ME I, it is possible there are other features underground, including other pipelines, it is not aware of or properly documented.

The confusing language and general lack of information regarding Sunoco's difficulty in locating their own pipeline means that the Department cannot adequately consider whether this problem was addressed in the proposed re-evaluation.

3. The Report does not explain the significance of the engineer's discovery of high RQD variability and fracture traces.

The Report includes a finding of "variability of rock strength with depth" based on field samples as well as two fracture traces that will be crossed by the HDD based on a fracture trace analysis. Yet there is minimal discussion of the potential harms these findings represent and little-to-no discussion of whether the harms could be avoided by re-routing or other alternatives.

The Report's finding of high rock strength variability is in part discussed by the following section of the Report:

Examination of rock core description and RQD values for the two more recent geotechnical borings indicate the competency of bedrock is highly variable in the area of [the Site]. Both core borings were advanced below the elevation of the lowest elevation along the revised HDD boring profile. Zones of both low and high RQDs occurred throughout the two boreholes. RQD variability was particularly high in B4- 1E, located near the northern entry/exit, for which three runs of 0% RQD were recorded after the initial zone of low recovery and RQD seen just below the soil/bedrock interface.

The variability found in the geotechnical borings are potentially of great concern but the implications are not fully fleshed out in the Report. When rock competency fluctuates greatly throughout a bore sample it can signify potential difficulty in predicting the fractures or voids that lead to inadvertent returns. For example, if the competency of bedrock increases steadily as one travels deeper below the surface of the earth, it may be easier to estimate rock competency. However, when competency fluctuates as one travels deeper, it is more difficult to accurately anticipate the fractures that can lead to inadvertent returns.

The Report does cite to this variability as one basis for its recommendation that water wells be located via a door-to-door survey but does not explain a causal connection. It merely concludes: "Given the history of this site in terms of IRs voids encountered, loss of fluids, **and the variability of rock strength with depth**, a door-to-door survey may better define the presence/absence of domestic potable wells proximal to the ROW." (Emphasis added).

It is implied then, that the level of "variability of rock strength with depth" encountered by the geologists are such that they may result in contamination to nearby water wells. More information is needed regarding the significance of the rock strength variability and the likelihood that it may result in well water contamination.

The Report also includes a fracture trace analysis which found that the revised drill profile (which Sunoco now proposes) will cross over two fracture traces. The Report states that the presence of these fracture traces "further indicate[s] the potential to encounter zones of low strength bedrock while installing the 20-inch pipe."

The Report qualifies its findings by saying that such analysis "is partly subjective therefore, every mapped fracture trace does not necessarily represent a zone of bedrock fracture concentration." However, it seems safe to assume that the analysis is a relatively good indicator that a fracture concentration exists because such analysis has been commonly and historically used by geologists and, obviously, it was deemed accurate enough to be used and included in the

Report. Although it was included, there is no explanation of what the effect may be of drilling through two bedrock fracture concentrations or the likelihood of drilling to cause inadvertent returns.

The Report's Re-route Analysis also fails to address these concerns. The Re-route Analysis merely states that co-locating the 20" line with the existing 12" line is best to minimize environmental impacts. There is no analysis of whether even a slight re-route of the ROW at this site would yield a safer drill due to improved rock quality or avoidance of fracture traces.

4. Sunoco should have conducted additional geotechnical evaluations of the Site because of the findings of rock strength variability and fracture traces, as well as the discovery of the problematic void in June, and the Site's proximity to abandoned mine land.

Paragraph 4.iii of the Corrected Stipulated Order states that: "Sunoco shall... Conduct, as appropriate, additional geotechnical evaluation at each site using techniques generally recognized within the scientific community which may include: (i) Additional field drilling and sampling; **(ii) Seismic surveys; (iii) Ground penetrating radar; and (iv) electromagnetic surveys/electrical resistivity tomography.**" (Emphasis added).

Here, Sunoco has conducted additional field drilling and sampling which is an important step. However, the results of the field samples indicate that additional voids may be likely and so additional evaluations should be conducted. The Report states that during attempts to take field data, "Sample recovery was lost between 59 and 70.2 feet, which may indicate a highly fracture zone or void." Because of this, it seems that an appropriate next step should be to conduct additional analysis such as seismic surveys that would allow Sunoco to better identify and predict where voids might be located. The HDD Hydrogeological Reevaluation Report also includes that "during advance of the initial pilot hole for ME II, the driller recognized one or more large voids from 865 to 929 feet south from the northern entry/exit point." Considering that the extent of the large void or voids remains unknown and that the field samples reveal high variability of fractured zones, additional testing such as seismic surveys and ground penetrating radar are appropriate.

Although the Report does address the fact that mining previously occurred due north and west of the Site, it does not include other publicly available information regarding proximate undermining. According to the Department's eMap database, there is an Abandoned Mine Land (AML) site that has a border located roughly 280 feet from the Site's newly proposed southern

entry/exit point.³ There is also an AML site with a border roughly 0.3 miles from the northern exit/entry point.⁴ There is little supplemental information available about these AML inventory sites and so further investigation is warranted by Sunoco in order to safely drill a site so close. These previously unmentioned and unexplored AML sites are yet another example of why additional geotechnical evaluations such as ground penetrating radar analysis should be conducted at the site.

When considered in conjunction, the HDD Site's proximity to abandoned mine land, the high variability of rock strength, and Sunoco's failure to locate its own Mariner East I line based on the existing surveys all strongly indicate that additional geotechnical evaluations should be required before the Department approves of continued drilling at the Site.

5. Sunoco failed to do a sufficient survey of water supplies.

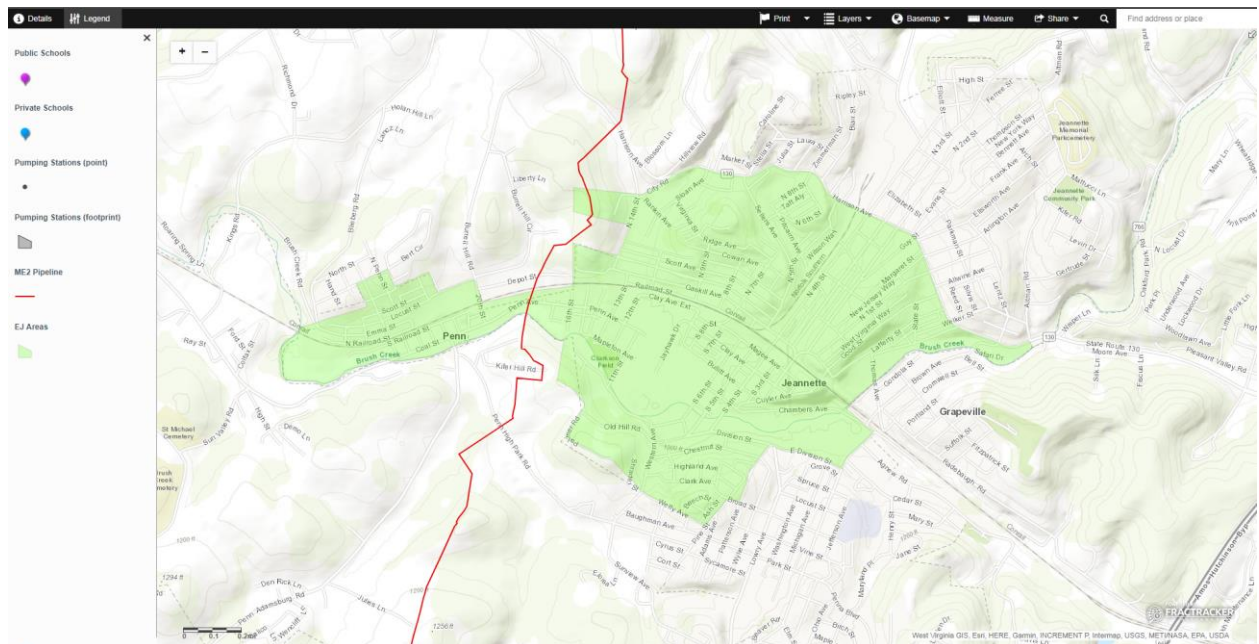
The Report claims in essence that Sunoco has satisfied the terms of the Order by identifying and giving notice to the 58 individual landowners within 450 feet of the HDD alignment. However, in this instance, additional measures should be made necessary because doing so was expressly recommended by the experts who prepared the Report and because the nearby population is a particularly vulnerable, Environmental Justice area.

This Site clearly presents various geological concerns and is in close proximity to a well populated residential area. In part because of this, the experts that prepared a portion of the Report made an express recommendation that Sunoco should conduct a water supply survey by going door-to-door in the area. The Report warns that "Given the history of this site in terms of IRs voids encountered, loss of fluids, and the variability of rock strength with depth, a door-to-door survey may better define the presence/absence of domestic potable wells proximal to the ROW." Later on, the Report makes its final recommendation that "a door-to-door survey should be implemented to determine the presence or absence of any domestic water supplies that could potentially be impacted by HDD activities." Yet it appears Sunoco has entirely ignored this express recommendation as there is no mention in the Report of Sunoco having undertaken the recommended survey, and Sunoco has clearly failed to apply the results of such a survey in its planning.

³ The AML Inventory Site closest to the southern entry/exit point is described on eMaps, in part, with the following identifiers: AML Inventory Site; PF ID: 657480; Site Number: 3189; Name: Jeannette South; AML Polygon Feature; SF ID: 821695; SF Type: Coal Surface Mine; SF Status: Abandoned.

⁴ The AML Inventory Site closest to the northern entry/exit point is described on eMaps, in part, with the following identifiers: AML Inventory Site; PF ID: 655114; Site Number: 225; Name: Maloberti A.

It is particularly critical that the recommended door-to-door water supply survey be conducted and analyzed prior to drilling—not only because it was the formal recommendation within the Report—but also because the Site drills directly through a designated Environmental Justice (EJ) area.



(Photo generated from www.fractracker.org/2016/12/me2-schools-populations/)

EJ areas are designated, in part, because the federal and Pennsylvania governments acknowledge that environmental harms disproportionately occur in communities with high concentrations of low-income and minority households. In response to this systemic inequality, the Commonwealth created the Office of Environmental Justice (OEJ). One of the contributing factors to an Environmental Justice area’s continual inequality is the residents’ inability to access information about projects carried out by state agencies that have the potential to create pollution. One of the goals of OEJ is to increase participation and communication in designated EJ areas.

According to the EPA’s database for Environmental Justice Screening and Mapping, 71% of the population living in the area crossed by the drill plan is considered low-income.⁵ U.S. Census data further reveals that the median household income for the area is \$27,017, markedly lower than the nation-wide median of roughly \$57,000.⁶ Low-income households may be more likely

⁵ “Demographic Data, Low Income Populations,” Environmental Protection Agency Environmental Justice Screening and Mapping Tool, <https://ejscreen.epa.gov/mapper/> accessed on November 27, 2017.

⁶ “Median Household Income, 2013,” U.S. Census Bureau, Social Explorer, <http://factfinder2.census.gov> accessed on November 27, 2017.

to rent homes, rather than own. Therefore, a fewer-than-average-portion of residents likely received the notice that Sunoco sent to property owners along the ROW. Furthermore, low-income households may lack access to resources such as the internet and so would not be able to inform themselves of the Mariner East II project and its potential impacts or make use of the Department's helpful Portal Page. The door-to-door survey recommended in the Report is an excellent way to ensure this disadvantaged community is not further endangered.

Conclusion

For these reasons, Appellants request that the Department refrain from approval of this re-evaluation recommendation for the Site until additional documentation and analysis have been received and reviewed by Appellants and the Department.

Thank you for considering these comments. Please keep us apprised of your next steps on the Site.

Sincerely,

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