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By Email

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**Re: Comments on Report for HDD PA-CH-0100.0000-RD (HDD# S3-0290)**

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 these comments on Sunoco Pipeline L.P.’s (“Sunoco”) re-evaluation report (“Report”) for the horizontal directional drilling (“HDD”) indicated by drawing number PA-CH-0100.0000-RD (the “HDD Site”).

**1. Sunoco has not adequately analyzed or mitigated the risk of losing of drilling fluid underground or inadvertent returns.**

Last time Sunoco undertook HDD at the Site, Sunoco lost approximately 45,000 gallons of drilling fluid and two separate IRs occurred. Sunoco does not mention the magnitude of the drilling fluid loss at all in its Report summary and glosses over the IRs. The Department needs more information about the circumstances surrounding the loss of circulation incidents, especially given the sheer volume of drilling fluid loss. Sunoco should be required to provide an analysis of the cause of the LOC incidents just as it would with an IR. The Department needs more information as to when in the drilling process the LOC incidents occurred. What was the root cause? How will new measures mitigate this issue for the new pipe?

The magnitude of drilling fluid loss is especially concerning given that the proposed profile “passes through the zone of groundwater” that is the source for the nearby well. A high volume of drilling fluid escaping the borehole could have a number of detrimental impacts on the groundwater. It could infiltrate private wells, sediment and other material could be pushed into wells, or it could seal off or otherwise disrupt the natural pathways of the groundwater, inhibiting the recharge capacity of the aquifer.

In regard to IRs, just because Sunoco reportedly only discovered two IRs does not mean that the LOC did not result in additional IRs. Because of the problematic nature of this site and the vast quantity of drilling fluid loss, there could be other IRs that Sunoco just did not detect. What types of monitoring was Sunoco performing when each LOC occurred? Sunoco glosses over the geologic issues of this site aren't as problematic as they actually are. In fact, the expert in the Hydrogeologic Report states that this HDD site has a "moderate to high risk of drilling fluid loss and IRs."

The current proposal does not mitigate for IRs or LOC. The Department should require additional information regarding this risk, including detailed analysis of the cause of the LOC incidents, an explanation of how the new plans can reduce the risk of IRs and LOC, and a detailed discussion of the on-the-ground monitoring that has and will take place.

**2. Sunoco fails to acknowledge the prior groundwater discharge and the present risk of a groundwater discharge given the 100 ft difference in elevation between the two entry / exit points.**

The proposed HDD site has a 100-foot difference in elevation between the two entry / exit points. See Attachment A, Profiles and Plans. This difference in elevation is problematic because it increases the likelihood of having another groundwater discharge incident. Groundwater discharge was already a problem at the Site when the first line was installed. In the Report, Sunoco does not provide any information regarding how it will prevent groundwater discharge. Furthermore, the Report summary does not even mention the past groundwater discharge that occurred on the Site, and the Report provides no explanation for why it occurred. In order to avoid a reoccurrence, Sunoco needs to provide an analysis of the past groundwater discharge incident and identify its root cause. The location of the groundwater discharge should be indicated on the drawing of redesigned profile. Sunoco should also prepare a site-specific plan to address how it will prevent groundwater problems from occurring.

**3. Sunoco has not adequately protected drinking water supplies.**

Sunoco again has failed to take seriously the danger its construction poses to drinking water supplies and other water resources. It provides limited information on nearby wells and no plan for avoiding or mitigating impacts. This is unacceptable.

Sunoco must follow the requirement from the Order and conduct an analysis of well production zones. Sunoco should figure out the sources, the recharges, and the connection between the groundwater and Marsh Creek reservoir. Sunoco states that there were "no water well impact complaints" while installing the first pipe at the Site, so it is unlikely to be contaminated this time. Sunoco overlooks multiple issues. First, Sunoco believes that no complaints means no contamination. The presence of contamination can be properly assessed only with their sampling data, which they have not included with the Report. Second, Sunoco contends that given this track record, there likely will not be any contamination the second time. Relying on this assertion, Sunoco does not list any steps that it is taking to ensure the protection of the owner's drinking supply. What steps can Sunoco take to better ensure this?

As discussed in further detail above, the groundwater is particularly vulnerable because the HDD Site "passes through [a] zone of groundwater" that sources private water supplies. This is made more precarious considering the vast quantity of drilling fluid lost previously. Property

owners need to be made aware of the potential impact and LOC could have on their private water supplies.

Sunoco's plans to do not include preventing damage to drinking water supplies. If Sunoco contaminates someone's private water supply, Sunoco simply says it will supply a temporary water source to anyone affected by the drilling. Water buffalos and bottles of water that are not a solution. Sunoco needs to ensure water supplies are not damaged in the first place.

**4. Sunoco misrepresents the geophysical survey data indicating the severity of the fracture zone in the southeastern part of the alignment.**

The Hydrogeologic Report states that, “[t]he highest density of potential fracture zones (approximately one *every 10 to 25 feet*) occurred in the wetlands area in the southeastern part of the alignment that includes the two branches to the unnamed tributary to Marsh Creek...” (emphasis added). Yet Sunoco uses different numbers entirely when describing the severity of the densest concentration of fractured rocks in its summary. Sunoco misrepresents its scientists' conclusions stating that “potential fracture zones crossing the HDD alignment at a frequency of approximately one every 100 to 200 feet in the northwestern part of the alignment, *with a greater density generally one every 50 to 100 feet* in the southeastern part of the alignment...” (emphasis added). This blatant misrepresentation greatly understates the severity of the fractured rock in the southeastern part of the proposed HDD site. This same area is the site where one IR occurred on June 24, 2017, and a second IR occurred on August 29, 2017. Sunoco even acknowledges that the root cause of the IRs was the “zone of fractured weathered bedrock in the same area as the two IRs.” Sunoco's use of numbers that are at a maximum ten times more conservative than the Hydrogeologic Report clouds the Department's ability to properly assess the site's risks.

Sunoco also excludes from its analysis the fact that the Hydrogeologic Report highlights that this same fractured bedrock where both IRs occurred includes a wetland area and two branches of a tributary feeding into Marsh Creek. Not only does the Hydrogeologic Report state that there is a “moderate to high risk” of another IR occurring, but the IR would likely occur in a sensitive area encompassing the tributary which feeds into a protected body of water. Even if the IR occurs in an upland near the tributary, the Hydrogeologic Report indicates that the topography of the area predominantly flows south to the lake.

It is critical Sunoco provide accurate information regarding the nature of the bedrock at the Site, especially in southeastern part of the alignment. The Department should require Sunoco to resubmit the Report to make these numbers consistent, along with an explanation of why how this discrepancy occurred. Moreover, because these numbers are markedly different, Sunoco should explain how they factored this information into their plans to execute the revised HDD. If Sunoco is operating with incorrect numbers regarding the fractured bedrock that could have massive consequences, especially considering that Sunoco stated the fractured bedrock was one of the causes of both IRs.

**5. Sunoco proposes to deepen the HDD profile despite the Hydrogeologic Report that says improved rock quality does not correlate with depth.**

Sunoco's revised plan to deepen the HDD profile runs counter to the Hydrogeologic Report that states higher rock quality does not correlate with depth. The Hydrogeologic Report examined boring samples which indicate the HDD site has highly weathered and fractured rock quality, which the Hydrogeologic Report categorized as “poor.” Crucially, the Hydrogeologic

Report stated that higher rock quality “did not correlate with depth.” This point is articulated further in the Hydrogeologic Report’s conclusion that states “*deepening the profile does not change the frequency of fracturing* characteristic of the competent bedrock at depth.” (emphasis added). The expert assessment makes clear that deepening the profile will not lead to higher rock quality.

Despite this expert assessment and the results from the boring sites, Sunoco’s plan is to deepen the HDD profile. In its summary, Sunoco’s solution “increases the depth in bedrock for a majority of the HDD profile” and increases “the depth of profile an additional 34 feet at the location of the IR...” Such a solution runs counter to the expert’s assessment of the site where the IR took place.

Sunoco must justify why it proposes deepening the HDD site contrary to what the Hydrogeologic Report states. Does Sunoco have more information as to why it would be better to drill precisely 34 feet deeper at the location of both IRs? If so, this information should be made public. If not, the Department should ask Sunoco why deepening it would prevent the previous problems.

It is clear that the fractured weathered bedrock in the southeastern part was a contributing factor to both IRs. The Hydrogeologic Report states that similar installation issues should be anticipated for the new HDD line, and classifies the site as a “moderate to high risk” of having another IR. It is unclear how the redesign will prevent IRs and the Report seems to say it won’t.

Additionally, Sunoco provides a rock quality designation (RQD) of 0 to 100 and elsewhere 20 to 100. This is non-data. The range provides no useable information for the Department because the deviation is too broad. Sunoco must provide the Department accurate RQD information for the depths it intends to drill. This may require additional surveys or testing.

**6. Sunoco’s Best Management Practices (BMPs) are merely boilerplate and do not reflect site-specific mitigation.**

In its proposed BMPs, Sunoco only recites procedures they were supposed to implement anyway, and presumably already used for their original HDD site. The Hydrogeologic Report states that “although the profile on the proposed P&P runs deeper than the as-built profile for the 16-inch line, drilling conditions similar to those encountered during installation of the 16-inch line *should be anticipated.*” (emphasis added). How then will the same problems be avoided if they are engaging in the same practices?

Sunoco also notes that it will undertake enhanced monitoring, but Sunoco needs to provide a lot more specifics. Clearly, the monitoring they were doing before was not sufficient, given that 45,000 gallons of drilling fluid were lost. The Department must know what monitoring was being done before and how exactly Sunoco will improve on this. Also, there must be information on how this will transfer to employees on site. What instructions will be provided to the ground crew? What is the specific plan of enhanced monitoring (more workers walking the sites to look for IRs, a reporting process, etc.)? Whatever the specifics of that plan may be, it must be shared with the Department.

**7. Sunoco should provide information on extending the entry / exit points, so the Department can explore viability of this option.**

Sunoco states that the presence of wetlands and streams adjacent to the southeast entry / exit point prevent the profile from being extended 500 ft further to the southeast. The Department should require more information as to why Sunoco cannot drill further and come on the other side of the wetlands. Currently, the southern entry opens up immediately before a wetland. Sunoco will then open-trench dig across the wetland, harming a tributary that feeds into Marsh Creek Reservoir along with a forested wetland. Also, driving the drill up where the current entry / exit point exists has proven to be problematic given the decreasing overburden.

Sunoco should provide more information to the Department on the logistics of extending beyond the wetland and what impact this may have on preserving the ecological value of Marsh Creek State Park. This would also allow the profile to pass under the area of the previous IRs at a greater depth, which Sunoco seems to suggesting would be helpful. The Department cannot assess whether this is a viable option without more information and data.

**8. Sunoco should consider the one-mile reroute, given the proximity to a high trafficked recreational area and the limited environmental disruption.**

Sunoco mentions a potential reroute option but gives it little consideration. The reroute option to the north should be carefully considered, given the proximity of the current path to the reservoir and state park, Marsh Creek, and the limited impact of the reroute. The proposed reroute would travel north under the PA Turnpike, immediately turn east along the PA Turnpike for .7 miles until it crosses Little Conestoga road, then it would travel south back under the PA Turnpike to re-intersect the existing project route. See Figure 1 below.

First, the reroute may better preserve the ecological and recreational value of Marsh Creek. Marsh Creek is designated as a Chapter 93 high quality body of water, visited by recreational users for swimming and canoeing, and supports a robust fishery of trout, shellfish, and wildlife. Sunoco acknowledged that the subsequent IRs that already occurred at this site bled into tributaries which lead to the Marsh Creek Reservoir.

Second, the proximity of the pipeline to a highly trafficked recreational area creates safety concerns that the reroute could help mitigate. On any particular summer day there can be hundreds, upwards of thousands, of visitors each day, making them vulnerable should there be any leak on the line. The reroute mitigates this issue by moving the HDD site to the other side of Little Conestoga Road and allowing the road to serve as an evacuation route.

Third, the geography of the area could make this an ideal scenario to adopt the reroute. Although Sunoco states that it would have to create a greenfield utility corridor and effect previously unencumbered properties, this assessment should be questioned given the satellite data of the area in Figure 1. The land that would be traversed needs to be assessed qualitatively and quantitatively. The majority of the reroute would travel beside the PA Turnpike along the outskirts of a farm. The HDD site that Sunoco proposes cuts across at least a dozen different residential properties, whereas Sunoco states that the reroute “would pass in near proximity or immediately adjacent to five residential home sites.” *See* Attachment C Regional Geologic Map. In terms of impact, not only would less forested area potentially be impacted given it is primarily farmland, but there would be fewer property owners in its path.

Lastly, Sunoco acknowledges that the reroute is “technically feasible.” Despite failing to provide more information beyond the fact that this reroute would mean more procedural steps for Sunoco and the misrepresentation that more people would be impacted, Sunoco should provide its data for determining that the reroute is “technically feasible,” so the Department can

accurately assess whether Sunoco's proposed HDD site is actually superior to the reroute. What percentage of forested acreage would be impacted? How close would the reroute's proximity be to the tributaries into Marsh Creek? What construction methods could be utilized for the reroute? The Department's assessment should be viewed within the context of the Hydrogeologic Report, which states that Sunoco's proposed HDD site currently has a "moderate to high risk of drilling fluid loss and IRs." Does the reroute have a lower chance of drilling fluid loss and IRs? How do the impacts of those IRs compare to possible impacts associated with a reroute?

Sunoco must provide more information regarding the viability of the reroute in order for the Department to assess which route better addresses the above concerns.

Thank you for considering these comments. Please keep Appellants apprised of any next steps.

Sincerely,

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