DEP Permit # E23-524
DEP Permit HDD Reference # PA-DE-0032.0000-RD
DEP HDD # S3-0580
Township – Edgmont
County - Delaware
HDD Site Name – Gradyville Road Crossing

3rd Public Comment Period

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1. **Comment**
   I have grave concerns over the proximity of the HDD site on my street and would like to register my commentary and objections. This is addition to my letter of 13 March 2018.

   Having reviewed the Citizens' Risk Assessment study, I would add my concerns around the HDD site that is on my street. We live in close proximity to a working quarry. It regularly executed drilling blasts that shake the foundations and structure

of my home. I can only imagine the impact on a volatile gas pipeline. What happens over time to the structural integrity to both old and new pipelines?

To quote from the study
"Highlights from the Citizen's Risk Assessment study:

**Horizontal directional drill" (HDD) entry and exit points are locations of significantly heightened likelihood of release. In the event of a breach along a deeply buried segment, gas will flow along the path of least resistance, which is likely to be the HDD entry exit points. Gas may also be released through fissures or cracks that may have been created during loss-of-drilling-fluid events ("frac-outs").*

**The presence of two pipelines approximately doubles the probability of an accident over a single pipeline. Three pipelines triples the probability, and so on. A doubling of probability represents a doubling of risk.*

**There is a threshold rate of release below which the operator is unable to detect a leak is occurring. This threshold release rate is large enough that it could produce very serious consequences including injuries, death, or property damage.*

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I would like an answer as to why alternate routes were not considered as required by the August 9, 2017 agreement. In the case of this particular section along Valley Road, the flaws in the proposed route are really outrageous, compared with almost any conceivable alternative. This is a bad route for three important reasons: most of the homes in the area are on Valley Road (so the pipeline will be within a few feet of many of them); similarly, it endangers most of the wells in the area (which are near those homes); and it sends the drill directly through an area where the ground is known to be polluted with the chemical MBTE (see below), thus spreading the pollution throughout the area. Sunoco's existing easement and convenience are not a sufficient reason.

Sunoco must stop spreading MTBE pollution and the 2015 leak at Valley Road and Gradyville Road that introduced the appearance of MTBE in local wells. MTBE is water soluble, so MTBE that is present in a local source can travel through an aquifer and affect other areas. If Sunoco goes ahead with its drilling plan, the drill will pass through the area where the ground is polluted with MTBE. Not only will the passage of the drill spread this pollutant, but the nature of HDD drilling will spread it even more effectively. In HDD drilling, the drilling mud used as a lubricant is forced under pressure down the drill pipe to the drill bit, and it returns back to the drill along the outside of the drill pipe (unless, of course, it finds another route to the surface, causing a "frac-out"). This circulation of the drilling mud (down to the bit and then back to the drill site) ensures that any pollution in the ground that the drill passes through will be spread all along the drill's path.

There is, however, an acknowledgement of the incident in the attached report of GES, the geology firm that did the geological analysis of this area. In that report, GES says: "On April 10, 2015, a release of petroleum (diesel, kerosene, and gasoline) was reported west of Valley Road near the Valley Road/Gradyville Road intersection. A pinhole leak was identified in the Sunoco Pipeline Limited Partnership (SPLP) 12-inch-diameter Point Breeze to Montello Pipelines, which was temporarily repaired on April 11, 2015, then permanently repaired in July, 2017….. It is GES' understanding that this data has been incorporated as part of the HDD construction preparation and response planning activities."

If the data has been incorporated in the plan, why is that never stated? And why is the pollutant MTBE never mentioned as a potential problem? What is Sunoco's plan for dealing with the spread of MTBE and its possible flow into Chester Creek if Sunoco has flow-back problems (as it did in other drill sites)?

Sunoco's plan makes it clear that wells in the area may well be drained or fouled by the drilling. These wells are open cased at the same depth as the boring, which increases the risk of impact by drilling fluids." In addition, the highly-fractured rock in the area means that hitting an aquifer with the drill is likely, and that water travels fairly freely throughout the area. So it is likely that a lot of wells will be affected.

According to the geology report, "If significant volumes of drilling fluids were lost, they will tend to migrate along secondary paths of porosity toward groundwater discharge points or residential wells." In other words, the high-pressure drilling mud will follow any path it can, and some of those paths will lead to people's wells.

Sunoco must consider the risk of human injury or death. While the DEP's primary mission is the preservation of the environment, it must also take seriously the risk that this pipeline poses to nearby residents if it becomes operational. A clean environment is essential to human health, and that is certainly critical; but its importance is secondary when human life itself is at stake. The DEP needs to make sure that this pipeline, if it is built, is constructed in a manner and in a location that minimizes its risk to people.

I would like to register my outrage at this whole process. It is not in the best interests of the residents of the state from day 1. These many stops and starts are not indicative of a well-designed or communicated endeavor.
Yes, I live in a blast zone as do many millions more residents who I am confident share my dismay. My water supply and the safety of my family, home, friends and neighbors and community at large are under duress. We are tired of this and having it crammed into our community and risking our safety and well-being. (1)

2. **Comment**
For those of you who do not live within 1/2 mile of Sunoco/ETP Mariner 1 and 2 East Pipelines, please count your blessings that your family and friends are not in the way of this potentially deadly pipeline that carries odorless, colorless, undetectable and explosive liquid natural gases. While the victims featured in the article had some type of warning, we, in Edgmont Township, will have none.
https://www.usatoday.com/in-depth/news/nation/2018/11/01/natural-gas-cast-iron-pipeline-explosion-fire-leak-safety-phmsa/1362595002/

Along with thousands of children that live and go to school along the path of the pipeline, the 19 children that live in my cul de sac, ages 1 to 18, are at greater risk. We are located on Birchwood Lane in Edgmont Township in Glen Mills, PA 19342, less than 200 feet from the HDD Site S3-0591. We strongly oppose the building of this pipeline and greatly fear the Horizontal Directional Drilling that you are contemplating.

HDD S3-0591 should NOT be allowed at the Valley Road location. Please consider the following:

• Horizontal directional drill (HDD) entry and exit points are locations of significantly heightened likelihood of release. In the event of a breach along a deeply buried segment, gas will flow along the path of least resistance, which is likely to be the HDD entry exit points. Gas may also be released through fissures or cracks that may have been created during loss-of-drilling-fluid events (“frac-outs”).

*The presence of two pipelines approximately doubles the probability of an accident over a single pipeline.

*There is a threshold rate of release below which the operator is unable to detect a leak is occurring. This threshold release rate is large enough that it could produce very serious consequences including injuries, death, or property damage.

• Like the many families that live along Valley Road, my family's only source of water is from my well. Our well head is within 60 feet of the ancient Mariner East 1 pipeline and less than 200 feet of ME2. The process of HDD will contaminate our only source of water when it penetrates the aquifer. (If you would like me to send you documented accounts of when this has happened in the past, please let me know.)

- The Hansen Aggregate Quarry is within 5000 feet (less than one mile) from the HDD Site on Valley Road, which is across from my home. If the regular blasts from the quarry noticeably shake the homes in my neighborhood, how has and will this impact the structural integrity of the eighty year old ME1 pipeline? The ME 1 inspection performed by Sunoco contractors on October 30th, 2018 was cursory and visual only. They walked the pipeline's path. They did not uncover the pipeline, nor did they not flush water through the pipeline to check for leaks. Therefore, allowing the combination of HDD across the street (ME2) and a compromised old ME1 pipeline increases our risk on Birchwood.

- Even if the pipeline stays intact and it does not leak or explode, my family and neighbors will suffer serious long term health consequences due to contaminated well water and air quality. Our neighborhood abuts the Sleighton School property which has been documented to have significant levels of arsenic. (ME2 transverses a section of Sleighton Park.) The process of Horizontal Drilling may force arsenic into our water supply and may send it airborne.
http://www.delconewsnetwork.com/mediatowntalk/news/arsenic-found-in-soil-on-former-sleighton-school-property/article_b82fbecf-f26d-5ec3-b1eb-25f2ccfccb79.html

If you have any questions, please contact me.

On behalf of my family members living in my home: my mother, Marina (90 years old), my husband Steve (51), my son, Marcus (age 18) and my daughter, Lauren (age 12) (2)

3. **Comment**
On October 31, 2018, Sunoco submitted a supplemental letter to the Department in response to the Department's June 12, 2018 request for additional information regarding horizontal directional drilling ("HDD") Site PA-DE-0032.0000-RD ("Site"). 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"), we respectfully submit these comments in reply. Our comments first address point by point Sunoco's letter, then discuss additional matters.

Point 1

Though very late in the game, Sunoco's commitment to conduct surface geophysics at the Site is an important step in the right direction. It is critical, however, that the Department ensure the geophysical surveys are adequate in scope and the results are fully incorporated into the construction plans for the Site. Sunoco has a history of ignoring and obscuring the findings and recommendations of its own scientists in the context of these HDD reevaluations. Commenters and the Department have identified this practice on multiple occasions. Sunoco also cannot be trusted to fully

utilize the results of geophysical studies when it has vehemently rejected the usefulness of precisely such studies: in its previous revised Reevaluation Report for this Site, Sunoco claimed, "the use of geophysics assessments was not conducted because the results from these types of assessments would provide no data to assist in the redesign of these HDDs."

To avoid Sunoco undermining the value of the geophysical surveying, both the raw data and the expert analysis of the results (including recommendations regarding construction) must be made available to the public with an opportunity to comment. There is also no reason such studies should not be shared, according to the sworn testimony of Sunoco's Geologist, David Demko. May 12, 2018 Hearing Transcript, Pennsylvania State Senator Andrew E. Dinnman v. Sunoco Pipeline L.P., Pennsylvania Public Utility Commission Docket No. P-2018-3001453, 700: 2-4. While Sunoco has committed to perform surface geophysics, it is still ignoring the Department's request to perform a suite of downhole geophysics and caliper testing at the Site. These are different survey techniques that provide different data and Sunoco still has neither agreed to perform these additional tests nor provided a valid reason as to why they cannot be performed. The Department should continue to require Sunoco to conduct downhole testing.

Point 2

The proactive measures Sunoco describes in point 2 are not "supplemental" to Sunoco's previous, inadequate submissions, but merely a recitation of practices that Sunoco is already required to use, has committed to using, or both. The HDD IR Plan plainly requires the use of APM: "The following requirements shall be placed upon each HDD contractor with respect to drilling fluid control: Instrumentation – The HDD contractor shall monitor the annulus pressure of returns during the HDD pilot hole phase of HDD using an annular pressure monitor." Sunoco also already wrote in the latest version of its Reevaluation Report that "SPLP will mandate and enforce annular pressure monitoring during the drilling of the pilot hole."

Similarly, the explanations of "tool face pressure" and "tracking of cuttings removal," are not new or additional preventative measures; they are standard operating procedures that, while necessary, have proven inadequate by themselves.

Point 3

In point 3, Sunoco describes two grouting measures it may generally use at HDDs, under the heading "Proactive Treatment by Annulus Grouting." These grouting plans appear to conflict with earlier grouting plans Sunoco described to the Department, which involve the injection of bentonite chips rather than cement or sand/cement. It is unclear if both protocols will co-exist or this is intended to supplant the old protocol. If both protocols will co-exist, it is unclear when one will be used versus the other. They conflict, and so cannot both be operative. For example, Sunoco previously indicated that minor loss of circulation events can be effectively treated

with loss control materials. Here, Sunoco says that they "are less effective below 70 ft of the ground surface," which is where "[m]any of SPLP's HDD profiles are." Sunoco should clarify what it intends to follow.

Additional Comments

As explained in Appellants' joint comment letter of March 16, 2018, this is a particularly dangerous location for Sunoco to build its pipelines given the pre-existing Sunoco petroleum contamination, the difficult bedrock type, the well water reliance, the development along the route, and the high risk of inadvertent return. The Department should not authorize what is surely going to be a disaster for this neighborhood.

Though it is a small point, Sunoco's continued misspelling of Edgmont Township in its submissions to the Department is indicative of the level of care to detail Sunoco is paying this work. Every neighborhood is different, and Sunoco needs to acknowledge that this particular community in Delaware County is not a safe or appropriate location for its project.

Thank you for considering these comments. Please keep us apprised of your next steps on this HDD Site. (3-7)
Letter – Clean Air Council – 11-2-18 – Gradyville Road Crossing

4. **Comment**
This letter is in response to Sunoco re-eval analysis for HDD drilling site Gradyville Road Crossing in Edgmont PA DEP section 105 permit SPLP HDD No. S3-0580 and HDD S3-0580-16 for November 2018. I am an Edgmont resident and live within 1,000 feet of this proposed HDD site. I rely on clean water from my private well water system for my family, pets and farm animals. I continue to be in severe opposition to this HDD plan due to the following items:

Number 1: DEPs request of number 6 on re-eval that a borehole geophysical suite needs to be performed in geotechnical borings must be completed in full entirety and results must be made public! The public must be given adequate time to review the plans. Sunoco's response to DEP request are not new information, but just "STANDARD OPERATING PROCEDURES". No new information has been provided with this 3rd re-eval request by Sunoco.

Number 2: Even though clean up and remediation has occurred at this site by GES this summer from the petroleum leak in April 2015, I have severe concerns that MTBE and other petrochemical residues will still be in the environment and spread contamination to all our private wells! We all know MTBE is almost impossible to eradicate from the environment once contamination occurs! Why should homeowners here have to take this risk???? The soil should be continued to be monitored for any more contamination for months and even years after the cleanup

just this month. Results of this contamination remediation need to be made public and available for review prior to DEP allowing any HDD plans!

Number 3: Sunoco has stated 3 properties are on public water. This is false! All properties are on private water/well systems. SPLP must report all accurate information about wells within 450 feet of drill site! Sunoco has stated there are no ponds within area. This is false! Many of my neighbors along this proposed HDD site have spring fed ponds! One neighbor lost her pond and all aquatic life perished when Sunoco just completed mini HDD only several feet, drilling under Valley Road last year! I can't imagine the groundwater that will be used up for this long stretch of proposed HDD area! Sunoco has yet to comment on this area on this re-eval!

Number 4: This proposed drilling land is located along an upland ridge area and serves as a local groundwater recharge zone, thus placing our wells at increased risk for contamination and drainage!

Number 5: At least 26 wells are at same depth as boring, which will increase our chances of drilling fluids and left over MTBE and petroleum hydrocarbon residues to contaminate our wells. Sunoco has continued to deny that this HDD site is adjacent to wetlands , which leads into Rocky Run Stream.

Number 6: At least 3 linear fractures cross drill path at 275 feet, 1520 feet and 2740 feet increasing our risk of well contamination. Highly weathered bedrock is unstable and should not be drilled through!

Number 7: There is no option for public water hook up in this area once our wells become contaminated. To remain on alternative water buffalo type water supply systems once our wells become contaminated for a permanent basis is not feasible.

Number 8: Sunoco is recommending residents have "alternative water supply" in place during drilling , which seems as though they are expecting contamination of our wells. We cannot take this risk!

Number 9: Increased risk of damaging Mariner East 1 pipeline during drilling with destabilizing of ground support around fracture lines that run under ME 1, exposing residents to more petroleum leaks and mass explosions! The " Bedrock Lithology" of the 4 geotechnical brings from depths 13.8 and 30 feet recorded " very intensely fractured" weathered gneiss, suggesting saprolite to a depth of at least 30 feet. Saprolite is a clay like rich rock and will allow for future settlement of areas inundated with water from where the drilling is completed, presenting the risk of shifting and collapse of earth around NGL active ME1 and in future NGL active ME2 and repurposed 12 inch line. The HDD drilling should not be allowed with the rock geology in this area.

Due to the above facts, and Sunoco continuing to avoid any response on these above issues, open trench should be the only option allowed here at this site. Sunoco does

not want this option since it will cost them more money and time, but I ask you DEP is Sunoco's and ETPs profits more important or the safety of the community and a resident's rights to have clean water more important??? (8)

5. **Comment**
According to the supplemental information to the May 21st letter from SPLP, supplied by Larry Greminger sent on Oct 31st to John Hohenstein to assist in the review of the SPLP proposal, the data and methods were "shared" in the use of the HDD to "minimize the risk of Inadvertent Returns (IRs) and impacts to public and private water supplies during the construction phases of the HDD". The proposed method incorporates the use of an Annular Pressure Monitor that records the drilling fluid pressures within the annulus of the HDD as the pilot tool advances, and the supplemental information notes the follow:

"…Abrupt decreases in AP are indicative of drilling through a fracture, and are typically accompanied by a Loss of Circulation. Declining AP while progressing forward is indicative of formation weakness and loss of fluids to the surrounding formation…"

And the "corrective" action upon encountering such "weaknesses" (weaknesses related to supporting a pipe, not related to the naturally occurring flowing water in this region) is noted below.

"Accordingly, corrective action to address the presence of fractures or unstable geology at greater depths below ground requires grouting of the HDD annulus. Two types of grouting will be utilized for corrective actions to seal fractures and stabilize zones of weak geology. These are: 1) grouting using "neat cement"; and 2) grouting using a sand/cement mix. Neat cement grout is a slurry of Portland cement and water. The sand/cement grout mix is a slurry of mostly sand with a small percentage of Portland cement and activators that after setup results in a material having the competency of a friable sandstone or mortar. Both grouting actions require tripping out the drilling tool, and then tripping in with an open-ended drill stem to apply or inject the grout mixes. The neat cement grout is highly reactive to the bentonite/water drilling fluid mix and is used during pilot phase drilling to stabilize the movement of fluids within the geologic formation where multiple fractures exist in relative proximity to each other in a stable geologic formation…"

And where, the author Greminger admits the following as an additional risk:

"Proactive Treatment by Annulus Grouting Generally the use of Loss Control Materials (LCMs) are less effective below 70 ft of the ground surface. The AP below that depth can exceed the effective stabilization capability of LCMs. Many of SPLP's HDD profiles are below 70 ft of depth for the horizontal length of the profile. Accordingly, corrective action to address the presence of fractures or unstable geology at greater depths below ground requires grouting of the HDD annulus"…

THE CHALLENGE:

In our area, the "naturally occurring rock fractures" are the primary methods by which water naturally flows within our local neighborhoods to major and minor water tributaries, wells and other naturally occurring wetlands, and to which it has already been proven on a personal encounter that no one (not including Sunoco) can predict the impact of water flow as a result of any previous nor future digging) when "inadvertently" encountering rock fractures and it's subsequent downstream impact on water flow, when disturbed.

Therefore a "fracture" is only considered an anomalous condition (in this Sunoco SPLP proposal scenario), when considering whether such digging can support the weight of a massive and un-natural pipe (destined to carry decidedly unnatural explosive materials) without any regard to the impact of the actual and naturally occurring flow of water that our neighborhoods, wells, livestock, and plants are dependent on. Fractures or the existence of them for our area, dictate how water flows in our area, so "plugging them up" when the impact would be unknown will absolutely result in un-natural and permanently altered natural water flow wherever such HDD drilling is done. This is not a maybe scenario, this is an absolute outcome. Maybe if we had a convenient above-ground (visible) river to watch how water flows, this would not be an issue. But we don't. We have what is indigenous to this area in which water distribution is dependent on these "anomalous fractures" that have sustained our natural water flows within our neighborhoods for a long time.

The approach proposed is a little like saying (using a simple analogy of surgery in a human body) that SPLP proposes we to do "blind (unable to determine the nature of what you are digging around in until you stick the probe in)" experimental surgery, where we know nothing about where or the nature of the structure we are doing the surgery in (digging in this regard), with a simple minded approach to (paraphrased) "oh, and when we encounter a (hmmm, fracture or something else squishy we don't know the nature or composition of, equivalent perhaps within a human body, to a vein or capillary or giant aorta using the surgery analogy) that gets in our way, we will "simply" fill the (fracture/vein/capillary/aorta) with cement (and other stuff that stops or plugs things up)". Consider if a physician elected to do surgery with this approach (plug all things we don't understand so we can put this un-natural object in your body. Whoops we inadvertently plugged up your aorta. Oh well, your problem not mine?

This particular fact was thrown back at me when my local pond went dry (and presumably, in order to force SPLP to the table) I would have had to scientifically prove some earlier digging that occurred by Sunoco impacted this random occurrence to which the geological consultant who reviewed my case suggested I would have to prove).

THE OBVIOUS WATER AFFECT AND IMPACT IN OUR AREA

Given that it is assumed that abrupt decreases of AP WILL be incurred (because rock fractures ARE the way water flows in this area – no other major methods), the proposed remedy when encountering this "weakness" is is to "pump" various forms of slurry, concrete mix and sand to "stop" (one presumes) or "block" these naturally occurring weaknesses in the rock formations and naturally occurring fractures, that are in fact the way water flows through this region.

So the question I return to SPLP (given I was offered the same scenario to try to defend my own position when my pond went dry from early SPLP digging - even though I was not the one digging in my own yard) – how will Sunoco "prove" (prior to digging anything) that the method it proposes to use to randomly fill that dumping slurry, cement, sand whenever the encounter the "perceived" weaknesses in the rock with their APM (by which the weakness or fractures in the rock currently provide the path for water flow in our area today) will NOT therefore affect nor alter (further) the existing water flow to our areas natural wells, ponds, streams and impact our livestock, lives, homes, naturally occurring water ways purely on water flow alone? (Notwithstanding the impact on water quality (assuming we still have it and it is not obstructed), the health of the water, and the contamination of of the water that feeds ourselves and livestock and plants).

The whole plan is deeply disturbing, unscientific, and not even remotely attempting to employ simple engineering standards or thoughtful environmental approach to risks/impacts. To purposely dig through an area where the known water flows utilize the rock fractures to move to its destinations with the sole purpose of laying un-natural large pipes without consideration or foreknowledge for the impact on geological, natural water flows when they are in fact undocumented or unknown (in an area where we are water dependent) is totally irresponsible behavior. Worst engineering plans I have ever encountered.

Engineers around the world should be appalled at this simple minded and plan (and this document has already been shared with the "best" in global construction businesses, with similar response as to the one I am providing) that has no consideration for the assumed impact on the water dependencies our neighborhoods depend on. Some simple, rudimentary considerations for the just the basics of water flow impact by a regulatory agency or by the entity given permission to do this work, is COMPLETELY absent in this proposal or in any plan, and is simply beyond irrational.

DEPA should be ashamed to consider and approve this approach as proposed in this supplemental explanation of the methodology. I hope that DEPA has enough backbone to at least request more a more detailed and thorough investigation (and study) of a more logical and balanced approach to purposely digging in water flow sensitive areas where are immediate neighborhood water systems are at risk. (9)