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Re: Sunoco Pipeline L.P. Applications for Chapter 105 Permits for the "Pennsylvania Pipeline Project" / Mariner East II, Nos. E31-234, E34-136, E36-945, E38-194, E50-258, E67-920, E06-701, E07-459, E21-449, E22-619, E23-524, E15-862, E02-1718, E11-352, E32-508, E63-674, E65-973

Dear Program Managers:

Clean Air Council, Mountain Watershed Association, Concerned Citizens of Lebanon County, Pipeline Safety Coalition, Citizens for Pennsylvania's Future, the Pennsylvania Chapter of the Sierra Club, Appalachian Mountain Advocates, Lebanon Pipeline Awareness, and the Andover Homeowners' Association, Inc. (collectively, "Citizens") hereby submit the following comments in response to the Pennsylvania Department of Environmental Protection's (the "Department") opening of public comment on Sunoco Pipeline L.P.'s ("Sunoco") applications for Chapter 105 water obstruction and encroachment permits for the proposed Mariner East 2 pipelines, referred to variously as the "Pennsylvania Pipeline Project," "Pennsylvania Pipeline Project/Mariner II" and the "Mariner East II," (here, "Mariner East 2" or the "Project"). Because of the common issues across multiple applications, Citizens have consolidated their comments into this single document.

Commenting Organizations

Clean Air Council is a non-profit environmental organization headquartered at 135 South 19th Street, Suite 300, Philadelphia, Pennsylvania 19103, with more than 8,000 members in

Pennsylvania. For more than 40 years, Clean Air Council has fought to improve the air quality across Pennsylvania. Clean Air Council works to protect everyone's right to a healthy environment.

The Mountain Watershed Association, home of the Youghiogheny Riverkeeper is a non-profit, community-based environmental organization located at 1414 Indian Creek Valley Rd., Melcroft, Pennsylvania 15462, with more than 1,400 members. Our major purposes include bringing about remediation of the numerous abandoned mine discharges, developing community awareness, promoting cooperative community efforts for stewardship and encouraging sound environmental practices throughout Pennsylvania's Laurel Highlands region and surrounding areas. Our mission is the protection, preservation and restoration of the Indian Creek and greater Youghiogheny River watersheds.

Pipeline Safety Coalition (PSC) is a 501(c)(3) dedicated to pipeline safety education and the facilitation of productive, respectful conversations between stakeholders in pipeline-related issues. Located in Chester County, Pennsylvania, we follow regulations and safety issues in pipeline projects across the nation. PSC's mission is: "to gather and serve as a clearinghouse for factual, unbiased information; to increase public awareness and participation through education; to build partnerships with residents, safety advocates, government and industry; and to improve public, personal and environmental safety in pipeline issues."

Citizens for Pennsylvania's Future (PennFuture) is a membership-based, public interest, environmental organization whose activities include advocating and advancing legislative action on a state and federal level; providing education for the public; and assisting citizens in public advocacy. PennFuture is concerned with the protection of Pennsylvania's waters and the conservation of its resources for future generations.

The Sierra Club was founded to explore, enjoy, and protect our planet. The Sierra Club has about 24,000 Pennsylvania members. Nationally and locally, the Sierra Club has been a leader in conservation practices and environmental protection. The Sierra Club has members across Pennsylvania who will be affected by the proposed pipeline. Our Pennsylvania members breathe the air, drink the water, travel on the roads, and recreate in the regions affected by this pipeline project.

Appalachian Mountain Advocates is a non-profit law and policy center focused on protection of the environment and human communities in the Appalachian region, with offices in Virginia and West Virginia. Appalachian Mountain Advocates works to promote sensible energy policies that protect the environmental and economic well-being of the citizens of the region in the short and long term. Appalachian Mountain Advocates opposes any energy development that unreasonably impacts the region's communities, landscapes, and water resources and contributes to long-term reliance on climate-altering fossil fuels.

Concerned Citizens of Lebanon County is a grassroots, nonprofit unincorporated association. Our mission is to keep citizens informed about the Sunoco Mariner East Pipeline Project and similar projects that may affect the health, safety and welfare of those who live, work and

recreate in Lebanon County. We are a public interest organization, government watchdog and advocacy group for good government. We work with other groups who have similar objectives.

Lebanon Pipeline Awareness (LPA) is a local grassroots nonprofit organization that operates in collaboration with several other like-minded groups. Our mission is to provide information and raise public awareness on all aspects of pipeline impacts including: safety and health concerns, property devaluation, future economic development loss, construction damages, and especially impacts to air quality, farmland, forests, wetlands, waterways and for those along a pipeline right of way, quality of life. We serve as advocates for affected landowners in our county and also for the general citizenry. LPA provides awareness of larger issues including the negative impacts of the current fossil fuel economy and particularly the natural gas industry in Pennsylvania. We firmly support the necessary transition to a renewable energy future.

The Andover Homeowners' Association, Inc. is a Pennsylvania nonprofit corporation formed in 2006. The corporation is an Association of 39 property owners in a planned community in Delaware County. The current officers of the Association have established as their highest priorities the safety and security of the community; the protection of property values; and maximizing the quality of life within Andover for the benefit of Association Members. Sunoco's proposed project jeopardizes all three.

Background and Summary

Sunoco's Mariner East 2 project, if built, would be one of the largest pipeline construction projects in the Commonwealth. The damage it would do to Penn's Woods falling within the scope of a Chapter 105 review would outweigh any perceived benefits the Project might provide citizens of the Commonwealth. The Mariner East 2 lines--up to two lines, a 20-inch and a 16-inch line--would traverse 17 counties in Pennsylvania alone, carving a permanent path through the state, generally fifty feet wide, 75 feet with additional construction space. Due to how pipeline operators interpret federal integrity management best practices for pipeline safety,[1] pipeline rights-of-way will not be revegetated to pre-construction status, in order to facilitate pipeline inspections, thereby permanently altering ecosystems the pipeline crosses.[2]

The pipelines would cross at least 1,227 streams, 570 wetlands, and 11 ponds. Mariner East 2 would carry highly volatile hazardous liquids[3] at very high pressure to the Marcus Hook Industrial Complex straddling Delaware County, PA and New Castle County, DE. In whole, the

[1] *See* 49 CFR Part 195.452: Transportation of Hazardous Liquids by Pipeline, available at http://www.ecfr.gov/cgi-bin/text-idx?SID=b1b281e45544ec9d0b1afce648f0395e&mc=true&node=pt49.3.195&rgn=div5#se49.3.195_1452. Note: (1) the installation of two pipelines in this proposed Project adds more than 600 miles to Sunoco's existing 1,020 miles of hazardous liquids pipelines in Pennsylvania; and (2) two of the 17 counties being proposed for expansion of rights of way are High Consequence Areas (HCAs). HCAs include: population areas; areas containing drinking water and ecological resources that are unusually sensitive to environmental damage; and commercially navigable waterways.

[2] *See* Pipeline and Hazardous Materials Safety Administration, "Hazardous Liquid Integrity Management," available at http://primis.phmsa.dot.gov/iim/index.htm.

[3] The hazardous liquids Mariner East 2 would carry are individual natural gas liquids and mixtures thereof.

Project requires many permits from the Department beyond the Chapter 105 permits, including Chapter 102 permits and various air pollution permits.

Sunoco submitted its Chapter 105 permit applications to the Department in the summer of 2015, at different times to different regional Department offices. Each of Sunoco's applications was egregiously incomplete. The Department reminded Sunoco in incompleteness letters that although it guarantees permit decisions within the published time frames to applicants who in the first instance submit complete, technically adequate applications, since Sunoco did not do so, the Permit Decision Guarantee was no longer applicable.

Rather than issuing permit denials, the Department worked with Sunoco and allowed it to revise and resubmit its applications multiple times. The Department declared the applications complete by Pennsylvania Bulletin Notice published on June 25, 2016, which began the "technical review," although the applications are still plainly incomplete. Citizens appreciate that the Department extended the public comment period from the customary 30 days to 60 days. However, the public comment period, which closes today, August 24, 2016, was held without complete or technically accurate information. This limited the impacted public's meaningful opportunity to assess what was really being proposed. As we will address, the public comment period should therefore be reopened, if the permits are not simply denied outright.

Citizens commend the Department for making application materials available online. This has greatly reduced the burden on the public.

Citizens comment below on several topics, including that:

- Sunoco's applications are materially incomplete;
- approval of Sunoco's permit applications for destruction of exceptional value and other wetlands would violate Chapter 105;
- a fair weighing of the factors to be considered in 25 Pa. Code § 105.14 shows that the Project would be detrimental to health, safety and the environment;
- Sunoco's record of numerous and harmful hazardous liquid spills cautions against issuing Chapter 105 permits;
- protection of the Chesapeake Bay and other watersheds should take priority; and
- the public deserves a chance to comment on complete applications, a chance which it has not yet had.

Citizens have hired wetlands experts Schmid & Company to analyze Sunoco's Chapter 105 applications, and attached their report as Exhibit A to these comments. The Schmid Report is an integral part of these comments, and Citizens adopt its statements, conclusions, and recommendations as their own.

We conclude that the Department should deny the applications as incomplete and technically deficient. If the Department allows Sunoco to further complete its applications, the public should be given a new 90-day public comment period[4] after the Department receives and makes public the full and complete applications.

Citizens appreciate the opportunity to submit these comments.

COMMENTS

1. **Sunoco's applications are materially incomplete and technically inadequate. It was therefore premature for the Department to open a public comment period on June 25, 2016.**

Sunoco's applications are materially incomplete and should not have been declared complete by the Department. The public is now in a position where it cannot examine a number of aspects of the applications because the neither the Department nor the public has them. The public deserves a comment period during which it can examine the applications in whole. Since we do not have that opportunity, we are being deprived of a chance to comment on significant aspects of the proposed facilities.

There are a number of important missing parts to the applications. Under Chapter 105, the Department is required to return incomplete or technically inadequate applications to the applicant for supplementation and correction. The applicant will therefore revise or supplement its applications--yet the public apparently will not have an opportunity to review or comment on these revisions or supplements. We highlight some of the missing and technically inadequate parts of the applications below, though this list is not exhaustive.

Due to the fact that neither the Department nor the public has had access to complete and accurate information, the applications must be summarily rejected until such time as the Department receives and reviews complete and accurate information to which the public has access for its review and enough time to comment meaningfully.

a. Sunoco has undercounted wetlands and streams which would be crossed.

One of the most significant omissions in Sunoco's applications is the failure to accurately quantify impacts to wetlands and streams due to the omission of wetlands and streams from the applications. Sunoco's applications are also confusingly contradictory in how they count, locate, and characterize wetlands, leaving the Department unable to precisely analyze the cumulative impacts to those wetlands. The Schmid Report explains these points in detail. *See* Exhibit A.

Citizens also note that the Department has already verified the inaccuracy of Sunoco's wetland and stream delineations along the Project route, as described herein. Sunoco prematurely began clear-cutting forest for Mariner East 2 along the Project route in Union Township, Huntingdon

[4] Citizens explain in the Comments, Section 7, why this is an appropriate length of time.

County, on the property of Ellen and Stephen Gerhart.[5] The Gerharts anticipated that Sunoco had not properly identified and mapped the streams and wetlands on their property, and hired Schmid & Company to do an independent field delineation and characterization. Schmid & Company found a much greater extent of streams and wetlands than Sunoco represented existed on the Gerhart property. *See* Schmid Gerhart Report, attached as Exhibit B. The Department later did a field investigation itself and came to the conclusion that the Schmid delineation was more accurate than Sunoco's, stating:

> Also, it was observed that a stream which was not identified on the application plans flows into the stream identified as S-L45a on the plan maps for permit application # E31-234. Also, it appeared likely based on visual observations that wetlands exist on the property beyond what was delineated on the permit application plans, and that the delineation provided by the Gearhart [sic] family appeared to be more representative of the water resources present than the delineation provided in permit application E31-234 by the applicant, Sunoco Pipeline LP.

Water Obstruction and Encroachment Inspection Report, Trough Creek Valley Pike, May 16, 2016, attached as Exhibit C.[6]

Given that independent analysis of Sunoco's delineations reveals waters and wetlands missing from the applications, it is *crucial* that all stream and wetland delineations be reviewed in the field by the Army Corps of Engineers as well as Department personnel. It is apparent that Sunoco's consultants did not satisfactorily field-verify their wetland delineations and assessments, which should have been completed before submission of their applications. This neglect harms the ability of the Department and the public to conduct an accurate technical review under Chapter 105.

Citizens therefore request that these Chapter 105 applications be denied until such time as accurate information for wetlands and streams is compiled and verified by the Department and available for public review. If the Department does not deem this cause for denial, we ask that the Department explain that decision in a formal statement.

b. Missing Act 167 consistency letters

Sunoco's applications are missing most of the required "Act 167" stormwater management plan consistency letters which the applicant is required to provide under Chapter 105. 25 Pa. Code §

[5] In the course of that clear-cutting, Sunoco felled trees into wetlands without possessing any Chapter 105 permits.

[6] It should be noted that Sunoco conducted a later field delineation of the Gerhart property. Elise Gerhart, daughter of the property owners, observed that delineation. She reports that the delineation overlooked certain areas of the family property along the route that contained wetlands. In particular, Sunoco's agents did not put up any new wetlands delineation tape, they did not survey the eastern part of the property where wetlands were previously undermapped and miscategorized, and they claimed "no hydrology" and "no water" in places where they were at the time standing in mud.

105.13(e)(1)(v)-(vii), § 105.14(b)(9). Numerous municipalities have informed Sunoco in writing that it has failed to provide enough information for them to make a determination, and have asked Sunoco to provide specific items. Sunoco has not responded to any such requests. *See*, e.g., letters from West Goshen and East Goshen Townships, Chester County, and Thornbury Township, Delaware County.

These Act 167 consistency letters were previously noted as being missing in a memorandum to Sunoco from the Regional Manager of Wetlands and Waterways for the Department's southeast region dated January 29, 2016. This memorandum calls the Sunoco applications "incomplete" for a litany of reasons, specifically including the lack of municipal Act 167 consistency letters. As of today, however, many such letters still do not appear in the applications. The Department cannot presume that an absence in the applications of further correspondence with the municipalities means that the applications are consistent with their programs. Multiple municipalities so far have explicitly stated that Sunoco's plans are inconsistent with their programs. *See* 25 Pa. Code § 105.14(b)(9) analysis below. More inconsistency determinations are likely to be made, if they have not been made already.

Citizens observe that Pennsylvania municipalities have expended a great deal of time and effort to comply with their obligations under Act 167. Sunoco should not be issued permits that allow it to ride roughshod over these municipalities' carefully and expensively adopted plans.

Citizens therefore also request Sunoco's applications be denied until such time as Sunoco has documented in supplemental application materials compliance with each municipal program.

c. Inaccurate maps

In correspondence with municipalities about consistency letters that Sunoco *has* included in its application materials, several municipalities have noted inaccuracies in Sunoco's maps--the same maps the Department has been relying on in consideration of Sunoco's applications.

For example, Penn Township, Westmoreland County noted that the maps Sunoco sent it were outdated, and that an access road was planned to be built where an office building had since been built. An inspection of Figure 1-5 of "Westmoreland Aquatic Resource Report Addendum_032416 optimized Part 1," which has the newest relevant maps, reveals that the access road is still planned for a location where a building now exists. This means that Sunoco will need a new location, possibly creating new water impacts for which it has not yet provided the Department an evaluation.

Blair Township, Blair County explained that "The township has also expressed concern to Sunoco about the proposed location of this valve facility. From information presented by Sunoco at a January 12, 2016 meeting, the valve station location at the end of Hamer Drive appeared to be depicted somewhat differently than what was presented in your Nov. 10, 2015 submission (see Sheets 15 & 16 of 321)."

Thornbury Township, Delaware County explained that "Prior discussions with Sunoco officials indicated that additional valves would be added near the Duffers Restaurant and within the

Andover Residential Development Open Space. No valves or associated pads are shown on these plans and should be clarified. We have concerns of additional impervious areas and lack of stormwater management in this area."[7]

Without accurate and complete maps, the public simply cannot meaningfully comment on Sunoco's applications. Nor can the Department accurately determine compliance with Chapter 105; therefore the Department should deny the applications as presented to the Department and the public.

d. No risk assessment

25 Pa. Code § 105.13(e)(1)(vii) requires a "risk assessment" as follows: "If the stormwater or the floodplain management analysis conducted in subparagraphs (v) and (vi) indicates increases in peak rates of runoff or flood elevations, include a description of property and land uses which may be affected and an analysis of the degree of increased risk to life, property and the environment."

Sunoco's "risk assessment" is a boilerplate form supplied in each of its applications whereby Robert F. Simcik, P.E. certifies under penalty of perjury that:

> The proposed Project will not result in an increase in peak runoff rates or flood elevations; therefore, no public property or land uses will be adversely affected. Therefore, further analysis regarding the degree of increased risk to life property and the environment is not warranted. Accordingly, further coordination regarding this requirement is not applicable.

However, as explained elsewhere in these comments, at least two townships have found the Project to be inconsistent with their stormwater or floodplain management plans, and *many* municipalities were not able to complete those evaluations for lack of information provided by Sunoco. Also, as a matter of common sense, linear paths of deforestation along slopes increases runoff and flooding. The New York State Department of Conservation found that to be the case in denying the Constitution Pipeline a Water Quality Certification: "Changes in rain runoff along ROW may change flooding intensity and alter stream channel morphology."[8] Sunoco's failure

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[7] The Department recently fined CNX Gas Company LLC and CONE Midstream Partners LP for engaging in construction not identified in permit applications, including failing to identify a valve pad, as here. *See* DEP, Commonwealth News Bureau, "DEP Fines Pipeline Companies for Modifying Construction Plans Without Proper Approval," August 22, 2016, available at http://www.ahs.dep.pa.gov/NewsRoomPublic/articleviewer.aspx?id=21045&typeid=1. Citizens are concerned that multiple pipeline operators appear to think they can get away with this type of conduct, and applaud the Department's recent enforcement action.

[8] NYDEC, Notice of WQC Denial for Constitution Pipeline, p. 4 (Apr. 22, 2016) ("Constitution WQC Denial"), available at http://www.dec.ny.gov/docs/administration_pdf/constitutionwc42016.pdf and attached as Exhibit D.

to include any risk assessment based on an implausible and unsupported claim that no peak runoff rates or flood elevations will increase violates Chapter 105.[9]

e. Other missing materials and sections

There are a variety of other material gaps in Sunoco's applications, including:

- 25 Pa. Code § 93.4c(a)(1)(iv) requires the Department to make a final determination of existing use protection for surface waters as part of every final permit or approval action. Sunoco has not provided the information the Department needs to make such determinations. *See* Schmid Report at 8.

- In answer to "Coordination Information" question no. 13.0, asking Sunoco to "[e]nter all types & amounts of [air] emissions" that would be generated by the project, Sunoco fails to answer, instead writing "To Be Determined". Likewise, it writes "Amount unknown" when asked how much waste would be disposed from the project in question no. 18.0.

- In answer to "Coordination Information" question no. 16.0, asking Sunoco "Is your project to be served by an existing public water supply? If 'Yes', indicate name of supplier and attach letter from supplier stating that it will serve the project." Sunoco answers "yes" but fails to attach the required letter, and checks the box indicating it has failed to do so.

- 25 Pa. Code § 105.13(e)(1)(i)(G) requires that site plans for the project include "A cross sectional view of the regulated waters to be impacted before and after the structure or activity is constructed." Sunoco's applications do not contain the required cross-sectional views of each specific impacted water, only some. This deprives the Department of the ability to evaluate whether the crossing plans will protect the crossed waters. *Cf.* Constitution WQC Denial at p. 13 ("Without a site-specific analysis of the potential for vertical movement of each stream crossing to justify a burial depth, NYSDEC is unable to determine whether the depth of pipe is protective of State water quality standards and applicable State statutes and standards.").

- 25 Pa. Code § 105.13(e)(1)(iii)(D) requires that the project description contain "A statement on water dependency. A project is water dependent when the project requires access or proximity to or siting within water to fulfill the basic purposes of the project." Nowhere in the project description did Sunoco include a statement on water dependency. Sunoco did put a statement of water dependency in its alternatives analysis, but has not provided a convincing explanation regarding how a pipeline is dependent on being in waters and wetlands, or why certain waters (especially exceptional value waters and exceptional value wetlands) that are proposed to be impacted cannot be protected by boring under rather than cutting through them.

[9] Mr. Simcik is also responsible for similar certifications in place of doing Hydologic and Hydraulic Analyses. Citizens are concerned that Sunoco did not do its due diligence in making these certifications.

- 25 Pa. Code § 105.13(e)(1)(ii) requires that a location map be attached "including cultural, archeological and historical landmarks within 1 mile of the site." Sunoco has failed to attach such maps. Sunoco also explains in its Cultural Resource Notice that it has not completed its Historic Properties Survey Report, including the required photographs of buildings over 50 years old.

Sunoco's permit applications should be denied until such time as these deficiencies are corrected. At that time, the Department should provide such missing information to the public for review and initiate a new comment period.

f. Sunoco has failed to provide a shapefile of the Mariner East 2 route to the Department.

To Citizens' knowledge, Sunoco has not provided the Department with the shapefile (electronic geographic information system data) from which its site plans were developed. That file contains critically important route location information without which it becomes very time consuming and difficult to analyze location-specific information such as the delineation of wetlands--information which this applicant has gotten wrong before, such as in the case of wetlands on the Gerharts' property described above. Public review of the applications is made more difficult by Sunoco's refusal to provide this location data. Presumably the Department's review has been similarly hampered.

Citizens hired wetlands experts Schmid & Company to assist in their analysis of the Project's wetlands impacts. Early on after their hiring, the experts identified the shapefile as key missing data. Without the file, full professional analysis of the wetlands impacts would be cost-prohibitive.

On August 1, 2016, Steve Kunz, Senior Ecologist with Schmid & Company, contacted the Department of Conservation and Natural Resources (DCNR) to request a copy of the shapefile that identifies the Project route through Pennsylvania, which had been provided to DCNR, the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, and the U.S. Fish and Wildlife Service.

Mr. Kunz was told by DCNR (Jason Ryndock) that the shapefile exists and he might be able to obtain it from the applicant's consultant, Tetra Tech. Subsequently, Tetra Tech (Preston Smith) stated that it would not provide the shapefile directly to Mr. Kunz. Instead, he would have to get it from the Department following "the process for obtaining publicly available information," meaning a formal Right to Know Law (RTKL) request would have to be filed. Based on consistent past experience with RTKL requests, the Department would likely be unable to fulfill such a request in less than four weeks. Even if Mr. Kunz had filed a RTKL request on August 1, 2016, the shapefile likely would not be provided to Mr. Kunz until September 1, 2016, seven days past the deadline for public comment.

Only a week before the comments were due did Citizens finally obtain a copy of the shapefile.

Citizens have not had time before the close of the comment deadline to do a full professional wetlands impacts analysis, and so our comments provide less insight than they could have had

we--and the Department--had access to the shapefile from the start of the comment period. We request additional public comment time to do further analysis using the shapefile.

g. The applications should not have been declared complete.

Due to these material omissions, "the necessary information" was not provided, nor were the "requirements under the act and this chapter" "satisfied by the applicant." Therefore, these applications were not complete and should not have proceeded to technical review by the Department. 25 Pa. Code § 105.13a.

2. Approval of Sunoco's permit applications for destruction of exceptional value and other wetlands would violate Chapter 105.

Between the European colonization of Pennsylvania and the mid-1980s, the Commonwealth lost over half of its wetlands.[10] The Commonwealth recognizes that "[w]etlands are a valuable public natural resource." Chapter 105 "will be construed broadly to protect this valuable resource." 25 Pa. Code § 105.17.

Wetlands are now protected, with higher protections granted to exceptional value wetlands. Because the Project would do great violence to the wetlands of the Commonwealth in contravention of the protections codified in Chapter 105, the Department may not issue the permits for which Sunoco has applied.

a. The Project would adversely impact exceptional value wetlands and is otherwise not permissible under Chapter 105, Section 18a(a).

Section 105.18a governs permitting of structures and activities in wetlands. Subsection 18a(a) applies to exceptional value (EV) wetlands. It provides that the Department cannot grant permits for obstruction of and encroachment on EV wetlands unless the "applicant affirmatively demonstrates in writing...that the following requirements are met: ... the dam, water obstruction or encroachment will not have an adverse impact on the wetland, as determined in accordance with § § 105.14(b) and 105.15..." 25 Pa. Code § 105.14 states that the agency must consider the impact on property, land, and wildlife when determining whether or not to issue a permit. Citizens analyze the Section 105.14 factors in the next section of these comments. Because a fair analysis of those factors shows that the wetlands Sunoco proposes to impact would be significantly adversely impacted, the Department cannot grant the Chapter 105 permits Sunoco has applied for.

Additionally, before a permit may issue allowing obstruction of or encroachment on EV wetlands, the applicant must affirmatively demonstrate in writing that, among other things:

[10] Thomas E. Dahl & Gregory J. Allord, U.S Geological Survey, *National Water Summary--Wetland Resources: Technical Aspects*, "History of Wetlands in the Coterminous United States," available at https://www.fws.gov/wetlands/Documents/History-of-Wetlands-in-the-Conterminous-United-States.pdf.

> (2) The project is water-dependent. A project is water-dependent when the project requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project.
>
> (3) There is no practicable alternative to the proposed project that would not involve a wetland or that would have less effect on the wetland, and not have other significant adverse effects on the environment. An alternative is practicable if it is available and capable of being carried out after taking into consideration construction cost, existing technology and logistics. An area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed to fulfill the basic purpose of the project shall be considered as a practicable alternative.
>
> (6) The cumulative effect of this project and other projects will not result in the impairment of the Commonwealth's exceptional value wetland resources.

25 Pa. Code § 105.18a(a). These are independent requirements. Where the project is not water dependent, the Department may not issue permits for obstruction of or encroachment into EV wetlands, 25 Pa. Code § 105.18a(a)(2), and may not issue such permits with respect to other wetlands unless the applicant rebuts the presumption that there is a practicable alternative to obstruction of or encroachment into the wetland. 25 Pa. Code § 105.18a(b)(3)(i).

Sunoco in its alternatives analysis ignores that water-dependency is an independent requirement for impacting EV wetlands *irrespective* of practicable alternatives. It states: "This Project is considered to be water-dependent because there is no other practicable alternative to the proposed pipeline that does not involve crossing streams and wetlands." This fails the test for water dependency. It is also circular reasoning.

The term "water-dependent" is defined in the Code. The definition has nothing to do with the existence of practicable alternatives. "A project is water-dependent when the project requires access or proximity to or siting within the wetland to fulfill the basic purposes of the project." 25 Pa. Code § 105.18a(a)(2). The basic purpose of the project is pipeline transmission of hazardous liquids. The project is not a dock, marina, or wetlands research station. There is nothing about pipeline transmission of natural gas liquids that "requires access or proximity to or siting within the wetland."[11] Remarkably, Sunoco plans to trench 92 of the 129 *exceptional value* wetlands. The Project would thus generate at least 92 separate violations of these provisions of Chapter 105.

[11] Despite Sunoco's apparent suggestion to the contrary, there is also nothing about long linear projects that makes them water-dependent. *See*, e.g., *Northwest Bypass Group v. United States Army Corps of Eng'rs*, 552 F. Supp. 2d 97, 108-109 (D.N.H. 2008) (road not water-dependent); *Hoosier Envtl. Council v. United States DOT*, 2007 U.S. Dist. LEXIS 90840, *48-49, 2007 WL 4302642 (S.D. Ind. Dec. 10, 2007) (highway not water-dependent).

b. The Project would significantly adversely impact other wetlands and is not permissible under Chapter 105, Section 18a(b).

Just as Section 105.18a(a) bars adversely impacting EV wetlands, Section 105.18a(b) bans permits for projects significantly adversely impacting other wetlands, unless certain strict criteria are met. As explained herein, the Project would significantly adversely impact wetlands. Thus, it may only be permitted if "the applicant affirmatively demonstrates and the Department finds in writing that [the Project] is necessary to abate a substantial threat to the public health or safety and that the requirements of subsection (b)(2)—(7) are met." As a threshold matter, Sunoco has not claimed that the Project "is necessary to abate a substantial threat to the public health or safety." Rather, the Project *is* a substantial threat to the public health and safety. On these grounds alone, the Department may not issue these permits due to their impacts to other wetlands.

Additionally, the several independent requirements of subsections (b)(2) to (b)(7) have not been met here. 25 Pa. Code § 105.18a(b)(3) requires that there be "no practicable alternative to the proposed project that would not involve a wetland or that would have less adverse impact on the wetland, and that would not have other significant adverse impacts on the environment." A practicable alternative is presumed. § 105.18a(b)(3)(i). "To rebut the presumption [of a practicable alternative], an applicant must submit *reliable and convincing* evidence to DEP that no practicable alternative is available." *Pennsylvania Trout v. DEP*, 863 A.2d 93, 99 (Pa. Commw. Ct. 2004) (emphasis added); 25 Pa. Code § 105.18a(b)(3)(ii). Such evidence would have to show that "[t]he basic project purpose cannot be accomplished utilizing one or more other sites that would avoid, or result in less, adverse impact on the wetland." 25 Pa. Code § 105.18a(b)(3)(ii)(A).

Sunoco has failed to present such evidence here. In particular, though Sunoco evaluated alternative routes around wetlands, it failed to analyze drilling beneath the surface to avoid disturbance of emergent (PEM), even EV emergent, wetlands. Sunoco is planning on using horizontal directional drilling in dozens of locations. Indeed, it explains in its alternatives analysis that "In many cases, SPLP was able to avoid wetlands (including EV wetlands) through route adjustment or proposing [horizontal directional drilling, or] HDD construction techniques." Its alternatives analysis simply does not include such alternatives for the wetlands it proposes to trench, and Sunoco provides no explanation for that omission. A similar omission by Constitution Pipeline formed one of the grounds on which NYSDEC denied its Water Quality Certification. Constitution WQC Denial at p. 11. The Schmid Report discusses EV wetlands the impacts to which are not minimized by boring or HDD and also counties where EV wetlands are impacted but not discussed in Sunoco's alternatives analysis.

Sunoco avoided consideration of HDD under emergent wetlands even when the only change required to the existing plan would be to extend the underground distance of an already-planned HDD borehole. For example, Sunoco did an alternatives analysis for EV emergent wetlands K67 and K68 in Huntingdon County. Sunoco already planned to use HDD to bore under the forested (PFO) and scrub-shrub (PSS) portions of K68. Sunoco could have analyzed extending its borehole to go beyond K67, which would not have required a new HDD operation, but it made no such analysis.

Even if Sunoco were to supplement its alternatives analysis to include HDD alternatives which it then rejected, it would still have to provide "reliable and convincing" evidence that those alternatives "cannot be accomplished" because of construction cost. *Cf. Pennsylvania Trout v. DEP*, 2004 EHB 310, 366 (quantifying construction costs for alternatives). General, self-serving statements that the cost is prohibitive are not "reliable and convincing." Instead, such costs would need to be quantified, documented, and compared to the total cost and profit margin for this multi-billion-dollar project to determine whether HDD is able to be accomplished to avoid wetland impacts.

For these reasons, Sunoco has also not shown that "Adverse environmental impacts on the wetland will be avoided or reduced to the maximum extent possible." 25 Pa. Code § 105.18a(b)(2).

25 Pa. Code § 105.18a(b)(6) requires Sunoco to show that "The cumulative effect of this project and other projects will not result in a major impairment of this Commonwealth's wetland resources." But Sunoco has failed to do the required analysis of the cumulative impacts of this and other projects on the Commonwealth's wetlands and EV wetlands resources. Sunoco concludes in its alternatives analysis that the Project "Cumulatively will not contribute to the impairment of the Commonwealth's EV wetland resources," but there is no analysis or explanation to support that conclusion.

Last but not least,[12] Sunoco does not propose to mitigate for loss of wetland function, in clear violation of 25 Pa. Code § 105.20a(a)(2), and also of § 105.18a(b)(7). Sunoco states in its Aquatic Resource Avoidance, Minimization, and Mitigation Plan at Section 5.0 for each county that "No compensatory mitigation is required; all impacts are temporary and all waterbodies and wetlands will be restored to their pre-existing conditions." This is simply not true. Sunoco has no plan to restore compacted and degraded wetlands. Stabilization and revegetation alone does not restore pre-existing conditions. *See* Aquatic Resource Avoidance, Minimization, and Mitigation Plan at Section 2.2.2.1. Also, converting forested wetlands to emergent wetlands does not restore them to their pre-existing conditions.[13] Section 105.20a(a)(2) provides that "Functions and values that are physically and biologically the same as those that are lost shall be replaced at a minimum ratio of 1:1." Because the Project would convert forested wetlands to emergent wetlands, and because forested wetlands perform different functions and have different

[12] Due to the multitude of wetland crossings and the limited time frame the Department has allowed for public comment, Citizens have not had time to undertake a thorough analysis of whether "The project will [] cause or contribute to a violation of an applicable State water quality standard," 25 Pa. Code § 105.18a(b)(4), and whether "The project will [] cause or contribute to pollution of groundwater or surface water resources or diminution of the resources sufficient to interfere with their uses," 25 Pa. Code § 105.18a(b)(5). Citizens merely note that the Project would certainly reduce water quality, pollute groundwater and surface water resources, and diminish those resources.

[13] Additionally and crucially, Sunoco's application materials contain no discussion of post-construction right-of-way impacts. As a pipeline operator, Sunoco would from time to time need to perform maintenance on the Mariner East 2 right-of-way, inevitably including wetland portions. That maintenance would again impact the wetlands, rendering these wetland impacts *permanent*, as the Department classifies them, not *temporary*, as Sunoco claims.

values than emergent wetlands, Sunoco is required to replace the forested wetlands it would convert.[14]

Thus, for several independent reasons, the harm Mariner East 2 would inflict on Pennsylvania's other wetlands makes the Project impermissible under 25 Pa. Code § 105.18a (as well as § 105.20a).

Looking at EV and other wetlands together, Sunoco has failed to demonstrate that it has met the requirements to obstruct or encroach upon the wetlands it intends to impact. Therefore, its applications must be denied.

3. A fair weighing of the factors to be considered in 25 Pa. Code § 105.14 shows that the Project would be detrimental to health, safety and the environment.

25 Pa. Code § 105.14 instructs the Department to use a series of factors "to determine the proposed project's effect on health, safety and the environment." Weighing these factors, it is clear that Mariner East 2 would do great harm to health, safety, and the environment, including causing significant adverse impacts to wetlands. For these reasons, the Department should not grant Sunoco the permits it requests.

> *(3) The effect of the dam, water obstruction or encroachment on the property or riparian rights of owners upstream, downstream or adjacent to the project.*

In its Enclosure D - Project Impacts, Sunoco claims that "Construction of the proposed Project is not expected to affect natural drainage patterns." In the same submission, Sunoco states "The proposed Project will not cause long-term degradation of water quality, alter flow volumes, or change the direction of flow." Westmoreland County farmer and landowner Carol Gracon would disagree. Sunoco built its Mariner East 1 pipeline through her land. After its construction, Sunoco left the right-of-way strewn with trash and fill, and with altered landscape contours, disrupting the natural drainage on the property. As a result, a large area of her cropland both inside and outside the limits of disturbance was flooded. *See* photo of farm taken in 2014, attached as Exhibit E, page 1. The flooded area was left that way, and remains that way two years later. Photo of farm taken in 2016, Exhibit E, page 2.

A neighbor's farm suffered the same ponding from the drainage disturbance Sunoco left in its wake. The neighbor had to fence off a portion of his farm to keep the cows from wandering in and getting stuck in the mud. Photos of cow stuck in mud and, later, fenced-off area, Exhibit E, page 3. The construction also channeled water to flow off of Ms. Gracon's property, across a road, and onto a neighbor's land. She says "all our topsoil ran through the neighbor's property.

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[14] Sunoco appears to be implying the existence of some *de minimis* exemption from compensatory wetland mitigation. *See* Aquatic Resource Avoidance, Minimization, and Mitigation Plan at Section 3.0. The statute contains no such exemption, and it cannot be read into Chapter 105. 25 Pa. Code 105.17 ("Wetlands are a valuable public natural resource. This chapter will be construed broadly to protect this valuable resource."). Even if such an exemption existed, which it does not, Sunoco admits that the Project would convert more than a third of an acre of forested wetlands to emergent wetlands. *See* Schmid Report at Table 7. This is not a *de minimis* conversion of forested wetlands.

We lost hundreds, if not thousands, of tons of topsoil because of Sunoco's pipeline." *See* photo of topsoil erosion across neighbor's property, Exhibit E, page 4.

Mariner East 2 as proposed would segment farmland from Ohio to Marcus Hook and bisect farmland in Pennsylvania's three largest watersheds. Agribusiness is a leading economic driver of Pennsylvania's economy,[15] and pipeline construction and in-line service reduces crop yields over the rights-of-way, in part due to soil compaction by construction equipment, inadequate segregation of topsoil from other layers during construction, increase in ambient heat above the pipe, and destruction of microbial life necessary for crop production during construction.[16]

Predominantly, Susquehanna and Ohio River Basin farmland would be impacted by the proposed Project. Farmers who have installed tile drainage fields that have been subsequently crossed by pipeline construction report impaired drainage due to the resulting incompleteness of the drainage field when tiling cannot be reconstructed in pipeline rights-of-way.

Now multiply these anecdotes by the Projects' crossing of roughly 2,700 landowners' properties.

Sunoco's actions speak louder than its words. There is no reason to believe that it would protect landowners from drainage or other problems for Mariner East 2 when it failed to do so for Mariner East 1.

Impacts to adjacent property rights also include onsite pipeline integrity and leakage concerns. The Pipeline and Hazardous Materials Administration (PHMSA) has regulations covering such issues. 49 CFR § 195.442 generally requires "each operator of a buried pipeline [to] carry out, in accordance with this section, a written program to prevent damage to that pipeline from excavation activities." These programs are meant, among other things, to ensure the integrity of pipelines in high consequence areas (HCAs), such as in Chester and Delaware Counties, and to reduce risk of injuries and property damage from pipeline failures in drinking water or ecological resource areas. These programs must include procedures to identify HCAs, determine likely threats to a pipeline within a HCA, evaluate the physical integrity of a pipe within a HCA, and repair or remediate any pipeline defects found.

Sunoco has not included any PHMSA-recommended Risk Management and Damage Prevention program documents in its applications. Citizens suggest that the Department should ensure that Sunoco possesses and implements well-designed programs to prevent damage to the Mariner East 2 pipes, if it is built, to avoid potentially dire consequences to landowners and the local ecologies. This is especially important here because much of the proposed Project route would share rights-of-way with one or more active pipelines dating to the 1930s or before. This is especially the case in HCAs in Chester and Delaware Counties.

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[15] Pennsylvania Department of Community and Economic Development, Agribusiness Overview, available at http://dced.pa.gov/key-industries/agribusiness/.

[16] An example of such documented lowered yields can be found in the Federal Energy Regulatory Commission's Field Inspection Report for the Texas Eastern Transmission, L.P. Appalachia to Market 2014 (TEAM 2014) Project, attached (with a highlighted portion) as Exhibit F (see highlights and final page). The report is also available on FERC's website, at http://elibrary.ferc.gov/idmws/file_list.asp?accession_num=20160608-4007.

Considering just the issues of runoff, damage to farms, and pipeline integrity--all we have addressed here--the Project's likely impacts to property owners strongly counsel against granting the permits.

> *(4) The effect of the dam, water obstruction or encroachment on regimen and ecology of the watercourse or other body of water, water quality, stream flow, fish and wildlife, aquatic habitat, instream and downstream uses and other significant environmental factors.*

The ecological impacts of the proposed water and wetland crossing differ based on the type of crossing: trenched crossings of waters differ from HDD crossings. Citizens explain the harms of each below. Also, threatened and endangered species would be put at great risk from this Project.

Before getting to the different types of stream crossings though, a statement of Sunoco's on riparian buffer damage mitigation plans should be corrected. Sunoco claims in its Aquatic Resource Avoidance, Minimization, and Mitigation Plans that it "has limited the proposed Project's construction ROW through waterbodies to the 50-foot-wide existing ROW to reduce impacts to these sensitive resources and this reduction will be 10 feet before and after the crossing." What Sunoco does not inform the Department is that in many instances it *greatly increases* the width and area of the land it clears immediately outside those crossing zones, such that destruction of riparian buffers and concomitant harms to the crossed streams are magnified. *See*, e.g., Delaware County E&S Plan Sheet 23 of 35. These issues pertain to wetland and stream crossings alike.

Trenching

Sunoco plans to trench, that is, dig a trench through, 960 (78%) of the at least 1,227 streams Mariner East 2 would cross. *See* Aquatic Resource Avoidance, Minimization, and Mitigation Plans for each county. Among all crossed streams, 337 (27%) are designated high quality or exceptional value. Schmid Report, p.8 & Table 5. Trenching streams, if done by dry crossings, involves either flume pipes or a dam-and-pump method to divert water flow around an excavated trench. *See* Aquatic Resource Avoidance, Minimization, and Mitigation Plan at Section 2.1.2.1.

As an initial matter, Sunoco claims that "If any stream is dry or has no perceptible flow at the time of construction, an open-cut crossing method may be used," referring to open trenching without stream diversion. *See id.* However, in its Erosion & Sedimentation Control & Site Restoration Plans, Sunoco proposes such "open cut floodway" methods for *perennial* streams, that is, those that are flowing all the time. Trenching through the middle of a running stream is very harmful to stream quality, bank stability, topsoil preservation, and other important environmental issues the Department considers under Chapter 105. The Department should not allow the use of open cut floodway methods for perennial streams.

Dry crossings also cause harm to aquatic life by causing temporary and permanent modification to stream banks and aquatic habitat. These habitat modifications are caused by the resuspension of sediments, increased turbulence, and from blocking access to migratory pathways for aquatic

life. Additionally, dry crossings alter stream temperatures which impact fish spawning post-construction. In its Constitution WQC Denial, NYSDEC explained that "[o]pen trenching is a highly impactful construction technique involving significant disturbance of the existing stream bed and potential long-term stream flow disruption, destruction of riparian vegetation and establishment of a permanently cleared corridor." Constitution WQC Denial at p. 8. The only plan Sunoco has specifically to reduce harm to in-stream wildlife from dry crossings is screening the water flow intake when using the dam and pump method to avoid fish entrainment. That is not enough to ensure adequate protection of aquatic life.

Furthermore, high quality (HQ) and exceptional value (EV) streams are subject to special antidegradation protections to maintain their quality. For example, 25 Pa. Code §§ 93.4a(c) and 93.4c(b)(1)(iii) do not allow for degradation of HQ streams from point source discharges unless the Department finds that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. For nonpoint sources, such as the pollution created by trenching a stream, the Pennsylvania Code requires the use of best management practices. 25 Pa. Code § 93.4c(b)(2). Trenchless crossings generally are one of the best management practices for protection of HQ waters. The Governor's Pipeline Infrastructure Task Force report noted that "Crossings that employ trenchless technologies such as horizontal directional drilling (HDD) and micro-tunneling under the streambed are preferred for larger crossing and those with forested riparian buffers." (Environmental Protection Workgroup Recommendation #34). *See also* analysis of antidegradation provisions in Schmid Report, at 9-10.

A reduction in water quality also will not be allowed under 25 Pa. Code § 93.4a unless the discharger demonstrates that the HQ stream will support applicable existing and designated water uses. Sunoco must prove that the methods used to protect wildlife would not interrupt the uses of the streams, which include habitat to cold-water and migratory fish. Since Sunoco has failed to identify the existing uses of the streams it proposes to cross, and because Sunoco's construction methods are not protective enough, it cannot make that showing. *See* Schmid Report at p.8.

Citizens caution the Department to fully consider the ramifications to the hundreds of HQ and EV waters that Sunoco proposes to build Mariner East 2 through.

HDD Crossings

Sunoco plans to use trenchless (conventional boring or Horizontal Directional Drilling (HDD)), for only 267 (22%) of the at least 1,227 water bodies. *See* Aquatic Resource Avoidance, Minimization, and Mitigation Plans for each county. HDD crossings, while often preferred over crossings which trench the water body, still have the potential to leak chemical byproducts, including lubricants, that can injure or kill aquatic life. Sunoco has already been fined for polluting streams by its use of HDD, as explained above in our comments on Sunoco's compliance with Department and Fish and Boat Commission laws.

The use of HDD by Sunoco has the potential for long- and short-term groundwater contamination risks. Sunoco plans to drill 30" holes for a 20" pipe and not grout or otherwise

properly seal the annulus between the pipe and the wall of the hole. Because of the depth to which Sunoco plans to drill--hundreds of feet below grade in places--the boring would likely reach underground aquifers. The ungrouted annulus would then act as a conduit to bring potential surface pollutants (such as bacteria and other pathogens, as well as drilling chemicals) directly into the aquifer, bypassing the earth's natural filtration system.

While Sunoco has in place an HDD Inadvertent Return Contingency Plan (which, as noted above, has not been working well), that Plan does not address avoidance or mitigation of groundwater contamination. Moreover, Sunoco admits that the migration of drilling fluids through fractures or fissures in underground rock is "common." *See* HDD Inadvertent Return Contingency Plan at 3.

Blasting is also likely to occur to install the pipeline. Blasting can cause permanent changes to the waterbody and allow chemical byproduct leakage. The changes include turbidity, lower dissolved oxygen levels, and modification of riparian and aquatic habitat.

As serious as water contamination from drilling and blasting for HDD is, equally concerning is the integrity of the pipeline that is strung through the borehole. After a particular borehole is completed, the pipe sections that will be dragged or pulled into the borehole will be welded together outside the borehole and then pulled through. These pipe sections welded together will weigh thousands of pounds and will be pulled through a borehole drilled through solid bedrock with sharp edges and sharp fragments that may damage surface coatings on the pipe. That damage may then expose the pipeline sections to corrosion, the cracking of welds, or even the cracking of the pipe. Pipes with special factory applied protective coatings of different kinds with different qualities are available for use in HDD operations that may help resist abrasion and scratching. However, the actual weld is protected by a coating that is field-applied and therefore less reliable. There are no national or state pipeline construction standards that Sunoco must follow by law, instead we must rely on their judgment. While hydrostatic testing adds a layer of pipeline protection, pipelines do leak and explode due to corrosion and surface damage. Citizens do not need to elaborate on how a failure of the pipeline's integrity could damage the streams or wetlands under which the pipes pass.

Thus, for several reasons, though Citizens support Sunoco's use of HDD as less destructive compared to open trenching, the Department should take the significant impacts from HDD into account in reviewing these Chapter 105 applications.

Threatened and Endangered Species

A project of this magnitude, using these methods, is likely to cause significant harm to fish, and incidental takes to endangered aquatic life within the water and surrounding habitat. Section 9 of the Endangered Species Act prohibits the taking of a listed species. 18 U.S.C.A. § 1538(a)(1)(A). Taking "means to harass, harm, pursue, hunt, shoot, wound kill, trap, capture, or collect, or to attempt to engage in any such conduct." 18 U.S.C.A. § 1532(19). Within the waterbody, aquatic

organisms can get caught against the screens causing injury, death, or extreme stress.[17] Endangered plant species may be harmed through the construction of the pipeline by disturbing their soil, trampling the plant, or by uprooting the plants and transferring them from the intended construction site.

Among other things, we know that 15 of the 129 exceptional value wetlands identified by Sunoco to be impacted/crossed involve bog turtle habitat; two others involve rare plant species. *See* Schmid Report, Table 4. Species of concern in the study area that Sunoco has identified include: bog turtle, timber rattlesnake, allegheny woodrat, Indiana bat, northern long-eared bat, eastern small-footed bat, silver-haired bat, northeastern bulrush, eastern redbelly turtle, yellow lampmussel, rainbow mussel, elktoe, triangle floater, ghost shiner, and brook stickleback. As of the latest information in the application materials, Sunoco has not yet received clearance from the coordinating agencies for most of the species for which it has sought clearance.

Because Citizens did not have access to the Project shapefile until shortly before the comment deadline, we were not able to independently judge whether Sunoco has accurately identified habitat of threatened and endangered species and obtained the required "clearing" letter for a "hit" from the appropriate jurisdictional agency.

Citizens also caution the Department that representations by Sunoco that it will abide by agency recommendations to protect species of concern should be taken with a grain of salt. Just this last April, Sunoco cut down trees to make way for Mariner East 2 against the recommendations of the U.S. Fish and Wildlife Service meant to protect endangered bats.[18]

> *(5) The impacts of the dam, water obstruction or encroachment on nearby natural areas, wildlife sanctuaries, public water supplies, other geographical or physical features including cultural, archaeological and historical landmarks, National wildlife refuges, National natural landmarks, National, State or local parks or recreation areas or National, State or local historical sites.*

This factor looks at the Project's effects on both natural features and human historical features. The Project's effects on historical features cannot be evaluated based on the applications, which contain little more than a listing of historical sites and their distance from the pipeline. Environmental Assessment Form, Enclosure D - Project Impacts, Section A.3. That list says nothing about how the Project would affect those properties. There is no information about, for example, whether viewsheds would be compromised, whether construction noise would disrupt visitor experiences, or whether drilling or blasting operations would compromise the integrity of historic buildings. These are considerations the Department should take into account.

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[17] NOAA, Northeast Fisheries Service Center, *Impacts to Marine Fisheries Habitat from Nonfishing Activities in the Northeastern United States* 221-2 (2008), available at http://www.nefsc.noaa.gov/publications/tm/tm209/pdfs/ch8.pdf.

[18] Cusick, Marie. "Mariner East 2 update: Chainsaws return, along with a tree-sitter," StateImpact Pennsylvania, April 7, 2016, available at https://stateimpact.npr.org/pennsylvania/2016/04/07/mariner-east-2-update-chainsaws-return-along-with-a-tree-sitter/.

Parks and game lands are given the same superficial treatment. Sunoco lists crossed areas and explains its progress in obtaining easements across them, but says nothing about environmental impacts to them. Environmental Assessment Form, Enclosure D - Project Impacts, Sections A.1 and A.7. Are the crossed areas of critical importance for habitat conservation or recreational experiences? Would the right-of-way carve a notch out of an otherwise preserved ridgeline visible for many miles? The Department cannot tell from Sunoco's applications.

When considering impacts to our Commonwealth's centuries-old historic properties and our invaluable and irreplaceable natural areas, the Department should be mindful of its role in preserving our heritage for future generations. *See* Pennsylvania Constitution, Article I, Section 27.

> *(6) Compliance by the dam, water obstruction or encroachment with applicable laws administered by the Department, the Fish and Boat Commission and river basin commissions created by interstate compact.*

Sunoco has a bad record of compliance with the laws of the Department and the Fish and Boat Commission, including several violations for work on this very Mariner East project.

In June 2015, for example, the Department entered into a consent agreement with Sunoco for environmental laws it broke while working on the Mariner East project. Sunoco admitted to six separate instances in which it illegally released drilling fluids and wastewater into waters of the Commonwealth during HDD operations at multiple times during 2014, in violation of the Clean Streams Law. Sunoco also admitted to a number of erosion and sediment control violations in connection with Mariner East. Sunoco paid a fine of over $95,000 for these violations. Citizens have attached this Consent Assessment as Exhibit G hereto.[19]

Note that Sunoco's Chapter 102 erosion and sedimentation control application form states that Sunoco *does* have outstanding violations in Pennsylvania, but does not attach documentation of those violations. Citizens encourage the Department in its Chapter 102 and Chapter 105 reviews to coordinate such that the public (and the Department, internally) has access to the same materials in its coordinated permit reviews.[20]

Not all of Sunoco's illegal releases of drilling fluids have resulted in violations. Ralph Blume, a farmer and landowner in Cumberland County, witnessed Sunoco agents in June 2015 pumping drilling fluids directly into a stream in Upper Frankford Township, Cumberland County. Sunoco had just had two blowouts resulting from botched HDD operations and was disposing of the

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[19] That same June, Sunoco affiliate Sunoco, Inc. (R&M) entered into a $200,000 settlement agreement with the Department and the Fish and Boat Commission for a long series of incidents of polluting the Schuylkill River from its refinery in Philadelphia during 2011 and 2012. *See* Exhibit H.

[20] The U.S. Army Corps of Engineers takes a similar "vertical team engagement" approach as part of its SMART Planning, whereby personnel performing different roles coordinate rather than engaging in sequential reviews. *See* U.S. Army Corps of Engineers, "Feasibility Study Kickoff: The Vertical Team," last updated April 1, 2014, available at http://planning.usace.army.mil/toolbox/smart.cfm?Section=2&Part=2.

drilling muds that had come to the surface. Mr. Blume reports that the Department came out to the sites but did not take action.

In another recent incident, Sunoco Logistics, the Department, and the Fish and Boat Commission entered into a settlement agreement for a spill from a gasoline pipeline into a tributary of Marcus Hook Creek in 2013, which Sunoco failed to report to the Department. *See* Exhibit I.

A Sunoco affiliate committed violations at Marcus Hook in connection with the Mariner East project as well. As recently as June 7, 2016, the Department issued the affiliate a violation for exceeding air emissions limits at tanks used to store fluids that arrived at Marcus Hook from Mariner East 1.

Sunoco's record with the Fish and Boat Commission is not better than with the Department. In connection with construction of Mariner East 1, Sunoco, over the course of two days, discharged drilling fluids into Froman Run, a tributary of the Monongahela River, and an unnamed tributary to Froman Run. Sunoco Logistics entered into a settlement agreement with Fish and Boat over these incidents, attached as Exhibit J. Sunoco entered into a separate settlement agreement with Fish and Boat in 2012 for pollution of Barrs Run. *See* Exhibit K.

Citizens have not been able to obtain much in the way of records from the Delaware River Basin Commission regarding violations issued to Sunoco. However, minutes from the DRBC's March 11, 2015 meeting reveal that Sunoco Partners Marketing & Terminals, LP--like Sunoco Pipeline, a Sunoco Logistics company--failed to perform effluent monitoring at its Eagle Point facility on the Delaware River and settled an alleged violation by the DRBC.[21]

It is important to understand as well that for every violation that is documented or results in a fine, there are likely many more that go unreported and undiscovered. Given Sunoco's recent history of numerous relevant violations, the Department should not grant Sunoco these Chapter 105 permits.

> *(7) The extent to which a project is water dependent and thereby requires access or proximity to or siting within water to fulfill the basic purposes of the project. The dependency must be based on the demonstrated unavailability of any alternative location, route or design and the use of location, route or design to avoid or minimize the adverse impact of the dam, water obstruction or encroachment upon the environment and protect the public natural resources of this Commonwealth.*

As explained above, the Project is not water-dependent, as there is nothing about a hazardous liquids transmission pipeline that requires access to, proximity to, or siting within water.

[21] Minutes available at http://www.state.nj.us/drbc/library/documents/3-11-15_minutes.pdf, relevant portion on pages 3-4.

(9) Consistency with State and local floodplain and stormwater management programs, the State Water Plan and the Coastal Zone Management Plan.

Sunoco requested letters of consistency with floodplain and stormwater management programs from the municipalities which Mariner East 2 would cross through. The results of these requests were decidedly mixed. Fewer than half of the municipalities wrote that the Project was consistent with their stormwater management programs (42%) or that they had no programs (5%). Barely half of the municipalities wrote that the Project was consistent with their floodplain management programs (53%) or that they had no programs (1%). For many municipalities, Sunoco provides no letters of consistency or inconsistency whatsoever, leaving the Department unable to determine consistency for those municipalities.[22] And a significant number of municipalities wrote either that the plans were inconsistent or that Sunoco did not provide enough information to determine consistency.

In particular, the latest available communications from the following municipalities state that they need more information, materials, or applications to determine or approve consistency:

- Chartiers Township, Washington County
- Hempfield Township, Westmoreland County
- Rostraver Township, Westmoreland County
- Sewickley Township, Westmoreland County
- Blair Township, Blair County
- Upper Frankford Township, Cumberland County
- Heidelberg Township, Lebanon County
- South Londonderry Township, Lebanon County
- Robeson Township, Berks County
- East Goshen Township, Chester County
- Elverson Borough, Chester County
- East Nantmeal Township, Chester County
- Uwchlan Township, Chester County
- West Nantmeal Township, Chester County
- West Whiteland Township, Chester County
- Edgmont Township, Delaware County

The following municipalities explicitly determined that Sunoco's plans were *inconsistent* with their floodplain or stormwater management programs:

- West Goshen Township, Chester County
- Thornbury Township, Delaware County

It is abundantly clear that overall stormwater and floodplain management program consistency cannot be determined from Sunoco's applications. In some instances, municipalities have

[22] At least for Cresson Township in Cambria County, it is possible that the Township thought Sunoco's letter was wrongly delivered to it, as Sunoco mistakenly calls it Cresson Borough, a separate municipality that does not lie on the proposed path of Mariner East 2.

already determined that Sunoco's plans would need to be changed for the Project to be consistent with their programs.

Unless Sunoco's plans come into documented compliance with municipal stormwater and floodplain management programs, this factor counsels strongly in favor of denying Sunoco's applications.

> *(11) Consistency with State antidegradation requirements contained in Chapters 93, 95 and 102 (relating to water quality standards; wastewater treatment requirements; and erosion and sediment control) and the Clean Water Act (33 U.S.C.A. § § 1251—1376).*

The Project would be inconsistent with State antidegradation requirements. See the Schmid Report.

> *(13) For dams, water obstructions or encroachments in, along, across or projecting into a wetland, as defined in § 105.1 (relating to definitions), the Department will also consider the impact on the wetlands values and functions in making a determination of adverse impact.*

The Project would do great damage to wetland values and functions. See the Schmid Report, and the discussion of water crossings, *supra*, which is largely applicable to wetlands as well as streams.

Sunoco admits to impacting over 35 acres of wetlands, including over six acres of EV wetlands. *See* Schmid Report, Table 7. This does not even take into account Sunoco's undercounting of wetlands. *See supra.* "Impacting" wetlands in the context of pipeline construction may mean one of several things. If the wetland will be trenched through, the wetland is essentially obliterated: the ground itself is removed, along with all vegetation and sessile or mobility-constrained wildlife; the hydrology is completely altered; surrounding soil is likely compacted and rutted from heavy equipment; invasive species carried in tire treads and given access along the right-of-way get footholds. In essence, little of what made the wetland a functioning ecosystem remains where a pipeline goes through. That creates quite a significant adverse impact to the wetlands.

Sunoco's claims that the impacts are "temporary" are based on the assumption that Sunoco will successfully recreate the wetlands it destroys in a very short time frame. As Sunoco argues in its Aquatic Resource Avoidance, Minimization, and Mitigation Plans at Section 2.2.2, "The majority of impacts to wetland functions and values will be short-term and limited to the construction period and possibly the first growing season when the temporarily disturbed areas are revegetated/planted with native species."

The impacts would last much longer than "temporary" implies. As ecologists know, one cannot obliterate habitat and expect a restoration of it to have the same functions and values immediately, even for emergent wetlands. Sunoco's argument conflicts with scientific research. Research into restored and native wetlands demonstrates that biogeochemical functions return slowly over *decades*, not within one growing season. A study showed that those functions

differed among native wetlands, those restored five years before, eight years before, sixteen years before, and native but logged fifty years before.[23] The federal government's Interagency Workgroup on Wetland Restoration agrees:

> Like most ecosystems, wetlands change over many years. This is especially true for restored, created, or enhanced wetlands that may take decades to reach a condition close to that of a mature, naturally-occurring wetland. Research on wetlands created from dredged material in the Gulf of Mexico suggests that these wetlands are still changing and maturing 20 years after they were created. Consider monitoring to be a long-term activity, not just something you do for the first year or two. At a minimum, a site should be monitored until it meets all performance standards, which can take from several years to decades.[24]

The impacts to wetlands from pipeline construction are rightfully considered permanent, as they will last at least decades. More likely, however, the impacts will last as long as the pipeline is active, as maintenance work is likely to cause re-destruction of the wetlands before they have returned to full native wetland functionality.

In sum, then, the Project would destroy dozens of acres of wetlands and attempt to recreate some of those wetlands, with a limited return of functionality, and no full return of functionality during the operating lifetime of the pipelines. These adverse impacts to wetlands are very significant, and are cause for the Department to deny Sunoco the permits it seeks.

(14) The cumulative impact of this project and other potential or existing projects. In evaluating the cumulative impact, the Department will consider whether numerous piecemeal changes may result in a major impairment of the wetland resources. The Department will evaluate a particular wetland site for which an application is made with the recognition that it is part of a complete and interrelated wetland area.

In its Constitution WQC Denial, NYSDEC explained: "Due to the large amount of new ROW construction, the Project would also directly impact almost 500 acres of valuable interior forest. Cumulatively, within such areas, as well as the ROW generally, impacts to both small and large streams from the construction and operation of the Project can be profound and could include loss of available water body habitat, changes in thermal conditions, increased erosion, and creation of stream instability and turbidity." Constitution WQC Denial at p. 3. Mariner East 2 is

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[23] P. V. Sundareshwar, C. J. Richardson, Robert A. Gleason, Perry J. Pellechia, and Shawn Honomichl, "Nature versus Nurture: Functional Assessment of Restoration Effects on Wetland Services Using Nuclear Magnetic Resonance Spectroscopy," *Geophysical Research Letters*36 (2009): L03402, accessed August 24, 2016, doi:10.1029/2008GL036385.

[24] Interagency Workgroup on Wetland Restoration: National Oceanic and Atmospheric Administration, Environmental Protection Agency, Army Corps of Engineers, Fish and Wildlife Service, and Natural Resources Conservation Service. *An Introduction and User's Guide to Wetland Restoration, Creation, and Enhancement*, at 43. Available at http://www.habitat.noaa.gov/pdf/pub_wetlands_restore_guide.pdf.

proposed to be more than twice as long as the Constitution Pipeline would have been. The cumulative impacts from the Project would be enormous.

Also, while Sunoco tallies the cumulative impacts to wetlands from the Project alone, it does not tally the cumulative impacts "of this project *and other potential or existing projects*," except for a superficial qualitative analysis less than a page long in its Environmental Assessment Form - Enclosure D. For instance, Sunoco has not adequately identified the cumulative impact on water resources of Mariner East 2 together with Williams Transco's proposed Atlantic Sunrise 42-inch pipeline project, which intersect in South Londonderry Township, Lebanon County. In fact, the cumulative impacts of this and other potential or existing projects is immense, even just considering proposed long-distance transmission pipelines. Citizens attach as Exhibit L a report commissioned by Clean Air Council and prepared by non-profit research and data analysis firm CNA quantitatively analyzing the cumulative land cover impacts of such pipelines in the Delaware River Basin.[25] Nearly fifty miles of Mariner East 2 would cross through the Delaware River Basin. *See* CNA Report at 5, Table 1.

Using GIS mapping technology, CNA was able to determine how much land cover of various types--forest, wetland, grassland, etc.--in total was or would be disturbed by these pipelines. CNA also determined that certain areas of the watershed, particularly Carbon, Northampton, and Chester Counties in Pennsylvania, and Hunterdon County in New Jersey, were having their forests especially heavily impacted by pipeline development. *See* CNA Report at 25, Figure 10. CNA was also able to analyze impacts on forested lands on a sub-watershed basis, finding the most significant impacts in the Lehigh and Middle Delaware subbasins. *Id.* at v. Watershed-level analysis such as this is particularly fitting for cumulative impacts as part of Chapter 102 and 105 permit applications. FracTracker has created a GIS map with a watershed overlay for the entirety of the Pennsylvania portion of Mariner East 2.[26] The Department can use this map or similar tools to undertake such a watershed-level cumulative impacts analysis--as Sunoco could have.

Cumulative impact analysis is crucial for pipeline projects, as there are many pipelines proposed for Pennsylvania, with a huge cumulative impact. The Governor's Pipeline Infrastructure Task Force report states that "the miles of natural gas gathering lines alone will at least quadruple by 2030. The footprint of just that expansion is larger than the cumulative area impacted by all other Marcellus gas infrastructure combined, and could exceed 300,000 acres, or 1 percent of the

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[25] Lars Hansen and Steven Habicht, Cumulative Land Cover Impacts of Proposed Transmission Pipelines in the Delaware River Basin, CNA, May 2016.

[26] FracTracker, Mariner East II, available at https://www.fractracker.org/2016/08/mariner-east-2-water-risks/. Note that this map also contains an overlay for public water service areas. The abundance of such areas in the Pittsburgh, Harrisburg, and Philadelphia areas demonstrates the importance of the Department considering the exceptional value of "[w]etlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply." 25 Pa. Code § 105.17(1)(iv). Such wetlands that have not been characterized as exceptional value likely exist along the proposed Project route without having been counted as EV. See Schmid Report at 7-8.

state's land area."[27] That is a larger area than all 121 of Pennsylvania's state parks combined, without even including impacts from long-distance transmission pipelines.[28] This is precisely an instance where "numerous piecemeal changes may result in a major impairment of the wetland resources."

But a cumulative impact analysis needs to go beyond projects of a similar nature and look at other potential or existing projects, such as housing development, power lines, or industrial parks. The first step to such analysis is compiling a list of other projects in the vicinity of the Project and tallying their impacts. Sunoco has not even taken this first step.

The cumulative impacts of the Project and other development along its route are likely to be quite significant. Unfortunately, Sunoco has left that analysis entirely up to the Department to undertake.

4. Streams and wetlands would be severely affected by pipeline leaks, and Sunoco Pipeline has the single worst record of hazardous liquids leaks among pipeline operators.

A standard method of risk analysis involves considering the *likelihood* of a particular hazard's occurrence, in conjunction with its estimated *severity* or *consequences*. In 2015, a one-year-old 20-inch ethane pipeline structurally failed, leaking over one million gallons of liquid ethane into a wooded area.[29] The subsequent explosion and fire caused thermal damage in a 2,000 foot radius from the point of failure, and it took 36 hours to extinguish the fire. This pipeline was similar in construction and operational characteristics to the ones contemplated in the Sunoco applications.

With respect to groundwater contamination, in April 2015, a leak caused by undetected corrosion in a Sunoco pipeline in Edgmont Township resulted in the discovery of MTBE, a gasoline additive manufactured by Sunoco, in nearby private water wells. Sunoco's operating safety system did not detect the leak, which was discovered by the landowner under whose property the pipeline was leaking. As recently as July 2016, MTBE continues to be detected in wells in the vicinity of the leak. As reported by the Associated Press, the Commonwealth of Pennsylvania has spent three-quarters of a billion dollars of taxpayer money to clean up leaks of this persistent chemical.

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[27] Governor's Pipeline Infrastructure Task Force (PITF) Report, February 2016, available at http://files.dep.state.pa.us/ProgramIntegration/PITF/PITF%20Report%20Final.pdf.

[28] Pennsylvania Department of Conservation and Natural Resources, "Short Version of the History of Pennsylvania State Parks," available at http://www.dcnr.state.pa.us/stateparks/thingstoknow/history/shortversionofhistory/index.htm.

[29] *In re Enterprise Products Operating LLC*, PHMSA Docket CPF No. 1-2015-5002H, Amended Corrective Action Order, March 12, 2015, available at https://primis.phmsa.dot.gov/comm/reports/enforce/documents/120155002H/120155002H_Amended%20Corrective%20Action%20Order_03122015_text.pdf.

Many other hazardous liquids pipeline accidents could be cited, but it is clear from just these two examples that pipelines of this size, transporting enormous quantities of hazardous liquids at high pressure, have the capability to cause severe consequences to the environment.

Hazards with severe consequences can sometimes be tolerated, provided the likelihood of their occurrence is extremely improbable. So we turn to the "likelihood" question, and in doing so it is useful to examine Sunoco's operational and enforcement records with respect to hazardous liquids pipelines.

The federal regulator of hazardous liquids pipeline operators, the Pipeline and Hazardous Materials Safety Administration (PHMSA), requires that operators self-report accidents and incidents. Approximately 2,000 such operators report these data to the government. Sunoco is far from the largest in terms of miles of pipeline, but it is the clear leader when it comes to number of reported hazardous liquids leaks.[30] Omitting wholly-owned Sunoco subsidiaries and considering only Sunoco Pipeline L.P. and its inactive predecessor, Sunoco Inc., Sunoco has, in the last ten years alone, reported to the federal government 270 leaks, spilling over 832,000 gallons of hazardous liquids into the environment. This amounts to a rate averaging more than two reported incidents a month, every month for the last ten years. The combination of likelihood and severity, when it comes to hazardous liquids pipelines operated by Sunoco, is unacceptably high. The Department can do nothing to reduce the severity of Sunoco's continuing leaks. The likelihood of leaks on the applied-for project can, however, be reduced to zero by not issuing it permits. The risk can be mitigated best by avoiding it. Based on Sunoco's compliance history alone, the Department would have reasonable grounds for denying its Mariner East 2 permit applications.

Sunoco has a long and checkered history of enforcement action related to its pipeline operations at both the federal and state level. A few federal examples are discussed below.

- In February 2000, a Sunoco pipeline failed structurally, spilling a massive 192,000 gallons of hazardous liquids into Pennsylvania's John Heinz National Wildlife Refuge. (Sunoco had an operating safety system on this pipeline, but it failed to detect the leak, which was eventually discovered by a hiker in the Refuge. By the time the break was discovered, the pipeline had been pumping crude oil into the Refuge for at least three days). Sunoco paid more than $3.6 million in cleanup costs and penalties to settle a lawsuit brought by the federal government over this spill.

[30] Sunoco has received federal enforcement action at least twice for failure to make required reports of hazardous liquids leaks. In June 2013, Sunoco was fined for failure to file a report of a leak of 1,600 gallons of hazardous liquids at Sharon Hill, PA. *See* PHMSA CPF No. 1-2012-5019 Final Order, June 13, 2013, available at http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Enforcement%20Notices/120125019_FO.pdf. And in July 2016, PHMSA issued a proposed $1.539 million civil penalty to Sunoco's wholly owned subsidiary, West Texas Gulf Pipeline Company, for failing to report a hazardous liquids leak which resulted in a serious injury. *See* PHMSA Notice of Probable Violation, Proposed Civil Penalty, and Proposed Compliance Order, July 8, 2016, available at http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/420165022_NOPV_PCP_PCO_07072016.pdf. Because of these repeated enforcement actions for failure to make required reports, it is reasonable to doubt that we know the full scope and scale of Sunoco hazardous liquids leaks.

- In February 2011, Sunoco's hazardous liquids pipeline system spilled over 1,500 gallons of crude oil at Sharon Hill, Pennsylvania, causing soil contamination. Typical of other Sunoco hazardous liquids leaks in Pennsylvania, this one was caused by corrosion which Sunoco failed to detect. Sunoco also failed to report information about this leak to PHMSA, as it was required to do under applicable federal regulations. PHMSA issued a Notice of Probable Violation to Sunoco for the failure to make required reports. Sunoco did not contest the allegations and promptly paid the nominal $22,500 civil penalty to settle the matter.

- In April 2016, PHMSA issued a Notice of Probable Violation, and Proposed Compliance Order to Sunoco. PHMSA alleged that Sunoco used unqualified personnel to perform 3,000 welding operations (using an unqualified welding procedure) on a new pipeline it was constructing. After these issues were discovered by PHMSA inspectors, Sunoco attempted to "back-qualify" the welders, some of whom were unable to perform satisfactory welds even after multiple attempts. The federal government has proposed to assess a $1.278 million civil penalty against Sunoco for these "probable violations."

- On July 8, 2016, the federal government issued yet another Notice of Probable Violation and Proposed Civil Penalty against Sunoco Pipeline. This time, the government alleges that Sunoco failed to report a 2013 accident in which hazardous liquids leaked and ignited, causing a serious injury. The Notice of Probable Violation identifies a total of 15 violations of the pipeline safety regulations related to the 2013 accident, and proposes a civil penalty of over $1.5 million. The government alleges that Sunoco's failure to properly identify the root cause of an earlier, 2009 accident, allowed the recurrence of the same type of accident in 2013. The failure to report an accident is a serious concern, because, as discussed above, the federal regulator requires such self-reporting and relies on it almost entirely. When a million-and-a-half-dollar fine is imposed in connection with failure to make a required report, it is reasonable to doubt that we know the full scope and scale of the environmental damage caused by Sunoco operations.

5. Protection of the Chesapeake Bay and other watersheds should take priority.

In coordination with other Commonwealth agencies, and partly in response to the U.S. Environmental Protection Agency withholding $3 million from Pennsylvania, the Department has launched a Chesapeake Bay restoration strategy, or "reboot." The strategy rightly focuses on agriculture in order to reduce nutrient load in the Susquehanna River Watershed and, ultimately, the Bay. The Department, however, should not ignore the role that pipelines such as Mariner East 2 can play in destroying riparian buffers at water crossings, creating linear pathways for increased sediment load in waterways, and reducing the efficacy of wetlands in cleaning and storing water that makes its way into the Bay. The Susquehanna River Basin is already one of the most flood-prone basins in the nation.

25 Pa. Code § 105.21(a)(3) provides that "a permit application will not be approved unless the applicant demonstrates that ... [t]he proposed project or action will adequately protect public health, safety and the environment." As explained elsewhere in this comment, Sunoco proposes to build Mariner East 2 in a manner that causes needless harm to wetlands and waterways. The

pipeline as planned would snake through roughly 147 miles of the Susquehanna River Watershed, which drains to the Chesapeake. The pipeline's impacts would be substantial, and would threaten the safety and sanctity of the Chesapeake Bay.

The Project would also involve water crossings and land disturbance in the Schuylkill River Watershed, which was awarded an EPA Targeted Watershed Award. The Targeted Watershed Grant is an EPA program designed to encourage successful community-based approaches and management techniques to protect and restore the nation's waters. The Department should give extra consideration of its stewardship of watersheds specially invested in by EPA for protection.

6. Miscellaneous additional comments

In addition to the above substantive comments, Citizens offer the following for the Department's consideration:

- As the Department is well aware, Article I, Section 27 of the Pennsylvania Constitution provides that "The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people." In light of the numerous deficiencies in Sunoco's applications and great harm the Project would inflict on the "natural, scenic, historic and esthetic values of the environment" in Pennsylvania, Citizens believe Article I, Section 27 requires strict scrutiny of Sunoco's applications, and the utmost diligence in protecting our natural environment.

- Sunoco has mobilized a large number of its supporters to argue that this Project is needed to provide jobs, to exploit Pennsylvania's resources, and for other non-environmental reasons. Because Pennsylvania has already made the policy choice to prioritize wetlands preservation, *see* 25 Pa. Code § 105.17, potential economic upsides are not a consideration in permitting projects that would obstruct or encroach upon jurisdictional wetlands, such as Mariner East 2. 25 Pa. Code § 105.16(e).

- Sunoco's alternatives analysis is lacking in other ways than those described above. Notably it fails to consider other major possible routes. Sunoco possesses additional pipeline infrastructure that could carry natural gas liquids east-to-west. Its pipeline from Icedale in Chester County west to Allegheny County should have been considered in place of the proposed route for Mariner East 2, just as Mariner East 1 was largely built from a repurposed, pre-existing line. Also, Sunoco's No-Action Alternative is deficient. First, the purpose of the Project is not and has never been to serve local or domestic markets, despite Sunoco's claims. Second, Sunoco argues for need for the Project based on "growing energy demand" and a need to obtain "natural gas supplies." The Project would not deliver natural gas, it would deliver natural gas liquids, which would overwhelmingly be used as petrochemical feedstocks, not to combust for energy. Third, Sunoco makes it sound as if this pipeline would be replacing truck and rail shipments of natural gas liquids to Marcus Hook. That is completely wrong. As the Department is

well aware from its Air Quality Program's permitting of the 23-0119 series plan approvals for the Marcus Hook Industrial Complex, Sunoco is just now beginning to outfit Marcus Hook for receiving, processing, storing, and distributing natural gas liquids. Large-scale, long-distance road or rail hauling of NGLs to Marcus Hook has not been economically viable and has not happened.

- Sunoco's HDD Inadvertent Release Contingency Plan includes notifications for governmental agencies in case of drilling spills in wetlands or streams, but contains no provision for notification of the landowners whose property and/or well water is contaminated--and no notification provision whatsoever for an upland drilling spill. Over three million Pennsylvanians depend on water wells for their water supply. Sunoco erroneously claims in its Environmental Assessment Forms that the impacted water resources are not "part of or located along a private or public water supply." Given the abundance of private water supplies and the hundreds of miles of pipeline, the chance of this being accurate is essentially nil. Nowhere in its applications does Sunoco substantiate this claim. Sunoco's failure to provide notification for spills that could affect private water supplies endangers landowners along the Project route. If the Department issues these permits, it should be conditional on (among other things) adequate landowner spill notification.

- The only location-specific information Sunoco's Preparedness, Prevention, and Contingency Plan contains is hospital and governmental information. Sunoco is unprepared to address, for example, evacuations of sensitive populations near the pipeline route. This is not a trivial concern. Sunoco plans to build Mariner East 2 in large part in an existing right-of-way with active, high-pressure hazardous liquids pipelines. Citizens refer not only to Mariner East 1. In some locations there are additional pipelines, not always well plotted or marked. Should the construction rupture an active pipeline, there could very well be a repeat of the recent tragedy in Salem Township, Westmoreland County, in which a man nearly died fleeing a transmission pipeline explosion in a nearby farm field. Mariner East 2 would also cut through Salem Township. If such an incident occurred in densely populated Chester or Delaware Counties, the disaster could be of historic proportions.

7. The Department should restart the comment period only after the applications are complete.

Should the Department decide not to reject Sunoco's applications at this stage, Citizens respectfully request that the Department restart the public comment period only after Sunoco corrects and completes its incomplete applications. As documented above, as of the end of the public comment period, Sunoco's applications are incomplete and technically deficient. The public should have the opportunity to comment on *full* permit applications.[31]

[31] The public has also been needlessly confused by the description of the Project variously as the "Pennsylvania Pipeline Project," "Mariner East II," (both descriptions in the Pennsylvania Bulletin notices), "Mariner East 2," "Mariner East 2X," and just plain "Mariner East." This confusion has impeded the public review and comment process, as the public does not know what information and project descriptions are associated with which names.

Also, the technical analysis of these applications is a lengthy, expensive, involved process which the public has not been able to fully perform even on the parts of the applications Sunoco has submitted. Not even the Department has been able to complete its technical review. The Department started its technical review shortly before notice of the public comment period and has set a target date for completion of October 26, 2016. It is right that the Department is giving itself time to do a thorough technical analysis, though it should have not given up on getting Sunoco to complete its applications first. But the Department should recognize that a Project of this size requires an unusually long period for the public to do its own technical analysis as well.

Those who would be harmed by the building of the pipeline are Pennsylvanians from all walks of life, most of whom have not had adequate time to pore over the literally thousands of pages of technical documents in Sunoco's applications. It can be overwhelming. The Department should give impacted people meaningful opportunities to protect their lives and their livelihoods by weighing in on the Project during the public comment period.

The public comment periods for Mariner East 2 should also be coordinated. On August 6, 2016, the Department published in the Pennsylvania Bulletin a Notice of Sunoco's Chapter 102 (earth disturbance) applications for coverage of the Mariner East 2 pipeline project under three (3) "General Permits" (ESCGP-2), one for each Department Region. The Notice established a 30-day public comment period ending September 6, 2016, but *no* associated public hearings were announced. The Department is reviewing Sunoco's Chapter 102 and Chapter 105 permit applications for Mariner East 2 at the same time. Therefore, the Department should establish public comment periods of the same duration and schedule public hearings for these companion permits. Furthermore, the U.S. Army Corps of Engineers has announced a public comment period ending August 30, 2016 for Sunoco's Mariner East 2 Section 404 (wetlands) permit applications which are reviewed by the federal agency under the Clean Water Act together with the Department's Chapter 105 permit applications. All public comment periods and agency reviews for this project should be harmonized.

So that everyone has a fair chance to provide input on a major project that is projected to do great harm to the land and waters of this Commonwealth, Citizens respectfully request that the Department restart the public comment period only after Sunoco has completed its applications and the Department has made them publicly available. The Project here would have a comparable per-mile impact as the proposed Atlantic Sunrise pipeline project, for which the Department rightfully granted a 90-day Chapter 105 public comment period, but be a hundred miles longer. That restarted public comment period should be 90 days, and be enriched with public hearings, commensurate with a project of this unusual magnitude and potential destructive effect.

CONCLUSION

For the reasons set forth above, Citizens respectfully ask the Department to deny Sunoco's permit applications as incomplete and as proposing a course of action which would violate Chapter 105 in numerous, independent ways. If the Department instead allows Sunoco to complete or resubmit its applications, Citizens ask the Department to open a public comment period only after the Department has received complete applications from Sunoco.

Thank you for the opportunity to comment. Please keep us apprised of any future actions related to Sunoco's applications for these Chapter 105 permits.

Sincerely,

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DEP SOUTHCENTRAL OFFICE
CLEAN WATER PROGRAM

Exhibit A

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In re: Wetland and Stream Impacts of Sunoco's Mariner East II Pipeline

Dear Ms. Braverman and Mr. Minott:

At your request, Dr. James Schmid and I have conducted a preliminary review of the project proposed by Sunoco Pipeline, LP, known as the Mariner East II Pipeline Project (also known as the Pennsylvania Pipeline Project). The Project involves two parallel pipelines which will extend across 306 miles and 17 counties in Pennsylvania. The pipelines are proposed to cross 1,808 aquatic resources (**Table 1**), including 1,227 streams, 570 wetlands, and 11 ponds as identified by the applicant's consultant, Tetra Tech. Although we have not had the opportunity to thoroughly review and evaluate all of the files, reports, and maps included in the Chapter 105 and 102 permit applications for this project, we have seen enough to have significant concerns about the accuracy and completeness of the information provided by the applicant to the PADEP. Our concerns are discussed below.

1) Basic information about the project has been withheld or made difficult to obtain.

The precise location of the 300+-mile section of the Mariner East II pipeline route that crosses Pennsylvania is depicted on hundreds of individual large-scale drawings. The location also is identified on a GIS shapefile that can easily be incorporated into a GIS mapping program. Such shapefiles were provided, at minimum, to the various resource agencies responsible for determining potential impacts to threatened or endangered species of plants and animals (US Fish & Wildlife Service, PA Department of Conservation and Natural Resources, PA Game Commission, PA Fish & Boat Commission) in conjunction with the DEP-required PNDI screening process. It is likely that the applicant provided DEP and the other agencies with updated shapefiles when it provided a complete set of updated/revised site plan drawings in late May 2016. Use of the shapefile makes understanding and evaluation of the project much simpler, not only for the Department and its sister agencies, but also for the public, because the pipeline location can be enlarged accurately and compared directly with available data. Yet public access to this valuable record was exceedingly difficult.

*** In future pipeline and other large linear projects, the Department should insist that the applicant provide it with a shapefile of the proposed route, and with updated shapefiles whenever the proposed route is revised.**

*** If feasible, those shapefiles (or others) that show the exact limits of proposed disturbance should also be made available to the Department.**

*** The Department should make all of those shapefiles available to the public in online files that include other detailed information about the application.**

2) The project details keep changing.

Neither DEP nor the public can adequately review/evaluate this project when at-risk resources (wetlands, streams, floodways, etc.) are being added and the proposed LOD is changing.

For example, in Huntingdon County: E&S Sheet 33 (Aerial Site Plan Sheet 21)

- LOD (limit of disturbance) for "*ATWS for equipment storage and staging area for HDD*" has been revised (reduced)
- A wetland (WL-JH2) has been added (This is within the former LOD area which now has been reduced to avoid/exclude it)
- A stream (S-L45A) has been added, along with its 50-foot wide floodway (This stream is within the former LOD area which now has been reduced to avoid/exclude it, although its "new" associated floodway extends into the reduced LOD)

The above changes are shown on the revised (May 2016) drawings for Huntingdon County, but are not listed in the May 2016 "LOD Changes" for Huntingdon County (which list encompasses 3 pages). It is gratifying to see that impacts have been reduced, although the application states that the initial plans already had incorporated impact "minimization". It is likely that additional opportunities for impact reduction still exist.

*** In light of the fact that there are 16 other counties, there likely are many other changes made throughout the route which have not been identified, listed, or evaluated in the current set of plan information available to the public.**

*** No approvals should be granted until the application paperwork is complete and is internally consistent.**

*** Impacts on streams and wetlands must be reviewed closely by the Department to make sure that impacts have in fact been minimized.**

3) There are significant discrepancies in the information presented in the application and public notices of the application, particularly in the SWRO counties.

Notices of these Chapter 105 permit applications were published in the *Pennsylvania Bulletin* (10 October 2015 for the 5 counties in the SWRO; 25 June 2016 for the 10 counties in the SCRO and the 2 counties in the SERO). In the case of the SWRO counties (**Table 2**), wetland and stream impacts as listed in those notices differ, in some cases significantly, from the wetland and stream impacts listed in either the E&S

drawings or the Aquatic Resources Impact Summary tables compiled by county by Tetra Tech for the applicant and included in the Environmental Assessment Form section of the Chapter 105 permit applications (Table 2, dated 24 May 2016).

*** A new *Pennsylvania Bulletin* notice should be published for the SWRO counties with complete and updated information about proposed impacts, and for the SCRO and SERO if appropriate, once accurate information has been obtained.**

All of the Public Notices, as well as the "Project Description" included with each of the Chapter 105 applications, describes the Project as extending 306 miles, beginning in Houston Borough, Washington County and ending at the Marcus Hook facility in Marcus Hook Borough, Delaware County. In fact, the site plan drawings show that the project begins in Chartiers Township, Washington County, about 2.4 miles west of Houston Borough. The site plans also show that the project ends in Upper Chichester Township, Delaware County, approximately 2.8 miles north (along the existing Mariner East route) of Marcus Hook Borough.

*** If indeed the project begins and ends where it claims to, the discrepancies with the site plans should be explained and/or corrected, and new public notices should be published. Any sections of the route that have been omitted should be inventoried and assessed before any further review of this application takes place.**

4) Significant resources at risk have been omitted.

Multiple examples of this have been found in the current application, although our analysis has focused only on very few sections of the pipeline route and project files, given the constraints of time and budget.

In Washington County, two stream crossing impacts are not identified or evaluated because the streams themselves are not shown on project drawings. On aerial site plan Sheet 30 of 37 (and E&S Sheets 51 and 52 of 62) for Washington County, no stream crossing is identified west of Beagle Club Road. In fact there are two streams to be crossed by the proposed pipelines in this location: the western one is within a forested area and is identified as Trib 39596 (tributary to Mingo Creek) according to the PA Hydrography provided by PASDA. The second is close to the west side of Beagle Club Road; it is identified as Trib 39595 (tributary to Mingo Creek) according to the PA Hydrography. These streams, both of which are designated High Quality (HQ-TSF), also are shown as blue-line streams on the USGS topographic quadrangle, and as intermittent streams on the printed USDA county soil survey (for Greene and Washington Counties; Siebert et al. 1983). No explanation is provided for the exclusion of these streams which presumably will be crossed by open cut construction methods.

*** The omission of obvious streams raises questions regarding the accuracy of the delineation of smaller streams, and thus we strongly recommend that all stream (and wetland) delineations be reviewed in the field by the Army Corps of Engineers.**

5) Significant discrepancies in the location and type of wetlands delineated have been found.

The applicant states that there are 581 wetlands to be impacted along the pipeline ROW in Pennsylvania. This total includes 11 ponds, so the net total is 570 vegetated wetlands. Tetra Tech has split some of the delineated wetlands into more than one type (PEM, PSS, or PFO), and has listed and calculated actual impacts separately for each wetland type, of which there are 646 (see **Table 3**). For the present purpose, we count each crossing of the 646 wetland types listed by Tetra Tech as being a separate impact.

The overwhelming majority of wetlands identified by the applicant within the construction ROW of the proposed pipeline have been classified as herbaceous or emergent PEM wetlands (527 of 646, 85%). Only 73 (11%) identified wetlands are listed as forested PFO wetlands. This is somewhat surprising since much of the route passes through rural parts of "Penn's Woods", where the USFWS National Wetland Inventory three decades ago found that most vegetated wetlands (51%) were forested and only 16% were emergent (Tiner 1987[1]).

The applicant can claim less impact if a wetland to be crossed is PEM rather than PFO. In the former case there is no necessary change in wetland type, but in the latter, wetland forest will be permanently converted to and maintained as emergent or scrub wetland in the section of the ROW that will be maintained for inspection, access, and maintenance purposes. (Note: the March 2016 Mitigation Plans state that existing forest or scrub wetlands within the permanent ROW will be *allowed to revert* to an emergent/scrub wetland and "no mowing" signs will be installed; there is no commitment that herbicides will not be used.)

The following are but two examples where the applicant's characterization of an impacted wetland as PEM appears to be questionable.

In Jackson Township, Cambria County, within Gallitzin State Forest, the proposed pipeline crosses a stream and wetland complex. The wetland has been delineated as applicant's **Wetland N33** and it is identified as EV. The stream is a perennial waterway delineated as applicant's **Stream N53** - an unnamed tributary to Laurel Run (UNT # 45038) which is designated HQ-CWF and is listed as a wild trout water (thus the Exceptional Value Wetland classification).

This Exceptional Value Wetland is characterized by the applicant as PEM, but the site plans and available airphotos show its vegetation as herbaceous only within the existing pipeline ROW, where no new work is proposed. Instead, where the new construction is proposed just south of the existing ROW, this wetland clearly is wooded, as shown on the aerial photos and by the "existing tree line" on the E&S plan drawings. Thus, this impacted Exceptional Value Wetland should have been classified as PFO.

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[1] Tiner, Ralph W., Jr. 1987. Mid-Atlantic wetlands: a disappearing natural treasure. US Fish & Wildlife Service. Newton Corner MA. 28 p.

Mischaracterizing this wetland as PEM understates the short and long-term impacts that pipeline construction will have here, because instead of a temporary disruption of an herbaceous wetland, there will be a permanent conversion of a forested wetland to herbaceous wetland (or to upland if the proposed restoration is not successful).

A second example is in Jackson Township, Perry County, within the Tuscarora State Forest (aerial site plan Sheet 19 [of 21] and E&S Plan Drawing 31 [of 35]) . Laurel Run (designated EV), which flows south to north, has been delineated by the applicant as **Stream J60**. About 700 feet to the east is applicant-delineated **Stream J63** (UNT to Laurel Run, designated HQ-CWF). These two streams occupy a relatively broad and flat area in an otherwise steeply sloping setting, which area is mapped in the county soil survey as Middlebury (Mf), a somewhat poorly drained floodplain soil series with unmapped inclusions of hydric Holly soils, according to the Web Soil Survey.

Along Laurel Run the applicant delineated a narrow PEM wetland (**J56**). Just west of Stream J63 the applicant delineated another narrow but slightly longer PEM wetland that it apparently divided into 4 different PEM wetlands that join with one another: **J57, J58, J59,** and **21E.** The separations between the 4 wetlands are not indicated on the plan. As noted above, in some places the applicant identified a single wetland as having more than one type, which is not unreasonable. In this case, the applicant did just the opposite: identified four separate wetlands that all are the same type and connected together. More important than this odd mapping convention, however, is the fact that the actual extent of wetland here is likely to be much larger than has been mapped, in light of its landscape position at the base of steep slopes on a broad, flat floodplain adjacent to the streams.

In the above case, most of the mapped wetlands are *not* within the existing pipeline ROW, which is the only cleared and herbaceous area cutting through this forest. Indeed, the site plan drawings show that the proposed pipeline is to be constructed in the woods just to the north of the existing pipeline. Thus, the applicant's characterization of most of these wetlands as PEM appears to contradict both the aerial photographs and the applicant's E&S drawings which show all of the wetlands to be impacted as within the "existing tree line".

At one property that we inspected in the field (Union Township, Huntingdon County), we found and flagged the limits of more aquatic resources within the proposed LOD than the applicant had delineated. As a result of the additional resources we identified, the actual aquatic resource impacts at that property will be significantly higher than proposed or acknowledged by the applicant, by the amounts noted below:

	Sunoco	Schmid & Co.	Difference
Pond Impacts	0 sq. ft.	1,415 sq. ft.	+ 1,415 sq. ft
Stream Impacts	168 lin. ft.	268 lin. ft.	+ 100 lin. ft.
Wetland Impacts	1,176 sq. ft.	5,955 sq. ft.	+ 4,779 sq. ft.

*** In light of the several discrepancies discussed above, which are based on a very limited review of project files and field inspection, the nature (as well as**

the delineated extent) of each of the wetlands and streams to be impacted along the entire 300+ mile pipeline route should be thoroughly and carefully reviewed in the field and confirmed as accurate (or adjusted as necessary) by the Army Corps of Engineers in the course of permit review.

6) The extent of Exceptional Value Wetlands along the pipeline ROW likely has been underestimated.

Exceptional Value Wetlands are important for several reasons. In accordance with 25 Pa. Code Chapter 105, all wetlands are "*a valuable public natural resource*", but any wetland that qualifies as an Exceptional Value Wetland is among the most sensitive to human disturbance and "*deserves special protection*". Exceptional Value Wetlands in Pennsylvania are defined at §105.17(1) as wetlands that exhibit one or more of the following characteristics:

> (i) Wetlands which serve as habitat for fauna or flora listed as "threatened" or "endangered" under the Endangered Species Act of 1973, the Wild Resource Conservation Act, 30 Pa. Code. (relating to the Fish and Boat Code), or 34 Pa. Code (relating to the Game and Wildlife Code).
>
> (ii) Wetlands that are hydrologically connected to or located within 1/2-mile of wetlands identified under subparagraph (i) and that maintain the habitat of the threatened or endangered species within the wetland identified under subparagraph (i).
>
> (iii) Wetlands that are located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 (relating to water quality standards) and the floodplain of streams tributary thereto, or wetlands within the corridor of a watercourse or body of water that has been designated as a National wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 or designated as wild or scenic under the Pennsylvania Scenic Rivers Act.
>
> (iv) Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.
>
> (v) Wetlands located in areas designated by the Department as "natural" or "wild" areas within State forest or park lands, wetlands located in areas designated as Federal wilderness areas under the Wilderness Act or the Federal Eastern Wilderness Act of 1975 or wetlands located in areas designated as National natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935.

Furthermore, those wetlands which qualify as Exceptional Value Wetlands in accordance with §105.17(1), by definition are Exceptional Value Waters in accordance with 25 Pa. Code Chapter 93 Water Quality Standards. Any water that is a "*surface water of exceptional ecological significance*" per §93.4b(b)(2) is an Exceptional Value Water. One specific example of a *surface water of exceptional ecological significance* as stated in Chapter 93 is:

> Wetlands which are Exceptional Value Wetlands under §105.17(1).

Along the proposed pipeline route a total of 129 wetlands has been identified as Exceptional Value (**Table 4**) according to tables prepared for the applicant by Tetra Tech and dated 24 May 2016. Consequently, Exceptional Value wetlands represent 20% of all wetlands to be impacted by construction of the Mariner East II pipeline project. Five different bases are listed by Tetra Tech for considering a wetland to be Exceptional Value (wild trout, EV stream, scenic river, bog turtle habitat, rare plant), and in some instances, a wetland is categorized as Exceptional Value on more than one basis (*e.g.*, in Cumberland County, two wetlands are so classified on the basis of "Wild Trout, Scenic River"). By far the most common basis is §105.17(1) criterion "iii" (n=112; 87%), which includes wetlands within the floodplain of a wild trout water (n=107), wetlands within the floodplain of an EV stream (n=3), or wetlands within the corridor of a designated scenic river (n=2). Seventeen wetlands are identified as Exceptional Value on the basis of §105.17(1) criterion "i" and/or "ii" including bog turtle habitat (n=15) and a threatened/endangered plant (n=2).

Several wetlands within the ROW are listed by Tetra Tech as being Exceptional Value wetlands on the basis of their position along Wild Trout streams, but they also are Exceptional Value wetlands on the basis of being in the floodplain along an EV stream (which association is <u>not</u> mentioned in the application). These include:

Berks County Wetland H21
Berks County Wetland Q80
Perry County Wetland J56

At least two applicant-delineated wetlands are located along EV streams, and thus qualify as Exceptional Value Wetlands, but they are not so listed by Tetra Tech (nor are their impacts calculated as Exceptional Value Wetland impacts). These include:

Berks County Wetland W301: along EV Hay Creek, proposed to have a 55-foot open cut crossing, and an impact of 0.02 acre

Chester County Wetland A46: along EV UNT to South Branch French Creek, proposed to have a 16-foot open cut crossing, and an impact of 0.015 acre

No wetlands along the 300+-mile section of proposed pipeline route in Pennsylvania were determined to be Exceptional Value on the basis of either of the other two §105.17(1) criteria ("iv" or "v"). We concur that none of the wetlands along the Mariner East II route is likely to qualify as exceptional value in accordance with §105.17(1) criterion "v". Although the proposed pipeline passes through many State Parks and State Forests, there currently are no PADEP-designated "natural" or "wild" areas within those State lands where the Mariner East II pipelines are proposed, nor are there any Federally-designated Wilderness Areas or National Natural Landmarks within the ROW.

There are, however, quite likely to be wetlands proposed to be impacted that qualify as Exceptional Value in accordance with §105.17(1) criterion "iv" [*Wetlands located along an existing public or private drinking water supply, including both surface water and groundwater sources, that maintain the quality or quantity of the drinking water supply.*] The proposed pipeline route passes through rural areas where many residents obtain

their drinking water from onsite wells (indeed, more than 3 million Commonwealth residents currently rely on private wells for their drinking water supply). In addition, there are more than 14,000 public water supply systems throughout the State. One of the most widely recognized functions of wetlands[2] is their ability to absorb or filter pollutants such as nitrogen, phosphorus, and sediments and thereby to provide an important water quality benefit. Where wetlands are located above or along public or private drinking water supplies, that water quality enhancement function is particularly significant. It is quite unlikely that none of the 646 identified wetland parcels to be crossed by these pipelines is helping to maintain the quality or quality of some drinking water supply. Any such wetlands along the Mariner East II Pipeline route would qualify as Exceptional Value Wetlands under criterion "iv". Yet this application includes no discussion at all about this criterion, nor does it describe or even mention whether any of the wetlands along the propose route is located above or along a public or private drinking water supply.

*** The applicant should be required to complete its wetland assessment by addressing §105.17(1) criterion "iv", and updating its list of impacted Exceptional Value Wetlands accordingly.**

7) The existing uses of streams have not been identified.

The Pennsylvania Department of Environmental Protection is required by 25 Pa. Code §93.4c(a)(1)(i) to protect the existing uses of surface waters, and it is required by 25 Pa. Code §93.4c(a)(1)(iv) to make a final determination of existing use protection for surface waters as part of every final permit or approval action. According to the PADEP Chapter 105 permit applications, the Mariner East II pipelines will require a total of 1,227 stream crossings. Of those, 337 (27%) involve streams currently *designated* as Special Protection waters (318 are High Quality, 19 are Exceptional Value -- **Table 5**). Some of those with lesser designations, but particularly those already designated as HQ, and especially those which are first or second order streams and which are in undisturbed forested condition, may actually be attaining EV *existing* use, and if so, they must be protected at that higher use. We have found instances in both eastern and western Pennsylvania where EV existing uses have been recognized in HQ-designated streams when examined and assessed in the field. None of the applicant's stream use classifications is based on any detailed original macroinvertebrate assessments conducted in streams to be crossed by the proposed pipeline project. Although ultimately it is the PADEP's responsibility to make the existing use determinations of streams, such determinations are to be based at least in part on information provided by the applicant. In this case, the applicant has failed to provide the information necessary for timely decisionmaking by the PADEP.

*** The existing use of each stream to be crossed and impacted by the proposed pipeline must be determined from instream macroinvertebrate assessment.**

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[2] PADEP Fact Sheet 3930-FS-DEP1434 (2003): *Wetlands: Functions at the Junctions.* http://www.buckinghampa.org/ media/4328/value-of-wetlands.pdf

If any stream which currently is designated HQ, CWF, or something else in fact is found to have EV existing uses, any wetlands within its floodplain are Exceptional Value Wetlands.

*** Once the existing uses of streams to be impacted have been determined, the applicant must update its tally of EV streams and evaluation of Exceptional Value Wetlands as appropriate.**

8) Antidegradation not evaluated for wetlands.

Both Exceptional Value (EV) and High Quality (HQ) waters in Pennsylvania are entitled to Special Protection to prevent degradation when construction activities are being considered. Those waters identified as Exceptional Value Waters in Pennsylvania are *Tier 3 Outstanding National Resource Waters* in the terms of the federal Clean Water Act. Such waters are to receive the highest level of protection; *viz.*, no degradation of their quantity and quality is lawful. EV stream protection is even more stringent than that applied to High Quality waters, for which socioeconomic justification can be used as a rationale for allowing partial degradation by discharges. Exceptional Value Wetlands, because they are EV Waters, are to be afforded the same antidegradation "special protection" as streams that have been designated EV Waters, that is, no reduction of their existing uses is to be allowed by federal and State laws.

None of the proposed impacts to Exceptional Value Wetlands has been evaluated by the applicant in terms of compliance with the Pennsylvania antidegradation requirements prescribed at 25 Pa. Code Chapter 93.4a. According to the PADEP Water Quality Antidegradation Implementation Guidance (Technical Guidance Document 391-0300-002; 29 November 2003; page 39) existing uses must be maintained and protected whenever an activity (including construction) is proposed which may affect a surface water.

*** Before it issues any permit, the PADEP must ensure that none of the impacts to EV Waters (including acknowledged and currently unrecognized Exceptional Value Wetlands) will result in any degradation of water quality.**

According to the PADEP Water Quality Antidegradation Implementation Guidance (page 60) limited activities that result in temporary and short-term changes in the water quality of Exceptional Value Waters can be allowed, but only if all practical means of minimizing such degradation will be implemented. One practical way to minimize impacts to sensitive surface features such as wetlands, and especially Exceptional Value Wetlands, is to use bore or HDD drilling methods that go beneath the aquatic features and cause no surface disturbance during pipeline construction.

Table 6 identifies the number of instances where impacts to all wetlands, to Exceptional Value Wetlands, and to EV streams have been minimized by proposed use of boring or HDD methods. It shows that only a small percentage of Exceptional Value Wetlands

(and no EV streams) will be protected by the use of methods that are likely to cause the least disturbance. Clearly, Sunoco could have done more to minimize impacts:

- only 129 of 646 (20%) wetland crossings will have impacts minimized by HDD/boring methods,
- only 37 of 129 (29%) crossings of Exceptional Value Wetlands have been minimized in this way, and
- none of the 19 proposed crossings of EV streams is to be done by HDD methods.

*** Because a pipeline is not a water-dependent activity, and does not need to be located in a watercourse or wetland, the applicant has not adequately explained or justified how the 92 open cut crossings of Exceptional Value Wetlands or the 19 crossings of EV streams will not result in any degradation of their existing water quality.**

9) Cumulative impacts to acknowledged streams and wetlands are significant.

Construction of the Mariner East II pipelines will result in 39.124 acres of applicant-acknowledged wetland impact, a significant impact for a single project. The applicant concedes that most of that impact will be permanent (35.323 acres -**Table 7**) according to PADEP definitions, but argues that the impacts are minimal because there will be no permanent fill that changes wetlands to uplands and most of the wetland disturbance will be temporary. The applicant asserts that its primary unavoidable impact involves a negligible conversion of 0.72 acre of forested wetland to emergent/scrub wetland, because an open corridor is needed for inspection and maintenance of the permanent ROW. For acknowledged Exceptional Value Wetlands, the applicant concedes 129 impacts totaling 6.78 acres, and permanent conversion in 7 instances totaling 0.334 acre. For streams, there are acknowledged to be 318 crossings of High Quality streams and 19 crossings of Exceptional Value streams, but some existing streams have not been identified or classified.

*** As discussed above, there are apparent discrepancies in the identification of streams and wetlands to be impacted --- some wetlands appear to be mischaracterized as PEM when in fact they are PSS or PFO, and some Exceptional Value Wetlands have not been identified as such. Until the delineation of wetlands and streams is reviewed in the field and confirmed as accurate (or adjusted as appropriate), the cumulative extent of impacts from this project cannot be known.**

10) Impacts to acknowledged Exceptional Value Wetlands have not been fully evaluated.

As part of each of the seventeen Chapter 105 applications (one for each county crossed), an "Alternatives Analysis" has been submitted. Most, but not all, of those Alternatives Analyses describe each of the proposed crossings of acknowledged Exceptional Value Wetlands and discuss why it is necessary. In 5 counties, no pipeline-impacted Exceptional Value Wetlands were identified by the applicant, so no such

analysis was deemed necessary. In 8 counties, all of the identified impacts to Exceptional Value Wetlands were discussed. In Blair County, however, only 15 of the 18 identified Exceptional Value Wetland impacts were discussed. In Cumberland County, only 9 of the 10 Exceptional Value Wetland impacts were discussed. In Cambria and Indiana counties, where pipeline impacts to 21 and 12 Exceptional Value Wetlands (respectively) were identified by the applicant, there was no discussion of any of them in the Alternatives Analysis. Overall, 37 (out of 129) Exceptional Value Wetlands proposed to be crossed by this pipeline have not been evaluated in terms of potential alternatives to avoid or minimize impacts.

*** This omission represents an inconsistent treatment of an important resource at risk which must be corrected before review of these applications continues.**

11) Monitoring of restoration of temporary impacts needs to be clearly established and enforced to ensure that those impacts do not become permanent.

Construction of the Mariner East II project is acknowledged by the applicant to impact more than 39 acres of wetlands and 10 linear miles of streams. According to the applicant, most impacts will be short-term: no streams will be relocated, fill placed in wetlands will not convert any wetlands to uplands, and pre-construction biotic communities will be restored. Atop the two new parallel pipelines spaced 10 feet apart, however, no forest conditions will be allowed to be restored in wetlands or uplands so as to facilitate future inspections of the 50-foot wide permanent ROW. Most streams and 517 (80%) of the wetlands crossed by the pipelines will be crossed by open-cut trenches that are to be refilled after the pipes have been laid. The applicant asserts that the pipeline construction impacts will be temporary and insignificant, even for the 92 acknowledged Exceptional Value Wetlands to be open-cut (71% of the total EV wetlands crossed).

The most recent and detailed requirements for monitoring of restoration following temporary construction disturbance are set forth in US Army Corps of Engineers Regulatory Guidance Letter 08-03 dated 10 October 2008. The Pennsylvania Corps districts adopted a form for reporting PASPGP-5 projects with temporary wetland impacts on 13 May 2016. A separate monitoring report is supposed to be required for each wetland open-cut impact location. The RGL 08-03 requirements were prepared in response to severe criticism from the congressional Government Accountability Office and the National Academy of Sciences regarding lack of documentation of required mitigation nationwide. Although required by permit conditions, incomplete or absent mitigation was allowing unnecessary damage to wetlands.

The 2016 PASPGP-5 monitoring form now requires dated photographs to be taken from the same monitoring viewpoints and orientations at each site to show the entire wetland impact location (1) prior to the start of construction, (2) within seven days of the completion of construction, and (3) at the conclusion of the first growing season post-construction (no later than 31 October). Followup reports on restoration are required

annually for five years, unless otherwise specified by permit conditions, presumably also requiring additional dated photographs. Corps districts are authorized either to suspend monitoring after successful landform, hydrology, and revegetation have been demonstrated over at least two growing seasons or to extend reporting for longer than five years.

*** The Department must comply with RGL 08-03 and Corps 2016 monitoring requirements, and these monitoring requirements must be made part of each PADEP permit issued per PASPGP-5.**

For the photodocumentation of successful restoration at each wetland impact location to be credible, all preconstruction photographs must be taken prior to the start of permitted construction. These photos should be submitted to the regulatory agencies, together with drawings showing the location and direction of each photograph location, at or prior to the required in-field preconstruction meetings regarding erosion and sediment control. Only by such means can regulators and the public be assured that pre-project baseline conditions have been accurately documented at each impact location.

*** The Department's inspectors should confirm that all wetland boundary fencing or flagging is in place and visible to contractor personnel in the field.**

No photographic documentation of *stream* crossing restoration currently is expected.

*** The agencies should correct this oversight and require pre- and post-construction photographs for all open-cut stream crossings as well as wetland crossings.**

12) The applicant is in violation of PADEP regulations.

The Chapter 102 E&S application states that the applicant is in violation of some Department permit, regulation, etc. (Section H page 16). Specific details are not provided. However, the answer is "no" to essentially the same question (see Section E beginning at the bottom of page 1) on the Chapter 105 (Joint Permit Application) form. The question is worded slightly differently on the two forms (only mentions "permits" in the Chapter 105 application), but presumably the intent is the same. In any event, the specific "violations" admitted to in the E&S application for the Mariner East II pipeline project are **not** provided to the public in the PADEP's online files, and possibly are not in the PADEP files either.

*** Review of the application should not have begun until all required information was provided to PADEP.**

*** PADEP should be certain that all outstanding violations are corrected prior to the issuance of any permit approval.**

13) The PADEP should not place too much reliance on a signed/sealed certification from a licensed engineer --- it should do its own evaluation.

In its technical deficiency letter to Sunoco dated 7 December 2015, the DEP-SWRO notes that

> the proposed water obstructions or encroachments could pose a threat to human life or substantial potential risk to property

and then requests that a certification be added to the site plans signed/sealed by a registered professional engineer stating that

> the information contained in the accompanying plans, specifications and reports has been prepared in accordance with accepted engineering practice, is true and correct, and is in conformance with Chapter 105 of the rules and regulations of the Department of Environmental Resources.

In its response, the applicant added the requested statement and notes that it is stamped/certified by a professional engineer.

*** The public is less willing than the DEP to accept the accuracy and adequacy of the site plans on the simple say-so of the project engineer. This makes even more essential the availability online of all current application materials, including project plans, reports, and assessments, in digital format, so that the public can have access to those materials and provide independent review.**

14) Other issues

- Is there any stated timeframe for restoring the outer ROW where disturbances are said to be "temporary"? (For the Army Corps of Engineers, "temporary" is one year or less.)

- Is there any stated timeframe for removing temporary access roads?

- According to Chapter 105.14 the Department is supposed to consider the "secondary" impacts "*associated with but not the direct result of the construction*" of the project, as well as associated "future impacts". For example, have health and safety issues such as leakage to private wells or risks of explosions been considered? We see no discussion of that in the application.

- According to Chapter 105.18a the Department is supposed to consider the cumulative impacts of this and other projects on possible impairment of Exceptional Value Wetlands. Has this been done?

- The applicant's offer (as set forth in impact avoidance and mitigation plan texts) to complete in-stream work in minor waterbodies (24 hours where <10 feet wide, 48 hours where <30 but >10 feet wide) should be reflected in the Site Restoration Schedule notes on the Soil Erosion and Sediment Control drawings.

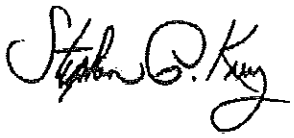
- The applicant has expressed willingness to "consider" standard FERC guidelines for interstate pipeline construction. Nowhere, however, has non-compliance

been identified by the applicant, and no justification is offered for proposed non-compliance with FERC guidelines. This omission must be corrected prior to permit approval. Notes on the Soil Erosion and Sediment Control drawings must repeat the applicant's claim (set forth in impact avoidance and mitigation plan texts) to keep vehicle fuels and other contaminants at least 100 feet from the nearest waterbody as well as to keep temporary soil stockpiles at least 10 feet back from stream banks.

- The Soil Erosion and Sediment Control notes currently do not highlight the applicant's plans to avoid placement of lime or fertilizer in temporarily impacted wetlands, but this language should be added to reflect the text of mitigation plans. Likewise, the drawings should clearly state that only annual rye grass is to be seeded into restored wetlands, not the various other seed mixes listed. The quantity of rye grass to be applied to wetlands and any seasonal limitations also must be specified.

Please let us know if you have any questions about any of the above.

Sincerely yours,



Stephen P. Kunz
Senior Ecologist

Acronyms Used in this Letter Report

ATWS	Additional Temporary Work Space
Corps	US Army Corps of Engineers
CWF	Cold Water Fishery
DEP (PADEP)	Pennsylvania Department of Environmental Protection
E&S	Erosion and Sedimentation
EV	Exceptional Value
FERC	Federal Energy Regulatory Commission
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
HQ	High Quality
LOD	Limit of Disturbance
PASDA	Pennsylvania Spatial Data Access (online)
PASPGP	Pennsylvania State Programmatic General Permit
PEM	Palustrine Emergent (Wetland)
PFO	Palustrine Forested (Wetland)
PSS	Palustrine Scrub-Shrub (Wetland)
PNDI	Pennsylvania Natural Diversity Inventory
RGL	Regulatory Guidance Letter
ROW	Right of Way

SCRO	Southcentral Regional Office, PADEP
SERO	Southeast Regional Office, PADEP
SWRO	Southwest Regional Office, PADEP
TSF	Trout Stocking Fishery
UNT	Unnamed Tributary
USDA	United States Department of Agriculture
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey

AUTHORSHIP

This letter report was prepared by Stephen P. Kunz with the assistance of James A. Schmid. Both are senior ecologists with Schmid & Company, Inc. Mr. Kunz has worked full-time as a private sector ecological consultant since receiving a degree in human ecology from Rutgers University in 1977. Dr. Schmid is a biogeographer with more than 40 years of experience in ecological consulting. He received his BA from Columbia College and his MA and PhD from the University of Chicago. Both Mr. Kunz and Dr. Schmid are certified as *Senior Ecologists* by the Ecological Society of America and as *Professional Wetland Scientists* by the Society of Wetland Scientists.

Mr. Kunz and Dr. Schmid offer outstanding credentials as experts in ecology, wetlands, environmental regulation, and impact assessment. They have analyzed the environmental impacts of many kinds of proposed development activities in numerous states, including pipeline facilities, coal mining projects, industrial facilities, transportation facilities, commercial developments, and residential developments. They have written Environmental Impact Statements under contract to the US Environmental Protection Agency, Army Corps of Engineers, Interstate Commerce Commission, various agencies of State and local governments, and a diverse array of private sector entities. They also have commented on and prepared analyses of state and federal environmental regulations.

Additional information about Mr. Kunz and Dr. Schmid and their work over the past four decades can be found at www.schmidco.com.

TABLE 1. Summary of aquatic resources to be crossed in Pennsylvania by the proposed Mariner East II Pipeline, according to the applicant (May 2016)

COUNTY	STREAMS	WETLANDS	PONDS	TOTAL
Southwest				
Allegheny	28	4	0	32
Cambria	163	87	1	251
Indiana	101	53	1	155
Washington	59	17	0	76
Westmoreland	152	66	3	222
Southcentral				
Berks	81	40	1	122
Blair	75	43	0	119
Cumberland	110	76	2	190
Dauphin	61	27	0	88
Huntingdon	120	58	2	180
Juniata	28	6	0	34
Lancaster	21	14	0	35
Lebanon	40	18	1	59
Perry	37	16	0	53
York	22	10	0	32
Southeast				
Chester	71	26	0	97
Delaware	58	9	0	67
TOTAL	**1,227**	**570**	**11**	**1,808**

TABLE 2. Discrepancies in information for the Mariner East II Pipeline, counties within the PADEP Southwest Regional Office area.

County	2015 Total Wetland Impacts (ac)[1]	2016 Total Wetland Impacts (ac)[3]	Proposed # Wetland Crossings 10/15[1]	3/16[2]	5/16[3]	Proposed # Stream Crossings 10/15[1]	3/16[2]	5/16[3]
Allegheny	0.36	0.36	3	4	4	28	28	28
Cambria	4.90	4.90	88	87	88	162	156	163
Indiana	1.41	1.49	50	53	54	104	101	101
Washington	0.30	0.54	11	17	17	51	59	59
Westmoreland	4.53	3.45	62	68	69	148	152	152
TOTAL	**11.50**	**10.74**	**214**	**229**	**232**	**493**	**496**	**503**

Data derived from Chapter 105 applications available online from the PADEP at http://www.dep.pa.gov/About/Regional/SouthwestRegion/Community%20Information/Pages/Mariner-East-Pipeline-II.aspx
as well as information in applications noticed in the 10 October 2015 *Pennsylvania Bulletin*.

[1] Pennsylvania Bulletin notice dated 10 October 2015, SWRO
[2] E&S Drawings, Sheet ES-0.03 (for each county), dated 20 March 2016
[3] Aquatic Resource Report, updated Tables 2 and 3 dated 24 May 2016, in Environmental Assessment Form section of Chapter 105 applications

TABLE 3. Summary of wetlands and wetland types to be crossed/impacted in Pennsylvania, Mariner East II, from tables prepared for the applicant by Tetra Tech (24 May 2016).

County	Total # Wetlands Impacted	# Ponds Impacted	Total # Wetland Types Impacted	Wetland Types -# PEM	# PSS	# PFO	Total # Except'l Value Wetlands
Allegheny	4	0	4	4	0	0	0
Cambria	88	1	106	80	13	13	21
Indiana	54	1	59	51	6	2	12
Washington	17	0	17	17	0	0	0
Westmoreland	69	3	72	63	3	6	0
SWRO Subtotal	**232**	**5**	**258**	**215**	**22**	**21**	**33**
Berks	41	1	41	37	2	2	16
Blair	43	0	49	38	4	7	18
Cumberland	78	2	85	73	2	10	10
Dauphin	27	0	32	24	2	6	0
Huntingdon	60	2	66	50	8	8	12
Juniata	6	0	6	5	0	1	1
Lancaster	14	0	15	13	0	2	6
Lebanon	19	1	21	18	0	3	5
Perry	16	0	21	16	3	2	15
York	10	0	11	9	0	2	0
SCRO Subtotal	**314**	**6**	**347**	**283**	**21**	**43**	**83**
Chester	26	0	30	23	2	5	12
Delaware	9	0	11	6	1	4	1
SERO Subtotal	**35**	**0**	**41**	**29**	**3**	**9**	**13**
Pipeline TOTAL	**581**	**11**	**646**	**527**	**46**	**73**	**129**

TABLE 4. Summary of Exceptional Value Wetlands to be impacted by the proposed Mariner East II Pipeline, from tables prepared by Tetra Tech on 24 May 2016, and the applicant's basis for classification as Exceptional Value.

			Basis for EV Classification by Applicant				
			Criterion iii			Criteria i and/or ii	
County	Total # Wetland Types	Total # Except'l Value	(iii) Wild Trout	(iii) EV Stream	(iii) Scenic River	(i) or (ii) Bog Turtle	(i) or (ii) Rare Plant
Allegheny	4	0	-	-	-	-	-
Cambria	106	21	19	0	0	0	2
Indiana	59	12	12	0	0	0	0
Washington	17	0	-	-	-	-	-
Westmoreland	72	0	-	-	-	-	-
SWRO Subtotal	**258**	**33**	**31**	**0**	**0**	**0**	**2**
Berks	41	16	15	0	0	1	0
Blair	49	18	18	0	0	0	0
Cumberland	85	10	4*	0	2	4	0
Dauphin	32	0	-	-	-	-	-
Huntingdon	66	12	12	0	0	0	0
Juniata	6	1	1	0	0	0	0
Lancaster	15	6	0	0	0	6	0
Lebanon	21	5	5	0	0	0	0
Perry	21	15	15	0	0	0	0
York	11	0	-	-	-	-	-
SCRO Subtotal	**347**	**83**	**70**	**0**	**2**	**11**	**0**
Chester	30	12	5	3	0	4	0
Delaware	11	1	1	0	0	0	0
SERO Subtotal	**41**	**13**	**6**	**3**	**0**	**4**	**0**
Pipeline TOTAL	**646**	**129**	**107***	**3**	**2**	**15**	**2**

* 2 of the wetlands listed on this table as "Wild Trout" actually are classified as Exceptional Value by Tetra Tech on the dual basis of "Wild Trout/Scenic River"

TABLE 5. **Mariner East II Pipeline impacts proposed to streams, including High Quality waters and Exceptional Value waters (per Tetra Tech, 24 May 2016). HQ and EV stream designations are based only on Chapter 93 listings; no existing use determinations have been made.**

County	TOTAL STREAM CROSSINGS	HIGH QUALITY STREAMS	EXCEPTIONAL VALUE STREAMS
Southwest	**(503)**	**(163)**	**(0)**
Allegheny	28	0	0
Cambria	163	74	0
Indiana	101	16	0
Washington	59	26	0
Westmoreland	152	47	0
Southcentral	**(595)**	**(110)**	**(12)**
Berks	81	20	11
Blair	75	5	0
Cumberland	110	18	0
Dauphin	61	0	0
Huntingdon	120	20	0
Juniata	28	0	0
Lancaster	21	11	0
Lebanon	40	0	0
Perry	37	36	1
York	22	0	0
Southeast	**(129)**	**(45)**	**(7)**
Chester	71	42	7
Delaware	58	3	0
TOTAL	**1,227**	**318** (26%)	**19** (2%)

NOTE: At least 5 HQ streams are not acknowledged in these totals:
2 in Washington County and 3 in Blair County

TABLE 6. Summary of wetland, Exceptional Value Wetland, and EV stream impacts proposed to be minimized by boring/HDD methods, Mariner East II, from tables prepared by Tetra Tech, 24 May 2016.

County	Total # All Wetland Type Crossings	Total # All Wetland HDD* Crossings	Total # EV Wetland Crossings	Total # EV Wetland HDD* Crossings	Total # EV Stream** Crossings	Total # EV Stream** HDD Crossings
Allegheny	4	0	0	-	-	-
Cambria	106	17	21	2	0	-
Indiana	59	10	12	0	0	-
Washington	17	0	0	-	0	-
Westmoreland	72	12	0	-	0	-
SWRO Subtotal	**258**	**39**	**33**	**2**	**0**	-
Berks	41	6	16	2	11	0
Blair	49	14	18	9	0	-
Cumberland	85	14	10	7	0	-
Dauphin	32	8	0	-	0	-
Huntingdon	66	14	12	2	0	-
Juniata	6	2	1	0	0	-
Lancaster	15	5	6	4	0	-
Lebanon	21	3	5	0	0	-
Perry	21	4	15	4	1	0
York	11	3	0	-	0	-
SCRO Subtotal	**347**	**73**	**83**	**28**	**12**	**0**
Chester	30	10	12	7	7	0
Delaware	11	7	1	0	0	-
SERO Subtotal	**41**	**17**	**13**	**7**	**7**	**0**
Pipeline TOTAL	**646** (100%)	**129** (20%)	**129** (100%)	**37** (29%)	**19** (100%)	**0** (0%)

* This column counts those HDD and bore crossings which involve no surface disturbance to wetlands (they are described as "non-jurisdictional" for federal purposes).

** EV stream or EV stream floodway crossing.

TABLE 7. Wetland impact data for the Mariner East II project in Pennsylvania compiled by county by Tetra Tech, dated 24 May 2016 (Table 2 in the Environmental Assessment Form section in each of 17 Chapter 105 applications)

		Acres				
	Total Crossing Centerline	Total PADEP Perman.	Total PADEP Temp.	Total Conversion of	Total EV Impacts	Total EV Conversion*
	(feet)	Impact	Impact	PFO	(acres)	(acres)
Allegheny	329	0.362	0	0	0	0
Cambria	9124	4.626	0.274	0.092	1.088	0.075
Indiana	2857	1.452	0.041	0.025	0.384	0.025
Washington	399	0.429	0.106	0	0	0
Westmoreland	5829	2.991	0.458	0.024	0	0
SWRO Subtotal	**18538**	**9.86**	**0.879**	**0.141**	**1.472**	**0.1**
Berks	3557	2.373	0.007	0	0.914	0
Blair	4240	2.487	0.84	0.13	0.537	0.128
Cumberland	11011	6.454	0.765	0.077	0.176	0.005
Dauphin	4811	1.514	0.331	0.093	0	0
Huntingdon	8068	3.482	0.033	0.069	0.934	0
Juniata	190	0.153	0.099	0	0.007	0
Lancaster	4074	1.894	0	0	0.56	0
Lebanon	2449	1.186	0	0.054	0.495	0
Perry	2715	1.292	0	0.101	1.009	0.101
York	709	0.403	0	0.004	0	0
SCRO Subtotal	**41824**	**21.238**	**2.075**	**0.528**	**4.632**	**0.234**
Chester	6181	3.731	0.017	0.047	0.4	0
Delaware	1036	0.494	0.83	0	0.276	0
SERO Subtotal	**7217**	**4.225**	**0.847**	**0.047**	**0.676**	**0**
Pipeline TOTAL	**67579**	**35.323**	**3.801**	**0.716**	**6.78**	**0.334**

* Specific EV wetland conversions:

Cambria	L63	PFO	0.036 ac. open cut
Cambria	N29	PFO	0.039 ac. open cut
Indiana	O46	PFO	0.025 ac. open cut
Blair	L70	PFO	0.122 ac. open cut
Blair	Q57	PFO	0.006 ac. open cut
Cumberland	KP2	PFO	0.005 ac. temp matting
Perry	W26e	PFO	0.101 ac. open cut