SCHMID & COMPANY INC., CONSULTING ECOLOGISTS
1201 Cedar Grove Road, Media, Pennsylvania 19063-1044
610-356-1416 fax: 610-356-3629
www.schmidco.com

22 August 2016

Beverly Braverman, Executive Director
Mountain Watershed Association
1414 Indian Creek Valley Road
Melcroft, Pennsylvania 15482

Joseph Minott, Esq., Executive Director
Clean Air Council
135 S. 19th Street Suite 300
Philadelphia, Pennsylvania 19103

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.

[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.**

---

[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).

				Wetland Types			
County	Total # Wetlands Impacted	# Ponds Impacted	Total # Wetland Types Impacted	# 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)

	Total Crossing Centerline (feet)	Acres: Total PADEP Perman. Impact	Acres: Total PADEP Temp. Impact	Acres: Total Conversion of PFO	Total EV Impacts (acres)	Total EV Conversion* (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