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August 15, 2019

Via Electronic Filing
Rosemary Chavetta, Secretary
PA. Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission, et al. v. Sunoco Pipeline, L.P. et al.
Docket No. C-2018-3006534

Dear Secretary Chiavetta:

Enclosed for filing is Intervenor West Goshen Township's Public Comments in Opposition to the Joint Petition for Approval of Settlement dated April 5, 2019 in the above referenced matter, copies were served upon the individuals listed below and on the enclosed Certificate of Service in accordance with 52 Pa. Code § 1.54.

If you have any questions or concerns, please feel free to contact me.

Respectfully,

David J. Brooman

DJB:pro
Enclosure
cc: Stephanie M. Wimer, Senior Prosecutor (via email & U.S. Mail)
Michael L. Swindler, Deputy Chief Prosecutor (via email & U.S. Mail)
Thomas J. Sniscak, Esquire (via email & U.S. Mail)
Kevin McKeon, Esquire (via email & U.S. Mail)
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BEFORE THE PENNSYLVANIA PUBLIC UTILITIY COMMISSION

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West Goshen Township

Pennsylvania Public Utility Commission, Bureau of Investigation and Enforcement, Complainant	:	Docket No. C-2018-3006534
v.	:	
Sunoco Pipeline, L.P., a/k/a Energy Transfer Partners, Respondent	:	

INTERVENOR WEST GOSHEN TOWNSHIP'S PUBLIC COMMENTS IN OPPOSITION TO THE JOINT PETITION FOR APPROVAL OF SETTLEMENT DATED APRIL 3, 2019

I. INTRODUCTION

The Pennsylvania Public Utility Commission's Bureau of Investigation and Enforcement ("BI&E") conducted an investigation into Sunoco Pipeline L.P.'s (SPLP) pipeline integrity practices following the release of hazardous, highly volatile liquids ("HVL") from the Mariner East 1 ("ME1") pipeline in Morgantown, Pennsylvania that was discovered on April 1, 2017.[1] Following its investigation, BI&E filed a formal complaint asserting, *inter alia*, that data

[1] SPLP reported to the Pipeline and Hazardous Materials Safety Administration ("PHMSA") that twenty (20) barrels or 840 gallons of HVL's were released to the atmosphere. However, this estimate may be grossly understated as neither BI&E nor SPLP have actual knowledge of when this release began.

furnished by SPLP demonstrates the leak was caused by corrosion, and that the corrosion was caused by SPLP's disregard for both Federal regulations and standard engineering practices.

BI&E and SPLP on April 3, 2019, filed a "Joint Petition for Approval of Settlement." It remains unclear whether the proposed settlement is geographically limited to segments of the ME1 pipeline, or whether it includes the full 300 miles of repurposed pipeline. Moreover, it is clear that the settlement does not include the equally ancient 12" "Point Breeze to Montello" work around pipeline now being used by SPLP to transport HVLs.

By Order dated July 15, 2019, West Goshen Township was granted intervention. The Order also permitted West Goshen Township, along with intervenors West Whiteland Township, Upper Uwchlan Township, Edgemont Township, Josh Maxwell, Thomas Casey and the Flynn intervenors, to provide public comment and, if in opposition to the proposed settlement, to: (1) state the reasons why; (2) delineate the issues they would raise if the settlement were rejected; and, (3) outline how their interests would be affected if the settlement were accepted.

Intervenor West Goshen Township submits these public comments and the expert opinions of Richard Kuprewicz, Accufacts Inc., in compliance with the Order of July 15, 2019.

II. WEST GOSHEN TOWNSHIP'S INTERESTS IN REGARD TO THE SETTLEMENT

West Goshen Township has been actively involved in the repurposing of ME1 as it pertains to the health, safety and welfare of the residents of West Goshen Township since its inception. (See, Concerned Citizens of West Goshen Township vs. Sunoco Pipeline, L.P., Docket No. P-2014-2411966; West Goshen Township vs. Sunoco Pipeline, L.P., Docket No. C-2017-2589346). With the assistance of Richard Kuprewicz, Accufacts Inc., West Goshen Township has conducted several detailed investigations into the appropriateness of the procedures followed in the repurposing of ME1, and the safety procedures put in place prior to

startup of HVL transportation from the Marcellus Shale region to Marcus Hook, Pennsylvania. The settlement agreement reached with SPLP in 2015, and approved by the Public Utility Commission, resulted in several design changes and changes to SPLP's internal operating procedures each designed to enhance the safety of ME1.

Unfortunately, SPLP breached its 2015 Settlement Agreement with West Goshen Township which caused West Goshen Township to enforce the agreement and seek injunctive relief from the PUC in 2017. That 2017 complaint forced compliance (SPLP implemented the safety features promised in 2015) and prevented additional above ground facilities in West Goshen Township which would have caused additional risk to its residents. Oversight of ME1, ME2 and ME2X continues to this day by West Goshen Township and Richard Kuprewicz.

West Goshen Township is keenly interested in the events surrounding the Morgantown Township release, the facts alleged in BI&E's formal complaint, and the proposed settlement. Any proposed settlement, as shown in the public comments and expert opinions of Richard Kuprewicz, attached hereto as Exhibit "A" and incorporated herein by reference as if set forth in full, has the ability to increase or decrease the safety of ME1 and its potential for future releases.

III. WEST GOSHEN TOWNSHIP'S REASONS FOR OPPOSING THE JOINT PETITION FOR APPROVAL OF SETTLEMENT AND ISSUES IT WOULD RAISE IF THE SETTLEMENT WERE REJECTED

West Goshen Township respectfully submits that approval of the settlement is not consistent with the Commission's Policy Statement Regarding Factors and Standards for Evaluating Litigated and Settled Proceedings Involving Violations of the Public Utility Code and Commission Regulations, nor with 52 Pa. Code §69.1201. The settlement requires:

A. ***Civil Penalty***:

Respondent will pay a civil penalty in the amount of Two Hundred Thousand Dollars ($200,000) pursuant to 49 U.S.C.A. §§60122(a)(1) and 60118(a). Said payment shall be

made within thirty (30) days of the date of the Commission's Final Order approving the Settlement Agreement and shall be made by certified check or money order payable to the "Commonwealth of Pennsylvania." The docket number of this proceeding, C-2018-3006534, shall be indicated with the certified check or money order and the payment shall be sent to:

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

The civil penalty shall not be tax deductible pursuant to Section 162(f) of the Internal Revenue Code, 26 U.S.C.S. §162(f).

B. ***Remaining Life Study***:

SPLP agrees to retain an independent expert to conduct a Remaining Life Study that will consist of a summary of SPLP's Integrity Management Plan ("IMP"), a remaining life evaluation of ME1, calculations that are described in more detail in the bullet paragraphs that appear below, and will be forward-looking in manner, and intend to assess the longevity of ME1.

The Remaining Life Study should be conducted by a qualified independent expert that has conducted independent studies for, but not limited to, governmental entities, such as the Pipeline and Hazardous Materials Safety Administration ("PHMSA") or State Commissions, and the Pipeline Research Counsel International ("PRCI"), American Petroleum Institute ("API"), or the Interstate Natural Gas Association of America ("INGAA"). Within thirty (30) days of entry of a Commission Order approving any settlement of this matter, SPLP shall provide I&E with a list of three (3) proposed independent experts, along with contact information, a brief description of the expert's background and a disclosure as to whether the proposed expert performed any work in relation to ME1 as well as a description of that work. I&E will select one (1) expert from the list provided by SPLP and SPLP will hire and pay the expert to complete and review the study. The expert shall complete the Remaining Life Study within six (6) months from being contracted by SPLP. A summary of the expert's findings shall be made public (excluding proprietary or confidential security information).

The parties agree that the Remaining Life Study will include the following:

- ME1 corrosion growth rate based on the most recent In-Line-Inspection run, sectionalized as appropriate;
- Supporting documentation to demonstrate the corrosion growth rate. This may include a graph estimating corrosion growth from installation of ME1 to the present time;

- Retirement thickness calculations that consider: (1) pressure design thickness; and (2) minimum structural thickness;
- Remaining life calculations by: (1) segment; (2) age; (3) coating type; and (4) soil conditions;
- A schedule identifying portions of the pipeline to be replaced or remediated over the next five (5) years;
- A summary of the portions of ME1 that were previously retired with an explanation of the characteristics of the pipeline sections that led to the replacements;
- A listing and description of threats specific to ME1, with a summary of how each threat and the associated risks are mitigated;
- A summary of the top ten (10) highest risks identified on ME1 with an explanation as to how the risks are mitigated;
- An explanation of how anomalies, dents and ovalities are formed on the pipeline and addressed by mitigative measures;
- A summary of the leak history on ME1 including a description of the size of each leak;
- A discussion of the history of ME1, including when cathodic protection was installed, when coating was applied, and the various measures performed by SPLP, including the implementation of new procedures; and
- A discussion to illustrate how managing integrity lengthens pipeline life.

For so long as ME1 remains in Highly Volatile Liquid ("HVL") service, SPLP agrees to supplement the Remaining Life Study by providing a summary report on an annual basis that summarizes SPLP's continual process of evaluation and assessment to maintain the pipeline integrity of ME1. The report will also include a list of the next year's planned preventative and mitigative actions (such as system improvements) and a list of integrity enhancements that were performed on ME1 the prior year, as required by and consistent with the applicable 49 C.F.R. Part 195 requirements. The public version of the report shall not contain information that is proprietary or contains information subject to The Public Utility Confidential Security Information Disclosure Protection Act, 35 P.S. §§2141.1 to 2141.6, and the PUC's regulations implementing such Act at 52 Pa. Code §§102.1-102.4.

C. ***In-Line Inspection and Close Interval Frequency of ME1:***

a. In-Line Inspection

SPLP's two remaining In-Line Inspection ("ILI") runs in 2019 on the ME1 segments identified as: (1) Middletown-Montello & Montello-Beckersville; and (2) Beckersville-Twin Oaks, are in addition to the two proposed ILI runs of ME1 that will take place at agreed-upon intervals over the next three (3) calendar years ("ILI run #1" and "ILI run #2"). Thus, the parties agree that SPLP will conduct the two remaining ILI runs in April 2019 or within 60 days of ME1 resuming service, then conduct ILI run #1 of ME1 eighteen (18) months after the date SPLP enters into an agreement with I&E, and then conduct ILI run #2 of ME1 eighteen (18) months after the completion of ILI run #1.

At the conclusion of the three-year ILI period, the Parties agree that SPLP shall retain an independent consulting firm to assist in establishing a reassessment interval using corrosion growth analysis and will meet with I&E to discuss SPLP's planned ILI inspection frequency. I&E is not required to wholly accept the interval recommendations proposed by SPLP's independent consultant. Should the ILI interval recommendation not be wholly accepted by I&E, I&E and SPLP agree to collaborate using best efforts to arrive at a mutually acceptable ILI interval period.

b. Close Interval Survey

SPLP further agrees to conduct a Close Interval Survey of MEI at the same interval and frequency, once every eighteen (18) months, to evaluate the effectiveness of SPLP's corrosion control program for MEI for the next three (3) calendar years.

D. *Revision of Procedures:*

The Parties agree that SPLP's May 2018 revisions to procedures Energy Transfer SOP HLD.22 have addressed I&E's requested relief set forth in Paragraphs 47(c)-(d) of the Complaint.

E. *Implementation of Revised Procedures*:

The Parties agree that SPLP has implemented the revised procedures and has fulfilled I&E's requested relief set forth in Paragraph 47(c)-(d) of the Complaint.

F. *Pipe Replacement as it Relates to Corrosion:*

The Parties agree that I&E is not requesting that SPLP immediately replace pipe pursuant to Paragraph 47(e) of the Complaint. Instead, I&E understands that when SPLP detects anomalies, the Company maintains the discretion to initiate and/or utilize various remedial measures to preserve the integrity of the pipe or, if ultimately deemed necessary, to physically replace segments of the pipe. The Parties agree with SPLP's proposed approach as follows:

If the results of cathodic protection measurements indicate lost IR free potentials or inadequate depolarization, SPLP will take action consistent with its Corrosion Control Plans, Integrity Management Program and applicable Federal regulations.

West Goshen Township's specific reasons for opposing the settlement follow.

A. Civil Penalty.

The proposed civil penalty in the amount of Two Hundred Thousand Dollars ($200,000.00) is disproportionately low taking into account the potential for catastrophe caused

by the release of HVLs into high density areas, and completely disregards SPLP's compliance history in Pennsylvania and SPLP's wanton disregard for binding agreements. See, 52 Pa. Code §69.1201(c)(6). Effective April 16, 2012, the Public Utility Code was amended to increase civil penalties for gas pipeline safety violations to the current standard of Two Hundred Thousand Dollars ($200,000) per violation for each day that the violation persists subject to a maximum civil penalty of Two Million Dollars ($2,000,000) for any related series of violations. 66 Pa. CS §3301(c). As outlined in the Bureau of Investigation and Enforcement's Statement in Support of the Joint Petition for Approval of Settlement ("BI&E Statement"), similar releases have resulted in civil penalties ranging from a low of $50,000 to a high of $1,000,000. (See, BI&E Statement at pp. 15-17, and proceedings cited therein). While the facts concerning the leaks and, in some cases, explosions vary from the facts alleged in the formal complaint, none of the civil penalty assessments involved an operator as irresponsible and cavalier as SPLP, which has shown a wanton disregard for public safety and protection of the environment. The maximum penalty is warranted against this operator to deter future non-compliance. See, 52 Pa. Code §69.1201(c)(8).

As recognized in the Bureau of Investigation and Enforcement Statement, SPLP's ME1, ME2 and ME2X have been the subject of numerous Commission proceedings. (See, BI&E Statement at pp. 13-14). The Commission itself has ordered SPLP to shut down operation in the interest of public safety. (See, *Amended Petition of Pennsylvania State Senator Andrew E. Dinniman for Interim Emergency Relief, Docket No. C-2018-3001453* and *Pennsylvania State Senator Andrew E. Dinniman v. Sunoco Pipeline, LP, Docket No. C-2018-3001451 (Order entered June 15, 2018)* (prohibiting construction, including drilling activities, on the ME2 and ME2X pipelines in West Whiteland Township, Chester County, Pennsylvania); *Petition of the Bureau of Investigation and Enforcement of the Pa. Public Utility Commission for the Issuance*

of an Ex Parte Emergency Order, Docket No. P-2018-3000281 (Ratification Order entered March 15, 2018) (prohibiting SPLP from reinstituting hazardous liquids transportation service on ME1 until SPLP completed a number of corrective actions designed to address subsidence due to carbonate geology around the pipeline). The Commission exercised is prosecutorial discretion to not impose civil penalties in connection with these clear, legal violations.

In addition to the cases recognized by the Bureau of Investigation and Enforcement, West Goshen Township has had to sue SPLP to enforce its 2015 Settlement Agreement with SPLP for what were clear breaches, ignoring the public safety elements of that settlement. West Goshen Township vs. Sunoco Pipeline, L.P., Docket No. C-2017-2589346. Only after the breach of contract action was initiated by West Goshen Township did SPLP comply and install two important safety valves. After a full hearing on West Goshen Township's complaint and request for a permanent injunction, SPLP was prevented from installing any additional above ground valves in West Goshen Township in violation of the 2015 Settlement Agreement.

On top of this intentional disregard to honor its agreement with West Goshen Township, SPLP has been the subject of multiple enforcement actions by the Pennsylvania Department of Environmental Protection ("Pa DEP") due to its reckless disregard in protecting the natural resources of this Commonwealth. (See generally, Pa DEP website titled: "Mariner East Project, Compliance and Enforcement Information," at

https://www/dep.pa.gov/Business/ProgramIntegration/Pennsylvania-Pipeline-Portal/Pages/Mariner-East-II.aspx#Compliance).

SPLP is currently subject to a Pa. DEP shut down order and unable to complete ME2 and ME2X because of grossly inadequate construction techniques, and its failure to protect wetlands and streams. Its horizontal drilling construction techniques resulted in a 12.6 Million Dollar fine by the Pennsylvania Department of Environmental Protection in the Fall of 2018. A copy of Pa.

DEP's Consent Order and Assessment dated February 8, 2018 imposing the 12.6 Million Dollar fine is attached to these Public Comments as Exhibit "B" and is incorporated by reference. Findings of Fact C through NNNN, pp 2-20, detail the clear violations of law by SPLP. SPLP itself admitted as true and correct the "egregious and willful" violations. [2]

In February 2019, the Governor of Pennsylvania wrote: "There has been a failure of Energy Transfer and its subsidiaries to respect our laws and our communities. This is not how we strive to do business in Pennsylvania, and it will not be tolerated." See press release, "Governor Wolf Issues Statement on DEP Permit Bar," February 8, 2019, found at www.governor.pa.gov/governor-wolf-issues-statement-dep-pipeline-permit-bar.

The Joint Petition for Approval of Settlement disregards SPLP's compliance history in Pennsylvania. The Public Utility Commission needs to send a clear message to SPLP that it cannot continue to disregard public health, safety and welfare, and the environment. A maximum civil penalty in the amount of Two Million Dollars ($2,000,000) would send that message.

B. The remaining life study should be conducted by a qualified <u>independent</u> expert.

Within thirty (30) days of entry of the Commission Order approving any settlement, <u>SPLP</u> shall provide BI&E with a list of three (3) proposed independent experts. The submission is to include a description of the expert's background and a disclosure as to whether the proposed expert performed any work in relation to ME1, as well as a description of that work.

A <u>qualified independent expert</u> needs to be an expert who has never worked for SPLP or its parent company, Energy Transfer. The settlement leaves open the possibility that the expert retained by SPLP to perform the remaining life study previously worked for SPLP on ME2,

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[2] See also, Pa DEP August 2, 2018 Consent Order and Agreement found at http://Files/dep.state.pa.us/ProgramIntegration/PA%20pipeline%20Portal/MarinerEastII/consent%20Assessment%20of%20civil%20penalty%20-%20August%202,%20208.pdf

ME2X or related Energy Transfer pipelines. Given the lack of candor by SPLP in regard to West Goshen Township matters, this is unacceptable.

The remaining life study in its entirety should be released to the public for public comment. SPLP should not able to exclude portions of the report under the guise of confidentiality and proprietary information. Alternatively, the entire remaining life study should be provided to West Goshen Township pursuant to its existing non-disclosure agreements with SPLP, so it may be reviewed and commented on by Richard Kuprewicz.

The remainder of West Goshen Township's comments in regard to the remaining life study are embedded in Richard Kuprewicz' expert public comments which are attached as Exhibit A and incorporated by reference as if set forth in full.

C. In line inspection and close interval survey frequency of ME1.

West Goshen Township incorporates the expert public comments of Richard Kuprewicz which are attached as Exhibit A and incorporated by reference as if set forth in full.

D. Revision of Procedures.

The joint settlement fails to disclose the revisions to procedures that address the relief requested in paragraphs 47(c) and (d) of the formal complaint. West Goshen Township is incapable of commenting on the adequacy of these revisions.

E. Implementation of revised procedures.

The joint settlement fails to disclose the revisions to procedures that address the relief requested in paragraphs 47(c) and (d) of the formal complaint. West Goshen Township is incapable of commenting on the adequacy of these revisions.

F. Pipe replacement as it relates to corrosion.

West Goshen Township incorporates the expert public comments of Richard Kuprewicz attached as Exhibit A and incorporated by reference as if set forth in full.

HIGH SWARTZ LLP

By: _____
David J. Brooman, Esquire
Richard C. Sokoraj, Esquire
Mark R. Fischer, Jr., Esquire
Attorneys for West Goshen Township

Date: August 15, 2019

EXHIBIT "A"

Accufacts Inc.
"Clear Knowledge in the Over Information Age"

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Date: August 15, 2019

Accufacts Public Comments on the Proposed Joint Settlement, BI&E v. Sunoco Pipeline L.P. ("SPLP"), Docket No. C-2018-3006534 ("Proposed Settlement")

1. Introduction

Accufacts Inc. ("Accufacts") was asked by West Goshen Township to comment on the above Proposed Settlement, dated April 3, 2019. As president of Accufacts, I have over forty-five years of experience concerning energy matters, including but not limited to: pipeline siting, design, operation, maintenance, regulatory development, incident command, failure investigation, risk assessment, and litigation, often related to pipeline operations in highly sensitive areas. A copy of my curriculum vitae is attached to these public comments as Attachment "A."

The major requirements of the Proposed Settlement are grouped into five lettered paragraphs: (A) Civil Penalty; (B) Remaining Life Study; (C) In-Line Inspection ("ILI") and Close Interval Survey ("CIS") of ME1; (D) Revision of Procedures; (E) Implementation of Revised Procedures; and (F) Pipe Replacement as It Relates to Corrosion.[1] After careful review I have the following expert observations and opinions concerning the Proposed Settlement's major technical shortcomings that can leave both the pipeline operator and the public at grave risks on ME1.

2. The important cause of the ME1 4/1/17 pipeline leak failure in Morgantown, PA has not been adequately demonstrated or disclosed to the public.

Insufficient information has been provided in the Proposed Settlement related to the event that initiated the Pennsylvania Bureau of Investigation and Enforcement's ("BI&E") investigation, the ME1 leak release of 4/1/17 in Morgantown, PA. Apparently, an eight-foot section of pipeline was removed for forensic analysis, with an additional seventy-three feet of pipeline replaced with no explanation. Documents supplied from BI&E suggest that laboratory analysis of the pipe that leaked on 4/1/17 concluded that MIC (microbiological influenced/induced corrosion) may have contributed to the Morgantown release.[2] MIC, especially externally

[1] Proposed Settlement, Paragraph 17, pp. 5 – 7.
[2] Before the Pennsylvania Public Utility Commission, "Pennsylvania Public Utility Commission, Bureau of Investigation and Enforcement v. Sunoco Pipeline, L.P. a/k/a Energy Transfer

corrosion related MIC, is a rare environmental assisted form of specialized corrosion that is driven by a combination of unique soil environments with certain pipe coating issues. MIC does not lend itself to corrosion rate predictions as this corrosion can be highly unpredictable and nonlinear. Special precautions and approaches are warranted to identify such environmental sites where the usually external MIC corrosion environments around hydrocarbon steel pipelines containing certain at-risk factors are present.

BI&E has indicated that an independent laboratory was utilized to perform forensic analysis of the pipe where the Morgantown leak occurred. Pipe forensic analysis is not unusual, but such an important report is usually made public, including technical summaries and color high resolution photographs that can be independently evaluated for completeness, accuracy, and impartiality. The forensic report of the failed pipeline should be made public to permit independent verification of the type of corrosion that caused the leak, as not all corrosion is alike.[3] In my professional opinion, the Proposed Settlement should not be approved until this independent verification is completed.

Meeting federal minimum safety regulations and National Association of Corrosion Engineers ("NACE") corrosion standards presenting corrosion prevention approaches may not be adequate to avoid such high rate and often nonlinear corrosion attacks from certain forms of corrosion attack, such as corrosion associated with MIC. A series of integrated corrosion prevention approaches are warranted, and such critical approaches are not evident in the Proposed Settlement.

3. Proposed Settlement Paragraph B – The proposed Remaining Life Study is inadequate.

While I can understand the public's demand for a Remaining Life Study of ME1, the Proposed Settlement conditions are biasing the process and are missing important considerations related to corrosion, especially the illusion of utilizing ILI corrosion rate prediction for highly unique and nonlinear types of corrosion. While corrosion growth rates based on a series of ILI runs may provide some indication of certain types of corrosion growth rate, special care should be exercised to recognize such growth rate predictions have severe limitations, especially as they may pertain to specialized corrosion, such as MIC, which are usually not linear nor constant, and which corrode pipe at very high rates. I have investigated way too many liquid pipeline rupture failures where the integrity managers applied "conservative" corrosion growth rates developed from ILI, only to discover the hard way, through pipeline rupture failure, that such approaches were far from "conservative" and not appropriate.

Partners, Docket No C-2018-3006534, Formal Compliant," December 13, 2018, p. 8, Paragraph 31.

[3] *Ibid.*, p. 3 paragraph 8.

In addition, important details in the Proposed Settlement are missing concerning in-line inspection, or ILI, utilization that should be required to assure proper use of this assessment approach. Such critical ILI assessment details should be outlined and required in any settlement to assure appropriate choice and application of ILI tool assessments on ME1. Running an ILI smart tool, or smart pig, is the easy part of an overall ILI assessment program. Additional requirements of ILI corrosion tools should be incorporated into a settlement to assure that a smart pig is truly smart, and that its indications are not lost or misused by inappropriate management decisions. Based on many pipeline rupture investigations that I have conducted following ILI assessments, my professional opinion is that settlement agreements utilizing ILI assessments should clearly:

1. identify the reasons for why the specific corrosion tool was selected;
2. specify the tool's stated POI and POD;[4]
3. indicate the tool's tolerances;
4. establish a maximum time upon which the ILI data gathered is analyzed by the ILI vendor, and the results provided to the pipeline operator to take action;
5. set a pipeline wall loss threshold (i.e., a 50 % corrosion loss of the pipe thickness incorporating the tool's tolerances) upon which all ILI calls are to require action by the pipeline operator; and,
6. provide a unity graph of the ILI tool's field verification digs for each ILI run.[5]

4. Proposed Settlement Paragraph C – In-line Inspection and Close Interval Survey Frequency of ME1 are incomplete.

The Proposed Settlement requires that the operator run two additional ILI inspection runs at eighteen-month intervals following the date that SPLP and BI&E reach an agreement. These ILI runs will then be utilized to develop a corrosion rate to help establish future ILI run timing. Concurrent with the ILI runs, SPLP will also conduct Close Interval Surveys of ME1 at the same eighteen-month interval. Inline inspections, even in conjunction with Close Interval Survey (CIS and Close Interval Potential Survey, or CIPS, are terms used interchangeably) is not sufficient to identify certain types of at-risk external corrosion, such as external MIC corrosion. The Pipeline and Hazardous Materials Safety Administration, or PHMSA, has made the limitations of ILI clear in their recent Notice of Probable Violation and Compliance Order to Sunoco, referencing NACE SP 0169-2007, incorporated into federal minimum pipeline safety regulations:

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[4] POI is defined as the Probability of Identification or the probability that the type of anomaly once detected will be correctly classified (i.e., corrosion, crack, dent etc.). POD is the probability of a feature being reported as a feature.

[5] A unity graph is a simple plot of the ILI call vs a field verification of the ILI tool indications.

"6.3.3 When feasible and practicable, in-line inspection of pipeline may be helpful in determining the presences or absence of pitting corrosion damage. Absence of external corrosion damage or the halting of its growth may indicate adequate external corrosion control. The in-line inspection technique, however, may not be capable of detecting all types of external corrosion damage, has limitations in its accuracy, and may report as anomalies items that are not external corrosion. ..... The appropriate use of in-line inspection must be carefully considered." [6]

There are certain anomalies or imperfections in pipelines, including corrosion threats, that ILI assessments cannot reliably determine.

While CIS techniques have improved considerably over the past several decades, especially in the application of intelligent or smart cathodic protection monitoring systems, there still can be an element of art or experience in applying and evaluating CIS data that are not adequately captured in pipeline safety regulations or NACE standards. This can especially be an issue for older pipelines that may contain inadequate or poor external coating located in higher corrosion at-risk soils, where even proper cathodic protection as defined in pipeline safety regulations can be ineffective.

Current federal minimum pipeline safety regulations set the maximum frequency utilizing assessment intervals at five-year intervals not to exceed 68 months, for continually assessing the pipeline's integrity in high consequence areas.[7] Reassessment intervals can and may be shorter than the five-year interval for various reasons. The important point is that running assessments goes beyond just running more frequently. It is important that a reassessment be based on quality assessments matched to a specific category of threats. Running bad ILI assessments more frequently is one of the most dangerous of all safeties – the illusion of safety. It is clear from my many decades of involvement with PHMSA that PHMSA technical people clearly understand this, but getting such obvious requirements promulgated into clear pipeline safety regulation can take effort and time in a process subject to much lobbying, where regulatory success isn't always assured.

It is my professional opinion that the Proposed Settlement incorporate for ME1 a requirement that a pipeline map be developed showing the approximate areas of bare, or ineffective coating, as well as coating type, including "unknown," and be identified by milepost. It is especially important that certain vintage pipe coating regions that can be prone to disbonding be identified. Disbonded vintage coating can render CP ineffective at preventing external

[6] PHMSA, Notice of Probable Violation and Compliance Order, CPF 1-2019-5002 to Sunoco," February 4, 2019, p. 3.
[7] 49CFR§452(j)(3) *Assessment intervals*.

corrosion, so such possible sites must be clearly identified on the pipeline map for additional assessments, such as through direct assessment field digs. This map should also superimpose the latest CIS results as well as identify segments along ME1 where soil conditions are conducive to specialized forms of external corrosion on the pipeline, such as MIC. This pipeline map will also help the pipeline operator and regulators to determine "hot zones" along the ME1 pipeline where additional corrosion assessment is warranted to assure cathodic protection is operating effectively, or coating replacement warranted to get external corrosion under control. It is my professional opinion that such a map will indicate that some segments of ME1 are under control, when it comes to preventing external corrosion potential, and that some areas are in need of repair or replacement.

5. **Proposed Settlement Paragraph D - Revision of Procedures needs to be communicated to the public in more detail.**

The Proposed Settlement states that SPLP has implemented revised procedures. This Paragraph D of the Proposed Settlement has failed to adequately demonstrate that SPLP's May 2018 revision to Energy Transfer SOP HLD.22 have addressed the serious concerns raised in the Formal Complaint. In my many decades of experience, I have never seen an issue raised to the serious level alleged. Specifically, the PUC BI&E has stated there is a statewide concern with the corrosion control programs and the soundness of a specific pipeline company's engineering practices. It is my professional opinion that the Proposed Settlement falls to adequately demonstrate that the alleged deficiencies have been addressed in this matter. The Pennsylvania Public Utility Commission and the public are owed a comparison of the new procedures to the old procedures so that an independent technical evaluation of the changes can be performed, and a vetted conclusion reached that the procedural changes are thorough and appropriate. The Proposed Settlement provides no detail as to the appropriateness and applicability of the changes within Sunoco's new procedures.

6. **Section E - Implementation of Revised Procedures**

See comments related to Proposed Settlement Paragraph D above.

7. **Section F – Pipe Replacement as it relates to Corrosion**

I believe it is important to understand that all pipelines corrode. Most pipeline corrosion does not rise to the level of requiring pipe replacement since for various reasons, most corrosion does not cause pipeline release. This statement also applies to older pipelines installed with no protective coating (aka bare steel pipelines). Depending on many factors, bare steel pipelines can be at a higher risk of failure from external corrosion. The risk of corrosion on such pipelines will depend on surrounding soil environmental conditions and the efficiency of

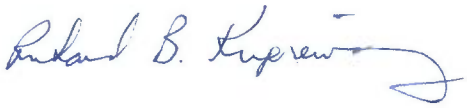
cathodic protection designed to reduce or restrict external corrosion on a particular pipeline. The regulations place the responsibility of corrosion control on the pipeline operator. It would be irresponsible, even punitive, to require that all places where steel pipe corrosion is or has occurred go to the extreme of pipe replacement. There are many ways to evaluate and remediate corroded pipe well before it reaches the level of failure.

The Proposed Settlement does not set any objective parameters to help or assist BI&E with gauging Sunoco's performance or the effectiveness of external corrosion procedures or mitigations on ME1. I suggest an approach that requires the reporting of certain corrosion wall loss triggers to BI&E, similar to that proposed by PHMSA over a decade ago concerning external corrosion program effectiveness.[8] Unfortunately, PHMSA's well intended and technically valid approach to improve corrosion integrity management regulation was deflected by industry lobbying efforts, and did not make it to federal minimum pipeline safety regulations. The presentation to the Citizens Committee on Pipeline Safety, or CCOPS, also helps to explain the corrosion disconnect that sensitivity to corrosion rate increases as pipeline wall loss increases. Just another reason why one has to be very careful in using "assumed corrosion rates" from various assessment methods, such as ILI.

8. Conclusion

For reasons outlined above, it is my professional opinion that the Proposed Settlement is inadequate and additional important modifications are needed. Any settlement should incorporate additional transparency to give the public confidence that reasonable precautions have been undertaken to assure a safe pipeline operation of ME1. It has been my experience that a pipeline operator doing the right things to prevent a pipeline failure, either leak or rupture, will have no problem making many details of the things they are doing right, public.

By:



Richard B. Kuprewicz,
President,
Accufacts Inc.

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[8] See, Richard B. Kuprewicz presentation to Washington State Citizens Committee on Pipeline Safety, or CCOPS, 12/4/08 Meeting, "Pipeline Assessment & Anomaly Reporting – A pipeline Right to Know Issue," included as Attachment "B."

Attachment A

Curriculum Vitae.

Richard B. Kuprewicz

8151 164th Ave NE
Redmond, WA 98052

Tel: 425-802-1200 (Office)
E-mail: kuprewicz@comcast.net

Profile:

As president of Accufacts Inc., I specialize in gas and liquid pipeline investigation, auditing, risk management, siting, construction, design, operation, maintenance, training, SCADA, leak detection, management review, emergency response, and regulatory development and compliance. I have consulted for various local, state and federal agencies, NGOs, the public, and pipeline industry members on pipeline regulation, operation and design, with particular emphasis on operation in unusually sensitive areas of high population density or environmental sensitivity.

Employment:

Accufacts Inc. **1999 – Present**

Pipeline regulatory advisor, incident investigator, and expert witness on all matters related to gas and liquid pipeline siting, design, operation, maintenance, risk analysis, and management.

Position: President
Duties:
> Full business responsibility
> Technical Expert

Alaska Anvil Inc. **1993 – 1999**

Engineering, procurement, and construction (EPC) oversight for various clients on oil production facilities, refining, and transportation pipeline design/operations in Alaska.

Position: Process Team Leader
Duties:
> Led process engineers group
> Review process designs
> Perform hazard analysis
> HAZOP Team leader
> Assure regulatory compliance in pipeline and process safety management

ARCO Transportation Alaska, Inc. **1991 - 1993**

Oversight of Trans Alaska Pipeline System (TAPS) and other Alaska pipeline assets for Arco after the Exxon Valdez event.

Position: Senior Technical Advisor
Duties:
> Access to all Alaska operations with partial Arco ownership
> Review, analysis of major Alaska pipeline projects

ARCO Transportation Co. **1989 – 1991**

Responsible for strategic planning, design, government interface, and construction of new gas pipeline projects, as well as gas pipeline acquisition/conversions.

Position: Manager Gas Pipeline Projects
Duties:
> Project management
> Oil pipeline conversion to gas transmission
> New distribution pipeline installation
> Full turnkey responsibility for new gas transmission pipeline, including FERC filing

Four Corners Pipeline Co. **1985 – 1989**

Managed operations of crude oil and product pipelines/terminals/berths/tank farms operating in western U.S., including regulatory compliance, emergency and spill response, and telecommunications and SCADA organizations supporting operations.

Position: Vice President and Manager of Operations
Duties:
> Full operational responsibility
> Major ship berth operations
> New acquisitions
> Several thousand miles of common carrier and private pipelines

Arco Product CQC Kiln **1985**

Operations manager of new plant acquisition, including major cogeneration power generation, with full profit center responsibility.

Position: Plant Manager
Duties:
> Team building of new facility that had been failing
> Plant design modifications and troubleshooting
> Setting expense and capital budgets, including key gas supply negotiations
> Modification of steam plant, power generation, and environmental controls

Arco Products Co. **1981 - 1985**

Operated Refined Product Blending, Storage and Handling Tank Farms, as well as Utility and Waste Water Treatment Operations for the third largest refinery on the west coast.

Position: Operations Manager of Process Services
Duties:
> Modernize refinery utilities and storage/blending operations
> Develop hydrocarbon product blends, including RFGs
> Modification of steam plants, power generation, and environmental controls
> Coordinate new major cogeneration installation, 400 MW plus

Arco Products Co. **1977 - 1981**

Coordinated short and long-range operational and capital planning, and major expansion for two west coast refineries.

Position: Manager of Refinery Planning and Evaluation
Duties:
> Establish monthly refinery volumetric plans
> Develop 5-year refinery long range plans
> Perform economic analysis for refinery enhancements
> Issue authorization for capital/expense major expenditures

Arco Products Co. **1973 - 1977**

Operating Supervisor and Process Engineer for various major refinery complexes.

Position: Operations Supervisor/Process Engineer
Duties:
> FCC Complex Supervisor
> Hydrocracker Complex Supervisor
> Process engineer throughout major integrated refinery improving process yield and energy efficiency

Qualifications:

Currently serving as a member representing the public on the federal Technical Hazardous Liquid Pipeline Safety Standards Committee (THLPSSC), a technical committee established by Congress to advise PHMSA on pipeline safety regulations.

Committee members are appointed by the Secretary of Transportation.

Served seven years, including position as its chairman, on the Washington State Citizens Committee on Pipeline Safety (CCOPS).

Positions are appointed by the governor of the state to advise federal, state, and local governments on regulatory matters related to pipeline safety, routing, construction, operation and maintenance.

Served on Executive subcommittee advising Congress and PHMSA on a report that culminated in new federal rules concerning Distribution Integrity Management Program (DIMP) gas distribution pipeline safety regulations.

As a representative of the public, advised the Office of Pipeline Safety on proposed new liquid and gas transmission pipeline integrity management rulemaking following the pipeline tragedies in Bellingham, Washington (1999) and Carlsbad, New Mexico (2000).

Member of Control Room Management committee assisting PHMSA on development of pipeline safety Control Room Management (CRM) regulations.

Certified and experienced HAZOP Team Leader associated with process safety management and application.

Education:

MBA (1976)	Pepperdine University, Los Angeles, CA
BS Chemical Engineering (1973)	University of California, Davis, CA
BS Chemistry (1973)	University of California, Davis, CA

Publications in the Public Domain:

1. "An Assessment of First Responder Readiness for Pipeline Emergencies in the State of Washington," prepared for the Office of the State Fire Marshall, by Hanson Engineers Inc., Elway Research Inc., and Accufacts Inc., and dated June 26, 2001.

2. "Preventing Pipeline Failures," prepared for the State of Washington Joint Legislative Audit and Review Committee ("JLARC"), by Richard B. Kuprewicz, President of Accufacts Inc., dated December 30, 2002.

3. "Pipelines - National Security and the Public's Right-to-Know," prepared for the Washington City and County Pipeline Safety Consortium, by Richard B. Kuprewicz, dated May 14, 2003.

4. "Preventing Pipeline Releases," prepared for the Washington City and County Pipeline Safety Consortium, by Richard B. Kuprewicz, dated July 22, 2003.

5. "Pipeline Integrity and Direct Assessment, A Layman's Perspective," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated November 18, 2004.

6. "Public Safety and FERC's LNG Spin, What Citizens Aren't Being Told," jointly authored by Richard B. Kuprewicz, President of Accufacts Inc., Clifford A. Goudey, Outreach Coordinator MIT Sea Grant College Program, and Carl M. Weimer, Executive Director Pipeline Safety Trust, dated May 14, 2005.

7. "A Simple Perspective on Excess Flow Valve Effectiveness in Gas Distribution System Service Lines," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated July 18, 2005.

8. "Observations on the Application of Smart Pigging on Transmission Pipelines," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated September 5, 2005.

9. "The Proposed Corrib Onshore System - An Independent Analysis," prepared for the Centre for Public Inquiry by Richard B. Kuprewicz, dated October 24, 2005.

10. "Observations on Sakhalin II Transmission Pipelines," prepared for The Wild Salmon Center by Richard B. Kuprewicz, dated February 24, 2006.

11. "Increasing MAOP on U.S. Gas Transmission Pipelines," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated March 31, 2006. This paper was also published in the June 26 and July 1, 2006 issues of the Oil & Gas Journal and in the December 2006 issue of the UK Global Pipeline Monthly magazines.

12. "An Independent Analysis of the Proposed Brunswick Pipeline Routes in Saint John, New Brunswick," prepared for the Friends of Rockwood Park, by Richard B. Kuprewicz, dated September 16, 2006.

13. "Commentary on the Risk Analysis for the Proposed Emera Brunswick Pipeline Through Saint John, NB," by Richard B. Kuprewicz, dated October 18, 2006.

14. "General Observations On the Myth of a Best International Pipeline Standard," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated March 31, 2007.

15. "Observations on Practical Leak Detection for Transmission Pipelines – An Experienced Perspective," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated August 30, 2007.

16. "Recommended Leak Detection Methods for the Keystone Pipeline in the Vicinity of the Fordville Aquifer," prepared for TransCanada Keystone L.P. by Richard B. Kuprewicz, President of Accufacts Inc., dated September 26, 2007.

17. "Increasing MOP on the Proposed Keystone XL 36-Inch Liquid Transmission Pipeline," prepared for the Pipeline Safety Trust by Richard B. Kuprewicz, dated February 6, 2009.

18. "Observations on Unified Command Drift River Fact Sheet No 1: Water Usage Options for the current Mt. Redoubt Volcano threat to the Drift River Oil Terminal," prepared for Cook Inletkeeper by Richard B. Kuprewicz, dated April 3, 2009.

19. "Observations on the Keystone XL Oil Pipeline DEIS," prepared for Plains Justice by Richard B. Kuprewicz, dated April 10, 2010.

20. "PADD III & PADD II Refinery Options for Canadian Bitumen Oil and the Keystone XL Pipeline," prepared for the Natural Resources Defense Council (NRDC), by Richard B. Kuprewicz, dated June 29, 2010.

21. "The State of Natural Gas Pipelines in Fort Worth," prepared for the Fort Worth League of Neighborhoods by Richard B. Kuprewicz, President of Accufacts Inc., and Carl M. Weimer, Executive Director Pipeline Safety Trust, dated October, 2010.

22. "Accufacts' Independent Observations on the Chevron No. 2 Crude Oil Pipeline," prepared for the City of Salt Lake, Utah, by Richard B. Kuprewicz, dated January 30, 2011.

23. "Accufacts' Independent Analysis of New Proposed School Sites and Risks Associated with a Nearby HVL Pipeline," prepared for the Sylvania, Ohio School District, by Richard B. Kuprewicz, dated February 9, 2011.

24. "Accufacts' Report Concerning Issues Related to the 36-inch Natural Gas Pipeline and the Application of Appleview, LLC Premises: 7009 and 7010 River Road, North Bergen, NJ," prepared for the Galaxy Towers Condominium Association Inc., by Richard B. Kuprewicz, dated February 28, 2011.

25. "Prepared Testimony of Richard B. Kuprewicz Evaluating PG&E's Pipeline Safety Enhancement Plan," submitted on behalf of The Utility Reform Network (TURN), by Richard B. Kuprewicz, Accufacts Inc., dated January 31, 2012.

26. "Evaluation of the Valve Automation Component of PG&E's Safety Enhancement Plan," extracted from full testimony submitted on behalf of The Utility Reform Network (TURN), by Richard B.Kuprewicz, Accufacts Inc., dated January 31, 2012, Extracted Report issued February 20, 2012.

27. "Accufacts' Perspective on Enbridge Filing to NEB for Modifications on Line 9 Reversal Phase I Project," prepared for Equiterre Canada, by Richard B. Kuprewicz, Accufacts Inc., dated April 23, 2012.

28. "Accufacts' Evaluation of Tennessee Gas Pipeline 300 Line Expansion Projects in PA & NJ," prepared for the Delaware RiverKeeper Network, by Richard B. Kuprewicz, Accufacts Inc., dated June 27, 2012.

29. "Impact of an ONEOK NGL Pipeline Release in At-Risk Landslide and/or Sinkhole Karst Areas of Crook County, Wyoming," prepared for landowners, by Richard B. Kuprewicz, Accufacts Inc., and submitted to Crook County Commissioners, dated July 16, 2012.

30. "Impact of Processing Dilbit on the Proposed NPDES Permit for the BP Cherry Point Washington Refinery," prepared for the Puget Soundkeeper Alliance, by Richard B. Kuprewicz, Accufacts Inc., dated July 31, 2012.

31. "Analysis of SWG's Proposed Accelerated EVPP and P70VSP Replacement Plans, Public Utilities Commission of Nevada Docket Nos. 12-02019 and 12-04005," prepared for the State of Nevada Bureau of Consumer Protection, by Richard B. Kuprewicz, Accufacts Inc., dated August 17, 2012.

32. "Accufacts Inc. Most Probable Cause Findings of Three Oil Spills in Nigeria," prepared for Bohler Advocaten, by Richard B. Kuprewicz, Accufacts Inc., dated September 3, 2012.

33. "Observations on Proposed 12-inch NGL ONEOK Pipeline Route in Crook County Sensitive or Unstable Land Areas," prepared by Richard B. Kuprewicz, Accufacts Inc., dated September 13, 2012.

34. "Findings from Analysis of CEII Confidential Data Supplied to Accufacts Concerning the Millennium Pipeline Company L.L.C. Minisink Compressor Project Application to FERC, Docket No. CP11-515-000," prepared by Richard B. Kuprewicz, Accufacts Inc., for Minisink Residents for Environmental Preservation and Safety (MREPS), dated November 25, 2012.

35. "Supplemental Observations from Analysis of CEII Confidential Data Supplied to Accufacts Concerning Tennessee Gas Pipeline's Northeast Upgrade Project," prepared by Richard B. Kuprewicz, Accufacts Inc., for Delaware RiverKeeper Network, dated December 19, 2012.

36. "Report on Pipeline Safety for Enbridge's Line 9B Application to NEB," prepared by Richard B. Kuprewicz, Accufacts Inc., for Equiterre, dated August 5, 2013.

37. "Accufacts' Evaluation of Oil Spill Joint Investigation Visit Field Reporting Process for the Niger Delta Region of Nigeria," prepared by Richard B. Kuprewicz for Amnesty International, September 30, 2013.

38. "Accufacts' Expert Report on ExxonMobil Pipeline Company Silvertip Pipeline Rupture of July 1, 2011 into the Yellowstone River at the Laurel Crossing," prepared by Richard B. Kuprewicz, November 25, 2013.

39. "Accufacts Inc. Evaluation of Transco's 42-inch Skillman Loop submissions to FERC concerning the Princeton Ridge, NJ segment," prepared by Richard B. Kuprewicz for the Princeton Ridge Coalition, dated June 26, 2014, and submitted to FERC Docket No. CP13-551.

40. Accufacts report "DTI Myersville Compressor Station and Dominion Cove Point Project Interlinks," prepared by Richard B. Kuprewicz for Earthjustice, dated August 13, 2014, and submitted to FERC Docket No. CP13-113-000.

41. "Accufacts Inc. Report on EA Concerning the Princeton Ridge, NJ Segment of Transco's Leidy Southeast Expansion Project," prepared by Richard B. Kuprewicz for the Princeton Ridge Coalition, dated September 3, 2014, and submitted to FERC Docket No. CP13-551.

42. Accufacts' "Evaluation of Actual Velocity Critical Issues Related to Transco's Leidy Expansion Project," prepared by Richard B. Kuprewicz for Delaware Riverkeeper Network, dated September 8, 2014, and submitted to FERC Docket No. CP13-551.

43. "Accufacts' Report to Portland Water District on the Portland – Montreal Pipeline," with Appendix, prepared by Richard B. Kuprewicz for the Portland, ME Water District, dated July 28, 1014.

44. "Accufacts Inc. Report on EA Concerning the Princeton Ridge, NJ Segment of Transco's Leidy Southeast Expansion Project," prepared by Richard B. Kuprewicz and submitted to FERC Docket No. CP13-551.

45. Review of Algonquin Gas Transmission LLC's Algonquin Incremental Market ("AIM Project"), Impacting the Town of Cortlandt, NY, FERC Docket No. CP14-96-0000, Increasing System Capacity from 2.6 Billion Cubic Feet (Bcf/d) to 2.93 Bcf/d," prepared by Richard B. Kuprewicz, and dated Nov. 3, 2014.

46. Accufacts' Key Observations dated January 6, 2015 on Spectra's Recent Responses to FERC Staff's Data Request on the Algonquin Gas Transmission Proposal (aka "AIM Project"), FERC Docket No. CP 14-96-000) related to Accufacts' Nov. 3, 2014 Report and prepared by Richard B. Kuprewicz.

47. Accufacts' Report on Mariner East Project Affecting West Goshen Township, dated March 6, 2015, to Township Manager of West Goshen Township, PA, and prepared by Richard B. Kuprewicz.

48. Accufacts' Report on Atmos Energy Corporation ("Atmos") filing on the Proposed System Integrity Projects ("SIP") to the Mississippi Public Service Commission ("MPSC") under Docket No. 15-UN-049 ("Docket"), prepared by Richard B. Kuprewicz, dated June 12, 2015.

49. Accufacts' Report to the Shwx'owhamel First Nations and the Peters Band ("First Nations") on the Trans Mountain Expansion Project ("TMEP") filing to the Canadian NEB, prepared by Richard B. Kuprewicz, dated April 24, 2015.

50. Accufacts Report Concerning Review of Siting of Transco New Compressor and Metering Station, and Possible New Jersey Intrastate Transmission Pipeline Within the Township of Chesterfield, NJ ("Township"), to the Township of Chesterfield, NJ, dated February 18, 2016.

51. Accufacts Report, "Accufacts Expert Analysis of Humberplex Developments Inc. v. TransCanada Pipelines Limited and Enbridge Gas Distribution Inc.; Application under Section 112 of the National Energy Board Act, R.S.C. 1985, c. N-7," dated April 26, 2016, filed with the Canadian Nation Energy Board (NEB).

52. Accufacts Report, " A Review, Analysis and Comments on Engineering Critical Assessments as proposed in

PHMSA's Proposed Rule on Safety of Gas Transmission and Gathering Pipelines," prepared for Pipeline Safety Trust by Richard B. Kuprewicz, dated May 16, 2016.

53. Accufacts' Report on Atmos Energy Corporation ("Atmos") filing to the Mississippi Public Utilities Staff, "Accufacts Review of Atmos Spending Proposal 2017 – 2021 (Docket N. 2015-UN-049)," prepared by Richard B. Kuprewicz, dated August 15, 2016.

54. Accufacts Report, "Accufacts Review of the U.S. Army Corps of Engineers (USACE) Environmental Assessment (EA) for the Dakota Access Pipeline ("DAPL")," prepared for Earthjustice by Richard B. Kuprewicz, dated October 28, 2016.

55. Accufacts' Report on Mariner East 2 Expansion Project Affecting West Goshen Township, dated January 6, 2017, to Township Manager of West Goshen Township, PA, and prepared by Richard B. Kuprewicz.

56. Accufacts Review of Puget Sound Energy's Energize Eastside Transmission project along Olympic Pipe Line's two petroleum pipelines crossing the City of Newcastle, for the City of Newcastle, WA, June 20, 2017.

57. Accufacts Review of the Draft Environmental Impact Statement for the Line 3 Pipeline Project Prepared for the Minnesota Department of Commerce, July 9, 2017, filed on behalf of Friends of the Headwaters, to Minnesota State Department of Commerce for Docket Nos. CN-14-916 & PPL-15-137.

58. Testimony of Richard B. Kuprewicz, president of Accufacts Inc., in the matter West Goshen Township and Concerned Citizens of West Goshen Township v. Sunoco Pipelines, L.P. before the Pennsylvania Public Utilities Commission, Docket No. C-2017-2589346, on July 18, 2017, on Behalf of West Goshen Township and Concerned Citizens of West Goshen Township.

59. Direct Testimony of Richard B. Kuprewicz, president of Accufacts Inc., on Behalf of Friends of the Headwaters regarding Enbridge Energy, Limited Partnership proposal to replace and reroute an existing Line 3 to the Minnesota Office of Administrative Hearings for the Minnesota Public Utilities Commission (MPUC PL-9/CN-14-916 and MPUC PL-9/PPL-15-137), September 11, 2017 and October 23, 2017.

60. Direct Testimony of Richard B. Kuprewicz On Behalf of The District of Columbia Government, before the Public Service Commission of the District of Columbia, in the matter of the merger of AltaGas Ltd. and WGL Holdings, Inc., Formal Case No. 1142, September 29, 2017.

61. Report to Mississippi Public Utilities Staff ("MPUS"), "Accufacts Review on Atmos Energy Corporation's Proposed Capital Budget for Fiscal Year 2018 related to System Integrity Program Spending (Docket N. 2015-UN-049)," prepared by Richard B. Kuprewicz, dated December 4, 2017.

62. Report to Hugh A. Donaghue, Esquire, Concord Township Solicitor, "Accufacts Comments on Adelphia Project Application to FERC (Docket No. CP18-46-000) as it might impact Concord Township," dated May 30, 2018.

63. Report to Mississippi Public Utilities Staff ("MPUS"), "Accufacts Review on Atmos Energy Corporation's Proposed Capital Budget for Fiscal Year 2019 related to System Integrity Program Spending (Docket N. 2015-UN-049)," prepared by Richard B. Kuprewicz, dated August 20, 2018.

64. Report to West Goshen Township Manager, PA, "Accufacts report on the repurposing of an existing 12-inch Sunoco pipeline segment to interconnect with the Mariner East 2 and Mariner East 2X crossing West Goshen Township," dated November 8, 2018.

65. Report to West Whiteland Township Manager, PA, "Accufacts Observations on Possible Pennsylvania State Pipeline Safety Regulations," prepared by Richard B. Kuprewicz, dated March 22, 2019.

Attachment B

PIPELINE ASSESSMENT & ANOMALY REPORTING

- A PIPELINE RIGHT TO KNOW ISSUE

Richard B. Kuprewicz
President, Accufacts Inc.

For WA State Citizens Committee on Pipeline Safety 12/4/08 Meeting

Major Observations on Integrity Management (IM)

- PHMSA has found wide variation in gas transmission operators' interpretation of how to meet the requirements of pipeline safety regulations in assessing, evaluating, and remediating corrosion anomalies
  - Emphasized by recent failures
- This presentation is based on discussions related to
  - 10/22/08 PHMSA Workshop on Anomaly Assessment and Repair (http://primis.phmsa.dot.gov/meeting/Mtg55.mtg)
  - PST 11/21-22/08 New Orleans Conference discussions
- Today Mostly Focus on Gas Transmission
  - Recent failures / repairs and the above variations underscore shortcomings in consensus standards – specifically application of ASME B31.8S, Figure 4

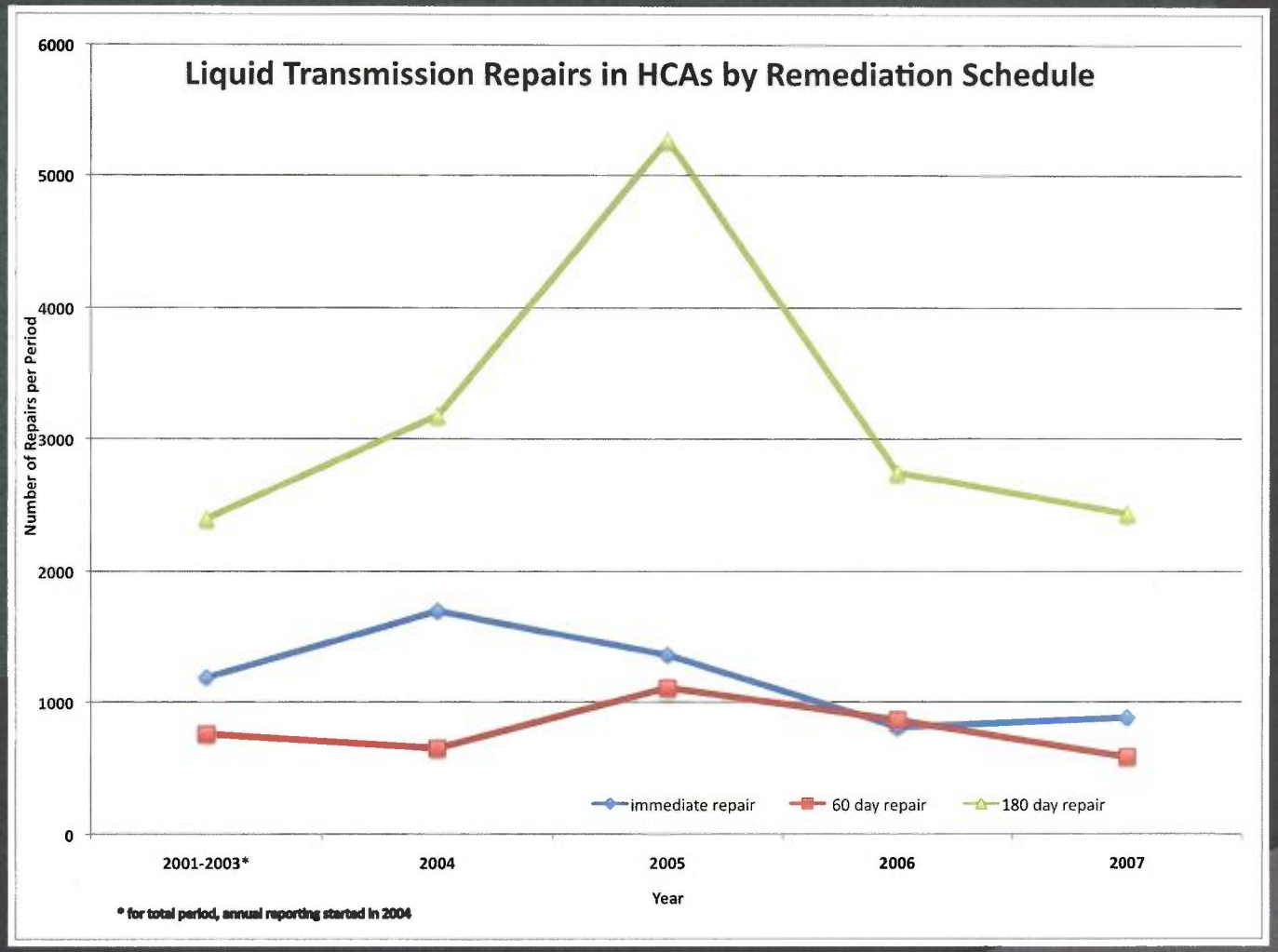
Background on Federal IM Regulations

- Liquid Integrity Management (49CFR195.452)
  - Phased (via Large / Small Operator) Regulation on 5/29/2001 & 2/15/2002
  - 7 year Baseline Assessment
    - Large operator 50% by 9/30/2004, all by 3/31/08
    - Small operator 50% by 8/16/2005, all by 2/17/2009
  - 5 year maximum reassessment interval
  - HCA determined by "could affect"
    - Captures ~ 43% of liquid transmission pipeline mileage or ~ 73,000 miles
- Gas Transmission Integrity Management
  - PSIA of 2002
    - 10 year Baseline Assessment
      - 50% inspected by 12/17/2007, 100% by 12/17/2012
    - 7 year reassessments
  - PHMSA Regulation in 2003 (49CFR192 subpart O)
    - Maximum Reassessment Interval ranging from 7 to 20 yrs based on stress levels
  - HCA determined essentially by C-fer empirical correlation sweep
    - Captures about 7% of gas transmission pipeline mileage or ~ 19,000 miles
- GAO recommending change in reassessment intervals
  - Based on "risk factors, technical data, and engineering analysis"
  - Accufacts advises to be careful don't take great leap "backward"

Current IM Approach

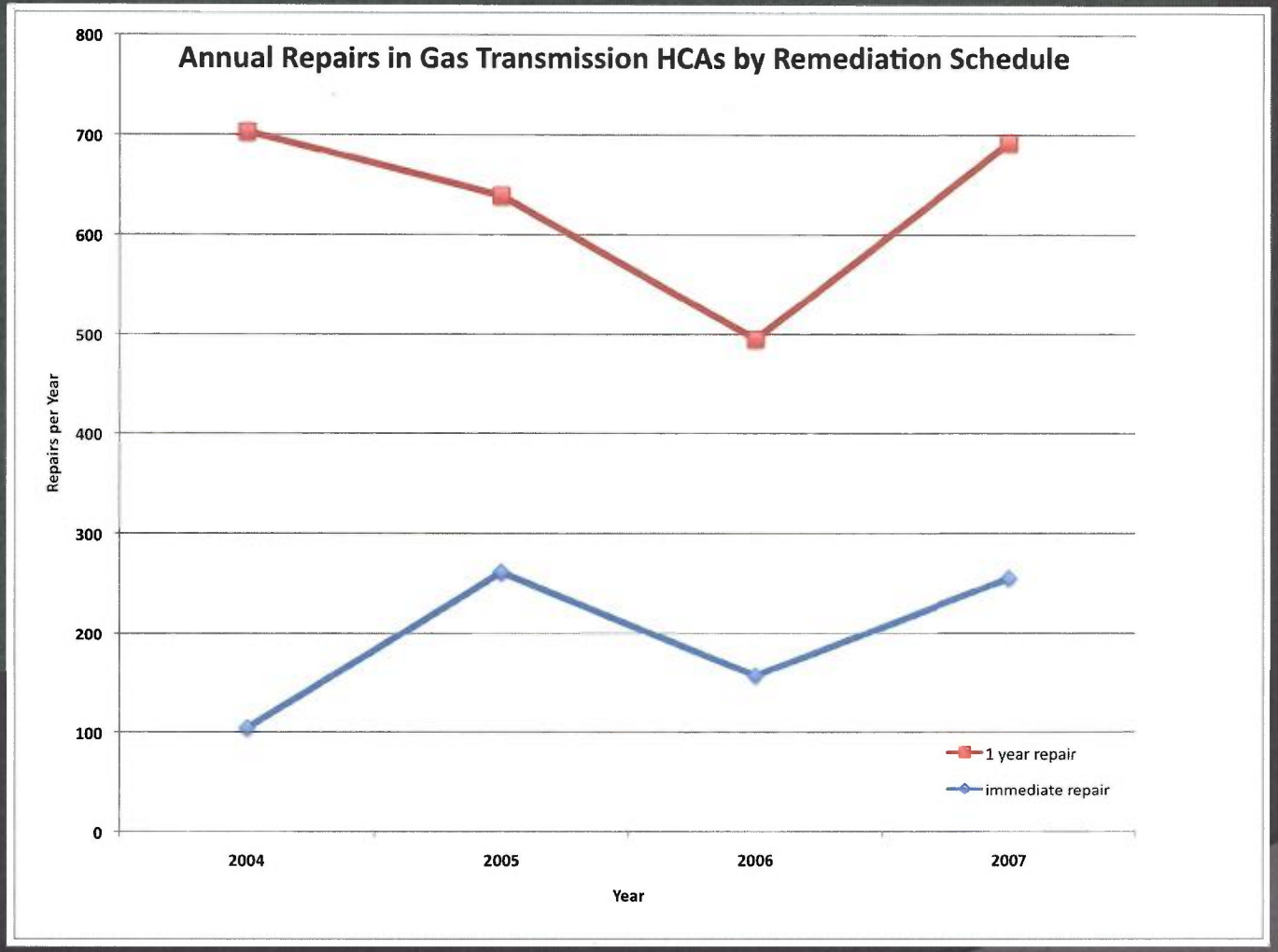
- U.S. regulations lead the world in area of Integrity Management (IM)
  - Some areas build off technology developed in other countries
  - U.S. approach is "Model One" - first of its kind
    - U.S. has more transmission mileage than other top fifteen countries combined!
- Since inception of IM rule through 2007 - Tens of thousands of repairs have occurred on U.S. pipelines
  - Liquid Pipelines ~ 26,000 repairs in HCAs, another ~ 59,000 outside HCAs
  - Gas Transmission ~ 2,500 repairs in HCAs, non HCA repairs not required to be reported
  - Caution that the past repair record does not predict future pipeline corrosion risks

Historical Perspective - Liquids



From PHMSA web site http://primis.phmsa.dot.gov/iim/index.htm

Historical Perspective - Gas



From PHMSA web site http://primis.phmsa.dot.gov/gasimp/PerformanceMeasures.htm

Gas Transmission Pipelines & IM

- Major Differences from Liquid IM rule in
  - Gas has only one specific corrosion reporting requirement
    - Not required to report anomalies in non HCAs
  - HCA definition
  - Remediation / repair schedules
  - Reassessment intervals
- Gas industry now arguing for change in reassessment intervals
  - Currently required to report only corrosion anomalies in HCAs where calculated failure pressure $\leq$ 1.1 MAOP
    - Assumptions in B31.8S and corrosion rate "calls" lead to much greater risks
    - Repairs not always timely or consistent
  - There are a lot more pipeline corrosion anomalies than those reported!

ASME B31.8S Figure 4, Gas Corrosion Timing

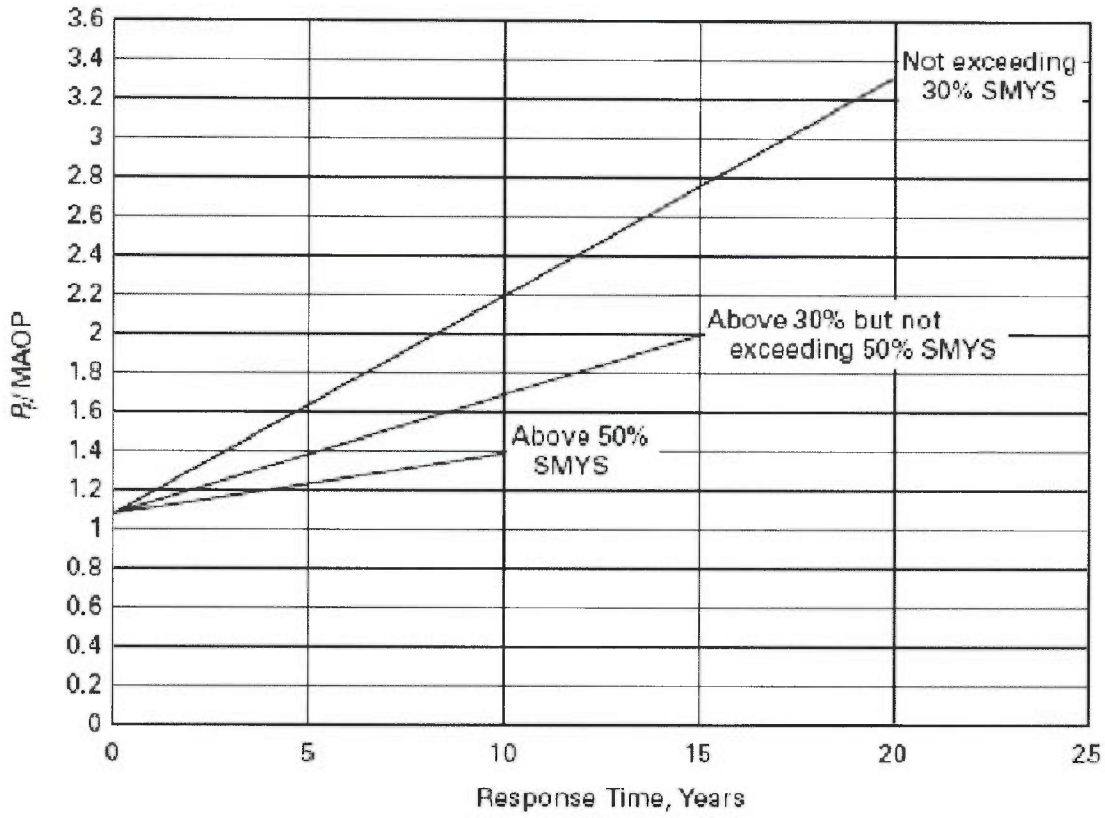


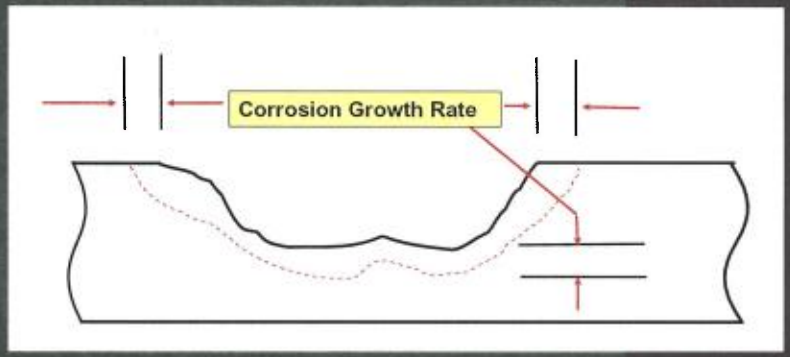
Fig. 4 Timing for Scheduled Responses: Time-Dependent Threats, Prescriptive Integrity Management Plan

Are the corrosion rates and assumptions used in developing the above figure appropriate?
Hint – corrosion rates are seldom linear, especially for severe wall thickness loss

The Corrosion Disconnect

Regulation permits use of corrosion one point in time remaining strength calculation methods:

- B31.G
- Modified B31.G
- RSTRENG
- Other methods



As corrosion wall loss increases, sensitivity to corrosion rate assumptions / changes increases risks of time to failure miscall and possible failure

For reassessment, all the remaining strength methods are moot if future assumed corrosion rate wrong at site

Some corrosion depth threshold should be required which triggers additional reporting, closer attention, and possible repair

Gas IM Corrosion Risks & Common Sense

- If going to change reassessment intervals, need a depth threshold for reporting corrosion anomalies in both HCAs and nonHCAs in line with corrosion rate uncertainties
  - Wall loss threshold should provide adequate safety margin for corrosion rate miscall
    - E.g., corrosion wall loss > 0.5 or 0.6 might mandate corrosion reassessment within 1 year
      - Time delayed repairs aren't at 0.8 wall loss!
    - Required repairs should also be commensurate with severity of metal loss, especially for rupture potential.

PHMSA Proposed Draft Perspective*

- Draft proposal for natural gas pipelines
- Investigation and repair criteria for non-HCAs (no special permit)

			Immediate		1 Year		Monitored	
Location	Class Location	%SMYS	FPR	Wall Loss	FPR^L	Wall Loss	FPR	Wall Loss
Non-HCA	1	≤72%	≤1.1	≥80%	≤1.39	≥60%	>1.39	<60%
Non-HCA	2	≤60%	≤1.1	≥80%	≤1.67	≥60%	>1.67	<60%
Non-HCA	3	≤50%	≤1.1	≥80%	≤2.00	≥60%	>2.00	<60%
Non-HCA	4	≤40%	≤1.1	≥80%	≤2.50	≥60%	>2.50	<60%

L Criteria of 1.39, 1.67, 2.00 & 2.50 equate to class location factors of 0.72, 0.60, 0.50 & 0.40.

Combination of wall loss, failure pressure calculation, and class location

* From Barrett PHMSA Perspective presentation at PHMSA 10/22/08 workshop

Recommendations for Gas IM

- Support PHMSA position beyond B31.8S on corrosion data gathering and repair for reassessment interval changes
  - Need to address problems / risks associated with poor corrosion rate calls
    - Special risks with higher wall loss corrosion
      - Incorporate a critical corrosion depth trigger to increase reporting to PHMSA
      - Especially important as shift to higher strength thinner wall pipeline grades
    - Add other stress loading as additional risk factor to corrosion.
  - More public transparency required in IM data gathering / reporting
    - Current reporting requirement understating corrosion risks in pipelines
    - Mandate pipeline operator additional reporting of corrosion anomalies and repairs to PHMSA both in HCAs and non HCAs
    - PHMSA should report annual inspection and damage database by anomaly type (corrosion, third party, material, etc.) for both HCAs and non HCAs

Where Do We Go From Here?

- PHMSA needs public advice in reassessment process
- Definitely a public right to know issue!
- No change in reassessment interval without additional corrosion anomaly information reported to PHMSA and made public
- Any Committee Action?

EXHIBIT “B”

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

In the matter of:

Sunoco Pipeline, L.P. 535 Fritztown Road Sinking Springs, PA 19608	:	Violations of The Clean Streams Law and DEP Chapter 93 and 102 of Title 25 of the Pennsylvania Code, and the Dam Safety and Encroachments Act and DEP Chapter 105 of Title 25 of the Pennsylvania Code
	:	PA Pipeline Project—Mariner East II E&S Permit Nos. ESCG0300015002; ESG0500015001; ESG0100015001
	:	WO&E Permit Nos. E02-1718; E06-701; E07-459; E11-352; E15-862; E21-449; E22-619; E23-524; E31-234; E32-508; E34-136; E36-945; E38-194; E50-258; E63-674; E65-973; E67-920

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement ("COA") is entered into this 9th day of February 2018, by and between the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department") and Sunoco Pipeline, L.P. ("Sunoco"). This COA supersedes the Administrative Order the Department issued to Sunoco on January 3, 2018 ("the January 3, 2018 Administrative Order") and incorporates herein by reference the Department's January 24, 2018 letter to Sunoco, attached hereto as Exhibit 5.

The Department has found and determined the following:

Parties

A. The Department is the agency with the duty and authority to administer and enforce The Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P.S. §§ 691.1-691.1001 ("Clean Streams Law"); the Dam Safety and Encroachment Act, the Act of November 26, 1978 P.L. 1375, as amended, 32 P.S. §§ 693.1 et seq. ("Dam Safety and Encroachment Act"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, *as amended*, 71 P.S. § 510-17 ("Administrative Code"); and the rules and regulations promulgated thereunder ("rules and regulations").

B. Sunoco Pipeline, L.P. ("Sunoco") is a foreign limited partnership doing business in Pennsylvania and maintains a mailing address of 535 Fritztown Road, Sinking Springs, PA 19608. Sunoco Logistics Partners Operations GP LLC is the general partner of Sunoco Pipeline, L.P. Joseph Colella is Executive Vice President for Sunoco Logistics Partners Operations GP LLC. Mr. Colella has been granted authority by Sunoco Logistics Partners Operations GP LLC to sign documents for Sunoco on behalf of the General Partner.

C. Sunoco owns and operates numerous pipelines in Pennsylvania used to transport petroleum and natural gas products. Sunoco has undertaken an effort to expand existing transportation systems for natural gas liquids in Pennsylvania, which is collectively referred to as the Pennsylvania Pipeline Project – Mariner East II ("PPP-ME2"). As part of PPP-ME2, Sunoco is conducting pipeline installation activities in seventeen counties in Pennsylvania, including Allegheny, Berks, Blair, Cambria, Chester, Cumberland, Dauphin, Huntingdon, Indiana, Lancaster, Perry, Washington, Westmoreland, and York Counties.

Permits

D. To construct PPP-ME2 through Pennsylvania, Sunoco obtained the following permits from the Department:

a. Three (3) Erosion and Sediment Control Permits under 25 Pa. Code Chapter 102, Permit Numbers ESG0300015002, ESG0500015001, and ESG0100015001 (Chapter 102 Permits) and;

b. Seventeen (17) Water Obstructions and Encroachment ("WOE") Permits under 25 Pa. Code Chapter 105, Permit Numbers E02-1718, E06-701, E07-459, E11-352, E15-862, E21-449, E22-619, E23-524, E31-234, E32-508, E34-136, E36-945, E38-194, E50-258, E63-674, E65-973, and E67-920 (Chapter 105 Permits). Sunoco obtained one Chapter 105 Permit for each of the seventeen (17) counties where the Department permitted PPP-ME2 activities to occur.

E. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0500015001, and Water Obstructions and Encroachment Permit, Permit Number E02-1718, to construct PPP-ME2 through Allegheny County.

F. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstructions and Encroachment Permit, Permit Number E06-701, to construct PPP-ME2 through Berks County.

G. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstruction and Encroachment Permit, Permit Number E07-459, to construct PPP-ME2 through Blair County.

H. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0500015001, and Water Obstructions and Encroachment Permit, Permit Number E11-352, to construct PPP-ME2 through Cambria County.

I. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0100015001, and Water Obstructions and Encroachment Permit, Permit Number E15-862, to construct PPP-ME2 through Chester County.

J. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstruction and Encroachment Permit, Permit Number E21-449 to construct PPP-ME2 through Cumberland County.

K. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstruction and Encroachment Permit, Permit Number E22-619 to construct PPP-ME2 through Dauphin County.

L. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstruction and Encroachment Permit, Permit Number E31-234 to construct PPP-ME2 through Huntingdon County.

M. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0500015001, and Water Obstructions and Encroachment Permit, Permit Number E32-508, to construct PPP-ME2 through Indiana County.

N. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstructions and Encroachment Permit, Permit Number E36-945, to construct PPP-ME2 through Lancaster County.

O. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstruction and Encroachment Permit, Permit Number E50-258 to construct PPP-ME2 through Perry County.

P. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0500015001, and Water Obstruction and Encroachment Permit, Permit Number E63-674 to construct PPP-ME2 through Washington County.

Q. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0500015001, and Water Obstructions and Encroachment Permit, Permit Number E65-973, to construct PPP-ME2 through Westmoreland County.

R. Sunoco obtained Erosion and Sediment Control Permit, Permit Number ESG0300015002, and Water Obstructions and Encroachment Permit, Permit Number E67-920, to construct PPP-ME2 through York County.

S. For purposes of this Consent Order, Horizontal Directional Drilling ("HDD") shall be defined within, as any steerable trenchless technology that controls the direction and deviation to a predetermined underground target or location.

Sites

T. The work area for PPP-ME2 in Berks County, Pennsylvania includes the crossing of an unnamed tributary ("UNT") to Hay Creek (S-Q90) in New Morgan Borough, Berks County ("Berks HDD Site 1"), the crossing of an unnamed tributary ("UNT") to Cacoosing Creek (S-C33) in Spring Township, Berks County ("Berks HDD Site 2"), the crossing of an UNT to Allegheny Creek (S-B30) in Brecknock Township, Berks County ("Berks HDD Site 3"), and a crossing of Wetland W35 in New Morgan Borough and Caernarvon Township, Berks County ("Berks HDD

Site 4"). Berks HDD Site 1, Berks HDD Site 2, Berks HDD Site 3, and Berks HDD Site 4 are collectively referred to herein as ("Berks HDD Sites 1-4").

U. The work area for PPP-ME2 in Blair County, Pennsylvania includes the crossing of Clover Creek (S-L58) and Wetland M23 in Woodbury Township, Blair County ("Blair HDD Site").

V. The work area for PPP-ME2 in Cumberland County, Pennsylvania includes an upland area east of North Locust Point Road in Silver Spring Township, Cumberland County ("Cumberland HDD Site").

W. The work area for PPP-ME2 in Dauphin County, Pennsylvania includes the crossing of Wetland C28 in Lower Swatara Township, Dauphin County ("Dauphin HDD Site").

X. The work area for PPP-ME2 in Huntingdon County, Pennsylvania includes HDD No. PA-HU-0110.0000-SR-16, located east of Shade Valley Road (State Route 35) in Tell Township, Huntingdon County ("Huntingdon HDD Site").

Y. The work area for PPP-ME2 in Perry County, Pennsylvania includes the crossing of Shaeffer Run in Toboyne Township, Perry County ("Perry Bridge Site").

Z. The work area for PPP-ME2 in Washington County, Pennsylvania includes the crossing of an UNT to Mingo Creek (S140) in Nottingham Township, Washington County ("Washington HDD Site").

AA. On November 11, 2017, the Department received notice of a release of sediment to the UNT to Hay Creek (S-Q90) at Berks HDD Site 1.

BB. On November 13 and 14, 2017, the Berks County Conservation District ("BCCD") conducted inspections of the Berks HDD Site 1 and documented that an inadvertent return ("IR")

of drilling fluids had occurred within an UNT to Hay Creek (S-Q90), a water of the Commonwealth, as a result of HDD activities at this location. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstructions and Encroachment Permit, Permit Number E06-701 authorized Sunoco to conduct HDD activities at this site.

CC. The designated use for the segment of Hay Creek referenced in this Order is listed in 25 Pa. Code § 93.9f as Exceptional Value Waters ("EV"), Migratory Fishes ("MF").

DD. Hay Creek is classified as a Class A wild trout water by the Fish and Boat Commission. 25 Pa. Code § 93.1. *See* http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/classa.pdf

EE. On November 15 and 16, 2017, the Department issued Sunoco a notice of violation ("NOV"), DEP file number NOV 06 17 102, for Berks HDD Site 1.

FF. On November 22, 2017, Sunoco submitted a response to the NOV referenced in Paragraph EE, above, containing the following information associated with Berks HDD Site 1:

a. Pipeline installation activities were in operation between November 4 and November 11, 2017;

b. The pipeline installation activities experienced losses of circulation of drilling fluid on November 8, 9, and 10, 2017;

c. A pollution event to an UNT Hay Creek, referenced in Paragraph BB, above, had occurred on November 10, 2017;

d. The cleanup of the pollution event within the UNT to Hay Creek was completed on November 18, 2017; and

e. Sunoco provided landowner notification (titled Mariner East 2-Pennsylvania Pipeline Project Horizontal Directional Drilling Construction Notification and Private Water Supply/Well Sampling Offer) via certified mail dated August 24, 2017 to five (5) landowners within 450' of the HDD alignment.

GG. On November 17, 2017, the BCCD conducted an inspection of pipeline construction activities in the location of a UNT to Cacoosing Creek (S-C33) at Berks HDD Site 2.

HH. During the inspection referenced in Paragraph GG, BCCD documented that pipeline installation activities were underway at the Berks HDD Site 2 utilizing HDD construction methods. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstructions and Encroachment Permit, Permit Number E06-701 authorized Sunoco to conduct HDD activities at this site.

II. The receiving waters for discharges from the Berks HDD Site 2 is a UNT to Cacoosing Creek (S-C33). The designated use for the segment of Cacoosing Creek referenced in this Order is listed in 25 Pa. Code § 93.9f as Cold Water Fishes ("CWF"), Migratory Fishes ("MF").

JJ. Cacoosing Creek is classified as a Class A wild trout water by the Fish and Boat Commission. 25 Pa. Code § 93.1. *See* http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/classa.pdf.

KK. The Department subsequently learned that pipeline installation activities at the Berks HDD Site 2 were in operation between September 25, 2017 and November 14, 2017. Prior to initiating construction, Sunoco provided landowner notification (titled Mariner East 2-

Pennsylvania Pipeline Project Horizontal Directional Drilling Construction Notification and Private Water Supply/Well Sampling Offer) via certified mail dated August 23, 2017, to ten (10) landowners within 450' of the unauthorized HDD alignment.

LL. On November 21, 2017, the Department issued Sunoco a NOV, DEP file number NOV 06 17 103, for Berks HDD Site 2.

MM. On November 28, 2017, Sunoco submitted a written response to the DEP File No. NOV 06 17 103. Within this response, Sunoco identified seven locations where pipeline crossings of waters of the Commonwealth were permitted to be open cuts but were field changed to a trenchless construction method without first obtaining a permit modification or any other authorization from the Department. The seven locations Sunoco described in its response included the Berks HDD Sites 1-4, the Blair HDD Site, the Dauphin HDD Site, and the Washington HDD Site.

NN. The receiving waters for discharges from the Berks HDD Site 3 is an UNT to Allegheny Creek (S-B30). The designated use for the segment of Allegheny Creek referenced in this Order is listed in 25 Pa. Code § 93.9f as CWF. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstructions and Encroachment Permit, Permit Number E06-701 authorized Sunoco to conduct HDD activities at this site.

OO. Allegheny Creek is classified as a wild trout (natural reproduction) water by the Fish and Boat Commission. See http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/trout_repro.pdf

PP. Sunoco conducted its unauthorized pipeline installation activities at Berks HDD Site 3 between September 20, 2017 and November 11, 2017.

QQ. The receiving water for discharges from the Berks HDD Site 4 is wetland W35 in New Morgan Borough and Caernarvon Township, Berks County. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstructions and Encroachment Permit, Permit Number E06-701 authorized Sunoco to conduct HDD activities at this site.

RR. Sunoco conducted its unauthorized pipeline installation activities at Berks HDD Site 4 between June 28, 2017 and July 8, 2017.

SS. The receiving waters for discharges from the Blair HDD Site is Clover Creek (S-L58). The designated use for the segment of Clover Creek referenced in this Order is listed in 25 Pa. Code § 93.9n as High-Quality Waters ("HQ"), MF. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstruction and Encroachment Permit, Permit Number E07-459 authorized Sunoco to conduct HDD activities at this site.

TT. Clover Creek is classified as a Class A wild trout water by the Fish and Boat Commission. See http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/classa.pdf.

UU. Sunoco conducted its unauthorized pipeline installation activities at the Blair HDD Site between June 4, 2017 and October 3, 2017.

VV. The receiving waters for discharges from the Washington HDD Site is an UNT to Mingo Creek. The designated use for the segment of Mingo Creek referenced in this Order is listed in 25 Pa. Code § 93.9v as HQ, Trout Stocking ("TSF"). Neither Erosion and Sediment Control Permit, Permit Number ESG0500015001, nor Water Obstruction and Encroachment Permit, Permit Number E63-674 authorized Sunoco to conduct HDD activities at this site.

WW. Sunoco conducted its unauthorized pipeline installation activities at the Washington HDD Site between July 7, 2017 and July 15, 2017.

XX. The receiving water for discharges from the Dauphin HDD Site is wetland C28 in Lower Swatara Township, Dauphin County. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstruction and Encroachment Permit, Permit Number E22-619 authorized Sunoco to conduct HDD activities at this site.

YY. Sunoco conducted its unauthorized pipeline installation activities at the Dauphin HDD Site between November 8, 2017 and November 20, 2017.

ZZ. On December 5, 2017, the Department responded to a complaint that a stream crossing was installed at Perry Bridge Site in Toboyne Township, Perry County without a permit. During the inspection, the Department found that an "air bridge" was installed over an existing bridge that had previously been deemed unsafe by county inspectors. The Department later identified that Sunoco's contractor (Michels Corporation) had installed the bridge on October 28, 2017 without first obtaining a Chapter 105 permit from the Department.

AAA. The receiving waters for discharges from the Perry Bridge Site is Shaeffer Creek. The designated use for the segment of Shaeffer Creek referenced in this Order is listed in 25 Pa. Code § 93.9n as HQ, CWF.

BBB. Shaeffer Creek is classified as a Class A wild trout water by the Fish and Boat Commission. See http://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Documents/classa.pdf.

CCC. On December 6, 2017, Sunoco and the Department met to further discuss Sunoco's November 28, 2017 written response to the DEP File No. NOV 06 17 103. During this

meeting Sunoco stated that its investigation was ongoing as to whether there were any other pipeline crossings of a water of the Commonwealth along the entire Mariner East II Project where construction had been completed and/or initiated using a crossing methodology other than what was authorized by the initial permit approval or amendment thereto, outside of those described in their November 28, 2017 written response.

DDD. On December 18, 2017, the Cumberland County Conservation District ("CCCD") conducted an inspection of pipeline construction activities in the location of an upland area east of North Locust Point Road at the Cumberland HDD Site. Pipeline installation activities at Cumberland HDD Site were permitted to occur using open-cut methodology. Neither Erosion and Sediment Control Permit, Permit Number ESG0300015002, nor Water Obstruction and Encroachment Permit, Permit Number E21-449 authorized Sunoco to conduct HDD activities at this site.

EEE. On December 18, 2017, Sunoco notified the Department that it had received complaints from two separate private water supply owners in the vicinity of the Cumberland HDD Site that they were experiencing cloudy water—the first complaint was filed on December 15, 2017, and the second complaint was filed on December 18, 2017.

FFF. During the inspection referenced in Paragraph DDD, CCCD documented that pipeline installation activities were underway at the Cumberland HDD Site utilizing HDD construction methods. The Department later determined that Sunoco field changed pipeline installation activities at the Cumberland HDD Site from open-cut to a trenchless construction method without first obtaining a permit modification or any other authorization from the Department.

GGG. On December 22, 2017, the Department issued Sunoco a NOV, DEP file number NOV 21 17 105, for the Cumberland HDD Site.

HHH. On January 5, 2018, Sunoco submitted a written response to the DEP File No. NOV 21 17 105. Within this response, Sunoco identified that pipeline installation activities using a trenchless methodology were in operation between September 2, 2017 and December 19, 2017 at the Cumberland HDD Site.

III. On December 7, 2017, the Huntingdon County Conservation District ("HCCD") conducted an inspection of pipeline construction activities at the Huntingdon HDD Site. During the inspection, HCCD documented an IR in an upland area near the exit pit of the 20-inch pipe. This IR was never reported to the Department, nor was an initial written report submitted to the Department as noted within Section 6.5 of the revised August 8, 2017 HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan ("HDD IR PPC Plan").

JJJ. On December 29, 2017, Sunoco submitted their December 2017 Monthly HDD Report to the Department. Within this report, it noted that the 20-inch pipe referenced in Paragraph III, above, had been completed and that the pilot hole for the 16-inch pipe was underway. Sunoco did not perform a re-evaluation of the 16-inch pipe HDD as a result of the IR that occurred during the installation of the 20-inch pipe, as required by Paragraph 3 of the August 10, 2017 Corrected Stipulated Order ("Corrected Stipulated Order") entered into by Sunoco, the Department, and the Appellants at EHB Docket No. 2017-009-L.

KKK. On January 2, 2018, the Department requested that Sunoco provide the date that HDD activities commenced to install the 16-inch pipe at the Huntingdon HDD Site, as well as the current stage of construction for the 16-inch pipe.

LLL. On January 2, 2018, Sunoco submitted a response to the Department's request for information in Paragraph KKK, above. Within this response, Sunoco identified that pipeline installation activities for the 16-inch pipe were in operation between December 12, 2017 and December 21, 2017.

MMM. On January 3, 2018, the Department issued Sunoco the January 3, 2018 Administrative Order suspending Sunoco's activities authorized by the permits described in Paragraph D and requiring Sunoco to comply with certain corrective actions.

NNN. On January 22, 2018, Sunoco provided the Department with information requested by and required pursuant to the January 3, 2018 Administrative Order ("Sunoco's Response Information").

OOO. From reviewing Sunoco's Response Information, the Department determined that Sunoco had committed additional violations related to its PPP-ME2 construction activities described in Exhibit 3, attached herein. Specifically, Sunoco utilized construction methods other than those authorized by the Chapter 105 Permits and/or the Chapter 102 Permits at 22 discrete locations without first obtaining permit amendments or any other authorizations from the Department.

PPP. Pursuant to Special Condition 20.xx., of Permit E06-701 (Berks County), no work shall be done in the stream channel of a Class A wild trout fishery, between October 1 and April 1 without the prior written approval of the Pennsylvania Fish & Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147.

QQQ. Pursuant to Special Condition 20.ww., of Permit E50-258 (Perry County), no work shall be done in the stream channel of a Class A wild trout fishery, between October 1 and April 1 without the prior written approval of the Pennsylvania Fish & Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147.

RRR. Pursuant to Special Condition 20.yy., of Permit E06-701 (Berks County), no work shall be done in the stream channel of a wild trout fishery, between October 1 and December 31 without the prior written approval of the Pennsylvania Fish & Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147.

SSS. Sunoco did not obtain prior written approval from the Pennsylvania Fish & Boat Commission's Division of Environmental Services to conduct any work in the stream channel of either the UNT to Hay Creek (S-Q90) or the UNT to Cacoosing Creek (S-C33) between October 1 and April 1.

TTT. Sunoco did not obtain prior written approval from the Pennsylvania Fish & Boat Commission's Division of Environmental Services to conduct any work in the stream channel of the UNT to Allegheny Creek (S-B30) between October 1 and December 31.

Violations

UUU. The drilling fluids that comprised the IR at Berks HDD Site 1 constitute Industrial Waste. Sunoco's discharge of Industrial Waste to waters of the Commonwealth without a permit is a violation of 25 Pa. Code § 92a.1(b) and Section 301 of the Clean Streams Law, 35 P.S. §

691.301, a nuisance under Section 401 of the Clean Streams Law, 35 P.S. § 691.401, and unlawful conduct under Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

VVV. The Department did not authorize any HDDs, other trenchless technologies, or IRs at either Berks HDD Sites 1-4, Blair HDD Site, Cumberland HDD Site, Dauphin HDD Site and Washington HDD Site by permit or other authorization.

WWW. Sunoco's failure to obtain permit authorization prior to conducting HDD activities at Berks HDD Sites 1-4, Blair HDD Site, Dauphin HDD Site and Washington HDD Site violates Section 6(a) of the Dam Safety and Encroachments Act, 32 P.S. § 693.6(a) and 25 Pa. Code § 105.11(a), and constitutes unlawful conduct under Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18 and Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

XXX. Sunoco's failure to obtain permit authorization prior to conducting HDD activities at the Cumberland HDD Site violates Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

YYY. Sunoco's failure to obtain permit authorization prior to altering the construction methodologies at the 21 locations identified on page 1 (titled, *'AR Crossings with Method Changes'*) and page 2 (titled, *'AR Bore Method Variations'*) of Exhibit 3, referenced in Paragraph OOO, above, violates Section 6(a) of the Dam Safety and Encroachments Act, 32 P.S. § 693.6(a) and 25 Pa. Code § 105.11(a), and constitutes unlawful conduct under Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18 and Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

ZZZ. Sunoco's failure to obtain permit authorization prior to altering the construction methodology at the location identified on page 3 (titled, *'Upland In-Progress Bores with Variations'*) of Exhibit 3, referenced in Paragraph OOO, above, violates Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

AAAA. The Chapter 105 Permits, Chapter 102 Permits, and Paragraph 15 of the Corrected Stipulated Order, require permittee(s) to abide by their HDD IR PPC Plan that is part of the approved plans in the aforementioned permits to reduce, minimize, or eliminate a pollution event.

BBBB. The HDD IR PPC Plan in the Chapter 102 Permits and the Chapter 105 Permits, and referenced in the Corrected Stipulated Order, contains the following requirements:

a. Immediately notify the pertinent Department Regional Office 24-hour Emergency Response Line of an IR. For the Southcentral Office, the number is 866.825.0208.

b. Notify the Department at least 24 hours prior to the beginning of each HDD, including conventional boring under waters of the Commonwealth.

c. Submit an initial report of the IR to the Department using Attachment B of the HDD IR PPC Plan.

d. Obtain an amendment to the applicable Chapter 105 and/or Chapter 102 Permit prior to deviating from the construction methodology or project design that is shown on the approved drawings.

CCCC. The approved method of pipeline installation at Berks HDD Sites 1-4, Blair HDD Site, Cumberland HDD Site, Dauphin HDD Site, and Washington HDD Site was open cut.

Sunoco did not obtain a permit amendment or any other authorization prior to altering the construction methodology to an HDD.

DDDD. Sunoco did not immediately notify the Department to report the IR that occurred at the Huntingdon HDD Site.

EEEE. Sunoco did not notify the Department at least 24 hours prior to beginning the HDD for Berks HDD Sites 1-4, Blair HDD Site, Cumberland HDD Site, Dauphin HDD Site, the Huntingdon HDD Site (16 inch line) and Washington HDD Site.

FFFF. Sunoco did not submit an initial report of the IR at Berks HDD Site 1 and Huntingdon HDD Site to the Department using Attachment B of the HDD IR PPC Plan.

GGGG. Sunoco's failure to obtain permit authorization prior to installing an air bridge over Shaeffer Run at the Perry Bridge Site violates Section 6(a) of the Dam Safety and Encroachments Act, 32 P.S. § 693.6(a) and 25 Pa. Code § 105.11(a), and constitutes unlawful conduct under Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18 and Sections 402 and 611 of the Clean Streams Law, 35 P.S. §§ 691.402 and 691.611.

HHHH. With respect to Berks HDD Sites, 1-4, the Blair HDD Site, the Dauphin HDD Site, the Huntingdon HDD Site, and the Washington HDD Site, Sunoco's failure to comply with permit requirements listed in Paragraphs PPP, QQQ, and RRR, above, constitutes a violation of Section 6(a) of the Dam Safety and Encroachments Act, 32 P.S. § 693.6(a), and 25 Pa. Code § 105.11(a), and constitutes unlawful conduct under Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18 and Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

IIII. With respect to the Cumberland HDD Site, Sunoco's failure to comply with the requirements of Erosion and Sediment Control Permit, Permit Number ESG0300015002 constitutes unlawful conduct under Section 611 of the Clean Streams Law, 35 P.S. § 691.611.

JJJJ. Sunoco's failure to conduct a re-evaluation of the Huntingdon HDD prior to commencing installation of the 16-inch pipe, as required by Paragraph 3 of the Corrected Stipulated Order constitutes unlawful conduct under Section 611 of the Clean Streams Law, 35 P.S. § 691.611 and Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18.

KKKK. Sunoco's conduct allowing the unauthorized discharge of Industrial Waste to waters of the Commonwealth, failing to obtain a Chapter 105 permit, failing to acknowledge permit conditions, and failing to perform work according to permit specifications, constitutes a violation of Section 301 of the Clean Streams Law, 35 P.S. § 691.301 and constitutes unlawful conduct under Section 611 of the Clean Streams Law, 35 P.S. § 691.611 and Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18.

LLLL. Throughout the installation of the ME II pipeline, Sunoco has produced IRs in uplands which have created a potential for pollution to waters of the Commonwealth pursuant to Section 402 of the Clean Streams Law, 35 P.S. § 691.402 and constituted violations of 25 Pa. Code § 91.34.

MMMM. The violations described in Paragraphs UUU through LLLL, above, constitute unlawful conduct under Sections 401, 402, and 611 of the Clean Streams Law, 35 P.S. §§ 691.401, 691.402, and 691.611; a statutory nuisance under Sections 401 and 601 of the Clean Streams Law, 35 P.S. §§ 691.401 and 691.601; and subject Sunoco to civil penalty liability under Section 605 of the Clean Streams Law, § 691.605. The violations in Paragraphs VVV, WWW,

YYY, AAAA, CCCC, DDDD, EEEE, FFFF, GGGG, HHHH, and KKKK constitute unlawful conduct under Section 18 of the Dam Safety and Encroachments Act, 32 P.S. § 693.18, subject Sunoco to an order under Section 20 of the Dam Safety and Encroachments Act, 32 P.S. § 693.20, and subject Sunoco to a claim of civil penalty under Section 21 of the Dam Safety and Encroachments Act, 32 P.S. § 693.21.

NNNN. Sunoco's unlawful conduct set forth in Paragraphs T through TTT, above, demonstrated a lack of ability or intention on the part of Sunoco to comply with the Clean Streams Law, the Dam Safety and Encroachments Act, and the permits issued thereunder. Suspension of the permits described in Paragraph D, above, is necessary to correct the egregious and willful violations described herein. Other enforcement procedures, penalties and remedies available to the Department under the Clean Streams Law and the Dam Safety and Encroachments Act would not be adequate to effect prompt or effective correction of the conditions or violations demonstrated by Sunoco's lack of ability or intention to comply.

OOOO. The Department has determined based upon the information submitted and actions taken by Sunoco since the January 3, 2018 Administrative Order, that Sunoco has demonstrated an ability and intention to comply with the Clean Streams Law, the Dam Safety and Encroachment Acts, and the permits issued thereunder.

PPPP. Except for inadvertent returns expressly set forth in this Consent Order and Agreement, in Paragraphs BB and III, above, the Department reserves the right to take additional enforcement action, including assessment of civil penalties and issuance of administrative orders to address all other inadvertent returns that have occurred during the course of the ME II project.

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by Sunoco as follows:

1. Authority. This COA is an Order of the Department authorized and issued pursuant to Section 20 of the Dam Safety and Encroachments Act, 32 P.S. § 693.20; Section 5 of the Clean Streams Law, 35 P.S. § 691.5; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.

2. Findings.

a. Sunoco agrees that the findings in Paragraphs A through TTT, VVV, AAAA-FFFF and OOOO are true and correct and, in any matter or proceeding involving Sunoco and the Department, Sunoco shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this COA in any matter or proceeding.

3. Corrective Actions.

a. Except as specified herein, Sunoco shall immediately suspend all work authorized by the permits described in Paragraph D, above, until the Department provides written authorization to resume work. In no event shall Sunoco undertake any pipeline installation activities unless expressly authorized by the Department in writing.

b. On or before February 2, 2018, Sunoco shall submit a detailed description of any method of trenchless pipeline construction techniques that have been used or will be proposed for use in the completion of PPP-ME2, other than (dry) conventional auger bore and

HDD, as those methods are defined in the *'Trenchless Construction Feasibility Analysis'*, dated December 2016, that was approved as part of the Chapter 105 Permits.

c. On or before February 2, 2018, Sunoco shall submit to the Department full documentation of each crossing of a wild trout stream, stocked and wild trout fishery, stocked trout fishery and Class A trout fishery. The documentation shall include the date(s) of the installation of the pipeline, which pipeline was installed (20 inch, 16 inch, or both), the municipality and county, the stream number, latitude and longitude, and photographic documentation of the crossing including all before, during and after photographs of the installation. Sunoco shall submit this documentation to the Department on the forms attached hereto as Exhibit 1.

d. On or before February 2, 2018, Sunoco shall submit a report to the Department documenting any other unpermitted changes made to the method for installation of the pipeline. Permitted methods of pipeline construction are limited to open trench/open cut, and two trenchless installation methods, (dry) conventional auger bore and HDD, as those methods are defined in the *'Trenchless Construction Feasibility Analysis'* dated December 2016 and approved as part of the Chapter 105 Permits. Such changes include, but are not limited to, a change from conventional auger bore to HDD (including, but not limited to, "flex bore"), a change from open cut to conventional auger bore or HDD (including, but not limited to, "flex bore")", and a change from HDD (including, but not limited to, "flex bore") or conventional auger bore to an open cut. The report shall document all steps taken by Sunoco to determine if unpermitted changes have occurred. The information regarding the altered crossing methodology shall be provided on the forms attached hereto as Exhibit 2.

e. On or before February 2, 2018, Sunoco shall submit a list to the Department that documents the legal name of all drilling contractors and subcontractors who have worked, or will be working, on the PPP-ME2. The list shall include the contact information for each contractor and subcontractor including the name of the business contact person, contact telephone numbers and email addresses, the HDD number for each HDD that the contractor or subcontractor has worked on, or will be working on, the municipality and county for each HDD, and the latitudes and longitudes for each location.

f. On or before February 2, 2018, Sunoco shall submit a report to the Department that fully explains the failures that led to the violations described in the January 3, 2018 Administrative Order and the steps Sunoco proposes to implement to ensure that those violations will not re-occur.

g. The permittee shall address all alleged impacts to private water wells in Silver Spring Township, Cumberland County, as described in Paragraph EEE. to the satisfaction of the private well owners, to include replacement or restoration of the water supply and reimbursement of any costs of displacement during the period when the water supply is adversely impacted.

h. In order to demonstrate the ability and intention to comply with the Chapter 102 Permits and Chapter 105 Permits, on or before February 2, 2018, the permittee shall submit a comprehensive list of all pending earth disturbance and water obstruction and encroachment related activities currently authorized by the Chapter 102 Permits and Chapter 105 Permits that have yet to be completed or commenced. This list shall include for each project activity identified:

i. the specific Chapter 105 Permit and/or Chapter 102 Permit under which each of these activities are authorized;

ii. the location (county, municipality, latitude and longitude) where each activity will occur;

iii. the pipe installation methodology authorized by the Chapter 105 Permit and/or Chapter 102 Permit (i.e., HDD, open cut, conventional auger bore) at each location;

iv. if the activity is an HDD, the associated drill identification number;

v. the specific name and contact information for the on-site contractor representative who is responsible for permit and regulatory compliance at each location;

vi. the specific name and contact information for the corporate representative from Sunoco who is responsible for permit and regulatory compliance at each location;

vii. the specific name and contact information for the corporate representative from Sunoco who is responsible for supervision and direction of contractors at each location;

viii. the specific name and contact information for the corporate Executive Officer from Sunoco who is responsible for environmental compliance in the Commonwealth of Pennsylvania and for the installation of the Mariner II project, if such Executive Officers are different.

i. On or before February 2, 2018, the permittee shall submit a detailed Operations Plan setting forth the additional measures and controls which the permittee and its contractors shall implement to ensure that all permit conditions will be followed at all times. The Department shall review the Operations Plan and will approve it only when it deems it to be sufficient and satisfactory. The Operations Plan shall also include the additional measures and controls which the permittee and its contractors shall implement to minimize inadvertent return incidents and water supply impacts to the maximum extent possible.

j. On or before January 13, 2018, Sunoco shall have backfilled all areas of trench excavation, except as to the extension on backfilling of trenches requested in Sunoco's letter dated January 12, 2018 and approved pursuant to the Department's letter dated January 24, 2018. The backfilling of the trenches extended pursuant to the Department's January 24, 2018 letter are proceeding in accordance with the requirements set forth in that letter. Both letters are attached hereto and incorporated by reference. (Sunoco's January 12, 2018 letter is attached as Exhibit 4. The Department's January 24, 2018 letter is attached as Exhibit 5). The Department's January 24, 2018 letter attached as Exhibit 5 at paragraph number 7 is hereby corrected to require BMP monitoring after 0.1 inches of rainfall to be consistent with the Department permits. All other aspects of this Department letter remain unchanged.

k. On or before January 13, 2018, Sunoco shall have removed the drill bits, reamers, and/or strings for any unpermitted HDD activities, unless Sunoco provided the Department with justification and received Department approval in writing to leave the bit, reamer, and/or string in place for a specific PPP-ME2 HDD site.

l. On or before January 13, 2018, Sunoco shall have properly abandoned all pilot holes created by the activities in Paragraph 3.k., unless Sunoco provided the Department with justification and received Department approval in writing to leave a pilot hole open.

m. On or before January 13, 2018, Sunoco shall pull the drill bit and string from the 16-inch line at the Huntingdon HDD Site and properly abandon the pilot hole.

n. Prior to conducting any further HDD activity at the Huntingdon HDD Site, Sunoco shall submit a reevaluation of the 16-inch line as required by Paragraph 3 of the Corrected Stipulated Order and receive Department approval of that re-evaluation.

o. On or before February 2, 2018, Sunoco shall submit as-built drawings, sealed by a Professional Engineer, and a Hydrologic and Hydraulic ("H&H") analysis using the Hydrologic Engineering Center's River Analysis System ("HEC-RAS"), sealed by the licensed Professional Engineer who prepared the analysis, for the air bridge at the Perry Bridge Site. The H&H analysis shall show the calculations performed to determine the design and 100-year frequency flood discharges at the Perry Bridge Site. The H&H analysis must clearly demonstrate the difference in hydraulic capacity, stability and flood water surface elevations prior to the placement of the air bridge and with the air bridge in place and include a backwater analysis of both conditions.

i. If the H&H analysis demonstrates that the air bridge fails to adequately protect the health, safety, welfare and property of the people, natural resources and the environment, then within ten (10) days of receipt of such a determination by the Department in writing, Sunoco shall either remove the air bridge, or submit an application to the Department for

issuance of an Emergency Permit for modification of the obstruction/air bridge to immediately address the inadequacies determined through the Department's review of the H&H analysis.

ii. If Sunoco elects to submit an application for issuance of an Emergency Permit, within 15 days of the Department's issuance of the Emergency Permit, Sunoco shall complete all modifications to the air bridge in a manner consistent with the proposal contained in its application for the Emergency Permit.

p. On or before March 5, 2018, Sunoco shall submit a complete Water Obstruction and Encroachment Permit application that complies with the requirements of the Dam Safety and Encroachment Act, the Clean Streams Law, 25 Pa. Code, Chapter 105 and all other applicable statutory and regulatory requirements for the air bridge at the Perry Bridge Site.

i. Sunoco shall submit the complete Water Obstruction and Encroachment Permit application in the name of and on behalf of Toboyne Township, Perry County, who is the owner of the bridge

ii. Sunoco shall provide the necessary information, including any bridge design changes determined to be necessary by the Department to meet the applicable requirements, on behalf of Toboyne Township.

iii. If any design changes to the air bridge occur during the permitting process that result in required field work or other modifications including but not limited to the air bridge, approaches, or scour protection, Sunoco shall implement any work or other modifications required by the Water Obstruction and Encroachment Permit within thirty (30) days of the Department approving or acknowledging the use

of a Water Obstruction and Encroachment permit for the air bridge at Perry Bridge Site.

q. In the January 3, 2018 Administrative Order, the Department requested additional information, revisions, modifications or amendments as necessary to any permit, plan, any other submission, or restoration work required by this Consent Order and Agreement, and Sunoco has submitted to the Department such information, revisions, amendments or modifications, and/or completed the modified work.

r. The Department approves of all submissions required by Paragraphs 3. b, c, d, e, f, g, h, i, j, k, l, m, o, and o.i. above, and the suspension imposed by Paragraph 3.a. of this COA shall be terminated and Sunoco may resume the work authorized by the permits described in Paragraph D, above, unless otherwise restricted or conditioned due to existing or future Department enforcement actions or the Corrected Stipulated Order. As a condition to the Department's termination of the suspension imposed by paragraph 3.a. of this COA, Sunoco consents to the assessment of the civil penalty in paragraph 4.

s. Effective immediately, Sunoco shall temporarily stabilize all disturbed areas in accordance with the approved E&S Plans and in compliance with 25 Pa. Code § 102.22(b). During the period of the permit suspension, Sunoco shall continue to complete installation of permitted best management practices (BMPs) for PPP-ME2, including perimeter BMPs, in accordance with approved plans and the permit in areas where Sunoco or its contractors have commenced earth disturbance activities. Sunoco shall also continue routine monitoring of the installed BMPs and shall perform all necessary ongoing operation and maintenance activities to

ensure the BMPs continue to perform as designed, in accordance with the approved E&S Plans and permits.

t. With regard to any in-process and permitted HDD operation (as the HDD installation method is defined in the *'Trenchless Construction Feasibility Analysis'* dated December 2016 and approved as part of the Chapter 105 Permits), Sunoco shall be permitted to periodically rotate the downhole drill bits or reamers and move them back and forth within the drill holes without advancing the drill hole or conducting additional drilling, to safeguard the integrity of the downhole equipment.

u. Sunoco shall immediately begin implementing the *'HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan'*, as revised, attached to this Order as Exhibit 6.

4. Civil Penalty Settlement. Sunoco consents to the assessment of the civil penalty of TWELVE MILLION SIX HUNDREDTHOUSAND DOLLARS ($12,600,000.00), which shall be paid in full within thirty (30) days of execution of this COA. This payment is in settlement of the Department's claim for civil penalties for the violations set forth in Paragraphs UUU through MMMM, above, covering the period from May 20, 2017 to the date of execution of this COA. The payments shall be by corporate check(s) or the like, made payable to the following: a) TWELVE MILLION FIVE HUNDRED NINETY NINE THOUSAND THREE HUNDRED TWENTY SIX DOLLARS ($12,599,326.00) to the "**Commonwealth of Pennsylvania**", b) FOUR HUNDRED DOLLARS ($400.00) to the "**Berks County Conservation District**", and c) TWO HUNDRED SEVENTY-FOUR DOLLARS ($274.00) to the "**Huntingdon County Conservation District**". The payment of TWELVE MILLION

FIVE HUNDRED NINETY-NINE THOUSAND THREE HUNDRED TWENTY SIX DOLLARS ($12,599,326.00) shall be divided between the Department's Special Funds as follows: ELEVEN MILLION SEVEN HUNDRED EIGHTY SEVEN THOUSAND FOUR HUNDRED THIRTY DOLLARS ($11,787,430.00) shall be deposited in the Clean Water Fund, and EIGHT HUNDRED ELEVEN THOUSAND EIGHT HUNDRED NINETY SIX DOLLARS ($811,896.00) shall be deposited in the Dams and Encroachments Fund. All checks shall be sent c/o Ronald C. Eberts, Jr., Environmental Protection Compliance Specialist, DEP Waterways and Wetlands Program, 909 Elmerton Avenue, Harrisburg, PA 17110-8200.

5. Stipulated Civil Penalties.

a. In the event Sunoco fails to comply in a timely manner with any term or provision of paragraphs 1, 2,3a.-t. and 4 of this COA, Sunoco shall be in violation of this COA and, in addition to other applicable remedies, shall pay a civil penalty in the amount of $5,000 per day for each violation.

b. Stipulated civil penalty payments shall be payable monthly on or before the fifteenth day of each succeeding month, and shall be forwarded as described in Paragraph 4 (Civil Penalties) above.

c. Any payment under this paragraph shall neither waive Sunoco's duty to meet its obligations under this COA nor preclude the Department from commencing an action to compel Sunoco's compliance with the terms and conditions of this COA. The payment resolves only Sunoco's liability for civil penalties arising from the violations of this COA for which the payment is made.

d. Stipulated civil penalties shall be due automatically and without notice.

6. Additional Remedies

a. In the event Sunoco fails to comply with paragraphs 1, 2,3a.–t. and 4 of this COA, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this COA.

b. The remedies provided by this paragraph and Paragraph 5 (Stipulated Civil Penalties) are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated penalty is paid.

7. Reservation of Rights. The Department reserves the right to require additional measures to achieve compliance with applicable law. Sunoco reserves the right to challenge any action which the Department may take to require those measures.

8. Liability of Operator. Sunoco shall be liable to the Department for any violations of the COA, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors. Sunoco also shall be liable for any violation of this COA caused by, contributed to, or allowed by its successors and assigns.

9. Correspondence with Department. All correspondence with the Department concerning this COA shall be addressed to:

Ronald C. Eberts, Jr.
Waterways and Wetlands Program
909 Elmerton Avenue
Harrisburg, PA 17110
(717) 705-4819
reberts@pa.gov

10. Correspondence with Sunoco. All correspondence with Sunoco concerning this COA shall be addressed to:

Mr. Matthew Gordon
Sunoco Pipeline, L.P.
535 Fritztown Road
Sinking Springs, PA 16908
Matthew.gordon@energytransfer.com

Sunoco shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this COA, including its enforcement, may be made by mailing a copy by first class mail to the above address.

11. Severability. The paragraphs of this COA shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

12. Entire Agreement. This COA shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

13. Attorney Fees. The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this COA.

14. Modifications. No changes, additions, modifications, or amendments of this COA shall be effective unless they are set out in writing and signed by the parties hereto.

15. Titles. A title used at the beginning of any paragraph of this COA may be used to aid in the construction of that paragraph, but shall not be treated as controlling

16. Execution of Agreement. This COA may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument.

17. Decisions Under Consent Order. Any decision which the Department makes under the provisions of this Consent Order and Agreement, including a notice that stipulated civil penalties are due, is intended to be neither a final action under 25 Pa. Code § 1021.2, nor an adjudication under 2 Pa. C.S. § 101. Any objection which Sunoco may have to the decision will be preserved until the Department enforces this Consent Order and Agreement.

18. Upon execution of this COA, pursuant to 25 Pa. Code §§ 1021.41(a)(2) and (b)(1), the parties will notify the Board that the case at EHB Docket No. 2018-012-L has been settled and request that the docket be marked settled.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of Sunoco certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this Consent Order and Agreement on behalf of Sunoco; that Sunoco consents to the entry of this Consent Order and Agreement as a final ORDER of the Department; and that Sunoco hereby knowingly waives its right to appeal this Consent Order and Agreement and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, Act of July 13, 1988, P.L. 530, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other

provisions of law. Signature by Sunoco's attorney certifies only that the agreement has been signed after consulting with counsel.

FOR SUNOCO PIPELINE, L.P.:

Joseph Colella Date
Senior Vice President

2/7/18
Curtis N. Stambaugh, Esq. Date
Attorney for Sunoco Pipeline, L.P.

FOR THE COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

2-8-2018
Ramez Ziadeh, P.E. Date
Acting Executive Deputy Secretary

2-8-2018
Curtis C. Sullivan, Esq. Date
Assistant Counsel

EXHIBIT 1

EXHIBIT 1

Stream ID/#	Stream Name	Coordinates	Spread #	County	Municipality	Date Construction Initiated[1]		Date Construction Completed[1]		Permitted Method of pipe installation[2]	Utilized Method of pipe installation[3]	Fishery Designation[4]	E&S Plan Sheet Number	Available Photographic Record		
						20" pipe	16" pipe	20" pipe	16" pipe					Before	During	After
										-						
										-						
										-						

[1] Daily Construction Logs for each stream crossing must be included as an attachment to Exhibit 1

[2]Permitted Methods of Pipe Installations are limited to: Open Trench, Conventional (dry) Auger Bore, or Horizontal Directional Drill, as described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis*

[3]Utilized Methods of Pipe Installation include Open Trench, Conventional (dry) Auger Bore, and Horizontal Directional Drill as these methods are described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis* and any other methods that are not explicitly described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis*, such as "Flex Bore", "Guided Bore", or any other boring method utilizing pressurized drilling fluids. For each methodology not described SPLP's December 2016 *Trenchless Construction Feasibility Analysis*, a detailed description of each alternative methodology must be included as an attachment to Exhibit 1.

[4] Fishery Designations: Class A Trout Stream, Wild Trout Stream, Stocked and Wild Trout Stream, or Stocked Trout Stream

[5]Check all that apply. For each stream crossing with an available photographic record, provide a separate photo sheet with the representative photograph as an attachment to Exhibit 1.

EXHIBIT 2

EXHIBIT 2

Stream, Wetland, or upland feature ID/#[1]	Coordinates	Ch. 93 Designated Use (for Streams) or Exceptional Value status (for wetlands), if applicable	Length of affected segment	Stationing at start of change	Stationing at end of change	Spread #	County	Municipality	Date Construction Initiated[2]		Date Construction Completed[2]		Permitted Method of pipe installation[3]	Utilized Method of pipe installation[4]	E&S Plan Sheet Number
									20" pipe	16" pipe	20" pipe	16" pipe			
													-		
													-		
													-		

[1] If upland, note the nearest landmark such as a road or house address

[2] Daily Construction Logs for each segment must be included as an attachment to Exhibit 2

[3] Permitted Methods of Pipe Installations are limited to: Open Trench, Conventional (dry) Auger Bore, or Horizontal Directional Drill, as described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis*

[4] Utilized Methods of Pipe Installation include Open Trench, Conventional (dry) Auger Bore, and Horizontal Directional Drill as these methods are described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis* and any other methods that are not explicitly described in SPLP's December 2016 *Trenchless Construction Feasibility Analysis*, such as "Flex Bore", "Guided Bore", or any other boring method utilizing pressurized drilling fluids. For each methodology not described SPLP's December 2016 *Trenchless Construction Feasibility Analysis*, a detailed description of each alternative methodology must be included as an attachment to Exhibit 2.

EXHIBIT 3

Sunoco Pipeline L.P.

Administrative Order – Paragraph 4

I. Exhibit 2 to the Administrative Order

In accordance with paragraph 4 of the Administrative Order that was issued to Sunoco Pipeline L.P. ("SPLP") on January 3, 2018, SPLP has completed Exhibit 2 to the Administrative Order and is submitting that document with this Report. Please note that there are three tabs to Exhibit 2, as follows:

1) "AR Crossings with Method Changes" – This tab identifies crossings of wetlands and streams that differ from the "permitted method" (i.e., the crossing method specified in the Aquatic Resource Table ("AR Table") submitted with the Chapter 105 permit application).[1] This tab lists crossings where the permit specified: (a) an open cut or dry crossing and the construction methodology used was horizontal directional drill ("HDD") or bore; (b) a bore and the construction methodology used was an open cut/dry crossing or HDD; or (c) an HDD and the construction methodology used was an open cut/dry crossing or bore.

2) "AR Bore Method Variations" – This tab identifies crossings of wetlands and streams where the permitted method was a "bore" and SPLP utilized a "conventional bore" trenchless construction methodology other than "conventional auger bore" as specified in the "Trenchless Construction Methodologies" document previously submitted to DEP in response to paragraph 2 of the Administrative Order (i.e., the methodology used was either a "guided auger bore," a "guided bore" or a "FlexBor").

3) "Upland In-Progress Bores with Variation" – This tab identifies crossings in uplands that were in-progress at the time the Administrative Order was issued and either: (a) were permitted as a "bore" and a construction method other than "conventional auger bore" was being used, or (b) were not permitted as a "bore" but a type of bore method was being used. Only one circumstance (of the second category) has been identified.

II. Methodology to Identify "Unpermitted Changes" and the Bore Variations Requested by Paragraph 4 of the Administrative Order

The following description responds to the request in Paragraph 4 of the Administrative Order to "document all steps taken by Sunoco to determine if unpermitted changes have occurred." In order to identify (a) "unpermitted changes," (b) bores that varied from "conventional auger bore" methodology, and (c) in-progress upland bores that either were not

[1] In a few circumstances where there was ambiguity between the AR Table and the Erosion and Sediment plan sheets (the "ES sheets") submitted to the Pennsylvania Department of Environmental Protection ("DEP"), we have relied on the crossing method in the ES sheets as the "permitted method."

permitted as a bore or used a methodology other than conventional auger bore, the steps identified below were taken.

The dates for construction set forth on the attached tabs were determined as described in the response to Paragraph 3 of the Administrative Order.

A. Wetland and Stream Crossings

1. Crossings with As-Built Information

Wherever possible, the review relied on as-built information. Initially, the coordinates for each crossing from the AR Tables were plugged into KMZ files which show survey data, including weld x-ray data, plotted onto Google earth. In particular, the data reviewed was:

a) Weld x-ray data which shows the width of the pipe to the east of the weld. Generally, thicker pipe (0.456/0.438) is used for bores and HDDs, while thinner pipe (0.380/0.375) is used for open cut/dry crossings. In addition, the weld x-ray data identifies "tie-in" points, which is where transitions in construction methodology typically occur.

b) As-built survey data which specifies where field bends, trench breakers and rock shields are located. These items would only be located where an open cut/dry crossing construction methodology was used.

From this initial review, a certain number of crossings were identified where the thickness of the pipe or presence of field bends, trench breakers and rock shields were not consistent with the crossing methodology identified in the AR Table. This initial list was circulated to Spread Managers and reviewed with construction and field personnel to verify the actual construction method used.

When the initial review of KMZ files was performed, certain crossings did not yet have as-built information in the database. Accordingly, for these crossings, follow-up was undertaken to determine whether these crossings had not been started, were in-progress or had been completed.

For those crossings identified as completed, the engineering firm's mapping and survey personnel were asked to determine why as-built information was not yet uploaded to the KMZ files. From this process, a limited amount of additional KMZ and survey information was obtained. Moreover, with respect to HDD crossings, several HDD As-Built Profiles were obtained from which it could be confirmed that an HDD had been used, and if extended or shortened, whether it impacted any wetland or stream.

2. Crossings with No As-Built Information

Crossings that are still in-progress would not yet have as-built information. For these crossings, Spread Managers worked in concert with construction and field personnel to specify the construction methodology used, and for in-progress HDDs or bores, to determine whether they had been lengthened or shortened in a manner that would impact a neighboring wetland or stream.

3. Bore Method Variations

For each crossing where the AR Table specified that "bore" was the permitted crossing method, or for any other wetland or stream crossings where it was determined that a bore had been used, Spread Managers worked in concert with construction and field personnel to identify the type of bore employed. Where any bore methodology other than "conventional auger bore" (as defined in the "Trenchless Construction Methodologies" document) was used, it is identified on Tab 2 of Exhibit 2.

B. Upland In-Progress Variations

Based on discussions between SPLP and DEP, we understood that DEP is requesting information on upland in-progress bores where the methodology varied from conventional auger bore. Accordingly, a complete list of upland bores was reviewed, and those which had been completed or not yet started were removed. For the remaining in-progress bores, the construction method specified in the AR Table was identified, and the Spread Managers specified the type of bore methodology used. From this review, it was determined that for one of these bores, the AR Table specified it should have been open cut. This upland bore is identified on Tab 3 of Exhibit 2.

To verify that completed bores or HDDs of wetlands or streams that had been extended to uplands did not impact nearby aquatic resources, a couple of sources were consulted. A screening of the initial batch of KMZ file information was done to identify the crossings that appeared to be more than 60 feet different than the bore or HDD circle identified (which are rough approximations shown on Google earth of the bore and HDD limits from the ES sheets). Sixty feet was selected as the trigger because it is the length of a typical span of pipe, and one would typically not expect a span of pipe to be cut in the field during the bore or HDD process. For the bores identified, KMZ/ES overlay sheets were reviewed from which it was determined that the majority of tie-in points were actually in the bore pits or were less than 60 feet from the end of the bore pit. Of the subset identified by the initial screening method, only two tie-in's were more than 60 feet from the location of the bore pit specified on the ES sheet – one tie-in was approximately 68 feet and the other approximately 84 feet from the designed bore pit. None of them affected other aquatic resources. With respect to the HDDs identified, HDD As-Built Profiles were reviewed from which it was determined that the majority of as-built entry/exit points, even if extended or shortened from the designed entry/exit point, were within the limits of the HDD Staging Area as set forth on the ES sheet. Of the subset identified by the initial screening method, only one HDD as-built exit/entry point was significantly beyond the HDD Staging Area. This extended HDD had affected an aquatic resource, but this difference in methodology for a portion of the aquatic resource (a wetland) had already been identified by the earlier KMZ review and is reported on Tab 1 of Exhibit 2.

III. Berks HDD Site 4

On November 28, 2017, SPLP submitted information to DEP in response to two Notices of Violation. This submission indicated that seven pipeline crossings of a water of the Commonwealth along the Mariner East 2 project had been completed and/or initiated using a crossing methodology other than what was authorized by the initial permit approval or amendment. However, after further review of the as-built information identified above, it has been determined that one of these crossings was in fact constructed as indicated in the AR Table.

With respect to State Route 10/Morgantown Road/Reading Road, the November 28 submission stated that construction of the 20" pipeline for crossing of the road was permitted a bore, and a portion of wetland W35 was permitted to be crossed via bore, with the remaining portion of wetland W35 to be crossed via an open cut construction method. (This area is identified as "Berks HDD Site 4" in the Administrative Order.) The November 28 submission, however, inaccurately stated that a field change had been made to extend the bore to encompass the entire area of wetland W35. By reviewing the as-built information, including weld x-rays, it was determined that the pipeline for the remaining portion of wetland W35 was in fact installed using an open cut construction method. The ES sheet for this area indicated that the bore would continue approximately 45 feet into wetland W35, while the as-built data shows that the bore extended into the wetland approximately 60 feet. Accordingly, this minor extension simply constituted a de minimis change. (We acknowledge that a guided bore was used for this crossing.)

This miscommunication appears to have occurred as a result of a misreading of notes that indicated this bore had been extended. We apologize for this misunderstanding and miscommunication.

Exhibit 2 to Administrative Order
AR Crossings with Method Changes

									Date Construction Initiated		Date Construction Completed				
Stream, Wetland, or upland feature ID/#	Coordinates	Ch. 93 Designated Use (for Streams) or Exceptional Value status (for wetlands), if applicable	Length of affected segment	Stationing at start of change	Stationing at end of change	Spread #	County	Municipality	20" pipe	16" pipe	20" pipe	16" pipe	Permitted method of pipe installation	Utilized method of pipe installation	E&S Plan Sheet Number
N28	40.4456, -79.3017	Other Wetland	144	5492+56	5494+00	2	Westmoreland & Indiana	Derry Twp & Borrell Twp	7/6/2017	9/19/2017	9/13/2017	In Progress	HDD/Open Cut	HDD	2.47.01
BB147, S-BB116	40.4447, -78.5952	BB147, Other Wetland S-BB116; Drains to CWF	124	5583+43	5584+67	2	Cambria	Cresson Twp	10/16/2017	11/4/2017	10/17/2017	12/6/2017	Bore/Temporary Matting	Open Cut	2.63
S-L30	40.3453, -77.8633	TSF, MF	9	7993+93	7994+02	3	Huntingdon	Shirley Twp	6/6/2017	6/10/2017	6/15/2017	6/20/2017	Dry Crossing	Conventional Auger Bore	3.59
S-H58	40.1976, -76.8062	WWF, MF	31	11156+78	11157+09	4	York	Fairview Twp	7/17/2017	Not started	In Progress	Not started	Dry Crossing/Temporary Bridge	HDD/Temporary Bridge (Susquehanna HDD extension)	4.19, 4.20
S-I32	40.1923, -76.8749	CWF, MF	74	10948+87	10949+61	4	York	Fairview Twp	11/6/2017	11/29/2017	11/15/2017	12/5/2017	Dry Crossing	Conventional Auger Bore	4.07
931	40.2297, -75.9572	EV	9	13895+43	13896+52	5	Berks	Brecknock Twp	9/17/2017	9/17/2017	9/19/2017	9/19/2017	Bore/Temporary Mating	Open Cut	5.44

Exhibit 2 to Administrative Order
AR Bore Method Variations

									Date Construction Initiated		Date Construction Completed				
Stream, Wetland, or Upland feature ID/#	Coordinates	Ch. 93 Designated Use (for Streams) or Exceptional Value status (for wetlands), if applicable	Length of affected segment	Stationing at start of change	Stationing at end of change	Spread #	County	Municipality	20" pipe	16" pipe	20" pipe	16" pipe	Permitted method of pipe installation	Utilized method of pipe installation	E&S Plan Sheet Number
S149, S150	40.2232, -79.8935; 40.2235, -79.8932	Drains to WWF	9	1235+41	1236+50	1	Allegheny	Harvard Twp	5/20/2017	No 16" Pipe	6/2/2017	No 16" Pipe	Bore/Travel Lane	Guided Bore for 20"	1.15
S135	40.1390, -80.1126	HQ-WW	8	556+37	556+45	1	Washington	North Strabane Twp	9/29/2017	No 16" Pipe	11/18/2017	No 16" Pipe	Bore/Temporary Bridge	Flexflor for 20"	1.35
Q69, S-R90, S-R91	40.4432, -79.3210; 40.4475, -79.3210; 40.4432, -79.3207	Q69: Other Wetland S-R90 & S-R91: Drains to CWF	226	3426+13	3428+39	2	Westmoreland	Salem Twp	10/31/2017	Not started	11/12/2017	Not started	Bore	Guided Auger Bore for 20"	2.44
Q70, S-R92	40.4414, -79.3168; 40.4408, -79.3186	Q70: Other Wetland S-R92: Drains to CWF	275	3436+91	3439+65	2	Westmoreland	Derry Twp	10/17/2017	Not started	10/16/2017	Not started	Bore	Guided Auger Bore for 20	2.44, 2.45
P2	40.4503, -79.2783	Other Wetland	205	3563+91	3565+96	2	Indiana	Burrell Twp	6/15/2017	Not started	6/20/2017	Not started	Bore/Travel Lane	Guided Bore for 20"	2.04
M35, S-B889	40.4322, -78.3848	M35: EV S-B889: WWF, MF	717	6479+07	6481+24	3	Blair	Frankstown Twp	Conv. Auger	9/15/2017	Conv. Auger	11/11/2017	Bore	Guided Bore for 16"	3.42
H51, S-H51, S-H62	40.1929, -76.8149; 40.1923, -76.8144; 40.1923, -76.8143	H51: Other Wetland S-H61 & S-H62: Drains to WWF, MF	302	11119+85	11122+87	4	York	Fairview Twp	10/7/2017	9/26/2017	11/21/2017	Pilot completed 10/6. No further work.	Bore/Travel Lane/Bore: Floodway	Guided Bore	4.17
B48	40.3069, -76.0598	Other Wetland	37	13871+43	13871+80	5	Berks	South Heidelberg Twp	7/29/2017	7/29/2017	8/8/2017	8/8/2017	Bore/Temporary Matting	Guided Bore	5.10
S-H31	40.7041, -75.9175	Drains to HQ-TSF, MF	8	14042+33	14042+41	5	Berks	Robeson Twp	7/31/2017	7/31/2017	9/9/2017	8/16/2017	Bore/Temporary Bridge	Flexflor	5.54
A56, S-A87	40.2826, -76.1581; 40.2837, -76.1575	A56: EV S-A87: HQ-WWF, MF	302	13066+11	13071+13	5	Lancaster	West Cocalico Twp	8/26/2017	9/15/2017	9/5/2017	9/5/2017	Bore/Travel Lane/Temporary Bridge	Guided Bore for 20"; Guided Auger Bore for 16"	1.14, 1.15
B72	40.2819, -76.1526	Other Wetland	326	13082+91	13086+17	5	Lancaster	West Cocalico Twp	10/16/2017	11/21/2017	11/6/2017	11/20/2017	Bore/Travel Lane	Guided Auger Bore	1.15, 1.16
J54, S-J59	40.2801, -76.1947; 40.2797, -76.1947	J54: Other Wetland S-J59: HQ-WWF, MF	176	12959+24	12961+00	5	Lancaster	West Cocalico Twp	10/20/2017	10/20/2017	10/30/2017	10/30/2017	Bore/Travel Lane	Guided Bore for 20"; Guided Auger Bore for 16"	1.07, 1.08
B15, S-B15	40.1246, -75.7571; 40.1246, -75.7923	B15: Other Wetland S-B15: HQ-TSF, MF	153	14522+41	14523+74	6	Chester	East Nantmeal Twp	8/16/2017	9/7/2017	9/5/2017	9/18/2017	Bore/Temporary Matting/Temporary Bridge	Guided Auger Bore for pilot; Conventional Auger Bore to complete	6.11
Q75	40.0925, -75.7824	Other Wetland	58	14740+70	14741+26	6	Chester	Upper Uwchlan Twp	9/15/2017 Abandoned hole 12/7/2017	11/2/2017	Not finished	12/19/2017	Bore	Guided Auger Bore for pilot; Conventional Auger Bore to complete	6.24
S-A71	40.1310, -75.8001	HQ-TSF, MF	26	14485+83	14490+09	6	Chester	West Nantmeal Twp	6/20/2017	5/27/2017	7/27/2017	6/20/2017	Bore/Temporary Bridge	Guided Auger Bore for pilot; Conventional Auger Bore to complete	6.09

Exhibit 2 to Administrative Order
Upland In-Progress Bores with Variations

									Date Construction Initiated		Date Construction Completed				
Stream, Wetland, or upland feature ID/#	Coordinates	Ch. 93 Designated Use (for Streams) or Exceptional Value status (for wetlands), if applicable	Length of affected segment	Stationing at start of change	Stationing at end of change	Spread #	County	Municipality	20" pipe	16" pipe	20" pipe	16" pipe	Permitted method of pipe installation	Utilized method of pipe installation	F&S Plan Sheet Number
Power Pole Bore	40.2129, -75.0512		824	13989439	13997+63	5	Berks	Brecknock	9/30/2017	Not Started	Not completed. Stopped work on 11/19/17. 20" ream completed. 24" ream to 810 feet.	Not Started	Open Cut	Guided Bore	5.50, 5.51

EXHIBIT 4

SUNOCO PIPELINE
An ENERGY TRANSFER Partnership

535 Fritztown Road
Sinking Spring, PA 19608

January 12, 2018

Via Electronic Mail – aneatkinso@pa.gov
Ms. Aneca Y. Atkinson
Director, Program Integration
Pennsylvania Department of Environmental Protection
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17101

Re: Request for Relief from January 3, 2018 Administrative Order

Dear Ms. Atkinson:

In accordance with the meeting held between the Department and Sunoco Pipeline, L.P. ("SPLP") on Thursday, January 4, 2018, SPLP requests that the Department consider five (5) items for relief from the terms of the Administrative Order that require SPLP to suspend all work on the Mariner East 2 project. Each of these tasks is necessary to ensure that the temporary stoppage of construction on the Mariner East 2 project is completed without presenting a safety risk or causing harm to the environment.

1. **Completion of lowering pipe into pre-existing trenches** – There is one location in Cumberland County, Upper Allen Township (construction spread 4, DEP Southcentral Regional office, Lat/Lon.: 40.197153, -76.988056) where approximately 1,000 feet of pipe was actively being lowered into pre-existing excavated trenches when the Administrative Order was issued. Completion of this work is necessary for safety of workers, the public, and the environment, as this location has welded pipe temporarily sitting on top of skids awaiting to be lowered into adjacent pre-existing trenches. Allowing the welded pipe to remain on the skids creates a safety risk and also presents a significant security concern if the pipe were to be damaged by trespassers. Moreover, if this location was backfilled as required by the terms of the Administrative Order, additional unnecessary earth disturbance would occur after the temporary stoppage of construction work is lifted, causing additional unnecessary environmental impacts. It is anticipated that this work can be completed within approximately 10 days after DEP provides authorization to proceed, weather permitting.

2. **Completion of trench backfilling prohibited due to weather conditions** – In accordance with paragraph 10 of the Administrative Order, SPLP has backfilled all areas of open trench excavation, except for certain locations where winter weather conditions have prevented work from being completed within the 10-day time period. As requested,

SPLP has prepared a summary of these locations, organized by construction spread, DEP regional office, county, municipality, latitude/longitude start and end, and that also includes projected dates for start and completion of backfilling after the Department provides written approval, and weather conditions permit. After backfilling in these areas are completed, the locations will be temporarily stabilized in accordance with the E&S Plans.

In addition, during our meeting on January 4, 2018, SPLP informed the Department that there were several locations throughout the project where tie-ins of previously installed pipelines were in the process of being performed when the Administrative Order was issued. Completion of this work, including tying-in the pipeline and backfilling and stabilizing the pit, is necessary to ensure safety and integrity of the pipeline as a whole. SPLP is still evaluating these locations, many of which have not yet been backfilled because of constraints due to winter weather conditions.

3. Completion of bores and HDDs that present safety/environmental concerns – The attached spreadsheet lists the locations of three (3) bores and three (3) HDDs that were in progress and near completion when the Administrative Order was issued. Stopping work at each of these locations presents a safety or environmental risk that will be alleviated if the bore or HDD is completed in an expeditious manner. A summary of each of these bore and HDD locations, that includes each location's construction spread, Ch. 105 permit drawing number, county, municipality, DEP region, station start/end, latitude/longitude start/end, and contact information is attached. The justification for the SPLP's request to complete each bore or HDD is set forth below:

   - Highway 259 Bore (Indiana County, West Wheatfield Twp., DEP Southwest Region) – This road bore crosses beneath State Highway 259, and is complete. The only remaining work at this location is to remove the equipment and casing that was temporarily utilized during construction to stabilize the bore annulus. This casing must be removed so that the backfilling of adjacent trench area can be completed. It is anticipated that this work will take approximately 6 days to complete, weather permitting.

   - Bethel Cemetery and Clay Pike Road Bore (Indiana County, West Wheatfield Twp., DEP Southwest Region) – This road bore crosses beneath two local roadways. The bore is 65 feet from completion. Pulling the bore stem and abandoning the bore hole at this location presents a significant risk that the bore hole will collapse and risk subsidence of the two roadways. Completion of the bore and performing pullback of the pipe through the completed bore hole is the safest option at this location. It is anticipated that this work will take approximately 11 days to complete, weather permitting.

   - Shauffertown Road Bore (Fairview Township, York County, DEP Southcentral Region) – This road bore crosses under a local roadway, is complete and ready to perform pullback of the pipe through the bore hole. Pulling the bore stem and

abandoning the bore hole at this location presents a significant risk that the bore hole will collapse and risk subsidence of the roadway. Completion of the bore and performing pullback of the pipe through the completed bore hole is the safest option at this location. It is anticipated that this work will take approximately 5 days to complete, weather permitting.

- Exton Bypass, HDD S3-0400 (West Whiteland Township, Chester County, DEP Southeast Region) – This HDD crosses beneath a state highway and a railroad, several utility lines, an existing pipeline, local roads, residential properties, and passes by the edge of two wetlands. This HDD is in the final reaming stage with approximately 280 linear feet to complete, and thereafter to perform swabbing and pullback of the pipe through the hole. Completion of this HDD is necessary before SPLP can complete restoration of an adjacent landowner's property where subsidence has occurred. Completion of the HDD in this location will also prevent collapse of the hole. It is anticipated that this work will take approximately 10 days to complete, weather permitting.

- Ship Road/Concord Ave., HDD S3-0410 (West Whiteland Township, Chester County, DEP Southeast Region) – This HDD crosses beneath multiple local roads and through a residential area. This HDD has completed both the pilot and ream phases and was in the process of "swabbing" to complete pullback of the pipeline when the Administrative Order was issued. Completing pullback of the pipeline in this location is necessary because allowing a fully-reamed HDD profile open for an extended period of time creates a significant risk for collapse and/or an inadvertent return upon resumption of HDD operations. Furthermore, completion of pullback will not require more than minimal earth disturbance, limited to the entry and exit pits. It is anticipated that pullback at this location will take approximately 14 days to complete, weather permitting.

- Chester Creek/Gun Club, HDD S3-0631 (Middletown Township, Delaware County, DEP Southeast Region) – This HDD crosses beneath a stream in several locations, local roads, several utilities, and a residential area. The HDD has completed both the pilot and ream phases and was in the process of "swabbing" to complete pullback of the pipeline when the Administrative Order was issued. Completing pullback of the pipeline in this location is necessary because allowing a fully-reamed HDD profile open for an extended period of time creates a significant risk for collapse and/or an inadvertent return upon resumption of HDD operations. Furthermore, completion of pullback will not require more than minimal earth disturbance, limited to the entry and exit pits. It is anticipated that pullback at this location will take approximately 14 days to complete, weather permitting.

4. Discharge of hydrostatic testing water – When the Administrative Order was issued, SPLP was in the process of completing hydrostatic testing on fully-constructed sections of the pipeline in construction spread 2 (i.e., Indiana and Cambria counties, Southwest

Regional Office). In accordance with the terms of the permits, SPLP withdrew 1,636,368 gallons of water from a pond located at the Police Rod and Gun Club, Salem Township, Westmoreland County (Lat./Lon.: 40.431060, -79.472476). This water was used for hydrostatic testing and currently remains inside 20.87 miles of the pipeline located in construction spread 2. The 1.6 million gallons of water contained within the pipeline cannot remain inside the pipeline indefinitely, particularly with cold weather conditions, which could present both a safety risk and a risk to the integrity of the pipeline. As a result of the temporary stoppage of construction, SPLP will need to discharge this water from the 20.87 miles in construction spread 2. SPLP therefore must discharge the 1.6 million gallons of water via a dewatering structure designated as Outfall 049, located between State Route 22 and Pine Ridge Road, Burrell Township, Indiana County (Lat./Lon.: N40 26' 49.13", W79 12' 16.49"). This dewatering structure will need to be re-built, which will take approximately 4 days-time. Dewatering of the 1.6 million gallons via this structure will have an expected discharge rate of 2,000 gallons/minute. It is expected that it will take approximately 10 days to dewater, clean, and dry the pipeline. Both the water withdrawal points and the discharge point for this hydrostatic test water is in the Ohio River Basin.

In addition, we advise the Department that in construction spread 6 (Chester and Delaware Counties, Southeast Regional Office), approximately 500,000 gallons of hydrotesting water is currently stored in 25 hydrotesting water holding tanks awaiting to be transported for disposal at SPLP's Marcus Hook facility pursuant to a DRBC docket for disposal to DELCORA. This hydrotest water is in the process of being transported to Marcus Hook using five 3,200 gallon vac trucks and four 5,000 tanker trucks. This transportation is ongoing and it is anticipated will be complete within approximately 10-12 days, weather permitting. Both the withdrawal point and discharge point are in the Delaware River Basin. After the transportation is concluded, the travel lanes will be temporarily stabilized in accordance with the E&S Plans.

5. <u>Installation of Guard Rails in Middletown Township (Delaware County)</u> – Since our meeting on January 4th, Middletown Township requested that SPLP replace approximately 1000 feet of guard rails along Mount Alverno Road that were removed to facilitate the open cut construction in this area. The township has requested that the guard rails be replaced, as a safety concern. The start date for SPLP's installation of the guardrails is predicated on PECO and Verizon completing utility work in the area, which is expected to be completed by February. It is anticipated that SPLP's installation of the guardrails can thereafter be completed within approximately 7 days, weather permitting.

In accordance with the Administrative Order, SPLP requests written approval from the Department to conduct the five (5) above-referenced activities.

Further, in response to paragraph 19 of the Administrative Order, SPLP has temporarily stabilized all disturbed areas in accordance with the E&S Plans, and will continue to maintain temporary stabilization of such areas as necessary. As part of these efforts, SPLP reviewed locations that had been previously backfilled and that had begun permanent stabilization, and

determined that in certain agricultural areas in Lancaster and Berks Counties, permanent stabilization has not yet occurred due to growing season and weather constraints. SPLP is continuing to address these issues on an ongoing basis, and advises the Department of locations where such work is being performed. These locations are identified on the attached spreadsheet, organized by construction spread, DEP regional office, county, municipality, latitude/longitude start and end.

In order to put SPLP's existing 12" pipeline between Glen Riddle Junction (located off of Martin's Lane in Middletown Township, Delaware County) and Elverson Junction (located off of Sunnyside Drive in Elverson Borough, Chester County) back into refined-product service, SPLP will be performing above-ground work at both sites and will be checking existing above-ground valves along the existing 12" pipeline alignment between these sites, using existing access ways to these valves. Although some of the valves are located near the ME2 right-of-way, the crews performing this work will not be driving on the ME2 right-of-way for access, although workers may be walking on portions of the ME2 right-of-way to access the valve sites. SPLP anticipates that this work will be completed by January 22, 2018.

In addition, SPLP advises and reminds the Department that unrelated to the construction of the Mariner East 2 project, SPLP is also in the process of completing integrity repair work on existing pipeline systems in certain locations that parallel the Mariner East 2 project. To avoid any confusion, SPLP is providing the Department with the attached google maps and a spreadsheet that list the locations where integrity work is being performed.

Thank you,

Rick Smith
Vice President – Engineering
Energy Transfer

Enclosures
cc: Ramez Ziadeh, P.E. – rziadeh@pa.gov

EXHIBIT 5

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

January 24, 2018

Mr. Matthew Gordon
Sunoco Pipeline, L.P.
535 Fritztown Road
Sinking Springs, PA 16908

Re: Request for Relief from January 3, 2018 Administrative Order

Dear Mr. Gordon,

This letter is in response to Sunoco Pipeline, L.P.'s (SPLP) January 12, 2018 letter (supplemented on January 22, 2018) requesting relief from certain requirements of the Pennsylvania Department of Environmental Protection's (DEP) January 3, 2018 Administrative Order. Specifically, this letter addresses SPLP's request for relief regarding the completion of trench backfilling as set forth in your letter of January 12, 2018, and the accompanying Excel spreadsheet which was subsequently supplemented by your letter of January 22, 2018 and the revised Excel spreadsheet attached to that letter (revised Exhibit F).

SPLP has requested the extension to backfill trenches due to the winter weather conditions that Sunoco asserts have created safety issues with regard to operating equipment in the vicinity of the open trenches described in the Excel spreadsheet. Due to these site conditions, pursuant to Paragraph 10 of the January 3, 2018 Administrative Order, DEP extends the time for backfilling trenches with the following conditions:

1. All trenches must be backfilled as soon as the weather related condition asserted in the Excel spreadsheet becomes favorable for backfilling activities at each specified location.

2. SPLP will provide written notice to DEP when it begins backfilling any of the trenches identified on the Excel spreadsheet.

3. Notice shall be provided in the manner specified below in Paragraph 8.

4. SPLP will provide written notice to DEP when it completes backfilling any of the trenches identified on the Excel spreadsheet. Notice shall be provided in the manner specified below in Paragraph 8.

5. If the time for backfilling any trench exceeds the Projected Date of Backfill Completion provided on the Excel spreadsheet, SPLP shall provide a detailed explanation for the exceedance of its Projected Date of Backfill Completion as soon as it becomes aware that it will exceed the projected time.

6. SPLP will provide an updated Excel spreadsheet by 12:00 p.m. each Monday documenting the trenches remaining to be backfilled and the reason those trenches have not been backfilled.

7. SPLP will monitor conditions, and the performance of Best Management Practices (BMP), in the vicinity of any open trench to ensure that water that might be exiting the trench is not causing erosion and/or sedimentation issues or otherwise causing environmental impacts. At a minimum, monitoring will occur on a weekly basis and after any storm exceeding 0.25 inch of rainfall or the occurrence of snowmelt significant to cause a discharge; and will include photographic documentation of current site conditions. SPLP must maintain records of each inspection and, upon request, provide those records to DEP or the appropriate County Conservation District within 24 hours.

8. By 12:00 p.m. each Monday, SPLP will provide monitoring reports as described in item 6, above, for any location where the downgradient end of an open trench is within 100 yards of a Water of the Commonwealth.

9. Upon completion of backfilling, SPLP shall temporarily stabilize all disturbed areas in accordance with the approved Erosion and Sedimentation (E&S) Plans and in compliance with 25 Pa. Code § 102.22(b) or as otherwise allowed following receipt of written approval from either DEP or the appropriate County Conservation District. SPLP shall continue routine monitoring of the installed BMPs and shall perform all necessary ongoing operation and maintenance activities to ensure the BMPs continue to perform as designed, in accordance with the approved E&S Plans and permits.

10. All submissions shall be made electronically to DEP through the previously established FTP site.

DEP has extended the backfilling deadlines set forth in Paragraph 10 of the January 3, 2018 Administrative Order based upon the safety concerns expressed by SPLP. In the event DEP determines that SPLP has misrepresented existing conditions at any site set forth in the Excel spreadsheet, DEP's extension as to that site shall be void. Should that occur, SPLP must commence backfilling at any such identified site within 24 hours of written notification from DEP.

In addition, to confirm SPLP's representation at the meeting held on January 19, 2018, SPLP will begin filing a daily activities log with DEP to document the work it anticipates performing on the following day. The work to be described in that log will describe work that is either permitted under the January 3, 2018 Administrative Order or work that is not regulated under the Chapter 102 or 105 permits. SPLP will identify any anticipated backfilling of trenches on that log. SPLP should follow the instructions set forth in Paragraph 8, above, when it submits those logs.

This letter only modifies DEP's January 3, 2018 Administrative Order as set forth herein. In all other aspects, the January 3, 2018 Administrative Order remains in full force and effect.

If you have any questions, please feel free to contact Mr. Domenic Rocco, Acting Program Manager for the Regional Permit Coordination Office at drocco@pa.gov or 484.250.5815.

Respectfully,

Aneca Y. Atkinson
Director
Office of Program Integration

cc: Ramez Ziadeh, DEP
Domenic Rocco, DEP

bcc: Dana Drake, DEP SWRO
Abbey Owoc, DEP SWRO
Scott Williamson, DEP SCRO
Andrea Blosser, DEP SCRO
John Hohenstein, DEP SERO
Desiree Henning-Dudley, DEP SERO

EXHIBIT 6

HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan

Pennsylvania Pipeline Project

Prepared for:
Sunoco Pipeline L.P.
535 Fritztown Road
Sinking Spring, PA 19608

Prepared by:
Tetra Tech, Inc.
661 Anderson Drive
Pittsburgh, Pennsylvania 15220
(412) 921-7090
Fax (412) 921-4040

December 2, 2016
Revised February 6, 2018

TABLE OF CONTENTS

APPENDICES

HDD INADVERTENT RETURN ASSESSMENT, PREPAREDNESS, PREVENTION AND CONTINGENCY PLAN
PENNSYLVANIA PIPELINE PROJECT

1.0 PROJECT DESCRIPTION

Sunoco Pipeline L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project (Project or PPP) that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation. The Project involves the installation of two parallel pipelines within an approximately 306.8-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to SPLP's Marcus Hook facility in Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline will be installed within the ROW from Houston to Marcus Hook (306.8 miles) and a second, 16-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255.8 miles. For a detailed Project Description see Attachment 9 of the Project's Chapter 105 Joint Application for Permit.

2.0 SURFACE AND GROUNDWATER PROTECTION PLANS

SPLP has developed four plans that accompany the Erosion & Sedimentation Plan (E&S Plan). These plans assess the potential impacts and provide for the protection of surface and groundwater due to Project activities. The overarching PPC Plan is designed to address spill prevention, countermeasures, and response in general. Potential impacts to surface waters and public and private water supplies in particular have been analyzed and addressed within two supplemental plans to the PPC Plan: a Water Supply Assessment, Preparedness, Prevention and Contingency Plan (Water Supply Plan); and this Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan (IR Plan). The Water Supply Plan provides for the assessment of the existing public and private water supplies in or along the Project, as well as identifies prevention and preparedness measures to be implemented to protect those supplies. This IR Plan outlines the preconstruction activities implemented to ensure sound geological features are included in the drill profile, the measures to prevent impact, and the plan to be implemented if an impact were to occur. This IR Plan applies to all trenchless construction methodologies, including horizontal directional drilling (HDD), guided auger bore, cradle bore, conventional auger bore, jack bore/hammer bore, guided bores, and FlexBors. For purposes of this plan, the term HDD shall include other trenchless construction methodologies. In addition, a Void Mitigation Plan for Karst Terrain and Underground Mining (Karst Plan) is provided as part of the E&S Plan and assesses the potential impacts and avoidance and mitigation measures during open-cut and drilling procedures. The purpose of these plans is to protect surface and groundwater resources Project-wide. The PPC Plan is provided as Attachment 12A of the Project's Chapter 105 Joint Application for Permit, the Water Supply Plan is provided as Attachment 12B, this IR Plan is provided as Attachment 12C, and the Karst Plan as Attachment 12D. These four plans also accompany every E&S Plan developed for the Project under the Chapter 102 regulations.

3.0 INADVERTENT RETURN PLAN

This plan satisfies the requirements set forth in 25 Pa. Code Section 78a.68a and Section 102.5(l), and is in accordance with PADEP's Guidelines for the Development and Implementation of Emergency Response Plans. This IR Plan presents methodologies to control and minimize the impacts to sensitive environmental resources from inadvertent

returns (IR) of drilling fluids associated with the proposed HDD crossings along the construction of the Project. Specifically, these methodologies are divided into three categories as follows:

- HDD site feasibility analysis – IR risk assessment
- HDD implementation procedures – IR preparedness
- IR contingency response

This plan also contains a specific section outlining the procedures to be implemented to avoid potential impacts to the bog turtle (*Glyptemys muhlenbergii*), a federally threatened species. A listing of HDD sites is provided in Appendix A with the special bog turtle HDDs highlighted. Construction personnel will be provided detailed constructions plans for each HDD, and will be required to implement all erosion and sedimentation controls and this contingency plan.

4.0 HDD OVERVIEW

HDD is a steerable trenchless method of installing underground pipe, conduit, or cable in a shallow arc along a prescribed bore path by using a surface-launched drilling rig, with minimal to no impact along the bore path. The earliest forms of HDD emerged in the 1960s and have since been greatly improved. HDDs are typically utilized when conventional trenching techniques are not desirable or practicable. It is suitable for a variety of soil and geologic conditions and primarily intended for obstacle avoidance including, but not limited to, river crossings, roads, and environmental features.

HDD Fluids

The principal functions of drilling fluid in HDD pipeline installation are listed below.

- Transportation of Spoil – Drilled spoil, consisting of excavated soil or rock cuttings, is suspended in the fluid and carried to the surface via a fluid stream flowing through the drill annulus between the bore hole and the drill rig.
- Cleaning and Cooling of Cutters – Build-up of drilled spoils on bit or reamer cutters is removed by high velocity fluid streams directed at the cutters. Cutters are also cooled by the fluid.
- Reduction of Friction – Friction between the pipe and the bore wall is reduced by the lubricating properties of the drilling fluid.
- Bore Stabilization – Stabilization of the drilled hole is accomplished by the drilling fluid building up a "wall cake" which seals pores and holds soil particles in place. This is critical in HDD pipeline installation.
- Transmission of Hydraulic Power – Power required to turn a bit and mechanically drill a hole is transmitted to a downhole motor by the drilling fluid.
- Hydraulic Excavation – Soil is excavated by erosion from high velocity fluid streams directed from jet nozzles on bits or reaming tools.
- Soil Modification – Mixing of the drilling fluid with the soil along the drilled path facilitates installation of a pipeline by reducing the shear strength of the soil to a near fluid condition. The resulting soil mixture can then be displaced as a pipeline is pulled into this formation.

The major component of drilling fluid used in HDD pipeline installation is fresh water, typically obtained at the crossing location. To increase the hydraulic properties of the water, it is generally necessary to modify it by adding a viscosifier. The viscosifier used almost exclusively in HDD drilling fluids is naturally occurring bentonite clay, which is principally sodium montmorillonite. It is not a listed hazardous material/substance as defined by the U.S. Environmental Protection Agency's (USEPA) Emergency Planning and Community Right-to-Know Act (EPCRA) or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulatory criteria. If the product becomes a

waste, it does not meet the criteria of a hazardous waste, as defined by the USEPA. Bentonite is non-toxic and commonly used in farming practices, but has the potential to impact aquatic habitats and wildlife if discharged to waterways in significant quantities.

All stages of HDD involve circulating drilling fluid from equipment on the surface, through a drill pipe, and back to the surface through a drilled annulus. Drilling fluid returns collected at the entry and exit points are stored in a steel tank and processed through a solids control system which removes spoil from the drilling fluid, allowing the fluid to be recycled. The cleaned fluid is trucked back to the entrance point for reuse. The basic method used by the solids control system is mechanical separation using shakers, desanders, and desilters. The excess spoil and drilling fluid are transported to, and disposed of, at an approved and permitted solid waste landfill.

Drilling fluid expended downhole will flow in the path of least resistance. In the drilled annulus, the path of least resistance may be an existing fracture or fissure in the soil or rock substrate, or a manmade structure. When this happens, circulation can be lost or reduced. This is a common occurrence in the HDD process that can be effectively managed/controlled and does not prevent completion of the HDD. However, the environment may be impacted if the drilling fluid inadvertently returns to the surface of the ground at a location on a waterway's banks, within a waterway or wetland, or in the vicinity of other potential receptors. When this occurs, it is called an inadvertent return or release. An inadvertent return is an unauthorized discharge of drilling fluids to the ground surface or surface waters, including wetlands, associated with HDD or other trenchless construction methodologies.

5.0 INADVERTENT RETURN MINIMIZATION METHODOLOGIES

The use of HDD for obstacle or resource avoidance during pipeline construction has been extensively utilized for decades with high levels of success. Notwithstanding this fact, inadvertent returns of drilling fluids can occur for various reasons. The following sections detail methodologies to be implemented for the Project with the intent of eliminating or minimizing inadvertent returns based on a sound understanding of the reasons that cause returns.

5.1 HDD SITE FEASIBILITY ANALYSIS AND DESIGN

To ensure the highest probability of success on the proposed HDD installations, SPLP has assembled a technical team (Team) which includes geologists, engineers, scientists, and consultants having expertise in HDD design, construction, subsurface geology/hydrogeology and environmental issues. Provided below are the methodologies the Team employs to eliminate / minimize inadvertent returns.

5.1.1 SITE FEASIBILITY ANALYSIS & IR RISK ASSESSMENT

Feasibility Analysis - Overall

The Team's first step in evaluating a potential HDD location for successful installation was to identify a need (e.g., sensitive habitat, infrastructure) and then perform a feasibility analysis. Previous project HDD data (i.e., Mariner East I projects) was used to assist with this feasibility analysis. Locations where IRs were recorded for Mariner East I projects that also are the locations where HDDs are planned for the PPP are identified in Appendix C and discussed further within those individual assessments. This initial analysis included the following primary constructability areas of review:

- Physical / technical constraints (angle, required depths >5ft at streams and >4 feet at wetlands)
- Practicability constraints
- Geological constraints (karst terrain/carbonate rock/geologic structures)

A general discussion of these constraints is provided within Section 3.2 of the Project's Trenchless Feasibility Study provided within the Project's Alternatives Analysis of the Project's Pennsylvania Department of Environmental Protection (PADEP) Joint Application for Permit.

Feasibility Analysis – Site Specific

Upon evaluation of the need and positive initial feasibility analysis, planned HDDs were further evaluated utilizing the data already collected during the initial assessment along with site-specific geotechnical and geologic information applicable to the boring locations to make a final feasibility determination. A positive final feasibility determination, then moved the HDD into full design. Project engineers, scientists, and consultants, utilized the site-specific data to design an HDD meeting SPLP specifications along with minimizing the risk of inadvertent return as the highest criteria. In particular, at locations where IRs were noted for the Mariner East I project, the location of the IR, the size of the IR, the drill log, and the design of the IR were all taken into consideration during feasibility and planning. In some, cases such as an early planned drill at the Marsh Creek reservoir in Chester County, the line was rerouted based on these analyses.

With completion of full design, PADEP requested SPLP to provide a risk assessment for each proposed location, and that is provided in Appendix C. Each assessment contains a summary documenting the particular HDD features and assigned an IR risk assessment, as follows:

- Low risk
  - Geotechnical report indicates non-gravel soils, layers of sand, silt, clay, and/or rock present at HDD profile.
  - Site considered acceptable – recommend no additional review necessary
- Medium risk
  - Geotechnical report indicates gravel or cobble present in a high value area (wetland, waterbody, and/or drinking water reservoir).
  - Identified geological constraints are present and need to be considered
  - Site considered marginally acceptable – recommend additional site inspections for IR during HDD process
- High risk
  - Geotechnical report indicates elevated gravel or cobble present in a high value area (wetland, waterbody, and/or drinking water reservoir). High volume of IR anticipated.
  - Site considered potentially unacceptable – recommend additional inspection and/or further engineering review.

The IR risk assessments and corresponding geotechnical reports are provided within Appendix C. Additionally, available information on geological constraints were assessed in relationship to the HDD location plan and profile drawing locations. None of the risk assessments returned a high risk evaluation result for the HDDs to be implemented for the Project.

5.1.2 WATER SUPPLY PROTECTION

Both public and private water supplies in proximity to and downstream of the Project have been evaluated and described in the Water Supply Plan. Existing location data, as well as consultations with water supply providers, provided the basis for identification of potential risks and concerns. The Water Supply Plan is companion to this IR Plan and further outlines the prevention measures, as well as the preparedness and contingencies plans that ensure water supplies will be protected.

5.1.3 DRILLING FLUID CONTROL

The most effective way to minimize environmental impact associated with HDD installations and specifically with drilling fluids is to maintain drilling fluid recirculation. Maintenance of fluid circulation is the responsibility of the HDD contractor. Monitoring of drilling mud volumes, pressures, and pump rates/returns will assist in determining if significant drill mud loss occurs signaling a possible inadvertent return. The following requirements shall be placed upon each HDD contractor with respect to drilling fluid control:

- Instrumentation – The contractor shall provide and maintain instrumentation which accurately locates the pilot hole, measures drill string axial and torsional loads, and measures drilling fluid discharge rate and annular pressure during the pilot hole phase. SPLP, or their designee, shall have access to these instruments and their readings at all times. A log of all recorded readings shall be maintained and will become a part of the "As-Built" information to be supplied by contractor to SPLP.
- Composition – The composition of all drilling fluids proposed for use shall be submitted to SPLP for approval.
- Recirculation – The contractor shall maximize recirculation of drilling fluid to the borepit. The contractor shall provide solids control and fluid cleaning equipment of a configuration and capacity that can process drilling fluids to the borepit that produce drilling fluids suitable for reuse. SPLP may specify standards for solids control and cleaning equipment performance or for treatment of excess drilling fluid and drilled spoil.
- Loss of Circulation – The contractor shall employ its best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost or significantly diminished, the contractor shall take one or more of the following steps to restore circulation:
    - Size the hole frequently by advancing and retracting the drill string in order to keep the annulus clean and unobstructed.
    - Minimize annular pressures by minimizing fluid density consistent with hole cleaning and stabilization requirements.
    - Viscosity will be adjusted as necessary to reduce annular pressures consistent with hole cleaning and stabilization requirements.
    - Gel strength will be adjusted as necessary to reduce annular pressures.
    - Control the balling of material on bits, reaming tools, and pipe in order to prevent a plunger effect from occurring.
    - Control penetration rates and travel speeds in order to prevent a plunger effect from occurring.
    - Seal a zone of lost circulation using a high viscosity bentonite plug, loss control materials, or grouting. Drilling activities will be-suspended as long as necessary to allow plugs, loss control materials, or grout to cure.
    - When drilling fluid flow has been suspended, re-establish circulation slowly and before advancing.

5.1.4 ENVIRONMENTAL / GEOLOGIC INSPECTION

Inspection Overview

To ensure that HDD operations are conducted in accordance with permit conditions, established requirements, and standard HDD industry practice, SPLP will provide Environmental Inspectors (EIs) to monitor all pipeline construction activities, with increased attention provided to HDD installations. Specifically, each construction spread will field a team of EIs, one of which will be a Pennsylvania-licensed Professional Geologist (PG). The PG will communicate regularly with the HDD contractors.

The PGs will primarily focus on areas of trenchless construction methodologies (including any type of bore or HDD), and are responsible for monitoring the HDD contractor's performance during trenchless construction. The PGs direct responsibilities include documenting progress of the bore or HDD, documenting subsurface characteristics as evidenced by examination of cuttings and returns on five (5) foot intervals as the HDD is progressing; tool and mud pressures; bore or HDD materials (water, bentonite) consumption to document potential losses of circulation, and patrolling of the land surface over the bore or HDD to inspect for inadvertent returns. The HDD contractor's performance will be evaluated on compliance with permit terms and conditions at the work location; construction design drawings; technical specifications; PPC Plan requirements, and easement agreements.

The PG will immediately notify the Geotechnical Evaluation Lead (GE) and Lead EI if the contractor fails to conform to these required standards, or if unexpected problems are encountered during performance of the work. In the event of an abrupt loss of circulation or inadvertent return, the PG has the authority to stop the bore or HDD by direct notice to the on-site construction manager. In such an event, the Lead EI will mobilize EIs to the site. The GE may mobilize to the work location to inspect the issue and review the construction performance data, or request a technical specialist to the location to inspect the event. The on-site inspection team (PG, EI, and GE) will follow the inspection, reporting, and corrective action protocols specified in this IR Plan.

The EIs and PGs will report directly to SPLP Environmental Project Manager (EPM). The EIs and PGs have "stop-work" authority, which is the authority to stop site-specific activities that violate the environmental permits or conditions.

PG Qualifications

The minimum requirements of the PG shall include the following:

- Current Professional Geologist license in Pennsylvania
- Experienced in the field of hydrogeology
- Completed training by an SPLP technical specialist on general HDD and bore procedures, HDD and bore best management practices, methods to monitor HDD and bore activities and progress, and procedures for analyzing loss of circulation and inadvertent return events.[1]

5.1.5 HDD Alignment Monitoring and IR Protocols

Persistent monitoring of the HDD alignment for an IR is an integral component in minimizing adverse environmental impacts. The intensity of this monitoring will vary depending upon the following drilling fluid operational conditions:

- Condition 1: Full circulation
- Condition 2: Loss of circulation
- Condition 3: Inadvertent returns in waters of the Commonwealth

Monitoring Protocol for Condition 1 – Full Circulation

When HDD operations are in progress and full drilling fluid circulation is being maintained at one or both of the HDD endpoints, the following monitoring protocol will be implemented.

- The presence of drilling fluid returns at one or both of the HDD endpoints will be periodically documented.

[1] The SPLP technical specialists who will provide the training to PGs can include the Geotechnical Evaluations Lead, members of SPLP's Directional Project Support Team, or other trenchless construction specialists. These trenchless construction specialists will have a minimum of ten years experience in HDD and bore construction procedures.

- Land-based portions of the drilled alignment will be periodically walked and visually inspected for signs of inadvertent drilling fluid returns as well as surface heaving and settlement. Waterways will be visually inspected from the banks for a visible drilling fluid plume.
- Drilling fluid products present at the jobsite will be documented.

If an inadvertent drilling fluid return enters waters of the Commonwealth, the monitoring protocol associated with Condition 3 will immediately be implemented. If an inadvertent return enters uplands only, the procedures associated with Section 6.2 of this plan will immediately be implemented.

Monitoring Protocol for Condition 2 – Loss of Circulation

When HDD operations are in progress and drilling fluid circulation to the HDD endpoints is either lost from the annulus or is significantly diminished ("loss of circulation"), the following monitoring protocol will be implemented.

- The HDD contractor will immediately notify the EI and the PG.
- The EI/PG will then immediately notify the Spread's Lead EI and EPM of the loss of circulation (notification of PADEP and other entities will be carried out in accordance with Section 6.5).
- The EI/PG will increase the frequency of visual inspections along the HDD alignment and outside the limits of disturbance on public areas and where authorized without trespassing, and conduct enhanced monitoring of sensitive environmental resources within 100 feet of the HDD alignment. Additionally, the EI/PG will document periods of contractor downtime (during which no drilling fluid is pumped) and the contractor's drilling fluid pumping rate to estimate lost circulation volumes.
- Drilling operations will be suspended and SPLP will submit to PADEP (1) a loss prevention report, which describes the measure(s) that will be implemented to prevent, to the maximium extent practicable, the likelihood of additional losses of circulation; and (2) proof that every public water supplier with a source within 450 feet of the HDD alignment, and every landowner with a private water supply within 450 feet of the HDD alignment has been notified. Drilling operations shall not resume until all required information has been submitted.
- The EI/PG will document steps taken by the HDD contractor to (1) restore circulation to the entry/exit and (2) reduce annular pressure down hole. Should the contractor fail to comply with the requirements of this plan, the EI/PG will notify the Spread's Lead EI so that appropriate actions can be taken.
- In addition, the HDD contractor will take one or more of the following actions to restore full circulation, as appropriate:

    - Minimize annular pressures by minimizing drilling fluid density consistent with hole cleaning and stabilization requirements.
    - Viscosity will be adjusted as necessary to reduce annular pressures consistent with hole cleaning and stabilization requirements.
    - Gel strength will be adjusted as necessary to reduce annular pressures.
    - Control the balling of material on bits, reaming tools, and pipe in order to prevent a plunger effect from occurring.
    - Control penetration rates and travel speeds in order to prevent a plunger effect from occurring.
    - Reduce drilling fluid pumping pressures to the minimum necessary to maintain hole cleaning requirements.
    - Size the hole frequently by advancing and retracting the drill string in order to keep the annulus clean and unobstructed.
    - Seal a zone of lost circulation using a high viscosity bentonite plug, loss control materials, or grouting.

- Drilling activities will be suspended as long as necessary to allow plugs, loss control materials, or grout to cure.
-
- If drilling fluid flow has been suspended, re-establish circulation slowly before advancing.

- If circulation is regained, and there is no IR or other loss of circulation within 48 hours, the EI/PG will inform the Spread's Lead EI and resume the monitoring protocol associated with Condition 1.

- If circulation is not re-established, the EI/PG will increase the frequency of visual inspection along the drilled path alignment and outside the limits of disturbance on public areas and where authorized without trespassing. Additionally, the EI/PG will document periods of contractor downtime (during which no drilling fluid is pumped) and the contractor's drilling fluid pumping rate to estimate lost circulation volumes.

Monitoring Protocol for Condition 3 – Inadvertent Returns in Waters of the Commonwealth

If an inadvertent return of drilling fluids is detected in waters of the Commonwealth, the following monitoring and operational protocol will be implemented. Inadvertent returns impacting uplands only will be addressed in accordance with the procedures in Section 6.2.

- The HDD contractor, EI, PG, or Spread Construction Manager (SM) shall immediately notify the EPM (notification of PADEP and other entities is addressed in Section 6.5).
- The EI/PG shall document the location, magnitude, and potential impact of the return.
- If the inadvertent return is confirmed to be less than 50 gallons and is the first inadvertent return at an HDD location, HDD operations may continue after (1) containment is achieved, (2) cleanup of the inadvertent return has been completed, and (3) SPLP submits written notice and documentation that the inadvertent return has been contained and the cleanup has been completed and PADEP has approved restart of HDD operations, which shall occur no later than 72 hours after SPLP has submitted the required written notice and documentation to PADEP, at which time SPLP may resume trenchless construction unless PADEP disapproves restart. Written notice and documentation of the inadvertent return and SPLP's response thereto shall be provided on the Initial IR and Interim/final report forms attached as Appendix B (the requirements of Initial, Interim, and Final IR reports are set forth below in Section 6.5 (Notifications)). The EI, PG, and HDD contractor will monitor and document the inadvertent return as well as periods of contractor downtime and the contractor's drilling fluid pumping rate to estimate inadvertent return volumes. The basis for the estimate of the inadvertent return volumes, including any information, measurements, or calculations supporting that estimated volume, shall be provided on the forms attached as Appendix B.
- If the inadvertent return is (i) 50 gallons or greater, (ii) of unknown quantity, or (iii) is a second or subsequent inadvertent return at an HDD location, drilling operations will be suspended until PADEP inspects the site, and subsequently approves the restart report provided by SPLP. The restart report must contain an overview of the HDD activities, the PG's assessement of the strata where IR occurred, depth and alignment of drill bit at time of IR, profile of the drill path as constructed overlain on the permitted drill profile, an analysis of the risk of additional inadvertent returns to waters of the Commonwealth, and recommendations on measures that will minimize the likelihood that further drilling will result in harm to the environment, or impact any private or public water supplies. The restart report must be sealed by a Pennsylvania licensed professional geologist. SPLP may recommence HDD activities after PADEP provides written approval to restart. Periods of contractor downtime and the contractor's drilling fluid pumping rate will also be documented

to estimate inadvertent return volumes. The basis for the estimate of the inadvertent return volumes, including any information, measurements, or calculations supporting that estimate, shall be provided on the forms attached as Appendix B. Notifications to government agencies and water supply owners is addressed in Section 6.5.

5.1.6 HYDROLOGICAL IMPACTS

The HDD contractor is able to monitor the annulus pressure of returns during the HDD pilot hole phase of HDD using an annual pressure monitor. If the pressure spikes significantly and unexpectedly and all other drilling parameters are otherwise unchanged, this may signify a potential influx of groundwater. If this occurs, an inspection of the HDD alignment and adjacent areas for returns would be conducted. The surfacing of groundwater over the HDD profile as a result of HDD activities (i.e., making water at the land surface), could be indicative of an ongoing IR. When groundwater surfacing is identified, the HDD contractor, EI, PG, or SM will notify the EPM. The groundwater surfacing will be photographed and characterized (i.e., location, size, limits, flow rate, flow direction, clarity, etc.). The inspection and early detection of any surfacing of groundwater over the HDD profile will allow the HDD contractor to stop or adjust the HDD to reduce the potential for secondary impacts or an IR. Notifications relating to the surfacing of groundwater are addressed in Section 6.5.

During the pilot hole or reaming phase of an HDD, a sudden increase in drilling fluid returns, the appearance of clear water mixed with drilling fluids, or clear water only returning to the HDD entry point indicates that the HDD has progressed into or intercepted a zone of groundwater with a hydrostatic pressure greater than the annulur pressure of the HDD phase in progress. This could be naturally occurring groundwater, or an indication that the HDD progressed through a mine pool at a higher elevation than the HDD entry point. If this occurs, the HDD contractor, EI, PG, or SM will notify the EPM. The PG will document the current phase of the HDD, the location and elevation of the tool, and consult with Senior PG's regarding the known presence, or unknown potential for the HDD to have intercepted a mine pool. The EI should collect samples of the water to test for acid mine pool constiuents.

If the volume of produced water is minimal or does not exceed the volumes being used for the HDD phase in progress, then this water should be pumped with the returning fluids and cuttings and recycled into the HDD process.

If the volume of produced water exceeds the water demand for continued drilling, the contractor will capture and haul away all produced water for treatment until the test results show that the water can be safely discharged at a suitable location at the HDD location. The EPM will obtain any required authorizations for on-site discharge of excess producted waters.

If the produced groundwater returns persist after installation of the pipeline, the contractor will develop and implement a plan to establish a seal to stop groundwater flows as to avoid impacts to environment and public and private water supplies.

6.0 RESPONSE TO INADVERTENT RETURNS

If an IR is observed, the HDD contractor will take measures to eliminate, reduce, or control the return. The actions to be taken will depend on the location and time of return, site specific geologic conditions, and the volume of the return.

6.1 GENERAL CONDITIONS

- This IR Plan, PPC Plan, Water Supply Plan, and Karst Plan must be present onsite during drilling operations and made available to PADEP;
- PADEP is to be notified at least 24 hours prior to the beginning of each HDD, or any type of bore, under waters of the Commonwealth. This notification will be made through PADEP's online Oil and Gas Reporting Electronic (OGRE) application. The OGRE application is accessed via the DEP Greenport login in system at https://www.depgreenport.state.pa.us .
- All required permits and Material Safety Data Sheets must be onsite and made available to PADEP;
- Drilling fluid additives other than bentonite and water shall be approved by PADEP prior to use. All approved or referenced HDD fluid additives are listed on PADEP's web link here: http://www.dep.pa.gov/Business/Energy/OilandGasPrograms/OilandGasMgmt/IndustryResources/InformationResources/Pages/default.aspx;
- When an inadvertent return or loss of circulation is discovered, the inadvertent return or loss of circulation will be immediately reported to PADEP in accordance with Section 6.5; and,
- Any water supply complaints received by SPLP will be reported to PADEP in accordance with Section 6.5.

6.2 INADVERTENT RETURNS IN UPLANDS

If a return is identified within or nearby the HDD alignment, within the adjacent uplands (an "upland IR"), then notification, containment, and cleanup will be carried out as specified in this Section. Upland IRs include "punch-out returns," which are defined as releases of drilling fluids in uplands that occur within the HDD staging area as depicted in the the approved erosion and sedimentation control plan. Punch-out returns may occur when the HDD nears the exit point during pilot hole drilling as a result of reductions in the depth of the drill (less soil/bedrock) and unconsolidated soil conditions near the exit point.

The EI will be required to be present as the containment and cleanup may need to be conducted outside of pre-approved limits of disturbance. Upon occurrence of an upland IR that impacts a water supply well, results in a complaint that a water supply well has been impacted, or enters a water of the Commonwealth, drilling operations will be suspended until the procedures in Monitoring Protocol for Condition 3 of Section 5.1.5 are complied with.

SPLP will immediately suspend drilling operations following an upland IR, except if the upland IR is a punch-out return where the drilling fluid is contained within the permitted limit of disturbance and does not enter a water of the Commonwealth or impact a water supply well. The EI or PG must quantify the upland IR, document its location, photograph the return, determine the proximity of the return to any resource(s), assess the potential to impact any resource(s), and report the incident to the EPM. Information about the upland IR, will be recorded and updated as necessary as a running interim report on the data form provided in Appendix B. SPLP's EPM is responsible for completion of the interim report with the assistance of the EI and PG. Each form will be updated as new information is learned about the return and as activities to restore the area occur. The general reporting will be "Initial", "Interim", and then "Final". The initial, interim, and final reports will comprehensively document the return from initial discovery/notification through final restoration. PADEP, the County Conservation District, the municipality, and affected landowners (private or public) will be notified of the upland IR in accordance with Section 6.5. The HDD contractor will take appropriate actions to contain, reduce, eliminate, or control the return. The actions

may include, as appropriate:

- Constructing a small pit or sandbag coffer around the return point, installing a section of silt fence and/or straw bales to trap as much drilling fluids as possible, and placing a pump hose in the pit to pump the drilling fluid back to the bore site or temporary holding area or vessels (i.e., vac truck);
- Reducing drilling fluid pressures;
- Adjusting the properties of the drilling fluid mixture; and/or
- Adding pre-approved loss circulation materials to the fluid mixture, such as wood fibers, shredded paper, or fluid additives as listed or references on PADEP's website: http://www.dep.pa.gov/Business/Energy/OilandGasPrograms/OilandGasMgmt/IndustryResources/InformationResources/Pages/default.aspx;.

Drilling fluid may be recovered, recycled, and reused to the extent practical. All waste drilling fluid shall be managed in accordance with 25 Pa. Code, Subpart D, Article IX (relating to residual waste management).

When HDD operations have been suspended pursuant to this section following an upland IR, HDD operations may resume after (1) containment of the upland IR is achieved, (2) cleanup of the upland IR has been completed, and (3) PADEP receives written notice and documentation that the inadvertent return has been contained and the cleanup has been completed. Written notice and documentation of the upland IR and SPLP's response thereto shall be provided on the Initial IR and Interim/final report forms attached as Appendix B and in accordance with the requirements for their submission set forth below in Section 6.5 (Notifications).

For punch-out returns where drilling has not been suspended, SPLP will contain the drilling fluids and complete the cleanup of the drilling fluids after "punch-out" of the pilot hole is achieved. Written notice and documentation of the punch-out return and SPLP's response thereto shall be provided on the Initial IR and Interim/final report forms attached as Appendix B and in accordance with the requirements for their submission set forth below in Section 6.5 (Notifications).

6.3 INADVERTENT RETURNS IN WATERS OF THE COMMONWEALTH

The environmental impacts of a return of drilling fluid into a water body include a temporary increase in local turbidity until drilling fluid dissipates with the current and/or settles to the bottom. In the immediate vicinity of a return, benthic organisms may be impacted if sufficient quantities of bentonite settle upon them.

If the return is identified within wetlands, streams, lakes, or any other surface water, drilling operations will be suspended, pending DEP approval to resume in accordance with the procedures in Monitoring Protocol for Condition 3 of Section 5.1.5. During the suspension the EI must quantify the return, document its location, photograph the return, assess the potential to impact to the resource(s), and report the incident to SPLP's EPM. Notifications will be made as outlined within Section 6.5. Information about the return will be recorded and updated as necessary in an interim report on the data form provided in Appendix B. SPLP's EPM is responsible for completion of the data form with the assistance of the EI and environmental compliance contractor. Each form will be updated as new information is learned about the return and as activities to restore the area occur. The general reporting will be "Initial", "Interim", and then "Final". The initial, interim, and final reports will comprehensively document the return from initial discovery/notification through final restoration. **ALL inadvertent returns in wetlands, streams, lakes, or any**

other surface water, regardless of size, are to be reported to the appropriate agencies in accordance with the notification section below.

Containment, clean-up, and restoration activities that would require the installation of construction matting, placement of materials in the wetland or waterway, or the entry of construction vehicles and equipment are not allowed without prior PADEP/USACE approval. If upon reporting the incident, and under further consultation with the agencies, the return is determined to be significant enough to warrant containment, clean-up, and restoration via mechanical methods, then the following procedures will be followed:

- Draft containment and restoration plan, outlining the limits, types, and duration of disturbances, will be submitted to the PADEP/USACE for review and approval.
- Appropriate aquatic resource encroachment permits will be applied for depending on levels and types of disturbances required to clean up the material.
- Approved activities would only be implemented under the close, full-time supervision of the assigned EI.
- Drilling operations may only resume once the return is contained and successfully recovered and restart approval is obtained from DEP to resume in accordance with Monitoring Protocol for Condition 3 of Section 5.1.5 above. The return area will continue to be monitored during the daily inspection.

One exception to ceasing HDD operations would be a return of drilling fluids during the pipe pullback process. Ceasing operations would pose significant risk of causing the pullback section of pipe to be stuck and not able to resume. If a significant risk exists of a release or inadvertent return of drilling fluid during the pipe pullback process, before that process begins, SPLP will propose a plan to PADEP to mitigate that risk and will receive PADEP's approval of the plan before beginning the pipe pullback process. SPLP will then implement the risk mitigation plan.

6.4 CONTAINMENT & CLEAN-UP MATERIALS AND EQUIPMENT

The HDD contractor will be required to have the necessary containment and clean-up equipment on-site, at the boring location and readily available for use. At a minimum, a combination of some or all of the following material and equipment should be on site and in ample supply depending on the extent of sensitive areas:

- Spill sorbent pads and booms
- Compost filter socks
- Straw bales (certified weed-free)
- Wood stakes
- Sand bags
- Silt fence
- Plastic sheeting
- Corrugated plastic pipe
- Shovels
- Push brooms
- Centrifugal, trash and sump pumps
- Vacuum truck
- Rubber tired or wide track back hoe
- Bobcat (if needed)
- Storage tanks (if needed)
- Floating turbidity curtain (may be considered for use on large streams)
- Timber (enough to cross 50% of the wetland length need to be readily available)

If necessary, a 24-hour outside emergency response company may be called in for assistance (such as Enviroserve – 1-800-642-1311).

6.5 NOTIFICATIONS

- **Commencement of HDD or Bore:** PADEP is to be notified at least 24 hours prior to the beginning of each HDD, or any type of bore, under waters of the Commonwealth. This notification will be made through PADEP's online Oil and Gas Reporting Electronic (OGRE) application. The OGRE application is accessed via the DEP Greenport login in system at https://www.depgreenport.state.pa.us .

- **Pullback:** SPLP will notify PADEP at least 24 hours prior to commencing pullback at any HDD site.

- **Impact to Water Supply:** SPLP will provide PADEP with immediate verbal notification by an authorized SPLP representative of any citizen complaint it receives of an impact to a private or public water supply, when SPLP otherwise becomes aware of an impact to a private or public water supply, and when SPLP provides an alternate water supply for any private or public water supply. SPLP will make and document at least three attempts to provide verbal notification directly over the phone to a PADEP employee. If, after the third attempt, SPLP is unable to speak directly to a PADEP employee, then SPLP will provide email notification to PADEP. SPLP's verbal (or email) notification will provide a detailed description of the incident using the best currently available information. SPLP shall also report this information to PADEP's online Oil and Gas Reporting Electronic ("OGRE") application within 24 hours. The OGRE application is accessed via the PADEP Greenport login in system at https://www.depgreenport.state.pa.us .

- **Inadvertent Returns:** When an inadvertent return is discovered (regardless of whether the IR is to an uplands or waters of the Commonwealth), SPLP shall provide PADEP with immediate verbal notification. SPLP shall promptly thereafter report the inadvertent return to the County Conservation District, the municipality in which the inadvertent return occurred, any landowners affected by the return, and to identified public water suppliers with a source located within 450 feet of the HDD alignment and every landowner with a private water supply located within 450 feet of the HDD alignment. Inadvertent returns occurring in or flowing into waters of the Commonwealth also require notification to the Pennsylvania Fish and Boat Commission, U.S. Army Corp of Engineers, and downstream users of water (as described in more detail below). If necessary, for emergency response or remedial activities, an emergency permit shall be sought under § 105.64 (relating to emergency permits).

- **Loss of Circulation:** When a loss of circulation is identified and the loss of circulation is the first occurrence on the HDD, SPLP shall provide PADEP with immediate verbal notification of the loss of circulation. SPLP shall promptly thereafter notify identified public water suppliers with a source located within 450 feet of the HDD alignment and every landowner with a private water supply located within 450 feet of the alignment that a loss of circulation occurred and that their water supply may be impacted. If, after full circulation is re-established following a prior loss of circulation, a second or subsequent loss of circulation occurs, SPLP shall provide PADEP with immediate verbal notification of the second or subsequent loss of circulation. If the second or subsequent loss of circulation occurs more than 30 days after the first loss of circulation on the HDD,

SPLP shall also re-notify identified public water suppliers with a source located within 450 feet of the HDD alignment and every landowner with a private water supply located within 450 feet of the alignment that a loss of circulation occurred and that their water supply may be impacted.

- **Making Water:** When HDD activities result in the surfacing of groundwater (i.e., "making water"), SPLP shall immediately report such surfacing of groundwater to PADEP. SPLP shall promptly thereafter notify identified public water suppliers with a source located within 450 feet of the HDD alignment and every landowner with a private water supply located within 450 feet of the alignment that a surfacing of groundwater occurred and that their water supply may be impacted.

- **Interception of Mine Pool/Mine Seeps:** When HDD activities intercept a mine pool or a mine seep, SPLP shall immediately report such surfacing of groundwater to PADEP. SPLP shall promptly thereafter notify identified public water suppliers with a source located within 450 feet of the HDD alignment and every landowner with a private water supply located within 450 feet of the alignment that a surfacing of groundwater occurred and that their water supply may be impacted.

A SPLP EPM will be responsible for the notifications described below of all returns occurring in or flowing into aquatic resources. The notifications will initially be via phone to the PADEP Emergency Response numbers listed below and then to the appropriate agency personnel via submittal of an initial inadvertent return data form located in Appendix B. Within one (1) business day of verbal notification of an inadvertent return, Sunoco will provide PADEP with an initial written report regarding the inadvertent return on the form approved by PADEP. Each item of the form shall be fully addressed by SPLP.

The Pennsylvania Clean Streams Law regulations require that when any pollutant discharged into surface or groundwater, including sewers, drains and ditches, the person spilling the substance or the person owning the premises from which the substance is spilled must notify PADEP immediately. Therefore, for all returns in aquatic resources, SPLP will notify the appropriate PADEP regional emergency number immediately upon return discovery:

- PADEP Southwest Regional Office: 412-442-4000
- PADEP Southcentral Regional Office: 866-825-0208
- PADEP Southeast Regional Office: 484-250-5900
- PA Fish and Boat Commission Bureau of Law Enforcement: 717-705-7861
  SWRO: 814-445-8974, SCRO: 717-486-7087, SERO: 717-626-0228
- Other agencies that will be notified:
  - U.S. Army Corps of Engineers
    Pittsburgh District: 412-395-7155
    Baltimore District: 410-962-3670
    Philadelphia District: 215-656-6728
  - Local agencies and municipalities who are downstream users of water, as applicable (see Water Supply Plan supplied with the Project's E&S Plan)

Following notification to the appropriate emergency/regulatory numbers, SPLP's EPM will notify the following individuals via e-mail submittal of the inadvertent return form located in Appendix B. This will consist of the initial reporting of the return and open consultation and further reporting to the PADEP/USACE in regards to the return. The further consultations will be in regards to remediation approval, restoration approval, and the need for appropriate approval/permits. The inadvertent return data form will be used to

document the consultation and approvals and report final remediation/restoration.

After submission of the initial written report, every five (5) business days thereafter, SPLP will provide the Department with weekly interim written reports regarding any inadvertent return until a final report is submitted. The interim and final reports shall be submitted on the forms attached in Appendix B or as otherwise approved by the Department. For each report submitted, SPLP shall fully address each item of the form. SPLP will provide the Department with a monthly status report regarding all HDDs and inadvertent returns ("Status Report"). The Status Report shall provide the status for each HDD (designating whether the HDD is scheduled, in the pilot bore stage, in the reaming state, or complete) and the status of each inadvertent return (contained, contained and remediation underway, or fully remediated).

- PADEP Southwest Regional Environmental Group Manager (Abbey Owoc)
- PADEP Southcentral Regional Compliance Specialist (Ronald Eberts, Jr.)
- PADEP Southeast Regional Compliance Specialist (Frank DeFrancesco)
- USACE Pittsburgh District Permit Reviewer (Jared Pritts)
- USACE Baltimore District Permit Reviewer (Debby Nizer)
- USACE Philadelphia District Permit Reviewer (David Caplan)
- PGC – for returns on state game lands (Nathan Havens)
- DCNR – for returns on state forests and parks (David Mong)
- USFWS – Project Reviewer (Pamela Shellenberger)
- USFWS – Project Reviewer (Brian Scofield)

Abbey Owoc | Environmental Group Manager
Department of Environmental Protection Southwest Regional Office
400 Waterfront Drive | Pittsburgh, PA 15222 Phone: 412.442.5219
aowoc@pa.gov

Ronald Eberts Jr. | Compliance Specialist
Department of Environmental Protection | Waterways and Wetlands Program South-central Regional Office
909 Elmerton Avenue | Harrisburg, PA 17110 Phone: 717.705.4819
reberts@pa.gov

Frank DeFrancesco | Compliance Specialist
Department of Environmental Protection | Waterways and Wetland Program
2 East Main Street | Norristown, PA 19401
Phone: 484.250.5161
fdefrances@pa.gov

Jared N. Pritts
Senior Regulatory Specialist
U.S. Army Corps of Engineers, Pittsburgh District William S. Moorehead Federal Building
1000 Liberty Avenue, Suite 2200
Pittsburgh, Pa 15222
Office: (412) 395-7251
jared.n.pritts@usace.army.mil

Debby Nizer
U. S. Army Corps of Engineers
Baltimore Dist., Regulatory Branch, PA Section
CENAB-OPR-P/Second Floor

2 Hopkins Plaza
Baltimore, MD 21201
Phone: 410-962-6085
debby.nizer@usace.army.mil

David J. Caplan
Biologist, Applications Section II
Regulatory Branch
U.S. Army Corps of Engineers
John Wanamaker Building, 6th Floor
100 Penn Square East
Philadelphia, PA 19107
215-656-6731 (office)
David.J.Caplan@usace.army.mil

David E. Mong
Forest Program Specialist - Right of Way Administration
Department of Conservation & Natural Resources
Bureau of Forestry/Central Office – Operations Section
400 Market Street, 6th Floor
Harrisburg, PA 17105
Office Phone: 717-783-7947
dmong@pa.gov

Nathan Havens
Right-of-Way Administrator
PA Game Commission, Bureau of Wildlife Habitat Management
Real Estate Division
2001 Elmerton Avenue
Harrisburg, PA 17110
717-787-4250, x3619
nhavens@pa.gov

Pamela Shellenberger
U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090 x7459
Pamela_shellenberger@fws.gov

Brian Scofield
U.S. Fish & Wildlife Service
Pennsylvania Field Office
110 Radnor Rd; Suite 101
State College, PA 16801
814 234-4090
Brian_scofield@fws.gov

Other Notifications

The existing environment in regards to public and private water supply in proximity to and downstream of the Project has been evaluated and described within the Water Supply Plan. Existing location data, as well as consultations with supply providers, provided the

basis for identification of potential risks and concerns. Notifications to private and public water supply owners and/or operators will be implemented in accordance with the procedures described above.

County Conservation Districts shall be notified in depending on the county of occurrence:

County Conservation Districts	
Washington County 2800 North Main Street, Suite 105, Washington, PA 14301	724-705-7098
Allegheny County River Walk Corporate Centre, 33 Terminal Way, Suite 325B, Pittsburgh, PA 15219	412-241-7645
Westmoreland County J. Roy Houston Conservation Center, 218 Donohoe Road, Greensburg, PA 15601	724-837-5271
Indiana County 625 Kolter Drive, Suite 8, Indiana, PA 15701	724-471-4751
Cambria County 401 Candlelight Drive, Suite 229, Ebensburg, PA 15931	814-472-2120
Blair County 1407 Blair Street, Hollidaysburg, PA 16648	814-696-0877
Huntingdon County 10605 Raystown Road, Suite A, Huntingdon, PA 16652	814-627-1627
Juniata County 146 Stoney Creek Drive, Suite 4, Mifflintown, PA 17059	717-436-8953
Perry County P.O. Box 36, 31 West Main Street, New Bloomfield, PA 17068	717-582-8988
Cumberland County 310 Allen Road, Suite 301, Carlisle, PA 17013	717-240-7812
York County 118 Pleasant Acres Road, York, PA 17402	717-840-7430
Dauphin County 1451 Peters Mountain Road, Dauphin, PA 17018	717-921-8100
Lebanon County 2120 Cornwall Road, Suite 5, Lebanon, PA 17042	717-277-5275
Lancaster County 1383 Arcadia Road, Room 200, Lancaster, PA 17601	717-299-5361
Berks County 1238 County Welfare Road, Suite 200, Leesport, PA 19533	610-372-4657
Chester County 688 Unionville Road, Suite 200, Kennett Square, PA 19348	610-925-4920
Delaware County Rose Tree Park Hunt Club, 1521 N. Providence Road, Media, PA 19063	610-892-9484

6.6 Special Water Supply Procedures

Prior to the start of any trenchless construction methodologies in a particular location, SPLP will offer all landowners with a private water supply source located within 450 feet from the HDD alignment an alternative temporary water supply (e.g., water buffalo with potable water adequate for purposed served) that will be installed and maintained, at SPLP's expense, for the entire period of the trenchless construction methodologies. Installations shall be approved as required with local zoning/building ordinances.

If a landowner who had not previously been connected to a temporary water supply reports a complaint of an impact to his or her water supply, SPLP will immediately respond to the complaint and provide the landowner with bottled drinking water. If the complaint occurs on a Monday-Saturday, an alternative temporary water supply (e.g., water buffalo) will be provided to the landowner within 24 hours. If the complaint occurs on a Sunday or a holiday, or if an alternative temporary water supply cannot otherwise be provided within 24 hours, SPLP will offer the landowner temporary accommodations, at SPLP's expense, until such time as a temporary alternative water supply can be installed. Temporary alternative water supply will be provided at SPLPs expense until SPLP restores or replaces the impacted water supply to the satisfaction of the property owner.

For each landowner with a private water supply located within 450 feet from the HDD alignment, SPLP will offer to collect water supply samples, before during and after the HDD, at SPLP's expense. Sampling shall address quantity (yield) (unless the well is not accessible) and quality of the existing source. Once available, sampling results shall be made available to PADEP within 24 hours of a request by PADEP for the results. If any impact to a private water supply attributable to pipeline construction is identified after post-construction sampling, SPLP will restore or replace the impacted water supply to the satisfaction of the private water supply owner.

7.0 SPECIAL BOG TURTLE AREA PROCEDURES

Final consultation with the USFWS (letter dated October 31, 2016) resulted in the identification of a single HDD that would require special bog turtle inadvertent return procedures. The drill of Wetland A54 and A55 in Lancaster County are occupied bog turtle habitats and both wetlands will be drilled with a single HDD. In accordance with USFWS final determination letter, activities at this HDD site (listed in Attachment A and highlighted in yellow) include pre-construction and during construction procedures to ensure no bog turtles are negatively impacted, and outlines a contingency plan for inadvertent returns at this special concern area.

As discussed, the primary potential environmental impact associated with HDD revolves around the use of drilling fluids. Inadvertent return of drilling fluids is a potential environmental concern in general and is of particular concern to the USFWS and SPLP in regards to potential impacts to bog turtles. Although implementation of the HDD crossing method represents one of the highest levels of avoidance of impacts (by minimizing/avoiding open trench excavation and the operation of construction equipment in the wetland), the purpose of this IR Plan is to present SPLP's plan to further minimize potential impacts to bog turtles associated with all phases of the HDD process and in particular in the event of an inadvertent return. The objectives of this section of this contingency plan are:

- Avoid impacts to the bog turtle.
- List known or potential bog turtle habitats.
- Ensure that project work areas and wetlands are clearly defined on engineer

approved project plans.

- Ensure all construction contractors are appropriately trained on the identification of this species and its biology, the notification procedures, and implementation of this contingency plan.
- Ensure bog turtle wetlands/areas are marked prior to construction and that all work areas are appropriately defined (e.g., staked) according to project plans.
- Ensure bog turtle wetlands/areas are sealed off/protected from construction activities.
- Provide daily inspection of contractor activities to ensure compliance with project work plans.
- Provide daily inspection of the HDD alignment and adjacent areas for timely detection of inadvertent returns.
- Ensure all appropriate notifications are made to the USFWS, United States Army Corps of Engineers (USACE) and PADEP, and all other applicable regulatory agencies in a timely manner and that all required documentation is completed as identified in this document.

7.1 PRE-CONSTRUCTION ACTIVITIES

All construction, including professional survey personnel will be trained on implementation of this plan, the identification of this species and its biology, and the location of the areas of particular concern. All construction personnel, Environmental Inspector (EI), and on-site bog turtle Specialist (BT Specialist) will be provided with the necessary project plans, mapping, permits, authorized impacts, clearance letters, conservation plans, and this contingency plan prior to the start of construction activities.

To reduce the risk of unintentional impacts to bog turtles and their habitats, a BT Specialist will inspect the surveyed (e.g. staked) entrance and exit locations and access roadways associated with the HDD prior to disturbance to ensure that they are not sited in bog turtle habitat and in accordance with project plans (A BT Specialist is defined as an individual

holding a Pennsylvania Fish and Boat Commission a Scientific Collector's Permit, and a Special Permit to survey for and handle bog turtles species pursuant to 58 PA Code 75.4). In addition, the boundary of the bog turtle habitat nearest to the work areas will be temporarily marked to ensure no activities are unintentionally conducted within bog turtle wetlands and work is restricted to approved work-spaces. Under the direction of the BT Specialist, silt fence will be installed between wetlands and work areas to also prevent bog turtles from entering construction work spaces. Under the direction of the BT Specialist, some areas of herbaceous vegetation may require clearing so that inspection of the area for bog turtles can be made easier. In accordance with the USFWS determination letter, SPLP has also agreed to implement groundwater monitoring and bog turtle radio-telemetry study at the Wetland A54/A55 drill that will occur preconstruction, during, and post-construction.

7.2 CONSTRUCTION ACTIVITIES

All procedures implemented by the drilling contractor discussed previously in this contingency plan to reduce the potential for, identification, and notification of inadvertent returns will be implemented at all HDDs. At the bog turtle HDD of Wetlands A54 and A55, inspection of the work areas and compliance with the project plans will be carried out daily by the BT Specialist. In addition, when drilling commences the BT Specialist will inspect all disturbed upland areas and silt fencing multiple times for bog turtles and inadvertent returns. In addition, each wetland will be inspected once-daily for the occurrence of inadvertent returns, including the surfacing of ground water by the BT Specialist. Multiple, daily inspections for inadvertent returns within the wetlands areas were determined

unnecessary and a one-time daily inspection would reduce the direct disturbance of normal behaviors if turtles are present. These inspections will continue until drilling is completed and the inadvertent return risk in the wetlands has been removed. Only if the drilling contractor suspects an inadvertent return as determined from the drilling progress and monitoring of the drilling fluids would more than one daily inspection of the wetlands for returns be performed. SPLP has also agreed to implement a vibration monitoring study at the Wetland A54/A55 drill.

7.3 BOG TURTLE OBSERVATIONS AND HANDLING

Construction personnel will be trained to report all turtle observations to the EI immediately upon siting. All bog turtle observations that are not in harm's way will be documented within project logs and reported to the USFWS/USACE/PADEP within the final report. Documentation will include dates, times, photographs, and behavior. Additional, protection measures should be considered depending on where bog turtles are observed in relation to project areas.

Bog turtles observed in harm's way shall be handled by the BT Specialist assigned to the area and only if handling is determined necessary to remove the risk of injury or death. Other project personnel are allowed to move turtles small distances, but only in cases of immediate danger. Otherwise steps to passively remove the threat and allow the turtles to continue normal behavior may be determined to be the best course of action. Bog turtles will only be moved to an area within the same wetland, only to a distance necessary to remove the threat. Additional silt fence installation may be required in the area to prevent turtles from returning to areas that presented the threat. Removal or relocation of the construction activity in that particular area will also be considered if practicable to completing the drill. Any bog turtles found within harm's way will be reported to the USFWS immediately as an incident and how it was handled.

7.4 RESPONSE TO INADVERTENT RETURNS

The HDD contractor shall immediately notify the lead Construction Inspector (CI) and Environmental Inspector (EI) of any sudden losses in returns or any inadvertent return to the surface. If a return is observed, the HDD contractor will take reasonable measures to eliminate, reduce, or control the return. The actions to be taken will depend on the location and time of return, site specific geologic conditions, and the volume of the return. The EI or CI will notify the SPLP's EPM with the initial details of the return upon discovery.

7.4.1 INADVERTENT RETURNS IN BOG TURTLE WETLANDS/STREAMS

If the return is identified within bog turtle wetlands and/or streams, drilling operations will be temporarily suspended to allow the EI and BT Specialist to appropriately quantify the return, document its location, photograph the return, assess the potential to impact to the resource(s), and report the incident to SPLP's ECC. Information about the return will be recorded and updated as necessary as a running report on the data form provided in Appendix B. SPLP's ECC is responsible for completion of the data form with the assistance of the EI, BT Specialist, and environmental compliance contractor. Each form will be updated as new information is learned about the return and as activities to restore the area occur. The general reporting will be "Initial", "Interim", and then "Final". The initial, interim, and final reports will comprehensively document the return from initial discovery/notification through final restoration.

ALL inadvertent returns at the Wetland A54/A55 bog turtle HDD are to be reported to the appropriate agencies in accordance with Section 6.5 and additional notifications provided below.

Containment, clean-up, and restoration activities that would require the installation

of construction matting, placement of materials in the wetland or waterway, or the entry of construction vehicles and equipment are not allowed without prior PADEP/USACE/USFWS approval. If upon reporting the incident, and under further consultation with the agencies, the return is determined to be significant enough to warrant containment, clean-up, and restoration via mechanical methods, then the following procedures will be followed:

- Draft containment and restoration plan, outlining the limits, types, and duration of disturbances, will be submitted to the PADEP/USACE/USFWS for review and approval.
- Appropriate aquatic resource encroachment permits will be applied for depending on levels and types of disturbances required to clean up the material.
- Approved activities would only be implemented under the close, full-time supervision of the assigned EI.
- Drilling operations will resume when the return is contained and successfully remediated. The return area will continue to be monitored during the daily inspection.

One exception to ceasing drilling operations would be a return of drilling fluids during the pipe pullback process. Ceasing operations would pose significant risk of causing the pulled pipe to be stuck and not able to resume.

7.4.2 CONTAINMENT & CLEAN-UP MATERIAL AND EQUIPMENT

The HDD contractor will be required to have the necessary containment and clean-up equipment on-site and/or readily available for use. At a minimum, a combination of some or all of the following material and equipment should be on site and in ample supply depending on the extent of sensitive areas:

- Spill sorbent pads and booms
- Compost filter socks
- Straw bales (certified weed-free)
- Wood stakes
- Sand bags
- Silt fence
- Plastic sheeting
- Corrugated plastic pipe
- Shovels
- Push brooms
- Centrifugal, trash and sump pumps
- Vacuum truck
- Rubber tired or wide track back hoe
- Bobcat (if needed)
- Storage tanks (if needed)
- Floating turbidity curtain (may be considered for use on large streams)Timber (enough to cross 50% of the wetland length need to be readily available)

If necessary, a 24-hour outside emergency response company may be called in for assistance (such as Enviroserve – 1-800-642-1311).

7.4.3 NOTIFICATIONS

Notifications will be carried out in accordance with Section 6.5, however all returns at the HDD of Wetland A55/A54 will also be reported to the following agencies:

Pamela Shellenberger U.S. Fish & Wildlife Service Pennsylvania Field Office 110 Radnor Rd; Suite 101 State College, PA 16801 814 234-4090 x7459 Pamela_shellenberger@fws.gov	Brian Scofield U.S. Fish & Wildlife Service Pennsylvania Field Office 110 Radnor Rd; Suite 101 State College, PA 16801 814 234-4090 Brian_scofield@fws.gov
Andrew McDonald Department of Environmental Protection Waterways and Wetlands Program South-central Regional Office 909 Elmerton Avenue Harrisburg, PA 17110 Phone: 717.705.4776 anmcdonald@pa.gov	Kathy Gipe Pennsylvania Fish and Boat Commission **c-kgipe@pa.gov**
Cumberland County Debby Nizer U. S. Army Corps of Engineers Baltimore Dist., Regulatory Branch, PA Section CENAB OPR-O/Second Floor 2 Hopkins Plaza Baltimore, MD 21201 Phone: 410-962-6085 DEBBY.NIZER@usace.army.mi	**Berks (Baltimore District), York Counties** Mike Danko U. S. Army Corps of Engineers Carlisle Regulatory Field Office 401 Louther Street, Suite 205 Carlisle, PA 17013 Phone: 717-249-8730
Berks (Philadelphia District), Chester (Philadelphia District), Delaware, Counties Bill Jenkins, Chief, Applications Section U. S. Army Corps of Engineers Wanamaker Building 100 Penn Square East Philadelphia, PA 19107-3390 Phone: 215-656-6726	**Chester (Baltimore District), Lancaster, Lebanon Counties** Pat Strong U. S. Army Corps of Engineers Baltimore Dist., Regulatory Branch, PA Section P. O. Box 1715 Baltimore, MD 21203-1715 Phone: 410-962-1847

8.0 OTHER SPECIAL AREA PROCEDURES

In Cambria County a northeastern bulrush population is located in the vicinity of the HDD of Wetland L62 and M59. The proposed HDD will begin on the southeast side of the access road approximately 150-ft southeast of the northeastern bulrush population, continue for approximately 1684-ft, and end approximately 1534-ft northwest of the northeastern bulrush population location. There will be no travel through or tree clearing between the exit and entry points at this HDD. An EI will ensure the contractor is well aware that the drill is under and nearby a sensitive population of plants. The EI will ensure construction fencing will be installed and no access signs placed on the northwest side off the access road to avoid potential inadvertent use of the area for travel through or other unplanned activities. Access will be limited between the HDDs to foot-travel for inspection of inadvertent returns and any professional land survey that may be required. The area will be regularly inspected for compliance. Notifications in accordance with Section 5.4 will be required, which includes the USFWS. Some HDDs are designed to avoid cultural resources. Notification to the PHMC will be made if ground disturbance is required of any

remedial actions that occur in these areas as a result of an inadvertent return.

9.0 FINAL SUMMARY REPORT

A final summary report will be prepared at the end of the project to document the implementation of the drilling method and the IR Plan. Number of drills, duration of drills, number of returns, return characteristics, inspection results and observations, lessons learned, and recommendations will all be discussed within this report.

APPENDIX A

HDD Table

HDD	Aquatic Resource Crossed	County	PADEP Region	Travel and Clearing LOD/Travel LOD	EV Wetland	Bog Turtle Occupied Wetland
PA-WA-0072.0000-SR*	No Aquatic Resources Impacted	Washington	Southwest			
PA-WA-0074.0000-RR	S7	Washington	Southwest			
PA-WA-0102.0000-SR	No Aquatic Resources Impacted	Washington	Southwest			
PA-WA-0103.0000-RD*	S250, S16	Washington	Southwest	ROW - Travel and Clearing LOD		
PA-WA-0106.0000-SR	No Aquatic Resources Impacted	Washington	Southwest	ROW - Travel LOD		
PA-WA-0111.0000-SR	No Aquatic Resources Impacted	Washington	Southwest	ROW - Travel LOD		
PA-WA-0119.0000-RD	S129, S280	Washington	Southwest			
PA-WA-0119.0003-RD	No Aquatic Resources Impacted	Washington	Southwest			
PA-WA-0127.0000-RR*	S131, S130, W43	Washington	Southwest			
PA-WA-0164.0000-RD	No Aquatic Resources Impacted	Washington	Southwest	ROW - Travel LOD		
PA-WA-0171.0000-RR*	S28, S27, S142	Washington	Southwest	ROW - Travel LOD		
PA-WA-0172.0000-RD	S29	Washington	Southwest			
PA-WA-0176.0000-RR	S121	Washington	Southwest			
PA-AL-0001.0000-RR	No Aquatic Resources Impacted	Allegheny	Southwest	ROW - Travel and Clearing LOD		
PA-AL-0033.0000-RD	S163	Allegheny	Southwest			
PA-WM1-0012.0000-RR	S122, S222	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0020.0000-WX	S224	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0023.0000-RD*	S172	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0039.0000-RD	S181, S226	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0042.0000-WX	S182	Westmoreland	Southwest			
PA-WM1-0044.0000-RD	S184	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0054.0000-RD	S228, S227, W68	Westmoreland	Southwest			
PA-WM1-0072.0000-RD*	S198	Westmoreland	Southwest	ROW - Travel and Clearing LOD		

PA-WM1-0088.0000-RR*	S199	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0111.0000-RD	S202, S201	Westmoreland	Southwest			
PA-WM1-0144.0000-RD	S215, W61	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM1-0157.0000-RD	No Aquatic Resources Impacted	Westmoreland	Southwest			
PA-WM2-0021.0000-RD*	S-Q5, S-Q8, S-Q7, S-Q9, Q6, Q7, Q8	Westmoreland	Southwest			
PA-WM2-0021.0000-RD-16*	S-Q5, S-Q8, S-Q7, S-Q9, Q6, Q7, Q8, Q4	Westmoreland	Southwest			
PA-WM2-0064.0000-WX*	Pond-O4	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM2-0064.0000-WX-16*	Pond-O4	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM2-0090.0000-RD	S-P20, S-P19, P13, P14, Pond-P3	Westmoreland	Southwest	ROW - Travel LOD		
PA-WM2-0090.0000-RD-16	S-P20, Pond-P3	Westmoreland	Southwest	ROW - Travel LOD		
PA-WM2-0093.0000-RD*	S-O61, O45	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-WM2-0093.0000-RD-16*	S-O61, O45	Westmoreland	Southwest	ROW - Travel and Clearing LOD		
PA-IN-0000.0001-WX	S-J55, N28, J52	Indiana	Southwest			
PA-IN-0000.0001-WX-16	S-J55, S-J56, N28	Indiana	Southwest			
PA-IN-0002.0000-RR	S-JS7	Indiana	Southwest	ROW - Travel LOD		
PA-IN-0002.0000-RR-16	S-JS7, P1	Indiana	Southwest	ROW - Travel LOD		
PA-IN-0019.0000-RR	S-J58, J53	Indiana	Southwest			
PA-IN-0019.0000-RR-16	S-J58, J53	Indiana	Southwest			
PA-IN-0022.0000-RD*	S-O113, O77	Indiana	Southwest			
PA-IN-0022.0000-RD-16*	S-O113, O77, N61	Indiana	Southwest			
PA-IN-0025.0000-RD	No Aquatic Resources Impacted	Indiana	Southwest			
PA-IN-0025.0000-RD-16	No Aquatic Resources Impacted	Indiana	Southwest			
PA-IN-0048.0000-RD	NS7, NS6	Indiana	Southwest			
PA-IN-0048.0000-RD-16	N57, N56	Indiana	Southwest			
PA-IN-0086.0000-RD*	S-N66, N34	Indiana	Southwest		EV	
PA-IN-0086.0000-RD-16*	S-N6S, S-N66, N34, N35	Indiana	Southwest		EV	
PA-CA-0016.0000-RD*	S-N42, S-N41, N25, N26, N27	Cambria	Southwest			

PA-CA-0016.0000-RD-16*	S-N41, N2S, N26, N27	Cambria	Southwest			
PA-CA-0023.0000-RD*	S-N39, S-O43, S-N36, S-O44, N20, N24	Cambria	Southwest			
PA-CA-0023.0000-RD-16*	S-N39, S-O43, S-N36, S-O44, N20, N24, O35	Cambria	Southwest			
PA-CA-0047.0000-SR*	S-CC8, CC16, CC19, CC17	Cambria	Southwest	ROW - Travel LOD		
PA-CA-0047.0000-SR-16*	S-CC8, CC16, CC19, CC17	Cambria	Southwest	ROW - Travel LOD		
PA-CA-0069.0000-RD*	S-N34, S-N17, N18	Cambria	Southwest	ROW - Travel and Clearing LOD		
PA-CA-0069.0000-RD-16*	S-N34, S-N17, N18	Cambria	Southwest	ROW - Travel and Clearing LOD		
PA-CA-0089.0000-RR*	S-K33, K31	Cambria	Southwest			
PA-CA-0089.0000-RR-16*	S-K33, K31	Cambria	Southwest			
PA-CA-0091.0016-RD*	MS9, L62	Cambria	Southwest		EV	
PA-CA-0091.0016-RD-16*	MS9, L62	Cambria	Southwest		EV	
PA-BL-0001.0021-RD*	BB120	Blair	Southcentral	ROW - Travel LOD	EV	
PA-BL-0001.0021-RD-16*	BB120	Blair	Southcentral	ROW - Travel LOD	EV	
PA-BL-0001.0027-RD*	S-M69, M49, M79	Blair	Southcentral		EV	
PA-BL-0001.0027-RD-16*	S-M69, M49, M79	Blair	Southcentral		EV	
PA-BL-0001.0032-RD*	No Aquatic Resources Impacted	Blair	Southcentral	ROW - Travel and Clearing LOD		
PA-BL-0001.0032-RD-16*	No Aquatic Resources Impacted	Blair	Southcentral	ROW - Travel and Clearing LOD		
PA-BL-0001.0048-RR*	S-BB48, BB58	Blair	Southcentral	ROW - Travel and Clearing LOD	EV	
PA-BL-0001.0048-RR-16*	S-BB48, BB58	Blair	Southcentral	ROW - Travel and Clearing LOD	EV	
PA-BL-0001.0094-WX*	S-L77, S-L76, S-BB9S, S-BB92, L55, L54, L56	Blair	Southcentral		EV	
PA-BL-0001.0094-WX-16*	S-L77, S-L76, S-BB9S, S-BB92, L55, L54, BB12S, L56	Blair	Southcentral		EV	
PA-BL-0122.0000-WX*	S-M31, S-M32, S-M38, M24, M29	Blair	Southcentral	ROW - Travel and Clearing LOD	EV	
PA-BL-0122.0000-WX-16*	S-M31, S-M32, S-M38, M24, M29	Blair	Southcentral	ROW - Travel and Clearing LOD	EV	
PA-BL-0126.0000-RD*	S-M33, S-M30, M26	Blair	Southcentral		EV	
PA-BL-0126.0000-RD-16*	S-M33, S-M30	Blair	Southcentral			

PA-HU-0019.0002-RD*	S-Y7, S-Y6, S-Y5, Y7, Y6	Huntingdon	Southcentral			
PA-HU-0019.0002-RD-16*	S-Y6, S-Y5, Y7, Y6	Huntingdon	Southcentral			
PA-HU-0020.0007-RD	No Aquatic Resources Impacted	Huntingdon	Southcentral			
PA-HU-0020.0007-RD-16	No Aquatic Resources Impacted	Huntingdon	Southcentral			
PA-HU-0020.0008-SS2	S-Y3, S-Y2, S-Y1, Y1, Y3, Y2, Y4	Huntingdon	Southcentral	ROW - Travel and Clearing LOD		
PA-HU-0020.0008-SS2-16	S-Y3, S-Y2, S-Y1, Y1, Y3, Y2, Y4	Huntingdon	Southcentral	ROW - Travel and Clearing LOD		
PA-HU-0020.0008-WX	LK-2	Huntingdon	Southcentral			
PA-HU-0020.0008-WX-16	LK-2	Huntingdon	Southcentral			
PA-HU-0047.0000-RD*	S-L46, L27	Huntingdon	Southcentral			
PA-HU-0047.0000-RD-16*	S-L46, S-L45, L27, Pond I4	Huntingdon	Southcentral			
PA-HU-0078.0000-WX*	S-L28, S-L29	Huntingdon	Southcentral			
PA-HU-0078.0000-WX-16*	S-L28, S-L29	Huntingdon	Southcentral			
PA-HU-0106.0000-RD*	S-K94, K70, K69	Huntingdon	Southcentral			
PA-HU-0106.0000-RD-16*	S-K94, K70, K69	Huntingdon	Southcentral			
PA-HU-0110.0000-SR*	S-K93, S-K91, K68	Huntingdon	Southcentral			
PA-HU-0110.0000-SR-16*	S-K93, S-K91, K68	Huntingdon	Southcentral			
PA-JU-0004.0000-WX*	S-K74, K60, K59	Juniata	Southcentral			
PA-JU-0004.0000-WX-16*	S-K74, K60, K59	Juniata	Southcentral			
PA-PE-0002.0000-RD*	S-L6, L2, L1	Perry	Southcentral		EV	
PA-PE-0002.0000-RD-16*	S-L6, L2, L1	Perry	Southcentral		EV	
PA-CU-0015.0000-RD*	S-I89, J40, I63, J40	Cumberland	Southcentral			
PA-CU-0015.0000-RD-16*	S-I89, J40, I63, J40	Cumberland	Southcentral			
PA-CU-0053.0000-RD	S-BB120, W177	Cumberland	Southcentral	ROW - Travel LOD		
PA-CU-0053.0000-RD-16	S-BB120, W177	Cumberland	Southcentral	ROW - Travel LOD		
PA-CU-0062.0000-WX*	S-J37A, S-J36, S-J37B, S-J41, J35, J35	Cumberland	Southcentral			
PA-CU-0062.0000-WX-16*	S-J37A, S-J36, S-J37B, S-J41, J35	Cumberland	Southcentral			
PA-CU-0067.0000-RD*	S-J34, J31	Cumberland	Southcentral			
PA-CU-0067.0000-RD-16*	S-J34, J31	Cumberland	Southcentral			
PA-CU-0125.0001-WX*	S-J18	Cumberland	Southcentral			
PA-CU-0125.0001-WX-16*	S-J18	Cumberland	Southcentral			
PA-CU-0128.0000-WX*	S-I53, S-I54, S-K45, K44, J9, J10	Cumberland	Southcentral			
PA-CU-0128.0000-WX-16*	S-I53, S-I54, S-K45, K44, I36, J9, J10	Cumberland	Southcentral			
PA-CU-0136.0000-RD	No Aquatic Resources Impacted	Cumberland	Southcentral			

PA-CU-0136.0000-RD-16	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0136.0002-WX	S-I48, I32, I31	Cumberland	Southcentral		EV	
PA-CU-0136.0002-WX-16	S-I48, S-IS0, I32, I31	Cumberland	Southcentral		EV	
PA-CU-0136.0003-RD*	S-I47, I30	Cumberland	Southcentral		EV	
PA-CU-0136.0003-RD-16*	S-I47, I30	Cumberland	Southcentral		EV	
PA-CU-0136.0012-RD*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0136.0012-RD-16*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0136.0020-RR*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0136.0020-RR-16*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0174.001*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0174.001-16*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0176.0014-RD*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0176.0014-RD-16*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0176.0019-RD*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0176.0019-RD-16*	No Aquatic Resources Impacted	Cumberland	Southcentral			
PA-CU-0189.0000-RD*	S-I43, S-I41, S-I40, I27, I26, I2S	Cumberland	Southcentral			
PA-CU-0189.0000-RD-16*	S-I43, S-I41, S-I40, I27, I26, I2S	Cumberland	Southcentral			
PA-CU-0203.0000-WX*	S-I36, S-I34, I24	Cumberland	Southcentral			
PA-CU-0203.0000-WX-16*	S-I36, S-I34, I24	Cumberland	Southcentral			
PA-YO-0016.0000-RD*	No Aquatic Resources Impacted	York	Southcentral	ROW - Travel LOD		
PA-YO-0016.0000-RD-16*	No Aquatic Resources Impacted	York	Southcentral	ROW - Travel LOD		
PA-YO-0040.0002-RD*	No Aquatic Resources Impacted	York	Southcentral	ROW - Travel and Clearing LOD		
PA-YO-0040.0002-RD-16*	No Aquatic Resources Impacted	York	Southcentral	ROW - Travel and Clearing LOD		
PA-YO-0063.0000-RR*	S-A22, A18, BB1	York	Southcentral	ROW - Travel and Clearing LOD		
PA-YO-0063.0000-RR-16*	S-A22, A18, BB1	York	Southcentral	ROW - Travel and Clearing LOD		
PA-DA-0005.0000-RD*	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0005.0000-RD-16*	No Aquatic Resources Impacted	Dauphin	Southcentral			

PA-DA-0019.0000-RD	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0019.0000-RD-16	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0020.0000-RD*	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0020.0000-RD-16*	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0030.0000-RR	S-C54, S-B70	Dauphin	Southcentral	ROW - Travel and Clearing LOD		
PA-DA-0030.0000-RR-16	S-C54, S-B70	Dauphin	Southcentral	ROW - Travel and Clearing LOD		
PA-DA-0039.0000-RD*	S-A75, CC22	Dauphin	Southcentral			
PA-DA-0039.0000-RD-16*	S-A75, CC22	Dauphin	Southcentral			
PA-DA-0056.0000-RD*	S-B63, S-B62, S-B61, S-B60, C26, B58, B57	Dauphin	Southcentral			
PA-DA-0056.0000-RD-16*	S-B63, S-B62, S-B61, S-B60, C26, B58, B57	Dauphin	Southcentral			
PA-DA-0063.0000-RD*	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-DA-0063.0000-RD-16*	No Aquatic Resources Impacted	Dauphin	Southcentral			
PA-LE-0001.0000-SR*	S-A47, S-K18, J47	Lebanon	Southcentral			
PA-LE-0001.0000-SR-16*	S-A47, S-K18, J47	Lebanon	Southcentral			
PA-LE-0005.0000-RD*	S-A49	Lebanon	Southcentral			
PA-LE-0005.0000-RD-16*	S-A51, S-A49	Lebanon	Southcentral			
PA-LE-0009.0000-RD*	No Aquatic Resources Impacted	Lebanon	Southcentral	ROW - Travel LOD		
PA-LE-0009.0000-RD-16*	No Aquatic Resources Impacted	Lebanon	Southcentral	ROW - Travel LOD		
PA-LE-0055.0000-RD*	S-A17	Lebanon	Southcentral			
PA-LE-0055.0000-RD-16*	S-A17	Lebanon	Southcentral			
PA-LE-0117.0000-WX*	S-C86, H13, H14	Lebanon	Southcentral			
PA-LE-0117.0000-WX-16*	S-C86, H13, H14	Lebanon	Southcentral			
PA-LA-0004.0000-SR	S-K35, S-K34, K32	Lancaster	Southcentral		EV	
PA-LA-0004.0000-SR-16	S-K35, S-K34, K32	Lancaster	Southcentral		EV	
PA-LA-0014.0000-SR*	S-A82, S-A83, S-A79, S-A78, S-A77, A55, A54	Lancaster	Southcentral		EV	BT
PA-LA-0014.0000-SR-16*	S-A82, S-A83, S-A79, S-A78, S-A77, A55, A54	Lancaster	Southcentral		EV	BT
PA-BR-0075.0000-RD*	No Aquatic Resources Impacted	Berks	Southcentral			
PA-BR-0075.0000-RD-16*	No Aquatic Resources Impacted	Berks	Southcentral			
PA-BR-0079.0000-RD*	No Aquatic Resources Impacted	Berks	Southcentral			
PA-BR-0079.0000-RD-16*	No Aquatic Resources Impacted	Berks	Southcentral			

PA-BR-0138.0001-RD*	Pond-B3	Berks	Southcentral	ROW - Travel and Clearing LOD		
PA-BR-0138.0001-RD-16*	Pond-B3	Berks	Southcentral	ROW - Travel and Clearing LOD		
PA-BR-0181.0000-RD*	S-J51, S-AS8, S-AS7, J48	Berks	Southcentral			
PA-BR-0181.0000-RD-16*	S-J51, S-AS8, S-AS7, J48, A37	Berks	Southcentral			
PA-CH-0088.0000-RD*	S-Q86, S-Q83, Q77	Chester	Southeast			
PA-CH-0088.0000-RD-16*	S-Q86, S-Q83, Q77, Q76	Chester	Southeast			
PA-CH-0100.0000-RD*	S-H10, H17	Chester	Southeast	ROW - Travel LOD		
PA-CH-0100.0000-RD-16*	S-H11, S-H10, H17	Chester	Southeast	ROW - Travel LOD		
PA-CH-0111.0000-RD*	S-C89, S-C90, S-C87, S-C92, C43	Chester	Southeast			
PA-CH-0111.0000-RD-16*	S-C89, S-C90, S-C87, S-C91, S-C92, C43	Chester	Southeast			
PA-CH-0124.0000-RD	S-H3, S-C69, S-C68, S-C67, S-H4, C37	Chester	Southeast		EV	
PA-CH-0124.0000-RD-16	S-H3, S-C69, S-C68, S-C67, S-H4, C37	Chester	Southeast		EV	
PA-CH-0127.0000-RD	S-H5	Chester	Southeast			
PA-CH-0127.0000-RD-16	S-H5	Chester	Southeast			
PA-CH-0135.0000-RD	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0135.0000-RD-16	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0138.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0138.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0167.0000-RD*	S-C63, S-C64	Chester	Southeast			
PA-CH-0167.0000-RD-16*	S-C63, S-C64	Chester	Southeast			
PA-CH-0199.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0199.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0212.0000-RD*	S-C60, S-C59, S-C61	Chester	Southeast			
PA-CH-0212.0000-RD-16*	S-C60, S-C59, S-C61	Chester	Southeast			
PA-CH-0219.0000-RD	S-B81, S-B79, B71	Chester	Southeast			
PA-CH-0219.0000-RD-16	S-B81, S-B79, B71	Chester	Southeast			
PA-CH-0245.0000-RD	S-B79	Chester	Southeast			
PA-CH-0245.0000-RD-16	S-B79	Chester	Southeast			
PA-CH-0256.0000-RR	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0256.0000-RR-16	K21	Chester	Southeast			

PA-CH-0261.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0261.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0277.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0277.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0290.0000-RD	S-H30	Chester	Southeast			
PA-CH-0290.0000-RD-16	S-H30	Chester	Southeast			
PA-CH-0326.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0326.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0326.0004-SR*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0326.0004-SR-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0326.0006-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0326.0006-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0355.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0355.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0370.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0370.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0383.0003-SR*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0383.0003-SR-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0413.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0413.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0420.0000-RD*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0420.0000-RD-16*	No Aquatic Resources Impacted	Chester	Southeast			
PA-CH-0421.0000-RD*	S-B3S	Chester	Southeast			
PA-CH-0421.0000-RD-16*	S-B3S	Chester	Southeast			
PA-DE-0008.0000-RD*	No Aquatic Resources Impacted	Delaware	Southeast			
PA-DE-0008.0000-RD-16*	No Aquatic Resources Impacted	Delaware	Southeast			
PA-DE-0016.0000-RD*	S-B52, S-B54, B51	Delaware	Southeast		EV	
PA-DE-0016.0000-RD-16*	S-B5S, S-B54	Delaware	Southeast			
PA-DE-0032.0000-RD*	No Aquatic Resources Impacted	Delaware	Southeast			

PA-DE-0032.0000-RD-16*	No Aquatic Resources Impacted	Delaware	Southeast			
PA-DE-0046.0000-RD*	S-C40, S-C42, C21	Delaware	Southeast			
PA-DE-0046.0000-RD-16*	S-C40, S-C42	Delaware	Southeast			
PA-DE-0074.0000-RD	S-C23, S-C2S, S-C24, S-C26, C10	Delaware	Southeast		EV	
PA-DE-0074.0000-RD-16	S-C23, S-C2S, S-C24, S-C26, C10	Delaware	Southeast		EV	
PA-DE-0100.0000-RR*	S-I2, I1	Delaware	Southeast	ROW - Travel LOD	EV	
PA-DE-0100.0000-RR-16*	S-I2, I1	Delaware	Southeast	ROW - Travel LOD	EV	
PA-DE-0104.0008-WX	S-H37, S-H41, S-H39	Delaware	Southeast	ROW - Travel and Clearing LOD		
PA-DE-0104.0008-WX-16	S-H37, S-H41, S-H39	Delaware	Southeast	ROW - Travel and Clearing LOD		
PA-DE-0104.0023-RR	S-I18, I16, BAS, BA6	Delaware	Southeast			
PA-DE-0104.0023-RR-16	S-I18, I16, BAS, BA6	Delaware	Southeast			
PA-DE-0104.002S-RD	S-H43, S-H44	Delaware	Southeast	ROW - Travel and Clearing LOD		
PA-DE-0104.002S-RD-16	S-H43, S-H44	Delaware	Southeast	ROW - Travel and Clearing LOD		

*Indicates a private water well is within 450 ft of the HDD. Wells were identified using DCNR's PAGWIS data and landowner outreach. See Water Supply Assessment Plan in Attachment 12B for additional actions related to water wells.

APPENDIX B

Inadvertent Return Data Form

Sunoco Pipeline L.P.

INITIAL REPORT
Subject to Change as Additional Information Becomes Available

SPLP PENNSYLVANIA PIPELINE PROJECT
HORIZONTAL DIRECTIONAL DRILLING – INADVERTENT RETURN REPORT FORM

REPORT DATE:				HDD ALIGNMENT #			
PROJECT SITE:				HDD COMPANY:			
DATE AND TIME WHEN IR WAS DISCOVERED				DATE:		TIME:	
LOCATION: STREET				MUNICIPALITY:		COUNTY:	
LATITUDE:		LONGITUDE:		FROM STATION:		TO STATION	
STREAM NAME:				POND / LAKE NAME:		WETLAND NAME:	
DEP PERMIT Nos. (105 AND 105)							
CORPS PERMIT NO.							
IR TRACKING ID:							
IS AUGUST 8, 2017 ORDER APPLICABLE?		LISTED IN WHICH EXHIBIT:		DESCRIPTION IN EXHIBIT			

I. BACKGROUND INFORMATION

A. NAME OF ALL PERSON(S) PROVIDING INFORMATION FOR THIS REPORT AND CONTACT INFORMATION			
B. MATERIAL(s) RELEASED			
C. DESCRIPTION OF THE RELEASE (PROVIDE DATES, TIMES, AND DURATION OF IR IF KNOWN, INCLUDE ROOT CAUSE(S)			
D. ESTIMATED QUANTITY OF MATERIAL RELEASED			
E. ESTIMATED AERIAL EXTENT OF MATERIAL RELEASED			
F. HAS IR BEEN CONTAINED WITHIN THE LIMIT OF DISTURBANCE? (PROVIDE DATE AND TIME)	YES	NOTE:	
F1. WHAT REVISION(S) TO DRILLING WERE IMPLEMENTED PRIOR TO RESUMPTION OF DRILLING? (PROVIDE DATE AND TIME)			
G. T & E / BOG TURTLE AREA?	NO	NOTE:	
H. TROUT STREAM?	NO	NOTE:	
I. EV WATER	NO	NOTE:	
J. EV WETLAND	NO	NOTE:	
K. ANY DOWNSTREAM IMPACTS? (PROVIDE DESCRIPTION, DATES, TIMES, AND DURATION)	NO	NOTE:	
K1. Did a Fish Kill Occur? (PROVIDE DATES AND TIMES)	NO	NOTE:	
K2. Has the Substrate Been Coated?	NO	NOTE:	
K3. Where any Water Supplies Impacted? (PROVIDE DATES AND TIMES)	NO	NOTE:	
K4. If water supplies were impacted, were the owners of the water supplies notified? Has anything been provided to the owners of the impacted water supplies? (Provide dates and times)	NO	NOTE:	
MAP:			

II. VERBAL NOTIFICATIONS

PADEP EMERGENCY NOTIFICATION:		WHO MADE THE CALL ON BEHALF OF SPLP?	
PHONE NUMBER CALLED:			
DATE:			
TIME:			
PERSON CALLED:			
NOTES:			
V/M?		NOTE:	

LIST ANY NOTIFICATIONS OF INCIDENT MADE TO WATER INTAKES, WATER WELL OWNERS AND LANDOWNERS, INCLUDING DATE AND TIME WHEN EACH NOTIFICATION OCCURRED:

NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	

COUNTY CONSERVATION DISTRICT NOTIFICATION:		WHO MADE THE CALL ON BEHALF OF SPLP?	
PHONE NUMBER CALLED:			
DATE:			
TIME:			
PERSON CALLED:			
NOTES:			
V/M?		NOTE:	

USACE REGULATORY NOTIFICATION:		WHO MADE THE CALL ON BEHALF OF SPLP?	
PHONE NUMBER CALLED:			
DATE:			
TIME:			
PERSON CALLED:			
NOTES:			
V/M?		NOTE:	

FISH AND BOAT COMMISSION NOTIFICATION:		WHO MADE THE CALL ON BEHALF OF SPLP?	
PHONE NUMBER CALLED:			
DATE:			
TIME:			
PERSON CALLED:			
NOTES:			
V/M?		NOTE:	

OTHER NOTIFICATION:		WHO MADE THE CALL ON BEHALF OF SPLP?	
PHONE NUMBER CALLED:			
DATE:			
TIME:			
PERSON CALLED:			
NOTES:			
V/M?		NOTE:	

III. ACTIONS TAKEN/FOLLOW UP

IMMEDIATE ACTION TAKEN:

A. WHEN DID THE RELEASE OCCUR?						
B. DATE AND TIME OF CESSATION OF DRILLING.	DATE:		TIME:		NOTE:	
C. WAS DRILLING RESUMED?	YES	IF SO, HAS THE RELEASE CONTINUED OR ANOTHER RELEASE OCCURRED?	NO		NOTE:	

CORRECTIVE MEASURES SUMMARY:

A. WAS THE IR CEASED?	YES	HOW AND WHEN?			
B. WAS THE IR CONTAINED?	YES	HOW AND WHEN?			
C. WAS THE IR/DRILLING FLUID RECOVERED?	YES	HOW AND WHEN?			
D. WAS DRILLING RESUMED?	YES	IF SO, WHAT MODIFICATIONS TO THE HDD PROCESS WERE USED?		IF SO, HAS ANOTHER RELEASE OCCURRED?	NO

Sunoco Pipeline L.P.

INITIAL REPORT
Subject to Change as Additional Information Becomes Available

SPLP PENNSYLVANIA PIPELINE PROJECT
HORIZONTAL DIRECTIONAL DRILLING – INADVERTENT RETURN REPORT FORM

IV. PHOTO DOCUMENTATION

Notes:	Notes:
Notes:	Notes:
Notes:	Notes:

PRINTED NAME, TITLE AND SIGNATURE OF PERSON(S) COMPLETING THIS REPORT

NAME:		TITLE:		SIGNATURE:		DATE:	

Sunoco Pipeline L.P.

If Interim report, Subject to Change as Additional Information Becomes Available
If Interim Report, this Report is cumulative, containing information from previous reports in addition to new information and may change
SPLP PENNSYLVANIA PIPELINE PROJECT
HORIZONTAL DIRECTIONAL DRILLING – INADVERTENT RETURN REPORT FORM

	IF INTERIM, SEE NOTE ABOVE.	NOTES:					
REPORT DATE:			HDD ALIGNMENT #				
PROJECT SITE:			HDD COMPANY:				
DATE AND TIME WHEN IR WAS INITIALLY DISCOVERED			DATE:		TIME:		
LOCATION: STREET			MUNICIPALITY:		COUNTY:		
LATITUDE:		LONGITUDE:	FROM STATION:		TO STATION		
STREAM NAME:			POND / LAKE NAME:		WETLAND NAME:		
DEP PERMIT Nos. (102 AND 105)							
CORPS PERMIT NO.							
IR TRACKING ID:							
IS AUGUST 8, 2017 ORDER APPLICABLE?		LISTED IN WHICH EXHIBIT?		DESCRIPTION IN EXHIBIT			

COMPLETE THE FOLLOWING QUESTIONS IF APPLICABLE:

1. IS THE IR ON-GOING? Provide dates, times, and duration of all IRs.		NOTE:	
2. HAS THE IR CEASED? Provide date and time for each IR.		NOTE:	
3. WHEN WAS DRILLING STOPPED? Provide date and time for each IR.			
4. VOLUME OF IR (CURRENT ESTIMATE)?			
4A. DOES THIS VOLUME RELEASE REPRESENT A TOTAL VOLUME RELEASED SINCE THE RELEASE BEGAN?		NOTE:	
5. HAS THIS VOLUME CHANGED SINCE THE LAST REPORT? IF SO, HOW?		NOTE:	
6. WHAT IS THE DURATION OF EACH IR? Provide dates and times.			
7. WHAT STEPS WERE TAKEN TO STOP EACH IR? Provide dates and times.			
8. WHAT REVISIONS TO THE DRILLING WERE IMPLEMENTED PRIOR TO EACH RESUMPTION OF DRILLING? Provide dates and times.			
8a. What was the technical basis for resuming drilling?			
9. WAS THE DRILLING RESUMED? Provide dates, times, and duration for each IR.		NOTE:	
9A. IF SO, HAS ANOTHER IR OCCURRED? If YES, provide dates and times for each IR.		NOTE:	
10. HAS IR BEEN CONTAINED? If YES, Provide dates, times, and measures for each IR.		NOTE:	
11. HAS A FISH KILL OCCURRED? If YES, Provide dates, times, and measures for each IR.		NOTE:	
12. ARE FISH AND OR OTHER AQUATIC LIFE IN DISTRESS?		NOTE:	
13. AS OF THE DATE OF THIS REPORT, DOES DRILLING FLUID REMAIN IN THE WETLAND OR WATERCOURSE?		NOTE:	
14. IS THERE NOTICEABLE HIGH LEVELS OF TURBIDITY IN THE WATERCOURSE? If YES, Provide dates, times, and duration for each IR.		NOTE:	
15. HAS FLUID LOSS OCCURRED? (IF KNOWN) If YES, Provide dates, times, and duration for each loss of fluid.		NOTE:	
16. CORRECTIVE MEASURES IMPLEMENTED NOT PREVIOUSLY LISTED ABOVE? Provide dates and times for each IR.			

17. DESCRIPTION OF IMPACTS INCLUDING TIMES, DATES, AND DURATION OF EACH IMPACT.	

LIST ANY NOTIFICATIONS OF INCIDENT MADE TO WATER INTAKES, WATER WELL OWNERS AND LANDOWNERS, INCLUDING DATE AND TIME WHEN EACH NOTIFICATION OCCURRED:									
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	
NAME:		DATE:		TIME:		PUBLIC OR PRIVATE:		NOTE:	

NAME OF ALL PERSON(S) PROVIDING INFORMATION FOR THIS REPORT AND CONTACT INFORMATION							
NAME:		PHONE:		EMAIL:		TITLE:	
NAME:		PHONE:		EMAIL:		TITLE:	
NAME:		PHONE:		EMAIL:		TITLE:	
NAME:		PHONE:		EMAIL:		TITLE:	
NAME:		PHONE:		EMAIL:		TITLE:	

IMPACTED RESOURCE(S)					
RESOURCE:		SURFACE WATER CLASSIFICATION OR WETLAND TYPE:		WHAT STEPS HAVE BEEN TAKEN TO ELIMINATE OR MITIGATE THE IMPACTS?	
RESOURCE:		SURFACE WATER CLASSIFICATION OR WETLAND TYPE:		WHAT STEPS HAVE BEEN TAKEN TO ELIMINATE OR MITIGATE THE IMPACTS?	
RESOURCE:		SURFACE WATER CLASSIFICATION OR WETLAND TYPE:		WHAT STEPS HAVE BEEN TAKEN TO ELIMINATE OR MITIGATE THE IMPACTS?	
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RESOURCE:		SURFACE WATER CLASSIFICATION OR WETLAND TYPE:		WHAT STEPS HAVE BEEN TAKEN TO ELIMINATE OR MITIGATE THE IMPACTS?	

ADDITIONAL INFORMATION			
IF DRILLING RESUMED DOES IT INVOLVE A CHANGE IN EQUIPMENT, DEPTH OR ALIGNMENT?		NOTE:	
PUBLIC OR PRIVATE WATER SUPPLY - PROXIMITY TO DOWNSTREAM WATER INTAKES?		NOTE:	
PROXIMITY TO PUBLIC OR PRIVATE WATER SUPPLIES AND WELLS?		NOTE:	
LIST AND DESCRIBE MATERIAL(S) RELEASED:			
HAS THE ESTIMATED QUANTITY OF THE RELEASE INCREASED SINCE THE LAST REPORT? IF SO, HOW?		NOTE:	
ESTIMATED AERIAL EXTENT OF RELEASE			
EXTENT (LINEAR FEET/MILES) OF DOWNSTREAM EDGE OF RELEASE, IF ANY			
DESCRIBE ROOT CAUSE(S) OF IR			
OTHER COMMENTS: NOTE ANY MATERIAL CHANGE IN THE INFORMATION FROM PRIOR REPORTS)			
HAVE THE IMPACTS FROM THE IR BEEN REMEDIATED? Please provide date of remediation.			

PRINTED NAME, TITLE AND SIGNATURE OF PERSON(s) COMPLETING THIS REPORT							
NAME:		TITLE:		SIGNATURE:		DATE:	

PADEP USE ONLY			
AUTHORIZATION FROM PADEP OR CCD TO RESUME HDD REQUIRED?		NOTE:	
PERMIT AMENDMENT?		NOTE:	
PADEP / CCD REVIEWER NAME:		DATE:	

Sunoco Pipeline L.P.

If Interim report, Subject to Change as Additional Information Becomes Available

SPLP PENNSYLVANIA PIPELINE PROJECT
HORIZONTAL DIRECTIONAL DRILLING – INADVERTENT RETURN REPORT FORM

IV. PHOTO DOCUMENTATION

Notes:	Notes:
Notes:	Notes:
Notes:	Notes:

PRINTED NAME, TITLE AND SIGNATURE OF PERSON(s) COMPLETING THIS REPORT

NAME:		TITLE:		SIGNATURE:		DATE:	

APPENDIX C

Inadvertent Return Risk Assessments

(provided under separate cover)

The table below lists the drills on ME1 projects that had returns and indicates whether or not there is an associated ME2 drill. The corresponding risk assessment reports state that there was an inadvertent return on ME1 and describes the nature of the return. The risk assessment reports speak to the inadvertent return likelihood, potential impacts and severity, and mitigation measures.

ME1 Drill #	ME1 Drill Size	ME2 Drill	ME2 Drawing	Drill Name	Township	County	Latitude	Longitude
HDD 4	8"	No			Upper Frankford	Cumberland	40.2451	-77.3619
HDD 5	8"	No			Upper Frankford	Cumberland	40.2451	-77.3497
HDD 10	8"	Yes	PA-LE-0117.0000	Creek & T307	Heidelberg	Lebanon	40.2854	-76.2394
HDD 13	8"	No			West Cocalico	Lancaster	40.2827	-76.1580
HDD 14	8"	No			West Cocalico	Lancaster	40.2838	-76.1112
HDD 22	8"	Yes	PA-CH-0088.0000	Pennsylvania Turnpike 76	Upper Uwchlan	Chester	40.0896	-75.7300
HDD 23	8"	Yes	PA-CH-0111.0000	Park Road	Upper Uwchlan	Chester	40.0751	-75.7024
HDD 23	8"	Yes	PA-CH-0124.0000		Upper Uwchlan	Chester	40.089910	-75.730608
HDD 24	8"	No			Edgmont	Delaware	39.9406	-75.4943
	12"	Yes	PA-WA-0103.0000	Linden Creek Rd	North Strabane	Washington	40.2354	-80.1373
	12"	Yes	PA-AL-0033.0000	Hayden Blvd	Elizabeth	Allegheny	40.2210	-79.8480
	12"	Yes	PA-WM1-0088.0000-RR	Northern Southern Railway	Jeanette	Westmoreland	40.3300	-79.6326
	12"	Yes	PA-WM1-0039.0000-RD	Kalamazoo Road	Sewickley	Westmoreland	40.2585	-79.6987
	12"	Yes	PA-WA-0127.0000-RR	Allegheny Valley RR	Nottingham	Washington	40.2356	-80.0907
	12"	Yes	PA-WA-0171.0000-RR	Wheeling and Lake Erie RR	Union	Washington	40.2308	-79.9966

The following is presentation of individual inadvertent return risk assessments for each area planned for HDD with either a single 20-inch pipeline (Houston to Delmont section) or both the 20-inch and 16-inch pipeline. Final HDD drawings are found within Attachment 7 of the PADEP Joint Application for Permit.

BEFORE THE PENNSYLVANIA PUBLIC UTILITIY COMMISSION

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Pennsylvania Public Utility Commission, Bureau of Investigation and Enforcement, Complainant	:	Docket No. C-2018-3006534
v.	:	
Sunoco Pipeline, L.P., a/k/a Energy Transfer Partners, Respondent	:	

CERTIFICATE OF SERVICE

I, David J. Brooman, Esquire, hereby certify that on August 15, 2019, I served a true and correct copy of Intervenor West Goshen Township's Public Comments in Opposition to the Joint Petition for Approval of Settlement dated April 5, 2019 upon the individuals listed below by email and U.S. Mail, first-class, postage prepaid, in accordance with the requirements of 52 Pa. Code § 5.75(a) and 52 Pa. Code §1.54 (relating to service by a party).

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Administrative Law Judge
Pennsylvania Public Utility Commission
Office of Administrative Law Judge
400 North Street
Harrisburg, PA 17120
EBARNES@pa.gov
Via electronic mail and U.S. Mail

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Date: 8/15/2019