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REPLY TO:
Center City

March 16, 2020

Electronic Filing

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

Re: Flynn, et al. v. Sunoco Pipeline L.P.,
Docket No. C-2018-3006116 and P-2018-3006117
FLYNN COMPLAINANTS' MOTION FOR LEAVE TO SUBMIT ADDITIONAL EVIDENCE

Dear Secretary Chiavetta:

Attached for electronic filing with the Commission is Flynn Complainants' Motion for Leave to Submit Additional Evidence in the above referenced case.

If you have any questions regarding this filing, please contact the undersigned.

Very truly yours,

MICHAEL S. BOMSTEIN, ESQ.

MSB:mik

cc: Per Certificate of Service

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Meghan Flynn Rosemary Fuller Michael Walsh Nancy Harkins Gerald McMullen Caroline Hughes and Melissa Haines	: : : : : : : :	C-2018-3006116 P-2018-3006117
v.	:	
Sunoco Pipeline, L.P.	:	

NOTICE TO PLEAD

To: Parties of Record

Complainants have filed a Motion for Leave to Submit Additional Evidence in the above-captioned matter. Pursuant to regulations of the Pennsylvania Public Utility Commission at 52 Pa. Code § 5.103, you are notified that a responsive pleading must be filed within 20 days of the date of service of this motion.

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MEGHAN FLYNN ROSEMARY FULLER MICHAEL WALSH NANCY HARKINS GERALD MCMULLEN CAROLINE HUGHES and MELISSA HAINES Complainants v. SUNOCO PIPELINE L.P., Respondent	: : : : : : : : : : : :	DOCKET NOS. C-2018-3006116 and P-2018-3006117

FLYNN MOTION FOR LEAVE TO SUBMIT ADDITIONAL EVIDENCE

Flynn Complainants, by their attorney, Michael S. Bomstein, Esquire, hereby apply for leave to submit additional evidence in their case, and in support hereof aver as follows:

A. Procedural Background

1. On Wednesday, November 20, 2019 at 6 p.m., Complainants' lay witness hearing was adjourned.

2. On January 3, 2020 – about six weeks later – the Department of Environmental Protection ("DEP") informed the public that two Consent Orders and Agreements ("COAs") had been executed. One was between DEP and Sunoco and the other was between DEP and ETC Northeast Pipeline, LLC ("ETC"). Both ETC and Sunoco are subsidiaries of Energy Transfer Partners, L.P. ("ET"), a Delaware Limited Partnership.

3. The Sunoco COA involved HDD activities at Raystown Lake in Huntingdon County. The ETC COA involved construction activities in connection with the Revolution Pipeline. The existence of the two COAs was not known and could not have been known to Flynn Complainants at the time the lay witness hearing adjourned on November 20, 2019.

4. Likewise, several exhibits to the COAs – private communications between the ET subsidiaries and DEP – could not have been known to Flynn Complainants at the time of the lay witness hearings.

5. This motion seeks leave to submit into evidence three of the private communications with DEP, reports prepared in connection with over 3,000,000 gallons of drilling fluid spills at Raystown Lake in 2017 and the 230 environmental permit violations that preceded the Revolution Pipeline explosion in 2018.

6. These newly-discovered private communications contain dozens and dozens of admissions by ET/Sunoco that show the company previously engaged in the same wanton and reckless conduct about which Flynn Complainants gave evidence during last Fall's lay witness hearings.

7. ET's admissions in these communications more than substantiate the claim that Sunoco's construction and operation of the Mariner pipelines in high consequence areas is dangerous and unacceptable. The private communications are relevant because they clearly demonstrate Sunoco cannot be trusted to meet its obligation under 66 Pa. C.S. § 1501 to operate its pipelines in a safe, adequate and reasonable manner.

II. Contents of COAs

6. Some of the information in the two COAs was known to the public prior to January 3, 2020. The existence of the Pennsylvania Pipeline Project, e.g., was widely known. The fact that the Revolution pipeline was under construction was well-known, too.

7. As regards the Raystown COA, ¶ I alleges that on March 5, 2018, Sunoco submitted to DEP an incident report ("March 2018 Report") that identified 8 separate instances of loss of circulation ("LOCs") that occurred in December, 2017 during construction of the 16-inch

Mariner pipeline that had not previously been reported. The aggregate amount of unreported lost drilling fluid at Raystown in December, 2017 was 948,200 gallons.

9. All of the Raystown LOCs were required to be reported immediately. 83 days passed, however, before Sunoco reported the LOCs to DEP on March 5, 2018. A copy of the March 2018 Report is attached hereto and marked Exhibit "A."

10. The March 2018 Report was not attached as an exhibit to the Raystown COA. The March 2018 Report was not and is not available on the DEP website. Flynn counsel obtained it only during the week of March 9, 2020 by making a request to DEP.

11. As regards the Raystown COA, ¶ K alleges that on February 18, 2019, Sunoco submitted to DEP an incident report ("February 2019 Report") that identified 39 separate instances of loss of circulation ("LOCs") that occurred from April through October, 2017 during construction of the 20-inch Mariner East pipeline that had not previously been reported.

12. The aggregate amount of lost drilling fluid was 2,008,000 gallons. 29 of the 39 LOCs were required to be reported immediately. 513 days passed before Sunoco reported the said LOCs on February 18, 2019. A copy of the February 2019 Report is attached hereto and marked Exhibit "B."

13. The February 2019 Report was not attached as an exhibit to the Raystown COA. The February 2019 Report was not and is not available on the DEP website. Flynn counsel obtained it only during the week of March, 2020 by making a request to DEP.

14. Sunoco did not deny the allegations in ¶¶ I and K of the Revolution COA. On the contrary, on page 5 of the COA at ¶ 2.a., Sunoco admitted the allegations, although for purposes of the proceeding only.

15. As regards the Revolution pipeline, DEP in the COA alleged in ¶ K that on October 29, 2018, it issued a Compliance Order ("2018 Order") to ETC addressing certain issues with the Revolution Pipeline LOD. The 2018 Order was attached as Exhibit "A" to the COA. ETC did not appeal the 2018 Order. The 2018 Order identified erosion, sedimentation and stability issues with the Revolution Pipeline LOD.

16. In response to the 2018 Order, ETC, through its subcontractor Environmental Solutions & Innovations, Inc. ("ESI"), sent a letter to DEP dated February 21, 2019 and received on February 25, 2019 ("the ESI Report"). A copy of the ESI Report is attached hereto and marked Exhibit "C." The ESI Report very specifically admitted the existence of the erosion, sedimentation and instability identified by DEP in the 2018 Order.

17. The ESI Report was not attached as an exhibit to the Revolution COA. The ESI Report was not and is not available on the DEP website. Flynn counsel obtained it only during the week of March 9, 2020 by making a request to DEP.

18. Prior to January 3, 2020, Complainants had no reason to be aware that these three very relevant reports even existed.

III. The three reports are relevant to Complainants' case.

A. ETC has admitted at least 230 Revolution Pipeline Violations

19. In paragraph U of the January 3, 2020 Revolution COA, DEP alleges that on or before the effective date of the Consent Order and Agreement, while constructing the Revolution Pipeline project, ETC eliminated at least twenty-three streams by removing and/or filling the stream channels with soil during construction activities, resulting in a loss of approximately 1,857 linear feet of stream channel.

20. In the February 21, 2019 ESI letter, ETC in Table 1 admits that 23 streams no longer exist and that 1,857 linear feet of stream channel have been lost.

21. In paragraph U of the January 3, 2020 Revolution COA, DEP alleges that on or before the effective date of the COA, while constructing the Revolution Pipeline project, ETC changed the length of at least one hundred twenty (120) streams by manipulating and/or filling the streams channels with soil during construction activities resulting in a net loss of approximately 1,319 feet of stream channel.

22. In the February 21, 2019 ESI letter, ETC in Table 1 admits that 50 streams had been lengthened, adding 1,790 linear feet, and that 70 streams had been shortened, losing 3,100 feet, for a net loss of 1,310 feet and the resultant change of 120 streams.

23. In paragraph U of the January 3, 2020 Revolution COA, DEP alleges that on or before the effective date of the COA, while constructing the Revolution Pipeline project, ETC eliminated at least 17 and altered at least 70 wetland areas by manipulating and/or filling wetlands with soil.

24. In the February 21, 2019 ESI letter, ETC in Table 2 admits that it eliminated 17 wetlands and altered 70 more by reducing or expanding them.

25. The changes identified in paragraphs 20, 22, and 24 above were not identified in ETC's application materials for Encroachment Permits and were not permitted in either the ESCGPs or the Encroachment Permits.

26. Further, the 2018 Order required ETC immediately to cease all sediment-laden discharges to waters of the Commonwealth.

27. At least between October 29, 2018 and December 21, 2018, however, ETC did not cease discharging sediment into waters of the Commonwealth.

28. The 2018 Order required ETC to implement E&S Best Management Practices ("BMPs") until permanent stabilization had been completed.

29. On numerous occasions after entry of the 2018 Order, however, ETC failed to properly implement and maintain E&S BMPs.

30. The 2018 Order required ETC to install flagging, markers, or signs ("Markers") at the site by November 9, 2018. As of January 10, 2019, however, ETC had failed to install all Markers.

31. The 2018 Order required ETC to temporarily stabilize all disturbed areas by November 9, 2018. As of January 10, 2019, however, ETC had failed to temporarily stabilize all disturbed areas, including ongoing mass earth movement ("Slides").

32. A company does not eliminate 23 streams, alter or eliminate 87 wetlands and lengthen or shorten 120 other streams by accident.

33. ET/Sunoco's construction activities in connection with the Revolution Pipeline were wanton and reckless and demonstrate that the company should not be trusted to operate the Mariner East pipelines in high consequence areas. Evidence of these activities, then, is highly relevant and should be admitted into the record.

B. Sunoco has admitted at least 38 Raystown Lake Violations

Introduction

34. As part of its Pennsylvania Pipeline Project – Mariner East II ("PPP-ME2"), Sunoco obtained permits to conduct pipeline installation activities in Huntingdon County, Pennsylvania.

35. Exhibit "A" previously identified above is the March 2018 Report, containing Sunoco's own assessment of events at Raystown Lake.

36. For a period of time in 2017, Sunoco's HDD operations at its Raystown Lake ("the lake") HDD Site were conducted by its site contractor, Michels Directional Crossings ("Michels").

37. Michels began its HDD operations, Bore No. S2-0150A, at the Raystown Lake HDD site on November 16, 2017.

38. An inadvertent return ("IR") is an unauthorized discharge of drilling fluids to the ground or surface waters, including wetlands, associated with horizontal directional drilling ("HDD") or other trenchless construction methodologies.

39. A loss of circulation ("LOC") is a condition when HDD operations are in progress and drilling fluid circulation to the HDD endpoints is either lost from the annulus or is significantly diminished.

December, 2017 LOCs

40. On December 11, 2017, Sunoco reported an LOC of approximately 2,000 gallons at the Raystown Lake HDD Site earlier in the day during the pilot hole stage of the 16-inch diameter pipeline.

41. On December 20, 2017, Sunoco reported that an approximately 25-gallon IR of HDD fluids ("drilling fluids") to the surface of the ground at the Raystown Lake HDD Site had occurred earlier in the day during the pilot hole stage of the 16-inch diameter pipeline.

42. The said December 20, 2017 IR subsequently discharged into the Raystown Branch Juniata River.

43. As of December 20, 2017, Sunoco was not authorized to discharge drilling fluids to any water of the Commonwealth.

44. A gray discoloration of water on the east side of the lake was noticed by Site Professional Geologist (PG) on November 29th, but boat crews found nothing unusual or notable.

45. On December 11, 2017 at 1800 hours, Michels noted a partial loss of return ("LOR") with a total fluid loss of approximately 2,000 gallons. An LOR Return Form was submitted to Lead EI and management team. DEP was also notified.

46. On December 12, 2017, Michels noted a partial loss of drilling fluid of 11,800 gallons, which was estimated to be 25%.

47. The said December 12, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

48. On December 12, 2017, Sunoco reported an approximately 25-gallon IR of drilling fluids to the surface of the ground at the lake, which was discharged subsequently into the Raystown Branch Juniata River.

49. On December 13, 2017, Michels noted a partial loss of drilling fluid of 98,000 gallons, which was estimated to be 25%.

50. The said December 13, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

51. On December 14, 2017, Michels noted a partial loss of drilling fluid of 170,400 gallons, which was estimated to be 25%.

52. The said December 14, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

53. On December 15, 2017, Michels noted a partial loss of drilling fluid of 55,700 gallons.

54. The said December 15, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

55. On December 16, 2017, Michels noted a partial loss of 160,800 gallons, which was estimated to be 50%.

56. The said December 16, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

57. On December 18, 2017, Michels noted a partial loss of drilling fluid of 291,800 gallons, which was estimated to be 50%.

58. The said December 18, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

59. On December 19, 2017, Michels noted a partial loss of drilling fluid of 71,000 gallons, which was estimated to be 25%.

60. The said December 19, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

61. On December 20, 2017, Michels noted a partial loss of drilling fluid of 88,700 gallons.

62. The said December 20, 2017 drilling fluid loss was not reported to DEP until March 5, 2018.

63. In the March 5th Report, Sunoco reported that during the construction of the 16-inch diameter pipeline, the total additional unreported LOCs in December, 2017 amounted to 948,200 gallons.

64. Sunoco's delay in reporting the required LOCs associated with the 16-inch line construction at the lake extended from December 12, 2017 until March 5, 2018, a total of 83 days.

65. Sunoco's HDD IR PPC Plan in effect in December, 2017 required Sunoco to report LOCs to DEP immediately upon discovery.

March – October, 2017 LOCs

66. Sunoco engaged Laney Directional Drilling ("Laney") to perform HDD operations at the Raystown Lake HDD Site at least during the period from March 18, 2017 through October 30, 2017.

67. In the February 2019 Report (Ex. "B") ETC furnished DEP a loss of returns summary for Raystown Lake HDD S2-0150 ("the February 15th Report"). The report contained a list of dates, volumes and approximate locations where LOCs occurred during the 20-inch line installation.

68. On April 3, 2017, Laney noted a partial loss of drilling fluid of 2,750 gallons.

69. The said April 3, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

70. On April 10, 2017, Laney noted a full loss of drilling fluid in an amount not recorded.

71. The said April 10, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

72. On April 11, 2017, Laney noted a full loss of drilling fluid in an amount estimated to be 120,700 gallons.

73. The said April 11, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

74. On April 12, 2017, Laney noted a full loss of drilling fluid in an amount of 112,900 gallons based on totalizer readings.

75. The said April 12, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

76. On April 14, 2017, Laney noted a full loss of drilling fluid in an amount estimated to be 108,400 gallons based on totalizer readings..

77. The said April 14, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

78. On April 19, 2017, Laney noted a partial loss of drilling fluids in an amount of 163,500 gallons based on totalizer readings.

79. The said April 19, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

80. On April 30, 2017, Laney noted a full loss of drilling fluid in an amount estimated to be 61,500 gallons.

81. The said April 30, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

82. On September 23, 2017, Laney noted a partial loss of drilling fluid less than 350 gallons.

83. The said September 23, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

84. On September 30, 2017, Laney noted a partial loss of drilling fluid of 200 gallons.

85. The said September 30, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

86. On October 2, 2017, Laney noted a partial loss of drilling fluid totaling 18,300 gallons.

87. The said October 2, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

88. On October 6, 2017, Laney noted a partial loss of drilling fluid. The total amount was not recorded.

89. The said October 6, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

90. On October 7, 2017, Laney noted a partial loss of drilling fluids totaling 73,000 gallons.

91. The said October 7, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

92. On October 9, 2017, Laney noted a partial loss of drilling fluids totaling 24,500 gallons.

93. The said October 9, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

94. On October 12, 2017, Laney noted a partial loss of drilling fluids but the amount was not recorded.

95. The said October 12, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

96. On October 13, 2017, Laney noted a partial loss of drilling fluids totaling 61,500 gallons based on fluid pumping rates.

97. The said October 13, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

98. On October 14, 2017, Laney noted a full loss of drilling fluids totaling 102,000 gallons based on fluid pumping rates.

99. The said October 14, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

100. On October 16, 2017, Laney noted a full loss of drilling fluids totaling 123,000 gallons based on fluid pumping rates.

101. The said October 16, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

102. On October 17, 2017, Laney noted a full loss of drilling fluids totaling 113,000 gallons based on fluid pumping rates.

103. The said October 17, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

104. On October 18, 2017, Laney noted a full loss of drilling fluids totaling 127,000 gallons based on fluid pumping rates.

105. The said October 18, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

106. On October 19, 2017, Laney estimated a full loss of drilling fluids totaling 112,000 gallons.

107. The said October 19, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

108. On October 20, 2017, Laney estimated a full loss of drilling fluids totaling 55,000 gallons.

109. The said October 20, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

110. On October 21, 2017, Laney noted a partial loss of drilling fluids totaling 89,000 gallons.

111. The said October 21, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

112. From October 23, 2017 through October 26, 2017, Laney noted a full loss of drilling fluids estimated at 330,000 gallons.

113. The said October 23, 2017 through October 26, 2017 drilling fluid loss was not reported to DEP until February 18, 2019.

114. From October 28, 2017 through October 30, 2017, Laney noted partial drilling fluid losses that were not recorded. The said losses were not reported to DEP until February 18, 2019.

115. In the February 2019 Report, Sunoco estimated that during the 2017 construction of the 20-inch diameter pipeline, the total additional unreported LOCs amounted to 2,008,000 gallons of drilling fluids, but that the number might be an overestimation. 39 instances of LOCs were identified, of which 29 were required to be reported.

116. Sunoco's delay in reporting the required LOCs associated with the 20-inch line construction at the lake extended from September 23, 2017 until February 18, 2019, a total of

513 days. Sunoco's HDD IR PPC Plan in effect in 2017, however, required Sunoco to report LOCs to DEP immediately upon discovery.

117. A company does not discharge 3 million gallons of drilling fluids into Commonwealth waters and delay reporting for 513 days by accident.

118. ET/Sunoco's construction activities at Raystown Lake were wanton and reckless and demonstrate that the company should not be trusted to operate the Mariner East pipelines in high consequence areas. Evidence of these activities, then, is highly relevant and should be admitted into the record.

C. Complainants' Allegations

Introduction

119. Flynn Complainants contend that ET's practices in connection with the construction, operation and maintenance of petroleum product pipelines, including the Mariner East HVL pipelines through Chester and Delaware Counties, have been and continue to be inexcusably reckless.

120. In consequence, Complainants believe that 66 Pa.C.S. § 1501 has been repeatedly violated because ET is not operating in a safe, adequate and reasonable manner.

121. ET also has a duty at all times "to use every reasonable effort to properly warn and protect the public from danger, and shall exercise reasonable care to reduce the hazards to which employees, customers and others may be subjected to by reason of its equipment and facilities." 52 Pa. Code § 59.33.

122. PUC has the authority to regulate, restrict and even terminate Sunoco's construction and operation of the Mariner East pipelines. 66 Pa.C.S. § 501.

123. Flynn Complainants believe that PUC must exercise its authority under the circumstances of the present case.

ET's practices are unsafe.

124. During the lay witness hearings, Complainants furnished extensive testimonial and documentary evidence in support of their claim that Sunoco's public awareness program and its siting of HVL pipelines constitute unsafe practices.

125. While insisting that its practices are "safe," Sunoco's witnesses have testified that what is "safe" is not something "the company can dictate to you. So I think **it's asking you to decide for yourself what that is**, but I'm going to go to what I view as a safe location." (John Zurcher, N.T. November 30, 2018 at 413, ll. 14 - 19). (Emphasis supplied).

126. Sunoco continues to hide its knowledge of the dangers of a leak or rupture of HVLs. Even though it is public knowledge that Sunoco has its own hazard assessments, witness John Zurcher basically testified that he could not state how far one would need to be away from a two-inch HVL leak in order to be safe (N.T. November 30, 2018 at 424, l. 18 - 24).

127. When Sunoco put Mr. Zurcher on the stand, it was fully aware that it had in hand three hazard assessments for the Mariner East pipelines and a separate one for its Canadian ethane pipeline. All of these Sunoco hazard assessments defined a "hazard zone" within which the public was at risk, and beyond which there was less risk.

ET's practices are reckless.

128. The instant proceeding is not a challenge to ET's environmental practices, although the company's environmental depredations are rampant, atrocious, widespread and unlawful.

129. The Revolution Pipeline explosion in Beaver County, however, was the consequence of ET's environmental practices.

130. It was ET's persistent pattern of reckless practices that led to the instability that resulted in the pipeline rupture.

131. ET with impunity violated DEP permits 230 times.

132. In connection with Raystown Lake, ET/Sunoco knowingly failed to report almost 3 million gallons of LOCs that were lost over the course of the period April through December, 2017. 29 of the incidents were not reported for more than 500 days.

133. It is obvious that ET has a pattern of deception and recklessness inconsistent with its obligations under § 1501 of the PUC Code and under 52 Pa. Code § 59.33.

ET's newly discovered admissions are relevant to this case.

134. Flynn Complainants' Second Amended Formal Complaint ("the Complaint") alleges, *inter alia,* that:

(a) Sunoco's public awareness program violates the law, is unrealistic, ignores the patent dangers of HVLs leaks and ruptures and, as such, demonstrates that HVL pipelines cannot be operated safely;

(b) the 8-inch and 12-inch HVL lines likely suffer from extensive corrosion such that they pose an undue danger to the public;

(c) the statistical value of the loss of human life in the event of a catastrophic leak or rupture is unacceptable; and

(d) Sunoco's operation of HVL pipelines in close proximity to homes and businesses in Chester and Delaware Counties is dangerous and unacceptable.

135. Both additional events and discovery in this proceeding have disclosed further evidence of ET's recklessness not expressly set out in the Complaint.

136. Multiple subsidence events, pollution and destruction of homeowners' wells and water supplies, and additional construction-related accidents all underscore the Flynn claim that Sunoco's construction and operation of the Mariner pipelines in high consequence areas is dangerous and unacceptable.

137. The facts disclosed through discovery of the three reports sent to DEP all have a bearing on Flynn Complainants' contentions in this case.

138. ET's admissions in the three reports make the Flynn allegations against Sunoco more likely and the admissions, therefore, are relevant.

D. The Commission should allow the three newly-discovered reports to be admitted into evidence.

139. 52 Pa. Code § 1.2 provides that the rules governing formal proceedings "shall be liberally construed to secure the just, speedy and inexpensive determination of every action or proceeding to which it is applicable. The Commission or presiding officer at any stage of an action or proceeding may disregard an error or defect of procedure which does not affect the substantive rights of the parties."

140. The circumstances of the present motion do not amount to an error or defect of procedure.

141. The admission of the three reports is not repetitive, could not have been included in the parties' case-in-chief, and would not substantially vary from Complainants' case-in-chief. *See,* 52 Pa. Code § 5.243.

142. While the existence of the three newly-discovered reports was a surprise to Flynn Complainants it was not a surprise to ET/Sunoco. The information contained in these documents has been known to Respondent for a few years already and the significance of that information has been known to Sunoco as well.

143. Respondent will not be prejudiced by the granting of the instant motion.

144. The admission of the three documents should not be the occasion for any delay in the proceedings.

145. The three documents do not require lay or expert witness authentication as they all were supplied by DEP and all were created by ET and its subsidiaries, ETC and Sunoco.

146. The fact that ET/Sunoco was allowed by DEP to resolve the multitude of violations stemming from the Raystown and Revolution Pipeline violations by promising future good conduct and payment of fines does not operate to "erase" the admissions set forth in the three reports.

147. Admissions of fact do not simply disappear by invocation of the term "settlement." If a permit allows only specific activity, e.g., and the pipeline company engages in activity that is not covered by the permit, that fact does not change by a promise to do better and the payment of a fine.

148. The three reports were not legal pleadings denying that 3 million gallons of drilling fluids were emptied into Raystown Lake. Indeed, it was Sunoco that brought the problem to DEP's attention.

149. ETC's construction of the Revolution Pipeline and Sunoco's activities at Raystown Lake are most certainly relevant to Flynn claims against Sunoco in Chester and Delaware Counties. Both firms are subsidiaries of ET and both are engaged in the same wanton and reckless conduct as to which Flynn Complainants gave substantial evidence during the hearings.

WHEREFORE, Flynn Complainants pray that the ALJ grant their motion and allow the admission of the three reports into evidence.

Respectfully submitted,

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Attorney for Complainants

Dated: March 16, 2020

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MEGHAN FLYNN	:	
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MICHAEL WALSH	:	
NANCY HARKINS	:	
GERALD MCMULLEN	:	DOCKET NO. C- 2018-3006116
CAROLINE HUGHES and	:	
MELISSA HAINES,	:	DOCKET NO. P-2018-3006117
Complainants	:	
	:	
v.	:	
	:	
SUNOCO PIPELINE L.P.,	:	
Respondent	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of Flynn Complainants' foregoing Motion upon the persons listed below as per the requirements of § 1.54 (relating to service by a party).

See attached service list.

Michael S. Bomstein, Esq.

Dated: March 16, 2020

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EX. "A"

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MEMORANDUM

TO: Christopher Embry, ETP/Sunoco

FROM: Joe Biaglow, PG RETTEW and Tim Emerick, Jr., PG, RETTEW

CC: Matt Bruckner, PG RETTEW

DATE: March 5, 2018

PROJECT NAME: Sunoco Pipeline LP (SPLP) Mariner East 2 Pennslyvania Pipeline - Spread 3 **PROJECT NO.:** 096302008

SUBJECT: Incident Assessment, HDD Bore No. S2-0150A, Raystown Lake

This memo presents the findings for the incident assessment of the Inadvertent Return (IR) which occurred during the drilling activities of the 16-inch pilot hole at the Raystown Lake Horizontal Directional Drilling (HDD) Bore No. S2-0150A, Drawing No. PA-HU-0020.008-WXa-16 (Site), located in Penn Township, Huntingdon County, Pennsylvania. The HDD activities, completed by the site contractor Michels Directional Crossings (Michels), started on November 16, 2017. The inadvertent return (IR) was reported on December 20, 2017. This assessment was prepared at the request of the Pennsylvania Department of Environmental Protection (PADEP).

Site Setting

The Raystown Lake HDD, Bore No. S2-0150A is 4,800 feet long and passes under Raystown Lake (See Site Layout - **Figure 1**). The bore path follows the right-of-way of the existing Buckeye pipeline. The entire length of the HDD passes through the Catskill Formation consisting of Devonian aged sandstone, siltstone, shale, conglomerate, and mudstone (PBTG, 2001). This formation is considered well developed with bed thickness ranging from 1 to 16 feet. Fractures are well developed, closely spaced and form a blocky or platy pattern. Excavation of this formation is difficult with cut-slope stability being excellent. Steep cuts can be maintained in the sandstone and conglomerate beds. Unconfined compressive strengths for shale ranges from 2,203 lb/in^2 to 2,859 lb/in^2, siltstone is 5,041 lb/in^2, and sandstone is 9,728 lb/in^2 (Geyer and Wilshusen, 1982).

An additional geotechnical evaluation was completed by Intertek/Professional Services, Inc (PSI) on August 3, 2017, per the stipulated order dated August 9, 2017. Data collected at boring B-02 (See Site Layout - **Figure 1**) indicated subsurface conditions at the Site to have residuum (sandy silt, clayey sand, and silty gravel) ranging to depths of 0 to 15 feet below ground surface (bgs). Depth to weathered shale bedrock (RQDs ranging from 36 to 77%) is approximately 15 feet bgs to 72 feet bgs and competent bedrock ranges from a depth of 72 feet bgs to 650 feet bgs (completion depth) with isolated fair rock quality sections. The poor RQD sections below are associated with the upper 150 feet of the cored rock horizon.

- Sampling Interval 90 to 100 feet bgs (Run #11): RQD = 73%
- Sampling Interval 115 to 125 feet bgs (Run #14): RQD = 56%

RQDs ranging from 25-50% are considered representative of poor rock (severely weathered rock); 50-75% are considered representative of fair rock quality (moderately weathered rock); 75-90% are considered representative

of good rock quality (hard rock), and rock with RQDs ranging from 90-100% are considered representative of excellent rock quality (fresh rock). Geotechnical boring logs are included in **Attachment A.**

HDD Drilling Summary

The following is a summary and discussion of drilling activity and other events which occurred during the HDD installation.

- **November 16, 2017 –** Michels began pilot hole drilling (12.25-inch diameter) and completed 124 feet with full returns to the entry point. Drilling was suspended due to mud pump issues.
- **November 18 through November 29, 2017** – Michels resumed pilot hole drilling (12.25-inch diameter). A total of 1,411 feet was completed with full returns to the entry point. A gray discoloration of water on the east side of the lake was noticed by Site Professional Geologist (PG) at on November 29th, but boat crews found nothing unusual or notable.
- **November 30, 2017** – Pilot hole drilling continued. A total of 64 feet was completed with full returns to the entry point. Michels replaced current pilot bit (12.25-inch diameter) with 10.625-inch diameter bit.
- **December 1 through December 4, 2017** – Pilot hole drilling (10.625-inch diameter) continued. A total of 925 feet (total trajectory length 2,336 feet) was completed with full returns to the entry point.
- **December 5, 2017** – Michels continues tripping out to replace 10.625-inch pilot bit with 12.25-inch pilot bit (to gauge hole from 1,475 feet).
- **December 6, 2017** – Michels resumed gauging pilot hole with 12.25-inch pilot bit to 2,336 feet. A total of 320 feet was completed after gauging 2,336 feet completed with full returns to entry point.
- **December 7 through December 10, 2017** – Pilot hole drilling continued with 12.25 -inch pilot bit. A total trajectory length of 3,229 feet was completed with full returns to the entry point.
- **December 11, 2017 – Partial Loss of Return (LOR)**

  Michels continues tripping in and resumed pumping drilling fluid at 1606 hrs. Michels reported diminished returns at 1800 hrs and a total fluid loss of approximately 2,000 gallons. Loss of Return Form was submitted to Lead EI and management team.
- **December 12, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 146 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 25% (11,800 gallons). No IRs were observed.
- **December 13, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 193 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 25% (98,000 gallons lost). No IRs were observed.
- **December 14, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 220 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 25% (170,400 gallons lost). No IRs were observed.
- **December 15, 2017 – Partial/Complete LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 32 feet was completed with partial returns to the entry point. The partial loss of drilling fluid

throughout the day was estimated to be 50% at 0830 hrs and 100% at 0920 hrs (55,700 gallons lost). At 1600 hrs, Michels tripped out 20 rods, thickened the mud, and let sit overnight. No IRs were observed.

- **December 16, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 128 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 50% at 0800 hrs (160,800 gallons lost). No IRs were observed.

- **December 18, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 192 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 50% at 0800 hrs (291,800 gallons). No IRs were observed.

- **December 19, 2017 – Partial LOR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 32 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 50% at 0820 hrs (71,000 gallons).

- **December 20, 2017 – Initial IR**

  Pilot hole drilling continued with Condition 2 monitoring protocol followed during drilling operations. A total of 34 feet was completed with partial returns to the entry point. The partial loss of drilling fluid throughout the day was estimated to be 88,700 gallons. An IR was discovered on the east bank of Raystown Lake at 1400 hrs. Updated LOR report and Initial IR report submitted to Tetra Tech Lead EI and Sunoco/ETP management team. Condition 3 Monitoring in effect.

- **December 21, 2017**

  Condition 3 monitoring in affect. Tetra Tech Lead EI and Huntingdon County Conservation District Representative on-site to inspect IR and remedial measures. Michels tripped out of hole completely and reported using 16,800 gallons of water.

Assessment of the Cause

The IR occurred on December 20, 2017. The LOR was initially reported on December 11, 2017. The total reported LOR estimate leading up to the IR was 950,200 gallons. The reported IR occurred at approximately 3,244 feet along the trajectory path (See Site Layout - **Figure 1**). As described in the above drilling summary, total daily loss of returns was recorded and represented as depicted in **Figure 2**. The approximate depth of cover over the drill bit at the trajectory length of 4,220 feet (rod interval 132) was approximately 130 feet BGS. The approximate depth of cover over the pilot hole where the IR occurred was 60 feet. The remaining length of pilot hole to be completed is approximately 580 feet.

The IR reported on December 20, 2017 appeared to be caused by:

- Fractured bedrock and/or preferential pathways associated with two distinct sections in the bedrock profile (90 to 100 feet and 115 to 125 feet bgs). Rock quality of the bedrock below 135 feet bgs was classified as excellent.
- The accumulated volume of drilling fluid, coupled with decreasing cover as the bore gained in length and elevation at the base of the slope (Rod 122). The accumulation of lost drilling fluid along the bore path resulted in displacement of groundwater carrying with it minor amounts of drilling fluid to the surface at the IR location (approximately 25 to 30 gallons).

Proposed Corrective Measures

Michels plans to address the IR situation by intercepting the pilot hole from the east (exit location) at a depth in the profile where rock with higher RQD values have been identified. Michels plan to control and contain the release if an IR should reoccur by following the procedures in their plan, which is included as **Attachment B**.

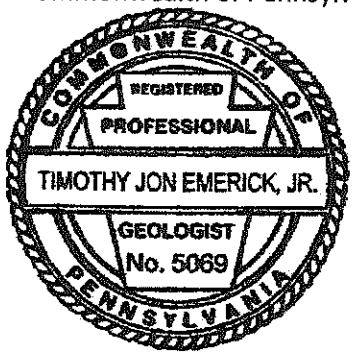
If an IR were to reoccur, the following procedure from Section 5.1.5 "Monitoring Protocol for Condition 3 – Inadvertent Returns" in the "HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan", prepared by TetraTech, Inc. and revised February 6, 2018, will be implemented – "If 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".

Based on information provided by, and the expertise of, the HDD team, as well as our experience with the relevant hydrogeology and geology, RETTEW believes that the implementation of the measures outlined above will prevent or minimize the risk of a new IR of 50 gallons or greater in another location on this HDD. Consistent with Section 6.3 of the IR Response Plan, the locations of the former IRs have been contained and successfully recovered. The return areas will continue to be monitored during the daily inspections.

Certification

This assessment was prepared by a PG with the assistance of the horizontal directional drilling team, relying on information gathered and prepared by others. By affixing my seal to this document, I am certifying that the hydrogeologic and geologic information contained herein is true and correct, to my knowledge and belief. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania.

Timothy J. Emerick, Jr., PG
License No. PG005069



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EX. "B"

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MEMORANDUM

TO: Matt Gordon & Monica Styles, SPLP

FROM: Greg Ayres, PG, and David Anderson, P.G., RETTEW Associates, Inc.

CC: David Mostoller, RETTEW Associates, Inc and Duane Goodsell, PG, Goodsell Geoservices, Inc..

DATE: February 15, 2019

PROJECT NAME: Sunoco Pipeline LP (SPLP) Mariner East 2 Pennslyvania Pipeline - Spread 3 **PROJECT NO.:** 096302008

SUBJECT: Loss of Returns Summary, Raystown Lake HDD S2-0150

The purpose of this memorandum is to provide additional information regarding the assessment of the Inadvertent Return (IR) which occurred during the drilling activities of the 16-inch pilot hole at the Raystown Lake Horizontal Directional Drilling (HDD) S2-0150, Drawing No. PA-HU-0020.008-WXa-16 (Site), located in Penn Township, Huntingdon County, Pennsylvania. Sunoco Pipeline, L.P. (SPLP) provided a report to the Pennsylvania Department of Environmental Protection (PA DEP) on March 9, 2018 regarding the aforementioned IR. Based on the PA DEP's review, and discussion between SPLP and PA DEP, additional information was requested regarding the installation of the 20-inch line. The additional information was requested by Andrea Blosser (PA DEP) in an email to Larry Gremminger (Gremminger & Associates, Inc.) on March 9, 2018. The information requested includes Items 1 through 7 below. After further PA DEP review, additional information was also requested by Andrea Blosser in an email to Larry Gremminger on March 21, 2018. The information requested includes Items 8 and 9 below. In this document, the PA DEP information requests are presented in italics. Please find below each information request RETTEW's specific responses, which are in standard text, to each of the PA DEP requests.

1. ***the fate of the 950,200 gallons of drilling mud that were lost during the time period from the initial reported loss of circulation on 12/11/2017 to the reported 25-30-gallon IR on 12/20/2017. The report should clearly address whether and how much of the material was ultimately discharged to any waters of the Commonwealth including, but not limited to, groundwater and Raystown Lake.***

SPLP consultants completed a sampling and analysis plan to evaluate potential losses of fluid to the lake bottom of Raystown Lake. A report summarizing the sampling events and analytical results dated December 6, 2018 was submitted to PA DEP under a separate cover.

2. ***all dates, volumes, and approximate locations along the drill alignment where losses of circulation occurred during the 20-inch line installation (i.e.—a Figure 2 prepared for the 20-inch line installation).***

The following is a summary and discussion of drilling activity and other events which occurred during the HDD installation of the 20-inch pipe. As described in the drilling summary below, total reported daily loss of returns was recorded and is depicted along the HDD profile on **Attachment 1**. While SPLP contractors recorded a "daily loss of returns" during HDD activities, these amounts did not represent the volume of drilling fluids lost. Instead, this number is an estimate based on daily water consumption, which included the volume of water used to cool the drilling equipment and recycled into frac tanks for re-use. Accordingly, the "daily loss of returns" recorded by

the contractor likely represents an overestimate of the volume of drilling fluid lost on a given day. Nevertheless, in an effort to respond to the Department's request, Rettew has displayed the "daily loss of returns" amounts along the HDD profile and in the descriptions below. It should also be noted that the representation of fluid loss on this figure illustrates the location of the steering head or reamer bit (during multiple ream passes) at the time of the fluid loss and may not represent the actual location of fluid loss.

- **March 18, 2017 through April 8, 2017 — Full Returns**

  Laney began pilot hole drilling (13-inch diameter) and completed 3,245 feet of the 4,773-foot boring with no loss of returns reported.

- **April 9, 2017 – Partial LOR**

  While advancing rod #115 the Laney driller reported a "soft" spot between estimated trajectory length 3,634 and 3,644 feet and reported a loss of circulation of 2,750 gallons of drilling fluids. Eighteen (25 lbs.) bags of Magna Fiber LCM, 23 (5-gallon) buckets of Diamond Seal Absorbent Polymer, and one pallet of bentonite was mixed together and pumped into the boring after tripping out two drill rods (estimated trajectory length 3,474). The volume of the loss control material (LCM) was estimated at 35 barrels and an unknown volume of water was used to flush the drill string after placing the LCM plug. No IRs were observed.

- **April 10, 2017 – Full LOR**

  Laney suspended drilling while allowing the LCM plug time to setup. When drilling activities did resume, Laney experience a full LOR and began to trip out and back into the boring to regain circulation. No volume of drilling fluids lost were reported or recorded. No IRs were reported.

- **April 11, 2017 – Full LOR**

  Laney finished tripping back into the boring while experiencing full LOR reported and continue to advance the pilot hole. A total of 35 feet of drilling was completed with no returns to the entry point. The estimated loss of drilling fluid was 120,700 gallons based on totalizer flow meter readings. No IRs were observed or reported.

- **April 12, 2017 – Full LOR**

  Pilot hole drilling continued from rods 116 to 123 (trajectory length 3,847 feet) with a total of 190 feet completed with 100% loss of returns. The estimated loss of drilling fluid was 112,900 gallons based on totalizer flow meter readings. No IRs were observed.

- **April 13, 2017 – Full LOR**

  Pilot hole drilling continued from rods 126 to 138 (trajectory length 4,317 feet) with a total of 399 feet completed with 100% loss of returns. The estimated loss of drilling fluid was 209,240 gallons based on totalizer flow meter readings. No IRs were observed.

- **April 14, 2017 – Full LOR**

  The pilot hole was completed with a total of 441 feet drilled with 100% loss of returns. The estimated loss of drilling fluid was 108,400 gallons based on totalizer flow meter readings. No IRs were observed.

- **April 15 through April 18, 2017**

  No drilling, Laney was preparing the eastern end of the boring to allow the removal of the pilot bit and the start of the 30-inch ream pass.

- **April 19, 2017 – Partial LOR**

  Laney shaved the last 350 to 400 feet of the pilot hole with an estimated loss of drilling fluids of 163,500 gallons based on totalizer flow meter reading. No IRs were observed.

- **April 20, 2017 through April 28, 2017 – Full Returns**

  Laney initiated push ream (west to east) with 30-inch reamer bit and advanced the reamer to a trajectory length 1,241 feet with no loss of drilling fluid reported.

- **April 29, 2017 – Full Returns**

  No reaming performed. Laney tripped 45 rods to initiate pull reaming (east to west). No loss of drilling fluid reported.

- **April 30, 2017 – Full LOR**

  Laney initiates pull reaming with 30-inch reamer bit. A total of 221 feet was completed with a full loss of returns of 61,850 gallons estimated. No IRs were observed.

- **May 1 through May 3, 2017 – Full Returns**

  Laney continued the ream phase with a total of 175 feet being completed with no loss of drilling fluid reported.

- **May 4, 2017 – Full Returns**

  Laney attempted to continue the 30-inch ream pass; however, Laney was unable to trip the reamer out of the boring and while attempting to, the reamer "broke off" from the drill string at an estimated trajectory length of 1,463 feet. Laney was circulating drilling fluids throughout the day and did not experience any loss of circulation.

- **May 5 through September 9, 2017 – Drilling Suspended per Army Corps Seasonal Restriction**

  Drilling was suspended due to the Army Corps of Engineers seasonal drilling restriction agreement with SPLP.

- **September 9 through September 22, 2017 – Full Returns**

  Michels on-site and conducted efforts to try to retrieve Laney's 30-inch reamer bit. Broken rods and 30-inch reamer retrieved on September 22, 2017. Drilling fluids were circulated from September 16 through September 22, 2017 with no loss of returns reported.

- **September 23, 2017 – Partial LOR**

  Michels tripped in drill rods in preparation to resume 30-inch ream pass with a partial loss of returns of <350 gallons reported as drill rod 89 (estimated trajectory length of 2,824 feet) was being tripped into the boring. No IRs were observed.

- **September 25 through September 29, 2017 – Full Returns**

  Michels continued to trip in the drill rods and initiated/resumed 30-inch push ream pass. A total of 572 feet was reamed with no report of a loss of returns.

- **September 30, 2017 – Partial LOR**

  Michels continued the 30-inch ream pass with a total of 63 feet completed with a reported loss of returns of 200 gallons. The partial loss of occurred while drill rod 67 (trajectory length of loss estimated to be 2,125 feet) was being reamed. No IRs were observed.

- **October 2, 2017 – Partial LOR**

  Michels continued the 30-inch ream pass with a total of 127 feet being completed with partial losses of returns totaling 18,300 gallons. The losses were observed while drilling rods 67 through 69 (trajectory length of loss estimated to be between 2,125 feet and 2,221 feet) were being reamed. Full returns were re-established as drill rod 70 was being reamed. No IRs were observed.

- **October 3 through October 4, 2017 – Full Returns**

  Michels continued the 30-inch ream pass with a total of 476 feet completed with no loss of returns reported.

- **October 6, 2017 – Partial LOR**

  Michels continued the ream phase with 30-inch reamer bit. A total of 24 feet was completed with a partial loss of returns of unknown volume reported at rod 87 (trajectory length of loss estimated to be 2,752 feet). No IRs were observed.

- **October 7, 2017 – Partial LOR**

  Michels continued advancing the 30-inch reamer and reamed a total of 55 feet was completed with loss of returns of 73,000 gallons reported between rods 89 through 91 (trajectory length of loss estimated to be between 2,832 feet and 2,887 feet). No IRs were observed.

- **October 9, 2017 – Partial LOR**

  No drilling. Michels began to trip out the reamer to inspect it. A partial loss of returns of 24,500 gallons was reported. No IRs were observed.

- **October 10, 2017 – Full Returns**

  No drilling. Michels continued to trip the reamer out, after inspecting and replacing the reamer, Michels began to trip it back into the boring. No loss of returns reported.

- **October 11, 2017 – Full Returns**

  Michels resumed the 30-inch ream and advanced the reamer a total of 109 feet was completed with no loss of returns reported.

- **October 12, 2017 – Partial LOR**

  Michels continued with the 30-inch ream pass and completed a total of 159 feet with a partial loss of returns reported at rod 96 (trajectory length of 3,060 feet). No estimate of fluid loss reported. No IRs were observed.

- **October 13, 2017 – Partial LOR**

  Michels continued the ream pass and advanced the 30-inch reamer a total of 96 feet with partial loss of returns reported to be approximately 61,500 gallons based on the fluid pumping rate and length of time to complete drill rods 100 through 102 (trajectory length between 3,187 feet and 3,251 feet). No IRs were observed.

- **October 14, 2017 – Full LOR**

  Michels continued with the 30-inch ream pass and completed a total of 127 feet with full loss of returns totaling 102,000 gallons (based on fluid pumping rates) between rods 103 through 106 (trajectory length between 3,282 feet and 3,378 feet). No IRs were observed.

- **October 16, 2017 – Full LOR**

  Michels continued to advance the 30-inch reamer and completed a total of 183 feet with full loss of returns of 123,000 gallons (estimated based on fluid pumping rates) between rods 106 through 112 (trajectory length 3,370 feet and 3,561 feet). No IRs were observed.

- **October 17, 2017 – Full LOR**

  Michels continued the 30-inch ream pass. A total of 223 feet was completed with full loss of returns reported between rods 112 through 119 (trajectory length between 3,561 and 3,784). Based on drilling fluid pumping rates it was estimated that 113,000 gallons was lost. No IRs were observed.

- **October 18, 2017 – Full LOR**

  Michels continued the 30-inch ream pass and advanced the reamer a total of 318 feet with full loss of returns between drill rods 120 and 129 (trajectory length between 3,816 feet and 4,102 feet). Approximately 127,000 gallons of drilling fluids were lost based on the fluid pumping rate between those drill rods. No IRs were observed.

- **October 19, 2017 – Full LOR**

  Michels advanced the 30-inch reamer a total of 350 feet with full loss of returns between drill rods 129 and 140 (trajectory length of loss estimated to be between 4,102 feet and 4,452 feet). Based on the drilling fluid pumping rates, it was estimated that 112,000 gallons was lost between those drill rods. No IRs were observed.

- **October 20, 2017 – Full LOR**

  Michels completed the 30-inch ream pass after advancing the reamer a total of 318 feet. Full loss of returns estimated at 55,000 gallons, based on drilling fluid pumping rates, was lost between rods 140 and 150 (trajectory length between 4,452 feet and 4,770 feet). No IRs were observed.

- **October 21, 2017 – Partial LOR**

  Michels initiated the 30-inch swab pass and experienced a partial loss of returns, totaling 89,000 gallons, between rods 80 through 95 (trajectory length between 2,544 feet and 3,021 feet). No IRs were observed.

- **October 23 through October 26, 2017 – Full LOR**

  Michels continued to complete the 30-inch swab pass and experienced a full loss of returns of 330,000 gallons estimated over the length of the full HDD. No IRs were observed.

- **October 28 through 30, 2017**

  Michels completed the 20-inch product pipe pull and experience partial losses during the entire pull. The volume of the lost drilling fluid was not recorded. No IRs were observed.

It is estimated that 2,008,000 gallons of drilling fluid was lost during the completion of the 20-inch HDD. As discussed previously, this total is likely an over estimation since the volume of fluid lost was calculated from the water usage reported each day by Laney and the water being used for cooling of drilling equipment was recycled back into the on-site frac tanks and recorded by the water meters multiple times. Further, the loss reported by Michels was estimated by the length of time to advance each rod and the rate at which the drilling fluid was being pumped into the boring and not through the use of metering equipment.

3. ***a loss prevention report that describes the measures that will be implemented to prevent, to the maximum extent practicable, the likelihood of additional losses of circulation.***

A Loss Prevention Report has been prepared and is included as **Attachment 2.**

4. ***profile of the drill path as constructed overlain on the permitted drill profile for both the 20-inch and 16-inch lines.***

The profile of the as-built 20-inch line has been overlain with the permitted profiles for the 16-inch and 20-inch line and is included as **Attachment 3.**

5. ***the PG's assessment of the strata where IR occurred.***

A discussion of strata where the IR occurred is included in the *Restart Report for Inadvertent Return on December 20, 2017 at Raystown Lake HDD S2-0150 (16-inch Pipeline) (PA-HU-0020.008-WXb-16* dated February 12, 2019.

6. ***an analysis of the risk of additional inadvertent returns to waters of the Commonwealth.***

An analysis of the risk of additional IRs included in the *Restart Report for Inadvertent Return on December 20, 2017 at Raystown Lake HDD S2-0150 (16-inch Pipeline) (PA-HU-0020.008-WXb-16* dated February 12, 2019.

7. ***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.***

Recommendations on measures that will minimize the likelihood that further drilling will impact the environment are IRs included in the *Restart Report for Inadvertent Return on December 20, 2017 at Raystown Lake HDD S2-0150 (16-inch Pipeline) (PA-HU-0020.008-WXb-16* dated February 12, 2019.

8. ***How close is the 16" bore to the completed 20" bore?***

Based on the as-built data for the 20-inch line and the pilot data for the 16-inch line, the minimum and maximum horizontal separation is approximately 20 feet along the respective profiles. The minimum vertical separation of the bores is 0 feet at the ground surface near the HDD entry and ultimately at the HDD exit. The maximum vertical separation distance between the 16-inch bore and the completed 20-inch bore is approximately 120 feet. The 16-inch bore is deeper and below the 20-inch bore.

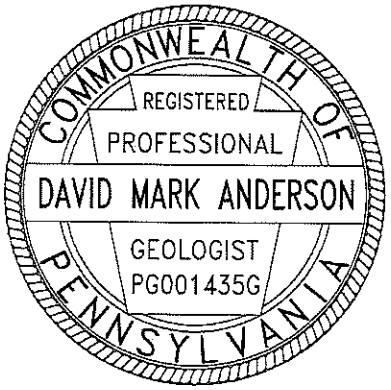
9. ***What is the potential that mud from the 12.25" pilot hole for the 16" pipe is being lost into the annulus of the completed 20" line?***

The potential is low to lose mud from the 12.25-inch pilot boring to the completed 20-inch line. There is sufficient separation distance (ranging up to 120 feet), limited annular space in the 20-inch boring and the annular space is occupied by the 20-inch pipe, drill cuttings, and bentonite.

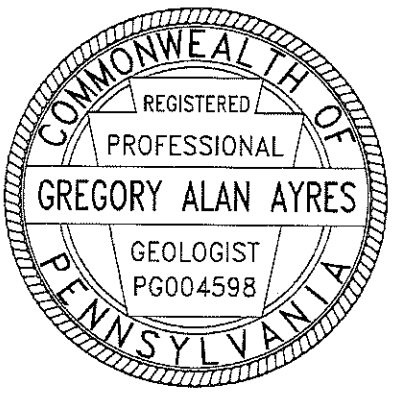
Certification

This assessment was prepared under the coordination of a PG in conjunction with experts in horizontal directional drilling, relying on information gathered and prepared by others. By affixing my seal to this document, I am certifying that the hydrogeologic and geologic information contained herein is true and correct, to my knowledge and belief. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania.

David M. Anderson, PG
License No. PG001435G



Gregory A. Ayres, PG
License No. PG004598



Enclosures
Attachment 1 – Fluid Loss Map
Attachment 2 – Loss Prevention Report
Attachment 3 – 16-Inch and 20-Inch Plan & Profile

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ENVIRONMENTAL SOLUTIONS & INNOVATIONS, INC.

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21 February 2019

Ms. April A. Weiland
Water Quality Specialist Supervisor
PA Department of Environmental Protection / District Oil and Gas Operations
Cambria District Office
286 Industrial Park Road
Ebensburg, PA 15931

Dear Ms. Weiland:

RE: Updated Aquatic Resources Delineation and Restoration Plan for the Revolution Pipeline Project – Boundaries inside the LOD

Per the PADEP (Department) Compliance Order dated 29 October 2018, and subsequent communications, the Department requires ETC Northeast Pipeline, LLC (ETC) to report the current extent and condition of aquatic resources within the Revolution Pipeline Project's permitted Limits of Disturbance (LOD). Timing of the Department's request required completion of the updated aquatic resources delineation outside of the growing season. This delineation was completed by ESI biologists in late November, early December 2018, and February 2019. A complete aquatic resource delineation report, given the stated non-optimal review season, is provided as Attachment 1. If required by the Department, aquatic resource verification and their respective boundaries can be completed during the growing season.

A comparison between the updated aquatic resource delineation and the delineation completed prior to construction (2015-2016) reveals newly created aquatic resources, eliminated aquatic resources, and changes in delineated aquatic resource size (lf / sf / acreage). Tables detailing these changes are provided as Attachment 2 (also provided electronically) and summarized in Tables 1 and 2. Figures illustrating resource locations are provided in Attachment 3. Available aquatic resource photographs taken before and after pipeline construction are provided in Attachment 4.

Upland datasheets for wetlands no longer present, as well as datasheets documenting streams with flow regime changes are provided as Attachments 5 and 6, respectively.

Table 1. Summary of Stream Changes

Change	No. Resources	Total Size (LF)	Average Change per Delineated Stream (LF)
New	8	1,009	-
Absent	23	1,857	-
Length Increased	50	1,790	36
Length Decreased	70	-3,100	-44
Wider TOB	18	-	2.7
Narrower TOB	41	-	-3.1
Perennial to Intermittent	1	-	-
Intermittent to Perennial	1*	-	-
Ephemeral to Intermittent	1	-	-
Intermittent to Ephemeral	1	-	-

*Likely a result of an error in the prior delineation data.

Table 2. Summary of Wetland Changes

Change	No. Resources	Total Size (acres)	Average Change per Delineated Wetland (acres)
New	31	1.738	-
Unrestored	17	0.401	-
Reduced*	19	-	-0.661
Expanded**	51	-	5.563
PSS to PEM Conversion	7	0.467 (0.833 PEM in 2018-19)	-
PEM/PSS to PEM Conversion	2	0.502 (0.668 PEM in 2018-19)	-
PEM/PSS to PSS Conversion	1	0.391 (0.282 PEM in 2018-19)	-
PFO to PEM Conversion	7	0.528 (0.829 PEM in 2018-19)	-
PEM/PFO to PEM Conversion	1	0.091 (1.614 PEM in 2018-19)	-

*Does not include wetlands that are no longer present.
**Does not include wetlands that are newly delineated features.

ETC proposes the following summary actions to restore or mitigate aquatic resource impacts:

Streams: ETC will replace streams that are no longer present and restore the condition of those that are decreased in length or have narrower tops of bank by regrading to original contours in their original location. Suitable stream substrate (cobble/gravel) will be installed in any newly restored streambeds, and ETC will contract for 3rd party monitoring by qualified biologists for a minimum of 5 years to verify the restoration of natural functions. This work is proposed for the spring of 2019, to be performed concurrently with implementation of the Post-Construction Restoration Plan and will be supervised to ensure correct completion. Bi-annual reports will be provided to the Department through the monitoring period.

Table 3 summarizes streams that are no longer present, have decreased in length, and/or have a narrower top of bank width.

Table 3. Streams Proposed for Restoration

Stream ID	PADEP Historic Stream Name	No Longer Present?	Decreased in Length? (Y/N)	Narrower TOB Width? (Y/N)
2-7	UNT to Shafers Run	No Longer Present	Y	Y
2-24	Elkhorn Run	No Longer Present	Y	Y
2-29	Trib 36549 To Elkhorn Run	Present	N	Y
9-9	Trib 35020 To Likens Run	Present	Y	Y
9-30	UNT To Raccoon Creek	No Longer Present	Y	Y
9-31	UNT To Raccoon Creek	No Longer Present	Y	Y
9-37	UNT To Trib 33750 To Raccoon Creek	Present	N	Y
9-64	UNT To Frames Run	No Longer Present	Y	Y
9-72	UNT To Trib 34824 To Brush Creek	Present	Y	Y
9-76	UNT To Trib 34824 To Brush Creek	Present	N	Y
9-77	UNT To Trib 34824 To Brush Creek	Present	N	Y
9-81	UNT to Trib 36575 To Crows Run	Present	N	Y
9-82	Trib 36575 To Crows Run	Present	N	Y
9-83	UNT To Trib 36575 To Crows Run	Present	Y	Y
9-85	UNT To Trib 36572 To Crows Run	Present	N	Y
9-91	UNT To Trib 34909 To Glade Run	No Longer Present	Y	Y
9-96	UNT to Trib 35017 to Breakneck Creek	No Longer Present	N	Y
9-97	UNT to Trib 35017 to Breakneck Creek	No Longer Present	Y	Y
9-107	UNT To Trib 33660 To Raccoon Creek	Present	N	Y
9-109	Trib 33673 To Raccoon Creek	Present	N	Y
9-113.1	UNT To Trib 33580 to Raccoon Creek	No Longer Present	Y	Y
9-126	UNT To Trib 33757 To Potato Garden Run	No Longer Present	Y	Y
9-127	UNT To Potato Garden Run	No Longer Present	Y	Y
9-137	UNT To UNT To Raccoon Creek	No Longer Present	Y	Y
9-138	UNT To UNT To Raccoon Creek	No Longer Present	Y	Y
9-140	UNT To UNT to Raccoon Creek	No Longer Present	Y	Y
9-142	UNT To UNT To Raccoon Creek	No Longer Present	Y	Y
9-143	UNT To UNT To Raccoon Creek	No Longer Present	Y	Y
9-144	UNT To UNT To Raccoon Creek	No Longer Present	Y	Y
9-147	Trib 33588 To Racoon Creek	No Longer Present	Y	Y
9-166	UNT To Trib 36575 To Crows Run	Present	N	Y
9-190	UNT To Trib 36575 To Crows Run	Present	N	Y
9-192	UNT To Trib 36572 To Crows Run	Present	N	Y
9-193	UNT To Trib 36572 To Crows Run	Present	N	Y
10-25	UNT To Trib 33581 To Racoon Creek	No Longer Present	Y	Y
11-5	UNT To Trib 36572 To Crows Run	No Longer Present	Y	Y
11-7	UNT To Crows Run	No Longer Present	Y	Y
11-58	UNT To Trib 36572 To Crows Run	Present	N	Y
13-7	UNT to Trib 36575 To Crows Run	Present	N	Y
13-9	Pine Run	Present	N	Y
13-108	Trib 33673 To Racoon Creek	No Longer Present	Y	Y

Unrestored Wetlands and Wetland Size Reductions: ETC will restore wetlands by regrading wetlands to original contours in original locations, seeding with native wetland plant mix, and monitoring natural wetland development. This work will be supervised to ensure correct completion and is proposed during Spring 2019. This work will be performed concurrently with implementation of the Post-Construction Restoration Plan and will be supervised to ensure correct completion. Monitoring will occur for 5 years, and bi-annual reports will be provided to the Department for the monitoring period. In the event wetlands cannot be properly restored, the purchase of wetland credits from a wetland bank will be properly negotiated with the Department.

Wetland Conversion: Since the majority of the wetlands within the LOD are PEM, ETC will restore wetlands that have converted from PSS or PFO to PEM by planting native bare-root stock in the wetlands during early winter 2019. The planted trees and shrubs will be offset from the pipeline by 15 and 10 feet, respectively, to allow for pipeline inspection by air or land. Qualified biologists will monitor these locations for 5 years, or until a minimum of 70% survival rate of the new plantings is achieved. Bi-annual reports will be provided to the Department for the monitoring period.

Table 4 summarizes wetlands that are no longer present, reduced in size, and/or have a converted Cowardian class.

Table 4. Wetlands Proposed for Restoration

Wetland ID	No Longer Present? (Y/N)	Reduced Size? (Y/N)	Converted Wetland? (Y/N)
1-A	Present	N	Y
1-C	Present	Y	N
2-AG	No Longer Present	Y	N
2-F	Present	N	Y
2-J	Present	N	Y
2-N	No Longer Present	Y	N
2-R	Present	Y	N
4-D	Present	Y	N
9-AN	Present	N	Y
9-AM	No Longer Present	Y	N
9-BI	No Longer Present	Y	N
9-BV	Present	N	Y
9-BZ	Present	N	Y
9-CE	Present	Y	N
9-CF	Present	N	Y
9-CI	No Longer Present	Y	N
9-CS	Present	N	Y
9-DF	Present	Y	Y
9-DG	No Longer Present	Y	N
9-DL	Present	Y	Y

Wetland ID	No Longer Present? (Y/N)	Reduced Size? (Y/N)	Converted Wetland? (Y/N)
9-DN	No Longer Present	Y	N
9-DP	No Longer Present	Y	N
9-DX	No Longer Present	Y	N
9-DY	No Longer Present	Y	N
9-EA	Present	N	Y
9-EC	No Longer Present	Y	N
9-EE	No Longer Present	Y	N
9-EI	Present	Y	N
9-EL	Present	Y	N
9-EO	No Longer Present	Y	N
9-EP	Present	Y	N
9-ET	Present	Y	N
9-FJ	Present	Y	N
9-FK	Present	Y	Y
9-J	Present	Y	Y
9-T	Present	Y	N
9-U	Present	N	Y
9-Y	Present	Y	Y
9-Z	Present	Y	N
10-G	Present	Y	Y
10-I	No Longer Present	Y	N
11-H	Present	N	Y
13-AA	Present	Y	Y
13-AD	No Longer Present	Y	N
13-C	No Longer Present	Y	N
13-D	Present	Y	N
WPA-CDK-001/003	Present	N	Y

Thank you for your continued review.

Sincerely,

Nicholas J Basile

Nick Basile
VP - Operations
nbasile@envsi.com
518-727-5314

Attachment 1 – Aquatic Resource Delineation Report
Attachment 2 – Aquatic Resource Delineation Comparison Tables
Attachment 3 – Aquatic Resource Delineation Comparison Figures
Attachment 4 – Photos Comparing Aquatic Resources Before & After Construction