COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD

PENNENVIRONMENT and SIERRA CLUB	:	
	:	
v.	:	**EHB Docket No. 2022-032-B**
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COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION and PPG INDUSTRIES, INC., Permittee	:	**Issued: April 9, 2024**

A D J U D I C A T I O N

By Steven C. Beckman, Chief Judge and Chairperson

Synopsis

The Board denies an appeal of the Department's approval of a financial assurance document in the amount of $12,363,864 to cover the operation, monitoring, and maintenance costs of a waste site remedy in perpetuity upon default by the remediating corporation. The appellants have not met their burden of proof to show that the Department acted unreasonably or in violation of applicable statutes, regulations or Article 1, Section 27 of the Pennsylvania Constitution. The amount of the financial assurance is sufficient to sustain the remedy in perpetuity and in the event conditions change and more funds are required, the Department can adjust the amount of the financial assurance on an annual basis. The appellants additional claims are moot.

Background

On May 10, 2022, Sierra Club and PennEnvironment ("Sierra Club") appealed the Department of Environmental Protection's ("the Department's") approval of the financial assurance proposal submitted by PPG Industries, Inc. ("PPG") for the remedy at PPG's Ford City waste site ("PPG Waste Site"). The PPG Waste Site is in Armstrong County, Pennsylvania and was used by PPG from approximately 1953 to 1970, to dispose of glass polishing slurry waste and

solid waste from its facility in Ford City, Pennsylvania. The purpose of the financial assurance is to ensure enough funds are available to pay for the ongoing operation, monitoring, and maintenance and replacement costs of the remedy, and if necessary, a revision of a remedy at the PPG Waste Site, in perpetuity. Prior to the current matter before the Board, Sierra Club and PPG were engaged in federal litigation that ultimately led to an agreement between the Department and PPG known as the First Amendment. Sierra Club was active in drafting the language and negotiating the terms of the First Amendment which laid the groundwork of the matter before us.

On April 6, 2023, the Board denied both the Sierra Club's motion for summary judgment and the Department's cross-motion for summary judgment holding that the case presented complex issues of fact and law thereby making summary judgment inappropriate. On April 25, 2023, the parties filed a stipulation of partial settlement. Prior to the hearing on the merits, PPG filed two motions in limine. The first requested the preclusion of an expert report and expert testimony pertaining to the report and the second motion sought to preclude Sierra Club from introducing certain evidence that PPG contended lacked relevance and would result in a waste of time. On September 11, 2023, the Board issued Orders denying PPG's motions in limine without prejudice. A three-day hearing on this matter was conducted at the Board's Pittsburgh Office starting on September 18, 2023 and ending on September 20, 2023. Sierra Club filed its post-hearing brief on October 31, 2023, and the Department and PPG filed their post-hearing briefs on December 1, 2023. Sierra Club filed its reply brief on December 15, 2023.

FINDINGS OF FACT

I. The Parties

1. The Commonwealth of Pennsylvania Department of Environmental Protection is a Pennsylvania agency with the duty and authority to administer and enforce the Pennsylvania Clean

Streams Law (CSL), 35 P.S. §§ 691.1-691.1001, the Clean Water Act (CWA), 33 U.S.C. §§ 1251-1389, the Pennsylvania Environmental Rights Amendment, Pa. Const. art. I § 27, and the rules and regulations promulgated thereunder, including the duty and authority to issue National Pollution Discharge Elimination System (NPDES) permits in compliance with the Clean Water Act, 25 Pa. Code § 92a.1. (Stipulations ¶ 2).

2. The Department is also the agency with the duty and authority to administer and enforce the Solid Waste Management Act, Act of July 7, 1980, P.L. 380, as amended, 35 P.S.§§ 6018.101 – 6018.1003 ("SWMA"); the Land Recycling and Environmental Remediation Standards Act, Act of May 19, 1995, P.L. 4, No. 1995-2, 35 P.S. §§ 6026.101 – 6026.909 ("Act 2"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P.L. 177, as amended, 71 P.S. § 510-17; and the rules and regulations promulgated thereunder. (Stipulations ¶ 3).

3. PPG Industries, Inc. (PPG) is a corporation organized under the laws of Pennsylvania, headquartered in Pittsburgh. (Stipulations ¶ 4).

4. PennEnvironment is a non-profit corporation organized under the laws of Pennsylvania, with offices in both Philadelphia and Pittsburgh. PennEnvironment is a statewide environmental advocacy group that is actively engaged in education, research, lobbying, litigation, and citizen organizing to encourage conservation and environmental protections. (Stipulations ¶ 5).

5. Sierra Club is a nationwide non-profit environmental membership organization, incorporated in California, with its headquarters and principal place of business in San Francisco. Sierra Club has more than 23,000 members living in Pennsylvania. (Stipulations ¶ 6).

6. Sierra Club is the plaintiff in a citizen suit ("the Federal Litigation") regarding the PPG Waste Site filed against PPG in the United States District Court for the Western District of Pennsylvania under the federal Clean Water Act ("CWA"), the Pennsylvania Clean Streams Law ("CSL"), and the federal Resource Conservation and Recovery Act ("RCRA"). The Federal Litigation is ongoing, although some issues were resolved in a settlement in 2021, which relates to the issues in this appeal. (Stipulations ¶ 7; SC Ex. 15).

II. The Site

7. The site that is the subject of this appeal, the PPG Waste Site, is in Armstrong County, Pennsylvania. From approximately 1953 to 1970, PPG used the PPG Waste Site to dispose of glass polishing slurry waste and solid waste from its facility in Ford City, Pennsylvania. (Stipulations ¶ 8).

8. Two areas of the PPG Waste Site are primarily relevant to this appeal: the Slurry Lagoon Area ("SLA") and the Solid Waste Disposal Area ("SWDA"). (Stipulations ¶ 9).

9. The SLA is a former sandstone quarry in which PPG built three unlined lagoons covering an approximately 77-acre area of the PPG Waste Site and into which PPG deposited waste that it transported via a slurry pipe across the Allegheny River from its Ford City glass manufacturing plant. (Stipulations ¶ 10; SC Ex. 3).

10. The SLA is bordered on the north by State Route 128, on the west by Glade Run, a tributary of the Allegheny River, on the east by the SWDA, and on the south by the Allegheny River. A railroad track runs along the Allegheny River between the SLA and the Allegheny River. (SC Exs. 3, 83).

11. When infiltrating precipitation and upgradient groundwater contacts the waste disposed in the SLA, a high pH leachate is formed. (Transcript of Hearing Testimony Page No. ("T.") 249, 263-64).

12. The high pH leachate seeps out of the SLA along the southern edge to the Allegheny River and along the eastern and western banks of the PPG Waste Site. (Halloran Written Testimony at Page No. ("W.T.") 3; T. 248-50).

13. PPG deposited solid waste in the SWDA. (Stipulations ¶ 11; SC Ex. 3).

14. The fenced portion of the SWDA is approximately 15 acres in size. Adjacent to the SWDA is the area known as the SWDA Annex which is approximately 3 acres in size. Both the SWDA and SWDA Annex have areas that will be remediated. (Stipulations ¶ 12).

III. The Federal Litigation

15. In 2012, Sierra Club filed the Federal Litigation alleging violations of several federal environmental statutes. Sierra Club obtained a preliminary injunction requiring PPG to apply for an NPDES permit. (T. 257; *see also PennEnvironment v. PPG Industries, Inc. (PPG III)*, No. 12-342, WL 6982461 (W.D. Pa. Dec. 10, 2014).

16. On October 10, 2018, the Department approved a site-wide remedy for the PPG Waste Site (the "Site-Wide Remedy"). (PPG Ex. 4).

17. PPG and the Department executed a Consent Order and Agreement covering the remediation at the PPG Waste Site on April 2, 2019 (the "2019 COA"). (Halloran W.T, page 4; SC Ex. 3).

18. Sierra Club and PPG engaged in settlement negotiations regarding most of the claims in the Federal Litigation, culminating in a consent order that was entered by the federal court on March 29, 2021 (the "Federal Consent Order"). (Stipulations ¶ 13; SC Ex. 15).

19. The Federal Consent Order includes several additions and enhancements to the 2019 COA. In conjunction with their negotiation of the Federal Consent Order, Sierra Club and PPG negotiated an amendment to the 2019 COA ("the First Amendment") to reflect those additions and enhancements, which included, among other things, a provision for the establishment of financial assurances. The First Amendment was proposed to the Department and, following some changes, including some to the proposed financial assurances provision, it was executed by the Department and PPG on November 4, 2020. (Stipulations ¶ 14; SC Ex. 10).

20. As proposed by Sierra Club and PPG and agreed to by the Department, the financial assurances provision added by the First Amendment required "an irrevocable letter(s) of credit and a standby trust in favor of the Department that conforms to the requirements of 25 PA Code Section 287, Subchapter E and/or letter of credit and standby trust provisions established by 40 CFR 264.143(d) and 264.145(d)." (Stipulations ¶ 15; SC Ex. 10).

21. The language as to the amount of the financial assurances requires the amount be "sufficient to secure the implementation and post-closure care, including without limitation long-term monitoring, operation and maintenance and replacement costs necessary to effectuate and maintain the remedy required by the 2019 Consent Order and Agreement and this First Amendment, or a revision of the remedy should the original fail, in perpetuity." (Stipulations ¶ 15; SC Ex. 10).

IV. The Remedy

22. The Site-Wide Remedy was incorporated into cleanup plans submitted by PPG under Pennsylvania's Land Recycling and Environmental Remediation Standards Act, 35 Pa. Stat. and Cons. Stat. Ann. §§ 6026.101 et seq. ("Act 2"). (Halloran W.T. at 4–5; Martel W.T. at 2).

23. The cleanup plan for the SLA consists principally of capturing and treating the high pH leachate to lower its pH prior to discharge of the treated leachate to the Allegheny River. (Halloran W.T. at 4–5).

24. The cleanup plan for the SWDA consists principally of installing a geomembrane cap in areas where waste is exposed and then installing and maintaining a soil cap over the SWDA and SWDA Annex. (Halloran W.T. at 5).

25. Cullen Flanders ("Mr. Flanders") is a Professional Engineer who holds a Bachelor of Science degree in Environmental Resource Management and a Master of Science degree in Environmental Engineering, both from the Pennsylvania State University. (T. 533–34).

26. Mr. Flanders is licensed as a Professional Engineer in Connecticut, Delaware, the District of Columbia, Mississippi, New York, Ohio, Pennsylvania, and Virginia. (T. 534).

27. Mr. Flanders is currently employed by GHD, an engineering consulting company, as its Environmental Engineering Design Lead for North America, and was previously employed by Arcadis. (T. 535–37).

28. Mr. Flanders has been involved with PPG's remedial work at the PPG Waste Site in his capacity as a Professional Engineer for approximately a decade. (T. 538).

29. Mr. Flanders designed the portion of the Site-Wide Remedy addressing the SLA while employed at Arcadis. (T. 538–39).

30. Mr. Flanders was involved with all aspects of development, design, and implementation of the SLA remedy, including reviewing initial geological investigations and modeling, overseeing contractors installing the SLA remedy, and overseeing pilot testing of the installed enhanced collection and treatment system. (T. 539).

31. As part of the design process for the SLA remedy, a hydrogeologist conducted groundwater monitoring and testing. (T. 543-44; PPG Ex. 1).

32. The main component of the SLA remedy is the Enhanced Collection and Treatment System, which comprises a series of trenches around all four sides of the SLA to collect leachate and transport it to a wastewater treatment facility prior to discharge to the Allegheny River. Additional aspects of the SLA remedy include installation of a precipitation drainage system installed on the surface and as-needed repair of the soil cap to reduce surface infiltration. (Halloran W.T. 4; Martel W.T. 2; PPG Ex. 18).

33. A portion of the SLA remedy is a trench that runs along the southern border of the PPG Waste Site, parallel to the railroad tracks ("the Deep Trench"). (T. 51-53).

34. The Deep Trench is three-feet wide and 3,100-feet long, and its depth ranges from 20 to 40 feet. (T. 544-46).

35. The Deep Trench is deepest (40 feet) at the southeast corner of the PPG Waste Site; it slopes from the north to the south along the eastern side of the Site and from the west to the east along the southern side of the PPG Waste Site. (T. at 547).

36. The Deep Trench is filled with pea gravel. The pea gravel functions to hold the trench open and serves as the conveyance mechanism for the leachate being collected for treatment by the system. (T. 547; PPG Ex. 18 at C-008 to C-013 (as-built drawings for Deep Trench)).

37. The Deep Trench features a series of wells drilled five feet into the bedrock to ensure water that collects within the pea gravel drains to the sumps, each equipped with a sump pump. (T. 548–49).

38. The system is designed to allow leachate to flow by gravity through the pea gravel in the Deep Trench to the trench sumps that convey the leachate via subsurface conveyance pipe

to the wastewater treatment facility for treatment. (T. 548-50; PPG Ex. 18 at C-005, C-006, C-020, C-021).

39. The Deep Trench pipe serves as a "cleanout" mechanism for the Deep Trench collection system in the event the primary conveyance mechanism—the pea gravel—becomes clogged by sediment. (T. 547).

40. When the Deep Trench was being dug out, the excavator cleared all weathered bedrock and reached competent bedrock. (T. 546–47). Mr. Flanders' team tested rock core borings and confirmed that the bedrock is competent sandstone throughout the location of the Deep Trench. (T. 546).

41. The design team for the SLA remedy selected component parts that were designed for corrosive environments and are compatible with high pH water. (T. 549–550; Martel W.T. 12).

42. The HDPE pipe used for the Deep Trench pipe is made of highly durable material and is designed for corrosive environments. (T. 512–13, 579).

43. The Deep Trench pipe was constructed so that it can be slip-lined and replaced from the surface in the event of deterioration. (T. 579).

44. The SLA remedy has been constructed and is fully operational as of October 2022. (T. 453, 559-60).

45. Based on observation of some seeps after the system became operational in October 2022, PPG was in the process of installing an additional trench along the northwest side of the PPG Waste Site at the time of the hearing. (T. 576-77).

46. The SWDA remedy consists of capping the SWDA and the SWDA Annex with a geomembrane and soil layer to minimize both infiltration from precipitation and direct contact with the waste, as well as installation of additional perimeter fencing. (Martel W.T. 2; T. 590).

47. As of the third day of the hearing in this matter, PPG had just received the final two permits necessary for the SWDA remedy construction. (T. 526).

48. Construction of the SWDA remedy must begin within 270 days of PPG's receipt of those permits. (T. 526).

49. Operating costs for the SWDA remedy include monitoring and sampling of stormwater outfalls, and maintenance costs include inspection and repair of the soil cap, as needed. (Halloran W.T. 5).

50. Operating costs for the SLA portion of the PPG Waste Site include the operation of the enhanced collection and treatment system and wastewater treatment system; outfall monitoring and sampling; the purchase of acid and defoamer to adjust the leachate's pH level; and electrical costs to operate the pumps and the wastewater treatment plant. (Halloran W.T. 5; Martell W.T. 3).

51. Maintenance costs include periodic maintenance and cleaning of the sumps and pumps; periodic cleaning of the conveyance piping, outfalls, and tanks; periodic cleaning and redevelopment of extraction wells; building maintenance for the wastewater treatment facility; and general site maintenance, such as fence repairs, lawn mowing, and road maintenance. (Martel W.T. 2-3).

52. Replacement costs will include periodic replacement of component parts such as pumps, hoses, piping, electrical panels, and fencing, and components of the wastewater treatment system as needed. (Martel W.T. 3, 11-12; Halloran W.T. 5.)

Financial Assurances

53. The First Amendment to the 2019 COA requires that:

> Within thirty (30) days of the execution of this First Amendment, PPG shall submit documentation for the provision of financial

> assurances to the Department in an amount sufficient to secure the implementation and post-closure care, including without limitation long-term monitoring, operation and maintenance and replacement costs necessary to effectuate and maintain the remedy required by the 2019 Consent Order and Agreement and this First Amendment, or a revision of the remedy should the original fail, in perpetuity. Said financial assurances shall consist of an irrevocable letter(s) of credit and a standby trust in favor of the Department that conforms to the requirements of 25 PA Code Section 287, Subchapter E and/or letter of credit and standby trust provisions established by 40 CFR 264.143(d) and 264.145(d).

(SC Ex. 10).

54. Paragraph 13 of the First Amendment establishes the requirements for the financial assurances for the PPG Waste Site. (T. 527).

55. Under paragraph 13, the financial assurances for the PPG Waste Site are required to consist of a letter or letters of credit and a standby trust. (SC Ex. 10; T. 151).

56. A letter of credit is a financial instrument provided by an institution that guarantees provision of a specified amount of money if the applicant for the letter of credit fails to discharge its specified obligations. (T. 151).

57. PPG was required to make its financial assurances submission within thirty days of the November 4, 2020 execution of the First Amendment. (SC Ex. 10).

58. PPG submitted its financial-assurances proposal to the Department on December 2, 2020. (SC Ex. 11.)

59. The proposal contemplated three letters of credit: one for the construction costs for the SLA remedy in the amount of $11,265,231; a second for the construction costs for the SWDA remedy in the amount of $1,946,616; and a third for the operation, monitoring, maintenance and replacement ("OMM") costs of the PPG Waste Site in the amount of $12,363,864. (See SC Ex. 11 at 2; DEP Ex. 7; Halloran W.T. at 6).

60. PPG arrived at the proposed amount of financial assurance for the OMM costs by using engineering cost estimates in conjunction with the Department's Bonding Worksheets for Municipal/Residual Waste Processing and Disposal Facilities (the "Bonding Worksheets"). (SC Exs. 9, 11).

61. Specifically, the proposal included (1) a cost estimate prepared by Arcadis outlining capital construction and operations of the SLA remedy, and (2) maintenance costs for the Enhanced Collection and Treatment System, and a cost estimate prepared by Key Environmental, the design engineering firm responsible for the SWDA remedy and site-wide monitoring, outlining costs for capital construction of the SWDA remedy, operation and maintenance of the interim abatement system, and site-wide monitoring. (SC Ex. 11; see also *Id*. Apps. A, B.)

62. Arcadis's operations and maintenance cost estimate for the SLA remedy included six major components: Deep Trench maintenance; northwest and southern trench maintenance; western slope collection system maintenance; extraction wells maintenance; outfall maintenance, and treatment system operation and maintenance. (SC Ex. 11., App. A at 8-9.)

63. The cost estimates included costs for regularly scheduled cleaning and component-part replacement. (SC Ex. 11).

64. The cost estimate also included costs for annual wetland monitoring and maintenance as a separate line item. (SC Ex. 11.)

65. In preparing its cost estimates, Arcadis considered the types of components that would need to be replaced and their anticipated costs. (T. 572). Arcadis's engineers spoke with equipment vendors to obtain quotes for materials. (*Id*.).

66. PPG's financial assurance proposal for the OMM costs did not include a separate line item for revision or wholesale replacement of the SLA remedy (T. 335-36).

67. Key Environmental's estimate for site-wide monitoring included annual inspection of various components, operation of the interim abatement system through its planned decommission, outfall monitoring in accordance with the NPDES permit, and seep reconnaissance and supplemental monitoring, in addition to the routine monitoring required by the NPDES permit. (See SC Ex. 11, App. B at 6.)

68. Robert Hubbard ("Mr. Hubbard") is a senior project manager and risk assessor with Key Environmental. (T. 588).

69. Mr. Hubbard holds a Bachelor of Science degree in chemical engineering and is a Professional Engineer licensed in Pennsylvania. (T. 588).

70. Mr. Hubbard is responsible for the operation and maintenance of both the SLA and the SWDA remedies. (T. 590).

71. Mr. Hubbard assisted in compiling the cost estimates for the operation and maintenance for the SLA and SWDA remedies. (T. 590-91).

72. Mr. Hubbard reviewed and approved the cost estimates prepared by Key Environmental in conjunction with PPG's financial assurance proposal for OMM costs. (T. 591).

73. Key Environmental conducted a comprehensive review of multiple considerations in arriving at its cost estimate, including soliciting quotes from environmental laboratories, collecting construction cost estimates, and reviewing historical costs associated with the prior treatment system, the interim abatement system ("IAS"). (T. 591–92).

74. Mr. Hubbard concluded that PPG's financial assurance proposal for OMM costs was conservative[1] because (1) PPG routinely has come in under budget for operation and

[1] In the record of this case, all of the parties at some point use the term "conservative" but assign that term opposite meanings. When describing conservative cost estimates, Sierra Club's witness, Dr. Sahu, explained that he used the term to mean that the estimated costs were likely to be

monitoring of the IAS and (2) the estimate included conservative sampling and analysis costs, a "big component" of the OMM cost, in an attempt to anticipate costs associated with yet-unidentified seeps. (T. 592–93).

75. At the time of the hearing, PPG's actual cost for OMM of the PPG Waste Site remedies have been under the cost estimates. (T. 593-94).

76. The actual OMM costs for 2022 were approximately $110,000 below the projected cost estimate and for 2023, through the week of the hearing in this matter, actual OMM costs were approximately 30 to 35% below budget. (T. 794).

77. PPG incorporated its cost estimates into the Bonding Worksheets to calculate the amount of financial assurance it proposed for the OMM costs. (SC Ex. 11 at 2, App. C).

78. The Bonding Worksheets use a 30-year time frame as a proxy for perpetuity in calculating financial assurances. (SC Ex. 9; T. 330, 332; Halloran W.T. 8; Martel W.T. 5).

79. It is the Department's standard practice to use a 30-year time frame for calculating costs of maintaining a remedy in perpetuity. (T. 330-31, 467; Martel W.T. 8).

80. Periodic review of the PPG Waste Site conditions are requirements under 25 Pa. Code Chapter 287, Subchapter E. (Halloran W.T. 11-12; Martel W.T. 8-10).

81. The Department can adjust the bond amount with each periodic review. (Halloran W.T. 11-12; Martel W.T. 8-10).

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exceeded by the actual costs. (T. 37). Alternatively, PPG and the Department use the term "conservative" to denote that the selection of the estimated costs was done in an exercise of caution in order to develop financial assurances that would be above the actual cost amounts. For the sake of clarity, the term "conservative" as it appears in this adjudication is given the meaning that PPG and the Department used.

82. The 30-year timeframe provided for in the Bonding Worksheets and used by PPG to calculate the proposed amount of the financial assurances renews every year with each periodic review, thereby moving the 30-year window forward in time. (T. 467).

83. The Bonding Worksheets calculate an inflation rate over the three years preceding the Worksheets' preparation, determined from the United States Commerce Department's Implicit Price Deflator for Gross National Product. (SC Ex. 9 at 2.)

84. In this case, that inflation rate was 6.1%. (Halloran W.T. 8; Martel W.T. 6; T. 503).

85. The Bonding Worksheets also require additional allowances of 5% each for administrative fees, project-management fees, and contingencies respectively. (See SC Ex. 9 at 2–3; Halloran W.T. 8; Martel W.T. 6; T. 502–503).

86. The Bonding Worksheets account for inflation but do not account for a rate of return. (Halloran W.T. 8; Martel W.T. 6).

87. Running the cost estimates prepared by Arcadis and Key Environmental through the Department's Bonding Worksheets resulted in a proposed amount of financial assurance to cover OMM costs of $12,363,864. (See SC Ex. 11 at 2.)

V. Department Review/Approval

88. Denis Strittmatter ("Mr. Strittmatter"), a former environmental engineer with the Department, was the principal reviewer for PPG's OMM financial assurance proposal. (Halloran W.T. 6).

89. On January 14, 2021, Mr. Strittmatter submitted a memorandum to Kevin Halloran ("Mr. Halloran") regarding his initial review of PPG's financial assurance proposal. (SC Ex. 13)

90. In the January 14, 2021 memorandum, Mr. Strittmatter expressed reservations about approving PPG's proposal without additional documentation supporting PPG's OMM cost estimates. (Halloran W.T. 7; SC Ex. 13).

91. The Department requested that PPG submit additional documentation supporting its projected OMM costs for the PPG Waste Site. (See Halloran W.T. 7).

92. On February 11, 2021, Sierra Club submitted comments to the Department regarding concerns related to PPG's financial assurances proposal. (DEP Ex. 12).

93. PPG submitted additional documentation to the Department on February 23, 2021 supporting the estimated costs it provided in the December 2020 financial assurance proposal. (SC Ex. 14; Halloran W.T. 7).

94. Mr. Strittmatter reviewed the additional documentation PPG submitted and advised Mr. Halloran via email on March 31, 2021, that he was satisfied from the additional documentation that PPG's OMM cost estimates were reliable and that PPG's proposed financial assurance was sufficient to maintain the Site-Wide Remedy in perpetuity. (See Halloran W.T. 7; Martel W.T. 4; SC Ex. 16).

95. Mr. Strittmatter retired in late 2021 and Robert Martel ("Mr. Martel"), another environmental engineer with the Department, assumed responsibility for reviewing PPG's proposed financial assurances and reviewed Mr. Strittmatter's assessment of the proposal. (Halloran W.T. 6; Martel W.T. 4).

96. The Department conducted its review based on the 30-year proxy for perpetuity recommended in the Bonding Worksheets. (Halloran W.T. 12).

97. On the Department's behalf, Mr. Halloran approved PPG's proposed financial assurances, including PPG's proposed OMM letter of credit in the amount of $12,363,864 on April 7, 2022. (SC Exs. 46, 47; Halloran W.T. 9).

98. On April 27, 2022, PPG provided the Department with three letters of credit including a letter of credit in the amount of $12,363,864 for the OMM costs (the "OMM Letter of Credit"). (SC Ex. 48).

99. Two of the three letters of credit were drafted incorrectly. All three letters of credit provided for "post-construction operation, maintenance and monitoring" when two should have been issued for the capital construction costs of the SLA and SWDA remedies. (T. 377-78; SC Ex. 48).

100. Mr. Halloran did not notice the drafting errors when he received the letters of credit. (T. 378).

101. Sierra Club and the Department's bonding staff in Harrisburg informed Mr. Halloran's staff about the errors in the letters of credit. (T. 378).

102. Corrected letters of credit were issued and sent to the Department on April 17, 2023. (T. 378-379; PPG Exs. 15, 16 and 17)[2].

103. The financial assurances approved by the Department did not include a standby trust. (T. 371; SC Ex. 47).

[2] In this adjudication, we refer to both the initial letter of credit for OMM costs approved by the Department and submitted by PPG on April 27, 2022 and the corrected letter of credit for OMM costs sent to the Department by PPG on April 17, 2023 as the OMM Letter of Credit. The amount of the initial letter of credit and the corrected letter of credit is an identical $12,363,864 and there was no testimony showing that any substantive dispute arose for the substitution of the corrected letter of credit for the initial letter of credit. Since the focus of the appeal and our decision is on the amount of the letter of credit, we believe that referring to these as the OMM Letter of Credit will create less confusion in the reader. We recognize that at the time of the hearing, the operative OMM Letter of Credit was the one sent by PPG in April 2023 and found at PPG Ex. 17.

104. Absent a standby trust, the funds from the letter of credit would be deposited in the solid waste abatement fund. (T. 383).

105. In November 2022, a standby trust was executed by PPG and PNC Bank. (T. 371, 531; PPG Ex. 14).

106. It took approximately 16-months from the time the Department received PPG's initial financial assurance proposal to the time it approved the proposal. (Halloran W.T. 16; Martel W.T. 12).

VI. Terms of the OMM Letter of Credit

107. By its terms, the OMM Letter of Credit creates an irrevocable standby letter of credit in an amount up to $12,363,864 in favor of the Department in connection with PPG's commitment to conduct post-construction operation, maintenance and monitoring pursuant to the terms of the 2019 COA as amended by the First Amendment. (PPG Ex. 17).

108. The OMM Letter of Credit is valid until April 18, 2024, and will be automatically extended for additional one year terms unless the issuing company gives written notice ninety (90) days before the expiration date that it intends to terminate the letter of credit at the end of the current term (PPG Ex. 17).

109. If the issuing company elects to terminate and PPG fails to replace the OMM Letter of Credit with other financial guarantees acceptable to the Department, the Department can draw on the OMM Letter of Credit thirty (30) days after the termination notice is issued. (PPG Ex. 17).

110. The Department can draw on the OMM Letter of Credit by requesting a draft and sending a statement certifying that the Department is entitled to the amount of the draw. (PPG Ex. 17; T. 151).

111. Upon default by PPG, the funds from the letter(s) of credit are to be deposited into a standby trust. (SC Ex. 10; PPG Exs. 15, 16, 17; T. 152-53).

112. By virtue of being deposited in the standby trust, the funds are reserved for the purpose of sustaining the PPG Waste Site remedy. (T. 153).

113. The standby trust ensures the funds from the letter(s) of credit cannot be spent on other projects. (T. 153).

114. If, after default, funds from the letter of credit were not directed to a standby trust but were directed elsewhere and spent on other projects, that reduces the monies available from the financial assurances to support the PPG Waste Site remedy over its required lifespan. (T. 153, 688).

115. Once the funds have been deposited in the standby trust, they will be invested by the trustee. (T. 153-54).

116. Over time, that investment growth will generate additional monies to support the Department's operation of the remedy over its required lifespan. (T. 153-54).

117. Prior to the funds being deposited into the standby trust—i.e., prior to default—no interest or investment growth occurs. (T. 154, 689).

VII. Expert Assessment

118. PPG presented testimony from Raymond L. Bummer, Jr. ("Mr. Bummer"), CPA, ABV, CFF, CFA, CFE, a financial analyst and the managing director of Gleason & Associates, a financial forensics company. (T. 605, 610).

119. Mr. Bummer holds a Bachelor of Science Degree with a dual concentration in finance and accounting from the Wharton School of Business at the University of Pennsylvania. (T. 604-605).

120. Mr. Bummer is licensed as a Certified Public Accountant and holds multiple professional certifications, designations, and accreditations, including Chartered Financial Analyst, Certified Fraud Examiner, Accreditation in Business Valuation, and Certification in Financial Forensics. (T. 610).

121. Mr. Bummer was qualified and admitted as an expert in this matter in the fields of financial and economic analysis. (T. 611).

122. Sierra Club presented testimony from Mark Buckley, Ph.D ("Dr. Buckley"). (T. 136).

123. Dr. Buckley received a bachelor's degree in economics from Davidson College. (T. 139; SC Ex. 72A). His Ph.D. work at the University of California, Santa Cruz focused on economics and environmental science and how to use science more effectively with economic tools. (T. 140; SC Ex. 72A). Dr. Buckley also did post-doctoral work at the University of Montana focusing on the economics of landscape scale restoration. (T. 140).

124. Dr. Buckley is an environmental economist. (T. 137). He leads the natural resources practice at ECONorthwest, a large economics consulting firm. (*Id*.). His work focuses on the economic analysis of natural resource management decisions, including benefit/cost analysis, financial analysis, and economic impact analysis. (T. 137; See also generally SC Ex. 72A).

125. Dr. Buckley performs much of this work on behalf of federal and state agencies, including the United States Environmental Protection Agency. (T. 137-38). He has served as an expert witness for the United States Department of Justice and Environmental Protection Agency on Clean Water Act matters. (T. at 139).

126. Dr. Buckley was qualified and admitted in this matter as an expert with regard to the economic aspects of environmental remediations. (T. 141-42).

127. Both Dr. Buckley and Mr. Bummer used a present value calculation to produce their respective estimates as to how much money would be needed for the OMM Letter of Credit to fund OMM costs of the Site-Wide-Remedy in perpetuity. (T. 156, 620).

128. The industry-standard formula for calculating net present value is the future value multiplied by one divided by one plus the discount rate, raised to the power of the number of years. (T. 613-14).

129. The present value analysis requires identifying the costs required to implement and sustain the remedy and the frequency with which those costs would in general be called upon. (T. 154).

130. Dr. Buckley used three key inputs in his present value analysis: (1) the average annual cost; (2) a real discount rate and; (3) a timeframe. (T. 156).

131. In calculating his annual average cost, Dr Buckley included the costs of the annual operation, maintenance, and monitoring, and the capital replacement costs for both the SLA and SWDA remedies. (T. 157).

132. Dr. Buckley used the replacement costs provided by Ranajit Sahu, Ph.D ("Dr. Sahu") to generate, in part, the average annual cost input. (T. 155, 158).

133. Sierra Club presented testimony from Dr. Sahu who the Board admitted as an expert in environmental engineering. (T. 32-33).

134. Dr. Sahu evaluated the cost estimates contained in PPG's financial assurance proposal. (T. 34, 44).

135. Dr. Sahu presented different cost categories of both the SLA and SWDA in a series of six tables. (T. 72, SC Ex. 88).

136. Table 2 depicted Dr. Sahu's projections of annual equipment replacement costs of the SLA and Table 3 showed his projections of annual equipment replacement costs of the SWDA. (T. 73, SC Ex. 88).

137. Dr. Buckley calculated an initial sum of $711,053 for the average annual costs. (T. 158).

138. Some costs that Dr. Buckley used to calculate the average annual cost were in 2020 and 2021 dollars. Dr. Buckley adjusted those costs to 2022 dollars and calculated an adjusted average annual cost of $934,606. (T. 158).

139. Dr. Buckley used a producer price index for nonresidential construction to adjust the costs from 2020 and 2021 dollars to 2022 dollars. (T. 159).

140. After adjusting for inflation, the annual average annual cost input that Dr. Buckley used in his present value calculations was $934,606. (T. 158, 185).

141. In selecting a real discount rate, Dr. Buckley assumed a 3.5% inflation rate and a 5.5% return on investment to determine a real discount rate of 2%. (T. 161).

142. Assuming a real discount rate of 2%, Dr. Buckley predicted that on average the standby trust would grow the assets 2% annually above and beyond the impact of inflation. (T. 162).

143. Dr. Buckley selected 300-years as his timeframe input. (T. 164).

144. Dr. Buckley has seen a 300-year timeframe used in reputable applications and has also used that timeframe in work he has done for federal agencies on natural resource damage assessment to develop economic methods tailored for tribal context. (T. 165-66).

145. Using the three key inputs – average annual cost ($934,606), real discount rate (2%), and timeframe (300 years) – Dr. Buckley calculated a present value total of $47.5 million. (T. 171).

146. Dr. Buckley additionally accounted for the cost of a revision of the remedy in the amount of $10 million. (T. 174).

147. Adding the present value amount ($47.5 million) to the cost of a revision of the remedy ($10 million), Dr. Buckley determined that the amount the letter of credit required in order to provide financial assurance for the OMM costs in perpetuity was $57.5 million. (T. 174).

148. Mr. Bummer followed a five-step process for calculating the net present value of estimated OMM costs in order to determine the adequacy of the amount of the OMM Letter of Credit approved by the Department. (T. 625-26).

149. At step one, Mr. Bummer compiled the expected cash outflows for OMM costs for the PPG Waste Site for a 30-year timeframe using the cost estimates provided by Key Environmental and Arcadis contained in the December 2020 financial assurance proposal. (T. 627-32).

150. Dr. Bummer also spoke with two individuals from the engineering and consulting firms to establish a level of comfort with the cost information and to know how to use it appropriately across time. (T. 632, 650-51).

151. Mr. Bummer prepared a spreadsheet breaking down PPG's estimated costs for each of the categories identified by the engineering estimates and submitted in the bonding worksheets, per year, across a 30-year proxy period. (PPG Ex. 22).

152. In addition, Mr. Bummer also prepared a price index for supporting the review and understanding of this data by the engineering category codes. (PPG. Ex. 23).

153. Mr. Bummer calculated that the highest OMM annual cost over a 30-year timeframe was $585,422 and the lowest was $289,117. Mr. Bummer calculated the total OMM costs for a 30-year period as $9,969,631. (PPG Ex. 22; T. 629-32).

154. At step two, Mr. Bummer incorporated an estimated inflation rate of 3.5% to the estimated future OMM costs. (T. 633-35).

155. Mr. Bummer reviewed the range of inflation over the proceeding six years, documents submitted by Sierra Club, and Commonwealth policy guidance suggesting a baseline inflation rate of 3.1% in determining an appropriate inflation rate. (T. 634-35).

156. After applying the 3.5% inflation rate to $9,969,631, the estimated total OMM costs over a 30-year period, Mr. Bummer determined the total adjusted annual OMM costs over 30 years to be $16,358,413. (T. 636-37; PPG Ex. 24).

157. At step three, Mr. Bummer applied a rate of return to the total adjusted annual OMM costs calculated at step two, to discount the inflated future dollars back to their present value. (T. 637-38).

158. Mr. Bummer selected a 6.51% rate of return which he took from Moody's highest-rated AAA corporate bonds. (T. 620-22).

159. Mr. Bummer applied the present-value discount factor to the adjusted annual OMM costs of $16,358,413 which resulted in net-present-value OMM costs of $6,890,188. (T. 638; PPG Ex. 24).

160. At step four, Mr. Bummer checked the reasonableness of his net-present-value calculation by running his numbers through a hypothetical standby trust. (PPG Ex. 25; T. 641-42).

161. The results of Mr. Bummer's hypothetical standby trust exercise indicated that the investment growth of the funds in the standby trust would outpace inflation-adjusted costs over time. (PPG Ex. 34; T. 624-44).

162. At step five, Mr. Bummer incorporated the 5% administrative fee, the 5% project management fee, and the 5% contingency fee called for in the bonding worksheets, in the hypothetical standby trust. (PPG Exs. 26, 37; T. 645-46, 648).

163. Mr. Bummer accounted for these additional fees called for in the bonding worksheets by spreading them evenly across Years 1 through 10 when their net present value is the highest. (T. 647-50).

164. After incorporating these additional fees, Mr. Bummer determined a net present value of $8,025,857. (T. 650).

165. Mr. Bummer used a 30-year timeframe for calculating the net present value of adequate OMM financial assurance because 30 years is an industry-standard proxy for estimating costs in perpetuity. (T. 639-40).

DISCUSSION

Legal Standard

As a third-party appealing the Department's approval of PPG's financial assurances, Sierra Club bears the burden of proof for its claims. 25 Pa. Code § 1021.122(c)(2); *Joshi v. DEP*, 2019 EHB 356, 364; *Jake v. DEP*, 2014 EHB 38, 47. In order to prevail on its claims, Sierra Club must show by a preponderance of the evidence that the Department acted unreasonably or in violation of applicable statutes, regulations, and case law, or contrary to its duties and responsibilities under Article I, Section 27 of the Pennsylvania Constitution. *Stocker v. DEP*, 2022 EHB 351, 363 (citing *Ctr. for Coalfield Justice v. DEP*, 2017 EHB 799, 822). The Board defines "preponderance of the

evidence" to mean that "the evidence in favor of the proposition must be greater than that opposed to it." *Telegraphis v. DEP,* 2021 EHB 279, 288*; Clancy v. DEP*, 2013 EHB 554, 572. Hence, Sierra Club's evidence challenging the Department's approval of PPG's financial assurances must be greater than the evidence supporting the Department's determination that the financial assurances it approved were reasonable, appropriate, and in accordance with applicable law. *Stocker v. DEP*, 2022 EHB at 364.; *Morrison v. DEP*, 2021 EHB 211, 218; *Del. Riverkeeper Network v. DEP*, 2018 EHB 447, 473. The Board's review is *de novo* and we can admit/consider evidence that was not before the Department when it made its initial decision, including evidence developed since the filing of the appeal. *Borough of Kutztown v. DEP*, 2016 EHB 80, 91 n.2; *Stedge v. DEP*, 2015 EHB 577, 593; *Dirian v. DEP*, 2013 EHB 224, 232; *Smedley v. DEP*, 2001 EHB 131, 156.

"A third-party appellant who wishes to succeed may not simply come forward with a laundry list of potential problems and then rest its case. *Benner Twp. Water Auth. v. DEP*, 2019 42 EHB 594, 633. As we have held before, an appellant may not simply raise an issue and then speculate that all types of calamities may occur. *Del. Riverkeeper Network*, 2018 EHB at 473; *United* Ref. Co., 2016 EHB at 449; *Ritter v. DEP*, 2017 EHB 729, 741; *Shuey v. DEP*, 2005 EHB 657 at 711. Instead, an appellant must prove by a preponderance of the evidence that the problems the appellant alleges are likely to occur. *Benner Twp*., 2019 EHB at 633. When a party raises technical issues, it must come forward with technical evidence to support its challenge, which many times will require competent and appropriate expert witness testimony. *Liddick v. DEP*, 2018 EHB 207, 216; *Prizm Asset Mgmt. Co. v. DEP*, 2005 EHB 819, 844.

Introduction

The issues in this case narrowed as the matter progressed in front of the Board. In its post-hearing brief, Sierra Club argues four distinct issues where it asserts the Department's actions failed to meet its obligations.[3] First, Sierra Club asserts that the Department violated its obligations under the First Amendment, the Clean Streams Law ("CSL") and the Environmental Rights Amendment ("ERA") by failing to obtain adequate financial assurance from PPG. The focus of the majority of the testimony at the hearing, and the main issue in this case is whether the amount of the financial assurance document that the Department approved to cover the OMM costs of the SLA and SWDA remedies is adequate to fund those activities in perpetuity. The second issue raised by Sierra Club is that the Department acted unreasonably and unlawfully by approving financial assurances without the standby trust required by the First Amendment. Third, Sierra Club argues that the Department violated its obligations under the CSL and the ERA by failing to ensure that letters of credit were available to construct the SLA and SWDA remedies. The final issue set forth in Sierra Club's post-hearing brief is that the Department violated its obligations under the ERA because it failed to render a timely decision on PPG's financial assurance proposal. PPG and the Department, of course, argue that the Department's actions were reasonable, lawful and met the obligations set forth under the First Amendment, the CSL and the ERA, and/or that these issues are otherwise moot at this point in the proceeding.

[3] Sierra Club also raised an issue that the Department failed to adequately consider PPG's compliance history at the PPG Waste Site when evaluating the financial assurance proposal as required under Subchapter E. Mr. Halloran testified that he did consider PPG's compliance history and acknowledged that PPG could have been more proactive in addressing conditions at the PPG Waste Site early on in the process. (Halloran, W.T. 12; T. 343). However, he testified that PPG had been very proactive in working with the Department since the 2019 COA was executed. He determined that PPG's compliance history did not warrant changing the amount of the financial assurances and was satisfied that PPG was going to perform that required remedy. (T. 342-343). The Department did consider compliance history and the evidence supports the Department's conclusions regarding PPG's compliance history in the context of determining the proper financial assurances.

All four of the issues raised by Sierra Club either arise from or involve PPG's proposed financial assurances that were ultimately approved by the Department pursuant to the First Amendment, specifically, Paragraph 13 of the First Amendment. To understand this case, it is helpful to know the context of how the First Amendment and Paragraph 13 came into existence.

First Amendment and Federal Consent Order

Paragraph 13 reads as follows:

> Within thirty (30) days of the execution of this First Amendment, PPG shall submit documentation for the provision of financial assurances to the Department in an amount sufficient to secure the implementation and post-closure care, including without limitation long-term monitoring, operation and maintenance and replacement costs necessary to effectuate and maintain the remedy required by the 2019 Consent Order and Agreement and this First Amendment, or a revision of the remedy should the original fail, in perpetuity. Said financial assurances shall consist of an irrevocable letter(s) of credit and a standby trust in favor of the Department that conforms to the requirements of 25 PA Code section 287, Subchapter E and/or letter of credit and standby trust provisions established by 40 CFR 264.143(d) and 264.145(d).

The First Amendment is more completely identified as the First Amendment to the 2019 COA. The 2019 COA was executed between PPG and the Department on April 2, 2019 and essentially sets forth PPG's remedial obligations at the PPG Waste Site and made those obligations enforceable by the Department. (DEP Ex. 4). It includes a recital of PPG's past actions and compliance issues at the PPG Waste Site and included a civil penalty of $1.2 million dollars for past violations of the CSL and stipulated penalties for future violations. The 2019 COA language did not require PPG to provide any form of financial assurance either to ensure it would complete the remedial work the 2019 COA required, or that PPG would continue to properly operate, maintain and monitor the remediation in the future.

Concurrent with the negotiations leading to the 2019 COA, Sierra Club and PPG were engaged in federal litigation regarding the environmental conditions at the PPG Waste Site.

Settlement negotiations in the Federal Litigation led to Sierra Club and PPG drafting the language that became the First Amendment. That language was presented to the Department for its consideration and, after review, the First Amendment was executed by PPG and the Department on November 4, 2020. Although it actively negotiated and drafted the language of the First Amendment, Sierra Club is not a party to the First Amendment or the 2019 COA.

Sierra Club and PPG executed a Federal Consent Order in the Federal Litigation that required PPG to put in place the financial assurances required by Paragraph 13 of the First Amendment. The Federal Consent Order gives Sierra Club the right to receive the initial financial assurance documentation along with future information about the financial assurance documents. Sierra Club also has the right to challenge certain potential changes and decisions regarding the financial assurances going forward. (DEP Ex. 6, ¶ 22). Paragraph 22 of the Federal Consent Order makes clear that the financial assurance documents are subject to a review process to ensure that the ongoing PPG Waste Site costs are considered on an annual basis concurrent with the renewal, replacement, or substitution of the financial instrument which, in this case, is the letter of credit. Taken together, the 2019 COA, the First Amendment and the Federal Consent Order created a process in which Sierra Club, PPG and the Department all played a role in putting in place the initial financial assurance documents that are the basis of the appeal in this case. Having summarized the historical legal context that led to the current matter, we start by addressing the three less prominent issued raised by Sierra Club before moving onto the major issue of this case.

Standby Trust

We begin with Sierra Club's concern regarding the Department's initial approval of PPG's financial assurance proposal without requiring PPG to establish a standby trust. The First Amendment executed between the Department and PPG specifically provides that the financial

assurances shall consist of letter(s) of credit and a standby trust in favor of the Department that conforms to the requirements of 25 PA Code Section 287, Subchapter E and/or letter of credit and standby trust provisions established by 40 CFR 264.143(d) and 264.145(d). (SC Ex. 10, ¶ 13). The purpose of the standby trust is to ensure that if the Department were required to call on a letter of credit, the funds would be placed in a trust that can only be used to address the PPG Waste Site remediation. Mr. Halloran testified that absent the standby trust, the funds from the letter of credit "would end up in the solid waste abatement fund, which is used for other things." (T. 383). The Department approved PPG's financial assurance proposal on April 7, 2022 without requiring a standby trust because it concluded that doing so was contrary to the requirements of 25 PA Code Section 287, Subchapter E and would in fact delay access to the funds in the letter of credit. (DEP Ex.13; T. 382-83). The Department eventually agreed to the establishment of a standby trust and it was executed by PPG and PNC Bank in November 2022. (T. 383; PPG Ex. 14).

We hold that the plain language of the First Amendment required the Department to have a standby trust in place as part of the financial assurance process. The clear intent of the drafters of the First Amendment was that a trust, separate and distinct from the solid waste abatement fund, is where funds from the letters of credit should be held if PPG were to default in the future. If the Department concluded that such an arrangement was contrary to the requirements of 25 PA Code Section 287, Subchapter E, the time to raise that issue was during the negotiations of the language of Paragraph 13 and not after it had executed the document. However, the Department's initial failure to establish a standby trust at the time the Department approved PPG's financial assurance proposal is now moot. A standby trust that is apparently satisfactory to all parties, was established in November 2022 and remained in place at the time of the hearing. No further relief can be granted at this point. See *Consol Pa. Coal Co. v. DEP* 2015 EHB 117, 119, citing *Horsehead Res.*

Dev. Co. v. DEP, 1998 EHB 1101, 1103, aff'd, 780 A.2d 856 (Pa. Cmwlth. 2001), (stating that "[a] matter before the Board becomes moot when an event occurs which deprives the Board of the ability to provide effective relief or when the appellant has been deprived of a stake in the outcome.").

Letter of Credit Errors

The next item Sierra Club raises is that the Department violated its obligations under the CSL and the ERA by failing to ensure that letters of credit were available to construct remedies for the SLA or the SWDA. This challenge arose from an apparent mistake made by PPG when it first obtained the letters of credit. On April 7, 2022, Mr. Halloran sent a letter to PPG confirming the Department's approval of letters of credit as follows: SLA ($22,206,800), SWDA and Annex ($1,946,616), and post-construction OMM ($12,363,864) and also requested that the letters of credit be delivered to him within 30 days. (DEP Ex. 13). On April 27, 2022, PPG submitted three letters of credit to the Department in response to Mr. Halloran's letter. (SC Ex. 48). While it appears the intent was to have two of the letters of credit cover the costs associated with the construction of the SLA and the SWDA remedies, each the letters of credit stated that it was issued "in connection with PPG's commitment to conduct post-construction operation, maintenance and monitoring […]" (T. 376-78; SC Ex. 48). The record does not make clear when and how the Department and PPG first became aware of this mistake in the letters of credit.[4] Mr. Halloran acknowledged that he did not notice the error when he received the letters of credit from PPG in late April 2022. (T. 378). According to Mr. Halloran, the Department's bonding staff in Harrisburg communicated to his staff that language in the letters of credit needed correcting and

[4] Sierra Club asserts in its Post-Hearing Brief that it pointed out the mistake to the Department in July 2022, but that date is not supported by the reference to the transcript cited in the brief. (SC's Post-Hearing Brief, FoF # 196).

that Sierra Club also pointed out the errors, although he could not recall whether that took place before, concurrent with, or after the bonding staff contacted his staff. (*Id*.). Corrected letters of credit were issued and sent to the Department on April 17, 2023. (PPG Exs. 15, 16, 17).

Sierra Club argues that the Department's failure to catch the mistake in the first instance and its failure to promptly correct the mistake once it was identified, constitute a violation of the Department's obligations under the CSL and the ERA. Sierra Club notes that the construction of the SLA and SWDA remedies lacked the required financial assurances until the letters of credit were amended in April 2023. Clearly, this mistake should not have occurred, and a more thorough review should have been conducted when the letters of credit were initially submitted. We do not know when the mistake was identified by the Department relative to when it was corrected so it is difficult to evaluate whether the one-year time frame, starting at the time of submittal and ending at the time the mistake was corrected, represents either a delay in identifying the error or a delay in correcting the error. Regardless, at the time of the hearing, the errors in the two letters of credit had been corrected for several months and no party identified any issues that arose in the implementation of the SLA and SWDA remedies as a result of the error. Therefore, we hold that this issue is moot and further, that the Department's mistake does not rise to a violation of the CSL or the ERA. Again, no further relief can be granted at this point.

Timeliness of Department's Approval

The last issue we address before turning to the main question in this case is Sierra Club's assertion that the amount of time that the Department took to reach its decision on PPG's financial assurance proposal violated the Department's obligations under the ERA. The First Amendment required PPG to submit financial assurance documents to the Department within 30 days of execution. (SC Ex. 10). PPG met the 30-day requirement and submitted its initial documentation

for provision of financial assurances on December 2, 2020. (SC Ex. 11). The Department did not grant final approval of the financial assurance documents until the April 7, 2022 approval letter from Mr. Halloran. (DEP Ex. 13). The Sierra Club argues that the 16 months the Department took to approve the financial assurance documents was unreasonable and unnecessary and did not comport with the Department's obligations under the ERA. The Department argues that it needed the time it took to conduct a thorough review and that several issues existed in PPG's initial proposal that required further responses from PPG before the Department could make a final decision.

Similar to the discussion regarding the error in the letters of credit, Sierra Club's main concern seems to be that the Department's delay left the remedial work at the PPG Waste Site without adequate financial assurance for a period of time. The First Amendment contained timeline requirements both for PPG to submit the financial assurance documents (30 days from execution) and for PPG to submit the letters of credit (30 days from the Department's approval of PPG's documentation), but it did not set forth a timeframe for the Department to approve the proposal. (SC Ex. 10). While not a party to the First Amendment, the testimony at the hearing clearly showed that Sierra Club was directly involved in drafting the language of Paragraph 13 and in the negotiations over its terms that preceded the execution by the Department and PPG. If Sierra Club had concerns about the length of time between submittal and approval, it could have sought to have a timeframe inserted as a requirement in the agreement, but no testimony was presented showing that it attempted to do so. In addition, there was no evidence presented at the hearing that any issues arose in the implementation of the SLA and SWDA remedies during the 16 months it took the Department to approve the letters of credit. We find, again, that this issue is moot, as the eventual approval took place long before the hearing on the merits was held, and there was no

evidence introduced at the hearing showing that the Department's alleged delay created any issues with the construction of the SLA or SWDA remedies. As a trustee under the ERA, it may have been better if the Department had acted more promptly to obtain the financial assurances, but it is equally important that the review of those documents be done in a thorough and professional manner. We do not find that the Department's actions arise to the level of a violation of the ERA. We further note that once again, given that the Department's approval was made well prior to the hearing, there is no further relief that can be granted at this point.

OMM Letter of Credit

The main issue in this case is whether the monetary amount the Department approved for the OMM Letter of Credit satisfies the terms of the First Amendment and the Department's obligations under the CSL and the ERA.[5] Sierra Club asserts that the OMM Letter of Credit does not meet the requirements either of Paragraph 13 or the Department's legal obligations because the dollar amount, $12,363,864, is inadequate to ensure that the Commonwealth will have sufficient funds to continue the required OMM for the PPG Waste Site in perpetuity. Sierra Club contends that the amount of the OMM Letter of Credit is inadequate because it fails "(1) to provide monies for replacement of certain remedy components; (2) to provide monies for revision of the remedy; and (3) to provide the monies to secure the site remedy in perpetuity." (SC Post-Hearing Brief, at 21, FoF #93). Sierra Club's expert, Dr. Buckley, determined that $57.5 million is needed to sufficiently fund the OMM expenses in perpetuity. If PPG defaults, Sierra Club is concerned that the Department's failure to require a letter of credit in an adequate amount will result in either

[5] When Sierra Club initially filed its Notice of Appeal, it challenged the adequacy of all three letters of credit. Prior to the hearing, the challenges to the letters of credit for the construction of the SLA remedy and the SWDA and SWDA Annex remedy were resolved by the parties and those challenges were withdrawn from the case.

(1) the Commonwealth taxpayers being required to provide additional money to operate and maintain the necessary remedy or (2) the remedy will fail, thereby resulting in the resumption of pollution at the PPG Waste Site. According to Sierra Club, because neither of these results comport with the Department's obligations under the CSL and the ERA, the Department's decision to approve the amount of the OMM Letter of Credit was unreasonable, unlawful and not in accordance with the Department's statutory or constitutional duties.

Alternatively, PPG and the Department argue that the amount of the OMM Letter of Credit is more than adequate to address the OMM expenses at the PPG Waste Site in perpetuity. PPG's financial expert, Mr. Bummer, testified that the proper amount of the initial OMM letter of credit should in fact be $6,890,188, and that the actual amount the Department approved ($12,363,864) is conservative and more than enough to cover the OMM expenses in perpetuity. In defending the amount of the OMM Letter of Credit, the Department and PPG argue that the process used to calculate $12,363,864, comports with the requirements set forth in Paragraph 13 of the First Amendment. In addition, both PPG and the Department repeatedly point out that the amount of the OMM Letter of Credit is not static and, per the Subchapter E regulations and Paragraph 22 of the Federal Consent Order, can be adjusted following the annual review of conditions and expenses at the PPG Waste Site. Based on our review of the evidence in this case, we hold that the Sierra Club has not shown by a preponderance of the evidence that the Department's decision to approve an initial letter of credit in the amount of $12,363,864 to fund the OMM costs at the PPG Waste Site in perpetuity was unreasonable, contrary to the law, unsupported by the facts or inconsistent with the Department's obligations under the Pennsylvania Constitution.

In order to understand the parties' arguments surrounding the issues this case presents, it is helpful to be acquainted with the basics of the OMM Letter of Credit. As such, we begin by

looking at the terms of the OMM Letter of Credit and how it functions as financial assurance for the PPG Waste Site. There was general agreement about this among the parties. PPG presented the OMM Letter of Credit into evidence at the hearing as PPG Exhibit 17. By its terms, the OMM Letter of Credit creates an irrevocable standby letter of credit in an amount up to $12,363,864 in favor of the Department in connection with PPG's commitment to conduct post-construction operation, maintenance and monitoring pursuant to the terms of the 2019 COA as amended by the First Amendment. The Department can draw on the OMM Letter of Credit by requesting a draft and sending a statement certifying that the Department is entitled to the amount of the draw. The OMM Letter of Credit explicitly provides that the proceeds of the draft shall be placed directly into a standby trust identified in the OMM Letter of Credit.

The current OMM Letter of Credit is valid until April 18, 2024, and will be automatically extended for additional one year terms unless the issuing company gives written notice ninety (90) days before the expiration date that it intends to terminate the letter of credit at the end of the current term. If the issuing company elects to terminate and PPG fails to replace the OMM Letter of Credit with other financial guarantees acceptable to the Department, the Department can draw on the OMM Letter of Credit thirty (30) days after the termination notice is issued. Our understanding of the process is that if the Department is required to draw on the OMM Letter of Credit prior to April 18, 2024 for whatever reason (i.e. financial concerns regarding PPG, PPG's unwillingness to maintain the remedies, etc.), the maximum amount it would have available to create the standby trust would be the full value of the OMM Letter of Credit, which is currently $12,363,864. Future OMM letters of credit could potentially be for greater or lesser amounts but the amount of money that would go into the standby trust as the "seed money" is set at the time of the draw by the Department. The balance of the standby trust at any given time will be the amount

of the seed money received from the then existing OMM letter of credit plus any investment returns on the money in the trust, minus any funds expended to conduct the OMM at the site. Having outlined the terms and the operating provisions of the OMM Letter of Credit, we turn our attention to the bonding worksheets that the Department used to establish the dollar amount of the OMM Letter of Credit.

A. Bonding Worksheets

The Department requested that PPG calculate the dollar amount using the Department's bonding worksheets developed by the Department's waste management program. PPG submitted its initial financial assurance proposal to the Department in early December 2020 ("December 2020 Proposal"). (SC Ex. 11). The December 2020 Proposal included spreadsheets detailing engineering cost estimates for both the construction of the remedies at the PPG Waste Site and the OMM costs associated with the remedies. These cost estimates were inserted into the Department's bonding worksheets to calculate the required dollar amounts for three letters of credit including the letter of credit for OMM costs. In addition to the engineering cost estimates, the bonding worksheets provide for the inclusion of an inflation factor, fees for administration and project management, and a contingency fund. As part of the December 2020 Proposal, PPG submitted its summary cost worksheet for OMM, which totaled the OMM costs at $12,363,864 for a 30-year period. (SC Ex. 11, Bates No. DEP_EHB 000392). This amount never changed in the subsequent months of Department review and became the exact amount of the OMM Letter of Credit that the Department ultimately approved in April 2022.

Sierra Club argues that the Department's insistence on using the bonding worksheets in determining the amount of the OMM Letter of Credit introduced a fundamental error in the calculation that resulted in the approval of an inadequate amount of financial assurance. The error,

as Sierra Club sees it, is that the bonding worksheets use a 30-year timeframe for calculating OMM expenses and, therefore, relying on the bonding worksheets to calculate the correct amount of financial assurance does not comply with the Paragraph 13 requirement that the funds be sufficient to fund the OMM in perpetuity. PPG and the Department acknowledge that 30 years is not perpetuity but point out that Paragraph 13 also requires that the letter of credit conform to the requirements of 25 PA Code § 287, Subchapter E ("Subchapter E"). The Subchapter E regulations provide a process for calculating a financial assurance amount in a section that is entitled "Bond Amount." 25 PA Code § 287.331.[6] Section 287.331(b)(4) provides that the written cost estimate for developing the amount of the bond "shall be submitted to the Department on a form developed by the Department." 25 PA Code § 287.331(b)(4). The form developed by the Department pursuant to this regulation is the bonding worksheet(s), which is the form it required PPG to submit for its proposal. Therefore, the Department argues, its use of the bonding worksheet is entirely consistent with the language of the First Amendment that requires PPG's letter of credit to conform to the requirements of Subchapter E. We find that the Department's use of the bonding worksheets was lawful, reasonable and in compliance with its obligations under the First Amendment. However, we still need to evaluate whether the amount approved by the Department using the bonding worksheets satisfies the Department's broader obligations, specifically, ensuring the financial assurance amount provided for in the OMM Letter of Credit is sufficient to cover the OMM expenses at the PPG Waste Site in perpetuity.

B. Present Value Inputs

[6] Department staff and witnesses repeatedly referred to the financial assurance documents in this case as bonds but acknowledged that the actual documents were letters of credit which are different financial instruments than a bond. The use of the term "bond" by Department personnel appears to reflect the Department's familiarity and use of the language of Subchapter E.

In evaluating the question of what amount of financial assurance is needed in order to sustain the OMM of the SLA and SWDA remedies in perpetuity, the parties offer three very different answers for our consideration. First, the Department stands by the approved amount of $12,363,864, that was generated from its bonding worksheets. The second amount, calculated by Dr. Buckley and which Sierra Club advocates for, is $57,500,000. Finally, PPG presents a third amount of $6,890,188 that was put forward by its expert, Dr. Bummer. Both Sierra Club's and PPG's experts arrived at their respective OMM estimates by using a present value ("PV") calculation. This differs from the method the Department used, i.e., the bonding worksheets. The methodology that the experts used for their PV calculations was generally the same and relied on basic financial formulas well recognized in their profession. Present value is "the value, as of a specified date, of future cash inflows less all cash outflows … calculated using an appropriate discount rate." (See PPG Ex. Demo 1). Mr. Bummer testified that the formula used for calculating present value is the future value multiplied by one divided by one plus the discount rate, raised to the power of the number of years. (T. 614). Dr. Buckley explained that in his present value analysis, he used three key inputs: 1) the average annual cost of OMM expenses; 2) the interest rate that is the real discount rate (also known as the real rate of return); and 3) a timeframe to allocate the costs over. (T. 156). Sierra Club's and PPG's differing numbers are largely a result of their experts selecting different input values in the PV equation.

Beyond the different input values the experts used, there is another factor that contributes to the vastly different numbers they present. The parties have a fundamental disagreement about how the Board should consider the requirement that the Department and PPG conduct an annual evaluation of the conditions at the PPG Waste Site and, if necessary, adjust the amount of future OMM letters of credit. Sierra Club is skeptical that the adjustments will take place and/or that

PPG will be in the position to provide the additional funds that may be required. Therefore, Sierra Club believes that rather than relying on the ability to adjust the value of the future OMM letters of credit, the Department should have ensured sufficient funds right from the start by requiring a higher amount in the OMM Letter of Credit, including the full cost of revising the entire remedy at some future date. The Department and PPG argue that the review and adjustment process is a requirement of Subchapter E, the 2019 COA and First Amendment and the Federal Consent Order and it will ensure that PPG provides the necessary funds in perpetuity. The Department asserts that under the specific requirements set out in the agreements between the parties as well as the requirements in the Subchapter E regulations, it will be able to ensure adequate funding for the OMM expenses in perpetuity.

i. The Cost Input

As mentioned above, both PPG's and Sierra Club's experts used a present value calculation to estimate the proper value of the letter of credit necessary to ensure that the OMM costs of the PPG Waste Site are funded in perpetuity. Although the Department arrived at its amount differently than PPG and Sierra Club, according to the testimony at the hearing, each party's starting point was the cost estimates developed by PPG's engineering and consulting firms included in the December 2020 Proposal. (SC Ex. 11). We start by evaluating how each of the parties used the consulting firms' cost information to determine their respective OMM cost estimates.

The Department's bonding worksheets are somewhat opaque and do not provide enough detail for us to determine exactly how the cost estimates provided in the December 2020 Proposal flow through to the amount of the OMM Letter of Credit. It appears that the cost estimates provided by PPG's engineers and consultants were generally multiplied by 30 years and the

resulting numbers were totaled to arrive at the overall OMM costs. Some costs, such as wetlands monitoring, that are not required to be completed annually for the entire 30-year timeframe provided for in the bonding worksheet, were accounted for by multiplying those costs by a lesser number of years. The costs were summed in accordance with the procedures shown on the bonding worksheets and the projected OMM costs for a 30-year period totaled $10,209,632. (SC Ex. 11, Bates No. DEP_EHB 000392). In addition to these costs, the Department's bonding worksheets require supplemental funds to cover inflation costs, administrative fees, project management fees and contingency costs. These additional costs and fees totaled $2,154,234. (*Id*.). Following the December 2020 Proposal, additional information was requested and exchanged between the Department and PPG before the Department ultimately approved the amounts for the letters of credit. However, as discussed above, the exact dollar amount of the OMM expenses plus the additional fees and costs that appeared in the bonding worksheets in the initial December 2020 Proposal ($12,363,864) was not revised as a result of any additional information provided by PPG and ultimately became the amount of the OMM Letter of Credit.

For his PV calculations, Dr. Buckley relied on cost estimates that were generated by Sierra Club's witness Dr. Sahu. Dr. Sahu was admitted as an expert in the field of environmental engineering and provided testimony on the topic of OMM costs at the PPG Waste Site. Dr. Sahu testified that he reviewed the design documents of the planned remedies for the entire PPG Waste Site, as well as the as-built drawings for the SLA remedy. (T. 34). He also reviewed the cost information generated by PPG's consultants contained in the December 2020 Proposal. (T. 34-35). Based on his review of this information, Dr. Sahu set forth his cost estimates for ongoing OMM at the PPG Waste Site in a series of tables found in SC Ex. 88B.[7] The cost estimates

[7] The tables presented in this exhibit were developed by Sierra Club's prior expert, Dr. Bell, who unfortunately passed away prior to the hearing. Dr. Sahu testified that he had reviewed Dr. Bell's

provided for in the five tables are as follows: Table 2-SLA Major Equipment Replacement Costs ($113,316); Table 3-SWDA Replacement Costs ($68,864); Table 4-SLA Annual O&M Costs (including minor replacement parts) ($290,244); Table 5-SWDA O&M Costs ($30,769) and Table 6-Site-Wide Sampling, Analysis, Reporting, and Permitting ($207,860). Adding together the costs outlined in the five tables, Dr. Sahu concluded that the OMM cost in Year 1[8] would total $711,053. Dr. Buckley used Dr. Sahu's Year 1 cost of $711,053 as the starting point for his present value calculation. (T. 158).

Mr. Bummer also relied on the cost information provided in the December 2020 Proposal. He testified that in addition to reviewing this information, he also spoke with two individuals from the engineering and consulting firms to ensure he felt comfortable with the information and to also understand how to use it appropriately across time. (T. 632). Mr. Bummer presented the cost inputs he relied on in his PV calculation in two charts designated as PPG Exhibits 22 and 23. The cost categories depicted in those exhibits correspond to the costs PPG submitted in the bonding worksheets. Mr. Bummer's estimated OMM cost in Year 1 totaled $552,849. (PPG Ex. 22). Additionally, he plotted the ongoing OMM costs for every year over a 30-year period. The annual costs varied from a high of $585,422 in Year 4 to a low of $289,117, which is the cost in the majority of the years starting with Year 11. According to Mr. Bummer, the entire OMM costs for a 30-year period total $9,969,631.

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information and adopted the opinions of Dr. Bell because he agreed with what Dr. Bell had provided as his opinions. (T. 36-37).

[8] Year 1 is not a specific year such as 2025 but instead is the first year that the Department is required to rely on the letter of credit/standby trust to fund OMM activities at the PPG Waste Site. Neither the Board nor any of the parties can confidently state when year 1 will take place, if at all, since it will only happen when PPG is no longer willing or able to continue the required OMM activities.

The bonding worksheets do not provide us with enough detail to compare the Department's yearly OMM cost amounts to the annual OMM cost amounts used by Dr. Buckley and Mr. Bummer. However, it is apparent when comparing the Department's final OMM cost estimates to PPG's estimates, each used the same cost inputs and generally used them in the same fashion. The total OMM expenses over the 30-year time period set forth in the Department's bonding worksheet totals $10,209,632. Comparing that value with PPG's equivalent number of $9,969,631 calculated by Mr. Bummer, there is just over a 2% difference between the Department's and PPG's total estimated OMM costs for a 30-year timeframe.

Because Dr. Buckley and Mr. Bummer both provided an estimation of the Year 1 costs for OMM and information regarding subsequent annual OMM costs, we can directly compare Sierra Club's cost inputs to PPG's inputs. PPG's Mr. Bummer put the Year 1 OMM costs at $552,849 in comparison to Sierra Club's Dr. Buckley, who put the Year 1 OMM costs at $711,180. The difference between the experts' Year 1 cost projections is mostly attributable to Dr. Buckley's inclusion of "major replacement costs" in his Year 1 total. The major replacement costs were generated by Dr. Sahu and are shown in his Table 2 ($113,316) and Table 3 ($30,769). (SC Ex. 88B). With Dr. Sahu's major replacement costs removed, Dr. Buckley's Year 1 OMM cost input would be reduced to $528,873, which is actually 4.5% less than the Year 1 OMM costs that Mr. Bummer determined.

Sierra Club argues that the replacement costs put forth by Dr. Sahu should be included in the OMM financial assurance because as a practical matter, equipment replacement will be required to ensure perpetual operation of the remedy and, additionally, including the replacement costs is legally required under the language in Paragraph 13 that provides the letter of credit should be "in an amount sufficient to secure the implementation and post-closure care, including without

limitation long-term monitoring, operation and maintenance and **replacement costs**, […]". (emphasis added). We agree with Sierra Club that replacement costs must be accounted for in some measure as part of determining the amount of the financial assurance as both a practical matter as well as a requirement under Paragraph 13. Given the timeframe involved here, perpetuity, it is reasonable to conclude that some equipment will wear out and need to be replaced at some point and that those costs need to be considered in determining the amount of financial assurance that is required.

The issue is whether to include the major replacement costs cited by Sierra Club and, if so, how to account for them. The parties all acknowledge that the cost estimates provided by PPG's consultants, which they all used in their respective calculations, already account for certain equipment replacement costs. (T. 59, 73-74, 485, 549, 665; SC 88B – Table 4). Dr. Sahu testified that based on his experience and understanding of the high pH environment at the PPG Waste Site, there would come a point at which the replacement of larger portions of the remedy would need to be considered. (T. 59-61, 99). To account for equipment replacement in the financial assurance documents, Dr. Sahu divided the capital cost of those items contained in the December 2020 Proposal by a useful life number to arrive at the annual costs that were listed in Table 2 and 3. (T. 107-108). Dr. Sahu's specific testimony regarding the need to replace major equipment, largely focused on the replacement of what has been dubbed "the Deep Trench" and the perforated pipe within the trench. The replacement of these two components alone accounted for about two-thirds of the costs in Table 2. He expressed his concern for the way the Deep Trench had been constructed as it would require replacement of "maybe a segment" and went on to discuss the process of replacing the Deep Trench piping. (T. 61-63). He also briefly discussed the need to maintain operations of the treatment system for the SLA and maintaining the cap of the SWDA.

Replacement of these two items (treatment system and cap) are the other two major components of the replacement costs listed by Dr. Sahu in Tables 2 and 3.

The Department and PPG raised several challenges to Dr. Sahu's testimony regarding the major equipment replacement costs. PPG argued that Dr. Sahu was mistaken about the need to replace major equipment pieces like the Deep Trench and that to the extent equipment would need replaced, it was already accounted for in the cost spreadsheets of the December 2020 Proposal. In support of this position, PPG presented testimony from two professional engineers who were directly involved in the design of the remedies and in putting together the cost estimates. Mr. Flanders designed the SLA remedy that includes the Deep Trench and the wastewater treatment system. (T. 539). He stated that when he designed the SLA remedy, he specifically accounted for the need for replacements and chose materials that would last in the high pH environment. (T. 549). Mr. Flanders testified that Dr. Sahu was incorrect in his understanding of how the Deep Trench functioned and that he also believed, based on his experience with similar systems, that the Deep Trench would not need to be replaced in whole. (T. 551, 578). PPG's other witness, Mr. Hubbard, is a senior project manager and risk assessor for Key Environmental. He is responsible for the operation and maintenance of both the SLA and the SWDA remedies. (T. 590). Mr. Hubbard assisted in putting together the cost estimates and signed off on the costs for the construction of the SWDA remedy and the OMM costs for the entire PPG Waste Site included in the December 2020 Proposal. While Mr. Hubbard did not directly testify on the replacement of portions of the SWDA remedy, he did testify that the capital costs of the SWDA remedy were put together by very conservative civil engineering staff at his company. (T. 593).

After reviewing the testimony, we conclude that Sierra Club did not provide sufficient evidence to support the inclusion of the specific replacement costs set out in Tables 2 and 3 in the

average annual OMM costs, thereby rendering Dr. Buckley's average annual cost input of $711,053 overstated. There are a number of points that we find important in our determination. First, as we said, we agree that some consideration of replacement costs is necessary in determining the amount of the OMM Letter of Credit as a required by Paragraph 13 and as a matter of good operational practice. The testimony made clear that both PPG and the Department were aware of the need for equipment replacement and those costs were part of the calculations that were included in the bonding worksheets. We found the testimony of PPG's witnesses, particularly the testimony offered by Mr. Flanders, more persuasive than Dr. Sahu's testimony as to the conditions and operations at the PPG Waste Site and on the issue of the need for equipment replacement and the associated costs. Except for the discussion regarding the Deep Trench, Dr. Sahu provided no meaningful testimony to support his opinion that the items listed in Tables 2 and 3 would need replaced. He offered no testimony explaining his basis for the useful life figures used in the tables. For instance, Dr. Sahu concluded that the perimeter fence at the SWDA would need to be entirely replaced every 15 years, as shown in Table 3, but we heard no testimony from him supporting this conclusion.

As mentioned above, most of Dr. Sahu's testimony was focused around the Deep Trench. When asked about the SLA equipment that would need replaced over time, Dr. Sahu responded that he was most worried about the perforations in the piping in the Deep Trench becoming clogged. (T. 59-60). He explained that the pipe had been laid on bedrock rather than pea gravel, making the perforations more prone to clogging, which in turn would impact the pipe's ability to collect leachate. (T. 41-42). Dr. Sahu's stated concern regarding the eventual need for the replacement of the Deep Trench was primarily based on his understanding of the purpose (conveyance and collection of leachate) of the perforated pipe and the way that it functioned (the

perforations serve to collect leachate in the pipe) as part of the SLA remedy. Mr. Flanders, the designer of the SLA remedy, testified that Dr. Sahu was wrong in his understanding of how the SLA remedy operated. (T. 542). He explained that the purpose of the perforated pipe is not for the collection or conveyance of leachate as Dr. Sahu believed, but rather it functions as a cleanout mechanism to remove sediment that could accumulate in the pea gravel. The pea gravel is the conveyance mechanism that leads the leachate via gravity to extraction wells. (T. 547-48). Mr. Flanders also contradicted Dr. Sahu's arguments concerning the means and costs that would be involved if the perforated pipe in the deep trench ever needed to be replaced. Dr. Sahu testified that this would be a costly exercise and would require a significant effort. Mr. Flanders testified that the perforated pipe was designed to allow it to be slip-lined with new piping, a process that would be much less involved than the repair scenarios discussed by Dr. Sahu and therefore, significantly less costly. Dr. Sahu also testified that during his review of PPG's revised treatment plan report, it concerned him that there was no indication that hydrogeological testing had taken place at the PPG Waste Site prior to designing the SLA remedy. However, Mr. Flanders identified the specific sections of the treatment plan report that contained the findings of the hydrogeologic studies conducted at the PPG Waste Site. (See PPG Ex. 1, section 5, page 52-63). Dr. Sahu's fundamental misunderstanding concerning key components of the design and construction of the remedy, particularly the Deep Trench, calls into question the reliability of his conclusions pertaining to the SLA remedy and future costs. We are also concerned with how the costs shown in Tables 2 and 3 were derived. Dr. Sahu used the projected capital costs from the December 2020 Proposal but did not update them to reflect actual costs of portions of the project that were completed prior to the hearing[9]. Overall, we credit Mr. Flanders' testimony concerning the SLA

[9] PPG's witness Hadley Stamm ("Ms. Stamm"), a senior remediation project manager for PPG, offered testimony regarding the actual construction cost of the SLA as a whole. (T. 520, 529). Ms. Stamm testified

remedy and what OMM costs will be necessary to operate and maintain it into the future. Finally, we conclude that the annual review and revision process will adequately address the need for any major equipment replacements that may arise in the future.

As discussed above, we conclude Dr. Buckley's Year 1 cost of $711,053, that relied in part on Dr. Sahu's conclusions, is overstated. In addition to including replacement costs, there is another issue with the cost input used by Dr. Buckley in his PV calculations. Dr. Buckley used $711,053, his Year 1 OMM expenses, as the starting number for all subsequent years in his PV calculations. However, the cost spreadsheets in the December 2020 Proposal show that the OMM costs vary from year to year due to certain OMM requirements changing overtime. Even Dr. Sahu's tables show that the Year 1 OMM expenses include costs for activities that will be concluded at an identified point in time in the future and/or do not occur on an annual basis. (See SC Ex. 86B Tables 4 and 6). Two examples of this are the costs associated with the operation of the interim abatement system and with the NPDES permit. As shown in Table 4, the cost of operating the interim abatement system, $82,908, is included in the Year 1 OMM costs. However, the note in Table 4 associated with that cost states that the interim abatement system will run for only two years before it ceases operation. Therefore, Dr. Buckley obviously should not have included $82,908 in the OMM costs for Year 3 and all subsequent years. The same is true for the NPDES permit renewal cost of $5,000 shown in Table 6. This cost occurs once every five years. Dr. Buckley included this permit cost in the Year 1 costs which is acceptable since it is unknown

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that the letter of credit for the SLA construction costs was approximately $22 million but the actual construction of the SLA was completed for approximately $12.5 million. While the record does not make clear the actual costs of construction for specific portions of the SLA, including the Deep Trench, the fact that the SLA as a whole was constructed for roughly $9.5 million below the estimated construction costs suggests the $7.65 million (the estimated cost to construct the Deep Trench) that Dr. Sahu used to calculate the replacement costs of the Deep Trench was likely significantly higher than the actual cost of its construction, thereby making his projected costs for its replacement overstated.

when Year 1 will take place and the possibility exists that the NPDES renewal cost may be incurred in that year. However, the permit renewal cost will not occur each subsequent year but only every five years (i.e., Year 6, Year 11, etc.). Therefore, including that cost in the OMM expenses every year results in a false increase of the average annual costs in the years that those intermittent costs are not incurred. Unlike Dr. Buckley who used a static number for his average annual cost, PPG's expert calculated the present value by using a specific cost input each year. Mr. Bummer addressed the variable OMM costs by creating a spreadsheet that set out all the individual categories of OMM costs and only included the specific costs in the OMM expenses in the years that they would occur. (See PPG Exs. 22 and 23). As a result, the annual cost inputs that Mr. Bummer used fluctuated over the 30-year timeframe and better reflect the actual OMM costs than the static number that Dr. Buckley used.

Dr. Buckley's next step in his PV calculations only compounds the issue created by the already overstated average annual cost input. Dr. Buckley adjusted his Year 1 cost of $711,053 by applying inflation factors ranging from 14.9% to 34.57% based on the nonresidential building construction price index. The purpose of applying the inflation factor was to adjust some of the costs in the December 2020 Proposal that were in 2020 and 2021 dollars to 2022 dollars for the PV calculations. (T. 158-59). After adjusting for inflation, the annual average cost input that Dr. Buckley used in his PV calculations was $934,606, resulting in an extra $223,553 being added to the cost input, which he acknowledged was roughly an overall increase of approximately 32% to the cost input value. (T. 185). We understand the rational for adjusting costs to account for inflation but, as should be apparent, if the cost ($711,053 in this case) to which you apply the inflation adjustment is already overstated as we have found, the resulting inflation adjusted cost will be further overstated. We also question Dr. Buckley's use of an inflation value derived from

the nonresidential building construction price index. Use of this index makes some sense when looking at the letters of credit involving the construction of the SLA and the SDWA remedy. However, the bulk of the OMM costs at issue in determining the amount of the OMM Letter of Credit are non-construction activities such as inspections, water sampling, equipment cleaning/maintenance, monitoring and reporting. On its face, the index Dr. Buckley applied seems a poor fit for these activities and we were not given any testimony as to why it was an appropriate index in this situation. Finally, we take judicial notice of the fact that 2020 through 2022 was the height of the Covid-19 pandemic and construction related costs were greatly inflated during this time period as result of labor and material shortages.

To summarize, Dr. Buckley included the replacement costs generated by Dr. Sahu in his average annual cost input. For the reasons set forth above, Dr. Sahu's replacement costs are unsubstantiated and, therefore, cannot be included in the average annual OMM costs. In addition, rather than adjusting the annual average OMM costs to account for the costs that are not incurred yearly, Dr. Buckley included those intermittent OMM costs in his calculations for each year. Finally, applying an inflation value to an already overstated cost, as Dr. Buckley did, resulted in an adjusted cost that is even further overstated. In sum, the $935,606 amount that Dr. Buckley used in his calculations, overstates the average annual costs for OMM, one of his three key inputs in determining the PV. The overstated value carries through and contributes to our conclusion that Sierra Club's assertion that the amount of the OMM Letter of Credit is too low is not supported by the evidence.

As a final note on the discussion of the OMM costs, there is testimony that allows us, on at least a limited basis, to fact check our conclusion that the average annual OMM cost that Dr. Buckley used is overstated. Because the SLA remedy has been in operation since early October

2022, some of the OMM activities had begun prior to the hearing. Mr. Hubbard, the engineer responsible for overseeing OMM at the PPG Waste Site, testified that OMM costs were running year to date roughly 30 to 35% below the costs provided in the December 2020 Proposal. We are hesitant to put too much emphasis on these figures since there are several factors that are likely contributing to the lower than expected costs. First, the SWDA remedy was not yet constructed, so clearly that eliminated certain OMM costs related to that portion of the site. Also, as the construction that has been completed is brand new, we would not expect that it would require significant routine maintenance and replacement in the first years of operation. At the same time, the fact that the actual OMM costs incurred are coming in well below the costs in the December 2020 Proposal, suggests that inflation has not significantly impacted these costs in the 2020-2022 time period as Dr. Buckley argued. It also supports Mr. Hubbard's testimony that the costs provided in the December 2020 Proposal were conservative and likely overstated the costs as opposed to understating them.

ii. Real Discount Rate/Real Rate of Return Input

Dr. Buckley identified the interest rate as the second key input in his PV calculations. He testified that he used a 2% real discount rate. (T. 161). He described the real discount rate as the equivalent of having a 3.5% inflation rate and a 5.5% return on investment over time, explaining that this meant on average, the standby trust would grow the assets 2% annually above and beyond the impact of inflation. (T. 162). Dr. Buckley acknowledged that it was challenging to provide a precise projection as to how inflation or investment opportunities could change over time but asserted that his approach was standard when looking at a long time period.

In comparison, PPG's expert, Mr. Bummer, used a separate inflation rate and a separate rate of return on investment in his calculations. Based on his review of several sources, he applied

an inflation rate of 3.5%. (T. 634-35). He used a return on investment rate of 6.51% derived from the long-term average Moody's AAA corporate bond yield that he described as very conservative. (T. 621-22). By subtracting his 3.5% inflation rate from his 6.5% rate of return, Mr. Bummer arrived at a 3% real rate of return. Mr. Bummer testified that the "apples-to-apples" comparison between his input and Dr. Buckley's input is Dr. Buckley's real discount rate of 2% and his real rate of return of 3%. (T. 668, 693). Mr. Bummer testified that the higher the rate of return is, the less seed money is needed in the standby trust to cover a given level of expenses and, vice versa, a lower rate of return would require more seed money in the standby trust to cover the same level of expenses. (T. 625, 689). Therefore, Dr. Buckley's use of a 2% real discount rate necessitates a larger letter of credit amount to cover OMM costs when compared to Mr. Bummer's use of a 3% real rate of return, which would require a smaller letter of credit to cover the same costs.

Sierra Club and PPG each criticize the rate selected by the other side's expert. Mr. Bummer testified that he believed that Dr. Buckley's 2% real discount rate "was inconsistent or unsupported." (T. 655). Sierra Club questioned Mr. Bummer about the selection of his rate of return and noted that if he had used a different time period than the one he selected to arrive at his rate, then his 6.51% return rate would be lower in the examples presented. (T. 693, 696). In response, Mr. Bummer explained that it was incorrect to look at a rate of return independent of the inflation rate since the two rates walk in tandem. (T. 694). He testified that historically when return rates are lower, inflation is also usually lower. (T. 692-694). Following our review of the testimony, we find no reason to question the rates used by either of the experts. Each appears to have attempted to generate a reasonable number for the rate that would apply to a future standby trust as part of their PV calculations. Future inflation rates and investment returns are a prediction based on assumptions that may or may not be correct regarding future economic circumstances.

(T. 169). None of the participants in the hearing can possibly know with any certainty what the real rate of return will be on a standby trust that could potentially come into existence 50 or 100 years from now. Ultimately, we find that each of their respective rates is reasonable and we understand how their selected rates work in their ultimate determinations about the proper amount of the OMM Letter of Credit. That understanding is sufficient information on this key input for us to adequately factor the rate issue into our final decision.

iii. The Timeframe Input

Dr. Buckley's third key input in determining the proper PV of the OMM Letter of Credit is the timeframe in which to allocate those costs. (T. 156). Paragraph 13 requires that the financial assurance is in an amount sufficient to cover the costs in perpetuity. Dr. Buckley stated that he understood perpetuity to mean that the financial assurance has no particular closing date in terms of when performance would no longer be necessary. (T. 148). Dr. Buckley chose to use a 300-year timeframe. The Department, relying on the bonding worksheets, used a 30-year timeframe. Mr. Bummer also used a 30-year timeframe but testified that he settled on that timeframe independent of the bonding worksheets. The significant difference between the 30-year timeframe that the Department and PPG used in their calculations, and the 300-year timeframe Sierra Club used in its calculations, plays a large role in the different amounts of financial assurance for the OMM costs advocated for by the parties.

Dr. Buckley testified that he selected a 300-year timeframe for several reasons. He stated that he wanted something that was very far into the future because he had heard from a source, whom he did not identify, that "the pollutant could take 800 years to be fully released." (T. 164-65). He also testified that he had seen a 300-year timeframe used in very reputable applications and gave as an example a report involving long term costs and investment returns in the context

of climate change. He also noted that he had used a 300-year timeframe in work he had done for federal agencies on natural resource damage assessment to develop economic methods tailored for tribal context. His final point was that as a practical matter, extending the timeframe beyond 300 years would have limited impact on the PV calculation, since the amount of money that is required to fund additional time beyond 300 years becomes insignificantly small as part of the overall PV number. (T. 166). Dr. Buckley criticized the use of a 30-year timeframe stating that "30 years will be far from adequate" to address costs that will be expected to extend to perpetuity. (T. 177).

Mr. Halloran testified that the Department typically uses a 30-year timeframe when looking at long term OMM costs. (T. 302, 304). Mr. Martel confirmed Mr. Halloran's statement and testified he had not used a timeframe other than 30 years for any landfills[10] and did not know of any facilities where a timeframe greater than 30 years was used. (T. 466-67). The Department's use of this timeframe is spelled out in the Subchapter E regulations and the bonding worksheets. Mr. Halloran stated that, in the Department's view, the 30-year timeframe is enough because the Department can review the remedial situation and can adjust the amount of funds in the OMM Letter of Credit moving forward. Mr. Martel noted that the 30-year timeframe does not shrink over time, but rather is a continual 30 years that moves forward in time and remains in place until the site is fully remediated. (T. 467). Mr. Halloran acknowledged that the language in Paragraph 13 used the term "perpetuity" but repeatedly stated that the Department believed that it had received sufficient funds in the OMM Letter of Credit to carry out the required work in perpetuity. (T. 305). He further stated that "when we look at financial assurances, we use that 30-year timeframe so we can have real costs for those 30 years and not some arbitrary 300 years in the

[10] Mr. Martel stated that he treated the PPG Waste Site as a landfill for purpose of determining the number of years for setting the financial assurance because it "is what was most appropriate." (T. 466).

future, where we can't come up with costs. Then we look at that number throughout the life of the remedy and adjust as necessary. That is where the perpetuity is, the life of the remedy." (T. 305-306). Mr. Halloran testified that when Sierra Club provided written comments regarding the December 2020 Proposal, including Dr. Buckley's proposed substitution of a 300-year timeframe for perpetuity, the Department concluded that the extended timeframe "seemed speculative and arbitrary." (Halloran W.T. at 10).

PPG's expert, Mr. Bummer, stated that he did not choose a 30-year period in his PV calculation based on the Department's use of a 30-year timeframe in the bonding worksheets. (T. 639). He agreed that 30 years is not the same as perpetuity but offered two reasons for using the 30-year timeframe. (T. 639, 641). The first reason as we understand it, is his reliance on the principle that the discounted cash flows diminish significantly as time passes. This is the same idea expressed by Dr. Buckley although he argued that the proper cutoff point came after 300 years. Mr. Bummer's second point was his assertion that, so long as you build in a certain degree of financial conservatism into your situation by providing for contingencies in the numbers and also had a mechanism in place to check your assumptions going forward and then adjust them when necessary, you could be comfortable and adequately protected when using 30 years as a proxy for perpetuity. (T. 640-41). Mr. Bummer did not directly criticize Dr. Buckley's use of a 300-year timeframe beyond a general criticism of Dr. Buckley ignoring what Mr. Bummer described as, "the fundamental risk mitigation that comes and flows from the annual certification process." (T. 655).

Neither 30 years nor 300 years is "in perpetuity". Each of the parties used their respective finite number of years as a proxy for perpetuity. Based on our reading of Paragraph 13 and on the testimony provided in this case, we conclude the phrase "in perpetuity" as used in Paragraph 13

was intended to create a performance-based standard for measuring the necessary amount of the OMM Letter of Credit. When considering the two selected timeframes, the real question is whether Mr. Bummer's claim, that 30 years is adequate so that "you have sufficiency in that [letter of credit]" (T. 640) is correct or, whether Dr. Buckley is correct that "30 years will be far from adequate" to address the costs that will extend into perpetuity. (T. 177). We cannot address that issue in the abstract by simply focusing on the question of what the proper timeframe is to serve as a proxy for perpetuity, but it instead requires us to consider the actual value of the OMM Letter of Credit that the Department approved and the PV amounts the experts determined.

iv. Revision Cost

One additional factor apart from the three key inputs identified by Dr. Buckley contributed to the difference between Sierra Club's and PPG's PV figures. The language in Paragraph 13 requires consideration of the cost of "a revision of the remedy should the original fail." Dr. Buckley added $10 million to his PV total to account for the cost of a potential revision of the remedy. (T. 174). He determined the revision amount by taking the 2022 engineering capital costs for construction of the SLA remedy ($8.7 million) and applying the same inflation index adjustment he used on the other costs to arrive at $10 million. He acknowledged that he was using the capital costs of the SLA remedy as a proxy for the range of future capital revision costs. He also stated that his number was used to "represent frankly some uncertain revision." (T. 192).

Mr. Halloran and Mr. Martel both stated that the expenses that led to the OMM Letter of Credit amount did not include a specific line item for the cost of a revision of the remedy. (T. 336, 489). Mr. Martel described predicting the cost of any future revision as difficult and testified that any resulting number would be pure speculation. (T. 489). Mr. Bummer also did not provide a separate line item for revision of the remedy in his PV calculations. (T. 696-97). He testified that

it was his understanding that those costs were embedded in the engineering estimates provided by Mr. Hubbard and Mr. Flanders along with the addition of the $1.5 million in contingencies and fees included in the amount of the OMM Letter of Credit as a result of the calculations on the Department's bonding worksheet. (T. 696-97). The Department and PPG both argued that any need to account for the cost of a potential wholesale revision of the remedy would be best addressed through the periodic review process. Now that we have looked closely at the key inputs each party used in their PV calculations, we turn to reviewing the calculations themselves and the final numbers advocated for by the parties.

C. Adequacy of the OMM Letter of Credit

Mr. Bummer testified that he followed a five-step process in evaluating the adequacy of the OMM Letter of Credit amount. (T. 626). Development of the annual cost inputs previously discussed comprised his first step and totaled $9,969,631. (See PPG Exs. 22, 23). Step two involved determining an inflation rate and applying it to the OMM costs that he developed in step one. Mr. Bummer settled on an inflation rate of 3.5% after reviewing several sources. His inflation adjusted cost for 30 years of OMM at the PPG Waste Site totaled $16,358,413. (T. 637; PPG Ex. 24). In step three, he calculated the present value to determine how much money would be needed in the standby trust today to cover $16,358,413, which again is the total cost of 30 years of OMM when adjusted for inflation. He calculated a PV of $6,890,188. (T. 637-638; PPG Ex. 24).

In his fourth step, Mr. Bummer tested his calculations by looking at a hypothetical standby trust. He began by placing the amount of the current OMM Letter of Credit ($12,363,864) into the trust and applied an investment return of 6.51% and subtracted the annual inflation adjusted OMM costs he calculated in step two. Because the returns on investment outpace the costs on an annual basis, he determined that after 30 years, the hypothetical trust balance would total

$37,725,745 and would continue to increase in subsequent years. (T. 641-42; PPG Exs. 25, 35). Mr. Bummer testified that his use of the hypothetical standby trust convinced him that so long as the OMM Letter of Credit is updated each year with the latest estimates of engineering costs, the seed money will be more than sufficient to cover the expected future cash flows for not just 30 years, but in perpetuity. (T. 645).

His fifth step incorporated the fees for administration, project management and contingency from the Department's bonding worksheets into his PV calculations. These fees totaled $1,531,446 on the bonding worksheets. Mr. Bummer testified that including these additional items in his PV value created an additional safety net because based on his review and discussions with Mr. Flanders and Mr. Hubbard, the engineering costs already included these contingencies in their estimated costs. In a further nod to what he asserted was a conservative financial approach, Mr. Bummer front loaded these fees into the first ten (10) years of his PV calculations. Meaning, he calculated the PV of the contingencies as $1,135,669 and then added that to his PV for engineering costs ($6,899,188) to arrive at a PV for engineering costs and additional fees that totaled $8,025,857. (PPG Ex. 26). By frontloading the contingency costs in the first 10 years, the present value of those costs is higher. Mr. Bummer testified that even including the fees found in the Department's bonding worksheets, the current amount of the OMM Letter of Credit ($12,363,864) is still well in excess of the amount of money his calculations show are necessary to cover the OMM expenses at the PPG Waste Site in perpetuity.

Dr. Buckley's PV calculations followed a slightly different path than the five steps outlined by Mr. Bummer. As discussed, Dr. Buckley relied on the costs listed in Dr. Sahu's tables to calculate an annual average cost based on the engineering reports included with the bonding worksheets and then applied an inflation factor to bring those amounts to 2022 dollars. He

determined the annual OMM and capital replacement cost would be $934,006 which we find to be overstated for the reasons we have previously identified. His first-year amount of $934,066 was identified as year 0. He next applied a discount value to calculate the present value of $934,006 in each subsequent year for 299 years and totaled his year 0 value with the 299 discounted values to arrive at a total of $47,539,566 that he labeled the cumulative discounted total. (T. 171-72; SC Ex. 72B). Dr. Buckley next added $10 million dollars to this amount to address the need to potentially revise the remedy in the future. He testified that the PV of a letter of credit needed to secure the OMM costs if PPG defaulted is $57.5 million. (T. 174). Dr. Buckley's PV amount is well in excess of the amount of the OMM Letter of Credit approved by the Department.

In evaluating the two experts PV numbers, we conclude that PPG's expert, Mr. Bummer, arrived at a more realistic PV amount that is reflective of the facts in this case. We are satisfied that his calculations demonstrate that even at the current value of the OMM Letter of Credit, the Department will have sufficient funds to take over the OMM at the PPG Waste Site and complete the required work in perpetuity if PPG were to default at this time. In fact, the Department's amount of $12,363,864, exceeds what Mr. Bummer determined was necessary by approximately $5,473,676, providing a sizeable cushion to address any needs not fully accounted for in his numbers. Our conclusion is reinforced by the requirement that the Department and PPG, with oversight by Sierra Club, must review the OMM costs at the PPG Waste Site on an annual basis and adjust the amounts of future OMM letters of credit accordingly to reflect any changes to the funds required. We acknowledge Sierra Club's concern that if/when PPG defaults, requiring the Department to draw on the then current OMM letter of credit, the amount of seed money deposited into the standby trust will be at a set amount without the possibility for future adjustment. If the Department and PPG fail to diligently conduct the annual review and adjust the amount of future

OMM letters of credit when necessary, including any future need for a wholesale revision, the possibility does exist that the funds available may prove to be insufficient to fully cover the costs at the PPG Waste Site. However, we find that it would be inappropriate for us to speculate that the Department will not take the required actions to ensure that this does not happen. We are also confident that Sierra Club will maintain a watchful eye on the work at the PPG Waste Site and if it concludes that the Department's annual review and approval process is not adequately accounting for activities and costs at the PPG Waste Site, it will take action to address those concerns.

Conclusion

In conclusion, we hold that Sierra Club has not met its burden to show by a preponderance of the evidence that the Department's action approving the OMM Letter of Credit in the amount of $12,363,864 was unreasonable, unlawful and not in accordance with the Department's statutory or constitutional duties. The facts and testimony in this matter demonstrate that the amount of the OMM Letter of Credit is enough to cover the OMM costs at the PPG Waste Site in perpetuity. The review and approval process in place between the Department and PPG will permit them to review progress at the PPG Waste Site and adjust the amount of future OMM letters of credit to reflect changing conditions and requirements. We also hold that the more minor issues raised by Sierra Club had been adequately addressed by the time of the hearing to render them moot for our purposes since we could provide no remedy to those issues.

CONCLUSIONS OF LAW

1. The Board reviews Department actions *de novo*, meaning we decide the case anew on the record developed before us. *Borough of Kutztown v. DEP*, 2016 EHB 80, 91 n.2; *Stedge v.*

DEP, 2015 EHB 577, 593; *Dirian v. DEP*, 2013 EHB 224, 232; *O'Reilly v. DEP*, 2001 EHB 19, 32; *Warren Sand & Gravel Co. v. Dep't of Envtl. Res*., 341 A.2d 556 (Pa. Cmwlth. 1975).

2. The plain language of the First Amendment required the Department to have a standby trust in place as part of the financial assurance process.

3. Where the standby trust has been established, the issue that Sierra Club raised when it first filed its appeal regarding the Department's failure to establish a standby at the time the Department approved PPG's financial assurance proposal is moot.

4. The Department's failure to identify the drafting errors in the letters of credit sent by Sierra Club in the first instance and its failure to promptly correct the mistake once it was identified does not rise to a violation of the Clean Streams Law or the Environmental Rights Amendment.

5. Where the drafting errors have been corrected in the letters of credit, the issue that Sierra Club raised when it first filed its appeal regarding the Department's failure to identify and promptly correct the errors in the letters of credit is moot.

6. The Department's delay in taking 16 months to approve PPG's financial assurance proposal does not arise to the level of a violation of the Environmental Rights Amendment.

7. Sierra Club's claim concerning the alleged approval delay is moot as the approval had taken place long before the hearing on the merits was held, and there was no evidence introduced at the hearing showing that the Department's delay caused any harm to the construction of the SLA or SWDA remedies.

8. Sierra Club has not met its burden to show by a preponderance of the evidence that the Department's action approving the OMM Letter of Credit in the amount of $12,363,864 was inconsistent with or contrary to the terms of Paragraph 13 of the First Amendment.

9. Sierra Club has not met its burden to show by a preponderance of the evidence that the Department's action approving the OMM Letter of Credit in the amount of $12,363,864 was unreasonable, unlawful and not in accordance with the Department's statutory or constitutional duties.

COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD

PENNENVIRONMENT and SIERRA CLUB	:	
	:	
v.	:	**EHB Docket No. 2022-032-B**
	:	
COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION and PPG INDUSTRIES, INC., Permittee	:	

O R D E R

AND NOW, this 9th day of April, 2024, it is hereby ordered that the Appellants' appeal is **dismissed**.

ENVIRONMENTAL HEARING BOARD

s/ Steven C. Beckman
STEVEN C. BECKMAN
Chief Judge and Chairperson

s/ Bernard A. Labuskes, Jr.
BERNARD A. LABUSKES, JR.
Judge

s/ Sarah L. Clark
SARAH L. CLARK
Judge

s/ MaryAnne Wesdock
MARYANNE WESDOCK
Judge

s/ Paul J. Bruder, Jr.
PAUL J. BRUDER, JR.
Judge

DATED: April 9, 2024

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