



COMMONWEALTH OF PENNSYLVANIA  
ENVIRONMENTAL HEARING BOARD

<b>FRIENDS OF LACKAWANNA, Appellant</b>	:	
<b>and SIERRA CLUB, Intervenor</b>	:	
	:	
v.	:	<b>EHB Docket No. 2021-066-L</b>
	:	
<b>COMMONWEALTH OF PENNSYLVANIA,</b>	:	
<b>DEPARTMENT OF ENVIRONMENTAL</b>	:	
<b>PROTECTION and KEYSTONE SANITARY</b>	:	<b>Issued: April 1, 2025</b>
<b>LANDFILL, INC., Permittee</b>	:	

**ADJUDICATION**

**By Bernard A. Labuskes, Jr., Board Member and Judge**

**Synopsis**

The Board remands to the Department a major modification to a municipal waste landfill’s solid waste management permit. The landfill has experienced challenges controlling offsite odors and excess leachate generation at its facility for several years. The Department erred in issuing a permit that does not sufficiently control or mitigate these issues. The Department must assess on remand whether additional measures to control odors and leachate, some of which have been required by a recent Consent Order and Agreement, warrant inclusion in the landfill’s permit or changes to the landfill’s operating plans. The Appellant and Intervenor have not shown that the landfill should not remain in operation during the remand.

**FINDINGS OF FACT**

**Background**

1. The Commonwealth of Pennsylvania, Department of Environmental Protection (the “Department”) is the agency with the duty and responsibility 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; the Municipal Waste Planning, Recycling and Waste Reduction Act (“Act 101”), Act of July 28, 1988, P.L. 556, No. 101, *as amended*, 53 P.S. §§ 4000.101 – 4000.1904; The Clean Streams Law, Act of June 22, 1937, P.L. 1987, *as amended*, 35 P. S. §§ 691.1 – 691.1001; the Air Pollution Control Act, Act of January 8, 1960, P.L. (1959) 2119, *as amended*, 35 P.S. §§ 4001 – 4015; 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, including the Municipal Waste Regulations at Title 25, Chapters 271 – 285 of the Pennsylvania Code.

2. Friends of Lackawanna (the “Appellant” or “FOL”) is a Pennsylvania 501(c)(3) nonprofit established in 2014 to support the health, welfare, and education of individuals in need in Northeast Pennsylvania. (Hearing Transcript Page No. (“T.”) 42-43; Friends of Lackawanna Exhibit No. (“FOL Ex.”) 1.)

3. Sierra Club has intervened in this matter. *Friends of Lackawanna v. DEP*, 2022 EHB 11.

4. Keystone Sanitary Landfill, Inc. (the “Permittee” or “Keystone”) is a Pennsylvania business corporation with an address of 249 Dunham Drive, Dunmore, Pennsylvania 18512. (Sierra Club Exhibit No. (“SC Ex.”) 1.)

5. Keystone owns and operates a municipal solid waste landfill (the “Keystone Landfill”), located in Dunmore and Throop Boroughs, Lackawanna County, pursuant to Solid Waste Management Permit No. 101247. (SC Ex. 1; Keystone Sanitary Landfill Exhibit No. (“KSL Ex.”) 16, 109.)

6. The current permit boundary of the Keystone Landfill covers 714 acres with 435 acres approved for waste disposal. The site is comprised of various sections, including the closed disposal areas of Keystone/Dunmore (an unlined disposal area) and Phase I (also known as Logan

and Tabor), and a currently active Phase II disposal area. (T. 149-52, 755-56; SC Ex. 1; Department of Environmental Protection Exhibit No. (“DEP Ex.”) 1; KSL Ex. 16, 109.)

7. Keystone’s solid waste permit allows it to accept up to a maximum of 7,500 tons of waste per day. (KSL Ex. 16.)

8. In March 2014, Keystone submitted an application to the Department for a major modification to its solid waste permit for what Keystone calls the Phase III expansion. (T. 153, 701; FOL Ex. 25; DEP Ex. 1; KSL Ex. 109.)

9. On June 3, 2021, the Department approved and issued the Phase III modification to Keystone’s solid waste disposal permit to expand the landfill, which is the action of the Department currently under appeal. (T. 153; SC Ex. 1.)

10. Phase III has a permitted disposal area of 435 acres, located within Keystone’s existing 714-acre permit boundary, and it involves disposing additional waste on top of and in between existing fill areas. Phase III will have fourteen cell openings. (T. 151-53, 838, 1502; FOL Ex. 25; DEP Ex. 1; SC Ex. 1; KSL Ex. 16, 109.)

11. The Phase III expansion is a vertical expansion of the Keystone Landfill, with the majority of Phase III waste disposal occurring in the valley between two existing disposal areas. (T. 152, 782-83; SC Ex. 1; DEP Ex. 1; KSL Ex. 109.)

12. The Phase III expansion will extend the peak elevation of the landfill that was reached during Phase II over a larger area within the existing permit boundary and approximately 3,000 feet closer to residential homes. (T. 782-84, 837-38; FOL Ex. 25.)

13. Phase III increases the landfill’s disposal capacity by 94 million tons and is expected to extend the life of the landfill for 42 years based on the currently approved waste acceptance rate at the landfill. (T. 152-53; DEP Ex. 1.)

14. The Phase III expansion does not include an increase to the daily maximum or quarterly average waste acceptance rates for the landfill. (FOL Ex. 25.)

15. The Phase III expansion does not change the 10-year term of Keystone’s existing solid waste permit, which runs until April 6, 2025, and which Keystone has applied to renew. (T. 544-45, 876; DEP Ex. 1.)

16. The Department added several conditions to Keystone’s permit in connection with the Phase III expansion, including a requirement for Keystone to implement additional odor mitigation measures. (SC Ex. 1.)

17. Keystone began placing waste in Phase III in January 2024, but as of the merits hearing Phase III filling operations had been temporarily halted. (T. 164, 525, 633.)

18. Keystone is focused on completing Phase II, which is still accepting waste, and complying with a capping schedule imposed through a Consent Order and Agreement. Phase II is not expected to close until sometime in late 2025. (T. 163-64, 525.)

19. At the end of 2022, the Keystone Landfill had an overall estimated remaining life of 49.79 years. (T. 705-06; KSL Ex. 36.)

**Standing**

20. Friends of Lackawanna has about 5,000 members, which it defines as anyone who supports its cause by taking such actions as making a donation, showing up at its events, or engaging with its newsletter or Facebook account. (T. 45, 92.)

21. The overwhelming number of FOL’s members live in and around Dunmore, Throop, and the City of Scranton, with some members living within one-half mile of the Keystone Landfill. (T. 46.)

22. Part of FOL's mission is to educate the local community regarding the Keystone Landfill through community involvement and awareness, including hosting conferences and community gatherings and interacting with public officials and the Department. (T. 42-45.)

23. Patrick Clark is a member, board member, and treasurer of Friends of Lackawanna. (T. 41-42.)

24. Mr. Clark has lived in Dunmore Borough nearly his entire life and currently resides about two miles from the Keystone Landfill with his wife and six children. Mr. Clark works in an office located four blocks from his house. His children participate in sports and recreational activities at several parks in the town of Dunmore and at basketball courts throughout the region. (T. 32-34, 68.)

25. Mr. Clark has regularly experienced odors he attributes to the landfill in his neighborhood and at his house. In January 2024, Mr. Clark smelled odors at both the Dunmore High School and the Mid Valley High School while attending high school basketball games, prompting him to make complaints to the Department. (T. 34-36, 108.)

26. Mr. Clark also has visual concerns with the expansion of the landfill and its size and scope, since the landfill is the first thing a person will see upon exiting Route 81 into Dunmore. (T. 38-39, 51, 60-61.)

27. Sierra Club is an organization with a mission to engage and educate people in the community and to conserve, protect, and restore the environment. (T. 111, 128.)

28. Sarah Helcoski has been a member of Sierra Club since 2020. (T. 128.)

29. Ms. Helcoski lives in Jessup Borough, around three miles from the Keystone Landfill, with her three sons. She often goes hiking with her children in areas near the landfill,

including near the Lackawanna River, where she likes seeing different plants, trees, and animals, which she believes are important for her children to experience. (T. 129-30, 137-38, 140-41.)

30. Ms. Helcoski is concerned about Keystone’s Phase III expansion because she believes the landfill is an unattractive feature and the permit modification allows the landfill to expand and extends its life for about 40 years. She is concerned about the leachate coming from the landfill and the possibility that it could get into the environment and groundwater and impact the wildlife and water where her children play and recreate. (T. 131-34, 141.)

31. Ms. Helcoski travels near the landfill on the Casey Highway between Dunmore and Jessup almost every day to take one of her children to preschool. She sees trash surrounding the landfill and going over the landfill’s fence and onto the roadway. She also experiences odors she attributes to the landfill on a daily basis. (T. 129-31, 139.)

32. John S. Mellow is a member of both FOL and Sierra Club. (T. 110, 118-19, 126.)

33. Mr. Mellow lives in Archbald and frequently visits the area near the landfill, including the Dunmore No. 1 Reservoir, where he takes walks and enjoys the nearby streams, and the Lackawanna River. He enjoys the good condition of the environment in those places and because they are aesthetically pleasing. (T. 111-13, 126-27.)

34. Mr. Mellow is concerned about the landfill because of its aesthetic and visual impacts with how large it has become, and because of potential contaminants he believes could come from the landfill. Mr. Mellow is particularly concerned about the possibility of per- and polyfluoroalkyl substances (PFAS) coming from the landfill. (T. 113-15.)

### **Leachate Management**

35. “Leachate” is defined in the regulations as “a liquid that has permeated through or drained from solid waste.” 25 Pa. Code § 271.1. Landfill leachate includes any liquid that is

generated from the decomposition of organic matter, any precipitation that comes in contact with the waste mass, and any liquid that is hauled into the landfill for disposal. (T. 1356.)

36. A landfill operator is required to have plans addressing the collection and storage system to manage leachate generated by the landfill as well as for the treatment of that leachate. 25 Pa. Code §§ 273.161, 273.162, and 273.275.

37. The Keystone Landfill has two leachate lagoons with a current combined storage capacity of roughly 9.7 million gallons. The lagoons previously had a combined capacity of 11 million gallons before the lagoons were relined in January 2018 to fix a leak, which reduced their capacity. (T. 169, 170-71, 270; FOL Ex. 72; SC Ex. 3, 6; KSL Ex. 98.)

38. Leachate is conveyed from the disposal area to the lagoons through a leachate collection and conveyance system. All stormwater that comes into contact with a disposal area that has waste in it is directed into the lagoons. The leachate conveyance system for the Phase III expansion will tie into the existing conveyance system. (T. 270-71, 412, 1356-57; KSL Ex. 98.)

39. Leachate from the lagoons is conveyed to Keystone's leachate treatment plant where Keystone pretreats its leachate prior to being conveyed via sewer line to the Scranton Wastewater Plant for final treatment pursuant to Keystone's industrial user permit with the wastewater plant, which authorizes Keystone to discharge up to 360,000 gallons of pretreated effluent per day. (T. 270-71, 336, 520-21; FOL Ex. 25; KSL Ex. 53.)

40. By April 2025, Keystone intends to obtain permits to install two 2.5-million-gallon enclosed leachate storage tanks to be used in lieu of the lagoons, which will be retained for backup storage capacity for excess leachate. The storage tanks will be equipped with emission destruction devices to reduce leachate odors. (T. 1357-60, 1442-43, 1460-61, 1474, 1488-91, 1525, 1535, 1540, 1546-47; FOL Ex. 115.)

41. When the Phase III expansion was approved, Keystone’s leachate treatment consisted of a relatively new mixed bed biological reactor treatment system (the “biologic system”) with a rated treatment capacity of 150,000 gallons per day (gpd) and one reverse osmosis (RO) system with a design average treatment capacity of 90,000 gpd, for a total treatment capacity of 240,000 gpd. (T. 183-84, 194-95, 242-43, 291, 570; FOL Ex. 25; SC Ex. 6; KSL Ex. 98.)

42. However, in 2021 the landfill began having problems with the biologic system and it was taken out of service. The problems arose because some of the constituents of the leachate were not compatible with the bacteria in the biologic system, and because at times there was not enough oxygen in the system to sustain the biologic mass. (T. 184, 186-87, 243, 348-50, 571-72, 710-12, 719, 1383-88.)

43. Since the Phase III expansion was approved, Keystone has shifted from biological treatment to an entirely RO-based treatment system. (T. 183-87, 242-44, 291, 348-50, 569-70, 710-12, 1360-61, 1383-89; SC Ex. 6; KSL Ex. 34.)

44. Reverse osmosis treatment works by sending leachate through semi-impermeable membranes at high pressure to filter out select constituents. It yields a high quality effluent on discharge. (T. 1362-63.)

45. Each RO unit is rated at a processing capacity of roughly 100,000 gpd, with a rated efficiency of 90%, meaning that when an RO unit processes 100,000 gallons of leachate, 90,000 gallons are treated to treatment specifications while 10,000 gallons do not meet treatment specifications. (T. 189, 195-96, 238, 243, 293, 573, 1518-19; KSL Ex. 98.)

46. The amount of leachate each RO unit is able to effectively treat per day depends upon the efficiency at which the unit is operating. (T. 1444-45.)



47. The fluid from the RO units that does not meet treatment specifications is referred to as RO concentrate, which has a higher concentration of contaminants than regular leachate. (T. 573-74.)

48. The RO concentrate is disposed of at the working face of the landfill where it eventually filters back down into the leachate collection system. (T. 238-39, 540-41, 573-74.)

49. The less efficient an RO unit, the more RO concentrate the unit creates. Rather than 90% efficiency, Keystone's RO units have historically operated at as low as approximately 70% efficiency, meaning they were only able to fully treat approximately 70,000 gallons of leachate per RO unit per day with 30,000 gallons of RO concentrate generated per RO unit. (T. 187, 190-91, 238-39, 293, 569-70, 574, 713, 1515; FOL Ex. 109, 110.)

50. The Department has ordered Keystone to evaluate the impact of RO concentrate disposal on slope stability due to the amount of RO concentrate that Keystone has been disposing in the waste mass, which was more than 2.2 million gallons in September 2023. Too much moisture in the waste mass can affect the stability of a landfill's outside slope. (T. 240-41, 245-46, 397-401; FOL Ex. 109, 110, 115.)

51. Keystone believes the issue with poor RO efficiency relates to a change in membranes that are being sold to Keystone by the RO unit manufacturer that get clogged more easily with Keystone's leachate. (T. 383-84, 575-76, 1393-1400, 1506, 1536-37.)

52. Keystone has recently been able to operate the RO system at 80–90% efficiency by using different RO membranes and membrane cleaning methods. (T. 575, 1393-1400, 1447-50, 1514-15.)

53. Because of the issues with the biologic system and the efficiency of the RO units, Keystone has had to add additional RO units so that Keystone can keep up with the leachate generated by the landfill. (T. 187-90, 243, 570-71, 1443-44.)

54. Keystone has installed two additional RO units since the Phase III permit modification was issued. A second RO unit began operating in February 2022 and a third RO unit began operating in March 2023. (T. 243-44; SC Ex. 6; KSL Ex. 24, 34.)

55. Keystone has purchased a fourth RO unit that it plans to install to address the efficiency issues that are requiring more downtime than expected. (T. 188-90, 244, 292-93, 1360-61, 1443-44, 1538; FOL Ex. 115.) At the time of the merits hearing, the Department had not received an application for the fourth RO unit. (T. 244.)

56. Keystone intends to operate three RO units and have a fourth unit as a backup to be put into service during cleaning or maintenance on one of the other units. (T. 1443-44, 1538-39.)

57. Pursuant to the regulations, a landfill operator is required to provide in its application a predicted amount of leachate the landfill expects to generate to assure the Department that the landfill has adequately designed and sized leachate storage, conveyance, and treatment systems. 25 Pa. Code § 273.162(a)(1). (T. 155-56, 688-89.)

58. Keystone utilized the Hydrologic Evaluation of Landfill Performance model (the “HELP model”) to project a maximum 30-day leachate generation rate using factors such as the stages of landfill construction, depth of waste, location of the landfill, and meteorological data. (T. 155-56, 293-94, 682-83, 743-44, 750, 993-97, 1240-41; SC Ex. 3; KSL Ex. 98.)

59. The HELP model is designed to account for heavy rain years in a landfill’s design, and the landfill’s leachate management system should be designed to handle the maximum predicted flow. (T. 302, 638-39.)

60. The municipal waste landfill regulations provide that a landfill’s leachate storage tanks or impoundments shall have sufficient storage capacity at least equal to the maximum expected production of leachate for any 30-day period for the life of the facility. 25 Pa. Code § 273.275(b). (T. 1263.)

61. Using the HELP model, Keystone predicted that the “maximum daily leachate flow” for its Phase III operations would be approximately 127,644 gallons per day. (T. 301-02, 687-88, 1255, 1260; SC Ex. 3; KSL Ex. 98.)

62. Accordingly, under the regulations, Keystone’s lagoons only need to have a total capacity of about 4 million gallons (127,644 gpd x 30 days = 3,829,320 gallons), rather than the 9.7 million gallons of leachate capacity that Keystone currently has. (T. 1278-79, 1312-13; KSL Ex. 98.)

63. The Department relied on Keystone’s HELP modeling results, in combination with actual leachate generation rates at Keystone, to evaluate the proposed leachate management and treatment system, and to determine whether Keystone’s treatment management plan was sufficient. (T. 294-96, 302, 309, 414-16, 682-84, 747-48.)

64. Historically, the Department has found that actual leachate generation rates at Keystone are higher than what Keystone has predicted with the HELP model. (T. 157, 253, 302-05, 684-86.)

65. Since Phase III operations began in January 2024, Keystone’s actual daily leachate generation has been greater than the 127,644 gpd predicted as “maximum daily leachate flow” for Phase III. (T. 304-05, 307-08, 690-91, 991-93; SC Ex. 6, 27.)

66. In February 2024, a month after Phase III operations began, Keystone reported generating leachate at an average of 282,676 gpd, more than double Keystone's prediction, and nearly 8.2 million gallons of leachate for the month. (SC Ex. 27.)

67. Under the waste management regulations, no more than 25% of a landfill's total leachate storage capacity may be used for flow equalization on a regular basis. 25 Pa. Code § 273.275(b). (T. 169-70.)

68. Flow equalization is to assure a steady flow of leachate to the treatment plant so the treatment process runs smoothly and without interruption. (T. 271-72, 678-679.)

69. The Department interprets this regulatory requirement to mean that, while a landfill needs to maintain some amount of leachate in its lagoons for the functioning of a lagoon aeration system, a landfill cannot regularly store more leachate in its lagoons than what would equal 25% of the lagoons' total capacity. (T. 271-72.)

70. The purpose of the 25% regulation is to ensure that a landfill maintains appropriate leachate storage capacity to handle rain events. (T. 678, 681.)

71. Twenty-five percent of Keystone's 9.7 million gallons of leachate storage capacity in its lagoons is approximately 2.43 million gallons. (T. 171, 285, 679; SC Ex. 6.)

72. Keystone has stored leachate in excess of 25% of its lagoons' capacity on a regular basis during the years 2016 to 2019, 2021 to 2022, and late 2023 through the time of the merits hearing. (T. 198-206, 283-85, 566-67; FOL Ex. 71, 72, 74, 78, 85, 90, 91, 119, 120; SC Ex. 6, 12, 27; KSL Ex. 24, 112.)

73. The Keystone Landfill was out of compliance with the 25% leachate storage requirement for 19 of the 21 months prior to and including August 2018, with some months

reaching more than 80% of the leachate lagoons' capacity. According to data from the Department's monthly engineering reports, the lagoons' capacity during this time was as follows:

12/21/2016	27.72%
1/18/2017	42.1%
2/15/2017	42.09%
3/15/2017	64.47%
4/19/2017	80.23%
5/17/2017	70.21%
6/21/2017	46.1%
7/19/2017	42.98%
8/16/2017	44.48%
9/20/2017	43.19%
10/17/2017	38.34%
11/12/2017	38.27%
12/30/2017	12.16%
1/22/2018	17.21%
2/20/2018	40.14%
3/21/2018	56.86%
4/17/2018	54.78%
5/15/2018	46.36%
6/19/2018	46%
7/17/2018	40.57%
8/14/2018	85.77%

(T. 171-72; FOL Ex. 72.)

74. To address the excess leachate generation at the landfill, the Department has approved “temporary emergency storage” of leachate by the landfill in tanks, and Keystone has hauled leachate offsite for disposal at other facilities. (T. 174-75.)

75. Keystone has regularly hauled untreated leachate off-site for treatment and disposal at other facilities using 5,500-gallon tanker trucks to manage its leachate and to ensure it is maintaining enough capacity in its lagoons for emergency purposes. (T. 178-79, 286, 303, 309-10, 333-34, 335-36, 689-90, 1439-40, 1574-75; FOL Ex. 73, 83, 93.)

76. In September 2018, approximately 808,000 gallons of leachate had been transferred from the lagoons into a 1.7-million-gallon temporary tank to increase available capacity in the lagoons. (T. 174-76; FOL Ex. 73.)

77. During the month of September 2018, Keystone hauled 1.434 million gallons of leachate offsite. As of September 30, 2018, Keystone stored 6.7 million gallons of leachate in its lagoons and more than 2 million gallons in temporary tanks. (T. 181-82; FOL Ex. 92.)

78. On September 20, 2018, the Department issued a notice of violation (NOV) to Keystone for regularly exceeding 25% of its available leachate storage capacity since October 2016, in violation of 25 Pa. Code § 273.275(b). The Department requested that Keystone submit a plan within 15 days to correct the violation and to prevent it from reoccurring. (T. 1184-86; FOL Ex. 72, 74.)

79. The Department does not have a clear-cut rule for determining when a landfill is in violation of the regulation regarding 25% leachate storage levels. The Department assesses the levels in the lagoons over a period of time and considers factors such as major weather incidents

or unforeseen plant upsets. If leachate levels continue to trend upward without a significant rain event, the Department will begin to consider a violation. (T. 272-73, 1187-88.)

80. On October 31, 2018, Keystone's temporary leachate tank was holding more than 1.4 million gallons of leachate, while the leachate lagoons were holding more than 5.2 million gallons. (T. 177; FOL Ex. 71, 75.)

81. As of December 10, 2018, the lagoons were still holding 4.9 million gallons of leachate, more than 50% of their capacity. (T. 198; FOL Ex. 71.)

82. On December 10, 2020, the Department and Keystone entered into a Consent Order and Agreement (CO&A) to resolve Keystone storing leachate in excess of 25% of its storage capacity on a regular basis from October 2016 until February 2019 and resolving the September 2018 NOV. The CO&A did not require Keystone to pay a penalty. Instead, the Department and Keystone agreed that Keystone would complete a Community Environmental Project in which the landfill accepted \$112,905 of waste from a non-compliant waste pile. (T. 589-92, 1189, 1191, 1214, 1219; DEP Ex. 125.)

83. Various operational efforts have been made by Keystone over the years to address excess leachate at the landfill, including diverting rainwater in landfill cells into sumps that could be pumped to stormwater management facilities, applying rain tarping to Phase II of the landfill, and attempting to accelerate capping. Some of the efforts to control excess leachate began in 2015 and are still going on today. (T. 165-68, 319-323.)

84. Following the 2016-2019 excess leachate period, Keystone, at the Department's direction, took additional measures to reduce stormwater infiltration into the leachate collection system, including placing tarps on intermediate cover areas, compartmentalizing the landfill cells, using more intercellular berms, and placing berms across slopes. (T. 175-76, 319-23, 1380-81.)

85. At the time of the hearing, the Department believed that Phase II was the main contributor to excessive stormwater infiltration into the leachate collection system, but the Department has been waiting since 2019 for an explanation from Keystone definitively determining what the contributing factors might be. (T. 162-63, 168-69, 318-19; FOL Ex. 19.)

86. When the Department issued the Phase III permit modification in June 2021, it knew there was an issue with excess leachate generation at the Keystone Landfill. (T. 255-56, 683, 776-82; FOL Ex. 25.)

87. Leachate storage at the landfill again exceeded 25% of the total leachate storage capacity in each month between May 2021 and July 2022. (T. 202-04; FOL Ex. 71, 78, 85, 91.)

88. In August 2021, the lagoons were holding more than 6 million gallons of leachate, which is more than 60% of the lagoons' capacity. (T. 199; FOL Ex. 71, 78.)

89. In August 2021, Keystone requested authorization from the Department to begin using its bank of twenty-four 21,000-gallon frack tanks and a 750,000-gallon former Dunmore Oil above ground storage tank to store excess leachate and to continue aggressively trucking untreated leachate offsite. (T. 178, 332; FOL Ex. 79.)

90. The Department granted Keystone's request to use the tanks for the temporary emergency storage of excess leachate for 60 days, which the Department then extended for another 60 days at Keystone's request. (T. 178-79, 182-83; FOL Ex. 79, 83.)

91. In September 2021, Keystone hauled 3.608 million gallons of leachate offsite, while storing more than 5 million gallons of leachate in its lagoons by the beginning of October 2021. (T. 180-81; FOL Ex. 93.)

92. On April 12, 2022, the Department issued an NOV to Keystone for storing leachate in excess of 25% of available capacity from May 2021 until April 2022, in violation of 25 Pa.



Code § 273.275(b). The NOV was ultimately resolved with a February 8, 2023 Consent Assessment of Civil Penalty in the amount of \$11,025.00. (T. 351-52, 1193-94; FOL Ex. 85, 90, 91; SC Ex. 12.)

93. From May 2021 through June 2022, Keystone hauled untreated leachate off-site every month. (T. 180-181; FOL Ex. 93; SC Ex. 6.)

94. From October 2022 through March 2023, Keystone was again hauling untreated leachate off-site. (T. 259-60; SC Ex. 6.)

95. At the time of the hearing, Keystone was engaged in another emergency leachate storage situation that had begun in the fall of 2023. (T. 260-61, 327-28).

96. In October, November, and December of 2023, the lagoons exceeded the 2.4-million-gallon threshold. (T. 284-85; SC Ex. 6.)

97. As of February 2024, the amount of leachate stored in the leachate lagoons was about 6.4 million gallons. In March 2024, the amount of leachate storage in the lagoons was nearly 7.5 million gallons, or three times the 25% limit. (T. 205-06, 284-285; FOL Ex. 119, 120; SC Ex. 27.)

98. From January 2024 through at least the time of the merits hearing, Keystone was again hauling untreated leachate off-site. (T. 260, 634; SC Ex. 27; KSL Ex. 112.)

99. To address the recent excess leachate generation, by letter dated April 2, 2024, the Department again approved the use of additional temporary leachate storage capacity in the 750,000-gallon former Dunmore Oil tank and a 1,680,000-gallon Rain-for-Rent tank, and additional leachate trucking, until June 30, 2024. (T. 191-92, 568; FOL Ex. 121, 122, 123; KSL Ex. 112.)

100. A Department inspection report on April 18, 2024 indicated that leachate in the lagoons was at over 70% of the lagoons' storage capacity. (T. 566-67; KSL Ex. 112.)

101. From May 2021 through April 2024, Keystone reported storing leachate in amounts that exceeded 25% of its leachate storage capacity in at least 20 of the 36 months. (FOL Ex. 71, 78; SC Ex. 6, 27; KSL Ex. 24.)

102. Between May 2021 and April 2024, Keystone hauled untreated leachate off-site in 30 of those 36 months. (FOL Ex. 71, 78; SC Ex. 6, 27; KSL Ex. 24, 112.)

103. The Department allows a landfill to apply to the Department to truck its leachate off-site as part of its leachate management plan and its regular leachate management operations, but Keystone has not gone through this process for its emergency offsite trucking of leachate, and Keystone did not apply to actively haul leachate off-site as part of the Phase III permit application. (T. 258-59, 586-88, 677, 796-97.)

104. Although Keystone did not anticipate offsite hauling to be required for its Phase III operations, Keystone has already engaged in extensive offsite hauling since Phase III operations commenced, with nearly 3.5 million gallons of leachate hauled off-site during January and February 2024. (T. 1280-81, 1452-53; SC Ex. 27.)

105. Even with Keystone's leachate hauling, truck traffic has not increased beyond that projected by the traffic studies submitted to the Department with Keystone's permit application. (T. 532-34, 623, 1563-69; KSL Ex. 7A, 74.)

106. Keystone has attributed the excess leachate periods in 2016-2019, 2021-2022, and 2023-2024 to opening or constructing new cells at the landfill and an influx of stormwater into the leachate collection system during rain events. (T. 260-61, 327-28, 527-29, 1379-80, 1381-83, 1390-92.)

107. In 2018, Keystone opened a new cell and received 18 inches of rain. (T. 1379-80.)

108. Keystone attributes the 2021-2022 excess leachate period to a landfill liner installation company opening a new cell but being unable to complete its work before a heavy rain event and the company then pulling out, leaving the cell open to rain events all winter, along with issues with the efficacy of Keystone's biologic treatment system. (T. 1381-88.)

109. Keystone attributes the excess leachate in 2023-2024 to a failure by Keystone to fully install rain tarp prior to opening the Phase III leachate collection system in early January 2024 and receiving two significant precipitation events, resulting in excess stormwater entering the leachate collection system. (T. 308-09, 325-26, 1390-93.)

110. Keystone has verbally committed to the Department that, prior to certifying that a new cell is ready for waste placement, Keystone will have rain tarp in place to divert stormwater from the leachate collection system, but that commitment is not memorialized as a requirement of Keystone's waste permit or otherwise required by any order or formal communication of the Department. (T. 324, 483-84, 1400-01, 1442.)

111. During the excess leachate generation in 2023-2024, Keystone was again experiencing performance issues with its RO treatment system. (T. 1393-1400.)

112. Because of Keystone's excess leachate storage capacity, its use of temporary storage tanks, and its offsite hauling of leachate, the lagoons have never overflowed and have never been at imminent risk of overflowing. (T. 347-48, 1157, 1440.)

113. There is no evidence of environmental harm from Keystone hauling leachate from the landfill for offsite treatment. (T. 1440.)

114. During the 2016-2019 and 2021-2022 stretches of excess leachate storage, there were no discharges of untreated leachate and there were no overflows of the lagoons, storage tanks, or hauling trucks. (T. 347-48.)

### **Odors**

115. Under the solid waste regulations, a landfill operator must have a nuisance minimization and control plan (NMCP) to minimize and control things like vectors, noise, dust, and odors that arise from the operation of the landfill and could affect offsite areas. 25 Pa. Code §§ 273.136 and 273.218.

116. Keystone has a Department-approved NMCP to address known and potential nuisances, which contains provisions on, *inter alia*, weather monitoring, traffic, noise control, vector and bird control, dust control, enhanced odor mitigation, litter control, and transportation compliance and vehicle safety. (T. 443-45, 1173, 1469; KSL Ex. 25.)

117. Specific to odors, Keystone's NMCP contains measures including: odor patrols, gas detection equipment, odor neutralizers, portable flares, horizontal gas collectors, temporary gas wells, stone columns to promote leachate drainage, temporary liner, vacuum equipment installation, limiting the size of the working face, immediate disposal of odorous waste, daily monitoring of the gas collection system, and the use of aeration systems within the leachate lagoons. (T. 1173; FOL Ex. 25; SC Ex. 1; KSL Ex. 25.)

118. Landfill gas emissions at Keystone are controlled by a gas collection and control system, which collects landfill gas by vacuum and directs it to an onsite gas plant to be processed into pipeline quality gas or to onsite flare systems for combustion. (T. 486-90, 1330-36; KSL Ex. 42, 43, 44, 46, 48.)

119. Landfill gas is generated from the breakdown of waste by bacteria after all oxygen is consumed. (T. 1329-30.)

120. Condition 20 of the Phase III permit requires Keystone to implement additional odor mitigation practices to prevent excessive landfill gas emissions that may lead to offsite odors, including enhanced monitoring of intermediate slopes and areas of intermediate cover and the use of temporary geosynthetic cap. This condition not only applies to Keystone's Phase III expansion but also its ongoing Phase II operations. (T. 367-68, 441; FOL Ex. 39; SC Ex. 1.)

121. Pursuant to Condition 21 of the Phase III permit, Keystone must conduct a multi-year ambient air monitoring program that consists of the collection of air monitoring data from six air monitoring stations located around the perimeter of the landfill site. (T. 434-37, 440; SC Ex. 1; KSL Ex. 39.)

122. Pursuant to Condition 22 of the Phase III permit, Keystone must monitor the subsurface for landfill gas constituents. The condition requires Keystone to install four gas probe monitoring locations along the southern perimeter of the landfill site. (T. 437-41; SC Ex. 1; KSL Ex. 68, 69, 70.)

123. By their nature, waste disposal operations have the potential to create odors, and periodic odors will likely occur at any landfill. (T. 442-43, 595, 772-73, 1148, 1454-57.)

124. Odors from the Keystone Landfill can come from various sources, including the leachate lagoons, the working face during the disposal of waste, areas where intermediate cover has been deployed, and from landfill gas emanating from the waste mass. (T. 353, 442-43, 1146, 1454-57; FOL Ex. 37, 41.)

125. According to the Department's records on the Keystone Landfill before the Phase III permit modification approval was issued in June 2021, the Department received 38 odor

complaints in 2016, 12 odor complaints in 2017, 116 odor complaints in 2018, 74 odor complaints in 2019, 67 odor complaints in 2020, and 46 odor complaints as of May 2021. (T. 213-14, 216, 358; FOL Ex. 26 (Comment Response at 11).)

126. Every odor complaint received by the Department is investigated and evaluated by Department staff. (T. 359.)

127. The Department does receive some odor complaints where no odor is detected upon inspection or where the odor that the complainant attributes to Keystone was coming from another source. However, some odor complaints are not responded to until the following day or until multiple days later when the odor is unlikely to still be present. (T. 453-54, 475, 1150-52, 1167-68; KSL Ex. 52.)

128. In order for the Department to cite a landfill for an odor violation, the Department takes the position that it must be able to trace the source of an odor back to the landfill and attribute the odor to a specific failure of the landfill to follow its NMCP. (T. 360, 613-14, 617-18.)

129. The Department will also cite a landfill for an odor violation when the Department determines it is a malodor. A malodor is “[a]n odor which causes annoyance or discomfort to the public and which the Department determines to be objectionable to the public.” 25 Pa. Code § 121.1. To be a malodor, the odor needs to rise to the level of a public nuisance, which means someone from the Department must actually smell the odor and determine it to be a public nuisance. (T. 362, 614, 618-19.)

130. The Department’s primary waste inspector for the Keystone Landfill testified that he will only indicate a violation on his inspection reports if there is an “egregious violation” and that offsite odors are not necessarily a violation because “landfills smell,” but he will find a violation if the odor is a nuisance. (T. 1123, 1143, 1167.)

131. Keystone's staff has detected intermittent odors during complaint investigations and voluntary odor patrols in the vicinity of Marshwood Road and Route 6, which are in close proximity to the leachate lagoons and working face operations. (T. 1457-58.)

132. By letter dated February 15, 2019, the Department advised Keystone that the Department had received numerous complaints relating to offsite landfill odors from residents located in the Boroughs of Throop, Dunmore, and Olyphant, in the Townships of Jefferson and Roaring Brook, and from the City of Scranton. Department staff had responded to the complaints and confirmed that landfill odors had been detected at various locations around the landfill. (T. 215-16; FOL Ex. 29.)

133. The letter notes that on February 4, 2019 six odor complaints were received after hours by the Department, a member of the Department's emergency response team responded, and during his investigation he detected a strong landfill odor along Marshwood Road in Throop that the Department believes originated from the landfill. The letter further notes that on February 14, 2019 the Department visited the landfill and identified an area of intermediate slope above a newly installed temporary cap that may have been contributing to offsite odors. (T. 215-16; FOL Ex. 29.)

134. During the months of September and October 2022, a total of 68 complaints were filed from residents located in Throop, Dunmore, Jessup, Olyphant, and the City of Scranton. The Department responded to all of the complaints and landfill-associated garbage odors were detected at various locations surrounding the landfill. (T. 217-18; FOL Ex. 33.)

135. More than 15 complaints were filed with the Department from October 28, 2022 to October 30, 2022, with many complainants stating the odor was strong, nauseating, and akin to rotten garbage. (FOL Ex. 33.)

136. During the Department’s monthly inspection of the landfill on October 31, 2022, very strong odors were detected in the area being filled under the settlement accommodation plan (“SAP”)—a minor permit modification approved on February 17, 2021 that allowed Keystone to remove the final cap and place additional waste in areas that had previously reached final grade but where the waste had settled below final grade. (T. 223-25, 1149; FOL Ex. 33.)

137. Between September 1, 2022 and January 20, 2023, the Department received and responded to 233 odor complaints from residents in Dunmore and Throop and surrounding areas, many of the whom described the odor as having a strong hydrogen sulfide component that the Department believed was caused by uncaptured landfill gas and, to a lesser extent, the leachate storage lagoon odors. (T. 218-19; FOL Ex. 37.)

138. Following the issuance of the Phase III approval in June 2021, the Department issued NOVs to Keystone related to offsite odors on January 25, 2023, December 13, 2023, and January 8, 2024. (FOL Ex. 37, 44, 46.)

139. In the January 25, 2023 NOV, the Department detailed its findings as a result of investigating odor complaints and conducting inspections between September 2022 and January 2023. Those findings included:

- On November 9, 2022, the Department responded to multiple odor complaints from residents in multiple municipalities. The complaints were investigated by a representative of the Department’s Waste Management Program. During the investigation, a landfill gas odor was detected at multiple locations and a landfill gas malodor was detected at multiple residences in Dunmore Borough.
- On November 15, 2022, the Department responded to multiple odor complaints from residents in multiple municipalities. The complaints were investigated by a representative of the Department’s Air Quality Program. During the investigation, a landfill gas odor was detected at multiple locations and residences in the Scranton and Dunmore areas.
- On November 16, 2022, the Department responded to multiple odor complaints from residents in multiple municipalities. The complaints were investigated by a representative of the Department’s Waste Management Program. During the



investigation, a landfill gas odor was detected along Marshwood Road in Throop Borough.

- On November 21, 2022, a representative of the Department's Waste Management Program conducted an odor patrol in response to the multiple odor complaints being filed. During the investigation, landfill odors were detected along Marshwood Road in Throop Borough and State Route 6 in Dunmore and Throop Boroughs.
- On December 16, 2022, the Department responded to an odor complaint from a resident located in Jefferson Township. The complaint was investigated by a representative of the Department's Emergency Response Team. During the investigation, a landfill operations-associated odor was detected at the complainant's residence and on State Route 6 in Dunmore and Throop Boroughs.
- On December 21, 2022, the Department responded to multiple odor complaints from residents in multiple municipalities. The complaints were investigated by representatives of the Department's Waste Management Program and Emergency Response Team. During the Waste Management Program's investigation, hydrogen sulfide/landfill gas odors were detected at multiple locations and hydrogen sulfide/landfill gas malodors were detected at multiple residences, in Dunmore and Throop Boroughs.
- On December 23, 2022, a representative of the Department's Waste Management Program conducted an odor patrol in response to the multiple odor complaints being filed the previous day. During the investigation, landfill odors were detected along Marshwood Road in Throop Borough and on State Route 6 in Dunmore and Throop Boroughs.
- On December 28, 2022, a representative of the Department's Waste Management Program conducted an odor patrol in response to the multiple odor complaints being filed. During the investigation, landfill gas and hydrogen sulfide odors were detected in multiple locations, in Dunmore, Throop and Jessup Boroughs.
- On December 30, 2022, the Department responded to multiple odor complaints from residents in multiple municipalities. The complaints were investigated by a representative of the Department's Waste Management Program. During the investigation, landfill odors were detected at multiple locations and residences in Dunmore and Throop Boroughs.

(T. 218-20; FOL Ex. 37.)

140. During the inspections conducted on November 21, 2022 and January 5, 2023, Department staff recorded high readings of methane gas at numerous locations where intermediate cap had been placed and at the base of some gas collection wells. (FOL Ex. 37.)

141. The Department determined that the odors over this period were largely attributable to Keystone's noncompliance with provisions of its NMCP because of Keystone's intermediate cover failing to contain odors and Keystone failing to conduct adequate surface monitoring by not doing monthly monitoring of areas of intermediate cover. (T. 218-20, 364-68; FOL Ex. 37.)

142. The Department cited Keystone for failing to perform regular site inspections for detecting odors, failing to correct problems during inspections, failing to implement its NMCP, failing to maintain intermediate cover, failing to implement its gas control and monitoring plan, allowing the emission of a malodorous air contaminant, failing to prevent and control air pollution, and failing to conduct enhanced surface monitoring on intermediate slopes. (FOL Ex. 37.)

143. The Department requested that Keystone submit a written response within 15 days identifying the reason the violations occurred and how such violations would be prevented in the future. (FOL Ex. 37.)

144. Odor complaints increased again in September and October 2023, when the Department received over 100 odor complaints related to the landfill and the Department regularly detected offsite landfill odors, particularly along Marshwood Road, the Casey Highway, and Interstate 81. (T. 220-21 FOL Ex. 39.)

145. The Department's review of Keystone's enhanced surface monitoring results conducted in July through October 2023 indicated that surface methane emissions in the scan areas had gotten progressively worse. (FOL Ex. 36, 39.)

146. The Department attributed these odors to a failure of intermediate cover and its ability to contain the gas-causing odors, as well as to Keystone's failure to properly conduct enhanced surface monitoring on those areas. (T. 220-23, 353-55, 1149-50.)

147. The Department believes Keystone's intermediate cover may not have had the appropriate volume of fines to make a proper seal to prevent odors. (T. 233-34.)

148. In a letter dated October 30, 2023, the Department requested that Keystone provide the Department with information so that the Department could determine if Keystone had complied with its NMCP. The Department advised that Keystone should immediately consider additional mitigation measures to minimize offsite odors, as it was apparent to the Department that Keystone's mitigation measures had not been effective. (T. 221-22, 378-79; FOL Ex. 39, 40.)

149. On November 13, 2023, in response to the increased volume of odor complaints being received by the Department since September 2023, the Department began conducting twice daily odor patrols of the areas surrounding the landfill. (T. 396; FOL Ex. 41, 115.)

150. The Department determined that the odors during this period were primarily caused by Keystone's implementation of the SAP. (T. 225-27, 353-55, 1149- 50; FOL Ex. 41, 44.)

151. On November 16, 2023, the Department inspected the landfill and found strong, pungent landfill gas odors in the SAP area. High readings on a surface methane gas monitoring meter were recorded throughout the SAP area. (FOL Ex. 41.)

152. The Department suspended Keystone's SAP authorization on November 21, 2023 because the Department determined that the SAP area was a hotspot for landfill gas leakage that could be directly linked to offsite odors being detected, and Keystone was unable to maintain overall operational compliance in controlling odors from the area. (T. 380; FOL Ex. 41.)

153. Keystone has completely closed and recapped the SAP area. (T. 355, 1150.)

154. On December 13, 2023, the Department issued an NOV to Keystone for failure to maintain a uniform intermediate cover that prevents odors due to offsite landfill gas odors being detected on numerous occasions during the Department's odor patrols, extensive areas of

intermediate cover with excessive methane emissions results in the months of September and October 2023, and the Department detecting strong landfill gas and elevated methane readings during its November 16, 2023 inspection. The Department requested that Keystone submit within 30 days a proposed plan and schedule to address the correction and prevention of the violation. (T. 227, 381-83; FOL Ex. 44.)

155. On January 8, 2024, the Department issued an NOV to Keystone for offsite leachate odors detected along Cypress Street, Dunmore Street, George Street, Marshwood Road, and South Street in the Dunmore and Throop areas, including malodors at multiple complainants' residences detected by the Department during a December 2, 2023 odor complaint investigation. The Department requested that Keystone submit within 15 days a proposed plan and schedule to address the correction and prevention of the odors. (T. 227-28, 383-84; FOL Ex. 46.)

156. By letter dated February 1, 2024, the Department advised Keystone that “additional, more immediate, odor mitigation measures need to be implemented” because the Department had continued to detect offsite landfill gas odors and continued to receive a high volume of odor complaints. The Department requested more specific information from Keystone regarding mitigation measures. (T. 228-29; FOL Ex. 47.)

### **March 29, 2024 Consent Order and Agreement**

157. On March 29, 2024, approximately three weeks before the start of the merits hearing in this matter, the Department and Keystone entered into a CO&A to resolve violations found by the Department largely pertaining to odors from November 2022 through February 2024. The CO&A documents more than 30 odor incidents during that time period. (T. 229-30; FOL Ex. 115.)

158. The March 2024 CO&A requires Keystone to undertake a number of corrective actions designed to further mitigate or eliminate potential offsite odors from the Keystone Landfill, as well as to prevent stormwater infiltration into the leachate collection system that go beyond what is required in Keystone's solid waste permit or its operating plans. (T. 231-32, 242, 389-95, 476, 478-79, 1458-66; FOL Ex. 115.)

159. The corrective actions are required to be completed between March 2024 and April 2025 and are related to leachate lagoon odor mitigation measures, leachate generation and reverse osmosis reject water evaluations, and intermediate cover and landfill gas emission mitigation measures. Specifically, the CO&A requires Keystone to do the following:

- Immediately apply foam to the leachate lagoons, use an additive to mitigate potential offsite lagoon odors, and inspect the surface coverage of the foam daily.
- Complete installation of the Hexprotect floating cover system on the surface of the leachate lagoons by July 30, 2024.
- Submit to the Department a minor permit modification for the installation of two 2,500,000-gallon leachate storage tanks systems and respond to any technical deficiency letters concerning the permit modification within 30 days.
- Complete installation of the 2,500,000-gallon leachate storage tanks by April 1, 2025.
- Evaluate by May 1, 2024 appropriate RO system modifications needed to reduce the volume of RO reject water being generated.
- Determine by May 1, 2024 areas of the landfill that contribute the most significant volumes of leachate as a result of storm events and include measures to be implemented to minimize the impact of storm events on leachate generation.
- Submit a minor permit modification by June 1, 2024 to install a fourth RO unit and any other proposed changes to the current RO leachate treatment system, and evaluate the maximum safe volume of RO reject water that can be disposed of at the active working face.
- Complete installation of the fourth RO unit by August 1, 2024.
- Immediately implement more frequent surface emissions monitoring utilizing aerial drone technology, at least once per month.

- Immediately ensure that its cover material meets minimum intermediate cover standards.
- Comply with a detailed schedule for the application of Posi-Shell, temporary cap, rain tarp, temporary liner, and final cap on certain areas of Phase II of the landfill.
- Submit to the Department an updated NMCP within 60 days of execution of the CO&A to include the measures noted in the CO&A, as well as an evaluation to determine a maximum acreage of intermediate cover that can be in place at any given time while ensuring landfill gas emissions are controlled to a level where offsite odors are adequately mitigated, and any additional measures recently taken to address odors.
- Obtain written approval from the Department for any modifications to the corrective actions pertaining to leachate odor management and alternative intermediate cover products.
- Submit monthly progress reports to the Department on the corrective measures, with copies sent to Throop and Dunmore.

(T. 231-32, 242, 444; FOL Ex. 115.)

160. In response to the CO&A, Keystone has taken measures to control potential leachate lagoon-associated odors, including foaming the lagoons, deploying a floating cover material, and using a hydrogen sulfide reducing chemical. (T. 1459-60, 1544-45.)

161. In accordance with the CO&A, Keystone recently began using drones as part of its surface emissions monitoring program, in addition to monthly on the ground monitoring with flame ionization detector (FID) scans and mapping. (T. 392, 490-96, 1346-49, 1352-56; FOL Ex. 115; KSL Ex 87, 88, 89, 90.)

162. The CO&A also assessed a civil penalty against Keystone in the amount of \$180,000, required Keystone to reimburse the Department costs in the amount of \$35,000, and allowed Keystone to establish funds totaling \$360,000 for use by Dunmore and Throop for Community Environmental Projects. (T. 237, 605-06; FOL Ex. 115.)

163. The CO&A's corrective actions are designed to return Keystone to compliance, and Keystone is obligated to complete the corrective actions or face automatic penalties. (T. 476, 479, 620; FOL Ex. 115.)

164. The CO&A does not amend Keystone's permit, and the measures contained in the CO&A will eventually expire. (T. 607.)

165. The Department can at any time modify, suspend, or revoke Keystone's permit if necessary and warranted by the circumstances. 35 P.S. § 6018.503. (T. 418, 545, 607.)

### **Environmental Assessment / Harms-Benefits Analysis**

166. The municipal waste regulations require the Department to perform an environmental assessment of Keystone's Phase III permit application pursuant to a harms-benefits analysis that weighs the benefits of the project against the known and potential harms that remain after mitigation. 25 Pa. Code §§ 271.126 and 271.127.

167. Under the harms-benefits analysis, an applicant must: (1) include a detailed analysis of the potential impact of the proposed facility on the environment, public health, and public safety; (2) describe the known and potential harms of the proposed project; (3) include a written mitigation plan that explains how each known and potential harm will be mitigated and the extent to which any known or potential harms remain after mitigation; and (4) demonstrate that the benefits of the project to the public clearly outweigh the known and potential environmental harms that will remain after the proposed mitigation. 25 Pa. Code § 271.127.

168. The Department evaluates the information submitted by a permit applicant, and for each benefit and harm, the Department assesses the duration, frequency, intensity, reach, and receptor sensitivity. (T. 785-86; FOL Ex. 25.)

169. If a harm is fully mitigated, that harm does not need to be balanced against the benefits of the project. If there is harm remaining after mitigation, that remaining harm is included in the balancing. The balancing looks at the individual and collective impacts of all the harms and benefits to ensure that the total effect of the project is such that the benefits clearly outweigh the harms. (T. 772-73, 785-86; FOL Ex. 25.)

170. The Department prepared an environmental assessment / harms-benefits analysis in July 2019 and a revised analysis in April 2021. (T. 767-68, 801-05; FOL Ex. 21, 25.)

171. For the benefits of the Phase III expansion, the Department evaluated: recycling and cleanup programs, the purchase of goods and services, continued employment, state disposal fees, tax revenue, the Pennsylvania Department of Transportation adopt a highway program, and borough host agreement fees. (T. 769-71; FOL Ex. 25.)

172. The potential environmental harms evaluated by the Department included: landfill odors, litter, offsite noise, the attraction of vectors and birds, tracking dirt and mud offsite, stormwater runoff during ongoing construction operations, the migration of air pollutants, groundwater impacts, risk of fires and subsurface reactions, and the discharge of treated leachate to the Lackawanna River during combined sewer overflows. (T. 771-772; FOL Ex. 25.)

173. For social and economic harms, the Department assessed traffic and the visual impacts of the landfill. (T. 771, 837-39; FOL Ex. 25.)

174. Keystone's proposed mitigation for the harm of offsite odors is its NMCP. (T. 774; FOL Ex. 25; KSL Ex. 25.)

175. The Department determined that, while Keystone has generally operated in compliance and has proposed adequate mitigation measures to control offsite odors, it was unlikely



to provide complete elimination of odors at all times, and therefore, potential harm related to odors would remain for purpose of the harms-benefits balancing. (T. 774, 840; FOL Ex. 25.)

176. With regard to excess leachate generation, the Department acknowledged that Keystone “has an issue with either excess leachate generation or stormwater infiltration into the leachate conveyance system” and that these excess flows increase the potential for the facility to have overflows and other incidents, which could then potentially lead to groundwater or surface water impacts. (T. 252-53, 776-78, 780-81, 792-94; FOL Ex. 25 (at 13).)

177. The harms-benefits analysis noted Keystone’s need to add temporary leachate storage and to haul leachate off-site as a result of excess leachate, and that current leachate flows at the site regularly exceed the HELP model calculated maximum flow for both the existing site and what was calculated for the Phase III expansion. (T. 776-78, 792-93; FOL Ex. 25.)

178. For visual impacts, the Department determined that harm remained because the Phase III expansion will extend the elevation of the disposal area across a larger distance and extend the peak of the landfill 3,000 feet closer to residential areas. The intensity of the visual harms related to the expansion will be greatest during the 40 years of construction activities and active working face operations. (T. 782-85; FOL Ex. 25.)

179. The Department concluded in the harms-benefits analysis that Keystone had demonstrated that the benefits of the landfill to the public clearly outweigh the known and potential harms. (T. 786, 791; FOL Ex. 25.)

180. Erika Bloxham, a facility specialist in the Department’s waste management program in the Northeast region, who was the primary author of the harms-benefits analysis, concluded that the benefits of the Phase III Expansion *did not* outweigh the harms, primarily because in her opinion Keystone had not mitigated the excess leachate production to the fullest

extent possible. However, Ms. Bloxham’s supervisor, Roger Bellas, the waste program manager for the Northeast region, disagreed and authored the conclusion of the analysis for the Department. (T. 146, 265-66, 765, 786, 789-91, 919-20.)

181. Keystone’s compliance history does not at this time demonstrate an inability or unwillingness to operate the landfill in accordance with the permit or with the law. (T. 1195-1207, 1223-24; DEP Ex. 1, 74, 75 76, 77; KSL Ex. 22, 23, 71.)

182. FOL and Sierra Club failed to present any credible evidence that the Keystone Landfill has contaminated or will contaminate groundwater or any other waters with per- or polyfluoroalkyl substances (PFAS), or that any modification of the permit is warranted at this time to account for PFAS. (*See* T. 406-08, 646, 648, 1079, 1090, 1096-1101, 1105; SC Ex. 16.)

## DISCUSSION

Friends of Lackawanna (“FOL”) has appealed the Department of Environmental Protection’s (the “Department’s”) June 3, 2021 issuance of a major modification to Keystone Sanitary Landfill, Inc.’s (“Keystone’s”) solid waste disposal permit (Permit No. 101247) for its municipal waste landfill located in the boroughs of Dunmore and Throop in Lackawanna County. Sierra Club has intervened in support of FOL’s appeal. The major permit modification authorizes Keystone’s Phase III expansion of the landfill. The conditions in the Phase III permit modification modify, replace, and/or add permit conditions regarding Keystone’s existing operating permit. (SC Ex. 1.) The Phase III expansion generally allows Keystone to add additional waste on top of existing waste disposal areas and to dispose of waste in other areas within the existing permit boundary, primarily in a valley between the peaks of two existing disposal areas. The Phase III modification would increase Keystone’s disposal capacity by 94 million cubic tons and extend the overall life of the Keystone Landfill by 42 years. Phase III operations began in January 2024, but

as of the hearing on the merits, operations had been temporarily halted so that Keystone could focus on completing its Phase II operations and complying with a capping schedule and other measures established in a Consent Order and Agreement (CO&A) issued by the Department in March 2024 to address ongoing odor and leachate management issues at the landfill. (T. 525, 633.) The Board conducted a site view of the Keystone Landfill with the parties on May 9, 2024, shortly after the merits hearing in this matter concluded.<sup>1</sup>

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<sup>1</sup> A significant period of time has elapsed from when the merits hearing was held and the final brief was filed due to repeated requests from the parties to extend the established and agreed-upon deadlines for filing post-hearing briefs. The hearing on the merits began on April 22, 2024 and concluded on April 30, 2024. At the conclusion of the hearing, the parties agreed on a framework for post-hearing briefing where, following the receipt of all transcripts, FOL and Sierra Club would file their post-hearing briefs within 60 days; the Department and Keystone would file their post-hearing briefs 60 days later; and FOL and Sierra Club could file any post-hearing reply briefs 30 days after that. (T. 1670-71.) The final transcripts from the merits hearing were received by the Board on May 23, 2024. On the same day, the Board issued an Order setting a post-hearing briefing schedule where FOL and Sierra Club were to file their post-hearing briefs on or before July 22, 2024; the Department and Keystone were to file their post-hearing briefs on or before September 20, 2024; and any reply briefs from FOL or Sierra Club were to be filed on or before October 21, 2024. On July 11, 2024, FOL filed a letter requesting a 60-day extension of all post-hearing briefing deadlines. The request was consented to by all parties. On July 11, 2024, we issued an Order granting the request and amending the post-hearing briefing schedule in accordance with FOL's request so that FOL and Sierra Club were to file their post-hearing briefs on or before by September 20, 2024; the Department and Keystone were to file their post-hearing briefs on or before November 19, 2024; and any reply briefs from FOL and Sierra Club were to be filed on or before December 19, 2024. FOL and Sierra Club filed their post-hearing briefs on September 20, 2024.

On October 31, 2024, the Department requested a further 30-day extension of the post-hearing briefing deadlines, which was not objected to by any party. On November 1, 2024, we issued an Order granting the Department's request and amending the post-hearing briefing schedule yet again so that the Department and Keystone were to file their post-hearing briefs on or before December 19, 2024, and any reply briefs from FOL or Sierra Club were to be filed on or before January 21, 2025. Our November 1 Order across eight paragraphs detailed the history of post-hearing briefing extensions requested by the parties. The Department and Keystone filed their post-hearing briefs on December 19, 2024. On January 7, 2025, FOL then requested another 30-day extension of the deadline for FOL and Sierra Club to file their post-hearing reply briefs, which was also not opposed by any party, and which we granted with an Order on January 9, again outlining the history of extensions requested by the parties. FOL and Sierra Club filed their reply briefs on February 20, 2025 in accordance with our Order, four months after they were to be filed under the schedule originally agreed upon by the parties and established in our first Order on post-hearing briefing.

Keystone, to its credit, never initiated a request for an extension. FOL did not seek a supersedeas at any point during this proceeding so Keystone's permit has remained in effect and its operations have not been affected by the protracted briefing schedule. While we try to be accommodating on mutually agreed upon requests by the parties for extensions, we must balance these requests with our aim to secure the just,

Back in 2015, FOL also appealed the renewal of Keystone’s solid waste management permit, which authorized the Keystone Landfill to operate for another ten years.<sup>2</sup> See *Friends of Lackawanna v. DEP*, EHB Docket No. 2015-063-L. During 18 days of hearing in that appeal, FOL raised a number of issues, including the management of leachate at the landfill and the control of offsite odors being experienced by its members and the local community. In our 2017 Adjudication, we noted that “[t]he Department appear[ed] to have been rather tolerant of chronic odor and leachate management issues.” *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1183. Nevertheless, we for the most part rejected FOL’s challenges, but we revised Keystone’s permit to contain a condition requiring Keystone to prepare a groundwater assessment of groundwater degradation that was being detected in a monitoring well (MW-15).

Much like in the appeal of the renewal permit, in the current appeal of the Phase III expansion, FOL and now Sierra Club have raised issues with persistent offsite odors emanating from the landfill, and with the management of leachate generated by the landfill, which at times far exceeds what Keystone has been able to store and treat on a monthly basis. The hearing on the merits has shown that Keystone continues to struggle managing the generation of offsite odors and leachate from its operations. Since the Phase III permit modification was issued, Keystone, at the Department’s request or by Department order, has modified its operations to further address the mitigation of odors and leachate, but none of these new requirements are contained in any permit condition in the Phase III permit. For the reasons explained below, we conclude that the Department erred in issuing the Phase III permit modification without appropriate conditions or

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speedy, and inexpensive determination of every appeal. 25 Pa. Code § 1021.4. While we acquiesced in the parties’ requests in this appeal, we might not always be so accommodating.

<sup>2</sup> We are told that Keystone has already submitted another renewal application before the expiration of its current permit on April 6, 2025. (T. 544.)

without ensuring that requirements in Keystone’s operating plans effectively control and manage leachate and odors. We remand the Phase III permit modification to the Department to consider whether or not it is appropriate to impose any additional conditions in the permit to further address the control and management of leachate and odors, or to require Keystone to revise any of the plans it has developed and operates under.

“In matters challenging action of the Department, the Board conducts a *de novo* hearing to determine the propriety of the Department’s action....” *PennEnvironment v. Dep’t of Env’t Prot.*, \_\_\_ A.3d \_\_\_, No. 566 C.D. 2024, slip op. at 7 (Pa. Cmwlth. Mar. 11, 2025). “The Board’s *de novo* review allows it to admit and consider evidence that was not before the Department when it made its initial decision, including evidence developed since the filing of the appeal.” *United Ref. Co. v. Dep’t of Env’t Prot.*, 163 A.3d 1125, 1136 (Pa. Cmwlth. 2017). *See also Gibraltar Rock, Inc. v. Pa. Dep’t of Env’t Prot.*, 316 A.3d 668, 677 (Pa. Cmwlth. 2024) (the Board “can properly consider evidence produced after DEP’s action in question and in anticipation of litigation”). The Board “decide[s] the case anew on the record developed before” it. *Borough of St. Clair v. DEP*, 2016 EHB 299, 318 (citing *Dirian v. DEP*, 2013 EHB 224, 232; *O’Reilly v. DEP*, 2001 EHB 19, 32; *Warren Sand & Gravel Co. v. Dep’t of Env’t Res.*, 341 A.2d 556 (Pa. Cmwlth. 1975)). In a third-party appeal such as this one, FOL and Sierra Club bear the burden of proof. 25 Pa. Code § 1021.122(c)(2). They must show by a preponderance of the evidence that the Department acted unreasonably or contrary to the law, that its decision is not supported by the facts, or that the decision is inconsistent with the Department’s obligations under the Pennsylvania Constitution. *Brockway Borough Mun. Auth. v. DEP*, 2015 EHB 221, 236, *aff’d*, 131 A.3d 578 (Pa. Cmwlth. 2016); *Friends of Lackawanna*, 2017 EHB at 1156.

## Standing

Before getting into the merits, we once again must address a challenge raised to FOL's standing, as well as a challenge to Sierra Club's standing. Keystone, but not the Department, contests the standing of both FOL and the Sierra Club in this matter. Keystone in its post-hearing brief does not challenge the interests of the members of these organizations who testified at the hearing. Rather, Keystone primarily argues that FOL and Sierra Club are nonprofit corporations, and corporations, according to Keystone, are separate legal entities that cannot represent the interests of their members for purposes of obtaining standing. In other words, according to Keystone, a non-corporate organization or association can have standing on behalf of its members, but a corporation cannot.<sup>3</sup>

Keystone never cites any case holding that a nonprofit corporation has no standing as a representative of its members. It only cites cases for the rather unremarkable proposition that a corporation is a legal entity. Keystone argues that, because a corporation is a distinct legal entity, it cannot derive standing on behalf of its members. It would seem that most courts, including the United States Supreme Court, disagree with Keystone. *See Students for Fair Admissions, Inc. v. President & Fellows of Harv. Coll.*, 600 U.S. 181, 198-201 (2023) (finding that a validly incorporated 501(c)(3) nonprofit with forty-seven members who joined voluntarily to support its

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<sup>3</sup> Keystone previously contested Sierra Club's standing in the context of Keystone's opposition to Sierra Club's petition to intervene in this matter, which we granted over Keystone's objection. *Friends of Lackawanna v. DEP*, 2022 EHB 11. Keystone then moved to amend our Order granting Sierra Club's intervention so that Keystone could seek immediate appellate review of the interlocutory Order, which we denied, *Friends of Lackawanna v. DEP*, 2022 EHB 39, and Keystone did not appeal that decision. Keystone later sought partial summary judgment on, among other things, its claim that a corporation cannot have standing to assert claims under Article I, Section 27 of the Pennsylvania Constitution, which we also denied. *Friends of Lackawanna v. DEP*, 2024 EHB 149. In its post-hearing brief, Keystone incorporates by reference "to the extent necessary," its opposition to Sierra Club's petition to intervene and its motion to amend the interlocutory order. Keystone also contested the standing of FOL in the appeal of Keystone's renewal permit, but we found Keystone's arguments to have no merit. *Friends of Lackawanna, supra*, 2017 EHB at 1147-55.

mission had standing and that, “Where, as here, an organization has identified members and represents them in good faith, our cases do not require further scrutiny into how the organization operates.”); *Americans for Fair Treatment, Inc. v. Phila. Fedn. of Teachers, Local 3*, 150 A.3d 528, 533 (Pa. Cmwlth. 2016) (finding that an association has standing if at least one of its members suffers an immediate or threatened injury and that “[t]his rule applies equally to nonprofit membership corporations.”). *See also NAACP, Inc. v. Button*, 371 U.S. 415 (1963) (finding the NAACP could bring suit “on its own behalf, because, though a corporation, it is directly engaged in those activities, claimed to be constitutionally protected, which the statute would curtail. We also think petitioner has standing to assert the corresponding rights of its members.” (citations omitted)); *Friends of the Earth, Inc. v. Laidlaw Env’t Servs. (TOC), Inc.*, 528 U.S. 167 (2000) (finding that environmental organizations Friends of the Earth, Inc., Citizens Local Environmental Action Network, Inc., and Sierra Club had standing on behalf of their members to file a citizens suit against the operator of a hazardous waste incinerator); *Int’l Union v. Brock*, 477 U.S. 274, 290 (1986) (quoting *Joint Anti-Fascist Refugee Committee v. McGrath*, 341 U.S. 123, 187 (1951) (Jackson, J., concurring) (“The only practical judicial policy when people pool their capital, their interests, or their activities under a name and form that will identify collective interests, often is to permit the association or corporation in a single case to vindicate the interests of all.”)).

Keystone does not add anything particularly new to the arguments that it made first in opposition to Sierra Club’s petition to intervene and then in its motion for partial summary judgment. Keystone does not address or try to rebut any of the reasons we found their arguments to fail in our Opinion granting intervention. *Friends of Lackawanna v. DEP*, 2022 EHB 11. We find no reason to change our prior ruling on standing.

Keystone also argues that a corporation cannot assert a challenge based on Article I, Section 27 of the Pennsylvania Constitution. We rejected that argument in our Adjudication on Keystone’s renewal permit and we do so again here:

Keystone also makes the argument that FOL lacks standing to assert challenges under Article I, Section 27 of the Pennsylvania Constitution because it is a corporate entity. We are not aware of any separate standing inquiry for constitutional claims. In *Robinson Township v. Commonwealth*, 83 A.3d 901 (Pa. 2013), a majority of the Pennsylvania Supreme Court Justices joined in the standing analysis and found standing for an organization to assert challenges to the Oil and Gas Act of 2012, which included challenges premised on Article I, Section 27. 83 A.3d 901, 921-23. The Pennsylvania Supreme Court never parsed out the constitutional claims or carved out different standards for an organization making constitutional challenges. The individual members of FOL, on whose behalf FOL is litigating, are precisely the sort of people that Article I, Section 27 is designed to protect, and FOL unquestionably has standing to advance Article I, Section 27 challenges on their behalf.

*Friends of Lackawanna*, 2017 EHB at 1154-55.

In the interest of a complete record, we will briefly address the standing of FOL and Sierra Club. “An organization has standing if at least one individual associated with the group has standing.” *Friends of Lackawanna*, 2022 EHB at 14 (quoting *Friends of Lackawanna*, 2017 EHB at 1152 (citing *Funk v. Wolf*, 144 A.3d 228, 245-46 (Pa. Cmwlth. 2016)). See also *Pa. Med. Soc’y v. Dep’t of Pub. Welfare*, 39 A.3d 267, 278 (Pa. 2012) (“an association, as a representative of its members, has standing to bring a cause of action even in the absence of injury to itself if the association alleges that at least one of its members is suffering immediate or threatened injury as a result of the challenged action and the members of the association have an interest in the litigation that is substantial, direct, and immediate.”). As we said recently in *Dengel v. DEP*, 2024 EHB 605:

In order to have standing to appeal an administrative decision, persons must have a direct interest in the subject matter of the case. *Mountain Watershed Assn. v. DEP*, [2024 EHB 476, 479], citing *Muth v. Department of Environmental Protection*, 315 A.3d 185, 204 (Pa. Cmwlth. 2024) (citing *Citizens Against Gambling Subsidies*,



*Inc. v. Pennsylvania Gaming Control Board*, 916 A.2d 624, 628 (Pa. 2007)). See also, *Food & Water Watch v. Department of Environmental Protection*, 2021 Pa. Commw. Unpub. LEXIS 191 (Pa. Cmwlth. 2021); and *Clean Air Council v. Department of Environmental Protection*, 245 A.3d 1207, 1212-13 (Pa. Cmwlth. 2021). A direct interest requires a showing that the matter complained of caused harm to the person's interest. *Id.* (citing *Muth*, 315 A.3d 185, 204 (Pa. Cmwlth. 2024)). In order for a person to have a direct interest, their material interests must be discrete to them or a limited class of persons from more diffuse interests common among the citizenry. *Muth*, 315 A.3d at 196 (Pa. Cmwlth. 2024) (citing *Citizens Against Gambling Subsidies, Inc. v. Pennsylvania Gaming Control Board*, 916 A.2d 624, 628 (Pa. 2007))....

In third-party permit appeals, as is the case here, the Board has held that a party can meet the requisite interest for standing based on where they reside and/or where they recreate. *Food and Water Watch v. DEP*, 2020 EHB at 247. An appellant has standing when [] they come forward with specific facts to credibly aver that they use the affected area and that there is a realistic potential that their use and enjoyment of the area will be adversely affected by the permitted activity. *Muth v. DEP, et al.*, 2022 EHB 411, 415 (citing *Friends of Lackawanna v. DEP*, 2016 EHB 641, 643).

*Id.* at 615-16.

The members of FOL and Sierra Club who testified at the merits hearing clearly have interests sufficient to support standing on behalf of FOL and Sierra Club. FOL is a Pennsylvania 501(c)(3) nonprofit organization formed in 2014 in opposition to the Keystone Landfill with a mission to support the health, welfare, and education of individuals in need in Northeast Pennsylvania, and to protect and educate the community on the impacts of the landfill. (T. 42-43, FOL Ex. 1.) FOL has approximately 5,000 members, mostly concentrated in the Dunmore, Throop, and Scranton area. (T. 45-46, 92.)

Patrick Clark is a member, board member, and officer of FOL. (T. 41-42.) He lives in Dunmore about two miles from the Keystone Landfill with his wife and children, and has lived in Dunmore nearly his entire life. (T. 32-33, 68.) His children play sports and use parks near the landfill, and Mr. Clark has experienced odors he attributes to the landfill while he and his family do these activities. (T. 34-36.) Mr. Clark testified that odors from the landfill were not noticeable

years ago but he now experiences odors on a regular basis in his neighborhood and at his house. (T. 34-35.) Mr. Clark has experienced odors since Keystone's Phase III operations began in January 2024. (T. 108.) Mr. Clark is also concerned with the visual impacts of the landfill, as it is the first thing one sees coming into Dunmore from the highway. (T. 38-39.) He believes that both odors and visual impacts will get worse as Keystone's Phase III progresses. (T. 41.)

Sierra Club presented the testimony of Sarah Helcoski and John Mellow. Ms. Helcoski is a member of Sierra Club who lives in Jessup around three miles from the landfill with her husband and children. (T. 128-29, 140-41.) She is in Dunmore nearly every day because her youngest child attends preschool at a YMCA near the landfill. (T. 129-30.) She says she sees trash blowing on the highway as she travels to Dunmore, which she attributes to the Keystone Landfill. (T. 130-31, 139.) She enjoys hiking with her children around Jessup, Scranton, and Dunmore. (T. 129.) She is concerned about the Phase III expansion of the landfill, which she says is already an unattractive feature with the visible trash, and believes the landfill will only get larger with the expansion. (T. 131-32.) She is also concerned about Keystone's leachate management and Keystone potentially generating more leachate than it can handle. (T. 132-33.)

John Mellow is a member of both Sierra Club and FOL who lives in Archbald. (T. 110, 111, 118-19.) Mr. Mellow likes to walk around the Dunmore No. 1 Reservoir near the landfill. (T. 111-12.) Mr. Mellow has aesthetic concerns with the landfill, saying recently it has become quite large and visible and he is concerned with how large the expansion is, and the possibility of potential contaminants from the landfill entering the environment. (T. 113.) Mr. Mellow is also concerned about per- and polyfluoroalkyl substances (PFAS) from the landfill because he believes landfills in general are likely to contain PFAS. (T. 114-15.) PFAS have been associated with possible negative health consequences (T. 1078) and were addressed in the Department's comment

response document (SC Ex. 1, Comment Response at 26). Roger Bellas, the Department's waste program manager for the Northeast region, testified that it is highly likely PFAS is in the leachate from any landfill. (T. 269.) The Department considered whether to require Keystone to evaluate PFAS as part of the Phase III permit modification, but the Department did not require it because no standard currently exists. (T. 268-69.) For purposes of standing, Mr. Mellow's concern over PFAS is justified and supports his interest in this matter.

In short, the members of FOL and Sierra Club who testified have clearly expressed the sort of interests and concerns in the Phase III permit modification and expansion of the Keystone Landfill that give rise to standing in environmental cases. We have no difficulty concluding, once again, that their interests are sufficient to provide standing to FOL and Sierra Club as their representatives.

### **Leachate Management**

Leachate generated at the Keystone Landfill is collected in a leachate collection and conveyance system that carries leachate to Keystone's leachate storage lagoons. From the lagoons, Keystone treats the leachate in an onsite leachate treatment plant before it is sent via sewer line to the Scranton Wastewater Plant for final treatment. Keystone had utilized a biologic system to treat its leachate, but the system began to fail in 2021 and Keystone has switched to a reverse osmosis (RO) treatment system. At the time of the hearing, Keystone had three RO units with a design specification treatment capacity of 90,000 gallons per day (gpd) per unit, putting Keystone's total treatment capacity at 270,000 gpd. However, in practice, Keystone historically has not been able to fully treat 90,000 gpd per unit. Although each RO unit processes 100,000 gpd, issues that Keystone attributes to the membranes within the RO units have reduced the treatment efficiency to only 70,000 gpd. The remaining 10,000-30,000 gpd that are processed but not successfully

treated to specifications becomes a concentrated waste liquid that is disposed of back into the waste mass instead of being transferred to the Scranton Wastewater Plant. Because of the operational difficulties Keystone has had with the RO units, Keystone has planned to purchase a fourth RO unit so it can have two to three RO units in operation while performing cleaning and maintenance on the non-running RO unit(s).

Under the municipal waste regulations for the storage and management of leachate, a landfill must have a plan in place addressing its collection, storage, and treatment of leachate. 25 Pa. Code § 273.162. A landfill must “have sufficient storage capacity at least equal to the maximum expected production of leachate for any 30-day period for the life of the facility estimated under § 273.162 (relating to leachate treatment plan), or 250,000 gallons, whichever is greater.” 25 Pa. Code § 273.275(b). Importantly to this case, “[n]o more than 25% of the total leachate storage capacity may be used for flow equalization on a regular basis.” *Id.* The parties interpret this latter requirement to mean that, while a landfill needs to maintain some amount of leachate in its lagoons for the functioning of a lagoon aeration system, a landfill cannot regularly store more leachate in its lagoons than what would equal 25% of the lagoons’ total capacity. (T. 271-72.) The rationale behind this requirement is to ensure that a landfill has sufficient leachate storage capacity to handle significant rain events without overflowing, since rain that falls on uncapped areas of the landfill eventually makes its way through the waste mass and into the leachate collection system. (T. 678, 681.)

Keystone’s two leachate storage lagoons have a combined storage volume of around 9.7 million gallons.<sup>4</sup> Keystone’s lagoons are sized in excess of what Keystone has projected as its

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<sup>4</sup> Keystone’s lagoons previously had a total capacity of 11 million gallons, but the total capacity was reduced beginning in January 2018 due to Keystone relining the lagoons to fix a leak that was allowing leachate to escape into groundwater. (T. 170; FOL Ex. 72.)

expected maximum leachate production for a 30-day period. However, as detailed in the Findings of Fact, Keystone has frequently stored more leachate in its lagoons than 25% of their capacity, or approximately 2.43 million gallons. From December 2016 until February 2019, all while the Department was reviewing Keystone's Phase III permit application, Keystone stored leachate in excess of 25% of its capacity in 24 of the 26 months. (FOL Ex. 71, 72.) Keystone was storing leachate at more than 80% of its lagoons' capacity in April 2017 and August 2018 (more than 8.8 million gallons), and more than 70% in May 2017 and September 2018 (more than 6.8 million gallons). From May 2021 until July 2022, Keystone stored more than 2.43 million gallons of leachate in its lagoons during each month, with some months exceeding 60% capacity. (FOL Ex. 71, 78; SC Ex. 6.)

Even as the hearing was going on in April and May 2024, Keystone was once again exceeding 25% of its storage capacity, having been above the threshold since the end of October 2023. (SC Ex. 6; FOL Ex. 119, 120; FOL Ex. 112.) Keystone's lagoons held 6.4 million gallons of leachate in February 2024, and nearly 7.5 million gallons of leachate in March 2024, more than 5 million gallons above what Keystone is supposed to regularly store in its lagoons. (T. 205-06; FOL Ex. 119, 120.) During an inspection conducted by the Department in April 2024, within days of the merits hearing, Keystone's lagoons were still at 70% capacity, or 6.8 million gallons. (KSL Ex. 112.)

There was considerable discussion at the hearing over what constitutes storing leachate above 25% of capacity "on a regular basis" under 25 Pa. Code § 273.275(b) for purposes of determining when a landfill is in violation of that regulation. The Department does not interpret the regulation to embody any clear-cut moment when a landfill is storing excess leachate on a regular basis. Instead, the Department says it is a subjective determination that the Department

makes when looking at how much leachate is being stored on a monthly basis and whether that amount goes up and down in relation to weather events, i.e. the Department would generally expect leachate levels to decrease during periods with little or no precipitation. (T. 272-73, 1187-88, 1213.) If the levels are not going down and there has not been wet weather or the correction of any problems at the landfill, the Department will begin to view it as a violation. (T. 1188.)

At the time of our Adjudication on Keystone's renewal permit, even though Keystone's leachate storage lagoons had repeatedly stored more leachate than 25% of their capacity since 2015, the Department had never issued a Notice of Violation (NOV) to Keystone for violation of 25 Pa. Code § 273.275(b). *Friends of Lackawanna*, 2017 EHB at 1184. However, over the last few years, the Department has issued two NOVs to Keystone for periods of time that Keystone was regularly storing leachate in excess of 25% of its lagoons' capacity.

In September 2018, the Department issued an NOV to Keystone for storing leachate in excess of 25% of its total leachate storage capacity on a regular basis since October 2016. (FOL Ex. 74.) The NOV noted that leachate storage amounts ranged from 27.72% to 85.77% of total capacity over that period. 85.77% of Keystone's total leachate capacity is 8,332,328 gallons of 9,714,881 gallons. (FOL Ex. 72.) The Department considered Keystone exceeding the 25% limit in 19 of the previous 21 months to qualify as "on a regular basis" in terms of 25 Pa. Code § 273.275(b). However, even after the NOV was issued, Keystone was not able to bring down its leachate levels to under 25% until mid-February 2019. (FOL Ex. 71.)

In December 2020, the Department issued a CO&A to Keystone to resolve the September 2018 NOV, as well as a November 2016 NOV relating to groundwater pollution due to a leak in the liner of the lagoons. (DEP Ex. 125.) In lieu of assessing a monetary penalty, the Department and Keystone agreed that Keystone would complete a Community Environmental Project and

clean up an illegal dumpsite (not in any way associated with Keystone) at an estimated cost of \$112,905. (T. 590-92, 1191.)

Keystone managed to keep its leachate levels under 25% from February 2019 until May 2021, when the lagoons reached 29% and then remained elevated for more than a year. (FOL Ex. 71, 78; SC Ex. 6.) During this time, the Department issued a second NOV to Keystone, in April 2022, for exceeding the 25% limit since May 2021. (T. 1193; FOL Ex. 85.) The levels continued to be above the 25% limit until July 2022. At the hearing, Mr. Bellas testified that the Department was considering whether Keystone was again in violation of the 25% regulation due to the leachate levels from 2023 into 2024, stating that, if he were not busy testifying, he would be looking right then at whether Keystone's recent leachate exceedances were "on a regular basis."

Keystone largely portrays the leachate exceedances as simply bad luck, bad timing, or as the result of completely unforeseeable events. For instance, Keystone says it often opened up a new landfill cell before a significant rain event and failed to isolate the stormwater from reaching a cell where some waste had been disposed of. Keystone's operations manager, Michael Bair, testified that all three excess leachate events (what he says are 2018, 2021, and 2024) happened when Keystone was opening up or constructing new cells at the landfill. (T. 1379.) Keystone says the excess leachate during these periods is really just stormwater that is making its way into the leachate collection system. It says it merely opened new cells at bad times when large rain events happened, and even though no waste was in the new cells, it is legally obligated to treat that water as leachate. It also tells us that, once a lot of stormwater enters the leachate collection system, it takes time to bring the levels back down again. Apparently, it can sometimes take years.<sup>5</sup>

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<sup>5</sup> No party has explained why, if Keystone's leachate was primarily stormwater uncontaminated by waste, its RO units have had such difficulty treating what is essentially uncontaminated stormwater, or why the RO units' membranes could only treat heavily diluted leachate at 70% efficiency.

Mr. Bair testified that the excess leachate period in the summer and fall of 2018 was because Keystone opened up a new cell in 2018 and received 18 inches of rain. (T. 1379-80.) However, the Department’s monthly engineering reports and the September 2018 NOV show that Keystone had already been exceeding its leachate levels on a regular basis for two years before then, with Keystone storing more than 80% of its lagoons’ capacity in April 2017. (FOL Ex. 72.) Mr. Bair described the 2018 excess leachate event as a “learning process” to figure out how to best divert stormwater away from the leachate collection system. (T. 1380.) In response to a question from FOL’s counsel asking if Keystone, after 30 to 40 years of operating the landfill, still has challenges opening cells in a way to not allow excess water into the leachate collection system, Mr. Bair responded that Keystone is always trying to learn and be better. (T. 1502.)

For the excess leachate in 2021 until 2022, Mr. Bair faults a liner crew for opening up a low spot in a cell before a rain event impeded completion of their work and then pulling out for the winter. Keystone could not repair the low spot until the spring of 2022. (T. 1381-83.) However, Keystone’s leachate levels had been elevated since May 2021, long before the onset of winter, possible due in part to the difficulties Keystone experienced with its biologic leachate treatment system in 2021. (T. 579, 1383-88.)

Mr. Bair acknowledges some degree of fault of Keystone for the excess leachate that began toward the end of 2023 and continued through the time of the merits hearing. He said Keystone made a “bad decision” to start placing waste in Phase III before having the rain tarp completed. (T. 1390-91, 1504.) But Phase III operations began in January 2024 and the Department’s monthly engineering reports show that leachate levels had been elevated above 25% since the end of October 2023. While the opening of new cells coupled with rain events is undoubtedly a large part of the story, it does not fully explain the ongoing issues Keystone has had managing its



leachate. It appears that the leachate exceedances involve major rain events but also coincide with operational errors or oversights by Keystone. Roger Bellas testified that the extended periods when Keystone has stored leachate in excess of 25% of its total capacity were due to foreseeable events or circumstances. (T. 579.)

During the periods of storing excessive leachate, Keystone has employed somewhat dramatic measures to maintain space in its leachate lagoons and to avoid any overtopping, utilizing more than a million gallons in temporary leachate storage tank capacity and engaging in extensive offsite hauling of leachate to other facilities. FOL and Sierra Club point out that, even when Keystone was deploying emergency leachate reduction measures like hauling and using temporary storage tanks in August 2018 to February 2019, it was still storing leachate in its lagoons above 50% of capacity. (T. 197-98; FOL Ex. 71.) They also highlight periods of time when Keystone has trucked hundreds of thousands of gallons of leachate offsite in a given month, with Keystone hauling as much as 3.6 million gallons of untreated leachate offsite in September 2021. (SC Ex. 6.) FOL and Sierra Club say that there is a risk of spills from trucking leachate, and that it puts more trucks on the roads in addition to the solid waste hauling trucks that already come in and out of the landfill. While there is no evidence of any spill of leachate from any truck, whether that spill would occur while filling or emptying the truck or from any incident on the road, it is a legitimate concern, especially at the volumes that Keystone has had to haul.<sup>6</sup>

Keystone deserves credit for being responsive to conditions, at least remedially, and taking measures to avoid any environmental harm. Keystone has adjusted its operations in response to the influx of stormwater into its leachate collection system. It has previously deployed stormwater

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<sup>6</sup> There is no evidence that the leachate hauling trucks have exceeded the overall number of trucks and truck trips that Keystone predicted as part of its Phase III permit application for the waste being hauled into the landfill, or that the trucks are otherwise causing any environmental harm.

diversion berms. Keystone did not implement rain tarping as a best practice following the periods of excess leachate in 2016-2019 and 2021-2022, but it says that, going forward, it has no intention of placing waste in a cell before rain tarping is completed (T. 1400), which seems like a good idea given the difficulty Keystone has had in keeping its leachate levels below the 25% regulatory level. Keystone has also added more treatment capacity and worked to resolve issues with the treatment efficiency of its RO units. It is in the process of adding more storage capacity with two 2.5-million-gallon enclosed tanks. Multiple witnesses of the Department testified that Keystone is generally always responsive when the Department raises any issues. (T. 599, 731-32, 1148.)

The excess leachate generated by Keystone was an issue known to the Department at the time it was reviewing the Phase III permit modification application. Indeed, Erika Bloxham, a facility specialist in the Department's waste program in the Northeast region, and the person tasked with completing the environmental assessment / harms-benefits analysis for the Phase III expansion application, noted the issues with excess leachate generation in her review. (T. 776.) She wrote in her assessment that Keystone's need to haul leachate and add temporary leachate storage over the past few years "has made it apparent that KSL [Keystone] has an issue with either excess leachate generation or stormwater infiltration into the leachate conveyance system." (FOL Ex. 25 (at 13); T. 776.) She reasoned that "[t]hese excess flows increase the potential for the facility to have overflows and other incidents related to the leachate conveyance system which could then potentially lead to groundwater impacts." (*Id.*) Keystone's operations up to the point of the hearing have shown that the leachate has not been appropriately managed, and the measures taken by Keystone in accordance with the permit conditions contained in the Phase III expansion permit have not brought Keystone's leachate management into compliance with the law.

As recognized in the Department’s harms-benefits analysis, the excessive leachate generation at the landfill poses a risk to groundwater, and the potential for the lagoons to overtop or any spills to occur also poses a risk to surface water. (*See* T. 794.) Although Keystone has thus far avoided overtopping its leachate lagoons through extraordinary efforts of deploying temporary containment tanks and trucking millions of gallons of leachate offsite, the excessive leachate generation is undoubtedly a problem from a water quality perspective. At times it appeared that Keystone could have been only one large rain event away from being in a situation where it had more leachate than it could handle, even with the temporary tanks and hauling. A municipal waste landfill is required to be operated in a way that prevents the discharge of pollutants to surface or groundwater within or outside of the facility site. 25 Pa. Code § 273.241. Keystone’s permit and the conditions contained therein must fully guard against that potential threat.

FOL and particularly Sierra Club also challenge the modeling Keystone undertook to project the maximum monthly leachate generation at the landfill. Under 25 Pa. Code § 273.162(a)(1), a permit applicant must submit with its leachate treatment plan an estimate of its 30-day leachate volume and average flow rate for each month of the year. Keystone utilized the Hydrologic Evaluation of Landfill Performance model (the “HELP model”) to perform this estimate. Generally, the HELP model analyzes the stages in landfill development in conjunction with available weather and precipitation data for a region. Keystone estimated that the landfill’s maximum daily leachate flow for Phase III would be approximately 127,644 gpd. That estimate puts the 30-day generation rate at about 3.8 million gallons.

In February 2024, a month after Phase III operations began, Keystone reported generating leachate at an average of 282,676 gpd, more than double Keystone’s prediction, and nearly 8.2

million gallons of leachate for the month. (SC Ex. 27.) There is a large disparity in the predicted leachate generation and the actual observed leachate generation.

The Department says that the HELP model is more useful for predicting leachate generation at a brand new facility than estimating leachate flows at an existing facility. The Department cites testimony of Department environmental engineer Sam Warmate, who ran his own HELP model to check Keystone's, and stated that the HELP model did not tell the Department anything that it did not already know because of Keystone's existing leachate management system and historical data. (T. 682-84, 743-44.) However, it seems that neither the HELP model nor the Department's analysis of historical data proved an accurate predictor of the leachate that Keystone would generate. If the HELP model is not a tool that is well-suited to projecting flows from an existing facility, the Department's reasoned analysis of historical data did not fare any better.

We do not need to dwell on model calculations for leachate generation when it is clear that Keystone is exceeding both its projection and its capacity for monthly storage and treatment. The monthly leachate generation volumes since the onset of Phase III operations support Sierra Club's expert, Matthew Hodge, P.E.'s opinion that Keystone underpredicted its maximum monthly leachate generation rate, as well as his opinion that offsite hauling of leachate remains likely.<sup>7</sup> One of Mr. Hodge's bottom lines was that, by underestimating leachate generation, Keystone cannot know how much leachate it needs to handle and cannot make good decisions about leachate treatment capacity and leachate storage capacity. (T. 1023.) We do not necessarily think that Keystone has undersized leachate storage or treatment capacity. Its 9.7 million gallons of storage far exceed regulatory requirements, and the fourth RO unit should increase total treatment

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<sup>7</sup> Mr. Hodge did not offer an opinion on what a more appropriate daily maximum leachate generation number should be for Keystone's Phase III operations, (T. 1047-48), but we do not think that necessarily matters for purposes of determining that Keystone has exceeded what it is capable of handling.

capacity, if needed, to 360,000 gpd. Instead, all the evidence points to Keystone having operational problems controlling the flows that enter the leachate collection and conveyance system.

Indeed, Keystone's expert witness who prepared the HELP model, Daniel Fellon, P.E., stood by his predicted leachate generation numbers, even in the face of evidence showing that Keystone's leachate generation has far exceeded anything Mr. Fellon predicted. He maintained his conclusion that offsite leachate hauling is not anticipated during Phase III, even though it already had been happening for months, adding the caveat that hauling should not happen so long as Keystone's operations were conducted according to its plans and sequencing. (T. 1280-81.) Mr. Fellon seemingly conceded that Keystone must not have been following its plans when Phase III was opened.

### **Odors**

Pursuant to the regulations, a landfill operator must minimize and control public nuisances from odors through the use of a nuisance minimization and control plan (NMCP). 25 Pa. Code §§ 273.136 and 273.218. A landfill operator is required to "perform regular, frequent and comprehensive site inspections to evaluate the effectiveness of cover, capping, gas collection and destruction, waste acceptance and all other waste management practices in reducing the potential for offsite odor creation." 25 Pa. Code § 273.218(b)(2). The Department retains the discretion to modify the landfill's NMCP or to require the landfill to modify the plan and get approval from the Department. 25 Pa. Code § 273.218(b)(1). Among other measures in Keystone's NMCP regarding odors, it performs odor patrols around the landfill, utilizes a landfill gas collection system, conducts surface monitoring, limits the size of the working face, and aerates the leachate lagoons. (KSL Ex. 25.)

Despite these measures, Keystone has experienced difficulty managing offsite odors. The Department was clearly cognizant of Keystone's issues with managing odors when it issued the Phase III permit modification because it imposed conditions in the permit addressing odor control and/or potential air contaminants. Condition 20 of the Phase III permit requires Keystone to implement additional odor control measures contained in Keystone's approved NMCP, such as monthly monitoring on intermediate slopes and deploying temporary geosynthetic cap on intermediate slopes in place for 12 months. (SC Ex. 1.) These measures apply not only to the Phase III expansion but the ongoing Phase II operations as well. (T. 367-68.) Condition 21 requires Keystone to complete a one-year ambient air monitoring study, installing six air monitoring stations around the perimeter of the site, and submitting to the Department a health risk assessment based on the data from the monitoring stations. (SC Ex. 1.) The study is to be repeated every five years. Condition 22 requires Keystone to implement an approved Subsurface Gas Probe Monitoring Plan, which involves quarterly monitoring of four gas probes to be installed along the southern perimeter of the site. (*Id.*) The plan was required to be in place six months before the start of Phase III operations.

As detailed in the Findings of Fact, there have been stretches of time when Keystone has created numerous offsite odors. One reflection of that is in the odor complaints that the Department has received from the public. The Department has received significant numbers of odor complaints from the surrounding community both leading up to the issuance of the Phase III permit modification and following its issuance. The Department received 38 odor complaints in 2016, and only 12 odor complaints in 2017, but 116 odor complaints in 2018, 74 odor complaints in 2019, 67 odor complaints in 2020, and 46 odor complaints as of May 2021, according to the Department's response to public comments regarding odors during its review of the Phase III

permit application. (T. 213-14, 216, 358; FOL Ex. 26 (at 11).) Between September 2022 and January 2023, the Department received and responded to 233 odor complaints over that five-month span. (FOL Ex. 37.)

Keystone says that not every odor complaint necessarily means that there was an offsite odor from Keystone. It points out that there are several other industrial operations in the vicinity of the landfill. Keystone even speculates that FOL is encouraging its members to lodge baseless, fabricated odor complaints with the Department to undermine Keystone's operation, but there is no evidence of that in the record. (*See* T. 105-06.) Mr. Bellas testified that the Department treats every complaint as valid and he resisted the suggestion that any or a significant portion of the complaints received by the Department were not valid. He stated that Keystone has significant odor problems and the people who have complained to the Department were complaining about real odors they thought were coming from the landfill. (T. 449-50.) Although Keystone highlights odor complaint investigations from the Department where no odor was detected by Department staff, it is not uncommon for complaint investigations to occur the next day or multiple days after receiving a complaint, when an odor that is transient in nature and subject to the direction the wind is blowing is unlikely to still be there. (T. 1150-52, 1167-68; FOL Ex. 52.)

The Department takes the position that, in order to cite a landfill for an odor violation, the odor must be able to be traced back to the landfill and be the result of the landfill not following some provision in its NMCP. (T. 360.) Or, the Department will cite a violation if it determines that there is a malodor, which is essentially an odor noxious enough to cause a public nuisance that is actually smelled by an employee of the Department. (T. 362.) At the time of our 2017 Adjudication on Keystone's renewal permit, the Department had never cited Keystone for an offsite odor violation, despite Department inspection reports noting strong odors and there being

more than 300 citizen odor complaints between January 2011 and October 2016. *Friends of Lackawanna*, 2017 EHB at 1181. At the time the Department issued the Phase III permit modification in June 2021, the Department's position was that it had not confirmed offsite odors in such a number that would be expected if the Keystone Landfill had caused offsite odors on a regular basis, and that Keystone's odor mitigation efforts had been successful. (T. 211; FOL Ex. 26 (Comment Response at 11).) Since that time, the Department seems to have taken a more active enforcement effort and has documented deficiencies in Keystone's management of its site with respect to odors.

The Department has issued three NOVs to Keystone for offsite odors: on January 23, 2023, December 13, 2023, and January 8, 2024. The January 2023 NOV details the results of the Department's inspections from September 2022 through January 2023, primarily in response to odor complaints from the community. (FOL Ex. 37.) On November 9, 2022, in response to multiple odor complaints, the Department determined that there was a landfill gas malodor at multiple homes in Dunmore Borough. On November 15, 2022, in response to multiple complaints, the Department detected landfill gas odors at multiple locations in Scranton and Dunmore. The Department responded to more complaints the next day, November 16, and detected a landfill gas odor along Marshwood Road in Throop Borough. On November 21, the Department conducted an odor patrol in response to multiple odor complaints and detected odors along Marshwood Road and State Route 6. On December 16, the Department responded to an odor complaint and detected a landfill operations-associated odor at the complainant's home and on State Route 6. On December 21, the Department responded to odor complaints from residents in multiple municipalities and found hydrogen sulfide and landfill gas odors and malodors at multiple locations in Dunmore and Throop. On December 23, the Department responded to multiple odor



complaints from the day prior and detected odors along Marshwood Road and State Route 6. On December 28, the Department conducted an odor patrol after receiving multiple odor complaints and detected hydrogen sulfide and landfill gas odors at multiple locations in Dunmore, Throop, and Jessup. On December 30, the Department responded to odor complaints from people in multiple municipalities and detected landfill odors at multiple locations and homes in Dunmore and Throop. During inspections conducted at the landfill on November 21, 2022 and January 5, 2023, the Department found high readings of methane gas at numerous spots at the landfill where intermediate cover had been placed and at the base of some gas collection wells.

In the January 2023 NOV, the Department cited Keystone for several operational failures: failing to implement its NMCP; failing to perform regular inspections for detecting odors; failing to correct problems discovered during inspections; failing to implement its gas management and monitoring plan; allowing the emission of a malodorous air contaminant; failing to prevent and control air pollution; and failing to conduct enhanced surface monitoring on intermediate slopes. (FOL Ex. 37.)

Later in 2023, the Department began to receive another uptick in odor complaints. In an October 30, 2023 letter the Department sent to Keystone, the Department noted that it had received well over 100 odor complaints over the last month and a half. (FOL Ex. 39.) The Department stated that, while it did not detect a malodor in response to the complaints, the Department had regularly found offsite landfill odors, with particularly strong landfill odors along Marshwood Road, the Casey Highway, and Interstate 81. The Department reviewed Keystone's surface monitoring results from July through October 2023 and found that Keystone's surface methane readings had gotten progressively worse. The Department noted in the letter that Condition 20 of Keystone's Phase III permit modification required enhanced surface monitoring on intermediate

slopes in place for more than six months to determine if additional gas mitigation measures need to be implemented in accordance with Keystone’s NMCP, and that Keystone’s NMCP states that Keystone will deploy emission reduction efforts if surface scan levels of methane exceed 500 parts per million (ppm) or concentrations increase during the monthly scan interval. The Department concluded that both of those triggers had occurred and required Keystone to submit, within five days, information on its surface scans, its evaluation of the surface scan data, whether emission reduction efforts had been triggered, and the identification of areas where intermediate cover had been in place for 12 months or more. After Keystone submitted information to the Department, the Department determined that the information was not fully responsive, was too generalized, and the Department requested Keystone to provide additional information. (FOL Ex. 40.)

In a letter to Keystone dated November 21, 2023, the Department again noted that it had received hundreds of odor complaints and it determined that the majority of the complaints were the result of Keystone’s operations, based upon the Department routinely detecting landfill-related offsite odors. (FOL Ex. 41.) The Department’s inspection of Keystone from a few days prior found that Keystone’s Settlement Accommodation Plan (SAP) areas had “pungent” landfill gas odors similar to the smell of leachate and had numerous methane readings well above 500 ppm. The Department stated that Keystone had failed to maintain operational compliance, particularly with respect to controlling odors from the SAP area, and the Department suspended Keystone’s implementation of the SAP and required Keystone to submit a plan within ten days to mitigate and control the ongoing landfill gas odors from the SAP area.

On December 13, 2023, the Department issued an NOV to Keystone, referencing the Department’s inspections in November 2023 and twice daily odor patrols since November 16, 2023, and determined that the odors over this period of time, and excessive methane emissions,

were a result of a failure of Keystone’s intermediate cover to prevent odors and a failure to properly conduct enhanced surface monitoring. (FOL Ex. 44; T. 220-23, 353-55, 382-83, 1149-50.) The Department requested that Keystone submit a proposed plan and schedule to correct the violation.

On January 8, 2024, the Department issued another NOV to Keystone. (FOL Ex. 46.) The Department stated that it had conducted an odor complaint investigation on December 2, 2023 and detected moderate to strong leachate odors on Cypress Street, Dunmore Street, George Street, Marshwood Road, and South Street, including malodors at the residences of three complainants. The Department noted violations of Keystone allowing the emission of malodorous air contaminants, failing to prevent and control air pollution, and failing to implement the NMCP to minimize and control odors and public nuisances from odors.

On February 1, 2024, the Department issued a letter to Keystone acknowledging the information Keystone had provided in response to the December 13, 2023 and January 8, 2024 NOVs, but stating that the Department had determined that “additional, more immediate, odor mitigation measures need to be implemented.” (FOL Ex. 47.) The Department asked Keystone to provide more detail about Keystone’s proposed use of temporary geomembrane capping materials, such as the type of geomembrane, the areas where the geomembrane would be utilized, and the conditions that would trigger the use of geomembrane. The Department also wanted more information about immediate measures Keystone could take to control odors since temporary and final capping can be impacted by winter weather. The Department asked for more information about spray-on latex and Posi-Shell materials, any onsite testing of the products that Keystone had conducted, and where and when the materials could be utilized. Finally, the Department asked for an update on deploying foam on the leachate lagoons to control lagoon odors.

Keystone is not wrong in saying that localized odors are a reality at any landfill. But the frequency and duration of odor and malodor events that Keystone has experienced has exceeded an acceptable baseline for normal landfill operations. We do not doubt the complexity of operating a landfill. But the same problems have been occurring for years without being fully controlled by Keystone, despite its efforts, and despite the conditions of the Phase III permit or Keystone's Department-approved NMCP. At the hearing, Mr. Bellas acknowledged that the additional odor mitigation measures imposed in the Phase III permit did not succeed in preventing odors, all but conceding that the Phase III permitting conditions are inadequate. (T. 595-96.) Accordingly, the Department erred in issuing the Phase III permit modification without including measures to do a better job controlling offsite odors.

### **Consent Order and Agreement and Remand**

The odor issues, and to some extent the issues with leachate management, culminated in the Department and Keystone entering into a CO&A on March 29, 2024, a few weeks before the merits hearing, to resolve the violations found by the Department. (FOL Ex. 115.) The CO&A contains extensive provisions for Keystone to manage odors. In addition to a detailed capping and tarping schedule to control odors, the CO&A requires Keystone to apply foam to its lagoons and add a sulfur control additive to control odors from the lagoons. It imposes a requirement for Keystone to install above-ground leachate storage tanks by April 1, 2025. It requires Keystone to use aerial drones at least once per month to conduct surface monitoring, which Keystone has already implemented. (T. 392, 1355-56; FOL Ex. 115.) It requires Keystone to ensure its intermediate cover material meets standards to control odors. It also requires Keystone to revise its NMCP to include the measures contained in the CO&A, and to provide the Department with monthly status reports on Keystone's progress in implementing the corrective measures.

Whether the measures in the CO&A will be successful in controlling offsite odors is unclear. At the time of the hearing, Roger Bellas expressed mixed feelings on the odor control measures. At one point he expressed confidence that the corrective measures would effectively address the odor issues. (T. 355-56.) But when his testimony continued the following day, he said he was not confident that the CO&A measures would work to address odors. (T. 596.) He testified that he was only confident that the odor issue was solved at the moment. (T. 597.) But he expressed optimism that, once Keystone performed some additional studies on the maximum acreage of intermediate cover that can be managed under enhanced surface monitoring, the odors would be controlled. (T. 596-97.)

The CO&A also contains a few provisions addressing the management of leachate at the landfill. (FOL Ex. 115.) For instance, it requires Keystone to make adjustments to its RO treatment system to reduce the amount of concentrate being generated, to install a fourth RO unit (which Keystone had already intended to do), and to evaluate the effect of disposing RO concentrate on the slope stability of the waste mass. It also requires Keystone to evaluate the areas that contribute most to its leachate generation rate and to provide measures to minimize the impact of storm events on the amount of leachate generated. The detailed schedule for installing rain tarp and completing capping of areas in Phase II of the landfill for purposes of odor control should also have the attendant effect of reducing the amount of rain that enters the waste mass. (T. 234-36.)

In light of the ongoing issues with odors and leachate management at the Keystone Landfill, we conclude that the Department erred in issuing the permit modification without appropriate conditions or requirements to effectively manage leachate and control offsite odors. We find it appropriate to remand the permit for further consideration. The Department at the hearing signaled an interest in amending the Phase III permit based in part on what it learns from

Keystone's compliance with the requirements of the CO&A. The Department is already considering modifying the permit to include provisions that are either directly taken from the CO&A, or are a result of Keystone taking steps in complying with the CO&A. (See T. 607-08.) Indeed, Mr. Bellas testified, at times in response to questioning from Keystone's counsel, that, if the Department sees issues at a site, the Department has the authority to reevaluate at any time the conditions of a permit and administratively amend that permit, if necessary, to add additional conditions or modify the permit. (T. 418, 423, 644.)

Mr. Bellas testified that, although Keystone must comply with the corrective measures in the CO&A, they are not amendments to Keystone's permit, and they will eventually expire at some point. (T. 607.) We think on remand the Department must take a hard look and assess whether the measures in the CO&A warrant inclusion in the Phase III permit modification. For instance, part of the CO&A requires Keystone to perform studies and keep open lines of communication with the Department to try to determine a maximum acreage of intermediate cover that can be managed so as to ensure that odors are properly controlled. (T. 596-97.) Whatever the appropriate maximum acreage is determined to be could be a worthwhile permit condition.

There are also some items that were addressed at the hearing that are not contained in the CO&A but may nevertheless be measures that should be required as a permit condition or as part of Keystone's operating plans. For instance, it is currently not a requirement of the Phase III permit for Keystone to have rain tarp in place prior to the Department certifying a landfill cell for construction or placement of waste, but Mr. Bellas testified that the Department is going to require that now. (T. 324.) Mr. Bellas testified that merely a verbal communication between Keystone and the Department indicates that Keystone will use rain tarping during all stages of Phase III to keep uncontaminated stormwater out of the leachate collection system. (T. 483-84.) In response

to questioning from Keystone's counsel, Mr. Bellas agreed that this could be made a condition of Keystone's future permit renewal, assuming it is granted. We do not see why what the Department and Keystone believe to be such an important requirement for keeping Keystone's leachate under control should be left to an informal, verbal agreement until that time.

We do not necessarily see why there is any reason to wait for a future permitting action from the Department, for instance on Keystone's renewal application, for appropriate conditions to be imposed or plan amendments to be enacted. Our remand ensures that the Department assesses any appropriate changes in a timely manner. It has been a year since the CO&A was issued and 11 months since Mr. Bellas testified that the Department intended to consider permit amendments based on information provided by Keystone pursuant to the CO&A. (T. 607-08.) It is possible that, at this point, the Department has sufficient information already to make amendments to the permit. Mr. Bellas agreed with a question posed by counsel for FOL that the Department did not have any obligation at that time to consider permit amendments. (T. 608.) Now it does.

Mr. Bellas testified that he felt somewhat responsible for the issues Keystone has experienced since the permit modification was issued, while at the same time also feeling that he could not have foreseen all the things that have happened. (T. 422.) Now on remand the Department can exercise its authority to consider whether the issues identified at the hearing warrant any changes to Keystone's plans or the Phase III permit. It is not for us to decide here in the first instance whether the provisions required by the CO&A, or any other measures, are appropriate requirements to impose as permit conditions. But the Department will have the opportunity to consider whether more lasting measures by way of permit conditions or changes to the plans that are incorporated into the permit are needed.

## Harms-Benefits Analysis

Recently, in *Liberty Township v. DEP*, 2024 EHB 36, we explained the harms-benefits analysis as follows:

Under 25 Pa. Code §§ 271.126 and 271.127, an applicant for a municipal waste landfill must demonstrate that the benefits of a proposed project to the public clearly outweigh the known and potential harms. A permit applicant must prepare an environmental assessment with a detailed analysis of the potential impact of the proposed facility on the public health and safety, as well as a description of the known and potential environmental harms of the facility. 25 Pa. Code § 271.127(a) and (b). The assessment must then include a written mitigation plan that explains how the applicant plans to mitigate each known and potential environmental harm. 25 Pa. Code § 271.127(b). The Department must review the mitigation plans to see if the known and potential environmental harms have been fully mitigated. That is to say, it must ensure that the mitigation measures, individually and collectively, will “adequately protect the environment and the public health, safety and welfare.” *Id.* The Department’s review is known as the harms-benefits analysis. The harms-benefits analysis also takes into account any social and economic benefits that remain after accounting for the known and potential social and economic harms. 25 Pa. Code § 271.127(c). If a harm has been fully mitigated, it does not factor into the harms-benefits balancing.

....

We have held that, when a party challenges the Department’s conclusion regarding the harms-benefits balancing test, it is not sufficient to simply have a different opinion about how the balancing could have been done; rather, the party must show that the Department acted unreasonably or violated the law in deciding the result of the harms-benefits balance. *Borough of St. Clair*, 2014 EHB at 96 (citing *Exeter Citizens Action Comm., Inc. v. DEP*, 2005 EHB 306, 328). We have also noted that 25 Pa. Code § 271.127(c) does not require that a landfill cause no harm. *Id.*

*Id.* at 83, 84-85.

In its analysis of the Phase III permit modification, the Department determined that the following potential environmental harms from the Keystone Landfill remain after Keystone’s proposed mitigation: landfill odors, litter, offsite noise, the attraction of vectors and birds, tracking dirt and mud offsite, stormwater runoff during ongoing construction operations, the migration of air pollutants, groundwater impacts, risk of fires and subsurface reactions, and the discharge of treated leachate to the Lackawanna River during combined sewer overflows. (FOL Ex. 25.) The



Department also considered the known social and economic harms of traffic and the visual impact of the landfill from increasing the vertical height of some areas and extending the landfill's existing vertical peak 3,000 feet closer to residential homes. The Department balanced these harms against what it identified as the following known social and economic benefits: recycling and cleanup programs, the purchase of goods and services, continued employment, disposal fees, tax revenue, the PennDOT adopt a highway program, and host agreements with the boroughs of Dunmore and Throop. (*Id.*) Although Erika Bloxham, the Department staff member who wrote the majority of the harms-benefits analysis, determined that the benefits did not clearly outweigh the harms, primarily due to Keystone's leachate management issues, her supervisor, Mr. Bellas, disagreed and he wrote the conclusion of the analysis supporting the issuance of the permit modification. (T. 786, 789-91, 919-20.)

As part of its analysis of groundwater impacts, the Department considered Keystone's excess leachate generation, noting,

Over the past few years, events involving a leachate conveyance system manhole overflow, the need to add temporary leachate storage and the need to haul leachate offsite to be treated has made it apparent that KSL [Keystone Sanitary Landfill] has an issue with either excess leachate generation or stormwater infiltration into the leachate conveyance system. These excess flows increase the potential for the facility to have overflows and other incidents related to the leachate conveyance system which could then potentially lead to groundwater impacts.

(FOL Ex. 25 (at 13).) The Department stated that, at that time, Keystone continued to have leachate flows that exceeded both what was predicted for the existing landfill and what was predicted for the Phase III expansion. (*Id.* at 14.) The Department detailed measures that Keystone had implemented to try to control stormwater infiltration into the leachate conveyance system, but noted that, "[a]lthough KSL has made progress, based on a review of recent flow amounts, it is apparent KSL continues to have an issue with either excessive leachate generation and/or

infiltration into the leachate conveyance system.” (*Id.*) Nevertheless, the Department concluded that Keystone’s current and proposed efforts to isolate and mitigate excessive leachate generation were expected to limit the number, duration, and intensity of future excessive leachate flows.

For odors, the Department determined that, based on its past inspections and oversight of the landfill, Keystone was generally operating in compliance with the regulations requiring the control of odors through its NMCP, and that Keystone’s odor control measures had been effective. The Department noted in its analysis that many landfills in the northeast region had odor issues in 2018 and 2019 due to wet weather and temperature fluctuations and that Department inspections conducted in April 2019 had found that Keystone’s odor mitigation efforts had been successful. Nevertheless, the Department reasoned that Keystone’s mitigation efforts, while adequate, would be unlikely to completely eliminate all odors at all times. (FOL Ex. 25 (at 8).)

FOL and Sierra Club assert that the Department erred in concluding that the benefits of the Phase III expansion outweigh the known and potential harms. However, because we have found that the Department erred in concluding that Keystone had adequate operations and nuisance minimization and control plans under 25 Pa. Code §§ 123.32(b), 273.136, 273.218, and 273.275(b), and that additional measures and possibly permit conditions will be necessary to make those plans and the permit acceptable, the existing harms-benefits analysis is obsolete. It will need to be revised to include a consideration of any new plan amendments and permit conditions that the Department may decide are appropriate on remand. Thus, it would be premature for us to weigh in on the harms-benefits analysis at this point and we express no opinion on the Department’s overall analysis or its ultimate conclusion.

## Article I, Section 27

FOL and Sierra Club argue that the Department violated Article I, Section 27 of the Pennsylvania Constitution in issuing the Phase III permit modification. Article I, Section 27 provides:

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic, and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all people.

PA. CONST. art I, § 27.

In resolving challenges premised on Article I, Section 27, our constitutional analysis begins with first determining whether the Department, after considering the environmental effects of its action, has correctly determined that its action will not result in unreasonable degradation, diminution, depletion, or deterioration of the environment. Next, we assess whether the Department has satisfied its trustee duties by acting with prudence, loyalty, and partiality with respect to the beneficiaries of the natural resources impacted by the Department's action. *Liberty Twp. v. DEP*, 2024 EHB 790, 828 (citing *Stocker v. DEP*, 2022 EHB 425, 445).

For the same reasons that the harms-benefits analysis is obsolete, so too is the Department's analysis under Article I, Section 27 of the Pennsylvania Constitution. The Department's analysis must be revised to include a consideration of any new plan amendments and permit conditions that the Department may decide are appropriate on remand in conjunction with any environmental effects of the Keystone Landfill. Accordingly, our assessment of the Phase III permit modification in light of the Department's duties and obligations under the Pennsylvania Constitution must wait until the Department performs a new analysis on remand.

## Compliance History

FOL and Sierra Club argue that Keystone’s permit modification should be rescinded because of Keystone’s compliance history, or what they argue is Keystone’s past and continuing violation of the law, primarily the Solid Waste Management Act, because of Keystone’s excess leachate generation, its storage of leachate above 25% of its storage capacity, and its inability to control offsite odors.

We recently addressed the compliance history provisions governing municipal solid waste landfills in *Liberty Township, supra*, 2024 EHB at 128-29, and summarized them as follows:

Section 503(c) of the Solid Waste Management Act, 35 P.S. § 6018.503(c), provides the Department with the authority to deny a permit to any applicant if the Department finds that the applicant has failed or continues to fail to comply with the Solid Waste Management Act or any other environmental statutes or regulations, or the applicant has shown a lack of ability or intention to comply with the environmental statutes, regulations, or orders of the Department, as evidenced by past or continuing violations. Section 503(d) requires the Department to deny any permit or license required under the Act where the person or related entities have engaged in unlawful conduct “unless the permit or license application demonstrates to the satisfaction of the department that the unlawful conduct has been corrected.” 35 P.S. § 6018.503(d). The regulation at 25 Pa. Code § 271.125 lists the compliance information to be contained in the permit application.

A third-party appellant who would have us overturn a permit based on the compliance history and status of the permittee has a heavy burden. This is an area where the Department has a considerable amount of discretion. *Concerned Citizens of Yough, Inc. v. Dep’t of Env’tl. Prot.*, 639 A.2d 1265, 1271 (Pa. Cmwlth. 1994). A generalized claim of noncompliance without a showing of specific, concrete problems typically will not suffice. *Friends of Lackawanna*, 2017 EHB at 1178. We consider the totality of the permittee’s compliance history to assess whether the party’s conduct shows that it cannot be trusted with the permit. *O’Reilly v. DEP*, 2001 EHB 19, 44-45. We consider such factors as the number, duration, and severity of the violations, harm to the environment caused by the violations, and the applicant’s efforts to correct the violations. *Id.*, 2001 EHB at 44-46; *Belitskus v. DEP*, 1998 EHB 846, 868-70. The purpose of the compliance review is to ensure the applicant is likely to be responsible enough to be informed of what the law and regulations require and motivated to make an effort to comply with those regulations; an applicant’s past is certainly an indicator of future behavior. *See Perano v. DEP*, 2011 EHB 453, 494-97; *Colbert v. DEP*, 2006 EHB 90, 109-10. Section 503 vests the Department with the vital power to screen out bad actors. *Concerned Citizens of Earl Twp. v. DER*, 1994 EHB 1525, 1619.

Where we have remanded a permit for further consideration of compliance history, it has generally been because the Department did not conduct a thorough review. *See, e.g. Colbert, supra.*

In light of the remand necessitated by the Department's mistaken approval of Keystone's inadequate leachate and odor management plans, the substantial passage of time since the issuance of the permit, and the entry into a comprehensive CO&A, we believe it would be appropriate for the Department to reassess Keystone's compliance history on remand. This will ensure that Keystone can "be trusted with the permit" based on information that is up to date if and when the Department issues a permit modification with revised plans and/or new permit conditions. At this point, particularly in light of the CO&A, we feel comfortable in saying that Keystone's compliance history is not such that it provides an independent justification for overturning, as opposed to remanding, the permit for further consideration. FOL and Sierra Club have not shown that anything in Keystone's compliance history at this juncture requires immediate action from the Board pending remand.

### CONCLUSIONS OF LAW

1. The Environmental Hearing Board has jurisdiction over this matter. 35 P.S. § 7514; 35 P.S. § 6018.108.
2. The Board reviews Department actions *de novo*, meaning we decide the case anew on the record developed before us. *Borough of St. Clair v. DEP*, 2016 EHB 299, 318; *O'Reilly v. DEP*, 2001 EHB 19, 32; *Warren Sand & Gravel Co. v. Dep't Env't Res.*, 341 A.2d 556 (Pa. Cmwlth. 1975).
3. "The Board's *de novo* review allows it to admit and consider evidence that was not before the Department when it made its initial decision, including evidence developed since the filing of the appeal." *United Ref. Co. v. Dep't of Env't Prot.*, 163 A.3d 1125, 1136 (Pa. Cmwlth.

2017). *See also Gibraltar Rock, Inc. v. Pa. Dep't of Env't Prot.*, 316 A.3d 668, 677 (Pa. Cmwlth. 2024).

4. In third-party appeals, an appellant bears the burden of proof. 25 Pa. Code § 1021.122(c)(2); *Joshi v. DEP*, 2019 EHB 356, 364; *Jake v. DEP*, 2014 EHB 38, 47.

5. An appellant must show by a preponderance of the evidence that the Department acted unreasonably or contrary to the law, that its decision is not supported by the facts, or that the decision is inconsistent with the Department's obligations under the Pennsylvania Constitution. *Brockway Borough Mun. Auth. v. DEP*, 2015 EHB 221, 236, *aff'd*, 131 A.3d 578 (Pa. Cmwlth. 2016); *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1156.

6. The resolution of evidentiary conflict, witness credibility, and evidentiary weight are matters committed to the discretion of the Board. *EQT Prod. Co. v. Dep't of Env't Prot.*, 193 A.3d 1137, 1149 (Pa. Cmwlth. 2018); *Kiskadden v. Dep't of Env't Prot.*, 149 A.3d 380, 387 (Pa. Cmwlth. 2016).

7. FOL and Sierra Club have standing as organizations representing the interests of their members who have a direct interest in Keystone's Phase III permit modification. *Funk v. Wolf*, 144 A.3d 228, 245-46 (Pa. Cmwlth. 2016); *Pa. Med. Soc'y v. Dep't of Pub. Welfare*, 39 A.3d 267, 278 (Pa. 2012); *Dengel v. DEP*, 2024 EHB 605, 615-16; *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1152.

8. An operator of a municipal waste landfill must comply with the plans and specifications in the permit, the terms and conditions of the permit, and the applicable environmental protection acts and regulations. 25 Pa. Code § 273.201.

9. A municipal waste landfill is required to be operated in a way that prevents the discharge of pollutants to surface or groundwater within or outside of the facility site. 25 Pa. Code § 273.241.

10. A landfill must have a plan in place addressing its collection, storage, and treatment of leachate. 25 Pa. Code § 273.162.

11. No more than 25% of a landfill's total leachate storage capacity may be used for flow equalization on a regular basis. 25 Pa. Code § 273.275(b).

12. A landfill operator must minimize and control public nuisances from odors through the use of a nuisance minimization and control plan. 25 Pa. Code §§ 273.136 and 273.218.

13. A landfill operator is required to “perform regular, frequent and comprehensive site inspections to evaluate the effectiveness of cover, capping, gas collection and destruction, waste acceptance and all other waste management practices in reducing the potential for offsite odor creation.” 25 Pa. Code § 273.218(b)(2).

14. The Department retains the discretion to modify a landfill's nuisance minimization and control plan or to require the landfill to modify the plan and get approval from the Department. 25 Pa. Code § 273.218(b)(1).

15. The Department has the authority to modify, suspend, or revoke a solid waste management permit. 35 P.S. § 6018.503.

16. FOL and Sierra Club have shown that the Department erred in approving Keystone's Phase III permit modification application and associated plans and issuing the Phase III permit modification because the permit and plans have failed to control offsite odors or the generation of excess leachate at the landfill.

17. The Phase III permit modification necessitates a remand for the Department to consider whether additional conditions or modifications to Keystone’s Phase III permit modification or its operating plans are necessary to further control, manage, and/or mitigate offsite odors and leachate generation resulting in Keystone storing leachate in excess of 25% of its total capacity on a regular basis.

18. FOL and Sierra Club have not shown that Keystone’s Phase III permit modification should be suspended, revoked, overturned, or vacated instead of being allowed to remain in effect pending remand.





COMMONWEALTH OF PENNSYLVANIA  
ENVIRONMENTAL HEARING BOARD

<b>FRIENDS OF LACKAWANNA, Appellant</b>	:	
<b>and SIERRA CLUB, Intervenor</b>	:	
	:	
v.	:	<b>EHB Docket No. 2021-066-L</b>
	:	
<b>COMMONWEALTH OF PENNSYLVANIA,</b>	:	
<b>DEPARTMENT OF ENVIRONMENTAL</b>	:	
<b>PROTECTION and KEYSTONE SANITARY</b>	:	
<b>LANDFILL, INC., Permittee</b>	:	

**ORDER**

AND NOW, this 1<sup>st</sup> day of April, 2025, it is hereby ordered that the June 3, 2021 major modification to Keystone’s Solid Waste Permit No. 101247 for the Phase III expansion of its landfill is **remanded** to the Department for further consideration in accordance with this Adjudication.

**ENVIRONMENTAL HEARING BOARD**

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

s/ Bernard A. Labuskes, Jr.  
\_\_\_\_\_  
**BERNARD A. LABUSKES, JR.**  
**Board Member and Judge**

s/ Sarah L. Clark  
\_\_\_\_\_  
**SARAH L. CLARK**  
**Board Member and Judge**



s/ MaryAnne Wesdock  
\_\_\_\_\_  
**MARYANNE WESDOCK**  
**Board Member and Judge**

s/ Paul J. Bruder, Jr.  
\_\_\_\_\_  
**PAUL J. BRUDER, JR.**  
**Board Member and Judge**

**DATED: April 1, 2025**

**c: DEP, General Law Division:**  
Attention: Maria Tolentino  
(via *electronic mail*)

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