COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD

NEW HANOVER TOWNSHIP, PARADISE WATCHDOGS/BAN THE QUARRY, AND JOHN C. AUMAN, Appellants	:	
v.	:	**EHB Docket No. 2018-072-L (Consolidated with 2018-075-L)**
COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND GIBRALTAR ROCK, INC., Permittee	:	**Issued: April 24, 2020**

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

By Bernard A. Labuskes, Jr., Judge

Synopsis

The Board sustains a township's and citizens' appeal of a noncoal mining permit renewal and an NPDES permit issued by the Department for a proposed quarry. The proposed quarry is adjacent to a hazardous site with contaminated groundwater that is being cleaned up pursuant to the Hazardous Sites Cleanup Act. The Department failed to coordinate its permitting activity with its HSCA activity in violation of its duties under Article I, Section 27 of the Pennsylvania Constitution. The Department mistakenly concluded that the applicant had affirmatively shown that there was no presumptive evidence of potential pollution of the waters of the Commonwealth because quarry pumping would in fact extend the plumes of contaminated groundwater from the HSCA site. The Department's permit issuance was inconsistent with other statutory and regulatory requirements. The Department's effort to insert special conditions into the mining permit and the Department's promises of future enforcement action did not justify issuance of the permits. The Department's witnesses during the hearing on the merits expressed doubt whether the permits should have been issued, at least without further study. The permits

are rescinded rather than remanded because there is no schedule for future cleanup activities at the HSCA site.

Introduction

The appellant in the appeal docketed at EHB Docket No. 2018-072-L is New Hanover Township (the "Township"). The appellants in the appeal docketed at EHB Docket No. 2018-075-L are Paradise Watchdogs/Ban the Quarry and John C. Auman (collectively "Ban the Quarry"). We consolidated the two appeals. The Appellants filed their appeals from the Department of Environmental Protection's (the "Department's") renewal of Gibraltar Rock, Inc.'s ("Gibraltar's") noncoal surface mining permit, NPDES permit, and authorization to mine (the "permits") for Gibraltar's proposed quarry in New Hanover Township, Montgomery County.

Gibraltar's proposed quarry is directly adjacent to the "Hoff VC Site" (short for Hoffmansville Road and vinyl chloride). The Hoff VC Site was identified by the Department in 2011 as an area of soil and groundwater contamination involving several volatile organic compounds ("VOCs"), semi-volatile organic compounds ("SVOCs"), and other contaminants of concern. The Hoff VC Site has a record of reported contamination dating back to the 1970s. The Hoff VC Site is officially designated as a cleanup site under the Pennsylvania Hazardous Sites Cleanup Act ("HSCA"), 35 P.S. §§ 6020.101 – 6020.1305.

There has been a great deal of litigation regarding the proposed quarry as set forth below in our Findings of Fact, but there is really only one issue in this appeal: Did the Department err by issuing the permits in light of the risk posed by the groundwater contamination at the adjacent Hoff VC HSCA Site? For the reasons that follow, we hold that it did, and therefore, we rescind the permits.

FINDINGS OF FACT

I. Stipulated Facts

The Parties

1. Appellant New Hanover Township (the "Township"), is a Township of the Second Class with offices at 2943 North Charlotte Street, Gilbertsville, PA 19525-9718. (Joint Stipulation of Facts ("Stip.") 1.)

2. Appellant Paradise Watchdogs/Ban the Quarry is a citizen group comprised of member residents who own property in the immediate vicinity of the proposed quarry. (Stip. 2.)

3. Appellant John C. Auman is an adult individual residing at 3624 Church Road, Perkiomenville, PA 18074. (Stip. 3.)

4. The permittee is Gibraltar Rock, Inc. ("Gibraltar"), a Pennsylvania corporation with offices at 355 Newbold Road, Fairless Hills, PA 19030. (Stip. 4.)

5. The Pennsylvania Department of Environmental Protection (the "Department") is the executive agency with the duty and authority to administer and enforce the Noncoal Surface Mining Conservation and Reclamation Act (Noncoal Act), 52 P.S. §§ 3301 – 3326; the Clean Streams Law, 35 P.S. §§ 691.1 – 691.1001; the Hazardous Sites Cleanup Act (HSCA), 35 P.S. §§ 6020.101 – 6020.1305; the Pennsylvania Safe Drinking Water Act, 35 P.S. §§ 721.1 – 721.17; the Storage Tank and Spill Prevention Act, 35 P.S. §§ 6021.101 – 6021.2104; Section 1917-A of the Administrative Code of 1929, 71 P.S. § 510-17; and the rules and regulations promulgated under those statutes. (Stip. 5.)

Permitting Background

6. This appeal concerns the Department's July 2, 2018 renewal of Large Noncoal Surface Mining Permit No. 46030301C2 & C3 (the "mining permit"), NPDES Permit No.

PA0224308, and Authorization to Mine No. 6794-46030301-02 (collectively the "permits"). (Stip. 6.)

7. The permits were issued by the Department's Pottsville District Mining Office. (Stip. 7.)

8. In March 2001, Gibraltar filed an application to the New Hanover Township Zoning Hearing Board challenging the substantive validity of the New Hanover Township Zoning Ordinance seeking zoning relief to operate a quarry on lands situate in the HI and LI (Heavy and Light Industrial) zoning districts of New Hanover Township, and in the alternative seeking a special exception to operate a quarry on the lands situate in the HI district. (Stip. 8.)

9. The zoning application GR-I eventually encompassed approximately 223 acres. (Stip. 9.)

10. In January 2003, Gibraltar filed a second application to the Zoning Hearing Board challenging the substantive validity of the zoning ordinance and seeking relief to operate a quarry on an additional 18 acres of land it acquired on the North Side of Hoffmansville Road at the intersection of Church and Colflesh Roads as well as the 223 acres encompassed by the GR-I zoning application. (Stip. 10.)

11. On March 7, 2003, Gibraltar submitted its initial application to the Department for a Large Noncoal (Industrial Minerals) Mine Permit for the 241 acres encompassed in the GR-I and GR-II zoning applications. The application to the Department was revised in 2004. (Stip. 11; Township Exhibit No. ("T. Ex.") 6; Permittee Exhibit No. ("P. Ex.") 16-25.)

12. Gibraltar commissioned several related geologic and hydrogeologic studies in support of its initial application to the Department. (Stip. 12; T. Ex. 3, 4, 6, 8, 9; P. Ex. 16-25.)

13. On April 15, 2005, the Department issued Noncoal Surface Mining Permit No. 46030301 and NPDES Permit No. PA00224308, authorizing surface noncoal mining activities on all 241 acres. (Stip. 13; T. Ex. 11; P. Ex. 62.)

14. A surface mining permit is valid for the life of the quarry and its reclamation. An NPDES permit, however, is valid for five years and must then be renewed every five years thereafter. (Stip. 14.)

15. In April 2010, the Department corrected the Gibraltar mining permit to renew the NPDES Permit and extend it for an additional five years. The Township appealed the matter to this Board. The Board, after hearing, denied the appeal and affirmed the issuance of the permit. (Stip. 15.)

16. In June of 2007, the New Hanover Township Zoning Hearing Board issued its decision relative to the GR I Zoning Application denying Gibraltar's request for relief to allow quarrying in both the LI and HI districts, and granting a special exception permitting quarrying only on the portion of the property located in the HI district subject to conditions. (Stip. 16.)

17. In July 2007, Gibraltar appealed the denial of its request for relief to allow quarrying in both the LI and HI districts and the imposition of certain of the conditions imposed by the Zoning Hearing Board to the Special Exception by filing a land use appeal in the Court of Common Pleas of Montgomery County (*Gibraltar Rock, Inc. v. New Hanover Township ZHB and New Hanover Township*, Docket No. 2007-16658). The Montgomery County Court of Common Pleas affirmed the denial of the challenge to the validity of the zoning ordinance but struck some of the conditions which the Zoning Hearing Board imposed on the special exception it granted. Gibraltar appealed the denial of its substantive challenge to the zoning ordinance to

the Commonwealth Court of Pennsylvania. On October 11, 2013, the Commonwealth Court affirmed in part. (*See* Commonwealth Court Docket No. 2287 C.D. 2011.) (Stip. 17.)

18. The mining permit issued to Gibraltar was required to be activated by April 15, 2008, pursuant to 25 Pa. Code § 77.128(b). Because of the pending litigation and appeal to the Commonwealth Court concerning the substantive validity of the zoning ordinance and zoning districts in which Gibraltar would be permitted to mine in accordance with the special exception (HI v. LI), Gibraltar sought and received several extensions from the Department pursuant to 25 Pa. Code § 77.128(b) to activate the mining permit. (Stip. 18.)

19. Although Gibraltar did not have final land development plan approval for its GR I plan, Gibraltar began to activate the mining permit in 2009 by beginning construction. The Township filed a petition for preliminary injunction in the Montgomery County Court of Common Pleas. The preliminary injunction was granted in May 2010, barring Gibraltar from further construction activity at the site until it had secured all local approvals. Because Gibraltar had already installed sediment basins and berms in the summer and fall of 2009, it sought "An Application for Temporary Cessation of Surface Mining Activities" pursuant to 25 Pa Code § 77.651(b) in the noncoal regulations in May of 2010. The Department ultimately issued its approval of temporary cessation status and granted numerous extensions to Gibraltar. The Township then filed appeals to this Board beginning December of 2010. The Board issued an Adjudication on November 3, 2014, sustaining in part the Township's appeal. *See New Hanover Twp. v. DEP*, 2014 EHB 834. (Stip. 19.)

20. The Board ordered Gibraltar to submit a mining permit renewal application if it wanted to maintain the mining permit while it pursued necessary local approvals "to ensure that

the 2005 permit is still up-to-date from a noncoal surface mining regulatory perspective." (Stip. 20.)

21. The Board determined that Gibraltar should be required to file an application for mining permit renewal, in a format to be determined by the Department, with the Department in its discretion to determine the nature of the additional, revised, or updated information to be submitted. (Stip. 21.)

22. Specifically, the Board directed that within thirty days of the date of the 2014 Adjudication the Department needed to notify Gibraltar of the format for a renewal application, as well as determine what additional, revised, or updated information would be required as part of the renewal application. (Stip. 22.)

23. Gibraltar filed an application for renewal of its NPDES Permit No. PA0224308 on October 10, 2014. (Stip. 23; T. Ex. 24; P. Ex. 72.)

24. On November 21, 2014, the Department issued instructions to Gibraltar outlining the information it would require to evaluate a surface mining permit renewal application in accordance with the Board's Adjudication and Order. The Department requested Gibraltar provide updated information with respect to: public notice; ownership and compliance information (Module 3); areas where mining is prohibited or limited (Module 4); property interest/right of entry (Module 5); hydrology (Module 8); streams/wetlands (Module 14); air pollution and noise control plan (Module 17); other modules that needed to be upgraded due to current regulatory requirements and/or operational situations; and recalculation of the bond applying current bond rates. (Stip. 24; T. Ex. 25; P. Ex. 73.)

25. On January 16, 2015, Gibraltar submitted a renewal application (Form 5600-PM-BM0315-1, Rev. 1/2014) along with updated modules as requested by the Department in its

November 21, 2014 correspondence, together with the application fee and information about public notice. (Stip. 25; T. Ex. 26; P. Ex. 82.)

26. With its initial renewal application submittal, Gibraltar included an updated Module 8 which noted "The Southeast Regional Office of PA DEP is investigating groundwater contamination at the Hoff VC HSCA Site ("the Hoff VC Site"), which is located to the north and west of the permit area." Gibraltar's sample analysis submitted with the renewal application identified the presence of 1,2-Dichlorobenzene; 1,1-Dichloroethane; 1,1-Dichloroethene; and Trichloroethene (TCE) in monitoring well OW-5 above their respective detection limits. (Stip. 26; T. Ex. 27; P. Ex. 82.)

27. The Department issued a technical deficiency letter to Gibraltar on April 21, 2015, identifying several deficiencies, including a request that Gibraltar submit a completed application Module 8: Hydrology with results of the additional background/monitoring samples. (Stip. 27; T. Ex. 29; P. Ex. 91.)

28. On May 20, 2015, Gibraltar, by and through its technical consultant, EarthRes Group, Inc. ("EarthRes"), submitted its response to the April 21, 2015 technical deficiency letter, including an updated Module 8 containing background/monitoring sample reports obtained in December of 2014 and January and February of 2015. (Stip. 28; T. Ex. 30; P. Ex. 94.)

29. The updated Module 8 provided by Gibraltar contained laboratory analyses of samples obtained in January and February of 2015, which indicated detections of volatile organic compounds (VOCs) at monitoring well OW-5. (Stip. 29; T. Ex. 30; P. Ex. 94.)

30. The Hoff VC Site is identified to be an area of contaminated groundwater originating from the northeast corner of the intersection of Layfield Road and Hoffmansville Road. (Stip. 30.)

31. The Good Oil property is located at 334 Layfield Road on the northeast corner of Layfield and Hoffmansville Roads. This property is considered by the Department to be the source of the Hoff VC Site groundwater contamination. (Stip. 31.)

32. The Hoff VC Site is located diagonally to the north and west of the Gibraltar mining permit area. (Stip. 32.)

33. The definition of a "site" under the Hazardous Sites Cleanup Act (HSCA) includes the "area where a contaminant or hazardous substance has been deposited, stored, treated, released, disposed of, placed or otherwise come to be located." 35 P.S. § 6020.103. (Stip. 33.)

34. On October 6, 2015, the Department sent Gibraltar a second technical deficiency letter. The letter noted that contaminants from the Hoff VC Site may enter or migrate onto Gibraltar's permit area by various pathways including surface and groundwater flow. The letter stated that the current permit application did not adequately address this possibility and requested that Gibraltar identify how it intends to monitor and provide for this possibility as part of its mining activities. (Stip. 58; T. Ex. 33; P. Ex. 102.)

35. On October 8, 2015, the Township sent a letter to the Department's HSCA program in the Southeast Regional Office, indicating its concerns that: (1) the evaluation of groundwater flow for the Hoff VC Site did not appear to have accounted for possible changes due to the quarry operations; (2) evaluation of contaminant transport did not consider future operations at the quarry; and (3) the Hoff VC Site file did not appear to discuss possible treatment of contamination through Gibraltar Rock Quarry operations as a remedy under the Hazardous Sites Cleanup program. (Stip. 59; T. Ex. 34.)

36. On October 21, 2015, the Department's Pottsville District Mining Office responded to the Township's October 8, 2015 letter indicating that it was working with the Southeast Regional Office's HSCA program to address the potential impact(s) of the contamination from the Hoff VC Site on the existing Gibraltar permit. (Stip. 60; T. Ex. 35.)

37. On November 5, 2015, Gibraltar/EarthRes sent the Department's Pottsville mining office a "draft response to your comment letter" for it to review and comment prior to issuance by Gibraltar and requested a meeting to discuss the contents of the letter. A meeting was held between Gibraltar and the Pottsville office staff on November 24, 2015. (Stip. 61; T. Ex. 38.)

Further Background on the Hoff VC HSCA Site

38. The Department had been informed in July 2011 that a nearby residential well serving a multitenant apartment building located at 324-332 Layfield Road had elevated levels of certain VOCs that exceeded drinking water standards. (Stip. 34.)

39. The Montgomery County Health Department initially collected a water sample from a well serving a multitenant apartment building as the result of a leaking heating oil tank. Chlorinated volatile organic compounds including trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1-dichloroethylene (1,1-DCE), vinyl chloride (VC), and the gasoline additive methyl tertiary-butyl ether (MTBE) were detected at levels exceeding the applicable drinking water standard Maximum Contaminant Levels (MCLs). (Stip. 35.)

40. In July 2011, the Department's Southeast Regional Office (SERO) HSCA program began an investigation of groundwater contamination that exceeded drinking water standards in the vicinity of the Hoff VC Site. (Stip. 36.)

41. Well samples obtained by the SERO HSCA program in July of 2011 at nearby residences along Layfield Road also indicated the presence of 1,2-dichloroethane (1,2-DCA), benzene, 1,2-dichlorobenzene (1,2-DCB), and 1,4-dichlorobenzene (1,4-DCB) above the MCLs. (Stip. 37.)

42. On April 17, 2012, the HSCA program held a public hearing to alert affected neighboring property owners of the fact that pollutants were identified that exceeded drinking water standards. (Stip. 38.)

43. A subsequent HSCA program investigation revealed that the Hoff VC Site, which includes the Good Oil Company Property, had released a variety of hazardous substances resulting in a downgradient groundwater contaminant plume affecting residential drinking water wells at multiple homes in the area. (Stip. 39.)

44. The SERO HSCA program investigation included installing and sampling monitoring wells in the area, sampling of surface water and sediment, and conducting a vapor intrusion assessment. The SERO HSCA program contracted with Leidos Engineering, LLC ("Leidos") to assist with the investigation. (Stip. 40.)

45. Between March and April 2012, Leidos installed six deep monitoring wells: MW-1D, MW-2D, MW-3D, MW-4D, MW-5D and MW-7D. Leidos also installed three additional deep monitoring wells: MW-8D in April 2013, and MW-9D and MW-10D in May/June 2014. (Stip. 41.)

46. Between April 4 and 12, 2012, Leidos installed six shallow bedrock monitoring wells: MW-1S, MW-2S, MW-3S, MW-5S, MW-6S and MW-7S. (Stip. 42.)

47. Leidos also investigated and sampled wells and surface water points within the Gibraltar permit boundary area, including wells MW-7, OW-4, OW-5, and OW-6. Nested well screens were installed in wells OW-4 and OW-6 in September of 2012. (Stip. 43.)

48. Between January 2012 and July 2014, Leidos performed routine groundwater sampling activities as part of the site investigation. In addition, the SERO HSCA program conducted a round of groundwater sampling in May 2012. The Department's Bureau of Laboratories analyzed the samples for, among other things, VOCs, semi-volatile organic compounds ("SVOCs"), 1,4-Dioxane, and metals. (Stip. 44.)

49. The HSCA program selected an interim response in 2013 that connected the affected and threatened residential properties to the local public water supply. The Department funded construction of the waterline main, the lateral connections from the main to the affected properties, the connection of the laterals to the existing buildings' plumbing, the repairs to all road surfaces or properties disturbed by the waterline construction, and the abandonment of private wells. The interim response was completed in September 2014. (Stip. 45; T. Ex. 20, 21.)

50. In August 2014, the HSCA program had Leidos prepare a "Project Investigation Report for Hoff VC Site" ("Leidos Report") to assist with the site investigation to determine the origin of chlorinated organic compound impacts to groundwater in private potable water wells in the vicinity of the Hoff VC Site. (Stip. 46; T. Ex. 23; P. Ex. 165.)

51. The Leidos site investigation and sampling completed between January 2012 and July 2014 revealed the highest concentrations of chlorinated VOCs were detected in the Good Oil Property leaking underground storage tank case wells MW-4, MW-8, MW-13, and Department HSCA wells MW-1S, MW-4D, and MW-8D (all wells are located at the Good Oil

Property). In addition, Leidos concluded that migration of contaminants had occurred to the southwest, south, and west of the Good Oil Property. (Stip. 47; T. Ex. 23; P. Ex. 165.)

52. In 2016, the Department contracted Tetra Tech, Inc., to perform a "Groundwater Modeling and Fate and Transport Analysis for the Hoff VC Site" to evaluate the extent of the contaminant plume. (Stip. 48; T. Ex. 44, 56; P. Ex. 159.)

53. The Tetra Tech fate and transport study modeling did not account for hydrogeological changes resulting from the proposed Gibraltar Rock Quarry operations. (Stip. 49.)

54. In 2014, the HSCA program filed a cost recovery action against the owner of the Hoff VC Site. In the course of that matter, the HSCA program in 2016 learned that there remained on the property a concrete vault containing various hazardous compounds that had never been remediated. Among other actions, the HSCA program provided public notice of the concrete vault discovery. (Stip. 50; T. Ex. 54.)

55. In response to the discovery of the concrete vault at the Hoff VC Site, the HSCA program started to remediate the vault waste pit area, including disposal of the liquid waste and sludge in the vault, removal of the vault, and excavation of 217.38 tons of soil and 24,556 gallons of water surrounding the vault. Soil excavation work was terminated prior to attainment of non-impacted soil due to safety and structural concerns. The Department also installed two additional shallow monitoring wells, MW-A and MW-B, to try to track the concentration and pathway of contaminants. (Stip. 51, T. Ex. 80.)

56. The HSCA program is considering further remediation possibilities at the Hoff VC Site to address the groundwater contamination in order to be protective of human health and the environment. (Stip. 52.)

57. The HSCA program continues to monitor and collect groundwater and sediment samples at the Hoff VC Site. (Stip. 53.)

58. Recent samples have been collected in May and August of 2019 and analyzed for VOCs, SVOCs, pesticides, and metals, including the constituents TCE, MTBE, 1,2-DCB and 1,4-Dioxane. (Stip. 54; P. Ex. 166, 167.)

59. The concentration reported for 1,1-dichloroethene (1,1-DCE) in well OW-6-L for the sample dated August 6, 2019 is 2.4 micrograms per liter (ug/L). Leidos obtained at least 4 samples of well OW-6-L between 2012 and 2014. The greatest concentration of 1,1-DCE detected by Leidos was 0.71 ug/L on May 2, 2013. (Stip. 55; P. Ex. 165, 166.)

60. The concentration reported for trichloroethene (TCE) in well OW-6-L for August 6, 2019 was 4.2 ug/L. The highest concentration of TCE in well OW-6-L detected by Leidos between 2012 and 2014 was 0.74 ug/L. (Stip. 56; P. Ex. 165, 166.)

61. Well OW-6 is located on Gibraltar's property within the mining permit area. Well OW-6 is within the permit boundary and bonded support area, but not within the area that is bonded for mining activity. Well OW-6 is screened at intervals of 40 to 130 feet below ground surface (fbg) and at 210 to 260 fbg. (Stip. 57.)

Further Permitting Background

62. On December 16, 2015, Gibraltar/EarthRes submitted a five-page letter concerning the Hoff VC Site contamination. Gibraltar proposed monthly water level monitoring, as well as quarterly monitoring for various other parameters including VOCs, SVOCs, 1,4-Dioxane, total suspended solids, total dissolved solids, and pH. (Stip. 62; T. Ex. 36; P. Ex. 107.)

63. EarthRes proposed quarterly monitoring/sampling for VOCs at monitoring points OW-2, OW-4, OW-5, MW-1N, and MW-3N at the Hoff VC Site once mining commenced. (Stip. 63; T. Ex. 36; P. Ex. 107.)

64. EarthRes stated that its groundwater modeling done in 2003 showed groundwater drawdown due to quarry pumping at full development to be approximately 15 feet at the Hoff VC Site. (Stip. 64; T. Ex. 36; P. Ex. 107.)

65. Gibraltar has established what it has referred to as sentinel wells between the Hoff VC Site and the Gibraltar site. (Stip. 65.)

66. The sentinel wells have been in place for over a decade. The mining permit has requirements for quarterly sampling of VOCs/SVOCs at five groundwater monitoring points. The NPDES permit has requirements for quarterly sampling of three surface water discharge points. (Stip. 66.)

67. EarthRes also stated that there would be considerable time, 15 to 20 years, before the quarry's predicted zone of influence advances beyond the mining permit area. Gibraltar represented that any change in the water table would be gradual and identifiable and monitored by the sentinel well monitoring network. (Stip. 67; T. Ex. 36; P. Ex. 107.)

68. EarthRes offered that in the event remediation of the Hoff VC Site is not completed and contaminated water is intercepted by the quarry, water treatment options such as aeration were contemplated and would be evaluated more specifically in the future when the concentrations are known and the available technology for treatment options at that time can be accurately evaluated. (Stip. 68; T. Ex. 36; P. Ex. 107.)

69. On January 7, 2016, the SERO HSCA program notified Gibraltar that samples obtained in November 2015 at well MW-7D(L) on Gibraltar's property, directly to the south of

the Hoff VC Site on a parcel that is not proposed to be mined, detected VOCs above the Medium Specific Concentrations (MSCs) for Used, Residential Aquifers established by the Pennsylvania Land Recycling and Environmental Remediation Standards Act ("Act 2"), 35 P.S. §§ 6026.101 – 6026.908. (Stip. 69; T. Ex. 37; P. Ex. 106.) *See* 25 Pa. Code Chapter 250.

70. On January 27, 2016, the Department's Pottsville office sent Gibraltar a draft of the proposed water monitoring plan and proposed NPDES effluent limits. Draft condition #29 of the mining permit was modified to include quarterly monitoring reports for wells OW-2, OW-4 (upper and lower), OW-6 (upper and lower), MW-1N, and MW-3N after mining commenced. (Stip. 70; T. Ex. 38; P. Ex. 110.)

71. On February 23, 2016, Gibraltar submitted a "Groundwater Pumping Evaluation Addendum" to the SERO HSCA program and the Pottsville office on a later date. (Stip. 71; T. Ex. 40; P. Ex. 111.)

72. On February 22, 2016, the Township sent a letter to the Department with objections and comments to the NPDES permit renewal application and requested a public hearing be conducted. Ban the Quarry sent a similar letter on February 24, 2016. (Stip. 72; T. Ex. 39; P. Ex. 113, 115.)

73. The Pottsville office thereafter received public comments on the Gibraltar application from the Township as well as from citizens, including at a March 29, 2016 public hearing on the NPDES Permit renewal application. (Stip. 73; T. Ex. 41; P. Ex. 121, 122.)

74. On April 1, 2016, the SERO HSCA program notified Gibraltar that samples obtained in March 2016 at well MW-7D(L) (located on Gibraltar's property) detected VOCs above the MSCs for Used, Residential Aquifers established under Act 2. (Stip. 74; T. Ex. 42; P. Ex. 116.)

75. On April 28, 2016, Tetra Tech submitted to the HSCA program a report of its analysis and recommendation concerning the source or sources of contamination of the Hoff VC HSCA Site. (Stip. 75; T. Ex. 44.)

76. The Pottsville office issued its summary report of the March 29, 2016 public hearing on July 8, 2016. (Stip. 76; T. Ex. 46; P. Ex. 127.)

77. On September 22, 2016, Gibraltar/EarthRes met with the Pottsville office personnel. (Stip. 77.)

78. On October 6, 2016, Gibraltar sent the Pottsville office its official responses to the public comments conveyed in the office's July 8, 2016 Public Hearing Report. (Stip. 78; T. Ex. 52; P. Ex. 130.)

79. The Pottsville office sent Gibraltar a January 4, 2017 letter identifying the discovery of the concrete sludge vault at the Hoff VC Site and providing a list of all known contaminants detected therein. The Pottsville office again notified Gibraltar that contaminants from the Hoff VC Site may enter or migrate onto Gibraltar's mining permit area. (Stip. 79; T. Ex. 54.)

80. Because Gibraltar's then-current monitoring plan did not address all of the contaminants identified in the concrete vault investigation at the Hoff VC Site, the Pottsville office requested that Gibraltar provide a detailed proposal for all possible contaminants from the Hoff VC Site. (Stip. 80; T. Ex. 54.)

81. Gibraltar/EarthRes responded to the Pottsville office's January 4, 2017 letter on February 3, 2017. EarthRes proposed to "initially add pesticides (endrin and dieldrin) and metals (chromium and lead) to the groundwater and discharge sampling parameters to evaluate their presence in the groundwater at the Gibraltar Rock Site." Gibraltar proposed that (a) if additional

sampling conducted by the SERO HSCA program and (b) if the initial four quarters of groundwater sampling conducted by Gibraltar do not indicate the presence of endrin, dieldrin, chromium, or lead in groundwater above applicable standards, such analysis would be discontinued. (Stip. 81; T. Ex. 55; P. Ex. 132.)

82. EarthRes proposed that, if contaminant concentrations "reach levels of concern," the quarry monitoring and water handling system would be evaluated and modified to include remediation of contamination found above regulatory limits. Proposed remediation methods included aeration, oxidation (with hydrogen peroxide, ozone, etc.), thermal destruction, filtration, precipitation, and carbon polishing. (Stip. 82; T. Ex. 55; P. Ex. 132.)

83. On March 2, 2017, the Department notified Gibraltar that it had completed its technical review of the mining permit application but needed a mining and reclamation bond submittal before it could issue a permit. Gibraltar submitted the additional bond information on March 10, 2017. (Stip. 83; T. Ex. 57, 58; P. Ex. 131.)

84. On April 5, 2017, the Department notified Gibraltar that EarthRes needed to consult with the SERO HSCA program to discuss NPDES effluent limits and that the Department would be obliged to meet with public officials and citizens groups before the permit could be issued. (Stip. 84; T. Ex. 60.)

85. On June 15, 2017, Gibraltar and the Department conducted a meeting. Following the meeting, the Department sent Gibraltar a revised draft of the NPDES permit for Gibraltar to review prior to publication in the *Pennsylvania Bulletin*. (Stip. 85; T. Ex. 62; P. Ex. 133.)

86. A draft NPDES Permit No. PA0224308 was published in the *Pennsylvania Bulletin* on July 15, 2017, 47 Pa.B. 3882. (Stip. 86.)

87. On July 31, 2017, Gibraltar provided the Department with an operations map with a water handling plan as well as a drawing of the proposed final configuration of the quarries assuming full zoning approval. (Stip. 87; T. Ex. 63.)

88. On August 11, 2017, the Township sent the Department a letter with its written objections and comments to the draft published NPDES permit. The Township asked the Department to require Gibraltar to prepare a contaminant fate and transport model considering 3-dimensional groundwater flow. (Stip. 88; T. Ex. 64.)

89. EarthRes conducted a "Fate and Transport Analysis and Assessment of Hoff VC Site Contaminant Migration" to evaluate the potential groundwater migration of contaminants from the Hoff VC Site. EarthRes's Fate and Transport report was presented to various Pottsville District Mining Office officials in September 2017 in a PowerPoint presentation consisting of 22 slides. The analysis specifically evaluated the constituents TCE, MTBE, 1,2-DCB and 1,4-Dioxane. EarthRes's modeling concluded that contaminant capture due to quarry pumping was unlikely, and because the quarry footprint will develop slowly, with significant groundwater pumping not occurring for approximately 15 years, physical remediation and natural degradation of contaminants would continue at the Hoff VC Site. (Stip. 89; T. Ex. 66; P. Ex. 135.)

90. EarthRes also submitted its first round of updated background monitoring sample results for VOCs on September 6, 2017. (Stip. 90; T. Ex. 65; P. Ex. 134.)

91. On October 13, 2017, EarthRes/Gibraltar submitted formal written responses to the Township's and Ban the Quarry's August 2017 comment and objection letters. (Stip. 91; T. Ex. 67; P. Ex. 136.)

92. EarthRes/Gibraltar submitted a revised October 13, 2017 response letter on November 29, 2017. (Stip. 92; T. Ex. 69; P. Ex. 138.)

93. The Pottsville office requested additional information from Gibraltar by way of email dated December 27, 2017. (Stip. 93; T. Ex. 71.)

94. EarthRes/Gibraltar provided supplemental information to the Pottsville office on February 9, 2018. (Stip. 94; T. Ex. 72.)

95. Gibraltar submitted a revised and updated application Module 8: Hydrology on February 26, 2018. (Stip. 95; T. Ex. 74; P. Ex. 142.)

96. On March 30, 2018, the Pottsville office contacted Gibraltar proposing a few additional mining permit special conditions it wanted to discuss with Gibraltar. Additional draft permit conditions were circulated between the Pottsville office and EarthRes on April 23, 2018. (Stip. 96; T. Ex. 76, 77.)

97. Gibraltar provided a reclamation bond in the amount of $1,422,935.00, which the Pottsville office determined was reasonably calculated. (Stip. 97.)

98. The Pottsville office issued the final permits to Gibraltar on July 2, 2018. (Stip. 98; T. Ex. 79; P. Ex. 143.)

99. Gibraltar Rock's Final Land Development Plan remains pending for the GR-I/GR-II project. (Stip. 99.)

The NPDES Permit

100. The Gibraltar NPDES permit includes one mine drainage treatment discharge outfall (Outfall 001) to an Unnamed Tributary ("UNT") to Swamp Creek for groundwater and precipitation water from the mine pit sump via settling basins. In addition, the NPDES Permit includes two stormwater control discharges (Outfall 002 and Outfall 003) to the UNT to Swamp Creek for precipitation water via erosion and sediment (E&S) control facilities. (Stip. 100.)

101. The Department utilized the United States Geological Survey StreamStats ("USGS StreamStats") (streamflow statistics and spatial analysis) tool to delineate the drainage area, acquire basin characteristics, and estimate the flow statistics of the receiving stream, the UNT to Swamp Creek. (Stip. 101.)

102. Based on USGS StreamStats, at the point of discharge at Outfall 001, the drainage area is 0.087 square miles and flow yield $Q_{7\text{-}10}$ of 0.00268 cubic feet per second (cfs). (Stip. 102.)

103. Because there is no assimilative capacity in the receiving stream for the Outfall 001 discharge, the discharge must meet water quality-based effluent limits (WQBELs). The effluent limitations established in the NPDES permit have been set to prevent excursions above the water quality criteria of 25 Pa. Code § 93.8c in the receiving water of the proposed discharge to provide for the protection of aquatic life and human health. Certain water quality criteria in the NPDES permit are below the EPA-approved Test Method Detection level, in which case a Target Quantitation Limit (TQL) is set as the effluent limit. (Stip. 103.)

104. A water quality criterion has not been developed for 1,4-Dioxane, a contaminant found at the Hoff VC Site. 1,4-Dioxane is included in the NPDES permit and will be monitored. (Stip. 104.)

Site Geology

105. The Gibraltar site overlies the geologic units of the Triassic-aged Brunswick formation, which consists of reddish-brown shale, mudstone, and siltstone. (Stip. 105.)

106. Soils in the area of the quarry tend to be thin and fine grained, approximately 5 to 10 feet in thickness. (Stip. 106.)

107. Diabase dikes and sills have intruded into the Brunswick formation throughout the region. Dikes are between 5 and 100 feet thick and described as black, dense, very fine-grained rock composed of labradorite and augite. (Stip. 107.)

108. Where diabase intrudes, the Brunswick formation has metamorphosed to a hard, dark-colored hornfels, sometimes referred to as Baked Brunswick. The width of metamorphosed hornfels typically ranges between 40 to 100 feet, but hornfels can be present in a wider area where large diabase sills are present. (Stip. 108.)

109. The hornfels is the target rock for Gibraltar's quarry operations. (Stip. 109.)

110. There is a diabase sill that crops out on the ground surface to the north of the quarry site. The diabase was also found to be present beneath the surface, with the depth of the diabase increasing from northeast to southwest. (Stip. 110.)

111. The primary pathway for groundwater movement near the site is through secondary openings such as joints and fractures. Secondary openings include near vertical joints, as well as bedding planes. The orientation of the joints was found to be variable at the Gibraltar quarry site. (Stip. 111.)

112. The line of intersection of the sedimentary beds in the Triassic Brunswick formation and a horizontal surface is called the geologic strike. The strike of the bedrock in the area of the Gibraltar quarry was found to be consistently northwest to southeast. (Stip. 112.)

II. The Board's Additional Findings of Fact

The Hoff VC Site

113. There are several dozen contaminants at the Hoff VC HSCA Site, many of which continue to be present at levels that exceed Act 2 MSCs for used, residential aquifers. (T. 548-54, 568, 838, 1179-82, 1210; Department Exhibit No. ("DEP Ex.") 5.B, 9; T. Ex. 47, 54, 80.)

114. About a dozen compounds still exceed Act 2 MSCs. (T. 596-97, 1179-82; DEP Ex. 9; T. Ex. 47.)

115. The distribution of pesticides across the Hoff VC Site is uneven compared to the distribution of some of the other compounds such as TCE. (T. 553.) Different compounds will travel in different pathways depending on their molecular structure and where they were disposed or placed. (T. 543-44, 553.)

116. Despite the Department's interim cleanup measures, sources of continuing known and as yet unknown groundwater contamination remain at the site. (T. 99-101, 176-80, 182-83, 203-04, 450, 535-36, 554-55, 615, 617; T. Ex. 96 (at 23, 56-59).)

117. Although the Department has emptied and partially excavated around a concrete pit on the Hoff VC Site, contaminants are being detected in the groundwater that were not detected in the pit project, which shows there are sources at the site other than the pit. (T. 100-01.)

118. The concrete pit was about 40 feet long by 10 feet deep by 5 feet wide. The Department's Southeast Regional Office HSCA program removed about 8,000 gallons of hazardous waste from the pit in total and 217.38 tons of contaminated soil, plus another 16,000 gallons of nonhazardous liquid. (Stip. 51; T. 554, 613-14, 617; T. Ex. 80.) The pit was scrubbed, and soil was remediated around the pit, but no soil remediation was done under the concrete pit because it sits on bedrock. (Stip. 51; T. 555-56.) There were several holes in the side of the pit. (T. 554-55, 614.)

119. Not all contaminated soils could be removed because the Department decided that threats to human health were greater if they were removed than if they were left to remain in place in the context of the interim cleanup measures. (T. 614, 616-17.)

120. Areas were identified that were unable to be excavated due to the proximity of the excavation area to the facility's infrastructure, electrical lines, and/or other conditions threatening human health. (T. 616-17.)

121. The material removed from the concrete pit at the Hoff VC Site was tested and determined to be hazardous waste and disposed off-site; the soil tested next to the pit had lower concentrations of those same contaminants low enough to be disposed of as a nonhazardous waste. (Stip. 51; T. 551; T. Ex. 80.)

122. Some of the chemical contaminants at the Hoff VC Site can persist for as much as 100 years absent remediation. (T. 840.)

123. Natural degradation of contaminants is ongoing at the site but that does not mean that safety concerns have subsided. Many of the chemicals associated with the Hoff VC Site degrade into byproducts that are themselves contaminants of concern. (T. 182-83.)

124. TCE, for instance, degrades over time into dichloroethene and vinyl chloride. (T. 314-15.)

125. Monitoring well 7-D(U), located near the intersection of Hoffmansville Road and Layfield Road on Gibraltar's property, contained positive detections of TCE and 1,2-DCB for the first time in more recent sampling rounds from 2017 and 2019. (T. 183-84; T. Ex. 96 (at 60, 61).)

126. The Department's HSCA program employed consultants to assist with the interim cleanup measures. The consultants performed some groundwater flow modeling. That modeling focused on four contaminants identified at the Hoff VC Site due to the particular characteristics of those contaminants. (T. 1174-77.) Contaminants 1,4-Dioxane and MTBE were modeled because they tend to travel farther in groundwater than other contaminants identified at the site.

(T. 1175.) Contaminant 1,2-Dichlorobenzene was modeled because of historical records that the contaminant was released in the 1970s. (T. 1175-76.) TCE was chosen because it is an organic compound that can vaporize into the air from groundwater and pose a risk of inhalation. (T. 1176-77.)

127. The Department's HSCA consultants, including Tetra Tech and Leidos, have determined that contaminants from the Hoff VC Site migrated into residential wells. (T. 534-35, 595.) Of the list of contaminants, more than a dozen of them were determined to be contaminants of primary concern because they were detected at levels exceeding their respective MSC cleanup levels. (T. 596-97; T. Ex. 47.)

128. During the investigation, the HSCA program conducted multiple rounds of sampling of the residential properties located at the Hoff VC Site. As of March 2013, site contaminants had been detected at levels exceeding the MCL drinking water standards at nine residential properties. As of March 2013, 42 residential properties, businesses, and schools in the Township had been sampled. (T. Ex. 20.)

129. Pollutants from the Hoff VC Site contaminated residential water wells along Layfield Road and Hoffmansville Road, which prompted the Department to install a two-million-dollar water line to the houses and prohibit the use of groundwater at those residences for any purpose. The water line more or less transects Gibraltar's property. (T. 574-75, 577.) Nine houses had contaminants above Safe Drinking Water Act levels and seven houses had contaminants that were detected but not at levels above Safe Drinking Water Act standards. (T. 73-74, 83-84, 111-12, 533-34, 539-40, 544, 568-75, 580-81, 595, 602; T. Ex. 23, 44, 96 (at 8, 9, 11, 27).)

130. At least two of the houses with contaminated wells lie directly between the Hoff VC Site and the proposed quarry pit. (T. 73-78; T. Ex. 96 (at 8, 9).)

131. Some of the wells contained contaminants that were above the Act 2 MSC action levels used by the HSCA program, as well as safe drinking water levels. (T. 75-77; T. Ex. 96 (at 9).)

132. One of the Department's consultants during the HSCA investigation, Tetra Tech, expressed the following concern regarding the pumping of the residential wells in a 2016 report:

> Because of need to protect residences from further exposure to contaminants, PADEP was not able to directly measure the influence of nearby residential wells on groundwater flow directions at the site. However, based on limited storativity of the fractured aquifer in the area, the amount of pumping required to draw contaminants through the aquifer system is believed to be small.
>
> Pump testing performed as part of a quarry permitting process immediately south and adjacent to the site confirmed that limited pumping over short periods of time could measurably affect water levels and flow direction. Impacts were observed more than 1200 feet away during limited rate of flow, 72-hour pump tests immediately south of the truck wash area adjacent to the site where a quarry is being permitted (Gibraltar Rock Inc. 2003, Enclosure 3, Appendix D).
>
> The most impacted residential wells are less than 200 feet from the TCE wash area outfall. **Any pumping from a series of residential wells in this area would therefore very likely and strongly induce alteration of groundwater flow directions toward the residential supply wells.** Because of pumping of residential wells over time and the preferential orientation of fractures, discussed above, it is easy to understand why contamination has migrated from the washing facility outfall area to the impacted residential supply wells.

(T. Ex. 44 (at 7-8) (emphasis added).)

133. The Department has no immediate or specific plans at this time to conduct further studies and remediation activities at the Hoff VC HSCA Site, although there is no doubt that there will be such activities. (T. 159-60, 227, 533-34, 558, 618, 623-24, 1185.)

134. The Hoff VC Site remains the subject of an ongoing investigation and there is no plan to close out remediation efforts at the site. (T. 533-34, 584-85, 602-03, 613, 618, 623-24,

631, 1182-83.) One of the goals is to determine what type of further measures can be conducted at the site to address groundwater contamination. (T. 534.)

135. Only interim responses have been taken so far. (T. 534, 540, 554, 568, 597-98, 616-17, 1194-95.)

136. Other than periodic sampling, including sampling of the monitoring wells between the site and the proposed quarry pits, no active investigation or remediation is taking place at the site and there is no schedule for taking any action. (T. 533-34, 544-45, 558, 602-03, 618.)

137. The Department intends at some unspecified time to "develop a pilot study with a goal of gathering data that would be added to the administrative record to determine what type of interim response can be conducted at the site for groundwater contamination." (T. 534.)

138. There is no record evidence that anyone at the Department considered the effect that quarry pumping would have on the investigation, remedial design, or remedial action at the Hoff VC Site. (*See* T. 585, 613.)

139. There is no evidence that the Department's mining program asked its HSCA program personnel whether quarry pumping would complicate or increase the cost of HSCA activities at the Hoff VC Site. (*See* T. 1195-98, 1201, 1207-08.)

140. Although the risk of quarry pumping has been recognized, the Department's groundwater investigations to date at the Hoff VC Site have not included any consideration of a potential quarry causing the active migration of contaminants as a result of groundwater pumping. (T. Ex. 18, 20, 23, 44, 56.)

141. There is no evidence that the Department considered the interests of Potentially Responsible Parties (PRPs) at the Hoff VC Site when it issued the quarry permits.

142. The Department's primary focus throughout the quarry permitting process was on whether contaminants would enter the quarry pits, and if they did, making sure that any discharge containing those contaminants would be treated before they were discharged at unacceptable levels to surface waters. (T. 693-94, 1056-60; T. Ex. 46.)

Groundwater Monitoring Well Results Including Monitoring Well OW-6

143. Monitoring wells on and beyond the Hoff VC Site have multiple contaminants that exceed Act 2 MSCs for groundwater. (T. 86-96, 141-42, 149; T. Ex. 23, 96 (at 13-20, 39).)

144. Gibraltar's permit calls for quarterly sampling of monitoring wells once mining commences. (T. 1083, 1091-92; T. Ex. 79.)

145. Monitoring well test results so far do not support a finding that contamination at the Hoff VC Site is decreasing; rather, source contaminants appear *not* to have stabilized notwithstanding the Department's interim measures. (T. 175-187, 620, 674, 698-99, 891, 926, 1163-64, 1182-83; T. Ex. 96 (at 56-64).)

146. Monitoring well OW-5, which is the closest established well to the proposed south quarry pit at about 200 feet away, is not included in Gibraltar's approved monitoring program. Samples from OW-5 obtained by Gibraltar in 2014 and 2015 as part of its permit application detected chemicals associated with the Hoff VC Site. (T. 142-43; T. Ex. 96 (at 38).)

147. A review of the VOC data from the sampling events in December 2014 and January and February 2015 indicated the following compounds were detected in the samples from OW-5: 1,2-Dicholorobenzene (1.0 ug/L, 0.8 ug/L, 0.7 ug/L), 1,1-Dichlororethane (1.0 ug/L, 1.1 ug/L, 0.9 ug/L), 1,1-Dichloroethene (1,1-DCE) (1.2 ug/L, 1.5 ug/L, 1.2 ug/L), and Trichloroethene (TCE) (2.8 ug/L, 3.0 ug/L, 2.6 ug/L). (T. Ex. 30, 96.)

148. In sampling from November 2015, the Department detected three contaminants in excess of Act 2 MSC standards in monitoring well MW-7D(L). (T. 781; P. Ex. 106.) Sampling in March 2016 detected two contaminants in excess of Act 2 MSC standards. (T. 791-92; P. Ex. 116.) MW-7D(L) is located on Gibraltar's property, but not within the proposed mining area. (T. 791.)

149. There have not been any additional samples reported from well OW-5 since 2015. (T. 176.)

150. Well OW-6 is no more than 500 feet from Gibraltar's southern pit. (T. 892; T. Ex. 96 (at 39).)

151. Well OW-6 appears to be showing increasing concentrations of contaminants over time, although it remains to be seen whether this apparent trend will continue. (T. 185-87, 408-10, 601-02, 620; DEP Ex. 5.B; T. Ex 96 (at 63).)

152. The August 6, 2019 sample of well OW-6 showed 2.4 parts per billion (ppb) 1,1-dichloroethene, 5.1 ppb chlorobenzene, 4.2 ppb TCE, and 10.1 ppb arsenic. (T. 601; DEP Ex. 8, 9.)

153. 4.2 ppb of TCE is below the Act 2 cleanup standard for groundwater (5 ppb) but above the discharge limit contained in Gibraltar's NPDES permit (2.5 ppb). (T. 76-77, 926; T. Ex. 96 (at 39).)

154. The Department's HSCA program is not currently taking any action with respect to the contamination in monitoring well OW-6 and it has no immediate plans to take any action. (T. 1182-83.)

155. The sampling results taken at OW-6 are of particular interest because they suggest that contaminants have already spread from the Hoff VC Site across Hoffmansville Road and to

no more than 500 feet of the location of Gibraltar's southern pit. (T. 892-93, 897-98, 901, 926-28.)

156. There are no other known sources of the contaminants in the area. (T. 539-41.)

157. Toby Kessler, P.G., the Township's highly qualified expert geologist, credibly testified to a reasonable degree of scientific certainty that the contamination being detected in monitoring wells OW-5 and OW-6 originated at the Hoff VC Site. (T. 93-96, 111-12, 213-15, 247, 283-84; T. Ex. 44, 96 (at 27).)

158. The exact edges of the groundwater contamination plume(s) stretching from the Hoff VC Site as detected in the monitoring wells have not been determined, but they clearly extend onto Gibraltar's property to within no more than 500 feet of the southern quarry pit. (T. 85-98, 132-35, 707; T. Ex. 96 (at 12-20, 26, 34, 35).)

159. The Department's HSCA program has not conducted any analysis of how quarry pumping would affect the existing plumes or have an impact on the HSCA site cleanup. (T. 106-07, 1195-98, 1201, 1207-08.)

160. The Department's HSCA staff's role with respect to the mining permits was to provide a list of the contaminants at the Hoff VC Site to the Department's district mining office, and it was consulted in some way on permit conditions regarding monitoring. (T. 560, 564-65, 608, 623, 625-26, 629, 1195-96.)

161. The Department's mining program staff did not consult with the HSCA staff on how quarry pumping would affect remediation of the Hoff VC Site. (T. 612.)

162. There is no apparent program for coordination between the Department's mining program and its HSCA program regarding the Hoff VC Site and the proposed quarry going forward. (T. 585, 613.)

163. Although well OW-6 is now showing what appear to be increasing contaminant levels, the Department lacked that particular monitoring result at the time the permit was issued. (T. 703-04.) Because of recent data provided through monitoring, including the results for OW-6, the Department's mining office intends to immediately send a letter to Gibraltar asking for more information about what is going on at the site in order to make sure that the contamination is not migrating in unanticipated directions, even with the lack of quarry pumping. (T. 704, 1080-81, 1130, 1133-34, 1139-40.) The mining office personnel who testified at the hearing on the merits expressed the Department's intention to increase the frequency of sampling and to get a fresh round of all monitoring points being tested due to its concern regarding the latest sampling of OW-6. (T. 710, 1140-41.)

164. Gibraltar's NPDES permit is currently up for renewal. (T. 1087-88.) While the current NPDES permit would be administratively extended pending review, the mining office will be looking at the data from the Hoff VC Site, the available data on the mining permit, and the information gleaned from the hearing itself, including information that will be expected from Gibraltar in response to the Department's aforementioned letter. (T. 1080-81, 1088-89, 1133-35.)

165. Based on the most recent sampling in August 2019, monitoring wells MW-8D(U), MW-8D(L), MW-4D(U), MW-4D(L), and MW-B still contain the highest concentrations of contaminants exceeding the MSCs for organic substances in groundwater. (DEP Ex. 9.) Those monitoring wells are centrally located on the Hoff VC Site on the Good Oil property.

Hydrogeology

166. The presence of the Hoff VC Site required increased scrutiny in reviewing Gibraltar's permits because of the mining office's recognition of the potential risk of having a quarry next to a contaminated site. (T. 1031.)

167. The rock in the area of the Hoff VC Site and the proposed quarry is mapped as the Brunswick formation, which is a red mudstone, shale and silt stone that is fine-grained. It has been contact metamorphosed from the intrusion of a diabase near the quarry site. The diabase is a crystalline rock that begins in a thick molten state that is pushed up toward the surface and "cooks" or "bakes" the Brunswick formation surrounding it, turning the original mudstone, sandstone, and silt stones into a rock called hornfels, which is harder, and therefore desirable from an aggregate standpoint. The hornfels rock is primarily what Gibraltar seeks to mine. (T. 1043-44.)

168. The Department issued the permits based on the belief (which has turned out to be mistaken) that contamination from the Hoff VC Site would likely never reach the quarry. (T. 1065-66, 1095-1100, 1104.)

169. Natural groundwater flow in the study area tends to be from northeast to the south and southwest. (T. 114-16; T. Ex. 96 (at 28.))

170. Groundwater below the proposed quarry areas lies approximately 15-30 feet below ground surface and the quarry will encounter groundwater while excavating the first 50-foot bench elevation. (T. 842, 889.)

171. Conceptual cross sections created from well boring logs indicate that there is a continuous connection through geological layers between the Hoff VC Site and the Gibraltar quarry pits. (T. 125-27; T. Ex. 96 (at 30-31).)

172. The quarry and the Hoff VC Site are connected by fractured bedrock in continuous geology, which provides a preferential pathway for groundwater flow. The geologic setting is conducive to quarry pumping pulling contaminants toward and into the quarry pits from the Hoff VC Site. (T. 123-36, 168-74; T. Ex. 96 (at 30-36, 51-53).)

173. Gibraltar's experts acknowledge that there is a pathway for contaminants to reach the quarry pits. (T. 873-74, 977, 1007.)

174. The geological pathway for contaminant transport from the Hoff VC Site to the quarry will be primarily through fractured bedrock underlying the Hoff VC Site and beyond. The geologic strike, or direction which underlying bedrock intersects with a horizontal plane in the vicinity of the quarry, is from the northwest to the southeast. The dip is the slope of the bedrock relative to the horizontal plane, which in the area of the Hoff VC Site and Gibraltar quarry is from the northeast to the southwest at approximately 30 degrees. The proposed quarry excavations are aligned with the direction of the geologic strike and groundwater pumping typically has the most influence in the direction along the geologic strike. In this case, expected influence along the strike would be northwest to southeast, i.e. from the Hoff VC Site toward the quarry pits. (T. 114-16, 169-70; T. Ex. 3, 96 (at 28, 51).)

175. Groundwater pumping in the quarry would cause groundwater to favor flow along geological strike, i.e. northwest (area of the Hoff VC Site) to the southeast (area of the quarry pits). (T. 114-21, 131-34, 259; T. Ex. 96 (at 28, 29, 34, 35).)

176. Reported data from groundwater pumping evaluations prepared on behalf of Gibraltar in 2002 and 2016 indicate that pumping in the vicinity of the quarries tends to have the most influence on groundwater movement in the direction of the geologic strike, or northwest to southeast. (T. 116-21; T. Ex. 96 (at 29).)

177. Contaminated groundwater is already moving through the fractured bedrock from the Hoff VC Site toward the quarry, even without any pumping. (T. 132-36; T. Ex. 96 (at 34, 35).)

178. Drawdown is a term to describe the removal of water from an aquifer through, e.g., pumping, that creates a vacuum into which more water flows, with the drawdown reflecting the shape of the water table as water flows toward the point of water withdrawal. (T. 304-05.)

179. Groundwater modeling submitted on behalf of Gibraltar in 2003 predicted changes in the water table in the areas surrounding the quarry, including groundwater drawdown of the water table that extends beneath the Hoff VC Site. This supports the conclusion that groundwater levels at the Hoff VC Site will be impacted by the Gibraltar quarry pumping. (T. 122-24.)

180. A capture zone is the area that contributes water to quarry pumping. The zone of influence is the area where the water table changes as a result of the pumping (although water still may be flowing away from the pumping source) and the capture zone is where the pumping actually captures the water and controls its flow direction. (T. 68, 136-37, 916.)

181. The Hoff VC Site is within the capture zone of the quarry. (T. 319-21, 455; T. Ex. 96 (at 32-36), 97 (at 17, 48).)

182. As the quarry pit would be excavated, the water table would be drawn down approximately to the base of the quarry. (T. 131-32.)

183. Contaminants would travel from the areas within the capture zone to the quarry. (T. 136-37; T. Ex. 96 (at 32-33).)

Fate and Transport Modeling

184. A fate and transport model is used to evaluate hydrogeologic contaminant movement from a source, predicting estimated contaminant concentration, direction, and arrival time to a selected destination while accounting for parameters such as contaminant degradation and aquifer porosity. (T. 52-53, 310-14, 335-39, 349-56, 456, 657, 931-49, 976.)

185. The Department issued the Gibraltar permits in part based upon a fate and transport model prepared by EarthRes, which concluded that contamination from the Hoff VC Site would not be drawn into the quarry pits as a result of quarry pumping. (T. 657-58, 675-77, 686, 695, 722, 1042, 1054-57.)

186. The Department's mining program does not have the ability to run models on its own. The mining program does not and cannot run computer groundwater models. The Department did not call any expert witnesses on modeling, geology, or any other subject in this appeal. (T. 660-61.)

187. The Department's mining program has no in-house expertise in groundwater computer modeling, although it makes an assessment to the best of its ability. (T. 660-61, 1053.)

188. The Department accepted a PowerPoint presentation prepared by EarthRes in September 2017 of its model without the benefit of any backup files, a modeling report, or model calibration results. (T. 330-32, 339, 659-60, 376-77, 849, 870; P. Ex. 135.)

189. Dr. Charles McLane was retained by the Township to analyze whether operation of the quarry would lower groundwater elevations in such a way that it would draw contamination from the adjacent Hoff VC HSCA Site toward and into the quarry. His review included an analysis of the fate and transport studies that had been performed to date, particularly EarthRes's 2017 model that the Department relied upon as a basis for issuing the quarry's permits. (T. 297-99, 360-73, 381-82; T. Ex. 66.)

190. Of the experts who testified in this matter, Dr. McLane is the most highly qualified expert on fate and transport analysis, with more than 30 years of experience in studying the fate and transport of chemical contaminants in the subsurface, including the use of computer

simulation and digital graphic techniques to support risk assessment and remedial engineering investigations. (T. 294-96; T. Ex. 97.)

191. Dr. McLane credibly opined to a reasonable degree of scientific certainty that the EarthRes model was fatally flawed and should not have been relied upon by the Department in support of its decision to renew the quarry's permits. (T. 357-58, 360-73, 403, 451, 530; T. Ex. 97 (at 38, 41).)

192. McLane credibly opined that many of the EarthRes study's multiple flaws would have themselves individually prevented the scientifically invalid study from being relied upon. (T. 373, 403; T. Ex. 97 (at 41).)

193. McLane credibly testified that *all* of the EarthRes study's flaws had a tendency to skew the results toward a finding that quarry pumping would not draw contamination from the Hoff VC Site into the quarry pit. (T. 373, 481-82, 501-02.)

194. EarthRes's model did not show contaminants traveling from the Hoff VC Site to the Hoffmansville Road homes with contaminated wells, yet the Department has already determined, and there is no dispute, that those wells were contaminated by the Hoff VC Site. (T. 687-88.)

195. EarthRes's model does not show contaminants flowing to monitoring well OW-6, yet they have, in fact, already done so. (T. 92-94, 110-11, 213-15, 247, 283-84, 333; T. Ex. 96 (at 16).)

196. McLane also reviewed a groundwater modeling study performed by EarthRes for the quarry in 2003, before the Hoff VC Site was identified as a problem. (T. 299-300; T. Ex. 8.)

197. The ***2003*** report showed that drawdown around the quarry clearly would extend to the Hoff VC Site. (T. 300-09, 324, 898-99; T. Ex. 97 (at 5, 6).)

198. The 2003 study showed there would be approximately 15 feet of drawdown at the Hoff VC Site. (T. 301, 304, 324; T. Ex. 97 (at 6).)

199. However, EarthRes's ***2017*** fate and transport study purported to show that there would be no drawdown at the Hoff VC Site, so the 2003 study (pre-Hoff VC Site discovery: there is drawdown) and the 2017 (post-Hoff VC Site discovery: there is no drawdown) are inconsistent. (T. 301, 381-83; T. Ex. 97 (at 50, 51).)

200. The size of the EarthRes model was too small to fairly and accurately quantify quarry impacts at the Hoff VC Site consistent with good modeling practices. (T. 332, 361-67, 373-84; T. Ex. 97 (at 5, 6, 42-48, 50, 51).)

201. The EarthRes study's use of too small of a study area brought artificial boundary conditions too much into play in predicting the effects of quarry pumping. (T. 332, 362-67, 375-84; T. Ex. 97 (at 44, 45, 50, 51).)

202. EarthRes inappropriately set a constant (fixed) head condition very close to the quarry, which has the modeling effect of not letting the aquifer draw down. In the model, there is an unlimited supply of groundwater, which will feed water to the quarry and inaccurately limit its impact. (T. 332-33, 361-67, 373-84, 394; T. Ex. 97 (at 41-51, 57).)

203. The net result is a scientifically unsupportable prediction that the quarry will not draw groundwater from the Hoff VC Site into the quarry. (T. 377-84, 394; T. Ex. 97 (at 47-51, 57).)

204. The EarthRes report showed drawdown of 40 feet at the quarry even at the full quarry buildout of 300 feet depth. (T. 334, 373, 378, 382.)

205. EarthRes inaccurately modeled a relatively low permeability diabase dike as a barrier beside the Hoff VC Site as if it extended from 450 feet down all the way up to the

surface, when in fact, it only extends up to 100 feet below the surface, allowing contamination to flow over it. (T. 367-68, 981.)

206. EarthRes's model inaccurately has the flow of contaminated groundwater entering the diabase, slowing down immediately, then being consumed by EarthRes's aggressive degradation rate so that only miniscule amounts come out the other side. (T. 395-96, 480.)

207. EarthRes used erroneous contamination source locations at the Hoff VC Site, which, in addition to being inaccurate, had the effect of moving them outside the area where groundwater would be pulled by the quarry using EarthRes's model. (T. 369, 393-98, 547-48, 987-91, 1005-06; DEP Ex. 8; T. Ex. 57, 58; P. Ex. 172.)

208. EarthRes, in some cases, used concentration levels one to two orders of magnitude below some of the actual concentration levels recorded at the site. (T. 369-70, 396, 982-85; T. Ex. 23 (at 52-54).)

209. EarthRes represented to the Department that its model assumed a degradation half-life of 13 years, but when Dr. McLane investigated EarthRes's model files, he found that the degradation rate used by EarthRes was actually 4.5 years. (T. 370-71, 396, 400-402, 976-80; T. Ex. 97 (at 60); P. Ex. 135 (at 11, 12).)

210. This had the effect of removing chemicals from the aquifer faster and reducing the chances that the degraded chemicals would reach the quarry. (T. 370-72, 396, 976-79.)

211. EarthRes's modeler revealed for the first time in his deposition that he had not used the 13-year rate. He referred to the change as a "typo." (T. 978; P. Ex. 135 (at 11, 12).)

212. He testified that using the 13-year rate resulted in too much contamination reaching the quarry, so he changed it. (T. 978-79.)

213. Half-life degradation rates should be explained and justified, which EarthRes did not do. (T. 516-17.)

214. Even using EarthRes's defective study, quarry pumping will spread the contaminant plumes and will result in contamination of groundwater in areas that are not currently contaminated. (T. 406-07, 873-74, 888-89, 982; T. Ex. 97 (at 59).)

215. Groundwater that was not contaminated before will become contaminated as a result of quarry pumping. (T. 351-53, 406-07, 505-06, 514; T. Ex. 97 (at 31-35).)

216. In contrast to EarthRes's model, Dr. McLane's own modeling credibly predicts that quarry pumping will divert contaminated groundwater originating at the Hoff VC Site toward the quarry pits. (T. 335-58, 442, 444-45, 492, 514, 525-26; T. Ex. 97 (at 27-35).)

217. Dr. McLane is not able to opine exactly *when* the contamination will enter the quarry pits. (T. 441-48, 461-63, 496.)

218. Unlike EarthRes's model, McLane's modeling placed boundaries far away from the areas of interest and consistent with natural hydrologic boundaries, as dictated by good and accepted modeling practices. (T. 335-36; T. Ex. 97 (at 27).)

219. Unlike the EarthRes model, the McLane model was extensively calibrated and shown to jibe well within a statistically acceptable level with actual geological information that is known about the study area (e.g. well logs, precipitation data, well water level measurements). (T. 336-45, 423, 487-89; T. Ex. 97 (at 28).)

220. McLane's model utilized the contaminant source locations on the Hoff VC Site previously identified by the Department's HSCA consultants. (T. 351-52.)

221. The contamination that is drawn towards and into the quarry is credibly predicted to exceed Pennsylvania's MSC standards. (T. 355-58, 442, 462, 498; T. Ex. 97 (at 36, 37).)

Gibraltar's Program for Monitoring Encroaching Contamination

222. The Department issued the permits based in part on the assumption that Gibraltar's system of "sentinel wells" would pick up encroaching contamination from the Hoff VC Site in time to take unspecified preventative measures or other unspecified appropriate actions. (T. 1066-67.)

223. The idea of a "sentinel" well network is to establish monitoring points between the quarry pits at areas with no known contaminants and the Hoff VC Site contamination so that movement of contaminants can be observed. (T. 140-41.)

224. Monitoring wells are unable to constrain the spread of a contaminant plume and only serve to indicate the spread of contamination after it has occurred. (T. 605.)

225. The monitoring program is deficient because the so-called sentinel wells are already contaminated and no longer function to provide an early warning of the spread of contamination. (T. 140-47, 195, 246-47; T. Ex. 96 (at 38-40).)

226. There are currently not enough wells in place to fully define the edge of the plume. (T. 85.)

227. There is nothing in the permits or elsewhere requiring any action on Gibraltar's part if the groundwater in the vicinity of the monitoring wells becomes more contaminated. (T. Ex. 79.)

228. The Department witness's speculation that monitoring wells might be able to be used as recovery wells in remediation to arrest the spread of contamination is not credible. (T. 1076-79.)

229. No one at the Department has evaluated the potential interaction between any recovery wells and quarry pumping with respect to the containment and remediation of groundwater contamination emanating from the Hoff VC HSCA Site. (T. 1125-26.)

230. Monitoring wells should not typically also be used as remediation or recovery wells because then they would not be observing the influence of pumping, and because they would have to be deconstructed in order to place a pump down the well. (T. 1076-79, 1123-26.)

Treatment of Contaminated Water

231. The Department issued the permits in significant part based on the assumptions (1) that the only contamination of concern is contaminated water that actually enters the quarry pits, and (2) that contaminated pit water can and will be treated prior to discharge to surface waters. (T. 160-61, 1057-60, 1065, 1096-99, 1104-05, 1113; T. Ex. 96 (at 46).)

232. Gibraltar's permits do not specify any obligation on Gibraltar's part to clean up contaminated groundwater emanating from the Hoff VC Site, regardless of whether quarry pumping has caused the active migration of contaminants in the groundwater. (*See*, e.g. T. Ex. 79 (at Special Conditions 38, 39).)

233. Under Special Condition 38 in Gibraltar's permit, Gibraltar is only required to cooperate with the Department to allow access to its permit area. (*Id.*)

234. Under Special Condition 39, the Department reserved the right to modify, suspend, revise, or rescind Gibraltar's permits only if (1) unforeseen circumstances or issues (2) related to the Hoff VC Site developed that (3) would impact or potentially impact (4) permitted activities (5) that were not addressed or anticipated in the permit. (*Id.*)

235. The permits do not address Gibraltar's obligations, if any, with regard to contaminated pit water post-mining. (T. Ex. 79.)

236. Contaminated groundwater entering the pits would accumulate in unlined sumps in the bottom of the pits. (T. 906, 910.)

237. Gibraltar must satisfy discharge limits for several but not all of the contaminants found at the Hoff VC Site such as VOCs, SVOCs, metals, and pesticides if it discharges pit water pursuant to its NPDES permit. (T. 689; T. Ex. 79.)

238. The Department has determined that 1,4-Dioxane, a probable carcinogen, is a monitor-only chemical because Pennsylvania has not developed a surface water quality criterion for it. Gibraltar may discharge unlimited amounts of 1,4-Dioxane. The Act 2 MSC for 1,4-Dioxane is 6.4 ppb. (T. 70, 77, 150-53, 553, 556, 565, 1110; T. Ex. 96 (at 42).)

239. In response to Township comments and the Department's inquiries, Gibraltar during the permit application process identified hypothetical methods for treating its discharge. (T. 65-66, 160-61, 232; T. Ex. 39, 55, 96 (at 6).)

240. No treatment method for dealing with any of the contaminants is specified in the permits. (T. 145, 208, 907, 1096-99; T. Ex. 97.)

241. Neither Gibraltar nor the Department performed any analysis of what treatment processes would work or how they would or could be installed, or how quickly they could be brought online, or what would be done with contaminated water in the pit in the meantime. (T. 65-66, 160-61, 820-22, 907, 924-25, P. Ex. 130, 138.)

242. There have been no estimates of potential treatment costs, and the quarry's bond does not account for any treatment costs. (T. 50-51, 66-67, 145, 157-62, 208, 278-79, 658-59, 670, 907-08, 1144-47; T. Ex. 57, 58.)

Department Witnesses' Concerns About the Permits

243. The Department's mining office's intent was to not issue a permit that allows the quarry to intercept contamination plumes or allows contamination to move near or toward the quarry. (T. 1059-60, 1129-30.) The Department's theory was that, if the monitoring reports showed that contaminants were being encountered in the groundwater moving toward the quarry, then the mining office would not let the quarry get to the point of pumping and drawing more contaminants into the quarry. (T. 720-21.)

244. Monitoring results now confirm that contaminants are being encountered in the groundwater moving toward the quarry. (T. 93-96, 111-12, 213-15, 246-47, 283-84; T. Ex. 44, 96 (at 27).)

245. The two Department witnesses involved in reviewing and approving the permit renewals were Michelle Hamlin, Geologic Specialist, and Michael Kutney, Environmental Group Manager (or the permits chief). (T. 643, 1014-15.)

246. Mr. Kutney testified that he intended to require more information from Gibraltar following the revelations at the hearing, including the contamination found in the closest actively sampled monitoring well to the mine site (OW-6) and Dr. McLane's criticisms of the EarthRes model. (T. 1080-81, 1092, 1114-15, 1130-41, 1151-55, 1158.)

247. He testified that the Department will look at EarthRes's model again "really hard." (T. 1131-32.)

248. Mr. Kutney testified that he would not have issued the permits if he knew then what he knows now. (T. 1136-37, 1153-55.)

249. Mr. Kutney testified that Gibraltar could expect to receive a letter requesting further explanation regarding the inconsistencies revealed at the hearing. (T. 1080-81, 1114-15, 1130, 1132-34, 1137.)

250. Mr. Kutney was concerned regarding EarthRes's fate and transport study, which indicates contamination will never reach the quarry, yet recent sampling of monitoring well OW-6 indicates that contamination may have already spread to the permit area. (T. 1114-15, 1130-32.)

251. After hearing Dr. McLane's testimony at the hearing, Ms. Hamlin testified that, if the Department's mining staff had been aware of Dr. McLane's criticisms of EarthRes's model prior to issuing the permit, the criticisms were sufficiently concerning that the Department would have asked EarthRes to respond. (T. 676-78, 719, 721.)

252. Ms. Hamlin testified as follows:

> Q. Would you agree that the testimony and evidence presented by Mr. Kessler and Dr. McClane [sic] is presumptive evidence of potential pollution resulting from the mining application?
>
> A. I think it presents some questions that we should evaluate and ask EARTHRES to – Gibraltar quarry to respond to.

(T. 725.)

253. Ms. Hamlin also testified she was concerned with the contamination detected in monitoring well OW-6. (T. 704, 710, 725.)

DISCUSSION

In third-party appeals such as this, the appellants bear the burden of proof. 25 Pa. Code § 1021.122(c)(2). The appellants must show by a preponderance of the evidence that the Department acted contrary to law or unreasonably or that its decision is not supported by the facts. *Solebury School v. DEP*, 2014 EHB 482.

The purpose of the Noncoal Act includes protecting land, decreasing soil erosion, preventing pollution of rivers and streams, generally improving the use and enjoyment of the lands, and preventing and eliminating hazards to health and safety. 52 P.S. § 3302. *See Tinicum Twp. v. Del. Valley Concrete*, 812 A.2d 758, 760 n.4 (Pa. Cmwlth. 2002) ("The Non-Coal Act was passed to address the negative affects [sic] of surface mining by improving conservation of the land, protecting the health and safety of citizens and wildlife, and limiting pollution."). No permit may be issued unless the applicant affirmatively demonstrates that:

> (1) The permit application is accurate and complete and that all requirements of this act and the regulations promulgated hereunder have been complied with.
> (2) The operation and reclamation plan contained in the application can be accomplished as required by this act and regulations.
> (3) The operation will not cause pollution to the waters of this Commonwealth.

52 P.S. § 3308(a). The applicable regulations provide that a permit, permit renewal, or revised permit application may not be approved unless the applicant affirmatively demonstrates and the Department finds in writing that, among other things,

> (1) The permit application is accurate and complete and that the requirements of the act, the environmental acts and this chapter have been complied with.
> (2) The applicant has demonstrated that the noncoal mining activities can be reasonably accomplished as required by the act and this chapter under the operation and reclamation plan contained in the application.
> (3) The applicant has demonstrated that there is no presumptive evidence of potential pollution of the waters of this Commonwealth.

25 Pa. Code § 77.126(a). Among other requirements of 25 Pa. Code Chapter 77, the chapter that deals with noncoal mining, the applicant must show that it will ensure the protection of the quality and quantity of surface water and groundwater, both within the permit area and adjacent areas, as well as the rights of present users of surface water and groundwater. 25 Pa. Code § 77.457(a); *Plumstead Twp. v. DER*, 1995 EHB 741, 776-77. *See also* 25 Pa. Code § 77.521 (mining to be planned and conducted to minimize disturbances to the prevailing hydrologic

balance in the permit and adjacent areas).[1] The Department's duty to ensure that mining can be "reasonably accomplished" requires it to ensure that the mining can be performed in accordance with the law without an undue risk to health, safety, and the environment. *Solebury School*, 2014 EHB at 521.

Presumptive Evidence of Potential Pollution

One of the central questions in this appeal is whether there is presumptive evidence of potential pollution of the waters of the Commonwealth if the quarry is permitted. Or, to be more precise (and convoluted), whether the Appellants have shown by a preponderance of the evidence that the Department incorrectly concluded that Gibraltar affirmatively demonstrated that its activities presented no presumptive evidence of potential pollution.[2] The issue boils down to whether it is appropriate to permit the quarry next to a hazardous site with contaminated groundwater. The Appellants contend that contaminants from the Hoff VC Site will migrate via groundwater through bedrock toward and into the Gibraltar quarry and ultimately into the quarry discharge, and thus the Department should not have allowed Gibraltar to receive a mining permit renewal or the NPDES permit. The Department and Gibraltar originally claimed that contaminants would never reach the quarry, but if they did and pit water became contaminated, that would be okay because Gibraltar would be required to treat the water to meet strict discharge limits in its NPDES permit before discharging the water to surface waters. The Department now

[1] Hydrologic balance is defined as "[t]he relationship between the quality and quantity of water inflow to, water outflow from and water storage in the hydrologic unit, such as a drainage basin, aquifer, soil zone, lake or reservoir. The term includes the dynamic relationships among precipitation, runoff, evaporation and changes in groundwater and surface water storage." 25 Pa. Code § 77.1.

[2] The Appellants' complaint to the contrary notwithstanding, Gibraltar's combined mining/NPDES permit, the NPDES Written Findings Document, and the Comment Response Document together satisfied the Department's obligation to make a *written* finding regarding the presumptive evidence of potential pollution as required by 25 Pa. Code § 77.126(a). Section 77.126(a) does not require the use of any particular form.

appears to have backed off that position, seemingly now recognizing that spreading groundwater contamination is itself problematic.

Since the risk here originates at the Hoff VC Site, it is important to understand that groundwater there is contaminated with numerous substances including VOCs, SVOCs, heavy metals, and pesticides, some at levels of magnitude above Act 2's medium specific concentrations (MSCs) for groundwater. There is reason to believe that not all substances have been identified. Certainly not all sources have been identified and ameliorated, notwithstanding the Department's interim measures. There is no consistent trend yet on whether groundwater is improving, getting worse, or stabilizing, despite the Department's interim measures. Contamination at the site will persist indefinitely absent remediation. Natural attenuation alone cannot be counted upon to resolve the contamination. Yet there are no current plans for investigation, remedial design, or remediation.

Gibraltar and the Department correctly point out that the restriction against presumptive evidence of potential pollution is not a restriction against any impact whatsoever. Permits exist to provide a limited allowance of what might otherwise constitute an unlawful activity. *Brockway Borough Mun. Auth. v. DEP*, 2015 EHB 221, 243, *aff'd*, 131 A.3d 578 (Pa. Cmwlth. 2016); *Birdsboro Mun. Auth. v. DEP*, 2001 EHB 377.

The Department's initial error in this case is that from the very beginning it has unduly, if not exclusively, focused on whether the quarry would pollute *surface* waters. The Department's review of Gibraltar's permit application analyzed whether polluted groundwater from the Hoff VC Site would be drawn *into the quarry pits* as a result of quarry pumping, and, therefore, contaminated water would need to be treated and then discharged to surface waters. For example, in responding to a public comment that the quarry pumping could threaten residential

wells with contamination, the Department responded that there was nothing to worry about because Gibraltar's NPDES permit limits would be protective of the public, yet the NPDES permit only relates to the surface water discharge. (T. Ex. 46.) In its pre-hearing memorandum, the Department identified the key question in this appeal to be whether contaminants from the Hoff VC Site will migrate via groundwater to the quarry and ultimately into the quarry discharge. (Pre-hearing Memo. at 17-18.) To be fair, the Department's focus on the quarry's discharge was driven by the Appellants' own framing of the issue in the same way, but regardless of the Appellants' position, it is incumbent on the Department to be just as concerned with contamination underground as it is with contamination above ground.

The Department appears to have come around to the correct position in its post-hearing brief, claiming that it determined that groundwater from the Hoff VC Site was not likely to move *toward* or be intercepted by quarry operations. (*See, e.g.*, Brief at 66.) We are hesitant to credit this claim, but at least the Department has begun to properly frame the issue. At another point, the Department in its brief states:

> If the monitoring reports show that contaminants are being encountered in the groundwater moving *toward* the quarry, then PDMO [the Department's mining office] expects that it would not let the quarry get to the point of pumping and drawing more into the quarry.

(Brief at 78 (emphasis added).) This promise of future enforcement action is, of course, not binding or particularly relevant, but again, it is premised on the correct issue: preventing new groundwater contamination matters. (*See also* Brief at 83 ("Even so, PDMO's [the mining office's] intent is not to issue a permit that allows the quarry to intercept the contamination plume or allows contamination to move near or toward the quarry, 'whether it's within 1 foot' of the quarry pit or even half-way there…"); *id.* at 86 (mining office's "obvious concern for preventing the undue spread of contamination" and the mining office "does not intend to allow

mining that causes the contaminant plume to move in an unanticipated direction…").) Perhaps most interesting is the Department's following commitment without citation to the record:

> Should the plume spread in an unanticipated manner due to any future quarry pumping, and it impacts water supplies not currently covered by the SERO [Southeast Regional Office] HSCA response of providing a public water supply line, the Department would require Gibraltar to be responsible for any remediation or costs associated with such action.

(Brief at 87 n.2.)

The record does not support a finding that permitted quarrying will result in potential pollution of surface waters. As for groundwater, it is hard to believe that the drafters of the Noncoal Act and the regulations promulgated thereunder contemplated the spread of groundwater contaminated with solvents from another site when they spoke of the presumptive evidence of potential pollution, and all parties agree this case presents a novel situation. Under the highly unusual circumstances presented here, we are able to conclude that the spread of multiple hazardous contaminants in the groundwater that would result from quarry pumping constitutes the sort of presumptive evidence of potential pollution that cannot be permitted consistent with the Noncoal Act. 52 P.S. § 3308(a); 25 Pa. Code § 77.126(a)(3). In this case, the record clearly supports a finding that quarrying pursuant to the permits is likely to intercept the contamination plumes emanating from the Hoff VC Site and contaminate previously uncontaminated or less contaminated groundwater, a scenario that is not meaningfully accounted for in the permits. Therefore, the permits were issued in error.

In order to determine whether there is presumptive evidence of potential water pollution, we require the testimony of expert witnesses. Unfortunately and inexplicably, the Department chose not to present *any* expert testimony in this appeal, despite the fact that the key issue requires expert testimony. Instead, the Department presented the testimony of the permit reviewers to explain as a factual matter what they decided. They explained as a factual matter

why they did what they did, but they did not follow it up with any expert opinion that those decisions were scientifically defensible. As a result, we have no expert testimony from the Department on whether there is presumptive evidence of potential water pollution. We have no expert testimony from the Department on the geology of the site. We have no expert opinion from the Department on the geological modeling that was done. We have no expert testimony from the Department (or any party for that matter) on the effect the quarry would have on the HSCA remediation of the Hoff VC Site.

At numerous points throughout its brief the Department refers to "its own team of expert geologists" who have substantial "expertise" regarding the matters in question. While we do not doubt these statements are generally true, we are obviously limited to the record produced in this appeal and there is *no record in this case* generated in accordance with the rules of evidence regarding the admission of expert opinion evidence of any such expertise. Therefore, we have only the factual testimony of the permit reviewers.[3]

The Department's lack of any expert testimony leaves us with the expert testimony on the potential pollution issue of four experts: Toby Kessler, P.G., the Township's expert geologist; Dr. Charles McLane, the Township's expert fate and transport modeler; Louis Vittorio, P.G., Gibraltar's expert geologist; and Mathew Weikel, P.G., Gibraltar's expert modeler. It has not escaped our notice that the Department in its brief makes little attempt to endorse the testimony of Vittorio or Weikel, Gibraltar's witnesses. The Department criticizes the testimony of Kessler and McLane in its brief, but those criticisms are largely lawyerly attacks on general credibility (e.g. McLane was "evasive") rather than substantive criticisms supported by expert testimony.

[3] At the hearing we sustained objections to the Department's perhaps inadvertent attempts to present expert testimony. No party has challenged those rulings in its post-hearing brief.

In any event, we found both Kessler and McLane to be highly credible witnesses. Toby Kessler is a registered professional geologist in the state of Pennsylvania who has 20 years of experience working in the field. He has a master's degree from MIT and focuses his work on geology, hydrogeology, and environmental site assessments. His testimony reflected a considered examination of the geology of the Hoff VC Site and the Gibraltar permit area. Dr. Charles McLane has 35 years of experience assessing contaminated sites and the effects of groundwater withdrawals on aquifers. He was qualified as an expert in hydrogeology, chemical fate and transport analysis, and contaminated site investigation and remediation. His testimony demonstrated his extensive experience with groundwater modeling and his learned analysis of contaminant movement through groundwater.

Weighing competing expert testimony is one of the Board's core functions. *Gerhart v. DEP*, 2019 EHB 534, 558. *See also DEP v. EQT*, 2017 EHB 439, 497, *aff'd*, 193 A.3d 1137 (Pa. Cmwlth. 2018). The weight given an expert's opinion depends upon factors such as the expert's qualifications, presentation and demeanor, preparation, knowledge of the field in general and the facts and circumstances of the case in particular, and the quality of the expert's data and other sources. *Crum Creek Neighbors v. DEP*, 2009 EHB 548, 561. "We also look to the opinion itself to assess the extent to which it is coherent, cohesive, objective, persuasive, and well grounded in the relevant facts of the case." *EQT*, 2017 EHB at 497. "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 Envtl. Prot.*, 193 A.3d 1137, 1149 (Pa. Cmwlth. 2018) (citing *Kiskadden v. Dep't of Envtl. Prot.*, 149 A.3d 380, 387 (Pa. Cmwlth. 2016)).

Geologic Setting Conducive to Potential Pollution

Perhaps the length of this Adjudication could have been reduced if hydrogeologic conditions in the area of the quarry and the Hoff VC Site were not conducive to the expansion of groundwater contamination associated with the Hoff VC Site as a result of pumping, but we credit the expert opinion of Toby Kessler given to a reasonable degree of scientific certainty that they are. Kessler explains the hydrogeologic connection by pointing to the homogeneous bedrock connecting the two sites, which is hardly surprising given that the sites are adjacent to each other. Although passive natural groundwater migration from the Hoff VC Site is more south or southwest than southeast, quarry pumping would pull that flow sideways more to the southeast toward the pumping. This is not a case where natural groundwater flow is in the opposite direction. All that is necessary here is a shift to the side. The water table would be lowered and its gradient will change. Pumping would be likely to move groundwater flow along the northwest-southeast strike of the bedrock, i.e. from the Hoff VC Site and its contaminated plumes toward the quarry. There would be an elongated zone of influence along geologic strike. This will extend the plumes of contaminants into previously uncontaminated or less contaminated areas.

The contamination detected in the residential wells and the monitoring wells supports Kessler's opinion of the hydrogeologic connection between the Hoff VC and quarry sites. In August of 2019, the HSCA program performed additional sampling and testing for contamination at wells on Gibraltar's property monitored as part of the Hoff VC Site, including well OW-6. Well OW-6 had not been tested for contamination since September of 2017. The Township has concerns, echoed by its experts, that contaminant concentrations in OW-6 have exhibited a gradual increase over time. TCE in well OW-6(L) is now only .8 ug/L from

exceeding the MSC under Act 2. 1,1-DCE exhibited similar increases in concentrations over time, more than tripling from a detection of .71 ug/L in 2013 to 2.1 and 2.4 ug/L in 2017 and 2019, respectively. Not only have contaminant levels increased in monitoring wells, but new contaminants also associated with the Hoff VC Site have recently appeared. For example, TCE was not detected in well MW-7D(U) until 2017. While the contaminant levels are relatively low, the trend is concerning and the data support the existence of a hydrogeologic pathway.

The presence of the contaminated residential wells between the Hoff VC Site and the quarry site shows that contamination was headed in a southerly direction even without quarry pumping. This is "real world" data, to use the Department's phrase, which has nothing to do with modeling. The contamination exceeds drinking water and/or Act 2 groundwater MSCs by as much as two orders of magnitude. The residential well results are consistent with monitoring well results. The credible expert opinion is that this contamination originated at the adjacent Hoff VC Site. For the Department to say as it does that the source of the contamination in the monitoring wells remains to be determined strikes us as bordering on willful blindness given the results from the nearby residential wells, which it has determined came from the Hoff VC Site. Quarry pumping will not need to reach far to expand this contaminated groundwater; the plume is already within 500 feet of the southern quarry pit. The Department takes comfort in the fact that monitoring wells close to the Hoff VC Site are more contaminated than wells closer to the quarry site, which is undoubtedly comforting but we do not follow why that fact would support issuance of the permits. The Department also tells us there are hazardous sites that are far more contaminated than the Hoff VC Site, but again, we fail to see the relevance of that comparison.

As previously mentioned, we do not have the benefit of any expert testimony from the Department. Gibraltar's expert, Mr. Vittorio, opines that, due to the tight geologic formations

lacking substantial interconnected fractures at the site, there would be a steep cone of depression around the quarry and not much groundwater would be pulled into the pit. We respect Mr. Vittorio's extensive experience with quarries in the area and we have no reason to doubt this opinion. Mr. Kessler acknowledged the limited groundwater movement in the strata involved. (T. 113-14.) However, Mr. Vittorio's conclusion does not support issuance of the permits. First, the focus of Mr. Vittorio's opinion throughout has been that contaminants are not likely to actually get drawn into the quarry pits during active operations, but as we have discussed, that should not have been the exclusive inquiry in this case. Mr. Vittorio concedes that it is certainly possible contaminated water will be drawn toward the pits (T. 873-74), and it is that additional groundwater contamination that should be the true cause for concern. There is simply no doubt the quarry pumping will expand the plumes. EarthRes's 2003 model showed groundwater would be drawn toward the quarry, and EarthRes's fate and transport model shows an expansion of the plumes. Mr. Vittorio has not opined to a reasonable degree of scientific certainty that quarrying will not intercept the plumes and draw them further from the Hoff VC Site. By conceding the possibility of contaminants being drawn toward the quarry, Mr. Vittorio concedes the hydrogeologic connection between the sites.

The second problem with Mr. Vittorio's opinion about the tight geology is that it proves very little. He opines that the steep cone of depression will not extend out a "significant distance." (T. 865.) This opinion is not entirely consistent with the data, but assuming it is correct, a "significant distance" is obviously quite vague and has not been credibly defined. More importantly, very little distance is required in this case. The contamination is already at the residential homes, some of which are in between the two proposed pits, as well as OW-5 and OW-6. Contamination is already present on the Gibraltar property.

Similarly, Mr. Vittorio's prediction that not much groundwater will seep into the pits is vague and based largely on rough comparisons with other similar quarries such as the "Perkiomenville Quarry." We were presented with few specifics and no actual data regarding these "other quarries." This lack of foundation detracts from the weight we might otherwise have afforded the opinion, especially in the face of the Township's expert's unequivocal and well supported opinion that the Hoff VC Site itself, let alone the existing contaminant plumes emanating therefrom, is well within the quarry's projected capture zone.

Modeling

Mr. Kessler on behalf of the Township persuaded the Department that it should require Gibraltar to perform a fate and transport model to predict whether contaminants would be drawn toward and into the quarry pits from the Hoff VC Site. We have the sense that the Department accepted the suggestion more as a way of appeasing the Township and the public than because it agreed that the information would be valuable. Nevertheless, the Department clearly relied in part on EarthRes's model in deciding to issue the permits. We were left with the impression that the model helped tip the balance in favor of permit issuance after nearly four years of deliberation following our remand.

Gibraltar had EarthRes prepare a model. It then presented a 22-slide PowerPoint presentation to the mining program staff. There is no record that the mining personnel have any expertise in modeling or the ability to critically assess a model. The Department witnesses certainly minimized their abilities in this regard. The Township goes so far as to argue that one of the Department's greatest errors in this case was issuing a permit based upon a model that the Department was unable to fully understand without obtaining some outside experts as it did with the HSCA cleanup.

The PowerPoint presentation was at best incomplete and arguably misleading in some respects. Among other things, EarthRes represented to the Department that it used a different and more favorable degradation rate for TCE than it actually used (13 years vs. 4.5 years). EarthRes later referred to this as a "typo," which goes to its credibility. The Department neither requested nor received the back-up files for the model, which are necessary if the model is to be fully understood.

Like the Department and Gibraltar, we believe that the importance of modeling should not be exaggerated. In *M & M Stone Co. v. DEP*, 2008 EHB 24, *aff'd*, No. 383 C.D. 2008 (Pa. Cmwlth. Oct. 17, 2008), we were faced with what the appellant fairly characterized as two dramatically different understandings of hydrogeologic reality. We were unable to credit the opinion of one of the experts in that case whose opinions regarding a hydrogeologic connection were almost entirely based on modeling because the model results did not appear to calibrate well with actual results gathered in the field. In *Solebury School v. DEP*, 2014 EHB 482, we were unable to credit a model coincidentally relied upon by Mr. Vittorio, Gibraltar's expert in this case, because the model predicted wildly crenellated contour lines, lines not supported by adequate data, and lines that depicted "crazy flow paths." Modeling is obviously a valuable tool, but as a computer-generated prediction based on many input decisions, there is plenty of opportunity for manipulation designed to achieve a desired result. Proper calibration of the model with actual field measurements (e.g. computer-generated water levels vs. actual levels) operates as a check on manipulation, but it cannot eliminate the possibility for mischief entirely.

In this case, we are presented with dueling models. EarthRes's model predicts no impact; the Township's model performed by Dr. McLane predicts that the quarry will intercept the contaminated groundwater at and near the Hoff VC Site and draw it toward and into the quarry

pits. We find Dr. McLane's model to be more credible, which stands as further proof that Gibraltar failed to affirmatively show that there would be no presumptive evidence of potential pollution.

Dr. McLane was generally the far more credible witness based upon his experience and presentation. The Department accuses him of being evasive in his answers, but we strongly disagree. We found him to be exceptionally erudite and persuasive. His presentation was organized, detailed, and unbiased toward or against noncoal mining.

EarthRes's credibility suffers from the inconsistency between its fate and transport model and its earlier pumping test. The later model was a small area and shows no transport to the pits, yet the earlier pumping test report showed drawdown extending below and past the Hoff VC Site. At the time, the Hoff VC Site was not being considered as a problem. This suggests the later model may be somewhat result-oriented. Mr. Vittorio says the earlier model was based on porous media, but so was the later fate and transport model. Mr. Vittorio says the earlier work was based on a deeper quarry pit, yet EarthRes's latest work postulates groundwater inflow far up on the quarry wall, which means the depth of the quarry in this context would seem to have little relevance.

We also have EarthRes's shifting explanations regarding the half-life degradation rates of solvents as they are pulled toward the quarry. We do not view this factor as particularly significant in and of itself, but EarthRes's handling of the issue is pertinent in weighing credibility. EarthRes apparently ran its model using 13 years as the half-life of TCE, which was the figure used by one of the Department's HSCA consultants in its earlier work. When asked on cross-examination whether using 13 years resulted in "just too much contamination" in the pits, apparently in relation to poorly described calibration with actual monitoring results, Mr.

Weikel, Gibraltar's modeler, answered yes. (T. 979.) Therefore, he ran the final model using a 4.5-year value, which made the TCE degrade before reaching the quarry. Yet the PowerPoint presentation to the Department kept the value at 13 years. This discrepancy was not revealed until Mr. Weikel's deposition. (T. 978.) Both Mr. Vittorio and Mr. Weikel referred to the discrepancy as a "typo." (T. 810, 978.)

As previously noted, calibration of the model is critically important to assess whether the model reflects reality. Dr. McLane explained the calibration of his model and how it performed within generally accepted statistical limits. EarthRes has not, which is particularly noteworthy in that its calibration or lack thereof has been challenged. That alone weighs very heavily in favor of the McLane model.

We credit Dr. McLane's other criticisms of EarthRes's model, none of which were adequately explained by Mr. Vittorio or Mr. Weikel. EarthRes modeled an area that was too small to appropriately quantify quarry impacts at the Hoff VC Site. The model size compares unfavorably with EarthRes's use of a much larger area for its previously mentioned pumping tests and with McLane's model which used the natural drainage basin. EarthRes's unsatisfactory reason for shrinking the domain size: cost of the modeling. EarthRes's choice, as well as the input choices pertinent to all of McLane's other criticisms, tended to minimize the effect of quarry pumping.

Exacerbating the small domain size was EarthRes's use of constant head cells near the Hoff VC Site, which had the effect of artificially supplying the quarry with an unlimited supply of groundwater. This, in turn, contributed to a flattening of the drawdown curve from the quarry. EarthRes's model created a greater diabase barrier to groundwater flow than is actually present that, when combined with long contaminant degradation rates previously mentioned, prevented

undegraded contaminants from reaching the quarry. EarthRes used contaminant levels that did not in all cases jibe well with field measurements (e.g. MTBE 50 ppb vs. 4,870 ppb; 1,2-DCB 100 ppb vs. 1,000 ppb).

One of the most troubling and inadequately justified aspects of EarthRes's model is that it placed the source area for contaminants at the Hoff VC Site at a place removed from the known hotspot, the concrete vault. This placement had the effect of diverting contaminants away from the quarry pits in the model.

While we discount EarthRes's model, we credit Dr. McLane's expert opinions given to a reasonable degree of scientific certainty that, based on his modeling, quarry pumping will cause groundwater at and beyond the Hoff VC Site to be drawn toward and into the quarry pits. Dr. McLane's expert testimony, together with Mr. Kessler's expert testimony, convinces us that Gibraltar has failed to affirmatively show that its operations will not result in presumptive evidence of potential water pollution. As discussed further below, Department witnesses at the hearing gave every indication that they now agree.

Despite the sophisticated modeling in this case, we must leave room for some common sense in the analysis. Here, there is a proposal to pump groundwater in up to 300-feet deep pits immediately adjacent to an ongoing hazardous site with contaminated groundwater being cleaned up pursuant to HSCA. Hornfels quarries may not produce that much water, but the danger zone here is *right next door*. The monitoring wells next to the proposed pits are already contaminated. It is nearly impossible to believe that quarry pumping will not have some impact on that groundwater and the remediation of that site. McLane's model is consistent with common sense and is inherently more believable.

Assuming for the purposes of argument only that these models cancel each other out, it nevertheless cannot be gainsaid that there is a significant risk that quarry pumping will expand groundwater contamination. The EarthRes model does not stand as proof that risk does not exist or there will be no contamination. Indeed, it actually supports or at least is not inconsistent with a finding that groundwater contamination will spread, the only debate being exactly where and how fast.

Back-up Measures

The Department has never disputed that quarry pumping beside the Hoff VC Site creates a risky situation. However, it argues that, aside from the risk being minimal (an incorrect conclusion as discussed above), the risk is further ameliorated by the back-up measures it has negotiated with Gibraltar, and by the enforcement measures that are available to the Department in the future should things go awry. As we understand its position, the Department concedes that back-up measures only support issuance of the permits, where, as here, there is a preliminary finding that those back-up measures are unlikely to be necessary. We actually agree with that logic, but unfortunately for the Department, the preliminary finding does not hold up here. Quarry pumping will in fact cause additional groundwater contamination. None of the back-up measures will do anything to prevent that, which makes them largely irrelevant.

Nevertheless, in the interests of a complete record, we will address the Department's back-ups. The Appellants have convincingly argued that individually and collectively, the back-up measures and justifications would not have justified issuance of the permits. The Department summarizes its reasons for issuing the permits despite the risk of groundwater contamination as follows:

> [G]roundwater migration of contaminants from the Hoff VC Site to the quarry is unlikely because of the current and anticipated groundwater flow path and the

> nature of the bedrock geology; that a network of sentinel wells will detect contaminant migration well in advance of any effect at the quarry, and the quarry is not expected to pump groundwater for approximately 10-20 years; that there will be ongoing remediation and degradation of contaminants at the Hoff VC Site, thus continuing the overall reduction in concentrations of groundwater contaminants; that the present NPDES Permit effluent limits are protective of the environment and are the most stringent available; that the Department will have a host of proactive measures memorialized as special conditions in the permit and in regulatory authority by which it may address any unanticipated contaminant migration at any future date; that the NPDES Permit is automatically subject to renewal every 5 years and can be revisited at any time if it appears that contamination may make its way to the quarry; and that the quarry must submit supporting analyses for Department approval before proceeding to each 50-foot depth increment of mining.

(Brief at 2.) Gibraltar's analysis is essentially the same.

Surprisingly, every step in the Department's analysis is either wrong or does not support issuance of the permits. Pervading the entire analysis is the Department's mistaken assumption that the only contamination that matters is contamination that is drawn into the pits. As discussed throughout this Adjudication, the spread of groundwater contamination as a result of quarry pumping is the much greater and more pertinent threat. But even if the Department's legal assumption were correct, the record does not support its factual assumptions.

Another sentiment we detect throughout the Department's analysis is that contamination would not be likely to manifest in the quarry pits for a long time. Again, we reject the Department's legal conclusion or at least intimation that delayed contamination is acceptable. It is also factually unsupportable. Mr. Vittorio testified that groundwater will be encountered in the first bench. The contaminated groundwater plume already extends onto Gibraltar's permit area. Very little distance remains for it to travel into the pits. The Department has not scheduled any further cleanup measures at the Hoff VC Site yet, and natural attenuation does not appear to be solving the problem anytime soon.

The Department next says it will have a "host of proactive measures." Again, this is exactly wrong. The measures are reactive, not proactive, and none of them support the issuance of the permits.

The "sentinel wells" can no longer be considered sentinels because the closest wells to the quarry, OW-5 and OW-6, are already contaminated. The Department says the wells will detect contamination "if it starts to move." (Brief at 74.) This is misleading because the contamination has already moved. It is too late to see if it "starts to move." The "early warning" that the wells were designed to provide has already sounded. The Department says it can immediately cease quarry pumping if the wells show migrating contaminants. It would appear that that point has already been reached.[4]

The sentinel well program is something of a toothless tiger because nothing is spelled out anywhere about what happens if the wells detect spreading contamination. There is actually nothing in Gibraltar's permits setting forth any duty or limitation on Gibraltar's part. There are no action levels, or for that matter, action requirements. Neither Gibraltar nor the Department is committed to anything other than continued monitoring if the monitoring wells show additional contamination. The Department simply says, "[a] series of scientific determinations must be made presently, as well as going forward." (Brief at 65.)

The closest the permits come to assigning responsibility is Special Condition 38, which requires Gibraltar to allow the Department's HSCA program and its contractors access to its property to allow *the Department* to do work, and Special Condition 39, in which the Department reserved the right to modify, suspend, or rescind the permit or require a permit revision "should unforeseen circumstances or issues related to [the Hoff VC Site]…develop and

[4] The Department's HSCA program has not taken or planned any action in response to the contamination being detected in the monitoring wells.

impact or potentially impact the activities authorized under this SMP [permit] that are not addressed or anticipated in the current and approved SMP [permit] plan, modules and designs." (P. Ex. 143.) Special Condition 39 is impossibly vague and may be worse than having no condition at all because it arguably limits the discretion the Department otherwise would have. At best it creates litigation issues. Condition 39 reserves to the Department the right to modify, suspend, or rescind the permits only if there are unforeseen circumstances or issues. Spreading contamination is clearly foreseen. The Department can only act if the unforeseen circumstances would "impact or potentially impact" quarry "activities" "that are not addressed" in the permit. It is not clear what any of these phrases mean. It is not clear why the Department would agree to such limits on its authority to act in the interests of the public safety and welfare and the protection of the environment. It is also not clear whether the permit conditions would be used to limit Gibraltar's liability under HSCA either directly or vis-à-vis potentially responsible parties (PRPs).

The Department's and Gibraltar's next line of defense is that, if contaminants enter the quarry, it will not be a concern because Gibraltar is required to treat its discharge so that no contaminants are discharged above the strict levels set forth in Gibraltar's NPDES permit. Surface waters will, therefore, be protected. In other words, the quarry can serve as a recovery well for the cleanup of the Hoff VC Site.

Our first reaction is that, if the Department is going to start permitting new quarries as massive recovery wells for hazardous site cleanups, that intention should be clearly expressed and then evaluated from the perspective of the Noncoal Act and HSCA. We would think that the quarry would want to know how its role in the HSCA cleanup affects its overall liability for

cleaning up the site. We have unanswered concerns about whether the Noncoal Act can or should legally accommodate such a use of new quarries.

Our second reaction is that this is the first case of which we are aware where the Department has issued an NPDES permit where it has no idea how the permittee will meet its permit limits. Normally, the concern with noncoal surface mine discharges is with such issues as sediment, which is handled in settling basins. Here, the concern is with hazardous substances. In such cases the Department would normally insist on a water quality management permit, also known as a Part II permit, or some mechanism like that to ensure in advance that the NPDES permit limits can be met.

In defending its decision not to require Gibraltar to employ any particular type of treatment to meet its NPDES limits, the Department makes the following statement in its brief:

> Meanwhile, even if we assume that a contaminant may make its way to the quarry, there is no way at this point of truly knowing what contaminant it might be, what the flow might be, [or] what the concentration or the pounds of contaminant might be….

(Brief at 81.) This is arguably the equivalent of saying that the Department has authorized a life-size experiment in the field with real world consequences with virtually no understanding of the risks involved or how those risks will be managed. The most that the Department and Gibraltar can say is that there are treatment options out there that hypothetically exist for solvent-contaminated water. There has been *no* analysis of the economic or technical feasibility of any treatment option at the quarry. This is not consistent with proper and thoughtful environmental regulation.

Figuring it all out later is particularly unacceptable here because the contaminants potentially needing treatment are a mixture of VOCs, SVOCs, heavy metals, and pesticides. Not all of the contaminants can be treated the same way, and treatment of contaminated groundwater

that needs to be discharged can get very expensive very fast. To conclude as the Department has that this is all too complicated to figure out now is not grounds for gambling with the future; it is a strong argument in favor of not issuing the permits. The Noncoal Act and the regulations require that a permit application must be accurate and complete. 52 P.S. § 3308(a)(1); 25 Pa. Code § 77.126(a)(1). Gibraltar's application, premised on an ability to treat a potential discharge, is not complete because it does not describe how that discharge will be treated.

The Department's next line of defense is that there will be a bond in place to cover Gibraltar's treatment obligations even if Gibraltar defaults on its duty to treat its discharge. This defense lacks all merit. Gibraltar's bond does not account for treatment of the discharge. Although the Department says it has the legal authority to use the bond to pay for treatment, the bond amount is based on the cost of reclamation, so every penny used for treatment is a penny that is no longer available for reclamation of the site.

The Department's last line of defense is that it can always take enforcement action if things go awry. The Department says it will have many opportunities to reevaluate the quarry as mining progresses and contamination continues to spread and it has broad legal authority to act based upon its "dynamic evaluation." Once again we find ourselves in disagreement with the Department's legal position. No permit should be issued when it is not clear from the start that the permitted quarry can be operated in accordance with the law. Frankly, it does not get anymore fundamental than that. The Department should not issue bad permits with assurances that they can always be fixed later. Furthermore, the fact that the Department to our knowledge has not done anything to follow up on its testimony that it would not have issued the permits had it known then what it knows now speaks volumes on whether the citizens of the Commonwealth can rely on it to take appropriate action based upon it "dynamic evaluation." Further still, and as

a practical matter, it becomes more difficult for the Department to justify shutting down an operation once it is underway. Finally, the Department's assurances of future action are also unfair to Gibraltar. Gibraltar should not be teased into starting mining, only to be told to stop later based upon a "dynamic evaluation."

The Department has not told us exactly what it would take for it to act based upon its "dynamic evaluation." The Appellants persuasively argue that by that point it may be too late. This is not the typical quarrying situation where stopping pumping will eventually allow well levels to recover or sinkholes to stop forming. Here, the quarry pumping will draw solvent-contaminated groundwater into previously uncontaminated or less contaminated areas. That contamination does not simply go away once it has been drawn into those areas. Rather, the migration simply increases the area that then must be cleaned up. And at the risk of undue repetition, the Department has yet to do any evaluation of how to treat the existing groundwater plume, let alone the expanded plume that would accompany quarry pumping.

Article I, Section 27

Ban the Quarry (but not the Township) argues that the Department has failed to act in accordance with Article I, Section 27 of the Pennsylvania Constitution, which reads as follows:

> 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. We have recently summarized the Board's approach to reviewing whether the Department's decision to issue a permit comports with Article I, Section 27, as follows:

> We first must determine whether the Department has considered the environmental effects of its action and whether the Department correctly determined that its action will not result in the unreasonable degradation,

> diminution, depletion or deterioration of the environment. Next, we must determine whether the Department has satisfied its trustee duties by acting with prudence, loyalty and impartiality with respect to the beneficiaries of the natural resources impacted by the Department decision.

Del. Riverkeeper Network v. DEP, 2018 EHB 447, 493. *See also Ctr. for Coalfield Justice v. DEP*, 2017 EHB 799, 855-62; *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1160-62.

Ban the Quarry argues three main points. First, it says that the Department failed to fully consider the environmental effects of the quarry permits. It says the Department did not have enough information to make an informed decision about whether the permit issuance would result in the unreasonable degradation of the environment. Ban the Quarry is particularly critical in this regard of the Department's failure to coordinate in any meaningful way the activities of the HSCA program regarding the Hoff VC Site. Second, it says that the Department incorrectly concluded that the additional adverse environmental impact caused by the quarry would not result in unreasonable degradation of the environment. Third, it argues that the Department failed to satisfy its trustee duties by acting with prudence, loyalty, and impartiality. We agree with Ban the Quarry on all three counts.

Article I, Section 27 requires the Department to fully consider the environmental effects of its action. *Ctr. for Coalfield Justice*, 2017 EHB 799, 857-59; *Friends of Lackawanna*, 2017 EHB 1123, 1160-61. "The Department cannot make an informed decision regarding the environmental effects of its action if it does not have an adequate understanding of what those effects are or will be." *Friends of Lackawanna*, 2017 EHB at 1161. *See also Blue Mtn. Preservation Ass'n v. DEP*, 2006 EHB 589; *Hudson v. DEP*, 2015 EHB 719. The Department must consider whether its action is likely to cause the unreasonable degradation or deterioration of the waters of the Commonwealth. *Id.*

We will not address Ban the Quarry's contention that the Department's issuance of the permits to Gibraltar violated Article I, Section 27 because it would result in unreasonable degradation of the waters of the Commonwealth. We would instead like to focus on a different reason the Department erred. The Department describes at length how it considered whether the Hoff VC Site will affect the quarry, but the record is devoid of any evidence that the Department has considered how the quarry will affect remediation of the Hoff VC Site. Quarry operations and the HSCA remediation are inextricably intertwined, yet the Department failed to consider how quarry operations would impact the HSCA remediation.

The Department makes much of the fact that its mining program personnel were aware of the Hoff VC Site and its HSCA program personnel were aware of the possible quarry. Simple awareness is hardly enough. The mining personnel asked the HSCA personnel about conditions that should be in the mining and NPDES permit, such as what contaminants were at the HSCA site and some undefined questions regarding monitoring. But this consultation is emblematic of the problem: the sole focus was on the quarry, not the ongoing HSCA remedial project.

Gibraltar tells us that the HSCA program never recommended that the Pottsville mining office deny the permits. We have no evidence that the HSCA program was ever asked for its recommendation, so it could just as easily be said that the HSCA program never recommended that the permits be issued. The characterization best supported by the record is that the HSCA program simply was not asked.

There is no evidence that anybody in the mining program asked anyone in the HSCA program whether permitting active pumping of the contaminated aquifer associated with the Hoff VC Site would complicate remediation of that site. Mr. Kutney of the mining program freely admitted throughout his testimony that he has no personal background in managing the cleanup

of contaminated sites such as the Hoff VC Site. Nor would we expect him to. Mr. Wade of the HSCA program provided no testimony on how quarry operations might impact the site cleanup. His only apparent concern was how contamination associated with the Hoff VC Site might affect the quarry. Article I, Section 27 requires the Department to consider the full environmental effects of its action, and here it failed to do so.

It is not clear that the Department's mining program consulting with the HSCA program further about the HSCA project would have had any value in any event. There is no record that the HSCA program has performed any analysis of whether quarry pumping would jeopardize the ongoing HSCA project. Indeed, none of the studies of groundwater commissioned to date by the HSCA program account for an active pumping source near the toe of the contaminated plume. The "coordination" that the Department touts between its two programs was essentially meaningless from the perspective of the management of the HSCA cleanup, and any additional coordination based upon the current state of knowledge regarding the HSCA project would have essentially been a waste of time.

The Hoff VC Site still needs to be cleaned up. The plume of contaminated groundwater appears to be spreading even without the more active migration that quarry pumping will cause. The scope of the groundwater problem in particular and the contamination of the site in general has not been defined, let alone remediated. However, the potential for remaining harm is underscored by the work that the Department has already performed. More than $2 million has been spent on interim measures alone. The Department has spent thousands of dollars on studies regarding groundwater now in the area, none of which accounted for an active nearby pumping source at the quarry, rendering the continuing value of that work uncertain.

The Department in vague terms appears to be batting around internally the idea of some sort of *in situ* treatment of groundwater, but there are no concrete specific plans for further investigation or remediation. Everything is up in the air. But what is certain is that somebody is going to be required to pay for future work. Those somebodies may be potentially responsible parties under HSCA (PRPs), fee payers into HSCA funds, and/or taxpayers. The Department has not given any apparent consideration to those stakeholders.[5]

Notwithstanding the myriad uncertainties in place, and without any apparent regard for the potential environmental effects of its action on the Hoff VC Site's remediation, the Department decided to permit the quarry. It is interesting to contrast the Department's consideration of the risks involved now with a risk identified by one of its HSCA consultants regarding the pumping of the residential wells:

> Because of need to protect residences from further exposure to contaminants, PADEP was not able to directly measure the influence of nearby residential wells on groundwater flow directions at the site. However, based on limited storativity of the fractured aquifer in the area, the amount of pumping required to draw contaminants through the aquifer system is believed to be small.
>
> Pump testing performed as part of a quarry permitting process immediately south and adjacent to the site confirmed that limited pumping over short periods of time could measurably affect water levels and flow direction. Impacts were observed more than 1200 feet away during limited rate of flow, 72-hour pump tests immediately south of the truck wash area adjacent to the site where a quarry is being permitted (Gibraltar Rock Inc. 2003, Enclosure 3, Appendix D).
>
> The most impacted residential wells are less than 200 feet from the TCE wash area outfall. **Any pumping from a series of residential wells in this area would therefore very likely and strongly induce alteration of groundwater flow directions toward the residential supply wells.** Because of pumping of residential wells over time and the preferential orientation of fractures, discussed above, it is easy to understand why contamination has migrated from the washing facility outfall area to the impacted residential supply wells.

[5] We need not address the Appellants' claim that the quarry property is now actually part of the Hoff VC HSCA Site, or their contention that Gibraltar's ownership of land where contamination has passively migrated or the active migration of contaminants as a result of any future pumping would make Gibraltar jointly and severally liable as a PRP for the costs of cleaning up the Hoff VC HSCA Site.

(FOF 132; T. Ex. 44 (at 7-8) (emphasis added).) Obviously, there would be far more pumping at the quarry than there would be from pumping the residential wells.

There is no doubt whatsoever that the two sites should be considered in tandem. There is no program or protocol in place for the Department to coordinate its regulatory oversight of the quarry with its remediation of the hazardous site. It would seem that one of the first and most important objectives of any site cleanup is to contain the problem. Yet quarry pumping will have exactly the opposite effect, extending the plume of contaminated groundwater toward the quarry. Quarry pumping will expand the area of contamination, which seems entirely at odds with how we would expect remediation of a hazardous site should be responsibly managed, both fiscally and with the best interests of the environment in mind.

As noted above, using the quarry itself as, in effect, a recovery well hardly seems appropriate at first blush, at least without further study and consideration of the technical and legal ramifications of that reality. The conjecture we heard at the hearing that maybe *in situ* remediation might work, or that maybe the quarry's monitoring wells could be converted to recovery wells provides no comfort. Again, the point here is that the Department has failed to give the issue any serious thought. This is inconsistent with its constitutional duty to fully understand and consider the environmental effects of its actions.

Even if we assume for purposes of argument that it was not obvious that quarry pumping would expand groundwater contamination, it certainly was recognized from the beginning as a distinct possibility. After all, that is why the Department requested further modeling. The Department should have given at least some thought to how this *possibility* could impact the HSCA site cleanup. There is no record that it did.

We also agree with Ban the Quarry that the Department has failed to act with prudence and impartiality as the trustee of Pennsylvania's public natural resources. As we said in *Friends of Lackawanna*,

> In performing its trust duties, the Commonwealth is a fiduciary and must act towards the natural resources with prudence, loyalty, and impartiality. According to the Supreme Court in *PEDF* [*v. Cmwlth.*, 161 A.3d 911 (Pa. 2017)], the duty of prudence requires the Commonwealth "to 'exercise such care and skill as a man of ordinary prudence would exercise in dealing with his own property.'" The duty of loyalty imposes an obligation to manage the corpus of the trust, i.e. the natural resources, so as to accomplish the trust's purpose for the benefit of the trust's beneficiaries. Finally, the duty of impartiality requires the trustee to manage the trust so as to give all of the beneficiaries due regard for their respective interests in light of the purposes of the trust.

2017 EHB at 1162 (citations omitted). *See also Del. Riverkeeper Network*, 2018 EHB at 504. The obvious purpose of cleaning up the Hoff VC Site is to contain and hopefully restore the public natural resources in the area such as the groundwater. Permitting a source of active groundwater migration immediately adjacent to the site without a full scientific understanding of the consequences of that migration and how to deal with those consequences is not prudent environmental management. It also exhibits partiality to one party, Gibraltar, at the as yet unknown expense of other interested parties, including but not limited to PRPs who may be required to fund the cleanup. We do not mean to suggest that the Department has deliberately favored Gibraltar at the purposeful expense of other beneficiaries. Rather, we simply find that the Department did not give the matter any thought. This does not represent compliance with the Department's fiduciary responsibilities. In short, the Department did not perform its duties in conformance with Article I, Section 27.[6]

[6] As previously mentioned, Special Condition 39 in Gibraltar's permit is unclear, but it could be argued that it limits the Department's authority under HSCA as well as the Noncoal Act. This is not consistent with the Department's duties as a trustee under Article I, Section 27.

Other Statutory and Regulatory Requirements

The Appellants contend that the Department issued the permits in violation of legal requirements in addition to the prohibition against presumptive evidence of potential water pollution. They point to the requirement in the Noncoal Act that the quarry operation and reclamation can be accomplished as required by the Act and regulations, 52 P.S. § 3308(a)(2), and the requirement in the regulations that the noncoal activities "can be reasonably accomplished as required by the [Noncoal] act and this chapter under the operation and reclamation plan contained in the application," 25 Pa. Code § 77.126(a)(2). As Gibraltar correctly points out, (Brief at 70), the Department's duty to ensure that mining can be "reasonably accomplished" requires it to ensure that mining can be performed without an undue risk to health, safety, and welfare. *See Solebury School*, 2014 EHB at 521.

For the same reasons we have found that the Department erred in concluding that Gibraltar affirmatively demonstrated no presumptive evidence of potential pollution, we find that it erred in concluding that Gibraltar's operations could be reasonably accomplished in accordance with the law. Most obviously, the mine cannot be operated without groundwater pumping, and that pumping will cause the spread of existing contamination. Cleaning up the Hoff VC Site as efficiently and effectively as possible is in the public interest, and the spread of contamination that quarry operations will cause is inconsistent with that objective, at least without further analysis. Without that analysis, there has been no affirmative showing.

Assuming *arguendo* that it is acceptable to use the quarry as, in effect, a recovery well for the Hoff VC Site cleanup, the Department has imposed permit discharge limits, but there is no plan on how those discharge limits would be met. To say as the Department and Gibraltar have that essentially anything can be treated is not enough to conclude that treatment at this quarry

under these circumstances can be reasonably accomplished. We are not aware of any other instance where the Department issued a discharge permit with no idea of how those limits would be met or no permit requirements regarding the treatment to be used.

25 Pa. Code § 77.521 reads:

> (a) Non-coal mining activities shall be planned and conducted to minimize disturbances to the prevailing hydrologic balance in the permit and adjacent areas.
>
> (b) Changes in water quality and quantity, the depth to groundwater and the location of surface water drainage channels shall be minimized so that the approved postmining land use of the permit area is not adversely affected.
>
> (c) The operator shall conduct the noncoal mining activities to prevent water pollution and, if necessary, operate and maintain the necessary water treatment facilities until applicable treatment requirements and effluent limitations established under § 77.522 (relating to effluent standards) are achieved and maintained.

For the reasons already discussed, Gibraltar has not shown that the quarry can be operated without disturbance to the prevailing hydrologic balance, without deleterious changes in groundwater quality, and without causing water pollution. *See also* 25 Pa. Code § 77.457 (mining must be conducted in such a way as to protect surface and groundwater).

25 Pa. Code § 77.202 provides that the amount of a bond for a noncoal mine shall be the estimated cost to the Department if it had to complete the reclamation, restoration, and abatement work required under the law. It is undisputed that the bond set for Gibraltar's quarry does not account for the costs of treating water contaminated by the Hoff VC Site before discharge in accordance with the NPDES permit. Ban the Quarry convincingly argues that, in order to be compliant with 25 Pa. Code § 77.202, Gibraltar's bond should account for the treatment required by its NPDES permit. Of course, it is impossible to account for such treatment because there has been no site-specific analysis of what that treatment might be. Thus, there are no financial assurances to back up the experiment that the Department has authorized with its permits. The

Department argues that bonded money that was dedicated to, say, backfilling, can be diverted to treatment if that becomes necessary. What it fails to explain is what monies will then be available for backfilling once that money is diverted to treating solvent-contaminated water.

The Department Witnesses' Hesitancy Regarding the Department's Action

The Department's equivocation regarding the soundness of its decision to issue the permits was palpable at the hearing on the merits after the Appellants had presented their cases in chief. The Department's equivocation continues into its post-hearing brief.

Here are some examples from Ms. Hamlin, one of the Department's permit reviewers:

- "Q. Now, after sitting here for two days, has your opinion changed that, hey, there could be a problem with this model?

  A. I think if we had Dr. McClain's [sic] report prior to issuing the permit, we would have considered his points and asked EARTHRES to -- or asked Gibraltar to respond to those.

  Q. Okay. But it doesn't quite answer my question. Is your opinion changed now, now that you've heard that testimony, that, listen, there's a serious problem with this model?

  A. It has changed to the degree that it would have prior to issuing the permit, we would have had the same concerns.

  Q. But today, as we sit here today, your opinion hasn't changed, is that what you're saying?

  A. No. I'm saying that yes, we would consider Dr. McClain's [sic] criticisms and we would ask the quarry to address them, but we didn't receive those criticisms until after we have permitted [sic]." (T. 677-78.)

- "Q. Now, regarding Dr. McClain's [sic] testimony yesterday, is it fair to say you agree that his criticisms were sufficient such that DEP would consider them and require Gibraltar to respond?

  A. Yes. I stated that we would have -- if we had received them prior to issuing a permit, we certainly would have asked Gibraltar to respond." (T. 721.)

- "Q. Is it your opinion that the groundwater plume associated with the Hoff VC site will not be impacted by the proposed quarry operations?

  A. That was our -- our opinion was that it would not reach the quarry and would not be discharged. Contaminant waters wouldn't be discharged based upon the fate and transport study that was provided to us." (T. 722.)

- "Q. Would you agree that the testimony and evidence presented by Mr. Kessler and Mr. McClane [sic] is presumptive evidence of potential pollution resulting from the mining application?

  A. I think it presents some questions that we should evaluate and ask EARTHRES to -- Gibraltar quarry to respond to." (T. 725.)

Mr. Kutney was ultimately responsible for issuance of the permits. (T. 1021.) Here are some examples from Mr. Kutney, the permits chief:

- "And so, you know, it's safe to say that in the coming – you're looking at the Gibraltar team. It's me and Ms. Hamlin. So as soon as we're not here, and hopefully not here on Monday – we're going to be working on a letter asking for more information about what's going on at your site in order to make sure that doesn't happen, that this contamination, as it was presented to us, is supposed to be there in the first place [sic]." (T. 1080-81.)

- "I can write a letter saying please provide more hydrogeologic information. That's fully within my realm of powers or however you'd like to phrase it. That's why I'm comfortable sitting here today saying we're going to write them a letter. But I can't tell you we're going to rescind their permit or cease some sort of currently permitted operation.

  Q. You would need further additional approval above your head?

  A. Yeah.

  Q. Are you going to recommend that?

  A. I'm going to bring that up as a choice. It's something to consider for Mr. Latshaw. And it's – I'm going to be very frank about everything we heard today or over the last few days and discuss it with him." (T. 1137.)

- "A. But I would ask EarthRes or Gibraltar's consultant for more information. There's no doubt about that.

  Q. And you would not issue the permit at that point, correct?

  A. Not until we got the information, reviewed it, considered it, allowed for a proper dueling hydrogeologist debate and then made a decision based on that.

  Q. And that would be because the applicant had, at that point, not demonstrated no presumptive evidence of potential pollution. You would need more evidence?

  A. I would need more information. Now, at the time that we issued the permit, we felt like we had all the information we needed." (T. 1154.)

- "Q. Since you required additional information, you would not have issued the permit at that point, correct?

> A. I'd have to say yeah. We would have got the letter back from Dr. McLane or whoever it was and then we would have given EarthRes a chance to explain all that business." (T. 1155.)

Here are some of the examples in the Department's post-hearing brief that show it is now concerned with allowing the quarry to begin operations:

- "The Department remains confident that the permits were reasonable and well-designed at the time they were issued, and that they remain viable as instruments to further define the proper course of oversight and action, especially in light of recent sampling data and information gleaned at the hearing in this matter." (Page 65.)

- "Meanwhile, Gibraltar has not yet begun mining, and there remains the potential that it may never be allowed to do so, despite permit issuance." (Page 65.)

- "[The mining office] is following up on the alleged faults with the ERG F&T [EarthRes Fate & Transport Model] and will evaluate whether they are of any consequence, meanwhile evaluating McClane's [sic] input." (Page 72.)

- "[The mining office] stated its intention at hearing to ask Gibraltar for more information about what is going on at the site in order to make sure that the contamination is not migrating in unanticipated directions, even with the lack of quarry pumping." (Page 78.)

- "Because of these unexpected results [the latest sampling of OW-6], Gibraltar will be required to conduct additional monitoring and analysis, which PMDO [the mining office] will scrutinize to evaluate whether there are any discrepancies in the current data, and will consider its next options." (Page 113.)

All of this testimony and briefing amounts to a concession that, if the Department knew then what it knows now, it would not have issued the permits, at least without further study and explanation. When the Department demonstrates such a lack of confidence in its own action, it is difficult to imagine us issuing an Adjudication in its favor. Indeed, if the Department believes more study is required, we are left to wonder why the Department has pursued this appeal through an Adjudication rather than put the permit on hold pending further investigation.[7]

[7] That, in turn, draws into question the Department's repeated assurances that the Township and its citizens need not worry because the Department has the ability to take unilateral action if there is a problem.

It is also interesting that Gibraltar argues that the Department's action was lawful and reasonable *based upon the information available to it at the time of its action*. It is highly critical of the fact that the Township did not provide the Department with Dr. McLane's criticisms of EarthRes's model, and notes that it and the Department did not have the latest round of sampling from monitoring well OW-6.[8] The Board reviews Department actions *de novo*, meaning we decide the case anew on the record developed before us. *Solebury School*, 2014 EHB at 519; *Dirian v. DEP*, 2013 EHB 224, 232; *O'Reilly v. DEP*, 2001 EHB 19, 32; *Warren Sand & Gravel Co. v. Dep't Envtl Res*., 341 A.2d 556 (Pa. Cmwlth. 1975).

In performing its permit review, the Department acknowledged the risk of allowing a quarry to pump groundwater next to an active HSCA site with contaminated groundwater and continuing sources of contamination. (T. 1031.) The Department ultimately determined, however, that the risk was tolerable based upon several findings and assumptions. The record shows that virtually all of those findings and assumptions were wrong. Therefore, the permits cannot remain in place, at least until the risk is better understood and perhaps more manageable.

Remedy

Clearly the Department has issued the Gibraltar permits prematurely in light of the unanswered questions regarding the Hoff VC Site. As investigation and remediation of that hazardous site evolves, it may become clear that quarrying can be accomplished in harmony with the cleanup. However, given the lack of any momentum on that site, we are concerned that a *remand* pending HSCA activities would drag on indefinitely, again giving rise to the staleness concerns that required a remand in our first Adjudication. *New Hanover Twp. v. DEP*, 2014 EHB

[8] The Township in response complains that it has been required at great expense to hire consultants that have essentially done the work that the Department should have done in the first place. It says that the Noncoal Act expressly envisioned this scenario when it placed the burden in the first instance upon the permit applicant to "affirmatively" show that these would be no presumptive evidence of potential pollution.

834. Therefore, we will rescind the permits but without prejudice to Gibraltar's right to reapply for the permits if remediation of the Hoff VC Site matures to the point that it becomes apparent that there will be no presumptive evidence of potential pollution and quarrying will not unreasonably interfere with the HSCA cleanup.

CONCLUSIONS OF LAW

1. The Environmental Hearing Board has jurisdiction over this matter. 35 P.S. § 691.7; 35 P.S. § 7514.

2. The Board reviews Department actions *de novo*, meaning we decide the case anew on the record developed before us. *Solebury School v. DEP*, 2014 EHB 482, 519; *Dirian v. DEP*, 2013 EHB 224, 232; *O'Reilly v. DEP*, 2001 EHB 19, 32; *Warren Sand & Gravel Co. v. Dep't Envtl Res*., 341 A.2d 556 (Pa. Cmwlth. 1975).

3. In third-party appeals, the appellants bear the burden of proof. 25 Pa. Code § 1021.122(c)(2).

4. The appellants must show by a preponderance of the evidence that the Department acted contrary to law or unreasonably or that its decision is not supported by the facts. *Solebury School v. DEP*, 2014 EHB 482.

5. 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 Envtl. Prot.*, 193 A.3d 1137, 1149 (Pa. Cmwlth. 2018); *Kiskadden v. Dep't of Envtl. Prot.*, 149 A.3d 380, 387 (Pa. Cmwlth. 2016).

6. An applicant for a noncoal mining permit must show that it will ensure the protection of the quality and quantity of surface water and groundwater, both within the permit area and adjacent areas, as well as the rights of present users of surface water and groundwater.

25 Pa. Code § 77.457(a); 25 Pa. Code § 77.521; *Plumstead Twp. v. DER*, 1995 EHB 741, 776-77.

7. An applicant for a noncoal mining permit must demonstrate to the Department that there is no presumptive evidence of potential pollution to waters of the Commonwealth from its activities. 25 Pa. Code § 77.126(a)(3).

8. The spread of multiple hazardous contaminants in the groundwater that would result from Gibraltar's quarry pumping constitutes presumptive evidence of potential pollution that cannot be permitted consistent with the Noncoal Act. 52 P.S. § 3308(a); 25 Pa. Code § 77.126(a)(3).

9. The Department erred in concluding that Gibraltar had demonstrated that there would be no presumptive evidence of potential pollution of waters of the Commonwealth as a result of its mining activities next to the Hoff VC Site.

10. Gibraltar has not shown that the quarry can be operated without disturbance to the prevailing hydrologic balance, without deleterious changes in groundwater quality, and without causing water pollution in violation of 25 Pa. Code § 77.521 and 52 P.S. § 3308(a). *See also* 25 Pa. Code § 77.457.

11. Article I, Section 27 of the Pennsylvania Constitution requires the Department to consider the full environmental effects of its action and ensure that its action will not result in the unreasonable degradation, diminution, depletion, or deterioration of the environment. PA. CONST. art I, § 27; *Del. Riverkeeper Network v. DEP*, 2018 EHB 447, 493; *Ctr. for Coalfield Justice v. DEP*, 2017 EHB 799, 855-62; *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1160-62.

12. The Department did not uphold its constitutional duty to fully consider and understand the environmental effects of permitting the Gibraltar quarry next to the Hoff VC Site. PA. CONST. art I, § 27.

13. Article I, Section 27 of the Pennsylvania Constitution requires the Department, as trustee of Pennsylvania's public natural resources, to act with prudence, loyalty, and impartiality with respect to the beneficiaries of the natural resources impacted by the Department's decision. PA. CONST. art I, § 27; *Del. Riverkeeper Network v. DEP*, 2018 EHB 447, 493; *Ctr. for Coalfield Justice v. DEP*, 2017 EHB 799, 855-62; *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1160-62.

14. The Department failed to act with prudence and impartiality as the trustee of Pennsylvania's public natural resources by permitting Gibraltar's quarry. PA. CONST. art I, § 27; *Friends of Lackawanna v. DEP*, 2017 EHB 1123, 1162.

15. An applicant for a noncoal mining permit must demonstrate that quarry operations and reclamation can be reasonably accomplished in accordance with the Noncoal Act and the regulations. 52 P.S. § 3308(a)(2); 25 Pa. Code § 77.126(a)(2).

16. The Department's duty to ensure that mining can be reasonably accomplished requires it to ensure that the mining can be performed in accordance with the law without an undue risk to health, safety, and the environment. *Solebury School v. DEP*, 2014 EHB 482, 521.

17. The Department erred in mistakenly concluding that Gibraltar's operations could be reasonably accomplished in accordance with the law.

18. The Noncoal Act and the noncoal regulations require that a permit application must be accurate and complete. 52 P.S. § 3308(a)(1); 25 Pa. Code § 77.126(a)(1).

19. Gibraltar's application is not complete because it does not describe how a discharge potentially containing hazardous substances will be treated.

20. The Department erred in issuing to Gibraltar Rock, Inc. Large Noncoal Surface Mining Permit No. 46030301C2 & C3, NPDES Permit No. PA0224308, and Authorization to Mine No. 6794-46030301-02.

COMMONWEALTH OF PENNSYLVANIA
ENVIRONMENTAL HEARING BOARD

NEW HANOVER TOWNSHIP, PARADISE WATCHDOGS/BAN THE QUARRY, AND JOHN C. AUMAN, Appellants	:	
v.	:	**EHB Docket No. 2018-072-L (Consolidated with 2018-075-L)**
COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND GIBRALTAR ROCK, INC., Permittee	:	

O R D E R

AND NOW, this 24th day of April, 2020, it is hereby ordered that Large Noncoal Surface Mining Permit No. 46030301C2 & C3, NPDES Permit No. PA0224308, and Authorization to Mine No. 6794-46030301-02 issued to Gibraltar Rock, Inc. are **rescinded**.

ENVIRONMENTAL HEARING BOARD

s/ Thomas W. Renwand
THOMAS W. RENWAND
Chief Judge and Chairman

s/ Michelle A. Coleman
MICHELLE A. COLEMAN
Judge

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

s/ Richard P. Mather, Sr.
RICHARD P. MATHER, SR.
Judge

s/ Steven C. Beckman
STEVEN C. BECKMAN
Judge

DATED: April 24, 2020

c: **DEP, General Law Division:**
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