

BEFORE THE ENVIRONMENTAL REVIEW APPEALS COMMISSION
STATE OF OHIO

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|------------------------------------|---|-----------------|
| Stark-Tuscarawas-Wayne Joint Solid | : | No. ERAC 795947 |
| Waste Management District, | : | No. ERAC 795948 |
| | : | |
| and | : | |
| | : | |
| Citizens Against American Landfill | : | No. ERAC 765939 |
| Expansion (C.A.A.L.E.), | : | No. ERAC 765943 |
| | : | No. ERAC 766079 |
| and | : | No. ERAC 766192 |
| | : | |
| Jill VanVoorhis, | : | No. ERAC 765940 |
| | : | No. ERAC 765944 |
| | : | No. ERAC 766080 |
| and | : | No. ERAC 766193 |
| | : | |
| Vivian Baier, | : | No. ERAC 765941 |
| | : | No. ERAC 765945 |
| and | : | No. ERAC 766081 |
| | : | |
| Ann McCoy, | : | No. ERAC 765942 |
| | : | No. ERAC 765946 |
| | : | No. ERAC 766082 |
| | : | |
| Appellants, | : | |
| v. | : | |
| | : | |
| Joseph Koncelik, Director of | : | |
| Environmental Protection, | : | |
| | : | |
| and | : | |
| | : | |
| Chris Korleski, Director of | : | |
| Environmental Protection, | : | |
| | : | |
| and | : | |
| | : | |
| American Landfill, Inc., | : | |
| | : | |
| Appellees. | : | |

DECISION

Rendered on August 1, 2012

D. David Altman, Amy Leonard, and Justin D. Newman for Appellants C.A.A.L.E., *Jill VanVoorhis, Vivian Baier, and Ann McCoy*

Victor R. Marsh, Thomas W. Connors, and Kristin R. Zemis for Appellant Stark-Tuscarawas-Wayne Joint Solid Waste Management District

Mike DeWine, Attorney General, Nicholas J. Bryan, Kate Barcalow, and Thaddeus H. Driscoll for Appellees Joseph Koncelik and Chris Korleski, Directors of Environmental Protection

Terrence M. Fay and Robert Leininger for Appellee American Landfill, Inc.

SHILLING, COMMISSIONER

{¶1} These matters come before the Environmental Review Appeals Commission (“ERAC,” “Commission”) upon six Notices of Appeal. Appellants Citizens Against American Landfill Expansion (“CAALE”), Jill VanVoorhis, Vivian Baier, Ann McCoy (collectively “the Individual Appellants”), and Stark-Tuscarawas-Wayne Joint Solid Waste Management District (“STW”) timely filed appeals on August 18, 2006, July 19, 2007, and June 27, 2008, respectively. In their appeals, Appellants challenge four final actions of Appellee Director of Environmental Protection (“Director,” “Ohio EPA”): (1) a solid waste permit to install (“PTI”) issued on July 20, 2006, (2) an air PTI issued on July 20, 2006, (3) a June 21, 2007 approval of Appellee American Landfill, Inc.’s

(“ALI”) alternate source demonstration (“ASD”),¹ and (4) a May 27, 2008 approval of a second ASD.²

{¶2} The Commission conducted an eighteen-day de novo hearing commencing November 29 through December 10, 2010, and resuming January 5 through January 14, 2011.

{¶3} Based upon the Certified Record (“CR”), the evidence adduced at the hearing, and the relevant statutes, regulations, and case law, the Commission issues the following Findings of Fact, Conclusions of Law, and Final Order AFFIRMING the Director’s final actions issuing the solid waste and air PTIs and approving ALI’s two ASDs.

FINDINGS OF FACT

I. INTRODUCTION

{¶4} This case arises from the Director’s decision to approve an expansion of ALI’s landfill in Stark County, Ohio. Although Appellants raised numerous assignments of error (a total of 131 assignments of error, including subparts), their arguments can be broadly summarized as concerns about (1) the Director’s acceptance of ALI’s characterization of the geology and hydrogeology underlying the ALI facility and the surrounding area, and (2) the engineering design of the expansion. Appellants believe that ALI failed to accurately characterize the underlying geology and hydrogeology, and that ALI’s engineering design is inadequate. This, they argue, will lead to insufficient protection of the air and groundwater in the surrounding community.

¹ Only CAALE and the Individual Appellants challenge the Director’s June 21, 2007 ASD approval.

² Only CAALE and Ms. VanVoorhis challenge the Director’s May 27, 2008 ASD approval.

II. THE PARTIES

A. Citizens Against American Landfill Expansion

{¶15} Upon learning of ALI's proposed expansion in 1999, Ms. VanVoorhis, Ms. Baier, Ms. McCoy, and Ms. Patty Showalter formed CAALE, a citizens' group. After roughly one year of information gathering, CAALE began to hold open meetings. Through these meetings, CAALE grew to a total of eleven members, all of whom live near ALI, and many of whom depend on private wells for their water supply. Ms. VanVoorhis also testified that CAALE enjoys broad community support beyond its listed members. Testimony VanVoorhis.

{¶16} As its name suggests, CAALE's primary activity has been to oppose expansion of the ALI facility. Since its founding, CAALE has raised funds to support its own technical review of the ALI facility and to conduct a variety of community informational meetings. Testimony VanVoorhis.

B. Stark-Tuscarawas-Wayne Joint Solid Waste Management District

{¶17} STW is statutorily charged with "providing for * * * the safe and sanitary management of solid wastes within all of the incorporated and unincorporated territory of the * * * district." Revised Code ("R.C.") 3734.52(A). Although no testimony was presented that the ALI facility is located within STW's district, Appellants did not challenge this fact. Testimony Held.

C. American Landfill, Inc.

{¶18} ALI owns and operates a solid waste disposal facility located at 7916 Chapel St. S.E., Waynesburg, Ohio 44688, positioned in the southeast portion of Stark County. The ALI facility consists of 1,072 acres, of which 235 acres represent the current

waste footprint.³ ALI purchased the facility from Breitstine Landfill, Inc. in 1989, and is now operating it in conjunction with Waste Management, ALI's parent company.⁴ Testimony Ali.

III. SITE DESCRIPTION AND REGIONAL HYDROGEOLOGY

{¶9} Because much of Appellants' case relates to the characterization of the geology and hydrogeology underlying the ALI facility and surrounding area, the Commission will begin with a general overview of the area's major geological and hydrogeological features, based largely on information derived from ALI's solid waste PTI application.

{¶10} The area in which ALI's facility is located has been heavily influenced by glacial deposits, as well as by more recent mining and gas exploration activities. STW Exhibit 31.

{¶11} The major surface waters near the ALI facility are Sandy Creek, located approximately 2.5 miles south of the ALI facility, and two tributaries to Sandy Creek, Indian Run and Little Sandy Creek streams. Indian Run stream is located on the west side of the ALI facility, and Little Sandy Creek is located approximately one-half mile from the east side of the facility. STW Exhibit 31.

{¶12} Additionally, subsurface aquifers associated with Sandy Creek, Indian Run, and Little Sandy Creek are present near the ALI facility. Aquifers are formed by

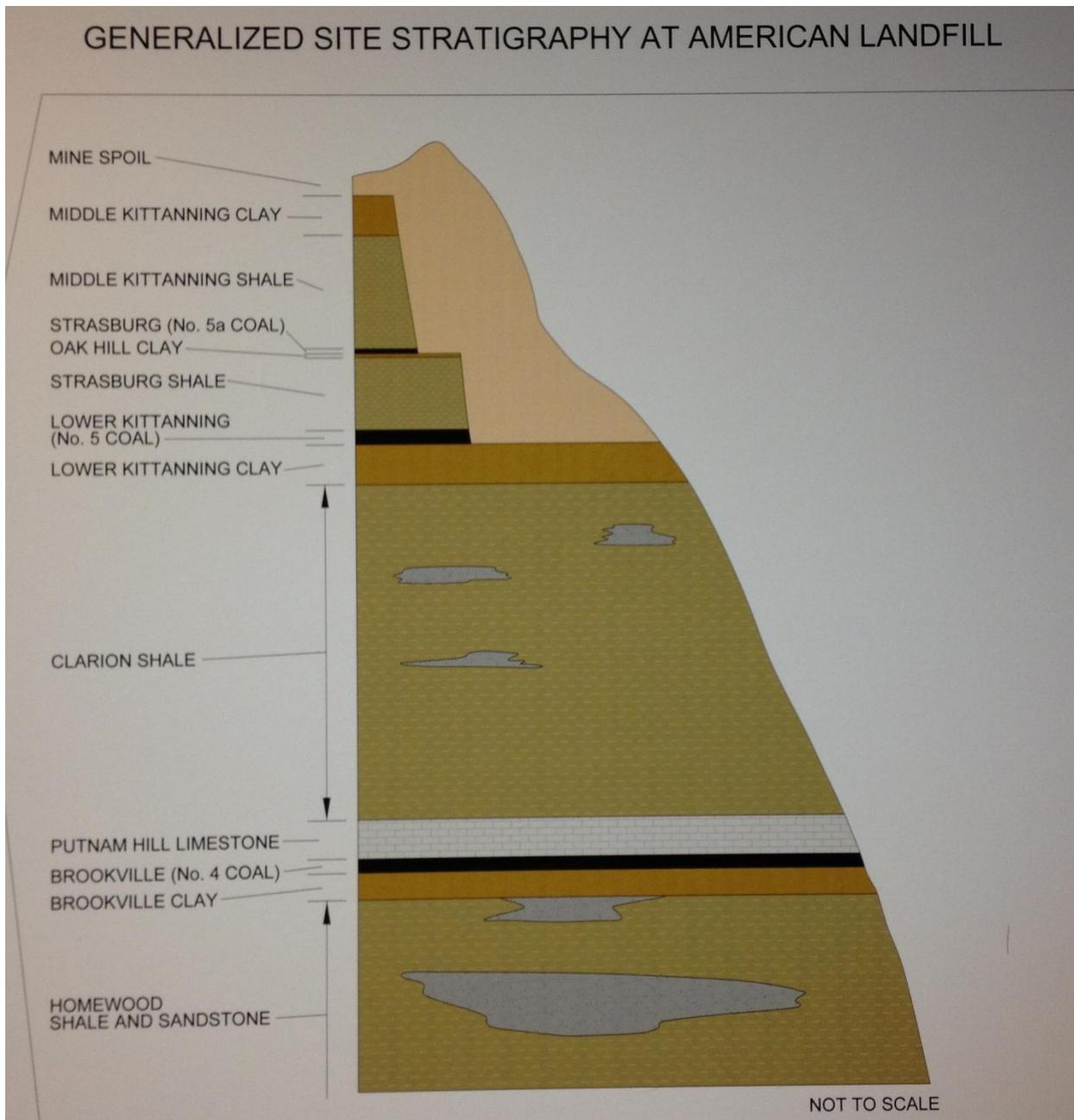
³ With the proposed expansion, ALI's footprint would increase to 396 acres. Testimony Ali.

⁴ CAALE's appeal of the July 20, 2006 solid waste PTI named "Waste Management Co." as a co-Appellee. Although the notice of appeal referred to "Waste Management Co.," no such legal entity exists. Instead, CAALE appears to have intended to reference "Waste Management, Inc.," ALI's parent company. ALI moved to dismiss Waste Management as a party to the proceedings on April 11, 2007. The Commission granted ALI's Motion to Dismiss on August 29, 2007. Thus, Waste Management is no longer a party to this matter.

deposits of loosely packed unconsolidated materials and refer only to those geological formations or units that are capable of being used as water supply sources. For example, the Sandy Creek aquifer has been reported to yield up to 500 gallons per minute (“gpm”) and is an important water supply source in the region. Aquifers associated with Indian Run and Little Sandy Creek have also been reported to generate significant water yields. STW Exhibit 31; Testimony Razem.

{¶13} Finally, stratigraphic features (i.e., distinct layers of rock) play a significant role in dictating the flow of groundwater beneath and around the ALI facility. Differences in flow characteristics of various stratigraphic layers control the direction and magnitude of groundwater flow. Tightly packed formations may not support large water flows and may also act to confine flow between other stratigraphic layers, whereas loosely packed or unconsolidated formations may yield significant flows. Further, regional topography affects the interaction between surface and groundwater flows. For example, some stratigraphic formations may “subcrop” into unconsolidated materials or “outcrop” on the side of a slope.⁵ The figure below depicts a generalized illustration of the stratigraphy in the area surrounding the ALI facility. ALI Exhibits 31 and 79-43; Testimony Razem.

⁵ Liquid flowing horizontally within a stratigraphic formation can flow into unconsolidated material present at a “subcrop,” or seep onto the side of a slope at an “outcrop.” Testimony Dobransky.



ALI Exhibit 79-43.

{¶14} As discussed in greater detail below, Ohio law requires solid waste PTI applications to contain detailed characterizations of the hydrogeology underlying the landfill facility, including proper identification of the layers in the stratigraphic column. This requirement, along with other regulations relating to landfill siting, aids in ensuring the protection of health and the environment. Of particular relevance in these

appeals is the fifteen-foot isolation distance from the “uppermost aquifer system” (“UAS”), as contained in Ohio Administrative Code (“Ohio Adm.Code”) 3745-27-07(H)(2)(e), and its relationship to the stratigraphic layers known as Clarion Shale and Putnam Hill Limestone/Brookville. *See Findings of Fact, Part IV, Section E, infra.*

IV. TIMELINE OF ALI PERMITS AND APPEALS

A. Pre-landfill activities

{¶15} Prior to becoming a landfill facility, the ALI site was primarily used for coal strip mining and oil and gas exploration and extraction activities. Strip mining breaks surface rock formations into small particles to facilitate its removal from above coal deposits. This pulverized rock, known as “mine spoil,” can contaminate rain and groundwater with elements naturally occurring in the rock as the water moves through the material. Significant areas of mine spoil remain at the ALI facility. Testimony Ali, Dobransky.

{¶16} Oil and gas extraction requires the separation of oil and gas from naturally occurring brine. With salt concentrations several times greater than seawater, brine is highly concentrated saltwater that must be disposed of after the oil and gas is removed. Testimony established that a number of annular brine disposal wells exist on the ALI site.⁶ Testimony Razem.

B. Original 1975 Permit

{¶17} Breitstine Landfill, Inc. received its first solid waste disposal permit for the ALI site on November 3, 1975. Testimony Ali.

⁶ In annular disposal, brine is disposed of by injecting it between the casings of existing oil and gas wells. Testimony Razem.

C. 1985 Expansion Permit

{¶18} Breitstine Landfill, Inc. received approval for its first expansion of the ALI site on November 20, 1985 (“1985 Expansion Permit”). Among other terms, the 1985 Expansion Permit required the facility to install a five-foot thick clay liner beneath the expansion area. ALI Exhibit 130; Testimony Ali.

D. 1995 Permits

{¶19} ALI acquired operational control and ownership from Breitstine Landfill, Inc. during 1988 and 1989. In 1995, ALI received two PTIs for the site. The first, known as the “Environmental Improvement PTI,” allowed for installation of a gas collection system. The second permit, known as the “1995 Expansion Permit,” allowed for an expansion, which effectively divided the site into two distinct units—the northern unit and southern unit. Portions of the northern unit, referred to as the “BAT cell” during the hearing, featured a synthetic liner. The existing pre-1995 landfill became known as the southern unit and features only the clay liner required by the 1985 Expansion Permit. Testimony Ali, Dobransky.

E. 2006 Expansion PTIs

{¶20} In 1999, ALI submitted the first of three PTI applications for the expansion at issue in these appeals. Following various notices of deficiency (“NODs”) from Ohio EPA, ALI eventually resubmitted its application twice, once in 2003 and again in 2005. Ohio EPA issued ALI its final PTIs for the expansion on July 20, 2006. ALI Exhibits 124, 254; Testimony Ali.

i. 1999 Application

{¶21} ALI submitted the first in this series of PTI applications on March 23, 1999 (“1999 PTI Application”), seeking approval for a lateral and vertical expansion of

the landfill facility.⁷ The 1999 PTI Application also sought to re-designate the UAS.⁸ Previous PTIs had identified the UAS as a geological formation known as “Kittanning Sandstone.” Instead, the 1999 PTI Application sought to designate the “Putnam Hill Limestone” and “Brookeville Coal” formations (collectively “PHL/BC”) as the UAS. The hydrogeologic portions of the 1999 PTI Application,⁹ which included the UAS re-designation, were prepared by Earth Sciences, whom ALI had hired as a consultant. STW Exhibit 29; Testimony Ali.

{¶22} After reviewing the 1999 PTI Application, Ohio EPA issued an NOD on August 12, 1999. Among other concerns, the NOD stated that the 1999 PTI Application contained insufficient data to determine whether the PHL/BC formation could be re-designated as the UAS. Specifically, the NOD requested additional data on the mine spoil present at the ALI site.¹⁰ ALI Exhibit 38.

{¶23} In April 2000, ALI replaced Earth Sciences with Eagon & Associates (“Eagon”) as its hydrogeologic consultant. Among other things, Eagon reviewed existing data and conducted new tests in response to the August 12, 1999 NOD. ALI Exhibit 38.

⁷ A lateral expansion involves placing new waste outside the existing footprint of the landfill, whereas a vertical expansion involves placing new waste over the top of existing waste.

⁸ As discussed in greater detail below, Ohio Administrative Code (“Ohio Adm.Code”) 3745-27-07(H)(2)(e) requires a fifteen-foot isolation distance between the bottom of the landfill and the UAS.

⁹ Ohio Adm.Code 3745-27-06(C) requires that solid waste PTI applications include the following ten reports: (1) summary, (2) variance and exemption requests, (3) hydrogeologic and geologic site investigation, (4) stability analysis, (5) calculations, (6) location restriction demonstrations, (7) construction information, (8) operational information, (9) groundwater and explosive gas monitoring plans, and (10) notifications and certification. Ohio Adm.Code 3745-27-06(A) and (B) also specify additional information required to be included with solid waste PTI applications, including engineering and plan drawings.

¹⁰ The NOD stated, “[m]ine spoil may be considered a geologic material in accordance with Ohio EPA guidance document GDO205.100.” The NOD, therefore, requested that ALI “revise the narrative report to include sufficient mine spoil hydrogeologic information to allow Ohio EPA to identify and characterize the hydrogeology of the uppermost aquifer system and all geologic strata that exist above the uppermost aquifer system.” ALI Exhibit 38.

{¶24} On ALI's behalf, Eagon responded to the hydrogeologic portions of the NOD on May 22, 2001. This response detailed ALI's answers to the hydrogeologic concerns raised in the NOD, including Ohio EPA's concerns regarding the UAS re-designation. As requested, Eagon also provided data regarding mine spoil present at the ALI site. The response, for the first time, described Kittanning Sandstone as a discontinuous formation. ALI Exhibit 38.

ii. 2003 Application

{¶25} On December 21, 2001, Ohio EPA sent ALI a second NOD noting that ALI's response "adequately addressed Ohio EPA's Comments pertaining to the [hydrogeologic] portion of the PTI," but advised that additional information "should be submitted * * * as a formal PTI application revision to meet the requirements of the 1994 Municipal Solid Waste Regulations." ALI Exhibit 38.

{¶26} As a result, ALI submitted a revised PTI application on March 17, 2003 ("2003 PTI Application"). The 2003 PTI Application included a Hydrogeologic Site Investigation Report ("HSIR") that addressed the majority of the hydrogeologic issues at the ALI facility, including the re-designation of the UAS. STW Ex. 30.

iii. 2005 Application

{¶27} On February 5, 2004, Ohio EPA sent ALI an NOD largely requesting that ALI update the application's citations to applicable sections of the Ohio Administrative Code.¹¹ Accordingly, ALI submitted an updated PTI Application in March 2005 ("2005

¹¹ New Ohio EPA regulations had become effective in August 2003. Although the testimony suggested that substantive changes to the regulations were minimal, the revisions did result in changes to the citations for the applicable Administrative Code sections.

PTI Application”). The 2005 PTI Application did not incorporate significant substantive changes. Instead, it focused on updating citations and formatting issues. Testimony Ali.

{¶28} In connection with the proposed expansion, ALI also submitted an air PTI application on May 27, 2005. The air PTI application sought permission to emit certain air contaminants associated with ALI’s roadways, landfill operations, and gas collection and control system. ALI Exhibit 264.

{¶29} During Ohio EPA’s review of the 2005 PTI Application, Ohio EPA and ALI began discussions concerning a 100 gpm aquifer identified by Eagon on the west side of the facility.¹² The 2005 PTI Application contained plans for removal of “sand fingers”¹³ located below the proposed landfill facility that were potentially connected to the 100 gpm aquifer. Ohio EPA informed ALI that this would require an exemption from the Director. Thus, ALI submitted an exemption request on October 11, 2005. Ohio EPA issued an NOD pertaining to the 100 gpm aquifer exemption request on October 27, 2005, to which ALI satisfactorily responded on November 3, 2005. Testimony Dobransky; CR Items 11, 12, and 13.

{¶30} Subsequently, Ohio EPA completed its review of the 2005 PTI Application and air PTI application and issued draft solid waste and air PTIs on December 16, 2005. Following a public notice and comment period, Ohio EPA issued final solid waste and air PTIs on July 20, 2006 (collectively “2006 Expansion PTIs”). ALI Exhibits 124, 254.

¹² As discussed in greater detail below, Ohio Adm.Code 3745-27-07(H)(2)(d) requires that a landfill not be located above a 100 gpm aquifer.

¹³ As used throughout the hearing, “sand fingers” referred to thin zones of unconsolidated sandy material located beneath the west side of ALI’s facility. *See* testimony Razem; CR Item 13.

F. CAALE and STW Appeals of 2006 Expansion PTIs

{¶31} On August 18, 2006, CAALE and STW timely filed appeals of the Director’s final action issuing the 2006 Expansion PTIs. As noted previously and described in greater detail below, CAALE and STW challenge both the hydrogeologic and engineering aspects of the permits. Broadly, Appellants argue that ALI’s 2005 PTI Application inaccurately characterized the geology and hydrogeology at the ALI site and contained an insufficient engineering design, leading to inadequate protection of groundwater and air. Thus, Appellants argue that the Director unlawfully and unreasonably issued the 2006 Expansion PTIs.

G. Alternate Source Demonstrations

{¶32} Pursuant to Ohio Adm.Code 3745-27-10, which governs groundwater monitoring, landfill facilities must take groundwater samples at least twice per year and submit semiannual reports documenting groundwater quality. This process, known as “detection monitoring,” involves performing statistical analyses for a number of parameters indicative of groundwater contamination, including alkalinity, ammonia, arsenic, barium, beryllium, cadmium, calcium, and chloride, among others. If the analysis indicates a statistically significant¹⁴ increase in any of the parameters, a second sample is taken and analyzed. And if the second analysis confirms the statistically significant increase, the landfill facility must either prepare an alternate source demonstration (“ASD”) or proceed into “assessment monitoring” and ultimately into “corrective measures.” An ASD is a report demonstrating that a source other than the landfill caused the statistically significant increase. Assessment monitoring is used to

¹⁴ Some natural background variation is expected. Therefore, only statistically significant increases indicate groundwater contamination. Testimony Razem.

determine the rate and extent of the contamination, and corrective measures are implemented in order to remediate the contaminated area. Testimony Razem.

{¶33} In 2006, ALI's second semiannual detection monitoring event indicated statistically significant increases for various parameters in several groundwater monitoring wells. On February 22, 2007, ALI submitted an ASD to Ohio EPA, stating that the statistically significant increases were due to brine contamination associated with oil and gas exploration and extraction activities that had occurred at the site prior to 1975. The Director approved the ASD on June 21, 2007. ALI Exhibit 13.

{¶34} Similarly, ALI's second semiannual detection monitoring event in 2007 also indicated statistically significant increases for certain parameters in a number of wells. ALI submitted its ASD on March 5, 2008, again citing brine contamination. The Director approved the ASD on May 27, 2008. ALI Exhibit 7.

H. CAALE Appeals of Alternate Source Demonstrations

{¶35} On July 19, 2007 and June 27, 2008, CAALE timely appealed ALI's two ASDs.¹⁵ All three Individual Appellants are parties to CAALE's July 19, 2007 appeal; only Ms. VanVoorhis joined in CAALE's June 27, 2008 appeal. Appellants argue that the Director erred by approving the ASDs and that the statistically significant increases of the relevant parameters were the result of groundwater contamination from ALI's landfill rather than from brine.

¹⁵ From ALI's exhibit list, it also appears that ASDs were prepared in 2008, 2009, and 2010, as well as for the other semiannual detection monitoring events in 2006 and 2007. Appellants do not appear to challenge these additional ASDs.

V. ASSIGNMENTS OF ERROR

{¶136} Including subparts, CAALE and STW together raise a total of 131 assignments of error:

A. CAALE's Appeal of 2006 Solid Waste PTI

1. The Director of the Ohio Environmental Protection Agency ("Director") erred and/or abused his discretion by granting a PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) failed to satisfy the criteria and requirements set forth in the O.A.C. Chapters 3745-27 and 3745-37. In so doing, the Director acted unreasonably and unlawfully.
2. The Director erred and/or abused his discretion by granting a PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) failed to meet the requirements of Ohio law, including O.R.C. §§3734.02, 3734.05, 3734.44, 3704 et seq., 6111.04, and 3734.20. In so doing, the Director acted unreasonably.
3. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) is/are not in substantial compliance with O.R.C. §§3704, 3734, 6111 or the rules and regulations issued hereunder, including, but not limited to, laws and regulations prohibiting nuisances (including as defined in O.A.C. §3745-27-01(N)(6)); the pollution of surface waters and groundwater; soil contamination; migration of landfill gas via subsurface migration and air releases; open dumping; acceptance of hazardous waste; activities that may result in an imminent and substantial endangerment; fires at the landfill; and other operating and management requirements. In so doing, the Director acted unreasonably and unlawfully.
4. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill given the disparative impact allowing such an expansion will have on Appellants and the surrounding community. In so doing, the Director acted unreasonably and unlawfully.
5. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill without the proper antidegradation review required under 33 U.S.C. §§ 1313, 1314; O.R.C. §6111.12, and O.A.C. §3745-1-05. In so doing, the Director acted unreasonably and unlawfully.
6. The Director erred and/or abused his discretion by granting a PTI for the vertical and lateral expansion of the American Landfill where the existing landfill has caused or contributed to the disposal of solid and hazardous waste in a manner that may present an imminent and substantial endangerment to health or the

environment in violation of RCRA, 42 U.S.C. §6972. In so doing, the Director acted unreasonably and unlawfully.

7. The Director erred and/or abused his discretion by granting a PTI for the vertical and lateral expansion of an open dump as defined by federal and state law, e.g. 42 U.S.C. §6945, 40 C.F.R. §257 et seq., 40 C.F.R. §258 et seq., and O.A.C. §3745-27-05(A)(1) and (C). In so doing, the Director acted unreasonably and unlawfully.
8. The Director erred and/or abused his discretion by granting the PTI where the applicant owner(s) and operator(s) of American Landfill have not exhibited sufficient reliability, expertise and competency to operate the facility under O.R.C. §3734.44 and O.A.C. §3745-27-07(A)(5). In so doing, the Director acted unreasonably and unlawfully.
9. The Director erred and/or abused his discretion by granting the PTI where the applicant/owner(s) and operator(s) have not operated the existing landfill or other landfills in substantial compliance with the solid waste laws and regulations. In so doing, the Director acted unreasonably and unlawfully.
10. The Director erred and/or abused his discretion in finding that the owner(s) or operator(s) of American Landfill would have the technical ability to adequately monitor the impact of the sanitary landfill facility on the environment in a manner that meets the criteria of O.A.C. §3745-27-07(B)(2). In so doing, the Director acted unreasonably and unlawfully.
11. The Director erred and/or abused his discretion by granting a PTI for the vertical and lateral expansion of the American Landfill where there has been no showing that the construction, operation, closure and post-closure care of the facility are capable of fulfilling all appropriate regulatory requirements for protecting surface water, groundwater, and air under O.A.C. §3745-27-02(G). In so doing, the Director acted unreasonably and unlawfully.
12. The Director erred and/or abused his discretion by granting a variance from O.A.C. §3745-27-07(H)(4)(d) prohibiting the placement of waste within 200 feet of a stream, lake or wetland. In so doing, the Director acted unreasonably and unlawfully.
13. The Director erred and/or abused his discretion by exempting American Landfill from O.A.C. §3745-27-07 (H)(2)(d), which prohibits the siting of a landfill over a 100 gallon per minute aquifer. In so doing, the Director acted unreasonably and unlawfully.
14. The Director erred and/or abused his discretion by granting the PTI for the American Landfill instead of utilizing his authority under O.R.C. §3734.041 to order the owner(s) and operator(s) of the Landfill to abate and remediate the migration of landfill gas from the facility. In so doing, the Director acted unreasonably and unlawfully.

15. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the landfill application and plan submittals failed to provide sufficient information to determine whether all applicable requirements have been met as required by O.A.C. §3745-27-06. In so doing, the Director acted unreasonably and unlawfully.
16. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the landfill application and plan submittals failed to satisfy the requirements of O.A.C. §3745-27-06(A) and (B), including:
 - a. failing to provide engineering plans and specifications sufficient to ensure the facility will be designed and operated in compliance with all laws and regulations;
 - b. failing to submit a disclosure statement for Waste Management; and
 - c. failing to provide other required plans, descriptions and drawings that accurately depict the hydrogeology and geotechnical information required.

In so doing, the Director acted unreasonably and unlawfully.

17. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the landfill application and plan submittals failed to satisfy the requirements of O.A.C. §3745-27-06(C), including failing to satisfy the requirements of:
 - a. O.A.C. §3745-27-06(C)(3) et seq. (improper, incomplete and inadequate hydrogeological and geotechnical site investigation and report(s));
 - b. O.A.C. §3745-27-06(C)(4) et seq. (improper, incomplete and inadequate stability analyses);
 - c. O.A.C. §3745-27-06(C)(5) et seq. (improper, incomplete and inadequate design calculations);
 - d. O.A.C. §3745-27-06(C)(6) et seq. (improper, incomplete and inadequate location restriction demonstrations);
 - e. O.A.C. §3745-27-06(C)(7) et seq. (improper, incomplete and inadequate construction information);
 - f. O.A.C. §3745-27-06(C)(8) et seq. (improper, incomplete and inadequate operational information); and
 - g. O.A.C. §3745-27-06(C)(9) et seq. (improper, incomplete and inadequate plans).

In so doing, the Director acted unreasonably and unlawfully.

18. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) failed to develop proper leachate control plan(s) (for existing and new areas of waste) and failed to develop proper plan(s) for installation and maintenance and monitoring of the proposed underdrain. In so doing, the Director acted unreasonably and unlawfully.
19. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) have not established that all phases of the expansion will be constructed, maintained and operated in compliance with O.A.C. §3745-27-08 thru §3745-27-12. In so doing, the Director acted unreasonably and unlawfully.
20. The Director erred and/or abused his discretion in approving the use of a "separatory liner" when granting the PTI for the vertical and lateral expansion of the American Landfill. In so doing, the Director acted unreasonably and unlawfully.
21. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill based on an incomplete and inaccurate depiction of the regional and local geology, hydrogeology, stratigraphy, geomorphology, recharge and discharge areas, groundwater flow characteristics, structural features, significant zones of saturations, fracturing and regional jointing patterns, uppermost aquifer system and other subsurface characteristics. In so doing, the Director acted unreasonably and unlawfully.
22. The Director erred and/or abused his discretion in finding that the vertical and lateral expansion of the American Landfill will not violate O.R.C. Chapters 3704, 3734 and 6111. In so doing, the Director acted unreasonably and unlawfully.
23. The Director erred and/or abused his discretion under O.A.C. §3745-27-07(B)(l) in finding that the vertical and lateral expansion of the landfill will have no adverse effect on any corrective measure undertaken at the American Landfill. In so doing, the Director acted unreasonably and unlawfully.
24. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) have not made the requisite five year time-of-travel calculation as required under O.A.C. §3745-27-07(H)(3)(a). In so doing, the Director acted unreasonably and unlawfully.
25. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) have not made the requisite showing that the landfill is not located with 200 feet of a fault that has had displacement in the Holocene time. In so doing, the Director acted unreasonably and unlawfully.

26. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill in violation of O.A.C. §3745-27-20(C)(5) prohibiting a landfill from being located in an unstable area. In so doing, the Director acted unreasonably and unlawfully.
27. The Director erred and /or abused his discretion in finding that the Permittee utilized appropriate technology and methods to properly delineate the hydrogeologic properties of the bedrock underlying the facility, including the determination of any fracture flow, and that no interconnecting fractures were present at the site. In so doing, the Director acted unreasonably and unlawfully.
28. The Director erred and/or abused his discretion in finding that the groundwater containing solid or hazardous waste-derived constituents (within what the Director calls the “Kittanning Coal/mine spoil SZS” area) has not migrated beyond the facility boundary. In so doing, the Director acted unreasonably and unlawfully.
29. The Director erred and/or abused his discretion in finding that no leachate is migrating from the unlined bottom of the existing landfill to the Upper [sic] Aquifer System. In so doing, the Director acted unreasonably and unlawfully.
30. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) have not developed adequate groundwater monitoring plan(s), assessment plan(s) or corrective measures plan(s) as required by O.A.C. §3745-27-10. In so doing, the Director acted unreasonably and unlawfully.
31. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the existing landfill is causing contamination of the groundwater, including both within facility boundaries and off-site. In so doing, the Director acted unreasonably and unlawfully.
32. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the applicant/owner(s) and operator(s) have not complied with O.A.C. §3745-27-12. In so doing, the Director acted unreasonably and unlawfully.
33. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where he deferred his compliance determination for the various phases of the expansion to the future. This approach violates O.R.C. §§3734.02 and 3734.05 and the regulations promulgated thereunder and amounts to de facto delegation of authority to the landfill owner/operators. In so doing, the Director acted unreasonably and unlawfully.

34. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where the landfill application was incomplete and too vague and ambiguous to allow for meaningful public input in violation of O.R.C. §§3734.02 and 3734.05. The lack of detail and deference to future submittals after the permit has been granted deprived and will deprive Appellants and the public of any meaningful input in the permitting process and thwarts any attempt of performing a technical review of the adequacy of those future submittals. In so doing, the Director acted unreasonably and unlawfully.
35. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the by failing to consider (or properly evaluate) the adverse social and economic impact from the pollution that will arise from the proposed landfill expansion. In so doing, the Director acted unreasonably.
36. The Director erred and/or abused his discretion by granting the PTI for the vertical and lateral expansion of the American Landfill where he failed to require the applicant/owner(s) and operator(s) to address the previous notice(s) of deficiencies served on them by the Director during the application process. In so doing, the Director acted unreasonably and unlawfully.
37. The Appellants incorporate by reference the assignments of error raised by the Stark-Tuscarawas-Wayne Joint Solid Waste Management District in its appeal of this permit.

B. STW's Appeal of 2006 Solid Waste PTI

1. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing the permit, which was issued in violation of Ohio Rev. Code Chapters 3704, 3734, and 6111, and the rules and regulations promulgated thereunder, including, but not limited to, Ohio Admin. Code Chapters 3745-27, 3745-31, and 3745-37.
2. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing the permit which will create a nuisance, health hazard and/or will lead to water pollution, in violation of Ohio Rev. Code 3734.02. The community already is home to a disproportionate share of Ohio's landfills and the problems caused thereby. The expansion is unnecessary and inflicts disproportional, unreasonable, and unlawful health and environmental hazards upon the community.
3. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit to install a landfill which will create a nuisance, in violation of Ohio Rev. Code 3734.02, because:
 - a. the landfill will be injurious to human health, offensive to the senses, interfere with comfortable life and enjoyment, and negatively affect the community; and

- b. prior to this excessive and unnecessary extension, the landfill already operates 6 ½ days per week, is visited by three-to-four hundred trucks a day, causes loose debris in the area, leads to truck congestion of intolerable and unsafe levels, and causes odor and noise pollution.
4. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit to install a landfill which will create or contribute to water pollution, in violation of Ohio Rev. Code 3734.02(A).
5. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit to install a landfill which will create a health hazard, in violation of Ohio Rev. Code 3734.02(A).
6. The Director acted unlawfully or unreasonably, and abused his discretion, in engaging in the process of “advance permitting” in violation of Ohio Rev. Code 3734.02 and 3734.05.
7. The Director acted unlawfully or unreasonably, and abused his discretion, by effectively delegating to Appellee, in regards to various future compliance actions in relation to ground water and aquifers, the Director’s responsibility to ensure compliance with applicable laws and regulations, including Ohio Rev. Code Chapter 3734 and the rules and regulations promulgated thereunder.
8. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit where the permit to install application submitted by Appellee only provided detail for a small portion of the landfill (“Phase I”), while not providing sufficient detail as to the majority of the landfill which will be used in the future (“Phases I1 and III”), including, but not limited to, insufficient detail concerning (a) the protection of ground water and aquifers and (b) providing reasonable assurance that the location and operation of the landfill will not cause or contribute to ground water or surface-water pollution.
9. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit where the permit to install application submitted by Appellee left various compliance issues for a large portion of the landfill (“Phases II and III”), including protection of ground water and aquifers, to be determined at a later date.
10. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a variance from the siting requirement of Ohio Admin. Code, Section 3745-27-07(H)(4)(d), in violation of Ohio Rev. Code 3734.02.
11. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing an exemption from the siting requirement of Ohio Admin. Code. Section 3745-27-07(H)(2), prohibiting a landfill above an unconsolidated aquifer capable of sustaining a yield of one hundred gallons per minute, thereby violating Ohio Rev. Code 3734.02(A) and Ohio Admin. Code, Section. 3745-27-03(B), given that:

- a. mitigating actions by Appellee for the majority of the landfill ("Phases II and III") will not occur for almost a decade; and
 - b. the Appellee has not provided an adequate discussion of planned ground water and control structures and their potential impact to the site hydrogeology and to the current or proposed ground water monitoring detection network.
12. The Director acted unlawfully or unreasonably, and abused his discretion, by granting the permit without the proper anti-degradation review required by 33 U.S.C.A. §§1313, 1314, Ohio Rev. Code 6111.12, and Ohio Admin. Code Section 3745-01-05.
13. The Director acted unlawfully or unreasonably, and abused his discretion, by granting the permit where the existing landfill has caused or contributed to the disposal of solid and hazardous waste in a manner that may present an imminent and substantial endangerment to health or the environment, in violation of 42 U.S.C.A. § 6972.
14. The Director acted unlawfully or unreasonably, and abused his discretion, by granting the permit for a vertical and lateral expansion of an open dump as defined by federal and state law, including 42 U.S.C.A. § 6945, 40 C.F.R. 257 et. seq., 40 C.F.R. §258 et. seq., and Ohio Admin Code Section 3745-27-05(A)(1) and (C).
15. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit to install where the permit to install application submitted by Appellee did not comply with the requirements set forth by Ohio Rev. Code 3734.02 and 3734.05 and the applicable rules and regulations.
16. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit to install where the permit to install application submitted by Appellee did not comply with the requirements set forth by Ohio Rev. Code 3734.02 and 3734.05 and the public notice/meeting requirements set forth therein (and the statutes' underlying policy), as the application was vague and incomplete, therefore depriving the public of a right to meaningful information, comment, and evaluation, especially in relation to compliance issues for a large portion of the landfill ("Phases II and III"), which were simply left to be determined at a later date.
17. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit where the permit to install application submitted by Appellee was not in detail sufficient to allow clear understanding for technical review or to assure that the landfill is designed and will be operated in accordance with Ohio Rev. Code Section 3734.02 and the applicable rules and regulations, including Ohio Admin. Code Chapters 3745-27, 3745-31, and 3745-37, including but not limited to Ohio Admin. Code Sections 3745-27-03(C), 3745-27-06(A)-(C), and

3745-31-05. The basis for Appellant's assertion that the Director acted unlawfully or unreasonably includes, but is not limited to, the following:

- a. the separatory liner system has not been utilized on a sanitary waste facility analogous to the size and non-uniform composition of the proposed landfill;
- b. there is inadequate discussion and calculation of the effects of settlement of the existing landfill material on the stability of the proposed vertical expansion, the separatory liner, or of the stability of landfill materials below the liner;
- c. the application does not provide adequate information and explanations verifying that the liner system will not be punctured via the settlement of the landfill onto the underlying well heads;
- d. there is no adequate characterization of the volume, rate of production, chemical constitution, or fate of leachate associated with the closed, unlined cells constituting the old landfill;
- e. the application appears to mischaracterize the current production of leachate and its release to the environment in relation to the old landfill;
- f. the application does not adequately discuss or explain ground water pathways associated with oil/gas wells under the vertical/horizontal expansion or provide adequate assurance that they have been or will be abandoned in a secure fashion;
- g. the discussion of geologic and ground water characteristics affecting the proposed vertical and horizontal expansion is inconsistent with existing regional characteristics, including characterization of a landfill site within ten miles of the existing landfill;
- h. the application is grossly inadequate in its provision of compilations of data and analysis for critical review of the ground water regime, both present and future, and therefore is inadequate in relation to design of an adequate monitoring system and estimation of the ground water regime post-expansion;
- i. the application's lithologic and geohydrologic descriptions are inadequate and contrary to known comparable regional characteristics;
- j. the application was prepared by a consultant whose past actions lead to questionable competency, as, from past actions, it appears: (1) the consultant's calculations were applied and performed incorrectly; (2) the consultant's methods of investigation were inadequate as to the intent of the application and were flawed in implementation; and (3) the consultant appears to persistently mischaracterize the geohydrologic properties of the

- lithologic sequences and to misidentify the uppermost aquifer and the associated zones of significant saturation;
- k. the application does not adequately discuss above-liner and below-liner gas monitoring at the landfill;
 - l. the application does not adequately explain the volatile organic compounds detected in ground water sources in proximity to the landfill;
 - m. the application mischaracterizes the lower permeability material that is to replace the sand lenses, as such material is not low permeability material by standard geologic practice and therefore will not be an effective barrier to inhibit ground water flow;
 - n. the application lacks an adequate disclosure statement of Appellee;
 - o. the application lacks the details required by Ohio Admin. Code Section 3745-27-06(B)(2)(a)(i–iii) requiring delineation of property lines, limits of solid waste placement, public roads, and occupied structures;
 - p. the application lacks the details required by Ohio Admin. Code Section 3745-27-06(C)(2)(c)(i) requiring a hydrogeology report discussing the consolidated and unconsolidated stratigraphic units from the ground surface to the aquifers under the landfill;
 - q. the application lacks the details required by Ohio Admin. Code Section 3745-27-06(C)(2)(c) regarding recharge and discharge areas and the presence of seeps/springs; and
 - r. the application lacks the details and assurances required in Ohio Admin. Code, Section 3745-31-05, generally requiring compliance with various anti-pollution criteria.
18. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing the permit in violation of, and without lawful waiver from, Ohio Admin. Code, Section 3745-27-07, which concerns criteria to be used by the Director, as the sections violated include, but are not limited to:
- a. Ohio Admin. Code Section 3745-27-07(A)(1), requiring that the landfill not violate Rev. Code Chapters 3704 or 6111;
 - b. Ohio Admin. Code Section 3745-27-07(A)(2), requiring that the landfill be capable of being operated, closed, and maintained during the post-closure care period in accordance with Ohio Admin. Code Chapter 3745-27;
 - c. Ohio Admin. Code Section 3745-27-07(A)(3), generally requiring assurance that the owner or operator has operated facilities in substantial compliance with Revised Code Chapters 3704, 3734, and 6111;

- d. Ohio Admin. Code Section 3745-27-07(A)(5), generally requiring assurance that the applicant exhibit reliability and competency;
 - e. The criteria set forth in Ohio Admin. Code Section 3745-27-07(B), generally requiring assurance of the technical ability of the owner or operator to adequately monitor the impact of the landfill on the environment;
 - f. The criteria set forth in Ohio Admin. Code Section 3745-27-07(B)(1), generally concerning corrective measures, as the Director acted unreasonably and unlawfully, and/or abused his discretion, in finding that the expansion will have no adverse effect on any corrective measure undertaken at the landfill; and
 - g. Ohio Admin. Code Section 3745-27-07(H)(3), because the application Appellee has not made the requisite five-year time of travel calculation set forth therein.
19. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing the permit in violation of, and without lawful waiver from, Ohio Admin. Code, Section 3745-27-10, which concerns ground water monitoring program for a sanitary landfill facility. The basis for Appellant's assertion that the Director acted unlawfully or unreasonably includes, but is not limited to, the following:
- a. the locations of the wells do not match with the anticipated water flow, seeps/springs will potentially impact surface water, there are water transmissive zones at the bedrock-regolith contact, adequate protective measures have not been taken in regards to already existing contamination, and the monitoring well locations are insufficient;
 - b. Ohio Admin. Code, Section 3745-27-10(B)(1)(a) is not satisfied, which generally requires that the ground water monitoring system consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples that represent the quality of the background water that has not been affected by past or present operations at the sanitary landfill facility;
 - c. Ohio Admin. Code, Section 3745-27-10(B)(1)(b) is not satisfied, which generally requires that the ground water monitoring system consist of a sufficient number of wells, installed at appropriate locations and depths, to yield ground water samples that represent the quality of the ground water passing directly downgradient of the limits of solid waste placement;
 - d. Ohio Admin. Code, Section 3745-27-10(B)(4)(a) is not satisfied, which generally requires that the location of proposed ground water monitoring wells be based upon sufficient site hydrogeologic information;

- e. Ohio Admin. Code, Section 3745-27-10(B)(4)(b) is not satisfied, which generally requires that the number, spacing and depths of the ground water monitoring wells shall be capable of detecting a release from the landfill to the ground water at the closest practicable location to the limits of the solid waste placement;
 - f. Ohio Admin. Code, Section 3745-27-10(E) is not satisfied, which generally requires a ground water quality assessment program for the landfill;
 - g. Ohio Admin. Code, Section 3745-27-10(E)(4) is not satisfied, which requires the installation of at least one additional monitoring well at the landfill boundary in the direction of downgradient water flow;
 - h. Ohio Admin. Code, Section 3745-27-10(E)(6) is not satisfied, which generally requires a schedule for implementation of at least one additional monitoring well at the facility boundary in the direction of the downgradient water flow.
20. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit where the permit to install application submitted by Appellee did not comply with Ohio Admin. Code, Section 3475-27-11(B), governing final closure of a sanitary landfill, as the application did not set forth plans for leachate, fire, and differential settlement for the majority of the landfill (“Phases II and III”).
21. The Director acted unlawfully or unreasonably, and abused his discretion, in issuing a permit where the Appellee has not complied with Ohio Admin. Code 3745-27-12.
22. The Director acted unlawfully or unreasonably, and abused his discretion, under Ohio Admin. Code, 3745-31-05(C) by disregarding the adverse social and economic impact from pollution that will arise from the proposed landfill expansion.
23. The Director acted unlawfully or unreasonably, and abused his discretion, by issuing the permit instead of utilizing his authority under Ohio Rev. Code 3734.041 to order the owner(s) and operator(s) of the landfill to abate and remediate the migration of landfill gas from the facility.
24. The Director acted unlawfully or unreasonably, and abused his discretion, by issuing the permit and in finding that the ground water impacted by constituents derived from solid-waste and/or hazardous waste, including but not limited to mine spoils, has not migrated beyond the facility boundary.
25. The Director acted unlawfully or unreasonably in issuing the permit to install given that Appellee had not addressed previous notices of deficiency provided by the Director in relation to the permit to install application.

26. Appellant hereby incorporates by reference all assignments of error raised by other appellants in relation to the permit.
27. Appellant reserves the right to support the assignments of error raised by any other appellant.

C. CAALE's Appeal of 2006 Air PTI

1. The Director of the Ohio Environmental Protection Agency erred and/or abused his discretion by granting a PTI for the American Landfill where American Landfill/Waste Management failed to satisfy the criteria under ORC §3745-31-05(A). In doing so, the Director acted unreasonably and unlawfully.
2. Specifically, the vertical and lateral expansion of the landfill will be in violation of applicable law as set forth in Appellants' companion appeal of the Solid Waste PTI for the American Landfill expansion. The Solid Waste PTI Appeal includes, but is not limited to, violations of
 - a. siting criteria,
 - b. location restrictions,
 - c. nuisance laws,
 - d. RCRA's imminent and substantial endangerment prohibition,
 - e. surface and groundwater pollution laws,
 - f. federal and state open dumping laws,
 - g. landfill gas migration laws.
3. Further, the proposed expanded American Landfill will not employ BAT or other requisite technology to eliminate and otherwise effectively control its release of landfill gas and other hazardous and/or noxious emissions throughout the sanitary landfill facility.
4. Moreover, the Director abused his discretion and/or acted unreasonably or unlawfully by failing to consider the social and economic impact of the air contaminants and/or water pollutants, and by failing to consider other adverse environmental impacts that may be a consequence of the issuance of the permit to install or plan approval.
5. In addition, the Director abused his discretion and/or acted unreasonably or unlawfully in granting this permit where the existing facility is already failing to control the release of landfill gas from its facility and allows the escape of such gas via subsurface migration and releases directly into the air.

6. The Appellants incorporate by reference the assignments of error raised by the Stark-Tuscarawas-Wayne Joint Solid Waste Management District in any appeal of this permit to install they may file.

D. STW's Appeal of 2006 Air PTI

1. The Director acted unlawfully or unreasonably, and abused his discretion, by granting a permit to install where Appellee failed to satisfy the criteria set forth in Ohio Admin.Code Section 3745-31-05.
2. The Director acted unlawfully or unreasonably, and abused his discretion, by granting a permit to install where the expanded landfill will not employ best available technology, or other requisite technology, to eliminate and effectively control its release of landfill gas and other hazardous and/or noxious emissions throughout the sanitary landfill facility.
3. The Director acted unlawfully or unreasonably, and abused his discretion, by failing to consider the social and economic impact of the air contaminants (including, but not limited to, odor) and/or water pollutants, and by failing to consider other adverse environmental impacts that may be a consequence of the issuance of the permit to install or plan approval.
4. The Director acted unlawfully or unreasonably, and abused his discretion, in granting a related permit to install a vertical and horizontal expansion of the landfill, as more fully set forth in Appellant's assignments set forth in contemporaneous notice of appeal, which are incorporated herein by reference.
5. The Director acted unlawfully or unreasonably, and abused his discretion, in granting the permit given that the existing facility is already failing to control the release of landfill gas from its facility and allows the escape of such gas via subsurface migration and releases directly into the air.
6. Appellant hereby incorporates by reference all assignments of error raised by other appellants in relation to the permit.
7. Appellant reserves the right to support the assignments of error raised by any other appellant.

E. CAALE's Appeal of 2006 ASD

1. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where American Landfill is causing, has caused, and will continue to cause the contamination of groundwater at and about the landfill, including the contamination detected in the 2006 monitoring event. The Director's action is unreasonable and unlawful.
2. The Director erred and/or abused his discretion in finding that American Landfill is not the source of the elevated levels of chemical constituents detected in the

2006 monitoring groundwater event. The Director's finding is unlawful and unreasonable.

3. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where American Landfill failed to properly demonstrate that either 'a source other than the sanitary landfill facility caused the contamination or that the statistically significant increase over background resulted from error in the sampling analysis, statistical evaluation, or natural variation in groundwater quality' as required by O.A.C. §3745-27-10(D)(7)(c)(ii). The Director's action is unreasonable and unlawful.
4. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where his action and American Landfill's underlying 'demonstration' is based on an incomplete and inaccurate depiction of the regional and local geology, hydrogeology, stratigraphy, geomorphology, recharge and discharge areas, groundwater flow characteristics, structural features, significant zones of saturation, fracturing and regional jointing patterns, uppermost aquifer system, and other subsurface characteristics. The Director's action is unreasonable and unlawful.

F. CAALE's Appeal of 2007 ASD

1. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where American Landfill is causing, has caused, and will continue to cause the contamination of groundwater at and about the landfill, including the contamination detected in the 2007 monitoring event. The Director's action is unreasonable and unlawful.
2. The Director erred and/or abused his discretion in finding that American Landfill is not the source of the elevated levels of chemical constituents detected in the 2007 monitoring groundwater event. The Director's finding is unlawful and unreasonable.
3. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where American Landfill failed to properly demonstrate that either 'a source other than the sanitary landfill facility caused the contamination or that the statistically significant increase over background resulted from error in the sampling analysis, statistical evaluation, or natural variation in groundwater quality' as required by O.A.C. §3745-27-10(D)(7)(c)(ii). The Director's action is unreasonable and unlawful.
4. The Director erred and/or abused his discretion by approving American Landfill's 'demonstration' where his action and American Landfill's underlying 'demonstration' is based on an incomplete and inaccurate depiction of the regional and local geology, hydrogeology, stratigraphy, geomorphology, recharge and discharge areas, groundwater flow characteristics, structural features, significant zones of saturation, fracturing and regional jointing patterns,

uppermost aquifer system, and other subsurface characteristics. The Director's action is unreasonable and unlawful.

G. The Commission's Consolidation of Appellants' Assignments of Error

{¶137} Appellants did not address these 131 assignments of error individually at the hearing. Instead, Appellants' arguments essentially fell within the following seventeen categories:

1. ALI did not substantially comply with applicable statutes and regulations, and/or has created a nuisance;
2. The 2006 air PTI does not require Best Available Technology ("BAT") with respect to air pollution control;
3. The ALI site has extensive fracturing;
4. ALI has contaminated the groundwater; therefore, its ASDs should not have been approved;
5. The engineering design for the geotextile filter does not adequately protect the leachate¹⁶ collection system;
6. The engineering design for the geotextile cushion does not adequately protect the leachate collection system;
7. The engineering design for the flexible membrane liner is inadequate to ensure that leachate will not contaminate the groundwater;
8. The engineering designs for the leachate collection pipes and/or risers are inadequate to ensure that leachate will not contaminate the groundwater;
9. The engineering design for the cap is inadequate to ensure that surface water will not infiltrate into the landfill;
10. The gas monitoring system is inadequate;
11. ALI did not provide adequate financial assurance for leachate outbreaks and for fires;

¹⁶ The Ohio Administrative Code defines leachate as "liquid that has come in contact with or been released from solid waste." Ohio Adm.Code 3745-27-01(L)(1).

12. The plans for removing the sand fingers associated with the 100 gpm aquifer do not provide sufficient details to ensure that their removal will adequately protect the aquifer;
13. The 2006 solid waste PTI misidentifies the PHL/BC formation as the UAS;
14. The 2006 solid waste PTI does not comply with the five-year time of travel requirement;
15. The 2006 solid waste PTI does not comply with the 200-foot surface water setback requirement;
16. The 2006 solid waste PTI does not comply with the 200-foot fault line setback requirement; and
17. ALI did not provide sufficient details regarding seeps/springs.

{¶38} At the hearing, Appellants did not address the various assignments of error that do not fall within these categories.

{¶39} The Commission finds that the assignments of error contained within Appellants’ six Notices of Appeal correspond to the seventeen categories of arguments advanced at hearing as follows:¹⁷

| Argument Advanced at Hearing | Corresponding CAALE Assignment(s) of Error | Corresponding STW Assignment(s) of Error |
|---|---|---|
| Substantial compliance/nuisance | SW: 1, 2, 3, 8, 9, 10, 11, 16a, 17f-g, 19, 22 Air: 1, 5 | SW: 1, 2, 3, 4, 5, 15, 17r, 18a-e Air: 1, 5 |
| BAT (air) | Air: 3 | Air: 2 |
| Fracturing | SW: 21, 27 | |
| ASDs and groundwater contamination | SW: 5, 23, 28, 29, 30, 31 06 ASD: 1, 2, 3, 4 07 ASD: 1, 2, 3, 4 | SW: 8, 9, 12, 17d-f, 17l, 18f, 19a, 24 |
| Geotextile filter | SW: 17c, 17e, 20 | SW: 17a |
| Geotextile cushion | SW: 17c, 17e, 20 | SW: 17a |
| Flexible membrane liner | SW: 17b, 17c, 17e, 20 | SW: 17a, 17b, 17c, 17d |
| Leachate collection pipes/risers | SW: 17c, 17e, 18 | SW: 17d |
| Cap design | SW: 17c, 17e | |
| Gas monitoring system | SW: 14, 32 | SW: 17k, 21, 23 |
| Financial assurance | | SW: 20 |
| 100 gpm aquifer | SW: 13, 15, 17d | SW: 11a-b, 17m |
| UAS designation | SW: 15, 16c, 17a, 17d, 21 | SW: 17g-j, 17p, 19a-h |
| 5-year time of travel | SW: 24 | SW: 18g |
| 200 ft. surface water setback requirement | SW: 12 | SW: 10 |
| Fault lines/site stability | SW: 25, 26 | |
| Seeps/springs | | 17q, 19a |

¹⁷ “SW” refers to Appellants’ appeal of the 2006 solid waste PTI
“Air” refers to Appellants’ appeal of the 2006 air PTI
“06 ASD” refers to Appellants’ appeal of the 2006 ASD
“07 ASD” refers to Appellants’ appeal of the 2007 ASD

{¶40} In addition, the Commission also finds that the remaining assignments of error, which Appellants did not address at the hearing, fall within the following nine categories:

| Argument | Corresponding CAALE Assignment(s) of Error | Corresponding STW Assignment(s) of Error |
|--|---|---|
| Social/economic impact; disparate impact | SW: 4, 35 Air: 4 | SW: 22 Air: 3 |
| RCRA citizens' suit | SW: 6 | SW: 13 |
| Generalized vagueness (public notice/comment deficiencies) | SW: 34 | SW: 16 |
| Open Dumping | SW: 7 | SW: 14 |
| Disclosure statement | SW: 16b | SW: 17n |
| Unlawful delegation | SW: 33 | SW: 7 |
| Prior NODs not addressed | SW: 36 | SW: 25 |
| Advance permitting | | SW: 6 |
| Delineation of property lines, etc. | | SW: 17o |

{¶41} Finally, several assignments of error simply incorporated assignments of error raised in other appeals by reference.¹⁸

¹⁸ CAALE SW: 37

STW SW: 26, 27

CAALE Air: 2, 6

STW Air: 4, 6, 7

H. ALI's Motions for Partial Summary Judgment and Motion to Dismiss

{¶42} On November 14, 2006, ALI filed two Motions for Partial Summary Judgment. ALI sought summary judgment on CAALE's second, fourth, and fifth assignments of error in its appeal of the 2006 air PTI; STW's third, fourth, and fifth assignments of error in its appeal of the 2006 air PTI; CAALE's thirty-fifth assignment of error in its appeal of the 2006 solid waste PTI; and STW's twenty-second assignment of error in its appeal of the 2006 solid waste PTI.

{¶43} On December 6, 2006, ALI filed a Motion to Dismiss CAALE's sixth assignment of error in its appeal of the 2006 solid waste PTI and STW's thirteenth assignment of error in its appeal of the 2006 solid waste PTI.

{¶44} On August 29, 2007, the Commission granted ALI's motions with respect to all of the relevant assignments of error except CAALE's fifth assignment of error in its appeal of the 2006 air PTI and STW's fifth assignment of error in its appeal of the 2006 air PTI. As the Commission's ruling indicated, a discussion of these issues is included below.

VI. WITNESSES

{¶45} At hearing, thirteen witnesses testified during Appellants' case in chief. Ten witnesses testified during Appellees' case in chief. The Commission will briefly identify each of the witnesses in order of appearance.

A. Appellants' Witnesses

i. Jill VanVoorhis

{¶46} Jill VanVoorhis is a founding member of CAALE and resides near the ALI facility. Testimony VanVoorhis.

ii. Virginia Wilson

{¶47} Virginia Wilson was an Environmental Specialist 2 in the Solid Waste Division at Ohio EPA at the time the Director issued the 2006 Expansion PTIs and was assigned to review ALI's solid waste permit application. Ms. Wilson is currently a Supervisor in Ohio EPA's Division of Surface Water. Appellants called Ms. Wilson as an adverse witness. Testimony Wilson.

iii. Lindsay Taliaferro

{¶48} Lindsay Taliaferro is a Geologic Program Manager at Ohio EPA's Division of Drinking and Groundwater ("DDGW"). Among other duties, Mr. Taliaferro supervises the Solid Waste Technical Assistance Unit, which provides technical assistance to solid waste districts regarding drinking and groundwater issues. Appellants called Mr. Taliaferro as an adverse witness. Testimony Taliaferro.

iv. Vivian Baier

{¶49} Vivian Baier is also a founding member of CAALE and resides near the ALI facility. Testimony Baier.

v. Doug Dobransky

{¶50} Doug Dobransky, a hydrogeologist in Ohio EPA's DDGW, assisted in reviewing ALI's permit applications. Appellants called Mr. Dobransky as an adverse witness. Testimony Dobransky.

vi. Daniel Fisher

{¶51} Daniel Fisher is a professional geologist with the Michael Baker Corporation. Mr. Fisher received a Bachelor of Science in geology from West Virginia University in 1983 and a Master of Science in geology from Kent State University in 1986. Appellants called Mr. Fisher as an expert witness, and the Commission accepted

Mr. Fisher as an expert in the areas of geology, hydrogeology, and aqueous chemistry.
Testimony Fisher.

vii. Robert Galbraith

{¶52} Robert Galbraith is a retired professional geologist, who continues to offer geologic consulting services on a part-time basis. Mr. Galbraith received a Bachelor of Science in geology from the University of Cincinnati in 1966 and a Master of Science in geology from the University of Cincinnati in 1968. Appellants called Mr. Galbraith as an expert witness, and the Commission accepted him as an expert in the areas of geology, hydrogeology, fluid flow through multiple media, fractured aquifer systems, and groundwater contamination investigation. CAALE Exhibit 160; Testimony Galbraith.

viii. John Barone

{¶53} John Barone is a professional geologist. Mr. Barone received a Bachelor of Science in geology from the University of Delaware and a Master of Science in geology from the University of Delaware. Appellants called Mr. Barone as an expert witness, and the Commission accepted him as an expert in the areas of geology, hydrogeology, engineering geology, engineering hydrogeology, physical geology, and physical hydrogeology. Testimony Barone.

ix. Carl Van Jeffreys

{¶54} Carl Van Jeffreys, a licensed engineer and geologist, is a project manager for the Michael Baker Corporation. Mr. Jeffreys received a Bachelor of Science in geology from the University of Pittsburgh in 1982 and a Master of Engineering in civil engineering from the University of Pittsburgh in 1986. Appellants called Mr. Van

Jeffreys as an expert witness, and the Commission accepted him as an expert in the area of engineering. Testimony Van Jeffreys.

x. David Held

{¶155} David Held is the Executive Director of STW. Testimony Held.

xi. Jeffrey Martin

{¶156} Jeffrey Martin is an Environmental Specialist 2 with Ohio EPA's Division of Emergency and Remedial Response ("DERR"). Appellants called Mr. Martin as an adverse witness. Testimony Martin.

xii. Ronald Gortner

{¶157} Ronald Gortner is a Supervisor at Ohio EPA. Mr. Gortner oversaw compliance monitoring and enforcement actions in the Division of Solid Waste until 2009. Appellants called Mr. Gortner as an adverse witness. Testimony Gortner.

xiii. James Walker

{¶158} James Walker is a civil engineer with the Cornerstone Environmental Group. At the hearing, Appellants proffered portions of the deposition testimony of Mr. Walker. Testimony Walker.

B. Appellees' Witnesses

i. Mohammed Ali

{¶159} Mohammed Ali is an Engineering Manager with Waste Management and is also the primary engineer for the ALI facility. Appellees offered Mr. Ali is an expert witness in the areas of "design, construction, maintenance, functioning, closure and post-closure care of municipal waste landfills and landfill cells, as well as the application of Ohio's solid waste requirements to such facilities." Although he testified at the hearing, the Commission declined to accept Mr. Ali as an expert because it was unclear

whether he had been properly disclosed as an expert witness prior to his pre-hearing deposition. Testimony Ali.

ii. Allan Razem

{¶60} Allan Razem is a professional geologist with Eagon, and prepared ALI's responses to the hydrogeologic portions of Ohio EPA's NODs. Appellees called Mr. Razem as an expert witness, and the Commission accepted him as an expert in the areas of geology and hydrogeology, including the following sub-disciplines: consolidated and unconsolidated groundwater flow systems; groundwater modeling; aqueous chemistry and geochemistry, including leachate and landfill gas impacts to groundwater; statistical analyses of groundwater data; groundwater flow path and contaminant migration; landfill gas migration and the impacts upon subsurface water; the application of Ohio EPA's solid waste rules to the development of solid waste permits to install; the design of groundwater monitoring systems; and hydrogeological reports for groundwater monitoring systems, including semiannual groundwater monitoring reports, and alternate source demonstrations. Testimony Razem.

iii. Doug Dobransky

{¶61} As noted above, Doug Dobransky is a hydrogeologist in Ohio EPA's DDGW, who assisted in reviewing ALI's permit applications. Appellees called Mr. Dobransky as an expert witness, and the Commission accepted him as an expert in the areas of geology and hydrogeology as they relate to ALI's PTI application. The Commission also acknowledged Mr. Dobransky's expertise in the application of Ohio EPA regulations to solid waste permits. Testimony Dobransky.

iv. James Walker

{¶62} As noted above, James Walker is a civil engineer with Cornerstone Environmental Group. Mr. Walker received a Bachelor of Science in civil engineering from the University of Michigan in 1976. Appellees called Mr. Walker as an expert witness, and the Commission accepted him as an expert in the areas of engineering; design; construction of municipal solid waste landfills, including its related reports and demonstrations required by the permitting regulations in Ohio; and the application of Ohio EPA rules and regulations to municipal solid waste landfills, including closure and post-closure care. Testimony Walker.

v. Virginia Wilson

{¶63} As noted above, Virginia Wilson was an Environmental Specialist 2 in the Solid Waste Division at Ohio EPA at the time the Director issued the 2006 Expansion PTIs. Ms. Wilson is currently a Supervisor in Ohio EPA's Division of Surface Water. Testimony Wilson.

vi. Peter Carey

{¶64} Peter Carey is a professional engineer. Mr. Carey received a Bachelor of Science in civil engineering from Rensselaer Polytechnic Institute in 1974 and a Master of Science in civil engineering from the University of Connecticut in 1977. Appellees called Mr. Carey as an expert witness, and the Commission accepted him as an expert in the areas of geotechnical engineering, the pertinent Ohio regulations as applied to geotechnical engineering, and the design and engineering of landfill components and plans. Testimony Carey.

vii. Karen Naples

{¶65} Karen Naples is an Environmental Specialist 2 with the Division of Solid and Infectious Waste Management at Ohio EPA's Northwest District Office. Ms. Naples assisted in the review of ALI's solid waste PTI applications. Testimony Naples.

viii. Sharon Gbur

{¶66} Sharon Gbur is the Assistant Chief of the Division of Solid and Infectious Waste Management at Ohio EPA. Ms. Gbur assisted in the review of ALI's solid waste PTI applications. Testimony Gbur.

ix. Michael Hopkins

{¶67} Michael Hopkins is the Assistant Chief of the Permitting section within Ohio EPA's Division of Air Pollution Control. Mr. Hopkins assisted in the review of ALI's air PTI application. Testimony Hopkins.

x. Kyle Nay

{¶68} Kyle Nay, a civil engineer, is currently a Senior Project Manager for Cornerstone Environmental Group. From 2004 to 2006, Mr. Nay was a Senior Project Manager at Shaw Environmental, Inc., whom ALI hired to assist with air compliance. Appellees called Mr. Nay as an expert witness, and the Commission accepted him as an expert in the areas of air permitting and compliance at landfills. ALI Exhibit 307; Testimony Nay.

VII. SUMMARY OF TESTIMONY

{¶69} The Commission will now discuss the seventeen categories of arguments raised at the hearing, as well as the nine categories of assignments of error not addressed at the hearing.

A. Substantial Compliance and/or Nuisance

{¶70} Appellants argue that the Director erred by issuing the 2006 Expansion PTIs because ALI was not in substantial compliance with the applicable permits, statutes, and regulations.

{¶71} Revised Code 3734.44 provides:

[N]o permit or license shall be issued or renewed by the director of environmental protection or a board of health:

* * *

(D) Unless the director or the board of health finds that the applicant * * * is presently in *substantial compliance with*, or on a legally enforceable schedule that will result in compliance with, environmental laws in this state and other jurisdictions;

(Emphasis added).

{¶72} Further, Ohio Adm.Code 3745-27-07(A)(3) provides:

(A) The director shall not approve any permit to install application for a sanitary landfill facility unless the director determines * * *

(3) The applicant * * * has managed or operated such facility in *substantial compliance* with applicable provisions of Chapters 3704., 3734., 3714., and 6111 of the Revised Code, and any rules, permits or other authorizations issued thereunder, * * *

(Emphasis added).

{¶73} In support of their argument that ALI was not in substantial compliance, Appellants point to an internal Ohio EPA email sent on July 17, 2006, by Sharon Gbur, Assistant Chief of the Division of Solid and Infectious Waste Management. The email,

sent three days before the Director issued the 2006 Expansion PTIs, states, “[t]he facility is not in substantial compliance due to the acceptance of hazardous waste at the facility.” STW Exhibit 117; Testimony Gbur.

{¶74} Appellants also argue that ALI was not in substantial compliance because the landfill was causing a nuisance. On Appellants’ behalf, Ms. VanVoorhis and Ms. Baier each testified as to the disruptive odors around the ALI facility. Ms. VanVoorhis described the odor as, at times, rising to a “strong chemical odor” and stated that it had sometimes given her headaches and caused her family to stay indoors. Similarly, Ms. Baier described the odor as “a chemical odor” and stated that it has caused her family to stay indoors. Testimony VanVoorhis, Baier.

{¶75} In response, ALI argues that any violations that may have occurred at the facility were not “substantial.” On behalf of the Director, Ms. Gbur testified that while Ohio EPA was aware of some past violations, the Agency did not have significant compliance concerns at the time the Director issued the 2006 Expansion PTIs. Further, while Ms. Gbur could not recall whether the hazardous waste issue she raised in her July 17, 2006 email had been resolved prior to the issuance of the 2006 Expansion PTIs, she stated that it would have been uncommon for the Director to issue permits against her recommendation. And finally, with respect to the nuisance claim, Mr. Nay, whom ALI hired as an air compliance consultant during the permitting process, noted that some odors are normal in association with landfills, and that no inspector, including the Stark County Health Department inspector, had identified the ALI facility as a nuisance. Testimony Gbur, Nay.

B. Best Available Technology (Air)

{¶76} Appellants also argue that the Director erred in issuing the 2006 air PTI because the PTI fails to require the use of Best Available Technology (“BAT”) to control air pollution.

{¶77} The then-applicable version Ohio Adm.Code 3745-31-05(A)(3) provided:¹⁹

(A) The director shall issue a permit to install, on the basis of the information appearing in the application, or information gathered by or furnished to the Ohio environmental protection agency, or both, if he determines that the installation or modification and operation of the air contaminant source will:

* * *

(3) Employ the best available technology * * *

Ohio Adm.Code 3745-31-01(T) defined BAT as follows:

(T) “Best available technology (BAT)” means any combination of work practices, raw material specifications, throughput limitations, source design characteristics, an evaluation of the annualized cost per ton of air pollutant removed, and air pollution control devices * * *

{¶78} At the hearing, Appellants did not offer a specific theory as to what control measures or limitations the Director could have or should have required as BAT. Instead, Appellants implicitly argue that because the odors at the ALI facility constitute a nuisance, ALI is therefore not employing BAT to control air pollution.

{¶79} Appellees argue that the ALI facility employs BAT to control air pollution. Specifically, Mr. Nay testified that ALI’s air pollution control system consists of two main components: (1) a gas collection and treatment system, and (2) an

¹⁹ Minor changes to Ohio Adm.Code 3745-31-05 became effective on June 30, 2008. The provision now applies to both PTIs and PTIOs and abbreviates “best available technology” as “BAT.”

emergency flare. The gas collection system uses a series of gas extraction wells to collect gas from the waste cells. The gas is then routed to a treatment facility where it is filtered, compressed, and chilled before being piped into the natural gas grid. The flare system serves as a backup for unplanned outages of the gas collection system and is used very infrequently. Finally, the ALI facility also uses a misting system, which sprays an odor-capturing substance near the perimeter of the facility. Testimony Hopkins, Nay.

C. Fracturing

{¶80} As both a separate assignment of error and in relation to several others, Appellants argue that the rock underlying the ALI facility is significantly fractured. Fractures are cracks in the rock that allow water to move more quickly than would otherwise be possible through stratigraphic formations, thereby increasing the risk of groundwater contamination. The larger and more abundant a fracture system, the more easily water can move between stratigraphic layers. Although no rule specifically prohibits siting a landfill facility above fractures, Ohio Adm.Code 3745-27-06(C)(3)(d)(iii) and (C)(3)(f)(ii)(d)(v) require solid waste PTI applications to include adequate information about fracturing to allow the Director to fully assess the risk of groundwater contamination and to ensure protection of groundwater. Appellants argue that ALI's 2005 PTI Application did not satisfy the requirements of these rules because it did not accurately characterize the extent of fracturing below the ALI facility. Testimony Dobransky.

{¶81} In support of their argument that significant fracture systems exist below the ALI facility, Appellants first point to ALI's drilling logs. The placement of

groundwater monitoring and gas extraction wells, as well as numerous test borings,²⁰ necessitated a considerable amount of drilling at the ALI site.²¹ Details of each drilling event are kept in drilling logs. Mr. Galbraith testified on Appellants' behalf that a number of these drilling logs note the presence of fractures and iron oxide and limonite staining. Mr. Galbraith explained that iron oxide and limonite staining indicate fast moving water, which in turn indicates fractures. Testimony Galbraith.

{¶82} Mr. Galbraith further testified that a number of drilling logs indicate low recovery percentage. Recovery percentage refers to the amount of rock that is recovered in large, identifiable pieces. During the drilling process, some rock is recovered in large pieces, while other rock is effectively lost when it is ground into small pieces or dust. Mr. Galbraith explained that low recovery percentage indicates brittle rock, which in turn suggests the presence of fractures. Testimony Galbraith.

{¶83} In addition to the drilling logs, Appellants also point to two drawdown tests involving the HSS-4 groundwater monitoring well, located in the Homewood Shale and Sandstone ("HSS") formation. A drawdown test is designed to determine whether one geologic formation is hydraulically connected to another (e.g., whether water can move freely between the PHL/BC, Kittanning Sandstone, and Clarion Shale ("Clarion," "CS," or "CL") formations). To do this, water is pumped out of a well in the lower

²⁰ Test borings are drilled to assist the landfill owner and operator with the characterization of the site's underlying hydrogeology. *See* Testimony Razem.

²¹ Mr. Galbraith described three types of drilling used at the ALI site: (1) air rotary, which is most prevalent at the site; (2) hollow stem auger; and (3) core. The air rotary method involves using a rotating drill bit to drill the hole, with an air stream forcing pulverized material up to the surface between the drill shaft and the wall of the hole. The hollow stem auger method uses a rotating screw to carry material up to the surface. And the core method, unlike both the air rotary and hollow stem auger methods, is able to recover an intact cylinder of material that is useful for identifying stratigraphic features. Testimony Galbraith.

geologic formation while observing any changes to the water level in wells placed in one or more of the upper geologic formations. Testimony Razem.

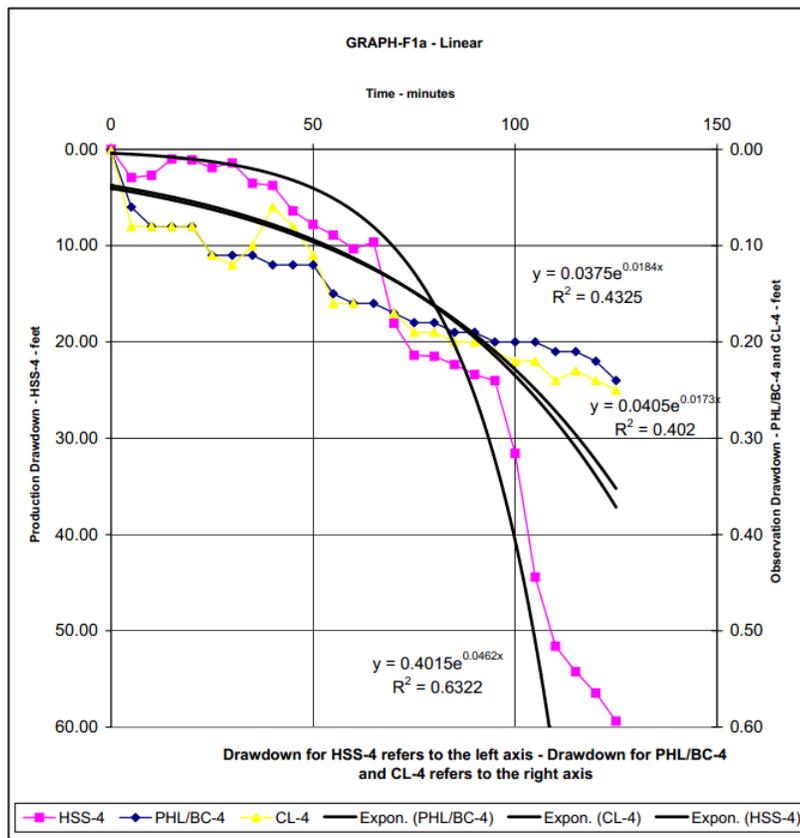
{¶84} Two drawdown tests were conducted using the HSS-4 well as the pumping well. The first test, conducted in 1998, showed 0.25 feet of drawdown in the CS formation²² well after 59.38 feet of water had been pumped out of the HSS-4 well. A second test, conducted on January 17, 2005, and incorporated into the 2005 PTI Application, showed only 0.02 feet of drawdown in the CS formation well after 15.98 feet of water had been drawn from the HSS-4 well. STW Exhibits 30 and 31.

{¶85} Believing that the 0.25 feet of drawdown observed during the 1998 test was significant, Mr. Barone testified that ALI should not have discounted the 1998 test, even after the retest in 2005. Testimony Barone.

{¶86} Mr. Galbraith also explained that it is important to graph drawdown against time for the upper and lower formations in order to compare their shape. At hearing, Mr. Galbraith presented several figures depicting drawdown versus time, such as the one below:

²² Although the parties disagree as to what extent the Kittanning Sandstone formation may or may not be integrated with the CS, all parties agree that some relationship exists. Appellants argue that the sandstone is “mixed” with the shale, creating one continuous shale/sandstone formation. Conversely, Appellees argue that the sandstone is not simply “mixed” with the shale, but rather, the CS contains distinct sandstone “lenses,” which are hydraulically isolated from each other by areas of shale.

GRAPH-F1: HSS-4 - Step-Rate Test with PHL/BC-4 and CL-4



STW Exhibit 68; Testimony Barone.

{¶87} Mr. Barone compared the shape of the drawdown versus time graphs from the 1998 test and concluded that the CS formation and the HSS formation showed “nearly identical” drawdown patterns.²³ Mr. Barone opined that this, combined with the 0.25 feet drawdown figure, indicates the presence of fractures. Testimony Barone; STW Exhibit 68.

{¶88} Rebutting Appellants’ contention that extensive fracturing impacts water flow at and around the ALI site, Mr. Razem explained that iron oxide and limonite

²³ The Commission notes that the scale for HSS-4 drawdown differs from the scale for CS-4 and PHL/BC-4 drawdown. STW Exhibit 68.

staining notations in the drilling logs merely indicate the presence of water and do not indicate its speed. Mr. Razem also explained that low recovery percentage is not necessarily indicative of fracturing. And finally, Mr. Dobransky explained that the magnitude of the drawdown observed in the CS formation during the 1998 HSS-4 drawdown test is relatively small as compared to the amount of water pumped out of the HSS formation, which suggests that significant fractures are not present at the ALI site. Testimony Razem, Dobransky.

{¶89} Moreover, Mr. Razem explained that variability of water level elevations²⁴ within a given geologic formation suggests that significant fracturing is not present. Mr. Razem testified that if significant fracturing was present, water level elevations observed in monitoring wells throughout a given geologic formation would be relatively consistent. At the ALI site, water level elevations vary greatly from one well to another, indicating that water is not flowing freely within the various stratigraphic formations. For example, the water level elevations observed in the CS wells vary from a low of 982.30 feet (above sea level) in the CL-1 well to a high of 1130.57 feet in the CL-7 well. Mr. Razem explained that this disparity in water levels across the site indicates that significant fracturing is not present at the ALI site. Testimony Razem; CR Item 2.

²⁴ “Water level elevation” refers to the depth at which water can be found within a particular well. Testimony Razem.

D. Alternate Source Determinations and Groundwater Contamination

{¶90} ALI submitted two ASDs in which it stated that the observed statistically significant increases were caused, not by leachate,²⁵ but by brine associated with the oil and gas extraction activities that had occurred at the site prior to 1975. Appellants argue that the Director erred in accepting the 2006 and 2007 ASDs and in issuing the 2006 solid waste PTI because leachate released from ALI's landfill is contaminating the groundwater at and near ALI's facility. ALI Exhibits 7 and 13.

{¶91} As an initial matter, Appellants argue the Director should have applied a "compelling conclusive" standard of review when determining whether to accept the ASDs. On cross examination, Mr. Martin, Environmental Specialist 2, DERR, testified as follows:

Q. Wouldn't you agree that the standard for making an alternate source demonstration requires compelling conclusive evidence of an alternate source?

* * *

A. Yes, I would say that is true, and that depends on the -- the particular situation, the site, the circumstances, and also the groundwater reviewers - - you know, there's *professional judgment* involved in these things. It's not necessarily a bright line.

Q. But you would agree that given the exercise of judgment, there is a standard that there should be compelling, conclusive evidence of an alternate source?

A. Yes.

(Emphasis added).

²⁵ See note 16, *supra*.

{¶92} Regarding the substance of information contained in the ASDs, Appellants argue that ALI's data is misleading. Specifically, Appellants question ALI's comparison of bromide/chloride ratios. The ASDs describe the importance of bromide/chloride ratios as follows:

Bromide is documented to occur at high concentrations in brine samples from oil and gas wells. * * * [Data found for brine in Stark County] indicates that brine contains highly elevated concentrations of bromide, chloride, and sodium and typically has a bromide: chloride ratio of 0.01.

* * *

[Other publications] report bromide/chloride ratios in ground water impacted by oilfield brine can range from 0.004 to 0.03 for samples with chloride concentrations greater than 10 mg/L. The publications * * * show significant deviations from expected bromide/chloride ratios for brine impacted wells in samples with chloride concentrations less than 10 mg/L. Therefore, it is difficult to establish that a well is impacted by oilfield brine if the well has a chloride concentration less than 10 mg/L.

ALI Exhibits 7 and 13.

{¶93} Bromide/chloride ratios can aid in determining whether observed statistically significant increases are caused by oilfield brine. ALI collected samples from the monitoring wells that had shown statistically significant increases and calculated their bromide/chloride ratios. The data contained in the ASDs demonstrates that all but three wells showing statistically significant increases had a bromide/chloride ratio between 0.004 and 0.03. And further, two of the three wells with a bromide/chloride ratio outside of that range also had chloride concentrations of 10 mg/L or less. Only one well fell both outside of the relevant range and had a chloride concentration greater than 10 mg/L. The ASDs concluded that these bromide/chloride ratios, along with several other factors, demonstrated that the observed statistical significant increases were not a result of leachate exiting the landfill, but rather were caused by brine associated with the

oil and gas exploration and extraction activities that had occurred at the ALI facility in the 1960s and early 1970s. ALI Exhibits 7 and 13.

{¶94} Appellants argue that the bromide/chloride ratio data is inconclusive because of its high degree of variability. On behalf of Appellants, Mr. Fisher testified that he calculated the standard deviation²⁶ for the observed bromide/chloride ratios,²⁷ and explained that because the standard deviation is very large, it is impossible to determine with any certainty whether the observed ratios are actually “about 0.01” as ALI had claimed in its ASDs. Accordingly, Appellants argue that the Director should not have accepted ALI’s ASDs. Testimony Fisher.

{¶95} Appellants also argue that data compiled by their experts supports the conclusion that leachate from ALI’s facility is contaminating area groundwater. First, Mr. Fisher plotted data for a number of ion ratios (other than bromide/chloride). At hearing, Mr. Fisher focused on two of these graphs: (1) SO_4/HCO_3 Alkalinity Ratio vs. Chloride and (2) SO_4/HCO_3 Alkalinity Ratio vs. Sodium. Testimony Fisher; STW Exhibit 6.

²⁶ Standard deviation is a measure of variability. Approximately two-thirds of the data points should fall within one standard deviation of the mean. Approximately 95% should fall within two standard deviations. Testimony Fisher.

Critically, however, standard deviation applies only to normally distributed data, while other measures of variability apply to non-normal data. Normal distribution is a probability density function often associated with the “bell-shaped curve.” The Commission notes that concentrations, and therefore the ratio of concentrations, cannot be negative. With relatively small concentrations and ratios at issue here, it appears somewhat unclear whether the data is normally distributed, as Mr. Fisher had testified. *Cf.* Testimony Fisher.

²⁷ The Commission notes that Mr. Fisher based his standard deviation calculations on data contained in ALI’s 2005 PTI Application. The data supporting the 2005 PTI Application was collected in June 2003; the data upon which the ASDs are based, however, was collected in April 2006. Testimony Fisher; STW Exhibit 31; ALI Exhibits 7 and 13.

{¶96} On both graphs, Mr. Fisher plotted data from brine, groundwater monitoring wells at the ALI site, residential wells in the area surrounding the landfill, leachate from the ALI facility, and leachate from other landfills, as well as points for rainwater and seawater. Mr. Fisher explained that some of the residential wells plotted near ALI leachate points on the graphs, and therefore the residential wells had likely been contaminated by leachate from the ALI landfill. Mr. Fisher also highlighted that all the leachate data points plotted below a line drawn between the rainwater and seawater data points. This, Mr. Fisher testified, meant that any point falling below the rainwater/seawater line indicates leachate contamination, rather than brine contamination.²⁸ Mr. Fisher concluded that because most of the wells plot below the rainwater/seawater line, ALI leachate is likely the source of contamination. Testimony Fisher; STW Exhibit 6.

{¶97} In support of his conclusion that ALI is the source of the groundwater contamination identified in the ASDs, Mr. Fisher also cited a three-dimensional alkalinity model. He explained that high alkalinity is associated with leachate. And because the model indicates that the highest concentrations of alkalinity exist directly below the limits of waste placement at the ALI site, he concluded ALI is the likely source of groundwater contamination. Although the model indicates that alkalinity actually increases with depth (i.e., the lowest alkalinity levels were the nearest to the bottom of the waste), Mr. Fisher testified that this is consistent with leachate contamination. He

²⁸ The Commission notes that on both of the graphs, samples of brine from Stark County plot both above *and* below the rainwater/seawater line. STW Exhibit 6.

explained that mine spoil²⁹ is acidic and thus functions to neutralize and mask alkalinity levels at shallow depths.³⁰ Testimony Fisher; STW Exhibits 109 and 110.

{¶98} Further, Appellants argue that “gradients” point to the ALI facility as the source of groundwater contamination. Gradients are contour lines drawn to represent lines of equal water level elevations, with water essentially flowing from high to low elevations. On Appellants’ behalf, Mr. Galbraith used water level data from the groundwater monitoring wells at the ALI site to draw gradients in the various geologic formations. Mr. Galbraith testified that the gradients show water flowing outwardly from the ALI facility, suggesting that leachate from the landfill is the source of any contamination. Testimony Galbraith; CAALE Exhibits 176, 177, and 178.

{¶99} And finally, Appellants argue that the presence of fractures under and near the ALI facility has contributed to groundwater contamination.

{¶100} Although Appellees did not respond directly to Appellants’ argument regarding the variability of the observed bromide/chloride ratios, the ASDs explain the import of large difference in concentrations as follows:

Large differences in concentrations of bromide and chloride are indicative of the spatial variability in ground-water quality in this unit and suggest different brine sources and suggest different brine sources and mixing relationships with natural ground water in many of the site monitoring wells.

ALI Exhibits 7 and 13.

{¶101} Moreover, as noted above, the ASDs state, “it is difficult to establish that a well is impacted by oilfield brine if the well has a chloride concentration less than 10

²⁹ As shown in Part III, *supra*, mine spoil is located primarily at shallow depths. ALI Exhibit 79-43.

³⁰ “Alkalinity” is a term that refers to the ability of a solution to neutralize acids.

mg/L.” Thus, two of the three data points that do not fall within the 0.004 to 0.03 range are potentially explained by low chloride concentration. ALI Exhibits 7 and 13.

{¶102} Appellees also argue that Appellants’ selection of data is misleading. As to Mr. Fisher’s graphs, Appellees argue that Mr. Fisher simply selected the particular graphs that best supported his conclusion while ignoring others. Mr. Razem explained that it is important to consider all ions, as well as physical pathways for groundwater movement. Mr. Razem testified that neither Mr. Fisher’s selection of graphs nor his conclusions are supported by any physical explanation and that his reliance on sodium and alkalinity, in particular, are not warranted because other sources of sodium and alkalinity exist at the ALI site. Testimony Razem.

{¶103} Regarding the three-dimensional alkalinity model, Mr. Razem testified that it is normal for alkalinity to increase with depth because water naturally picks up minerals from the rock as it moves downward. Mr. Razem explained any neutralizing effect that mine spoil might have would be relatively small in magnitude compared to increases caused by leachate contamination and therefore could not mask leachate alkalinity as Mr. Fisher suggested. In support, Mr. Razem cited data from LKC-6, which had earlier been contaminated by leachate (and was not included in either ASD at issue). Mr. Razem stated that LKC-6 showed increased, rather than decreased, alkalinity in the mine spoil after leachate contamination. Thus, because the Mr. Fisher’s model shows the lowest alkalinity levels nearest to the landfill, Mr. Razem concluded that it does not support Appellants’ theory that landfill leachate is contaminating the groundwater. Testimony Razem.

{¶104} Addressing “gradients,” Appellees assert that the contour lines drawn by Mr. Galbraith are inaccurate and are inconsistent with themselves because the stated water levels do not match at a number of intersection points. Testimony Razem.

{¶105} And finally, Appellees argue that factors other than the bromide/chloride ratios support the conclusion that brine is the source of the observed statistically significant increases. In particular, Appellees point to volatile organic compounds (“VOCs”), ammonia, and the Piper and Stiff Diagrams included with its ASDs. Both Mr. Razem and Mr. Dobransky explained that elevated VOCs and ammonia levels are good indicators of leachate contamination. Mr. Razem also explained that LKC-6, which had earlier been contaminated by leachate, showed both elevated VOCs and ammonia levels. The wells relevant to the ASDs at issue, however, showed neither elevated VOCs nor elevated ammonia.³¹ This, Mr. Razem and Mr. Dobransky suggested, supports the conclusion that the relevant wells had not been contaminated by leachate. Testimony Razem, Dobransky; CR Item 2.

{¶106} Piper and Stiff Diagrams are methods of visualizing “major ions.” Such ions are called “major” because, in sum, they constitute approximately 100% of the ions present in solution. Piper Diagrams can depict changes in major ions on a single chart, whereas Stiff Diagrams use several depictions to show such changes over time. Significantly, Piper and Stiff Diagrams are distinct from both the bromide/chloride ratio and Mr. Fisher’s graphs because Piper and Stiff Diagrams are capable of considering more than two ion constituents simultaneously. Testimony Razem.

³¹ One well, AMW-16, did show elevated ammonia but not elevated VOCs. ALI Exhibits 7 and 13.

{¶107} Mr. Razem and Mr. Dobransky explained that the Piper and Stiff Diagrams included in the ASDs compare the chemical composition in the wells that had shown statistically significant increases to leachate samples and demonstrate that the chemical composition was not trending toward leachate. Mr. Razem and Mr. Dobransky then compared the diagrams in the ASDs to the Piper and Stiff Diagrams for LKC-6, which showed that the chemical composition of the well was trending towards leachate over time. Both witnesses concluded that these diagrams, along with the other factors, demonstrate that the observed statistically significant increases were caused by oilfield brine rather than by leachate. Testimony Razem, Dobransky; ALI Exhibits 7, 13, 79-1, and 79-2.

E. Geotextile Filter Design

{¶108} Appellants' concerns about the geotextile filter, the geotextile cushion, and the flexible membrane liner all relate to the various liner systems at the ALI facility. Two broad categories of liner systems were approved in the 2006 solid waste PTI: (1) a base liner system, which lines the bottom of the landfill in the areas of horizontal expansion; and (2) a separatory liner system, which separates new waste from existing waste in the areas of vertical expansion. Testimony Ali, Walker.

{¶109} The base liner system begins with the selection of waste to be placed immediately above the liner system itself. Some waste components are more likely than others to damage or clog the liner system. And thus, a "select waste layer," which places restrictions on the type of waste placed near the liner, helps to protect the liner system. Testimony Walker.

{¶110} Just below the select waste layer rests a geotextile filter. The geotextile filter is made from felt-like material and functions to keep particles of waste from entering the layers beneath it. Testimony Ali, Walker; ALI Exhibit 284.

{¶111} Below the geotextile filter is the leachate collection system. A minimum of fifteen inches of granular drainage material funnels leachate directly into the leachate collection pipes embedded within the drainage material. A leachate collection pipe is a perforated polyvinyl chloride (“PVC”) pipe that carries leachate to leachate storage tanks for further treatment. Surrounding the pipe is select aggregate stone, which protects the pipe and prevents the granular drainage material from infiltrating the pipe’s perforations. Testimony Ali, Walker; ALI Exhibit 284.

{¶112} Below the granular drainage material and leachate collection system is a geotextile cushion. The cushion is made from the same geotextile material as the filter. As permitted, the geotextile cushion must have a minimum thickness of six ounces per square yard. The cushion serves to protect the flexible membrane liner below. Testimony Ali, Walker; ALI Exhibit 284.

{¶113} The flexible membrane liner is made from high density polyethylene (“HDPE”) and is essentially an impermeable plastic layer. The flexible membrane liner prevents leachate from escaping through the bottom of the waste cell and infiltrating the soil below. Testimony Ali, Walker; ALI Exhibit 284.

{¶114} Below the flexible membrane liner is a geosynthetic clay liner, which is made from a low permeability clay material similar to cat litter and functions to slow seepage of any leachate that may escape beyond the flexible membrane liner. And finally, below the geosynthetic clay liner is either three feet or five feet of recompacted soil liner, depending on location. Testimony Ali, Walker; ALI Exhibit 284.

{¶115} Similar to the base liner, the separatory liner system begins with a select waste layer above a geotextile filter and has a minimum of 15 inches of granular drainage material with leachate collection pipes embedded within. Like the base liner, the granular drainage material is followed by a six ounce per square yard geotextile cushion and flexible membrane liner.³² Unlike the base liner, however, the separatory liner consists of only two feet of recompact soil liner, followed by twelve inches of soil subbase material. Below this is the existing waste upon which the separatory liner is constructed. Testimony Ali, Walker; ALI Exhibit 284.

{¶116} Appellants argue that the geotextile filter will not survive the construction and installation process. Appellants further reason that if the filter does not survive, the leachate collection pipes could become clogged,³³ leading to a buildup of leachate within the waste cell, which, in turn, could lead to increased risk of groundwater and/or air contamination. Testimony Jeffreys.

{¶117} In support of their argument that the geotextile filter will not survive construction, Appellants point to geotextile specifications prepared by the Geosynthetic Research Institute (“GRI”). On Appellants’ behalf, Mr. Jeffreys testified that the 2005 PTI Application contained insufficient data to determine if the geotextile filter met the strength requirements contained in the GRI specifications. This, Mr. Jeffreys concluded, means that there is a danger that the material could tear during construction and installation, thereby reducing the filter’s efficacy and leading to clogging of the leachate collection pipes. Testimony Jeffreys; STW Exhibit 80.

³² The separatory liner uses linear low density polyethylene (“LLDPE”) rather than HDPE.

³³ Ohio Adm.Code 3745-27-08(D)(14)(b) requires that filter layers be designed to minimize clogging.

{¶118} Appellees contend that the GRI specification does not apply to landfill construction. Specifically, GRI specification section 1.1 defines its scope as follows: “[T]his specification covers geotextile test methods [and] properties for subsequent use as separation between subgrade soil and aggregate predominantly *in pavement systems*.” STW Exhibit 80 (emphasis added). On Appellees’ behalf, Mr. Walker testified that the GRI specification applies only to roadway construction and is not widely accepted in the landfill construction industry. Testimony Walker.

{¶119} Further, Mr. Walker opined that applicable Ohio EPA regulations do not require a specific demonstration that the filter material will survive installation and noted that restrictions on the select waste layer help to minimize any risk of clogging. Finally, Ms. Wilson also noted that some experts in the landfill industry believe that filters are not a necessary component of a liner system. Thus, even if the filter did not survive, there would not necessarily be an increased risk of clogging. Testimony Walker, Wilson.

F. Geotextile Cushion Design

{¶120} Regarding the geotextile cushion, Appellants advance essentially the same argument they do with respect to the geotextile filter.³⁴ Again, Appellants argue that the geotextile cushion may not survive construction and installation of the landfill expansion because it may not meet the GRI specifications. Testimony Jeffreys.

{¶121} Similarly, Appellees respond that the GRI specification only applies to pavement systems and ALI was not required to affirmatively demonstrate that the

³⁴ In fact, it appears that Appellants do not distinguish between filtration and cushioning. Mr. Jeffreys appears to have referred to both the filter and cushion as “geotextile separation layers,” as that term is used in the GRI specification. See Testimony Jeffreys; STW Exhibit 80.

material would survive. Rather, ALI argues that it was only required to demonstrate that the liner system would satisfy Ohio's regulatory requirements regarding landfill construction. Further, Mr. Walker explained that as constructed, ALI actually uses a twelve ounce per square yard cushion rather than the six ounce per square yard cushion required by the permit. And finally, Mr. Walker explained that flexible membrane liner below the cushion serves to provide some protection against abrasion and tearing. Testimony Walker.

G. Flexible Membrane Liner Design

{¶122} Appellants argue that the flexible membrane liner will not have a lifespan sufficient to protect groundwater from leachate contamination. Specifically, Appellants argue that (1) the practice of leachate recirculation will lead to increased temperatures, thereby reducing the lifespan of the liner; (2) hydrostatic lift will reduce the lifespan of the liner; and (3) the liner could be punctured by existing gas extraction wells as the waste settles.

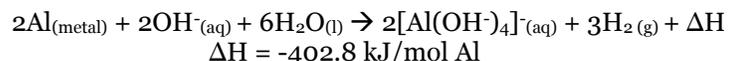
{¶123} Leachate recirculation is the process of applying leachate, recovered through the leachate collection system, to the waste cells. Leachate recirculation reduces landfill gas generation, stabilizes the waste, and promotes faster decomposition. In the past, ALI injected leachate into the waste cells; currently, ALI only sprays leachate on the working surface of the waste. Testimony Ali.

{¶124} Appellants theorize that the recirculated leachate reacts with aluminum dross³⁵ that may be present in the waste, resulting in production of heat and elevated temperatures. Appellants cite a series of studies conducted by George Koerner³⁶ that conclude elevated temperatures reduce the lifespan of the flexible membrane liner. And because the flexible membrane liner serves as an impermeable layer to prevent leachate from escaping the waste cell, Appellants argue that this will lead to an increased risk of groundwater contamination. Testimony Gortner, Jeffreys; STW Exhibit 87.

{¶125} Appellants also argue that hydrostatic lift³⁷ will reduce the lifespan of the liner. At hearing, Appellants offered no explanation as to what type of damage might occur as a result of hydrostatic lift. Nonetheless, on Appellants' behalf, Mr. Jeffreys testified that portions of the facility are subject to hydrostatic lift. Testimony Jeffreys.

{¶126} And finally, with respect to the existing gas extraction wells, Appellants argue that the flexible membrane liner in the separatory liner system could be punctured as a result of settlement. "Settlement," and specifically "primary settlement," is described as follows:

³⁵ Aluminum dross is a byproduct of aluminum refining activities. It can react with alkaline liquid (pH ≥ 8) present in landfills as follows:



Calder and Stark, *Aluminum Reactions and Problems in Municipal Solid Waste Landfills*, 14 PRACTICE PER. OF HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE MANAGEMENT 258 (2010).

³⁶ Mr. Koerner is a professional engineer and professor at Drexel University. Mr. Koerner also founded GRI. Testimony Jeffreys; STW Exhibit 88.

³⁷ "Hydrostatic lift" refers to pressure on the base liner system caused by the presence of groundwater beneath the landfill facility. See CAALE Exhibit 12.

The reduction in volume of a soil mass caused by the application of a sustained load to the mass and due principally to a squeezing out of water from the void spaces of the mass and accompanied by a transfer of the load from the soil water to the soil solids.

CAALE Exhibit 12. In other words, settlement refers the continual compression of existing waste as new waste is added above.

{¶127} The parties do not dispute that ALI conducted a settlement analysis and incorporated that analysis into the landfill's design. Appellants argue, however, that ALI's settlement analysis is flawed and that the waste is likely to settle more than ALI predicts. Specifically, Appellants argue that ALI's settlement analysis is flawed because it fails to account for the weight of leachate present in the existing waste that will cause additional settlement beyond what ALI predicts. In support of their assertion, Appellants point to data noting the presence of liquid in a number of gas extraction wells. Because the gas extraction wells are placed in the waste cells, Appellants argue that the presence of liquid in numerous gas extraction wells indicates widespread presence of leachate. Testimony Galbraith; CAALE Exhibit 175.

{¶128} Appellees respond that Appellants' produced little support for the assertion that leachate recirculation—and in particular the spray application that ALI now uses—leads to increased temperatures. Although aluminum dross can react and produce heat, Appellees explain that it is a very rare phenomenon and is not normally expected to occur at landfills. Further, Appellees criticize Mr. Koerner's studies on the effects of increased temperature, noting that his experiments did not realistically mimic actual landfill conditions. Testimony Walker, Carey.

{¶129} Regarding hydrostatic lift, Appellees respond that the facility is designed to control and manage hydrostatic lift. Further, the Commission notes that although an

Ohio EPA guidance document regarding stability analysis does explain that hydrostatic lift can damage liner systems, the document appears to reference damage to the recompacted soil layer beneath the flexible membrane liner rather than damage to the flexible membrane liner itself. Testimony Ali, Walker, Wilson; CAALE Exhibit 12.

{¶130} And finally, Appellees' dispute Appellants' contentions that liquid in existing gas extraction wells demonstrates presence of leachate and that existing gas extraction wells will puncture the flexible membrane liner. On Appellees' behalf, Mr. Carey and Mr. Razem explained that liquid in gas extraction wells does not necessarily indicate that the waste surrounding those wells is saturated with leachate. Mr. Carey and Mr. Razem explained that liquid can collect in gas extraction wells as a result of "perch zones" and gas condensation. "Perch zones" are localized areas in which liquid can easily flow and funnel liquid to gas wells. Because the permeability of the waste surrounding the gas wells is lowest at greater depths,³⁸ liquid entering the well through perch zones near the top of the well may not be able to escape through the bottom, leading to a buildup of liquid within the well. Gas can also condense within a well as it cools, contributing further to liquid buildup. Testimony Carey, Razem, Walker; ALI Exhibit 290.

{¶131} Further, Mr. Carey and Mr. Ali testified that the vertical gas extraction wells are removed from the existing waste cells and replaced with horizontal wells prior to the installation of the separatory liner system. Thus, even if the waste settles more than expected, there is minimal risk of puncture. Testimony Carey, Ali.

³⁸ The weight of the waste above compresses the waste below, thereby creating a situation where waste density increases and permeability decreases with depth. Testimony Carey.

H. Leachate Collection Pipe and Riser Design

{¶132} Appellants argue that because the 2006 solid waste PTI does not contain specifications regarding the strength of pipe to be installed, the Director lacked a valid factual foundation to conclude that any elevated temperatures caused by leachate recirculation would not weaken, crush, or otherwise render the leachate collection pipes ineffective. Appellants also argue that if the leachate collection pipes and/or risers are crushed, leachate could not be recovered from that area, potentially leading to a buildup of excess leachate. Testimony Jeffreys.

{¶133} Appellees respond that although the 2006 solid waste PTI does not contain specifications as to pipe strength, certain construction requirements are necessarily implied. On Appellees' behalf, Mr. Walker explained that the construction specifications indicate the use of HDPE, which implies a particular strength grade known as PE3408, which is standard in landfill construction. Moreover, Mr. Walker stated that, as with the geotextile cushion, the ALI landfill is actually constructed using higher grade material than required by the permit. As constructed, the ALI landfill installs 80 PVC pipe, which is stronger than PE3408 pipe. Finally, Mr. Walker testified that even if elevated temperature conditions exist at the ALI facility,³⁹ the recompacted soil layer, which is a part of both the base liner and separatory liner systems, will aid in cooling the area around the leachate collection pipes and risers. Testimony Walker.

I. Cap Design

{¶134} Appellants' final challenge to ALI's engineering design is that the 2006 solid waste PTI fails to ensure sufficient cap stability. A cap is placed over a landfill

³⁹ As discussed above, Mr. Walker testified that he does not expect elevated temperature conditions to exist at the ALI facility. Testimony Walker.

facility when the facility is closed and serves to ensure that rainwater does not infiltrate the waste below. Primarily, Appellants challenge ALI's cap design because it failed to include specifications regarding permeability of soil in the soil cover layer component of the cap. Appellants argue that without such specifications, it is impossible to ensure that the cap will not become unstable and fail, thereby exposing the waste and allowing water to infiltrate. STW Exhibit 79.

{¶135} In response, Appellees argue that the 2006 solid waste PTI effectively contains a soil permeability of 1×10^{-5} cm/s. Mr. Walker explained that although the PTI specifications do not contain a specific number, it will be clear to construction personnel to cross-reference the calculations that underlie the specifications, which specify the 1×10^{-5} cm/s figure. Further, Mr. Walker testified that the applicable regulations do not require inclusion of a specific permeability figure. Testimony Walker.

{¶136} Moreover, Appellees argue that other factors used to calculate cap stability are also reasonable. For example, Appellees argue that the figures used for the cohesion value and shear strength of waste are reasonable. Testimony Wilson.

J. Gas Monitoring System

{¶137} Appellants argue that ALI's gas monitoring system is insufficient. Although several assignments of error challenge the location of the various gas wells, Appellants neither made assertions at the hearing that one or more gas wells is improperly placed, nor indicated where additional wells should be placed. Instead, Appellants argue that the gas monitoring system is inadequate because it is not operating as efficiently as designed. *See* Case File Items A; Testimony Nay, Ali.

{¶138} Specifically, Appellants argue that liquid in the gas extraction wells is preventing the wells from capturing gas as effectively as designed. In its calculations for

the 2005 PTI Application, ALI used a gas collection system capture efficiency value of 75%. This value was based on information contained in AP-42, rather than on site-specific data.⁴⁰ During cross examination of Mr. Ali and Mr. Nay, however, Appellants suggested that existing data demonstrates that ALI's gas extraction system is not actually operating at this AP-42 assumed value.⁴¹ Further, on cross examination, Mr. Ali and Mr. Nay admitted that liquid in the gas extraction wells could reduce their efficacy. Testimony Ali, Nay; STW Exhibits 118; CAALE Exhibit 175.

{¶139} Appellants also point to a fire that broke out while workers were installing a liner at the ALI facility. ALI's logs note that the fire was caused by methane. Thus, Appellants reason, ALI's gas collection system must not be collecting gas at a sufficient rate. Testimony Ali; CAALE Exhibit 106.

{¶140} In response, Mr. Ali stated that when significant liquid buildup occurs in the gas extraction wells, the liquid is simply pumped out. Thus, the gas collection system's capture efficiency is not significantly reduced as a result of liquid buildup. Testimony Ali.

{¶141} Further Mr. Ali explained that the log's notation about a methane fire is simply incorrect. Instead, Mr. Ali testified that the fire was actually caused when a welding machine set fire to the liner itself. Testimony Ali.

K. Financial Assurance

{¶142} Appellants argue that ALI's closure and financial assurance plans are insufficient. In particular, Appellants are concerned that the plans do not include line

⁴⁰ AP-42 is a United States EPA publication containing emissions factors for a variety of air contaminant sources, including landfills. STW Exhibit 118.

⁴¹ It does not appear that Appellants introduced this data as an exhibit.

item estimates for remediation of leachate outbreaks and “fires.”⁴² Further, on Appellants’ behalf, Mr. Held, Executive Director of STW, explained that if ALI did not have the funds available to manage such occurrences, the substantial financial burden would fall on STW. Thus, Appellants argue that it was unreasonable for the Director to issue the 2006 solid waste PTI without sufficient assurance that ALI could cover the cost of such events. Testimony Held.

{¶143} On cross examination, Ms. Wilson acknowledged that ALI’s closure and financial assurance plans lack line item estimates for the cost of remediating leachate outbreaks, above and below the surface, or for fires. Nonetheless, Appellees contend that these particular line items are not necessary. Ms. Wilson explained that the synthetic cap eliminates much of the risk of above ground leachate seeps and any underground leachate outbreaks can be addressed as a “corrective action.” Ms. Wilson also explained that landfill fires are very rare. Testimony Wilson.

{¶144} Moreover, Ms. Wilson explained that while financial assurance plans serve the purpose of planning for unexpected future events, landfill operators are required to consider only reasonable contingencies rather than every conceivable catastrophe. Testimony Wilson.

{¶145} And finally, Appellees note that financial assurance plans must be updated annually. Thus, if conditions arose that suggested an increased risk of leachate outbreaks or fire, ALI would be required to revise its plans. Testimony Wilson.

⁴² It appears that Appellants use the term “fire” in reference to an aluminum dross reaction. See note 35, *supra*.

L. 100 GPM Aquifer

{¶146} Appellants argue that the Director erred in granting ALI's exemption request because ALI's plans to remove the sand fingers potentially connected to the 100 gpm aquifer on the west side of the facility are insufficient to protect groundwater.

{¶147} Ohio Adm.Code 3745-27-07(H)(2)(d) provides:

The sanitary landfill facility is not located above an unconsolidated aquifer system capable of sustaining a yield of one hundred gpm for a twenty-four-hour period to an existing or future water supply well located within one thousand feet of the limits of the solid waste placement of the sanitary landfill facility.

{¶148} Appellants argue that a 100 gpm aquifer exists on the east side of the facility, and offer two separate theories as to why the removal of the sand fingers on the west side of the facility is unreasonable and unlawful. First, Appellants argue that the regulation does not allow a facility to "engineer around" the underlying hydrogeology. Instead of removing the sand fingers, Appellants argue that ALI should have modified the limits of waste placement. And second, Appellants argue that the 2005 PTI Application contained insufficient detail to ensure that, even after removal of the sand fingers, the facility would not be hydraulically connected to the 100 gpm aquifer. Testimony Taliaferro, Barone.

{¶149} In support of the argument that the regulation precludes a landfill facility from altering the underlying hydrogeology to meet the regulations, Appellants offer the following cross examination from Mr. Taliaferro, Geologic Program Manager, Ohio EPA DDGW:

Q: * * * As a general principle, you would agree that for landfill siting, you shouldn't engineer your way around bad geology; is that correct?

A: Correct.

Q: And that an applicant should start with a good site and engineer to make it better, would you agree with that statement?

A: Correct.

Testimony Taliaferro.

{¶150} In support of the argument that the 2005 PTI Application contains insufficient detail to ensure that the removal of the sand fingers will isolate the 100 gpm aquifer from the landfill, Mr. Barone, Appellants' expert witness, opined that ALI's plans do not rise to the level of a "conceptual design," which usually contain at least sketches and some description of the materials to be used. Mr. Barone further opined that engineers would not ordinarily approve even conceptual designs. Instead, Mr. Barone believes that engineers would only approve plans that rise to the level of a "final design."

Testimony Barone.

{¶151} Finally, as to the east-side 100 gpm aquifer that Appellants allege exists, Appellants refer to an ODNR map, which appears to show the Little Sandy Creek aquifer near the limits of waste placement on the east side of the facility. Testimony Fisher; STW Exhibit 110A.

{¶152} In response, ALI initially clarifies that the sand fingers may or may not be hydraulically connected to the west side 100 gpm aquifer at all. First, sand fingers ordinarily have low permeability and low yield. Additionally, Mr. Razem explained that it is difficult to obtain reliable permeability data for geologic materials existing below landfill waste. But in the absence of conclusive evidence otherwise, as a protective measure, ALI assumed that the sand fingers are connected to the 100 gpm aquifer.

Thus, Appellees point out that removing the sand fingers is a “solution” to a problem that may not definitively exist at the site. Testimony Razem.

{¶153} Moreover, Appellees note that although the 2005 PTI Application does not contain detailed information regarding removal of the sand fingers, ALI’s exemption request and corresponding response to Ohio EPA’s NOD does. In particular, ALI’s exemption request states that the material replacing the sand fingers will have a “maximum permeability of 1×10^{-6} cm/sec” and refers to the corresponding engineering drawing. CR Items 11, 14.

{¶154} Finally, ALI drilled borings and placed a test well to determine whether or not a 100 gpm aquifer exists on the east side of the facility. Mr. Razem explained that the test well location was chosen because of the relatively high permeability of the rock for that particular location. In other words, the location ALI chose for the test well was the location it determined would be the most likely to produce a 100 gpm yield. As neither the borings nor test well produced a 100 gpm yield, Appellees argue that the Director could reasonably conclude that a 100 gpm aquifer does not exist on the east side of the ALI facility. Testimony Razem.

M. Uppermost Aquifer System Designation

{¶155} Ohio Adm.Code 3745-27-07(H)(2)(e) contains the following siting requirement:

The isolation distance between the uppermost aquifer system and the bottom of the recompacted soil liner of a sanitary landfill facility is not less than fifteen feet of in-situ or added geologic material constructed in accordance with rule 3745-27-08.

{¶156} Appellants argue that the Director did not have a valid factual foundation to approve the re-designation of the Putnam Hill Limestone/Brookville Clay

(“PHL/BC”) formation as the UAS in the 2006 solid waste PTI. Previous PTIs designated a higher formation, known as Kittanning Sandstone (“KS”) as the UAS. This re-designation is significant because, as provided for in the 2006 solid waste PTI, the bottom of the landfill is within fifteen feet of the KS formation, but not within fifteen feet of the PHL/BC formation. Thus, if the KS formation, rather than the PHL/BC formation, is the true UAS, the 2006 solid waste PTI would not satisfy the requirements of Ohio Adm.Code 3745-27-07(H)(2)(e).

¶157 In support of their contention that the KS formation is the true UAS, Appellants advance essentially five lines of argument: (1) an aquifer system includes all formations that are potentially hydraulically connected, regardless of the degree or magnitude of connectivity; (2) ALI incorrectly calculated the yield for the KS and PHL/BC formations and the correct yield data compels the conclusion that the KS formation is the UAS; (3) the KS formation is not sufficiently isolated from the PHL/BC formation; (4) ALI incorrectly characterized the permeability of the KS and PHL/BC formations; and (5) the KS formation is, in fact, a continuous formation rather than a series of discontinuous sand “lenses” as ALI concluded in the 2005 PTI Application.

i. Definition of Aquifer System

¶158 Ohio Adm.Code 3745-27-01(A)(8) defines “aquifer system” as follows:

“Aquifer system” means one or more geological unit(s) or formation(s) that is/are wholly or partially saturated with water and is/are able to store, transmit, and yield significant amounts of water to wells or springs.

¶159 Appellants argue that where any potential hydraulic connectivity exists between otherwise distinct geologic formations, the formations should be treated as part of a single aquifer system. Thus, Appellants argue that even if a series of formations is only partially saturated (i.e., where there are both saturated and unsaturated zones),

they can effectively function as a single unit. Accordingly, Appellants argue that together, the KS and PHL/BC formations are partially saturated⁴³ and are therefore part of the same aquifer system. Further, as discussed in detail below, Appellants assert that data supports the conclusion that at least some level of water transmission can occur between the KS and PHL/BC formations. Thus, Appellants believe that the KS and PHL/BC formations should be considered as a single aquifer system rather than as separate units. Testimony Fisher, Galbraith, Barone.

{¶160} Appellees respond that only *significant* potential connectivity is relevant to determining whether multiple formations should be treated as a single aquifer system. Mr. Taliaferro explained that although unsaturated zones can be capable of transmitting water, Ohio EPA looks to which formations are capable of functioning together as a single cohesive hydrogeologic unit to determine what constitutes an aquifer system. Testimony Taliaferro.

{¶161} Mr. Razem further explained that all geologic units—from the surface to the center of the earth—are potentially hydraulically connected to some degree. Thus, it would be impractical to define aquifer system as any set of formations that are potentially hydraulically connected, regardless of the degree or magnitude of such potential connection. Testimony Razem.

ii. Yield

{¶162} Although the Ohio Administrative Code does not elaborate on the phrase “yield significant amounts of water” for purposes of defining an aquifer system, Ohio

⁴³ ALI’s 2005 PTI Application identified the KS formation as a “significant zone of saturation.” STW Exhibit 31.

EPA promulgated guidance document DDAGW-02-05-100 in 1997, which explains the agency's interpretation. It provides in pertinent part:

The phrase 'yield significant amounts of water' means any yield greater than one-tenth (0.1) of a gallon per minute measured as a time weighted average over a twenty-four (24) hour period except where the yield of the unit being examined is less than three (3) gallons per minute by greater than one-tenth (0.1) of a gallon per minute, in which case the significant yield is equal to or greater than fifty (50%) percent of the yield of another zone of saturation under the property, which is the likely source of water used for potable purposes within one mile of the facility.

STW Exhibit 61.

{¶163} Thus, significant yield means a yield greater than 0.1 gpm, except in situations where the "regional aquifer" concept applies. Testimony Taliaferro.

{¶164} Mr. Taliaferro explained that Ohio EPA created the regional aquifer concept to acknowledge that the goal of a drinking water well is to produce the greatest yield of water at the lowest cost. Drilling cost increases substantially with depth. And thus, even where a deeper aquifer has a greater yield than a shallower one, a driller may nonetheless choose to tap the shallow aquifer if the yield is sufficiently high. Pursuant to guidance document DDAGW-02-05-100, Ohio EPA specifies that this is likely to occur when the shallow aquifer has at least 50% of the yield of the deeper one. Testimony Taliaferro.

{¶165} To illustrate this concept, the Commission sets out the following hypothetical:

Where a shallow aquifer yields 0.5 gpm and a deep aquifer yields 0.9 gpm, the shallow aquifer is deemed to have significant yield. Conversely, if the shallow aquifer yields 0.5 gpm and the deep aquifer yields 1.1 gpm, the shallow aquifer is deemed *not* to yield significant amounts of water, *even though its yield is greater than 0.1 gpm.*

See Testimony Taliaferro.

{¶166} Application of the regional aquifer concept, however, has its limits. Specifically, at yields of greater than 3 gpm, Ohio EPA has determined that drillers are likely to tap the shallow aquifer, regardless of whether a deeper aquifer yields more than twice that amount. Testimony Taliaferro.

{¶167} Again, to illustrate the concept, the Commission sets out an additional hypothetical scenario:

Where a shallow aquifer yields 3.5 gpm and a deep aquifer yields 10 gpm, the shallow aquifer has “significant yield” *even though it yields less than 50% of the deeper aquifer.*

See Testimony Taliaferro.

{¶168} In its 2005 PTI Application, ALI stated that the average yield for the KS formation was 0.97 gpm and the average yield for the PHL/BC formation 5.2 gpm. Thus, the KS formation had an average yield of greater than 0.1 gpm and would have ordinarily satisfied the “significant yield” portion of the aquifer system definition. In this instance, however, the regional aquifer concept applied because the PHL/BC formation yielded more than twice as much as the KS formation and the KS formation’s average yield was less than 3 gpm. Accordingly, ALI determined that the KS formation did not meet the definition of an aquifer system. STW Exhibit 31.

{¶169} Notably, Appellants challenge the 0.97 gpm and 5.2 gpm average yield figures. First, Appellants argue that ALI erred in selecting the wells used to compute these average yields. The 2005 PTI Application shows that, when computing the average yield for the PHL/BC formation, ALI included three wells identified in Ohio Department of Natural Resources (“ODNR”) logs in addition to wells drilled by Eagon and Earth Sciences as part of the hydrogeologic investigations. The 2005 PTI Application also shows that other ODNR wells were excluded from these calculations. STW Exhibit 31.

{¶170} Several other ODNR wells identified in the 2005 PTI Application were located, at least in part, either in the PHL/BC formation or the Clarion formation,⁴⁴ yet neither the additional PHL/BC wells⁴⁵ nor the Clarion formation well⁴⁶ were included in the yield computation. Appellants argue that ALI should have either excluded the three PHL/BC ODNR wells that were part of the 2005 PTI Application⁴⁷ or included all of the ODNR wells, including the Clarion ODNR well. Appellants assert that if ALI had included the Clarion ODNR well, the average yield for the Clarion formation would have been 4.15 gpm, which is both greater than 3 gpm and greater than 50% of the stated 5.2 gpm for the PHL/BC formation. Accordingly, the regional aquifer concept would not have applied, and the Clarion formation would have met the definition of an aquifer system. Testimony Barone; STW Exhibit 73.

{¶171} Second, Appellants also point to a 1989 test boring, TB-117, to show that the regional aquifer concept should not have applied to the Clarion formation. The boring log for TB-117 notes that at a depth of 53 feet, which corresponds to Clarion Shale, the driller collected a water sample and noted a yield of 50 gpm. Appellants argue that ALI should have included this 50 gpm figure in its yield calculation for the Clarion formation. If ALI had included the 50 gpm figure, the average yield for the Clarion

⁴⁴ See Findings of Fact, Part III, *supra*.

⁴⁵ Specifically, Map Numbers 12, WS-1, WS-2, and WS-3 state that they draw water, in part, from the PHL/BC formation. STW Exhibits 31, 71, and 72.

⁴⁶ Specifically, Map Number 22 states it draws water from the Clarion formation. STW Exhibits 31 and 73.

Also, see note 22, *supra*.

⁴⁷ The Commission notes that even the exclusion of the three PHL/BC ODNR wells would result in an average yield figure of 2.1, which is still more than twice the stated 0.97 gpm yield figure for the KS formation.

formation would have been 9.15 gpm, which is again both greater than 3 gpm and greater than 50% of the stated 5.2 gpm for the PHL/BC formation. Accordingly, the regional aquifer concept would not have applied, and the Clarion formation would have met the definition of an aquifer system. Testimony Barone; STW Exhibit 69.

{¶172} Appellees respond that the determination of whether to include or exclude a well from the calculation was dependent on whether Appellees could precisely determine from which formation the well drew its water. On Appellees' behalf, Mr. Razem explained that some ODNR wells were capable of drawing water from multiple formations and thus were not helpful to characterize the yield of any individual formation. Regarding the well known as the Clarion ODNR well, Mr. Razem testified that Clarion Shale does not exist at that specific location. Mr. Razem explained that subsequent wells drilled near that location do not show the presence of Clarion Shale and that the Clarion ODNR drilling log also shows other inconsistencies when compared to the subsequent wells drilled in the area. Accordingly, Mr. Razem believes that the "Clarion" notation either represents "erosional remnants" of the Clarion Shale or is simply an error by the driller. Testimony Razem.

{¶173} With respect to TB-117, Appellees respond that, just as with other decisions to exclude certain yield data, ALI chose to exclude this particular data point because it was unclear from which formation the water was coming. Mr. Razem explained that TB-117 drew water from multiple formations; thus the 50 gpm figure may not have represented water from the Clarion formation. Further, Mr. Razem explained that the 50 gpm figure was much higher than any other yield figure for the Clarion formation. Therefore, ALI treated it as an outlier. And finally, Mr. Razem testified that TB-117 has been re-drilled twice since the 1989 test (as AMW-9 and AMW-9A), and

neither of the subsequent logs noted such high yield data. Testimony Razem; STW Exhibits 69 and 70.

iii. Vertical Isolation

{¶174} As discussed above, multiple geologic formations can be considered part of the same aquifer system. Although the parties disagree as to whether the degree and magnitude of connection is relevant, they agree that vertical isolation tests—which demonstrate whether two or more geologic formations are hydraulically connected—can help to delineate the extent of an aquifer system *See* Testimony Barone, Razem.

{¶175} To characterize the hydrogeology at the site, ALI conducted numerous vertical isolation tests. In such tests, water is pumped from a lower geologic formation while the water level in one or more higher geologic formations is observed. If the higher geologic formation is hydraulically connected to the lower formation, some reduction in water level, known as “drawdown,” is expected. Testimony Razem.

{¶176} The 2005 PTI Application contains the following data:

| Pumping Well | Duration (min) | Maximum Drawdown in Pumping Well (ft.) | Observation Well⁴⁸ | Maximum Drawdown in Observation Well (ft.) |
|---------------------|-----------------------|---|--------------------------------------|---|
| PHL/BC-2 | 40 | 60.73 | CL-2 | 0.01 |
| HSS-3 | 40 | 69.52 | PHL/BC-3 CL-3 | 0.01 0.01 |
| PHL/BC-3 | 120 | 48.3 | CL-3 | 0.01 |
| HSS-4 | 120 | 15.98 | PHL/BC-4 CL-4 AMW-5 | 0.00 0.02 0.00 |
| PHL/BC-4 | 15 | 33.41 | CL-4 AMW-5 | 0.01 0.00 |
| CL-4 | 29 | 32.05 | AMW-5 | 0.00 |
| HSS-5 | 29 | 30.68 | PHL/BC-5 CL-5 | 0.00 0.00 |
| PHL/BC-5 | 10 | 36.28 | CL-5 | 0.00 |
| HSS-7 | 60 | 76 | PHL/BC-7 CL-7 TMW-6 | 0.00 0.00 0.00 |
| PHL/BC-7 | 90 | 2.64 | CL-7 TMW-6 | 0.11 0.04 |
| CL-7 | 90 | 20.96 | TMW-6 | 0.02 |
| PHL/BC-8 | 240 | 10.41 | CL-8 | 0.0 |
| CL-8 | 10 | 17.05 | TMW-1 | 0.03 |
| HSS-9 | 75 | 30.37 | PHL/BC-9 CL-9 | 0.00 0.02 |
| PHL/BC-9 | 200 | 1.41 | CL-9 | 0.23 |
| HSS-10 | 30 | 37.55 | PHL/BC-10 CL-10 AMW-10 | 0.00 0.06 0.00 |
| PHL/BC-10 | 35 | 20.78 | CL-10 AMW-10 | 0.01 0.00 |
| CL-10 | 35 | 41.89 | AMW-10 | 0.01 |

STW Exhibit 31.

⁴⁸ The AMW and TMW series of wells are placed within KS formation.

{¶177} This table represents data from tests submitted with the original 1999 PTI Application, as well as re-test data for HSS-4, PHL/BC-8, and PHL/BC-9. The re-test did not result in a change for PHL/BC-9, but the 1999 tests of HSS-4 and PHL/BC-8 showed 0.25 and 0.68 feet of drawdown in the Clarion formation (CL)⁴⁹ as compared with 0.00 and 0.02 feet in the 2005 re-tests, respectively. Based in part on this data, ALI concludes that no significant hydraulic connection exists between the PHL/BC formation and the CL formation. STW Exhibit 31.

{¶178} Appellants challenge ALI's vertical isolation data on three grounds. First, Appellants argue that ALI should not have disregarded data from the 1999 tests of HSS-4, PHL/BC-8, and PHL/BC-9. On Appellants' behalf, Mr. Barone testified that the approximate margin of error in measuring drawdown is 0.04 feet. Thus, Appellants argue that drawdown figures of 0.23, 0.25, and 0.68 feet are significant and ALI should have not have simply disregarded the 1999 results after the subsequent 2005 re-test. Testimony Barone.

{¶179} Moreover, Appellants argue that the drawdown versus time graph for the 1999 test of HSS-4, in particular, suggests a hydraulic connection between the HSS, PHL/BC, and CL formations. On Appellants' behalf, Mr. Barone testified that he prepared graphs showing drawdown versus time for HSS-4 (the pumping well), PHL/BC-4, and CL-4 (the monitoring wells). Mr. Barone explained that each of the three graphs he prepared show drawdown patterns that are "nearly identical in time and magnitude," which suggest a hydraulic connection between the HSS, PHL/BC, and CL formations. Testimony Barone; STW Exhibit 68.

⁴⁹ In other contexts, the parties also abbreviate the Clarion Shale formation as "CS" instead of "CL."

{¶180} Second, Appellants argue that the duration of the isolation tests are too short. As noted in the table above, the maximum duration of any vertical isolation test is two hours. Appellants argue that each test should have been conducted for at least twenty-four hours. Citing an Ohio EPA guidance document regarding “slug and pumping tests,” Mr. Barone explained that twenty-four hours is the minimum amount of time necessary to allow the tester to safely conclude that no drawdown will occur. Testimony Barone; STW Exhibit 58.

{¶181} Finally, Appellants argue that the observation wells were located too far from the pumping wells. Mr. Barone testified that the wells should be placed no more than 5-10 feet from each other. As conducted, ALI placed the wells in excess of 20 feet apart. Testimony Barone; STW Exhibit 74.

{¶182} With respect to PHL/BC-8, Appellees respond that the decision to re-test was based on the fact that in the original 1999 test, 0.68 feet of drawdown was observed after just five minutes, but remained unchanged for the remainder of the 95-minute test. Mr. Razem explained that this suggests an instrument calibration error rather than actual drawdown. In light of the re-test results, which show no drawdown, ALI concluded that the original 0.68 feet measurement was indeed an error. Testimony Razem; STW Exhibit 35.

{¶183} Regarding the 1999 HSS-4 test, Mr. Razem and Mr. Dobransky testified that the drawdown in the CL formation is not, in fact, nearly identical in time or magnitude to the drawdown observed in the HSS formation. Mr. Razem explained that although the “shapes” of the drawdown graphs of the various formations are similar, the wells may not be hydraulically connected because the magnitude of drawdown observed in the upper formation is significantly smaller than the magnitude of drawdown

observed in the lower formation.⁵⁰ Based on this analysis, and the results of the 2005 re-test, Appellees conclude that the 1999 HSS-4 test does not necessarily suggest a hydraulic connection. Testimony Razem.

{¶184} Finally, Appellees assert that the duration of ALI's vertical isolation tests are sufficient. Using the test that located the 100 gpm aquifer on the west side of the ALI facility as an example, Mr. Dobransky explained that for this type of test, in which a large amount of water is pumped quickly from the lower formation, rapid drawdown would be expected if a significant hydraulic connection existed. Thus, Mr. Dobransky explained that the relatively short duration of the vertical isolation tests are acceptable because ALI observed no rapid drawdown in the test wells. Testimony Razem; Testimony Dobransky; ALI Exhibit 79-52.

iv. Permeability

{¶185} The 2005 PTI Application also includes results of permeability tests conducted as part of ALI's characterization of the site's hydrogeology. In a permeability test, water is pumped out of a particular geologic formation while observing the water level in that formation. Unlike vertical isolation tests, permeability tests involve observing the water level in only one formation, rather than in two or more formations. The data generated from the test is then graphed as drawdown versus time. After some time, the rate of drawdown becomes linear. The slope of this line represents "transmissivity," which is subsequently used to calculate hydraulic conductivity and permeability. Testimony Razem. CR Item 2.

⁵⁰ See note 23, *supra*.

{¶186} Permeability data is significant because it not only supplements ALI's characterization of water flow beneath the landfill facility, but also because it aids in identifying "confining layers." A confining layer is a geologic unit that effectively prevents liquid from moving between the geologic units immediately above and below the confining layer. Confining layers are identified in part by their low permeability relative to those geologic units located above and below. Using the permeability data in combination with other data collected as a part of ALI's hydrogeologic investigation, ALI determined that the Clarion Shale formation functions as a confining unit between the KS and PHL/BC formations. This, ALI concludes, further suggests that the KS and PHL/BC formations are part of two distinct aquifer systems. Testimony Razem; ALI Exhibit 79-56.

{¶187} Appellants challenge ALI's permeability data primarily on the basis of the permeability test durations. Appellants argue that the permeability test durations are too short and that the tests should have been conducted for a minimum of twenty-four hours. Testimony Barone; STW Exhibit 58.

{¶188} Appellees respond that the need to continue the test further is obviated once the rate of drawdown stabilizes into a linear function. Appellees also note that it was impossible to run some of ALI's permeability tests for a longer period because the wells had been pumped dry. Testimony Razem.

{¶189} Moreover, Appellees contend that other data supports the conclusion that the Clarion Shale functions as a confining unit. Specifically, Mr. Razem explained that because a confining layer prevents water flow between geologic units, pressure can build up in the geologic unit below the confining layer. This pressure, known as "artesian pressure," can cause the water level in that geologic unit to actually rise above

the top of the geologic unit itself. For example, the water level elevation is 1017.09 feet in the PHL/BC-4 well. This elevation is actually above the top of the PHL/BC formation at that location. Thus, Mr. Razem believes such water level data supports the conclusion that the Clarion Shale is acting as a confining layer between the KS and PHL/BC formations. Testimony Razem; CR Item 2.

v. *Continuity*

{¶190} In its 2005 PTI Application, ALI explains that one reason it re-designated the UAS is its conclusion that the KS formation actually consists of a series of individual sand lenses rather than a single continuous formation. The 2005 PTI Application states in pertinent part:

Numerous borings on Site demonstrate that the sandstone facies within the Clarion Shale (sandstone SZS) has a variable thickness and permeability, is interbedded with siltstone and shale in many places, *and is not laterally continuous across the Site.* * * * Actual [water] flow may be restricted to within the boundaries of individual sandstone lenses * * *.

STW Exhibit 31 (emphasis added).

{¶191} On behalf of Appellees, Mr. Razem and Mr. Dobransky explained that the continuity of a formation is relevant to the UAS designation because the applicant is required to monitor the water quality of the UAS. If the UAS is not a continuous formation beneath the landfill site, contaminants could potentially migrate to lower formations and travel off-site without being detected. Testimony Razem, Dobransky.

{¶192} Further, Appellees argue that the purpose of the UAS designation and the fifteen-foot isolation distance is to protect the aquifer most likely used to supply drinking water wells. Appellees argue that this intent is reflected in the definition of aquifer system, as well as in guidance document DDAGW-02-05-100. In this case, ALI concludes that because the KS formation is not continuous and does not extend beyond

ALI's property line, it is not likely to be used to supply drinking water wells and thus should not be designated as the UAS. Testimony Taliaferro, Dobransky, Razem.

{¶193} Appellants believe that the KS formation is continuous. Mr. Fisher and Mr. Barone testified that approximately 97% of the boring logs at the ALI site show the presence of "sandstone" or "sandy shale." Also, Mr. Barone testified that he reviewed prior studies of the region's geology and concluded that the region contains sandstone mixed with shale, rather than sandstone lenses embedded in shale as ALI determined. Testimony Fisher, Barone; STW Exhibits 76 and 77.

{¶194} Further, Appellants argue the definition of an aquifer system does not require continuity for the formation to be considered an aquifer system. As discussed above, Appellants argue that sandstone lenses could be considered as part of an aquifer system if data supports the presence of any potential hydraulic connection between the KS formation and other geologic formations below. Testimony Dobransky, Razem.

{¶195} In response to Appellants' argument that the KS formation is continuous, Mr. Razem testified that "sandstone" and "sandy shale" are not synonymous and concludes that the boring logs cited by Mr. Fisher and Mr. Barone did not show the widespread presence of sandstone. Further, Mr. Razem explained that the earlier analyses of the KS formation, which had found it to be continuous, are inconsistent with the boring logs from the ALI site. Thus, Appellees argue that the Director could have reasonably concluded that the KS formation is indeed not continuous. Finally, as discussed above, Appellees again respond that only *significant* hydraulic connection is relevant for the purposes of delineating an aquifer system. Testimony Razem.

N. Five Year Time of Travel

{¶196} Ohio Adm.Code 3745-27-07(H)(3)(a) contains the following requirement:

(a) The limits of solid waste placement of the sanitary landfill facility is and any temporary or permanent leachate ponds or lagoons are not located within the surface and subsurface areas of either of the following:

(i) Surrounding an existing or proposed public water supply well through which contaminants may move toward and may reach the public water supply well through underground geologic or man-made pathways within a period of five years.

* * *

(ii) A wellhead protection area or a drinking water source protection area for a public water system using ground water.

Thus, solid waste PTI applicants are required to show that the landfill facility will not be within a five-year time of travel of any public water supply well or within a wellhead protection area.

{¶197} Appellants did not present evidence regarding this assignment of error at the hearing. On behalf of Appellees, however, Mr. Razem and Mr. Dobransky explained that ALI's 2005 PTI Application contains the required calculations. In completing the time of travel calculation, ALI used the highest conductivity values, thus producing a "conservative" value for time of travel. Mr. Razem testified that the two nearest public supply wells have a 20-year and a 32.2-year time of travel from the ALI site. Further, Mr. Dobransky explained that he determined the ALI facility is not within a wellhead protection area. Testimony Razem, Dobransky; CR Item 2.

O. 200-Foot Surface Water Setback Requirement

{¶198} Ohio Adm.Code 3745-27-07(H)(4)(d) contains the following requirement:

The limits of solid waste placement of the sanitary landfill facility are not located within two hundred feet of areas determined by Ohio EPA or the United States army corps of engineers to be a stream, lake, or wetland.

Thus, a landfill facility must not be located within 200 feet of a stream, lake, or wetland.

{¶199} As with the time of travel calculations, Appellants did not present evidence regarding this assignment of error at the hearing. On Appellees' behalf, however, Mr. Walker testified that the ALI facility does satisfy the 200-foot setback requirement and that ALI obtained a variance for certain wetlands that would not have otherwise met the requirement. Testimony Walker.

P. Fault Line and/or Site Stability

{¶200} Ohio Adm.Code 3745-27-20(C)(3) contains the following requirement:

The sanitary landfill facility is not located within two hundred feet of a fault that has had displacement in Holocene time * * *

{¶201} Again, Appellants did not present evidence with respect to this assignment of error. On Appellees' behalf, Mr. Walker testified that the ALI site complies with this requirement. Testimony Walker.

Q. Seeps/Springs

{¶202} Ohio Adm.Code 3745-27-06(C)(3)(d)(iv)(b)-(c) requires a solid waste applicant to submit the following information:

(b) An interpretation of the ground water flow system, including hydraulic conductivity, rate of flow, direction of flow, vertical and lateral components of flow, and interconnections between and within the uppermost aquifer system and any significant zones of saturation above the uppermost aquifer system. This interpretation shall be described in both narrative and map form.

(c) Identification and characterization of recharge and discharge areas within the boundaries of the proposed sanitary landfill facility. This shall include any relationships of ground water with *seeps*, *springs*, streams, and other surface water features. (Emphasis added).

On Appellants' behalf, Mr. Fisher testified that ALI did not provide this information with respect to seeps in its 2005 PTI Application. Testimony Fisher.

{¶203} In response, Mr. Carey testified that ALI had not received reports of significant seeps. Thus, because no significant seeps were present, Appellees argue that ALI was not required to submit information about the relationship between groundwater and seeps. Testimony Carey.

R. Social/Economic Impact and/or Disparate Impact

{¶204} Several of Appellants' assignments of error challenge the Director's final action approving the 2006 Expansion PTIs on the grounds that he failed to consider the social and/or economic impact of such issuance. *See Findings of Fact, Part V, supra.*

{¶205} On November 14, 2006, ALI filed a Motion for Partial Summary Judgment relative to the social/economic impact assignments of error. Appellees argued that pursuant to Ohio Adm.Code 3745-31-05 and Ohio Adm.Code 3745-27-02, the Director was not required to consider social or economic impact. Instead, Appellees

explained that the Director may, at his discretion, consider social and/or economic impact. Case File Items M and N.

{¶206} Appellants filed their Memorandum in Opposition on December 4, 2006 arguing that even though the decision whether to consider social and/or economic impact is discretionary, such discretion may not be abused. Specifically, Appellants argued that the Director unreasonably and unlawfully chose to ignore social and/or economic impacts altogether. Further, Appellants argued that such social and/or economic factors were relevant to the nuisance claims raised in other assignments of error, and they were, therefore, entitled to discovery on those issues. Case File Item R.

{¶207} ALI filed its Reply on December 18, 2006. ALI responded that, as a matter of law, the Director cannot abuse his discretion when he chooses not to consider social and/or economic impacts. Case File Items U and V.

{¶208} On August 29, 2007, following oral argument, the Commission granted Appellees' Motion for Partial Summary Judgment regarding the social/economic impact assignments of error. Case File Item RRR.

S. RCRA Citizens' Suit

{¶209} Appellants also challenge the 2006 Expansion PTIs on the grounds that ALI was in violation of the federal Resource Conservation and Recovery Act ("RCRA") at the time the Director issued the 2006 Expansion PTIs. Specifically, 42 U.S.C. § 6972 provides in pertinent part:

(a) * * * any person may commence a civil action on his own behalf-

* * *

(1)(B) against any person, including the United States and any other governmental instrumentality or agency, to the extent permitted by the eleventh amendment to the Constitution, and including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment; * * *

* * *

Any action under paragraph (a)(1) of this subsection shall be brought in the district court for the district in which the alleged violation occurred or the alleged endangerment may occur. * * *

Accordingly, Appellants argue that the Director acted unlawfully and unreasonably because ALI presented an “imminent and substantial endangerment to health or the environment” at the time the Director issued the 2006 Expansion PTIs.

{¶210} On December 6, 2006, ALI filed a Motion to Dismiss the RCRA-based assignments of error. In its Motion to Dismiss, ALI argues that (1) the Director is not required to consider potential violations of federal law; (2) RCRA does not impose any statutory mandates on ALI, and thus ALI could not have violated it; (3) the Commission lacks jurisdiction to hear RCRA-based claims; and (4) the RCRA-based assignments of error are impermissible collateral attacks. Case File Item S.

{¶211} As to whether the Director was required to consider RCRA when evaluating the 2005 PTI Application, ALI argues that pursuant to Ohio Adm.Code 3745-27-02 and Ohio Adm.Code 3745-27-07, the Director is not required to determine whether ALI facility posed an “imminent and substantial endangerment to health or the environment” under RCRA. Case File Item S.

{¶212} With respect to whether RCRA creates an enforceable statutory standard, ALI argues that RCRA merely creates a citizen-suit right, not an enforceable standard that could be violated. Case File Item S.

{¶213} Regarding jurisdiction, ALI argues that RCRA citizen-suits may be properly brought in federal district court, but not before the Commission. ALI also argues that Appellants had failed to comply with RCRA's notice requirements. Case File Item S.

{¶214} And finally, regarding its collateral attack argument, ALI argues that under federal law, the "imminent and substantial endangerment" standard does not apply to activities for which the operator has a permit, such as ALI's operation of its landfill facility. Case File Item S.

{¶215} Appellants filed their joint response on December 21, 2006. In it, Appellants argue that under federal law, RCRA does create an enforceable standard. Further, Appellants argued, for the first time, that they were not seeking to bring a citizen-suit under RCRA. Instead, Appellants attempted to characterize their claim in terms of "substantial compliance." Appellants asserted that if ALI was in violation of RCRA, then it would not be in "substantial compliance" with "environmental laws" as required by R.C. 3734.44. Thus, the Director would have abused his discretion by issuing the 2006 Expansion PTIs. Case File Item W.

{¶216} Following oral argument as well as the submission of post-argument briefs containing citations to supplemental authority, the Commission granted ALI's Motion to Dismiss the RCRA-based assignments of error on August 29, 2007. Case File RRR.

T. Generalized Vagueness and/or Notice/Comment Deficiencies

{¶217} A number of Appellants' assignments of error essentially argue that ALI's 2005 PTI Application is too vague as to have allowed for meaningful public notice and comment pursuant to R.C. 3734.02 and R.C. 3734.05. No specific evidence was presented at hearing on this issue.

{¶218} The Commission notes that the Certified Record contains well over 100 comments submitted to Ohio EPA regarding the proposed ALI expansion. These comments include submissions from CAALE, as well as from all three Individual Appellants. Further, evidence was adduced regarding at least one public hearing at which interested individuals could testify. CAALE Exhibit 1A is a 120-page transcript of the public hearing conducted by Ohio EPA at the Sandy Valley Jr./Sr. High School on February 2, 2006, from approximately 8:00 pm to 11:00 pm. The three-hour public hearing included testimony of 33 individuals, including all three Individual Appellants and David Altman, counsel for CAALE and the Individual Appellants. CR Item 32; CAALE Exhibit 1A.

U. Open Dumping

{¶219} Appellants argue that ALI was engaged in unlawful open dumping (presumably in reference to the prohibitions contained in R.C. 3734.03 and Ohio Adm.Code 3745-27-05, although these provisions were not expressly cited by Appellants). However, Appellants failed to present any specific evidence on the issue.

V. Disclosure Statement

{¶220} Appellants challenge the 2006 Expansion PTIs on the grounds that ALI failed to provide an adequate "disclosure statement." However, Appellants failed to cite to any applicable law or present any specific evidence on this issue.

W. Unlawful Delegation

{¶221} Appellants also argue that the Director unlawfully delegated his authority under R.C. 3734.02 and R.C. 3734.05 to ALI. Appellants, again, failed to present any specific evidence as to this issue.

X. Prior NODs

{¶222} Appellants argue that the Director acted unlawfully and unreasonably in approving the 2006 Expansion PTIs because ALI failed to respond to NODs issued during the PTI application process. However, Appellants did not present any specific evidence on this issue and did not specify which NODs they believe ALI failed to address.

{¶223} Instead, Appellees presented substantial evidence indicating that ALI was responsive to the various NODs issued throughout the PTI application and review process. *See, e.g.*, Testimony Ali, Razem, Dobransky, Naples, Gbur; STW Exhibit 41; ALI Exhibit 35; CR Items 11, 14, and 15.

Y. Advance Permitting

{¶224} STW argues that the Director engaged in unlawful “advance permitting.” Again, no specific evidence was presented at hearing in relation to this argument.

Z. Delineation of Property Lines, etc.

{¶225} Finally, STW argues that the 2005 PTI Application does not satisfy the requirements of Ohio Adm.Code 3745-27-06(B)(2)(a)(i)-(iii), which requires applicants to delineate various features of a proposed landfill site. Again, Appellants failed to present any evidence to support to this argument.

{¶226} The Commission notes that Appellees, however, presented substantial evidence addressing ALI’s property lines and the limits of waste placement, including a

map detailing many of the features of the ALI landfill facility. Testimony Ali, Razem; ALI Exhibit 282.

CONCLUSIONS OF LAW

VIII. STANDARD OF REVIEW

{¶227} Ohio Revised Code 3745.05 sets forth the standard ERAC must employ when reviewing a final action of the Director. The statute provides, in relevant part, that “[i]f, upon completion of the hearing, the commission finds that the action appealed from was lawful and reasonable, it shall make a written order affirming the action, or if the commission finds that the action was unreasonable or unlawful, it shall make a written order vacating or modifying the action appealed from.”

{¶228} This standard does not permit ERAC to substitute its judgment for that of the Director as to factual issues. *CECOS Internatl., Inc. v. Shank* (1992), 79 Ohio App.3d 1, 6. The term “unlawful” means “that which is not in accordance with law,” and the term “unreasonable” means “that which is not in accordance with reason, or that which has no factual foundation.” *Citizens Committee to Preserve Lake Logan v. Williams* (1977), 56 Ohio App.2d 61, 70. “It is only where [ERAC] can properly find from the evidence that there is no valid factual foundation for the Director’s action that such action can be found to be unreasonable. Accordingly, the ultimate factual issue to be determined by [ERAC] upon the de novo hearing is whether there is a valid factual foundation for the Director’s action and not whether the Director’s action is the best or most appropriate action, nor whether the board would have taken the same action.” *Id.*

{¶229} Further, the Commission is required to grant “due deference to the Director’s ‘reasonable interpretation of the legislative scheme governing his Agency.’” *Sandusky Dock Corp. v. Jones* (2005), 106 Ohio St.3d, 274, citing *Northwestern Ohio*

Bldg. & Constr. Trades Council v. Conrad (2001), 92 Ohio St.3d 282; *State ex rel. Celebrezze v. National Lime & Stone Co.* (1994), 68 Ohio St. 3d 377; *North Sanitary Landfill, Inc. v. Nichols* (1984), 14 Ohio App. 3d. The deference is not, however, without limits. See e.g., *B.P. Exploration and Oil, Inc., et al v. Jones*, Ruling on Motion for Summary Adjudication and Final Order, issued March 21, 2001 (in which the Commission noted that such deference must be granted to the Director’s interpretation and application of his statutes and rules, “particularly if the Director’s interpretation is not at variance with the explicit language of the regulations.”).

{¶230} In cases “[w]here qualified, credible expert witnesses disagree on a matter within their expertise, the Commission defers to the decision of the Director.” *Tube City Olympic of Ohio v. Jones*, ERAC No. 994681 (March 5, 2003); see also *Copperweld Steel Co. v. Shank*, EBR No. 781787 (October 24, 1989) (where “the question of what levels of treatment or design are necessary to protect public health or ground water are the subject of legitimate debate or dispute between qualified experts, the [Commission] will defer to the action of the Director where that action is otherwise reasonable and lawful”).

IX. ANALYSIS

{¶231} The Commission will now discuss the twenty-six categories of Appellants’ assignments of error.

A. Substantial Compliance and/or Nuisance

{¶232} Revised Code 3745.44(D) states:

[N]o permit * * * shall be issued * * * by the [D]irector * * *:

(D) Unless the [D]irector * * * finds that the applicant * * * is presently in substantial compliance with * * * environmental laws in this state and other jurisdictions

{¶233} Further, Ohio Adm.Code 3745-27-07(A)(3) provides:

(A) General criteria. The director shall not approve any permit to install application for a sanitary landfill facility unless the director determines all of the following:

* * *

(3) The applicant * * * has managed or operated such facility in substantial compliance with applicable provisions of Chapters 3704., 3734., 3714., and 6111. of the Revised Code, and any rules, permits or other authorizations issued thereunder, and has maintained substantial compliance with all applicable orders issued by the director, the environmental review appeals commission, or courts having jurisdiction in accordance with Chapter 3746-13 of the Administrative Code, in the course of such previous or current management or operations. The director may take into consideration whether substantial compliance has been maintained with any applicable order from a board of health maintaining a program on the approved list and any other courts having jurisdiction.

{¶234} Appellants argue that odors emanating from the ALI facility constitute a nuisance and that this amounts to “substantial non-compliance.” Appellant witnesses testified that odors from the ALI facility are strong at times, sometimes force residents indoors, and result in occasional headaches. Appellants also cite a July 17, 2006 memo in which Ms. Gbur offered a “negative recommendation” of the ALI facility’s compliance status “due to acceptance of hazardous waste.” Thus, Appellants conclude that the ALI landfill is not in substantial compliance with environmental laws. The Commission disagrees.

{¶235} Neither the Revised Code nor the Administrative Code define the phrase “substantial compliance.” Nonetheless, both the Commission and the Tenth District have addressed “substantial compliance” in a number of cases. The Tenth District Court of Appeals defined “substantial compliance” in the following manner:

The word “substantial” essentially means significant or that which has substance or is material or being largely but not wholly that which is required. Thus, a deviation from a requirement is not substantial unless it defeats or undermines some purpose for which the requirement is imposed.”

Fairfield Sanitary Landfill v. Fairfield County District Board of Health, 68 Ohio App.3d 761, 773 (10th Dist. 1990). Accordingly, not all violations of applicable environmental laws amount to “substantial non-compliance.” Instead, “substantial non-compliance” exists where the violations frustrate the law’s purpose.

{¶236} Further, the Commission previously acknowledged that “an applicant initially falls outside the protective sphere of ‘substantial compliance’ when *formal, escalated enforcement proceedings* have been requested via an enforcement referral package from an OEPA district office * * * the Central Office of OEPA.” *Martin v. Schregardus*, ERAC Nos. 403101-02 (March 12, 1996) (emphasis added).

{¶237} Regarding nuisances, Ohio Adm.Code 3745-15-07 defines a “nuisance” as follows:

* * * any source * * * of smoke, ashes, dust, dirt, grime, acids, fumes, gases, vapors, odors, or any other substances * * * in such manner or in such amounts as to *endanger the health, safety or welfare of the public, or cause unreasonable injury or damage to property.*

(Emphasis added).

{¶238} Thus, emissions that merely cause annoyance, or even some level of disruption to daily activities, do not necessarily constitute a nuisance. Instead, the purpose of the regulation is to prevent *dangerous* emissions and those that cause *unreasonable* disruptions to daily activities.

{¶239} Appellants presented no evidence supporting that the odors pose an actual risk to health or safety. Moreover, on behalf of the Director, Mr. Nay testified that

some odors near landfills are expected, and no inspector has ever characterized the facility as a nuisance. Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that the ALI facility was operating in “substantial compliance” and that odors emanating from the ALI facility did not constitute a nuisance or frustrate the purpose of the nuisance regulation.

{¶240} Moreover, regarding the July 17, 2006 memo, Appellants presented no evidence as to whether ALI was subject to any “escalated enforcement” proceedings,⁵¹ or even as to the degree of whatever violation may have been at issue. Ms. Gbur suggested that the issue was likely resolved prior to the Director’s approval of the 2006 Expansion PTIs. Accordingly, the Commission finds that the evidence establishes the Director had a valid factual foundation for discounting the July 17, 2006 memo. Therefore, the Commission finds that the Director had a valid factual foundation for determining that ALI was operating its facility in “substantial compliance” with environmental laws when he approved the 2006 Expansion PTIs.

{¶241} Having found that the Director had a valid factual foundation for concluding that ALI was in “substantial compliance” with environmental laws, the Commission finds that the Director acted lawfully and reasonably in approving the 2006 Expansion PTIs with respect to the “substantial compliance” requirements contained in Ohio Adm.Code 3745-27-07 and R.C. 3734.44.

⁵¹ See *Martin v. Schregardus*, ERAC Nos. 403101-02 (March 12, 1996), *supra*.

B. Best Available Technology (Air)

{¶242} Ohio Adm.Code 3745-31-05(A)(3) provides as follows:

(A) The director shall issue a permit to install * * * if he determines that the * * * air contaminant source will:

* * *

(3) Employ the best available technology * * *

{¶243} At hearing, Appellants presented no specific evidence with regard to any potential measures ALI should take, nor did they identify any additional technology ALI could implement to better control air emissions. Conversely, Appellees provided substantial testimony detailing ALI's existing gas collection system and its emergency flare. Accordingly, the evidence supports a finding the Director had a valid factual foundation for concluding that ALI's proposed expansion employs BAT.

{¶244} Having concluded that the Director had a valid factual foundation for his determination that the ALI facility would employ BAT, the Commission finds that the Director acted lawfully and reasonably in approving the 2006 Expansion PTIs with respect to the BAT requirement contained in Ohio Adm.Code 3745-31-05(A)(3).

C. Fracturing

{¶245} Pursuant to Ohio Adm.Code 3745-27-06(C)(3)(d)(iii) and (C)(3)(f)(ii)(d)(v), ALI was required to submit information about fracturing at the landfill facility. Ohio Adm.Code 3745-27-06(C)(3) provides, in relevant part, as follows:

(C) Reports. The following information shall be presented in narrative form in a report with a table of contents and divided and labeled according to paragraphs (C)(1) to (C)(10) of this rule.

* * *

(3) Site investigation. A hydrogeologic and geotechnical site investigation report(s), which shall at a minimum include the following:

* * *

(d) A detailed description and analysis of the geology and hydrogeology under the proposed sanitary landfill facility. * * * The description and analysis shall include, but is not limited to, the following:

(iii) * * * fracturing * * *

* * *

(f) Subsurface investigation information. * * * At a minimum the information shall include the following:

* * *

(ii) Information collected at the site for each stratigraphic unit from the surface to the bottom of the uppermost aquifer system or to one hundred and fifty feet below the proposed composite liner system, whichever is shallower. * * * At a minimum the information shall include the following:

* * *

(d) Field descriptions of the consolidated and unconsolidated units. At a minimum the information shall include the following:

* * *

(v) Structural features such as fracturing or jointing.

{¶246} Appellants argue that the Director lacked a valid factual foundation for accepting ALI's conclusion that extensive fracturing is not present below the proposed landfill site. Appellants offered two separate arguments in support of their assertion: (1) various notations in a number of drilling logs suggest extensive fracturing; and (2) the 1998 HSS-4 vertical isolation test also suggests fracturing.

{¶247} With respect to the drilling logs, Appellants pointed to numerous notations of iron oxide and limonite staining, as well as to the low recovery percentage observed during a number of the drilling events. Appellants argue that iron oxide and limonite staining indicate fast moving water and low recovery percentage indicates brittle rock, both of which suggest the presence of fractures.

{¶248} Appellants also argue that the 1998 HSS-4 vertical isolation test data indicates a close relationship between the CS⁵² and HSS formations at that location. Specifically, Appellants argue that the pumping well and observation wells showed “nearly identical” drawdown patterns and that this is indicative of fracturing.

{¶249} Appellees explain that iron oxide and limonite staining merely indicate the *presence* of water but does not suggest a particular speed of water movement. Further, Appellees respond that low recovery percentage is not necessarily indicative of brittle rock or fracturing.

{¶250} Appellees also argue that the magnitude of drawdown in the CS formation was much smaller than the magnitude of drawdown in the HSS formation. Thus, the test reveals a relatively minimal connection between the CS and HSS formations and does not indicate the presence of fractures, even if the “shapes” of the drawdown curves are similar.

{¶251} Finally, Appellees note that other data supports its conclusion that extensive fracturing is not present at the ALI site. Specifically, Appellees explain that observed water levels varies considerably between the various wells within a given formation, which suggests the absence of fracturing.

⁵² See note 22, *supra*.

{¶252} The Commission finds that the Director had a valid factual foundation for discounting the iron oxide and limonite staining, as such staining only denotes the presence of water at some time, not the movement of water at any particular speed.

{¶253} Further, the Commission finds that the Director also had a valid factual foundation to conclude that the 1998 HSS-4 vertical isolation test did not indicate fracturing. As Appellees explained, the CS and HSS formations experienced different magnitudes of drawdown; the CS formation registered 0.25 feet of drawdown compared to 59.38 feet in the HSS formation. The Commission finds that the Director could have reasonably concluded that this difference is indicative of a relatively minimal connection between the respective formations.

{¶254} Having found that the Director had a valid factual foundation for his determination that significant fracturing is not present beneath the ALI facility, the Commission finds that the Director acted lawfully and reasonably in accepting ALI's characterization of the fractures at the site pursuant to Ohio Adm.Code 3745-27-06(C)(3)(d)(iii) and (C)(3)(f)(ii)(d)(v).

D. Alternate Source Determinations and Groundwater Contamination

{¶255} Appellants argue that the Director acted unreasonably and unlawfully by approving both ASDs after two detection monitoring events identified statistically significant increases for specific parameters in certain groundwater monitoring wells. At the outset, Appellants argue that a “compelling conclusive” standard of review should apply to ASDs. The Commission disagrees. First, this language does not appear in the Revised Code or the Ohio Administrative Code. And second, the Commission notes that there is an important distinction between *professional* and *legal* standards of review.

{¶256} At hearing, Mr. Martin, an Ohio EPA employee, agreed that a “compelling conclusive” standard was an appropriate standard to employ when reviewing ASDs. Importantly, however, Mr. Martin testified regarding how he, in his professional judgment, reviews ASDs; he did not testify as to the appropriate legal standard applicable to ERAC’s review of the instant matter.

{¶257} Additionally, Appellants argue that the Director erred in accepting the ASDs because the ALI facility is contaminating the groundwater in the surrounding area. Appellants offered extensive testimony from several expert witnesses. First, Mr. Fisher testified that graphs of two ion ratios—specifically, SO_4/HCO_3 Alkalinity Ratio vs. Chloride and SO_4/HCO_3 Alkalinity Ratio vs. Sodium—suggest that the groundwater is contaminated by leachate. Mr. Fisher explained that on these graphs, data points for leachate samples plot closely to data points for groundwater monitoring and residential wells in the area. Thus, Mr. Fisher concludes that the wells are likely contaminated by leachate.

{¶258} Mr. Fisher also testified that high alkalinity levels below the ALI facility indicate leachate contamination, testifying that high alkalinity levels are associated with leachate contamination. Significantly, however, Mr. Fisher’s model also shows that alkalinity levels *increase* with depth (i.e., alkalinity levels are greatest farther away from the bottom of the landfill). He explained this phenomenon by positing that the acidic properties of mine spoil mask alkalinity present at shallow depths at the ALI site.

{¶259} On Appellants’ behalf, Mr. Galbraith testified that gradients demonstrate groundwater is flowing radially outward from the ALI facility and concludes that ALI is a source of potential contamination.

{¶260} Finally, Appellants argue that the bromide/chloride ratio data that ALI submitted with its ASDs are inconclusive because the standard deviation of the data from the contaminated wells is too large.

{¶261} Appellees respond that Mr. Fisher selected only those graphs which best support his position, while ignoring numerous others. Further, Appellees argue that even though the mine spoil is indeed acidic, it does not have such a dramatic neutralization effect, such that the highest alkalinity levels would occur farthest away from the bottom of the landfill. Instead, Appellees argue, increasing alkalinity with depth is normal and is a result of groundwater picking up minerals from the rock as it moves downward. In support of the argument that mine spoil would not noticeably neutralize leachate alkalinity, Appellees highlighted data from nearby LKC-6, which had previously been contaminated with leachate and which showed increased alkalinity even in the mine spoil.

{¶262} Appellees further respond that Mr. Galbraith's gradients are internally inconsistent and, therefore, incorrect.

{¶263} And finally, Appellees presented additional affirmative evidence to support the conclusion that groundwater contamination is not caused by leachate. Specifically, Appellees note that the ASDs' Piper and Stiff Diagrams—which depict “major ions”⁵³ present in the groundwater—suggest that the groundwater is not contaminated by leachate. ALI also notes that the relevant groundwater monitoring

⁵³ As discussed above, “major ions” are so named because, in sum, they approximately constitute 100% of the ions present in solution. Appellees explained that it was important to consider *all* ions, rather than just a select few.

wells do not show elevated VOCs or elevated ammonia levels, which are both indicative of leachate contamination.

{¶264} The Commission finds that the Director had a valid factual foundation for concluding that the groundwater at the ALI facility is not contaminated by leachate. In particular, the bromide/chloride ratio data, the Piper and Stiff Diagrams, and the VOC and ammonia data support the conclusion that the groundwater is not contaminated with leachate.

{¶265} As to the bromide/chloride data, the Commission notes that all but three data points from the relevant groundwater monitoring wells fall within the range that ALI found to be indicative of brine contamination and that Appellants do not challenge the upper or lower bounds of the range itself. Further, the ASDs contain a reasonable explanation regarding why two of the three data points fall outside the range for brine.⁵⁴ And although the data exhibited significant variability, the ASDs also contain a reasonable explanation for the observed variability, as well. Accordingly, the Commission finds that the bromide/chloride data supports the conclusion that the contamination is caused by brine.

{¶266} The Commission also finds that the Piper and Stiff Diagrams submitted with the ASDs support the conclusion that the observed groundwater contamination is not caused by leachate. The parties do not dispute that the diagrams show significant chemical differences between the relevant groundwater monitoring wells and leachate

⁵⁴ Namely, the ASDs stated, “[t]he publications * * * show significant deviations from expected bromide/chloride ratios for brine impacted wells in samples with chloride concentrations less than 10 mg/L. Therefore, it is difficult to establish that a well is impacted by oilfield brine if the well has a chloride concentration less than 10 mg/L.” Two of the three data points that fell outside the range for brine showed chloride concentrations of less than 10 mg/L. ALI Exhibits 7 and 13.

samples. Appellants argue that variations in the speed of ion migration in groundwater caused this difference; however, Mr. Razem testified that this differential migration effect is minimal. Based upon a review of the evidence, the Commission finds that the Piper and Stiff Diagrams support the conclusion that the relevant groundwater monitoring wells had not been contaminated by leachate.

{¶267} Finally, the Commission finds that the VOCs and ammonia data further supports the Director's conclusion that leachate is not the source of groundwater contamination. The ASDs indicate that the wells at issue here do not show either elevated VOCs or elevated ammonia levels. Particularly when compared to earlier data from LKC-6, which is known to have been contaminated by leachate and shows elevated VOCs and ammonia levels, the absence of elevated VOCs and ammonia levels supports the conclusion that the observed contamination is from a source other than leachate.

{¶268} Significantly, the Commission notes that the Director did not base his conclusion on any single source of data; but rather, he considered all data submitted with the ASDs. While it is possible that some data may exist supporting a different conclusion than the Director ultimately reached, it is within the Director's discretion to weigh data that supports alternative conclusions. The Commission finds the Director did just that. He evaluated several different data sources and ultimately concluded that brine caused the observed contamination of the relevant groundwater monitoring wells at the ALI site. Accordingly, the Commission finds that the Director had a valid factual foundation for concluding the ALI facility is not contaminating the groundwater.

{¶269} Having found that the Director had a valid factual foundation for concluding that leachate emanating from the ALI facility is not the source of the

groundwater contamination at issue, the Commission finds that the Director acted lawfully and reasonably in approving the two ASDs relevant to these appeals.

E. Geotextile Filter Design

{¶270} Ohio Adm.Code 3745-27-08(C)(1)(a) requires a composite liner system to be designed to “[s]erve as a barrier to prevent the discharge of any leachate to ground or surface waters.” Further, Ohio Adm.Code 3745-27-08(D)(14)(b) requires filter layers to be designed to minimize clogging. Thus, the Director must determine whether a proposed liner system is capable of serving as a sufficient barrier to leachate discharging from the landfill and whether a filter layer will be likely to clog. If the design of a particular component of the composite liner system—such as a geotextile filter—is deficient such that it compromises the ability of the composite liner system to effectively act as a barrier, such design would fail to meet the requirements of Ohio Adm.Code 3745-27-08(C)(1)(a).

{¶271} Appellants argue that ALI’s geotextile filter design is inadequate because the proposed filter fails to meet GRI specifications. Appellants contend that the proposed filter will likely tear during the liner construction and installation process. Appellants argue that such a tear will reduce filtration efficacy, which will in turn potentially clog the leachate collection system and increase the risk of groundwater contamination.

{¶272} Appellees assert several reasons why Appellants’ concerns are unfounded. First, Appellees note that the GRI specifications do not apply to landfill construction. Second, applicable regulations do not require an affirmative demonstration that the geotextile filter will survive construction and installation and notes that some industry experts disagree with Appellants’ contention that a filter is a

necessary component of a liner system. And finally, even if the filter fails, Appellants argue that clogging will not necessarily occur. In support, Mr. Walker testified that both the filter layer and the composite liner design are within industry standards. Mr. Walker also testified that the composite liner is an effective barrier to leachate discharges and that other components of the liner system, such as the select waste layer, will prevent clogging even if the geotextile filter fails.

{¶273} The Commission finds that the Director had a valid factual foundation to conclude that the geotextile filter design complies with the regulations and that it will both minimize clogging and serve as an effective barrier to leachate discharges. As noted in the Findings of Fact, the GRI specifications do not apply to landfill construction. In combination with Mr. Walker's testimony regarding the adequacy of the composite liner system, the Commission thus finds that the Director had a valid factual foundation for concluding that the geotextile filter layer is sufficient to function as an effective component of the composite liner systems at the ALI facility.

{¶274} Accordingly, the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with respect to ALI's geotextile filter design.

F. Geotextile Cushion Design

{¶275} As with the geotextile filter, Appellants contend that the geotextile cushion design fails to comply with Ohio Adm.Code 3745-27-08(C)(1)(a), which requires that a composite liner system be designed as an effective barrier to leachate discharges from the landfill. Appellants contend that ALI's geotextile cushion design is deficient because it does not meet the GRI specification.

{¶276} Appellees again respond that the GRI specifications are inapplicable to landfill design. Appellees further note that ALI actually constructs its liner using a more protective 12-oz per square foot cushion rather than the 6-oz per square foot cushion specified in the permit.⁵⁵

{¶277} Evidence supports the conclusion that the GRI specifications are not applicable to landfill design. Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that ALI's geotextile cushion design is sufficient to function as an effective component of the ALI's composite liner systems.

{¶278} Having found that the Director had a valid factual foundation for concluding that ALI's geotextile filter cushion met the requirements of Ohio Adm.Code 3745-27-08(C)(1)(a), the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with respect to ALI's geotextile cushion design.

G. Flexible Membrane Liner Design

{¶279} Appellants argue that ALI's flexible membrane liner's design fails to meet the requirements of Ohio Adm.Code 3745-27-08(C)(1)(a) because its lifespan is insufficient to ensure that leachate will not contaminate ground or surface waters. Appellants argue that the following three factors will likely contribute to a reduced lifespan for the flexible membrane liner: (1) leachate recirculation, which Appellants argue will result in increased temperatures; (2) hydrostatic lift; and (3) excessive settlement.

⁵⁵ The Commission notes that only the permitted geotextile cushion design is relevant to the present appeal. ALI's decision to use a thicker cushion than required by its permit is not relevant to the Commission's review of the Director's decision to issue the PTI because the Director would not have been able to consider this subsequent choice at the time of the PTI's approval.

{¶280} The parties agree that ALI does not inject leachate into the waste cells as a part of its leachate recirculation program, and instead only sprays leachate onto the surface of the waste cells. Nonetheless, Appellants argue that even sprayed-on leachate will react with aluminum dross present in the waste and cause increased temperatures, thereby reducing the lifespan of the flexible membrane liner. In support, Appellants point to nearby Countywide Landfill, which they argue had previously experienced an aluminum dross reaction as a result of leachate recirculation.

{¶281} Appellees respond that aluminum dross reactions are extremely rare in municipal solid waste landfills, and there is no indication such a reaction is likely to occur at ALI. Further, Appellees argue that increased temperatures may not, in fact, actually decrease the lifespan of the flexible membrane liner.

{¶282} With respect to hydrostatic lift, Appellants argue that some portions of the ALI site are subject to hydrostatic lift. Yet, Appellants did not present any specific evidence to demonstrate how hydrostatic lift could reduce the lifespan of the composite liner system designed for the ALI facility.

{¶283} Appellees simply respond that, by satisfying the regulatory requirements set out in the Ohio Administrative Code, the ALI facility is designed to manage such forces.

{¶284} And finally, as to settlement, Appellants argue that the weight of leachate present in the existing waste is likely to cause additional settlement beyond what ALI calculated in its 2005 PTI Application. This additional settlement, Appellants theorize, will cause existing vertical gas wells present below the liner to puncture the flexible membrane liner. In support, Appellants presented data from a number of gas extraction wells that note the presence of liquid.

{¶285} Appellees respond that the existing waste cells are not saturated with leachate. On Appellees' behalf, Mr. Carey and Mr. Razem explained that liquid present in the gas wells is likely caused by perch zones and/or gas condensation. Further, Appellees note that vertical gas wells are to be removed from existing waste cells prior to the placement of the separatory liner. Accordingly, Appellees argue that even if some additional unexpected settlement occurs, there is no danger of puncturing the flexible membrane liner.

{¶286} The Commission finds that the Director had a valid factual foundation for concluding that an aluminum dross reaction is unlikely to occur at the ALI facility. The testimony presented at hearing established that such reactions are relatively uncommon. Moreover, Appellants presented no evidence that the ALI facility is likely to experience a dross reaction.

{¶287} The Commission also finds that the Director had a valid factual foundation for concluding that hydrostatic lift does not pose an unreasonable risk to the flexible membrane liner. Appellants presented no specific evidence on this issue, and Appellees presented testimony stating that the facility is designed to manage such forces.

{¶288} Finally, the Commission finds that the Director had a valid factual foundation for accepting ALI's settlement analysis. Although the evidence indicates that liquid is present in a number of gas extraction wells, the Commission finds that the Director could have reasonably concluded that such liquid is caused by perch zones and/or gas condensation.

{¶289} Having found that the Director had a valid factual foundation for concluding that ALI's flexible membrane liner design is sufficient to act as an effective

barrier to the flow of leachate at the ALI facility, the Commission finds that the Director acted lawfully and reasonably in approving the 2006 solid waste PTI with respect to ALI's flexible membrane liner design.

H. Leachate Collection Pipe and Riser Design

{¶290} Appellants argue that ALI's leachate collection pipe and riser design fails to meet the requirements of Ohio Adm.Code 3745-27-08(C)(1)(a) because the 2006 solid waste PTI does not contain specifications regarding the strength of the pipe to be used. Appellants argue that if, during construction, ALI chooses sub-standard pipes, the pipes could be crushed or otherwise rendered ineffective, thereby leading to a failure of the leachate collection system and posing a risk of groundwater contamination.

{¶291} Appellees respond that the 2006 solid waste PTI specifies the use of HDPE, which Appellees argue identifies a particular strength grade known as PE3408. On Appellees' behalf, Mr. Walker testified that PE3408 is standard in landfill construction. Moreover, Mr. Walker testified that as constructed, ALI actually uses collection pipes that are stronger than the pipe identified in the 2006 solid waste PTI.⁵⁶

{¶292} The Commission finds that the evidence supports the conclusion that ALI's leachate collection system design provides for sufficiently strong pipes and risers. Specifically, the Commission finds that the specification included in ALI's 2005 PTI Application necessarily implies the use of PE3408 or an equivalent material. Accordingly, the Commission finds that the Director had a valid factual foundation for accepting ALI's design for the leachate collection pipes and risers.

⁵⁶ See note 55, *supra*.

{¶293} Having found that the Director had a valid factual foundation for determining that ALI's leachate collection pipe and riser design meet the requirements of Ohio Adm.Code 3745-27-08(C)(1)(a), the Commission finds the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with respect to ALI's leachate collection pipe and riser design.

I. Cap Design

{¶294} Ohio Adm.Code 3745-27-08(C)(4)(d)(ii) requires cap systems to have a maximum slope based in part on slope stability.

{¶295} Appellants argue that ALI's cap design fails to ensure slope stability as required by Ohio Adm.Code 3745-27-08(C)(4)(d)(ii) on the basis that the 2006 solid waste PTI fails to specify a permeability figure for the soil cover layer.

{¶296} Appellees respond that while the 2006 solid waste PTI itself may not contain a specific figure, supporting documents contain the underlying calculations and include a 1×10^{-5} cm/s soil permeability specification. Appellees further explain that it will be clear to construction personnel to consult supporting documents before beginning cap construction.

{¶297} The Commission finds that the Director could have reasonably relied upon details contained within a document supporting ALI's 2005 PTI Application. The Commission notes that solid waste PTI applications contain numerous parts and the Ohio Administrative Code requires applicants to submit a wide range of detailed information. Thus, it was reasonable for Ohio EPA personnel to consider information that may have been contained in a document other than the 2005 PTI Application itself. Moreover, Appellants do not dispute Appellees' assertion that construction personnel routinely cross-reference underlying calculations during construction. Accordingly, the

Commission finds that the Director had a valid factual foundation for approving ALI's cap design.

{¶298} Having found that the Director had a valid factual foundation for concluding that ALI's cap design meets the requirements of Ohio Adm.Code 3745-27-08(C)(4)(d), the Commission finds that the Director acted lawfully and reasonably in issuing ALI's 2006 solid waste PTI with respect to its cap design.

J. Gas Monitoring System

{¶299} Ohio Adm.Code 3745-27-08 and 3745-27-12 govern landfill gas monitoring and extraction systems.

{¶300} Appellants do not cite any specific provision in either Ohio Adm.Code 3745-27-08 or 3745-27-12 that the ALI's 2005 PTI Application fails to satisfy. Nonetheless, Appellants appear to argue that ALI's gas monitoring and extraction system does not meet the requirements of Ohio Adm.Code 3745-27-08 and/or 3745-27-12 on the basis that liquid buildup in the gas wells is causing the system to operate less efficiently than ALI assumed in its 2005 PTI Application. Although Appellants' assignments of error also appear to challenge the location of the gas monitoring and extraction wells, they presented no specific evidence to support their assertion.

{¶301} With regard to liquid buildup in the wells, Appellees explain that liquid is pumped out once it becomes significant. Appellees further explain that, because site-specific data was unavailable at the time, ALI consulted United States Environmental Protection Agency ("U.S. EPA") reference document AP-42 to establish the capture efficiency figure it used in its 2005 PTI Application.

{¶302} The Commission finds that the Director had a valid factual foundation for concluding that ALI's gas monitoring and extraction system meets the requirements

of Ohio Adm.Code 3745-27-08 and 3745-27-12. First, it was reasonable for the Director to accept the AP-42 figure, as site-specific data was not available at the time the ALI submitted its 2005 solid waste PTI application. Further, the Commission finds that the Director had a valid factual foundation for concluding that liquid buildup in the gas extraction wells does not significantly affect the capture efficiency of the gas collection system because ALI simply pumps such liquid out of the wells. Accordingly, the Commission finds that the Director had a valid factual foundation for accepting ALI's gas collection system design.

{¶303} Having found that the Director had a valid factual foundation for concluding that ALI's design for its gas monitoring and extraction system meets the requirements of Ohio Adm.Code 3745-27-08 and 3745-27-12, the Commission finds that the Director acted lawfully and reasonably in issuing ALI's 2006 solid waste PTI with respect to its gas monitoring system design.

K. Financial Assurance

{¶304} Ohio Adm.Code 3745-27-11(B)(10) requires applicants to develop a "final closure/post-closure plan" that contains, among other items, "contingency plans" for "leachate, fire, and differential settlement."

{¶305} Appellants argue that the Director acted unlawfully and unreasonably in issuing the 2006 solid waste PTI because ALI does not include "line item estimates" for leachate outbreaks and fires in the financial assurance portion of its closure plans. In arguing that ALI should have been required to submit line item estimates for leachate outbreaks and for fires, Appellants rely on events at Countywide Landfill, an unrelated facility. Appellants argue that the events at Countywide demonstrate the likelihood of a fire at ALI.

{¶306} Appellees respond that financial assurance and closure regulations are designed to manage sub-surface leachate outbreaks through the “corrective actions” program rather than through the initial financial assurance documents included with solid waste PTI applications. Appellees further note that ALI’s synthetic cap design eliminates the risk of surface leachate outbreaks.

{¶307} Regarding fires, Appellees simply state that landfill facilities were not required to submit line item estimates for every conceivable catastrophe. And because fires are extremely rare events for municipal solid waste landfills, Appellees argue that it is reasonable to not provide a line item estimate for such an event. Appellees further note that financial assurance plans must be updated annually. Thus, if conditions at ALI change, such that a fire becomes a reasonable possibility, ALI would be required to update its financial assurance plan to reflect such changes.

{¶308} The Commission finds that the Director had a valid factual foundation for not requiring ALI to submit line item estimates for leachate outbreaks and fires. Appellants do not dispute that the synthetic cap minimizes the risk of surface leachate outbreaks and failed to present any evidence demonstrating that the “corrective action” process is inadequate for managing sub-surface leachate outbreaks. Comparatively, the Director argues that leachate outbreaks are managed through the “corrective actions” program rather than through the initial financial assurance documents submitted as a part of solid waste PTI applications. Appellants presented no testimony supporting that the Director’s interpretation of the solid waste regulatory scheme contradicted the express language of the applicable statutes and regulations or was unreasonable in any way. Accordingly, the Commission finds that the Director’s interpretation of the financial assurance regulatory scheme is reasonable.

{¶309} Similarly, the Commission finds that the Director had a valid factual foundation to not require ALI to submit a line item estimate for fires. The Commission finds that it unreasonable to require solid waste PTI applicants to provide line item estimates for all conceivable catastrophes. And further, the Commission finds that evidence supports the conclusion that fires are rare occurrences at municipal solid waste landfill facilities. Although a fire may or may not have occurred at Countywide, Appellants presented no evidence indicating that such a fire is likely to occur at ALI's facility.

{¶310} Having found that the Director had a valid factual foundation for not requiring ALI to include line item estimates for leachate outbreaks or fires, the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 Expansion PTIs with respect to the financial assurance requirements contained in Ohio Adm.Code 3745-27-11(B)(10).

L. 100 GPM Aquifer

{¶311} Ohio Adm.Code 3745-27-07(H)(2)(d) contains the following requirement:

The sanitary landfill facility is not located above an unconsolidated aquifer system capable of sustaining a yield of one hundred gpm for a twenty-four-hour period to an existing or future water supply well located within one thousand feet of the limits of solid waste placement of the sanitary landfill facility.

{¶312} ALI's 2005 PTI Application identifies a 100 gpm aquifer located near the west side of its facility. Although the aquifer is not located beneath the facility, ALI concluded that sand fingers below its facility are potentially been connected to the 100 gpm aquifer. Therefore, ALI sought and obtained from the Director an exemption from Ohio Adm.Code 3745-27-07(H)(2)(d) that authorizes removal of the sand fingers.

{¶313} Appellants argue that ALI fails to comply with the 100gpm aquifer requirement for three reasons: (1) the 2005 PTI Application fails to identify an additional 100 gpm aquifer on the east side of the facility; (2) ALI's 2005 PTI Application does not contain information regarding the permeability of the material that is to be used to replace the sand fingers and, therefore, fails to ensure that the removal of the sand fingers will be sufficient to isolate the landfill facility from the 100 gpm aquifer; and (3) the Director interpretation of Ohio Adm.Code 3745-27-07(H)(2)(d) is unreasonable because allowing for the removal of the sand fingers frustrates the purpose of the regulation.

{¶314} With respect to the alleged east side 100 gpm aquifer, Appellants rely on an ODNR map, which appears to show the Little Sandy Creek aquifer near the limits of waste placement on the east side of the facility.

{¶315} In response, ALI explains that it investigated whether a 100 gpm aquifer was present on the east side of the facility and placed a test well and borings at locations where ALI had determined it would be most likely to locate a 100 gpm yield. The data obtained from both the test well and borings does not support the presence of a 100 gpm aquifer on the east side of the facility.

{¶316} Regarding the material used to replace the sand fingers, Appellants offered the testimony of Mr. Barone, who testified that the 2005 PTI Application lacks permeability specifications or relevant engineering drawings. Mr. Barone believes that without such information, the Director would have been unable to make an informed decision regarding ALI's proposed solution.

{¶317} Appellees note that although the 2005 PTI Application does not contain permeability specifications, its exemption request specifies that the proposed

replacement material will have a “maximum permeability of 1×10^{-6} cm/sec.” The exemption request also references a corresponding engineering drawing. Accordingly, Appellees argue that its exemption request contained sufficient detail.

{¶318} Finally, Appellants argue that the purpose of Ohio Adm.Code 3745-27-07(H)(2)(d) is to protect 100 gpm aquifer systems and that removal of the sand fingers thus frustrates this purpose because they are a part of the 100 gpm aquifer system.

{¶319} The Commission finds that the Director had a valid factual foundation to accept ALI’s conclusion that a 100 gpm aquifer does not exist on the east side of the ALI facility. Notwithstanding the ODNR map, Appellants do not dispute that ALI completed an investigation, including drilling of test borings and placement of a test well, and that none of the results identifies a 100 gpm aquifer on the east side of its facility. Appellants did not present any evidence suggesting that ALI’s tests are insufficient or that its results are inaccurate. The Commission thus finds that the evidence supports the conclusion that a 100 gpm aquifer does not exist on the east side of the ALI facility.

{¶320} Further, the Commission finds that the exemption request contains sufficient detail and specifications for the Director to authorize ALI’s proposal to remove the sand fingers. Appellants neither presented evidence that the 1×10^{-6} cm/sec permeability specification is unreasonable, nor dispute that the permeability specification could be contained in the exemption request rather than in the 2005 PTI Application itself. Thus, the Commission finds that the Director had a valid factual foundation for concluding that the removal of the sand fingers will be sufficient to isolate the ALI facility from the 100 gpm aquifer system on the west side of the facility.

{¶321} Finally, the Commission finds that the Director reasonably interprets Ohio Adm.Code 3745-27-07(H)(2)(d) to authorize ALI's removal of the sand fingers and that his interpretation does not frustrate the purpose of the regulation.

{¶322} The express language of Ohio Adm.Code 3745-27-07(H)(2)(d) prohibits a landfill from being located *above* a 100 gpm aquifer system. The regulation does not expressly prohibit the removal of sand fingers, and nothing in the express language of Ohio Adm.Code 3745-27-07(H)(2)(d) suggests that a landfill facility cannot lawfully be located above an area that previously contained a 100 gpm aquifer, but which had since been removed.

{¶323} Accordingly, the Commission finds that the Director acted lawfully and reasonably in approving ALI's exemption request and in issuing the 2006 solid waste PTI with regard to the 100 gpm aquifer requirement contained in Ohio Adm.Code 3745-27-07(H)(2)(d).

M. Uppermost Aquifer System Designation

{¶324} Ohio Adm.Code 3745-27-07(H)(2)(e) requires that a landfill facility be located at least fifteen feet above the UAS. The provision states:

The isolation distance between the uppermost aquifer system and the bottom of the recompacted soil liner of a sanitary landfill facility is not less than fifteen feet of in-situ or added geologic material constructed in accordance with rule 3745-27-08.

{¶325} In the 2006 solid waste PTI, the Director designates the PHL/BC formation as the UAS; previous permits had designated the KS formation as the UAS. This re-designation is significant because if the KS formation had remained the UAS, ALI's proposed expansion would not have satisfied the requirements of Ohio Adm.Code 3745-27-07(H)(2)(e).

{¶326} Appellants challenge the Director’s designation of the PHL/BC formation as the UAS, asserting five arguments: (1) the KS formation is hydraulically connected to the PHL/BC formation, and therefore both formations are part of the same aquifer system; (2) ALI incorrectly calculated the yield for the KS and PHL/BC formations, and the correct yield figures would have compelled the conclusion that the KS formation is the UAS; (3) ALI’s vertical isolation tests are inadequate; (4) ALI’s permeability tests are inadequate; and (5) ALI incorrectly characterized the KS formation as a discontinuous series of “sand lenses.” None of these arguments is well-taken.

i. Definition of Aquifer System

{¶327} Ohio Adm.Code 3745-27-01(A)(8) defines “aquifer system” as follows:

“Aquifer system” means one or more geological unit(s) or formation(s) that is/are wholly or partially saturated with water and is/are able to store, transmit, and yield significant amounts of water to wells or springs.

{¶328} Appellants contend that the term “partially saturated” indicates that an aquifer system encompasses all formations between which any hydraulic connection exists. Appellants also contend that pursuant to Ohio Adm.Code 3745-27-01(A)(8), an aquifer system can be discontinuous. Neither argument is well-taken.

{¶329} Regarding the term “partially saturated,” Appellants note that no distinction is made between “significant” and “non-significant” potential hydraulic connections. Therefore, Appellants argue, geologic formations that are partially saturated and that exhibit *any* potential hydraulic connection should be considered part of a single aquifer system.

{¶330} In response, the Director explained that pursuant to Ohio Adm.Code 3745-27-01(A)(8), an aquifer system encompasses only those geologic formations

between which some *significant* potential hydraulic connection is present. In other words, the degree or magnitude of potential connection is relevant, and only those formations capable of acting as a single cohesive unit combine to form a single aquifer system for purposes of the UAS designation.

{¶331} As Mr. Razem explained, *all* geologic formations are hydraulically connected to some degree. Therefore, Appellants' alternative interpretation—that an aquifer system encompasses all formations between which *any* hydraulic connection is present—would lead to the impractical result of encompassing all formations, from the surface down to the center of the Earth.

{¶332} Regarding continuity, Appellants argue that Ohio Adm.Code 3745-27-01(A)(8) does not expressly contain such a requirement with respect to the UAS designation. Therefore, Appellants argue, even discontinuous formations such as the KS formation⁵⁷ could be considered a single aquifer system.

{¶333} Appellees respond that discontinuous formations should not be designated as a UAS because of the monitoring requirements associated with a UAS designation. Mr. Razem and Mr. Dobransky explained that the designation of a discontinuous formation as the UAS could potentially allow contaminants to migrate to lower formations and travel off-site without being detected.

{¶334} Accordingly, although the explicit language of Ohio Adm.Code 3745-27-01(A)(8) neither distinguishes between significant and non-significant hydraulic connections, nor expressly requires continuity in relation to the UAS designation, the

⁵⁷ See note 22, *supra*.

Commission finds that the Director's explanation of the regulation is reasonable, and thus defers to his interpretation.

ii. Yield

{¶335} Pursuant to Ohio Adm.Code 3745-27-01(A)(8), aquifer systems include only those geologic formations that are able to “yield significant amounts of water.” Guidance document DDAGW-02-05-100 explains that “significant amounts of water” means greater than 0.1 gpm. Guidance document DDAGW-02-05-100 also contains the “regional aquifer policy,” which provides that an aquifer is deemed to not yield “significant amounts of water” where it (1) has a yield of less than 50% of a lower aquifer and (2) has a yield of less than 3 gpm.

{¶336} In its 2005 PTI Application, ALI lists the average yield for the KS and PHL/BC formations as 0.97 gpm and 5.2 gpm, respectively. Based on guidance document DDAGW-02-05-100 and the “regional aquifer” policy contained therein, the Director determined that the KS formation does not meet the “significant yield” component of the definition of an aquifer system.

{¶337} Appellants do not challenge Guidance Document DDAGW-02-05-100's regional aquifer policy. Instead, Appellants argue that the Director erred in accepting ALI's yield calculations because ALI included data from some ODNR well logs and excluded data from others in computing its average yield figures. Appellants also argue ALI should have included data from TB-117, which indicated a yield of 50 gpm in the KS formation. Appellants further assert that if ALI had included the data from the additional ODNR wells and/or TB-117, the Director could not have applied the regional aquifer policy. Applying the regional aquifer policy enabled ALI to designate the PHL/BC formation as the UAS in its 2006 solid waste PTI because the average yield for

the KS formation was less than 3 gpm and less than 50% of the average yield for the PHL/BC formation.

{¶338} ALI responds that its decisions to include or exclude a well were based upon whether it could determine if the reported yield was drawn from a particular geologic formation. ALI explains that if it could not determine from which particular formation a well drew its water, any yield data for that well would not be meaningful with regard to computing an average yield for a particular geologic formation. For example, ALI did not include the 50 gpm figure from TB-117 because that well was capable of drawing water from multiple geologic formations.

{¶339} The Commission finds that the Director had a valid factual foundation for accepting ALI's average yield data and for concluding that the KS formation did not meet the definition of an aquifer system pursuant to Ohio Adm.Code 3745-27-01(A)(8) and the regional aquifer policy contained in Guidance Document DDAGW-02-05-100.

iii. Vertical Isolation

{¶340} ALI's vertical isolation data indicates that no significant hydraulic connection exists between the KS and PHL/BC formations.

{¶341} Appellants challenge this data, arguing that ALI failed to conduct the vertical isolation tests for sufficient durations. Citing an Ohio EPA guidance document regarding "slug and pumping tests," Appellants argue that ALI should have conducted the vertical isolation tests for a minimum of twenty-four hours.

{¶342} Several witnesses testified on Appellees' behalf that the twenty-four hour minimum is not necessarily applicable to the type of test at issue here. Further, Mr. Dobransky explained that significant hydraulic connections can be observed within minutes of the start of a vertical isolation test and cited the test performed on the west-

side 100 gpm aquifer as an example of when a lesser duration generated ample data to make a determination about hydraulic connectivity.

{¶343} Additionally, Appellants argue that Appellees placed the monitoring wells too far away from the pumping wells. Mr. Barone testified that the wells should have been placed no more than ten feet apart.

{¶344} Significantly, however, Mr. Barone failed to cite to any regulation, peer reviewed literature, best industry practices, or other external support for his opinion. Further, Appellants presented no testimony indicating either that placing the wells more than ten feet apart *significantly* reduced the reliability of the vertical isolation data obtained during ALI's tests, or that the distribution of the wells led to a different UAS designation.

{¶345} Finally, Appellants argue that ALI should not have disregarded certain vertical isolation data from 1999, which appears to show some level of connection.

{¶346} In response, Appellees argue that it was reasonable to disregard the three vertical isolation test results from 1999 that appear to indicate some level of hydraulic connection. In one instance, Appellees explained, the 1999 the data suggests a calibration error rather than an actual hydraulic connection, and that the 2005 re-test indicates no connection. In another instance, the 1999 test did not, in fact, show significant connection, and the 2005 re-test similarly shows little to no connection. And in the final instance, the 2005 re-test simply confirms the original 1999 test results.

{¶347} The Commission thus finds that the totality of the evidence supports that the Director had a valid factual foundation to accept ALI's vertical isolation data and its conclusion that no significant hydraulic connection exists between the PHL/BC and KS formations.

iv. Permeability

{¶348} Permeability data aids in the identification of “confining layers” that serve as a barrier to the movement of water between geologic formations. Confining layers are identified, in part, by their low permeability as compared to the surrounding geologic formations. The permeability data contained in ALI’s 2005 PTI Application demonstrates the CS formation operates as a confining layer between the KS and PHL/BC formations.

{¶349} Again, Appellants challenge this conclusion primarily on the basis that the tests were not conducted for at least twenty-four hours.

{¶350} Appellees respond that permeability is calculated using the rate of drawdown. Accordingly, permeability tests are conducted only for the time required drawdown rate to stabilize. Thus, once the rate has stabilized, the test need not proceed further.

{¶351} Moreover, other data supports the conclusion that the CS formation serves as a confining layer. Specifically, Appellees note that the observed water levels in wells placed in the PHL/BC formation rise above the top of the formation itself. Appellees explain that this phenomenon, known as “artesian pressure,” occurs when a confining layer causes pressure to build up in the geologic formation below, thereby forcing water upwards in wells. Mr. Razem testified that monitoring wells drilled into the PHL/BC formation exhibit such artesian pressure and, therefore, indicate the presence of a confining layer above the PHL/BC formation.

{¶352} Accordingly, the Commission finds that the Director had a valid factual foundation to conclude the permeability tests were properly conducted, and that the CS formation functions as a confining layer between the KS and PHL/BC formations.

v. *Continuity*

{¶353} ALI’s 2006 solid waste PTI designates the PHL/BC formation as the UAS because, in part, ALI determined that the KS formation is not continuous, as had been previously thought. After a re-evaluation of boring logs,⁵⁸ ALI concluded that the KS formation consists of a series of distinct “sand lenses.”

{¶354} In issuing the 2006 solid waste PTI, the Director found this discontinuity significant because a discontinuous UAS increases the risk that leachate contamination will not be detected.

{¶355} In challenging the 2006 solid waste PTI’s re-designation of the UAS, Appellants argue that the KS formation *is* continuous. Appellants cite numerous boring logs that note the presence of “sandstone” or “sandy shale.” Appellants argue that because the vast majority of the logs contain such notations, the KS formation must, therefore, be continuous.

{¶356} In response, Appellees argue that “sandstone” and “sandy shale” are not synonymous. Thus, Appellees conclude that the boring logs do not show the extensive presence of sandstone.

{¶357} Appellants also argue that even if the KS formation is not continuous, continuity is not a component of the UAS definition.⁵⁹

{¶358} The Commission finds that the Director had a valid factual foundation to accept ALI’s conclusion regarding the discontinuity of the KS formation. Based upon the

⁵⁸ Eagon & Associates, whom ALI had hired as a consultant, re-evaluated boring logs prepared by a previous consultant, Earth Sciences, before reaching the conclusion that the KS formation was not continuous.

⁵⁹ As discussed above, Appellants note that Ohio Adm.Code 3745-27-01(A)(8) does not contain an express continuity requirement in its definition of an aquifer system.

distinction between “sandstone” and “sandy shale,” evidence supports a finding that the boring logs do not show the extensive presence sandstone and that the KS formation is, therefore, not continuous. Further, as discussed above, the Director also reasonably concluded that this discontinuity is significant with regard to the designation of a UAS pursuant to Ohio Adm.Code 3745-27-07(H)(2)(e).

{¶359} Having found that (1) the Director’s interpretation of the definition of an aquifer system is reasonable; and (2) the Director had a valid factual foundation to accept ALI’s yield, vertical isolation, and permeability data, along with ALI’s determination that the KS formation is discontinuous, the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with regard to his designation of the PHL/BC formation as the UAS.

N. Five Year Time of Travel

{¶360} Ohio Adm.Code 3745-27-07(H)(3)(a) requires solid waste PTI applicants to demonstrate that the landfill facility will not be within a five-year time of travel of any public water supply well or within a wellhead protection area.

{¶361} Appellants presented no specific evidence regarding this issue. Conversely, Mr. Razem and Mr. Dobransky testified that ALI calculated the five-year time of travel using inputs that produced a conservative value. ALI determined that the nearest public supply wells have a 20-year and 32.2 year times of travel from the ALI site. Mr. Razem and Mr. Dobransky testified that ALI’s calculations satisfy the five-year time of travel requirements.

{¶362} Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that ALI’s 2005 PTI Application satisfies the five-year time of travel requirements. Having found that the Director had a valid factual foundation for

concluding that ALI's 2005 PTI Application satisfies the requirements of Ohio Adm.Code 3745-27-07(H)(3)(a), the Commission finds that the Director acted lawfully and reasonably in issuing ALI's 2006 solid waste PTI with regard to the five-year time of travel requirement.

O. 200-Foot Surface Water Setback Requirement

{¶363} Ohio Adm.Code 3745-27-07(H)(4)(d) requires solid waste PTI applicants to demonstrate that the proposed landfill will not be within 200 feet of a stream, lake, or wetland.

{¶364} Again, Appellants presented no specific evidence regarding this issue.

{¶365} On Appellees' behalf, Mr. Walker explained that, after receiving a variance, ALI's plans satisfy the 200-foot surface water setback requirement.

{¶366} Accordingly, the Commission finds that the Director had a valid factual foundation with respect to his determination that the proposed landfill expansion satisfies the 200-foot surface water setback requirement. Having found that the Director had a valid factual foundation for his determination that the proposed landfill expansion complies with Ohio Adm.Code 3745-27-07(H)(4)(d), the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with regard to the 200-foot surface water setback requirement.

P. Fault Line and/or Site Stability

{¶367} Ohio Adm.Code 3745-27-20(C)(3) requires solid waste PTI applicants to demonstrate that the proposed landfill will not be within 200 feet of a fault that has had displacement in Holocene time.

{¶368} Once again, Appellants presented no specific evidence regarding this issue.

{¶369} On Appellees' behalf, Mr. Walker again testified that ALI's plans satisfy the requirement.

{¶370} Accordingly, the Commission finds that the Director had a valid factual foundation for his determination that the proposed landfill satisfies the fault line setback requirement. Having found that the Director had a valid factual foundation for his determination that the proposed landfill, as described in ALI's 2005 PTI Application, complies with Ohio Adm.Code 3745-27-20(C)(3), the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 solid waste PTI with regard to the fault line and/or site stability requirement.

Q. Seeps/Springs

{¶371} Ohio Adm.Code 3745-27-06(C)(3)(d)(iv)(b)-(c) requires solid waste PTI applicants to submit information regarding the relationship between surface water features, such as seeps and springs, and groundwater.

{¶372} Appellants argue that ALI's 2005 PTI Application does not provide information regarding seeps and springs, but did not establish that significant seeps or springs are present at the ALI site.

{¶373} At the hearing, Mr. Carey testified that ALI has not received reports of significant seeps. Accordingly, Appellees argue that ALI was not required to submit information about seeps because no significant seeps exist.

{¶374} Based upon the evidence presented, the Commission finds that the Director had a valid factual foundation for determining that the proposed landfill satisfies the requirements of Ohio Adm.Code 3745-27-06(C)(3)(d)(iv)(b)-(c). Having found that the Director had a valid factual foundation for his determination that the proposed landfill, as described in ALI's 2005 PTI Application, satisfies Ohio Adm.Code

3745-27-06(C)(3)(d)(iv)(b)-(c), the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 Expansion PTIs with regard to the seeps/springs requirement.

R. Social/Economic Impact and/or Disparate Impact

{¶375} The Commission granted ALI's Motion to Dismiss Appellants' social/economic impact and/or disparate impact assignments of error on August 29, 2007. Appellants argued that the Director acted unlawfully and unreasonably by failing to consider such impacts on the community surrounding the ALI facility. Notably, the Commission finds that the Director was not required to consider social/economic impacts or disparate impact.

{¶376} Ohio Adm.Code 3745-27-02(G)(2) provides, "in deciding whether to grant a permit, the Director *may* take into consideration the social and economic impact * * * that may be a consequence of the issuance of the permit to install." (Emphasis added). The use of the word "may" indicates that such consideration is discretionary. Significantly, the use of "may" contrasts with Ohio Adm.Code 3745-27-02(G)(1), which states, "in deciding whether to grant or deny a permit, the Director *shall* evaluate whether * * * the facility is capable of fulfilling all appropriate regulatory requirements." (Emphasis added). Based on the use of the word "may," the Commission finds that is within the Director's discretion whether to consider the social and economic impact of such permit. Even if the Director did not consider social/economic impacts or disparate impact, the Director therefore acted lawfully and reasonably in issuing the 2006 solid waste PTI.

S. S. RCRA Citizens' Suit

{¶377} The Commission also granted ALI's Motion to Dismiss Appellants' RCRA-based assignments of error on August 29, 2007. The Commission finds that ERAC lacks jurisdiction to hear citizen suits brought pursuant to 42 United States Code ("U.S.C.") 6972.

{¶378} Under RCRA, citizen suit claims "shall be brought in the district court for the district in which the alleged violation occurred or alleged endangerment may occur." 42 U.S.C. 6972(a)(2). Most circuits have held that federal courts have exclusive original jurisdiction over RCRA claims. *See e.g., Interfaith Community Organization, Inc. et al. v. PPG Industries*, 702 F.Supp.2d 295, 304 (D.N.J. 2010); *Fletcher v. United States*, 116 F.3d 1315, 1317 (10th Cir. 1997); *Blue Legs v. U.S. Bureau of Indian Affairs*, 867 F.2d 1094, 1098 (8th Cir. 1989); *Spillane v. Commonwealth Edison Co.*, 291 F.Supp.2d 728, 732 (N.D. Ill. 2003).

{¶379} However, Appellants do correctly observe that in *Davis v. Sun Oil*, 148 F.3d 606 (6th Cir. 1998), the Sixth Circuit held that state trial courts and federal district courts maintain concurrent jurisdiction to hear RCRA citizen suits. The Court explained that in order to vest exclusive jurisdiction in the federal courts, Congress must "affirmatively divest state courts of their presumptive jurisdiction," and that "the 'shall' language in the RCRA enforcement provision does not grant exclusive jurisdiction to the federal courts in suits brought pursuant thereto." *Davis*, 148F.3d at 612, citing *Yellow Freight System, Inc. v. Donnelly*, 494 U.S. 820 (1990). Thus, in the Sixth Circuit, state trial courts and federal district courts maintain concurrent jurisdiction over RCRA citizen claims. *Id.*

{¶380} Significantly, however, the holding in *Davis* applies only to state trial courts; it does not apply to administrative tribunals such as ERAC. In Ohio, the courts of common pleas operate as courts of general jurisdiction. *See* R.C. 2305.01. On the other hand, it is well-settled that administrative tribunals are creatures of statutory creation with a tribunal’s jurisdiction limited to the scope of its creating statute. *Reynolds v. Jones*, ERAC No. 125549 (Jan. 29, 2004), citing *Johnson v. Williams*, 10th Dist. No. 77AP-776 (Feb. 16, 1978). Under R.C. 3745.04 and 3745.07, ERAC has exclusive original jurisdiction over appeals of final actions of the Director. As a citizen suit challenging ALI’s alleged ongoing operations, the Commission therefore lacks jurisdiction to hear Appellants’ RCRA-based claims.

{¶381} Appellants also attempted to frame their RCRA-based assignments of error in terms of R.C. 3734.44, which requires ALI to be in “substantial compliance” with “environmental laws.” Appellants argued that the Director acted unlawfully and unreasonably in issuing the 2006 Expansion PTIs because he failed to consider whether ALI was in compliance with RCRA. *See* R.C. 3734.44. Although the Commission would have jurisdiction to consider such a claim, the argument is nonetheless without merit.

{¶382} Under RCRA, states must develop and implement permit programs to ensure that municipal solid waste landfills (“MSWLF”) comply with federal regulations. 42 U.S.C. 6954(c)(1)(B). States may submit their MSWLF plans to the Administrator of the U.S. EPA for approval. 42 U.S.C. 6947. On June 13, 1994, U.S. EPA issued a Notice of Final Determination of Full Program Adequacy for Ohio’s MSWLF program. 59 Fed.Reg. 30353 (June 13, 1994). In approving Ohio’s plan, U.S. EPA found, “[t]he current Ohio regulations, contained in the Ohio Administrative Code (OAC-3745-27), are considered equivalent to the revised Federal Criteria,” and therefore concluded that

“Ohio’s application for adequacy determination meets all of the statutory and regulatory requirements of RCRA.” *Id.*

{¶383} Because Ohio Adm.Code Chapter 3745-27 is equivalent to the standards set forth in RCRA, the Director was not required to separately consider RCRA in determining whether ALI was in substantial compliance with environmental laws pursuant to R.C. 3734.44. Accordingly, the Commission finds that even if the Director did not separately consider RCRA, he acted lawfully and reasonably in considering whether ALI was in substantial compliance with environmental laws. Appellants’ RCRA-based assignments of error are not well-taken.

T. Generalized Vagueness and/or Notice/Comment Deficiencies

{¶384} Appellants presented no specific evidence demonstrating that the Director failed to conduct a meaningful comment period as required by R.C. 3734.02 and 3734.05.

{¶385} The Certified Record demonstrates that Ohio EPA received over 100 written comments on ALI’s draft solid waste PTI, including comments from CAALE and the three Individual Appellants. Further, Ohio EPA held a public hearing on February 2, 2006, at which 33 testified, including the three Individual Appellants.

{¶386} Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that the notice and comment period at issue satisfied the requirements of R.C. 3734.02 and R.C. 3734.05. Having found that the Director had a valid factual foundation for concluding that the notice and comment period at issue satisfied the requirements of R.C. 3734.02 and R.C. 3734.05, the Commission finds that he acted lawfully and reasonably in issuing the 2006 Expansion PTIs with regard to notice and comment.

U. Open Dumping

{¶387} Revised Code 3734.03 and Ohio Adm.Code 3745-27-05 prohibit open dumping.

{¶388} Appellants presented no evidence indicating that ALI is engaging in open dumping.

{¶389} Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that ALI is not in violation of R.C. 3734.03 or Ohio Adm.Code 3745-27-05. Having found that the Director had a valid factual foundation for his determination that ALI is not engaging in unlawful open dumping, the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 Expansion PTIs with respect to the prohibition on open dumping contained in R.C. 3734.03 and Ohio Adm.Code 3745-27-05.

V. Disclosure Statement

{¶390} Appellants did not present any evidence, nor did they cite any applicable law, to support their argument that ALI's 2005 PTI Application lacked a "disclosure statement." Therefore, the Commission finds that the Director acted lawfully and reasonably with respect to this issue.

W. Unlawful Delegation

{¶391} Again, Appellants presented no specific evidence with respect to "unlawful delegation." Thus, the Commission finds that the Director acted lawfully and reasonably with respect to this issue.

X. Prior NODs

{¶392} The Commission finds that the Director acted lawfully and reasonably when he evaluated ALI's responsiveness to the various NODs issued throughout the permitting process.

{¶393} Appellants argue that ALI did not adequately respond to the NODs issued during the permitting process and, therefore, the Director acted unreasonably in issuing the 2006 Expansion PTIs.

{¶394} Appellants failed to present any specific evidence as to which NOD(s) ALI might have failed to respond to. Conversely, the record supports that ALI provided extensive responses to several NODs.

{¶395} Accordingly, the Commission finds that the Director had a valid factual foundation for concluding that ALI was sufficiently responsive to the relevant NODs. Having found that the Director had a valid factual foundation for concluding that ALI was sufficiently responsive to the various NODs issued throughout the permitting process, the Commission finds that the Director acted lawfully and reasonably in issuing the 2006 Expansion PTIs with respect to this issue.

Y. Advance Permitting

{¶396} Appellants presented no specific evidence regarding "advance permitting." Thus, the Commission finds that the Director acted lawfully and reasonably with respect to this issue.

Z. Delineation of Property Lines, etc.

{¶397} Ohio Adm.Code 3745-27-06(B)(2)(a)(i)-(iii) requires solid waste PTI applicants to submit information regarding property lines, the limits of waste placement, and occupied structures.

{¶398} Appellants failed to present any testimony regarding this issue. Conversely, Appellees presented extensive testimony regarding ALI's property lines and the limits of waste placement proposed in the 2005 PTI Application.

{¶399} Thus, the Commission finds that the Director had a valid factual foundation for determining that ALI's 2005 PTI Application satisfies the requirements of Ohio Adm.Code 3745-27-06(B)(2)(a)(i)-(iii). Having found that the Director had a valid factual foundation for concluding that ALI's 2005 PTI Application satisfies the requirements of Ohio Adm.Code 3745-27-06(B)(2)(a)(i)-(iii), the Commission finds that he acted lawfully and reasonably in issuing the 2006 solid waste PTI with respect to delineation requirements.

FINAL ORDER

{¶400} Based on the foregoing, the Commission finds that the Director acted lawfully and reasonably in issuing ALI’s 2006 solid waste PTI, ALI’s 2006 air PTI, and in approving ALI’s 2007 and 2008 ASDs. Accordingly, the Director’s final actions in these matters are hereby AFFIRMED.

{¶401} In accordance with Ohio Adm.Code 3746-13-01, the Commission informs the parties of the following:

Any party adversely affected by an order of the commission may appeal to the court of appeals of Franklin County, or, if the appeal arises from an alleged violation of a law or regulation, to the court of appeals of the district in which the violation was alleged to have occurred. The party so appealing shall file with the commission a notice of appeal designating the order from which an appeal is being taken. A copy of such notice shall also be filed by the appellant with the court, and a copy shall be sent by certified mail to the director or other statutory agency. Such notices shall be filed and mailed within thirty days after the date upon which appellant received notice from the commission of the issuance of the order. No appeal bond shall be required to make an appeal effective.

ESCHLEMAN AND PETERSEN, COMMISSIONERS, CONCUR

**The Environmental Review
Appeals Commission**

Entered into the Journal of the
Commission this _____ day of
August 2012.

Lisa L. Eschleman, Chair

Melissa M. Shilling, Vice Chair

Shaun K. Petersen, Member

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