

**OBJECTION TO THE ISSUANCE OF  
PSD/NEW SOURCE CONSTRUCTION AND PART 70 OPERATING PERMIT  
PERMIT NO. T147-39554-00065  
RIVERVIEW ENERGY CORPORATION  
2020 OEA 31, OEA CAUSE NO.: 19-A-J-5073**

<b>Official Short Cite Name:</b>	<b>Riverview, 2020 OEA 31</b>
<b>OEA Cause No.:</b>	19-A-J-5073
<b>Topics/Keywords:</b>	VCC Prevention of Significant Deterioration Part 70 Operating permit BACT Best available control technology RACT/BACT/LAER Flares FEED 326 IAC 2-7 326 IAC 2-2 New Source Performance Standards (“NSPS”) National Emission Standards for Hazardous Air Pollutants (“NESHAP”) Attainment Major stationary source 326 IAC 2-2-5 326 IAC 2-2-3(2) 326 IAC 2-2-1(i) Potential to emit 326 IAC 2-2-1(11) 326 IAC 2-1.1-1(12) 326 IAC 2-7-1(30) 326 IAC 2-2-4 326 IAC 2-5.1-3(c)(2) 326 IAC 2-7-10.5 U.S. EPA Guidance Document AP-42 Hazardous Air Pollutant (HAP) Risk Analysis Leak Detection and Repair (LDAR) PM <sub>10</sub> , PM <sub>2.5</sub> , NO <sub>x</sub> SO <sub>2</sub> Flare emissions

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<b>Topics/Keywords Continued:</b>	VOC fugitive emissions
	Air Quality Modeling Policies (Modeling Policies)
	AERMOD
	meteorological data
	AERMET
	NAAQS criteria pollutant
	Significant Impact Level (SIL) PSD increment analysis inventory
	sources intermittent emissions
	Startup, shutdown, and malfunction emissions (SSM)
	Ozone
	Modeled Emission Rates for Precursors (MERP)
	Secondary pollutants
	VISCREEN
	Class I areas cancer risk
	Optical Gas Imaging (OGI) Enhanced LDAR
	flare gas recovery flare management plan parametric monitoring
	testing
	Bag Leak Detection System (BLDS)
	Enforceability
	Public participation
	326 IAC 2-7-17(c)(1)(C)(iv)
<b>Presiding ELJ:</b>	CATHERINE GIBBS
<b>Party Representatives:</b>	PETITIONERS: KATHRYN WATSON, CHARLES MCPHEDRAN, LAUREN PIETTE
	PERMITTEES: DONALD SNEMIS, TERRI CZAJKA, AMY BERG
	RESPONDENT: ELIZABETH ZLATOS, KYLE BURNS, CLARK KIRKMAN (IDEM)
<b>Order Issued:</b>	DECEMBER 17, 2020
<b>Index Category:</b>	AIR
<b>Further Case Activity:</b>	Judicial Review, 49D13-2101-PL-001599, completed. OEA is Affirmed as of 12/29/2022.

STATE OF INDIANA )  
 )  
COUNTY OF MARION )

BEFORE THE INDIANA OFFICE OF  
ENVIRONMENTAL ADJUDICATION

IN THE MATTER OF: )

OBJECTION TO THE ISSUANCE OF )  
PSD/NEW SOURCE CONSTRUCTION )  
AND PART 70 OPERATING PERMIT )  
NO. T147-39554-00065 )  
RIVERVIEW ENERGY CORPORATION )  
DALE, SPENCER COUNTY, INDIANA )

CAUSE NO. 19-A-J-5073

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Southwestern Indiana Citizens for Quality of Life )  
Inc., and Valley Watch, Inc. )  
Petitioners )  
Riverview Energy Corporation )  
Permittee/Respondent )  
Indiana Department of Environmental Management )  
Respondent )

**FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL ORDER**

This matter comes before the Office of Environmental Adjudication (“OEA”) on Southwestern Indiana Citizens for Quality of Life Inc.’s and Valley Watch, Inc.’s (“Petitioners”) Petition for Administrative Review. The presiding Environmental Law Judge, being duly advised and having heard testimony, admitted evidence, heard argument, and read briefs, now enters the following Findings of Fact, Conclusions of Law, and Order:

**Findings of Fact Applicable to All Counts**

1. On June 11, 2019, the Indiana Department of Environmental Management (IDEM) issued Prevention of Significant Deterioration/New Source Construction and Part 70 Operating Permit No. T147-39554-00065 (the Permit) to Riverview Energy Corporation (Riverview). The Permit allows the construction of a direct coal hydrogenation refinery to covert coal to liquid fuels (the Facility) at 4704 East 2000 North, Dale, Spencer County, Indiana.
2. Petitioners, Southwestern Indiana Citizens for Quality of Life, Inc. and Valley Watch, Inc., filed their Petition for Review on July 9, 2019.
3. The Office of Environmental Adjudication (OEA) granted summary judgment and entered Findings of Fact, Conclusions of Law and Order determining that Petitioners were aggrieved or adversely affected on January 22, 2020.

4. OEA entered Findings of Fact, Conclusions of Law and Order on January 28, 2020 granting Petitioners' Motion for Summary Judgment on Count I of the Petition for Review. OEA determined that IDEM failed to comply with the requirements of 326 IAC 2-7-17(c)(1)(C). The Petitioners' Motion for Summary Judgment on Counts II through VI was denied.
5. Spencer County is deemed attainment for all criteria pollutants.
6. The proposed facility is a major source and is subject to the Prevention of Significant Deterioration (PSD) analysis and review requirements found in Indiana's federally approved State Implementation Plan (SIP) at 326 IAC 2-2 *et seq.*
7. The proposed Facility is a major source and requires a Part 70 Permit pursuant to the requirements in 326 IAC 2-7 *et seq.*
8. The facility is classified as SIC 2911 (Petroleum Refining) and SIC 2999 (Products of Petroleum and Coal, Not Elsewhere Classified), and is subject to the relevant New Source Performance Standards ("NSPS"), and relevant National Emission Standards for Hazardous Air Pollutants ("NESHAP") regulations.

#### **Conclusions of Law Applicable to All Counts**

9. IDEM is authorized to implement and enforce specified Indiana environmental laws, and rules promulgated relevant to those laws, per Ind. Code § 13-13, *et seq.* The OEA has jurisdiction over the decisions of the Commissioner of IDEM and the parties to this controversy pursuant to I.C. § 4-21.5-7, *et seq.*
10. Findings of Fact that may be construed as Conclusions of Law and Conclusions of Law that may be construed as Findings of Fact are so deemed.
11. This office must apply a *de novo* standard of review to this proceeding when determining the facts at issue. *Indiana Dept. of Natural Resources v. United Refuse Co., Inc.*, 615 N.E.2d 100 (Ind. 1993). Findings of fact must be based exclusively on the evidence presented to the ELJ, and deference to the agency's initial factual determination is not allowed. *Id.*; I.C. 4-21.5-3-27(d). "*De novo* review" means that all issues are to be determined anew, based solely upon the evidence adduced at that hearing and independent of any previous findings. *Grisell v. Consol. City of Indianapolis*, 425 N.E.2d 247 (Ind. Ct. App. 1981).
12. The OEA and IDEM, as state agencies, only have the authority to take those actions that are granted to them by the law. "An agency, however, may not by its rules and regulations add to or detract from the law as enacted, nor may it by rule extend its powers beyond those conferred upon it by law." *Lee Alan Bryant Health Care Facilities, Inc. v. Hamilton*, 788 N.E.2d 495, 500 (Ind. Ct. App. 2003). IDEM can only determine whether a permit should be issued by applying the relevant statutes and regulations and may only consider those

factors specified in the applicable regulations in deciding the terms and conditions of the permit.

13. As the ultimate authority for the IDEM, the OEA's authority is limited by statute (I.C. §4-21.5-7-3) to determining whether the IDEM decision complies with the applicable statutes and regulations. OEA is an impartial litigation forum, not a body which formulates or advises as to public policy or regulatory content.
14. Petitioners have the burden of proving that IDEM failed to comply with the applicable law and rules.
15. The evidence in this cause primarily consists of conflicting expert testimony. The ELJ must determine the weight to be given to this testimony. The courts have held that "the weight to be given expert testimony is for the trier of fact to decide, and it is not bound by an expert's opinion. Moreover, the trial court may even disregard such opinion if it so desires. *Ferdinand Furniture Co. v. Anderson*, 399 N.E.2d 799, 807 (Ind. Ct. App. 1980)." *Ind. Family & Soc. Servs. Admin. v. Hosp. House of Bedford*, 783 N.E.2d 286, 292 (Ind. Ct. App. 2003)
16. Because Spencer County has been designated as attainment and the Facility's potential to emit qualifies it as a major stationary source, Permittee must apply for and obtain a preconstruction permit under the Prevention of Significant Deterioration (PSD) standards. 326 IAC 2-2-2(b); 326 IAC 2-2-5(a); 42 U.S.C. § 7475(a)(3).
17. 326 IAC 2-2-5 requires:
  - (a) The owner or operator of the proposed major stationary source or major modification shall demonstrate that allowable emissions increases in conjunction with all other applicable emissions increases or reductions (including secondary emissions) will not cause or contribute to air pollution in violation of any:
    - (1) ambient air quality standard, as designated in 326 IAC 1-3, in any air quality control region; or
    - (2) applicable maximum allowable increase over the baseline concentration in any area as described in section 6 of this rule.
  - ...
  - (d) Air quality impact analysis required by this section shall be conducted in accordance with the following provisions:
    - (1) Any estimates of ambient air concentrations used in the demonstration processes required by this section shall be based upon the applicable air quality models, databases, and other requirements specified in 40 CFR Part 51, Appendix W (Requirements for Preparation, Adoption, and Submittal of Implementation Plans, Guideline on Air Quality Models)
18. 326 IAC 2-2-3(2) states: "A new, major stationary source shall apply best available control technology for each regulated NSR pollutant for which the source has the potential to emit in significant amounts as defined in section 1 of this rule."
19. 326 IAC 2-2-1(i) defines "best available control technology" as:

“Best available control technology” or “BACT” means an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant that would be emitted from any proposed major stationary source or major modification, that the commissioner, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for the source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the pollutant. In no event shall application of BACT result in emissions of any pollutant that would exceed the emissions allowed by any applicable standard under 40 CFR Part 60 and 40 CFR Part 61. If the commissioner determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard not feasible, a design, equipment, work practice, operational standard, or combination thereof may be prescribed instead to satisfy the requirements for the application of BACT. The standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of the design, equipment, work practice, or operation and shall provide for compliance by means that achieve equivalent results

20. In accordance with 326 IAC 2-2-2(c), this Facility, as designed, would exceed the limits that classify this Facility as one for which a PSD permit is required. Therefore, this Facility must obtain a PSD permit before actual construction.
21. A major source, as defined by 326 IAC 2-7-1(22), must also apply for, and obtain a Part 70 Permit pursuant to the requirements in 326 IAC 2-7 *et seq.* A source is considered major if its potential emissions exceed specific thresholds for any air pollutant subject to regulation. IDEM must calculate the potential to emit (PTE), in order to determine applicable emissions limits.
22. For purposes of PSD, “Potential to emit” means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is enforceable as a practical matter. Secondary emissions do not count in determining the potential to emit of a stationary source. 326 IAC 2-2-1(11).
23. For purposes of Part 70, “Potential to emit” (PTE) means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA. This term does not alter or affect the use of this term for any other purpose under the CAA<sup>1</sup>, (or the term “capacity factor” as used in Title IV of the CAA) (or the regulations promulgated thereunder). 326 IAC 2-1.1-1(12); 326 IAC 2-7-1(30).

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<sup>1</sup> Clean Air Act,

24. 326 IAC 2-2-4, in pertinent part, states:
- (a) Any application for a permit under the provisions of this rule shall contain an analysis of ambient air quality in the area that the major stationary source or major modification would affect for each of the following pollutants:
    - (1) For a source, each regulated NSR pollutant that the source would have the potential to emit in a significant amount.
    - ...
    - (b) Exemptions are as follows:
      - (2) A source or modification shall be exempt from the requirements of this section with respect to monitoring for a particular pollutant if either of the following apply:
        - (A) The emissions increase of the pollutant from a new source or the net emissions increase of the pollutant from a modification would cause, in any area, air quality impacts less than the following:
          - ...
          - (vi) Ozone: No de minimis air quality level is provided for ozone; however, any net increase of one hundred (100) tons per year or more of VOC or nitrogen oxides subject to PSD would be required to provide ozone ambient air quality data.
          - ...
  - (c) All monitoring required by this section shall be done in accordance with the following provisions:
    - ...
    - (3) In general, the continuous air quality monitoring data that is required shall have been gathered over a period of at least one (1) year preceding receipt of the application, except that, if the commissioner determines that a complete and adequate analysis can be accomplished with monitoring data gathered over a period shorter than one (1) year (but not less than four (4) months), the data that is required shall have been gathered over at least that shorter period.
    - (4) The owner or operator of the proposed major stationary source or major modification of VOC or nitrogen oxides who satisfies all conditions of 40 CFR Part 51, Appendix S, Section IV may provide post-approval monitoring data for ozone in lieu of providing preconstruction data as required under this subsection.
    - (5) The owner or operator of a major stationary source or major modification shall, after construction of the source or modification, conduct such ambient monitoring as the commissioner determines is necessary to determine the effect of the emissions that the source or modification may have, or is having, on air quality in any area.

## Count II

### Findings of Fact

25. The final design specifications for (a) the process equipment and (b) the pollution control technology were not submitted to IDEM before the Permit was issued on June 11, 2019.

*Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶23.

26. Equipment suppliers had not been selected as of January 9, 2020. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶24.
27. The Permit was issued prior to construction. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶29. Construction has not begun on the facility. *Hr'g. Tr.* 662.
28. Facility design typically is not finalized by the time an air permit application is submitted. *Hr'g. Tr.* 871. EPA has said it does not want applicants to finalize design because it may require different air pollution controls or different limits that may require redesign during the permitting process. *Hr'g. Tr.* 872.
29. It is common for a permit to be issued before a facility has completed its design and acquired the equipment necessary to operate. Typically, equipment is acquired after a source knows the permit limits. *Hr'g. Tr.* 905. It is common practice for permit applicants to submit, and for regulators to request, additional information after an application is submitted. *Hr'g. Tr.* 151-152. It is also common for applicants to adjust plant designs during the permitting process based on feedback from the regulator. *Hr'g. Tr.* 153. Rule applicability determinations could change and require changes to the final design. *Hr'g. Tr.* 153. For example, IDEM determined that this facility should be characterized as a refinery despite the applicant characterizing it as a coal conversion plant. *Hr'g. Tr.* 153-154, 872. Such a change brought the facility under a different set of regulations that required different design specifications. *Hr'g. Tr.* 872.
30. There is no dispute that facility design does not need to be complete before permitting. *Hr'g. Tr.* 31, 149, 871. No statute or rule requires final design drawings or final vendor selections or equipment selections with an air permit application. *Hr'g. Tr.* 149. Permitting requires having enough information to conservatively calculate emissions, assess rule applicability, and perform a BACT analysis. *Hr'g. Tr.* 873.
31. What constitutes “enough”, or “sufficient” information is subjective. As admitted by Petitioners’ expert, whether plant design is sufficiently complete for purposes of an air permit application is largely a judgment call. *Hr'g. Tr.* 149-151. Petitioners and their expert Dr. Sahu allege the immaturity of the design does not support IDEM’s emissions calculations or BACT determinations. *Hr'g. Tr.* 25. IDEM believed it had enough information to identify all emissions units and conduct a BACT analysis. *Hr'g. Tr.* 484-485.
32. In its order denying Petitioners’ request that EPA object to the Permit, EPA rejected the contention that the permit was insufficient. *Hr'g. Tr.* 167; Ex. 0315 at 13.

33. Aside from the VCC technology, the rest of the refinery design is relatively incomplete. *Hr'g. Tr. 32-33*. However, the other elements of the facility, and the processes that VCC comprises, are relatively standard and commonplace across the refining industry and other industries. *Hr'g. Tr. 137, 482*. These elements include coal handling block, coal storage block, sulfur recovery unit, boilers, cooling tower, hydrogen plant, and wastewater treatment. *Hr'g. Tr. 35-36; 155*. Also, the cracking, hydro treating, and refining processes involved in VCC are common to petroleum refineries and fertilizer production. *Hr'g. Tr. 482-483*.
34. The way a facility handles its coal may have an impact on emissions. *Hr'g. Tr. 37*. Coal handling can produce emissions of particulate matter (PM). *Hr'g. Tr. 39*. The Riverview facility will receive coal as 30-40 millimeter-sized material that will then be pulverized and dried. Ex. 0208 at 7. Air emissions from the coal mill and pulverizer are controlled by a baghouse with permitted limits for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. Ex. 005 at 15, 63-64. The permit also requires a Preventative Maintenance Plan, testing, enclosure controls, compliance monitoring, inspections, and recordkeeping. Ex. 005 at 63-67.
35. A detailed design plan is not necessary to determine PM limits for the coal handling and milling processes, which are commonplace and well-known processes. *Hr'g. Tr. 489*.
36. There is no dispute the coal enclosures have been designed to be totally enclosed. *Hr'g. Tr. 37*. The Permit requires the coal storage piles to be enclosed by domes. *Hr'g. Tr. 154; Ex. 005 at 59-62*.
37. The Permit requires the coal unloading and storage enclosures to be under negative pressure, and the source must demonstrate negative pressure. Tr 173-174, 487; Ex. 005 at 59-62. Negative pressure is created by a fan drawing air through the enclosure openings and exhausting it through a baghouse. *Hr'g. Tr. 487*. If there is negative pressure, PM<sub>10</sub> should not escape through the coal pile enclosure opening. *Hr'g. Tr. 487*. Emissions from the coal pile enclosures are controlled by the same baghouses, emissions limits, terms, and conditions that control the coal size reduction process. Ex. 005 at 62-63.
38. The cooling water treatment process involves a cooling tower that provides cooling water for various processes and units at the Riverview facility. Ex. 0208 at 15. Total dissolved solids ("TDS") in the circulating cooling water are subject to emissions limits. Ex. 005 at 116-117.
39. IDEM only needs to know the total dissolved solids in the cooling water to make a permitting decision regarding the cooling water treatment process. *Hr'g. Tr. 738*. IDEM can translate that figure into the emissions. *Hr'g. Tr. 738*.
40. IDEM based its limit for total dissolved solids in the cooling water on design specifications provided by the source. *Hr'g. Tr. 491*. The limit is relatively conservative. *Hr'g. Tr. 491*.

41. The sulfur recovery system recovers elemental sulfur from acid gas. Ex. 0208 at 11. Petitioners alleged IDEM did not have enough information about the sulfur recovery units because IDEM did not have the firing rate. *Hr'g. Tr. 189*; Ex. 001 at 4-5. Undisputed evidence shows Riverview's consultant provided IDEM with the firing rate. Ex. 0249 at 1. With that information, IDEM could set the permit terms regarding the sulfur recovery unit. *Hr'g. Tr. 739*.
42. Because the elements and processes proposed to be used at the facility are common and well documented, IDEM could determine potential to emit and BACT based on requirements at sources with similar elements and processes. *Hr'g. Tr. 483*.
43. Used as intended, VCC units operate under pressure and have no air emissions. *Hr'g. Tr. 155*.
44. After conducting engineering feasibility studies, facilities typically begin the Front-End Engineering Design (FEED) process. *Hr'g. Tr. 33*. After that process concludes, facilities determine vendors to be used and then move to construction drawing development. *Hr'g. Tr. 33*. The FEED process had not commenced at the time of permit issuance. *Hr'g. Tr. 33*. Whether FEED has commenced is not determinative for permitting decisions. *Hr'g. Tr. 151*.
45. The permit terms dictate the emissions requirements, and it is beneficial to know what requirements will be in place before design begins. *Hr'g. Tr. 724-725, 729*. Further, the correct equipment cannot be acquired until one knows the permit limits. *Hr'g. Tr. 725-726*.
46. IDEM engaged in multiple conversations with the applicant to gather the information it needed for to decide on the Permit. IDEM did not publish the draft permit for public notice until KBR and Riverview answered all its questions. *Hr'g. Tr. 539*.
47. Once it was decided the facility needed a Part 70 and PSD permit, the uncontrolled PTE estimates no longer needed to be refined. *Hr'g. Tr. 541*.
48. Once a permit is issued, the permittee is legally bound to construct the facility in a way that ensures compliance with the permit's terms and conditions. *Hr'g. Tr. 156*. The permit contains emissions limits designed to ensure compliance with the law that are supported by testing, monitoring, record keeping, and reporting requirements to demonstrate continuous compliance with those emissions limitations. Ex. 301C at 77.
49. Changes to the facility would be subject to the limits incorporated into the permit. *Hr'g. Tr. 521*. Significant changes to the facility after permit issuance would require a source modification. *Hr'g. Tr. 484*.
50. Petitioners' expert does not offer any alternative BACT choices that IDEM should have considered. *Hr'g. Tr. 216*.

### Conclusions of law

51. IDEM may issue an air permit only after its staff has approved the plans and specifications for the facility and determined that the facility, equipment, or device meets the requirement of the rules. Ind. Code § 13-15-3-5(a).
52. The following descriptive information must be included in an application:
  - (A) A description of the nature and location of the proposed construction.
  - (B) The design capacity and typical operating schedule of the proposed construction.
  - (C) A description of the source and the emissions unit or units comprising this source.
  - (D) A description of any emission control equipment, including design specifications.326 IAC 2-5.1-3(c)(2).
53. An applicant also must submit “all reasonable information” necessary to evaluate compliance, 326 IAC 2-5.1-3(c)(4), and “substantive information.” 326 IAC 2-7-4(c). Neither of those terms are defined, nor do the air permit rules require that plans, specifications, or choices of equipment vendors be “final,” “comprehensive,” or “specific” at the time of application.
54. Though the facility design was not complete at the time of application or permit issuance, IDEM had sufficient information to determine whether to issue the permit and the terms of the permit.
55. Aside from VCC, the components of the facility are widely used, and IDEM could set limits and permit terms based on their use in other facilities. If operating properly, the VCC unit will not have any emissions.
56. It is intuitive that the more mature the project design, the better. However later changes to facility design could affect the facility’s air emissions. Changes to the facility that do not increase PTE would be subject to the limits incorporated to the permit. Changes to the facility that increase its PTE would require a source modification, which triggers another application process. 326 IAC 2-7-10.5.
57. Petitioners have failed to demonstrate IDEM lacked sufficient information to make a permitting decision or set appropriate permit terms and conditions.

### Count III

#### Findings of Fact

58. IDEM relied on U.S. EPA Guidance Document AP-42 to determine whether the PTE before controls for the proposed Riverview facility (the Facility) exceeded the thresholds for Prevention of Significant Deterioration (PSD) and Part 70 permitting. This guidance rates the average emission factor by letter grade. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶31.
59. The Facility is subject to the Petroleum Refinery NESHAP, including its flares. Ex. 301E at 6-14, 18, 19. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶32.
60. IDEM performed a Hazardous Air Pollutant (HAP) Risk Analysis and determined that “the cumulative cancer risk estimate from all HAPs are above the IDEM level of concern but well below the U.S. EPA’s risk estimates of one hundred in one million, representing the excess cancer risk to the upper range of acceptability with an ample margin of safety.” Ex. 007 at 13-15; Ex. 301C at 25. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶33.
61. The Petitioners presented testimony through Dr. Ranajit Sahu, and evidence with respect to their allegation that the Riverview Permit (the Permit) was unlawful because IDEM relied on deficient and erroneous permit calculations.
62. The Petitioners’ allegations with respect to deficient and erroneous permit calculations for the coal handling, preparation, and storage as well as cooling water treatment rest on their allegation that the proposed facility design plans for these operations were inadequate to determine potential to emit and conduct a Best Available Control Technology (BACT) analysis.
63. Dr. Sahu stated, “[p]otential to emit is a construct in air pollution permitting. It simply means, you look at the maximum potential, literally, in the plain English term, of a process to emit that pollutant. It sort of is an upper-end estimate of the likelihood of emissions and the quantification of that upper-end estimate of the emissions of that pollutant.” *Hr’g. Tr. 48*, Lines 18-25. He also testified that potential to emit is not only necessary to determine whether a new facility should be permitted as a major source but is also necessary for a BACT analysis for a PSD permit. *Hr’g. Tr. 49, Lines 17, 18*.
64. Dr. Sahu stated that potential to emit in a BACT analysis is used to determine whether a technically feasible control option is deemed to be too costly and, therefore, eliminated as a control option. *Hr’g. Tr. 49, Lines 20-25; Hr’g. Tr. 50, Lines 1-5*.

65. The Addendum to the Technical Support Document for the Permit contains no information that would indicate that IDEM conducted a cost-effectiveness analysis to eliminate any control option under BACT. Ex. 301D, Appendix B.
66. Steven Branoff, Permittee's expert, stated that in each IDEM BACT determination it found the top level of control to represent BACT so there was no need to do a cost-effectiveness analysis, which is consistent with EPA guidance. *Hr'g. Tr. 888, Lines 10-23.*
67. Dr. Sahu stated that while potential to emit is necessary to conduct PSD air modeling, he had not conducted any air modeling for the proposed Riverview facility based on his own emission calculation inputs. *Hr'g. Tr. 195, lines 17-23.*
68. Dr. Sahu stated that IDEM relied on AP-42 emission factors to define potential to emit in the portions of calculations dealing with HAPs. Further, he testifies that this underestimates the potential to emit because AP-42 emission factors represent average emissions and therefore cannot be used for potential to emit. *Hr'g. Tr. 56, Lines 20-25; 57-61; 62, Lines 1-20.*
69. Mr. Logan, the IDEM permit writer, stated that IDEM used AP-42 emission factors to determine whether the Facility is an area source or a major source of HAPs and, therefore, subject to federal NESHAP regulations. *Hr'g. Tr. 493, Lines 2-20.* AP-42 emission factors are used by IDEM as a tool to determine potential to emit in order to determine whether the criteria pollutants exceed PSD and Title V thresholds. *Hr'g. Tr. 485, Lines 22-25; 486, Lines 1-12.*
70. There is no authority for IDEM to limit HAPs emissions beyond what the federal Maximum Achievable Control Technology (MACT) standards require. *Hr'g. Tr. 493, Lines 21-25.*
71. Mr. Logan stated that his BACT analysis relied significantly on the control technologies and limitations found in the RACT/BACT/LAER Clearinghouse (RBLC). *Hr'g. Tr. 463, Lines 9-16.*
72. Dr. Sahu stated that because the NO<sub>x</sub> BACT emission limit for the tail gas treatment units at the sulfur recovery units are the same as the AP-42 emission factor for those units, that the BACT determination was incorrect and does not represent the potential to emit. *Hr'g. Tr. 74, Lines 18-25; 76; 77, Lines 1-3.*
73. Mr. Logan stated that emission factors that result in the BACT determinations found in the RBLC are enforceable limits and cease to be considered an emission factor. *Hr'g. Tr. 486, Lines 13-25.*
74. Dr. Sahu stated that, in developing the potential to emit for volatile organic compounds (VOC), IDEM relied on the kind of components and number of components, an emission factor, and a control efficiency factor. *Hr'g. Tr. 63, Lines 10-25; 64, Lines 1-20.*

75. Dr. Sahu stated that IDEM used emission factors from the Texas Department of Environmental Quality and a 1995 EPA guidance document in order to determine the potential to emit of VOCs for in-service VOC components. *Hr'g. Tr. 65, Lines 13-17; 15-20.*
76. Dr. Sahu characterized the number of components provided by the applicant and used for the emission calculations as “preliminary counts” of the VOC service components and that the number of components could increase or change from the time of a block flow diagram until a project is further in the design process. *Hr'g. Tr. 63, Lines 21-25; 66, Lines 1-17.*
77. If the proposed project design would change in any way that the potential to emit for a pollutant increases then the Permittee would have to apply for a source modification and the BACT analysis would have to be reopened and performed again. *Hr'g. Tr. 484, Lines 8-21.*
78. Dr. Sahu stated in determining the control efficiency factor, IDEM took into consideration the reductions based on the Leak Detection and Repair (LDAR) program required by the permit using the control efficiencies in the 1995 EPA guidance document. *Hr'g. Tr. 68, Lines 12-25; 69, Lines 1-8.* Dr. Sahu further opined that it was incorrect for IDEM to use the EPA-developed 100% control efficiencies for open-ended lines or valves, and sampling connectors because lines are sometimes left open by virtue of human nature. *Hr'g. Tr. 69, Lines 13-25.*
79. Dr. Sahu stated that he believes that IDEM erred in using the Global Warming Potentials (GWPs) published by EPA in its calculation for potential to emit greenhouse gases. *Hr'g. Tr. 199, Lines 9-25; 200; 201, Lines 1, 2.*
80. Dr. Sahu stated that IDEM’s calculations of sulfur dioxide were flawed because uncontrolled emissions were calculated using AP-42 emission factors and that the fact that controlled sulfur dioxide emissions were higher than the original uncontrolled emissions is a contradiction. *Hr'g. Tr. 71, 72.*
81. Mr. Logan stated that he did not go back and refine his initial estimates of uncontrolled PTE estimates once he had established the proposed facility was subject to PSD and Part 70 permit processing requirements. *Hr'g. Tr. 541, Lines 2-6.* Mr. Logan established that the significant table for potential to emit is the table in the permit after issuance that uses all the limits included in the permit. *Hr'g. Tr. 541, Lines 7-17.*
82. Dr. Sahu stated that it was his opinion that the IDEM BACT for SO<sub>2</sub> was flawed and that, therefore, the BACT limitations are suspect. *Hr'g. Tr. 72.*
83. Dr. Sahu stated that it was his opinion that IDEM’s calculations for potential to emit for the HP, LP, and SB flares are underestimated for PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>x</sub>. *Hr'g. Tr. 83, Lines 11-25; 84, Lines 1, 2.*

84. Dr. Sahu stated, in his opinion, that the NO<sub>x</sub> calculations for potential to emit were in error because they were based on AP-42 emission factors. *Hr'g. Tr. 85, Lines 7-13.*
85. Dr. Sahu stated that in his opinion values for PM and PM<sub>2.5</sub> the values shown only reflect emissions from the taller flames in the flare and omit the PM and PM<sub>10</sub> emissions from the flare operations calculations. *Hr'g. Tr. 85, Lines 13-18.*
86. Dr. Sahu offered no evidence on the underestimation of the potential PM, PM<sub>10</sub>, PM<sub>2.5</sub> other than his opinion that there is no technical reason why the flares will not emit PM<sub>10</sub> and PM<sub>2.5</sub>. *Hr'g. Tr. 112.*
87. Stephen Lang, Permittee's consultant stated that the flare operations are not anticipated to have any particulate matter emissions because the Facility is required to have a smokeless flare. *Hr'g. Tr. 760, Lines 23-25; 761; 762; 763, Lines 1-14.*
88. In rebuttal, Dr. Sahu stated that in his 30 years of experience smokeless flares smoke and that under Stephen Lang's hypothesis a smokeless flare would have no PM, PM<sub>10</sub> or PM<sub>2.5</sub> which is contradictory to the fact that natural gas is generally smokeless yet contains PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. *Hr'g. Tr. 924, Lines 13-25; 925; 926; 927, Lines 1-16.*
89. The permit record does not reflect that IDEM considered there were no PM, PM<sub>10</sub>, or PM<sub>2.5</sub> emissions during flaring operations but only that there would not be significant increases of these emissions over and above what is emitted from the flare pilots. Ex. 004, Appendix A, at 2, 26.
90. Dr. Sahu stated that the flaring emissions were underestimated because IDEM assumed a diminished operating capacity during flaring events. *Hr'g. Tr. 134, Lines 9-25; 135, Lines 1-18.* He stated that IDEM could have limited flaring by limiting flaring to certain compositions, to certain durations, to certain frequencies, and to certain flow rates. *Hr'g. Tr. 134, Lines 9-18.*
91. Steve Branoff stated that flaring events at the Facility would occur during abnormal or unplanned operating situations when equipment would be shut down. Therefore, the assumption of reduced operating capacity for the facility or the equipment during flaring events is reasonable. *Hr'g. Tr. 895, Lines 7-20.*
92. Mr. Branoff further testified that Dr. Sahu did not use proper methodology to reach his opinions because he criticized the process that IDEM used to develop conclusions but did not comment on specific conditions in the Permit or the actual limits. *Hr'g. Tr. 867, Lines 14-25; 868, Lines 1-3.*

93. Mr. Branoff stated that he reviewed the emissions calculations for the Facility and that the calculations were well done and well documented. *Hr'g. Tr. 875, Lines 18-25; 876, Lines 1-8*. He relied on the fact that there were hundreds of emails that indicated that IDEM was diving into every aspect of the permit application and often disagreed with conclusions or information that the applicant presented. *Hr'g. Tr. 877, Lines 15-25; 878, Lines 1-3*.
94. Steven Branoff believed IDEM's reliance on AP-42 was appropriate. He stated that he would use them in permitting for the same pollutants and types of equipment that IDEM did in the Facility Permit. *Hr'g. Tr. 880, Lines 3-8*. In addition, Mr. Branoff said that while AP-42 may represent average emissions they are appropriately used as worst-case emissions for an individual new source because they include emissions from older sources with older technology and that this is a routine practice in the industry. *Hr'g. Tr. 880, Lines 14-25; 881; 882; 883, Lines 1-9*.

#### Conclusions of Law

95. Petitioners allege that the Permit unlawfully relies on deficient and erroneous emissions calculations and cite two reasons. First, because the potential to emit calculations were based on an estimate of the Facility's average, rather than maximum capacity, the potential to emit calculations are erroneous. Second, Petitioners contend that because Permittee did not supply a final design, the emissions estimates could change causing an exceedance of the Significant Impact Level (SIL), which would trigger the need to conduct additional air quality analysis pursuant to 326 IAC 2-2-5(a). For these reasons, Petitioners contend, there was a significant underestimation of potential emissions.
96. Petitioners point to IDEM's use of AP-42 as the primary basis for their argument that IDEM's calculations were incorrect. AP-42 states:

Emission factors and emission inventories have long been fundamental tools for air quality management. Emission estimates are important for developing emission control strategies, determining the applicability of permitting and control programs, ascertaining the effects of sources and appropriate mitigation strategies, and a number of other related applications by an array of users, including federal, state, and local agencies, consultants, and industry. Data from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of a source's tested emissions. However, test data from individual sources are not always available and, even then, they may not reflect the variability of emissions over time. Thus, emission factors are frequently the best or only method available for estimating emissions, despite their limitations.

*Compilation of Air Pollutant Emission Factors*, United States Environmental Protection Agency, January 1995, at 1 (marked “Exhibit P” in Petitioners’ Motion for Summary Judgment).

97. Petitioners’ evidence only theorizes that the use of AP-42 was inappropriate and that the SILs may be exceeded. Exceedance of the SILs would trigger additional air quality analysis. They have presented no evidence of what they believe the correct emissions are. They have presented no concrete proof that the use of AP-42 resulted in erroneous determinations or that the SILs will be exceeded.
98. IDEM used the AP-42 emission factors to determine if the uncontrolled potential to emit exceeded PSD and Part 70 permitting thresholds and to determine whether the Facility would be an area source or major source of HAPs, and therefore, subject to federal NESHAP regulations. Emission limits were based on the BACT selected.
99. Petitioners specifically allege that PM<sub>10</sub> emissions were underestimated because final design specifications were not provided and point to certain processes (the coal pile enclosure, the coal size reduction process, and the cooling water treatment program) for which the potential to emit could be higher causing an exceedance of the SIL, which in turn triggers additional air quality analysis. IDEM, Permittee’s consultant, and Permittee’s expert have provided testimony that supports the Permit emission limits and the potential to emit after issuance. Further, the testimony presented by IDEM and Permittee explain why the level of detail in plant design was sufficient to establish the limits. Petitioners’ testimony and evidence are not persuasive that IDEM underestimated emissions for the coal pile enclosure, the coal size reduction process, and the cooling water treatment program.
100. Petitioners’ expert stated that potential to emit is used to perform a cost-effectiveness analysis for BACT and for PSD air modeling. However, the Permit, IDEM’s testimony, and Permittee’s testimony indicate that because IDEM chose the top BACT in each analysis a cost-effectiveness analysis was not performed. Further, Petitioners’ expert had not conducted any air modeling for the facility based on his own emission calculation inputs that would support his conclusions that the errors he alleges would have any impact on the Permit.
101. Petitioners’ expert states that because the NO<sub>x</sub> BACT emission limit for the tail gas treatment units at the sulfur recovery plant are the same as the AP-42 emission factor for those units they are underestimated. However, IDEM witness Doug Logan states that once an AP-42 emission factor is placed in the permit as a limit, it ceases to be an emission factor. Testimony from IDEM and Permittee’s expert also indicated that the NO<sub>x</sub> BACT limit was in the RACT/BACT/LAER Clearinghouse, which indicates it is an achievable limit. Petitioners’ testimony and evidence is not persuasive that NO<sub>x</sub> emissions from the tail gas treatment units are underestimated.

102. Petitioners' expert stated that VOC fugitive emissions were underestimated because the number of VOC service components used in the calculations were preliminary counts and that the number of components could increase or change when the project is further in the design process. IDEM presented testimony that if the proposed project design changed so that the potential to emit increases that the Permittee would have to apply for a source modification and that the BACT analysis would have to be reopened and performed again. Petitioners' expert is unpersuasive in his statements that IDEM's estimates of VOC fugitive emissions are underestimated due to the number of components presented in Permittee's permit application.
103. Additionally, Petitioners' expert stated that VOC fugitive emissions were underestimated because it was incorrect for IDEM to use the EPA developed 100% control efficiencies for open-ended lines or valves, and sampling connectors because lines are sometimes left open by virtue of human nature. However, when calculating potential to emit, IDEM assumes proper operation of the equipment involved. Petitioners' expert is unpersuasive in his statement that IDEM's estimates of VOC fugitive emissions were underestimated due to IDEM's use of the EPA developed 100% control efficiencies for open-ended lines or valves, and sampling connectors.
104. Petitioners' expert stated that IDEM erred in using the Global Warming Potentials (GWPs) published by EPA in its calculation for potential to emit greenhouse gases. However, Petitioners presented no testimony or evidence that the use by IDEM of the EPA-published GWPs prevented IDEM from performing a BACT analysis for greenhouse gases nor did they present any testimony or evidence that the use of the EPA-published GWPs resulted in an erroneous BACT determination.
105. Petitioners' expert stated that IDEM's calculation of potential to emit of SO<sub>2</sub> was flawed due the discrepancy between the uncontrolled potential to emit and the potential to emit after issuance and, therefore, IDEM's BACT determination is suspect. However, IDEM witness Doug Logan explained the discrepancy in testimony that he had refined his SO<sub>2</sub> emissions estimates after his initial threshold determination that the Facility would be subject to Title V and PSD permitting. Petitioners' offered no testimony or evidence as to how the IDEM BACT analysis was flawed with respect to SO<sub>2</sub> other than the discrepancy between the uncontrolled potential to emit and the potential to emit after issuance. In this instance, because the initial calculation clearly indicated the highest level permitting, the failure to correct the uncontrolled potential to emit was a minor error that had no bearing on the SO<sub>2</sub> BACT analysis or IDEM's selection of BACT for the facility. Petitioners' testimony and evidence are not persuasive that IDEM's error rises to a level that would require remand.
106. Petitioners' expert stated that IDEM's calculations for potential to emit for the HB, LP, and SB flares are underestimated with respect to NO<sub>x</sub>. Petitioners' expert stated that NO<sub>x</sub> is underestimated because it was based on an AP-42 emission factor. Permittee's expert stated that while AP-42 may represent average emissions they are appropriately used as worst-case

emissions for an individual new source because they include emissions from older sources with older technology and that this is a routine practice in the industry. Petitioners have not provided persuasive testimony or evidence to support its allegation that the NO<sub>x</sub> emissions from flaring are underestimated due to IDEM's use of the NO<sub>x</sub> AP-42 emission factor.

107. Petitioners' expert stated that IDEM's calculations for potential to emit for the HB, LP, and SB flares are underestimated with respect to PM<sub>10</sub> and PM<sub>2.5</sub> because the values shown only reflect emissions from the taller flames in the flare and omit the PM and PM<sub>10</sub> emissions from the flame operation calculations. Petitioners' expert offered no evidence other than his statement that there is no technical reason why the flares will not emit PM<sub>10</sub> and PM<sub>2.5</sub>. Permittee's consultant stated that the flare operations are not anticipated to have particulate matter emissions because the Facility is required to use a smokeless flare. The permit record does not reflect that IDEM considered there were no PM, PM<sub>10</sub> and PM<sub>2.5</sub> emissions during flaring operations but only that there would not be significant increases of these emissions over and above the flare pilots. Petitioners have not provided adequate or persuasive testimony or evidence that IDEM's estimates for particulate matter emissions during flaring were underestimated.
108. Petitioners' expert stated that flaring emissions were underestimated because IDEM assumed a diminished operating capacity during flaring events and because it would be impossible to require a reduced operating capacity, that IDEM could have imposed permit conditions to limit flaring to certain compositions, to certain durations, and to certain flow rates. However, Petitioners offered no testimony or evidence as to how the Facility can reasonably comply with these types of Permit conditions for flares that are used under emergency or upset conditions. Permittee's expert stated that flaring events at the Facility will have to do with abnormal or unplanned operating situations where there will be shut down equipment so the assumption of reduced operating capacity at the Facility or the equipment during flaring events is reasonable. Petitioners have failed to provide adequate evidence or persuasive testimony that IDEM's flaring emissions were underestimated because IDEM assumed a diminished operating capacity during flaring events.
109. The Petitioners offered no evidence that there were mathematical errors in IDEM's calculations. For all the reasons stated above, Petitioners have not met their burden of proof that the Permit unlawfully relies on erroneous and deficient emissions calculations.

#### **Count IV**

#### **Findings of Fact**

110. As a part of IDEM's permit application review process, IDEM OAQ's modeling section completed air dispersion modeling analyses in order to characterize air pollutant dispersion around the source. Air dispersion modeling uses inputs from emissions, stack parameters,

building dimensions, a source inventory, topography, and meteorological data in order to model maximum pollution impacts from a source. *Hr'g. Tr. 552, lines 4-17.*

111. IDEM's modeling section performs its work in accordance with its Air Quality Modeling Policies (Modeling Policies) document that is available on its website and was entered into evidence as Exhibit 227. Much of the policies are based upon EPA's modeling policies guidance contained in 40 C.F.R. Part 51 Appendix W. Periodically, IDEM will revise its modeling policies and submit their revisions to EPA for approval. *Hr'g. Tr. 553-554.*
112. IDEM used EPA-approved modeling software called AERMOD in order to conduct its air dispersion modeling analyses. That software takes all of the inputs of the source, including stack parameters and building dimensions, runs meteorological data, terrain features, surface characteristics, and elevations to model air quality impacts for the source. *Hr'g. Tr. 564, lines 19-25, 565.*
113. AERMET is a meteorological processor that takes meteorological data and processes it for use in AERMOD modeling. *Hr'g. Tr. 576-577, 582-84.* The State of Indiana has several National Weather Service (NWS) sites that collect hourly meteorological data. For the Riverview Project in Dale, the meteorological data gathered at the Evansville Airport was used. Petitioners' expert Howard Gebhart testified that he found it problematic that IDEM's modeling report for Riverview did not provide an explanation for why the data from Evansville Airport was representative. However, IDEM's Modeling Policies document instructs air permit applicants which data set to use, depending on the location of the source. These sites are located in strategic areas throughout the state providing NWS data for all areas. The Modeling Policies instruct applicants for proposed sources in Spencer County, where Dale is located, to use meteorological data from the Evansville Airport for modeling. *Hr'g. Tr. 302, lines 12-25, 365, 578, 797.*
114. Riverview's expert Gale Hoffnagle testified that he examined wind rows, which are depictions of wind directions at specific locations, for both Evansville and Huntingburg airports and observed that they both depict generally similar wind directions. Because the proposed site lies between these two locations, it is reasonable to conclude that the wind characteristics at the site are substantially similar to winds at the Evansville airport where the meteorological data was gathered. *Hr'g. Tr. 799-800.*
115. Petitioners' expert Gebhart testified that he visited the site and observed "hilly, rolling topography. . . that reinforced [his] concerns that using the data from the Evansville Airport could be an issue from the standpoint of whether or not those data are adequately representative of the atmospheric turbulence and dispersion." *Hr'g. Tr. 266, lines 2-9.* He also observed the presence of a creek flowing to the south that could cause the airflow to behave in a manner opposite of data from Evansville. Also, on cross-examination Gebhart indicated that a conventional definition of complex terrain in air dispersion modeling is terrain that is above the stack top and that the topography at Riverview's site is not taller than

Riverview's tall stacks. *Hr'g. Tr. 348, lines 8-14*. IDEM OAQ Modeling Section Chief Mark Derf disagreed with these statements, noting that AERSURFACE and AERMAP are companion programs that process surface characteristics and elevations for use in AERMOD. AERMAP incorporates elevation and topographical information using the U.S. Geological Survey's National Elevation Dataset. Derf also opined that although a larger body of water such as the Ohio River might have a micrometeorological impact, the presence of a small creek would not have a meaningful impact. *Hr'g. Tr. 363, 576-577, 579, 582-84*.

116. IDEM used five years of meteorological data collected from the Evansville Regional Airport in the air quality analysis. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶42. IDEM's Modeling Policies observe that NWS data provides adequate coverage for the state "in almost all cases" and that five years of adequately representative NWS or one year of site-specific data are required. Although the policies contemplate site-specific data as an option, IDEM has not required site-specific data for applications because the NWS data is representative for each region and has been approved by EPA for PSD permits for decades. Also, five years of NWS data equates to over 43,000 hours' worth of data, versus one year or 8,760 hours, and there is an advantage in having 43,000 hours of data because it presents more diverse dispersion schemes that would represent different dispersion characteristics. *Hr'g. Tr. 578-582*.
117. EPA provided comments on Riverview's draft permit and did not submit comments challenging whether the meteorological data was representative for the Riverview site. IDEM has used Evansville Airport NWS data for projects further away than Riverview's proposed site, and EPA has accepted IDEM's modeling results on those projects. *Hr'g. Tr. 348, lines 20-25, 581, line 10-22*.
118. IDEM performed a Prevention of Significant Deterioration (PSD) significant impact analysis for each NAAQS criteria pollutant at each time-averaging standard to determine whether any of the pollutants exceeded their set Significant Impact Level (SIL), which triggers additional analysis. The results of that analysis showed that NO<sub>2</sub> 1-hour, PM<sub>2.5</sub> annual, PM<sub>2.5</sub> 24-hour, and SO<sub>2</sub> 1-hour, 3-hour, 24-hour, and annual maximum modeled impacts exceeded their respective SILs. *Hr'g. Tr. 560-563, 587*. For each of these pollutants, IDEM conducted more refined modeling analyses including the cumulative impacts of nearby sources and background levels, referred to as a NAAQS analysis and a PSD increment analysis. *Hr'g. Tr. 262, 587*.
119. The NAAQS analysis triggered by a SIL exceedance accounts for the area's background concentrations of the various pollutants being analyzed. IDEM maintains a system of monitors throughout the state to provide background concentration data. The final concentration number included in the modeling equals the three-year average of that pollutant for a given time period being analyzed. *Hr'g. Tr. 588, 589*.

120. For SO<sub>2</sub>, IDEM used data from a monitor located in Evansville, which is the closest monitor and had complete data for that pollutant. For PM<sub>2.5</sub>, IDEM used data from a monitor located in Dale, the same town where the Riverview site is located. As Riverview's expert Gale Hoffnagle observed, Dale's PM<sub>2.5</sub> concentrations for both annual and 24-hour time averaging are well below the NAAQS limits and indicate that the air quality in Dale is "quite good compared to the standards. Excellent compared to the standards." *Hr'g. Tr. 802, lines 3-17*. Because the Evansville monitor did not have complete data for NO<sub>2</sub>, IDEM used the monitoring data from South Bend. A comparison between what data from Evansville was available and the South Bend data revealed that the South Bend data showed a slightly higher concentration, meaning that using data from South Bend amounted to a more conservative approach to the air quality dispersion modeling. *Hr'g. Tr. 590-593, 598, 802-803*.
121. As observed by Riverview's expert Hoffnagle, because IDEM used background concentrations that are considered conservative relative to the actual air conditions at the proposed site in the more rural community of Dale, had the background concentrations been monitored on location and used for the air quality modeling, the net result would have been to allow Riverview to emit more emissions than their final air permit limits. *Hr'g. Tr. 802-803*.
122. The NAAQS analysis also requires identifying those "inventory sources", which are other sources of pollution nearby that report their emissions to IDEM, so that those sources can also be incorporated into the final calculations to determine whether the proposed project might violate the NAAQS for a given pollutant. *Hr'g. Tr. 593, lines 14-25*. IDEM maintains a spreadsheet of sources within the state that it uses for identifying a list of inventory sources for a particular project and makes it available on its website. *Hr'g. Tr. 594, lines 1-20*.
123. The Petitioners assert that IDEM's list of inventory sources was incomplete, and the modeling results therefore inaccurate, because it did not include a facility called Superior Ag. Superior Ag is a minor source for particulate matter (PM) including PM<sub>10</sub> and PM<sub>2.5</sub>. Most sources report their emissions annually, and only after such emissions are first reported are those emissions added to the inventory source list. Superior Ag received its final air permit on April 6, 2017 and began construction thereafter. Mark Derf testified that he believed they began operation in May 2018. Due to these timing discrepancies, Superior Ag was not listed on IDEM's inventory source spreadsheet when the list of inventory sources was assembled. *Hr'g. Tr. 596-597, 646-647*.
124. A NAAQS analysis models impacts from the proposed source, all of the inventory sources, and background concentrations and compares those combined impacts against the NAAQS threshold for a particular pollutant to determine whether the NAAQS would be violated by the addition of the new source's emissions. *Hr'g. Tr. 595-96*. The results of the NAAQS analysis for the Riverview project did not identify any NAAQS violations. *Hr'g. Tr. 598*. The results of the NAAQS analysis are as follows:

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )	BACKGROUND CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )	COMBINED IMPACT ( $\mu\text{g}/\text{m}^3$ )	NAAQS	NAAQS VIOLATION
NO <sub>2</sub>	1-hour	73.22	67.68	140.90	188.6	NO
SO <sub>2</sub>	1-hour	122.36	33.0	155.36	196.2	NO
SO <sub>2</sub>	3-hour	94.11	22.6	116.71	1300	NO
SO <sub>2</sub>	24-hour	27.91	16.3	44.21	365	NO
SO <sub>2</sub>	Annual	3.52	3.6	7.12	80	NO
PM <sub>2.5</sub>	24-hour	3.11	19	22.11	35	NO
PM <sub>2.5</sub>	Annual	0.96	8.7	9.83	12	NO

*Hr'g. Tr. 598; Ex. 007 at 8.*

125. A PSD increment analysis is a way to assure that from a set baseline date, as more sources come into a county or an area, that those concentrations they emit will never exceed a certain threshold. Increment thresholds are therefore lower than the NAAQS limits. *Hr'g. Tr. 598, lines 14-22.* A PSD increment analysis includes the maximum modeled concentrations from the proposed source and combines it with PSD increment consuming sources from the inventory list to determine whether the amount of allowable PSD increment is exceeded. Indiana has a stricter limit of only allowing eighty percent of the total increment limit set by EPA to be emitted for a particular pollutant. *Hr'g. Tr. 599.*
126. IDEM performed PSD increment analyses for SO<sub>2</sub> 3-hour, 24-hour, and annual averaging times, as well as PM<sub>2.5</sub> 24-hour and annual averaging times. IDEM's PSD increment analysis did not identify any increment violations. The results of IDEM's PSD increment analysis are below:

POLLUTANT	TIME AVERAGING PERIOD	MAXIMUM MODELED CONCENTRATION ( $\mu\text{g}/\text{m}^3$ )	PSD INCREMENT ( $\mu\text{g}/\text{m}^3$ )	PERCENT OF PSD INCREMENT (%)	INCREMENT VIOLATION
SO <sub>2</sub>	3-hour	94.11	512	18.38	NO
SO <sub>2</sub>	24-hour	27.91	91	30.67	NO
SO <sub>2</sub>	Annual	3.52	20	17.6	NO
PM <sub>2.5</sub>	24-hour	4.31	9	47.88	NO
PM <sub>2.5</sub>	Annual	0.96	4	24.00	NO

*Ex. 007 at 9.*

127. The Petitioners asserted through their expert, Howard Gebhart, that there could have been a PSD increment violation had IDEM modeled mobile source emissions. IDEM did include fugitive dust emissions in its modeling. In particular, the increment analysis for PM<sub>2.5</sub> 24-hour, which would be the most pertinent pollutant and time averaging period for modeling mobile source truck emissions (as Riverview plans to ship most of its materials in and out by rail) was less than fifty percent of the allowed increment. Thus, any additional emissions that could have been added would not have exceeded the increment. *Hr'g. Tr. 369, 600.*

128. Flaring scenarios were considered as part of IDEM's SIL analysis for modeling worst case scenarios. In its application and correspondence with IDEM, Riverview's consultant KBR indicated that when the flares are operating, the rest of the facility will be at a diminished operating capacity. In modeling flaring scenarios, IDEM modeled the facility at or near full capacity for NO<sub>2</sub> and CO and used a worst-case flaring scenario for SO<sub>2</sub> that was provided by KBR. Ex. 007 at 4.
129. Flaring scenarios have a more buoyant plume as the plume leaves the flare due to the higher temperature from the flaring unit, which disperses the flare emissions higher into the atmosphere and accordingly at a greater rate of dispersion. *Hr'g. Tr. 601.*
130. The Petitioners' experts Dr. Ron Sahu and Howard Gebhart testified that although the flaring analysis presumed that during flaring, certain processes will operate at less than their maximum capacity, there was no carry-on of that assumption into the permit. IDEM OAQ Modeling Section Chief Mark Derf testified that it would have been improper to use maximum allowable emission rates when modeling flaring events because it would not have been representative of operations when flaring does occur and would have overestimated emission concentrations. *Hr'g. Tr. 602*
131. The Modeling Policies define intermittent emissions as "emergency generators, start-up and shutdown operations, or from any intermittent/infrequent emission scenarios which are random in nature and are not scheduled." Ex. 227 at 34. IDEM's Modeling Policies instruct the modeler to exclude one-hour SO<sub>2</sub> and one-hour NO<sub>2</sub> intermittent emissions from the modeling analysis. In accounting for intermittent emissions, IDEM will determine a permitted limit for a unit that might have intermittent emissions, will model for that time period, and divide by the number of hours in a year, 8,760. *Hr'g. Tr. 602-603.* Startup, shutdown, and malfunction emissions (SSM) are considered intermittent and are typically not modeled because of their randomness. However, if there are permit limits for usage and time, they will be factored into the air modeling. *Hr'g. Tr. 373-374, 603, lines 6-16.*
132. Petitioners' expert Gebhart characterized SSM emissions as "abnormal" or "excused emissions." *Hr'g. Tr. 294.* He testified that Riverview's proposed Selective Catalytic Reduction (SCR) system, which controls NO<sub>x</sub> emissions, is not functional until the plant's optimum temperature is reached and that beforehand those emissions are uncontrolled. He noted that IDEM provided information regarding first-time commissioning of the plant and also any cold furnace start-up phase indicating that during those events the source would exceed permit limits for NO<sub>x</sub>. Although he characterized this event as "an excused exceedance," Gebhart observed that "because these emissions exceed the permit limit, they haven't been evaluated in the modeling." *Hr'g. Tr. 297-298.* He testified that although the NAAQS analysis modeled NO<sub>2</sub> at 73.22, for an SSM event "bypassing the control" the emissions "can be an order of magnitude higher . . . [and] might be as high as 730, which would then be way over the NAAQS." *Hr'g. Tr. 300.* However, Hoffnagle testified that Gebhart made an error in extrapolating from Table 6, the NAAQS analysis, which includes

inventory sources' emissions, when he should have been reviewing Table 2, which only includes Riverview's emissions. Riverview's NO<sub>2</sub> 1-hour maximum modeled impact is 12.03 µg/m<sup>3</sup>. Thus, a tenfold magnitude increase would calculate to 120.3 µg/m<sup>3</sup>, and even adding the background concentration of 67.68 µg/m<sup>3</sup> to that number sums to 187.98, which is still under the relevant NAAQS of 188.6 µg/m<sup>3</sup>. *Hr'g. Tr. 809.*

133. Ozone is a secondary pollutant formed by a photochemical reaction of nitrogen oxides and volatile organic compounds during hot summer days. Because it is not emitted from the source directly, ozone is analyzed as a regional pollutant. IDEM uses Modeled Emission Rates for Precursors (MERP) guidance to analyze secondary pollutants. MERP's initial Tier I analysis inputs both emissions of NO<sub>x</sub> and VOC emissions from the proposed source and MERPs emissions values calculated by EPA for the different regions of the state into a mathematical formula to determine whether the emissions would have a significant impact on eight-hour ozone. The MERPs Tier I analysis for Riverview revealed that it would not have a significant impact on eight-hour ozone, so no further modeling was necessary. *Hr'g. Tr. 604-607.*
134. Although the Modeling Policies allow IDEM to request pre- or post-construction ozone monitoring at a site, that is not something IDEM has done in the past or in the case of Riverview specifically. Not only did the Tier I MERPs analysis reveal that Riverview would not have a significant impact on ozone creation, but also IDEM relies upon ozone data collection by a network of regional monitors. IDEM collects ozone monitoring data from Warrick County, which is immediately west of Spencer County where Dale is located, and Perry County, which is immediately to the east of Spencer County. *Hr'g. Tr. 604-605.*
135. IDEM determined that air monitoring data from ozone monitors for 2015-2017 for adjacent counties, Warrick and Perry, as well as the Evansville monitors had 8-hour ozone design values below the ozone standard of 70 ppb and that, therefore, the airshed for Spencer County and southwest Indiana meet the 8-hour ozone standard. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶43.
136. Particulate Matter (PM) are very microscopic particles in the air and include a number of subsets such as PM<sub>10</sub> (PM less than 10 microns in size) and PM<sub>2.5</sub> (PM less than 2.5 microns in size). Also, PM<sub>2.5</sub> includes both direct emissions, analyzed by the various PSD analyses, and secondary PM<sub>2.5</sub>, formed in the atmosphere downwind of the source under certain conditions by a reaction of NO<sub>x</sub> and SO<sub>2</sub>, modeled using MERPs guidance. Depending on stack heights, secondary PM<sub>2.5</sub> would likely form outside of the AERMOD receptor grid used for its air dispersion modeling. Accordingly, although direct PM<sub>2.5</sub> is added to the total value of PM<sub>10</sub> because it is a subset of that pollutant, the Modeling Policies do not direct IDEM OAQ to add secondarily formed PM<sub>2.5</sub> to the PM<sub>10</sub> values. *Hr'g. Tr. 610-614.*
137. For performing secondary PM<sub>2.5</sub> MERPs analysis, IDEM used the annual average emission rate. Petitioners' expert Gebhart testified that when doing MERPs analysis for the 24-hour

average, IDEM should have used “a worst-case 24-hour day,” meaning that he suggests taking the maximum daily emission rate and multiplying it by 365 to calculate the tons per year number. *Hr’g. Tr. 289-290*. IDEM relies on EPA’s guidance of using tons per year. Riverview’s expert Gale Hoffnagle testified that Gebhart’s analysis is not what EPA intends, is not consistent with MERPs guidance, is not the correct way to do such an analysis. He testified that IDEM’s analysis is correct and goes well beyond what was necessary. IDEM’s analysis revealed that the generation of secondary PM<sub>2.5</sub> downwind from the facility will be insignificant. *Hr’g. Tr. 289, 810*.

138. Petitioners’ expert Howard Gebhart testified at the hearing that the PM<sub>10</sub> SIL analysis, which was modeled at .993 µg/m<sup>3</sup>, close to the relevant SIL of 1 µg/m<sup>3</sup>, was problematic for IDEM’s modeling analysis because small modeling errors could have led to a conclusion that the SIL would not have been achieved, requiring additional modeling. The .993 value represents the highest modeled level of PM<sub>10</sub> at a receptor among any of the receptors on the receptor grid during the five-year modeling period. Thus, the mere addition of some additional PM<sub>10</sub> that may have been omitted from the modeling would not necessarily be added to that highest first high total of .993 in the air dispersion modeling process. It would depend on the location of that PM<sub>10</sub> and the date of the additional PM<sub>10</sub>. *Hr’g. Tr. 270, 610-614*.
139. IDEM conducts a visibility analysis using the VISCREEN EPA model, which was developed in 1992. VISCREEN modeling is performed for Class I area impacts and localized visibility. IDEM considers the visibility analysis to be a secondary analysis because the air dispersion modeling done using AERMOD is more technical and gives a clearer view of what is actually being emitted into the air and that the visibility analysis is more of a backup for the criteria pollutant dispersion modeling. *Hr’g. Tr. 607-610*.
140. Class I areas are areas that have enhanced air protections, such as national parks. The closest Class I area to the Riverview site is Mammoth Cave National Park, which is 120 km away. An initial emissions/distance (Q/D) analysis is done to determine whether the impact would be negligible. If the result is less than 10, then the impact is deemed negligible and no further analysis is necessary. The result of the Q/D analysis for Mammoth Cave National Park was 3.75, well under 10. *Hr’g. Tr. 261, 607-610; Ex. 007 at 10*.
141. VISCREEN modeling also includes a Level 1 Analysis, which inputs emissions from the proposed source of PM and NO<sub>x</sub>, as well as user and source distance and background visual range. VISCREEN yields results for both sky and terrain backgrounds for both color and green contrast. IDEM performed a Level 1 VISCREEN analysis for both localized visibility as well as Lincoln’s Boyhood Home National Memorial in Lincoln City, Indiana, about 10 km away from the proposed source. None of the critical criteria values were exceeded. *Ex. 007 at 10-11*.

142. As part of the air modeling, IDEM also performs a Hazardous Air Pollutant (HAP) analysis for cancer risk as well as noncancerous health effects associated with HAPs. This is done by looking at annual modeled concentrations for HAPs and comparing those results to reference concentrations. For cancer risk, the modeling generates a unitless cancer risk number, and those values are summed to calculate a total hazard index for the proposed source. That unitless number represents individual cancer risk from the proposed source, based on “constant exposure 24 hours a day, 365 days per year, for 70 years (i.e., a lifetime risk).” Ex. 227 at 40. IDEM considers that a sum total above  $1 \times 10^{-6}$ , or one-in-one million, to be a “level of concern.” EPA, by comparison, considers  $1 \times 10^{-4}$ , or one-in-ten thousand “excess cancer risks to be the upper range of acceptability with an ample margin of safety.” Ex. 227 at 40; *Hr’g. Tr. 614-618*.
143. IDEM modeled Riverview’s total hazard index as  $1.2889 \times 10^{-5}$ , or 12.889 in one million, which is above IDEM’s level of concern but substantially below EPA’s upper range of acceptability with an ample margin of safety. *Hr’g. Tr. 614-618*.
144. The HAP analysis “is done to provide additional information to the public about potential health impacts associated with HAP emissions.” Ex. 227 at 39. IDEM has not denied a permit because their one in one million level of concern has been exceeded, and there are no state or federal regulations that would allow an agency to deny the issuance of an air permit based upon the HAP analysis. IDEM has approved air permits for sources whose HAP analyses exceeded Riverview’s modeled total hazard index. *Hr’g. Tr. 617, 618, lines 1-2, 646, lines 7-19*.
145. IDEM modeled fugitive dust impacts at Riverview using AP-42 emissions factors and applied a ninety percent credit for utilizing “as needed” fugitive dust mitigation measures. Petitioners’ expert Gebhart described the credit on such a basis as unenforceable and thought it was “at the high end of what you would expect” from a fugitive dust mitigation program. *Hr’g. Tr. 276-279*. Riverview’s expert Hoffnagle opined that IDEM included enforceable conditions in the permit to make sure that the emissions are correct and that they are kept below that ceiling. He observed that should Riverview violate its fugitive dust plan, that IDEM could initiate an enforcement action against them. *Hr’g. Tr. 811*.
146. The Petitioners’ expert Gebhart testified that IDEM should have modeled the fugitive dust impacts from mobile truck sources based on an interruption of rail services to the Riverview site. *Hr’g. Tr. 276, lines 11-25; 278-279*. IDEM OAQ Section Chief Mark Derf testified that he did not believe that modeling such a situation would be reasonable and is not something IDEM typically models. *Hr’g. Tr. 618-619*. Riverview’s expert Hoffnagle testified that he has never seen such an analysis in new source review. Because this scenario is speculative, OEA agrees that IDEM need not have modeled it. *Hr’g. Tr. 805*.
147. The Petitioners’ expert Gebhart testified that IDEM should have accounted for leakage from aging equipment in its modeling. Mark Derf testified that unless the permit reviewer brought

this scenario to the modeling section, that is not something typically modeled and that these scenarios are accounted for in the permit writing process by the source demonstrating compliance with the permit, as well as NESHAP and NSPS requirements. *Hr'g. Tr. 318-319, 619.*

#### Conclusions of Law

148. Any differences in elevation and topography between the Evansville Airport where the NWS data is gathered and the site for the Facility were taken into account by the AERMOD software, including its companion programs AERMAP and AERSURFACE.
149. Although IDEM's Modeling Policies note that site-specific data can be preferred, provided that quality assurance procedures are followed, among other things, IDEM using five years' worth of NWS data from the Evansville Airport, satisfied the requirement that meteorological data used in air dispersion modeling be "representative."
150. Any topographical complexities presented by the Riverview site are taken into account by the AERMAP program, which is incorporated into the model generated by AERMOD. The programs also account for surface characteristics including trees, hills, and creeks. *Hr'g. Tr. 583-584.*
151. Any differences in wind direction and wind speed due to variations in elevation between where the NWS data is gathered and where the pollutants are released are accounted for by the AERMET program, which is incorporated into the model generated by AERMOD.
152. IDEM selected conservative background concentration data for its NAAQS analysis. This conservative data set resulted in permit limits that are stricter than would have been set had site-specific data from Dale been collected for background concentrations.
153. The omission of Superior Ag from the Inventory source list did not have a material effect on the air quality dispersion modeling. First, the PM<sub>2.5</sub> background monitor used in the modeling is located in Dale. Thus, the impact of Superior Ag on the amount of PM<sub>2.5</sub> in the ambient air near the site would have been accounted for in the background concentration readings. Second, the modeled combined impact of PM<sub>2.5</sub> 24-hour was 22.11 µg/m<sup>3</sup>, well below the NAAQS threshold of 35 µg/m<sup>3</sup>. Similarly, the modeled combined impact of PM<sub>2.5</sub> annual was 9.83 µg/m<sup>3</sup>, almost twenty percent below the NAAQS threshold of 12 µg/m<sup>3</sup>. Third, for the PSD Increment analysis, the percentages of PSD increment that are to be consumed following the addition of Riverview's operations are nowhere close to the eighty percent thresholds. For PM<sub>2.5</sub> 24-hour, the modeled PSD increment amounted to 47.88%, and for PM<sub>2.5</sub> annual, the modeled increment consumption totaled only 24%. Fourth and finally, as Hoffnagle observed, the model results decrease significantly as you move forward from Riverview's fence line northward across the interstate to the Superior Ag location. The

concentrations from Riverview overlapping with Superior Ag are substantially smaller, thus they would not create a significant problem where the maximum concentrations for Superior Ag would occur, which is north of that facility. *Hr'g. Tr. 806-807.*

154. IDEM's decision to accept KBR's proposed flaring scenario for modeling SO<sub>2</sub> that the plant would be operating at a diminished capacity is reasonable because flaring by definition diverts process gas from the processing units to the flares. However, regardless of this dispute, the assumptions regarding flaring did not affect the relevant SIL analysis. IDEM's SIL analysis found that the SILs were exceeded for each averaging period for SO<sub>2</sub>, the pollutant for which IDEM accepted KBR's proposed flaring scenario for modeling. IDEM performed relevant NAAQS and PSD increment analyses for SO<sub>2</sub> for each averaging time, and none of those results found that the combined impact approached the NAAQS limits or PSD increment thresholds. Additionally, the SIL analysis found that NO<sub>2</sub> 1-hour's SIL was exceeded. Due to the limited number of flaring events and the fact that IDEM modeled the facility at or near full capacity for modeling NO<sub>2</sub>, any effect of IDEM's flaring assumptions would be immaterial on the annual averaging period for NO<sub>2</sub>. Finally, the maximum modeled impacts for CO 1-hour and CO 8-hour are not near their respective SILs (32.53 (µg/m<sup>3</sup>) vs. a SIL of 2,000 (µg/m<sup>3</sup>) and 14.40 (µg/m<sup>3</sup>) vs. a SIL of 500 (µg/m<sup>3</sup>), respectively). Thus, any potential change in modeling Riverview's flaring scenarios would not have triggered a cumulative analysis for CO. *Ex. 007 at 4-5; Hr'g. Tr. 314-315.*
155. IDEM did not err in not including SSM scenarios in its modeling for one-hour SO<sub>2</sub> and one-hour NO<sub>2</sub> because those emissions are considered intermittent and in accordance with its Modeling Policies are to be so excluded. Expert Gebhart's testimony regarding tenfold increases in NO<sub>x</sub> for SSM of the SCR unit underscore why such emissions are deemed excluded. Also, as Hoffnagle testified, even had the scenario not been excluded, a tenfold increase would not have resulted in a violation of the NAAQS for one-hour NO<sub>x</sub>.
156. The fact that the PM<sub>10</sub> SIL analysis was close to the SIL does not lead to the conclusion that IDEM erred in not performing cumulative modeling for that pollutant. The Petitioners do not dispute that if the maximum modeled impact is even slightly below the SIL, then no further modeling is necessary. Also, for reasons stated above, the Petitioners' arguments that IDEM did not properly model PM<sub>10</sub> have not been proven by the evidence.
157. The Petitioners do not dispute the result of IDEM's VISCREEN analysis for the sole Class I area, Mammoth Cave National Park.
158. The Petitioners did not demonstrate a problem with IDEM's modeling for fugitive dust because applying mitigation "as needed" is enforced through IDEM's enforcement section.
159. Petitioners' unsupported claims that including mobile source emissions could have created a PSD increment violation are belied by the fact that the increment analysis revealed that none of the pollutants and averaging times were close to the increment thresholds.

160. It is not disputed between the parties that the result of IDEM’s HAP analysis indicates that the HAP cancer risk proposed by Riverview is above IDEM’s one-in-one-million “level of concern,” but well below EPA’s one-in-ten-thousand “excess cancer risks to be the upper range of acceptability with an ample margin of safety.” IDEM does not have the authority to deny the issuance of an air permit based on the exceedance of its one-in-one-million standard. Accordingly, there is no violation of statute or rule on this basis when the Permit was issued.
161. Leakage from aging equipment is properly addressed through demonstrating compliance with the conditions of the air permit, as well as NESHAP and NSPS requirements, rather than through air quality modeling.
162. The Petitioners have not shown by a preponderance of the evidence that IDEM failed to follow its EPA-approved Modeling Policies in any of its air dispersion modeling analyses.

### Count V

#### Findings of Fact

163. BACT for VOC control from fugitive emission sources consists of:
- The Permit requires Leak Detection and Repair (LDAR) as BACT for fugitive VOC emissions. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, July 10, 2020, ¶ 57.
  - IDEM performed a BACT analysis, identifying LDAR and no control as the available control technologies. *Id.*
  - IDEM did not consider Enhanced LDAR and Optical Gas Imaging. *Id.*
164. BACT for flaring emissions consists of:
- IDEM selected flare design and good combustion practices as BACT. As required by the Petroleum Refinery NESHAP at 40 CFR 63.670, the Permit sets emissions limits for VOC emissions for flares “while operating in sweep and pilot mode” with the condition: “VOC destruction and removal efficiency shall not be less than 98% when flaring a process stream.” This includes HAPs. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J5073, July 10, 2020, paragraph 58.
  - IDEM performed a BACT analysis in which it identified three technologies as possible BACT. *Id.*
  - IDEM eliminated flare gas recovery as a feasible option because “Flare gas recovery is not a feasible option. These flares do not operate constantly; only the pilot flame does. There would not be anything to recover except in the rare case of a process upset—which would preclude the use of any heat recovered.” *Id.*
165. Potential to emit for SO<sub>2</sub> emissions from the Sulfur Recovery Units was calculated as follows:

- IDEM calculated the Sulfur Recovery Units' uncontrolled potential to emit as 127.46 tons per year. This was calculated using AP-42. *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J5073, July 10, 2020, ¶ 59.
  - The Sulfur Recovery Units' after issuance potential to emit is 144.39 tons per year. This was calculated based on the BACT determination for the units. *Id.*
166. Dr. Sahu testified as Petitioners' expert with respect to Petitioners' allegations that the Permit is unlawful because it does not require the Best Available Control Technology for certain pollutants. He believed that Permittee's permit engineers relied on the EPA database RACT/BACT/LAER Clearinghouse (RBLC) in its application submitted to IDEM. *Hr'g. Tr. 118, Lines 3-13*. He further testified that he disagreed with the fact that IDEM did not consider any of the entries in the RBLC for sources that had been permitted but not constructed. *Hr'g. Tr. 120, Lines 7-23*.
167. Mr. Logan, IDEM's witness, stated that in many cases where the source was permitted but not built the control option was the same, but since one of the elements of BACT is that the limit be achievable, he cannot ascertain whether the limit is achievable if a source has not been constructed or tested. *Hr'g. Tr. 508, Lines 10-25; 509, Lines 1-6*.
168. Mr. Branoff, Permittee's expert, stated that it is common for the RACT/BACT/LAER Clearinghouse to have ghost limits that have never been removed, but represent limits that are beyond what anyone has achieved or tested before that had been committed to for expediency purposes, yet the permitted source never constructed the permitted project. *Hr'g. Tr. 889, Lines 7-25; 890, Lines 1-16*.
169. Dr. Sahu stated that although he did agree with IDEM's determination with respect to Standard Industrial Classification (SIC) code that the Facility was a refinery, he disagreed with IDEM's disregard of some sources in the RBLC that did not have the refinery SIC Code. *Hr'g. Tr. 122, Lines 4-17*.
170. Mr. Logan stated with respect to Petitioners' example of another unrelated facility, Shintech, that he did not use Shintech's limit because the Shintech combustion units were described as using natural gas rather than refinery fuel gas and that the units at Shintech had much higher heat input ratings than those of the Facility, and not because Shintech had a different SIC Code. *Hr'g. Tr. 513, Lines 15-24; 514; 515; 516, Lines 1-16*. In addition, Mr. Logan stated with respect to Petitioners' example of the hydrogen reformer at Ticona Polymers that Ticona Polymer process noted firing of a high hydrogen process gas, which would have different properties than the organic, potentially liquid petroleum gas or natural gas that other sources use and that Ticona is not a good comparison to any of the other reformer processes that were listed. *Hr'g. Tr. 518, Lines 3-25; 519, Lines 1-12*.
171. Dr. Sahu stated that permitting agencies sometimes contact vendors for information in conducting a BACT analysis. *Hr'g. Tr. 126, Lines 8-24*.

172. Dr. Sahu stated that Optical Gas Imaging (OGI) is an additional technology option that should be considered as BACT for leaks from VOC equipment. *Hr'g. Tr. 127, Lines 5-18.* He further stated that IDEM should have considered OGI and therefore, IDEM's approach to BACT for VOC equipment leaks was inappropriate. *Hr'g. Tr. 128, Lines 18-25; 129, Lines 1-4.*
173. Mr. Branoff stated that while he is familiar with the term Enhanced LDAR, Dr. Sahu did not state the details of what that this might be in his report. *Hr'g. Tr. 892, Lines 10-25; 893, Line 1.* In addition, OGI is an option under the New Source Performance Standards (NSPS) for how a source might conduct an LDAR program. *Hr'g. Tr. 893, Lines 2-11.*
174. Mr. Logan stated that he does not consider OGI a control technology and that EPA presents OGI as a method sources can use to detect VOC leaks. He further stated that most of VOC equipment leaks will come from ground level at the refinery. *Hr'g. Tr. 499, Lines 14-25; 500, Lines 1-5.* The Petroleum Refinery NESHAP requires fence-line monitoring for benzene which is also considered a VOC. *Hr'g. Tr. 500, Lines 6-16.* Therefore, the benzene monitoring and action levels required by the Petroleum Refinery NESHAP provides an additional method of detecting VOC emissions. *Hr'g. Tr. 500, Lines 13-16.*
175. Dr. Sahu testified that IDEM should have evaluated flare gas recovery for flaring that results from upset events because there is no technical impediment to doing flare gas recovery during upset events. *Hr'g. Tr. 130, Lines 6-24.*
176. Under the Petroleum Refinery NSPS, the facility is required to have a flare management plan and they are expected to divert gases away from the flares to the extent that it is possible. *Hr'g. Tr. 500, Lines 17-25.* Part of the Facility's proposed design is to recover gases from their process to use as fuel and as a feedstock, which is what the Petroleum Refinery NSPS recognizes as flare gas recovery. *Hr'g. Tr. 500, Line 25; 501, Lines 1-13.*
177. Stephen Lang, Permittee's consultant, stated that the Riverview plant design has the process gases routed to the hydrogen plant as feedstock and if the hydrogen plant can't accept that, the destination would be storage tanks, then lastly into the fuel system. *Hr'g. Tr. 747, Lines 19-25; 748, Lines 1-7.*
178. Mr. Branoff stated that, unlike a traditional petroleum refinery, the flaring at Riverview will be for upset conditions, start-up/shutdown/malfunction-type events, and there is no meaningful way to recover these gases. *Hr'g. Tr. 890, Line 25; 891, Lines 1-23.* Mr. Branoff also testified that gases that are flared will be done so for emergency reasons, during start-up/shutdown/malfunction, or during abnormal operating scenarios. Flaring is typically done for safety reasons. *Hr'g. Tr. 893, Lines 18-25.*

179. Mr. Logan stated that what appeared in the calculations tab as an uncontrolled potential to emit for SO<sub>2</sub> was based on an AP-42 emission factor for sulfur recovery units, which is a value of some number of tons of sulfur dioxide emissions for each ton of sulfur removed which is a fairly crude measure. *Hr'g. Tr. 502, Lines 7-21*. However, the uncontrolled potential to emit only has value for permitting purposes insofar as it informs IDEM as to the permitting threshold. *Hr'g. Tr. 502, Lines 21-25; 503, Line 1*. Mr. Logan then testified that the potential to emit after issuance is based on the best available control technology, which indicates what other sources have been capable of achieving based on restrictions on the sulfur content of the fuel gas, and the calculations are much more detailed. *Hr'g. Tr. 503, Lines 2-15*.
180. Mr. Branoff, Riverview's expert, testified that, in his opinion, IDEM reviewed the appropriate sources and made a broad enough review to support its BACT determinations and the manner of review was consistent and appropriate with EPA guidance. *Hr'g. Tr. 886, Lines 17-25*. He then stated that in each case, they found the top level of control to represent BACT so there was no need to do a cost-effectiveness analysis, which is consistent with EPA guidance. *Hr'g. Tr. 888, Lines 10-23*.

#### Conclusions of Law

181. Petitioners allege that the Permit is unlawful because it does not require the Best Available Control Technology for certain emission units and pollutants at the facility. Petitioners have specifically alleged that IDEM failed to require the appropriate BACT for fugitive VOC emissions, VOC for flaring emissions, and SO<sub>2</sub> for the Sulfur Recovery Units. Additionally, Petitioners allege that IDEM erred by not taking into consideration permit limits in the RACT/BACT/LAER Clearinghouse (RBLC) of facilities that received a permit but never constructed or demonstrated that the limit was achievable. Petitioners seem to suggest that IDEM erred because the permit reviewer did not contact vendors for information during the BACT analysis. Finally, Petitioners' allege that IDEM erred by disregarding some sources that did not have the refinery SIC Code.
182. IDEM stated that the process for selecting the appropriate BACT as follows:

IDEM OAQ conducts BACT analysis in accordance with the "Top-Down" Best Available Control Technology Guidance Document outlined in the 1990 draft U.S. EPA New Source Review Workshop Manual, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below:

- (1) Identify all potentially available control options;
- (2) Eliminate technically infeasible control options;
- (3) Rank remaining control technologies;
- (4) Evaluate the most effective controls and document the results; and
- (5) Select BACT.

Also, in accordance with the “Top-Down” Best Available Control Technology Guidance Documented in the 1990 draft U.S. EPA New Source Review Workshop Manual, BACT analyses take into account the energy, environmental, and economic impacts of the control options. Emission reductions may be determined through the application of available control techniques, process design, and/or operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause adverse environmental effects to public health and the environment.

The Office of Air Quality (OAQ) makes BACT determinations by following the five steps above.

This BACT determination is based on the following information:

- (1) The EPA RACT/BACT/LAER Clearinghouse;
- (2) EPA and State air quality permits;
- (3) Communications with control device equipment manufacturers;
- (4) Technical books and articles; and
- (5) Guidance documents from state and federal agencies.

*Findings of Fact, Conclusions of Law and Order*, Cause No. 19-A-J-5073, Indiana Office of Environmental Adjudication, July 10, 2020, ¶61.

183. The definition of BACT clearly allows for IDEM to use a certain level of discretion. The rule states that BACT will be determined “based on the maximum degree of reduction” that “the commissioner, *on a case-by-case basis*, taking into account energy, environmental impacts and other costs, determines is achievable for the source.” *Id.* (emphasis added).
184. Petitioners contend that IDEM should have selected “enhanced” Leak Detection and Repair (LDAR) and Optical Gas Imaging (OGI) as BACT for VOC emissions from fugitive sources. Petitioners’ expert stated that IDEM’s approach to BACT for VOC equipment leaks was inappropriate because IDEM did not consider OGI. However, IDEM’s witness stated that he does not consider OGI to be a control technology but is a method a source can use for detecting leaks. Permittee’s expert stated that OGI is an option under the New Source Performance Standards for how a source might conduct an LDAR program. IDEM’s witness stated that the Petroleum Refinery NESHAP requires fence-line monitoring of benzene which will provide an additional method of detecting VOC equipment leaks. Petitioners’ testimony and evidence is not persuasive that IDEM erred in its choice of LDAR as BACT for VOC leaks.
185. Petitioners’ expert stated that IDEM should have evaluated flare gas recovery for flaring that result from upset events because there is no technical impediment to this. However, IDEM’s witness stated that under the Petroleum Refinery NSPS, the Facility is required to have a

flare management plan and that they are expected to divert gases away from the flares to the extent it is possible. Further, IDEM's witness and Permittee's consultant stated that the Facility's proposed design is to recover gases from their process to use as fuel and feedstock, which is what the Petroleum Refinery NSPS recognizes as flare gas recovery. Finally, Permittee's expert stated that, unlike a traditional petroleum refinery, the flaring at the Facility will be for upset conditions, start-up/shutdown/malfunction type events and there is no meaningful way to recover these gases. The petitioners have not presented testimony and evidence that is persuasive to support that IDEM's BACT for flaring emissions was in error.

186. Petitioners' expert offered no testimony as to the propriety of IDEM's choice of BACT for SO<sub>2</sub> beyond that which was offered in Count III. IDEM's witness had stated that what appeared in the calculations tab as the uncontrolled potential to emit for SO<sub>2</sub> was based on an AP-42 emission factor for sulfur recovery units which is a value of some number of tons of SO<sub>2</sub> emissions for each ton of sulfur removed which is a fairly crude measure and was only used to inform us as to the permitting threshold. IDEM's witness stated that the potential to emit after issuance was based on the best available control technology, which indicates what other sources have been capable of achieving based on restrictions on the sulfur content of the fuel gas, and that these calculations are much more detailed. As stated earlier in Count III, in this instance, because the initial calculation clearly indicated the highest level permitting, the failure to correct the uncontrolled potential to emit was a minor error that had no bearing on the SO<sub>2</sub> BACT analysis or IDEM's selection of BACT for the facility. Petitioners testimony and evidence are not persuasive that IDEM's error rises to a level that would require remand.
187. Petitioners' expert stated that he disagreed with the fact that IDEM did not consider any of the entries in the RACT/BACT/LAER Clearinghouse (RBLC) that had been permitted but not constructed. IDEM's witness stated that in many cases where a facility is permitted but not built the control option was the same, but since one of the elements of BACT is that the limit be achievable, he cannot ascertain whether the limit is achievable if the facility has not been constructed or tested. Permittee's expert stated that it is common for the RBLC to have ghost limits that have never been removed that are beyond what anyone has achieved or tested before. Because achievability is a requirement for BACT, Petitioners are not persuasive in their allegation that IDEM's disregard of these unconstructed and untested sources constitutes error.
188. Petitioners' expert stated that he disagreed with IDEM's disregard of some sources in the RBLC that did not have the refinery Standard Industrial Classification (SIC) code. IDEM's witness stated that in one case the combustion units were described as using natural gas and not refinery process gas and that the units had a much higher heat input rating than those at the Facility. IDEM's witness stated that he disregarded the other example given by Petitioner's expert because the hydrogen reformer at that particular source noted firing of a high hydrogen process gas that would have different properties than the organic, potentially liquid petroleum gas or natural gas that the other sources that were listed use. IDEM's

explanation was compelling, and the Petitioners' testimony and evidence does not support a finding that IDEM erred in disregarding those particular BACT determinations from other sources.

189. Petitioners' expert stated that permitting agencies sometimes contact vendors in order to conduct a BACT analysis. However, Petitioners' have not presented any testimony or evidence that vendor contact is required in order to do a BACT analysis. Petitioners have failed to support their allegation that IDEM's BACT analysis was inappropriate or in error because no contact was made with equipment vendors.

## Count VI

### Findings of Fact

190. The flares are control devices for abnormal conditions and the Facility will not operate the flares, except on pilots, when the facility is operating normally. Ex. 005, Prevention of Significant Deterioration (PSD)/New Source Construction and Part 70 operating Permit, Riverview Energy Corporation, No. T143-39554-00065 (June 11, 2019), Section D.5 (f)(1)(A), (B), and (C), at 93.
191. The Permit establishes BACT for the flares, including a flare management plan. Further, the Permit sets limits for emissions while operating in sweep and pilot mode, including PM, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, CO, and CO<sub>2e</sub>. The Permit requires that VOC destruction efficiency and removal efficiency shall not be less than 98% when flaring a process stream. The Permit includes requirements for a Preventive Maintenance Plan; testing; continuous monitoring; record keeping; and reporting. Ex. 005, Section D.5.1, at 93-98.
192. The flares for the Facility will be required to meet the federal NSPS for Petroleum Refineries as well as the Petroleum Refinery NESHAP. Ex. 005, Section E.3, at 153; Section E.13, at 192 and 196.
193. Dr. Sahu, Petitioners' expert, testified in support of Petitioners' allegations that the Permit is unlawful because it does not control flaring emissions adequately and that IDEM's estimates of facility flaring are based on unsupported assumptions and that the Permit failed to include necessary monitoring and reporting requirements.
194. Dr. Sahu stated that the flares' primary function is to provide a safety valve if there is a process upset so that that portion of the plant can be depressurized. *Hr'g. Tr. 42, Lines 10-25*. He further stated that estimates with respect to frequency and duration of flaring emissions cannot be done with any degree of reasonableness without a substantial level of design to the process units. *Hr'g. Tr. 43; 44, Lines 1-7*.

195. Mr. Lang, Permittee's consultant, described the method by which he organized the information for the environmental flaring scenarios used for modeling purposes. *Hr'g. Tr. 750, Lines 17-25; 751, Lines 1-20*. Mr. Lang also stated that he used information from a Shell petroleum refinery to categorize the types of events that would result in flaring at the Riverview facility. *Hr'g. Tr. 750, Lines 17-24; 776, Lines 2-7*. He testified that that in the flaring scenarios he characterized the source, the components, where the [process gas] is routed to, the expected number of events and their duration. *Hr'g. Tr. 752, Lines 1-20*.
196. Mr. Branoff, Permittee's expert, stated that after review of the flaring emission estimates he believed the estimates were conservative and reasonable because they were based on operations at other refineries, and included both planned events such as start-up and shutdown as well as a prediction to the extent possible for unplanned events due to malfunctions. *Hr'g. Tr. 895, Lines 21-25; 896, Lines 1-22*.
197. Dr. Sahu stated that aside from his problems with the estimates of frequency and duration of flaring events, he believes that the emissions for PM<sub>10</sub>, PM<sub>2.5</sub>, and NO<sub>x</sub> are underestimated. *See Count III, Findings of Fact for flaring emissions*.
198. Dr. Sahu stated that the Permit does not require monitoring of emissions for the flaring events but also states that you cannot monitor emissions from an open flame. *Hr'g. Tr. 132, Lines 20-25; 133, Line 1*. Dr. Sahu then stated that an enclosed flare would allow for monitoring pollutants before they are emitted to the atmosphere. *Hr'g. Tr. 133, Lines 5-16*. Dr. Sahu opines that IDEM could have imposed conditions to limit flaring to specific compositions, to certain durations, to certain frequencies, and to certain flow rates. *Hr'g. Tr. 134, Lines 9-25; 135, Lines 1-18*.
199. Dr. Sahu offered no testimony and Petitioners have produced no evidence that IDEM has the authority to require a closed flare design pursuant to BACT or any other state or federal law.

#### Conclusions of Law

200. Petitioners allege that that the Permit is unlawful because it does not control flaring emissions adequately. Specifically, Petitioners allege that IDEM's estimates of the Facility's flaring emissions are based on unsupported assumptions and that the Permit failed to include necessary monitoring and reporting requirements.
201. Petitioners' expert stated that the flares' primary function is to provide a safety valve if there is a process upset so that that portion of the plant can be depressurized. He further stated that estimates with respect to frequency and duration of flaring emissions cannot be done without a substantial level of design to the process units. Petitioners do not provide any information as to what they believe the true number of flare events will be, they merely state that the estimate provided by Permittee is flawed. Permittee's consultant described the method by which he organized the information for the flaring scenarios used for modeling purposes and

stated that he used information from an existing Shell petroleum refinery to categorize the types of events that would result in flaring at the Facility. He further stated that in the flaring scenarios he characterized the source, the components, where the [process gas] is routed to, the expected number of events and their duration. Permittee's expert stated that after review of the flaring emission estimates that he believed the estimates were conservative and reasonable because they were based on estimates from other refineries, and included both planned events such as start-up and shutdown as well as a prediction, to the extent possible, for unplanned events due to malfunction. In light of the testimony and evidence presented by the Permittee's consultant the Petitioners' have failed to demonstrate that IDEM's use of the flaring scenarios for its modeling was insufficient or flawed due to a lack of design specificity.

202. Petitioners' expert stated that he believes that the flaring emissions for PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>x</sub> are underestimated. This matter was already discussed and decided in Count III.
203. Petitioners' expert stated that there is no monitoring of emissions for the flaring events but also states that you cannot monitor emissions from an open flare. This being the case he suggests that IDEM could have required a closed flare or IDEM could have imposed conditions in the Permit to limit flaring to specific compositions, to certain frequencies, and to certain flow rates. Petitioners provided no testimony or evidence that IDEM has the authority to require the Permittee to use an enclosed flare. The federal Petroleum Refinery NSPS and the Petroleum Refinery NESHAP do not require enclosed flares for facilities such as Riverview. Further, Petitioners had no testimony or evidence as to how IDEM can limit flaring in the manner suggested when it used for depressurization of the underlying equipment due to safety concerns. Finally, it is persuasive that the U.S. EPA has stated that direct periodic monitoring of emissions is not always necessary (or, in some cases even possible); monitoring of parameters or variables related to emissions may be sufficient in certain situations to assure compliance, particularly for flare emissions. Ex. 0315, In the Matter of Riverview Energy Corp, Spencer County Indiana, Petition No. V-2019-10, Order Denying a Petition for Objection to Permit, p. 18.
204. Petitioners' have not presented credible testimony or evidence that IDEM erred by not mandating the use of an enclosed flare and not imposing the limitations suggested as a means of monitoring emissions during flaring events.

## **Count I**

### **Findings of Fact**

205. On January 28, 2020, OEA granted Petitioners' motion for summary judgment on Count I, which concerned IDEM's violation of Indiana's public participation requirements at 326 IAC 2-7-17(c)(1)(C)(iv). *Findings of Fact, Conclusions of Law and Order*, Cause No. 19-

A-J-5073, OEA, January 28, 2020, at 5-6.

206. OEA denied Petitioners' motion for remedy, stating it would decide on what relief would be appropriate when the entire case was resolved. *Order Denying Petitioners' Motion for Remedy on Count I*, Cause No. 19-A-J-5073, OEA, March 3, 2020.
207. In arguing for summary judgment on Count I, Petitioners pointed to various topics on which they allege they would have commented if they had more information. These issues included an email chain suggesting allegedly inadequate NAAQS modeling for NO<sub>x</sub> and SO<sub>2</sub> emissions; HAP emission information regarding public IDEM's health assessment; an email concerning assumptions related to flare gas composition and HAP emissions from flares; a discrepancy regarding flaring events in a flare emissions table; and the fact that air modeling was revised after the public comment period. *See Pets' Brief in Support of Motion for Summary Judgment*, October 14, 2019, OEA Cause No. 19-A-J-5073; *Pets' Reply Brief*, December 2, 2019, OEA Cause No. 19-A-J-5073.
208. Each of the issues listed above were discussed at hearing. At hearing, Petitioners elicited testimony by their expert regarding NAAQS modeling for NO<sub>x</sub> and SO<sub>2</sub> emissions. *Hr'g. Tr. 288-293, Line 1-13*. Petitioners questioned IDEM modeler Cody Jones at length about HAP emissions and IDEM's public health assessment. *Hr'g. Tr. at 393-402. Lines 1-13*. Both of Petitioners' experts testified about flare gas composition and HAP emissions from flares. *Hr'g. Tr. 131-133, Lines 1-16; Hr'g. Tr. 318-320*. Petitioner's expert testified to questions regarding the facility's flare management plan. *Hr'g. Tr. 133-135*. Petitioners called two witnesses for the purpose of disputing IDEM's final modeling. Respondents IDEM and Riverview each called a witness to testify about the final modeling.
209. Petitioners did not provide evidence that the issues on which they were unable to comment during the comment period could not now be resolved at the hearing.
210. EPA denied Petitioners' request for an objection on a parallel claim, finding that "the Petitioners have failed to demonstrate that the lack of information during the public comment period violated any requirements of [40 C.F.R. §] 70.7(h) (or IDEM's EPA-approved regulations), deprived the public of the opportunity to meaningfully participate in the permitting process, or resulted in a flaw in the Permit." Ex. 315 at 14-15. EPA further stated that although 326 IAC 2-7-17(c)(1)(C)(iv) is Indiana specific, "[i]t is not clear to the EPA what more—if anything—Indiana's provision requires beyond the EPA's public notice requirements" found at 40 C.F.R. § 70.7(h). *Id.*

#### Conclusions of Law

211. Petitioners have received a response on their public records request, and also responses stemming from multiple rounds of discovery. Armed with such information, the Petitioners brought their claims to hearing lasting three-and-one-half days. Each of the issues cited by

Petitioners where they claimed their public comments were insufficient due to a lack of information have now been fully litigated before this Court.

212. Even if IDEM violated the public participation requirements before the Permit issued, Petitioners have been thoroughly heard on all issues regarding the Permit, including the issues underlying Count I, mooted the remedy of remand. Separate relief on this Count therefore is inappropriate.
213. Petitioners have been given due process on their claims over the course of the past year, and they will continue to enjoy due process should they choose to avail themselves of the judicial review process.

### **Testing, Monitoring, and Enforceability Issues**

#### Findings of Fact

214. Petitioners' various allegations regarding testing monitoring, and enforceability issues also warrant consideration. Petitioners made allegations that certain emission units did not have adequate stack test frequency because the monitoring was insufficient, thus they posit that the Permit is unenforceable with respect to the units' underlying BACT limits.
215. Dr. Sahu, Petitioners' expert, testified with respect to information he compiled in a table as to the following emission sources/units: coal handling, Feed Heater EU-2001, Fractional Heater EU-2004, Sulfur Recovery (Block 3000), the HP, LP, and SB Flares, and the Hydrogen Plant (Block 7000). *Hr'g. Tr. 104-106; Ex. 6.*
216. Petitioners' expert stated that after the initial stack test for PM<sub>10</sub> and PM<sub>2.5</sub> the coal handling units were required to test every five years which he believes is too infrequent. He does note that these units have parametric monitoring but states that because the chosen parametric monitoring is not related to the emission factors for the pollutant, they are insufficient. He adds that there were no requirements for the Permittee to use a Bag Leak Detection System (BLDS). *Hr'g. Tr. 101-104, Ex. 6.*
217. The Permit not only requires daily parametric monitoring for all of the baghouses used for coal handling (including storage) but also requires monitoring of negative pressure for the coal storage enclosure. If a pressure drop across a baghouse is not within the normal range, then the Permittee must take immediate action to restore the baghouse to its normal or usual manner of operation as expeditiously as practicable. *Ex. 5 at 63-67, 51.*
218. Petitioners' expert suggests that he does not know how monitoring pressure drops across a baghouse would work or even if it is practical.
219. BLDS is merely an alternate form of monitoring for baghouse leaks. *Ex. 315 at 11, see footnote 20.*

220. IDEM explained why it did not choose BLDS as a form of monitoring in its response to EPA Comment on the draft Permit. The similar sources that had BLDS were either subject to the BLDS monitoring pursuant to a NESHAP or had exhaust flow rates one or two orders of magnitude higher than those at the Facility. Ex. 301C at 58, 59.
221. With respect to the Feed Heater (EU-2001) and the Fractional Heater (EU-2004) the Petitioners state that stack testing takes place every five (5) years but does not require parametric monitoring between testing. Ex. 6.
222. Petitioners' expert suggests that because there is not parametric monitoring between stack testing that there is no way to ensure continuous compliance between stack testing.
223. The Facility is subject to 40 CFR § 63.7525, which has independent requirements with respect to monitoring. Ex. 5 at 73, 74; National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters NESHAP [40 CFR Part 63, Subpart DDDDD] [326 IAC 20-95].
224. This federal rule requires that EU-2001 and EU-2004 install PM Continuous Parameter Monitoring System (CPMS) for PM under certain circumstances. 40 CFR Part 63.7525(b); Ex. 301E at 7-9.
225. Petitioner has presented no evidence that Permittee was subject to the federal rule with respect to PM monitoring pursuant to 40 CFR Part 63.7525 or 40 CFR Part 63, Subpart DDDDD or 326 IAC 20-95.
226. Petitioners' expert takes issue with the fact that IDEM did not impose continuous NOx monitoring for the sulfur recovery tail gas treatment unit given its NOx testing frequency. *Hr'g. Tr. 102, 106, 107; Ex. 6.*
227. There is no control device for the tail gas treatment units and the gas from the unit's exhaust to waste gas boilers. Ex. 5 at 86, 87.
228. The tail gas treatment units and the waste gas boilers are subject to 40 CFR Part 60, Subpart Dc, which does not require NOx Continuous Emission Monitoring System (CEMS).
229. Units with higher heat input capacity than the Facility tail gas treatment units and waste gas boilers would be subject to 40 CFR Part 60, Subpart Db, which does require NOx CEMS.
230. Petitioners' expert stated that he had concerns about the enforceability of PM<sub>10</sub> and PM<sub>2.5</sub> for the hydrogen plant due to the infrequent testing. He stated that it is not clear about the enforceability of SO<sub>2</sub> although the Permit does have a total sulfur monitoring requirement for the fuel. *Hr'g. Tr. 108.*
231. The hydrogen reformers are subject to 40 CFR Part 60, Subpart Ja because the Facility uses process fuel gas and does not require particulate CEMS or COMS.

232. Petitioners' expert stated that he had enforceability concerns with respect to the HP, LP, and SB flares at the Facility. *Hr'g. Tr. 107, lines 7-22.*
233. Findings of Fact have been made with respect to enforceability of emergency flaring in Count VI.
234. EPA made no comments concerning the inadequacy of monitoring and testing for the Feed Heater, Fractional Heater, Sulfur Recovery, Hydrogen Plant, and the HP, LP, and SB Flares. Ex. 301C at 45-49.

#### Conclusions of Law

235. Petitioners made allegations that certain emission units did not have adequate stack test frequency because the monitoring was insufficient, thus they posit that the Permit is unenforceable with respect to the units' underlying BACT limits. However, the Petitioners' allegations that the Permit is unenforceable with respect to coal handling because once daily baghouse parametric pressure drop readings are required as opposed to BLDS are unpersuasive in light of IDEM's full explanation for the choice of pressure drop readings as well as U.S. EPA's position that BLDS is merely an alternate form of monitoring.
236. With respect to the Fractional Feed Heater EU-2001 and the Fractional Heater EU-2004, the Petitioners allege that the permit is not enforceable because there is no parametric monitoring for PM<sub>10</sub> and PM<sub>2.5</sub> between testing. However, these units are subject to 40 CFR 63.7525, which has independent requirements with respect to monitoring. This rule would require that the Feed Heater and Fractional Heater install a Continuous Parameter Monitoring System under certain circumstances.
237. With respect to Sulfur Recovery, Petitioners take issue with the fact that the Permit does not require the tail gas treatment units to have continuous NO<sub>x</sub> monitoring. However, these units exhaust to waste boilers, both of which are subject to 40 CFR Part 60 Subpart Dc, which does not require continuous NO<sub>x</sub> monitors for units below a certain heat input capacity. If the tail gas treatment boilers had had a higher heat input capacity, they would have been subject to 40 CFR Part 60, Subpart Db, which does require continuous monitoring NO<sub>x</sub>.
238. With respect to the Hydrogen Plant, the Petitioners' expert states that he has concerns about the enforceability of the Permit due to the lack of PM<sub>10</sub> and PM<sub>2.5</sub> monitoring for the hydrogen reformers. However, the hydrogen reformers are subject to 40 CFR Part 60, Subpart Ja because the Facility uses process fuel gas and does not require particulate CEMS or COMS.

239. The issue of monitoring and enforceability with respect to the HP, LP, and SB flares at the Facility has been covered in Count III.
240. It is persuasive to note that EPA did not make comment on any of the emission units that Petitioners claim have limits that are unenforceable due to the lack of monitoring with either surrogate parameters or continuous monitoring. Taking that aside, Petitioners simply have not presented adequate testimony or evidence that the limits discussed are not enforceable by the current terms of the Permit to justify remand for enforceability concerns.

### **Order**

**THE COURT**, being duly advised by all of the foregoing hereby **FINDS AND ORDERS** that Petitioners, Southwestern Indiana Citizens for Quality of Life Inc., and Valley Watch, Inc., have failed to present substantial evidence required to meet its burden of showing that IDEM improperly issued the Permit to Riverview. Respondents IDEM and Riverview Energy Corporation presented substantial evidence required to meet their burden of showing that the Permit was issued in compliance with all state and federal statutes, regulations, and guidance.

**IT IS THEREFORE ORDERED, ADJUDGED, AND DECREED** that Southwestern Indiana Citizens for Quality of Life Inc.'s and Valley Watch, Inc.'s Petition for Administrative Review is **DENIED**. This cause is **DISMISSED**. All further proceedings are **VACATED**.

You are further notified that pursuant to provisions of Ind. Code (I.C.) § 4-21.5-7-5, the Office of Environmental Adjudication serves as the ultimate authority in administrative review of decisions of the Commissioner of the Indiana Department of Environmental Management. This is a Final Order subject to Judicial Review consistent with applicable provisions of I.C. § 4-21.5. Pursuant to I.C. § 4-21.5-5-5, a Petition for Judicial Review of this Final Order is timely only if it is filed with a civil court of competent jurisdiction within thirty (30) days after the date this notice is served.

**IT IS SO ORDERED this 17<sup>th</sup> day of December, 2020 in Indianapolis, IN.**

Catherine Gibbs  
Office of Environmental Adjudication