

## Permanent Program Finding

### Results of Review

Permanent Program Significant Revision Application Nos. 1 to Permit No. 330 and 458  
Responsible Energy Operations, LLC  
Friendsville Mine

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\*(See original Finding documents for Permit Nos. 330 and 458)

The Illinois Department of Natural Resources, Office of Mines and Minerals, Land Reclamation Division (Department), the Regulatory Authority in Illinois under the Surface Mining Control and Reclamation Act of 1977 (Federal Act), 30 U.S.C. Section 1201 *et seq.*, has reviewed Significant Revision Application Nos. 1 to Permit Nos. 330 and 458 in accordance with the Surface Coal Mining Land Conservation and Reclamation Act (State Act), 225 ILCS 720, and the Department’s regulations at 62 Ill. Adm. Code 1700-1850.

The applicant has submitted in writing the modifications required by the Department’s letter dated November 11, 2020 (Appendix A). These modifications have been reviewed and approved by the Department. Pursuant to 62 Ill. Adm. Code 1773.19, the Department is approving the application as modified. The Department’s decision is based upon a review of the record as a whole and is supported and documented by the record. The findings and reasons for the Department’s decision are set forth below. The period for administrative review under 62 Ill. Adm. Code 1847.3 commences as of the date of this decision.

### **I. SUMMARY OF APPLICATION**

The application proposes a significant revision to the currently approved operations.

The revision proposes to revise the previously approved permit by installing buried slurry lines in Permit Nos. 330 and 458 and constructing Slurry Cell No. 4 in Permit No. 458.

Permit No. 330 has 2,402.1 acres. No changes in the approved pre- and post-mining land uses are proposed by Revision No. 1 to Permit No. 330. Permit No. 458 has 1,065.0 acres. No changes in the approved pre- and post-mining land uses are proposed by Revision No. 1 to Permit No. 458. Of the total acres in both permits, 12.9 acres in Permit No. 458, and 10.1 acres in Permit No. 330 will be used for mine processing areas and support facilities by this revision.

The following is a summary of the pre-mining land uses and the proposed post-mining land uses. NOTE: Land uses are categorized under the definitions found in 62 Ill. Adm. Code 1701.5. Land use classifications under other regulatory programs and agencies may be different.

<u>Land Use</u>	<u>Pre-Mining Acres</u>	<u>Post-Mining Acres</u>
Cropland	2592.3	2589.3
Water Resources	0	47
Pastureland	55.9	71.0
Residential	14.4	9.6
Industrial/Commercial	24.5	24.3
Fish & Wildlife Habitat	380.8	701.6

Forestry	376.5	24.3
Recreation	3.5	0
Undeveloped Land	19.2	0
<b>Total</b>	<b>3467.1</b>	<b>3467.1</b>

## **II. SUMMARY OF THE PUBLIC PARTICIPATION PROCESS**

The Department finds that the public participation requirements of 62 Ill. Adm. Code 1773.13 and 1773.14 have been met.

The application was filed with the Department on January 24, 2020, and was deemed complete on July 21, 2020. The applicant placed a newspaper advertisement of the proposed operation in the Mt. Carmel Register, a newspaper of general circulation in the area affected, once a week for four consecutive weeks, beginning on July 24, 2020. The applicant filed two copies of the application with the County Clerk of Wabash County, in accordance with 62 Ill. Adm. Code 1773.13(a)(2), on July 23, 2020. Copies of the application were sent to the following Agencies: Illinois Department of Agriculture (IDOA), and Illinois Environmental Protection Agency (IEPA), and the United States Department of Agriculture, Natural Resources Conservation Service (NRCS), and the United States Fish and Wildlife Service (USFWS) on July 30, 2020, for review and comment. In addition, copies were circulated with the appropriate Offices within the Illinois Department of Natural Resources (Department). Written notification of the application was given to those governmental agencies and entities required to receive notice under 62 Ill. Adm. Code 1773.13(a)(3).

State Agency comments on this application have been received by the Department, with the source and date of comments as follows: IDOA August 20, 2020, and IEPA September 14, 2022.

Comments on this application were also received from the NRCS dated September 15, 2020, and USFWS dated May 9, 2023.

No requests for an informal conference or public hearing were received by the Department.

All comments received in writing have been considered by the Department in reviewing this application. The Department's responses to these comments are set forth in Appendix B.

All comments received on this application have been furnished to the applicant and have been filed for public inspection at the office of the County Clerk of the county in which the application is located.

### **III. SUMMARY OF THE DEPARTMENT'S FINDINGS**

The Department, upon completing its review of the information set forth in the application, the required modifications submitted, and information otherwise available, and made available to the applicant, and after considering the comments of State Agencies, and all other comments received, makes the following findings:

#### **A. Findings Required by 62 Ill. Adm. Code 1773.15**

##### **REVIEW OF VIOLATIONS (Sections 1773.15(b) and (e))**

Section 1773.15(b)(1): Based on a review of all reasonably available information concerning violation notices and ownership or control links involving the applicant, including information obtained pursuant to Sections 1773.22, 1773.23, 1778.13 and 1778.14, the Department has determined that the applicant or a person who owns or controls the applicant is not currently in violation of the State Act, Federal Act or other law or regulation referred to in Section 1773.15(b)(1).

Section 1773.15(e): The Department requested updated compliance information in its letter dated April 18, 2023. Based on the compliance review required by Section 1773.15(b)(1), a review of the OSM Applicant Violator System for outstanding violations, and in light of no new information submitted pursuant to Sections 1778.13(i) and 1778.14(e), the Department reconsidered its decision to approve the application and found that no change in its decision to issue the permit is necessary.

##### **SECTION 1773.15(c)(1) FINDINGS**

Section 1773.15(c)(1): The application as modified is accurate and complete and all requirements of the Federal and State Acts and the regulatory program have been met.

##### **SECTION 1773.15(c)(2) – (c)(13) FINDINGS**

Section 1773.15(c)(2): The applicant has demonstrated that reclamation as required by the Federal and State Acts and the regulatory program can be accomplished under the reclamation plan contained in the applications, as modified.

Section 1773.15(c)(3)(A): The proposed area is not within an area under study or administrative proceedings under a petition, filed pursuant to Section 1764, to have an area designated as unsuitable for surface coal mining operations.

Section 1773.15(c)(3)(B): The proposed area is not within an area designated as unsuitable for mining pursuant to Sections 1762 and 1764, or subject to the prohibitions or limitations of Section 1761.11.

Section 1761.11(a): The proposed area does not include any lands within the boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System, or National Recreation Areas designated by Act of Congress.

Section 1761.11(b): The proposed area is not on any Federal lands within the boundaries of any national forest.

Section 1761.11(c): The proposed surface coal mining and reclamation operations will not adversely affect any publicly owned park or any privately owned or publicly owned places included on the National Register of Historic Places.

Section 1761.11(d): The proposed area is within one hundred (100) feet measured horizontally of the outside right-of-way line of a public road in Wabash County, described as follows:

The proposed affected area is adjacent to the right-of-way of Wabash 12 Avenue. The proposed activities in the affected area include removal of overburden, construction of a fine coarse slurry cell, safety berms, diversion ditches, soil storage stockpiles, and installation of pipelines.

The Department finds the interests of the public and affected landowners will be protected from the proposed mining operations as a result of the measures to be taken by the applicant as described in the mining operations plan concerning this road.

No approvals from the authority with jurisdiction over the road were required.

The applicant provided proper public notice and opportunity for a public hearing. No hearing was requested, and no written comments were submitted to the Department concerning this road.

The Department finds the interests of the public and affected landowners will be protected from the proposed mining operations as a result of the measures to be taken by the applicant as described in the mining operations plan concerning this road.

Section 1761.11(e): The proposed area is not within three hundred (300) feet measured horizontally of any occupied dwellings.

Section 1761.11(f): The proposed area is not within three hundred (300) feet measured horizontally of any public building, school, church, community or institutional building, or public park from which the applicant will be required to maintain a three hundred (300) foot buffer zone.

Section 1761.11(g): The proposed area is not within one hundred (100) feet measured horizontally of a cemetery.

Section 1773.15(c)(4): The private mineral estate to be mined has not been severed from the private surface estate. The applicant has provided the Department with the proper documentation required under Section 1778.15(b).

Section 1773.15(c)(5): The Department has assessed the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with Part 1780 and finds that the operations proposed under the application have been designed to prevent material damage to the hydrologic balance outside the proposed area (see Appendix C).

Section 1773.15(c)(6): The applicant has not proposed the use of any existing structures in the application requiring compliance with Section 1700.11(d).

Section 1773.15(c)(7): No fees are required because of this permitting action. The Department finds that the applicant has paid all reclamation fees from previous and existing operations as required by 30 CFR 870.

Section 1773.15(c)(8): See Part III – Subpart B.

Section 1773.15(c)(9): The applicant has satisfied the requirements for a long-term, intensive agricultural post-mining land use, in accordance with the requirements of Section 1816.111(d).

Section 1773.15(c)(10): Review of the application has shown that no issues were raised with respect to federally endangered or threatened species as part of this revision. This revision includes the development of an incised slurry cell and has no disturbances to any critical habitats, as determined under the Endangered Species Act of 1973 (16 USC 1531 *et seq.*... see Appendix E). The Department hereby reaffirms its finding under Section 1773.15(c)(10) as stated in Department findings for Permit Nos. 330 and 458 and incorporates that finding by reference herein.

Section 1773.15(c)(11): The requirements of this section are not applicable as there are no preexisting highwalls in accordance with Section 1816.106.

Section 1773.15(c)(12): The effect of the proposed permitting action on properties listed on or eligible for listing on the National Register of Historic Places has been taken into account by the Department.

Section 1773.15(c)(13): The requirements of this section are not applicable as there are no proposed remaining operations.

B. Findings Required by 62 Ill. Adm. Code 1785 (Applicable Sections)

PRIME FARMLANDS  
(Section 1785.17)

A soil survey was submitted by the applicant that shows prime farmland soils identified in this application which have been historically used as cropland. The soil survey prepared by the USDA provides the required soil information.

The applicant has, with respect to prime farmland, satisfied the requirements of Section 1785.17. (See Part B, below and original finding documents for Permits 330 & 458.)

Section 1785.17(e)(1): The Department finds that the approved post-mining land use of the prime farmlands is cropland.

Section 1785.17(e)(2): The Department finds that the permit incorporates as specific conditions the contents of the plan submitted under Section 1785.17(c), after consideration of any revisions to that plan suggested by the State Conservationist under Section 1785.17(d).

Section 1785.17(e)(3): The Department finds that the applicant has the technological capability to restore the prime farmland, within a reasonable time, to equivalent or higher levels of yield as non-mined prime farmland in the surrounding area under equivalent levels of management.

Section 1785.17(e)(4): The Department finds that the proposed operations will be conducted in compliance with the requirements of Section 1823 and other environmental protection performance and reclamation standards for mining and reclamation of prime farmland of the regulatory program.

Section 1785.17(e)(5): The Department finds that the aggregate total prime farmland acreage has not been decreased from that which existed prior to mining. Water bodies, if any, are located within the post-reclamation non-prime farmland portions of the permit area and the consent of all affected property owners has been obtained.

C. Compliance with 62 Ill. Adm. Code 1773.19

Section 1773.19(a)(1): The Department has based its decision to approve, as modified, the application, based on public participation as provided by Sections 1773.13 and 1773.14, compliance with all applicable provisions of Section 1785, and the processing and complete review of the application.

Section 1773.19(a)(3): The Department is providing written notification of its final permit decision to the following persons and entities:

- A. The applicant, each person who filed comments or objections to the application.

- B. The County Board of the county in which the application is located; and,
- C. The Office of Surface Mining.

All materials supporting these findings are a part of the public record and are hereby incorporated by reference.

#### **IV. PERMIT CONDITIONS**

- A. The permittee shall conduct surface coal mining and reclamation operations only on those lands specifically designated as the permit area on the maps submitted with the application and authorized for the term of the permit and that are subject to the performance bond or other equivalent guarantee in effect pursuant to 62 Ill. Adm. Code 1800.
- B. The permittee shall conduct all surface coal mining and reclamation operations as described in the approved application, except to the extent that the Department otherwise directs in the permit.
- C. The permittee shall comply with the terms and conditions of the permit, all applicable performance standards of the Federal and State Acts, and the requirements of the regulatory program.
- D. Without advance notice, delay, or a search warrant, upon presentation of appropriate credentials, the permittee shall allow the authorized representatives of the Department and Secretary of the United States Department of the Interior to:
  - 1. Have the right of entry provided for in 62 Ill. Adm. Code 1840.12; and,
  - 2. Be accompanied by private persons for the purpose of conducting an inspection in accordance with 62 Ill. Adm. Code 1840, when the inspection is in response to an alleged violation reported to the Department by the private person.
- E. The permittee shall take all possible steps to minimize any adverse impacts to the environment or public health and safety resulting from noncompliance with any term or condition of this permit, including, but not limited to:
  - 1. Accelerated or additional monitoring necessary to determine the nature and extent of non-compliance and the results of the non-compliance;
  - 2. Immediate implementation of measures necessary to comply; and,
  - 3. Warning, as soon as possible after learning of such non-compliance, to any person whose health and safety is in imminent danger due to the non-compliance.



- F. As applicable, the permittee shall comply with 62 Ill. Adm. Code 1700.11(d) for compliance, modification, or abandonment of existing structures.
- G. The permittee shall pay all reclamation fees required by 30 CFR 870 for coal produced under this permit for sale, transfer, or use.
- H. Within thirty (30) days after a cessation order is issued under 62 Ill. Adm. Code 1843.11, for operations conducted under the permit, except where a stay of the cessation order is granted and remains in effect, the permittee shall either submit to the Department the following information, current to the date the cessation order was issued, or notify the Department in writing that there has been no change since the immediately preceding submittal of such information:
  - 1. Any new information needed to correct or update the information previously submitted to the Department by the permittee under 62 Ill. Adm. Code 1778.13(c); or
  - 2. If not previously submitted, the information required from a permit application by 62 Ill. Adm. Code 1778.13(c).
- I. Species Protection:
  - 1. Issuance of this permit under the Surface Coal Mining Land Conservation and Reclamation Act does not in any way authorize any take of any listed species in violation of the Illinois Endangered Species Protection Act, 520 ILCS 10/1 *et seq.* or the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). If "take" as defined by these Acts is anticipated to result from permitted activities, it is recommended that the permittee apply for an Incidental Take permit from the Illinois Department of Natural Resources, Office of Resource Conservation for state-listed species and to contact the Department wildlife staff for federally listed species.
  - 2. Issuance of this permit under the Surface Coal Mining Land Conservation and Reclamation Act does not in any way authorize any take of a bald or golden eagle, including nests or eggs, in violation of the Bald Eagle Protection Act, as amended (16 U.S.C. 668 *et seq.*). If "take" as defined by the Bald Eagle Protection Act is anticipated to result from permitted activities, it is recommended that the permittee apply for an Incidental Take (non-purposeful take) permit from the U.S. Fish and Wildlife Service. The Department and the U.S. Fish and Wildlife Service shall be notified if a bald or golden eagle nest is observed in the permit area or in the vicinity of the permit area.
- J. If the permit is conditionally issued under 62 Ill. Adm. Code Section 1773.15(b)(2) on the basis of (1) a presumption supported by certification under 62 Ill. Adm. Code Section 1778.14 that the violation is in the process of being corrected; (2) proof submitted under

62 Ill. Adm. Code Section 1773.15(b)(1)(A) that the violation is in the process of being corrected; or (3) pending the outcome of an appeal described in 62 Ill. Adm. Code Section 1773.15(b)(1)(B), issuance is conditioned as follows:

1. If subsequent to permit issuance the applicant is issued a failure-to-abate cessation order, the permit shall be suspended and/or rescinded in accordance with the procedures for 62 Ill. Adm. Code Section 1773.20(c) Improvidently Issued Permits within thirty (30) days of the issuance of the failure-to-abate cessation order.
  2. If subsequent to permit issuance the Department is notified by the agency that has jurisdiction over the violation that the violation is no longer in the process of being corrected to the satisfaction of said agency, the permit shall be suspended and/or rescinded in accordance with the procedures for 62 Ill. Adm. Code Section 1773.20(c) Improvidently Issued Permits within thirty (30) days of such notification.
  3. If subsequent to permit issuance the circuit or district court reviewing the violation either denies a stay applied for in the appeal or affirms the violation, then the applicant shall submit the proof required under 62 Ill. Adm. Code Sections 1773.15(b)(1)(A) within thirty (30) days after the court's decision or the permit shall be suspended and/or rescinded in accordance with the procedures for 62 Ill. Adm. Code Section 1773.20(c) Improvidently Issued Permits within thirty (30) days of such failure to submit the required proof.
- K. Pursuant to Section 1778.15, the permittee shall possess all necessary legal rights to enter and conduct surface coal mining and reclamation operations within the permit area until final bond release is obtained.
- L. The permittee shall install monitoring wells GW-36, GW-38, GW-39, and GW-40 at the approximate proposed locations and depths within sixty (60) days of permit issuance.
- M. The permittee shall submit boring logs and well completion reports for monitoring wells GW-36, GW-38, GW-39, and GW-40 to the Department within sixty (60) days of permit issuance. The newly installed monitoring wells shall be surveyed for ground elevation and top of casing elevation and this information shall be submitted with the boring log and well completion report.
- N. The permittee shall provide slug test results and corresponding hydraulic conductivity values for the newly installed monitoring wells within sixty (60) days of permit issuance.
- O. The permittee shall properly establish background on monitoring wells GW-36, GW-38, GW-39, and GW-40 by sampling the wells on a monthly or bi-monthly basis (every other month) for the first 12 months. A minimum of six (6) sampling events shall be collected prior to any disposal of fine coal refuse in Slurry Cell No. 4.

1. Background sampling shall include the following parameters: pH, TDS, Hardness, Alkalinity, Acidity, Sulfate, Iron (total), Iron (dissolved), Manganese (total), Manganese (dissolved), Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chloride, Chromium, Cobalt, Copper, Cyanide, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Phenols, Zinc, and Water Elevation (reported as true elevation and not depth to water).
  2. Once background has been established for each monitoring well, sampling shall continue on a quarterly basis.
- P. The permittee shall submit an updated Hydrogeologic or Operations Map depicting the location of the newly installed monitoring wells within sixty (60) days of permit issuance.
- Q. The permittee shall continue sampling all existing groundwater monitoring wells and surface water monitoring points on a quarterly basis throughout the life of the mine or until final bond release.

#### V. CONCLUSIONS

Based upon the information contained in the application, information otherwise available and made available to the applicant, the comments of State Agencies, the foregoing analysis of the probable impact of the proposed operations, all findings and information contained herein, and conditions set forth in Part IV, the Department finds that there is a reasonable basis on which to issue a significant revision for the application as modified.

Enter on behalf of the Illinois Department of Natural Resources, Office of Mines and Minerals, Land Reclamation Division as Regulatory Authority.

Illinois Department of Natural Resources

  
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 Ronnie Huff, Director  
 Office of Mines and Minerals

Dated: November 8, 2023

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**APPROVED FOR LEGAL SUFFICIENCY**

Date: 11/7/23

Legal Counsel: AWO

**APPENDIX A**

REQUIRED MODIFICATIONS

## APPENDIX B

### CONSIDERATION OF COMMENTS AND OBJECTIONS

62 Ill. Adm. Code 1773.13(b) allows submission of written comments on applications. The following are comments received from the State Agencies, County Boards and other members of the public and the Department's response to those comments.

#### Illinois Department of Agriculture

Comment: No comments.

Response: The correspondence was forwarded to the applicant

#### Illinois Environmental Protection Agency

Comment: The downgradient monitoring well (GW-37) must monitor the uppermost water-bearing zone beneath the bottom of the proposed slurry cell.

Response: This comment was forwarded to the applicant.

Comment: The upgradient well (GW-36) screened interval is required to correlate with the downgradient well-screened interval to compare background water quality and gradient.

Response: This comment was forwarded to the applicant.

Comment: A minimum of three wells, screened in correlating units, are required to establish groundwater flow direction indicating upgradient/downgradient conditions.

Response: This comment was forwarded to the applicant.

Comment: The groundwater monitoring well diagrams contained in Attachment 4.5.2 are lacking in detail. The applicant must identify expected components of the proposed wells, including well screen length and any other known information.

Response: This comment was forwarded to the applicant.

Comment: The monitoring wells shall be capable of yielding groundwater samples in all quarters of the year under normal hydrologic conditions.

Response: This comment was forwarded to the applicant.

- Comment: The monitoring wells shall be constructed in compliance with the Illinois Water Well Construction Code (77 Ill. Adm. Code 920.170).
- Response: This comment was forwarded to the applicant.
- Comment: The monitoring wells shall be monitored for the same parameters and at the same frequency as the existing and proposed monitoring wells for this Permit, as detailed in the corresponding NPDES Construction Authorization.
- Response: This comment was forwarded to the applicant.
- Comment: A statistical representation of existing groundwater quality (background) shall be calculated for the monitoring wells using the same method and constituents used for the already existing and proposed monitoring wells for this Permit, as detailed in the corresponding NPDES Construction Authorization.
- Response: This comment was forwarded to the applicant.
- Comment: Hydraulic conductivities shall be measured and determined for each well upon installation.
- Response: This comment was forwarded to the applicant.
- Comment: Upon well completion, the well log and construction diagram shall be provided to the Illinois Department of Natural Resources and the Illinois EPA Mine Program in Marion.
- Response: This comment was forwarded to the applicant. Permit Condition M requires a boring log and well completion diagram to be submitted for each monitoring well within sixty (60) days of permit issuance.
- Comment: The reclamation plan to utilize stormwater runoff to provide and maintain eight (8) feet of water cover atop the proposed slurry impoundment is predicated on the impoundment having a sufficient watershed area to initially establish and continually replenish surface water lost to infiltration and evaporation. The watershed areas shown on Table 5.4.1 do not seem to equate to the area that would be tributary to the slurry cell that is delineated on the Surface Drainage Control Map (Map 8). Provide additional information including watershed diagrams and delineations that support the determination that 26.168 acres (or greater) is the area that is tributary to the proposed slurry cell or provide a revision to the application as necessary to satisfy applicable state requirements.

Response: This comment was forwarded to the applicant. The applicant is not proposing to maintain eight (8) feet of water cover atop the slurry cell. The slurry cell will be covered with four (4) feet of soil material and the acreage returned to cropland.

Comment: The reclamation plan (Part 9, section 9.2.1) discusses removal of the temporary diversion ditches (SP4-1 and SP4-2) to “provide adequate watershed to meet the land use of water” however; there was no additional information found in Attachment 5.4.1 (as specified in Section 9.2.1) that describes the final surface drainage controls that would provide stormwater conveyance into the proposed slurry cell (SP4).

Response: This comment was forwarded to the applicant. The slurry cell will not have a post-mining land use of water. The slurry cell will be covered with four (4) feet of soil material and the acreage returned to cropland.

Comment: Attachment 9.4.1 refers to an area of 10.8 acres as the subject area of the refuse cover variance request (SCML 9). This area is repeated in Table 9.5.1.7 and Table 3.12.1. Please discuss the relevance of 10.8 acres regarding the requirement to establish and maintain an impoundment with surface water elevation have a surface area of 12.5 acres according to the application.

Response: This comment was forwarded to the applicant.

Comment: Attachment 9.4.1, Part 2, Item 2 discusses representative sampling of the currently approved slurry cell #3 to demonstrate the water quality associated with a slurry cell that was reclaimed in a manner that is identical to the one proposed for SP4. Please assist the Agency in finding the analytical data that resulted from the referred to sampling.

Response: This comment was forwarded to the applicant.

U.S. Department of Agriculture, Natural Resource Conservation Service

Comment: Sections 2.1.2 through 2.2.9, the application says pre-soils and related information are not applicable. I found no soils information to review in the application.

Response: Parts 2.1.2 through 2.2.9 provide pre-mine soils information in original applications. By regulation, a permittee is only obligated to provide pertinent application parts for significant revision applications such as this. Because none of the pre-mine soils information has changed as a result of adding the proposed refuse disposal area and land use relocations, that information was not required.

Comment: It appears that water will be the cover for the slurry. The USDA-Natural Resources Conservation Service is in agreement with IDOA comments concerning Prime Farmland restoration, recognizes the number of acres to be restored based on the original permit, and recognizes that the original number of restored acres will likely be affected by the inclusion of 23 acres of water covered slurry for the purpose of tracking related to the Farmland Protection Policy Act (FPPA). “Agriculture and Food Act of 1981 (Public Law 97-98) containing the Farmland Protection Policy Act (FPPA) subtitle I of Title XV, Section 1539-1549. On June 17, 1994, the final rules and regulations were published in the Federal Register.”

Response: The applicant does intend to reclaim the proposed refuse disposal area by covering the slurry with 4 feet of shale and 4 feet of soil. While changes to the approved permitted wildlife and developed water resources acreages are proposed as a result of this application, the permit revision does not result in any change in the approved cropland acres or a reduction in the approved soil capability acres.

U.S. Department of the Interior, Fish and Wildlife Service

Comment: No comments.

Response: The comment was forwarded to the applicant



## APPENDIX C

**Responsible Energy Operations, LLC – Friendsville Mine  
Significant Revision No. 1 to Permit No. 330 & 458  
And Permit Nos. 330, 395, 443, 458, and 461  
Assessment and Findings of Probable Cumulative Hydrologic Impacts**

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3. Lancaster Mine (1936-1942)
4. Wabash Mine (1983-2007)
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##### **B. Active Coal Mines**

1. Responsible Energy Operations, LLC. – Friendsville Mine (2000-current)
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  - b. Permit No. 395 (issued 2008)
  - c. Permit No. 458 (issued 2018)
  - d. Permit No. 443 (issued 2019)
  - e. Permit No. 461 (issued 2020)
  - f. Application for Significant Revision No. 1 to Permit No. 330 & 458

#### **II. Probable Cumulative Hydrologic Impact Assessment (CHIA) of Significant Revision No. 1 to Permit No. 330 & 458**

##### **A. Cumulative Impact Area (CIA) Evaluation**

1. Office of Surface Mining (OSM) Guidance
2. CIA Determination of Significant Revision No. 1 to Permit No. 330 & 458

##### **B. Assessment of the Probable Hydrologic Consequences (PHC) for the Permit Area**

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Map No. 1 – Monitoring Location Map

## APPENDIX C

**Responsible Energy Operations, LLC – Friendsville Mine  
Significant Revision No. 1 to Permit No. 330 & 458  
And Permit Nos. 330, 395, 443, 458, and 461  
Assessment and Findings of Probable Cumulative Hydrologic Impacts**

Responsible Energy Operations, LLC (hereinafter referred to as “permittee” or “applicant” as applicable) was required to submit a determination of probable hydrologic consequences of the proposed mining and reclamation operations, both on and off the permit area, pursuant to 62 Ill. Adm. Code 1780.14(e) for surface mines.

Pursuant to 62 Ill. Adm. Code 1773.15(c) (5), the Department must make an assessment of the probable cumulative impacts of all anticipated coal mining on the hydrologic balance in the cumulative impact area, in accordance with 62 Ill. Adm. Code 1780.14(f), and find in writing that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

The following assessment and findings are intended to fulfill the above requirements.

### **I. GENERAL INFORMATION**

#### **A. Historical Coal Mines (ISGS)**

Numerous coal mines have operated in the general vicinity of the Friendsville Mine. Both surface and underground mines operated in the area, with some operations dating back to the 1800’s. Many of these mining operations existed pre-law when no reclamation requirements were in place. A few of the historical mines in close proximity to the permit area and the more recent Wabash Mine are described below.

##### **1. Black Diamond Mine (1923-1929)**

This former room and pillar underground mine is located approximately ½ mile to the east of the existing Permit No. 330 area and extracted the Friendsville Coal Seam.

##### **2. Wallace Mine (1934-1935)**

This former room and pillar underground mine is located less than one (1) mile to the east of the existing Permit No. 330 area and extracted the Friendsville Coal Seam.

##### **3. Lancaster Mine (1936-1942)**

This former room and pillar underground mine is located less than one (1) mile to the south of the existing Permit No. 330 area. The Lancaster Mine utilized a shaft entry and extracted the Friendsville Coal Seam.

#### **4. Wabash Mine (1971-2007)**

The Wabash Mine is a room and pillar underground mine located approximately 5 miles to the south of the existing Friendsville Mine permit area. The Wabash Mine was operated by AMAX Coal Company from 1971-1997 and then Wabash Mine Holding Company from 1998-2007. The mine went into temporary cessation in 2007 but was bought by Conservancy Resources, LLC in late 2017. The Wabash Mine has remained in temporary cessation to date. The No. 5 coal seam was extracted while the mine was active.

#### **5. Other Mines**

Numerous other surface and underground mines previously existed in the general vicinity of the existing and proposed Vigo Friendsville Mine. These operations were active from the late 1800's thru the mid-1900s. Additional information regarding these mines can be found in the Directory of Coal Mines in Illinois – Wabash County.

##### **B. Active Coal Mines -**

##### **1. Friendsville Mine (2000- current)**

###### **a. Permit No. 330 (issued 2000)**

The original Friendsville Mine Permit No. 330 was issued on June 12, 2000, for a 2,402.10-acre surface coal mining operation in Wabash County. The permittee utilized traditional truck and shovel operations to extract the Upper and Lower Friendsville Coal Seams during mining. To date, approximately 2,100 acres have been affected by mining operations.

###### **b. Permit No. 395 (issued 2008)**

Permit No. 395 was issued on January 14, 2008, for a 252.70-acre surface coal mining operation in Wabash County. The permittee utilized traditional truck and shovel operations to extract the Upper and Lower Friendsville Coal Seams during mining. To date, approximately 236.0 acres have been affected by mining operations.

###### **c. Permit No. 458 (issued 2018)**

Permit No. 458 was issued on October 4, 2018, for a 1,065-acre surface coal mining operation in Wabash County. The permittee utilizes traditional truck and shovel operations to extract the Upper and Lower Friendsville Coal Seams. To date, approximately 454 acres have been affected by mining operations.

###### **d. Permit No. 443 (issued 2019)**

Permit No. 443 was issued on July 10, 2019, for a 687.3-acre surface coal mining operation in Wabash County. The permit area has not been affected by mining-related activities to date, but

the permittee will utilize traditional truck and shovel operations to extract the Upper and Lower Friendsville Coal Seams.

**e. Permit No. 461 (issued 2020)**

Permit No. 461 was issued on June 24, 2020, for a 371.2-acre surface coal mining operation in Wabash County. The permit area has not been affected by mining-related activities to date, but the permittee will utilize traditional truck and shovel operations to extract the Upper and Lower Friendsville Coal Seams.

**f. Application for Significant Revision No. 1 to Permit No. 330 & 458**

Application for Significant Revision No. 1 to Permit No. 330 & 458 proposes to modify 23 acres of existing permit area to construct a 13.8-acre fine coal refuse slurry cell within the southwestern portion of Permit No. 458. The fine coal refuse slurry cell is proposed to be designed as a non-discharging structure that will route decant water back to the preparation plant located within Permit No. 330 via a buried pipeline. Following the completion of slurry disposal, the proposed slurry cell will be returned to cropland. No additional permit area is being proposed within the Application for Significant Revision No. 1 to Permit No. 330 & 458.

**II. PROBABLE CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA) OF SIGNIFICANT REVISION NO. 1 TO PERMIT NO. 330 & 458**

**A. Cumulative Impact Area (CIA) Evaluation**

For purposes of a Cumulative Hydrologic Impact Assessment (CHIA), the Cumulative Impact Area (CIA) is defined as follows:

The area, including the permit area, within which impacts resulting from the proposed operation may interact with the impacts of all anticipated mining on surface and groundwater systems. Anticipated mining shall include, at a minimum, the entire projected lives through bond release of:

the proposed operation;

all existing operations;

any operation for which a permit application has been submitted to the Department.

This is based upon baseline geologic and hydrologic information. See 62 Ill. Adm. Code Sections 1701.Appendix A and 1780.21

## **1. Office of Surface Mining Guidance**

The Federal Office of Surface Mining Mid-Continent Region (OSM-MCR) developed a document in June 2007 entitled *Hydrologic Considerations for Permitting and Liability Release, a Technical Reference for the Mid-Continent Region*. In determining whether a CHIA is required, OSM-MCR states that “the operative word in the CHIA concept is *cumulative* which seemingly necessitates the potential interaction of two or more anticipated mining operations” (p. 17). Further, OSM-MCR states, “While it may be possible that for a single hydrologically isolated mine the probable hydrologic consequences determination made by the operator would be adopted by the regulatory authority as the CHIA, nevertheless such a conclusion must be reached by the regulatory authority on a case-by-case basis.” (p.17)

## **2. CIA Determination**

The Cumulative Impact Area (CIA) is that area, including the permit area, within which impacts resulting from the operation may interact with the hydrologic impacts of all other current and anticipated coal mining on the surface and groundwater systems.

Originally, the Department determined that a CIA was necessary for the Friendsville Mine, as portions of the proposed permit area were located within the same watershed that the existing Wabash Mine was located within. During the permitting process for Permit No. 330, the Department assessed the watersheds of Bonpas Creek and Coffee Creek above their convergence with the Wabash River. A United States Geologic Survey (USGS) gaging station, Station No. 03378000, is located on Bonpas Creek at Browns, Illinois, which is approximately seven (7) miles downstream of the Permit No. 330 area. The drainage area of Bonpas Creek at this location measured approximately 146,000 acres (Zuehls, E.E., 1987). A U.S.G.S. gaging station is also located on Coffee Creek at Keensburg, Illinois, which is approximately three (3) miles downstream of the Permit No. 330 area. The drainage area of Coffee Creek at this location, Station No. 03377600, is approximately 11,000 acres. The CIA for the Friendsville Mine was defined as the watersheds of Bonpas Creek at Browns and Coffee Creek at Keensburg. Therefore, the Permit No. 330 permit area comprised approximately 1.5% of the CIA for the Friendsville Mine. This determination was maintained during the Permit No. 395 permitting process.

During the Permit No. 458 permitting process, the Department reviewed the originally defined CIA and determined that it was too large to properly assess potential impacts from the existing and proposed permit areas. The Department then reviewed the Hydrologic Unit Code (HUC) HUC-12 watershed areas that the proposed and existing permit areas were located within. Permit No. 330 and Permit No. 395 are located within two (2) HUC-12 watersheds. These watershed areas are defined as 051201130404 – Fordice Creek, and 051201130303 – Coffee Creek, which are approximately 17,324 and 14,313 acres in size, respectively. The Permit No. 458 and, at the time, proposed Application for Permit No. 443 permit areas were also located in the same two (2) HUC-12 watersheds. However, the Department determined that this area encompassed within the HUC-12 watersheds was also too large to properly assess potential surface water impacts from mining operations. The Department then excluded portions of the HUC-12 watersheds that were not potentially hydrologically connected to the mining operations. The revised Surface Water CIA was defined as the approximately 19,258-acre area that encompasses portions of both the Fordice

Creek and Coffee Creek HUC-12 watershed. The Groundwater CIA was defined as the existing and proposed permit areas and the area within 1,000 feet from all existing and proposed permit areas. The 1,000-foot buffer was included because past studies have shown that effects on groundwater aquifers should be limited to within 1,000 feet of surface mining extents (Oertel, 1980; Cartwright and Hunt, 1981).

The Department's CIA determinations were maintained during the Permit No. 443 and Permit No. 461 permitting process, as the Permit No. 443 permit area was included as proposed permit area during the Department's CIA determinations for Permit No. 458, and the Permit No. 461 permit area is located within the same Fordice Creek HUC-12 watershed.

For Significant Revision No. 1 to Permit No. 330 & 458, the Department concluded that, because the proposed operations are within existing permit area that was included in previous CIA determinations, and no significant changes to mining operations are being proposed, the CIA determinations maintained during the most recent Permit No. 461 permitting process are appropriate and will be maintained for Significant Revision No. 1 to Permit No. 330 & 458. Therefore, the Surface Water CIA for the Application for Significant Revision No. 1 to Permit No. 330 & 458 will remain defined as the 19,258-acre area within the HUC-12 watersheds of 051201130404 – Fordice Creek and 051201130303 – Coffee Creek. The existing permit areas of the Friendsville Mine totals approximately 5,150 acres in size, which is approximately 27% of the defined Surface Water CIA. The Groundwater CIA will remain defined as the existing permit areas and a 1,000-foot buffer around these areas. The Surface Water CIA encompasses all portions of the Groundwater CIA. Consequently, the total CIA acreage will be equal to the Surface Water CIA for the Friendsville Mine. The portions of the currently permitted Wabash Mine that are located within the same watershed as the existing permit areas of the Friendsville Mine are also included in the CIA determination.

As noted above, historical mining has occurred within the above-identified Surface Water and Groundwater CIA's. Historical mining is not included in the defined CIA's because, per the definition of a CIA, the Department shall only consider current and anticipated mining operations on the cumulative effects of the proposed mining operation. Also, affects from past mining are already reflected in the hydrogeologic data collected for the existing and proposed operations.

**B. Assessment of the Probable Hydrologic Consequences (PHC) for the Permit Area**

**1. Permit Area**

For purposes of this CHIA, the Department will discuss the original Permit No. 458 permit area that is proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458. The Department previously conducted the required hydrologic assessment on the original Permit Nos. 330, 395, 443, 458, and 461 permit areas and their respective adjacent areas. Please see the previously issued CHIAs for detailed discussions of the hydrologic assessments.

Per 62 Ill. Adm. Code Section 1701. Appendix A, the following terms are defined:

The “permit area” is defined as:

[T]he area of land and water within the boundaries of the permit which are designated on the permit application maps, as approved by the Department. This area shall include all areas which are or will be affected by the surface coal mining and reclamation operations during the term of the permit indicated on the approved map which the operator submitted with the operator's application and which is required to be bonded under 62 Ill. Adm. Code 1800 and where the operator proposes to conduct surface coal mining and reclamation operations under the permit, including all disturbed areas; provided, that areas adequately bonded under another valid permit may be excluded from a permit area.

The “shadow area” is defined as:

[A]ny area beyond the limits of the permit area in which underground mine workings are located. This area includes all resources above and below the coal that are protected by the State Act that may be adversely impacted by underground mining operations including impacts of subsidence.

The “adjacent area” is defined as:

[T]he area located outside the permit area, or shadow area, where a resource or resources, determined according to the context in which adjacent area is used, are or reasonably could be expected to be adversely impacted by proposed mining operations.

As described in Section I.B.2.f above, Significant Revision No. 1 to Permit No. 330 & 458 proposes to construct an approximately 13.8-acre incised disposal area for fine coal refuse within existing permit area of the Friendsville Mine. The proposed operations also include buried slurry and decant water lines that will connect the disposal area with the preparation plant and allow the disposal area to function as a closed-circuit system. Coal will continue to be processed in the existing permit area of Permit No. 330.

**a. Regional Hydrologic Area**

The existing permit area is located in the upland terrain west of the Wabash River floodplain in Wabash County. Per the Illinois State Geologic Survey (ISGS), potential sources of groundwater are located within unconsolidated sand and gravel deposits in thin valley fill areas of the Wabash River and tributary outwash areas, and Pennsylvanian aged sandstones and limestones. The Pennsylvanian-aged Mt. Carmel Sandstone is located approximately 200-300 feet in depth and is noted as being utilized for drinking purposes in the region.

**b. Permit Area Surface Waters Assessment Area**

Specifically, for the Application for Significant Revision No. 1 to Permit No. 330 & 458, the applicant identified zero (0) acres of pre-mining developed water resources. The post-mining conditions plan to leave zero (0) acres of developed water resources, as the proposed fine coal refuse disposal area will be backfilled to grade and returned to cropland. Overall, the post-mining conditions for Permit No. 458 plan to leave a total of 31 acres of developed water resources in the



form of final-cut lakes. However, due to the on-going mining development at this facility, the post-mining developed water resources is subject to change based upon the final configuration of the mining operations.

**c. Permit Area Groundwater Assessment Area**

Groundwater conditions within the permit and adjacent areas have been described by several sources. Pryor (1956) described the groundwater geology of southern Illinois on a county-by-county basis. For Wabash County, Pryor stated that “glacial deposits are thin” and “not suitable for sand and gravel wells”. However, in the Wabash River Valley south of Mt. Carmel, groundwater possibilities are reported to be excellent with thick sand and gravel deposits present. Pryor also states that thin scattered deposits of sand and gravel are present in the valley of Bonpas Creek. Pennsylvanian aged sandstones commonly found at depths of 100 feet or greater were found to be water yielding throughout most of Wabash County.

The permit area proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458 is located in an area of Wabash County where unconsolidated sand and gravel aquifers are thin and discontinuous in nature and deeper Pennsylvanian aged aquifers are present at depths significantly below the lowest coal seam to be mined. Adverse impacts to groundwater resources in the vicinity of the proposed slurry cell are not anticipated to occur, as a compacted clay liner will be installed at the base of the slurry cell. To date, the permittee has not observed adverse impacts to unconsolidated or consolidated aquifers as a result of mining operations at the Friendsville Mine.

The Groundwater CIA remains defined as the approximately 7,222-acre area that includes the existing permit area and a 1,000-foot buffer around the permit area. A 1,000-foot buffer around the existing permit area was included in the Groundwater CIA, as past studies have shown that groundwater impacts from surface mining are typically limited to this distance.

**2. Geologic Information Required by 62 Ill. Adm. Code 1780.22**

**a. Baseline Geologic Information**

Regional bedrock of the area consists of Pennsylvanian system formations. The Pennsylvanian-aged formations typically consist of shales, limestones, coal, and sandstones. Regionally, bedrock strata dip gently to the southwest toward the center of the Illinois Basin.

The applicant has previously noted the absence of any faults or other unexpected geologic structures in the existing permit area that is proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458. However, numerous fault systems are known to exist to the south and east. Boring log data from within Permit No. 458 shows a structurally high ridge extending through the proposed fine coal refuse disposal area footprint. This structurally high ridge is present in the Lower Friendsville Coal Seam and uppermost bedrock, and functions as a surface water drainage divide.

The unconsolidated materials in the region are typically glacially derived and Pleistocene in age. These deposits include glacial till, outwash, loess and other fine-grained sediments. The applicant has previously described the unconsolidated materials within Permit No. 458 as being mostly silty or sandy clays. Boring logs provided during the original permitting process show the unconsolidated materials ranging from approximately 5 to 28 feet in thickness and averaging roughly 14 feet in thickness within the permit area. The bedrock in the region consists of strata typical of cyclothem sequences and includes shales, sandstones, coals, and minor amounts of limestone in scattered borings. The consolidated overburden above the Lower Friendsville Coal Seam ranges in thickness from approximately 4 to 87 feet and averages approximately 38 feet in thickness. The inter-burden thickness between the Lower Friendsville and Upper Friendsville Coal Seams, when the Upper Friendsville Coal Seam is present, generally ranges from 37-48 feet and averages approximately 43 feet. The Upper Friendsville Coal Seam averages between 0.5-1.6 feet in thickness, whereas the Lower Friendsville Coal Seam ranges from 0.1-4.6 feet in thickness within the existing permit area of Permit No. 458. The typical interburden materials between the Lower Friendsville and Upper Friendsville seams consist of shales, sandstones, and minor amounts of limestone. The Friendsville Coal Seam is underlain by claystones, shales, and sandy shales that are generally between 0.5-5 feet thick. The Upper Friendsville Coal Seam is typically underlain by a thin shale unit that ranges from 1-4 feet in thickness. Occasionally a coal seam labeled the Upper Friendsville Leader Horizon will be present below the Upper Friendsville Coal Seam. However, the Leader Horizon Seam is limited by areal extent and coal thickness, making it uneconomical to recover. Boring logs also note the presence of a sandstone unit located above the Lower Friendsville Coal Seam throughout Permit No. 458. This sandstone unit is characterized by numerous facies changes over short lateral distances, with sandstone thickness varying from zero (0) to over thirty (30) feet. The sandstone unit is described as being "limey", which appears to indicate this unit may be a low-permeability sandstone.

The applicant reports the Pennsylvanian-aged Mt. Carmel Sandstone as the only known aquifer in the vicinity of the existing Permit No. 458 permit area. The Mt. Carmel Sandstone is approximately 150-200 feet below the lowest coal seam to be mined and is unlikely to be affected by the mining operations. Potential aquifers in the region include unconsolidated sand and gravel deposits, which are discontinuous in nature, and other Pennsylvanian aged sandstones besides the Mt. Carmel, which can be limited by variable facies changes or are typically found at depths below the lowest coal seam proposed to be mined. The applicant has committed to providing an alternate water source in the event that any known or potential groundwater resources being utilized for residential supply are impacted by the proposed operations.

#### **b. Geologic Information Findings**

Bedrock in southern Illinois consists of layered beds of shale, sandstone, limestone and coal. The applicant previously provided laboratory analysis of the overburden from Overburden Sampling Point FV-17-52, which is located immediately adjacent to the proposed Slurry Cell #4 footprint within Permit No. 458. The laboratory analysis indicates that several thin units are potentially acid forming in nature, including a minor "leader" coal seam that will be spoiled. From the acid-base account, potentially toxic material is defined as any rock or earthen material having a net neutralizing potential deficiency of 5.0 tons of calcium carbonate equivalent per 1,000 tons of material. Regardless of the acid-base account determination, any material which has a pH of less

than 4.0 in a pulverized rock slurry in distilled water is defined as being acid-toxic (West Virginia, 1978). The overburden analysis report indicates there to be an overall positive net neutralization potential for the material overlying the coal seams to be mined, despite the presence of several thin units that were noted as potentially acid forming units. The Net Neutralization Potential (NNP) is approximately 3,175 tons of calcium carbonate per 1,000 tons of material at Overburden Sampling Point FV-17-52.

The results of the acid-base accounting data indicate that the geology within the existing permit area that is proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458 is not anticipated to create adverse impacts to the hydrologic balance as a result of the proposed operations. Lab analysis from Overburden Sampling Point FV-17-52 reports alkalinity far exceeding acidity in the material overlying the Lower Friendsville Coal Seam. The units that do exhibit an alkalinity deficiency are limited to the strata immediately above the Lower Friendsville Coal Seam and immediately below the Upper Friendsville Coal Seam. These units are relatively thin and make up only a small percentage of the total overburden. Therefore, the geology of the existing permit area that will be modified by Significant Revision No. 1 to Permit No. 330 & 458, should not result in negative impacts to the hydrologic balance after being disturbed, when the minor amounts of acid-forming materials are properly handled.

3. **Hydrologic Information required by 62 Ill. Adm. Code 1780.14**

a. **Baseline Information**

i. **Surface Water Quantity Baseline Information**

The applicant previously reported no acres of developed water resources to exist in pre-mining conditions within Permit No. 458. There are no acres of developed water resources being proposed in post-mining conditions within the portion of Permit No. 458 that is proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458, as the proposed slurry cell will be reclaimed to cropland following the completion of fine coal refuse disposal.

Surface water runoff within the existing permit area is naturally drained by unnamed tributaries to Fordice Creek and Coffee Creek, and in places Fordice Creek itself. However, the surface water has been altered by previous mining operations, with the majority of the permit area runoff being directed to the existing drainage control structures. The presence of these structures may act to lower peak flows coming off the permitted areas due to an increased retention or holding time. The existing sediment ponds also tend to increase base flow to the local streams that may have runoff during other parts of the year. According to Corbett (1965), these effects are normal and expected from heavily mined areas.

The applicant will continue to monitor surface water quantity data collected from the existing stream sampling locations upstream and downstream of the permit area. Significant Revision No. 1 to Permit No. 330 & 458 does not propose the addition of any new stream sampling locations. The slurry cell to be constructed will be designed as a closed-circuit system that will not discharge water to the adjacent receiving streams. Please see the Department's previous CHIAs for more

information on the surface water quantity data collected from the nineteen (19) existing stream sampling locations at the Friendsville Mine.

**ii. Surface Water Quality Baseline Information**

Fordice Creek and Coffee Creek will receive drainage from unnamed tributaries located near the existing permit area that is proposed to be modified by Significant Revision No. 1 to Permit No. 330 & 458. Neither Fordice Creek nor Coffee Creek are included on the Illinois Environmental Protection Agency's (IEPA) 2020/2022 303(d) List. The 303(d) List was developed to fulfill the requirements set forth in Section 303(d) of the Federal Clean Water Act and the Water Quality Planning and Management regulation at 40 CFR Part 130. The 303(d) process focuses on identifying existing water quality problems and developing restorative measures.

Surface water quality data is collected by the applicant at nineteen (19) existing stream sampling locations related to the Friendsville Mine. Significant Revision No. 1 to Permit No. 330 & 458 does not propose to create any new stream sampling locations or NPDES Outfalls, as the proposed operations will not discharge water to the adjacent receiving streams. The applicant will continue to monitor surface water quality data collected from the existing stream sampling locations upstream and downstream of the permit area throughout the life of the mine. Please see the Department's previous CHIAs for more information on the surface water quality data from the existing stream sampling locations at the Friendsville Mine.

**iii. Groundwater Quantity Baseline Information**

Groundwater use in the vicinity of the existing permit area that will be modified by Significant Revision No. 1 to Permit No. 330 & 458 is primarily from deep private wells. The applicant reports that three (3) private wells are located within close proximity of the proposed slurry cell location. One (1) of these wells is approximately sixty (60) feet in depth and no longer being utilized. This private well will subsequently be mined through once mining progresses into Permit No. 461. The other two (2) private wells are located off-permit and are identified as not being utilized as a primary water supply. The applicant lists the total depth of these two (2) wells to be 315 and 320 feet. These wells are most likely obtaining groundwater from the Mt. Carmel Sandstone. The Mt. Carmel Sandstone is the only known aquifer below the Friendsville Coal Seam in central Wabash County. The Mt. Carmel Sandstone is found approximately 150-200 feet below the Lower Friendsville Coal Seam, which is the deepest coal seam mined at the Friendsville Mine. The applicant does not anticipate any contamination, diminution or interruption of any usable water supply, but has committed to supplying an alternative replacement water supply in the unlikely event the proposed operations impact any domestic water supplies.

Significant Revision No. 1 to Permit No. 330 & 458 proposes to install four (4) additional monitoring wells surrounding the proposed slurry cell location. These new groundwater monitoring wells include GW-36 and GW-38, which appear to be upgradient of the proposed slurry cell, and downgradient monitoring wells GW-39 and GW-40. The permittee has indicated that a structurally high ridge appears to be influencing groundwater flow directions in the existing permit area that will be modified by Significant Revision No. 1 to Permit No. 330 & 458. Specifically, groundwater to the north of the proposed slurry cell footprint appears to flow north towards Fordice

Creek, while groundwater within the southern portion of the proposed slurry cell footprint appears to flow to the south. The groundwater monitoring wells are proposed to be located and constructed in a manner that will allow for the monitoring of groundwater resources in both the adjacent unmined/undisturbed land and mined-out spoil that the slurry cell will be constructed within. Groundwater monitoring well locations are depicted in Map No. 1.

The permittee is not proposing any consumptive uses of groundwater and as a result, no adverse impacts to groundwater quantity locally or regionally are anticipated.

**iv. Groundwater Quality Baseline Information**

Significant Revision No. 1 to Permit No. 330 & 458 proposes the construction of four (4) additional monitoring wells to monitor groundwater resources adjacent to the proposed slurry cell. Three (3) of these monitoring wells, GW-36, GW-38, and GW-39, will be installed in unmined/undisturbed ground and screened across the uppermost water bearing zone below the base of the proposed slurry cell. The fourth (4) monitoring well, GW-40, will be installed in spoil with a screened interval at the base of the proposed slurry cell. As required by the IEPA, the screened interval for downgradient monitoring well GW-40 will correlate with the screened interval elevations of the other proposed monitoring wells. Monitoring wells GW-36, GW-38, GW-39, and GW-40 will initially be sampled on a bi-monthly (every other month) basis for the first year following well installation in order to establish a statistical representation of existing groundwater quality. The wells will then be sampled on a quarterly basis for the parameters of pH, TDS, Hardness, Alkalinity/Acidity, Sulfate, dissolved Iron, total Iron, dissolve Manganese, total Manganese, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chloride, Chromium, Cobalt, Copper, Cyanide, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Phenols, Zinc, and water elevation.

The permittee has committed to constructing the proposed slurry cell with a four (4) foot compacted clay liner to protect groundwater resources. The clay liner will be compacted to a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less.

**v. Existing and Proposed Coal Processing Waste Disposal Baseline Information**

Significant Revision No. 1 to Permit No. 330 & 458 proposes to construct a new slurry cell within spoil backfill in the southwestern portion of Permit No. 458. The slurry cell will be designed as a closed-circuit system with all decant water being pumped back to the preparation plant located within Permit No. 330. Based on past operations, the slurry to be generated is anticipated to consist primarily of roof and floor out-of-seam dilution, shales, coal partings, and pyritic material. The permittee provided chemical analysis on the net neutralization potential of the fine coal refuse material that is currently being generated and disposed of in Slurry Cell No. 3. The chemical analysis was obtained from two (2) samples and show a negative net neutralization potential of 105 and 133 tons per 1,000 tons of refuse material. The applicant has committed to applying neutralizing lime at the time of reclamation prior to the placement of soil cover. The lime rates will be determined from additional chemical analysis on the net neutralization potential of the slurry material at the time of reclamation.

Coarse refuse produced from the mining operation will continue to be placed low in the spoil profile (near the base of the pit) to isolate the materials and prevent oxidation from occurring. The maximum height of coarse refuse placement is limited to five (5) feet or the height of a dump truck load.

CCW/CCB – Significant Revision No. 1 to Permit No. 330 & 458 does not propose to utilize or dispose of any coal combustion by-products (CCB) or coal combustion waste (CCW).

**b. Findings**

**i. Surface Water Quantity Findings**

Significant Revision No. 1 to Permit No. 330 & 458 proposes to leave no acres of developed water resources in post-mining conditions. During active operations, the slurry cell will operate as a closed-circuit system that will not discharge water to adjacent receiving streams, as all decant water from the slurry cell will be pumped to the preparation plant within Permit No. 330. The proposed slurry cell will then be reclaimed to cropland following the completion of fine coal refuse disposal. Following the completion of reclamation activities, surface water runoff from the slurry cell area will report to existing sediment basins. The presence of these sediment basins may act to lower peak flows coming off the permitted areas due to an increased retention or holding time. The sediment basins may also increase base flow to the local streams that may have runoff during other parts of the year.

The permittee will continue to monitor stream flow data from the existing stream sampling location points throughout the life of the mine.

The effects of this operation should be negligible on the hydrologic balance in regard to surface water quantity.

**ii. Surface Water Quality Findings**

Significant Revision No. 1 to Permit No. 330 & 458 does not propose to create any new stream sampling locations or NPDES Outfalls. During active operations, decant water from the slurry cell is to be routed to the preparation plant within Permit No. 330. Following the completion of fine coal refuse disposal, the slurry cell will be reclaimed to cropland and surface water runoff will report to existing sediment basins with associated NPDES discharge points. Effluent from the NPDES discharge points is proposed to meet all applicable State and Federal water quality standards and is comparable to that of the receiving streams. Adherence to these limits will ensure that adverse impacts will not occur to the surface water quality of the receiving streams as a result of the proposed operations. Additionally, the existing uses of the receiving streams, as defined by the IEPA, will not be adversely impacted by this operation. Therefore, the effects of this operation should be negligible on the hydrologic balance in regard to surface water quality.

The permittee will continue to monitor surface water quality from the existing stream sampling locations throughout the life of the mine.

### **iii. Groundwater Quantity Findings**

The permittee reports that groundwater resources being utilized in the vicinity of the existing permit area that will be modified by Significant Revision No. 1 to Permit No. 330 & 458 are primarily from deep private wells. In particular, two (2) deep private water wells are located in close proximity to the proposed slurry cell footprint and are noted as being currently used. Both water wells are completed at depths greater than 300 feet and are likely obtaining groundwater from the Mt. Carmel Sandstone. The Mt. Carmel Sandstone is the only known aquifer below the Friendsville Coal Seam in Central Wabash County and is typically present 150-200 feet below the Lower Friendsville Coal Seam. Private water wells completed in the Mt. Carmel Sandstone or at depths below the Lower Friendsville Coal Seam are unlikely to experience impacts to groundwater quantity as a result of the proposed operations, due to the low permeability strata that separates these aquifers from the coal seam. The permittee noted one (1) other private water well in close proximity to the proposed slurry cell footprint. This water well reportedly has a total depth of approximately 60 feet and is no longer being utilized. This water well will also be subsequently mined through when mining operations advance into Permit No. 461. Following active mining of the permit area that the slurry cell is proposed to be constructed within, it is possible that shallow groundwater resources above the Lower Friendsville Coal Seam will flow from un-mined areas toward the active pit. This would create a cone of depression in the aquifer around the active pit that extends out into the un-mined areas. Past studies have shown that the distance to which this depression may extend was limited to less than 1,000 feet. Studies by Oertel (1980) and Cartwright and Hunt (1981) have demonstrated a limited extent for water table depressions due to surface mining. The minor dewatering of shallow aquifers in the adjacent areas of the proposed permit area is not anticipated to occur, as previous mining at the Friendsville Mine has not resulted in significant infiltration of groundwater into the active pit. However, in the unlikely event that minor dewatering of shallow or deep aquifers occurs, the water table is expected to recover and stabilize at, or near, pre-mining levels. The permittee has committed to providing an alternative replacement water supply if any domestic water supplies are adversely impacted. To date, the Department has not received any reports of adverse impacts occurring to groundwater quantities in the vicinity of the original permit areas of the Friendsville Mine.

The permittee will install four (4) new monitoring wells to monitor groundwater resources surrounding the proposed slurry cell location. Slug test results and corresponding hydraulic conductivity values for each monitoring well will be obtained following well installation.

Significant Revision No. 1 to Permit No. 330 & 458 is not proposing any consumptive uses of groundwater. Therefore, since no consumptive uses of groundwater are proposed, nor has groundwater been observed significantly infiltrating into the active pit in the past, adverse impacts to the hydrologic balance in regard to groundwater quantity are not anticipated from the operations proposed within Significant Revision No. 1 to Permit No. 330 & 458.

### **iv. Groundwater Quality Findings**

The overall effects of the operations proposed by Significant Revision No. 1 to Permit No. 330 & 458 should remain balanced with the current system, with respect to groundwater quality. Adverse impacts to groundwater quality are not anticipated, as the proposed slurry cell will be constructed

with a four (4) foot-compacted clay liner. The clay liner will be compacted to a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less. The presence of the clay liner at the base of the proposed slurry cell should isolate shallow groundwater resources present in the unconsolidated material and upper bedrock units from interacting with the slurry cell. The groundwater quality of deeper bedrock aquifers below the lowest coal seam to be mined should not be affected by the proposed operations. The Pennsylvanian-aged Mt. Carmel Sandstone is the only known bedrock aquifer that exists in the region. The Mt. Carmel Sandstone is typically found at depths ranging from 200-300 feet, which is considerably below the Lower Friendsville Coal Seam. The low permeability of interburden material between the Lower Friendsville Coal Seam and deeper Pennsylvanian-aged bedrock should restrict downward movement of water from the slurry cell into the underlying strata.

The permittee will install four (4) additional monitoring wells to monitor groundwater quality adjacent to the proposed slurry cell. These monitoring wells, GW-36, GW-38, GW-39, and GW-40 are proposed to be sampled for the appropriate parameters that will allow for the detection of adverse changes to groundwater quality if they arise. Once a statistical representation of existing groundwater quality (background) has been established, the permittee will sample these monitoring wells on a quarterly basis.

The expected post-mining groundwater quality is proposed to meet the applicable groundwater quality standards at the permit boundaries near the proposed slurry cell. Overall, groundwater quality is not likely to experience adverse effects. However, to ensure this, the applicant has included an approved groundwater monitoring program for the permit area, as required by 62 Ill. Adm. Code Part 1780.21(j).

### **c. Findings Related to Existing and Proposed Coal Processing Waste Disposal**

Significant Revision No. 1 to Permit No. 330 & 458 proposes the construction of a new slurry cell for fine coal refuse disposal only. The proposed slurry cell will be constructed within spoil backfill and will be designed as a closed-circuit system. Decant water from the slurry cell is proposed to be pumped back to the preparation plant located within Permit No. 330.

The permittee provided chemical analysis on the net neutralization potential of the fine coal refuse material that is currently being generated and disposed of in Slurry Cell No. 3. The chemical analysis was obtained from two (2) samples and show a negative net neutralization potential of 105 and 133 tons per 1,000 tons of fine coal refuse material. The applicant has committed to applying neutralizing lime at the time of reclamation prior to the placement of soil cover. The lime rates will be determined from additional chemical analysis on the net neutralization potential of the slurry material at the time of reclamation.

All coal extracted at the Friendsville Mine will continue to be processed on-site via a preparation plant system. This system will use water to wash, screen, size, and process the coal. Coarse refuse material will continue to be hauled to the active mining pit for disposal. The coarse refuse material produced will primarily consist of shales, coal seam partings, and pyritic materials separated from the coal. All refuse materials will be placed in the mining pit, low in the spoil profile to avoid oxidation of any potentially acidic materials and thereby, minimize acid production. All refuse



materials will then be adequately covered to further prevent oxidation from occurring. Refuse placement will continue to be limited to a maximum height of five (5) feet from the base of the pit.

**CCW/CCB** – Significant Revision No. 1 to Permit No. 330 & 458 does not propose to utilize or dispose of any coal combustion waste (CCW) or coal combustion by-products (CCB) within the existing permit area that will be modified.

### **III. CONCLUSION**

The Department has now conducted a hydrogeologic assessment on the proposed additional mining operations within the existing permit area of Permit No. 458. As noted in the discussions throughout this document, the Department has concluded that the additional operations proposed in the Significant Revision No. 1 to Permit No. 330 & 458 application will not have a negative impact on either the surface water or groundwater regimes. To date, the Department has not received any reports or complaints of surface water or groundwater quality or quantity impacts, which appears to support the above assessment that the modifications proposed within the existing permit area will not negatively impact the hydrologic balance.

The surface water and groundwater monitoring programs have been designed to provide sufficient lead time for notification of any potential impacts, as well as to provide ample time for investigation and mitigation prior to any impacts reaching off-site. Both the groundwater and surface water monitoring programs are dynamic and as such, the Department reserves the right to add monitoring parameters or monitoring locations should the need arise. The applicant is required to monitor the surface water and groundwater throughout the life of the mine, until a determination is made by the Department that the monitoring is no longer necessary.

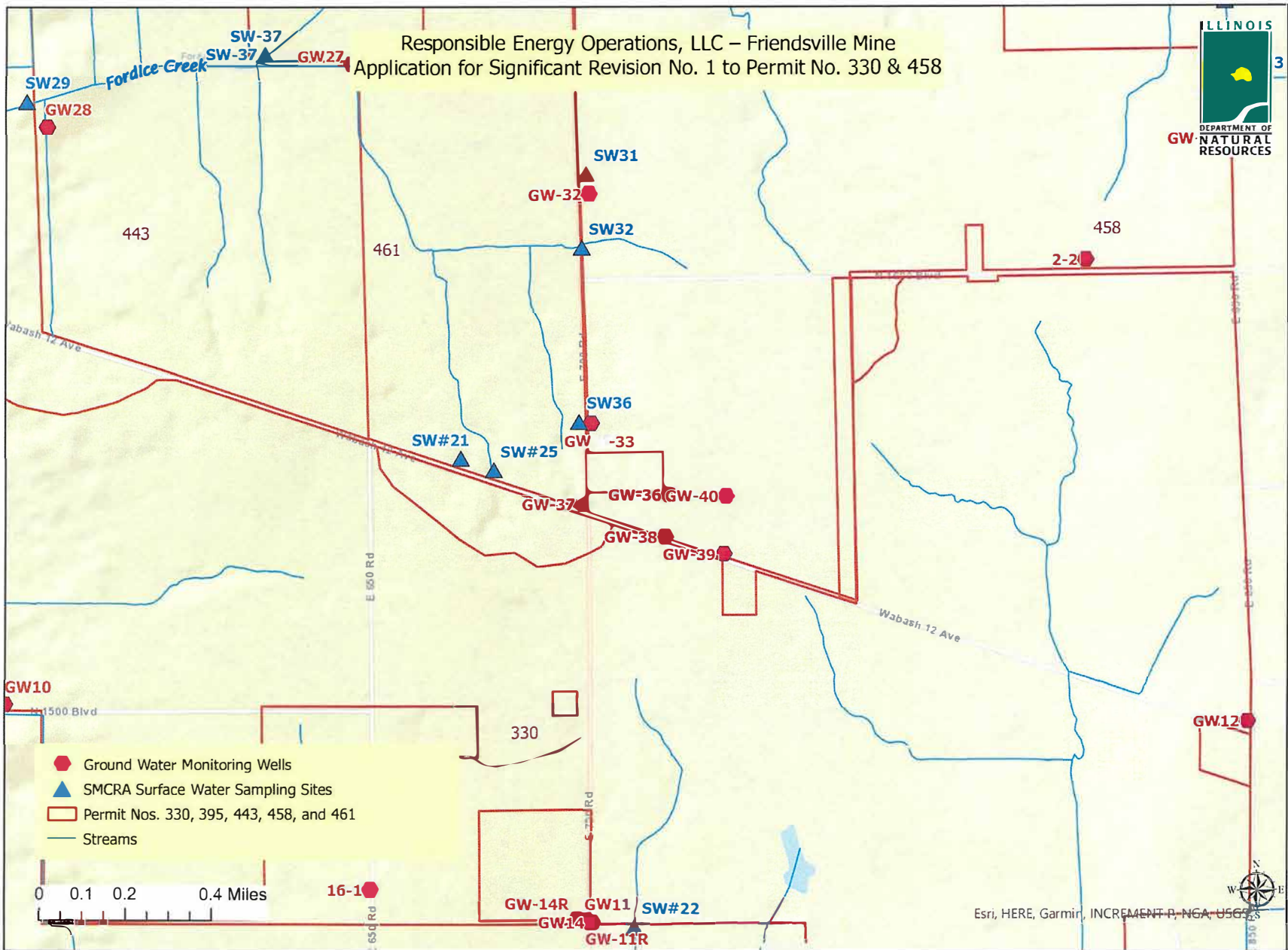
Neither groundwater nor surface water would be materially damaged unless the quantity and/or quality of water is degraded, on a long-term or permanent basis beyond applicable standards or a long-term or permanent loss of use is reported. Material damage occurs when the impact is immitigable. Neither the applicant nor the Department anticipates that this will occur.

In summary, the assessment and findings of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance finds that this operation has been designed to prevent material damage to the hydrologic balance outside the permit areas.

#### IV. REFERENCES AND ATTACHMENTS

##### References

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Map 1 – Monitoring Locations

## APPENDIX E

### THREATENED AND ENDANGERED SPECIES Endangered Species Act of 1973, 16 USC 1531, et seq. 62 Ill. Adm. Code 1773.15(c)(10)

The Department submitted the permit application for Significant Revision No. 1 to Permit No. 330 and Significant Revision No. 1 to Permit No. 458 to U. S. Fish and Wildlife Service (USFWS) for consultation regarding the development of slurry impoundment on federally listed threatened and endangered species. The USFWS indicated in a letter to the Department dated May 9, 2023, that The Service has no objection to the proposed action given there are no significant changes to the post-mining land use plan. Based on the on the consultation from USFWS the Department's review of the application, the Department finds that the operation as approved will not affect the continued existence of listed threatened or endangered species or result in the destruction of adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 USC 1531 *et seq.*).