Permanent Program Finding

Results of Review
Permanent Program Permit Application No. 429
Sunrise Coal, LLC
Bulldog Mine

TABLE OF CONTENTS

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 Permit Application No. 429 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 March 20, 2015 letter (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 permit on 390.3 acres.

The proposed permit area consists of 390.3 acres, of which 0.5 acres are proposed to be used for deep mine entries/ventilation/air shafts, 61.8 acres are proposed to be used for mine waste areas, 43.3 acres are proposed to be used for processing areas and support facilities, 7.1 acres are proposed to be used for access roads/haul roads/transportation facilities, 47.5 acres are proposed to be used for soil storage areas, 38.5 acres are proposed to be used for ditches and ponds, 189.0 acres are proposed to be used for undeveloped support areas, and 2.6 acres are proposed not to be disturbed.

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

Land Use	Pre-Mining Acres	Post-Mining Acres
Cropland	389.0	2.6
Water Resources	0.0	0.0
Pastureland	0.0	0.0
Residential	0.0	0.0
Industrial/Commercial	1.3	0.0
Fish & Wildlife Habitat	0.0	387.7

Forestry	0	0.0
Undeveloped Land	0	0.0
Total	390.3	390.3

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 permit application was filed with the Department on June 8, 2012 and was deemed complete on July 17, 2014. The applicant placed a newspaper advertisement of the proposed operation in *The Sidell Reporter*, a newspaper of general circulation in the area affected, once a week for four consecutive weeks, beginning on July 31, 2014. The applicant filed two copies of the permit application with the County Clerk of Vermillion County, in accordance with 62 Ill. Adm. Code 1773.13(a)(2), on July 29, 2014. Copies of the application were sent to the following Agencies: Illinois Department of Agriculture (IDOA), Illinois Environmental Protection Agency (IEPA), United States Department of Agriculture, Natural Resources Conservation Service (NRCS), and the United States Fish and Wildlife Service (USFWS) on August 1, 2014, for review and comment. In addition, copies were circulated with the appropriate Offices within the Department of Natural Resources. 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 22, 2014) and IEPA (September 9, 2014 with additional comments on September 22, 2014).

Comments on this application were also received from NRCS dated August 27, 2014 and USFWS dated September 12, 2014.

The Department received a request for an informal conference and a public hearing. The Department held an informal conference on October 7, 2014 in the Georgetown Community Center in Georgetown, Illinois and a public hearing on December 17, 2014 in the Jamaica High School Gymnasium in Sidell, Illinois.

All comments received in writing, at the informal conference, and at the public hearing 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, if any, 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 currently in violation of the State Act, Federal Act or other law or regulation referred to in Section 1773.15(b)(1). Pursuant to this Section, the Department has determined that:

Section 1773.15(b)(1)(A): For the identified current violations, the applicant submitted proof that the current violations have been or are in the process of being corrected to the satisfaction of the agency that has jurisdiction over the violations.

Documentation provided by the applicant to comply with Section 1773.15(b)(1)(A) is attached as Appendix E.

Section 1773.15(b)(2): This permit is being conditionally issued on the basis of proof submitted under Section 1773.15(b)(1)(A) that the violation is in the process of being corrected. The conditional issuance is set forth in Part IV.

Section 1773.15(e): The Department requested updated compliance information in its bond and fee request letter dated March 20, 2015, and throughout the review process. 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 the 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

(Overall Findings)

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

(Specific Findings)
SHADOW AREA GROUNDWATER MONITORING EXEMPTION
1784.20(b)(7) - unplanned subsidence

Section 1784.20(b)(7): The applicant has requested an exemption from conducting surveys of drinking, domestic and residential water supplies required at Section 1817.121(a)(2). The Department finds it has been demonstrated that material damage resulting from underground mining is not likely to occur. This demonstration is based on site specific geotechnical information, stability design and historical performance provided in Sections 1784.20(b)(3) and 1784.20(b)(5). An exemption to conduct surveys of drinking, domestic and residential water supplies is hereby granted.

PERMANENT IMPOUNDMENT FINDING

Section 1817.49: The applicant has proposed the creation of permanent impoundments. Pursuant to Section 1817.49, the Department finds the following:

a. The size and configuration of the impoundments are adequate for its intended purposes.
b. The quality of impounded water will be suitable on a permanent basis for its intended use and, after reclamation, will meet the water quality standards set forth in Section 1817.42, and discharges from the impoundment will meet applicable effluent limitations and will not degrade the quality of receiving water below water quality standards set forth in Section 1817.42.
c. The water level will be sufficiently stable and capable of supporting the intended use.
d. Final grading will provide for adequate safety and access for proposed water users.
e. The impoundment will not result in the diminution of the quality and quantity utilized by adjacent or surrounding landowners for agricultural, industrial, recreational, or domestic uses.
f. The impoundments will be suitable for the approved post-mining land use.
g. The impoundments meet the applicable construction and design standards of 1817.49 (b)(9).
h. Additional information may be found in Appendices C and D.

PRIMARY MINE ROADS
(Section 1817.150)

Section 1817.150: The applicant has proposed the creation of 7.1 acres of access and haul roads in the permit area. Pursuant to Section 1817.150(a)(2) & (3) the Department has determined that the roads are primary roads. Pursuant to Section 1817.151(a) the construction or reconstruction of the roads shall be certified in a report submitted to the Department by a qualified registered professional engineer within thirty (30) days after completion of construction. The report shall indicate that the primary road has been constructed or reconstructed as designed and in accordance with the approved plan.

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 permit application, as modified.

Section 1773.15(c)(3)(A): The proposed permit area is not within an area under study or administrative proceedings under a petition, filed pursuant to 62 Ill. Adm. Code 1764, to have an area designated as unsuitable for surface coal mining operations.

Section 1773.15(c)(3)(B): The proposed permit area is not within an area designated as unsuitable for mining pursuant to 62 Ill. Adm. Code 1762 and 1764 or subject to the prohibitions or limitations of 62 Ill. Adm. Code 1761.11, except as delineated below:

Section 1761.11(a): The proposed permit 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 permit 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 permit area is within one hundred (100) feet of the outside right-of-way line of public roads in Vermillion County, described as follows:

The proposed permit area is adjacent to the right-of-way of 800 North Road, 100 East Road, and 200 East Road. The proposed activities in the permit area include access roads, drainage ditches, sediment and erosion control structures, soil stockpiles, spoil deposition, refuse impoundments, air shafts, conveyors, power distribution, and associated reclamation activities.

The applicant provided proper public notice and opportunity for a public hearing regarding these proposed activities. A hearing was requested, and comments were also received in writing concerning these roads. Department responses to any comments received regarding these roads can be found in Appendix B of this document.

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 these roads.

In addition, during the modification process the applicant proposed to temporarily close 800 North Road for the construction of an overhead conveyer and underground piping. Since this action had not been addressed in the original public notice the permit has been conditioned to provide proof of public notice and opportunity for public hearing pursuant to 62 Ill. Adm. Code 1761.14(b)(3) and (4) and to obtain the required road closure or relocation agreements from the authority with jurisdiction over the road prior to temporarily closing or relocating the road pursuant to Section 1761.14(b)(2). (See Part IV. Permit Conditions, Condition K.)

Section 1761.11(e): The proposed permit area is within three hundred (300) feet measured horizontally of an occupied dwelling. The applicant shall establish a three hundred (300) foot buffer around the dwelling, not disturb within the buffer zone and shall install and maintain buffer zone markers to prevent disturbance within the buffer zone. (See Part IV. (Permit Conditions, Condition O.)

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

Section 1773.15(c)(4): This section is applicable to surface mining operations only.

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 62 Ill. Adm. Code 1784 and finds that the operations proposed under the application have been designed to prevent material damage to the hydrologic balance outside the proposed permit area (see Appendix C).

Section 1773.15(c)(6): The applicant has not proposed the use of any existing structures in the permit application requiring compliance with 62 Ill. Adm. Code 1700.1(d).

Section 1773.15(c)(7): The applicant will submit fees required by these regulations before the permit is issued. The fee required is $9,757.50 for the term of the permit, which may be paid in annual increments. 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 1817.111(d).

Section 1773.15(c)(10): The operation as approved will not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 USC 1531 *et seq.*, see Appendix F).

Section 1773.15(c)(11): The requirements of this section are not applicable as there is no proposed remining operation.

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 is no proposed remining operation.

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

PRIME FARMLANDS
(Section 1785.17)

A soil survey was submitted by the applicant pursuant to 1783.21 that shows prime farmland soils identified on this permit area which have been historically used as cropland. The soil survey prepared by the USDA provides the required soil information.

The prime farmland identified in the permit is exempt from the provisions of Section 1785.17 as provided under Section 1823.11. The Department finds the area is to be actively used for an extended period of time, coal waste disposal is not technologically and economically feasible to store in the underground mine or on non-prime farmland and will affect a minimal amount of land. Prime farmland on the permit area which is not planned to be disturbed will retain its original capability. Please see Appendix D.

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 62 Ill. Adm. Code 1773.13 and 1773.14, compliance with all applicable provisions of 62 Ill. Adm. Code 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 permit application, and each party to the public hearing, and informal conference;

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 noncompliance and the results of the noncompliance;

2. Immediate implementation of measures necessary to comply; and,

3. Warning, as soon as possible after learning of such noncompliance, any person whose health and safety is in imminent danger due to the noncompliance.

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.*). With respect to the northern long-eared bat (*Myotis septentrionalis*), the applicant utilized the interim guidance issued by the U.S. Fish and Wildlife Service (USFWS) and the Department compared the project to the federal actions key to the 4(d) rule regarding Incidental Take of the northern-long eared bat. The Department has determined that this project may affect the northern long-eared bat, but that any resulting incidental take is not prohibited by the final 4(d) rule. Therefore, this project is consistent with the USFWS Jan 2016 Programmatic Biological Opinion on the final 4(d) rule. The Department and the applicant are in compliance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). If any other "take" as defined by these Acts is anticipated to result from permitted activities, it is recommended that the permittee should apply for an Incidental Take permit from the Illinois Department of Natural Resources, Office of Resource Conservation for state listed species and contact 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 should 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.

3. The applicant is required to submit an updated threatened and endangered species review within 30 days of the date of this finding utilizing the most current version of the "Checklist of Illinois Endangered and Threatened Animals and Plants" published by the Illinois Endangered Species Protection Board.

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 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 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 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 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 30 days of such failure to submit required proof.

K. The application proposes to temporarily close 800 North Road. Prior to the temporary closure of 800 North Road for the purposes of mining related activities the permittee shall provide the Department proof of public notice and opportunity for public hearing pursuant to 62 Ill. Adm. Code 1761.14(b)(3) and (4) and shall provide the Department proof of agreements from the road authority with jurisdiction over the road pursuant to Section 1761.14(b)(2).

L. 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.

M. The permittee shall commence all groundwater and surface water monitoring approved by this permit upon initial disturbance of lands within the permit area. Monitoring shall be in accordance with the approved permit and/or as outlined in Condition P through S below and/or Appendix C of this finding document.

N. The approved operations plan contains an impoundment meeting the size requirements of 30 CFR 77.216-1 and/or 77.216-2.

1. As required by 62 Ill. Adm. Code 1784.16(c) and (e), the permittee shall submit to the Department proof of having obtained the necessary MSHA approvals prior to construction of the structure.

2. Approval is only granted through Stage II as defined in the approved permit. Construction beyond Stage II's configuration and elevation requires a significant permit revision pursuant to 62 Ill. Adm. Code 1774.13.

3. Pursuant to 1784.16(a)(2)(B), the permittee shall provide sampling and laboratory testing on the coarse coal refuse material to verify strength properties used in stability analysis. This information shall be provided within 180 days of the date that coal production of coal begins.

O. Pursuant to 62 Ill. Adm. Code 1761.11(e), the permittee shall maintain a clearly marked three hundred (300) foot buffer around the occupied dwelling located in the northeast corner of the permitted area south of 800 North Road. The 300-foot buffer shall be marked with steel t-posts as outlined in Part I (12)(2)(C) of the application.

P. Pursuant to 62 Ill. Adm. Code 1784.22(a), the permittee shall provide acid-base accounting information on both the coarse and fine coal refuse. This information shall be provided within 180 days of the date that production of coal begins.

Q. Pursuant to 62 Ill. Adm. Code 1784.14(b), the permittee shall submit all of the surface and groundwater quality/quantity data to the Department for data entry. This data shall be organized in chronological order, by monitoring point and shall include all sampling events from September 2011 to the present time. This data shall be submitted to the Department within thirty (30) days of issuance of this permit.

R. Pursuant to 62 Ill. Adm. Code 1817.41(c), the permittee shall install the ten (10) additional groundwater monitoring wells being required by the Illinois EPA within sixty (60) days of the issuance of this permit.

Boring logs and well construction diagrams shall be submitted for each installed groundwater monitoring well within thirty (30) days of the date well construction activities are completed. In addition to this information, the applicant shall provide an updated map showing the locations of the newly installed wells.

S. Pursuant to 62 Ill. Adm. Code 1817.41(c), background groundwater monitoring for each of the newly installed wells shall be conducted within the first year after well installation is complete. Background monitoring shall be conducted on an approximate bi-monthly schedule (or a minimum of six (6) samples collected within a twelve (12)-month period) for the following parameters:

1. Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, cobalt, copper, cyanide, fluoride, iron (total), iron (dissolved), lead, manganese (total), manganese (dissolved), mercury, molybdenum, nickel, phenol, selenium, silver, sulfate, thallium, vanadium, zinc, pH, acidity, alkalinity, hardness, total dissolved solids and water elevation (reported in true elevation and not as depth to water).

2. These sample results shall be submitted with the regular quarterly results for the existing groundwater monitoring wells at the mine facility.

T. Pursuant to 62 Ill. Adm. Code 1817.41(c), routine monitoring of the newly installed wells shall begin upon completion of the collection of background data, for the parameters listed above, on a quarterly basis.

U. Pursuant to 62 Ill. Adm. Code 1817.41(a) and (d), any surface inlet to subsurface drainage tile located within the permit shall be properly removed and sealed to prevent surface flow from affected areas entering the drainage tile. Verification of proper removal of inlets shall be provided to the Department prior to disturbing within the watershed of each respective inlet.

V. The permittee has committed to periodic testing of the mine floor to confirm the pillar design will be adequate to prevent subsidence from occurring. Plate load tests or alternative acceptable methods were proposed every 10,000 feet of main development with potential increase to every 5000 feet if test results warrant. Pursuant to 62 Ill. Adm. Code 1817.121(b) and 1784.20(5)(E), the permittee shall:

1. Provide the specific testing procedures to be executed, applicable stability analysis methodology and the proposed timing of submittal of test results and stability analysis to the Department. The initial mine floor testing plan shall receive Departmental approval prior to completion of shaft and slope development.

2. The first testing site shall be within the surface permitted area as close as practical to the immediate bottom area. The second and third test sites shall be spaced no further than 2500 feet.

3. Based on the initial results required in b. above, the Department will evaluate the adequacy of the 10,000-foot test spacing along the mains.

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 permit 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
Office of Mines and Minerals
Land Reclamation Division

Nick San Diego, Supervisor

Dated: April 5, 2019

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APPENDIX A

REQUIRED MODIFICATIONS

ILLINOIS
DEPARTMENT OF
NATURAL
RESOURCES

Illinois Department of
Natural Resources

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Bruce Rauner, Governor
Wayne A. Rosenthal, Director

March 20, 2015

Mr. Brent Bilsland
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Terre Haute, IN 47802

Via Certified Mail 7014 1820 0001 9522 7324

Re: Modification to Permit No. 429
Bulldog Mine

The Department, after reviewing the information contained in the permit application and information otherwise available to the applicant, and after considering all comments received, has determined that modification of Permit Application No. 429 is necessary. The modifications to the application shall comply with the requirements of 62 Ill. Adm. Code 1777.11. The modifications required by the Department are enclosed here. If the applicant does not desire to modify the permit application as described below, it may, by filing a written statement with the Department, deem the permit application denied, and such denial shall constitute final action.

Pursuant to 62 Ill. Adm. Code 1773.15(a)(1)(B)(i), modifications required by the Department shall be received within one year from the date of this letter. Absent the modifications required by the Department, the application does not demonstrate compliance with the requirements of the Illinois Surface Coal Mining Land Conservation and Reclamation Act, Regulations and Regulatory Program and the Department will issue a written finding denying the application.

The period for administrative review (62 Ill. Adm. Code 1847.3) shall commence upon:

- receipt by the applicant of a written decision from the Department, approving the application as modified, or
- if the applicant's modifications are insufficient, or if the applicant fails to submit the required modifications in accordance with 62 Ill Adm. Code 1773.15(a)(1)(B)(i), receipt by the applicant of a written decision from the Department denying the permit application, or
- receipt by the Department of the applicant's denial statement.

1. Pursuant to 62 Ill. Adm. Code 1783.25(b), 1784.16(a), and 1784.23(c), and as required by Part I(10)(B) of the application, the Department is requiring the applicant to modify the application by submitting engineering certifications where the modifications result in changes to maps, plans or cross sections submitted under the original application.

2. Pursuant to 62 Ill. Adm. Code 1777.11(c), and as required by Part I(1) of the application, the Department is requiring the submittal of a verification by a responsible official of the applicant for the information being submitted as a result of this modification letter.

3. The applicant's response to Part IV(1) of the application indicates that "If necessary, consolidated overburden from the mine portal slopes will be drilled and blasted using conventional equipment. However, blasting within 50 feet of the surface is not anticipated." Further the response also states "Two airshafts (intake and return) will be constructed during mine development" but fails to indicate whether blasting activities will be involved with this construction. Pursuant to 62 Ill. Adm. Code 1817.61(a) and in order to complete review of this application, the Department will require the applicant clearly state whether surface blasting activities will be employed within 50 vertical feet of the original ground surface for the development of the proposed slope and shafts. Should the applicant anticipate that explosives may be used in the development of these structures within 50 vertical feet of the original ground surface information demonstrating how the applicant intends to comply with 62 Ill. Adm. Code 1817.61 through 1817.68 shall be required. The information required includes, but may not be limited to:
   a) A copy of the proposed notification (1817.64(a)) and a list of persons and local governments to whom the notification will be distributed.
   b) A copy of the format used to notify persons within one-half mile of the permit area as to how to obtain a pre-blast or condition survey.
   c) A brief description of the procedures to be used to perform pre-blast or condition surveys and for distributing copies of the survey reports to owners/residents and the Department.
   d) A copy of the proposed blasting report form.
   e) The distance to, and the names and addresses of the owners of, all dwellings or other structures within one-half mile of the proposed permit area.
   f) Clarification if blasting will be conducted within one thousand feet of any dwelling, public building, school, church, community building or institutional building outside the permit area. If such blasting is to be conducted (again within 50 vertical feet of the original ground surface) the anticipated blast design requirements must be met pursuant to 62 Ill. Adm. Code 1817.61(d).
   g) Information setting forth the limitations the operator will meet with regard to ground vibration and airblast, the basis for those limitations, and the methods to be applied in controlling the adverse effects of blasting operations.

h) A description of the systems to be used to monitor compliance with the standards of 62 Ill. Adm. Code 1817.67, including the type, capability, and sensitivity of any blast monitoring equipment and the proposed procedures and locations of monitoring.

4. Pursuant to 62 Ill. Adm. Code 1783.24(c), the applicant shall provide the information required by Part I(1)(H) of the application and designate the boundaries of each phase on the pre-mining land use map or other designated map. Specifically, the applicant should indicate where future permits for refuse piles and/or slurry impoundments or other surface facilities would be located.

5. Pursuant to 62 Ill. Adm. Code 1779.24(b), the applicant shall provide an updated Hydrology Map indicating the most current mineral leases. Sunrise Coal appears to no longer retain leases on some areas previously indicated in the Hydrology Map.

6. On pages 2 and 3 of Part III, the applicant provides a discussion of the acid-base accounting for both the unconsolidated and consolidated overburden materials.
   a) Boring B-6 was utilized for the unconsolidated materials analysis, however, approximately 17 feet of material is missing from the ABA analysis included in Attachment III-2A2. Additionally, the location of Boring B-6 cannot be located on either the Operations/Surface Drainage Control Map (Map D) or the Hydrology Map (Map A).
   b) Boring SA116-181426 was utilized for the consolidated materials analysis. It appears that the Danville No. 7 Coal seam was not analyzed for ABA values, even though the Danville No. 7 Coal is not proposed to be mined. The Department assumes that the Danville Coal will be spoiled when the slope is constructed, therefore, the ABA of this layer should be included.

   Pursuant to 62 Ill. Adm. Code 1784.22(b)(2)(B), and as required by Part III.2.A.2, the applicant shall provide an explanation for the missing analytical data and update Maps A and D with the location of Boring B-6.

7. In Attachment III-1, the applicant provides an explanation of the regional geology/hydrogeology and discusses the presence of regional and local aquifers. However, two geologic units appear to have been omitted from this discussion – the Walshville Channel and the Millersville Limestone are two geologic units that may be present within the proposed permit and/or shadow areas. Pursuant to 62 Ill. Adm. Code 1784.22(b) and as required by Parts III.1 and III.2.A.1, the applicant shall provide a discussion of these two geologic formations and what, if any impacts the proposed mining operation may have on them.

8. On page 4 of Part III, the applicant states that *"no known springs or other water resources within or adjacent to the permit area"* exist.

a) It has been brought to the Departments attention that springs do exist in the area, seasonally.
b) It has also been brought to the Departments attention that the Village of Oakwood potable water intake is within the Salt Fork River, approximately 9 ½ miles from the proposed permit area.

Pursuant to 62 Ill. Adm. Code 1784.14(b)(1), and 1783.24(g) and as required by Parts III.2.B.1 and III.2.D.6, the applicant shall provide additional information on the presence or absence of natural springs within or adjacent to the proposed permit and/or shadow areas and shall provide a discussion on the public water supply that appears to be sourced from a surface water body located in the vicinity of the proposed mine.

9. The applicant provided Table III-A and information in Attachment III-2B1b regarding private wells in the vicinity of the proposed mine. The following discrepancies are noted:
   a) The narrative portion of the application states that 96 private wells were identified, however the Department cannot correlate the data from Table III-A, Attachment III-2B1b and the Hydrology Map (Map A) to clearly identify all 96 wells.
   b) Two, possibly three, wells on Table III-A appear to be municipal water supply wells, rather than private water wells – See Well ID No. 12, 13, and 14.
   c) The breakdown of wells (unconsolidated, bedrock, dry, unknown) on page 6 of Part III only totals 86 wells, not the 96 previously mentioned.
   d) On page 11 of Part III, the applicant indicates *"86 private wells exist within the permit and shadow areas."*
   e) One of the private wells sampled is not included in Attachment III-2B1b (Wienke 18-14-14).
   f) It appears some of the wells in Attachment III-2B1b correlate with the wells identified in Table III-A.
   g) Numerous wells included in Attachment III-2B1b are not located on the Hydrology Map (Map A).
   h) There are wells that appear on the Hydrology Map (Map A) that are not included on either Table III-A or in Attachment III-2B1b.
   i) Twenty-six private wells were sampled by the company. This data is not presented in the narrative portion, nor in a manner that allows a comparison of the private well data to the installed monitoring well data.

   Pursuant to 62 Ill. Adm. Code 1784.14(b) and as required by Part III.2.B., the applicant shall clarify the above discrepancies and provide a summary discussion of the in use private wells, including a summary of the private well sample data.

10. In Attachment III-2B3, the applicant provides a Potentiometric Map of the shallow groundwater present near the proposed permit area. There is no date associated with this Potentiometric Map. Pursuant to 62 Ill. Adm. Code 1784.14(b)(1)(B) and as required by Part III.2.B.3 the applicant shall provide a date associated with this particular map or

provide additional maps that depict the seasonal variations in the shallow groundwater potentiometric surface.

11. The applicant presented groundwater monitoring well data collected from September 2011 to August 2013. Pursuant to 62 Ill. Adm. Code 1784.14(b)(1)(A) and as required by Part III.2.B.2., the applicant shall provide the most recent groundwater data collected for the six installed monitoring wells.

12. The applicant presented surface water monitoring data collected from September 2011 to August 2013. Pursuant to 62 Ill. Adm. Code 1784.14(b)(2)(A) and as required by Parts III.2.C.2.a and b, the applicant shall provide the most recent surface water data collected for the six stream sampling locations.

13. In Attachment III-2D4a, the applicant states that there are three upgradient and three downgradient groundwater monitoring wells installed at the proposed permit area. However in Attachment III-2B3 and Attachment III-2D1 the applicant states the only upgradient well is MW-3, with the other five monitoring wells being downgradient. Pursuant to 62 Ill. Adm. Code 1777.11(a)(2), the applicant shall correct this discrepancy.

14. In Attachment III-2D1, the applicant provides a discussion of the "Cumulative Impact Area" or "CIA" for the proposed mine. Pursuant to 62 Ill. Adm. Code 1784.14(e) and as required by Part III.2.d.1 of the application, the applicant shall provide a discussion on any existing permit and/or shadow areas that could interact with this proposed permit and/or shadow area thereby necessitating a true CIA.

15. In Attachment III-2D4b the applicant presents groundwater monitoring well information and slug test results.
    a) The groundwater monitoring well boring logs included in "Attachment A" lack the detailed descriptions seen in other shallow corehole logs provided by the applicant. The applicant shall provide more detailed descriptions of the geology encountered in the groundwater monitoring well boreholes, if available.
    b) The presented slug test data only includes the Slug Test Graphs as "Attachment B". The applicant shall provide the raw slug test data used in the analysis, including the input parameters.

    Pursuant to 62 Ill. Adm. Code 1784.22(b)(2)(A) and as required by Part III.2.D.4.b the applicant shall provide the requested information.

16. In Attachment III-2D7 the applicant provides well logs for Public Water Supply Wells located within ten miles of the proposed permit area. It is unclear if all of the PWS wells are currently in use by the listed communities as the information presented in Part III.2.D.6 of the application indicates that two communities (Sidney and Broadlands) purchase their water from other sources. Pursuant to 62 Ill. Adm. Code 1783.24(g) and as required by Part III.2.D.6 the applicant shall clarify the status of the public water supplies

for the listed communities and where necessary, provide additional discussion of the source of the supply.

17. The applicant provided geologic cross-sections for the proposed permit and shadow area for both the unconsolidated and consolidated materials. Cross-Sections A-A', B-B' and C-C' include descriptions of the materials. Within these descriptions the letters "GT" appear however there is no explanation for this notation. Pursuant to 62 Ill. Adm. Code 1784.22(b)(1)(A) the applicant shall clarify this discrepancy.

18. The applicant provided a Community Public Water Supply Well Location Map as part of Attachment III-2D7, however the legend and scale on this map is illegible. Pursuant to 62 Ill. Adm. Code 1784.14(g), the applicant shall provide this map at a larger scale or provide a clearer copy of this map.

19. In Response to Parts III.2.D.1.a and d, the applicant states, *"If ground water quality problems do occur, the natural geologic material will act as a filtering system and mitigate the problem in a very short distance."* What is the applicant's definition of a "very short distance"? Pursuant to 62 Ill. Adm. Code 1784.14(e)(3), the applicant shall clarify this term.

20. In Response to Part III.2.D.3.f the applicant makes a statement regarding potential impacts on surface water flows and downstream users. In this statement the following phrases are used, *"In the short term..."* and later, *"...in the long term."* What is the applicant's definition of these phrases? Pursuant to 62 Ill. Adm. Code 1784.14(i) the applicant shall clarify these terms.

21. On page 8 of Part III the applicant states that the groundwater flow direction mimics the "present surface watercourses" but does not clearly identify the assumed direction of groundwater flow. Pursuant to 62 Ill. Adm. Code 1784.14(b)(1)(B) and as required by Part III.2.B.3 the applicant shall clarify the groundwater flow direction in the vicinity of the proposed permit and shadow area.

22. On page 12 of Part III the applicant states the proposed groundwater monitoring plan for this permit *"includes wells in and around the proposed permit, shadow and adjacent area."* The only installed groundwater monitoring wells are within the proposed permit area. Therefore, pursuant to 62 Ill. Adm. Code 1784.14(e) and as require by Part III.2.D.1.a, the applicant shall clarify which wells are to be utilized in the proposed groundwater monitoring program and shall identify wells to be used that are located within the proposed shadow and adjacent areas.

23. As required by Part III.2.D.1.d, the applicant was to provide discussions on the probable hydrologic consequences for both surface and groundwater and what impacts the proposed mining operation could have on sediment yield, acidity, total suspended solids, total dissolved solids, flooding or stream flow alterations and the availability of surface

and groundwater. It appears that Part III.2.D.1.d.i and Part III.2.D.1.d.iii through Part III.2.D.1.d.vi were not adequately discussed. Pursuant to 62 Ill. Adm. Code 1784.14(e)(3) and as required by the above referenced permit application parts, the applicant shall provide the necessary responses to these permit application questions.

24. The Department is in receipt of two letters from the Illinois EPA dated September 9 and September 23, 2014 requesting clarification or additional information. Pursuant to 62 Ill. Adm. Code 1773.12, please provide responses to those questions contained in the referenced IEPA letter as a part of this modification package. Including this information will assure coordination with each agency's regulations. If any response to the IEPA's comment would result in changes to this permit application, clearly indicate which application part and/or map is being revised.

25. Pursuant to 62 Ill. Adm. Code 1823.11, response V2B4 , page V-10, must be modified to expand the discussion for exemption for prime farmland. There appears to be substantial area in the SE¼ of Section 26 which has no planned disturbance. The nature and type of disturbance of the remaining support area which are not specifically identified with a structure, pond, stockpile, etc. must be discussed. In addition this response must discuss the removal of any liners which would be in or immediately below the root zone of reclaimed high capability areas.

26. Pursuant to 62 Ill. Adm. Code 1784.11(a) and 1784.23(a) and as required in Part IV(5)(A) and IV(5)(B) in the operations section of the application, the applicant is required to locate on the mining operations map each area to be permitted for surface disturbance and indicate the acreages of support and surface facilities.

    The table in Part IV(5)(A) indicates the following:
    - Undeveloped support area – 103.2 acres
    - Undisturbed support area – 68.3

    The applicant shall clarify the difference between those two types of support areas and as required by Part IV(5)(B) indicate on the Operations/Surface Drainage Control Map, Map D where these areas are located.

27. On page 14 of Part V, in response to Part V.4.B, the applicant indicates that a four-foot earthen cover will be placed on the refuse disposal area (RDA) as part of the reclamation activities. To ensure adequate groundwater protection, the applicant shall consider the construction and installation of a low permeability cap underneath, or as part of, the final cover of the RDA. Pursuant to 62 Ill. Adm. Code 1784.14(e), the final cover must be constructed so that infiltration is limited to prevent lateral and vertical seepage from the RDA outslopes, maintain stability of the RDA and to minimize hydraulic head within the RDA. The Department will evaluate this response, along with the information provided in response to Modification Question No. 24 and coordinate the review with the Illinois EPA.

28. Pursuant to 62 Ill. Adm. Code 1778.13(c), the applicant's response to Part I 6)A) of the application is inadequate. The applicant must provide all owners and controllers (officers and directors) of the applicant as defined by 62 Ill. Adm. Code 1773.5 for five (5) years preceding the date of the application. The applicant must provide all owners up to and including the top level of the corporate structure. The applicant must provide all officers and directors for all of its owners.

    The Department finds discrepancies in the information reported in the application for the owner of the applicant (Hallador Energy Co.) and its relationship with David Hardie, shareholder. The Department is requiring Sunrise Coal LLC to update the ownership information for Hallador Energy Co. or provide a statement indicating David Hardie is not considered an owner/controller as defined in 62 Ill. Adm. Code 1773.5 (definitions).

    Further, the Department finds discrepancies with the following individuals in relationship to Hallador Energy Co.: Teressa Jones, Asst. Treasurer/Contorller; W. Anderson Bishop, CFO/Corp. Officer; David Hardie, Chairman; Cortlandt Dietler, Director; Victor Stabio Secretary.

29. Pursuant to 62 Ill. Adm. Code 1778.13(d), the applicant's response to Part I 6)B) of the application is inadequate. The applicant must provide each surface coal mining and reclamation operation in the United States either owned or controlled or owned or controlled within the five years preceding the date of the application associated with its owners/controllers, as reported for Part I 6)A) of the application and as modified herein.

    The Department finds associated companies that hold permits/applications that are associated with current owners/controllers, specifically Brent Bilsland and Lawrence Martin, of the applicant. The Department is requiring Sunrise Coal LLC to update Attachment I-9 to include all companies that have association with any owner/controller as defined in 62 Ill. Adm. Code 1773.5.

30. Pursuant to 62 Ill. Adm. Code 1778.14(c), the applicant's response to Part I 9 of the application is inadequate. The applicant must provide a listing of all violations for all operations which the applicant owns and controls under the 62 Ill. Adm. Code 1773.5 definition of owned and controlled and owns or controls. This includes all entities listed under Part I 6 (b).

31. The Department is requiring the applicant to revise Attachment I-9 to include violations received for any provision of the Federal Act or of any **Federal State law, rule, or regulation pertaining to air or water environmental protection** (emphasis added) incurred in connection with any surface coal mining operations in the last three years from the date of the application, for all entities associated with the applicant's owners/ controllers.

32. Pursuant to 62 Ill. Adm. Code 1784.13(1)(5) and as required by Part V(1)(A) of the application, the applicant is required to provide an overview of each major step in the reclamation process. The applicant's description is vague and quite general. Pursuant to 62 Ill. Adm. Code 1784.13(1)(5) the applicant shall provide a detailed timetable for the approximate completion of each major step in the reclamation plan. Table form is sufficient.

33. Pursuant to 62 Ill. Adm. Code 1817.111 and as required by Part V(1)(D)(2)(a) of the application, the applicant is required to provide revegetation information for areas other than forest and/or wildlife habitat. The narrative provided discusses wildlife herbaceous habitat and waterway seeding species. This narrative should be moved to other sections of Part V – see below.

34. Pursuant to 62 Ill. Adm. Code 1817.111(a)(2) and section 1817.111(b)(1) and as required by Parts V(1)(D)(2)(b), V(1)(D)(3), and V(1)(D)(5) of the application, permanent vegetative cover should be comprised of species native to the area (warm season grasses) and compatible with the Post Mining Land Use (PMLU) designation. Throughout the application PMLU is listed as "herbaceous wildlife", however many of the listed species (*Festuca* spp. for example) are suitable for pasture rather than herbaceous wildlife.
    - Suitable substitutes are available for *Festuca* spp. and other cool season pasture grasses. The applicant should eliminate cool season pasture grasses from any lands bounded or bordered by wildlife herbaceous land use including waterways and propose a seeding mix compatible with approved PMLU.

    Pursuant to section 1784.13(b)(5) and as required by the above listed application Parts, the applicant must provide a more detailed plan for revegetation to meet regulations as required in 1817.111 through 1817.117 so that a finding under section 1773.15(c) can be made. With the understanding that establishment of warm season grasses as the PMLU final cover requires more intensive establishment practices and more time, details required of the applicant include:
    a) A ground cover vegetative species list that is predominantly composed of native species. This will fulfill the stated goal of SMCRA that plant species used are to provide "...a diverse, effective, and permanent vegetative cover of the same seasonal variety native to the area of land to be affected..." Species proposed for use can be both cool and warm season types. A good mix should contain several species of both grasses and forbs.
    b) If a revegetation strategy is to use non-native types as a nurse crop and/or for site stabilization, then in addition to a species list, the management strategy and time table sequence that is to be followed for conversion of the stand to predominantly native species must be specified.

Pursuant to sections 1817.116(a)(3)(D) and 1817.117(a)(2) the applicant should note that final bond release requirements for herbaceous wildlife is 70% ground cover; this 70% ground cover shall be composed of native species.

Pursuant to section 1777.11(a) and (b) all information provided shall be clear, concise, and appropriately referenced.

35. Pursuant to 62 Ill. Adm. Code 1780.16(a)(2)(a) and as required by Part V(3)(B)(4) and Part II(8) of the application, the applicant must address "listed or proposed endangered or threatened species". A narrative is provided regarding the Indiana Bat (*Myotis sodalis*) Attachment V-3B1 describing why conditions in the proposed permit area are unsuitable habitat for the species. This information is insufficient to address the species and should be amended to include:
    a) The flowchart found in section 2.0 of the "Range-wide Indiana Bat Protection and Enhancement Plan Guidelines" (USFWS 2009, updated 2013) and a more detailed narrative explaining each step in ruling out a PEP for the species.
    b) Any reference to a "cut period" for trees must indicate October 15th to March 31st. If not tree cutting is required, this should be stated in the narrative. Maps indicate an area of trees within the permit area associated with structures.
    c) Pursuant to section 1773.13 the applicant shall provide names of persons or organizations that have made the determination of possible impacts to the Indiana Bat at this site, including credentials and methodologies used.

36. Pursuant to 62 Ill. Adm. Code 1780.16(a)(2)(a) and as required by Part V(3)(B)(4) and Part II(8) of the application, the applicant must address "listed or proposed endangered or threatened species". The Northern Long Eared Bat (*Myotis septentrionalis*) is a proposed federally endangered species. Section 1780.16(a)(2)(a) indicates that regulatory protection also applies to species proposed to be listed under the Endangered Species Act as amended, the Northern Long Eared Bat should be considered in the threatened and endangered section of this application. Although it is unlikely that the species is found in the area or that suitable habitat is found in the permit area, OSM indicates that there is a "requirement to consult with the United States Fish and Wildlife Service to develop protection and enhancement measures for a species proposed for listing as an endangered species". The applicant can meet this requirement by:
    a) Ruling out the need for an Protection and Enhancement Plan for the Northern Long Eared Bat as outlined above for the Indiana Bat pursuant to section 1780.16 (a)(2)(A).
    b) Any reference to a "cut period" for trees must indicate October 15th to March 31st. If not tree cutting is required, this should be stated in the narrative. Maps indicate an area of trees within the permit area associated with structures.
    c) Pursuant to section 1773.13 the applicant shall provide names of persons or organizations that have made the determination of possible impacts to the Northern Long Eared Bat at this site, including credentials and methodologies used.

37. Pursuant to 62 Ill Adm. Code 1817.97(c) and (d) and as required by Part V(3)(B)(2) of the application, the application must be modified to provide current and accurate information on distances to known Bald Eagle and nests within a one mile radius of the permit boundary. Information should also include any species protected under the Bald Eagle Protection Act as amended. Information provided will insure compliance with all aspects of the Federal Endangered Species Act as amended.

    Pursuant to section 1773.13 the applicant shall provide names of persons or organizations that have made the determination of nest distances including credentials and methodologies.

38. Pursuant to 62 Ill. Adm. Code 1783.11 and 1784.21 (a)(2)(B) and as required in Part II (8) and Parts V(3)(A)(1) and V(3)(A)(3) of the application, the applicant required to provide fish and wildlife information for adjacent areas that are likely to include threatened and endangered species and/or habitats of unusually high value and any site-specific resource in formation as deemed necessary by the Department. Pursuant to section 1817.97 (b) no underground mining activity shall be conducted which is likely to jeopardize the continued existence of endangered and threatened species.

    Note that according to Section 1701 Appendix A, an "adjacent area" means the area located outside the permit area or shadow area, where a resource or resources, determined according to the context in which adjacent area is sued, are or reasonably could be expected to be adversely impacted my proposed mining operations.

    The proposed discharge from the permit area will enter the Olive Branch, a tributary to the Salt Fork River which eventually feeds the Vermilion River. The Salt Fork River provides critical habitat for several threatened and endangered species including but not limited to the federally endangered Northern Riffleshell Mussel (*Epioblasma rangiana*) and the federally endangered Clubshell Mussel (*Pleurobema clava*).

    Based on the above, the information provided in attachments V-3B1 and V-3B3 insufficiently addresses Parts V(3)(A)(1) and V(3)(A)(3) regarding adjacent area potential impacts to threatened and endangered species or habitats of unusually high value. The following information is required so that a finding under section 1773.15(c) can be made:

    a) The applicant shall describe measures to be taken to protect the threatened and endangered species and habitats of unusually high value where those species are found or clearly describe why, based on facts, that a Protection and Enhancement Plan is not required for the above referenced invertebrate species.
    b) Pursuant to section 1773.13 the applicant shall provide names of persons or organizations that have provided the requested information and pursuant to section 1777.11(a) and (b) all information provided shall be clear, concise, and appropriately referenced.

c) Pursuant to section 1773.13 the applicant shall provide names of persons or organizations that have made the determination of possible impacts to the above referenced invertebrates located in areas adjacent to the site, including credentials and methodologies used.

39. Pursuant to Pursuant to 62 Ill Adm. Code 1817.97(e)(1) and as required by Part V(3)(A)(1) the applicant included protective measures to help minimize electric power line electrocution hazards to raptors (Attachment V-3Al). The applicant intends to rely on the recommendations presented in the publication titled: "Suggested Practices for Raptor Protection on Power Lines (1996 Version). The Avian Power Line Interaction Committee and the Service recently released an updated manual titled: "Reducing Avian Collisions with Power Lines: The State of the Art in 2012". The manual is available at http://www.aplic.org/. The applicant shall update the attachment using the most recent version of the document.

40. Pursuant to 62 Ill. Adm. Code 1784.14, Question III(2)(D)(3)(h)(3), Page III-18 states contemporaneous reclamation will occur. This response must clarify what type of activities will occur to achieve this.

41. In Response to Part I(12)(B)(4) of the application, the Applicant indicates public roads will not be removed, relocated or temporarily closed. Pursuant to 62 Ill. Adm. Code 1761.14, the Applicant shall provide an explanation as to how road 800 North would not need to be temporarily closed during installation of the conveyor belt. If temporary closure is anticipated, the Applicant shall revise the response and provide a copy of the written agreement with the road authority or describe time frames to submit the agreement prior to any temporary closure. Also, describe the measures to be used to insure that the interest of the public will be protected including consideration of acceptable clearance heights, proper vehicle sight lines and belt enclosure.

42. In response to Part I(12)(C)(1) of the UCM-1 Application, the Applicant indicates operations will be within 100 feet of the right-of-way of public roads. The measures to be used to insure that the interest of the public will be protected are described as "all entrances to the mine site will be clearly marked with appropriate signage". Pursuant to 62 Ill. Adm. Code 1761.14, the response shall be revised to address the location of facilities such as fresh water ponds, sediment ponds, soil stockpiles and the refuse impoundment relative to the public roads. Information concerning driver line of sight and consideration of the proximity of constructed water bodies to the road surfaces shall be provided.

43. In response to Part III(2)(D)(1)(a) of the of the UCM-1 application, the Applicant addresses whether the operations will have adverse impacts on the hydrologic balance. Pursuant to 62 Ill. Adm. Code 1784.16(b), the following clarification or corrections are necessary:

a) The Applicant indicates that protective measures will include installation of a compacted clay liner beneath the Refuse Impoundment, Treatment Pond #1, Treatment Pond #2, raw coal stockpile area, clean coal stockpile area and Collector Ditches #5 to #8. The Department is concerned that the Freshwater Ponds #1 and #2 that are in series and downstream of the treatment ponds are not proposed to be lined to protect groundwater. The Applicant shall provide for liners in the Freshwater Ponds as well or alternatively propose a plan to monitor water quality as it leaves the treatment ponds. The Applicant shall revise all parts of the application, maps, plans, cross sections and attachments as necessary to show appropriate liners beneath Freshwater Ponds #1 and #2 or alternatively propose methodology and operational planning to test water quality at the outlet of each of the Treatment Ponds.

b) The Applicant indicates that off-site surface drainage from up-gradient watersheds migrating through unaffected areas within the surface permit boundaries will be "collected and segregated" from affected area runoff. In response to Part IV(7)(B), the Applicant responds that all surrounding drainage will be intercepted and directed to the fresh water ponds. This apparent contradiction shall be clarified and responses corrected as necessary. After review of the drainage control plan, it is unclear where unaffected drainage migrating through the Permit Area will be collected and segregated. The Applicant shall revise all parts of the application, maps, plans, cross sections and attachments as necessary to delineate watershed boundaries within and adjacent to the permit boundary.

c) On Page III-11, the Applicant indicates that "water discharged from the preparation plant will be pumped back to the treatment ponds for reuse at the preparation plant". It is assumed the preparation plant slurry waste stream will report directly to the Refuse Impoundment. The Applicant shall clarify the water circuitry proposed and correct all application parts to agree.

44. In response to Part IV(2)(A)(1) of the of the UCM-1 application concerning shaft excavation handling, the Applicant states that excess consolidated material not used for road base or parking and storage areas will be placed in the soil stockpile at the location shown on Map D. It is unclear which stockpile will be used to store this excess consolidated material. It would not be acceptable to comingle consolidated material with soil or subsoil stored for reclamation. Pursuant to 62 Ill. Adm. Code 1784.13(b)(4), the Applicant shall revise the response and Map D as necessary to clearly provide an acceptable location for storage of excess consolidated material generated from the slope and shaft excavation.

45. In response to Part IV(5)(C)(1)(c) of the UCM-1 application concerning the specific locations of earth borrow areas and/or area for deposition of excess excavations, the Applicant has discussed "spoil material from a box cut will be deposited in the areas, and at the locations discussed above in IV-1". The question is specific to borrow areas if fill is needed or locations of deposition areas for any excess material cut for construction of

roads, rails or belt lines. Pursuant to 62 Ill. Adm. Code 1777.11(a) and 1784.24, the response shall be corrected as necessary.

46. In response to Part IV(5)(C)(2) of the UCM-1 Application, the Applicant references the calculations and drawings provided. Pursuant to 62 Ill Adm. Code 1784.25(a), the following corrections or additional information is necessary:
    a) It appears that Collector Ditch 6 lacks a necessary culvert between footage 30+00 and 35+00 where the collection ditch crosses under the rail. The Applicant shall evaluate this need and adjust the drawings and calculations accordingly.
    b) Several culverts have a defined slope in SEDCAD runs that are slightly different than the inlet and outlet slopes of the ditch designs. The Applicant shall assure that the culvert slopes as designed will match design grade of the downstream receiving ditch or adjust the calculations and/or design drawings accordingly.
    c) Provide the type of culvert pipe that will be used to justify the use of a "Manning's n" value of 0.014.

47. Part IV(6)(C) of the UCM-1 application concerns locations of disposal areas for (1) coal processing waste, (2) shaft excavation material and (3) non coal waste including RCRA material. Pursuant to 62 Ill. Adm. Code 1784.14(b), and 1784.16(a) the Applicant shall clarify and/or correct the following:
    a) The Applicant has discussed coal waste disposal. The response shall be expanded to discuss any non-coal waste generated on site and its proper disposal. If any onsite disposal is proposed for materials beyond coal processing waste, it shall be located on an appropriate map.
    b) Indicate all streams, creeks, and surface water impoundments within such areas or which receive runoff from such areas.
    c) Provide the acreage of the disposal areas as requested.
    d) The Applicant indicates that Treatment Pond #1 will receive mine pumpage. The Schedule A provided in Part III(2)(D)(3)(c) of the application indicates that all treatment basins at this facility will receive mine pumpage. The application shall be modified to clarify which ponds will receive underground mine pumpage and all application sections revised as necessary to be in agreement. Pond sizing calculations shall be revised as necessary.

48. In response to Part IV(6)(D) of the UCM-1 application concerning impoundments to contain coal processing waste, the Applicant discusses lining of Collection Ditches #5, #6, #7 and #8 and offers the possibility of replacing the liner beneath the ditches with a 20 mil impermeable geomembrane liner. Pursuant to 62 Ill. Adm. Code 1784.14(e), if the geomembrane liner is to be approved as a viable alternative, the Applicant shall provide an evaluation to demonstrate that the 20 mil liner will be adequate to protect groundwater resources.

49. In response to Part IV(6)(E) of the UCM-1 application concerning diversion of water around the disposal sites, the Applicant has discussed collector ditches. The question

concerns diverting unaffected drainage around the areas. Pursuant to 62 Ill. Adm. Code 1784.23(b)(6), the response shall be revised to clearly indicate if offsite unaffected drainage that would normally pass through the refuse disposal area is being diverted around the refuse area and if so, how this be achieved? If off-site drainage is being collected and transported to Treatment Pond #2 then any necessary changes to the design shall be made.

50. In response to Part IV(6)(F) of the UCM-1 application concerning collection of runoff from the refuse disposal areas, the Applicant references the surface drainage control plan and calculations. The Department is concerned that the soil stockpiles are located within the refuse drainage plan and may not be adequately segregated from coal processing waste runoff. Pursuant to 62 Ill. Adm. Code 1784.13(b)(4), and to assure compliance with 1817.22, the response and drainage plan shall be revised as necessary to provide for appropriate separation of drainage.

51. In response to Part IV(6)(J)(2) of the UCM-1 application concerning freshwater makeup and slurry circuits, the Applicant discusses withdrawal of water from field tiles to provide a portion of the needed processing water. There are two existing drainage tile mains that cross through and adjacent to the proposed permit area. Pursuant to 62 Ill. Adm. Code 1817.46, the following additional information is necessary:
    a) The Applicant shall provide clear documentation and/or narrative that assures the legal right exists to extract water from the existing drainage tiles. The Applicant shall provide documentation concerning the ownership of the existing tiles, any drainage district that has authority over the tile system and clarification whether permission is necessary to access the tiles to implement the proposed plan for water extraction.
    b) If the legal right exists to utilize this field tile water source, additional details shall be provided on where and how this water will be extracted and transported to water storage ponds. The withdrawal of water should be accomplished such that it will not impact the design of the ponds for storm water runoff calculations or adjust calculations as necessary.
52. In Response to Part IV(7)(A)(1) of the UCM-1 application concerning drainage patterns, the Applicant references Map D. Pursuant to 62 Ill. Adm. Code 1817.46, the following corrections or additional information is necessary.
    a) The Map legend defines watersheds limits with a solid line and section lines with a dashed line. The line type is reversed on the map.
    b) The Applicant shall provide a second more detailed watershed map that clearly defines each contributing sub-watershed used in the calculations of ditch and pond design.

53. In response to Part IV(7)(A)(2) of the UCM-1 application concerning collection of all affected drainage, the Applicant has responded that all affected drainage will be collected and treated prior to leaving the site and refers to Map D and related surface drainage control. The Department concurs with the response with the possible exception of a

stretch of Haul Road 2 on the south side between the inlets of Ditch 3 and Ditch 4. Pursuant to 62 Ill. Adm. Code 1817.46 the Applicant shall provide additional detail concerning drainage patterns in this area and correct the drainage control design if necessary.

54. In response to Part IV(7)(D) and (E) of the UCM-1 application concerning sediment control design, the Applicant references the Pond Design Section (SEDCAD runs) and the maps and engineering design plan sheets. Pursuant to 62 Ill. Adm. Code 1817.46 the Applicant shall provide additional details and appropriate corrections to the following:
    a) Sediment ponds are designed to connect into existing drainage tile mains. Public comments were received questioning the right to access the existing drain tiles as a primary discharge point for the proposed ponds. The Applicant shall provide documentation concerning the ownership of the existing tiles, any drainage district that has authority over the existing tile system and clarification as to whether permission is necessary to implement the proposed discharge plan.
    b) If the Applicant has the rights and ability to utilize the existing tile system as a receiving stream for the primary discharge from Freshwater Ponds #1 and #2, and Sediment Pond #1, the Applicant shall evaluate the impact the added flow will have on upstream and downstream land owners currently using the system for drainage of their farming operations.
    c) Freshwater Pond #1 shows the 24 inch tile main crossing though the Freshwater Pond #1. It is assumed the tile will be cut at the south end of the pond and eliminated through the excavated portion of the pond. Map D and all similar maps shall be revised to reflect the elimination of the tile through Freshwater Pond #1.
    d) The "Sediment Control Calculations" sheet provides a summary of the approach to pond volume determination. The minimum pond volume calculations shall be revised to accurately represent 10 hour detention of the 10 year 24 hour event plus run off of 0.1 acre feet per acre disturbed and any additional volume for pumpage from the underground workings where appropriate. The resultant values shall be accurately represented in the table required under Part IV(7)(E). Calculations were not included for several ponds concerning the 10 year 24 hour runoff to verify numbers reported in the "Pond Design" tables.
    e) When comparing the SEDCAD calculations with Map P-4, there are discrepancies in allocated minimum freeboard from the drawing to the calculations (0.3 feet vs. 0.5 feet). The calculations and drawings shall be adjusted as necessary to be in agreement.
    f) Several calculated flow depths plus freeboard result in slightly higher values than the minimum ditch depths defined on Map P-4 and P-5. Appropriate corrections to calculations and/or cross sections shall be made to assure that all ditches meet the minimum required depths.
    g) It is unclear why Collection Ditch 6 is represented with 4 reach cross sections on Map P-5 while the SEDCAD run provides 6 reach calculations. Although the outcome of the flow depth and velocity calculations may be acceptable with the

division of the 6 reaches verses 4, the reasoning for the difference shall be further explained or adjusted accordingly.

h) Several cross sectional drawings concerning liner thickness have no identifying label for scale. All cross sections shall be revised with proper nomenclature.

55. Map PP-1 defines a 4 foot clay liner beneath the raw coal pile, clean coal pile and the preparation plant footprint. Pursuant to 62 Ill Adm. Code 1784.23(b)(4) and 1784.14(e), the Applicant shall provide the following additional information to assure the coal piles will remain on the respective footprint of the 4 foot clay liner.
    a) The Applicant shall provide a demonstration that the area of the liner will be large enough to contain the coal storage volumes based on height of the clean and raw coal stacker discharge and the anticipated maximum capacity of each pile.
    b) The Applicant shall provide a plan for marking the limits of the clay liner in the field to assure that coal remains on the compacted liner area during the life of the operation.

56. In response to Part IV(6)(B) of the UCM-1 application, the Applicant references the Patriot Report. Pursuant to 62 Ill. Adm. Code 1817.49, the following additional information, clarification and/or changes are deemed necessary:
    a) The Patriot Report on page 3 defines the crest of Phase 3 as 735 mean sea level (msl). This contradicts the Phase 3 crest listed on page 12 and related drawings that places the crest of Phase 3 at 740 msl. The discrepancy shall be corrected.
    b) The 2 foot drop inlet structure proposed in each stage as a primary overflow structure discharges through a 36 inch pipe that discharges at approximate natural ground elevation to a riprap channel. It appears the discharge pipe will be located on the east side near the south corner. The pipe is not clearly labeled on the plan view sheets in the Patriot Report. The decant is also not located on Map D and related maps provide by Midwest Reclamation Resources Inc. The decant shall be properly labeled on the plan drawings in the Patriot Report and also incorporated on appropriate maps provided as part of the reclamation and surface drainage control plan for the facilities.
    c) The impoundment decant maintained throughout each of the 5 phases of construction discharges under a design p.m.f. event. It is unclear whether the decant pipe will discharge under a 100 year 6 hour event. The receiving ponds in series (Treatment Pond #2 and Fresh Water Pond #2) are designed for a 100 year 6 hour event. The application shall be revised as necessary to design the receiving ponds discharge structure based on the worst case scenario. If a discharge through the decant system of the slurry impoundment occurs under a 100 year 6 hour event, the receiving pond design shall be revised as necessary to safely pass the greatest peak flow (i.e. phase 1, 2, 3, 4 or 5 or when the coarse refuse cap is in place but has not been covered with soil and vegetation).
    d) The drainage blankets proposed have outlet pipes spaced at 100 feet around the entire perimeter. It is unclear what the design of the receiving stream will be at the outlet. It is assumed the pipes will outlet at the toe of each phase. The

Applicant shall evaluate the drainage control plan under each phase to determine if interim diches are necessary to safely convey drainage to the perimeter ditches 7 and 8 or directly to Treatment Pond #2. Consideration should be given to the soil stockpiles and the requirement to isolate the soil piles from the coal processing waste runoff.

e) The drainage blanket design incorporates rock sizing and filter fabric to encapsulate the rock. The design did not provide for filter fabric around the internal perforated collection pipe and did not define the perforation size and spacing. The Applicant shall clarify the design to assure there is no need for filter fabric around the slotted pipe.

f) Appendix E, Pipe Calculations contains hand written calculations. Some of the photocopied pages are light and difficult to read. The Applicant shall provide a cleaner copy of the calculations for clarity in the permit file.

g) The Patriot Report did not provide any information on piezometers in the embankments to monitor phreatic surface as is often required of large impoundments of this nature. The Applicant shall clarify the need for piezometers and provide appropriate information on location and maintenance if necessary.

h) Control of surface runoff to control erosion of the structure both during the operational phases and post reclamation is not adequately described. The application shall be modified to describe control of surface runoff over the out slopes during all phases of the operation. Bench design and the need for controlled down drains during both operational and reclamation phases shall be described and incorporated into the design as necessary.

i) The Department has communicated with both the Office of Water Resources (OWR) and the Mine Safety and Health Administration (MSHA). MSHA has apparently required some adjustments to the design. The Applicant shall update the information as it applies to the proposed Permit No. 429 and the IDNR Land Reclamation Division's permanent program rules and regulations.

57. In response to V(1)(B) of the UCM-1 application concerning bond calculations, the Applicant has indicated N/A in reference to railroads to be removed. Pursuant to 62 Ill. Adm. Code 1784.13(b)(2) and 1784.23, the Applicant shall provide necessary engineering design for railroad construction including earthen cut and fill, ballast footprint dimensions and ballast thickness and provide calculations for reclamation costs or alternatively remove the railroad from all maps, plans and permit language.

58. In response to Part V(1)(G) of the UCM-1 application concerning sealing of underground openings, the Applicant provides a discussion of filling the shafts and slopes and references Attachment V-1-G for drawings. Pursuant to 62 Ill. Adm. Code 1817.13(b)(8), the Department requires additional details concerning the construction of the openings. The Applicant shall provide outside diameter and finished inside diameter of the excavations, thickness and type of slope and shaft lining material and the location of the lining material relative to the geology (i.e. unconsolidated vs. consolidated

overburden). The location of the concrete plug and proposed thickness shall also be detailed.

59. In response to Part V(4)(B) of the UCM-1 application concerning final cover of the refuse area to achieve post mining land use, the Applicant provides calculations of available soil cover for the entire facility and concludes no borrow areas will be necessary. Pursuant to 62 Ill. Adm. Code 1784.13(b), additional clarifications on the volume numbers presented shall be provided. Specifically, the Applicant shall clarify if the refuse area soil balancing stands independent of the surrounding facilities including elimination of sediment ponds. The Patriot Engineering and Environmental Inc. Report titled "Engineering Evaluation and Construction Considerations, Coal Refuse Impoundment No. 1" (Patriot Report) appears to indicate that the soil excavated from the interior of the refuse impoundment (incised portion) will provide needed soil for the four foot clay liner beneath the impoundment, the phase 1 earthen embankment and the interior slope of phases 2 through 5. Soil balancing for these purposes was not provided in the Patriot Report.

60. The UCM-1 Addendum No. 1 concerns additional subsidence control and mitigation requirements. The Applicant's response to Part I.B.1 of the Addendum contains a discussion detailing private water well information and statistics. Based on modifications required elsewhere relative to Part III, Table III-A and Attachment III-2B1a and b, any changes necessitated to this Addendum shall be updated as well for accuracy.

61. In response to Part IV(3)(A)(1) of the UCM-1 application concerning structures and facilities present over the proposed shadow area, the Applicant references the Shadow Area Map S. The Department regards a bridge as a facility subject to the subsidence control regulations of 62 Ill. Adm. Code 1817.121(c)(2). The Applicant shall specifically identify bridges on the shadow area map. Additionally, any identifiable drainage tile fields beyond the tile field noted adjacent to the permit area shall be provided.

62. In response to Part IV(3)(C)(2)(a) of the UCM-1 application concerning proposed extraction, the Applicant provides minimum pillar dimensions for mains, submains, and production areas (extraction panels). The maximum extraction coincides with the geotechnical analysis and conclusion in Attachment IV-3A3, Roof Overburden Pillar and Floor Conditions for the Allerton Coal Reserve (MEA Report). Pursuant to 62 Ill. Adm. Code 1784.20(a)(3) and (5), the Applicant shall address the following.
    a) The Applicant discusses additional data collection as the mine is developed to potentially alter the mine plan geometries. The location and frequency of additional in mine testing as the reserve is developed to substantiate a continued stable mine plan shall be provided.
    b) The MEA Report details a plan for an alternative two stage mining approach. The Applicant has indicated that this plan is not being proposed at this time. In the event the two stage mining approach is considered, the Applicant will need to provide specific locations within the mine plan and receive the Department's

approval to proceed. Any increase in extraction rate will need specific approval from this Department.

c) The response indicates that extraction will be reduced to 50 percent under and within the angle of draw of "critical structures or protected structures". The response shall be revised to indicate specifically what surface features are proposed to have reduced extraction.

If you have any questions, please contact this office at (217) 782-4970, or our Southern office in Benton at (618) 439-9111.

Sincerely,

Scott K. Fowler, Supervisor
Land Reclamation Division

SKF:KD

cc: K. Dodson
Vermilion County Clerk

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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 Board and other members of the public and the Department's response to those comments.

Illinois Department of Agriculture

Comment: The applicant has indicated that 389.0 acres of prime farmland will be converted to high capability herbaceous wildlife habitat following final reclamation. The mine also indicated that only 12 inches of topsoil (average depth on permit) would be removed and replaced during final reclamation. The IDOA believes that reclamation should meet premining productivity standards on everything except the gob/slurry impoundment and industrial/commercial area.

The mine has justified this change based on the request of the landowner (Sunrise Coal) and that the change in land use is compatible with the surrounding area. However, all of the surrounding area is cropland. The addition of wildlife habitat in the middle of a cropland area can be detrimental to the cropland area. The IDOA believes that the application of the revegetation standard in 62 Illinois Code Section 1817.111 a)2) and b)3) and 1817.133 a)1), a) 1) and 2) and b) should be applied to everything except the gob/slurry enclosure and the industrial/commercial area before mining disturbance.

2. Part IV 7)J)4)d) indicates that ponds will be drained, backfilled, top soiled and seeded when reclaimed and no longer needed. Earlier, the permit stated that ponds would be incised and a 4-foot clay barrier (liner) put in place before use. The IDOA would request that the liner be removed before reclamation of the ponds. The liner will result in long-term yield reductions no matter what crop or vegetative species is grown on this area.

Response: The applicant has adequately demonstrated that portions of the permit area have met the requirements of 62 Ill. Adm. Code 1823.11 for exemptions from prime farmland. A change in land use with a permanent ground cover is appropriate for these areas to maximize erosion control. In addition, the permittee has obligations for wildlife under 62 Ill. Adm. Code 1817.97. The Department has required a permit modification (see Appendix A, Modification Question No. 25) to obtain additional justification for areas which may not qualify for the prime farmland exemption and to address the reclamation of the compacted liner for areas outside of the refuse.

Illinois Environmental Protection Agency

Comment: 1. Part III (2)(D)(l)(a) of the application states that underground mine pumpage is anticipated to be minimal. However, as even minimal pumpage may have an adverse impact on surface water quality, to ensure compliance with 35 Ill. Adm. Code 405.105 an estimate of quantity and quality of pumpage should be provided. Information should also be provided regarding the basin or facility to which the pumpage will be directed.

2. Part III(2)(D)(a), paragraph eight (8), states that water discharged from the preparation plant will be pumped back to the treatment ponds for reuse at the preparation plant. Please clarify what water is discharged from the preparation plant other than the slurry discharge which would be directed to the fine coal refuse disposal area and not to the treatment basin. It is likely unacceptable for discharges from the preparation plant to be directed to on-site treatment facilities.

3. The Schedule A provided in response to Part III(2)(D)(3)(c) includes an "estimate" for pH that reflects the allowable range in accordance with the Subtitle D regulations. Please revise the Schedule A based on nearby similar operations and/or onsite data to provide an actual estimate of anticipated pH values rather than the extreme limits allowed in accordance with the regulations. Information regarding the basis for such estimations should be provided.

4. Please clarify whether the estimates provided in the Schedule A for Iron and Total Suspended Solids (TSS) are indicative of daily maximums or monthly averages. In the event that the information provided is to indicate monthly averages, it is noted that the estimated concentration for TSS will not meet effluent limitations in accordance with 35 Ill. Adm. Code 406.106.

5. The "estimates" for Iron and TSS provided in the Schedule A should be re-evaluated to ensure utilization of data from nearby operations or onsite monitoring to arrive at an actual estimate of anticipated discharge concentrations. Information regarding the basis for such estimations should be provided.

6. To ensure adequate monitoring in accordance with 35 Ill. Adm. Code 620: Groundwater Quality Standards, you should install a total of ten (10) additional groundwater monitoring wells as described below.

a. Four (4) wells should be installed around the coal refuse impoundment, approximately twenty-five (25) feet from the outermost edge of the impoundment/embankment. These wells should be located as follows:

i. One (1) monitoring well centered on the east side of the coal refuse impoundment, between the coal refuse embankment and Treatment Pond #2.

ii. One (1) monitoring well centered on the north side of the coal refuse impoundment.

iii. One (1) monitoring well centered on the south side of the coal refuse impoundment.

iv. One (1) monitoring well centered on the west side of the coal refuse impoundment.

b. Four (4) wells should be installed around Treatment Pond No. 1, approximately twenty-five (25) feet from the outermost edge of the impoundment.

i. One (1) monitoring well should be centered on each of the four sides of Treatment Pond No.1 for a total of four (4) additional wells.

c. Two (2) additional wells should be installed in association with Treatment Pond No. 2, approximately twenty-five (25) feet from the outermost edge of the impoundment.

i. One (1) monitoring well centered on the north half of the east side of Treatment Pond No.2, west of Freshwater Pond No.2.

ii. One (1) monitoring well centered on the south half of the east side of Treatment Pond No.2, west of Freshwater Pond No.2.

The construction of the wells required above should be screened in the first water-bearing zone below the facility/structure being monitored with the screen located a minimum of ten (10) feet below the ground surface.

7. In Part IV(6)(D) and IV(6)(H) of the application, it is noted that for drainage ditches a 20 mil geomembrane may be utilized in lieu of the four (4) foot compacted clay liner. As this is unacceptable for adequate groundwater protection, the application should be revised to indicate that in the event a geomembrane liner is utilized such liner shall have a minimum thickness of 60 mil. In addition, a Quality Assurance/Quality Control *(QA/QC)* plan will be required to be submitted and approved by Agency prior to installation of the liner.

8. Part IV(6)(D) of the application states that lime or Portland cement will be added to the soil if necessary to achieve the required permeability. As this is an unacceptable practice, please revise the application to remove any indication that lime and/or Portland cement may be added to the clay to obtain required permeability.

9. Part IV of the application does not appear to include any discussion or provision for sanitary wastewater treatment systems. Please provide a discussion of wastewater handling and permitting. If a surface discharge is proposed, permitting under NPDES will likely be required.

10. Part N(6)(A) of the application states that after developing a few mine panels, the underground waste material will remain underground. As a surface coarse and fine refuse disposal area is proposed, it is unclear what underground waste material is proposed to remain underground as indicated in Part IV(6)(A). Please clarify the nature of the waste material that is to remain underground.

11. Part N(6)(C) of the application indicates that Treatment Pond No. 1 will receive mine pumpage; however, the Schedule A provided in Part III(2)(D)(3)(c) of the application indicates that all treatment basins at this facility will receive mine pumpage. Part IV(6)(C) should be clarified to agree with the Schedule A.

12. Part III(2)(D)(1)(a) and Part IV(6)(D) of the application discusses the development and construction of various mine facilities for which compacted clay liners are proposed. Part III(2)(D)(l)(a) appears to omit Freshwater Pond Nos. 1 and 2 from the list of structures for which compacted clay liners are proposed as depicted on the cross-section drawings. The phrasing of Part IV(6)(D) appears to indicate that a liner is proposed in only Treatment Pond No. 2. Please revise the cited sections of the application to clearly reference all facilities for which compacted clay liners are proposed.

13. Due to the difference in scale on the cross-sections provided in response to Part V(7)(E) of the application, the compacted clay liner thickness on the structure slopes appears to be incorrectly depicted. Please revise all cross sections depicting compacted clay liners on structure slopes to represent appropriate four (4) foot thickness or label the current depictions as "not to scale."

14. Part IV(6)(J)(2) indicates that non-potable water may be obtained from City of Georgetown. Please identify the source the non-potable water, provide information regarding the locations at which this water may be imported to the mine and provide an analysis of the quality of this water source.

15. Part IV (6)(J)(3) references the potential for an unforeseen event that may result in a discharge of slurry fines and untreated slurry water. Please revise the application and/or provide a discussion and additional information regarding the following.

a. Principle and emergency spillways for Phases I through V of the refuse disposal area appear to be discussed and depicted in the "Engineering Evaluation and Construction Considerations Coal Refuse Impoundment No. 1;" however, these structures do not appear to be clearly depicted or discussed in Part IV(6) of the application. Please revise Part IV (6) of the application and the "Operations/Surface Drainage Control Map" (Map D) to discuss in detail and depict the spillway structures.

b. A design information summary table should be provided for refuse disposal area spillway structures.

c. Should the intent be to operate the RDA as a no discharge system to the extent possible, please provide details to include but not necessarily limited to freeboard to be maintained below principle spillway elevation, design storm utilized to determine freeboard to be maintained without discharge, etc.

16. Due to the flat topography of the area, Part IV(7) of the application should be revised to provide information (profile and cross-sections) regarding receiving stream channels down stream of proposed outfalls to demonstrate that such receiving channels are adequate to convey the proposed discharges.

17. Since discharges from flooded sedimentation ponds would likely not meet permit effluent limits, ponds and discharges should be located outside the limits of the flood plain area or otherwise protected from flood waters entering the basin to the extent possible. Due to the limited topographic relief in the area, the 100-year flood plain should be plotted on an appropriate map and Part IV(7)(F)(l) of the application should be revised to provide a discussion of the affects a 100-year storm event may have on sedimentation basins and outfalls.

18. Part IV(7)(J)(3)(c) and IV(7)(J)(3)(d) of the application references potential discharges from the refuse impoundment to Treatment Pond No. 2 and the removal of the spillway from the refuse impoundment as part of final reclamation, respectively. As the plan drawings of the refuse impoundment do not appear to depict a discharge structure or spillway, these references should be discussed and/or clarified or the drawings revised to depict the referenced spillways as requested under item No. 15 above.

19. An emissions permit from the Illinois EPA, Division of Air Pollution Control, may be needed for the proposed facilities. The Permit Section of this Division should be contacted concerning these requirements at the above indicated address; phone number 217/782-7326.

20. The Applicant should utilize static water levels measured in existing and additionally required wells to determine groundwater gradient for preparation and submittal of a groundwater contour map.

21. The Applicant should perform a slug test on each new or additional groundwater monitoring well following construction and development. Boring logs, construction details and the results of the slug tests should be provided to both OMM/LRD and the Agency/Mine Pollution Control Program within 60 days following completion of the well.

22. The saturated zone of all monitoring wells should be classified as Class I or Class II based on the slug tests required under Item No. 2 above with the groundwater classifications reported to the regulatory authorities.

23. To ensure adequate post-mining groundwater protection, the Applicant should review the reclamation (abandonment) plan for the refuse disposal area to propose

the installation of a low permeability cap beneath the post-mining final soil cover. The low permeability cap should consist of a compacted clay, or synthetic liner capable of providing an equivalent level of groundwater protection, with consideration given to the requirements of 35 Ill. Adm. Code 811.314. The final cover should be designed and constructed such that the quantity of infiltration through the final cover will not exceed the quantity of leachate through the liner installed beneath the refuse disposal area.

Response: See response to Modification Question No. 24.

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

Comment: We have reviewed the Surface Mining Application No. 429, for the Bulldog Mine by Sunrise Coal in Vermilion County. At this time, I have no comments concerning the application and supporting documentation related to issues where the NRCS has jurisdiction.

Illinois NRCS does recognize that the entire area identified is currently prime farmland as are most of the surrounding areas. If much of this area is re-vegetated with wildlife habitat, it may affect neighboring cropland.

Response: See response to the Illinois Department of Agriculture's comments.

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

Comment 1: To facilitate compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service (Service) information concerning any species, listed or proposed to be listed, that have ranges which include the project area. As the State of Illinois has been delegated the responsibility of issuing mining permits by the Office of Surface Mining, we are providing the following list of threatened and endangered species to assist in your evaluation of the proposed permit. The list for the proposed permit area includes the endangered Indiana bat *(Myotis sodalis),* endangered clubshell mussel *(Pleurobema clava),* threatened eastern prairie fringed orchid *(Platanthera leucophaea),* threatened rabbitsfoot mussel *(Quadrula cylindrica cylindrica),* and proposed as endangered northern long-eared bat *(Myotis septentrionalis).* There is no designated critical habitat in the project area at this time.

Response: The permittee has included all required information, including protection and enhancement plans for the Indiana bat and Northern long-eared bat. Although no critical habitat occurs in the project area, a fence row of trees and a few scattered trees are in the 1.6 acre Industrial/Commercial pre-mining land use area. The Department required a protection and enhancement plan for both species. The trees were located after consultation with USFWS during the Department's technical review; via email on November 9, 2015, USFWS concurred that the Protection and Enhancement Plan submitted for both species of bat is sufficient.

In addition, the Department required detailed information from the permittee to support the conclusion that a Protection and Enhancement Plan is not required for state and federal threatened and endangered freshwater mussel species.

There are no freshwater mussel species found within the permit area. Responses to Modification Question Nos. 35, 36, and 38 provided the required information indicating no anticipated negative impacts to the freshwater mussel species found in the downstream habitat, the Indiana bat, and the Northern long-eared bat.

Comment 2: Information provided in the permit application indicates that there are no forested habitats or grassland habitats within the permit area. There are also no streams or wetland habitats with the permit area. Based on this information, the Service concurs that the proposed activity is not likely to adversely affect any federally listed species.

Response: During technical review by the Department it was discovered that a fence row of trees and a few scattered trees are located in the 1.3 acre Industrial/Commercial pre-mining land use area. The Department required a Protection and Enhancement Plan for both the Indiana bat and the Northern long-eared bat. USFWS has concurred that the protections outlined in the Protection and Enhancement Plan submitted for both species of bat meets the requirements set forth in the revised 2013 "2009 Indiana Bat Guidelines".

Comment 3: Information in the permit application indicates that the reclaimed area will include 390.3 acres of herbaceous wildlife habitat seeded with a mixture of native warm season grasses and introduced species commonly used on reclaimed mine sites. The Service concurs with the use of native warm season grass as they will provide greater benefits to grassland birds; however, the Service recommends that the planting of non-native, exotic, and invasive species be avoided. The Service also recommends the incorporation of native forbs in the seeding mix which will provide greater benefits to native pollinators including the monarch butterfly.

Response: Modification Question No. 34 required the applicant to remove non-native pasture grass species from areas to be reclaimed to Wildlife-Herbaceous post-mining land use. The applicant proposed a seeding list comprised of all native grass and forb species, the Department finds the applicant's response to Modification Question No. 34 acceptable.

Comment 4: The permit application includes protective measures to help minimize electric power line electrocution hazards to raptors (Attachment V-3Al). The applicant intends to rely on the recommendations presented in the publication titled: "Suggested Practices for Raptor Protection on Power Lines (1996 Version). The Avian Power Line Interaction Committee and the Service recently released an updated manual titled: "Reducing Avian Collisions with Power Lines: The State of the Art in 2012". The manual is available at http://www.aplic.org/.

Response: Modification Question No. 39 required the applicant to update the application section regarding protection of avian species from powerlines to include both the 1996 document related to avian electrocution and the 2012 document referenced in the USFWS comment regarding avian collisions with powerlines. The Department approves of the response to Modification Question No. 39.

Public Comments

An informal conference regarding the Sunrise Coal, LLC, Bulldog Mine, Application No. 429 was held on October 7, 2014, at the Georgetown Community Center in Georgetown, Illinois, and a public hearing was held on December 17, 2014, at the Jamaica High School Gymnasium in Sidell, Illinois.

Many of the comments made at the informal conference, at the public hearing, and received in writing were similar in nature. The primary issues expressed were:

- Concern regarding air, water, and soil contamination
- Concern regarding the use of existing drainage tile/subsidence effects on drainage tile and farm land
- Concern regarding increased coal transportation traffic on county roads
- Concern regarding loss of prime farmland acres

The Department has considered and evaluated all comments, written and oral, concerning the effects of mining. The issues related to the application are addressed below.

Comment 1: Several commenters expressed concerns regarding fugitive coal dust surrounding the surface facility, shadow area, and along transportation routes. These comments include:

a) Commenters feel that the coal dust will damage property and white fences as it blows across the community's farms, schools, and homes.
b) My farm is a sustainable farm; thus, coal dust could be detrimental to my chestnut and fruit trees, hazelnut shrubs, berries, and vegetables.
c) I believe the soil will be contaminated with heavy metals [such] as mercury, arsenic, selenium and chromium as coal is processed washed, and loaded and as coal dust blows dust off the coal piles.
d) A commenter expressed concern regarding a buildup of contaminated soil and coal dust on the insides of farm equipment that require cleaning.
e) The coal dust, in particular, with its inherent heavy metal soot will especially reduce productivity in the land.
f) A commenter expressed concern that coal dust contains lead and arsenic that might be ingested or contaminate farmland.
g) These towns, which already experience heavy rail traffic on that track, will have an increased volume of open, dust-generating coal trains.

Response: The applicant has provided sufficient information to demonstrate that the requirements of 62 Ill. Adm. Code 1817.95 will be met. See Part IV(8) of the

application concerning the fugitive dust control plan. In addition, the regulations at 62 Ill. Adm. Code 1817.150(b)(1) require that "[e]ach road shall be located, designed, constructed, reconstructed, used, maintained, and reclaimed so as to: (1) Control or prevent erosion, siltation, and the air pollution attendant to erosion, including road dust and dust occurring on other exposed surfaces, by measures such as vegetating, watering, using chemical or other dust suppressants, or otherwise stabilizing all exposed surfaces in accordance with current, prudent engineering practices." The Department requires the permittee to comply with these regulations. Inspections are regularly conducted and appropriate enforcement actions will be taken if conditions exist that are in violation of the regulations.

Other than the requirements described above, the Department does not have regulatory jurisdiction to regulate coal dust generated from the mine site. That authority rests with the Illinois Environmental Protection Agency.

It is typical for mining areas to be adjacent to lands used for agricultural purposes. The Department does not anticipate negative impacts to agricultural lands as a result of this operation.

Comment 2: A commenter expressed concern that the mining operations will negatively impact biking activities because of fugitive dust and other air pollution. Concern was also expressed regarding the slurry process and increased trucking activity that may present physical dangers.

Response: The Department has not observed the type of negative impacts from mining related activities described in this comment. Concerns related to increased truck traffic, fugitive dust, and air pollution are beyond the regulatory purview of the Department. Please see the response to Comment 1 above.

Comment 3: The company must compensate (actual and punitive damages) all victims affected by coal dust escaping from the site. Payments would be triggered by victims providing proof of causality OR by a statistical analysis of epidemiological data showing abnormally high incidence among the exposed population. In the latter case, the burden of proof should shift to the mine owners to demonstrate that a particular claim was without merit.

Response: The scenario expressed in this comment is beyond the regulatory purview of the Department. The applicant has provided sufficient information to demonstrate the requirements of 62 Ill. Adm. Code 1817.95 will be met. See Part IV(8) of the application concerning the fugitive dust control plan and the response to Comment 1 above.

Comment 4: I was surprised to find that the permit application for the 400-acre surface facility does not adequately address the impact from fugitive dust and water contamination on the adjacent land and water.

Response: The Department has reviewed the application and has determined the regulatory obligations of the permit application adequately address their permitting

responsibilities. The applicant has provided sufficient information to demonstrate that the requirements of 62 Ill. Adm. Code 1817.95 will be met. See Part IV(8) of the application concerning the fugitive dust control plan and the response to Comment 1 above.

Comment 5: It appears they will be removing 2 ft of top soil from 29 yards in Tilton, IL that were contaminated with lead and arsenic from a lead smelting plant. Lead and arsenic are also contaminants of coal. Those contaminants apparently got on the ground by the wind and rain (as stated by an article in the News Gazette).

Response: The Department is not aware of soil being contaminated by lead and arsenic as a result of coal mining in Illinois. Contamination of topsoil resulting from a smelting plant are beyond the regulatory purview of the Department. The applicant has addressed the dust control requirements of the application (See the response to Comment 1 above) and has proposed a thorough groundwater monitoring program to ensure groundwater contamination is prevented.

Comment 6: The permit states that "Fugitive dust will be controlled by frequently watering the roads while they are used during dry, dusty periods. Some portions of the roads may be oiled and chipped periodically or treated with approved dust suppressant chemicals in order to further control dust pollution." It does not appear that the impact of these chemicals on area air and water quality has been evaluated.

Response: Any such products used would be commercially available and would be required to meet the testing requirements of the responsible regulatory agency. In addition, surface and groundwater monitoring programs have been reviewed and approved to evaluate regulated parameters. The Department's regulations do not require an air quality monitoring program.

Comment 7: Several commenters expressed concerned about rail/train traffic as a result of the mine. Those comments included concern about the addition of another 220 trucks per day through Homer's downtown and residential areas, where Illinois Route 49 passes, having a detrimental effect on the quality of living, property values, and local business, not to mention the increased danger to pedestrian traffic, most of them children who regularly cross Illinois Route 49 in downtown Homer.

Response: The concern expressed is beyond the regulatory purview of the Department.

Comment 8: Several commenters expressed concern about mining activities within 100 feet of rural roads and if this is legal.

Response: Pursuant to 62 Ill. Adm. Code 1761.11(d), mining activities may occur within 100 feet measured horizontally of the outside right-of-way line of a public road provided the Department grants permission, there is an opportunity for public notice and opportunity for a public hearing, and the Department makes a written finding that the interests the public and land owners will be protected. Please see page 5 of this decision document for the Department's finding concerning compliance with Section 1761.11(d).

Comment 9: [The permit application] doesn't address how Sunrise will offset pressures on public funds used to repair roads. Sunrise currently plans to truck 100% of washed coal to buyers, which adds significant wear and tear to any roads used.

Response: The concerns expressed are beyond the regulatory purview of the Department.

Comment 10: Several commenters expressed concern regarding potential road closures: The permit states... "100 East, 200 East, and 800 North... are primarily used by local thru traffic... and for farm field access. Nearby alternate routes are available for thru traffic". Roads around other mine sites have been closed.

Response: The applicant does not propose to close or relocate 100 East, 200 East Roads. See Part I (12)(B)(4) of the application. The applicant does propose to temporarily close 800 North Road. The Department has required the applicant to provide public notice, an opportunity for public hearing, and obtain approval from the road authority with jurisdiction over the road prior to that closure. (See Part IV, Permit Conditions, Condition K.)

Comment 11: Several comments related to bonds at the site. Subjects of the comments included:

a) If a permit is issued, please ensure that there will be no uncompensated irreversible adverse effects on individuals downwind or downstream of the proposed mine. Specifically, ensure that there is a large enough up-front "bond" posted by the owners to cover the following damages if the company goes bankrupt or is liquidated. The funds could be invested by the State and the proceeds refunded piecemeal to the bondholders as the risks of damages are permanently (and irreversibly) eliminated by physical actions (mitigation) taken during or after closure of the mine.

b) [The permit application] insufficiently addresses bonding to ensure taxpayers are not paying cleanup and reclamation costs.

c) The proximity of stored waste materials to both surface waters and ground waters necessitates construction of, and perpetual reliance on, barriers and liners having limited lifetimes. The bond should be set at a level sufficient to cover the present value of maintenance and replacement of the barriers and liners every N years, where N is the nominal lifetime. If the actual lifetime proves to exceed N years, the size of the "bond" (actually a long-term care and liability fund) may be reduced accordingly by paying an appropriate dividend to the "bondholders" (or their heirs or assignees).

d) The posted bond must be sufficient to cover the full cost of restoring all tile drainage and ditch systems impaired by subsidence. It is recognized that subsidence will eventually occur, and that there is a large range of uncertainty about the date of onset. Therefore, the initial assumption should be that the subsidence will occur at the lower end of that range of uncertainty (say 5 years) and assume that newly mined areas will also fail after 5 years. If initial subsidence appears later than 5 years hence, dividends may be paid to reduce the size of the bond accordingly, leaving a balance sufficient to remediate when it eventually occurs.

e) If there are legislative or other obstacles limiting the size of bonds or other measures to fully compensate victims and remediate damages to ecosystems and communities, the permit should be denied until such obstacles are eliminated through a truly democratic process with ample input from the broader public.
f) If they declare bankruptcy who is left with the mess?

Response: Pursuant to 62 Ill. Adm. Code 1800.14, the bond required for each bonded area is determined by the Department shall be sufficient to ensure the completion of the reclamation plan if the work must be performed by the Department in the event of forfeiture under Section 1800.50. The Department has determined that the application has provided sufficient information for that bond to be calculated. Moreover, the Department will periodically evaluate and, if necessary, adjust the bond amount required per Section 1800.15. In addition, Section 1800.60 requires the applicant to submit a certificate of insurance "certifying that the applicant has a public liability insurance policy in force for the surface coal mining and reclamation operations..."

Pursuant to 62 Ill. Adm. Code 1817.121(c)(1), the permittee is required to repair any damage caused to surface lands. In the event of unplanned subsidence, the permittee would be required to comply with 62 Ill. Adm. Code 1817.121(c)(3) and provide either additional performance bond in the amount of the estimated cost of the repairs or, in the alternative, provide proof of liability insurance to assure the financial liability.

The permit area and shadow area are handled differently in terms of bonding. Bond will be held for the reclamation of the permit area (surface facilities area) until reclamation is complete and the applicable performance standards are met. The Department does not have the authority to require a "long-term liability fund" once all the applicable conditions are met. The Department also regulates the shadow area for mitigation of subsidence during the life of the permit. The coal company can either hold liability insurance to cover any areas impacted by subsidence or a bond can be required after the subsidence damage occurs pursuant to 62 Ill. Adm. Code 1817.121(c)(3). The regulations at 62 Ill. Adm. Code 1817.121(c)(1) & (2) require repair of damage to surface lands and the repair or compensation for all damage to structures and facilities. Replacement of damaged drinking, domestic and residential water supplies is required by Section 1817.41(j). If damage resulting from subsidence is not corrected within 90 days, the company must either post a bond or show that there is liability insurance in place to cover the damages pursuant to 62 Ill. Adm. Code 1817.121(c)(3).

The liability insurance is held as long as the permit is in force. In the event there are subsidence problems many decades after the closure of a mine, such as in room and pillar mining proposed by the applicant, the Department will have to pursue the company(ies) that maintain subsidence liability and take legal action to reclaim any unplanned subsidence. The federal Office of Surface Mining has determined that the permittee remains liable for subsidence damage in perpetuity. Under current rules and regulations, funds are not set aside to pay for the repair of subsidence that

may occur in the future, and the Department does not have the authority to require that.

Comment 12: It is my understanding that there could be impacts from mine drainage into the Olive Branch which flows into the Salt Fork. The Salt Fork joins the Middle Fork at Kickapoo State Forest and the North Fork to form the Vermilion River. The Middle Fork is the only river in Illinois that is designated part of the National Wild and Scenic River system. At minimum, I have found two reports about conservation and environmental [sic] protection on the Salt Fork.

The first report is a 2007 Watershed Implementation Plan for the Upper Salt Fork of the Vermilion River in Champaign and Vermilion Counties, Illinois. (http://www.ccswcd.com/media/files/.33.pdf), the other a 2011 report titled Vermilion River (Middle Fork, North Fork, & Salt Fork) & Little Vermilion River Conservation Opportunity Area Wildlife Action Plan (http://prairierivers.org/wp-content/uploads/2013/01/VRCOA-Action-Plan-FINAL.pdf).

I request that the full text of these documents be made available in the public record in comments about this mine application. I wish to note that neither document contained plans for mitigating future mining damages from an underground mining complex with surface operations within the watershed area. The word "coal" is never mentioned.

Response: The referenced documents have been added to the public record as submittals and are available for review upon request.

Comment 13: Commenters questioned hydrologic information submitted for the site and included:

a) In the reclamation portion of the application, Sunrise Coal, LLC states that there are no streams or rivers within the permit area. However, they fail to mention that in another portion of the permit application that they plan to discharge water into the Olive Branch, a small creek that will be the recipient of the water discharge from the mine which flows directly into the Salt Fork River.
b) What is the hydrologic area of the mine? Does it include the Salt Fork River, and therefore, Oakwood?

Response: The hydrologic area of the mine is the HUC 12 (Hydrologic Unit Code) area, defined by the United States Geologic Survey. A HUC area can also be considered a watershed. The hydrologic area of the proposed permit and shadow area includes the watershed of Olive Branch but does not directly include the Salt Fork River.

Comment 14: It should be noted that the Urbana-Champaign Sanitary District is currently upgrading their facilities. They estimate 3 MGD less discharge into the Saline Branch of the Salt Fork River. This will decrease the baseline flow in the Salt Fork River channel, reducing the river's ability to dilute any pollution coming into the Salt Fork River from the Olive Branch. For more information on this you can visit their website at http://www.u-csd.com/.

The fertilizer plant in Tuscola should be considered for the same reasons.

Response: The Department has considered the information provided in this comment.

Comment 15: Many of the people who spoke in favor of the Bulldog Mine made the case that the watershed is already stressed from agricultural runoff, urban waste, pre-law mining and other sources. I agree with them that this watershed is already stressed, which further makes the case that adding yet another stressor to this watershed-the Bulldog Mine-is a terrible idea. So much work has been done to clean up the Salt Fork, but this and any other mine would pose too great a threat to precious water resources to be worth the temporary and dubious benefits claimed by the coal industry.

Response: The Department reviewed the application in accordance with the regulations under 62 Ill. Adm. Code 1700-1850 and found that the applicant has met the requirements for a permit. Appendix C of this finding addresses the Department's assessment of the cumulative hydrologic impacts of the proposed operation.

Comment 16: Commenters expressed concerns regarding water pollution from the proposed mine site. The concerns conveyed included:

a) What guarantees do the citizens locally have that no harmful substances will enter our water system? If, in the worst-case scenario, harmful substances flow into the Salt Fork River, what are the chances that it will enter our water system?
b) Several commenters expressed concern regarding water pollution discharge from coal, coal slurry, storm water, and coal ash contaminating both groundwater and the open waters of the Salt Fork and Little Vermilion River and their tributaries. Adverse impacts listed include: suitable wildlife habitat, reduced recreational fishing, reduced recreational canoeing and kayaking, and decreased bird watching opportunities.
c) Sunrise Coal should have expressed at the Public Hearing how they will take precautions to not pollute the river.

Response: No mining-related drainage will directly report to the Salt Fork or the Little Vermilion River. All surface water discharges will be regulated by the NPDES permit, issued by the Illinois EPA (IEPA). The size of the proposed permit area, when compared to the size of the watershed for the Salt Fork, is such that any discharge from the mine will be imperceptible.

Comment 17: Since everyone knows oil floats on top of water, I find it likely these pollutants will be the first things to be discharged in the Olive Branch and the Salt Fork during, quote, wet periods or accidental discharges.

Response: Oil discharges are not allowed under the NPDES permit. It is unclear where the commenter believes the "oil" will originate, but no oil is proposed or will be allowed to discharge from the proposed permit area.

Comment 18: A commenter expressed concern that the regional Boy Scout Camp, Camp Drake, is located on the [Salt] Fork River.

Response: The regulations at 62 Ill. Adm. Code 1700 through 1850 are intended to prevent impact from surface and underground coal mining operations outside of the permit or shadow area. Therefore, there is no reason to believe that the Boy Scout Camp will be negatively impacted by the coal mine.

Comment 19: There is no mention of an Environmental Impact Study. Has one been held? What were the findings? Considering the proximity to a National Wild and Scenic designated river, the Middle Fork, there must be similar endangered and threatened species in the Salt Fork area.

Response: An environmental impact study is not required under 62 Ill. Adm. Code 1700-1850. However, the regulations found at 62 Ill. Adm. Code Sections 1783.19(b) and 1784.21 require the applicant to supply vegetation information in the permit and adjacent areas and fish and wildlife resource information/habitats of high value information for the permit and adjacent areas. This information is reviewed by the Department and all pertinent state and federal agencies. The US Fish and Wildlife Service concurred that the information supplied by the applicant is sufficient; that the proposed operations do not threaten the existence of any listed threatened or endangered species; and that the proposed operations do not pose a threat to any habitats of high value with regard to any listed threatened or endangered species. The IDNR Office of Realty and Environmental Planning/Impact Assessment Section supplied a termination letter for the proposed area indicating that no state listed threatened or endangered species, nor any protected lands, exist within the proposed permit area or applicable buffer distances.

Comment 20: The Illinois Nature Preserves Commission (INPC) is concerned about the potential negative impacts that this project could have on the numerous conservation areas found along the Salt Fork of the Vermillion River. The Salt Fork is recognized as a biologically significant stream by the Illinois Natural Areas Inventory (INAI #1427), and this stream supports several State-threatened or endangered aquatic animals and has healthy fish, mussel, and macroinvertebrate populations.

The INPC is requesting that all of the ecologically significant resources in the vicinity and surrounding areas of the proposed coal mine be given serious consideration by the Office of Mines and Minerals during the review process of mining Permit No. 429. In addition to the Salt Fork of the Vermilion River, there are several other natural areas in close proximity to the proposed Bulldog Mine, some of which are statutorily protected under the Illinois Natural Areas Preservation Act [525 ILCS 30/] (Act). These lands are afforded the highest level of protection under the Act and Illinois' Administrative Code [17 Ill. Adm. Code, Chapter V, Section 4000], and impacts are prohibited by law.

Larimore's Salt Fork of the Vermilion River Land and Water Resource (LWR) lies on the Salt Fork, approximately 3.5 linear miles downstream of the confluence of the Olive Branch with the Salt Fork. This LWR encompasses a stretch of river and provides habitat for two State-endangered mussel species, one State-threatened

mussel species, and two State-endangered fish species. This LWR covers an approximate 51 acres and includes 1.7 miles of the Salt Fork.

A second LWR, the Edgewood Farm LWR, is located about 1.9 linear miles upstream of the confluence of the Olive Branch with the Salt Fork, and it protects 1.2 miles of the Salt Fork. This LWR provides habitat for one State-endangered mussel species, one State-threatened mussel species, and two federally and State-endangered mussel species.

Response: The regulations found at 62 Ill. Adm. Code Sections 1783.19(b) and 1784.21 require the applicant to supply vegetation information in the permit and adjacent areas and fish and wildlife resource information/habitats of high value information for the permit area and adjacent areas. This information is reviewed by the Department and all pertinent state and federal agencies. The US Fish and Wildlife Service concurred that the information supplied by the applicant is sufficient; that the proposed operations do not threaten the existence of any listed threatened or endangered species; and that the proposed operations do not pose a threat to any habitats of high value with regard to any listed threatened or endangered species. The IDNR Office of Realty and Environmental Planning/Impact Assessment Section supplied a termination letter for the proposed area indicating that no state listed threatened or endangered species, nor any protected lands, exist within the proposed permit area or applicable buffer distances.

It should be noted that the consultation phase of the permit review process with IDNR's Office of Realty and Environmental Planning for endangered species protection and natural areas preservation indicated "no record of state listed threatened and endangered species, Illinois Natural Area Inventory sites, dedicated Nature Preserves, or registered Land and Water Reserves in the vicinity of the project location".

In addition, the Department required supplemental information from the applicant regarding the proposed permit location and its proximity to potential habitats of high value for threatened and endangered species. Please see Appendix A, Modification Question No. 38, and the applicant's response. The applicant provided information including the distance of the discharge point from known mussel occurrences, the expected water quality and quantity impacts to the Salt Fork watershed, and the potential impact of the NPDES discharge to the aquatic life, including freshwater mussels within the Salt Fork watershed. Based on the information provided by the applicant, the conclusion that no impacts are anticipated to occur in the Salt Fork is justified.

Comment 21: The Salt Fork of the Vermilion River and its tributaries are highly valued natural areas in this region. I submit to you two documents that reflect these values and interests. *The Vermilion River (Middle Fork, North Fork and Salt Fork) and Little Vermilion River Conservation Opportunity Area Wildlife Action Plan (March 2011)* and the *Watershed Implementation Plan for the Upper Salt Fork of the Vermilion River Champaign and Vermilion Counties (May 2007).* They represent over 70 stakeholder's groups in the Salt Fork River watershed who have established

plans to protect and enhance these natural areas because they care deeply about this river and want to see it protected. From the introduction to the VRCOA action plan it states: "Although the Illinois Wildlife Action Plan addressed some conservation needs within the COAs, the IDNR recognized that local expertise is the key to understanding conservation at the local scale and that local partners' knowledge would help direct resources to where they would do the most good." As you determine whether or not to issue a permit for this coal mine, I hope you will take the broader view and include this information in your consideration.

Response: The Department has made note of the comment during the review of this permit application and the comment has been forwarded to the applicant.

The Department required supplemental information from the applicant regarding the proposed permit location and its proximity to potential habitats of high value for threatened and endangered species. Please see Appendix A, Modification Question No. 38, and the applicant's response. The applicant provided information including the distance of the discharge point from known mussel occurrences, the expected water quality and quantity impacts to the Salt Fork watershed, and the potential impact of the NPDES discharge to the aquatic life including freshwater mussels within the Salt Fork watershed. Based on the information provided by the applicant, the conclusion that no impacts are anticipated to occur in the Salt Fork is justified.

Comment 22: 62 Ill. Adm. Code Section 1816.97(b) states: "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of the United States Department of the Interior (Secretary) or which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 et seq.)."

Further, SMCRA requires that "Each application shall include a description of how, to the extent possible using the best technology currently available, the operator will minimize disturbances and adverse impacts on fish and wildlife and related environmental values, including compliance with the Endangered Species Act, during the surface coal mining and reclamation operations and how enhancement of these resources will be achieved where practicable." 30 C.F.R. § 780.16. It does not appear that the reports included in Attachment V-3Bl and Attachment V-3B3 sufficiently fulfill this requirement as they are limited to reviewing the permit area only, not the resources in adjacent areas. By extension, no protection or enhancement plans have been required. This is a very serious deficiency as the sections of the Salt Fork of the Vermilion River that will receive both runoff and discharges from the mine site contain federally endangered species, such as the clubshell and northern riffleshell mussels, both of which have been reintroduced into the Salt Fork. Further, it does not appear that IDNR, nor the applicant has evaluated the impact on species and water habitat in the context of potentially decreased flow in the Salt Fork, which would occur in the likely event of diverted effluent from the Urbana Champaign Sanitary District.

Sunrise Coal, LLC' s plans for continued operation and eventual reclamation at the proposed Bulldog Mine do not minimize the disturbances its mining operations will have on fish, wildlife, or related environmental values as required by SMLCRA, which requires "To the extent possible using the best technology currently available, the operator shall minimize disturbances and adverse impacts of the operation on fish, wildlife, and related environmental values, and achieve enhancement of such resources where practicable." 225 ILCS 720/3.18. Sunrise Coal, LLC has not and does not plan to use the best technology currently available and therefore will not be able to minimize disturbances and adverse impacts on fish, wildlife and related values.

Response: The Department required supplemental information from the applicant regarding the proposed permit location and its proximity to potential habitats of high value for threatened and endangered species. Please see Appendix A, Modification Question No. 38, and the applicant's response. The applicant provided information including the distance of the discharge point from known mussel occurrences, the expected water quality and quantity impacts to the Salt Fork watershed, and the potential impact of the NPDES discharge to the aquatic life including freshwater mussels within the Salt Fork watershed.

The applicant also provided a protection and enhancement plan for the Indiana bat and the Northern long-eared bat (in response to Appendix A, Modification Question No. 35) which restricts tree cutting of 1.3 acres of scattered trees to the time frame between October 15 and March 31 and requires replanting of 70% of removed tree acres with tree species that provide summer roosting habitat.

Appendix A, Modification Question No. 37 required the applicant to provide current and accurate information regarding bald eagle nests to ensure compliance with the Bald Eagle Protection Act. See the applicant's response. In addition, see permit Condition I.

Appendix A, Modification Question No. 39 required an updated avian protection plan based on the best technology and information currently available. Please refer to the applicant's response.

The applicant supplied a list and a likely or not likely to occur designation for all state and federally threatened and endangered species found in Vermilion County and adjacent counties. The Department has conditioned this permit by requiring the applicant to provide updated information regarding threatened and endangered species within 30 days of issuance; see permit Condition I. Should any additional protection and enhancement measures be required based on this information, the appropriate agencies will be consulted.

The Department can only evaluate and assess the proposed coal mining operations and related surface activities and cannot assess activities proposed by other entities, e.g. diversion of effluent from Urbana Champaign Sanitary District. The referenced activity and related potential impacts are beyond the regulatory purview of the Department.

Comment 23: In Part V, the reclamation plan, attachment V-3B 1, the site-specific pre-mining assessment of endangered and threatened species, I have a few examples of my concerns about this assessment:

1. The assessment addresses current habitats but fails to address the creation of new habitats for the purpose of this mining operation that could be detrimental to species in this area. The water storage ponds, the slurry empoundment [sic], and any ephemeral ponds on or adjacent to the permit area will attract local and migratory birds including but not limited to ducks, geese, swans, herons, killdeer, plovers and other shore birds. I do not see any studies that would address potential impacts of the contaminated water on these birds and any other animals that might migrate into these new and potentially toxic habitats.

2. The federally threatened club shell and northern riffleshell mussels have not been adequately addressed in this permit application. On pages 11 and 12, and again on page 31, the report states they are not likely to be found because there are no rivers or streams within the permit area. They are, however, adjacent to the project and therefore should be noted as present and potentially threatened by the discharge and runoff from this site.

3. On page 16, similar comments are made regarding the Bigeye Shiner- not likely to be found; no streams within the permit area. Recent studies conducted in 2013 by the Illinois Natural History Survey identified this fish in the Saline Branch, another tributary of the Salt Fork River.

Other species mentioned in the permit assessment received similar dismissal. I therefore request further assessments on the endangered and threatened species associated with the permit area and in and around streams adjacent to the permit area including both the Olive Branch, the Baum and Freedwell Branch, and the main channels they drain into.

Response:

1. The NPDES discharge effluent limitations set by the IEPA are considered non-hazardous to wildlife species. These discharge parameters are typically indicative of pond water quality. The Department has not observed any negative effects on fish and wildlife species utilizing permitted surface water as a resource at other mines in the State.

2. The Department required supplemental information from the applicant regarding the proposed permit location and its proximity to potential habitats of high value for threatened and endangered species. Please see Appendix A, Modification Question No. 38, and the applicant's response. The applicant provided information, including the distance of the discharge point from known mussel occurrences, the expected water quality and quantity impacts to the Salt Fork watershed, and the potential impact of the NPDES discharge to the aquatic life including freshwater mussels within the Salt Fork watershed.

3. The Saline Branch of the Salt Fork River is located upstream from the permit area, is in a different watershed, and is at such distance that no discharges from the NPDES permit would reach the referenced section of stream. The Baum and Freedwell Branches of the Little Vermilion River are located to the south east of the permit area and are in a different watershed, therefore no discharges from the NPDES permit would reach the referenced sections of this river. Additional information regarding the Olive Branch and threatened and endangered species in the Salt Fork River was submitted by the applicant (see Appendix A, Modification Question No. 38, and No. 2 of this response.)

Comment 24: Comments regarding impacts to fish included:

a) A citizen expressed concern about the Salt Fork River's smallmouth bass population and the coal mines potential effect on sport fisherman.
b) A commenter expressed concern over the 35 species of fish that have been identified in the Olive Branch which would be in danger from pollution.

Response: The regulations in place are designed to preclude any negative environmental impacts on the downstream bodies of water and aquatic species. The applicant has supplied additional information regarding distances to the Olive Branch and Salt Fork River from the mine discharge points, the expected quality and quantity of any discharge, and potential impacts on aquatic life. Based on the information provided by the applicant, the conclusion that no impacts will occur in the Salt Fork and other downstream aquatic habitats is justified.

Comment 25: Will an Environmental Impact Statement be required for threatened and endangered species? Has Sunrise received any grant funding that would trigger and Environmental Impact Statement?

I wonder because the Federal US Fish and Wildlife Service was involved in the project to reintroduce the federally endangered mussels if environmental protection will be required, and I would also like to know if Sunrise Coal, LLC or another subsidiary has received any federal funds that passed through from the State Department of Commerce Economic Grant Program, which would also trigger NEIS.

Response: Sources of grant funding and subsequent reporting requirements to other agencies are beyond the regulatory purview of the Department.

An environmental impact study is not required under 62 Ill. Adm. Code 1700-1850. However, the regulations found at 62 Ill. Adm. Code Sections 1783.19(b) and 1784.21 require the applicant to supply vegetation information in the permit and adjacent areas and fish and wildlife resource information/habitats of high value information for the permit and adjacent areas. This information is reviewed by the Department and all pertinent state and federal agencies. The US Fish and Wildlife Service concurred that the information supplied by the applicant is sufficient; that the proposed operations do not threaten the existence of any listed threatened or endangered species; and that the proposed operations do not pose a threat to any

habitats of high value with regard to any listed threatened or endangered species. The IDNR Office of Realty and Environmental Planning/Impact Assessment Section supplied a termination letter for the proposed area indicating that no state listed threatened or endangered species, nor any protected lands exist within the proposed permit or applicable buffer distances. Where applicable, the applicant has supplied a protection and enhancement plan for threatened and endangered species.

Comment 26: Will these mussels and other endangered species, as well as non-endangered species be monitored from the mining activity and its affects?

Are there distance restrictions for mining and related industrial activities close to endangered species?

Response: The regulations do not require a monitoring program for mining effects on wildlife species; however, an intensive groundwater and surface water monitoring program is required throughout the life of the mine and the entire reclamation process. NPDES surface water discharge effluent limits are set by the IEPA and are considered nonhazardous for the environment.

Adjacent area is determined on a species-by-species basis for threatened and endangered species. All applicable state and federal agencies have determined there are no habitats of critical value or threatened and endangered species in the permit area or adjacent area.

Comment 27: The permit said the land would be reclaimed herbaceous wildlife; if this is the case, then why are they not using all native species for this process?

Response: Appendix A, Modification Question No. 34 required the applicant to provide a species list for Fish and Wildlife Herbaceous post-mining land use areas comprised of native grasses and forbs. The applicant's response to the modification question supplied a species list of all native grass and forbs as permanent cover for Fish and Wildlife Herbaceous post-mining land use areas.

Comment 28: The lasting impacts from the mine will unduly burden the communities and municipalities who have to deal with the impacts of water pollution for years to come.

I believe the possibility for contaminates to move beyond the 400-acre permit are into the Olive Branch and ultimately into the Southfork [sic] are likely over the 20 to 30-year life of the proposed mining operation and beyond.

Response: The regulations are designed to preclude the concerns expressed in this comment due to the required, extensive ground and surface water monitoring programs.

Comment 29: Concerns regarding groundwater were conveyed and included:

a) A commenter expressed concern regarding decreased quality of life due to contaminated groundwater used for watering livestock, gardens, and pets.

b) Several commenters expressed concern regarding decreased quality of life due to contaminated groundwater and contaminated surface water adversely affecting wildlife resources used for hunting and aesthetic value. [The permit application] insufficiently addresses drinking water pollution concerns.
c) How do I know if my water gets contaminated?
d) Is my well connected to an aquifer under the slurry pond?
e) Several commenters expressed concern that the wells of local residents and surrounding areas could become dry and/or contaminated; who would be responsible for that if it occurs?
f) Part 3 of the permit states, "Although no adverse effects are anticipated on nearby wells. If any proven, valid complaints are received, alternate water will be supplied."
    1. What do proven, valid complaints mean? We would like this term to be defined by IDNR
    2. What are the requirements for a valid complaint? Who determines this?
    3. What tests of our water should I or my neighbors should be doing now?
    4. What contaminants should we test the water for? Where do we take them? Do the labs have to be certified?
    5. Is there a State agency that will perform those tests?
    6. What is an alternate water supply? Who pays for that? Will it be tanks or will they pipe city water to me?
    7. What State agency protects my clean drinking water supply?
    8. What if contamination occurs long after the mine is closed, who takes care of it then?
    9. If your department does not deal with these issues, will these questions be forwarded to the correct department or can you give us those contacts?

Response: An extensive groundwater monitoring program has been proposed for this facility. Compliance point monitoring wells will be in place to act as an "early warning system" should the groundwater become impacted due to mining-related activities. In addition to the groundwater monitoring program and network of monitoring wells, the applicant has committed to the installation of a low-permeability liner to prevent vertical migration of mining-related constituents to enter into the shallow groundwater.

If a resident/landowner/private water well user suspects that their potable water supply has been impacted, a Citizen's Request for State Inspection may be requested. The Department will open an investigation that may include the testing of your drinking water supply to determine if mining-related impacts have occurred. If it is determined that mining-related impacts are or have occurred, the applicant is required to provide a repair to the damaged well and/or replacement water.

Residents may collect their own water samples, to be analyzed for the same parameters as the proposed mine analyzes, at their own expense. Residents should contact their local Illinois Department of Public Health office for instructions regarding private well sampling.

The IEPA regulates the drinking water/groundwater/surface water of the State.

Comment 30: Several commenters expressed objection to issuance of the permit based on the source for the large quantity of water that will be needed and that the water delivery system is not complete.

Several commenters expressed concern regarding the use of up to 500,000 gallons of drinking water per day to wash coal.

Response: The concerns expressed are beyond the regulatory purview of the Department. The applicant has entered into an agreement with the City of Georgetown to purchase the water. Comments regarding this issue should be directed to the City.

Comment 31: Who is going to do and be responsible for paying for pre-mining water quality and quantity data?

Response: The permittee is responsible for the expense of testing water samples.

Comment 32: Coal mining is notorious for water degradation with its high use and waste water. As a citizen of Illinois, I have great concerns that our state will end up having problems similar to the recent water problems in West Virginia. What number of jobs and amount of money earned in a private company equal the value of residents having clean water to drink and the local environment remaining healthy? It seems to me that the time to save clean water is while it is still clean, not after allowing a private company to make money from it at the expense of the citizens of the area and the environment.

Response: The regulations are designed to preclude the concerns expressed in this comment due to the required, extensive ground and surface water monitoring programs.

Comment 33: I didn't see anything in the permit about monitoring for specific air and water pollutants, monitoring of residents' wells, or gathering of baseline data.

Response: Part III of Permit Application No. 429 discusses the monitoring of both groundwater and surface water on the proposed permit and shadow area. Baseline or background data for the installed groundwater monitoring wells, as well as the surface water monitoring points is provided in the permit application. Additionally, the applicant collected water samples from 26 private wells. These results are also included in the permit application.

The Department has no regulatory jurisdiction to require air monitoring.

Comment 34: Once the soil is ruined and the water is ruined, neither can be replaced.

Response: Among other objectives set forth by the federal and state laws, the regulations found at 62 Ill. Adm. Code 1700-1850 establish performance standards and design requirements that provide for the prompt reclamation of all affected areas to conditions that are capable of supporting the premining land uses or higher or better

land use; minimizing, to the extent possible using the best technology currently available, disturbances and adverse impacts on fish, wildlife, and other related environmental values, and enhancement of such resources where practicable; revegetation which achieves a prompt vegetative cover and recovery of productivity levels compatible with approved land uses; and minimum disturbances to the prevailing hydrologic balance at the mine-site and in associated off-site areas, and to the quality and quantity of water in surface and ground water systems. The Department finds that the proposed mining and reclamation operations are designed to meet these objectives.

Comment 35: Several commenters expressed concern regarding the disposal of the waste water.

Response: Both the Department and the IEPA have reviewed Permit Application No. 429 with regard to "waste water." All surface discharges from the proposed permit area are required to pass through an approved, regulated NPDES outfall.

Comment 36: Comments regarding water supply intakes were submitted which included:

a) Additionally, they were asked about location for water intakes for current surface water uses. That was not identified by the permit applicant.
b) SMCRA requires that the final permit provides the location of water supply intake and surface water discharges within the affected hydrologic area.
c) Following a comment that was made earlier, in Part III in response to question 2)D)10, the permit application states that "no current users of surface water supplies are known to exist into, out of, and/or within the hydrologic area of the Bulldog Mine". It's clear that Oakwood does not appear as an impacted downstream community with its water supply intakes.

Response: Please see the applicant's response to Appendix A, Modification Question No. 8. Additionally, in the modification responses to Permit Application No. 429, the applicant identifies the Village of Oakwood's surface water intake location within the Salt Fork. As noted above, no direct mining-related discharges will occur to the Salt Fork.

Comment 37: Numerous comments reflected concern regarding the water supply from Georgetown. Those comments included:

a) Although Sunrise Coal, LLC has a contract to buy production water from Georgetown, IL, there is no evidence that Sunrise Coal, LLC has the resources available to get the water from Georgetown to the Bulldog Mine surface facility. Georgetown is approximately 15 miles from the surface facility. There are no existing pipelines between Georgetown and the mine site. Thus, a new pipeline must be constructed, including obtaining rights-of-way and permits. This pipeline construction is a major undertaking. As noted in the permit application, the mine cannot run on its stored water alone and must have this source of purchased water available. Prior to issuance of a permit, Sunrise Coal, LLC should demonstrate that it has the requisite permissions and plans available to construct the fresh water pipeline.
b) [The permit application is incomplete because] it does not appear that Sunrise Coal has secured water transfer infrastructure, subsequently failing to include

information regarding the transport of water from Georgetown to the mine surface facility in the proposed map.

c) This permit does not contain updated information regarding the transportation of water from Georgetown to the mine surface facility. Likewise, it's clear that the pipeline in the location would not -- are not yet added to the maps, which should be included when the final permit is issued.
d) Has DNR been provided any updated information on the water pipeline from Georgetown? What about information about economic feasibility of the pipeline?
e) The water line is in fact the responsibility of Sunrise Coal. Section Six of Georgetown water contract that Sunrise Coal is solely responsible for constructing the water line in obtaining all necessary permits and permissions for the line from the Georgetown city limits to the mine service facility. A similar contract is in place for Homer. [sic] I would like to submit a copy of the contract with Georgetown for the public record.
f) Do they have the water leases for pipelines across properties?

Response: The applicant is not proposing to construct a water pipeline, but to purchase the water from the City of Georgetown. It will be the responsibility of the utility to deliver the water to the mine site. The Department does not permit waterlines owned by a public entity.

Comment 38: According to Sunrise Coal permit application, water quality testing will be done by the "Grab" method and only conducted quarterly. However, according the USGS.gov site titled "Interagency Field Manual for the Collection of Water-Quality Data", it recommends the "Clean Hands/Dirty Hands Technique" as the preferred method of water sampling.

Response: The USGS document referenced by the commenter is for the collection, handling, filtration, preservation and quality control for sampling natural waters. The document states, *"It is not intended for determination of metals normally found in untreated discharges from industrial facilities, in-process waters, landfill leachates, processed inorganic substance and other samples..."* The grab method is an industry-wide accepted method of sample collection; quarterly sampling is also the industry standard frequency. Both the sample collection method and sample frequency have been approved by the IEPA.

Comment 39: According to some sources, during the last three years, LESS than 20% of mines in Illinois were in regular compliance with their water pollution permits. Statewide permit compliance records indicate that the coal industry relies on circumventing federal and state laws and regulations. Sunrise does not reveal that the coal industry contributes heavily to make sure state regulation is coal-friendly.

Response: This comment is beyond the regulatory purview of the Department. The IEPA administers the water pollution control permits (a/k/a NPDES permits) program.

Comment 40: What are Sunrise Coal's definitions of short-term, long-term, and very short distance in regard to possible groundwater quality impact?

Response: Please see the applicant's response to Appendix A, Modification Question No. 20.

Comment 41: Commenters questioned permit requirements regarding aquifer geology. Those concerns included:

a) The permit application submitted by Hallador Energy/Sunrise Coal showed a lack of care or the attention to detail necessary to run a responsible operation, including no mention of critical geologic formations like an aquifer, and disregard for Oakwood's drinking water intake just downstream.
b) Has Sunrise secured permission from Oakwood?
c) Is there a geological map showing underground water? Does Sunrise know if my well is connected to the water in the area under the slurry pit?
d) Should Sunrise conduct a full hydrological study? Is Sunrise required to demonstrate groundwater levels and the groundwater flow? Would it not be the more responsible thing for Sunrise to conduct a study demonstrating the source of water for all private wells?

Response: Please see the Department's response to Public Comment 36 above regarding the Village of Oakwood's water supply intake. Additionally, please see Part III of Permit Application No. 429 (including Modification Responses) for information on the geology of the proposed permit/shadow and surrounding areas, as well as information on the direction of groundwater flow and presence of shallow aquifers.

Comment 42: What happens if there's a large spill, or high-water event and processing chemicals spill into the Olive Branch and head down to Oakwood's water intake?

Response: As previously noted, there will be no direct discharge of mining-related waters into Salt Fork (or the Village of Oakwood's water intake). The NPDES permit sets the acceptable limits of the discharges allowed and the engineering design of the proposed facility is such that the likelihood of large spills is minimal.

Comment 43: In light of recent proof that lab officials at Appalachian Laboratories, Inc. have been falsifying water sample tests for coal companies (see http://www.wvgazette.com/article/20141009/GZ01/141009217/1220), will there be independent third-party verification of such required samples of coal companies in Illinois?

Response: The Department has no regulatory jurisdiction to require such verification. The Department does have the regulatory authority to take samples and have them analyzed if that is deemed necessary.

Comment 44: I want to refer to page 11 here on the printed application. It says, "There will not be any overflow discharges from the treatment ponds except during extremely wet periods." I'm just curious as to what is the definition of "extremely wet periods". Two inches of water in a day? Two inches within a few hours? We have had

numerous rainfall events this year just like that. I see nothing addressing that rain fall at all.

Response: The statement referenced is intended to quantify that the engineering design of the pond system holding capacity will contain certain rain events if the pool elevation has been lowered via the tile outlet prior to the onset of a given rain fall. The technical design of the facility concerning surface water runoff control has been reviewed and found to be within the Department's regulatory requirements. The channels and sediment ponds are designed to safely pass the runoff from the regulatory required precipitation events. All the required information concerning frequency, distribution, and rainfall depth can be found within the permit application.

Comment 45: Has any storm water management studies with pollution transport been conducted of the area?

Response: Storm water management studies are not required by the Department. The concerns referenced in this comment are beyond the regulatory purview of this Department.

Comment 46: Commenters asked questions regarding drainage areas which included:

a) Will the drainage areas be monitored for soil contamination and water pollution?
b) Will the water from these drainage areas that go into the river be monitored?
c) What is the definition of an extremely wet period?
d) Will the rivers be monitored from the point of drainage discharge to x amount of miles downstream?
e) Within how many hours of a discharge event would the discharge be reported to IDNR and the public?

Response: All water leaving the site will be monitored at the designated, regulated NDPES outfall(s). The discharge limits are based upon the IEPA's determination of protection of receiving stream and/or downstream water quality.

The applicant is required to collected discharge samples nine times per quarter, including after precipitation events. In the event of an excursion, the applicant is required to report that excursion to both the IEPA and the Department within five (5) business days of the applicant becoming aware of the excursion.

Comment 47: Are the drainage areas close to groundwater wells and aquifers?

Response: Groundwater monitoring wells have been installed around the perimeter of the proposed permit area into the shallow aquifer present within the glacial till. Surface water drainage areas are defined by the HUC 12 areas mentioned above in response to Comment No. 13.

Comment 48: What happens with pollution from the site when Sunrise leaves? For example, like what happened at Murdock?

Response: When Sunrise Coal, LLC ceases mining operations, the Department still requires the site to remain in compliance with the applicable regulations. Permits in place remain in effect until the Department approves final bond release, which requires the applicant to meet all regulatory obligations. Until the time of final bond release, Sunrise Coal, LLC is responsible for any off-site impacts should they occur.

The Murdock mine site is not at issue with respect to the Department's review of Permit Application No. 429.

Comment 49: [The permit application is incomplete because] it does not appear that the underlying groundwater, surface water, and springs have been mapped for the entire permit and shadow areas.

Response: Part III of Permit Application No. 429 includes maps that depict the surface water location as well as maps that depict the direction of groundwater flow. No springs were noted by the applicant. Please see the response to Appendix A, Modification Question No. 8, for additional information regarding springs in the area.

Comment 50: Section 1780.21 requires the applicant to provide baseline hydrologic information pertaining to surface waters and ground waters within the Cumulative Impact Area (CIA). Our first concern is that the applicant has not appropriately identified the Cumulative Impact Area. Notably:

a) The groundwater cumulative impact area needs to be expanded to include any wells whose users may experience diminished water quality or quantity as a result of subsurface flow alterations due to mine development. This should include "upgradient" groundwater areas, which may be drawn down as shallow groundwater above the coal seam flows into the mining void. Currently, the mine application limits the groundwater cumulative impact area to 300 feet or less from the permit boundaries and notes the impacts to be "temporary or limited in scope".

b) The applicant notes that "There are no known springs or other water resources within or adjacent to the permit area." It does not appear that a ground survey has been conducted to identity potential groundwater seeps and springs and in fact, several residents have noted the presence of many such seeps and springs on and adjacent to the mine's property that are especially identifiable in the springtime. We are concerned that springs have not been considered and exist in this area and request that the applicant be required to map locations of springs, per 1780.2l(b)(l) and 1779.25(a)(10).

c) The surface cumulative impact area should be expanded. 62 Ill. Admin. Code Section 1701 defines the "Cumulative Impact Area" as "... 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." The proposed mining operation includes mining under farmland, drainage tiles, drainage ditches and streams. Compromising this landscape could present risks wherein serious drought and flooding in the area may increase in severity. Moreover, flooding itself will extend the cumulative impact area of the

proposed mine, allowing physical, chemical and biological impacts from the proposed mining operation to increase and expand.

d) SMCRA also requires that the final permit provides the location of water supply intake and surface water discharges within affected hydrologic area. 30 C.F.R. § 779 .24(g). In Part III, in response to question 2)D)10, the permit application states that "no current users of surface water supplies are known to exist into, out of, and/or within the hydrologic area of the Bulldog Mine" yet the Village of Oakwood's community water supply intake is located on the Salt Fork of the Vermilion River downstream of the proposed discharge points for the mine's storm water runoff and slurry impoundment releases.

e) It is also not clear from the materials submitted by the applicant what the potential impacts from mining surface activities, including the slurry impoundment construction and slurry disposal, will be on the underlying Millersville Limestone aquifer.

Response: The Department has determined that a Cumulative Impact Area (CIA) was not required, due to the proposed operation being hydrologically isolated. Please note that a single mining operation cannot have a cumulative impact on the hydrologic balance. Please see response to Appendix A, Modification Questions No. 7 and No. 8 for additional information as well as the Department's response to Comment No. 36.

Comment 51: Second, we note that the applicant failed to adequately characterize the headwater streams adjacent to the permit area, including those in the shadow area and the area which may be impacted by the proposed operation. It is critical that this be completed in order to inform the Department's CHIA as both volumetric flow and river stage will be impacted by proposed changes to the drainage basin due to reengineering the surface topography and onsite discharges. This baseline hydrologic information must be sufficient to demonstrate seasonal variation in water quality and water usage for both water bodies, per 62 Ill. Admin. Code Section 1780.21(b)(2).

We urge the department to require the applicant to provide this information discussed in this section and note that the Department cannot approve the permit application until the necessary hydrologic information is provided per 62 Ill. Admin. Code Section 1780.21(c)(3).

Response: Please see Part III of Permit Application No. 429 (including the Modification Responses). Attachment III.2.C. provides background/baseline information on the surface water in the vicinity of the proposed permit area.

The mine facility will have negligible impacts to the overall watersheds downstream. The existing streams and rivers should not see a significant impact in the quality or quantity of water that passes through them, so long as the discharge limits set in the NPDES permit are met.

Comment 52: We note the following concerns and deficiencies in the applicant's determination of the proposed mining activity's probable hydrologic consequences:

First, the applicant's determination of PHC is based on cumulative impact area that does not reflect the full geographic and hydrologic area in which the proposed mining activity may interact with the impacts of all anticipated mining on surface and groundwater systems. We reiterate here that using the appropriate scale of analysis is a prerequisite for the applicant to be able to make a determination of whether adverse impacts may occur to the hydrologic balance, as required be 62 Ill. Admin Code Section 1780.21(f)(3).

Second, the applicant is required in its PHC determination to include findings that address: "Whether the proposed operation may proximately result in contamination, diminution or interruption of an underground or surface source of water within the proposed permit or adjacent areas which is used for domestic, agricultural, industrial, or other legitimate purposes such as recreational and fish and wildlife uses" 62 Ill. Admin. Code 1780.21(f)(C).

At the informal conference and public hearings, held respectively on October 7th and December 17th, 2014, numerous residents testified as to the importance of area streams, underlying groundwater and the entire watershed with its distinctive topography and network of headwater streams to supporting robust populations of wildlife, which are economically significant for the hunting and wildlife viewing opportunities they afford. The Department cannot approve the permit application without requiring the applicant to address the existence, as well as the potential impact of the proposed mining on a legitimate existing recreational and fish and wildlife uses of the Olive Branch, Jordan Creek, and Salt Fork of the Vermilion River in its PHC determination. Consequently, we urge the Department to require the applicant to submit detailed information regarding:

a) The quantity of water that will be withheld from the Salt Fork watersheds as a result of the mine's sedimentation ponds and upstream withdrawals (namely from the UCSD District for the Cronus Corporation), and what impact this will have on peak and base flows.

b) Data and modeling that demonstrate the impact that discharges from the mine would have on water quality parameters in the main stem of the Salt Fork of the Vermilion River, which is already listed as an impaired stream on the Illinois Environmental Protection Agency's 2014 303(d) list due to Chloride, Dissolved Oxygen, and Fecal Coliform.

c) Baseline flooding characterization and anticipated impacts of proposed mining operations during times of high rainfall. With sedimentation basins sized to handle only 10 year/24hour rainfall events, it is likely that larger storm events that are occurring with greater frequency now will exacerbate existing flooding, potentially flushing out otherwise contained pollutants from the sedimentation basins.

Without requiring the applicant to address these deficiencies in their baseline hydrologic information and in their PHC determination, the Department cannot adequately address the cumulative hydrologic impact of the proposed mining activity that is sufficient to determine whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area, pursuant to 62 Ill. Admin Code Section 1780.21(g)(I).

Response: Permit Application No. 429 (including the Modification Responses) adequately addresses the commenter's concerns. The IEPA establishes the allowable discharge limits based upon the quality of water in the receiving streams downstream of the approved NPDES outfalls. The sediment basins are sized to handle the appropriate regulatory mandated storm events.

The sediment basins are sized to handle the appropriate regulatory mandated storm events. The sediment ponds are designed to contain or treat the 10-year 24-hour event as required by 62 Ill. Adm. Code 1817.46. The discharge structures are designed to safely discharge the appropriate storm events as required by 62 Ill. Adm. Code 1817.49.

The applicant supplied information regarding fish and wildlife resources within the permit boundary and adjacent area and information regarding protection of fish and wildlife and related environmental values pursuant to 62 Ill. Adm. Code 1784.21 and 1817.97. The application was also reviewed by the U.S. Fish and Wildlife Service and the Illinois DNR Office of Realty and Environmental Planning to ensure that all applicable state and federal laws were sufficiently addressed. Although the Department has no regulatory authority to specifically address "recreational fish and wildlife uses" of surface waters, the applicant has met the requirements of Sections 1700-1850. These regulations are put in place to protect environmental values, including the value of recreational use.

Comment 53: Apart from best mining practices and pH adjustment, the use of sedimentation ponds is the only water pollution control the applicant is proposing to use to prevent water pollution from the proposed coal mine. Unfortunately, sedimentation ponds are not the "best technology currently available" to prevent "additional contributions of suspended solids to streamflow outside the permit area". Notably, sedimentation is not effective at treating dissolved pollutants such as sulfates, chlorides, dissolved manganese, dissolved iron, and other dissolved solids. Also, as noted previously, the sedimentation basins are only sized to handle 10 year/24 hour storm events which are more frequent now. Considering the relative frequency now of 100 year storm events, the sizing of these sedimentation basins should be adjusted accordingly. We argue here - as we will also argue in the upcoming NPDES permit proceedings for this facility before the Illinois Environmental Protection Agency - that the following alternatives, employed singly or in conjunction, offer better water pollution control than sedimentation ponds:

a) No discharge: The applicant has not assessed the possibility of increasing the volume of their sedimentation ponds. Has the applicant provided

information as to the size of pond that would be required to hold all or most of the runoff from this facility? Given the relatively small watersheds of the proposed ponds, this alternative must be considered.

b) Reduce sediment loading by filtering storm water discharges: Short of a no discharge option, using filtration is the best available technology to control suspended solids. By passing wastewater through a filter, filterable sediments are completely removed from the wastewater.

Pursuant to 62 Ill. Admin Code Section l816.4l(d)(l), these alternatives to reduce sediment loading and protect the hydrologic balanced must be assessed by the applicant before the Department can approve this permit application.

Response: The sediment control measures proposed in the application meet the regulatory requirements of 62 Ill. Adm. Code Part 1700-1850. The IEPA also considers sediment control measures in their development of a company's NPDES permit.

The regulatory requirement at 62 Ill. Adm. Code 1817.46 requires the design to contain or treat the ten (10)-year 24-hour precipitation event. The frequency of the occurrence of this storm event is irrelevant in terms of the design.

Section 1817.41(d)(1) states that "[i]f drainage control, restabilization and revegetation of disturbed areas, diversion of runoff, mulching, or other reclamation and remedial practices are not adequate to meet the requirements of this Section and Section 1817.42, the permittee shall use and maintain the necessary water treatment facilities or water quality controls." The Department's experience has shown that the proposed sediment control measures have proven adequate to meet the regulatory requirements at other underground mines in Illinois. Therefore, it has been determined that the proposed measures are "adequate to meet the requirements of this Section and Section 1817.42." If sampling results indicate that the proposed measures are not adequate the permittee will be required to revise the sediment control measures to meet the applicable requirement.

Comment 54: Comments involving slurry containment included:

a) [The permit application] insufficiently addresses preventing and responding to slurry spills.
b) Where are the provisions to address contaminant spills? Does DNR have any provisions to address a spill of contaminants into the surrounding area?
c) Has DNR considered that a breach of the slurry impoundment might pollute the Salt Fork River? Does this affect the permit decision?

Response: The Department's regulations are designed to prevent such spills. The applicant has met the regulatory requirements to permit a refuse disposal facility to contain slurry. In the unlikely event a slurry spill was to occur, the response would be formulated at the time of the spill depending on the severity and specifics of the incident.

Comment 55: Commenters asked if slurry liners and embankments ever failed and if slurry pit sidewalls have ever been breached?

Response: Concerning base liners for protection of groundwater, a failure would be interpreted to mean the liner did not prevent migration of potential contaminate into the groundwater system. There are no known guarantees on the life of a synthetic high-density polyethylene (HDPE), low-permeability compacted clay liner, etc. Synthetic and clay liners are used under hazardous waste landfills, as they represent the best containment options we (as a society) have today. The proposed four foot low-permeability compacted clay liner is expected to last the entire life of the refuse disposal facility through mining operations and after being reclaimed to its post-mining land use. Additionally, a groundwater monitoring program is also incorporated to ensure detection of any problems before it can reach the public's potable water. Any detection of the movement of contaminants would trigger a ground water remediation plan.

Concerning the refuse disposal facility, various agencies routinely inspect the refuse slurry impounding structure to ensure stability is being maintained. To the best of the Department's knowledge, a refuse slurry impoundment/embankment has not resulted in a breach releasing slurry material downstream in Illinois.

Comment 56: Commenters asked about reclamation of and the regulations regarding slurry impoundments. Questions raised included:

a) Regarding the slurry impoundment on-site SMCRA requires that narrative explaining the removal of dams, embankments, and impoundments explicitly recognizing that coal waste must always be removed and may not be retained permanently as part of a post-mining land use. Given that the slurry impoundment on-site permit from the Office of Water Resources, I believe the IDNR should justify that this is not a permanent impoundment.
b) Why are refuse impoundments and cap and covering coal slurry ponds accepted to be a permanent structure after the mining is finished?
c) The criteria for alternative post-mining land uses requires that "The use does not present any actual or probable hazard to public health or safety, or threat of water diminution or pollution" 30 C.F.R. § 816.133(c)(2). A High Hazard Dam is defined as one in which "failure has a high probability for causing loss of life or substantial economic loss". Permitting a high hazard dam in perpetuity is inherently contradictory with the requirements for an alternative post-mining land use 17 IAC 3702.30(a)(l)(A).
d) SMCRA requires a narrative explaining the removal of dams, embankments, and impoundments (30 C.P.R.§ 817.11(b), 30 C.P.R.§ 817.84(b)), explicitly recognizing that coal waste impoundments must always be removed and may not be retained permanently as part of a post-mining land use. 48 Fed. Reg. 44031 (Sept. 26, 1983, as amended at 53 Fed. Reg. 43608 (Oct. 27, 1988).

Response: The approved reclamation plan calls for the refuse disposal facility to be covered, reclaimed, and not retained as an impounding structure under the Land Reclamation Division's regulations. The approved final land use for the covered and reclaimed refuse disposal facility is fish and wildlife herbaceous. Thus, pursuant to the regulatory program promulgated under the Surface Coal Mining Land

Conservation and Reclamation Act, no coal waste impounding structure will be "retained permanently as part of the post-mining land use." "No permanent impoundments" are approved "on the completed refuse pile."

This issue has been raised numerous times in informal conferences, public hearings, and permit appeals. The Department has addressed these comments by stating that the soil covering and revegetation of these disposal facilities meet the requirements of the regulations. In addition, the issue has been raised to the federal oversight agency, the Office of Surface Mining and Reclamation Enforcement (OSMRE), which concurs with this interpretation.

The commenters may refer to the minutes of the Citizens Coal Council "Ask the Director Q and A" February 24, 2015. https://www.odocs.osmre.gov/; Illinois, Evaluation Year 2015, Doc 293. See comment/response from those minutes, below:

Question/Comment:

It is my understanding that permanent impoundments of coal waste are prohibited under SMCRA, stating that "Each impounding structure constructed of coal mine waste or intended to impound coal mine waste ... may not be retained permanently as part of the approved post-mining land use" (62 IAC 1817.84(b)).

It's worth noting that in Illinois, the IDNR-Office of Water Resources permits coal slurry impoundments as high hazard dams, even after mining has been completed. Is this pattern of permitting impoundments permanently consistent with SMCRA? How would OSMRE evaluate or justify the validity of these actions by the Illinois mining regulatory program?

Response:

Federal and state regulations do not allow coal mine waste impoundments (that are not incised) to remain. The site must be reclaimed to one of the post-mining land uses defined in 1701.5 under "Land Use" other than water.

OSMRE policy since at least 1995 is that once the impounding structure is permanently breached so that water flows freely across the reclaimed refuse and the crest of the dam is reduced to the elevation of the refuse surface. Regulatory Authorities need not view this as an impounding structure under 30 CFR 816.84(b)(1)/817.84(b)(1). In Illinois, the water in most cases is removed via pumps as the cap progresses across the slurry area instead of breaching or cutting a notch in the embankment.

30 CFR 77.216 is the general rule governing water, slurry impoundments and impounding structures regulated by the Mine Safety Health Administration (MSHA). MSHA permits are required as part of the

permitting process in order to obtain a SMCRA permit, but MSHA is a separate regulating entity. MSHA will decertify impoundments once the miners leave the facility. Once the impoundment is de-certified, MSHA inspections and the operator's impoundment examinations cease to be required.

The Illinois Department of Natural Resources, Office of Water Resources does classify the slurry impoundments as a Class I, II or III dam according to degree of threat to life and property in the event of a dam failure. Class I is similar to the Corps classification High Hazard Probability. This classification remains after they are dewatered and bond released by the Illinois Land Reclamation Division, therefore they would no longer fall under the purview of SMCRA. The Illinois Office of Water Resources will consider an impoundment an impoundment until the company can prove that material inside the impoundment is no longer flowable. In order for a company to determine if the material is no longer flowable, the company would have to drill through the cap/final cover and obtain representative samples that prove the material is solid or cannot liquefy and become flowable. This requirement by the Illinois Office of Water Resources falls outside what is required under SMCRA.

We do not see an inherent conflict between these three regulatory provisions as they are in place for different purposes under different laws."

As pointed out by the commenters, this structure will also be regulated by the IDNR Office of Water Resources (OWR) concerning stability and long-term safety. Should this structure be approved by all necessary agencies and constructed, the OWR will continue to regulate the structure pursuant to OWR agency authority until it is demonstrated to no longer meet the OWR's definition of a dam. This would typically extend long after the post mining land use is achieved, and the bond is released under the Land Reclamation Division's regulatory program.

Comment 57: SMCRA states that "Coal mine waste shall not be used for construction of impounding structures unless it has been demonstrated to the regulatory authority that the stability of such a structure conforms to the requirements of this part and the use of coal mine waste will not have a detrimental effect on downstream water quality or the environment due to acid seepage through the impounding structure." 30 C.P.R.§ 817.84(a). In the case of the proposed Bulldog Mine, the Department has an opportunity to review the stability of an existing impoundment structure with nearly similar designs at the Sunrise Coal "Carlisle Mine." It is clear from both satellite images and site visits that structural problems exist at the Carlisle Mine site that may contribute to both stability and/or seepage problems. It is unclear at this time how the IDNR will ensure structural stability of the proposed structure at the Bulldog Mine site.

Response: Similar coal mine refuse impounding structures exist in Illinois, as well as many other states. The Department has found that these facilities design, as modified, is acceptable in terms of long-term stability design. The approved design is very conservative based on historic performance of similar Illinois coarse coal refuse

impoundments. Three (3) agencies must approve of such designs before it can be constructed. A very conservative design parameter was introduced during the review process concerning coarse coal refuse stability absent actual testable material. As a result, the design was reduced in height and extent from that originally proposed. Once actual engineering material testing results are obtained on the coarse coal refuse construction material, the company has the option of requesting a modification to expand the dimensions under a separate future permitting action.

Comment 58: I will be adversely affected by coal slurry being dumped and drained into The Olive Branch which runs through my land my grandchildren will inherit this land in the near future.

Response: The regulations do not allow coal slurry to be "dumped and drained" into areas off permit.

Comment 59: A commenter expressed concern regarding soil contamination from on-site waste disposal including coal waste and coal slurry.

Response: The coal waste disposal is confined to areas where the soils have been removed and stockpiled for later use.

Comment 60: If the coal mine grows at its projected rate, it seems possible that the operation would expand to include more slurry containment ponds, sediment retention basins, gob piles or other coal waste storage facilities. This is not addressed in the permit application. If the intent of the coal company is to mine for twenty to thirty years, does the permit application truly reflect the full extent of this operation?

Where are the rest of the mine projections for the additional high hazard dam holding and storage impoundments? There's only one shown here. Where are the other ones going to be? How many more hundreds of acres of land will be permanently, forever taken out of production?

Where will the additional refuse disposal areas be located in the future?

Response: See response to Appendix A, Modification Question No. 4 requiring the applicant to provide information regarding where future permits for refuse piles and/or slurry impounding structures or other surface facilities would be located. Any future surface expansions greater than 20 acres would require the applicant to submit a new application to the Department. Public review and comment would be afforded at that time.

Comment 61: What is the life of refuse disposal area # 1?

Response: The approved design under this permitting action as modified is through Stage II. A very conservative design parameter was introduced during the review process concerning coarse coal refuse stability absent actual testable material. As a result, the design was reduced in height and extent from that originally proposed. Stages I

and II are estimated to take 5.9 years to construct. The initial estimated life of the facility was 25 years based on all 5 construction stages. Once actual engineering material testing results are obtained on the coarse coal refuse construction material, the company has the option of requesting a modification to expand the dimensions under a separate future permitting action beyond Stage II. No approval is being granted beyond Stage II as part of this permitting action. (See Part IV. Permit Conditions, Condition N.)

Comment 62: Have you ever seen a slurry permit last that long?

Response: The life of a given slurry area is dependent on many factors including annual coal production, percent reject from the preparation facility, and size of the initial footprint. Refuse impounding structures can be constructed over decades as originally proposed.

Comment 63: There is not a single site that operates a closed loop system. If that is actually the intention, I challenge Sunrise Coal to create a closed loop system with no discharge permit and to keep all of their waste on-site.

Response: Sunrise is not proposing a "closed loop system" for surface water runoff. This is evidenced by the requested NPDES permit from the Illinois EPA. The NPDES permit provides monitored and controlled surface water discharge points. All surface water on permit will be directed to the designated outfalls. All coal waste coarse refuse and slurry fines will be contained within the approved disposal area.

Comment 64: I'd like to address slurry impoundments. I know that their engineering plans have been submitted as part of the application to the Department of Natural Resources for consideration of compliance with state and federal laws. What looks -- what it looks like on paper is often different than what happens on-site.

Response: While minor design changes can happen during the construction of the impoundment, the overall footprint, height, side slopes, decant pipes, etc. are not to change without permit revisions being submitted and approved. It is anticipated that the currently approved Stage II height will be proposed to be increased to the originally proposed Stage V height once data is collected defining the true engineering parameters of the impounding material (coarse refuse). Any increase in height above Stage II will require a revision to the permit.

Comment 65: Further questions on the slurry impoundment included:

a) Are slurry impoundments monitored after reclamation? What kind of monitoring occurs for active slurry impoundments?
b) Does IDNR have any monitoring plans in place to routinely assess the stability of the proposed impoundment during the life of the mine and how will that be conducted? Does monitoring continue on the gob-slurry impoundment after reclamation and how will that be conducted?
c) Is it correct [sic] that the same compaction required in West Virginia is the same that's required here in Illinois?

Response: Active slurry impounding structures are monitored in several ways during their construction and use. The ongoing frequency of testing required, concerning stability and compaction testing, is detailed in the approved permit. Both the Mine Safety and Health Administration (MSHA) and IDNR have structured inspection and reporting requirements for all such impounding structures. Once the impounding structure has reached its design height and is capped, covered, and vegetated, inspections continue until the site is fully reclaimed and bond is released. At that point in time, the structure will likely still be under permitting and inspection requirements under the jurisdiction of the Illinois Department of Natural Resources Office of Water Resources (OWR). OWR has its own inspection and reporting requirements that remain in effect indefinitely. The Department has made no comparison to the other states' requirements. Each impounding structure is evaluated and approved on a case-by-case basis. See also the Department's response to Comment 56.

Comment 66: [sic] the Federal Office of Surface Mining study when they evaluated 73 coal slurry impoundments and found that only 16 of them actually passed the stability study – has DNR studied that document and the findings?

Response: The study was not conducted in the state of Illinois.

Comment 67: Where would fluid go that went over the top of the slurry impoundment?

What is in the coal processing wash water that goes into the slurry impoundment?

Response: The impounding structure is designed with enough freeboard to not overtop even in extreme rainfall events. These events are quantified by both the MSHA and OWR requirements. In the highly unlikely event it would overtop, the slurry would report to the receiving perimeter ditches and flow to Treatment Pond #2.

Coal slurry is the waste material after coal processing that is a mixture of 80 to 85 percent water and 15 to 20 percent fine solid material removed from the raw coal during the cleaning process.

Comment 68: Commenters asked questions regarding the impoundment liner including:

a) Will clay liner be put only under the slurry pond?
b) How do a 20 ml liner and a 4 ft. clay liner compare to each other as far as how well they work?
c) Where will the 4ft. of clay liner come from?

Response: The final approved permit application incorporates a) 4-foot clay liner, or alternatively, b) a 60 mil synthetic liner under the slurry cell, the coarse refuse embankment, all drainage ditches receiving runoff from refuse, Treatment Pond #2 and Sediment Pond #3.

Liner material for ground water protection is based on anticipated maximum head. The Illinois EPA assessed the adequacy of such liner material and it was determined

that a 60 mil liner was more appropriate for ground water protection and would be as effective as a 4-foot clay liner.

Clay liner material will come from within the footprint of the slurry cell and will be tested to assure it is achieving the desired hydrologic conductivity.

Comment 69: Could you describe what testing or what is the basis of parameters that would determine whether the material is no longer flowable.

Response: Assuming that the commenter is referring to slurry material after deposition in the impounding structure, the flowability of material would most likely be determined through drilling and analysis. The long term flowability of the impounded material is an issue best directed to the Office of Water Resources. Flowability in this context is not a consideration under the Department's regulatory program.

Comment 70: Test holes drilled in the foundation area of the Bulldog's impoundment structure-its coal refuse dump--reveal that the buried outcrop (or limit) of the Millersville Limestone runs diagonally between the northwest and southeast corners of the dump area: Building up the enormous weight of the refuse pile resting half-on and half-off the strong Millersville Limestone could, in effect, be somewhat like stacking more and more bags of cement on a table with two strong and two weak legs and risking its collapse.

Patriot Engineering "Technical Memorandum (June 7, 2012) describes the soil and rock materials penetrated by test borings made to investigate the site designated for the coal refuse impoundment in the quarter-section in the southwest corner of the CR800N and CR200E intersection. Borings B-19 and B-22 in the southwest half of the quarter section discovered the Millersville Limestone missing and weak, weathered shales in its place. Clearly, the western boundary of the limestone body-its outcrop buried under the glacial drift-passes diagonally between the northwest and southeast corners of the area designated for the coal refuse dump.

As the mine dump is now sited, its northeast half will lie above strong Millersville bedrock and its southwest half will lie above weaker beds of mudrocks (shales, underclays, and such that occur under the limestone). The proposed coal refuse impoundment covering the site is a four-sided mound with sides initially constructed of glacial drift-a bout 50 feet of glacial drift covers bedrock here. Later the impoundment will be built up with layered coarse coal refuse. Its four-sides will enclose a pond to retain slurry waste. During the mine's life the mound could be built up in phases to a height of about 75 feet-and to a great weight.

As planned, the coal refuse impoundment is an extremely heavy, symmetrical mud structure built upon a thin, wet blanket of glacial drift-both the mud structure and till blanket being unsymmetrically supported by a base composed of a strong, rigid Millersville Limestone foundation under one side and a relatively weaker mudstone and shale foundation under the other. This arrangement may work in the short term--during the life of the mine perhaps. But longer term, it can be imagined that the dump's weight will destabilize the pile by compressing the thin, wet glacial till

layer (mobilizing its less-confined edges) and by compressing the mudstone-shale side of its bedrock foundation. As these internal movements occur, the mass of the pile will shift and both subtle and dramatic external effects can be anticipated. But in any case, given a few decades, the influences of gravity, of wet weather and our predictable neglect of derelict industrial landmarks will also demonstrate that even study [sic] and large expenditures have not yet revealed to us the secrets of the architecture that can make great piles of wet mud into stable structures that keep their form and place.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7 regarding the location of the Millersville Limestone.

Comment 71: Several commenters expressed concern that the mine could affect farm drainage tile due to eventual subsidence.

A commenter requests that protection and replacement of damaged tile lines be written in the permit.

Response: The application proposes to mine using the room and pillar mining method. The regulations at 62 Ill. Adm. Code 1817.121(a)(1) require that the permittee "adopt measures consistent with known technology which prevent subsidence from causing material damage to the extent technologically and economically feasible, maximize mine stability, and maintain the value and reasonably foreseeable use of surface lands". If prime farmland and/or tiles are impacted by subsidence, the permittee is obligated to restore the pre-mining capability of the land and thus restore pre-mining drainage, as required by Section 1817.121(c)(1). This could entail tile repair, tile replacement, deepening exiting waterways or constructing new drainage ways to remove drainage impediments.

Comment 72: Several commenters expressed concern regarding productivity on the country's best farmland; drainage disruption from subsidence, holding ponds, and altered streams will render possibly 500 acres of farmland unfit for generations, possibly forever.

Because all rain water falling onsite will eventually drain to a stream, the mining company will build basins called storm water basins to help manage flow. These basins are made by damming streams. A portion of what used to be a stream will become a basin, and it will continue to remain a basin when the mine closes. Basins do not facilitate the drainage of farmland, free-flowing streams do.

If they block in any way the water flow, that means I may not be able to plant crops when I need to.

Response: Concerning unplanned mine subsidence affecting farmland, please refer to the Department's response to Comment 71 above. Section 1817.121(c)(1) requires the permittee to restore the pre-mining capability of the land and thus restore pre-mining drainage.

Regarding the surface facilities and associated sedimentation and holding ponds, water retention should be confined to within permit boundaries. Should any mining related facility or activity be perceived to impede water drainage on adjacent properties beyond the permit boundaries, the respective landowner should contact the Department so that it can be determined if any off-site impact is occurring. If off site impacts concerning drainage are occurring, the Department would require the problem to be rectified.

Comment 73: Numerous comments were received regarding local drain tile. Those commenters had the following questions:

a) Drainage- all of my fields have drainage tile. The permit discussed blocking off some drainage ditches and it appears they will be tying into some of the existing tile. What drainage ditches will be blocked? How will it affect me? When will we know? When we have heavy rain for days/weeks-what happens when Sunrise's ponds fill up- will the water back up into my field?
b) Who approved the drainage plan? What happens in heavy rains?
c) What is the drainage code/law and how does it effect this application?
d) Some tiles are private, and some are districts, but all tile is interlaced.
e) We would like to see a detailed drainage plan and supporting documentation that ensures our drainage will not be impacted.
f) I would like to know what mechanism Bulldog Mine has for determining if these drain tiles are damaged and how will then fix them?

Response: Please see Appendix A, Modification No. 54 and the applicant's modified application response, specifically addressing the drainage tile associated with the proposed facility.

Comment 74: The drainage district that goes through our Vermilion County farmland goes to the north. The pollution is going to come in the drainage ditch from the south. Now, we have not leased our ground, but that doesn't mean that they can't make that water go through our drainage district and it goes through -- it divides our farmland where -- the drainage district goes right through it, not just along the side of it.

Response: Please see Appendix A, Modification No. 54, and the applicant's modified application response, specifically addressing the drainage tile associated with the proposed facility.

Comment 75: My most important legal contention is a well settled area of law concerning drainage. There can be no unreasonable increase in flows. In the Templeton case, which is 57 IL 134, the Illinois Supreme Court said the increase [in drainage] for prime land to subdivision for single family home was unreasonable. The increase in flow for a coal mine is much greater.

There also is the good husbandry limitation in the drainage law. In the coal mine situation, we are not dealing with water due to rainfall but water outside from sources. A question arises whether the coal mine has the right to use the drainage ditch due to the fact that the water is not coming from the drainage of the coal company's land but from other sources such as coal company potable water used

and possibly washing the coal, and that is covered in the drainage code section 70 ILCS 605-1.

There are other issues in drainage law that could be applicable, such as the course of natural drainage, and this is going into the Olive branch. The fact that no one can bring water in from another water shed, most of Homers water comes from north of the Salt Fork and then south of the water shed not of the Olive branch. The water from Georgetown is not in the water shed of the Olive branch, and it must -- the other area is it must discharge at a point where water naturally gets the flow of the land.

Response: The substance of this comment is beyond the regulatory purview and authority of this Department. The applicant is required to submit information prescribed by 62 Ill. Adm. Code 1778.15. Section 1778.15(c) specifically provides that the Department is not afforded the authority to adjudicate property title disputes. By extension, the Department therefore does not have the authority to interpret property title. Please see the applicant's response to Modification Question No. 54 which provides a legal opinion submitted by the applicant pursuant to Section 1778.15(d) titled "Mutual Drainage Agreement" and contained within Attachment IV-7(A).

Comment 76: All mention of bore holes I saw in the permit the company said each collapsed, which indicates a higher probability of subsidence than the company admits in their permit application.

Response: It is unclear as to where in the permit application the commenter is referring concerning "collapsed" boreholes. The permit application does address mine stability through acceptable analysis of the main components of stability, including coal pillar and mine floor analysis. The Department has reviewed the stability analysis and finds it meets the permit requirements for assessment of stability under Section 1784.20(b)(3).

Comment 77: Commenters asked if subsidence sinks be backfilled and is there any way you can backfill those holes to keep that ground from sinking like that?

Response: Backfilling of mine voids is done in very limited circumstances. The economic feasibility of backfilling mine areas all but eliminates this as a viable option to prevent future mine subsidence. Pillar design based on geology and experience is the most commonly accepted approach to minimize the risk of unplanned subsidence in room and pillar mining operations.

Comment 78: The permit as currently submitted does not include provisions for monitoring of surface or underground workings, proposing instead to monitor on a case-by-case basis should any subsidence occur. This is clearly insufficient, and I would request that IDNR evaluate the potential impact that may come from this deficient monitoring. What mechanism is in place for monitoring subsidence on drainage tiles, what about repairs?

Response: Surface monitoring over room and pillar mining that is designed not to subside is in most situations impractical and inefficient. Typical mine subsidence monitoring involves placement of surface survey monuments in a line or grid pattern. Since subsidence is not anticipated and may not occur for decades, if at all, the placement of such monuments would be long term and greatly hinder farming practices. As an underground mine is developed over thousands of acres, anticipating where subsidence might occur and locating surface monitoring in such areas is extremely difficult. Based on the farmland topography and existence of drainage tiles, should a subsidence event occur, the type of subsidence that would manifest would be most likely a sag subsidence event over a broad area and should be readily apparent.

In the unlikely event a subsidence event occurs and is confirmed, refer to the response under Comment 71 above.

Comment 79: This is an area of concern considering the history of mining in the area. The Riola Mine, which opened in 1996 and closed in 2006 (displacing nearly 100 miners) reported significant geologic problems. Roof falls were relatively common and relatively large. Reports recognize that the roof was unstable and difficult to support with roof bolting (see ISGS "Coal Mines in Illinois Georgetown Quadrangle"). The Vermilion Grove Mine, which operated from 2001-2009 (closing to leave 160 miners out of work), also reported difficult geology, including rolls and faults. Roof falls were noted at this site as well, and the mining plan required alteration in response to the difficult geology (Id). It does not appear from the permit application materials that the applicant can ensure that similar instability issues will not arise with the proposed mining operation.

It does not appear that IDNR, nor the applicant, has evaluated potential impacts that may come from deficient monitoring. Moreover, a topological survey for the entire permit and shadow area has not been completed, nor has sufficient documentation of all of the drainage tiles within and adjacent to the permit area and shadow area been compiled. At the Informal Conference in October, an issue was raised of a sinkhole following drilling by the company. It is unclear how the IDNR will require the applicant to meet these SMCRA requirements with the current permit as drafted.

Riola and Vermilion Grove had roof falls due to unstable roofs. What does Sunrise need to supply to DNR to prove roof stability?

Are conventional roof bolters good enough?

Response: Roof conditions can vary not only throughout the state but also within an individual mine greatly. Roof control is a very important part of mining to assure coal miners remain safe. The commenter appears to be making a correlation between roof control issues underground and mine subsidence at the surface. Instabilities in the immediate roof above a coal seam is rarely correlated to surface subsidence in the Illinois geologic setting. Only in extreme shallow mining situations or where unusually thin competent bedrock exists would roof failures potentially propagate to the surface and form a pit subsidence. For this reason, the stability analysis usually focuses on the weakest link between the coal pillar and the immediate mine

floor. Bolting of the roof is not a consideration for long term stability. It is implemented primarily to protect the miners from injury, therefore, the approved design is dictated by the Mine Safety and Health Administration.

Comment 80: If they mine under someone's house and they had a well, is that substance considered?

Response: Yes. The company is required to provide an inventory of known wells used for drinking, domestic, or residential uses. Room and pillar mining in Illinois has historically had no documented impacts since the permanent regulatory program was initiated in 1983. Should someone believe their well was impacted by the underground mining operations, the Department would investigate. If the Department determines that there is an impact, the company would be required to comply with 62 Ill. Adm. Code 1817.41(j) and replace the affected water supply.

Comment 81: With regard to Query IV)3)C) "Subsidence Unplanned ... " (or perhaps to a more relevant section), the permit application seems to offer little or no planning and provision that anticipates the upper parts of the slope entry caving in at shallow depths and causing surface subsidence while the mine is operating and after it is abandoned.

Response: Please see Appendix A, Modification No. 58 and the applicant's modified application, specifically addressing the shaft reclamation.

Comment 82: Questions regarding underground mining limits included:

a) A commenter expressed concern regarding the fact that Sunrise said they would mine underground within one inch of their farmland, clarification is requested.
b) Are they going to mine within an inch of the rural roads too? You don't have a definition of that when they say it's less than so many feet. How close is it going to be?
c) How close to property lines are they allowed to mine? Are coordinates of all the property lines submitted to the DNR, or who are they submitted to, or are they submitted at all?
d) Our understanding is that landowners own the land to the center of the road, so can Sunrise mine under my half of a road?

Response: The Department does not adjudicate title concerning property rights. Please see the Department's response to Comment 75. There is no prohibition to undermine public roads.

Comment 83: The Bulldog Mine used my field as they wanted, when they wanted. While drilling test holes, they used my field as their road with at least two pickups and the drilling rig, the drilling rig leaving deep tracks, as they moved from south to north of the fields. They didn't have to, there are roads. This was not a dirt lane, not an unimproved road, it was the field where I plant corn and beans. We called, and they did reimburse us. Since this was their policy above ground, what protection will you include in the permit to protect my coal underground, especially since the

fields are near the main plant? Will you require them to pay for a surveyor of my choice each year so that I know where they are? I do not want the coal mined.

Response: 62 Ill. Adm. 1817.121(g) requires the submittal of an Annual Map defining the actual extent of mining for each calendar year and a projection of the anticipated extent of mining for at least the calendar year at the time of submittal. Maps are required to be sealed by an Illinois Registered Professional Engineer and be continuous from year to year. The Department has no regulatory authority to require a survey of the underground workings. As for property rights, please see the Department's response to Comment 75

Comment 84: How will I know if they mine under my ground- I was asked to sign away my coal rights and refused – do I have a way to ensure my ground is preserved? What are my rights?

Response: Please see the above responses to Comments 75 and 83.

Comment 85: A Sierra Club letter states 145 coal-powered generators were retired or slated to be retired from 2010-2012. According to the Energy Information Administration another 413 generators could be gone by 2020. President Obama and his EPA have declared war on coal, I believe, so why is coal more important than this prime farmland unless you can absolutely protect my fields.

Response: It is unclear what protections the commenter is seeking concerning prime farmland, but it is assumed reference is being made to land that will be undermined. The application proposes to mine using the room and pillar form of mining. The regulations at 62 Ill. Adm. Code 1817.121(a)(1) require that the permittee "adopt measures consistent with known technology which prevent subsidence from causing material damage to the extent technologically and economically feasible, maximize mine stability, and maintain the value and reasonably foreseeable use of surface lands." If prime farmland is impacted by subsidence the permittee is obligated to repair it per Section 1817.121(c)(1).

Comment 86: The unsealed figure purporting to show "Mine Slope Sealing Detail" lacks useful detail. (Attachment V-1G) It is an oversimplified sketch that hardly represents an important activity that involves demolition, salvage, construction. Keeping fill materials permanently in place in a wet, sloping passage requires more thought.

Response: Please see Appendix A, Modification No. 58 and the applicant's modified application, specifically addressing the shaft reclamation.

Comment 87: Is there an updated shadow area map?

Response: Please see Appendix A, Modification No. 61 and the applicant's modified Shadow Area Map, as approved.

Comment 88: What about coal beneath roads, can they widen roads that are already in place?

Response: It is unclear how the commenter is associating public roads on the surface with coal extraction. A road authority may alter a roads width as necessary at any time regardless of the room and pillar mining that has or will occur beneath.

Comment 89: Does someone actually go up to mine and verify that the map is correct or do you just take them on their word? And one-year interval seems like a long time.

Response: 62 Ill. Adm. 1817.121(g) requires the submittal of an Annual Map defining the actual extent of mining for each calendar year and a projection of the anticipated extent of mining for at least the calendar year at the time of submittal. Maps are required to be sealed by an Illinois Registered Professional Engineer and be continuous from year to year. The Land Reclamation Division does not physically verify the underground workings. Miner safety regulatory agencies such as the Illinois Department of Natural Resources, Office of Mines and Minerals, Mine Safety and Training Division and the federal Mines Safety and Health Administration do consistently and frequently inspect underground operations.

Comment 90: Questions were asked regarding site reclamation which included:

a) Why is the land not returned to its original state and better as cropland?
b) The proposed reclamation plan results in a loss of 390.3 acres of prime farmland and reclamation to a use of herbaceous wildlife, clearly not a higher or better use.
c) Who at DNR decides that loss of farmland is less important than coal? Who decides that 20 years of coal is more important than food production for a lifetime.

Response: The Department has determined the applicant has supplied the necessary information to meet the statutory requirements for exemption from the prime farmland standards pursuant to 62 Ill. Adm. Code 1823.11. Please see the Department's response to the Illinois Department of Agriculture's comments.

Comment 91: Commenters asked who is responsible for establishment and maintenance of post mining land use and does IDNR follow SMCRA regulations for post mining land use? Going from prime farmland to wildlife habitat is not taking the land back to higher or better land use.

Response: 62 Ill. Adm. Code Parts 1700-1850 require the operator to reclaim the mine to the approved post mining land use(s) as well as maintain that use until final bond release. The Department enforces these regulations which have been approved by the Office of Surface Mining under SMCRA. The Department has determined the applicant has supplied the necessary information to meet the statutory requirements for exemption from the prime farmland standards pursuant to 62 Ill. Adm. Code 1823.11 and has determined the proposed post mining land uses meet all regulatory requirements. Please see the Department's response to the Illinois Department of Agriculture's comments.

Comment 92: How can prime farmland be restored under a slurry impoundment or refuse disposal area?

Response: The applicant has demonstrated the areas under the slurry pond have met the statutory requirements for exemption from the prime farmland standards pursuant to 62 Ill. Adm. Code 1823.11(b). Please see the Department's response to the Illinois Department of Agriculture's comments.

Comment 93: The fact that the slurry impoundment is an MSHA high hazard dam, it contradicts the post mining land use.

Response: The reclamation plan calls for the soil covering of the refuse disposal facility and returning the area to a wildlife land use, which the Department has determined is a suitable use. See also the Department's response to Comment 56.

Comment 94: The geological information in several parts of Sunrise Coal's application include generalized, inadequate responses that are scarcely relevant to the project area or suited to the needs of the permit application's various readers.

Response: Comment noted. The permit application is intended for the Department's technical staff to review and determine if the applicable regulations are being met. The Department has determined the responses, as modified, demonstrate the applicant has met the necessary regulatory obligations.

Comment 95: Consider attachments 111-1 and IV-3A3. The nine publications they list as references to Illinois geology were issued in the period 1958-83 and thus have ages ranging from 56 to 31 years. Consequently, the terminology, figures, and other information taken from these old sources to support the applicant's responses are sometimes outdated and deficient.

Response: Comment noted. The geology of an area does not generally change. Many older publications are still relevant today. Updated publications and information are utilized by the Department where applicable.

Comment 96: Possibly the application's generalized, cursory style influenced the authors of Attachments 111-1, IV-3A3, and other parts to forego mention of a significant large feature of local geology: the Walshville Channel... Another major geologic feature of the prospect area--un-named and scarcely noted in the Permit Application--is an unusually thick limestone in the Pennsylvanian Subsystem: the Millersville Limestone Member of the Bond Formation.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 97: Information derived from Sunrise Coal's Permit Application and other sources is sufficient to characterize the Millersville Limestone underlying the mine project area as an aquifer, but the application does not recognize the formation as such.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 98: Hydrogeologic Query III)2)B)1) requests information about " ... the location ... and ownership of existing ... springs and other ground water resources for the permit area and adjacent area." The applicant responded: "There are no known springs or other water resources within or adjacent to the permit area.["] Information examining the possibility that the Millersville Member makes groundwater contributions to the quarry ponds was not found supporting these comments.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 99: Is the Millersville Limestone sufficiently permeable to be an aquifer?... an examination of the Millersville exposures in Fairmount might have provided information about groundwater movements over, through, and under the unit.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 100: If this plan is followed the top of the Millersville Limestone in Boring B-20 at elevation 640 feet will be a mere 16 feet below the base of the pool excavation and 20 feet below the top of the liner layer. Similarly, the separations in Boring B-24 between the limestone top at 625 feet and excavation base and liner top are 31 feet and 35 feet. This close proximity of the bottom of the slurry deposit to the top of the limestone hardly seems sufficient in the long term to prevent contaminated slurry fluids from flowing into the limestone.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 101: Apparently neither Part III "Hydrogeologic Information" nor its attachments include information evaluating the permeability of the whole thickness of Millersville Limestone and the basal limestone-bedrock interface.

Response: Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 102: Each well [MW-1, -2, -3, -4, -5, and -6] penetrates several feet of Millersville Limestone at the drift-limestone interface, but no information is given about the rock's influence.

Response: See response to Appendix A, Modification Question No. 7.

Comment 103a: Answering the Part III queries about the presence of bedrock aquifers in the project area, the author of Attachment III-1, "Evaluation of Potential Groundwater Aquifers and Expected Yield," concludes...

> The lack of any reliable bedrock aquifers is further substantiated by the absence of bedrock wells near the Bulldog Mine site. A review of the Illinois State Geological Survey website and responses received from local residents regarding groundwater well usage indicates there are no bedrock water wells located within the shadow area or within one-half

mile of the shadow area. When one considers that surficial drift aquifers in the area are sporadic and yield only marginally adequate groundwater quantities it is reasonable to assume that reliable bedrock aquifers are either nonexistent or their existence is extremely limited in the east-central Illinois region. (Emphasis added. Attachment III-1, Original page not numbered: pdf page 10.)

The statement is questionable on several points:

- "The lack of any reliable bedrock aquifers ...": The geological information in the Permit Application itself supports the conclusion that the Millersville Limestone Member underlying the coal mine site is a bedrock aquifer. Whether the Millersville aquifer would prove reliable or not certainly requires more study.

Response: See response to Appendix A, Modification Question No. 7. Additionally, it should be noted that if the Millersville Limestone was a reliable aquifer it would be used. The Department cannot require that the applicant conduct a regional aquifer study to determine if a local aquifer is reliable or not.

Comment 103b: The "absence of bedrock wells near the Bulldog Mine site" and "no bedrock wells located within the shadow area or within one-half mile of the shadow area": To the contrary, twelve of 45 well logs collected in Attachment III-2B1a are bedrock wells in the mine area. Seven of the 12 are finished in the Millersville Limestone. Of the seven Millersville wells, six are in or within a half mile of the shadow area.

Response: See response to Appendix A, Modification Question No. 7.

Comment 103c: If "surficial drift aquifers in the area are sporadic and yield only marginally adequate groundwater quantities it is reasonable to assume that reliable bedrock aquifers are ... nonexistent or their existence is extremely limited ... ": Lacking further explanation the statement appears to be a non sequitur arguing that if an area's drift aquifers yield meager supplies, one may reasonably conclude that its bedrock aquifers also yield meager supplies. Rather than examining the hydrogeology of the Millersville Limestone, this assumption infers the absence of "reliable bedrock aquifers" from the disparate, large number of "marginally adequate" drift wells (33 of the 45 private wells identified). The Application seems not to have developed information about drilled wells and exploration holes that test both the entire limestone thicknesses and the basal limestone-bedrock interfaces for water. Drift wells outnumber bedrock wells because rural residents-and local drillers-may prefer the costs and their chances with shallow, large diameter wells augered into drift rather than with smaller diameter, rotary drilled holes seeking deeper bedrock targets and hardly improved results. However, the Millersville aquifer might prove a better option if it were better understood.

Response: Comment Noted. The Department does not require applicants to investigate and document every geologic unit that may be a reliable aquifer in the region. The scope of this comment is beyond the regulatory purview of the Department.

Comment 103d: "in the east-central Illinois region": Attachment III-1 refers to a regional groundwater study embracing Vermilion, Edgar, and six other east-central counties that is a source of some broad generalizations made about to the hydrology of Vance and Sidell Townships, a very small area compared to its region. Regional studies are authoritative and useful in matters appropriate to their wide scale, but less suitable to deal with detail and exceptional small-area issues such as the quantities, distribution and movements of groundwater in the Millersville Limestone aquifer in the Bulldog prospect area.

Response: Comment noted and forwarded to applicant.

Comment 104: Very little information is provided about the slope's design and construction in Part IV-the "Operations Plan"-but considering its unique and vital traffic functions in the mine's operations one imagines that the heavily travelled tunnel will be extensively reinforced and dewatered. Nevertheless, over months and years moisture in the humid air from the mine and the outside air circulating through the slope inevitably will be absorbed by the numerous mudstone and shale beds exposed in its sides, causing them to swell and weaken. Water will also ooze and seep out of the slope's sides from the fracture zones of the Millersville Limestone and the pores and incidental cracks in deeper rock as groundwater under high overburden pressures flows into the lower pressure of the slope opening. The wettest part of the slope probably will be at and near its portal where it penetrates the groundwater-saturated glacial drift, the drift-limestone interface, the limestone body, and the basal limestone-mudstone interface. Use of explosives to excavate the slope through the limestone body will almost certainly fracture it deeply and make it more permeable.

Response: Slope/mine entry walls will be concrete lined for numerous reasons, most importantly for miner protection. The applicant notes that a minor amount of underground pumpage may be necessary and this water has been accounted for in the design of the surface facility.

Comment 105: The Sunrise Application does not identify aquifers in the mine area nor does it provide information specifically about the hydrology of the Millersville Limestone. Why it is important that the Bulldog project should do so is well-summarized by United States Geological Survey Fact Sheet 112-02:

> Understanding how water flows-or doesn't flow--through fractured rock is a crucial factor in decisions made by ground-water resource managers and geological and structural engineers. Fractures may transmit large quantities of water; in other areas, they may be nearly impervious. Because of the complex distribution of fractures in almost every type of rock, no single method can unambiguously map fractures and their capacity for fluid movement. ... scientists synthesize research from the fields of geology,

geophysics, hydrology, and geochemistry to develop methods of identifying subsurface fractures and their role in the movement of ground water and chemical constituents.

Response: Comment noted. Please see the applicant's response to Appendix A, Modification Question No. 7.

Comment 106: I would like IDNR to know that accessing the permit information was difficult. While IDNR did follow the law by providing a digital copy on their website and a hard copy at the Vermilion County clerk's office, the IDNR website was sometimes difficult to navigate and the court house hours of business and distance made access difficult for some. With unreliable rural internet service in our area, it was not always accessible, and the digital maps were often too large to open. I did submit a FOIA request to INDR for a copy that could have been used at our local library, requesting the fee be waived for public use, but it was denied. It would have cost me $507.10 to purchase a hard copy of permit No. 429. [Submitted for the record – *IDNR FOIA request response letter September 9, 2014].*

Response: The regulatory requirements concerning the availability of the application to the public were met. The Department is not required to make the application available on the on its website, but does so as a convenience for the public.

Comment 107: Do I have the right to send a representative into the mine to ensure the accuracy of their records? Who checks these records?

Response: The regulations at 62 Ill. Adm. Code 1840.15 contain the procedures for requesting an inspection of a permitted area. The Department's personnel check specified records as part of site inspections, as required by the regulations.

Comment 108: Shouldn't the entire Department of Natural Resources have to look at the total impact this proposed mine will have on our natural resources?

Response: Each permit is reviewed by all agency staff that have regulatory jurisdiction to do so under their respective statutory authority.

Comment 109: At this point I would like to request, though, there be consideration given to the public hearing being held in a different location. This is pretty far from the proposed mine site and would inconvenience some of the people that would be directly affected by the proposed mine. It also is harvest season, so I think a later – I understand your staff is traveling from Springfield, but for all of the people here, I know there are people who were not able to attend because of harvest.

Response: The public hearing was held in Jamaica, Illinois, which is in the locality of the permit area as required by 62 Ill. Adm. Code 1773.14. The site was chosen to facilitate the anticipated size of the hearing and was scheduled as promptly as possible.

Comment 110: I would like to ask if people in this meeting submit a calendar of local events, maybe for the next one you would give that consideration, so that all of those in the community who will be impacted will be considered.

Response: The Department procedure for holding informal conferences and public hearings is governed by the regulations found in 62 Ill. Adm. Code 1773.13 and 1773.14, respectively. The Department has followed these regulations in scheduling the informal conference and public hearing. It would be impossible for the Department to try and coordinate the time of the public hearing with the schedule of all members of the public who might be interested in attending.

Comment 111: Comments regarding mapping and leased properties included:

a) I just want to point out that this map is what was submitted to DNR as the proposed plan, and if you look at the years that they have based here, Year One runs all along here (indicating) and goes through pretty extensive land for which mineral leases have not been acquired. In fact, this whole section at the north end, there is no way to access the coal up here, because there's Keith Rohl's land where the mineral rights will not be released.

b) Under SMCRA, "The permit application shall be submitted in a manner satisfactory to the regulatory authority and shall contain, among other things" ... an "accurate map or plan ...clearly showing ... the area of land within the permit area upon which the applicant has the legal right to enter and commence surface mining operations and shall provide to the regulatory authority a statement of those documents upon which the applicant bases his legal right to enter and commence surface mining operations on the area affected" 30 U.S.C. § 1257(b)(9).

c) The northern portion of the shadow area, in the present status of leased mineral rights, is not accessible from the present mine portals. The permit application and the Underground Mining Affidavit submitted in affirmation of the rights to conduct underground mining operations within the approved and proposed shadow area should not apply to this inaccessible region unless an additional mine portal has been designated to provide authority to commence mining operations in this area.

Response: The applicant has met the requirements of 62 Ill. Adm. Code 1778.15. The applicant has provided the documents indicating the right to enter, mine, and reclaim in the response to Part I(2)(A) of the application, the appropriate affidavits in response to Part I(10)(A) of the application and all required information regarding maps depicting legal right to enter and begin underground mining activities outlined in Section 1783.24(b). The issue of how to access these areas is the burden of the permittee when mining commences.

Comment 112: Commenters questioned with the state's tight budget these days, will IDNR have sufficient staff and resources to sufficiently monitor this and all the other mines in Illinois and is there enough money in the state to pay for adequate monitoring?

Response: The Department receives federal funding and state funding to ensure the regulatory program is maintained as approved.

Comment 113: Does that continue after the mine closes 20 years? Say for the next 100 years, will that continue for 100 years [regarding the permittee supplying alternate water supply]?

Response: The permittee's responsibility to repair subsidence damage (including providing an alternative water supply) does not end upon bond release. Even if subsidence damage occurs after the bond is released, the permittee is still responsible for repair of those damages. See generally 62 Ill. Adm. Code 1817.121(c).

Comment 114: Humans, the environment, and wildlife could be exposed to arsenic and mercury from the toxic chemicals found in slurry, coal piles, and gob.

Response: The regulations are designed to preclude the concerns expressed in this comment. Among other objectives set forth by the federal and state laws, the regulations found at 62 Ill. Adm. Code 1700-1850 establish performance standards and design requirements that provide for the prompt reclamation of all affected areas to conditions that are capable of supporting the premining land uses or higher or better land use; minimizing, to the extent possible using the best technology currently available, disturbances and adverse impacts on fish, wildlife, and other related environmental values, and enhancement of such resources where practicable; revegetation which achieves a prompt vegetative cover and recovery of productivity levels compatible with approved land uses; and minimum disturbances to the prevailing hydrologic balance at the mine-site and in associated off-site areas, and to the quality and quantity of water in surface and ground water systems. The Department finds that the proposed mining and reclamation operations are designed to meet these objectives.

Comment 115: If the permit is granted, when there is a leak and there is a fish kill/human illness/contamination in groundwater wells, how will DNR justify issuing the permit?

Response: In the last 40 years, there hasn't been a documented case of private well contamination related to room and pillar mining operations. The permit application has been thoroughly reviewed by Department staff and it has been determined that the application meets the regulations.

Comment 116: Some of the land that has been released has now been unleased because exploratory drilling has shown them not to be adequate for mining. I would like to know if Sunrise Coal has submitted an updated map containing permit area that only includes leased and mine coal maps.

Response: Please see the applicant's response to Appendix A, Modification Question No. 5. Concerning shadow area coal rights, the applicant is required to provide an affidavit pursuant to 62 Ill. Adm. Code 1778.15(f). The affidavit has been provided in the approved application.

Comment 117: If they need another 100 or so acres near Homer, will they need new permits for rail loop, slurry impoundments, and refuse disposal areas?

Response: A new permit application would be required for the addition of such acreage for this operation. Changes to currently permitted acreage that constitutes a regulatorily defined significant departure from the approved plan would require a significant permit revision. Both a new permit and a significant revision to an existing permit are administrative processes that require a full technical review and public comment period.

Comment 118: I'm just curious if a dry press system was considered, if so, why won't it work and if it wasn't considered why not?

Response: This would be a determination made by the applicant based on feasibility and economics. The Department cannot dictate the business practices selected by a private company and can only regulate how proposed operations are conducted in accordance with 62 Ill. Adm. Code Parts 1700-1850.

Comments 119: Commenter's queries about coal loading facilities included:

a) SMCRA also requires that the final permit identify the locations of coal loading areas. 30 C.F.R. § 780.14(b)(4). The permit identifies a potential, yet unconfirmed rail loop on the Surface Drainage Map, Map D and briefly mentions the use of licensed trucks for highway haulage, though no loading facilities have been identified. It is unclear from the submitted materials whether this requirement has been met.
b) I request a complete design and operation plan regarding the railroad hub along the Norfolk Southern rail line to be added to the permit application.
c) I would like to know what burden of proof Sunrise Coal has to submit to the Department before the permit can be approved for getting coal off the site.

Response: The applicant indicates in Part IV(2) of its application that coal will be loaded on licensed trucks from the clean coal pile for over-the-road haulage. Haul roads and the clean coal pile are clearly marked in the Operations/Surface Drainage Control Map, Map D. The rail loop referenced in the comment is not proposed to be constructed at this time, as coal will be transported with trucks. Should the applicant propose to build the rail loop and/or a coal load out facility in the future, the company will be required to obtain all necessary regulatory approvals and post appropriate bond. The applicant has satisfied the requirements of 62 Ill. Adm. Code 1784.11(b)(3) for its currently proposed operations.

Comment 120: The permit does mention high pressure water mist spray system (Part 5, page 9), but goes on to say that a chemical surfactant system can be added later if necessary.

1. If the chemical surfactant system is used, what chemicals are in the system?
2. What is the quantity of the chemicals needed to control the dust?
3. How will these chemicals affect the land, water, and air quality?

4. Do we need to worry about the transport of these chemicals from storm water run-off?

Response: The applicant is not proposing the use of a chemical surfactant system. Should the applicant propose to implement such a system in the future, the company will be required to obtain Department approval and, possibly, permits from other regulatory agencies.

Comment 121: The following comments involved ownership and control concerns:

a) Attachment I-6A Ownership and Control Information of the permit application, identifies the entities who own or control the applicant, including Hallador Energy Company, Hallador Alternative Assets Fund, LLC, Yorktown Energy Partners, VI L.P., and Yorktown Energy Partners, VII L.P.
b) The applicant has not provided sufficient information for the department to determine whether or not" ... the applicant, anyone who owns or controls the applicant, or the operator specified in the application, controls or has controlled surface coal mining and reclamation operations with a demonstrated pattern of willful violations of the Federal or State Act..." A complete violation history of surface coal mining and reclamation operations owned or controlled by anyone or any entity that owns or controls the applicant must be provided as part of the permit application. No violation history regarding non-SMCRA or MSHA permits is provided in the permit application. Specifically, no violation history has been provided for CWA permits including 401, 402 and 404 permits. Unless and until the applicant provides this information, the Department cannot approve the permit application.

Response: See Appendix A, Modification Question Nos. 29, 30, and 31 and the applicant's responses. The Department finds that the applicant has provided the required information in accordance with 62 Ill. Adm. Code 1778.13(c) and (d), and 1778.14(c), specifically information related to applicant ownership and control, operations, and violation history pertaining to a State program and that of federal or state law or regulation pertaining to air or water environmental protection.

See also Appendix E and Condition J. The applicant, as required by the Department, has updated, corrected or indicated no changes of the previously submitted information.

Comment 122: It should also be noted that citations have continued at Sunrise Coal, LLC mines identified in this permit application (including Carlisle Mine and Ace in the Hole Mine) and at additional mines acquired by Sunrise Coal, LLC since the time of original permit application (including Oaktown 1 and Oaktown 2 mines). Of particular concern, are the registered complaints, unsatisfactory state inspections and/or violation notices issued in regard to mine safety, uncertified discharges, as well as monitoring and inspection failures. In light of the serious, ongoing noncompliance with applicable environmental statutes at several Hallador-affiliated mines, the Department should not issue additional mining permits to the applicant.

Response: Please see Appendix A, Modification Question Nos. 29, 30 and 31 and the applicant's responses thereto. The Department finds that applicant has provided the required information in accordance with 62 Ill. Adm. Code 1778.13(c) and (d), and 1778.14(c), specifically information related to applicant ownership and control, operations, and violation history pertaining to a State program and that of federal or state law or regulation pertaining to air or water environmental protection.

See also Appendix E and Condition J. The applicant, as required by the Department, has updated, corrected or indicated no changes of the previously submitted information.

Comment 123: I think [it] is important to recognize that there is absolutely no plan for railroad access now, there is no permission for roads, and there's no – nothing in the permit as to how they'll actually get water on the site. So, I really don't think we should be at this point right now. It doesn't seem that this application is complete and should still be under consideration by DNR.

Response: The Department has determined the applicant submitted the necessary information required by the regulations to determine the application was administratively complete for review. With respect to water use, it will be the responsibility of the applicant to secure the necessary permissions and agreements as to how water will be delivered to the mine site. The Department does not have any regulatory jurisdiction with respect to waterlines owned by a public entity. The rail loop referenced in the comment is not proposed to be constructed at this time, as coal will be transported with trucks. Should the permittee propose to build the rail loop in the future, the company will be required to obtain Department approval. Any additional roads to be constructed also require Department approval.

Comment 124: This company has owners, investors, publicly traded New York City investment owners over 30 percent of the company. They do not have the best record in environmental stewardship. That is why we must check this permit in its current or any other form.

Response: The Department has conducted an extensive review of the entire permit application, including violation histories of all pertinent entities to which the application applies. That review has determined the applicant has met the requirements for issuance of a permit.

Comment 125: Blasting related comments received are as follows:

a) I seen [sic] that the permit says they will not be blasting above 50 ft. but what about wells on the list that are below 50ft. How will this blasting near my well affect my well? Will it drain my well? What do I do if I have well problems?
b) Will there be underground blasting? How will this affect the water table?

Response: The Department required the applicant to clarify whether blasting will be conducted within 50 vertical feet of the original ground surface, which, pursuant to 62 Ill. Adm. Code 1817.61(a), is the limit of the Department's regulatory jurisdiction for underground mine blasting operations. Please see the applicant's response to Modification Question No. 3. No regulated blasting is being proposed. Regarding the blasting effects on the well, slope and shaft development of this type employs small charges designed to loosen rock in the immediate shaft/slope for removal while maintaining structural integrity of the adjacent rock strata. In addition, large surface mine production blasts have been shown to create microfractures only 20 to 40 times the given borehole diameter. Given that very small diameter charges are used in shaft and slope development, microfractures of adjacent rock strata would likely be limited to ten (10) feet or less from the shaft/slope, which would prohibit blasting operations from draining wells in the area.

Regarding underground blasting, it is likely that, during shaft/slope development and occasionally throughout the life of the mine, explosives may be used for various operational conditions, but these are outside of the Department's regulatory jurisdiction. However, the use of explosives in this manner is intended to deal with the specific application while maintaining structural integrity of the overlying and underlying strata, thereby preventing effects to the local water table.

Comment 126: The permit for the Bulldog Mine should be denied as simply not aligned with the best interests of the agricultural community and our responsibility to future generations as stewards of the land.

Response: The scope of this comment is beyond the regulatory purview of the Department. The application has been reviewed and the decision to issue the permit has been rendered pursuant to the regulations.

Comment 127: Will chemicals and fuels be stored on-site?

Response: The applicant does plan on storing fuels on site and has located those facilities on the operations map in the application.

Comment 128: Comments regarding potential site activities included:

a) Could this area eventually become a hazardous waste dump?
b) [sic] if you look at the leases that have been signed so far and look at the rest of those leases, the landowners that lease their mineral rights for Sunrise Coal they also signed away their coal bed methane rights, and I wonder if the Department can tell us what – if coal bed methane can be extracted if its permitted or what that process would look like and at what point the landowners were made aware that another type of extraction may have to be done on the property and what the rule of the Department might look like?

Response: None of the referenced activities are currently proposed. Any change in the regulated use of this area would require valid permits through the appropriate

state and/or federal agency. The Land Reclamation Division specifically regulates surface coal mining and reclamation operations and underground mining operations, as defined by the Surface Coal Mining Land Conservation and Reclamation Act, 225 ILCS 720, and its regulations. The Land Reclamation Division does not have regulatory jurisdiction over the activities referenced in the comments.

Comment 129: Several commenters expressed concern that the information available in the application does not provide assurance that the terms of the permit will ensure compliance with all applicable state and federal regulations.

Response: Upon issuance of a permit, the Department conducts routine site inspections as required by 62 Ill. Adm. Code 1840.11 to ensure compliance with the regulations under our jurisdiction. Other applicable state and federal agencies do the same for their regulatory programs.

Comment 130: What happens when the mine is gone or Sunrise sells its business to some other coal company down the road and things go the way they have historically in the coal business?

Response: The Department's regulations require the applicant to maintain responsibility for the site until all the reclamation obligations have been met and all bonds have been released. Should the operator propose to transfer the mine permit, the Department would only allow transfer if the proposed new owner met all appropriate regulatory requirements.

Comment 131: A commenter expressed concern that reassignment could lead to the coal mine becoming a waste dump for coal ash and other contaminants.

Response: The application does not propose to dispose of coal ash. If the applicant decides to propose doing so, those operations would require approval through the appropriate permitting process.

Comment 132: Who is responsible for river cleanup if coal mining wastes and pollutions are found in the river as well as groundwater?

Response: The applicant is responsible for any cleanup in the unlikely event that mine pollutants are found in rivers and groundwater.

Comment 133: [I am concerned about the] threat to our future health and well-being due to the historical lack of proper county, state and federal regulation, and lax enforcement of current rules and regulations throughout the life of a coal mine and on into reassignment.

Response: The Department implements a thorough mine permitting and regulatory program that ensures mine operations are conducted within all regulatory requirements intended to minimize the effects of mining on the environment and local community. Among other objectives set forth by the federal and state laws, the

regulations found at 62 Ill. Adm. Code 1700-1850 establish performance standards and design requirements that provide for the prompt reclamation of all affected areas to conditions that are capable of supporting the premining land uses or higher or better land use; minimizing, to the extent possible using the best technology currently available, disturbances and adverse impacts on fish, wildlife, and other related environmental values, and enhancement of such resources where practicable; revegetation which achieves a prompt vegetative cover and recovery of productivity levels compatible with approved land uses; and minimum disturbances to the prevailing hydrologic balance at the mine-site and in associated off-site areas, and to the quality and quantity of water in surface and ground water systems. The Department finds that the proposed mining and reclamation operations are designed to meet these objectives. The Department does not agree with the commenter's opinion that regulatory enforcement is "lax."

Comment 134: On the safety side of the issue, Sunrise Coal had 15 mining incidents in Indiana in 2006, or 26% of the 67 total mining incidents reported that year. In 2009, Sunrise Coal had 22 reportable incidents out of 83 total mining incidents, or 26.5% of the total incidents. Sunrise Coal does not seem to operate at a proficient level even for its own employees, let alone what it does to the environment. It was pointed out that the Bulldog Mine lies in close proximity and probably within the same geological construction as to two other mines that were closed years early due to the unsafe geological issue, mainly resulting in "roof falls".

What does the applicant need to provide to IDNR in support of this application in order that the state regulators can be confident that safe conditions as required exist at this proposed site?

Response: It appears the commenter is expressing concern about miner safety. Among other objectives set forth by the federal and state laws, the regulations found at 62 Ill. Adm. Code 1700-1850 generally establish performance standards that provide for the health, safety, and general welfare of mine workers and the public. *See* 62 Ill. Adm. Code 1810.2 - Objective. However, these are not specific to the mine safety concerns expressed by the comment. For those concerns, the federal Mine Safety and Health Administration (MSHA) and the Department's Office of Mines and Minerals, Mine Safety and Training Division are the administrative agencies which are empowered to administer and enforce their respective programs regulating coal miner safety.

Comment 135: A commenter asked why accepting coal combustion by-product and coal combustion waste is considered part of the reclamation process at a mine.

Response: The applicant does not propose to utilize these materials in their reclamation plan. In other cases, such material may have desirable characteristics which can be utilized to facilitate reclamation.

Comment 136: Does DNR plan to visit the slurry impoundment failure in Indiana?

Response: No. The Department is obligated to review the application for the proposed mining and reclamation operation in Illinois based on Illinois regulations.

Comment 137: How will the public be protected with state budget cuts and changes in administration?

Response: Regardless of changes in agency administration and/or budget cuts, the Department's enforcement of the regulations is required by law and will not be altered.

Comment 138: Where is the written response from the October informal conference?

Response: All public comments, including written submittals, made at the informal conference and the public hearing are addressed in this Appendix B of the Department's findings document.

Comment 139: Has DNR ever denied a mine permit?

Response: Yes.

Comment 140: What is DNR's commitment to monitoring? Why did DNR renew the Industry permit after 624 violations?

Response: Upon issuance of a permit, the Department is required to conduct routine site inspections, pursuant to 62 Ill. Adm. Code 1840.11, to ensure compliance with the regulations under its jurisdiction. That would include verifying that all required monitoring is conducted. Other applicable state and federal agencies do the same for their respective regulatory programs.

The permit associated with the Industry Mine was renewed because the operator had met the statutory requirements for permit renewal, as prescribed by the regulations.

Comment 141: I do not believe that Sunrise Coal has been forthright in dealing with area citizens or the Homer Board to try to obtain water to operate the proposed mine. We cannot assume that their tactics and values in future dealings will be any better.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 142: Several commenters expressed concern regarding their quality of life being negatively affected by an increase in noise from blasting, noise from mine operations, and noise from mine traffic.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 143: [Issuance of the permit] will require additional law enforcement.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 144: Of the 300 jobs, are they new jobs or I assume the current miners are going to get transferred over here?

Response: The scope of this comment is beyond the regulatory purview of the Department and has been forwarded to the applicant.

Comment 145: Questions regarding health cost payments included:

a) how Sunrise will pay for the increased public health costs of its mine, such as:
   1. prescription drug addiction that comes after mine workers are prescribed heavy opiates for work related injuries
   2. a workforce that's unable to work after the coal company is done with them because their bodies are too broken
   3. poisoned wells and farm fields
   4. climate change
   5. subsidence
   6. fugitive coal dust
b) Who is going to pay for our health issues if we have health issues because of the dust and the water?
c) What kinds of health problems to humans and animals do arsenic and mercury cause?

Response: Among other objectives set forth by the federal and state laws, the regulations found at 62 Ill. Adm. Code 1700-1850 generally establish performance standards that provide for the health, safety, and general welfare of mine workers and the public. See 62 Ill. Adm. Code 1810.2 - Objective. However, these performance standards are not specific to the public health issues and concerns enumerated in (a)(1) through (a)(4), (a)(6), (b), and (c) and are beyond the purview of the Department's regulatory jurisdiction.

With respect to mine subsidence, per (a)(5), the Department's Land Reclamation Division's (LRD) regulatory authority extends only to subsidence-related damage caused by underground coal extraction conducted after February 1, 1983, subject to certain exceptions. Please see 62 Ill. Adm. Code 1817.121 and its related cross-references for further detail. Subsidence-related damage prior to this date (generally) is addressed through the Department's Abandoned Mined Lands Reclamation Division.

Under the LRD's jurisdiction for post-February 1, 1983 subsidence-related damage to surface land, the permittee must correct any material damage resulting from subsidence caused to surface lands, to the extent technologically and economically feasible, by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses which it was capable of supporting before subsidence damage. See Section 1817.121(c)(1).

With respect to damage to structures and facilities, the permittee must promptly repair or compensate the owner for material damage resulting from subsidence caused to any structure or facility that existed at the time of the coal extraction under or adjacent to the materially damaged structure. If the repair option is selected, the permittee must fully rehabilitate, restore or replace the damaged structure. If compensation is selected, the permittee must compensate the owner of the damaged structure for the full amount of the decrease in value resulting from the subsidence related damage. The permittee may provide compensation by the purchase, before mining, of a non-cancelable premium-prepaid insurance policy. See Section 1817.121(c)(2).

Comment 146: Yes, mines are regulated, but when any sorts of problems which affect the environment and people occur, the effects can be devastating and the time before action is taken can be too long. For example, a truck full of ethanol crashed into an overpass on I-74 near our home some years ago. Sadly, the driver was killed, and the truck ruptured, spilling the ethanol into the highway drainage system. The ethanol flowed north along a roadside ditch and into a larger drainage ditch. Even though EPA personnel were there the next day, it was too late. Much, if not all, of the ethanol was already in the water system. All the summer vegetation in the roadside ditch was killed, and the smell lingered for months. Regulations and cleanups cannot truly protect people and the environment. The negatives posed by this mine very much outweigh any positives for those living here.

Response: Although tragic, the accident described in the comment is beyond the regulatory purview of the Department. The regulations are designed to preclude environmental problems. Among other objectives set forth by the federal and state laws, the regulations found at 62 Ill. Adm. Code 1700-1850 establish performance standards and design requirements that provide for the prompt reclamation of all affected areas to conditions that are capable of supporting the premining land uses or higher or better land use; minimizing, to the extent possible using the best technology currently available, disturbances and adverse impacts on fish, wildlife, and other related environmental values, and enhancement of such resources where practicable; revegetation which achieves a prompt vegetative cover and recovery of productivity levels compatible with approved land uses; and minimum disturbances to the prevailing hydrologic balance at the mine-site and in associated off-site areas, and to the quality and quantity of water in surface and ground water systems. The Department finds that the proposed mining and reclamation operations are designed to meet these objectives.

Comment 147: A commenter expressed objection to issuance of the permit because it will encourage the use of coal in a warming world where coal is one of the worst fossil fuels to use with its generation of toxins and pollutants.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 148: A commenter expressed concern regarding light pollution from the surface facility.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 149: The coal around here when I was growing up and as far as I know is called dirty coal. Soft coal could not be used. It was shipped to China and overseas. They could not use in the United States. Even with the scrubbers they still couldn't use it. That's another question, how did the coal change so it can be used in this area?

Response: The concerns expressed are beyond the regulatory purview of the Department.

Comment 150: If 80% of coal plants have scrubbers, then why on Sunrise's website are only two plants signed up to buy Sunrise's coal? I think a lot is going to China.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 151: Sunrise has stated in public meetings that they will not use eminent domain. However, they currently have an easement that runs right up the edge of my father's land. Are there laws that will protect us from this?

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department. As discussed in previous comment responses, the Department has no authority to adjudicate or interpret property title issues.

Comment 152: First, the proposed mine is in violation of the intention of the Sidell Township Zoning Ordinance that was adopted many years ago. [The zoning ordinance] was written for the purposes of protecting and preserving productive agricultural lands from intrusions on agricultural uses; again, the specific intent is to protect and facilitate the proper use of lands best suited to agriculture.

The ordinance states that, "the use not be detrimental to or endanger the public health, safety, morals, comfort, or general welfare, not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor substantially diminish property values in the neighborhood, not jeopardize any farming activity on surrounding land, not alter the essential character of the locality, impair supply of light and air to adjacent property, nor increase the condition of traffic, diminish or impair property values."

I ask that the permit not be granted because the Sidell Township Zoning Ordinance clearly intends that land be preserved and protected for agricultural purposes.

Response: The concerns expressed in this comment are related to zoning issues and are beyond the regulatory purview of the Department.

Comment 153: I hope you can agree and support the statement in Part III page 19 of the Sunrise permit- "The least intrusive alternative would be not to allow the natural resource to be mined... " Please consider the farmland on the top a rare and more valuable resource. The permit states the mine would "provide badly needed employment"- what about all of the people the farmland employs?

Response: The applicant has met all the necessary permitting obligations and has demonstrated that it has or will obtain all necessary legal rights to enter and begin surface coal mining and reclamation operations in the permit area and to conduct underground mining operations, as required by 62 Ill. Adm. Code 1778.15.

Comment 154: By admission, Sunrise has stated in the permit (Part III page 19) "All technically and economically reasonable measures to avoid or minimize the proposed increase in pollutant loading have been incorporated ...." Sunrise does not intend to use the best methods to stop contamination but the cheapest to minimize pollution. If you were their neighbor how would you feel- it scares me.

Response: The comment has been noted and forwarded to the applicant.

Comment 155: Commenters asked questions about economics of employment at the mine. These comments are as follows:

a) Are the mine owners prepared to guaranty anything concerning the economic impacts they suggest will accrue to the local economy [jobs]?
b) Are the jobs going to go to local people, or will the majority of new jobs be taken by miners from out of state?
c) Hallador/Sunrise also claims they will bring great social benefit to the region by opening a new mine. They claim they'll provide 300 new, high-paying jobs. Even someone working at the Carlyle mine said miners would be making $75,000/year at Bulldog. Unfortunately, this is another area where this coal company is guilty of misleading stakeholders. Ads are running in Appalachia on at least the radio encouraging already experienced and trained miners to relocate to the Illinois Basin for coal mining jobs since the industry has bottomed out in Central Appalachia. Hallador/Sunrise will hire these experienced Appalachian miners any day before carrying the expense of training new miners, reducing the number of actual new local jobs provided by Bulldog. A News-Gazette article (see http://www.news-gazette.com/news/local/20J4-10-06/vermilion-county-coal-mine-proposal-publicinput.html) asserted that pay would be $18- $24/hr, which equates to only $36,000- $48,000/yr, not $75,000.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 156: Are the mine owners prepared to guaranty the minimal environmental impacts this mine will result in?

Response: The regulations are designed to preclude environmental problems and the applicant is obligated to maintain insurance and bonds until all reclamation obligations under the approved reclamation plan have been met.

Comment 157: Several commenters expressed concern that there will be a decrease in professional families moving to the area if the Sunrise Coal permit is issued.

Response: The concerns expressed by the commenters are beyond the regulatory purview of the Department.

Comment 158: We do not want a railroad on our farmland or on our neighbors' farmland. The farmland was purchased for agricultural farmland and nothing else.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 159: Can they take my ground for railroad? How can they write an easement that must go thru [sic] my ground when there is another way (actually the other route may have been the preferred route).

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 160: This coal in southwestern Vermilion County would be extracted without a severance tax, and there will be no sales tax if it is sold out of state. In our state's current economy, would it be helpful to your staff to have this additional income to do your jobs in overseeing coal mines from the permitting process through to reclamation and possible reassignment? For further information on the true cost of coal, I submit for your review the report *The Impact of Coal on the Illinois State Budget, FY 2011.*

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 161: There will be no state taxes that anyone in Illinois will enjoy and, to my knowledge, there will be no local taxes from this project coming back to the community.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 162: I'm concerned that this permit does not present a complete, realistic plan regarding the removal of coal from the surface facility and air quality maintenance associated with that removal.

Response: The Department has reviewed the permit application and determined that it meets all permitting obligations and therefore is being approved. Mandated inspections by the Department will ensure the approved plans are being followed.

Comment 163: I'm also concerned that the state of the economy in Illinois is poor enough that the EPA may not be adequately funded to truly monitor the situation.

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 164: Will Hallador/Sunrise make more back-room deals like the one with the Georgetown government for buying water?

Response: The concerns expressed in this comment are beyond the regulatory purview of the Department.

Comment 165: There doesn't seem to be any reason why we're having this coal taken from our land. It doesn't seem that it's going to be used here in Illinois. It seems that it's going to be used overseas. And so again, those reasons for taking the coal from this part of the country don't seem to justify all of the damage and destruction and loss of income that the agricultural community is going to have. I just don't understand why the Department of Mines and Minerals is willing to even entertain having a coal mine in central Illinois.

Response: The concerns expressed in the first four sentences in this comment are beyond the regulatory purview of the Department. As to the last statement, the Department is obligated to review any permit application that is submitted and to approve such application should it meet all regulatory requirements.

APPENDIX C

Sunrise Coal, LLC, Bulldog Mine
Application for Permit No. 429
Assessment and Findings of Probable Cumulative Hydrologic Impacts

TABLE OF CONTENTS

a. Baseline Geologic Information

b. Geologic Information Findings

3. Hydrologic Information Required by 62 Ill. Adm. Code 1784.14

   a. Baseline Information
      i. Surface Water Quantity
      ii. Surface Water Quality
      iii. Groundwater Quantity
      iv. Groundwater Quality
      v. Existing and Proposed Coal Processing Waste Disposal

   b. Findings
      i. Surface Water Quantity
      ii. Surface Water Quality
      iii. Groundwater Quantity
      iv. Groundwater Quality

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

III. Conclusion

IV. References and Attachments

References
Map No. 1 – Assessment Area Map
Map No. 2 – Monitoring Location Map

APPENDIX C

Sunrise Coal, LLC, Bulldog Mine
Permit Application No. 429
Assessment and Findings of Probable Cumulative Hydrologic Impacts

Sunrise Coal, 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 1784.14(e) for underground 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 1784.14(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)

There are no previous coal mining operations located upstream/upgradient of the proposed Bulldog Mine. The nearest historic surface mining operation was located approximately 9 miles to the northeast of the proposed Bulldog Mine; the nearest historic underground mining operation was located approximately 6 miles to the northeast of the proposed Bulldog Mine.

B. Active Coal Mines

1. Riola Mine (2000-present)

The Riola Mine was originally permitted in March 2000 by the Catlin Coal Company, Inc. In 2007 the permit was transferred to the Black Beauty Coal Company. The mine was operated by Black Beauty Coal Company before being transferred again to the current operator, Peabody Midwest Mining, LLC. The mine ceased actively mining coal operations in 2006 and has been in reclamation status since that time.

a. Permit No. 338 (issued 2000)

The original permit was issued for an underground coal mining operation consisting of approximately 4,563 acres, which included approximately 64 acres for use as surface support areas. The Riola Mine was a traditional room and pillar mine. The surface support facilities included parking lots, access roads, drainage control structures, office buildings, changing rooms,

assembly rooms, warehousing facilities, storage facilities, elevator facilities, ventilation facilities, power distribution facilities, power lines, water lines, rail loop and loadout facilities, stockpile areas and other associated facilities. The permittee extracted the Herrin No. 6 Coal seam. This permit is currently in reclamation status, with active coal mining no longer occurring.

b. Permit No. 350 (issued 2001)

Permit No. 350 was issued in 2001 for approximately 168 acres for additional refuse disposal acres to support the Riola Mine. The refuse disposal area consisted of both coarse and fine coal refuse. In-situ low permeability clays were utilized for the base of the refuse area, which consisted of approximately 65 acres of the total permit area.

2. Peabody Midwest Mining, LLC – Vermilion Grove Mine (2000-present)

Permit No. 342 was issued to Black Beauty Coal Company in 2000 for an underground coal mining operation consisting of approximately 5,298 acres, which included approximately 411 acres for use as surface support facilities. The Vermilion Grove Mine was a traditional room and pillar mine. The surface support facilities included parking lots, access roads, drainage control structures, office buildings, changing rooms, assembly rooms, warehousing facilities, storage facilities, elevator facilities, ventilation facilities, power distribution facilities, power lines, water lines, rail loop and loadout facilities, stockpile areas, refuse disposal areas and other associated facilities. The permittee extracted the Herrin No. 6 Coal seam. This permit is currently in reclamation status as of late 2014, with active coal mining no longer occurring.

Neither of these two mining operations are within the hydrologic unit area as the proposed Bulldog Mine

II. PROBABLE CUMULATIVE HYDROLOGIC IMPACT ASSESSMENT (CHIA) OF APPLICATION NO. 429

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 1784.14.

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 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 for Permit Application No. 429

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.

There no current coal mining operations upstream or upgradient of the proposed Bulldog Mine exist. Further, no other current mining operations in close proximity to the proposed Bulldog Mine are known by the Department. As noted above, two permitted mines exist in the region, however, both mines are in reclamation status and neither mine is located within the same hydrologic area as the proposed Bulldog Mine.

The applicant proposed a CIA for both the surface waters and groundwater. The surface water CIA is the 2,961 acre area that includes the proposed permit area and the watershed immediately upstream and downstream of the proposed permit area as well as the area that contains a network of buried agricultural drainage tiles.

The applicant also proposed a groundwater CIA that is also 2,961 total acres in size. However, based upon the direction of groundwater flow, the groundwater CIA has been divided into two parcels, the first, consisting of 2,731 acres reporting to the Olive Branch watershed and the second, consisting of 230 acres reporting to the Freadwell Branch watershed.

Permit Application No. 429 is for a new underground mine operation. The area for Permit Application No. 429 consists of approximately 13,199 acres of proposed shadow area and includes 390.3 acres proposed to be used as surface support facilities.

Permit Application No. 429 area is located in parts of Section 26 and 35 of Township 18 North, Range 14 West of Vermilion County, Illinois. The proposed shadow area is located in parts of multiple sections of Township 17 North, Range 13 West, Township 17 North, Range 14 West and Township 18 North, Range 14 West. The site is surrounded by a mixture of privately owned rural properties and/or agricultural lands. Some forested areas exist in the vicinity as well. Of the proposed 390.3 acres, 61.8 acres are proposed for refuse disposal; 43.3 acres are proposed for coal processing and support facility areas; 47.5 acres are proposed for soil storage areas; 38.5 acres are proposed for ditches and ponds; 7.1 acres are proposed for roads; 189 acres are proposed for support areas and .5 acres is proposed for the mine entry/ventilation and air shafts. The remaining 2.6 acres is proposed to be undisturbed.

The region's hydrologic system can be defined as the Hydrologic Unit Code (HUC) 12 areas that encompass the proposed Bulldog Mine operation area. The subject permit area is within the watershed of Olive Branch, which is within the HUC 12 identified as 051201090603. This HUC 12 is approximately 18,943 acres. The Olive Branch is tributary to the Salt Fork. The Salt Fork is in turn tributary to the Middle Fork Vermilion River/Vermilion River. The watershed of the Middle Fork Vermilion River/Vermilion River lies northeast of the proposed Bulldog Mine operation and has no hydrologic connection with the Salt Fork prior to the Salt Fork's confluence with it; approximately 13 miles northeast/downstream of the proposed Bulldog Mine operations. Neither the Salt Fork nor the Middle Fork Vermilion River/Vermilion River will receive any direct drainage from the proposed mining operations. Two additional HUC 12 areas, in which the proposed shadow area lies, were reviewed – Baum Branch – Little Vermilion River (051201081004) and Headwaters – Little Vermilion River (051201081102). Neither of these HUC 12's contains any historic or known future mining operations. The Little Vermilion River lies to the south of the proposed permit area.

Permit Application No. 429 area is located near the headwaters of Olive Branch, which is tributary to Salt Fork. Salt Fork lies north-northeast of the proposed permit area and will not receive direct drainage from the proposed permit area. Because of the extensive agricultural field drainage tile system in the area, all surface water drainage appears to be directed to Olive Branch and/or other streams to the north of the proposed permit area.

There are two USGS gaging stations in the region, but no gaging stations are known to exist on Olive Branch. The nearest USGS gaging station is located on the Salt Fork near Homer, Illinois (Station No. 03338000); the second USGS gaging station is located on the Vermilion River near Catlin, Illinois (Station No. 03338500). The USGS gaging station located near Homer, Illinois is located approximately 5 miles upstream of the proposed permit area and therefore, the proposed permit area would have no effect on this drainage. The USGS gaging station located near Catlin is approximately 13 miles downstream of the proposed permit area. Wangsness et al (1983) describe the drainage area at this location as 958 square miles (or 613,120 acres). The drainage area is so large that any potential mining-related impacts from the mine would be imperceptible. The only USGS gaging station on the Little Vermilion River is located near Newport, Indiana, approximately 20 miles east/southeast of the proposed permit area; because no mining-related

drainage will report to the Little Vermilion River, this stream will not be considered further in this assessment.

The Department has determined that the proposed Bulldog Mine is hydrologically isolated due to the lack of other existing or anticipated mining operations existing within the same hydrogeological area (i.e. HUC 12 areas). This determination negates the need for a CIA as a single, isolated mine cannot have a cumulative effect on the hydrologic system. Hence, the Department has concluded that a CIA is not required and the Department's assessment of the Probable Hydrologic Consequences (PHC) follows pursuant to 62 Ill. Adm. Code Sections 1784.14(b)(3) and 1784.14(e).

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

1. Permit Area and the Shadow Area

For purposes of this CHIA, the Department will discuss the Permit Application No. 429 area, the shadow area and the adjacent area.

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 permit area excludes the area defined in this Part as the shadow 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 II.A.2 above, the permit area for Permit Application No. 429 consists of approximately 390 acres which will be used for the disposal of both coarse and fine coal refuse, for soil stockpile areas and other surface support facilities. For purposes of this CHIA, the permit, shadow and adjacent area for Permit Application No. 429 is delineated on Map No. 1 as those areas where the surface water and groundwater resources could be reasonably expected to be adversely impacted by the proposed mining operations and further described below in this Section.

The proposed shadow area for Permit Application No. 429 is described as:

> The approximately 13,198 acre tract of land located in parts of Sections 18, Township 17 North, Range 13 West, parts of Sections, 1, 2, 3, 10, 11, 12, 13, 14, 15, 23, 24, 25, and 26 of Township 17 North, Range 14 West, and parts of Sections 10, 13, 15, 22, 23, 24, 25, 26, 27, 34, 35, and 36 of Township 18 North, Range 14 West in Vermilion County, Illinois.

As required by 62 Ill. Adm. Code 1784.14(b)(1), the permittee had to provide information on all groundwater wells found within one-half (1/2) mile from the perimeter of the shadow area that could be impacted by subsidence caused by underground coal extraction. However, for the purposes of this CHIA, the Department has determined that the adjacent area for the Permit No. 429 shadow area is the area 1000 feet away from the perimeter of the proposed room and pillar shadow area. This area extending 1000 feet area away from the shadow area perimeter is delineated on Map No. 1 and, for the reasons set forth, identifies those areas where the surface water and groundwater resources could be reasonably expected to be adversely impacted by the proposed mining operations.

Hereinafter, the Application No. 429 area and its adjacent area shall be referred to as the "permit area" and the Permit No. 429 shadow area and its adjacent area shall be referred to as the "shadow area".

a. Regional Hydrologic Area

The proposed permit and shadow areas are located in the glaciated areas of southwestern Vermilion County. These areas are situated within the reaches of two streams, Olive Branch and the Little Vermilion River. Unnamed tributaries and associated branches pass through the permit area and shadow area. The nearest USGS gaging station is located upstream of the proposed permit area on the Salt Fork near Homer, Illinois. The use of the USGS gaging station upstream of the proposed permit area is inappropriate given that no mining-relate drainage will affect the upstream area. A second USGS gaging station can be found on Vermilion River near Catlin, Illinois. This station

(0338000) has a drainage area of 958 square miles (613,210 acres). This gaging station is approximately 13 miles northeast of the surface facilities permit area; therefore its use is inappropriate, given the large drainage area.

b. Permit Area Surface Waters Assessment Area

The proposed Bulldog Mine operation is a new permit area for underground room and pillar mining. The Permit Area Surface Water Assessment Area has been defined as the approximately 2,961 acres which includes the proposed permit area and the watershed both immediately upstream and downstream of the proposed permit area. The watershed of Olive Branch is approximately 18,943 acres. Permit Application No. 429 area is approximately 390 acres. The proposed permit area represents 2.1% of the watershed size; while the Permit Area Surface Water Assessment Area represents approximately 15% of the watershed size of Olive Branch.

The total watershed of the Salt Fork, of which Olive Branch is tributary to, is approximately 309,766 acres; where Olive Branch joins Salt Fork the watershed size is approximately 222,426 acres. Below the confluence, the watershed size of the Salt Fork is approximately 87,341 acres. The proposed permit area represents approximately 0.1% of the total watershed size and the Permit Area Surface Water Assessment area represents approximately 0.9% of the total watershed size and approximately 3.4% of the Salt Fork watershed downstream of the confluence with Olive Branch. No impacts to Salt Fork are expected, based upon the fact that no direct mining-related runoff will enter Salt Fork, as well as the relative size of the proposed permit area.

Overall, the potential mining-related impacts to surface water in the area should be negligible due to the volume of water contributing to the Salt Fork at the confluence of Olive Branch. The applicant established three stream sampling points on Olive Branch, above the confluence with Salt Fork.

c. Permit Area Groundwater Assessment Area

The permit area groundwater assessment area has been defined as an area encompassing approximately 2,961 total acres. However, due to the direction of shallow groundwater flow, approximately 230 acres of the defined area appears to report to the southeast and toward the Freedwell Branch drainage area. The Permit Area Groundwater Assessment Area for the proposed permit area has been selected based upon the Department's assessment of the possible hydrologic impacts which may occur as a result of mining operations proposed for Permit Application No. 429. The subsurface hydrologic components considered in this assessment include all significant water-bearing units in and within the vicinity of the surface facilities permit area (See Map No. 1).

d. Shadow Area Surface Waters Assessment Area

The shadow area surface waters assessment area is approximately 16,626 acres. As described above, this assessment is limited to the area 1000 feet away from the perimeter of the shadow area.

The Department limited the assessment area to the 1000 feet radius around the shadow area as lands beyond the 1000 foot area historically are unaffected by room and pillar mining operations.

e. Shadow Area Groundwater Assessment Area

The shadow area groundwater assessment area is approximately 16,626 acres. As described above, this assessment is limited to the area 1000 feet away from the perimeter of the shadow area. The Department limited the assessment area to the 1000 feet radius around the shadow area as lands beyond the 1000 feet area historically are unaffected by room and pillar mining operations.

2. Geologic Information Required by 62 Ill. Adm. Code 1784.22

a. Baseline Geologic Information

The application for Permit Application No. 429 provides that the regional bedrock geology of the area consists of Pennsylvanian system formations. Sixty percent of the Pennsylvanian system strata are classified as sandstones, while most of the remainder of the strata is siltstones and shales. A small percentage of the remaining strata (approximately one percent) of the Pennsylvanian system are classified as coal and/or limestone units. Known geologic faults and fractures exist regionally, but none appear to exist within the proposed permit area. The closest structural features are the La Salle Anticlinal Belt and the Marshall Anticline. The La Salle Anticline is 30 miles west of the proposed permit area while the Marshall Anticline is located approximately five miles east of the proposed permit area.

Unconsolidated deposits within the surface facilities permit area are Pleistocene in age and range from 23 to 156 feet thick and consist mainly of clays and tills. Surface topography is relatively flat within the proposed permit and shadow areas.

Site-specific geology, interpreted from the boring and corehole logs, submitted with the permit application indicates the depth to the Herrin No. 6 Coal Seam ranges from approximately 318 vertical feet to approximately 383 vertical feet with seam roof elevations ranging from approximately 360 feet above mean sea level (MSL) to approximately 300 feet above MSL. The dip of the Herrin No. 6 Coal Seam across the proposed permit area is approximately 0.1 to 0.4 percent to the east, toward the Marshall Anticline. The Herrin No. 6 Coal is overlain by alternating shale and limestone layers. The roof material of the Herrin No. 6 Coal has been described as a thin black shale. The target coal seam ranges from five to seven feet thick in the area.

Questions were raised regarding the aquifer potential of the geologic materials within the proposed permit area. The applicant provided information that demonstrates that while many regional aquifers are present, no major aquifers appear to exist within the proposed permit and shadow areas. The applicant provided information that indicates that neither the Walshville Channel nor the Millersville Limestone are located within the proposed permit area. The Walshville Channel is a replacement unit of the Herrin No. 6 Coal. Because the Herrin No. 6 coal was encountered in

boring and corehole logs for the proposed permit, it can be reasonably assumed that the Walshville Channel is not present within the proposed permit or shadow areas.

The Millersville Limestone is present west of the LaSalle Anticline. The LaSalle Anticline is present on the western border of Champaign County. East of the LaSalle Anticline, this limestone is known as the Livingston Limestone. The two limestones are distinctly different – with the Millersville being up to 50 feet thick and the Livingston being up to 25 feet thick and including more shale. The Livingston Limestone, while being quarried to the east of the proposed permit area, is not likely a significant aquifer, due to its fine-grain. Where the Livingston is fractured, it is often filled with low permeability clay materials that further impede the unit's ability to transmit water.

b. Geologic Information Findings

The application for Permit Application No. 429 provides that per the Illinois State Geologic Survey (ISGS), the bedrock in southern Illinois consists of layered beds of shale, sandstone, limestone, dolomite and coal. The laboratory analyses of the consolidated overburden (Corehole #SA-116-181426) indicated an ample presence of alkaline materials which will more than adequately be able to neutralize any acid or toxic-forming potential of the overburden materials. The units identified as potentially acid- or toxic-forming consist of the black shale and the medium gray claystone immediately above the Herrin No. 6 Coal. Additionally, the Danville No. 7 Coal appears to be present throughout the proposed permit and shadow areas and is considered acidic. However, the applicant is not proposing to mine the Danville No. 7 coal. The floor of the No. 6 Coal is described as a typical underclay and is quite alkaline. The approved mining operations consist of underground mining and potential sources of acid-forming materials (mainly the coal refuse materials) will be disposed of on the surface, with the exception of the shaft and slope development materials, which will be properly handled by the applicant. During reclamation, this material will be used as backfill in the shaft/slope area. The applicant has stated that the overall net neutralization potential of the shaft/slope development materials is +71 tons per 1000 tons. The applicant utilized the industry standard for acid-forming material as anything exhibiting a net acid production potential of greater than -5 tons per 1000 tons.

The acid-base accounting of the coal refuse is unknown at this time. The likelihood of the refuse being alkaline is high due to the geologic strata encountered during the drilling program conducted. Regardless of the acid-forming properties of the refuse, proper handling of the refuse material will minimize any negative impacts to the hydrologic balance. Proper handling includes keeping the coarse refuse surface fresh to prevent oxidation and once the coarse refuse embankment is completed, adequately covering the coarse refuse with alkaline materials or supplementing the refuse with neutralizing materials, such as lime. The Department will require the applicant to submit the acid-base accounting information for the refuse, once refuse is created.

3. <u>Hydrologic Information Required by 62 Ill. Adm. Code 1784.14</u>

a. Baseline Information

i. Surface Water Quantity Baseline Information

During active operations for the Bulldog Mine, surface runoff from the Permit Application No. 429 affected areas will report to one of six ponds constructed for the operation. At the end of mining, four of the six original ponds will remain as water; increasing the acres of water resources by approximately 22.6 acres. No developed water resources currently exist within the proposed permit area of Permit Application No. 429.

Permit Application No. 429 indicates that surface water flow will be affected as a result of the operations at the proposed Bulldog Mine. The applicant will construct six sedimentation/treatment ponds within the proposed permit area. During mining, these ponds will retain rainfall which previously ran off unabated to the area receiving streams. This added detention time could have two possible effects. The first would be that the peak flows from storm events could be decreased because of added detention time afforded by these structures. The second possibility, related to the first, is that base flows of the receiving stream could be increased as the ponds would more slowly release water after rainfall events than before the ponds were in place.

Olive Branch, Freedwell Branch and the Little Vermilion River are classified as intermittent streams, while the Salt Fork is classified as a perennial stream (Singh and Stall, 1973). Perennial streams, in a normal year, are streams, or parts of streams that flow continuously during all of the calendar year as a result of groundwater discharge or surface runoff. Intermittent streams are streams that flow periodically during a calendar year. Olive Branch, Freedwell Branch and the Little Vermilion River all have a zero 7Q10 flow; Salt Fork has 7Q10 values that range from 22.7 to 31.4 cubic feet per second (cfs) along its length, but the majority of the flow in the stream is attributed to effluent discharges from communities' waste water treatment plants along the stream (Singh and Stall, 1973/Singh et al, 1988). A 7Q10 flow is defined as the lowest average flow that occurs for a consecutive seven-day period at a recurrence interval of 10 years.

The applicant collected monthly flow data from six stream sampling points, (SW-1, SW-2, SW-3, SW-4, SW-5 and SW-6), from September 2011 to July 2017. See Map No. 2 for location of the surface water monitoring points. During this monitoring time, each of the stream sampling points had periods of no-flow. From the flow data submitted by the applicant, it appears these streams may not flow on a regular basis.

Stream sampling point SW-1 is located on Olive Branch, downstream of the proposed permit area; point SW-2 is located in the headwaters of Olive Branch, upstream of the proposed permit area. Point SW-3 is also located in the headwaters of Olive Branch; point SW-4 is located at the headwaters of Freadwell Branch; point SW-5 is located in the Little Vermillion River, upstream of the western edge of the proposed shadow area and point SW-6 is also located in the Little Vermillion River near the eastern edge downstream of the proposed shadow area.

The seasonal average flow data for the Permit Application No. 429 site-specific monitoring points are provided in Table 1 below; specific flow data information is included in the application in Attachment III-2C2 for each stream sampling point.

Table 1 – Surface Water Flow (cfs-estimated)

SEASON	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
Winter	11.388	5.369	3.275	1.266	20.507	34.616
Spring	16.661	6.883	3.142	2.292	24.424	38.194
Summer	15.235	0.774	1.262	0.491	6.333	10.633
Fall	1.185	0.267	0.162	0.146	3.307	4.646
Overall Avg	10.12	2.85	1.47	0.88	12.42	20.03

The flow data collected by the applicant appears to confirm that the stream sampling points SW-2, SW-3 and SW-4 are located within the headwaters or upper reaches of these named streams. The Little Vermillion River and the downstream location of Olive Branch appear to have flow throughout all seasons, with the summer and fall seasons showing the least amount of flow.

Permit Application No. 429 provides that the applicant intends to obtain water for the operation of the mine from a variety of sources. These include freshwater ponds, slurry cells, sedimentation ponds and from two municipal sources, the City of Georgetown and the City of Homer. The City of Georgetown will provide water for the mines production needs, while the City of Homer will provide potable water for the mine. All water collected on-site will be re-circulated between the ponds and the preparation plant. Lastly, the applicant states that any mine pumpage from mine dewatering will be added to the sediment ponds and utilized for prep plant water.

Permit Application No. 429 provides that there are no known large surface water bodies or lakes within the mining area; nor are there any known springs within the existing shadow area. Public comments were provided that indicated that springs do exist within the proposed shadow area, however, the applicant noted that none of the returned water user surveys indicated the presence of springs and the applicant themselves have not identified the presence of any springs within the area. Regardless of this, the applicant has committed to protecting springs in the event they are identified in the future, by adhering to their proposed surface water drainage control plans as well as the groundwater monitoring program to ensure that the quality and quantity of the springs is maintained.

ii. Surface Water Quality Baseline Information

Surface activities during slope/shaft development will expose buried strata to the atmosphere and have the potential to increase the total dissolved solids and total suspended solids in surface runoff. These development materials will be properly handled by the applicant. Handling plans include the use of the consolidated materials for road bases and any toxic or acid-forming materials will be stockpiled, covered with clay and kept for slope/shaft backfilling during reclamation. Sedimentation/treatment ponds will collect runoff from the permit area that would otherwise runoff unabated to the area's receiving streams. The sedimentation/treatment ponds will increase the retention time of water from the permit area after a precipitation event. This will allow the

suspended solids to settle prior to discharge and lower the peak flows from the area. The concentration of suspended solids in the effluent should be no greater than the runoff from the existing land use of the property. The sediment/treatment ponds also provide an opportunity to provide water treatment, if necessary, prior to discharge.

Regional surface water quality for the Olive Branch/Salt Fork watersheds has been described in a report by Wangsness, et al. (1983). The report provides surface water quality results for a two monitoring stations, one located on the Salt Fork and the other on the Vermilion River. These monitoring stations are U.S.G.S. gaging stations located on Salt Fork near Homer (03338000) and on the Vermilion River near Catlin (03338500). There is only a very limited amount of quality data available for these two stations, with the station near Homer only having four sample events between October 1966 and February 1976; of these four sampling events, only one collected quality data, while the other three collected only discharge information. The station near Catlin does not have any available quality data. Table 2 summarizes the available data for each station in the respective watersheds.

Table 2 – Regional Surface Water Quality

	Station 03338000	Station 03338500
pH	7.4	Not Available
Conductance	1080	Not Available
TDS	602	Not Available
Chloride	80	Not Available
Sulfate	129	Not Available
Total Iron	0.4	Not Available
Total Manganese	Not Available	Not Available

All parameters are reported in mg/l, except pH and Conductance (umho/cm)

Wangsness et al indicates that the pH along the Salt Fork ranged from 7.3 to 8.2; acidity was 0; alkalinity ranged from 81 to 220; sulfate ranged from 69-159 mg/L; total iron ranged from 0.17 to 0.95 mg/L; and total manganese ranged from .028 to .076 mg/L. Further, Wangsness et al indicates that the pH along the upper reaches of the Vermilion River ranged from 7.3 to 7.5; acidity was 0; alkalinity ranged from 197 to 240; sulfate ranged from 69-159 mg/L; total iron ranged from 2.3 to 4.6 mg/L; and total manganese ranged from .45 to 1.6 mg/L. These values were not collected from the USGS gaging stations, but from select sampling locations along the stream/river.

Several segments of Salt Fork and the Vermilion River were included on the 2014 Illinois 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. Olive Branch, which was not assessed, is tributary to Waterbody Segment IL_BPJ-10 of Salt Fork. In 2014, this segment was not supporting for public and food processing water supplies, but was fully supporting for both aquatic life and aesthetic quality. Several other segments of Salt Fork, both upstream and downstream of the proposed permit area,

were also on the IEPA's 2014 303(d) List of impaired waters. Waterbody Segment IL_BPJ-10 was noted as being impaired by nitrogen/nitrates, but the source of the impairment was unknown. Three segments of the Salt Fork were impaired by fecal coliform; two of these segments are downstream of the proposed permit area. Waterbody Segment IL_BPJ-08 and IL_BPJ-03 are downstream of where Olive Branch enters Salt Fork. The causes of these impairments are listed as source unknown. None of the impaired waterbody segments pass through the proposed permit area, but there is a segment of the Little Vermilion River (IL_BO-08) that does pass through the proposed shadow area.

Waterbody Segment IL_BO-08 was noted as being impaired for not supporting aquatic life. The list of causes is alteration in stream-side or littoral vegetative cover, dissolved oxygen and loss of instream cover. The sources of those impairments are listed as habitat modification (other than hydromodification), source unknown and channelization.

The 2016 Illinois 303(d) List was issued on July 11, 2016. A review of the updated list indicates that Olive Branch remained unassessed by the IEPA while Waterbody Segment IL_BJP-10 (Salt Fork Vermilion River) was fully supporting for aquatic life and aesthetic quality, the two uses assessed. Waterbody Segments IL_BJP-08 and IL_BJP-03 continue to be listed as impaired for fecal coliform, with segment IL_BPJ-03 additionally listed as being impaired for nitrogen/nitrate. The sources of the impairments in both of these segments remains as "unknown." Finally, Waterbody Segment IL_BO-08, which is a segment of the Little Vermilion River that passes through the proposed shadow area was noted in 2016 as being impaired for not supporting aquatic life, but fulling supporting for aesthetic quality. The list of causes in 2016 remain the same as in 2014 - alteration in stream-side or littoral vegetative cover, dissolved oxygen and loss of instream cover. The sources also remain the same as in 2014 - habitat modification (other than hydromodification), source unknown and channelization.

The Draft 2018 Illinois 303(d) List was issued on November 14, 2018. A review of this updated list indicates that the 2016 assessment of Olive Branch, Salt Fork Vermilion River and the Little Vermilion River are generally the same as in 2016. Waterbody Segments IL_BJP-08 and IL_BJP-03 continue to be listed as impaired for fecal coliform. The sources of the impairments in both of these segments remains as "unknown." Waterbody Segment IL_BO-08 was noted again in 2018 as being impaired for not supporting aquatic life, but fulling supporting for aesthetic quality. The list of causes in 2018 remain the same as in 2014 and 2016 - alteration in stream-side or littoral vegetative cover, dissolved oxygen and loss of instream cover. The sources also remain the same as in 2014 and 2016 - habitat modification (other than hydromodification), source unknown and channelization. Freedwell Branch is included in the Draft 2018 303(d) List, but like Olive Branch, was not assessed.

Surface water quality data has been collected both upstream and downstream of the proposed permit area. In addition, the applicant monitored the Little Vermilion River and the Freedwell Branch (tributary to the Little Vermilion River) that passes through the proposed shadow area, but will not receive any mining-related runoff from the proposed permit area. The applicant collected samples from a total of six sites for Permit Application No. 429. The sampling period was initiated

in September of 2011 and was finalized in July 2017 and consisted of fifty-three sampling periods. Water quality from the surface water monitoring points is summarized in Table 3 below:

Table 3 – Permit Application No. 429 Area Specific Surface Water Quality

	SW-1 (Downstream; Olive Br.)			SW-2 (Upstream; Olive Br.)			SW-3 (Upstream; Olive Br.)		
	Min	Max	**Avg**	Min	Max	**Avg**	Min	Max	**Avg**
pH	7.05	8.03		7.0	8.14		7.05	8.04	
TDS	40	810	**366.2**	160	750	**387**	5	790	**413**
TSS	<1	25	**8.0**	<2	58	**10.4**	1	200	**15.1**
Acidity	<10	24.3	**<10.33**	<10	<10	**<10**	<10	<10	**<10**
Alkalinity	100	355	**241.4**	82	403	**240**	150	319	**232**
Sulfate	<2	42	**11**	<2	100	**16.1**	<4	61	**22.8**
Chloride	6	68.5	**20.1**	<6	45.5	**16**	<6	34.5	**17.1**
Iron (Total)	<0.1	0.63	**0.24**	<0.1	1.2	**0.3**	<0.1	1.9	**0.34**
Mang (Total)	<0.01	0.69	**0.07**	<0.01	0.96	**0.06**	<0.01	0.53	**0.06**

	SW-4 (Freedwell Branch)			SW-5 (Upstream; LVR)			SW-6 (Downstream; LVR)		
	Min	Max	**Avg**	Min	Max	**Avg**	Min	Max	**Avg**
pH	6.95	7.97		7.07	8.11		7.18	8.35	
TDS	135	840	**389**	110	690	**362**	15	610	**350**
TSS	1	63	**7.2**	1	48	**9**	<2	52	**8.2**
Acidity	<10	<10	**<10**	<10	<10	**<10**	<10	10.4	**10.08**
Alkalinity	130	760	**248**	78	823	**235**	2.69	334	**207**
Sulfate	<2	46	**9.3**	<2	40	**10.5**	<2	65	**11.4**
Chloride	<5	44	**20.3**	<6	56.5	**18.6**	<6	59	**16.6**
Iron (Total)	<0.1	1.0	**0.20**	<0.1	3.2	**0.3**	<0.1	0.77	**0.19**
Mang (Total)	<0.01	0.22	**0.02**	<0.01	0.48	**0.05**	<0.01	0.39	**0.05**

All parameters are reported in mg/l except pH.

The surface water quality data for the Olive Branch, Freedwell Branch and Little Vermilion River, in comparison to the regional data indicates the three streams were, on average, similar to or lower than the regional parameters. Site-specific data shows that the streams are more alkaline than acidic in nature and more alkaline than the regional streams.

No surface water will be discharged off-site without first passing through a sedimentation/treatment pond and/or an NPDES discharge point (outfall). The quality of the water that the applicant proposes to discharge from the NPDES discharge points is within all applicable

State and Federal effluent limits. Again, as indicated by the applicant, no surface water will discharge to either Freedwell Branch or the Little Vermilion River, as all surface drainage will be directed to the north, toward Olive Branch.

The proposed refuse disposal area (RDA) included in Permit Application No. 429 has been designed so that surface water runoff will be collected via external ditches that surround the RDA and discharge into Treatment Pond #2, before entering Sediment Pond #3 and exiting the site via Outfall 002.

iii. Groundwater Quantity Baseline Information

The groundwater potential of the permit area and shadow area has been described by Kempton et al (1982) in a report on the distribution of aquifers in East-Central Illinois. This study area includes the southern half of Vermilion County, where the proposed mine is located. While several unconsolidated aquifers are present in the region, aquifers tend to be unevenly distributed. All of the major aquifers appear to be concentrated in the western half of the region; in the eastern half the limited size and thickness of the aquifers restrict the development of public water supplies. The Mahomet Sand Aquifer is present generally west of Champaign; the Glasford Formation is present in the western and northern portion of the region and the Wedron Formation acts as an aquifer, but is scattered throughout the region.

The chances for development of a reliable groundwater supply from the unconsolidated materials are good, where the materials are present in adequate thicknesses and locations. Logs supplied by the applicant indicate that, throughout much of the permit area for Permit Application No. 429, the unconsolidated material ranges from approximately 35 to 108 feet thick. The unconsolidated material is composed of mainly clays, silty clays and discontinuous sand deposits, typical of glacially-derived materials. Few reliable sources of groundwater have been developed into the bedrock, below the unconsolidated materials. The Pennsylvanian bedrock is generally not a water-yielding strata, except for small supplies which may be available from the sandstone and the bedrock in this region has not be developed as a water source. A total of six groundwater monitoring wells have been installed in the unconsolidated materials in and around the permit area for Permit Application No. 429. The applicant provided a measurement of the hydraulic conductivity of the unconsolidated materials. Calculated hydraulic conductivity values for the wells installed in the proposed Permit Application No. 429 area are presented in Table 4A below:

Table 4A – Calculated Hydraulic Conductivity

Well	Stratum	Hydraulic Conductivity
MW-1	Glacial Till	7.2×10^{-6} cm/sec
MW-2	Glacial Till	5.25×10^{-5} cm/sec
MW-3	Glacial Till	2.09×10^{-5} cm/sec
MW-4	Glacial Till	1.08×10^{-5} cm/sec
MW-5	Glacial Till	7.28×10^{-5} cm/sec
MW-6	Glacial Till	2.61×10^{-6} cm/sec

Please note that the applicant conducted additional slug tests, the data which is presented in Attachment III-2D4b. The values in the more recent tests were in most cases one order of magnitude less than in the original tests. See Table 4B below for the recent aquifer test results.

Table 4B – Calculated Hydraulic Conductivity

Well	Stratum	Hydraulic Conductivity
MW-1	Glacial Till	4.5×10^{-5} cm/sec
MW-2	Glacial Till	6.17×10^{-4} cm/sec
MW-3	Glacial Till	3.69×10^{-4} cm/sec
MW-4	Glacial Till	Damaged; Not retested
MW-5	Glacial Till	2.06×10^{-3} cm/sec
MW-6	Glacial Till	1.26×10^{-5} cm/sec

All six of the installed groundwater monitoring wells are screened at the interface between the unconsolidated and consolidated materials; for all wells, the holes were auger-drilled until auger refusal, then a rotary drill was used to advance the holes into the bedrock (limestone). The bedrock hole was then backfilled and the well screen set at the either the base of the unconsolidated materials or slightly into the bedrock (limestone) materials. The glacial tills encountered in the borings at the proposed permit area consist of clays, silty clays and sandy clays. Only minor amounts of sands or gravels were noted and no sand and/or gravels were consistently noted in the boring logs. Generally, hydraulic conductivities of silts sandy silts, clayey sands and tills range from 10^{-6} to 10^{-4} cm/sec (Fetter, 1988). The site-specific values fall into the till range in both sets of aquifer tests. The applicant states that there are no major aquifers in the proposed permit area for Application No. 429 or within the area adjacent to it; even though municipalities within ten miles of the proposed permit area utilize groundwater for their public water supplies. The Pennsylvanian-aged formations in the area generally have low permeabilities and porosities and tend to become more mineralized with depth, limiting their use.

Beyond these unconsolidated units, no other sources of groundwater are known. The applicant provided initial information that 86 private wells are present within the proposed shadow area. This initial information was gathered from a search of the ISGS and ISWS records. However, results of the water user's survey confirm that 57 wells are present; this number includes 22 residences that did not respond to the survey. For approximately 40% of the identified wells the applicant assumed wells were in place, but no usage was assumed. Of the 57 identified wells, 29 wells have been identified as being the primary source of domestic use (drinking water usage). The majority of the 29 wells are completed in the unconsolidated materials, as depths ranging from 24 to 81 feet deep; 4 bedrock wells were noted, with depths ranging from 175 to 204 feet deep and two additional wells identified as bedrock wells were noted as being 64 to 68 feet deep. Public water supplies are available in the area, but due to the rural nature of the area, it appears that many residents rely on groundwater as their primary source of drinking/domestic water usage. The majority of the wells are shallow, in unconsolidated materials and should not be affected by the mining operation. The smaller number of reported bedrock wells also are not likely to be affected

by the mining operation as the distance between the wells and the coal seam at least 114 feet. The Bulldog Mine is proposed to be a room and pillar mining, or unplanned subsidence. Generally speaking, the water supplies within the shadow area of room and pillar mine is rarely affected and the Department believe this will hold true at this operation.

Eleven public water supplies are located within ten miles of the proposed Permit Application No. 429. Ten of the identified public water supplies are sourced from groundwater wells; a single public water supply is sourced from surface water. The majority of the developed public water supply wells are completed in local sand and gravel aquifers at depths ranging from 20 to 131 feet. A few of the public water supply wells appear to be completed in bedrock at depths ranging from 72 to 220 feet deep. The applicant believes that many of the older public water supply wells are currently inactive. Like the private wells in the area, the likelihood of mining-related impacts occurring to the public water supply wells is minimal due to the amount of vertical separation between the coal seam to be mined and the public water supply wells. Additionally, the public water supply wells are located several miles from the proposed permit area and all the identified public water supply wells are located beyond the proposed shadow area boundaries.

The applicant has collected background data from six installed monitoring wells, each of which is suitably located. These wells have been sampled since September 2011.

The applicant has not proposed any consumptive uses of groundwater therefore no adverse impacts to groundwater quantity are anticipated as a result of operations in the permit or shadow areas.

iv. Groundwater Quality Baseline Information

The applicant monitored six wells located within the proposed permit area. Background groundwater quality data was collected from September 2011 to July 2017 as part of the Permit Application No. 429. Groundwater monitoring will continue on a quarterly basis until the Department determines that the wells are no longer needed. All of these wells for Permit Application No. 429 were completed in the unconsolidated materials; total depths of the wells range from approximately 29 to approximately 54 feet below ground surface. All six existing wells were completed in the glacial till materials that appear to be predominately clays/silty clays/sandy clays, with little sand and/or gravel. See Map No. 2 for the groundwater monitoring well locations. The groundwater quality data for the six wells installed for the Permit Application No. 429 Area, is summarized in Table 5 below:

Table 5 - Groundwater Quality in the Permit Application No. 429 Area

	MW-1			MW-2			MW-3		
	Min	Max	**Avg**	Min	Max	**Avg**	Min	Max	**Avg**
pH	6.64	7.8		7.31	8.82		6.65	7.96	
TDS	90	800	**397.3**	100	1100	**465**	70	620	**383**
Hardness	147	318	**237.4**	150	385	**265**	180	370	**252**
Acidity	<10	21	**10.2**	<10	<10	**<10**	<10	13.3	**10.06**
Alkalinity	130	378	**285**	110	422	**288**	120	330	**247**
Sulfate	<2	41	**7**	4	71	**38**	<4	73	**35**
Iron (Total)	0.1	2.9	**0.62**	<0.1	1.5	**0.49**	<0.1	0.66	**0.28**
Mang (Total)	<0.001	0.24	**0.05**	<0.01	0.14	**0.04**	<0.01	0.95	**0.08**
Chloride	<6	21.7	**8.8**	<6	28.5	**15.4**	6	29	**14.6**

	MW-4			MW-5			MW-6		
	Min	Max	**Avg**	Min	Max	**Avg**	Min	Max	**Avg**
pH	6.96	7.68		7.16	8.0		6.66	7.79	
TDS	220	790	**472**	220	805	**432**	240	800	**512**
Hardness	170	422	**294**	160	450	**265**	140	396	**283.7**
Acidity	<10	13.7	**10.08**	<10	<10	**<10**	<10	13.3	**10.06**
Alkalinity	110	405	**296**	130	415	**301.5**	120	419	**291**
Sulfate	6	110	**57.5**	<4	90	**23.1**	<4	150	**62.4**
Iron (Total)	<0.1	1.12	**0.27**	<0.1	1.2	**0.35**	<0.1	0.5	**0.19**
Mang (Total)	<0.01	0.21	**0.04**	<0.01	0.78	**0.07**	<0.01	0.43	**0.07**
Chloride	6	26.5	**15.3**	<6	26	**10.4**	<6	44	**16.2**

All parameters in mg/l except pH.

The background groundwater quality of the proposed permit area wells indicates that all SMCRA parameters are well below the applicable Groundwater Quality Standards as defined in 35 Ill. Adm. Code 620.

No discernable pattern of seasonality is readily seen from the existing background data. A potential source of impacts to groundwater quality would be from the disposal of coal processing waste material in the proposed permit area. Coal refuse contains materials that can produce acidic conditions when oxidized. The applicant proposes 61.8 acres of coal refuse disposal within the Permit Application No. 429 permit area.

The applicant also collected baseline groundwater quality data from 26 of the private wells. The quality data is presented in Attachment III-2B1b of Permit Application No. 429. The quality ranges from very good to good and is comparable to the quality exhibited in the installed monitoring wells.

Pursuant to 62 Ill. Adm. Code 1817.41(j), the applicant for the Bulldog Mine will be required to protect drinking domestic and residential water supplies by documenting pre-mining quality and quantity of water supplies and to provide adequate replacement for supplies impacted by underground mining activities conducted after January 19, 1996. The applicant has collected pre-mining quality data from 26 private wells. The Department finds that unplanned subsidence operations have only a minimal potential of impacting the quality or quantity of a water supply. The applicant indicates in the UCM-1 Addendum No. 1 that they have no specific agreement with individual landowners to monitor additional private wells for pre-mining quality and quantity, but will do so, on a case-by-case basis upon landowner request. The applicant has committed to repairing or replacing any water supply impacted by the proposed mining operations, even though none are anticipated.

For Permit Application No. 429, the applicant commits to provide a four-foot soil liner at the base of the proposed RDA, below the raw and clean coal stockpiles, and all constructed ponds; additionally, any ditches that will receive coal storage or coal refuse runoff will also be lined. The clay liner will be compacted to a minimum permeability of $1x10^{-7}$ cm/sec. If the existing clay soils cannot be compacted to the required permeability within the ditches, the applicant has committed to installing a 60 mil synthetic liner in its place. The applicant has also committed to constructing a lower permeability cap to reduce the amount of infiltration into the RDA once it is reclaimed.

Once disposal in the Permit Application No. 429 RDA is complete, the disposed materials will be sampled and analyzed for acid-producing potential. A sufficient amount of lime will be spread on and incorporated into the coal refuse surface to neutralize any possible acid generation. The coal refuse will then be covered with four feet of non-toxic material and further reclaimed per the applicant's plan. Studies by Infanger and Hood (1980) and Hoving and Hood (1984) have shown that for even highly acidic material, free acid generation should not occur as long as the material is covered with alkaline producing material, and oxidation of pyritic material is prevented.

Monitoring wells MW-1, MW-2, MW-3, MW-4 MW-5, and MW-6 were sampled/analyzed approximately 53 times during the permit review process and will continue to be sampled quarterly for the following parameters: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chloride, chromium, cobalt, copper, cyanide, and fluoride, lead, mercury, molybdenum, nickel, selenium, silver, thallium, phenol, vanadium, and zinc. In addition to the preceding list, these six wells, were installed to monitor for pH, total dissolved solids, hardness, alkalinity, acidity, sulfates, total and dissolved iron, total and dissolved manganese and water levels (in elevation).

v. Existing and Proposed Coal Processing Waste Disposal Baseline Information

The 61.8-acre Permit Application No. 429 RDA is located in the eastern portion of the proposed permit area.

The proposed Permit Application No. 429 Area RDA will be constructed with a liner at its base for groundwater protection. The applicant proposes to utilize the natural clay materials located on-

site to construct the compacted base. The natural clay materials will be re-compacted and analyzed to meet 95% of the Standard Proctor test. The applicant has committed to constructing the liner to a minimum permeability of $1x10^{-7}$ cm/sec. The proposed Permit Application No. 429 RDA will be excavated to a base elevation of approximately 660 feet MSL. Original ground elevations within the proposed Permit Application No. 429 RDA area are 681 to 688 feet MSL.

The proposed RDA will also receive a lower permeability cap to aid in lessening the infiltration of precipitation. The permittee has committed to install a 5-foot total soil cover; 48 inches of sub-soil and 12 inches of topsoil. The lower 36 inches of the 48 inches of subsoil will be compacted to $1x10^{-7}$ cm/sec permeability; while 12 inches of the subsoil and the 12 inches of topsoil will be placed without being compacted.

No coal combustion waste is proposed to be deposited nor are coal combustion by-products proposed to be utilized at this mine site.

b. Findings

i. <u>Surface Water Quantity Findings</u>

<u>Permit Area</u>

The proposed permit area in relation to surface water quantity comprises a small portion of the Olive Branch and Salt Fork watersheds that will receive discharge from the NPDES outfalls. The proposed permit area for Permit Application No. 429 is approximately 390 acres. The permit area surface waters assessment watershed is approximately 2,961 acres in size. The permit area represents approximately 2% of the immediate watershed size of Olive Branch. However, no surface water will directly discharge to Olive Branch, as the surface drainage control has been designed to discharge into the Olive Branch drainageway first. Regardless, no surface drainage will occur without first passing through a controlled, monitored NPDES point. Additionally, the permit area is approximately 0.1% of the Salt Fork basin and any potential impacts to the Salt Fork would be imperceptible. The permittee has proposed to utilize water from the City of Georgetown as supplemental makeup water for the preparation plant and water from the City of Homer for potable uses. This supplemental use will decrease the amount of water available to the current systems users, but should not have a substantial impact on the quantity of water available as it is not the sole source of the mines water. According to the National Climate Data Center, this area of East-Central Illinois receives approximately 49 inches of precipitation annually. The USGS estimates that the evapotranspiration rates for Illinois are 67% of the annual average rainfall or, in this case, roughly 33 inches per year. A mine of this size generally consumes one to two million gallons of water per day to adequately run the operation.

Mine operations require water for various needs: this includes prep plant water, dust suppression, bathhouse water, and potable water. Underground mines in Illinois generally utilize on-site waters (from freshwater and sediment ponds, re-circulation systems, etc.). The proposed mine intends to capture as much of the available surface water runoff as possible during the active life of the mine. The proposed mine will have a temporary effect on the amount of available surface water;

however, once the mine operations cease, all surface water will again be available to the current system.

Additionally, as noted previously, the Little Vermilion River and the Freedwell Branch (tributary to the Little Vermilion River) pass through the proposed shadow area, but will not receive any mining-related runoff from the proposed permit area.

The farmland around the proposed permit area contains field tiles. The applicant intends to utilize the field tiles to transport their discharge water to the receiving stream (ultimately, Olive Branch). The applicant has indicated that they have a legal right and ability to discharge to the existing field tiles.

Currently, the field tiles direct water from around the proposed permit area to the north, toward Olive Branch. With the installation of the proposed mine, the overland flow of surface water resulting from a precipitation event will no longer flow unimpeded toward Olive Branch. The proposed mine operation will intercept this flow and direct the precipitation to their surface water drainage system of ditches and ponds. The farm ground to the north of the proposed mine will have its surface overland flow interrupted. The Department expects that discharges into the field tile by the mine will be rare because the mine needs to utilize available water for their operations.

The ability of the existing field tiles to accept mine discharge was evaluated by the applicant and they will only discharge their allowed, allocated amount of water to the field tile system.

Shadow Area
The applicant proposes to utilize traditional room and pillar underground mining techniques which do not historically affect surface water quantities, due to the lack of planned subsidence. The Department believes that no impacts to surface water quantity will occur as a result of this proposed mining operation.

ii. Surface Water Quality Findings

Permit Area
The effects of the proposed Application No. 429 operations should be negligible on surface water quality within the proposed permit area. Effluent from the NPDES discharge points is proposed to meet all applicable State and Federal standards and is compatible with that in the receiving streams. Adherence to these limits will ensure that adverse impacts will not occur to the surface water quality of the receiving stream as a result of the proposed operations; additionally, the existing uses of the receiving stream, as defined by the IEPA, will not be adversely impacted by this operation.

Shadow Area
The quality of the streams within the proposed shadow area should not experience any change in water quality as a result of the proposed Permit Application No. 429 room and pillar underground mining operations.

The applicant monitored six surface water monitoring points during the application process. These points will not be monitored in the future, as the IEPA will dictate the stream sampling locations in conjunction with the monitoring program required in the NPDES permit.

iii. Groundwater Quantity Findings

Permit Area

Groundwater information that is available indicates that groundwater supplies in and adjacent to the proposed permit area for Permit Application No. 429 are somewhat limited to areas where sand and gravel units are present. No such sand and gravel units are present within the proposed permit area. According to the Illinois State Geologic Survey (ISGS), aquifers in East-Central Illinois are unevenly distributed, with aquifers of limited extent and thickness or areas of no aquifer present in the eastern portions of East-Central Illinois.

The potential for groundwater impacts within the permit area should be low. Potential impacts to users of domestic wells should be limited to the short-term effects of lowering the water table only, though this is not expected to happen based on the vertical distance between the mine and the domestic wells, as well as the proposed unplanned subsidence (room and pillar) mining method.

Shadow Area

It is not anticipated that groundwater quantity within the shadow area will be significantly, permanently impacted by the operations proposed in Permit Application No. 429.

The applicant is not proposing any consumptive uses of groundwater and unplanned subsidence (room and pillar) mining should have a minimal to no impact on groundwater quantity within the proposed shadow area. Therefore, since no consumptive uses of groundwater are proposed there should be no long-term adverse impacts to groundwater quantity.

A total of 57 wells were identified by the applicant as being present within the proposed permit, shadow and adjacent areas. Twenty-nine residents within one-half mile of the proposed permit or shadow area of Permit Application No. 429, report using groundwater wells as their primary source of drinking water. The depths of these residential wells range from 23 feet to 204 feet, with most wells appearing to be approximately 50 feet deep and within the unconsolidated materials. Of the 29 wells, 6 wells are reportedly completed in bedrock, at depths ranging from 51 to 204 feet. As noted above, a total of 57 wells were identified by the applicant; however, residents associated with 22 of those wells did not respond to the user's survey; 2 residents indicated wells were not in use and the usage of 4 of the identified wells was noted as "unknown." The usage of 22 wells is unknown due to lack of responses to the user's survey.

Given the depth of the proposed mining (approximately 318 to 383 feet deep), the proposed unplanned subsidence (room and pillar) mining method and the presence of at least 200 feet of overburden between the mined coal and the majority of the domestic wells, the groundwater quantity of the shallow domestic wells (approximately 50 feet deep) should not have a significant

long-term impact, if any at all, but there is potential for short-term impacts to the available quantity of water in the deeper bedrock wells. The deepest bedrock well, as noted on the user's survey is 204 feet. The distance between this well and the coal seam could be as little as 114 feet. Despite the relatively small distance between the coal to be mined and the bottom of this well, long-term impacts to bedrock wells are not expected due to the nature of the materials (low permeability shales) present between the well and the coal seam.

Room and pillar mining is not expected to have any impacts on groundwater quantity. According to the Pennsylvanian Department of Environmental Quality, room and pillar mining's effects on groundwater are generally limited to a zone 20 to 100 feet above the mine workings. Based on this, none of the private wells located within the proposed permit and/or shadow areas will be negatively impacted by the proposed mining operation.

Lastly, groundwater quantity below the lowest coal seam to be mined should not be affected by the proposed unplanned subsidence (room and pillar) mining operations. The stratum immediately below the Herrin No. 6 Coal is a typical underclay which exhibits low permeability characteristics. The low permeability of the underclay should restrict the downward movement of water from the mine voids into the underlying strata. In addition to the above, there is no indication that any resident currently obtains drinking water from a source below the coal seam.

iv. Groundwater Quality Findings

Permit Area

Groundwater quality potentially could be impacted by the proposed coal refuse disposal operations within the proposed permit area for Permit Application No. 429. However, the applicant will install an impermeable base liner, and during reclamation, will construct a lower permeability cap to minimize infiltration into the groundwater below the base of the impoundment. Therefore, disposal in this area, as described by the proposed plan, should not result in adverse impacts to the groundwater quality. The applicant's monitoring program has been designed to detect any adverse impacts on public or private supplies in time to take corrective measures. As required by the IEPA, the applicant will install ten additional groundwater monitoring wells within the proposed permit area, to further monitor the groundwater in the vicinity of the proposed RDA and the sediment ponds.

Pursuant to the Illinois Groundwater Quality Standards of November 1991, the applicant must meet the Coal Reclamation Groundwater Quality Standards of 35 Ill. Adm. Code 620.450(b), for groundwater below the proposed Permit Application No. 429 RDA. These standards require that total dissolved solids remain below 3,000 mg/L, pH between 6.5 and 9.0, and inorganic constituents (metals), with the exception of chlorides, iron, manganese and sulfates, remain below the standards listed in Section 620.410(a) for Class I waters, except for natural background (unless it is shown that Class II, 620.420(a), applies). Quarterly monitoring of the parameters listed above will continue during operations, and through final bond release, to monitor any quality changes. In conclusion, the applicant has designed a groundwater monitoring program which should detect

adverse impacts in sufficient time to take mitigating action and prevent adverse impacts to the hydrologic balance.

Shadow Area

Groundwater quality in the proposed Permit Application No. 429 shadow area should not be adversely impacted by the unplanned subsidence (room and pillar) mining method. A lack of wide-spread sources and the relatively few private supplies in use, justify the approved program of groundwater monitoring. The applicant, however, has made a commitment to replace any private water supplies that may be impacted, even though none is expected.

With regard to quality, generally speaking, unplanned subsidence (room and pillar) mining does not have an effect on groundwater quality because of the geology present and the lack of subsidence-related changes. Additionally, the vertical distance between the unconsolidated materials and the coal to be mined prevents quality changes in the shallow groundwater.

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

The newly proposed refuse disposal area for Permit Application No. 429 is approximately 62 acres in size. It is located in the southern portion of the proposed permit area. This facility is being proposed as, and has been designed as, an incised impounding structure. A four-foot compacted clay liner, meeting the minimum permeability requirements of $1x10^{-7}$ cm/sec is proposed to be installed within the footprint of the Permit Application No. 429 RDA.

Currently, six groundwater monitoring wells have been installed around the perimeter of the proposed permit area. The IEPA is requiring an additional ten groundwater monitoring wells be installed to specifically monitor the groundwater in the vicinity of the proposed Permit Application No. 429 RDA, as well as the groundwater in the vicinity of the ponds. These compliance point wells will adequately monitor the shallow groundwater and will alert the applicant and the Department to any possible impacts, prior to those impacts reaching beyond the permit boundary. Background data will be collected on the ten additional wells prior to refuse being placed; background data has been collected on the six original wells. The applicant will monitor all wells on a quarterly basis until the Department determines the groundwater monitoring program is no longer necessary.

Again, it should be noted that no coal combustion waste is proposed to be deposited nor are coal combustion by-products proposed to be utilized at this mine site.

III. CONCLUSION

The surface water and groundwater monitoring programs are designed to provide sufficient lead time for notification of any potential impacts, as well as to provide ample time for the investigation and mitigation of any impacts prior to 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 will be required to monitor the surface and groundwater throughout the life of the mine, up to the time the Department determines the groundwater monitoring program can cease.

A Cumulative Impact Area (CIA) is that area, including the permit area, within which impacts resulting from the proposed operation may interact with the hydrogeologic impacts of all other current and anticipated coal mining on the surface and groundwater systems. Upon review of the subject site, there are no current or anticipated coal mining operations upstream or upgradient of the proposed Bulldog Mine. In addition, no current or anticipated coal mining operations in close proximity to the proposed Bulldog Mine are known to the Department at this time. Therefore, the lack of other existing or anticipated mining operations existing within the same hydrogeologic areas (i.e., HUC 12's) negates the need for a CIA; as a single isolated mine cannot have a cumulative effect on the hydrologic system. The Department has concluded that a CIA is not required for the proposed Permit Application No. 429.

The Department's hydrogeologic assessment on the proposed Permit Application No. 429 is now complete. As noted in the discussions throughout this document, the Department has concluded that the proposed permit area will not have a negative impact on either the surface water or groundwater regimes in either the permit or shadow areas for Permit Application No. 429.

Neither the surface water nor groundwater within the proposed permit or shadow areas for Permit Application No. 429 will 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.

Therefore, the cumulative hydrologic impact assessment finds that the proposed operations have been designed to prevent material damage to the hydrologic balance beyond the Permit Application No. 429 permit area.

IV. REFERENCES AND ATTACHMENTS

REFERENCES

Hoving, S.J. and W.C. Hood, 1984, *The Effects of Different Thicknesses of Limestone and Soil Over Pyrite Materials on Leachate Quality*. 1984 Symposium of Surface Mining, Hydrology, Sedimentology, and Reclamation, University of Kentucky, Lexington, KY, December 2-7, p 251-257.

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Illinois Environmental Protection Agency, *Illinois Integrated Water Quality Report and Section 303(d) List – 2014* March 2014.

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Infanger, M.K., and W.C. Hood, 1980, *Positioning acid-producing overburden for minimal pollution*. Symposium on Surface Mining Hydrology, Sedimentology, and Reclamation. Univ. of Kentucky, Dec. 1-3.

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Pennsylvania Department of Environmental Quality, *Technical Guidance to Mine Subsidence* http://www.dep.state.pa.us/msi/technicalguidetoms.html - Website accessed October 2015.

Singh, K.P. and J.B. Stall, 1973, *The 7-Day 10-Year Low Flows of Illinois Streams*. Illinois State Water Survey, Bulletin 57.

Singh, K.P., Ramamurthy, G.S., and Seo, I.W., 1988, *7-Day 10-Year Low Flows of Streams in the Kankakee, Sangamon, Embarras, Little Wabash, and Southern Regions.* Illinois State Water Survey, SWS Contract Report 441

United States Department of the Interior, Office of Surface Mining, *Technical Reference for the Mid-Continent Region: Hydrologic Considerations for Permitting and Liability Release*, June 2007.

Wangsness, D.J., et al, 1983, Hydrology of Area 30, Eastern Region, Interior Coal Province, Illinois and Indiana. United States Geological Survey, Water-Resources Investigations Open-File Report 82-1005

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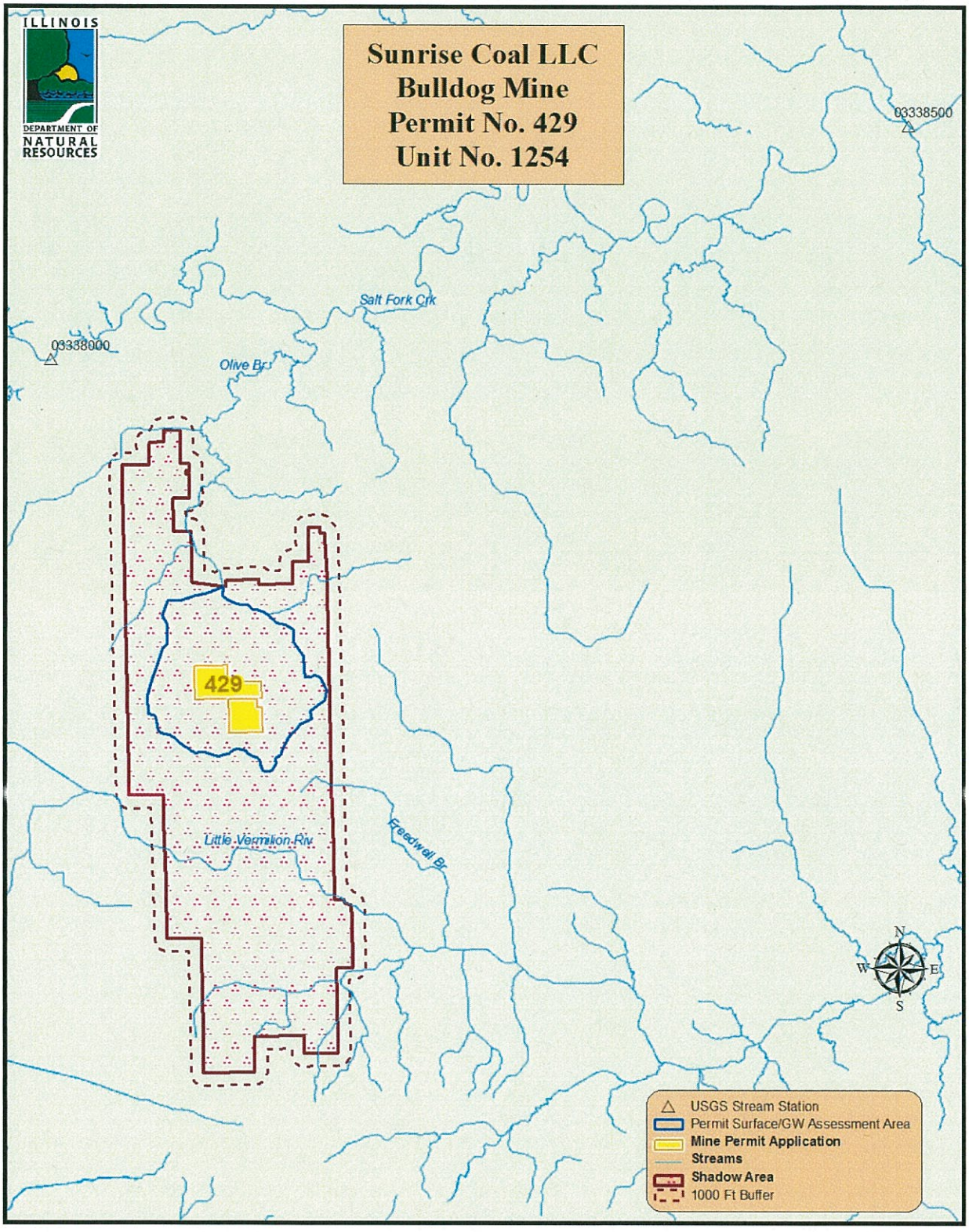
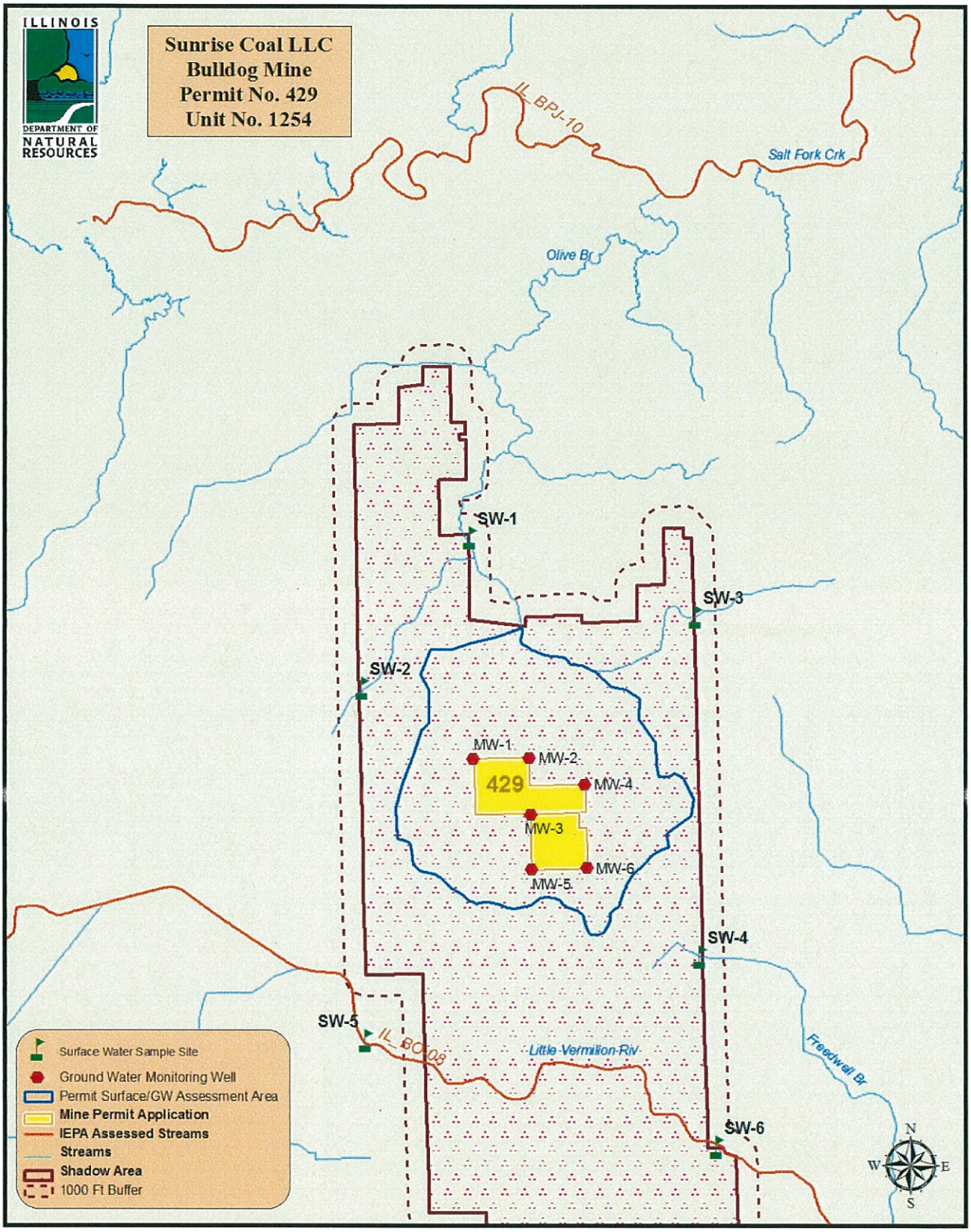


Map No. 1 – Assessment Area



Map No. 2 – Monitoring Location Map

APPENDIX D

DECISION ON PROPOSED POST-MINING LAND USE OF PERMIT AREA

The pre-mining and approved post-mining land use acreage of the permit area is as follows*:

	Pre-mining	Post-mining
Cropland	389	2.6
Water Resources	0	0
Pastureland	0	0
Residential	0	0
Industrial/Commercial	1.3	0
Fish & Wildlife Habitat**	0	387.7
Forest	0	0
Undeveloped	0	0
Total	390.3	390.3

* The Department notes that other agencies with environmental and land use authority may use land use definitions other than 62 Ill. Adm. Code 1701.5. Reports for those agencies which may be included in the application will classify and tabulate land uses based on their definitions. As a result, those land use tabulations may not directly correlate with the above tables.

** To facilitate the assessment of the revegetation success performance standards, the post-mining land use of Fish and Wildlife Habitat must be broken out as follows (in acres):

Wildlife-Herbaceous	Wildlife-Woody	Wildlife - Wetland	Wildlife - Water
364.2	0.9	0	22.6

Cropland post-mining land use will decrease from pre-mining conditions of 389 acres by 386.4 acres; the remaining 2.6 post-mining land use of cropland will be unaffected during mining operations because it is within the required 300-foot buffer of an occupied dwelling. The Industrial/Commercial post-mining land use will decrease from pre-mining conditions by 1.3 acres; these 1.3 acres will be part of the surface facilities during the life of mining operation and will be reclaimed to Fish and Wildlife Habitat. Fish and Wildlife Habitat post-mining land use

will increase from pre-mining conditions by 387.7 acres and allow utilization by wildlife species post reclamation. Fish and Wildlife Herbaceous areas will support native grasses and forbs, the Fish and Wildlife Woody area is incorporated into the reclamation plan as part of the Protection and Enhancement Plan for the federally endangered Indiana bat and the federally threatened northern long-eared bat, and the Fish and Wildlife Water habitat will support aquatic species as well as migratory and resident avian species.

The Department thus finds the areas affected by surface coal mining activities will be restored in a timely manner to conditions that are capable of supporting the use which they were capable of supporting before mining or to higher or better use achievable under the criteria and procedures of 62 Ill. Adm. Code 1817.133, or as noted above. The plan of restoration submitted by the applicant does not present any actual or probable hazard to public health or safety nor does it pose any actual threat of water diminution or pollution as indicated in Appendix C, and the proposed land uses following mining are not impractical or unreasonable as all the post-mining land uses existed prior to mining and are compatible with the surrounding areas. The land uses are not inconsistent with any applicable land use policy or plan known to the Department and no objections were received from any governmental agency with such authority. The plan does not involve unreasonable delay in implementation and is not in violation of any other applicable law known to the Department. Federal court decisions, commonly known and the "Flannery decisions" and current regulations provide for the distinct difference between surface and underground mining. As a result, the prime farmland identified in the permit are exempt from the provisions of 62 Ill Adm. Code 1785.17 as provided under 1823.11 as the Department finds the areas are to be actively used for an extended period of time, coal waste disposal is not technologically and economically feasible to store in the underground mine or on non-prime farmland, and the area will affect a minimal amount of land. There is a small area of unaffected prime farmland within the permit which will remain prime farmland. Post-mining high capability land will be subject to the performance standards of 1817.116 and 1817.117.

APPENDIX E

DOCUMENTATION PROVIDED BY APPLICANT TO COMPLY WITH
62 Ill. Adm. Code 1773.15(b)(1)(A)

Sunrise Coal, LLC
Bulldog Mine
Permit No. 429

ATTACHMENT I-9

VIOLATION HISTORY

Updated September 20, 2018

Sunrise Coal, LLC
NOTICE OF VIOLATIONS

5) (a) State or federal permit identification, MSHA number and any other identifying number(s).
Carlisle Mine, U-028, MSHA # 12-02392

(b) Dates of issuance of the violation notice and the MSHA number.
7/24/2017 #N70721-U-028 MSHA #12-02392

(c) The name of the person to whom the violation notice was issued.
Certified Mail to Brent Bilsland

(d) Identity of the issuing regulatory authority, department or agency.
IDNR DIVISION OF RECLAMATION

(e) A description of the violation alleged in the notice.
Failure to conduct underground mining operations within the permitted shadow area.

(f) Current status of the proceedings and of the violation notice.
The NOV was not yet been terminated. The abatement date was extended to November 21, 2017.

(g) Date, location and type of any administrative or judicial proceedings initiated concerning the violation and the current status of those proceedings.
None

(h) Actions taken by any person to abate the violation.
The company is seeking an incidental boundary revision to permit the areas that were mined outside the approved shadow areas.

6) (a) State or federal permit identification, MSHA number and any other identifying number(s).
Carlisle Mine, U-028, MSHA # 12-02392

(b) Dates of issuance of the violation notice and the MSHA number.
8/17/2016 #N60817-U-028 MSHA #12-02392

(c) The name of the person to whom the violation notice was issued.
Certified Mail to Brent Bilsland

(d) Identity of the issuing regulatory authority, department or agency.
IDNR DIVISION OF RECLAMATION

(e) A description of the violation alleged in the notice.
Failure to achieve all applicable federal and state effluent limitations. Pond C=2.8

(f) Current status of the proceedings and of the violation notice.
The NOV was terminated on 10/6/2016.

(g) Date, location and type of any administrative or judicial proceedings initiated concerning the violation and the current status of those proceedings.
None

(h) Actions taken by any person to abate the violation.
The company pumped out water to empty the pond.

Sunrise Coal, LLC
NOTICE OF VIOLATIONS

19) (a) State or federal permit identification, MSHA number and any other identifying number(s).
Oak Town #1 and #2 Mine, U-031, MSHA # 12-02349

(b) Dates of issuance of the violation notice and the MSHA number.
9/11/2018 #N80910-U-031 MSHA #12-02349

(c) The name of the person to whom the violation notice was issued.
Certified Mail to Brent Bilsland

(d) Identity of the issuing regulatory authority, department or agency.
IDNR DIVISION OF RECLAMATION

(e) A description of the violation alleged in the notice.
Failure to achieve State of Indiana and Federal effluent standards for water quality associated with pH. The pH of the water discharging from water pollution treatment/control facility SP-3 (Outfall 003) has pH of 3.5.

(f) Current status of the proceedings and of the violation notice.
The violation has not yet been terminated.

(g) Date, location and type of any administrative or judicial proceedings initiated concerning the violation and the current status of those proceedings.
None

(h) Actions taken by any person to abate the violation.
1. Sunrise Coal is actively treating the impoundment to bring pH to acceptable levels.

20) (a) State or federal permit identification, MSHA number and any other identifying number(s).
Prosperity Mine, U-025, MSHA # 12-02249

(b) Dates of issuance of the violation notice and the MSHA number.
6/26/18 #N80626-U-025 MSHA #12-02249

(c) The name of the person to whom the violation notice was issued.
Certified Mail to Brent Bilsland

(d) Identity of the issuing regulatory authority, department or agency.
IDNR DIVISION OF RECLAMATION

(e) A description of the violation alleged in the notice.
Failure to achieve all applicable federal and state effluent limitations.

(f) Current status of the proceedings and of the violation notice.
The NOV was terminated on 7/10/2018.

(g) Date, location and type of any administrative or judicial proceedings initiated concerning the violation and the current status of those proceedings.
None

(h) Actions taken by any person to abate the violation.
The water discharge from sediment basin #1 (outfall 001) meets effluent limits for pH (8.5).

SUNRISE COAL LLC
1183 East Canvasback Drive
Terre Haute, IN 47802

November 1, 2018

Mr. Nick San Diego
Illinois Department of Natural Resources
Office of Mines and Minerals
Land Reclamation Division
One Natural Resources Way
Springfield, IL 62702-1271

RE: Bulldog Mine
Permit No. 429
Compliance Findings

Dear Mr. San Diego:

In response to your letter dated October 18, 2018 on AVS compliance for Sunrise Coal, we submit the following:

1) Violation No. 5 (N70721-U-028) – This violation was originally written on July 21, 2017. This violation was terminated on November 27, 2017. The termination letter is attached.

2) Violation No. 19 (N80910-U-031) – This violation was originally written on September 10, 2018. The violation was terminated on September 26, 2018. The termination letter is attached.

3) The additional violations (170241022) were a result of an OSM audit of reclamation taxes for all permits. This violation was recently settled and removed from AVS.

If you have any questions or require additional information please contact Scott McGuire at (812) 299-2800 ext. 217 or personnel at Midwest Reclamation Resources, Inc. at (618) 687-5590.

Sincerely,

Lawrence D Martin

Lawrence D. Martin
President

cc: Scott McGuire, Sunrise Coal, LLC, Midwest Reclamation Resources, Inc.

MODIFICATION, TERMINATION OR VACATION OF NOTICE OF VIOLATION OR CESSATION ORDER

INDIANA DEPARTMENT OF NATURAL RESOURCES
Division of Reclamation

Name of permittee	Name of mine	Permit number
Sunrise Coal, LLC.	Oaktown Mine #1 & #2	U-031

Notice of Violation number	Date (*month, day, year*)	Cessation Order number	Date (*month, day, year*)
N80910-U-031	September 10, 2018		

ACTION TAKEN

Number 1 of 1 is hereby		Modified
	x	Terminated
		Vacated

For the following reasons:
Correction:

Sunrise Coal has treated the water in the sediment basin to the point where pH has increased to 6.4. The violation has been terminated.

Number _____ of _____ is hereby		Modified
		Terminated
		Vacated

For the following reasons:

Number _____ of _____ is hereby		Modified
		Terminated
		Vacated

For the following reasons:

SERVICE

Name	Name of permittee Sunrise Coal LLC
Title	Name of representative Mr. Brent Bilsland
Signature / Date signed (*mo., day, yr.*)	Address of representative 1183 E. Canvasback Dr. Terre Haute, Indiana 47802
Certified number	
Date sent (*month, day, year*) 9-26-18 sw	

Signature of authorized representative Clay Dawson	Date signed (*month, day, year*) September 25, 2018

Distribution: Jasonville, Permittee, Inspector, County

MODIFICATION, TERMINATION OR VACATION OF NOTICE OF VIOLATION OR CESSATION ORDER

INDIANA DEPARTMENT OF NATURAL RESOURCES
Division of Reclamation

Name of permittee	Name of mine	Permit number
Sunrise Coal, LLC.	Carlisle Mine	U-028

Notice of Violation number	Date (*month, day, year*)	Cessation Order number	Date (*month, day, year*)
N70721-U-028	July 21, 2017		

ACTION TAKEN

Number 1 of 1 is hereby		Modified
	x	Terminated
		Vacated

For the following reasons:

Sunrise Coal has obtained approval for the Incidental Boundary Revision #96. The violation is terminated.

Number _____ of _____ is hereby		Modified
		Terminated
		Vacated

For the following reasons:

Number _____ of _____ is hereby		Modified
		Terminated
		Vacated

For the following reasons:

SERVICE

Name		Name of permittee Sunrise Coal LLC
Title		Name of representative Mr. Brent Bitsland
Signature	Date signed (*mo., day, yr.*)	Address of representative 1183 E. Canvasback Dr. Terre Haute, Indiana 47802
Certified number		
Date sent (*month, day, year*) 11-27-17 gk		

Signature of authorized representative	Date signed (*month, day, year*)
Clay Dawson	November 22, 2017

Distribution: Jasonville, Permittee, Inspector, County

TABLE 1.4.3 Violations for Applicant and Owners/Controllers of the Applicant

Issuing Agency	State and Permit No. or MSHA Number	State Violation No. or MSHA Violation No.	Issue Date	Name of Company or Person to Whom Violation Issued	Description of the Violation	Date, Location and Type of Administrative or Judicial Proceeding	Violation Status	Abatement Actions
Indiana Department of Natural Resources Reclamation Division	S-370	N70125-S-370	1/25/2017	Ace in the Hole Mine	failure to republish and distribute annual blast schedule	None	Terminated 1/25/2017	published & distributed blast schdule
Indiana Department of Natural Resources Reclamation Division	S-370	N70501-S-370	5/1/2017	Ace in the Hole Mine	failure to submit NPDES monitoring report for sediment basin #004, Outfall #004 for Mach 2017	None	Terminated 5/15/2017	outfall #004 was not monitored during month of March 2017
Indiana Department of Natural Resources Reclamation Division	U-028	N60817-U-028	8/17/2016	Carlisle Mine	failure to achieve effluent limitations of pH in pond C	None	Terminated 10/6/2016	pond was pumped out to empty the pond
Indiana Department of Natural Resources Reclamation Division	U-028	N70315-U-028	3/17/2017	Carlisle Mine	failure to mine according to the approved plan as outlined in insignificat revision #89 and individual NPDES Permit IN0062791	None	Terminated 3/17/2017	company no longer pumped from Impoundment #2 into sediment pond #1. The electric pump was shut off.
Indiana Department of Natural Resources Reclamation Division	U-028	N70421-U-028	4/24/2017	Carlisle Mine	failure to control drainage according to approved plan	None	Terminated 5/4/2017	Company construction of berm along the rail road track ditch to prevent surface water from discharging to the south (leaving the property)
Indiana Department of Natural Resources Reclamation Division	U-028	N70524-U-028	5/25/2017	Carlisle Mine	failure to submit as-built certification of the impoundment	None	Terminated 7/7/2017	Company submitted and obtained approval for the as-built certification for the Carnahan Slurry Impoundment (Impoundment #2)
Indiana Department of Natural Resources Reclamation Division	U-028	N70721-U-028	7/21/2017	Carlisle Mine	failure to conduct underground within permitted shadow area	None	Terminated 11/22/2017	Company submitted and obtained approval of Incidental Boundary Revision #96 to areas mined outside of the approved shadow area
Indiana Department of Natural Resources Reclamation Division	U-031	N60223-U-031	2/24/2016	Oak Town #1 & #2	1) failure to limit mining activities to within the bonded and permitted area 2) failure to segregate topsoil prior to conducting mining related activites.	None	NOV's were Vacated 3/15/2016	No abatement action required
Indiana Department of Natural Resources Reclamation Division	U-031	N60817-U-031	8/17/2016	Oak Town #1 & #2	failure to achieve federal and state effluent limitations	None	Terminated 10/17/2016	Company installed water treatment system
Indiana Department of Natural Resources Reclamation Division	U-031	N61130-U-031	12/1/2016	Oak Town #1 & #2	failure to dispose of all coal mine wastes in accordance with the approved plan of fine refuse/slurry disposal	None	Terminated 6/19/2017	Company completed to clean-up of fine refuse material
Indiana Department of Natural Resources Reclamation Division	U-031	N70616-U-031	6/19/2017	Oak Town #1 & #2	failure to conduct surface activities and coal mining and reclamation operations and those activities necessary to facilitate mining only on those lands specifically bonded for Permit U-031	None	Terminated 7/27/2017	Company acquired approval for a permit and bonded access road and compressor building

TABLE 1.4.3 Violations for Applicant and Owners/Controllers of the Applicant

Issuing Agency	State and Permit No. or MSHA Number	State Violation No. or MSHA Violation No.	Issue Date	Name of Company or Person to Whom Violation Issued	Description of the Violation	Date, Location and Type of Administrative or Judicial Proceeding	Violation Status	Abatement Actions
Indiana Department of Natural Resources Reclamation Division	U-031	N70915-U-031	9/15/2017	Oak Town #1 & #2	1) failure to conduct coal mining activities and reclamation operations and those activities necessary to facilitate mining only on those lands specifically permitted and bonded for Permit #U-031 2) failure to submit geotechincal data and the geochemical data as required by the permit and the subsidence control plan	None	1) Terminated 10/31/2017 2) Terminated 1/22/2018	1) Company submitted and obtained approval for Incidental Boundary Revision #60, along with performance bond. 2) Company submitted and obtained approval of non-significant revsion #104.
Indiana Department of Natural Resources Reclamation Division	U-031	N80404-U-031	4/4/2018	Oak Town #1 & #2	1) failure to achieve federal and state water effluent limitations 2) failure to comply with the approved NPDES permit #ING04222	None	1) Terminated 4/16/2018 2) Terminated 5/18/2018	1) Company ceased discharge from sedimentation basin SP-1. Impoundment was treated. 2) Company submitted the additional water data as required by the violation.
Indiana Department of Natural Resources Reclamation Division	U-031	N80910-U-031	9/11/2018	Oak Town #1 & #2	failure to achieve federal and state water effluent standards for water quality associated with pH from water pollution treatment/control facility SP-3, outfall 003	None	Terminated 9/25/18	Company actively treating the impoundment to bring pH to acceptable level.
Indiana Department of Natural Resources Reclamation Division	U-025	N80626-U-025	6/28/2018	Prosperity Mine	failure to achieve federal and state water effluent limitations	None	Terminated 7/10/2018	Water discharge from sediment basin #1, outfall 001 meets effluent limits for pH
Indiana Department of Natural Resources Reclamation Division	U-031	N90124-U-031	1/30/2019	Oak Town #1 & #2	Failure to submit Geotechnical and geochemical data as required by permit	None	Modified 3/25/2019	Currently gathering data to submit to DNR
Indiana Department of Natural Resources Reclamation Division	U-031	N90226-U-031	2/26/2019	Oak Town #1 & #2	failure to achieve federal and state water effluent limitations	None	Terminated 3/4/2018	Plugged spillway to stop discharge

Entity Evaluation

There were no violations retrieved by the system

Entity Number:	153346
Entity Name:	Sunrise Coal Llc
Date of Request:	4/3/2019 12:54:46 PM
Requestor:	Guest

CAUTION: The Applicant/Violator System (AVS) is an informational database. Permit eligibility determinations are made by the regulatory authority with jurisdiction over the permit application not by the AVS. Results which display outstanding violations may not include critical information about settlements or other conditions that affect permit eligibility. Consult the AVS Office at 800-643-9748 for verification of information prior to making decisions on these results.

Violation Type	Violation Number	Violation Entities	Permit Number	Permitted State	Violation Status	Violation Date

Evaluation OFT

Entities: 26

247052 Hallador Alternative Assets Fund LLC - ()
---159223 Bryan H Lawrence - (Director)
---247038 Victor P Stabio - (Chief Executive Officer)
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Narrative

APPENDIX F

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

The Department reviewed permit application No. 429 for potential effects of coal mining operations and related activity on federally listed threatened and endangered species. The following factors were considered for all species that could potentially be adversely affected: status of species in the proposed permit area and adjacent area, site specific resource information, direct and indirect effects, and cumulative effects.

Five primary sources were utilized to identify federally listed threatened and endangered species that could potentially be affected by the proposed coal mining operations and related activities. These sources include threatened and endangered species review information submitted by the applicant, public comments, the U.S. Fish and Wildlife Service (USFWS), the Illinois Office of Realty and Environmental Planning (OREP)/Division of Ecosystems and Environment/Impact Assessment Section (known as the Division of Real Estate Services and Consultation/Office of Realty and Capital Planning (ORCP) as of the date of the issuance of this finding document), and Department records.

Information Submitted by the Applicant

The threatened and endangered species review submitted by the applicant addressed 77 state and federally listed species that are known to occur in Vermillion County and five adjacent counties (Champaign, Douglas, Edgar, Ford, and Iroquois). A "likely to occur" or "not likely to occur" in the proposed permit or adjacent area assessment was made by the applicant based on a comparison of habitat requirements of each species and habitats documented in the focus area. No federally listed threatened and endangered species were deemed "likely to occur" in the focus area, however for one federally threatened species, the northern long-eared bat (*Myotis septentrionalis*), presence was assumed. No county records exist for the species, however potential suitable summer roosting habitat was observed in the permit area. Potential suitable habitat for the northern long-eared bat is limited to a few isolated trees and a fence row in an Industrial/Commercial area. These trees do not represent potential summer roosting habitat for the federally endangered Indiana bat (*Myotis sodalis*), however because these trees will be removed for mining operations and related activities the applicant has prepared a Protection and Enhancement Plan (PEP) for both the northern long-eared bat and the Indiana bat. Because no official PEP guidelines existed at the time of application review for the northern long-eared bat, applicants were to utilize Appendix H[1] of the January 2014

[1] The USFWS has issued a Final 4(d) Rule regarding the northern long-eared bat since technical review and drafting of this Appendix F language. A "no critical habitat designation" was determined by the Service and the project is consistent with the 4(d) rule, however the applicant remains committed to the avoidance and mitigation measures outlined in the reclamation plan for the listed species. Because the application review process occurred during the interim period, those standards were used and remain basis for the applicant's PEP and the Department's permit issuance. Updated forms were submitted to the USFWS in accordance with the federal 4(d) rule and applicable guidelines.

"Northern Long-Eared Bat Interim Conference and Planning Guidance" (Appendix H) to assess potential habitat and the revised February 2013 "2009 Range-wide Indiana Bat Protection and Enhancement Plan Guidelines" (Guidelines) for development of a suitable PEP that encompasses both bat species.

Public Comments

The public requested both an Informal Conference and a Public Hearing on this application. The public expressed concern regarding the federally endangered northern riffleshell mussel (*Epioblasma turulosa rangiana*), federally threatened rabbitsfoot mussel *(Quadrula cylindrica cylindrica)*, and federally endangered clubshell mussel *(Pleurobema clava)* that are located downstream of the proposed mine site. Several commenters also raised the point that the clubshell and northern riffleshell mussels have been reintroduced into the Salt Fork River. Any discharge from the proposed permit area will enter the Olive Branch, a tributary to the Salt Fork River which eventually feeds the Vermilion River. Based partly in response to public concern regarding the potential impacts from mining operations and related activity on these species and their habitat, the Department required additional information to rule out the need for an invertebrate and aquatic species focused PEP. Additional comments received by the public are addressed in Appendix B of this findings document.

U.S. Fish and Wildlife Service Comments

The USFWS provided comments on this application in a letter dated September 12, 2014. The USFWS stated that the federally listed species for the proposed permit area includes the endangered Indiana bat, the endangered clubshell mussel, the threatened eastern prairie fringed orchid *(Platanthera leucophaea),* the threatened rabbitsfoot mussel, and proposed as endangered northern long-eared bat[2]. The USFWS indicated that "there is no designated critical habitat in the project area at this time" and "the Service concurs that the proposed activity is not likely to adversely affect any federally listed species".

Regarding the protected mussel species, the Department required the applicant to discuss distances from proposed discharge points to the Olive Branch tributary and the Salt Fork River, watershed information for the Olive Branch and Salt Fork River, effluent dilution information, toxicity information. This information was provided to the USFWS via email on November 5, 2015 along with the Department's determination that a PEP for the mussel species was not required. In an email dated November 9, 2015 the USFWS provided concurrence regarding the mussel species. As a follow up to the email exchange noted above, the USFWS provided information on the same protected mussel species in an email dated October 24, 2017 for Department consideration; the Department has considered this information in its decision to issue Permit No. 429.

Regarding the protected bat species PEP that the applicant supplied as part of required modifications to the application, the USFWS stated in an email dated November 9, 2017 that a PEP for the protected bat species was not officially necessary given the isolated nature of the trees

[2] The northern long-eared bat has since been listed as federally threatened

on site, but that "the take of 1.3 acres of potential habitat is not likely to jeopardize the continued existence of the northern long-eared bat". In addition, the Department submitted a northern long-eared bat 4(d) streamlined consultation form to the USFWS on May 18, 2017 and received confirmation via email on June 27, 2017 that the USFWS did not have any comments or require any additional information.

Illinois Office of Realty and Environmental Planning/Division of Ecosystems and Environment/Impact Assessment Section Comments

Pursuant 17 Ill. Adm. Code Section 1075 the Department consulted with OREP (currently known as the Office of Realty and Capital Planning) via the online EcoCAT (Ecological Compliance Assessment Tool) system regarding state listed species within the permit boundary and adjacent area. A termination letter was provided on December 15, 2014 and again on November 17, 2016 and October 12, 2018, indicating that the Illinois Natural Heritage Database contains no records of state listed threatened or endangered species, Illinois Natural Area Inventory Sites, or nature preserves/reserves located within the vicinity of the site.

Department Research, Records, and Determination

The Department utilized the Illinois Department of Natural Resources DIRT (Detailed Impact Review Tool) mapping system to review whether or not the project lies within the buffer zone of documented occurrences of any state or federally listed threatened or endangered species. No such protective buffer zones overlay or intersect the permit boundary. In addition, the Department utilized the USFWS's informal IPaC (Information for Planning and Consultation) tool on October 16, 2018 to re-affirm that no critical habitat for any federally listed species is located in the project area at this time.

The clubshell mussel range in Illinois had been reduced to the headwaters of the North Fork of the Vermillion River (INHS Collection Database 2015) and the northern riffleshell mussel had been extirpated from Illinois river systems; both species were part of a reintroduction and recovery plan to re-establishing their historic range in Illinois (USFWS 1994). Between 2010 and 2016 a total of 4,166 clubshell mussels and 3,699 northern riffleshell mussels were translocated to multiple sites along the Vermillion River Basin, three of the initial sites were located along the Salt Fork River with one additional site along the Salt Fork River added in 2016 (Tiemann et. al. 2016). Reduction of habitat due to water quality degradation in the form of siltation and chemical contaminates is a factor in the reduced range of mussel species (Williams, et al 1993). Studies indicate that exposure to low pH and increases in suspended solids can reduce the survival rate of glochidia larvae, this life cycle stage is also an obligatory parasite on several fish species found in the Salt Fork River (Watters 1994). Based on this information the Department requested the following from the applicant to determine whether or not an invertebrate and aquatic species PEP was necessary: distances from proposed discharge points to the Olive Branch tributary and the Salt Fork River, watershed information for the Olive Branch and Salt Fork River, effluent dilution information, toxicity information, and measures to ensure protection of threatened and endangered species. This information is located in the modification responses submitted to the Department

dated September 26, 2017. The Department considered the site-specific resource information, the information provided by the applicant, and the determinations by both OREP and USFWS that no critical habitat exists in the permit area or vicinity. The Department has determined that a PEP for the clubshell and northern riffleshell mussels is not required and the proposed mining operations and related activities are not anticipated to affect the continued existence of threatened or endangered species or result in destruction or adverse modification of their critical habitats.

The applicant submitted the required information to the Department regarding the northern long-eared bat and Indiana bat including suitable habitat determination and a PEP that encompasses both bat species. The Department has determined that the applicant correctly and diligently followed the protocol specified in the Guidelines (USFWS 2013) and Appendix H (USFWS 2014); by following these guidelines the applicant is in compliance with the USFWS 1996 Biological Opinion on the implementation of the Surface Mining Control and Reclamation Act of 1977 (PL 98-87) with regard to assuring compliance with the Endangered Species Act. The Department determined that a PEP was necessary for this application because suitable summer habitat for northern long-eared bats is located in the proposed operations area; for this reason, presence was assumed. The applicant followed the Guidelines (USFWS 2013) to develop the PEP for northern long-eared bats[3] and included the Indiana bat although the sited does not qualify as suitable or known habitat for the Indiana bat.

Status of Potentially Adversely Affected Species (those species covered in PEPs)

Indiana bat

The Guidelines (USFWS, 2013) specify the necessity to consider whether known or suitable winter habitat (hibernacula) and/or suitable summer habitat (maternity roosting/feeding) and/or swarming habitat (mating behavior/assessment of hibernacula suitability (Van Schaik, 2015)) of the endangered Indiana bat are located within the proposed permit area. Winter hibernation habitat for the species includes caves, abandoned underground mine workings, and railroad tunnels. Summer maternity roosting habitat includes trees or snags greater than or equal to 5 inches diameter at breast height (dbh) with exfoliating bark (USFWS, 2013) under which female bats, usually numbering less than 100 individuals, roost (Menzel, et al 2001). Suitable swarming habitat consists of forested areas with the described trees that are located within a 10-mile radius of any potential hibernacula (USFWS, 2013).

A major cause of the decline of the Indiana bat is associated with impediments to functioning hibernacula including blocked cave entrances, improper bat gate designs which may impede bat flight into caves or impede proper air flow through caves (USFWS, 1999 and Federal Register, 2007). Arousal following human disturbance to hibernating bats can lead to premature emergence from hibernacula, decreased body condition, and decreased survival (Menzel, et al 2001). Additional causes of decline in the species can be attributed to disturbances or removal of active

[3] The project is consistent with the northern long-eared bat Final 4(d) rule issued in January 2016 and subsequent "no critical habitat" determination issued in April 2016 by the USFWS. Although the project is consistent with the 4(d) rule and a PEP is not required, the applicant remains committed to the measures outlined in the PEP.

maternity roost trees and loss of critical habitat. More recently, White Nose Syndrome (WNS) has been identified as having a negative effect on Indiana bat populations.

The range of the Indiana bat covers most of the eastern half of the United States with the majority of roosting colonies in Indiana, Kentucky, and Missouri (USFWS, 2014). For the Indiana bat, recent population data comparing 1997 estimates with historic levels indicate that the range wide population is less than half of historical levels. Indiana bats have declined significantly in some states including Kentucky and Missouri, but have increased in some states, most notably Indiana. Population estimates show an increase of about 30% in Illinois from historical levels to the present (Clawson 2002, Clawson 2004). In 2012 the Service reported an increase in Indiana bats in Illinois from 21,677 in 2001 to 55,956 in 2011.

Northern long-eared bat

Suitable winter habitat for this species includes caves and underground mines with high humidity, no air currents, and a constant temperature range (USFWS, 2015). The USFWS indicated in the *Federal Register* (April 2016) that a critical habitat designation is not necessary for this species, however Appendix H (USFWS, 2014) does define suitable summer roosting habitat as any forested area or isolated live tree or snag that is "≥ 3 inches dbh with exfoliating bark, cracks, crevices, and/or cavities". Suitable swarming habitat is typically within five (5) miles of a known or potential hibernaculum and can include linear features such as fence rows, riparian buffers, or other travel corridors (USFWS, 2014).

The USFWS indicates that because the above described roosting habitat for the northern long-eared bat is not limited, habitat loss is not a significant threat to the species. The Final 4(d) Rule (Federal Register, January 2016) prevents "take" during sensitive life stages and prohibits incidental take where WNS occurs under these circumstances: if the take occurs within a hibernaculum, if the take occurs from tree removal within 0.25 miles of a known hibernaculum, or if the take occurs from the removal of a known/occupied maternity roost tree or tree within 150 foot radius of the maternity tree between June 1st and July 31st.

The range of the northern long-eared bat in the United States extends across 37 states in the eastern and north-central areas of the country, including Illinois (Federal Register, 2015 and USFWS, 2015). A contributing factor to the overall decline of the species is WNS, a fungal disease affecting hibernating bats with widespread mortality (USGS, 2015). First observed in New York in 2006, WNS has rapidly spread throughout the Northeast and Midwest; northern long-eared bat populations have been reduced by 99% in parts of its range (USFWS, 2015). The first documented observance of WNS in Illinois affecting a northern long-eared bat occurred in LaSalle County in 2013; WNS has since been documented in at least ten additional Illinois counties (IDNR, 2015). The Federal Register Final Rule (2015) listing the species as federally threatened indicates that "overall, summer surveys from Illinois have not documented a decline due to WNS to date".

Site Specific Resource Information

A qualified wildlife biologist representing the applicant determined that no suitable or known winter habitat exists on site; the nearest documented hibernacula is 100 miles north of the proposed permit and there are no caves or underground openings within the permit area. The biologist determined that no known spring staging/fall swarming habitat exists on site; no documented hibernacula is located within 5 miles of the site. The biologist determined that no known summer habitat exists on site; no documented roost trees are within 1.5 miles of the site and no summer capture records are within 3 miles of the site. These threshold distances are specified in Appendix H (USFWS 2014). The biologist did determine that suitable potential summer roosting habitat for the northern long-eared bat exists onsite in an industrial/commercial area with a fence row and isolated trees.

The applicant chose to assume presence of the northern long-eared bat in lieu of conducting field surveys. It is assumed the species is present in the proposed permit area and will be adversely affected and possibly "taken" as defined in the Endangered Species Act; assuming presence is allowed under the federal guidelines provided the project is consistent with the northern long-eared bat 4(d) rule and the appropriate documentation has been filed with the USFWS. Although not required, the Indiana bat was added to the PEP. No known or potential habitat is located within the project area, however the planting of exfoliating bark species at reclamation may potentially benefit the species by providing potential summer roosting habitat in the future.

Direct and Indirect Effects

Take of a northern long-eared bat is a possible consequence of the proposed mining operations and associated activities. Take could result from killing or injuring bats if roost trees were knocked down while occupied by vulnerable females and/or young; the applicant has committed to honor a "no cut" period during the time of year bats could be present in trees to minimize the likelihood of such take. Habitat modifications resulting from clearing trees in general could also be interpreted as take under the Endangered Species Act (Romanik 2010); the applicant has requested an Incidental Take authorization to account for this broader definition of take. The Department has determined that this project may affect the northern long-eared bat, but that any resulting Incidental Take is not prohibited by the Final 4(d) rule. Therefor this project is consistent with the USFWS January 2016 Programmatic Biological Opinion on the Final 4(d) rule. The Department and the applicant are in compliance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*).

Feeding bat species can be indirectly affected by removal of feeding habitat. Removal of feeding habitat, even if done when the bats are not present, could have indirect effects on the species until this feeding habitat can be restored. The applicant has proposed to replace the required 70% of pre-mine tree habitat that is removed during the course of proposed mining operation and associated activities. Emphasis will be placed on planting tree species that are recommended in the Guidelines (USFWS 2013) for the benefit they provide to threatened and endangered bat species.

The applicant has committed to the following measures which should serve to minimize disturbances and adverse impacts to Indiana bats and northern long-eared bats:

1. The applicant will limit tree clearing to October 15 through March 31 to avoid take of a female and/or young northern long-eared bat (unless specifically otherwise authorized by the Department).

2. There are no streams or wetlands within the proposed permit area; therefore, no riparian habitats will be disturbed during mining operations and related activities.

3. The applicant will minimize disturbed areas as described in the northern long-eared bat and Indiana bat PEP.

4. The applicant will restore woody vegetation as described in the reclamation plan and the northern long-eared bat and Indiana bat PEP using tree species known to be beneficial to threatened and endangered bat species.

5. The applicant will utilize herbaceous ground cover species as described in the northern long-eared bat and Indiana bat PEP and reclamation plan.

Cumulative Effects

Cumulative effects under the Endangered Species Act are defined at 50 CFR Section 402.02 which states "Cumulative effects are those effects of future state, or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." In the case of a mining permit being issued by the State of Illinois to a private company to develop a privately owned coal reserve, there is no federal action subject to consultation. Therefore, there are no cumulative effects to consider as that term is defined under Section 402.02. The Department nevertheless has considered other future state, county, township and private activities that are reasonably certain to occur within the adjacent land area. Adjacent and nearby land areas consist of agricultural crop land, some residential areas, and nearby county roads. Most of the adjacent acreage is owned and managed by private entities other than the permittee. The Department has no reason to believe that detrimental cumulative effects to any threatened or endangered bat species would result from the maintenance of the county road or the continued use of current management activities associated with private land management on the adjacent and nearby land holdings. The Department is not aware of any state, county, township or private activities that would reasonably be certain to occur in the area adjacent or close to the proposed permit area that would adversely affect any threatened or endangered bat species.

Summary

The Department considered the status of the northern long-eared bat, a federally threatened species with the potential to be adversely impacted by the proposed mining operations and associated

activities. Although population estimates in the Midwest are not confirmed and data is limited, estimates indicate possibly as many as four million northern long-eared bats in 6 states of the Midwest; 21 hibernacula have been documented in Illinois, mostly from the southern region (Federal Register 2015).

The Department also considered site specific resource information. The proposed permit area is within the range of the northern long-eared bat but not considered known habitat by the standards outlined in the Guidelines (USFWS 2013). The proposed permit area does have suitable potential summer roosting habitat as outlined in Appendix H (USFWS 2014) that is limited to a fence row and isolated trees. No critical habitat was identified by OREP or USFWS during consultations. In addition, no potential Indiana bat habitat was observed in the project area therefore an Incidental Take Authorization for this species is not necessary.

The Department considered direct and indirect effects of proposed operations on the northern long-eared bat. The most significant threat to the species from mining operations and associated activities is take due to disturbance of an occupied maternity roost tree. The applicant has committed to honor a "no-cut" restriction period to prevent the possibility of this type of take. Removal of trees may also affect feeding habitat; the best technology currently available for replacement of feeding habitat includes planting trees during reclamation. The applicant has committed to this post-mining reclamation activity along with other provision set forth in the northern long-eared bat and Indiana bat PEP.

The Department has considered cumulative effects as defined under 50 CFR 402.02 and has considered future state and private activities reasonably certain to occur in the adjacent area and is not aware of any such activities which could adversely affect the northern long-eared bat.

Conclusion

Pursuant to Section 1817.97(a), the applicant has proposed to minimize disturbances and adverse impacts to the northern long-eared bat by implementing measures described above, while using the best technology currently available. Following these measures will minimize and appropriately mitigate adverse impacts to the northern long-eared bat. The Department has determined that any Incidental Take of the northern long-eared bat is not prohibited by the Final 4(d) Rule.

Any Incidental Take as stated above is a take provided for by the Endangered Species Act of 1973 (16 USC 1531 et seq.) and is not a violation of this Act. Except as specifically authorized, no other take of a federally listed species is allowed; the applicant remains subject to the prohibitions found at Section 1817.97(d) of taking a federally listed species protected under the Endangered Species Act. Unauthorized take is a violation of Section 1817.97(d); in addition, failure of the applicant to implement the measures specified in the approved plan as part of this permit will subject the applicant to enforcement measures under Sections 1773.17(b), 1817.97(a), and in the case of a take in violation of the Endangered Species Act, Section 1817.97(d).

After having considered the status of the northern long-eared bat, site specific resource information, direct and indirect effects, and cumulative effects, and in the context of the applicant's commitments for measures to minimize and mitigate disturbances and adverse impacts to the northern long-eared bat and conditions imposed by the Department, the Department finds that the operation will not affect the continued existence of endangered or threatened species or result in destruction or adverse modification of their critical habitats, as determined under the Endangered Species Act of 1973 (16 USC 1531 et seq.).

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APPENDIX G

ASSESSMENT OF SUBSIDENCE IMPACTS

Sunrise Coal, LLC (Sunrise) has proposed to perform underground room and pillar mining within the shadow area delineated within Permit No. 429. The Department has determined that the subsidence control plan as modified is capable of meeting applicable performance standards of the Department's regulations.

SUBSIDENCE CONTROL:

Sunrise has based mine geometry design on acceptable geotechnical stability analysis. To continually address variations in the conditions encountered as the mining progresses, periodic geotechnical testing will be conducted to collect data on the weaker mine floor conditions. The geotechnical data will be used to evaluate variations in mine floor stability parameters to either validate the mine plan or adjust mine plan geometry as necessary to minimize the potential for subsidence. The Department finds that the subsidence control plan is designed to prevent subsidence from occurring and is acceptable. (Please see Part IV, Permit Condition V specific to mine floor stability evaluation).

Sunrise has defined areas where coal extraction will be limited under specific structures and features as additional precaution to assure stability. Sunrise's subsidence control plan commits to limit the extraction ratio to 50% within the zone of potential influence using the angle of draw method to protect all occupied dwellings, the Norfolk Southern Railroad, and mine facility structures including sediment and holding ponds. No coal extraction is proposed beneath the refuse impoundment. The Department finds that the subsidence control plan has demonstrated that subsidence will not cause material damage to these features.

Sunrise has provided the location and approximate depths of known wells potentially used as drinking, domestic and residential water supplies derived from available public records and responses to an individual water resources survey. Sunrise has demonstrated that material damage is not likely to occur to these wells. Therefore, no surveys to determine quantity or quality of drinking, domestic or residential water supplies are deemed necessary at this time. The Department finds that an exemption can be granted pursuant to 62 Ill. Adm. Code 1784.20(b)(7).

In the unlikely event, unplanned subsidence occurs and results in surface damage, Sunrise will be required to restore pre-mining capabilities to surface lands. Similarly, any materially damaged surface structure must be rehabilitated, replaced, or compensated in the full amount of the diminution in value. Any drinking, domestic, or residential water supply as defined in 62 Ill. Adm. Code 1701.5 that is affected by subsidence must be repaired, replaced, or compensated for. In the event differences of opinion occur concerning the existence of subsidence damage, or the amount of material damage caused by subsidence, Sunrise has presented procedures they will employ including a mutually agreed upon neutral third party to resolve such disputes.

The Department finds that Sunrise's subsidence control plan, as modified, is in accordance with 62 Ill. Adm. Code 1784.20.

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