Peabody Arclar Mining, L.L.C.

Rocky Branch Mine

401 Water Quality Certification

Responsiveness Summary

Regarding

February 18, 2014 Public Hearing

Illinois Environmental Protection Agency

Office of Community Relations

July 7, 2014

Peabody Arclar Mining, L.L.C.
Rocky Branch Mine
401 Water Quality Certification---Responsiveness Summary

Table of Contents

Final July 7, 2014

Peabody Arclar Mining, L.L.C.
Rocky Branch Mine
401 Water Quality Certification
IEPA Log Numbers C-0317-12

ILLINOIS EPA DECISION

On July 7, the Illinois Environmental Protection Agency (Illinois EPA) issued the Peabody Arclar Mining L.L.C., a 401 Water Quality Certification for Rocky Branch Mine.

The Illinois EPA made this determination in accordance with 35 Illinois Administrative Code (Ill. Admin. Code) Subtitle C (*Water Pollution)*, the Illinois Environmental Protection Act and the federal Clean Water Act. The 401 certification process is governed by the provisions of 35 Ill. Admin. Code Part 395, *Procedures and Criteria for Certification of Applications for Federal Permits or Licenses for Discharges into Waters of the State*, which can be obtained online at http://www.ipcb.state.il.us/documents/dsweb/Get/Document-12064/

PRE-HEARING PUBLIC OUTREACH

The 401 Water Quality Certification hearing notice was published in the *Harrisburg Daily Register on December 30, 2013 and January 6 and 13, 2014.*

The hearing notice was mailed or e-mailed to:

a) Saline county officials;
b) municipal officials in: Harrisburg as well as state and federal representatives;
c) Corps of Engineers, the IDNR Office of Mines & Minerals, and the Illinois' Attorney General;
d) Illinois Chapter of the Sierra Club, Prairie Rivers Network and the Environmental Law and Policy Center (hearing requestors); and,
e) those requesting to be on the hearing officer's mailing list for such notifications.

The hearing notice was posted on the Illinois EPA website:
http://www.epa.state.il.us/public-notices/2013/peabody-arclar/hearing-notice.pdf

Hearing notices were posted at the Illinois EPA headquarters in Springfield and in the Marion Regional Office.

PUBLIC HEARING of February 18, 2014

Hearing Officer Dean Studer opened the hearing February 18, 2014, at 7:30 p.m. at the Harris-Pruett Community Building, 107 East Church Street, Harrisburg, Illinois.

Illinois EPA Presentations:

Thaddeus Faught, Facility Evaluation Unit Project Manager, provided a brief presentation regarding the 401 certification process and the application.

Comments and questions were received from the audience.

Hearing Officer Dean Studer closed the hearing at 9:00 p.m. on February 18, 2014.

Illinois EPA personnel were available before, during and after the hearing to meet with elected officials, news media and concerned citizens.

Approximately 60 persons representing neighbors, local government, businesses, miners, elected officials, environmental groups, interested citizens, and Peabody Arclar Mining L.L.C. participated at and/or attended the hearing. A court reporter prepared a transcript of the public hearing which was posted on the Illinois EPA website. http://www.epa.state.il.us/public-notices/2013/peabody-arclar/hearing-transcript.pdf

The hearing record remained open through March 19, 2014.

BACKGROUND OF PEABODY ARCLAR MINING, L.L.C.
Rocky Branch Mine
401 Water Quality Certification

The IEPA Bureau of Water has received an application for a Section 401 water quality certification (Log Number C-0317-12) for discharge into waters of the United States associated with a Section 404 permit application (USACE application Number 2012-1006) received by the United States Army Corps of Engineers. The address of the applicant is Peabody Arclar Mining, L.L.C., 7100 Eagle Crest Boulevard, Evansville, IN 47115.

The applicant has applied for Section 401 water quality certification for impacts associated with a new surface coal mine. The Rocky Branch mine would be located east of the Cottage Grove mine, which is nearing completion of mining. Approximately 8.8 million tons of recoverable coal is within the multiple seam mine. Two pits are proposed for mining at Rocky Branch, Pit 1 (east) and Pit 2 (west). Pit 1 is located south of Illinois Route 13 approximately 3.6 miles west of the town of Equality, Illinois. Pit 2 is located south of Illinois Route 13 approximately 7.0 miles west of Equality. Both areas are in Saline County, Illinois and approximately 3.4 miles apart. Stormwater runoff from 1091.8 acres of land would be routed through sediment basins and permitted outfalls. For the purposes of this assessment, it is assumed that the entire catchment area would potentially be mined. Multiple unnamed tributaries and Rocky Branch would be affected by this activity.

The areas reviewed in the 401 water quality certification application included 800 acres for Pit 1 and 291.8 acres for Pit 2. Activities in Pit 2 will include impacts to unnamed tributaries of the Middle Fork Saline River, open water and unnamed wetlands. These impacts are due to coal extraction, construction of sediment and drainage controls, spoil storage areas and sediment basins. There will be no impacts or increased loadings of chlorides to the Middle Fork Saline River.

Responses to Comments, Questions and Concerns

Comments, Questions and Concerns in regular text
Agency responses in bold text

Antidegradation Assessment

1. First off, I will have one question for you, but I just want to address a couple of things that you mentioned in this document here. If we can go ahead -- and what I want to address is on page three it says purpose and social and economic benefits of the proposed activity. The second sentence says, According to information given by the applicant there will be significant social and economic losses experienced by the local economy if the mining plan does not proceed as planned. That is what you wrote. Specifically 200 direct jobs with a payroll of $21.6 million annually would be lost. Again, what you wrote. I'm assuming they've given you proof of this. However, if you divide 200 into 21.6 million, you get an awfully large number. You get over $100,000 a person, so you guys are being paid or coal miners are being paid over a hundred thousand dollars to be a coal miner? That's pretty interesting. And why I'm bringing that up is that I'm asking you do you fact check what Peabody gives you?

   Illinois EPA requested that the applicant provide confirmation of the facts that were originally submitted in the antidegradation assessment regarding the social and economic benefits of the project along with any references for the information provided. The applicant provided a June 19, 2014 correspondence from Operations Manager John Keller that confirms that annual payroll for the projected approximation of 200 mine employees will be $23.1 million annualized, which includes wages and benefits. All of these mining jobs involve the transfer of employees from an existing mine that will soon close. Additionally, this correspondence confirms that the mine operation would provide over $400,000 in annual tax revenue to Saline County and will generate $1.5 million annually in Illinois state sales tax. Peabody also provided a February 2012 Illinois Department of Commerce and Economic Opportunity fact sheet on coal stating that the average coal miner earned $76,371 per year and 46.4 percent of the electricity used in Illinois is generated by coal.

   In the antidegradation assessment the applicant provided socioeconomic data on Saline County to illustrate the need for the jobs and other economic activity that would be provided by the mine: In 2013, the unemployment rate was 9.2 percent in Saline County. In 2012, 21.0 percent of Saline County's population was classified as living below poverty lines. These figures were referenced by the applicant in a paper (with an undated release) by the Social IMPACT Research Center at Heartland Alliance, Chicago, Illinois.

2. Those numbers (200 direct jobs with a payroll of $21.6 million would be lost) are repeated again under no mining on page four. And again you say that there will be economic losses and that that will happen if they are not allowed to mine, but I'm assuming those economic losses would happen if they are not given this permit, because we are talking about the permit, and that's

probably why they are in here. So this brings me to my question to the board. As the EPA you are to protect the environment, correct? Right? Do you make recommendations to whoever makes its permit application? Do you give them recommendations, if you deny them a permit? Let's say we'll tell Peabody, no, you can't have this permit, but maybe you should invest in renewable resources. Would that be something your office would do?

The Antidegradation regulation at 35 Ill. Adm. Code 302.105 requires the Agency to include information in its antidegradation assessment fact sheet on the project's benefits to the community at large including the increase or the retention of current employment levels at a facility. The Agency is authorized to review the 401 water quality certification application to determine if it complies with applicable water quality regulations, including Section 401 of the Clean Water Act and 35 Ill. Adm. Code Part 395. If the Agency were to deny a certification application, the Agency would advise the applicant which regulations were not being met by the proposal. Making recommendations on investments is not under the purview of the Agency.

3. What sort of coordination occurs between your Agency, the 401 Section, and the Department of Natural Resources Office of Mines and Minerals? Because right now they have a mine permit application before them and are considering the stream buffer rule, which is required under SMCRA and Peabody has asked for an exemption from that stream body rule and it seems like that's only relevant if the 401 certification is denied. I just wonder timeline-wise, you know, are you coordinating with Army Corps of Engineers, DNR, OMM to talk about your decision and how that might impact their decision?

   The Agency 401 staff coordinated with the Agency's Mine Program which coordinates their reviews with IDNR OMM. Since the IDNR/OMM SMCRA mining application is a joint application to the Agency for a NPDES permit, the Agency's Mine Program reviews the SMCRA permit application and issues a review letter to both the Applicant and OMM identifying deficiencies in the application relative to Agency and NPDES issues. It is typical and common for informal meetings and/or conference calls to be held between OMM/Land Reclamation and the Agency's Mine Program to discuss such issues as surface drainage control, sedimentation basin designs, groundwater protection and monitoring, etc., to insure coordination and consistency between Agency requirements. Once issued, the 401 water quality certification is sent to the US Army Corps of Engineers and conditions of the 401 water quality certification are required to become part of the U.S. Army Corps of Engineers Section 404 permit. Because of the coordination that occurred between the Agency's mine program and OMM, the Agency's 401 staff did not need to coordinate directly with IDNR OMM on this project.

4. One of the things that Joyce Blumenshine brought forward was the modifications that are being asked of Peabody by DNR and some of the things that were brought up were the fact that they didn't identify seeps in springs, even though local residents have said they have spring fed ponds or they have seeps on their property. And I wonder if the 401 section of IEPA has gotten any information from Peabody or anyone from your agency has done a survey on your own of groundwater seeps and springs knowing that the Clean Water Act does require you to detect those?

The applicant identified one groundwater seep at the project site during the stream and wetland delineation that feeds Wetland 1PW7. Wetland 1PW7 is 0.49 acres and will be impacted by the construction of a boxcut spoil storage area. Mitigation for these impacts is included in the applicant's mitigation plan. The delineation was verified and accepted by the US Army Corps of Engineers.

5. I do have a letter here, which I'll present as an exhibit. It is from the United States Department of Interior, U.S. Fish and Wildlife Service dated November 12, 2013, to IDNR. It talks about some things that I would like to ask if these things were included in any considerations of the value of the site for anti-degradation. And one of those issues is the over 200 acres -- 206.8 acres of forest on this site. Is any value given to the oxygen or the land holding qualities of forest that exist currently on this site?

   The correspondence was from U.S. Fish and Wildlife Service to IDNR. IDNR responded to USFW concerns in the Results of Review for Permit 428 issued March 11, 2014. IDNR concluded that the applicant's Protection and Enhancement Plan (PEP) did not violate any regulatory requirements and was appropriate for use during mining and reclamation activities.

   The applicant will incorporate the "best management practices" for soil erosion control measures to curtail potential soil runoff. The value of oxygen emitted from a forest is outside the scope of antidegradation assessment.

6. On page three there's a section purpose and social and economic benefits of the proposed activity. The IEPA needs to also list the detriments of the proposed mining in the antidegradation assessment. You need to consider both pros and cons to be able to evaluate the proposed mining impacts on the community at large, which is something you need to do before you certify the Army Corps permit, just as you need to do with regards to the NPDES permit.

   The antidegradation standard requires that applicants or the Illinois EPA provide the anticipated negative impacts of the project on the water bodies including increase in pollutant loading or habitat loss, deterioration of the aquatic community, loss of resident or indigenous species or loss of designated uses which was provided in the application and antidegradation assessment fact sheet.

   Based on this and information provided in the record, the Agency has determined that the project would benefit the community at large. The socioeconomic benefits were considered in conjunction with all other requirements of the antidegradation regulation.

   Also refer to response 1 and 10.

7. You mentioned once mining has been completed that reclamation begins immediately. Can you define that term in months, weeks, years and how long is immediate?

IDNR is responsible for land reclamation under permit #428. IDNR stated in their response to a similar question with the following:

> **The Department thus finds the land 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 1816.133.**
>
> **(Appendix D-2: Findings from Public Hearing Responsiveness Summary; IDNR-OMM Permit #428 issued 3/12/2014)**

IDNR requires the applicant provide specific goals and timelines for land reclamation once mining operations have ceased. Some are immediate, others are required over time. Refer to IDNR regulations, 62 Illinois Administrative Code 1700 and 1800. Additionally IDNR holds a bond on the property, not to be released until all requirements of the permit are satisfied. IDNR also has provisions which can extend a mandatory 5-year monitoring requirement to ensure compliance.

Peabody submitted a Mitigation Plan with the 401 Certification application. In Section 3: <u>Mitigation Work/Implementation</u>, there are specific goals and timelines presented to meet land reclamation requirements. All restoration is proposed to be completed by 2021 (wetlands) and 2022 (streams). Also Section 4: <u>Success Criteria</u>, outlines specific acceptable rates of success to determine if wetlands and streams are meeting projected goals.

8. The evaluation of the Peabody proposal has omissions, such as not recognizing springs and seeps in the planning area that would be affected by the proposed operations. The Army Corps of Engineers has also pointed out that Peabody Arclar has submitted an inadequate representation of the regrading and restoration plan.

   See response 4 above regarding springs and seeps. The applicant also provided a response to the Army Corps of Engineers dated July 3, 2013 that further explained the regrading and restoration plan. In that response, the applicant explained how the computer program Natural Regrade will be used to develop natural channel stream mitigation and how topography is managed to support the proposed mitigation plan. The Agency has determined that the proposed mitigation plan is adequate and the U.S. Army Corps of Engineers also approved the mitigation plan.

Mitigation Plans

9. The applicant proposes to destroy nearly 35,000 linear feet of headwater ephemeral, intermittent, and perennial streams. The mitigation plan has not been improved since the first public notices of the 404 permit and the 401 certification. Despite our earlier objections, the Peabody Response makes no mention of ecological function. Ecological functions of headwater streams include processes such as biomass production and export, nutrient uptake and processing, and organic matter decomposition. There is no evidence that any ecological

functions have been measured in these streams. In its response to public comments, Peabody refers primarily to measures of, and mitigation of, physical functions related to hydrologic processes and some rapid biological assessments at a subset of sites. However, none of these are actual measures of ecological functions. Rapid biological assessments provide basic information on ecological integrity and diversity of some stream animals, but are not measures of ecological functions. Without such measures, it is impossible to know what will be lost in the mining process and, thus whether mitigation is successful.

The Antidegradation standard requires a physical, biological, and chemical characterization of water bodies to be affected by proposed pollutant load increases or activity, which is used to determine the existing uses of the affected water bodies. The ecological function of a stream is inherently comprised of the physical, biological, and chemical integrity it possesses. Processes such as biomass production and export, nutrient uptake and processing, and organic matter decomposition are all derivatives of the physical, biological and chemical integrity of a stream. Mitigation will result in reconstructed streams that possess qualities as good or better than those currently existing, which will subsequently restore or enhance the ecological functions of these streams.

10. The other concerns for the antidegradation are if there is anything that the mine has to do to mitigate for loss of habitat, for loss of plants and animals during the mining? I respectfully submit that the whole process misses the point that habitat is lost, there is degradation and yet these mines are continuing with what is called their best practices, like, you know, the things they've been doing for a hundred years. The sediment ponds and destroying the topsoil of the land and then waiting and trying to put things back together.

    The antidegradation water quality standard exists in the context of other laws and regulations. Coal mines are regulated using these legal directives with antidegradation requirements working in tandem. The other regulations recognize that a period of time will exist at the mine during which the resource is impacted while mitigation or reclamation is not able to proceed. Implementation of the antidegradation standard must recognize this reality as do the other regulations. The end result of antidegradation and other regulations is that the mined land must be restored to previous or higher uses and aquatic uses of surface water are protected and mitigated.

    Also see responses 7, 16, 18 and 26.

11. My next questions are about the mitigation and that's described at the top of that permit and there's a couple of sentences there that I'll just read. They say aquatic communities, at least as diverse as currently inhabiting streams will return on reclamation. And then there's a second sentence says, The streams restored will be constructed to "as good or better quality than previously existed." What's the basis for those statements? Is that Illinois EPA speaking or is that Peabody speaking there?

The reference to restoration being returned to "as good or better quality" is used in a similar manner throughout IDNR mitigation regulations. This is a goal of this Agency as well.

Also refer to responses 7 and 18.

12. The next thing I want to read is from a document that I know is in the IEPA's 401 certification file, because it was cc'd to Thad and it is a letter from Peabody Mining to the Army Corps of Engineers dated July 3, 2013. And in it Peabody is responding to issues that a number of organizations raised. And Sierra Club and Prairie Rivers had noted that the mitigation plan did not fully compensate for the ideological functions that will be lost by the streams destroyed and Peabody in their answers says ephemeral streams, while proposed to be constructed at one-half the existing length, that means that they are going to destroy, you know, for example, 2,000 feet of stream and only replace it with a thousand feet of stream, will be constructed with 21 enhancements that will provide a functional lift above the present conditions. The functional lifts will be comprised, but not limited to, placing, repairing buffers consisting of hard mass tree species. And I just question how can Peabody remove these streams that we find now in a mature forest, replace it with a 25-foot width buffer planted with we know what will be very young trees and then call that an ecological lift in function beyond what is there?

Stream mitigation will include such improvements as stabilizing stream bed and banks by using natural methods rather than armoring, improving riparian habitat, reducing flood levels, routing sediment, conveying surface water, and creating a natural looking system. Some streams will have enhanced linear, and natural channel design mitigation with unaffected streams, grade control structures will be incorporated into the proposed channel design to maintain stream stability. Grade controls will be provided by cross vanes, step pools, or rock sills at appropriate locations to prevent any destabilizing effects to propagate into the natural design restored reaches in the future. Also see responses 7 and 13.

13. I wanted to also note that U.S. Fish and Wildlife service recommended that mitigation should be done at a one to one ratio instead of a 0.5 to one ratio. The USEPA has stated that more mitigation is needed. This gets to the issue that Joyce Blumenshine raised about temporal losses. The USEPA said that the Corps must determine the appropriate amount of additional mitigation needed to offset the temporal loss until successful mitigation is achieved. The USEPA also said in addition cumulative impacts are significant and mitigation for this project needs to account for these impacts on the watershed. So, you know, Fish and Wildlife Service, USEPA are both saying the mitigation is insufficient. I ask you to look back at are we truly avoiding minimizing and then mitigating the loss of function?

Section 2: Goals and Objectives of the Proposed Mitigation, Subsection B: Mitigation Ratios, Page 48 provided in the Section 401 Water Quality Certification Application has breakdowns of ratios in table form for the different stream mitigation. All perennial and intermittent streams mitigation rates were calculated using a 1:1 ratio. The ephemeral streams were calculated using a 0.5:1 ratio.

The proposed mitigation plan was developed by the applicant with oversight and approval from the USACE and Illinois EPA. Rather than replacing ephemeral streams at a 1:1 ratio, the Applicant proposed to mitigate these streams with in-stream enhancements and increased riparian buffer widths. These streams will be the replacements for existing streams located within the permit area. The applicant's proposal includes 25 foot riparian buffers on each side of the restored ephemeral stream. Riparian buffers will be planted at the top of the banks to provide sediment control, bank stability, and travel corridors for various species of birds and animals. The mitigated streams will be constructed with straight channels, but entrenchment ratios will be lessened and banks with lower slopes will be employed to provide for a more stable stream with less bank erosion. The channel will be vegetated and grade control will be employed as necessary to curb erosion or reduce stream velocity.

Also see responses 12, 15 and 18.

14. I do want to ask IEPA after mitigation is done for such a mine do the streams function? Do you go back and assess the sediment control and the discharges after the mine is done with reclamation?

The 401 water quality certification requires the applicant to monitor the mitigation sites for a minimum of 5 years in accordance with the approved mitigation plan. Annual reports are required to be submitted to the Agency that outline how the mitigation is performing and if performance standards are being met. Annual reports for wetland mitigation will include information on wetland hydrology, hydric soils and hydrophytic vegetation to determine when the wetland mitigation areas meet the criteria of jurisdictional wetlands. Annual reports for stream mitigation will include assessment of the geomorphic features of the streams by the Rosgen method and evaluate riparian vegetation to determine when the streams have developed into natural stream channels. Natural stream channels will have a stable cross-section, stable meander pattern and a stable profile such that the channel features are maintained and the stream maintains stability. If the mitigation is not meeting performance standards, the applicant must perform corrective measures. Once performance standards are met and the mitigation is deemed successful, issues with sediment control and discharges are not expected. The Agency's Mine Program does perform inspections of reclaimed facilities which are commonly in response to a request for reclassification of an outfall, cessation of monitoring of an outfall or termination of a NPDES permit. These inspections focus on sediment basin watersheds to determine if such areas meet the definition(s) under the regulations and if it is acceptable to have the outfall classification changed, if it is acceptable to delete monitoring of an outfall, or if acceptable to terminate the NPDES permit.

15. The 401 Certification for the Rocky Branch Mine should not be issued as proposed. The proposed mitigation plans for stream restoration and wetlands mitigation are inadequate.

The Agency has determined that the mitigation plan is acceptable. See responses 14 and 16 regarding the mitigation plan. The proposed mitigation plan was developed by

the Applicant with oversight and approval from the USACE and the Agency. Mitigation would result in reconstructed streams that possess qualities as good as or better than those currently existing, which would subsequently restore or enhance the ecological functions of these streams. The in-stream enhancements will allow for aquatic functions to be restored without a 1:1 replacement of linear feet of stream. Forested wetlands are proposed to be mitigated at a ratio of 3:1 and some emergent and unconsolidated bottom wetlands are proposed to be mitigated at a ratio of 2:1. All remaining emergent and unconsolidated bottom wetlands are proposed to be mitigated at a 1.5:1 ratio. The Agency has determined the mitigation ratios are appropriate. Discharges from the mining operations are also subject to NPDES permit IL0079936.

16. I question the adequacy of the ratio of existing wetlands that would be destroyed (6.13 acres) to restored wetlands (9.87 acres), which would be approximately 1.00:1.5 ratio. Wetland restoration experts recommend a 1:00:3:00 ratio, since it is very difficult to restore wetlands to original productivity. Also, since over 90 percent of wetlands in Illinois have already been destroyed, the Army Corps and EPA should use the higher standard.

    Section 2: Goals and Objectives of the Proposed Mitigation, Subsection B: Mitigation Ratios, Page 47 provided in the Section 401 Water Quality Certification Application has breakdowns of ratios in table form for the different wetland types and the corresponding mitigation ratio. Forested wetlands are proposed to be mitigated at a ratio of 3:1 and some emergent and unconsolidated bottom wetlands are proposed to be mitigated at a ratio of 2:1. All remaining emergent and unconsolidated bottom wetlands are proposed to be mitigated at a 1.5:1 ratio.

    All restored wetlands will include temporarily flooded broad-leaved deciduous forested wetlands. This will restore all the emergent and unconsolidated bottom wetlands to a higher quality than existed before mining or related activities. Since the wetlands in question are to be restored to a higher quality the ratios of 2:1 and 1.5:1 are appropriate.

    Wetlands were delineated using methodologies outlined in the Corps of Engineers Wetland Delineation Manual as well as the Regional Supplement to the Corps of Engineers Wetland Delineation Manual.

17. Mitigation plan lacks adequate assessment of current site hydrology. Stream reaches in the permit area have been categorized as permanent, intermittent, and ephemeral, but there is no detailed information on hydrology and associated physical variable such as temperature. The hydrologic characterizations appear based on a few visual assessments rather than detailed information on stream flow patterns, which could easily be obtained from water level data loggers strategically placed in representative stream reaches throughout the permit area.

    The applicant's Section 401 Water Quality Certification Application did include information in a Biological Assessment and Water Quality Report on water quality for temperature, pH, total dissolved solids, Iron, Manganese, Alkalinity and turbidity. The streams were delineated using USEPA Rapid Bioassessment Protocol. IDNR also

requires future SMCRA receiving stream sampling be conducted on a quarterly basis to ensure adequate flow and representative water quality.

The Agency has determined that adequate information was provided in the Section 401 Water Quality Certification Application to properly assess the streams according to the antidegradation requirements in 35 Ill. Adm. Code 302.105.

18. The post-mining, man-made streams will not function as streams. The mitigation plan is based on creating new streams that are similar to existing streams on the site, yet there is no evidence presented that even if a channel form is created, it will function ecologically at the level that destroyed and impacted streams functioned prior to being mined through by the proposed project. Even if there is some downstream connectivity to existing channels and the possibility that groundwater will reach "created" streams, without a quantitative evaluation of groundwater and surface flow paths and soil and substrate porosity it is not clear that even the hydrology could mimic intact streams.

    The Agency has determined the streams were adequately characterized in the Section 401 Water Quality Certification Application to determine function and configuration.

    IDNR answered a similar question regarding "created" streams for this proposed project with the following:

    "To the contrary, the Department believes there is overwhelming evidence that ecological function of created stream channels can approximate and replace that of natural streams and that the requirements of 62 Ill. Adm. Code 1816.43 can be achieved based upon having done so in numerous case examples in southern Illinois. These including the following: the Galum, Bonie, Pipestone and White Walnut streams successfully restored under IDMM Permit Nos. 74, 152, 169, 78 and 68. All of these have achieved full bond release under the permanent program.

    The 2009 USDI-OSM 2009 Technical Interactive forum paper presentation by Nawrot and O'Leary provides a narrative documentation of those successes (Nawrot, J and W.G O'Leary, 2009, "Illinois Stream Restoration-Opportunities for Habitat Enhancement: Policy, Principles, and Practices." Pages 183-196 in K.C. Vories, A.H. Caswell, eds. USDI-OSM & Coal Research Center, SIUC, Proceedings – Geomorphic Reclamation and Natural Stream Design at Coal Mines, April 2009, Bristol, VA, USA, 226pp). "

    (Appendix B-26, Findings from Public Hearing Responsiveness Summary; IDNR-OMM Permit #428 issued 3/12/2014)

    The Agency concurs with this response.

Stream Characterization and Alternatives

19. This mine operation will destroy several miles of streams and several acres of wetlands impacting drainage, flooding, water supply, water quality and aquatic life and I would like to know what alternatives to mining through these water resources were considered?

The assessment of alternative mining methods concluded that because of the limited reserve size and configuration there are no feasible alternative methods to area surface mining.

By utilizing area surface mining, 95 to 98 percent of the coal is recovered, whereas in underground mining (i.e., room and pillar method), the basis of recovery is from 50 to 60 percent of the coal seam mined. Since the Rocky Branch coal reserve occurs in three to four separate seams, over 85 percent of the reserve potentially could remain in place if mined by underground methods.

Pod mining, auger mining, project relocation and "no mining" alternatives were also compared. Pod mining and auger mining are not economically feasible for the applicant as an alternative, as it would require excavation of numerous pits and support areas and less than 50 percent of the coal reserve could be recovered from only one of the seams. Project relocation would have the same affects as the proposed project and the new location would be dictated by site specific geology (i.e., mine-able resources), therefore no net benefit would be achievable. No mining as a means to reduce pollutant loading is not a reasonable alternative due to associated economic losses.

Also see responses 24 and 26.

20. I would like to submit that I think the only reason those specific alternatives to mining were not actually given full consideration is because there is coal underlaying these streams and there would be a loss of profit for Peabody to go around the streams, but in reality for the folks living in the community the streams serve many different purposes and values that are not recognized in your anti-degradation regulations. So I would like for some of the comments that are brought forward tonight to be considered not just under your rules and regulations in terms of clean water, but also for the economic benefits, the livelihood these folks rely on these streams and water bodies for.

Environmental impacts and profitability were evaluated by the Applicant when selecting the project location and the proposed mining plan. Streams used for livestock watering will be restored and available for general use. Stream restoration will also reduce erosion and surface water runoff. Prime farmland will be replaced as specified in the IDNR permit #428.

See responses 18, 19, 23, 24 and 25.

21. At the bottom of page one there's a discussion of the sampling that Peabody Mining conducted and it says sampling was conducted during a time of high stream flows because it was raining the preceding week and that collection processing and analysis were conducted following Agency procedures as best as possible. So my question is would Illinois EPA typically utilize biological samples that are taken during a high stream flow?

Base flow is preferred for conducting Agency stream assessments, as the majority of assessed streams are wadeable and contain flow sufficient enough to sustain aquatic life, yet still be safely sampled, under these conditions. Streams may be assessed at higher stream flows provided they are still wadeable and can be safely sampled following Agency protocols. For the sampling conducted at the proposed mine, the higher stream flows were considered favorable given that these are headwater streams that often contain little, if any water during summer conditions and do not have sustainable fish populations. Higher stream flows during the time of sampling allowed for pioneering fish species to temporarily inhabit these areas and be collected.

22. And then on the top of page two there's a discussion of the value for the macroinvertebrate IBI and the fish IBI that are indicative of a stream that's fully supportive of aquatic life use. And my question is that criteria for downstream larger streams or is that a criteria for a headwater stream, such as those found here?

    In general, a macroinvertebrate Index of Biotic Integrity (IBI) of ≥41.8 and a fish IBI of ≥41 are required for a stream to be considered fully supportive of aquatic life use. These criteria were primarily developed for wadeable streams, but were listed in the Antidegradation Assessment as a means to characterize the biotic integrity of the headwater streams on site.

23. On page three, the section fate and effects of parameters proposed for increased loading and as you recall to be granted a 404 permit the applicant is first to consider how can they avoid impacts to streams and wetlands, then minimize those impacts and then lastly mitigate for any remaining impacts. So at the bottom of that paragraph it talks about that avoidance area of about 28 acres was identified. My question is where there other areas evaluated as potential avoidance areas?

    The applicant carefully considered the original mining footprint to limit impacts to jurisdictional waters and no other alternatives to the planned disturbance were considered to be available without leaving a large volume of high quality coal reserve. The size of the area to be disturbed to facilitate coal removal was minimized to the greatest extent possible and on-site mitigation is proposed for all regulated disturbances. The proposed avoidance area covers an area of 27.6 acres and will not disturb a total of 4,455 linear feet of streams that includes 3,079 linear feet of ephemeral streams and 1,356 linear feet of intermittent streams. The final disturbance area was proposed by the applicant after the ACOE requested the avoidance area include a higher quality natural forested stream valley within the permit area.

24. On page four there is one of the alternatives considered is pod mining and there's a there's a paragraph about pod mining and my question is, is the language that we see here, is this a summary of what Peabody had to say about pod mining or is it their whole evaluation? Specifically I wondered if they gave actual costs, because they are claiming that the pod mining costs will be much higher than the mining through the streams that they plan.

    The applicant's evaluation of Pod mining taken from the Section 401 water quality certification application is as follows:

Pod mining would consist of the excavation of smaller pits in between the aquatic resources. This technique would make mining economically unfeasible as mining costs would more than double while coal recovery would diminish dramatically. Furthermore, the aquatic resources are interspersed in such a fashion, that any excavated pit could not avoid impacting aquatic resources. Each pit would have to be excavated to the lowest coal seam with lay back areas on all sides to ensure safe operating conditions. Additional lay backs would be needed to allow for construction of separate diversions and sediment basins for each pod area. The overburden from each pit would have to be stockpiled and then replaced into the pit after coal removal, as opposed to conventional surface mining where pits advance continuously with overburden being deposited in the previous pit. Coal recovery would be lost under each aquatic resource, the related pit and drainage control lay back areas and overburden stockpile area. The extra costs associated with these factors, coupled with less recovery of the resource, eliminates pod mining as an option. This type of mining would result in an inconsistent supply of coal to processing facilities, transportation facilities and ultimately to the electric utilities.

Avoiding all streams and wetlands would eliminate surface mining as an option. The streams and small wetlands are interspersed throughout the reserve area in such a manner that surface mining could not occur with avoidance of all the streams and wetlands.

No specific cost figures were provided by the applicant. Total recoverable coal percentages and current market values were used to determine economic feasibility of the overall project. See response 19.

25. I also question the evaluation of the present condition of the streams that would be affected by the proposed operations. It seems that Illinois EPA and the COE are not adequately taking into consideration the concerns of scientists, such as Dr. Matt Wiles of Southern Illinois University Geology Dept.; John Tyner, a professional hydrologist; and the USFWS scientists. Thus, it would seem that EPA should look at all the scientific evidence and opinions before allowing the 401 Certification to go forward.

The applicant provided a memorandum dated February 10, 2014 by Dr. Greg A Olyphant, Professor of Geological Sciences at Indiana University – Bloomington in response to comments (in particular Dr. John Tyner) refuting the opinions critical of the proposed coal mine activities.

All provided information including the subject evidence and opinions were reviewed by the Agency in making the final decision.

26. Applicant must assess feasibility of further minimizing environmental degradation. A 401 certification must include an assessment of alternatives to proposed increases in pollutant loading that result in less of a load increase, no load increase or minimal environmental degradation. The applicant's duty to assess alternatives must include an examination of the

economic and technical feasibility of proceeding with minimal environmental degradation. Thus, before certifying coal mining fills of streams and wetlands, the agency must determine whether it is economically or technically feasible for the applicant to avoid and/or minimize such fills.

All proposed alternatives were reviewed and applicant's analyses were considered. The applicant will take all necessary "best management practices" available to minimize impacts, control runoff and protect public safety with IDNR oversight. See responses 7 and 24.

Other Issues

27. Does the IEPA have the authority to refer a case to the Illinois Attorney General when permit violations are found and, if so, how many times has the EPA done so in the past?

    The Agency has the authority to refer an enforcement case to the Illinois Attorney General's Office pursuant to Section 31 of the Illinois Environmental Protection Act.

    The total number of wastewater cases referred to the Illinois Attorney General's office for the years 2011, 2012, and 2013 was approximately 166 cases.

28. The Illinois EPA has one of the strictest clean water acts on the books anywhere in the nation. Yet in all of the research that I have done it states that the Illinois EPA rarely, if ever, takes action against mining operations. Why is that?

    Illinois EPA respectfully disagrees with this comment. Illinois EPA has enforcement authority under Section 31 of the Illinois Environmental Protection Act to take legal action against those that violate the Act, the Agency's regulations, the Clean Water Act and violations of the requirements of any permit. Illinois EPA has in the past taken enforcement action against mining operations and will continue to do so if needed.

29. The 401 permit should be suspended, in that the Illinois EPA is still in the process of receiving public comments on their new proposed Rule for coal ash waste, and the federal EPA is also still in a similar process of updating their Clean Water Act NPDES regulations (http://cfpub.epa.gov/npdes/stormwater/msgp.cfm). Both these state and federal revisions were prompted by a 2008 disaster when a Tennessee TVA power plant dam failed, flooding the surrounding residential area with more than one billion gallons of toxic coal ash. This is not a one-time risk of the coal industry, as West Virginia's and North Carolina's Dan River toxic waste dumping incidents just demonstrated recently. West Virginian's and North Carolinians must now purchase high-priced water trucked in from other regions. Already in southern Illinois, the Illinois EPA has found part of Sugar Creek over the Herrin coal seam to be dead (http://www.epa.state.il.us/water/tmdl/report/sugar-creek/sugar-creek-report-final.pdf), and water quality problems are noted in the Randolph County coal mining region (http://www.ipcb.state.il.us/documents/dsweb/Get/Document-77912). Moreover, evidence of arsenic pollution of water by the nearby Willow Lake mining area (not to forget bad safety record) warrants more investigation before further poisoning the community's drinking water and river, streams, creeks and watersheds by Peabody Arclar and its mining procedures.

Tributaries of the Cockerel Branch, Rocky Branch, Saline River, ponds and wetlands will be similarly impacted by Peabody's Rocky Branch Mine.

The record was closed on this certification application on March 19, 2014 and the Agency has an obligation to complete review of the Section 401 water quality certification application. Coal ash is not proposed to be disposed of at this site. The Agency has reviewed the project with respect to applicable regulations and determined that water quality standards can be met.

30. While this Illinois EPA hearing focuses on water quality, will there be a hearing on clean air quality?

At the time this responsiveness summary was written, the Agency did not have an application for a permit from the Bureau of Air and no public hearing has been scheduled for a Bureau or Air permit for this site.

Acronyms and Initials

IEPA, Agency, or Illinois EPA	Illinois Environmental Protection Agency
401 WQC	401 Water Quality Certification
IBI	Index of Biotic Integrity
IDNR	Illinois Department of Natural Resources
Ill. Adm. Code	Illinois Administrative Code
NPDES	National Pollutant Discharge Elimination System
OMM	Office of Mines and Minerals
Section 401	Section of the Federal Clean Water Act
SMCRA	Surface Mining Control and Reclamation Act of 1977 (federal)
USACE	United States Army Corps of Engineers
USDI-OSM	United States Department of the Interior-Office of Surface Mining
USFWS	United States Fish and Wildlife Service

DISTRIBUTION OF RESPONSIVENESS SUMMARY

An announcement, that the 401 water quality certification decision and accompanying responsiveness summary is available on the Agency website, was mailed or e-mailed to all who registered at the hearing and to all who sent in written comments. Printed copies of this responsiveness summary are available from Barb Lieberoff, Illinois EPA, Office of Community Relations, 217-524-3038, email: barb.lieberoff@ilinois.gov

WHO CAN ANSWER YOUR QUESTIONS

Illinois EPA 401 Water Quality Certification:

Illinois EPA Technical Decisions:	Thaddeus Faught	217-782-3362
Antidegradation Assessment	Eric Runkel	217-558-2012
Mitigation Plans	Eric Runkel	217-558-2012
Stream Characterization	Eric Runkel	217-558-2012
Legal issues	Stefanie Diers	217-782-5544
Public hearing of February 18, 2014	Dean Studer	217-558-8280

The public hearing notice, the hearing transcript, and the responsiveness summary are available on the Illinois EPA website: http://www.epa.state.il.us/public-notices/2013/sec-401-notices.html#peabody-arclar