NPDES Permit No. IL0079936
Notice No. 6664c

Public Notice Beginning Date: **December 18, 2013**

Public Notice Ending Date: **January 17, 2014**

National Pollutant Discharge Elimination System (NPDES)
Permit Program

Draft New NPDES Permit to Discharge into Waters of the State

Public Notice/Fact Sheet Issued By:

Illinois Environmental Protection Agency
Bureau of Water, Division of Water Pollution Control
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
217/782-0610

Name and Address of Discharger:

Peabody Arclar Mining, LLC
7100 Eagle Crest Boulevard
Suite 100
Evansville, IN 47715-8152

Name and Address of Facility:

Peabody Arclar Mining, LLC
Rocky Branch Mine
420 Long Lane Road
Equality, Illinois 62934
1 mile west of Equality, Illinois
(Saline County)

The Illinois Environmental Protection Agency (IEPA) has made a tentative determination to issue an NPDES permit to discharge into waters of the state and has prepared a draft permit and associated fact sheet for the above named discharger. The Public Notice period will begin and end on the dates indicated in the heading of this Public Notice/Fact Sheet. Comments will be accepted until the Public Notice period ending date indicated above, unless a request for an extension of the original comment period is granted by the Agency. Interested persons are invited to submit written comments on the draft permit to the IEPA at the above address. Commentors shall provide his or her name and address and the nature of the issues proposed to be raised and the evidence proposed to be presented with regards to those issues. Commentors may include a request for public hearing. The NPDES permit and notice number(s) must appear on each comment page.

The application, engineer's review notes, Public Notice/Fact Sheet, draft permit, comments received, and other documents are available for inspection and may be copied at the IEPA between 9:30 a.m. and 3:30 p.m. Monday through Friday when scheduled by the interested person.

As provided in Section 309.115(a) of the Act, any person may submit a request for a public hearing and if such written comments or requests indicate a significant degree of public interest in the draft permit, the permitting authority may, at its discretion, hold a public hearing. The Agency shall issue public notice of such hearing no less than thirty (30) days prior to the date of such hearing in the manner described by Sections 309.109 through 309.112 of the Act for public notice. The Agency's responses to written and/or oral comments will be provided in the Responsiveness Summary provided when the final permit is issued.

The applicant proposes a new surface coal mine (SIC 1221). Mine operations result in the discharge of alkaline mine drainage.

Application is made for eight (8) new discharges which are located in Saline County, Illinois. The following information identifies the discharge points, receiving streams and stream classifications:

Outfall	Receiving Stream	Latitude (North)	Longitude (West)
001	Unnamed tributary to Rocky Branch	37° 43’ 37”	88° 24’ 53”
002	Unnamed tributary to Rocky Branch	37° 43’ 55”	88° 25’ 20”
003	Pond 002	37° 43’ 56”	88° 25’ 11”
004	Unnamed tributary to Cockerel Branch	37° 43’ 55”	88° 23’ 55”
005	Field Pond (23W-9)	37° 43’ 42”	88° 23’ 52”
008	Unnamed tributary to Rocky Branch	37° 44’ 24”	88° 24’ 40”
009	Unnamed tributary to Rocky Branch	37° 44’ 22”	88° 25’ 30”
011	Unnamed tributary to Rocky Branch	37° 43’ 21”	88° 24’ 16”

The stream segment ATZB of Rocky Branch receiving the flow from the unnamed tributary into which Outfalls 001, 002, 008, 009 and 011 discharges is not on the 2012 303(d) list of impaired waters.

The stream segment of Cockerel Branch receiving discharges from the unnamed tributary into which Outfall 004 discharges has not been assessed by the Agency.

The Field Pond (23W-9) which receives discharges from Outfall 005 has not been assessed by the Agency.

As Outfall 003 is an internal discharge directly to Pond 002, receiving stream segment and 303d listing is not applicable.

The alkaline mine discharge from this facility shall be monitored and limited at all times as follows:

Outfalls: 001, 004, 005, 008, 009, 011

Discharge Condition	Parameters													
	Total Suspended Solids (3) (mg/l)		Iron (total) (3) (4) (mg/l)		pH (3) (S.U.)	Alkalinity/ Acidity (3)	Sulfate (1) (mg/l)	Chloride (mg/l)	Mn (total) (mg/l)		Hardness (5)	Mercury	Flow (MGD)	Settleable Solids (2) (ml/l)
	30 day average	daily maximum	30 day average	daily maximum					30 day Average	Daily maximum				
I	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	1645	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-
II	-	-	-	-	6.0-9.0	-	1645	500	-	-	Monitor only	-	Measure When Sampling	0.5
III	-	-	-	-	6.0-9.0	-	1645	500	-	-	Monitor only	-	Measure When Sampling	-
IV	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	1645	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-

I Dry weather discharge (base flow or mine pumpage) from the outfall.

II In accordance with 35 Ill. Adm. Code 406.110(a), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24 hour precipitation event (or snowmelt or equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b). The 10-year, 24-hour precipitation event for this area is considered to be 5.21 inches.

III In accordance with 35 Ill. Adm. Code 406.110(d), any discharge or increase in volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b).

IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For outfalls which have no allowed mixing, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

(1) Sulfate water quality standards and effluent limitations determined in accordance with 35 Ill. Adm. Code 302.208(h).
(2) Settleable solids are monitored only as a result of a discharge due to precipitation events which exceed a predetermined 24-hour duration or snowmelt total. Settleable solids effluent limitations for alkaline mine discharges are contained in 35 Ill. Adm. Code 406.110.
(3) Effluent standards for mine discharges are contained in 35 Ill. Adm. Code 406.106.
(4) Discharges from Outfalls 001, 004, 005, 008, 009, 011, being approved after July 27, 1987, are subject to a 30-day average effluent limitation for Iron of 3.0 mg/l. Daily maximum effluent concentrations are calculated as twice the 30-day average.
(5) Hardness monitoring is required to determine the appropriateness of the sulfate permit limit.

The alkaline mine discharge from this facility shall be monitored and limited at all times as follows:

Outfall: 002, 003

Discharge Condition	Parameters													
	Total Suspended Solids (3) (mg/l)		Iron (total) (3) (4) (mg/l)		pH (3) (S.U.)	Alkalinity/ Acidity (3)	Sulfate (1) (mg/l)	Chloride (mg/l)	Mn (total) (mg/l)		Hardness (5)	Mercury	Flow (MGD)	Settleable Solids (2) (ml/l)
	30 day average	daily maximum	30 day average	daily maximum					30 day Average	Daily maximum				
I	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	2000	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-
II	-	-	-	-	6.0-9.0	-	2000	500	-	-	Monitor only	-	Measure When Sampling	0.5
III	-	-	-	-	6.0-9.0	-	2000	500	-	-	Monitor only	-	Measure When Sampling	-
IV	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	2000	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-

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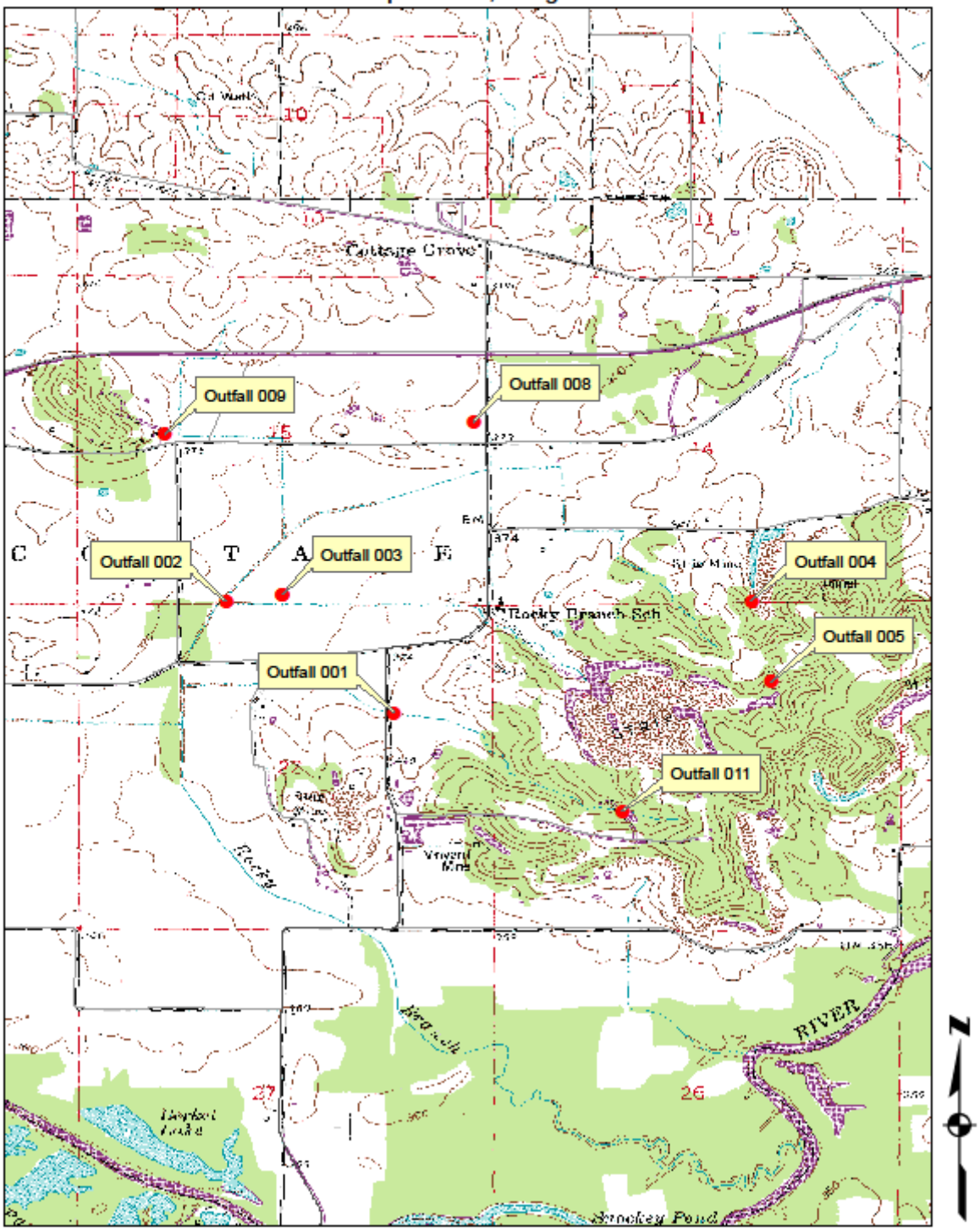
IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For outfalls which have no allowed mixing, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

(1) Sulfate water quality standards and effluent limitations determined in accordance with 35 Ill. Adm. Code 302.208(h).
(2) Settleable solids are monitored only as a result of a discharge due to precipitation events which exceed a predetermined 24-hour duration or snowmelt total. Settleable solids effluent limitations for alkaline mine discharges are contained in 35 Ill. Adm. Code 406.110.
(3) Effluent standards for mine discharges are contained in 35 Ill. Adm. Code 406.106.
(4) Discharges from Outfalls 002 and 003, being approved after July 27, 1987, are subject to a 30-day average effluent limitation for Iron of 3.0 mg/l. Daily maximum effluent concentrations are calculated as twice the 30-day average.
(5) Hardness monitoring is required to determine the appropriateness of the sulfate permit limit.

To assist you in identifying the location of the discharges, please refer to the attached map. The permit area for this facility consists of two (2) parcels identified as Pit 1 and Pit 2. The Pit 1 area is located in Sections 14, 15, 22 and 23, Township 9 South, Range 7 East, 3rd P.M., Saline County, Illinois. Pit 2 is located in Sections 18, 19 and 20, Township 9 South, Range 7 East, 3rd P.M., Saline County, Illinois.

Peabody Arclar Mining, L.L.C. - Rocky Branch Mine
NPDES No. IL0079936
Saline County
Township 9 South, Range 7 East



Antidegradation Assessment
Peabody Arclar Mining, LLC – Rocky Branch Mine, Pit 1
NPDES Permit No. IL0079936
Saline County

The Applicant is applying for an NPDES permit for discharges associated with a new surface coal mine. Rocky Branch mine would be located south of the Cottage Grove Mine, which is nearing completion of mining. Approximately 8.8 million tons of recoverable coal are within the multiple seam mine. Proposed mining within Pit 1 would require the establishment of seven NPDES outfalls. All of the outfalls are expected to contact coal either by receiving runoff from actively mined areas, receiving runoff from coal preparation and stockpile areas, or from receiving pit pumpage that may contact coal cleanings. Stormwater runoff from 800 acres of land would be routed through sediment basins and NPDES permitted outfalls. For the purposes of this assessment, it is assumed that the entire catchment area for all outfalls would potentially be mined. Discharge from the proposed outfalls would be received by an unnamed tributary of Cockerel Branch (Outfall 004), unnamed tributaries of Rocky Branch (Outfalls 001, 002, 008, 009, and 011) and an unnamed isolated pond (Outfall 005).

Identification and Characterization of the Affected Water Body.

The unnamed isolated pond (identified as 23W-9) and the unnamed tributaries of Cockerel Branch and Rocky Branch are classified as General Use water bodies with zero 7Q10 flow existing upstream of the outfalls associated with this project. The largest watershed for a stream that would receive discharges from this mine is 1.95 square miles, which is located below Outfall 002 at the confluence of Rocky Branch and the unnamed tributary that would receive this discharge. In southern Illinois, streams with five square miles of watershed or less are characterized as 7Q1.1 zero flow streams and are therefore expected to have at least seven days of continuous zero flow nine out of ten years. Given their small size, these water bodies have not been assessed under the Agency's 305(b)/303(d) program and have not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication *Integrating Multiple Taxa in a Biological Stream Rating System.* The water bodies are not enhanced in regards to the dissolved oxygen water quality standard.

Despite the small size of the streams onsite, the Applicant conducted stream assessments on September 4-5, 2012 to characterize the biological, chemical, and physical conditions of these headwater streams. Sampling was conducted at seven locations throughout Rocky Branch and unnamed tributaries of the Middle Fork Saline River. The watershed areas above the sampling locations range from 0.06-1.4 square miles. Sampling was conducted during a time of high stream flow due to locally heavy rainfall (over 2.5 inches) in the preceding week. Collection, processing, and analysis of fish and macroinvertebrates were conducted following Agency procedures as best as possible. Physical habitat assessments at each site were conducted using the Environmental Protection Agency's Rapid Bioassessment Protocol (RBP II) for wadeable and headwater streams. Chemical measurements included temperature, conductivity, total dissolved solids, pH, turbidity, iron (total) and manganese (total).

In general, a macroinvertebrate Index of Biotic Integrity (IBI) of $\geq$41.8 and a fish IBI of $\geq$41 are required for a stream to be fully supportive of aquatic life use. The results from the biological survey concluded that fish and macroinvertebrate populations were found to be below these indices, which is in line with the Agency's perspective of small headwater streams in that the biological communities found in these streams are adapted to stream drying and are not expected to be comparable in quantity or diversity to biological communities found in perennially flowing waters. Fish sampling was performed at all sites with flowing water (sites 1, 2, 3 and 6). Fish IBI scores ranged from 26-36 placing sites in the categories "poor" to "fair". Fish IBI scores were limited by low diversity in species richness, specifically minnows and suckers, low percentages of carnivore species, and relatively low numbers of individuals. Site 2 displayed the most diverse fish community and was the only site not dominated by juvenile sunfish. Macroinvertebrate IBI results ranged from 15.2 – 39.2, placing two sites (4 and 5) in the "poor" category and the remaining sites in the "fair" category. Notable metrics that limited macroinvertebrate IBI scores were low diversity and numbers of Ephemeroptera taxa, absence of intolerant taxa, and low overall taxa richness. Increased diversity and stable proportions of macroinvertebrates exhibiting scraper feeding behavior elevated site 1 scores above all other sites.

Water chemistry analyses found all stream sites to be attaining water quality standards. Sites 2 and 3 displayed significantly higher conductivity, total dissolved solids and pH levels, likely due to this segment of Rocky Branch receiving drainage from areas that were reclaimed by the Illinois Abandoned Mine Land program. Physical habitat assessments consistently scored in the marginal to sub-optimal categories. Total RBP scores at bio-assessment sites were limited most be increased sediment deposition, low pool variability, low sinuosity, low bank stability/vegetative protection, and low vegetative zone width.

Downstream waters that may be impacted by drainage from the disturbance area include Cockerel Branch and Rocky Branch. Cockerel Branch and Rocky Branch (Segment ATZB) are classified as General Use water bodies with zero 7Q10 flow existing upstream of the project area. Given their small size, these water bodies have not been assessed under the Agency's 305(b)/303(d) program and have not been given an integrity rating or been listed as biologically significant in the 2008 Illinois Department of Natural Resources publication *Integrating Multiple Taxa in a Biological Stream Rating System.* The water bodies are not enhanced in regards to the dissolved oxygen water quality standard.

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Identification of Proposed Pollutant Load Increases or Potential Impacts on Uses.

Effluent discharged from sedimentation basins would contain manganese and suspended solids loadings that are similar to those occurring from the land in its present use (cropland). No increases of these pollutants are expected. Chloride and sulfate would potentially increase in loading to the receiving streams as a result of the mining activities. However, based on projected effluent quality from the sedimentation basins, chloride and sulfate water quality standards are expected to be attained in the discharged effluent. No adverse impacts to the receiving streams are anticipated.

Fate and Effect of Parameters Proposed for Increased Loading.

Sulfate and chloride would remain dissolved in the water and would move through the downstream continuum. Small amounts would be removed by organisms as these substances are necessary for life. No adverse impacts to streams would occur as all water quality standards are expected to be met in the receiving waters.

Purpose and Social Economic Benefits of the Proposed Activity.

The surface mine would extract the coal resources of the site and provide low-cost energy to the nation. According to information given in the July 12, 2012 document by the Applicant entitled "Peabody Arclar Mining, LLC, Rocky Branch Mine – Analyses of Benefits and Alternatives to Lessen Water Quality Impact", significant social and economic losses would be experienced by the local economy if the mining plan does not proceed as planned. Specifically, approximately 200 jobs with a payroll of $21.6 million annually would be lost along with many other spin off jobs resulting from the proposed mining activity. The economical availability of high quality coal that is essential to the local, state and national economy could be compromised. Economic activity generated by the coal mine is estimated at over $875,000 in local sales tax revenue and $4.5 million in property taxes. Direct and indirect tax revenues that would have been able to help stimulate the local and state economy would be lost. Additionally, the company's economic losses would be significant and substantial due to investments in land, coal reserves, equipment, etc., with no foreseeable return on investment.

Assessments of Alternatives for Less Increase in Loading or Minimal Environmental Degradation.

The use of sedimentation basins and permitted NPDES outfalls for treatment of the proposed mining area is the most practical method of minimizing pollutant loading from stormwater discharges. Sedimentation basins are the preferred technology for coal mine drainage control. Stormwater control at surface coal mines is a matter of applying established best management practices. Prior steps involve the minimization of exposed earth and coal refuse to the elements. The final step in these practices involves sedimentation ponds to catch all runoff from the mine, settle out solids, provide a venue for pH adjustment if necessary and allow a controlled discharge of the effluent to the receiving stream. An assessment of alternatives or options to the potential increases in pollutant loading from sediment basins was provided in the July 13, 2012 document by the Applicant entitled "Analysis of Benefits and Alternatives to Lessen Water Quality Impact". This assessment includes consideration of the following alternatives: no discharge of stormwater from the site, discharge of stormwater to publicly-owned treatment works (POTW) or other sources, alternate onsite treatment technologies, and no mining. The following is a brief summary of the information provided by the applicant.

<u>No Discharge of Stormwater</u>:

Drainage from the permit area would be routed through sedimentation basins and NPDES permitted outfalls. The sedimentation ponds would primarily retain runoff from precipitation events and discharge primarily as stormwater. Although the ponds are designed and evaluated to minimize the discharge of water, the volume of runoff from the permitted areas would be too large to be retained during significant storm events and water must then be discharged. Illinois design standards for sedimentation ponds allow for discharge during and after storm events provided the design minimizes the release of sediment with the discharged storm water. It is not economically feasible to construct large, no discharge stormwater detention ponds when sedimentation ponds with occasional discharges are allowed and can meet water quality standards. Additionally, retaining all stormwater onsite would be detrimental to the small streams receiving intermittent flows from these sedimentation basins.

<u>Discharge to POTW or Other Sources</u>:

The closest POTW is in Harrisburg, approximately 5.5 miles from the mine. Routing water to this plant would require carrier lines, a network of lift and pump stations and obtaining extensive rights of way and easements. The Harrisburg plant was not designed for this type or volume of water in any case. Treatment of stormwater from the permit area would quickly overload the Harrisburg sewage treatment facility and cause non-compliance of the conditions of the facility permit. Using the town of Harrisburg sewage treatment plant for disposing this stormwater is, therefore, not a viable option. There are no adjacent or local facilities available, such as golf courses, which could utilize a large volume of water, particularly on a year round basis or during wet weather. Also, there are no known nearby public water supply facilities that are able to treat stormwater runoff quality to drinking water standards.

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Alternative Treatment Technologies:

The Applicant provided a list of publications regarding treatment technologies that were evaluated for use at Rocky Branch mine. A review of various treatment technologies and their potential applicability at Rocky Branch mine is provided below.

Filtration – Filtration is a water treatment process by which water is passed through a physical barrier, removing particulate matter from the water stream. Filtration of mine drainage typically involves disturbing a large area of land to install an elaborate filtration system. Dissolved solids are not filtered by this technology and only a portion of suspended solids are filtered, leaving an effluent that may not be in compliance with water quality standards. The sludge that is generated will be concentrated from the filtration and must then be disposed of as a solid or a hazardous waste in a landfill, which is time consuming and expensive. Finally, this technology requires a steady flow of water into the system, an environment not anticipated at this time, and would require a great deal of maintenance and supervision.

Membrane Processes – In membrane processes such as reverse osmosis, water is pumped through a closed system at extremely high pressures. These membranes allow pure water to pass through while trapping contaminating ions to produce a reject stream on the membrane. This reject stream is then treated by chemical precipitation and then permanently disposed of. This technology requires extremely high-energy output and uses a large amount of water. The source water for the system must be pretreated to prevent microbial growth and mineral precipitation. This is an unnecessary step in mine drainage treatment for the Rocky Branch area. The precipitate generated from the reject stream would contain significantly higher concentrations of waste products that would need to be disposed of in a landfill. This technology also requires an enormous amount of maintenance and supervision of the equipment, both to dispose of the precipitate but also to maintain the membranes and the pumping technology. The water recovered from this process must also be post-treated. This is another unnecessary step that would require more space for equipment, energy, worker supervision and maintenance. Finally, this technology has been developed primarily for the production of potable water from seawater. Reverse osmosis is not practical for the treatment of stormwater, because there is no constant flow of stormwater through the pumping mechanism and a large storm event could overload the system, breaking the system down and halting mining activities.

Biological Treatment – Biological treatment is the process of using wetlands and other passive systems to create anaerobic and/or aerobic environments to convert sulfates, some metals and other constituents. Stormwater discharge would be pumped into, and slowly travel through, the system. For anaerobic systems, strict anaerobic conditions must be kept in order to remove sulfates. Anaerobic bacteria can utilize the sulfates converting the sulfates to sulfides, which can then be dredged from the system. One system, constructed wetlands, can be one of the least efficient treatment technologies, especially for sulfate removal. Sulfates that are removed can become concentrated in the water and can eventually be released into the atmosphere as hydrogen sulfide and other gases. The removal of sulfates and other constituents from the stormwater would be inconsistent due to lack of a constant flow of water and due to reduced anaerobic bacteria activity in winter when air and water temperatures are low. These systems often fail throughout the life of the wetland, and have not been proven to efficiently treat mine drainage in the long-term.

Chemical Precipitation – Chemical precipitation is the process of adding alkaline chemicals to acid mine effluent to induce metals to precipitate out of water and to reduce acidity. Lime, limestone, pebble quicklime, soda ash, caustic soda and ammonia can be used to treat acid water drainage. Levels of pH, total suspended solids, iron and manganese concentrations, water flow rate, receiving stream water flow and quality, availability of electricity, the distance from the chemical addition point to the sedimentation basin and the basin's retention volume must all be taken into account before determining the best method for chemical precipitation. Each of these chemical choices possesses obstacles for implementation. The material costs of these chemicals (based on the flow rate of the water outflow areas) can be extremely high. Chemical precipitation requires constant monitoring and maintenance to ensure that the appropriate amounts of chemicals are stockpiled and used. Many of these chemicals (such as anhydrous ammonia) have safety concerns and can harm the environment if introduced. Additionally, the sludge that results from chemical precipitation must be disposed of as either solid or hazardous waste. This disposal can be difficult due to the high water content and the de-watering process of the sludge. These systems can be inundated by high volume storm events, negating the benefits of this technology and releasing precipitate into the environment. Finally, sedimentation basins, such as those that would receive drainage from the proposed mine, would perform the same functions as chemical precipitation by capturing the majority of the constituents in the outflow. Given that water quality standards are expected to be met upon discharge, chemical precipitation would be unnecessary step that allows for greater probability of potentially hazardous waste being introduced to the environment.

Ion Exchange – Ion exchange removes unwanted ions by passing the effluent stream through a resin containing cations and later, anions. Unwanted ions are exchanged, ultimately resulting in an outflow of relatively neutral pH containing dissolved solids. This technology is more appropriate for smaller facilities and for treatment of potable water (by replacing calcium and magnesium with sodium known as the process of softening). Problems also arise regarding the degradation of the resin. Additionally, this technology requires a more abundant water supply than that provided by the Rocky Branch mine. Large amounts of energy and water are required to operate this technology while the sedimentation ponds anticipated for use are a passive, low energy technology. Ion exchange does not remove ions from water; it merely exchanges one ion for another, resulting in an outflow stream with no reduction in the amount of chemical components. This technology also produces a large amount of brine, water unsuitable for most purposes. This brine would also have to be disposed of properly.

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Cost Effective Sulfate Removal (CESR) Process – CESR is a proprietary technology developed to improve previous sulfate removing technology. This process uses hydrated lime to precipitate gypsum, while keeping the pH at levels that do not precipitate. As a second step, the pH is raised to precipitate metals. Finally, the pH is lowered again by a proprietary reagent to precipitate ettringite. Each precipitation step is time consuming and would require the use of large areas of land. Infrastructure costs are high as well, including the installation of tanks and storage handling equipment. This technology is not feasible at Rocky Branch because this technology is still be developed. Other problems with this technology include severe scaling in heat exchange systems, clogging of reverse osmosis equipment and precipitation in pipes. The resultant precipitate would be reduced to a very large amount of sludge. This sludge would need to be disposed of in a landfill. Additionally, the water treated in this system has a high specific conductivity and a high concentration of total dissolved solids. Finally, there is a high supervision and maintenance requirement to use this technology efficiently.

No Mining:

No mining as a means to reduce pollutant loading is not a reasonable alternative due to associated economic losses and given that water quality standards are expected to be met. Mining at Rocky Branch would allow for continued employment of miners from the Cottage Grove Mine which is soon to be closed. The proposed mine would provide approximately 200 direct jobs with an annual payroll of approximately $21.6 million annually. Many of these employees would be long term miners and are not currently trained for other employment. The mining industry is vitally important to the local economy of Saline Counties and the surrounding counties as well as to the region and state. Approximately 42% of the electricity produced in the United States and approximately 35% of the electricity produced in Illinois comes from coal-fired power plants. It is, therefore, vital to the local, state, and national economy that available high quality coal be mined to maintain a continuous supply of fuel to the coal-fired power plants. Economic losses would occur if sufficient electricity is not provided to energy consumers. The loss in tax revenue to Illinois and Saline County, both direct and indirect would be significant, particularly when a replacement industry is unknown. In addition, the economic loss to the company, should no mining at the site occur, would be substantial because of the significant investment in land, coal reserves, permitting expenses, and mining equipment made by the company using a business plan dependent on maximizing recovery of the coal reserve.

Conclusion:

The use of sediment basins to remove sediment and associated constituents is the most cost effective, viable means of treatment for mine discharges at Rocky Branch. Best management practices would be employed to minimize downstream loadings of pollutants to the greatest extent possible. All existing uses of the water bodies receiving stormwater runoff from the proposed mine would be preserved, as water quality standards would be met at permitted outfalls while still allowing for stormwater runoff to feed downstream water bodies.

Summary Comments of the Illinois Department of Natural Resources, Regional Planning Commissions, Zoning Boards or Other Entities

The IDNR EcoCAT system was consulted on June 19, 2012 in regards to the proposed Pit 1 mine. It was determined that no threatened or endangered species or protected natural areas are in the vicinity of the areas and consultation was immediately terminated.

Agency Conclusion.

This preliminary assessment was conducted pursuant to the Illinois Pollution Control Board regulation for Antidegradation found at 35 Ill. Adm. Code 302.105 (antidegradation standard) and was based on the information available to the Agency at the time the draft permit was written. We tentatively find that the proposed activity would result in the attainment of water quality standards; that all existing uses of the receiving streams would be maintained; that all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading have been incorporated into the proposed activity; and that this activity would benefit the community at large by preserving existing mining jobs and the ancillary economic benefits of these jobs to the local economy. Comments received during the NPDES permit public notice period will be evaluated before a final decision is made by the Agency.

NPDES Permit No. IL0079936

Illinois Environmental Protection Agency

Division of Water Pollution Control

1021 North Grand Avenue, East

P.O. Box 19276

Springfield, Illinois 62794-9276

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

New NPDES Permit

Expiration Date:

Issue Date:
Effective Date:

Name and Address of Permittee:

Peabody Arclar Mining, LLC
7100 Eagle Crest Boulevard
Suite 100
Evansville, IN 47715-8152

Facility Name and Address:

Peabody Arclar Mining, LLC
Rocky Branch Mine
420 Long Lane Road
1 mile west of Equality, Illinois
(Saline County)

Discharge Number and Classification:		Receiving waters
001, 002, 008, 009, 011	Alkaline Mine Drainage	Unnamed tributary to Rocky Branch
003	Alkaline Mine Drainage	Pond 002
004	Alkaline Mine Drainage	Unnamed tributary to Cockerel Branch
005	Alkaline Mine Drainage	Field Pond (23W-9)

In compliance with the provisions of the Illinois Environmental Protection Act, Subtitle C and/or Subtitle D Rules and Regulations of the Illinois Pollution Control Board, and the Clean Water Act, the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Larry D. Crislip, P.E., Permit Manager
Mine Pollution Control Program
Bureau of Water

LDC:IW:cs/6664c/12-12-13

NPDES Coal Mine Permit

NPDES Permit No. IL0079936

Effluent Limitations and Monitoring

From the effective date of this Permit until the expiration date, the effluent of the following discharge shall be monitored and limited at all times as follows:

Outfalls*: 001, 004, 005, 008, 009, 011 (Alkaline Mine Drainage)

Discharge Condition	Parameters													
	Total Suspended Solids (3) (mg/l)		Iron (total) (3) (4) (mg/l)		pH (3) (S.U.)	Alkalinity/ Acidity (3)	Sulfate (1) (mg/l)	Chloride (mg/l)	Mn (total) (mg/l)		Hardness (5)	Mercury See Special Condition No. 15	Flow (MGD)	Settleable Solids (2) (ml/l)
	30 day average	daily maximum	30 day average	daily maximum					30 day Average	Daily maximum				
I	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	1645	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-
II	-	-	-	-	6.0-9.0	-	1645	500	-	-	Monitor only	-	Measure When Sampling	0.5
III	-	-	-	-	6.0-9.0	-	1645	500	-	-	Monitor only	-	Measure When Sampling	-
IV	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	1645	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-

I Dry weather discharge (base flow or mine pumpage) from the outfall.

II In accordance with 35 Ill. Adm. Code 406.110(a), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt or equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b). The 10-year, 24-hour precipitation event for this area is considered to be 5.21 inches.

III In accordance with 35 Ill. Adm. Code 406.110(d), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b).

IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For outfalls which have no allowed mixing, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

Sampling during all Discharge Conditions shall be performed utilizing the grab sampling method.

*** There shall be a minimum of nine (9) samples collected during the quarter when the pond is discharging. Of these 9 samples, a minimum of one sample each month shall be taken during either Discharge Condition I or IV should such discharge condition occur. A "no flow" situation is not considered to be a sample of the discharge. In the event that Discharge Conditions II and/or III occur, grab sample of each discharge caused by the above precipitation events (Discharge Conditions II and/or III) shall be taken and analyzed for the parameters identified in the table above during at least 3 separate events each quarter. For quarters in which there are less than 3 such precipitation events resulting in discharges, a grab sample of the discharge shall be required whenever such precipitation event(s) occur(s). Should a sufficient number of discharge events occur during the quarter, the remaining three (3) quarterly samples may be taken during any of the Discharge Conditions described above.

The water quality standards for sulfate and chloride must be met in discharges from the above referenced outfall as well as in the receiving stream.

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* The Permittee is subject to the limitations, and monitoring and reporting requirements of Special Condition No. 13 for the discharges from Outfalls 001, 004, 008, 009 and 011 and the unnamed tributary to Rocky Branch and unnamed tributary to Cockerel Branch receiving such discharges

** No discharge is allowed from any above referenced permitted outfall during "low flow" or "no flow" conditions in the receiving stream unless such discharge meets the water quality standards of 35 Ill. Adm. Code 302.204 for pH.

NPDES Coal Mine Permit

NPDES Permit No. IL0079936

Effluent Limitations and Monitoring

From the effective date of this Permit until the expiration date, the effluent of the following discharge shall be monitored and limited at all times as follows:

Outfalls*: 002, 003 (Alkaline Mine Drainage)

Discharge Condition	Parameters													
	Total Suspended Solids (3) (mg/l)		Iron (total) (3) (4) (mg/l)		pH (3) (S.U.)	Alkalinity/ Acidity (3)	Sulfate (1) (mg/l)	Chloride (mg/l)	Mn (total) (mg/l)		Hardness (5)	Mercury See Special Condition No. 15	Flow (MGD)	Settleable Solids (2) (ml/l)
	30 day average	daily maximum	30 day average	daily maximum					30 day Average	Daily maximum				
I	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	2000	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-
II	-	-	-	-	6.0-9.0	-	2000	500	-	-	Monitor only	-	Measure When Sampling	0.5
III	-	-	-	-	6.0-9.0	-	2000	500	-	-	Monitor only	-	Measure When Sampling	-
IV	35	70	3.0	6.0	6.5-9.0	Alk.>Acid	2000	500	2.0	4.0	Monitor only	Monitor only	Measure When Sampling	-

I Dry weather discharge (base flow or mine pumpage) from the outfall.

II In accordance with 35 Ill. Adm. Code 406.110(a), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt or equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b). The 10-year, 24-hour precipitation event for this area is considered to be 5.21 inches.

III In accordance with 35 Ill. Adm. Code 406.110(d), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.106(b).

IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For outfalls which have no allowed mixing, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

Sampling during all Discharge Conditions shall be performed utilizing the grab sampling method.

*** There shall be a minimum of nine (9) samples collected during the quarter when the pond is discharging. Of these 9 samples, a minimum of one sample each month shall be taken during either Discharge Condition I or IV should such discharge condition occur. A "no flow" situation is not considered to be a sample of the discharge. In the event that Discharge Conditions II and/or III occur, grab sample of each discharge caused by the above precipitation events (Discharge Conditions II and/or III) shall be taken and analyzed for the parameters identified in the table above during at least 3 separate events each quarter. For quarters in which there are less than 3 such precipitation events resulting in discharges, a grab sample of the discharge shall be required whenever such precipitation event(s) occur(s). Should a sufficient number of discharge events occur during the quarter, the remaining three (3) quarterly samples may be taken during any of the Discharge Conditions described above.

The water quality standards for sulfate and chloride must be met in discharges from the above referenced outfall as well as in the receiving stream.

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* The Permittee is subject to the limitations, and monitoring and reporting requirements of Special Condition No. 13 for the discharges from Outfalls 002 and 003 and the unnamed tributary to Rocky Branch receiving such discharges

** No discharge is allowed from any above referenced permitted outfall during "low flow" or "no flow" conditions in the receiving stream unless such discharge meets the water quality standards of 35 Ill. Adm. Code 302.204 for pH.

NPDES Coal Mine Permit

NPDES Permit No. IL0079936

Effluent Limitations and Monitoring

Upon completion of Special Condition 10 and approval from the Agency, the effluent of the following discharge shall be monitored and limited at all times as follows:

Outfalls*: 001, 004, 005, 008, 009, 011 (Reclamation Area Drainage)

Discharge Condition	Parameters					
	pH** (S.U.) ***	Sulfate (mg/l) ***	Chloride (mg/l) ***	Hardness ***	Flow (MGD)	Settleable Solids (ml/l) ***
I	6.5-9.0	1635	500	Monitor only	Measure When Sampling	0.5
II	6.0-9.0	1635	500	Monitor only	Measure When Sampling	0.5
III	6.0-9.0	1635	500	Monitor only	Measure When Sampling	-
IV	6.5-9.0	1635	500	Monitor only	Measure When Sampling	0.5

I Dry weather discharge (base flow, if present) from the outfall.

II In accordance with 35 Ill. Adm. Code 406.109(b), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt or equivalent volume) shall comply with the indicated limitations. The 10-year, 24-hour precipitation event for this area is considered to be 5.21 inches.

III In accordance with 35 Ill. Adm. Code 406.109(c), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.109(b).

IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For reclamation area discharges, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

Sampling during all Discharge Conditions shall be performed utilizing the grab sampling method. A "no flow" situation is not considered to be a sample of the discharge.

*** One sample per month (1/month) shall be collected if and/or when a discharge occurs under either Discharge Condition I, II or IV and analyzed for the parameters identified in the table above. In addition, at least three (3) grab samples shall be taken each quarter from separate precipitation events under Discharge Condition III and analyzed for parameters indicated in the above table. For quarters in which there are less than 3 such precipitation events, a grab sample of the discharge shall be required whenever such precipitation event(s) occur(s).

The water quality standards for sulfate and chloride must be met in discharges from the above referenced outfall as well as in the receiving stream.

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* The Permittee is subject to the limitations, and monitoring and reporting requirements of Special Condition No. 13 for the discharges from Outfalls 001, 004, 008, 009, and 011 and unnamed tributary to Rocky Branch and unnamed tributary to Cockerel Branch receiving such discharges.

** No discharge is allowed from any above referenced permitted outfall during "low flow" or "no flow" conditions in the receiving stream unless such discharge meets the water quality standards of 35 Ill. Adm. Code 302.204 for pH.

NPDES Coal Mine Permit

NPDES Permit No. IL0079936

Effluent Limitations and Monitoring

Upon completion of Special Condition 10 and approval from the Agency, the effluent of the following discharge shall be monitored and limited at all times as follows:

Outfalls*: 002, 003 (Reclamation Area Drainage)

Discharge Condition	Parameters					
	pH** (S.U.) ***	Sulfate (mg/l) ***	Chloride (mg/l) ***	Hardness ***	Flow (MGD)	Settleable Solids (ml/l) ***
I	6.5-9.0	2000	500	Monitor only	Measure When Sampling	0.5
II	6.0-9.0	2000	500	Monitor only	Measure When Sampling	0.5
III	6.0-9.0	2000	500	Monitor only	Measure When Sampling	-
IV	6.5-9.0	2000	500	Monitor only	Measure When Sampling	0.5

I Dry weather discharge (base flow, if present) from the outfall.

II In accordance with 35 Ill. Adm. Code 406.109(b), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt or equivalent volume) shall comply with the indicated limitations. The 10-year, 24-hour precipitation event for this area is considered to be 5.21 inches.

III In accordance with 35 Ill. Adm. Code 406.109(c), any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) shall comply with the indicated limitations instead of those in 35 Ill. Adm. Code 406.109(b).

IV Discharges continuing 24 hours after cessation of precipitation event that resulted in discharge. For reclamation area discharges, monitoring requirements and permit limitations of Discharge Condition IV are identical to Discharge Condition I to which the outfall discharge has reverted.

Sampling during all Discharge Conditions shall be performed utilizing the grab sampling method. A "no flow" situation is not considered to be a sample of the discharge.

*** One sample per month (1/month) shall be collected if and/or when a discharge occurs under either Discharge Condition I, II or IV and analyzed for the parameters identified in the table above. In addition, at least three (3) grab samples shall be taken each quarter from separate precipitation events under Discharge Condition III and analyzed for parameters indicated in the above table. For quarters in which there are less than 3 such precipitation events, a grab sample of the discharge shall be required whenever such precipitation event(s) occur(s).

The water quality standards for sulfate and chloride must be met in discharges from the above referenced outfall as well as in the receiving stream.

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* The Permittee is subject to the limitations, and monitoring and reporting requirements of Special Condition No. 13 for the discharges from Outfalls 002 and 003 and unnamed tributary to Rocky Branch receiving such discharges.

** No discharge is allowed from any above referenced permitted outfall during "low flow" or "no flow" conditions in the receiving stream unless such discharge meets the water quality standards of 35 Ill. Adm. Code 302.204 for pH.

NPDES Coal Mine Permit

NPDES Permit No. IL0079936

Effluent Limitations and Monitoring

Upon completion of Special Condition No. 11 and approval from the Agency, the effluent of the following discharge shall be monitored and limited at all times as follows:

Outfalls: 001, 002, 003, 004, 005, 008, 009, 011 (Stormwater Discharge)

Parameters	
pH* (S.U.) **	Settleable Solids (ml/l) **
6.0-9.0	0.5

Stormwater discharge monitoring is subject to the following reporting requirements:

Analysis of samples must be submitted with second quarter Discharge Monitoring Reports.

If discharges can be shown to be similar, a plan may be submitted by November 1 of each year preceding sampling to propose grouping of similar discharges and/or updated previously submitted groupings. If updating of a previously submitted plan is not necessary, a written notification to the Agency, indicating such is required. Upon approval from the Agency, one representative sample for each group may be submitted.

Annual stormwater monitoring is required for all discharges until Final SMCRA Bond is released and approval to cease such monitoring is obtained from the Agency.

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* No discharge is allowed from any above referenced permitted outfalls during "low flow" or "no flow" conditions in the receiving stream unless such discharge meets the water quality standards of 35 Ill. Adm. Code 302.204 for pH.

** One (1) sample per year shall be collected and analyzed for the indicated parameter; however, such sampling and analysis is required only if and/or when a discharge occurs from the individual Outfall(s) identified above.

NPDES Permit No. IL0079936

Construction Authorization No. 5365-13

C.A. Date: December 10, 2013

Authorization is hereby granted to the above designee to construct and operate the mine and mine refuse area described as follows:

A new surface mine containing a total of 1091.8 acres, identified as OMM Permit No. 428, as described and depicted in IEPA Log Nos. 5365-13, 5365-13-A and 5365-13-C, located in Sections 14, 15, 22 and 23, Township 9 South, Range 7 East, Saline County (800.0 acres) and Sections 18, 19 and 20, Township 9 South, Range 7 East, Saline County (291.8 acres), 3rd P.M., Illinois.

This permit contains two (2) mining areas identified as Pit 1 and Pit 2 described as follows:

The Pit 1 area consisting of 800.0 acres contains coal crushing and handling equipment, raw and processed coal stockpiles, haulage and access roads, soil stockpile areas, boxcut disposal areas and various mining pits. Runoff from disturbed areas within the Pit 1 area will be controlled by eight (8) sedimentation ponds with seven (7) new offsite discharges designated as NPDES Outfall Nos. 001, 002, 004, 005, 008, 009 and 011. See table below for Outfall locations and receiving streams. Outfall 003 is included in the following table, however, it is noted that this is an internal Outfall and does not discharge offsite.

Outfall Numbers	Latitude			Longitude			Receiving Water
	DEG	MIN	SEC	DEG	MIN	SEC	
001	37°	43’	37”	88°	24’	53”	Unnamed tributary to Rocky Branch
002	37°	43’	55”	88°	25’	20”	Unnamed tributary to Rocky Branch
003	37°	43’	56”	88°	25’	11”	Pond 002
004	37°	43’	55”	88°	23’	55”	Unnamed tributary to Cockerel Branch
005	37°	43’	42”	88°	23’	52”	Field Pond (23W-9)
008	37°	44’	24”	88°	24’	40”	Unnamed tributary to Rocky Branch
009	37°	44’	22”	88°	25’	30”	Unnamed tributary to Rocky Branch
011	37°	43’	21”	88°	24’	16”	Unnamed tributary to Rocky Branch

Coarse refuse from the coal crushing operation will be disposed in the active pit and covered with a minimum of 10 feet of non-toxic, non-combustible material. Coal processing and fine coal refuse disposal will occur at the Wildcat Hills – Cottage Grove Mine under NPDES Permit No. IL0073351.

To ensure protection of any potential groundwater resource in the area, a compacted clay liner with a minimum thickness of two (2) feet will be constructed under the raw and processed coal stockpiles, coal crushing area, diversion ditches receiving runoff from coal related materials (Ditches CDD003A and CDD003B), and Sedimentation Basin 003 which collects runoff from the referenced facilities. The compacted clay “Liner Construction & Quality Control Procedures” are contained in Attachment III(2)(D)(1)(b) of IEPA Log No. 5365-13-A. Additional Quality Assurance/Quality Control (QA/QC) requirements for the installation of the compacted clay liners are included in Condition No. 12.

In accordance with IEPA Log No. 5384-13, no disturbance is approved within the proposed Pit No. 2 area under this Construction Authorization. The future Pit 2 area consisting of 291.8 acres included under this permit is subject to the requirements of Condition No. 13. This area when approved and developed will contain coal crushing and handling equipment, raw coal stockpile, haulage and access roads, soil stockpiles, boxcut disposal areas and one mining pit. Surface drainage will be controlled by sedimentation basins and outfalls to be incorporated into the surface control plan required in accordance with Condition No. 13.

As provided in IEPA Log No. 5365-13-C groundwater monitoring for the Pit 1 area includes Well Nos. 14MW-26, 14MW-31, 15MW-27, 15MW-29 and 22MW-30. Groundwater monitoring for the Pit 2 area will include Well Nos. 18MW-28, 18MW-32 and 19MW-33. Groundwater monitoring requirements are contained in Condition No. 14.

The abandonment plan shall be executed and completed in accordance with 35 Ill. Adm. Code 405.109.

All water remaining upon abandonment must meet the requirements of 35 Ill. Adm. Code 406.202. For the constituents not covered by Parts 302 or 303, all water remaining upon abandonment must meet the requirements of 35 Ill. Adm. Code 406.106.

This Authorization is issued subject to the following Conditions. If such Conditions require additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval to secure issuance of a Supplemental Authorization to Construct.

1. If any statement or representation is found to be incorrect, this permit may be revoked and the permittee thereupon waives all rights thereunder.

2. The issuance of this permit (a) shall not be considered as in any manner affecting the title of the premises upon which the mine or mine refuse area is to be located; (b) does not release the permittee from any liability for damage to person or property caused by or resulting from the installation, maintenance or operation of the proposed facilities; (c) does not take into consideration the structural stability of any units or parts of the project; and (d) does not release the permittee from compliance with other applicable statutes of the State of Illinois, or with applicable local laws, regulations or ordinances.

3. Final plans, specifications, application and supporting documents as submitted by the person indicated on Page 1 as approved shall constitute part of this permit in the records of the Illinois Environmental Protection Agency.

4. There shall be no deviations from the approved plans and specifications unless revised plans, specifications and application shall first have been submitted to the Illinois Environmental Protection Agency and a supplemental permit issued.

5. The permit holder shall notify the Environmental Protection Agency (217/782-3637) immediately of an emergency at the mine or mine refuse area which causes or threatens to cause a sudden discharge of contaminants into the waters of Illinois and shall immediately undertake necessary corrective measures as required by 35 Ill. Adm. Code 405.111. (217/782-3637 for calls between the hours of 5:00 p.m. to 8:30 a.m. and on weekends.)

6. The termination of an NPDES discharge monitoring point or cessation of monitoring of an NPDES discharge is not authorized by this Agency until the permittee submits adequate justification to show what alternate treatment is provided or that untreated drainage will meet applicable effluent and water quality standards.

7. Initial construction activities in areas to be disturbed shall be for collection and treatment facilities only. Prior to the start of other activities, surface drainage controls shall be constructed and operated to avoid violations of the Act or Subtitle D. At such time as runoff water is collected in the sedimentation pond, a sample shall be collected and analyzed, for the parameters designated as 1M through 15M under Part 5-C of Form 2C and the effluent parameters designated herein with the results sent to this Agency. Should additional treatment be necessary to meet the standards of 35 Ill. Adm. Code 406.106, a Supplemental Permit must be obtained. Discharge from ponds is not allowed unless applicable effluent and water quality standards are met in the basin discharge(s).

8. This Agency must be informed in writing and an application submitted if drainage, which was previously classified as alkaline (pH greater than 6.0), becomes acid (pH less than 6.0) or ferruginous (base flow with an iron concentration greater than 10 mg/l). The type of drainage reporting to the basin should be reclassified in a manner consistent with the applicable rule of 35 Ill. Adm. Code 406 as amended in R84-29 at 11 Ill. Reg. 12899. The application should discuss the treatment method and demonstrate how the discharge will meet the applicable standards.

9. A permittee has the obligation to add a settling aid if necessary to meet the suspended solids or settleable solids effluent standards. The selection of a settling aid and the application practice shall be in accordance with a. or b. below

   a. Alum ($Al_2(SO_4)_3$), hydrated lime ($Ca(OH)_2$), soda ash (Na_2CO_3), alkaline pit pumpage, acetylene production by-product (tested for impurities), and ground limestone are acceptable settling aids and are hereby permitted for alkaline mine drainage sedimentation ponds.

   b. Any other settling aids such as commercial flocculents and coagulants are permitted <u>only on prior approval from the Agency</u>. To obtain approval a permittee must demonstrate in writing to the Agency that such use will not cause a violation of the toxic substances standard of 35 Ill. Adm. Code 302.210 or of the appropriate effluent and water quality standards of 35 Ill. Adm. Code parts 302, 304, and 406.

10. A general plan for the nature and disposition of all liquids used to drill boreholes shall be filed with this Agency prior to any such operation. This plan should be filed at such time that the operator becomes aware of the need to drill unless the plan of operation was contained in a previously approved application.

11. Any of the following shall be a violation of the provisions required under 35 Ill. Adm. Code 406.202:

    a. It is demonstrated that an adverse effect on the environment in and around the receiving stream has occurred or is likely to occur.

    b. It is demonstrated that the discharge has adversely affected or is likely to adversely affect any public water supply.

c. The Agency determines that the permittee is not utilizing Good Mining Practices in accordance with 35 Ill. Adm. Code 406.204 which are fully described in detail in Sections 406.205, 406.206, 406.207 and 406.208 in order to minimize the discharge of total dissolved solids, chloride, sulfate, iron and manganese. To the extent practical, such Good Mining Practices shall be implemented to:

   i. Stop or minimize water from coming into contact with disturbed areas through the use of diversions and/or runoff controls (Section 406.205).

   ii. Retention and control within the site of waters exposed to disturbed materials utilizing erosion controls, sedimentation controls, water reuse or recirculation, minimization of exposure to disturbed materials, etc. (Section 406.206).

   iii. Control and treatment of waters discharged from the site by regulation of flow of discharges and/or routing of discharges to more suitable discharge locations (Section 406.207).

   iv. Utilized unconventional practices to prevent the production or discharge of waters containing elevated contaminant concentrations such as diversion of groundwater prior to entry into a surface or underground mine, dewatering practices to remove clean water prior to contacting disturbed materials and/or any additional practices demonstrated to be effective in reducing contaminant levels in discharges (Section 406.208).

12. The two (2) feet compacted clay liner to be constructed beneath Sediment Basin 003, raw and processed coal stockpiles, coal crushing area and Drainage Ditches CDD003A and CDD003B, shall be subject to the following specifications and procedures.

Construction Specifications

a. All soils to be used for compacted clay liner shall be free of grass, vines, vegetation, and rock or stones greater than 4 inches in diameter.

b. At the location of the compacted clay liners, approximately 18 inches of material shall be removed following topsoil removal. Approximately 6 inches of the resulting base material shall be scarified and re-compacted to achieve the minimum permeability requirements cited below.

c. Each successive soil lift shall be placed to a loose thickness sufficient to result in a compacted lift of approximately 9 inches.

d. Each soil lift shall be compacted to the minimum Standard Proctor (ASTM D698) density identified in Item No. 12(q) below, at moisture content 0% to 5% above the optimum moisture content of the soil.

e. Inter-lift surfaces shall be adequately scarified to ensure inter-lift bonding.

f. Liner construction shall be performed to ensure consistent achievement of density, moisture content, and hydraulic conductivity for each successive lift.

g. The placement of frozen material or the placement of material on frozen ground shall be prohibited.

h. Contemporaneous placement or protective covering shall be provided to prevent drying, desiccation and/or freezing where necessary.

i. Liner construction shall be completed in a manner which reduces void spaces within the soil and liner.

j. All construction stakes shall be removed during construction, and all test holes are to be backfilled with suitable material.

k. The compacted clay liner shall be constructed in a manner to achieve a uniform barrier with a hydraulic conductivity of $1X10^{-7}$ cm/sec.

l. In the event that acceptable compaction results are not achieved, the soil lift shall be re-processed or removed and replaced. If moisture content is less than optimum, or greater than 5% above optimum, the falling material shall be wetted or dried to moisture content within specification and recompacted. If they dry density is below specification, the failing material shall be recompacted until a passing test is achieved.

m. In the event of a failing conductivity test, the soil may be removed or recompacted and retested until a passing result is obtained; or the soil immediately above and below the test specimen from the same Shelby tube may be tested. If both tests, pass, the original test shall be nullified. If either test fails, that portion of the liner shall be rejected and shall be reconstructed and retested until passing results are obtained. The limits of necessary reconstruction shall be determined by additional sampling and testing within the failed region, thereby isolating the failing area of work.

Testing Specifications

n. Prior to initiating soil liner construction, borrow soils shall be identified, qualified, and verified. At a minimum, a representative sample of each soil type identified within the borrow area is to be collected and analyzed for gradation, compaction, and hydraulic conductivity characteristics.

o. Samples collected from the borrow area shall be evaluated in accordance with ASTM D422, D4318 and D2487 to ensure classification criteria are met.

p. Samples collected from the borrow area shall be tested in accordance with ASTM D698 to determine maximum dry density and optimum moisture content of the soil.

q. Samples collected from the borrow area shall be compacted to 90% and 95% standard proctor density at or near optimum moisture content. The hydraulic conductivity of the recompacted samples shall be determined in accordance with ASTM D5084 procedures. The results of this testing shall be used to establish the minimum dry density for soil liner compaction necessary to achieve a hydraulic conductivity of $1X10^{-7}$ cm/sec. or less.

r. Moisture and density testing by nuclear methods (ASTM D2922 and D3017) shall be conducted at a rate of at least four (4) tests per structure (coal stockpiles, coal crushing area, drainage control structures and sedimentation pond) on each of the three (3) layers/lifts.

s. Survey checks shall be conducted along established cross-sections to verify liner thickness. To verify liner thickness, the survey checks shall be taken before and after liner construction.

13. In accordance with IEPA Log No. 5384-13, no disturbance shall occur within the proposed Pit 2 area until such time that a surface drainage control plan is submitted and approved by the Agency and this NPDES Permit is modified to incorporate such plan and proposed Outfalls.

14. Groundwater monitoring requirements for Well Nos. 14MW-26, 14MW-31, 15MW-27, 15MW-29, 22MW-30, 18MW-28, 18MW-32 and 19MW-33 are as follows:

a. Ambient background monitoring shall be performed for all referenced wells. Such ambient monitoring shall consist of six (6) samples collected during the first year (approximately bi-monthly) following well installation but no later than during the first year of operation or disturbance to determine ambient background concentrations. Background monitoring shall include the following list of constituents:

Aluminum	Fluoride	Sulfate
Antimony	Iron (dissolved)	Thallium
Arsenic	Iron (total)	Total Dissolved Solids
Barium	Lead	Vanadium
Beryllium	Manganese (dissolved)	Zinc
Boron	Manganese (total)	pH
Cadmium	Mercury	Acidity
Chloride	Molybdenum	Alkalinity
Chromium	Nickel	Hardness
Cobalt	Phenols	Static Water Elevation
Copper	Selenium	
Cyanide	Silver	

b. Following the ambient monitoring as required under Condition No. 14(a) above, routine monitoring for the referenced wells shall continue on a quarterly basis as required by IDNR/OMM for the following list of constituents:

Chloride	Total Dissolved Solids
Iron (dissolved)	Hardness
Iron (total)	Acidity
Manganese (dissolved)	Alkalinity
Manganese (total)	pH
Sulfate	Static Water Elevation

c. Following completion of active mining and reclamation, post-mining monitoring of the above referenced wells shall consist of six (6) samples collected during a 12-month period (approximately bi-monthly) to determine post-mining concentrations. Post-mining monitoring shall include the list of constituents identified in Condition No. 14(a) above.

d. Groundwater monitoring reports shall be submitted to the Agency in accordance with Special Condition Nos. 3 and 5 of this NPDES permit.

e. A statistically valid representation of background and/or post mining water quality required under Condition No. 14(a) and 14(c) above shall be submitted utilizing the following method. This method shall be used to determine the upper 95 percent confidence limit for each parameter listed above.

Should the Permittee determine that an alternate statistical method would be more appropriate based on the data being evaluated, the Permittee may request utilization of such alternate methodology. Upon approval from the Agency, the alternate methodology may be utilized to determine a statistically valid representation of background and/or post mining water quality.

This method should be used to predict the confidence limit when single groundwater samples are taken from each monitoring (test) well.

i. Determine the arithmetic mean $\left(\overline{X}_b\right)$ of each indicator parameter for the sampling period. If more than one well is used, an equal number of samples must be taken from each well.

$$\overline{X}_b = \frac{X_1 + X_2 + \ldots X_n}{n}$$

Where:

$\overline{X}_b$ = Average value for a given chemical parameter

X_n = Values for each sample

n = the number of samples taken

ii. Calculate the background and/or post mining variance (S_b^2) and standard deviation (S_b) for each parameter using the values (X_n) from each sample of the well(s) as follows:

$$S_b^{\ 2} = \frac{(X_1 - \overline{X}_b)^2 + (X_2 - \overline{X}_b)^2 + \ldots + (X_n - \overline{X}_b)^2}{n-1}$$

$$S_b = \sqrt{S_b^{\ 2}}$$

iii. Calculate the upper confidence limit using the following formula:

$$CL = \overline{X}_b \pm t\sqrt{1 + 1/n}\ \left(S_b\right)$$

Where:

CL = upper confidence limit prediction
(upper and lower limits should be calculated for pH)
t = one-tailed t value at the required significance
level and at n-1 degrees of freedom from Table 1
(a two-tailed t value should be used for pH)

iv. If the values of any routine parameter for any monitoring well exceed the upper confidence limit for that parameter, the permittee shall conclude that a statistically significant change has occurred at that well.

v. When some of the background and/or post mining values are less than the Method Detection Limit (MDL), a value of one-half (1/2) the MDL shall be substituted for each value that is reported as less than the MDL. All other computations shall be calculated as given above.

If all the background and/or post mining values are less than the MDL for a given parameter, the Practical Quantitation Limit (PQL), as given in 35 Ill. Adm. Code Part 724 Appendix I shall be used to evaluate data from monitoring wells. If the analytical results from any monitoring well exceed two (2) times the PQL for any single parameter, or if they exceed the PQLs for two or more parameters, the permittee shall conclude that a statistically significant change has occurred.

Table 1
Standard t-Tables Level of Significance

Degrees of freedom	t-values (one-tail)		t-values (two-tail)*	
	99%	95%	99%	95%
4	3.747	2.132	4.604	2.776
5	3.365	2.015	4.032	2.571
6	3.143	1.943	3.707	2.447
7	2.998	1.895	3.499	2.365
8	2.896	1.860	3.355	2.306
9	2.821	1.833	3.250	2.262
10	2.764	1.812	3.169	2.228
11	2.718	1.796	3.106	2.201
12	2.681	1.782	3.055	2.179
13	2.650	1.771	3.012	2.160
14	2.624	1.761	2.977	2.145
15	2.602	1.753	2.947	2.131
16	2.583	1.746	2.921	2.120
17	2.567	1.740	2.898	2.110
18	2.552	1.734	2.878	2.101
19	2.539	1.729	2.861	2.093
20	2.528	1.725	2.845	2.086
21	2.518	1.721	2.831	2.080
22	2.508	1.717	2.819	2.074
23	2.500	1.714	2.807	2.069
24	2.492	1.711	2.797	2.064
25	2.485	1.708	2.787	2.060
30	2.457	1.697	2.750	2.042
40	2.423	1.684	2.704	2.021

Adopted from Table III of "Statistical Tables for Biological Agricultural and Medical Research" (1947, R.A. Fisher and F. Yates).

* For pH only when required.

NPDES Permit No. IL0079936

Special Conditions

Special Condition No. 1: No effluent from any mine related facility area under this permit shall, alone or in combination with other sources, cause a violation of any applicable water quality standard as set out in the Illinois Pollution Control Board Rules and Regulations, Subtitle C: Water Pollution.

Special Condition No. 2: Samples taken in compliance with the effluent monitoring requirements shall be taken at a point representative of the discharge, but prior to entry into the receiving stream.

Special Condition No. 3: All periodic monitoring and reporting forms, including Discharge Monitoring Report (DMR) forms, shall be submitted to the Agency according to the schedule outlined in Special Condition No. 4 or 5 below with one (1) copy forwarded to each of the following addresses:

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Ave., East
P.O. Box 19276
Springfield, IL 62794-9276

Attn: Compliance Assurance Section

Illinois Environmental Protection Agency
Mine Pollution Control Program
2309 West Main Street, Suite 116
Marion, Illinois 62959

Should electronic filing be available and elected for any periodic monitoring and reporting requirements, written notification shall be provided to the Agency that such electronic filing has been elected and the date on which this filing will be initiated.

Special Condition No. 4: Completed Discharge Monitoring Report (DMR) forms and stream monitoring results, shall be retained by the Permittee for a period of three (3) months and shall be mailed and received by the IEPA at the addresses indicated in Special Condition No. 3 above in accordance with the following schedule, unless otherwise specified by the permitting authority.

Period	Received by IEPA
January, February, March	May 1
April, May, June	August 1
July, August, September	November 1
October, November, December	February 1

The Permittee shall record discharge monitoring results on Discharge Monitoring Report forms (DMR's) using one such form for each applicable Discharge Condition each month.

Special Condition No. 5: Completed periodic monitoring and reporting, other than DMR's and stream monitoring (i.e., groundwater monitoring, coal combustion waste analysis reports, etc.), shall be retained by the Permittee for a period of three (3) months and shall be mailed and received by the IEPA at the addresses indicated in Special Condition No. 3 above in accordance with the following schedule, unless otherwise specified by the permitting authority.

Period	Received by IEPA
January, February, March	May 1
April, May, June	August 1
July, August, September	November 1
October, November, December	February 1

Special Condition No. 6: The Agency may revise or modify the permit consistent with applicable laws, regulations or judicial orders.

Special Condition No. 7: If an applicable effluent standard or limitation is promulgated under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act and that effluent standard or limitation is more stringent than any effluent limitation in the permit or controls a pollutant not limited in the NPDES Permit, the Agency shall revise or modify the permit in accordance with the more stringent standard or prohibition and shall so notify the permittee.

Special Condition No. 8: The permittee shall notify the Agency in writing by certified mail within thirty days of abandonment, cessation, or suspension of active mining for thirty days or more unless caused by a labor dispute. During cessation or suspension of active mining, whether caused by a labor dispute or not, the permittee shall provide whatever interim impoundment, drainage diversion, and wastewater treatment is necessary to avoid violations of the Act or Subtitle D.

Special Conditions

Special Condition No. 9: Plans must be submitted to and approved by this Agency prior to construction of a sedimentation pond. At such time as runoff water is collected in the sedimentation pond, a sample shall be collected and analyzed for the parameters designated as 1M-15M under Part 5-C of Form 2C and the effluent parameters designated herein with the results sent to this Agency. Should additional treatment be necessary to meet these standards, a Supplemental Permit must also be obtained. Discharge from a pond is not allowed unless applicable effluent and water quality standards are met.

Special Condition No. 10: The special reclamation area effluent standards of 35 Ill. Adm. Code 406.109 apply only on approval from the Agency. To obtain approval, a request form and supporting documentation shall be submitted to request the discharge be classified as a reclamation area discharge. The Agency will notify the permittee upon approval of the change.

Special Condition No. 11: The special stormwater effluent standards apply only on approval from the Agency. To obtain approval, a request with supporting documentation shall be submitted to request the discharge to be classified as a stormwater discharge. The documentation supporting the request shall include analysis results indicating the discharge will consistently comply with reclamation area discharge effluent standards. The Agency will notify the permittee upon approval of the change.

Special Condition No. 12: Annual stormwater monitoring is required for all discharges not reporting to a sediment basin until Final SMCRA Bond is released and approval to cease such monitoring is obtained from the Agency.

A. Each discharge must be monitored for pH and settleable solids annually.

B. Analysis of samples must be submitted with second quarter Discharge Monitoring Reports. A map with discharge locations must be included in this submittal.

C. If discharges can be shown to be similar, a plan may be submitted by November 1 of each year preceding sampling to propose grouping of similar discharges and/or update previously submitted groupings. If updating of a previously submitted plan is not necessary, a written notification to the Agency indicating such is required. Upon approval from the Agency, one representative sample for each group may be submitted.

Special Condition No. 13: Sediment Pond Operation and Maintenance (Outfalls 001, 002,004, 008, 009 and 011):

a. For discharges resulting from precipitation events, in addition to the alternate effluent (Discharge Condition Nos. II and III) monitoring requirements, as indicated on the applicable effluent pages of this Permit, discharges from Outfalls 001, 002, 004, 008, 009 and 011 shall be monitored and reported for Discharge Rate, Sulfate, Chloride and Hardness.

b. The following sampling and monitoring requirements are applicable to flow in the unnamed tributary to Rocky Branch which receives discharges from Outfalls 001, 002, 008, 009 and 011 and the unnamed tributary to Cockerel Branch which receives the discharges from Outfall 004.

   i. All sampling and monitoring required under 13(b)(ii) and (iii) below shall be performed during a discharge and monitoring event from the associated outfall.

   ii. The unnamed tributary to Rocky Branch and the unnamed tributary to Cockerel Branch shall be monitored and reported quarterly for Discharge Rate, Chloride, Sulfate and Hardness downstream of the associated outfall. This downstream monitoring shall be performed a sufficient distance downstream of the associated outfall to ensure that complete mixing has occurred. At such time that sufficient information has been collected regarding receiving stream flow characteristics and in-stream contaminant concentrations the permittee may request a re-evaluation of the monitoring frequency required herein for possible reduction or elimination. For the purpose of re-evaluating the downstream monitoring frequency of the receiving stream, "sufficient information" is defined as a minimum of ten (10) quarterly sampling events.

   In the event that downstream monitoring of the receiving waters is eliminated during the term of this permit based on an evaluation of the quarterly data, a minimum of three (3) additional samples analyzed for the parameters identified above must be submitted with the permit renewal application a minimum of 180 days prior to expiration of this permit.

   iii. The unnamed tributary to Rocky Branch and the unnamed tributary to Cockerel Branch shall be monitored and reported annually for Discharge Rate, Chloride, Sulfate and Hardness upstream of the associated outfall.

Special Condition No. 14: Data collected in accordance with Special Condition No. 13 above will be utilized to evaluate the appropriateness of the effluent limits established in this Permit. Should the Agency's evaluation of this data indicate revised effluent limits are warranted; this permit may be reopened and modified to incorporate more appropriate effluent limitations. This data will also be used for determination of effluent limitations at the time of permit renewal.

Special Condition No. 15: Mercury shall be monitored quarterly until a minimum of ten (10) samples have been collected. This Mercury monitoring is required only under Discharge Condition Nos. I and/or IV and only during quarters in which there are discharges from the outfall which occur under Discharge Condition Nos. I and/or IV. Samples shall be collected and tested in accordance with USEPA 1631E using the option at Section 11.1.1.2 requiring the heating of samples at 50°C for 6 hours in a BrCl solution in closed vessels. This test method has a Method Detection Limit (MDL) of 0.5 ng/l (nanograms/liter). The results of such testing must be reported in "ng/l" (nanograms/liter)and submitted with the quarterly Discharge Monitoring Reports (DMRs). The Permittee may submit a written request to the Agency to discontinue quarterly Mercury monitoring if the sampling results show no reasonable potential to exceed the Mercury water quality standard.