KPDES FORM SDAA

Kentucky Pollutant Discharge Elimination System (KPDES)

Socioeconomic Demonstration and Alternatives Analysis

The Antidegradation Implementation Procedure found in 401 KAR 10:030, Section 1(3)(b)3 requires KPDES permit applications for new or expanded discharges to waters categorized as "Exceptional or High Quality Waters" to conduct a socioeconomic demonstration and alternatives analysis to justify the necessity of lowering local water quality to accommodate important economic or social development in the area in which the water is located. This demonstration shall include this completed form and copies of any engineering reports, economic feasibility studies, or other supporting documentation

I. Project Information

Facility Name: Sand Lick Surface Mine #1, Sidney Coal Company, Inc. KDNR Permit No. 898-0835

Location: Sand Lick Branch in Sidney, KY | **County:** Pike

Receiving Waters Impacted: Sand Lick Branch of Big Creek

II. Socioeconomic Demonstration

1. Define the boundaries of the affected community:
(Specify the geographic region the proposed project is expected to affect. Include name all cities, towns, and counties. This geographic region must include the proposed receiving water.)

KDNR Permit No. 898-0835 is a surface mining operation of the Fireclay, Fireclay Rider, and Taylor coal reserves. This operation will utilize contour and auger/highwall mining methods. This permit proposes 79.07 acres of surface disturbance, as well as 127.5 acres of auger/highwall mining. The proposed surface disturbance includes contour mining (39.1 acres), hollow fill (32.2 acres), cut-thru area (4.6 acres), silt structures (acreage included in contour mining acreage), and roads (3.17 acres). This site is located approximately 1.4 miles southeast of the intersection of KY-468 and Rockhouse Fork in Pike County, KY and is located on the Varney and Williamson 7.5 minute quadrangles. The nearest community is Sidney, KY. The proposed project area is located in the Big Creek HUC-14 watershed (#05070201170110).

2. The effect on employment in the affected community:
(Compare current unemployment rates in the affected community to current state and national unemployment rates. Discuss how the proposed project will positively or negatively impact those rates, including quantifying the number of jobs created and/or continued and the quality of those jobs.)

The economy in this portion of Pike County is dependent on the mining industry. The mine itself would create approximately 30 jobs. The project would also create approximately 45 additional jobs in the support industries that will help supply the material and equipment needed for mining, as well as other services, such as engineering and training. Therefore, this operation will provide continuation or creation of 75 higher-wage jobs in the area work force. See the following table for employment data for Pike County.

Employment Data	Pike County
Labor Force	26,445
Percent Unemployed	10.1%
Total Unemployed	2,660
% of Labor Force Employed by this Project	0.11%
% of Labor Force Affected by this Project	0.17%

2010 Annual Statistics, Bureau of Labor Statistics

With the current unemployment rates in this county, it is likely that a new mine will at the very least avoid an increase in unemployment rates by directly supplying approximately 30 continuing jobs and indirectly affected as many as 45 employees in support industries.

I. Socioeconomic Demonstration- continued

3. The effect on median household income levels in the affected community:

(Compare current median household income levels with projected median household income levels. Discuss how proposed project will positively or negatively impact the median household income in the affected community including the number of households expected to be impacted within the affected community.)

This mining operation would provide employment for an estimated 30 employees. These mining positions prove to be higher paying jobs than other industries in Pike County. This also positively affects as many as 45 employees in the support industries that will help to supply the material and equipment needed for mining, as well as other services, such as engineering and training. See the table below for income data for this county.

Wages	Pike County
All Industries	$755
Mining	$1,236

2009 weekly wages, Bureau of Labor Statistics

The average weekly wage in the mining industry is approximately 64% higher as compared to the average weekly wage for all industries in Pike County. Loss of these higher paying jobs would result in decreased revenue to local businesses that cater to the needs of the employees on a daily basis.

4. The effect on tax revenues of the affected community:

(Compare current tax revenues of the affected community with the projected increase in tax revenues generated by the proposed project. Discuss the positive and negative social and economic impacts on the affected community by the projected increase.)

This mine facility will provide jobs for communities in this portion of Pike County and help prevent the loss of jobs when an existing area facility closes or moves to another area. Recovery of the Fireclay, Fireclay Rider, and Taylor coal reserves located along Sand Lick Branch of Big Creek, will produce approximately 1.2 million tons of coal over the life of the project. This will generate an estimated $3.2 million in severance taxes, of which the surrounding counties will receive an estimated $0.48 million (15 percent). Additional revenue will be given to local businesses, generated through increased employment to handle support services catering to the mining operation directly and to the needs of the employees on a daily basis. Local income taxes, property taxes, and sales tax will also add to revenue brought in by the mining facility.

II. Socioeconomic Demonstration- continued

5. The effect on an existing environmental or public health in affected community:
(Discuss how the proposed project will have a positive or negative impact on an existing environmental or public health.)

Recovery of the Fireclay, Fireclay Rider, and Taylor coal reserves will increase severance tax reserves in the county by approximately $3.2 million over the life of the project, an estimated $0.48 million of which will be returned to the surrounding counties. This money can be used for environmental protection such as sewage disposal, sanitation, and solid waste disposal, which will have beneficial effects on the existing public and environmental health.

Portions of Pike County have been previously disturbed by coal mining operations, logging, timber harvest, urban and residential development, and agricultural practices. The proposed surface disturbance includes contour mining (39.1 acres), hollow fill (32.2 acres), cut-thru area (4.6 acres), silt structures (acreage included in contour mining acreage), and roads (3.17 acres).

With the conclusion of mining, the area will be reclaimed, including sediment control structures. Any temporarily impacted streams will likely be stabilized and restored, and a riparian buffer will be established. Various sediment and treatment ponds will remain until final bond release at which time any existing ponds and dugouts will be removed. All existing dumps will be cleaned and garbage disposed of at proper facilities as designated by the Best Management Practices Plan. These rehabilitated areas will curb sedimentation run-off and provide a habitat for aquatic species and wildlife. Discharge will be treated as necessary and practicable, to ensure that the water leaving the permit is within effluent limits of its KPDES permit. Upon final closing of the site, it is possible that an increase in flora and fauna will occur compared to the original land use and could increase the natural habitat. No environmental or public health concerns are anticipated by the proposed operation.

6. Discuss any other economic or social benefit to the affected community:
(Discuss any positive or negative impact on the economy of the affected community including direct and or indirect benefits that could occur as a result of the project. Discuss any positive or negative impact on the social benefits to the community including direct and indirect benefits that could occur as a result of the project.)

This proposed project will not only provide employment at a higher-than-average weekly wage, but will create additional revenue for the existing businesses in and around Pike County. The additional revenue for the local businesses and the severance tax dollars generated by this project (approximately $3.2 million) will provide the local government increased benefits in public safety, such as: law enforcement, fire protection, ambulance services, and aid industrial and economic development in the surrounding counties.

The facility will continue to provide employment to an estimated 30 workers during the life of the operation. The project will also help to provide as many as 45 additional jobs in other sectors of the economy, such as engineering, fuel, and transportation. Therefore, the proposed mining operations will positively affect the local economy.

A combination of contour/highwall/auger mining is the most efficient and economical plan for recovery of the coal associated with this project. This allows for maximum removal of coal reserves, increasing the amount of tax dollars that contribute to the state of the local economy.

Upon closing of the mine site, the reclamation has the potential of enhancing the habitat of local flora and fauna. This could increase tourism to the area.

III. Alternative Analysis

1. Pollution prevention measures:

(Discuss the pollution prevention measures evaluated including the feasibility of those measures and the cost. Measures to be addressed include but are not limited to changes in processes, source reductions or substitution with less toxic substances. Indicate which measures are to be implemented.)

Several alternatives were evaluated for the prevention of water pollution in this project area. Evaluated alternatives include:

a. Avoidance of the project (short-term)

Avoiding this project would mean that the advantages of economic development in the Pike County community would not be realized. At a minimum, approximately 30 local jobs would be lost, the tax base would diminish, approximately $3.2 million in severance taxes would not be collected and local businesses would not prosper to the same extent. This was eliminated as a practicable alternative.

b. Additional levels of separation

Further pollution prevention could include covering or treating chemically reactive materials, reducing the disturbed surface area at any one time, or the separating of storm runoff from undisturbed areas and active site runoff.

c. Preventive design

Preventive design could include creating only moderate gradients and inclines to slow down runoff or diverting waterways and drainage. With these methods, the amount and frequency of flow through active mine sites could be reduced. All the water that does leave the site will be treated with a system of sediment and treatment ponds. Each will store any runoff leaving the site and provide an adequate time to settle the sediment. As necessary and practicable, flocculants and chemicals will be added to treat the water if higher levels of certain chemicals and compounds are observed.

2. The use of best management practices to minimize impacts:
(Discuss the consideration and use of best management practices that will assist in minimizing impacts to water quality from the proposed permitted activity.)

Such BMPs could include creating only moderate gradients and inclines to slow down runoff or diverting waterways and drainage. With these methods, the amount and frequency of flow through active mining sites could be reduced. All the water that does leave the site will be treated with a system of sediment and treatment ponds. Each will store any runoff leaving the site and provide an adequate time to settle the sediment. As necessary and practicable, flocculants and chemicals will be added to treat the water if higher levels of certain chemicals and compounds are observed.

Ponds will be sized to accommodate a 25-year, 24-hour storm event. The ponds will be placed in suitable locations, away from any steep topography or buffer zones.

To the extent practicable, a riparian zone will be left adjacent to streams to protect surface water from soil runoff and mining contaminants.

All structures will be inspected following significant rainfall events, and, if necessary and practicable, repairs will be made.

Additionally, an undisturbed natural barrier could be maintained throughout mining at the lowest disturbed elevation and extend from the out slope. This vegetative buffer could serve the function of improving water quality by the collection of sediment and the reduction of erosion.

With the conclusion of mining, the area will be reclaimed. Any affected streams will be stabilized and restored, and a riparian buffer will be established. These rehabilitated streams will curb sedimentation and provide a habitat for aquatic species and wildlife. Until approval for removal by KDNR, various sediment and treatment ponds will remain. Discharge will be treated as necessary and practicable to ensure that the water leaving the permit is within water quality standards.

3. Recycle or reuse of wastewater, waste by-products, or production materials and fluids:
(Discuss the potential recycle or reuse opportunities evaluated including the feasibility of implementation and the costs. Indicate which of, of these opportunities are to be implemented)

Water does play a key part in mining operations as far as misting/spraying the area to help alleviate airborne coal dust. However, the amount of water required for dust suppression is minimal compared to the discharge generated. The total watershed drainage area for discharge from the sediment structures is approximately 211.1 acres, with a peak discharge of over 123,967 gallons per minute. Water used for dust suppression in a day might be 12,000 gallons. Dust suppression is generally only required during dry times when the flow of the surface discharge is low or non-existent. No other water is needed for recycling or reuse with this operation.

A small portion (approximately 237,000 gallons) of the total discharge generated (approximately 530 million gallons) will be used for hydro-seeding when grade work is completed on this project. This will require approximately 79 loads (3000 gallons per load), with a cost of $59,250 ($750/load).

Construction of a lake for recreational purposes was also evaluated as a possible alternative. This would involve acquisition of the land, environmental and engineering surveys, and construction of a dam, at the very least. The estimated cost of this alternative is $2.7 million.

Coal mining is not a water dependent operation, so recycling or reuse of water is not a serious consideration.

III. Alternative Analysis - continued

4. Application of water conservation methods:
(Discuss the potential water conservation opportunities evaluated including the feasibility of implementation and the costs. Indicate which of these opportunities are to be implemented)

Water collected in sediment structures before being discharged will be used for dust suppression as is necessary and practicable. While only a small fraction of the total discharge can be reused, reuse of this water will help prevent possible withdrawals of other natural streams and wells.

If practicable, the proposed project will reuse discharges for watering of reclaimed land.

Upon closing of the site, the water required for remediation, including hydro-seeding, may also be provided by on-site detained water. Reusing this water will prevent possible withdrawals of other natural streams and wells.

Mining is not a water dependent operation, so conservation of water is not a serious consideration.

5 Alternative or enhanced treatment technology:
(Compare feasibility and costs of proposed treatment with the feasibility and costs of alternative or enhanced treatment technologies that may result in more complete pollutant removal. Describe each candidate technology including the efficiency and reliability in pollutant removal and the capital and operational costs to implement those candidate technologies. Justify the selection of the proposed treatment technology.)

Several alternatives for treating water from the project area and discharging it to streams and rivers in the area have been evaluated. These alternatives include construction of a water treatment facility, construction of physical filter barriers, chemical treatment, and construction of wetlands.

Water Treatment Facility Construction of a small water treatment facility (500,000 gallons per day) on the project site would cost over $1.6 million dollars, plus an additional cost of approximately $50,000 for a containment reservoir. This water treatment facility would not be able to manage the large amount of water required at this site (123,967 gallons per minute peak discharge). It would require 357 of these small facilities or one large facility (over $571 million) to handle this amount.

Physical Filter Barriers Silt fences and straw bales are designed for use with small discharges and would not be able to handle the large discharge flow generated, nor would they meet requirements of the Commonwealth of Kentucky's surface mining regulations as stated in 405 KAR 16:070.

Chemical Treatment Chemical treatment of drainage was also considered. The primary treatment required at this site is the removal of sediments, which requires the use of ponds or dugouts to hold the water while the soil and debris settle out. Chemicals may be used to augment this process, but sediment removal is not possible using chemical treatment alone. It would cost at least $265,000 to treat the entire volume of discharge at this site (over 530 million gallons over five years).

Wetland Construction Constructed wetlands have traditionally been used for biological treatment. However, the discharge generated by this operation will require sedimentation control measures, and wetlands are not effective for treating sediment. Additionally, wetlands used for water treatment would require additional property, which is not available in this particular project area. It would cost approximately $51,300 to construct these wetlands.

III. Alternative Analysis - continued

6. Improved operation and maintenance of existing treatment systems:

(Discuss improvements in the operation and maintenance of any available existing treatment system that could accept the wastewater. Compare the feasibility and costs of improving an existing system with the feasibility and cost of the proposed treatment system.)

If the site has been previously mined, and if existing ponds are in working condition, those ponds could be utilized. It is likely that any existing systems will be laden with significant levels of sediment and will have to be cleaned or expanded. If no ponds exist, ponds or dugouts will be created to allow settling to occur for all water leaving the site.

If lowered water quality standards are not accepted, larger ponds will be required, which will increase costs and impacts to streams in the area.

Pumping or trucking the runoff to the nearest wastewater treatment plant will require significant changes to the nearest wastewater treatment facility. Pikeville Wastewater Treatment Plant is approximately 19.3 miles away. This plant cannot receive sediment laden water and would have to construct a sediment basin to serve a similar function to on-site sediment ponds. Furthermore, the treatment plant can only handle 2 million gallons per day (MGD) and the discharge from this site (approximately 290,842 gallons per day) could require the county to increase its capacities at significant cost.

7. Seasonal or controlled discharge options:

(Discuss the potential of retaining generated wastewaters for controlled releases under optimal conditions, i.e. during periods when the receiving water has greater assimilative capacity. Compare the feasibility and cost of such a management technique with the feasibility and cost of the proposed treatment system.)

The proposal for this project would include the construction of sediment structures to ensure controlled release of generated runoff under optimal conditions. The sediment structures reduce the velocity of storm water, thus enhancing sedimentation and reducing its deposition within the stream. In this way, a controlled volume and quality of water is released in order not to overwhelm a natural system. The ponds are designed for a 25-year, 24-hour storm event. Discharge to streams with less than 0.1 cfs will not occur when other practicable alternatives exist.

Additionally, the construction of a lake for physical detention of the water and later recreational purposes was evaluated as a possible alternative. This would involve acquisition of the land, environmental and engineering surveys, and construction of a dam, at the very least. The estimated cost of this alternative is $2.7 million.

Another alternative is on-site storage in 50,000 gallon septic tanks, and eventual release into the surrounding area. In order to store the amount of discharge generated at this site in one year, 10,616 storage tanks would be required with a potential cost of over $1.3 billion for the tanks alone. 24” diameter HDPE pipe ($67/foot) would be required to transport the discharge to the tanks with a cost of over $2.1 million for over 31,800 feet of pipe. This would require the excavation of at least 271 acres of land (260 acres for the tanks and 11 acres for the leach field) to a depth of 15 feet. Because of the amount of sediment in the discharge, the tanks would have to be cleaned out at least once per year at a cost of approximately $355 million ($6700 per tank per year). After excavation, in order to install the tanks and after each cleaning, the extra dirt and sediment would have to be added to an existing hollow fill or used to create another hollow fill, resulting in greater disruption of the natural contours of the area.

III. Alternative Analysis - continued

8 Land application or infiltration or disposal via an Underground Injection Control Well

(Discuss the potential of utilizing a spray field or an Underground Injection Control Well for shallow or deep well disposal. Compare the feasibility and costs of such treatment techniques with the feasibility and costs of .proposed treatment system.)

An alternative to surface discharge from the project area is sub-surface disposal. Deep mining has been conducted in the vicinity of the project area. Therefore, the sub-surface disposal of drainage from the project area would present safety concerns for any present deep mining operations, and the cost would be high due to a lifting station ($218,000), 24" diameter HDPE pipe (~$1 million), and possibly drilling an injection well which could cost up to $50,000 per well depending on the depth. Injecting this discharge underground would increase the potential of an outcrop blow-out from an old adit and would require a UIC permit. A suitable place to inject within 0.5 miles of this site has not been found. In addition to potential safety impacts associated with subsurface disposal, this alternative would reduce the quantity of water available to support downstream aquatic communities.

9 Discharge to other treatment systems

(Discuss the availability of either public or private treatments systems with sufficient hydrologic capacity and sophistication to treat the wastewaters generated by this project. Compare the feasibility and costs of such options with the feasibility and costs of the proposed treatment system.)

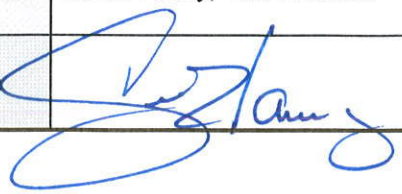
Alternative treatment works have been investigated, including piping and trucking the discharge to the nearest wastewater treatment plant.

It would take approximately $6.8 million (101,904 feet of 24" diameter HDPE pipe at $67/ft) to run 24" diameter HDPE pipe to the nearest municipal water treatment plant, which is the Pikeville Wastewater Treatment Plant. The Pikeville Wastewater Treatment Plant would then require a sedimentation basin to remove the silt before allowing the water to enter their plant.

It would require 3 trucks with a capacity of 5,000 gallons, working 24 hours a day, to haul the discharge to the Pikeville Wastewater Treatment Plant. The trucks would cost over $690,000, and maintenance and gas would cost over $750 per day ($4.1 million over the 5-year life of the project) for a total cost of over $4.8 million.

Additionally, the Pikeville Wastewater Treatment Plant cannot handle sediment laden water and would require the construction of a large sedimentation basin. Currently the plant can only handle 2.0 MGD of wastewater. Increasing the capabilities of this treatment plant would be costly and burdensome to the county.

IV Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and Title:	Kevin Varney, Vice President	**Telephone No.:**	(606) 353-7201
Signature:		**Date:**	June 23, 2011

Kentucky Pollutant Discharge Elimination System (KPDES)
Instructions
KPDES Permit Application Supplemental Information

SECTION I – PROJECT INFORMATION

Facility Name: Provide the name of the facility
Location: Provide the physical location of the proposed project
County: Indicate the county in which the facility is located
Receiving Water Name: Indicate the water body into which the facility discharges or plans to discharge.

SECTION II – Socioeconomic Demonstration

For each factor provide a discussion of expected positive and negative impacts. Include appropriate support documentation.

SECTION III – Alternative Analysis

For each alternative compare the feasibility and costs of the alternative to the feasibility and costs of the proposed project and its treatment system. Include appropriate support documentation.

SECTION IV - CERTIFICATION

Name and Title: Indicate the name and title of the person signing the form.
Telephone No.: Provide the telephone number of the person signing the form.
Date: Indicate the date which the form was signed.

This form being part of the permit application must be signed as follows:

Corporation: by a principal executive officer of at least the level of vice president
Partnership or sole proprietorship: by a general partner or the proprietor respectively