ecoPower Generation

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AUG 19 2014
PUBLIC SERVICE COMMISSION

August 18, 2014

Ms. Linda Faulkner
Filings Division
Kentucky State Board for Electric Generation and Transmission Siting
P.O. Box 615 Frankfort, KY 40602

SUBJECT: Cumulative Environmental Assessment and Stormwater Permit Application
ecoPower Generation-Hazard, LLC
1244 Coalfields Industrial Dr.
Chavies, Perry County, KY 41727
Case No. 2009-00530

Dear Ms. Faulkner,

Thank you for letting me know the status of the filing of the Cumulative Environmental Assessment and Stormwater Permit Application. As I advised, these documents were timely filed on May 6, 2013. See the enclosed signed Return Receipt for the original transmittal letter dated April 25, 2013. Also enclosed for the file in this case is another copy of the CEA and NOI for your records.

Should you wish to discuss this matter any further, please advise.

Sincerely,

Gary T. Crawford
CEO
ecoPower Generation – Hazard, LLC

Enclosures: Cumulative Environmental Assessment, April 19, 2013
Notice of Intent for Coverage Under KPDES General Permit for Stormwater Discharges Associated with Construction Activities KYR10

cc: Smith Management Group

ADDRESS 1256 Manchester Street, Lexington KY 40504, United States of America
PHONE ph: 859-685-1106, fx: 859-252-6964
WEB info@ecopg.com, www.ecopg.com

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

April 1, 2013

Kurt Cooper
Gray Construction
10 Quality St
Lexington, KY 40507

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10H327
Eco Power
Permit Type: Construction
AI ID: 106405
Perry County, Kentucky

Dear Kurt Cooper:

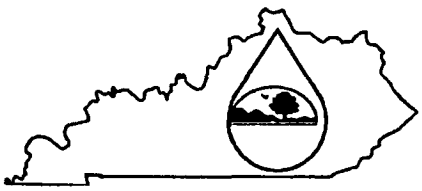
The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KYR10)" permit. This coverage becomes effective the date of this correspondence and will remain effective until the general permit expires or the Division of Water revokes coverage. During this period of coverage all discharges shall comply with the conditions of the applicable general permit. A copy of the general permit the operator is now covered by can be found on our website: http://water.ky.gov.

Any questions concerning the general permit and its requirements should be directed to me at (502) 564-3410.

Facility Site: Sykes Blvd, Hazard (Perry County), KY 41701

Sincerely,

Emily Hogue
KPDES Branch
Division of Water



Kentucky Pollutant Discharge Elimination (KPDES)

Notice of intent (NOI) for coverage of Storm Water Discharge Associated with Construction Activities Under the KPDES Storm Water General Permit KYR100000

Submission of this Notice of Intent constitutes notice that the party identified in the section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with construction activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

I. Facility Operator Information

Operator Name(s) (*)	Gray Construction	Phone(*)	859-281-5000		
Mailing Address(*)	10 Quality Street	Status of Owner/Operator	Private		
City(*)	Lexington	State(*)	Kentucky	Zip(*)	40507

II. Facility/Site Location Information

Name of Project (*)	Eco Power	Physical Address (*)	Sykes Blvd	City(*)	Hazard
State(*)	Kentucky	Zip(*)	41701	County (*)	Perry
Latitude (Decimal Degrees)(*)	37.375	Longitude (Decimal Degrees)(*)	-83.275	SIC Code(*)	1542

III. Site Activity Information

a. For single projects provide the following information:

Total Number of acres in project:	125.32
Total Number of acres to be disturbed:	2.85
Anticipated Start Date	04/15/2013
Anticipated Completion Date	12/31/2013

b. For common plans of development provide the following information:

Total number of acres in project	
Number of individual lots in development, if applicable	
Number of lots to be developed	
Total acreage of lots intended to be developed	
Total acreage intended to be disturbed	
Number of acres intended to be disturbed at any one time	
Anticipated start date	
Anticipated completion date	
List Contractor(s)	Company Name(*) Add New

IV. If the permitted site discharges to a water body the following information is required

a:

Name of Receiving Water (*)	Rockhouse Fork
Anticipated number of discharge points	1
Location of Anticipated discharge points	Latitude(s) Longitude(s) Delete 37.379 -83.272 Add New
Receiving Water Body Stream-Use Designation	☐ Cold Water Aquatic Habitat ☐ Domestic Water Supply ☐ Outstanding State Resource Water ☐ Primary Contact Recreation ☐ Secondary Contact Recreation ☑ Warm Water Aquatic Habitat
Antidegradation Categorization	

b:

Name of Receiving Water	
Anticipated number of discharge points	
Location of Anticipated discharge points	Latitude(s) Longitude(s) Add New
Receiving Water Body Stream-Use Designation	☐ Cold Water Aquatic Habitat ☐ Domestic Water Supply ☐ Outstanding State Resource Water ☐ Secondary Contact Recreation ☐ Primary Contact Recreation ☐ Warm Water Aquatic Habitat
Antidegradation Categorization	

V. If the permitted site discharges to a MS4 the following information is required

Name of MS4	
Number of discharge points to the MS4	
Location of each discharge point	Latitude(s) Longitude(s) Add New
Date of application/notification to the MS4 for construction site permit coverage	

VI. Construction activities in or along a water body

Will the project require construction activities in a water body or the riparian zone?	No
If Yes, describe scope of activity	
Is a Clean Water Act 404 permit required?	No
Is a Clean Water Act 401 Water Quality Certification required?	No

VII. NOI Preparer Information

First Name (*)	Kurt	Middle Initial	A	Last Name (*)	Cooper
Mailing Address (*)	701 Oakmont Trail	City(*)	Richmond	State(*)	Kentucky
Zip(*)	40475	Phone (*)	270-792-7134	eMail Address (*)	kcooper@dyerassoc.net

VIII. Attachment(s)

Topographic map(*)	Upload File(s) Files Haddix_cropped.pdf (1.0MB) Remove
Supplemental Information	Upload File(s)

IX. 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. By submitting data, this transmission constitutes my signature and I am responsible for any and all content submitted either by me or by the people I represent.

Signature (*)	Kurt Cooper	First Name(*)	Kurt		
Middle Initial	A	Last Name(*)	Cooper	Date (*)	03/29/2013
Contact eMail Address(*)	kcooper@dyerassoc.net	Contact Phone(*)	270-792-7134		

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WHO MUST FILE A NOTICE OF INTENT (NOI) FORM

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the Storm Water Contact, Operational Permits Section, Kentucky Division of Water at (502) 564-3410.

WHERE TO FILE NOI FORM

Operational Permits Section SWP Branch,
Division of Water 200 Fair Oaks Lane
Frankfort, KY 40601

Electronic NOI-SWCAs are to be submitted a minimum of seven (7) working days prior to commencement of construction related activities. Paper NOI-SWCAs are to be submitted a minimum of thirty (30) working days prior to commencement of construction related activities.

COMPLETING THE FORM

Enter information in the appropriate areas only. (*) denotes a required field. Enter N/A (Not Applicable) for fields that are required but do not apply to your submission. If you have any questions regarding the completion of this form call the Storm Water Contact, Operational Permits Section, at (502) 564-3410.

SECTION I - FACILITY OPERATOR INFORMATION

Operator Name(s): Enter the name or names of all operators applying for coverage under KYR10 using this NOI.
Mailing Address, City, State, and Zip Code: Provide the mailing address of the primary operator
Phone No.: Provide the telephone numbers of the person who is responsible for the operation.
Status of Owner/Operator: Select the appropriate legal status of the operator of the facility from the dropdown list.
Federal
Public (other than federal or state)
State
Private

SECTION II - FACILITY/SITE LOCATION INFORMATION

Name of Project: Provide the name of the project.
Physical Address, City, State, Zip Code and County: Provide the physical address of the project.
Latitude/Longitude: Provide the general site latitude and longitude of the operation.
SIC Code: Enter the Standard Industrial Code for the project

SECTION III - SITE ACTIVITY INFORMATION

For single projects provide the following information:

Total number of acres in project: Indicate the total acreage of the project including both disturbed and undisturbed areas.
Total number of acres to be disturbed: Indicate the total number of acres of the project to be disturbed.
Anticipated start date: Indicate the approximate date of when construction activities will begin.
Anticipated completion date: Indicated the approximate date of when final stabilization will be achieved.

For common plans of development provide the following information:

Total number of acres in project: Indicate the total acreage of the project including both disturbed and undisturbed areas.
Number of individual lots in development, if applicable: Indicate the number of individual lots or unit in the common plan of development
Number of lots to be developed: Indicate the number of lots that you intend to develop.
Total acreage of lots intended to develop: Indicate the total acreage of the lots you intend to develop.
Total acreage intended to disturb: Indicate the total acreage of the lots you intend to disturb
Number of acres intended to disturb at any one time: Indicate the maximum number of acres to be disturbed at any one time.
Anticipated start date: Indicate the approximate date of when construction activities will begin.
Anticipated completion date: Indicated the approximate date of when final stabilization will be achieved.
List of contractors: Provide the names of all known contractors that will be working on site.

SECTION IV â€“ IF THE PERMITTED SITE DISCHARGES TO A WATER BODY THE FOLLOWING INFORMATION IS REQUIRED

Name of Receiving Water: Provide the names of the each water body receiving discharges from the site. Provide only official USGS names do not provide local names.
Anticipated number of discharge points: Indicate the number of discharge points to each receiving water body.
Location of anticipated discharge points: Provide the latitude and longitude of each discharge point. Add points as necessary.
Receiving Water Body Stream Use Designation: Check all appropriate boxes.
Antidegradation Categorization: Select from the drop down box one of the following:
Outstanding National Resource Water
Exceptional Water
High Quality Water
Impaired Water

SECTION V â€“ IF THE PERMITTED SITE DISCHARGES TO A MS4 THE FOLLOWING INFORMATION IS REQUIRED

Name of MS4: Provide the name of the MS4 to which the activity will discharge.
Number of discharge points to the MS4: Indicate the number of discharge points.
Location of each discharge point: Provide the latitude and longitude of each discharge point. Add points as necessary
Date of application/notification to the MS4 for construction site permit coverage: Indicate the date the MS4 has or will be notified.

SECTION VI â€“ CONSTRUCTION ACTIVITIES IN OR ALONG A WATER BODY

Will the project require construction activities in a water body or the riparian zone: Select Yes or No from the drop down box. **If Yes, describe scope of activity:** Provide a brief description of the activity that will take place in the water body or the riparian zone.

Is a Clean Water Act 404 permit required: Select Yes or No from the drop down box.
Is a Clean Water Act 401 Water Quality Certification required: Select Yes or No from the drop down box.

SECTION VII â€“ NOI PREPARER INFORMATION

Provide the name, mailing address, telephone number and eMail address of the person preparing the NOI.

SECTION VIII â€“ Attachments

Attach a USGS topographic map indicating the location of the activity and the proposed discharge points.

SECTION IX â€“ CERTIFICATION

Provide the name, mailing address, telephone number and eMail address of the person who is responsible for the activity.

Signature: Provide full name of the responsibility party. This will constitute a signature.

The NOI 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.

eco Power Generation

April 25, 2013

Commissioner David Armstrong Chairman
Kentucky State Board on Electric Generation and Transmission Siting
P.O. Box 615
Frankfort, KY 40602

Regarding: Cumulative Environmental Assessment and
Stormwater Permit Application
ecoPower Generation-Hazard, LLC
1244 Coalfields Industrial Dr.
Chavies, Perry County, KY 41727
Case No. 2009-00530

Dear Chairman Armstrong,

We are pleased to submit the Cumulative Environmental Assessment (CEA) for the ecoPower Generation Facility to be located in Perry County, Kentucky. The Assessment was prepared and submitted to the Department for Environmental Protection on April 19, 2013 in accordance with the requirements of Kentucky Revised Statute (KRS) 224.10-280(1). The enclosed copy of the CEA and a copy of the construction stormwater permit application (Notice of Intent - NOI) are being presented to satisfy Specific Condition # 15 from page 7 of Appendix A of the Final Order dated May 18, 2010.

Please contact me or Sara Smith at Smith Management Group (859) 231-8936 x105 with any questions you may have.

Sincerely,

Gary T. Crawford, P.E., CEO
ecoPower Generation-Hazard, LLC

Enclosures: Cumulative Environmental Assessment, April 19, 2013
Notice of Intent for Coverage Under KPDES General Permit for Stormwater Discharges Associated with Construction Activities KYR10.

cc: Smith Management Group

ADDRESS 1256 Manchester Street
Lexington,KY 40504
United States of America
PHONE ph: 859-685-1106
fx: 859-252-6964
WEB info@ecopg.com
www.ecopg.com

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Commissioner David Armstrong
Chairman
KY State Siting Board
PO Box 615
Frankfort, KY 40602

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery MAY 3 2013

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

RECEIVED
MAY 06 2013
BY:

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7010 2780 0000 4114 2942

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-154(

CUMULATIVE ENVIRONMENTAL ASSESSMENT

ecoPower Generation-Hazard, LLC
Perry County, Kentucky, Facility

Presented by

ecoPower Generation

Energizing America with Clean Power

CUMULATIVE ENVIRONMENTAL ASSESSMENT

ecoPower Generation-Hazard, LLC
Perry County, Kentucky, Facility

APRIL 2013

EcoPower Generation-Hazard, LLC
1256 Manchester St.,
Lexington Kentucky 40504
859-685-1106

Prepared by:

SMG

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 PROJECT INTRODUCTION

ecoPower Generation - Hazard, LLC (ecoPower) is developing a wood-to-energy electric generating facility in Perry County, Kentucky. The plant will be located in the Coalfields Regional Industrial Park (CFRIP) which is accessed from Highway 15, 10 miles north of the intersection of Highway 15 and the Hal Rodgers Parkway (also known as Route 80) in Perry County, Kentucky. The plant site is a 125 acre parcel on the northern end of the CFRIP. **Figure 1** - Site Location Map shows the site location and approximate site boundaries. Extensive assessment and permitting have been completed for the facility. Limited construction is scheduled to begin prior to April 23, 2013. Due to the complexity of the project, construction will be a lengthy process. Not all details have been finalized at this time. This Cumulative Environmental Assessment (CEA) includes a summary of environmental assessments and permitting activities performed for the site and describes provisions to control the emission of pollutants from the facility to air, water and land. Additionally, this CEA includes an evaluation of water use and availability for the facility.

1.2 STATEMENT OF OBJECTIVE

Kentucky Revised Statute (KRS) 224.10-280(1) requires that no person shall commence to construct a facility to be used for the generation of electricity unless the person submits a Cumulative Environmental Assessment (CEA) to the Commonwealth of Kentucky Energy and Environment Cabinet with the permit application. The regulation also describes required CEA elements. In accordance with KRS 224.10-280(3), this CEA contains a description, with appropriate analytical support, of:

- For air pollutants:
    - Types and quantities of air pollutants that will be emitted from the facility; and
    - A description of the methods to be used to control those emissions;

- For water pollutants:
    - Types and quantities of water pollutants that will be discharged from the facility into the waters of the Commonwealth; and
    - A description of the methods to be used to control those discharges;
- For wastes:
    - Types and quantities of wastes that will be generated by the facility; and
    - A description of the methods to be used to manage and dispose of such wastes; and
- For water withdrawal:
    - Identification of the source and volume of anticipated water withdrawal needed to support facility construction and operations; and
    - A description of the methods to be used for managing water usage and withdrawal.

1.3 FACILITY DETAILS

The facility design includes the following major equipment and structure list:

- One fluidized bed boiler (FBB) and steel support structure;
- Steam turbine generator;
- Air quality control systems (AQCS) which include dry sorbent injection (DSI), pulse jet fabric filter (PJFF), and a selective catalytic reduction (SCR) unit;
- Exhaust stack;
- Air-cooled condenser (ACC);
- Biomass fuel handling systems that include, but are not limited to, scales, truck dumps, receiving hopper, conveyors, roads, storage piles, silos, screens, wood chipper, and wood hog;
- Ancillary equipment and systems (i.e., mechanical systems, potable and service water systems, fire protection system, compressed air system, steam and condensate systems, heating and cooling systems, start-up fuel system, ash handling systems, drainage and sewer systems, electrical systems, emergency generator); and
- Several buildings including: a wood hog building; a chipper building; a warehouse/shop building; and a service building; and

- Electric power transmission line.

The boiler and steam turbine generator will be designed to produce a nominal 58 megawatts (MW) net or 66 MW gross electrical output. The FBB will be designed for a heat input of 745 million British thermal units per hour (mmBtu/hr) in order to generate approximately 564,000 pounds per hour (lb/hr) of steam. It is anticipated to operate at an approximate maximum pressure of 1,725 pounds per square inch gage (psig). The boiler will be fired by blended biomass that includes bark, wood chips, chipwood, and sawdust. Propane will be used to provide steam during startup of the boiler. Cooling will be accomplished with an air cooled condenser which reduces water use.

A diesel-fired emergency generator with planned 250 horse power (hp) rating and a 320 hp diesel-fired emergency fire water pump will be provided for emergency situations (i.e., interrupted electrical supply, wood fires) at the facility. Diesel storage tanks for these two units, as well as a tank to supply diesel fuel for facility mobile equipment will be located on site. A preliminary general arrangement site plan is included in **Appendix A** for reference.

1.4 ASSESSMENT HISTORY

Since the ecoPower Generation project was conceived, its developers have focused on the details and aspects needed to ensure a successful, sustainable and compliant project. Significant work has been completed, in various phases and for various aspects of development and regulatory oversight. References will be made through this section to the various reports and investigations that have been conducted.

The most comprehensive compilation of assessments is the Application and Reports submitted to the Electric Generation and Transmission Siting Board. That information is referenced as Merchant Power Plant Case 2009-00530 and is available at http://psc.ky.gov/Home/EGTSB. Significant Case Files are accessible as follows:

Application Volume I http://psc.ky.gov/pscecf/2009-00530/1001300_efs/02192010e/Web_Version_FINAL_COMPLETE_APPLICATION_Vol1.pdf

Volume I includes a description of the facility and its projected impact on the community, portions of which will be included in this summary. The description of the project includes assessment of the surrounding areas and concluded that there are no schools, hospitals, public parks or nursing homes within a 2-mile radius of the site. Attachments in Volume I include reports and agreements which inform much of the continuing effort to adequately address aspects of development such as water supply etc., as follows:

- Option to Purchase and Grant of Right of Entry to allow the property to be purchased and developed.
- Property Survey Map.
- Forms of the Options to Purchase Easements and Rights of Way for the transmission line.
- Option to purchase water from the City of Hazard and form of Water Supply Agreement.
- Information about Hollybush Impoundment.
- Documentation of public outreach, communication with adjacent property owners and public notice.

Application Volume II http://psc.ky.gov/pscecf/2009-00530/1001300_efs/02192010f/Web_Version_FINAL_COMPLETE_APPLICATION_Vol2.PDF

Volume II includes copies of most of the underlying reports and assessments, including

- A Site Assessment Report conducted in February 2010, which examined the compatibility of the proposed facility with the scenic surroundings, potential changes in property values, anticipated noise levels at property boundaries, road, rail and fugitive dust impacts, and described mitigation measures (page 1).

- Phase I Environmental Site Assessment, dated January 2010, . which was completed in general compliance with All Appropriate Inquiry regulations and with ASTM E1527-05 and which concluded that no Recognized Environmental Conditions were identified on the property (page 26).
- Noise Impact Study, dated January 2010, which described ambient noise monitoring and modeling of the projected noise impact of the facility on the surrounding community. The report concluded that no residential community would be impacted by the operating noise from the facility and that no mitigating measures would be required (page 91).
- Cultural, Historic and Archaeological Studies which were submitted to the State Historic Preservation Officer who concurred that the project would have no effect on existing historic of cultural assets (Page 193).
    - The Cultural Historic Survey, dated November 2009, assessed the existing historic assets which may be impacted by the project. The investigator concluded the project would have no impact on any site eligible for or listed in the National Register of Historic Places. It was pointed out that the facility would be located on previously mined property and is located within an existing industrial park which is sited on previously mined property (page 137).
    - An Archaeological Overview and Phase I Survey Report, dated February 2010 concluded that no evidence of prehistoric or historic archaeological sites were identified within the transmission line corridor and documented previous disturbance and a lack of archaeological sites on the main plant site (page 168).
- Threatened and Endangered Species Consultation included an assessment of the likely presence of jurisdictional waters (wetlands and streams), and any potential issues related to federally threatened and endangered species. Both Kentucky and U.S. Fish and Wildlife were consulted. Since the completion of the Siting Board application, additional evaluation of potential winter bat habitat has been conducted which determined no potential for such habitat exists on the site. The project's management team has confirmed their intention to abide by recommendations of the U.S. Fish and Wildlife Service to avoid cutting trees on site during potential summer swarming season (page 194). Recent correspondence is included in **Appendix A**.

- An assessment of the potential impact to residential viewshed was conducted which included photographs of the existing views from the few scattered surrounding residences, with conceptual photographs illustrating the plant as if constructed. In addition, the modeled sight lines from residential communities on the adjacent road was evaluated (see page 58, Volume 1) and found to not create a visual impact (page 202).
- The potential impact of the project on adjacent property values was reviewed in a report dated December 2009 (page 212). The assessor concluded that adjacent property values, in general, would increase as the result of the project.
- The data supporting the conclusion that the impact to traffic and the state road system would be minimal is included (page 371).
- The initial Air Permit Application is also included in the appendices (page 414) but is discussed in great detail in **Section 2.3** of this report.

2.0 AIR POLLUTANT EVALUATION

2.1 AIR POLLUTANTS

Like all electric generating facilities, operations at ecoPower will result in a release of air pollutants to the atmosphere. Air pollutants will be emitted from a variety of sources planned at the facility including primary and ancillary equipment. These sources include: the operation of the facility's main boiler, its emergency generator and emergency fire pump, storage tanks, wood handling equipment and buildings, paved and unpaved roads, a truck dump, and a fuel storage pile.

Various air pollutants will be emitted from these stationary and fugitive sources. Since the facility has not yet commenced operation, the following pollutants and quantities anticipated to be emitted are based upon current design and permitted allowable thresholds:

Pollutant	**Anticipated Emissions (tons per year)**
Total Particulate Matter (PM)[1]	<250
Carbon Monoxide (CO)	<250
Volatile Organic Compounds (VOCs)	<75
Nitrogen Oxides (NO_x)	<250
Sulfur Dioxide (SO_2)	<250
Lead (Pb)	<1
Hazardous Air Pollutants (HAPs)[2]	<25
Greenhouse Gases (CO_2e)[3]	~720,024

[1] Includes PM_{10} and $PM_{2.5}$
[2] Includes those hazardous air pollutants defined by the Clean Air Act, Section 112. The primary source of HAP emissions from the facility will be the byproducts of combustion at the facility (main boiler and emergency generator and fire pump).
[3] As contained in 40 CFR 98, greenhouse gases from combustion sources are defined as carbon dioxide and its equivalent (CO_2e), which also includes methane and nitrous oxides.

Please note this is a plant-wide total representation based upon calculations performed as part of the air permitting process, therefore the pollutant quantities represent the total emissions in tons per year from all sources of emissions at the facility.. Detailed information regarding these anticipated emissions has been provided as part of the air permitting processes. These details are part of the public record submitted to the Kentucky Division for Air Quality (DAQ) on December 21, 2012, as part of a request for modification of the air permit. The application was deemed complete via a letter dated March 8, 2013 (See **Appendix B**). DAQ personnel have stated that the application was approved by DAQ on March 7, 2013 and forwarded to EPA for their review. Completion of that review is expected no later than April 21, 2013.

2.2 CONTROL METHODS

The control of air emissions will result from equipment design, standard operating procedures (SOPs) and best management work practices (BMPs).

2.2.1 Design

The following section summarizes the control of emissions via equipment design or function for each applicable anticipated emission point. All air pollution control equipment at the ecoPower facility will be operated in a manner consistent with good air pollution control practices for minimizing emissions.

Boiler

The boiler is the largest source of air emissions planned at the facility. Anticipated pollutants include criteria pollutants, hazardous air pollutants, and greenhouse gases. Particulate emissions from the boiler will be controlled by the PJFF baghouse with pollutant removal estimated at 99.1%. Combustion operating controls, which ensure maximum boiler operating efficiency, will also assist in the control of NOx, CO, and VOC emissions. Such operating controls, include but are not limited to, maintaining an efficient air-to-fuel ratio, monitoring and stabilizing fuel feed rates, and making

temperature adjustments, as necessary. Acid gases will be controlled by the DSI system which will be operated on an intermittent basis as-needed. NOx emissions will be controlled by the SCR unit with a pollutant removal or destruction efficiency estimated at 60% to 70%. The baghouse and the SCR system will be operated at all times when the boiler is operated. The boiler monitoring system includes CO, NO_x, SO_2 and hydrogen chloride (HCl) continuous emissions monitors (CEMs) to provide actual data to plant operators during operations.

Enclosed Wood Processing Buildings (Chipper and Wood Hog Buildings)

Multiple controls are included to control PM from the wood processing operations. Biomass will be chipped and hogged inside of enclosed buildings. The buildings will be operated under a vacuum and equipped with bin vent filters (designed with a 99.9% control efficiency). In addition, fog mist will be used inside of these buildings as necessary to control indoor air quality.

Silos (Fly Ash, Dry Sorbent and Sand)

Vacuum systems and filters will be used to control emissions from other major raw materials. Fly ash (a combustion byproduct), dry sorbent (used in the DSI system) and sand (boiler bed material) will be conveyed and stored in silos operated under a vacuum and equipped with bin vent filters (designed with a 99.9% particulate removal efficiency) to control PM emissions.

2.2.2 SOPs/BMPs

The following section summarizes the control of emissions via SOPs and BMPs for each applicable anticipated emission point. All operational and BMPs (maintenance, operation and testing) at ecoPower will be implemented in a manner consistent with good air pollution control practice for minimizing emissions. Proper maintenance, operation and testing of equipment ensure that equipment and related control systems are properly functioning and working at optimal performance.

Boiler

As noted above, the boiler will be equipped with CO, NO_x, SO_2 and HCl continuous emissions monitors (CEMs). Monitoring plans will be developed to ensure that the CEMs are maintained, operated and compliance tested according to applicable regulations. Proper operation, maintenance and testing of the CEMs will ensure that emissions are accurately being quantified and controlled at the facility.

The fabric filter baghouse will operate with a baghouse leak detection system. During operation, the boiler fabric filter baghouse will be operated in accordance with its site-specific developed and approved monitoring plan[4]. The monitoring plan will include any manufacturer specifications for operation. Operation in accordance with this monitoring plan will ensure proper function and control of the baghouse.

The SCR will be operated in accordance with manufacturer's specifications and standard operating practice to maintain compliance with emission limits.

Initial and periodic performance testing will be completed in order to demonstrate the AQCS's ability to control air emissions. Additionally, biennial tune-ups will be conducted on the boilers. These periodic demonstrations and tune-ups will ensure that the boiler and AQCS components are being efficiently and properly operated and maintained.

Diesel-fired Emergency Generator and Diesel-fired Emergency Fire Pump Engine

The facility has provisions to operate a diesel-fired generator and fire pump equipment for emergency use. The diesel-fired emergency equipment will be available in the event of an emergency situation such as the loss of power in a natural disaster or fire. The engines will be operated periodically for readiness testing. In order to minimize emissions, these units will be operated and maintained in accordance with the manufacturer's written instructions or procedures.

[4] The monitoring plan will be developed further along in the construction and final design process and submitted to the KY DAQ prior to operation of the fabric filter baghouse.

Material Handling Equipment

ecoPower will have various hoppers, conveyors and metering bins for the transfer of biomass and combustion byproducts in and around the facility. Many of these transfer points will be located indoors or will be mostly enclosed. These transfer points will be operated in accordance with manufacturer's specifications and standard operating practices in order to minimize PM emissions.

Storage Piles

ecoPower will have one round wood storage area, an overs pile (aka opportunity wood yard), and a 20-day fuel storage area. Passive fugitive emissions are not anticipated from the large, round wood storage area, which is comprised of wood products prior to material handling (e.g., chipper, wood hog) nor the overs pile which will contain wood products in excess of 4" in diameter. The overs pile will include materials that were not ground sufficiently in the chipper building. Material collected in the overs pile will be reground with a mobile grinder and transferred back to the receiving conveyor for reprocessing in the wood hog building. Minimal passive fugitive dust (PM) emissions are anticipated from the 20-day fuel storage pile. The moisture of the wood (approximately 36%) is expected to suppress significant dust.. If excess airborne dust is observed from the stockpile, dust suppression (water) or other mitigating measures (i.e., tarping) will be used to control excess particulate matter generated from the stockpile.

Haul Roads and Loader Traffic

ecoPower will have paved, mostly paved and unpaved roads and various heavy vehicles at its facility. The roads and heavy equipment are mechanisms for moving raw materials or end byproducts (fly ash) around the facility. Dust suppression methods (i.e., water or sweeper truck, fog mist, or other suitable dust suppression methods) will be used when excess airborne dust is observed. All paved road surfaces will be maintained in a clean condition, and open bodied trucks (when transporting materials likely to become airborne) will be covered as appropriate.

Receiving Hopper and Truck Dump

The hopper will have a live bottom chain with high pressure water system installed to control PM. The same applies to the truck dump, which will be installed with a high pressure water system to control PM.

Mobile Grinder

A mobile grinder will be installed to process any material that was not properly chipped by the chipper before being conveyed to the wood hog building. During operation, if excess airborne dust is observed from the mobile grinder and if necessary, dust suppression (fog mist) will be used to control excess particulate matter generated from the mobile grinder.

Storage Tanks

The facility will have various storage tanks for fluids. These storage tanks will include two 550-gallon diesel storage tanks (one for the emergency generator and one for the fire pump engine), a 30,000 gallon propane storage tank for the main boiler start-up fuel, and a mineral spirits cabinet for degreasing machine tools or equipment. Storage tanks will be equipped with secondary containment or will be double-walled and equipped with devices to detect discharges. BMPs (i.e., tight nozzles and flanges, properly sealed tank ports, etc.) will be implemented during the unloading and loading of fuel to minimize VOC emissions. When not in use, materials stored in cabinets will be sealed and cabinets will remain closed.

2.3 AIR PERMITTING

The facility is currently permitted by the DAQ to operate under a Title V/Synthetic Minor Construction/Operating Permit, Permit No. V-10-013, issued February 5, 2010 with an expiration of June 16, 2015. ecoPower submitted a revised air permit (minor modification) application to the DAQ in December 2012. This minor modification reflected changes to the facility's operation as a result of further design. As of the date of this report, the DAQ has not issued this revised permit; however, it is anticipated that it will be issued within the next couple of weeks.

The air permit includes many provisions for monitoring and reporting air emissions from the facility. Compliance with permit conditions is another important mechanism which will be used to limit emissions from the facility. ecoPower recognizes that a permit action will be needed for any modification and/or equipment addition at the facility . All proper documentation will be submitted to the DAQ if this occurs. ecoPower also recognizes that its current permit is valid for a period of five years. ecoPower will submit a permit renewal application at least six months prior to the expiration date of the permit.

ecoPower's fluidized bed boiler will be subject to 401 KAR 52:060, 40 CFR 72.30 (Acid Rain Program), 401 KAR 51:210, 401 KAR 51:220, 401 KAR 51:230 and 40 CFR 96 (Clean Air Interstate Rule (CAIR)) requirements because it uses propane for startup. It meets the definition of a "new, stationary, fossil-fuel-fired boiler or stationary, fossil-fuel-fired combustion turbine serving at any time, since the later of November 15, 1990 or the start-up of the unit's combustion chamber, a generator with nameplate capacity of more than 25 MWe producing electricity for sale."

Since the source is subject to the Acid Rain and CAIR Programs, ecoPower recognizes that a complete Acid Rain Permit Application for the facility's boiler must be submitted 24 months prior to the date on which the unit commences operation, and that a complete CAIR Permit Application for the facility's boiler must be submitted 18 months prior to the date on which the unit commences commercial operation. The dates of these application submittals will be determined as the construction schedule develops for the facility.

Miscellaneous Permitting Evaluations or Potential

It is also important to note that on January 12, 2011, the Environmental Protection Agency (EPA) deferred for a period of three years greenhouse gas permitting requirements for industries that use biomass, to allow further examination of scientific and technical issues associated with counting these emissions. The CO_2e emitted from biomass fuels are not included in national emission totals because the fuel is of biogenic origin. ecoPower will address this in the future, if applicable.

In February 2013, the EPA issued final revisions to the Non-Hazardous Secondary Materials (NHSM) rule[5]. This rule was developed under the Resource Conservation and Recovery Act (RCRA) in conjunction with the National Emissions Standards for Hazardous Air Pollutants (HAPs) for Area and Major Sources for Industrial, Commercial and Institutional Boilers (Boiler MACT), and the Commercial and Industrial Solid Waste Incineration Unit (CISWI) Rule regulated under the Clean Air Act (CAA). The intent of these rules is to provide substantial reductions in the amount of HAPs emitted to the atmosphere from boilers and incinerators. These rules have been evaluated in the permitting process for ecoPower. ecoPower will be subject to the area source Boiler MACT, and these requirements are being included in the revised permit modification. It has been determined; however, that the ecoPower facility in Hazard is not subject to the CISWI Rule or the NHSM Rule. See **Section 4.0** of this report for further discussion of the CISWI and NHSM rule.

[5] The original NHSM rule was promulgated in March 2011.

3.0 WATER POLLUTANT EVALUATION

ecoPower plans to discharge all process wastewater to the City of Hazard waste water treatment system. Only stormwater is expected to be discharged to the waters of the Commonwealth.

3.1 WATER POLLUTANTS

Water pollutant sources include minor process wastewaters and stormwater which may be exposed to industrial activity.

3.1.1 Wastewaters

Wastewaters from the site are anticipated to be minimal. Pollutants of the primary waste stream are anticipated to be typical of discharge from water treatment systems designed to remove minerals. Other waste water streams will be typical of many industrial facilities and will include maintenance wash waters and sewage.

Anticipated wastewaters include the following streams:

Source	Approximate anticipated discharge rate in gallons per minute (gpm)	Anticipated Pollutants
Demineralized water treatment system wastewater (Reverse osmosis system)	8	Dissolved solids (TDS), minerals and trace metals
Oil water separator in process area sumps. Includes flows from service water users (wash down), turbine generator leakage, condensate, blowdown	3*	Oils and grease, Total Suspended Solids (TSS), TDS, Acid/alkaline wastes and trace metals
Operations office and shops (based upon 15 people in an industrial facility)	2	Human waste and break room wastewater (sewage)
Total	13	

* This total flow is in the range of 40 gpm, but the majority of this flow is anticipated to be used onsite for auxiliary cooling and ash conditioning.

At present, the facility plans to use rental equipment for the demineralized water treatment system. A reverse osmosis system is likely. Regeneration of the catalyst will be performed off site. Wastewater discharge from this unit is expected to have high concentrations of solids (TSS and TDS).

The oil water separator combines flows from various users and the turbine leakage and blow down. The discharge of water with high concentrations of accumulated solids from boilers to prevent plugging of the boiler tubes or steam lines is a common practice and recommended for efficient operation and extending equipment life. This waste stream may also include small amounts of oil and grease from equipment leaks and maintenance operations.

3.1.2 Stormwater

Stormwater will be exposed to industrial activity at the site. Many processes will be covered or indoors, but there will be some anticipated stormwater exposure at outdoor material handling, storage and process areas. The primary opportunity for stormwater exposure will be outdoor wood storage and handling. The primary pollutant of concern associated with wood storage and handling is suspended solids. Leachate from log storage piles is also a possible source of contaminants. Material handling areas of ash, sand, sorbent, ammonia and other process chemicals present a possibility for exposure. Petroleum residuals from fueling and maintenance areas are also possible pollutants. Potential pollutant sources for stormwater are summarized as follows:

Activity	Potential Pollutants
Outdoor log storage and handling	Bark and debris, TSS, possibly biochemical oxygen demand (BOD).
Ash storage and handling (Silo)	TSS, alkalinity, possibly metals
Sand pile	TSS
Dry sorbent silo (Trona or sodium bicarbonate) storage and handling	TSS, alkalinity
Demineralized treatment system chemicals storage and handling (pH adjustment chemicals, biocides, corrosion inhibitors)	Acidity/alkalinity
Aqueous ammonia storage and handling (SCR unit 10,000 gallon tank)	Alkalinity
Oil-filled equipment and piping operation (1,100 gal tank for turbine lube and control oil, others sized at a later date)	Oil, possibly metals
Equipment Fueling (Diesel and gasoline tanks size to be determined)	Oil and grease, VOCs, SVOCs
Equipment maintenance, repair and storage	Oil and grease, solvents, acids, metals, Chemical oxygen demand (COD)
Facility maintenance and repair (paints, cleaners, oils, etc.)	TSS, Oil and grease, solvents, acids, metals, Chemical oxygen demand (COD)
Various compressed gases-liquid propane (30,000 gallons), nitrogen (Tank size to be determined), acetylene and oxygen (bottles)	Not typically a source of water pollution

3.2 CONTROL METHODS

3.2.1 Design

The site design focus was to minimize water use and treat wastewater efficiently. Selection of an air cooled condenser limits the amount of water needed for site operations and also limits the amount of wastewater. All process waters will be recycled onsite or will be discharged to a treatment system. At this time we anticipate that all site wastewater will be discharged to the local publically owned treatment works (POTW) which is the City of Hazard Wastewater Treatment Plant (WWTP). Based upon preliminary pollutants and concentrations, we do not anticipate that pretreatment prior to

discharge to the POTW will be required. Additional review will be performed as the design details are finalized.

Site design includes the creation of settling basins to collect storm water from processing and storage areas. Stormwater drainage systems will be designed to carry the channelized flows from the developed site for the 2-year, 24-hour rainfall event. This will allow for substantial settling prior to discharge. Stormwater from a small process area of the site will be evaluated to determine the need to flow through an oil water separator prior to discharge to the settling basin.

3.2.2 SOPs/BMPs

Operating procedures will be defined and BMPs will be implemented to comply with permitting requirements. Construction operations will be conducted within the requirements of the Stormwater Pollution Prevention Plan (SWPPP) for construction in conjunction with construction stormwater permitting. Refer to section 3.3 below for information about the initial construction stormwater permit for the facility.

Prior to operation, a SWPPP or BMP Plan will be developed for operations. A SWPPP (or similar BMP plan) and a Groundwater Protection Plan (GPP) are anticipated to be required for operation of the site. A site-specific GPP will be developed prior to operation of the facility in accordance with requirements specified in 401 KAR 5:037. The exact SWPPP/BMP requirements will be detailed in the operating permit and applicable regulations. The SWPPP is anticipated to include:

- Pollution prevention team members contact information and a description of their specific responsibilities;
- Description of structural BMPs from design documents;
- Description of outfalls indicated on a site drainage plan;
- Identification of anticipated pollutants for each area; and
- Development of specific BMPs, inspection, monitoring, training, and maintenance procedures for site operations.

Other BMPs and plans for protecting water resources will be developed as appropriate for the facility. Each of the plans will include details of potential pollution sources, appropriate handling procedures to minimize discharges, employee training, inspections and record keeping to control and limit water pollution at the site.

3.3 WATER PERMITTING

Construction Permitting

The first phase of water permitting for the site is complete. A Notice of Intent (NOI) to comply with requirements of the General Permit for Stormwater Discharges Associated with Construction Activities (KYR10) permit was submitted and accepted. An acknowledgement of coverage dated April 1, 2013, was issued for KPDES No.: KYR10H327, AI ID: 106405 (See **Appendix B**). Discharges shall comply with the conditions of the General Construction Stormwater Permit.

Stormwater Operating Permitting

We are currently evaluating options for the industrial stormwater permit for operations. Preliminary review indicates the site may be eligible for coverage under the General Permit for Stormwater Discharges Associated with Industrial Activity once it is issued because all wastewater is planned to be discharged to the POTW. For a new facility, the NOI would be anticipated to be required to be filed at least 15 days in advance of operation. If no general permit is in effect or if any wastewater is discharged to waters of the Commonwealth then an application for an individual KPDES operating permit will be submitted at least 180 days prior to startup of the facility.

Wastewater Discharge Permit

We anticipate that wastewater will be discharged to the POTW, the City of Hazard Wastewater Treatment Plant (WWTP). This facility operates under Kentucky Energy and Environment Cabinet, Division of Water (DOW) permit ID: KY0020079 (Issued 10-24-2008) and discharges to the Kentucky River and North Fork. According to the Water

Resource Information System online database, the Hazard WWTP has a capacity of 3 million gallons per day (MGD) and has a typical flow of 1.66 MGD. The report indicates the system has approximately 2,801 customers including 125 commercial customers, 7 institutional customers and 1 industrial user.

Based upon the anticipated average discharge rate of approximately 13 gpm, equivalent to roughly 18.7 thousand gallons per day (gpd), and based upon the anticipated wastewater characteristics, the ecoPower facility is not anticipated to be considered a Significant Industrial User (SIU) according to definitions in 40 CFR 403.3(v). At this time we anticipate that the facility will be able to permit all wastewater for discharge to the POTW. Permitting through the Hazard WWTP will proceed once more detailed design information is available.

4.0 MATERIALS AND WASTE EVALUATION

4.1 MATERIALS

Biomass combustion produces ash which has numerous post combustion uses. For example, it has been used as a soil additive on farmland. ecoPower has conducted preliminary discussions with a regional agricultural seed and soil amendment supplier. The company has expressed interest in purchasing 100% of the fly ash that the Hazard ecoPower plant will produce. Farmers in the ecoPower wood procurement areas have also expressed interest in purchasing ecoPower fly ash if it is more economical than agricultural lime. The ash is also an ideal soil amendment for mine reclamation and will find a ready market in the facility area.

The bottom ash that the ecoPower plant will produce is sand and gravel-like. It has a wide variety of uses as a potential gravel substitute. Discussions are on-going with local government officials about the potential to use ecoPower bottom ash as a gravel substitute for applications such as backfill in waterline trenches, foundation backfill and roadbed base material.

4.2 WASTES

Various wastes will be generated at the facility including routine and non-routine wastes. Some wastes have the potential to be hazardous. A RCRA waste determination will be required for each waste stream prior to disposal. Wastes anticipated at the facility are those typical of many industrial facilities. Wastes will include general refuse, spent filters, cleaning solutions and supplies, and maintenance related wastes. The facility will also have small batteries, light bulbs, and used oils. As design progresses for the facility, wastes generated will be reevaluated and characterized for disposal.

4.3 MATERIALS AND WASTE MANAGEMENT METHODS

4.3.1 SOPs

SOPs for materials and waste handling will be developed and implemented at the facility. SOPs will include the use of safety data sheets (SDSs) for materials which are considered hazardous under OSHA, good housekeeping practices, materials labeling, storage and handling requirements, waste handling, labeling and storage requirements, spills management procedures, and employee training.

4.3.2 Ash Management Plan

Ash will be the most voluminous material generated during operations. Ash production is anticipated at approximately 1.4 tons per hour, but may reach 2.25 tons per hour. We anticipate no more than one to two truckloads of ash per day. A Preliminary Ash Management Plan has been developed for the site. It will be finalized as design details and SOPs are refined. The preliminary plan is included as **Appendix C**.

4.3.3 Solid Waste Disposal Plan

All solid wastes generated at the facility are planned to be disposed of offsite at an appropriately permitted facility. Prior to the commencement of operations, arrangements will be finalized. Solid waste services to the Coalfield Regional Industrial Park in Perry County, KY are currently provided by Waste Connections Inc. (606) 678-0186.

4.3.4 Hazardous Waste Disposal Plan

All hazardous wastes generated at the facility are planned to be disposed of offsite at an appropriately permitted hazardous waste treatment and/or disposal facility. Hazardous Waste Haulers (888-606-7763) has been identified as one potential option for hazardous waste disposal. Hazardous Waste Haulers are a nationwide company and service the state of Kentucky from their Louisville location. They report that they can haul and

dispose of all of the anticipated hazardous waste types which may be generated at the facility. Waste Connections Inc. (606) 439-0008 stated that they may be able to provide limited hazardous waste disposal services from the facility. As design is finalized, the plan for hazardous waste characterization and disposal will be finalized.

4.4 WASTE PERMITTING

4.4.1 Regulated Waste Activity Notification

Registration as a hazardous waste generator under the RCRA regulations is anticipated at a later date.

Miscellaneous RCRA Evaluations

ecoPower has evaluated the applicability of the CISWI Rule and the NHSM Rule and has determined that it is not subject to either of these rules. As stated in **Section 2.0** of this report, the intent of these rules is to provide substantial reductions in the amount HAPs emitted to the atmosphere from boilers and incinerators. A CISWI unit is defined as, "any distinct operating unit of any commercial or industrial facility that combusts, or has combusted in the preceding six months, any solid waste as the term is defined in 40 CFR Part 241. If the operating unit burns materials other than the traditional fuels as defined in § 241.2 that have been discarded, and you do not keep records as required by § 60.2740(u), the operating unit is a CISWI unit" (40 CFR 60.2265).

ecoPower will combust traditional fuels as defined in §241.2 at its operation, and will therefore, not be considered an incinerating unit subject to the CISWI Rule or NHSM Rule. Traditional fuels are defined as, "materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes, including (1)... cellulosic biomass... These fuels are not secondary materials or solid wastes unless discarded." (40 CFR 241.2).

Clean cellulosic biomass means, "those residuals that are akin to traditional cellulosic biomass such as forest-derived biomass (e.g., green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, and tree harvesting residuals from logging and sawmill materials), corn stover and other biomass crops used specifically for energy production (e.g., energy cane, other fast growing grasses), bagasse and other crop residues (e.g., peanut shells), wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. These fuels are not secondary materials or solid wastes unless discarded. Clean biomass is biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials." (40 CFR 241.2).

The following types of biomass will be combusted at ecoPower:

- Hardwood wood industry (mill) byproducts such as shavings, saw dust, bark and similar materials that do not contain preservatives, resins, or other additives;
- Low quality hardwood logs and hardwood blocks that are trimmed in the production of sawlogs;
- Hardwood tree stems removed during pre-commercial thinning operations;
- Storm and fire damaged hardwood trees and tree parts;
- Low quality hardwood logs and hardwood wood chips produced during right-of-way operations and during urban forestry operations; and
- Unrecyclable hardwood pallets and dunnage.

Since the material combusted in ecoPower's boiler meets the definition of traditional fuels under the Subpart, it is considered to have never been discarded and is not solid waste. Therefore, the ecoPower boiler is not considered an incinerator regulated under the CISWI Rule. Because the fuels are traditional fuels, the non-hazardous secondary material (NHSM) rule does not apply.

5.0 WATER USE EVALUATION

ecoPower is investigating water demand of the facility and water supply options for the biomass power plant in eastern Kentucky.

5.1 WATER DEMAND

The selection of an air cooled condenser greatly reduces the water demand associated with the facility. Current design indicates that the water demand for the ecoPower facility is approximately 60,300 gallons of water per day. This is based upon an average flow rate of 40 gpm for operations (57,600 gpd) plus a 2,700 gpd allowance for dust suppression. The approximate use breakdown of the process operations water demand is as follows:

- 25 gpm average flow rate input to the water pretreatment system for steam generation;
- 13 gpm average flow rate for service uses; and
- 2 gpm average flow rate for potable uses.

5.2 WATER AVAILABILITY

ecoPower has identified several options to provide the required water supply to the facility. ecoPower has identified a primary water supply and has also identified three options for an alternate water supply.

5.2.1 City of Hazard

ecoPower has identified the City of Hazard water supply as the primary supply for the site. The system serves the facility project area and has the capacity under normal operating conditions to supply up to 100,000 gpd to the facility. This supply exceeds the anticipated demand of 60,300 gpd by over 65 percent. ecoPower has entered into an option agreement with the City of Hazard for up to 100,000 gpd.

5.2.2 Alternate Supply via Local Suppliers

Research into bulk water providers in the Perry County region was conducted. The goal was to identify bulk water suppliers who could deliver water to the facility in case the City of Hazard water supply was interrupted. Based upon the anticipated daily demand of 60,300 gallons, approximately nine (9) deliveries per day would be required assuming a tanker truck water capacity of 7,000 gallons. The following readily available sources of information were reviewed: five website directories, the 2013 Kentucky Directory of Businesses, and the Perry County Public library reference desk. From the listed sources, a total of twenty-one possibly suppliers were identified and contacted. These companies were located within a 1 to 130 mile radius of the Perry County Industrial Park. Pristine Springs, of Kingsport, Tennessee, was identified as a potential supplier. They indicated a willingness and ability to meet the water demand of the facility. They also indicated that startup of the deliveries is expected to be available within 48 to 72 hours of notification. A letter of interest from Pristine Springs is provided in **Appendix D.** A second company, Rockcastle Springs, Inc., located in Orlando, Kentucky, approximately 90 miles from the facility, indicated they could supply the water, but would require ecoPower to provide the hauling and delivery service. Both are potential backup sources of water for the facility.

5.2.3 Alternate Supply via Groundwater

The ecoPower site is located on a previously mined and reclaimed site. Subsurface at the site consists of a substantial amount of backfill which has not been substantially compacted or engineered. Observation of the site and surrounding area indicated that an adequate water resource appears to be located beneath the site, due to the existence of springs emanating from the hillside below the development site. A preliminary groundwater investigation to further understand the potential water resource was performed in 2010 which included the installation of two, 2-inch groundwater monitoring wells at the facility site. Installation details are provided in **Appendix D**. Locations are shown on **Figure 2** Site Plan.

Monitoring well SMG-1 was successfully developed and sampled. Monitoring well SMG-1 was drilled to bedrock, which was encountered at an approximate depth of 45-feet below surface grade. Bedrock encountered consisted of fine-grained gray sandstone. During the 1-hour development event, the well water level dropped 0.41 feet. The pump rate at the conclusion of development was 6 gallons per minute. Preliminary slug testing was performed on SMG-1 and the results were favorable.

SMG-2 was drilled to a depth of 300-feet below surface grade. No bedrock was encountered. SMG-2 was completed but was not able to be successfully developed. During the grouting of SMG-2 no return of grout to the surface could be obtained. The driller reported losing circulation at 121 feet below surface grade, indicating a void was encountered. Eighty five bags of grout were placed by tremie and the grouting was completed with bentonite chips. Development and recharge data indicate that the well may be closed to the aquifer. No steady pumping was achieved.

In addition to observations of a steady and substantial spring system flowing from beneath the site, an adjacent water impoundment provided additional information about groundwater in the area. A surface water evaluation at the site (described in Section 5.2.4) indicates that the measured discharge of the adjacent impoundment significantly exceeded the inflow. The inflow averaged only 30% of the spillway discharge flow during three measuring events. The estimated average recharge rate from three sampling events was 726 gpm. This indicates that significant recharge occurred from seeps of groundwater between the input of the impoundment and the outfall, indicating that there is a significant amount of groundwater flowing in the area of the site. Based upon the proposed site boundaries and location with respect to the interpreted site hydrology and hydrogeology, a significant amount of groundwater is anticipated to be available for capture to achieve the design flow of approximately 40 gpm. Thus, groundwater is considered to be a potential alternate water supply for the site. Additional investigation, however, is required to demonstrate that groundwater can meet the facility demand and to develop the required treatment of groundwater supply to enable the facility to use the water in the process.

5.2.4 Alternate Supply from Hollybush Impoundment

The Hollybush Impoundment (United States Department of Labor Mine Safety and Health Administration (MSHA) ID: 1211-KY7-07089-01, DOW ID: 1218) is a nearby manmade water body which is spring fed and has been observed to have considerable and consistent outflow. The design storage capacity was reported to be 89 acre-feet by Kem Coal Company in 1988 (Report 29779-158-147 in **Appendix D**). A discharge structure and pump are located in the impoundment which was previously used for withdrawal of water for prior coal operations. This discharge structure may possibly be useful if withdrawal of water from this resource is planned.

The headwaters of Hollybush Branch have been altered by filling with mine overburden generated by local surface mining activities. Surface water quantity was evaluated at two locations located off-site. The locations are along the Hollybush Branch drainage within the Hollybush watershed, which flows north into Rockhouse Fork (See **Figure 2**). All flow measurements were obtained from the same locations using a Global Water FP111 Global Flow Probe digital water velocity meter during each measurement event. . Flow volume at each location was obtained by calculating the cross-sectional area of the sample location multiplied by the flow velocity. During the evaluation, three flow-volume measurements were made.

Surface-water flow measurements were obtained from a stream location above the Hollybush impoundment. The creek originates from seeps and springs upstream from the sample location. The stream measurement was made at a location which provided field personnel with a natural weir formation. Field personnel measured the dimensions of the weir formation and depth of water during each flow measurement event for the calculation of flow volume. The measurement events were conducted on July 22, September 1, and December 8, 2010. Flow volumes are presented below.

SURFACE WATER FLOW MEASURMENTS

Measurement Date	Location	Gallons Per Minute	Cubic Feet per Second
July 22, 2010	Stream	250	0.557
September 1, 2010	Stream	340	0.758
December 8, 2010	Stream	320	0.713

A second flow-measurement location was at the spillway of the Hollybush impoundment itself. Flow measurements at the Hollybush impoundment were made at a discharge pipe below the impoundment. Flow volume calculations were made using depth of water obtained at the time of the flow measurement and a partially filled round pipe formula. The sampling events were conducted on July 22, September 1, and December 8, 2010. Flow volumes are presented below.

IMPOUNDMENT WATER FLOW MEASURMENTS

Measurement Date	Location	Gallons Per Minute	Cubic Feet per Second
July 22, 2010	Spillway	1000	2.23
September 1, 2010	Spillway	830	1.85
December 8, 2010	Spillway	1200	2.67

To further address the quantity of water available, data from the EPA WATERS database was evaluated and is tabulated as follows:

NEARBY STREAM DATA FROM EPA WATERS DATABASE

Catchment ID	Name/Reach ID	Approx. Distance from Source (miles)	Annual Mean Flow (cfs) at Outlet (average)	Annual Mean Flow (gpm) at Outlet (average)	Total Watershed Area (km^2)	Water Status/ Advisories
Headwater						
455640	not available /05100201000964		0.9	404	1.6	Fish Consumption Advisory 104029 /WQS KY05100201120610 _G
Source						
455594	not available (Upper Tenmile/Rockhouse Fork) /05100201000964		4.3	1930	8.3	Fish Consumption Advisory 104029 /WQS KY05100201120610 _G
Downstream						
455542	Tenmile Creek /05100201000960	0.3	7.6	3410	14.6	Fish Consumption Advisory 104029 /WQS KY05100201120600 _G
455500	Lost Creek /05100201000477	1.1	31.1	13,900	59.8	Fish Consumption Advisory 104029 /WQS KY05100201120620 _G /303(d) Listed Impaired Water KY497178_02

The size and discharge of the impoundment suggests that an adequate amount of water is likely to be available for use as an alternative facility supply.

Regulation of the impoundment was transitioned from the MSHA to DOW in June 2011. At that time the owner was listed as LCC Kentucky, LLC. According to the Perry County PVA Office in March 2013, the tax bill for the property (Parcel ID # 057-00 00 014.00) is sent to People's Bank, Hazard Kentucky, and the owner is listed as Edward Clements Revocable Trust. For documentation refer to **Appendix D.**

Prior to determining the overall feasibility of using water from the impoundment, additional information relating to the current conditions, access permission, design and costs to transport the water to the site and treatment requirements would be needed.

5.3 WATER MANAGEMENT METHODS

5.3.1 Design

An onsite potable water holding tank is planned with a capacity to store approximately 250,000 gallons of water. The fire water reserve for the site has been estimated at 90,000 gallons. Thus, 160,000 gallons of water storage capacity is planned for routine water use. At 60,300 gallons per day demand, this capacity is enough for 2.65 days. The primary supply will be piped to the tank. Accommodation of the alternate supply will also need to be included. If a potable water supplier is chosen as the alternate supplier, then deliveries would be anticipated to be unloaded into the potable water tank. If groundwater or surface water is chosen as the alternate water supply, it is anticipated that a small holding tank and pretreatment system will be required to make the water potable prior to plant use. Components of the water treatment system would include disinfection and likely filtration and treatment to remove silica, metals and hardness.

5.3.2 BMPs

SOPs will be developed for the management of water at the site. The primary supply will require very little attention under normal operating conditions. The storage tank and piping will be inspected periodically, and a maintenance schedule will be determined. Response procedures will be developed in case of system leaks or failures.

If a treatment system for the alternate water supply is required, operating procedures will be developed as appropriate. BMPs will include routine inspection, maintenance, chemical handling procedures, waste handling and disposal procedures, and training on the system operation.

5.4 WATER USE AGREEMENTS AND PERMITTING

5.4.1 Primary Water Supply (City of Hazard)

A water use agreement is in place with the City of Hazard for the facility's primary supply. Details are provided in **Appendix D**.

5.4.2 Alternate Water Supply

If the alternate water supply involves the withdrawal of water from a groundwater or surface water source, a Permit to Withdraw Water through the DOW is anticipated to be required based upon the plant water demand. The application will be submitted 3-6 months prior to the desired start-up date. Requirements and applicability are addressed in 401 KAR 4:010 - Water Withdrawal Permits, Criteria, and Reports.

If the Hollybush impoundment is selected is as the alternate water supply source, a number of other possible permitting requirements may apply including evaluation for wetlands permitting through the U S Army Corps of Engineers, stream construction permitting through DOW, and Fish and Wildlife Service permitting for threatened and endangered species. Additional evaluation would be needed to fully assess permit requirements.

Permitting for the alternate water supply will be performed as needed prior to the commencement of facility operations.

6.0 CONCLUSION

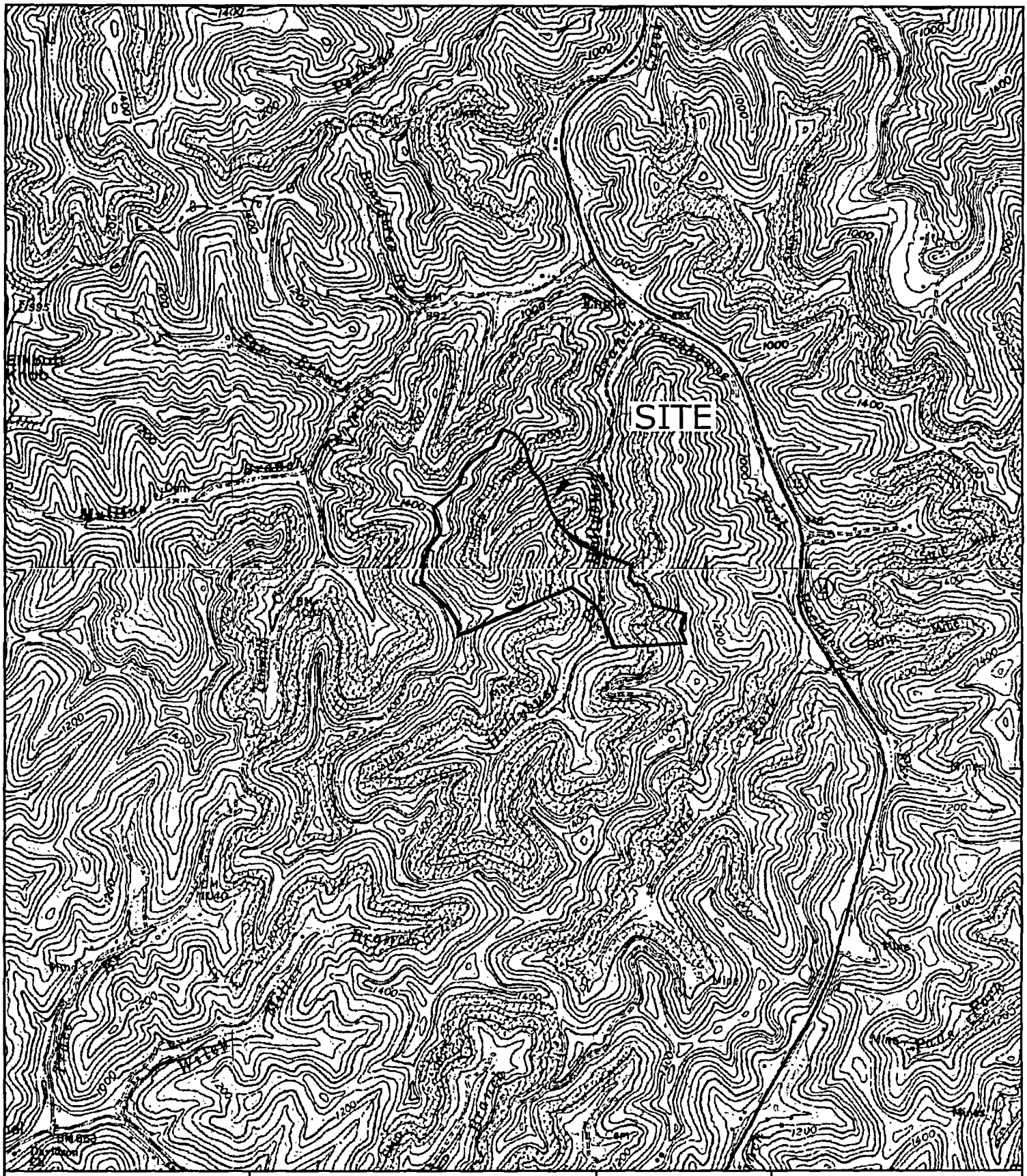
This Cumulative Environmental Assessment (CEA) was prepared to fulfill the requirements of KRS 224.10-280(1) which states that no person shall commence to construct a facility to be used for the generation of electricity unless the person submits a CEA to the cabinet with the permit application.

This CEA contains a description of anticipated:

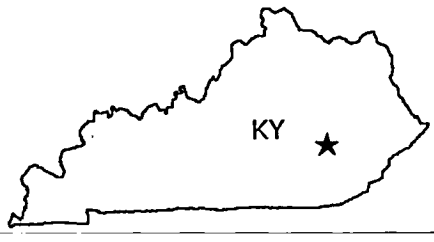
- Air pollutants:
  - Types and quantities of air pollutants that will be emitted from the facility; and
  - A description of the methods to be used to control those emissions;
- Water pollutants:
  - Types and quantities of water pollutants that will be discharged from the facility into the waters of the Commonwealth; and
  - A description of the methods to be used to control those discharges;
- Wastes:
  - Types and quantities of wastes that will be generated by the facility; and
  - A description of the methods to be used to manage and dispose of such wastes; and
- Water withdrawal:
  - Identification of the source and volume of anticipated water withdrawal needed to support facility construction and operations; and
  - A description of the methods to be used for managing water usage and withdrawal.

This CEA contains or references the substantial amount of planning, permitting and assessments which have been completed for the facility and which are ongoing as the design proceeds. The project development team will continue permitting as required to comply with applicable regulations.

FIGURES



SMG
Smith Management Group
1405 Mercer Road
Lexington, KY 40511
1860 B Williamson Court
Louisville, KY 40223
www.smithmanage.com



QUADRANGLE INFORMATION

NORTHERN QUAD:
HADDIX, KY. - 1972
SOUTHERN QUAD:
KRYPTON - 1972

SITE LOCATION MAP

ECOPOWER GENERATION, L.L.C.
PERRY COUNTY, KENTUCKY

SCALE:	1"=2000'
DATE:	4/11/13
PREPARED BY:	KAF
CHECKED BY:	PAM

JOB NO. 2013-5457

FIGURE 1

APPENDICES

APPENDIX A
General Arrangement and Site Plan and Recent Assessment Correspondence

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

March 18, 2012

Mr. Gary T. Crawford, P.E.
CEO
eco Power Generation, LLC
1256 Manchester Street
Lexington, Kentucky 40504

Re: FWS 2010-B-0051; eco Power Generation, LLC, proposed Biomass Power Generating Facility, located in Perry County, Kentucky

Dear Mr. Crawford:

The U.S. Fish and Wildlife Service (Service) has reviewed your March 8, 2013 Request for Concurrence for the above-referenced project. Included in your request is a habitat assessment Report (Report) that was prepared by EcoSource, Inc. The Service offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Indiana bat

The Service's November 25, 2009 technical assistance identified the Indiana bat (*Myotis sodalis*) as the only federally listed species that has the potential to occur within the proposed project area. According to the Report, EcoSource, Inc. personnel visited the proposed project area and assessed the area for potential Indiana bat winter (hibernacula) and summer habitat. No suitable Indiana bat hibernacula (*i.e.*, caves, mine shafts, rock shelters) were discovered within the proposed project area. Potential Indiana bat summer habitat (*i.e.*, trees greater than 5 inches DBH that have any of the following characteristics: cracks, crevices, exfoliating bark, cavities) was discovered within the proposed project area.

The majority of the 371-acre proposed project area is situated on a reclaimed surface coal mine. Most of the habitat within this area is grass-covered and does not contain potential Indiana bat summer roost habitat. The proposed project area also includes an existing industrial park that also does not serve as potential Indiana bat summer habitat. However, approximately 1,600' of the proposed project-associated transmission line corridors would require the removal of potential Indiana bat summer roost habitat.

Your request indicates that eco Power Generation will commit to seasonal tree clearing for the project. Thus, eco Power Generation will conduct all project-associated removal of trees that are greater than 5 inches DBH, between the dates of October 15th and March 31st. The Service

believes that this approach would avoid direct effects to Indiana bats that may be utilizing habitat within the project area during the time-frame when the species is anticipated to be present. Therefore, we concur that the proposed project is not likely to adversely affect the Indiana bat as a result of removing potential roosting habitat. This determination is based on the avoidance of direct effects and information available that leads us to believe that indirect effects would be insignificant and/or discountable. Please ensure that the seasonal tree clearing measure is adhered to. If the seasonal tree clearing measure cannot be adhered to, further consultation with the Service is required in order to ensure that the proposed project would be in full compliance with the ESA.

In summary of these findings, we believe that the requirements of section 7 of the Endangered Species Act have been fulfilled for this project. Your obligations under section 7 must be reconsidered; however, if: (1) the seasonal tree clearing measure is not adhered to., (2) there are planned future actions and/or projects (*i.e.*; roads, other facility infrastructure, commercial development) that would reasonably occur as a result of the proposed project. If so, please inform us of those future actions and/or projects so that we may adequately analyze those "cumulative effects"., (3) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered., (4) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (5) new species are listed or critical habitat designated.

Thank you again for your request. Your concern for the protection of endangered and threatened species is greatly appreciated. If you have any questions regarding the information that we have provided, please contact James Gruhala at (502) 695-0468 extension 116.

Sincerely,

Virgil Lee Andrews, Jr.
Field Supervisor

APPENDIX B
Recent Permit Correspondence

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION FOR AIR QUALITY
200 FAIR OAKS LANE, 1ST FLOOR
FRANKFORT KENTUCKY 40601
Air.ky.gov

March 8, 2013

Mr. Gary T Crawford
ecoPower Generation - Hazard LLC
1256 Manchester St
Lexington, KY 40504

MAR 13 2013

RE: Permit Application for a Title V/Synthetic Minor Construction/Operating
KYEIS I.D. Number: 2119300113; AI #: 106405; Activity #: APE20120001

Dear Mr. Gary T Crawford:

A preliminary review of your application was concluded on February 11, 2013, and indicates that your application is complete. If for any reason the application is found to be lacking information necessary for the Division to complete a detailed review, you will be advised immediately and will be provided a reasonable amount of time to submit any requested information.

Please contact Mr. Ben Markin at (502) 564-3999, extension 4464, if you have any questions.

Sincerely,

Shelly Graves

Administrative Specialist III
Permit Review Branch

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

April 1, 2013

Kurt Cooper
Gray Construction
10 Quality St
Lexington, KY 40507

Re: KYR10 Coverage Acknowledgment
KPDES No.: KYR10H327
Eco Power
Permit Type: Construction
AI ID: 106405
Perry County, Kentucky

Dear Kurt Cooper:

The discharges associated with the Notice of Intent you submitted have been approved for coverage under the "Kentucky Pollutant Discharge Elimination System (KPDES) General Permit for Stormwater Discharges Associated with Construction Activities (KYR10)" permit. This coverage becomes effective the date of this correspondence and will remain effective until the general permit expires or the Division of Water revokes coverage. During this period of coverage all discharges shall comply with the conditions of the applicable general permit. A copy of the general permit the operator is now covered by can be found on our website: http://water.ky.gov.

Any questions concerning the general permit and its requirements should be directed to me at (502) 564-3410.

Facility Site: Sykes Blvd, Hazard (Perry County), KY 41701

Sincerely,

Emily Hogue
KPDES Branch
Division of Water

APPENDIX C
Preliminary Ash Management Plan

PRELIMINARY ASH MANAGEMENT PLAN

ecoPower Generation, LLC
Hazard, Kentucky Facility

Presented by

ecoPower Generation

Energizing America with Clean Power

PRELIMINARY ASH MANAGEMENT PLAN

ecoPower Generation, LLC
Hazard, Kentucky Facility

APRIL 2013

EcoPower Generation, LLC
1256 Manchester St.,
Lexington Kentucky 40504
859-685-1106

Prepared by:

SMG

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PROJECT INTRODUCTION

The ecoPower Hazard (ecoPower) plant will be a wood-to-energy electric generating facility. The plant will be located in the Coalfields Regional Industrial Park (CFRIP) which is accessed from Highway 15, 10-miles north of the intersection of Highway 15 and the Hal Rodgers Parkway (Route 80) in Perry County, Kentucky. The plant site is a 125 acre parcel on the northern end of the CFRIP. The CFRIP has been developed on previously mined land and is at a comparable higher elevation in relation to the few residential properties in the area. The Perry County regional airport which serves private aviation is located east of the site across Highway 15. Much of the area surrounding the CFRIP is recently or currently mined land.

1.2 STATEMENT OF OBJECTIVE

This document is designed to address the management of wood ash generated by the wood-fired boiler at the ecoPower plant in Hazard, Kentucky. This preliminary plan includes information regarding the ash characteristics, potential uses, handling, transportation and recordkeeping. It is important to note that the ecoPower facility is in the final design and preliminary construction phase of development. Information contained in this plan may be refined upon completion of final design and construction.

2.0 ASH CHARACTERISTICS

2.1 PHYSICAL CHARACTERISTICS

Wood ash generated by ecoPower's wood-fired fluidized bed boiler will be in the form of fly ash and bottom (bed) ash. Fly ash is captured from the boiler economizer and the boiler baghouse, and bottom ash is the material that falls to the bottom of the boiler's burner unit. Fly ash, entrained in the boiler's flue gas, is comprised of light-weight, fine particles (typically less than 1.0 micron in size). Bottom ash is comprised of non-combustible portions of the biomass, which may include items such as sand, rocks, clay and gravel that may have entered the boiler with the biomass. Bottom ash is heavier than fly ash. It is currently assumed that 80% of the ash generated at ecoPower will be fly ash, with the remaining 20% as bottom ash.

2.2 CHEMICAL CHARACTERISTICS

ecoPower will be using clean cellulosic (woody) biomass in its boiler. Biomass burns cleaner and has a lower sulfur and ash content than coal. Ash from clean woody biomass is a result of the removal of volatile components and the reduction of carbon mass during the combustion process.

Although not an exhaustive list, the following constituents are anticipated to be in the biomass ash (both fly ash and bottom ash) at ecoPower:

- Silicon Dioxide
- Aluminum Oxide
- Iron III Oxide
- Calcium Oxide
- Magnesium Oxide
- Sodium Dioxide
- Potassium Oxide
- Titanium Oxide

- Sulfur Trioxide
- Calcium (primarily fly ash)
- Potassium (primarily fly ash)
- Calcium Chloride (primarily fly ash)

The above constituents are based upon a preliminary assessment conducted by Sargent & Lundy, LLC on behalf of ecoPower in 2009. The percentage of these constituents found in the ash will vary based upon the fuel mixture and the type of woody biomass combusted in the boiler. This assessment document was included in the facility's initial air permit application which was deemed complete by the Kentucky Division for Air Quality on February 5, 2010.

The wood ash (both fly and bottom) generated at ecoPower will be alkaline in nature. There is a potential for some other alkali metals (not in the form of the above particulate oxides) to be present in the ash; however, since ecoPower is combusting "clean" biomass in its boiler, high concentrations of these metals are not anticipated. Higher concentrations of these constituents are more often found in treated or preserved woods which will not be used as fuel for the ecoPower facility. In addition to some alkali trace metals, the ash will likely include some phosphorus, nitrogen and chlorine.

3.0 ASH REUSE EVALUATION

3.1 OPPORTUNITIES

Biomass combustion produces ash which has numerous post combustion uses. One application may be as a soil additive on farmland. ecoPower has conducted preliminary discussions with a regional agricultural seed and soil amendment supplier. The company has expressed interest in purchasing 100% of the biomass combustion produced ash. Additionally, farmers in the ecoPower wood procurement areas have also expressed interest in purchasing ecoPower fly ash if it is more economical than agricultural lime. The ash is also an ideal soil amendment for mine reclamation and will find a ready market in the facility area.

The bottom ash that the ecoPower plant will produce is sand and gravel-like. It has a wide variety of uses as a potential gravel substitute. Discussions are on-going with local government officials about the potential to use ecoPower bottom ash as a gravel substitute for applications such as backfill in waterline trenches, foundation backfill and roadbed base material.

Although the idea has not currently been explored by ecoPower, the potential for the wood ash as an alternative daily cover at a landfill is plausible. ecoPower may evaluate this possibility in the future.

3.2 MARKET DEMAND

The markets described above are potential avenues for the beneficial reuse of ecoPower's ash. Further evaluation of the ash generated by ecoPower's boiler will be required to determine more precise ash constituents, and the best suitable beneficial reuse. Further evaluation of the ash will enable ecoPower to fine tune its market candidates. ecoPower has sought the assistance of a Kentucky based company which specializes in the recycling of ash generated in utility boilers. One of the

company's many provided services is to assist companies like ecoPower with its ash management and material handling, which includes ash (both bottom and fly) marketing and recycling.

3.3 REGULATORY CONSIDERATIONS

Regulation in Kentucky primarily focuses on fly ash and bottom ash produced by coal-fired electrical generating units[1], and not fly ash or bottom ash generated by biomass fired generating units. Since ecoPower is the first, larger scale woody biomass-fired combustion unit within the state, ecoPower will be working closely with the regulated community to ensure that its beneficial reuse of the ash is compliant with Kentucky laws and/or land use requirements.

[1] Fly ash and bottom ash from coal fired units are regulated by the State of Kentucky as special wastes (KRS 224.50-760 and 401 KAR 45:010). This definition does not include wood ash.

4.0 ASH HANDLING EQUIPMENT

4.1 FLY ASH

Fly ash will be mechanically collected via a dump valve system at each of the boiler's baghouse hoppers and conveyed to a storage silo. Trucks will be loaded at a truck load out station adjacent to the fly ash storage silo for off-site ash beneficial reuse. The fly ash handling system will be operated continuously to ensure that fly ash build up in the baghouse hoppers does not occur. Although subject to change, as currently planned and designed, the fly ash handling system will consist of:

- Two Economizer Dump Valve Assemblies / Hoppers
- One Economizer Extraction Conveyor
- One Economizer Transfer Conveyor
- Eight Baghouse Dump Valve Assemblies
- Two Baghouse Extraction Conveyors
- One Storage Silo Feed Conveyor
- One Storage Silo
- One Pug Mill Conditioner
- Piping valves and instrumentation for a nitrogen blanketing system
- Emergency dust tight bulk containers

4.2 BOTTOM ASH

Bottom ash (a.k.a. bed ash) will be collected in a bed drain system. The bed drain system of the boiler will have an open-bottom design, which allows heavier material to fall out of the bed into bed hoppers. Spent bed material (i.e., non-combustible portions of the fuel, which may include items such as sand, rocks, clay, gravel, metals and glass that have entered the boiler with the biomass) will be removed on an intermittent basis; however, most of the bed material is expected to be re-injected back into the system. The amount of bed ash re-injected back into the system will vary based upon the amount of grit in the fuel. Typically, biomass has inherently low bottom ash content; therefore,

sand will be added to the boiler as necessary to provide additional bed material. Any bed ash not re-injected back into the system will be collected in dumpsters and transported by trucks off-site for beneficial reuse. As currently planned and designed, the bed ash handling system will consist of the following:

- Six (6) Open Bottom Hoppers
- Six (6) Boiler Extraction Vibrating Conveyors
- Two (2) bed drain conveyors with screen section for oversize rejects
- One (1) bucket elevator with boiler re-injection chute

5.0 HANDLING PROCEDURES

Ash has the potential to present a thermal and inhalation hazard to employees. Additionally, it has the potential to become airborne easily due to its small particle size. Handling of the ash will be performed with mechanized equipment which is enclosed to the extent practicable to provide adequate containment. As currently planned and designed, the equipment described in **Sections 4.1 – 4.2** will be used at ecoPower to convey, transfer and remove the fly ash and bottom ash generated from its utility unit.

5.1 BEST MANAGEMENT PRACTICES

ecoPower will manage its ash in accordance with the terms and conditions of its air permit. Such management practices will include, but not be limited to, the following:

- Conveyance structures for the ash handling will be enclosed and sealed to the extent practicable;
- The fly ash silo will be operated under a vacuum and have a bin vent filter to mitigate particulate matter from the handling operations;
- All ash handling equipment will be operated in a manner consistent with its manufacturer specifications and standard operating procedures. Proper operation of the equipment will be consistent and ensure good air pollution control practice for minimizing emissions. In addition, routine visual qualitative emissions will be conducted to ensure that fugitive emissions from ash handling equipment are not in excess of permitted opacity limitations or generate nuisance dust across the facility's property line;
- To mitigate fugitive emissions from the transport of the fly ash it will be wetted in a pug mill before being transported off-site; and
- Trucks transporting the bottom ash will be covered.

6.0 SHIPPING REQUIREMENTS

The fly ash and bottom ash generated at ecoPower are expected to be classified as solid non-hazardous materials. Consequently, there are no anticipated applicable Department of Transportation Hazardous Material Regulations (including shipping) (49 CFR Parts 171-180). To mitigate fugitive emissions from the transport of the fly ash it will be wetted in a pug mill before being transported off-site. Additionally, trucks transporting the bottom ash will be covered. ecoPower will ensure that any company contracted to remove and transport the ash is licensed to do so.

Note: ecoPower anticipates that the fly and bed ash generated by its boiler will be primarily be shipped off-site for beneficial reuse; however, if any of the material is not able to be beneficially re-used, ecoPower will ensure that the material is disposed of offsite at an appropriate facility.

7.0 RECORD KEEPING

ecoPower will maintain records for its ash handling equipment as required by its issued Kentucky Division for Air Quality Permit V-10-013. Records will include, but not be limited to:

- The monthly amount, in tons, of ash generated/processed at ecoPower;
- Monthly vehicle miles traveled of on-site truck traffic;
- Records of weekly visible emissions of the permitted ash handling equipment; and
- A log of routine and non-routine maintenance for the facility's ash handling equipment, and of all fugitive emissions suppression measures.

8.0 REFERENCES

1. Kentucky Division for Air Quality Permit, Permit No. V-10-013, issued on June 16, 2010.

2. Sargent and Lundy, LLC. (2009). *"ecoPower Generating Facility, Air Permit Application Technical Support Document."*

3. Barrows, B. (2011, May 5). Management of Wood Ash Generated from Biomass Combustion Facilities. Retrieved March 2013 from http://www.deq.state.or.us/lq/pubs/factsheets/sw/ManagementWoodAshGenBiomassCombustionFac.pdf.

4. Cassidy, P.; Ashton, S. (2007). Ash Content. Pages 201-202. In: Hubbard, W.; L. Biles; C. Mayfield; S. Ashton (Eds). 2007. Sustainable Forestry for Bioenergy and Bio-based Products: Trainers Curriculum Notebook. Athens, GA: Southern Forest Ranch Research Partnership. Retrieved March 2013 from www.forestbioenergy.org.

APPENDIX D
Water Availability Documentation

March 26, 2013

Gary T. Crawford, PE, CEO
ecoPower Generation, LLC
1256 Manchester Street
Lexington, KY 40504

Regarding: Alternate Water Supply for Facility Operation
ecoPower Generation
Hazard, Kentucky

Dear Mr. Crawford,

Pristine Springs Water Co., LLC (Pristine Springs) is interested in being considered as an alternate water supplier for the ecoPower Generation power generating facility to be located in the Perry County, Kentucky, Coalfields Industrial Park. Pristine Springs provides water in bulk to hospitals and nursing homes and has experience coordinating a fleet of tank trucks for successful delivery.

Pristine Springs understands that the water demand for the ecoPower facility is approximately 60,300 gallons of potable water per day. Pristine Springs is capable under normal operating circumstances, including, but not limited to normal traffic and weather conditions, of providing adequate supply to fulfill the demand. We understand that an onsite holding tank will be available with a capacity to store approximately 250,000 gallons of water. We anticipate that nine (9) deliveries per day would be required based upon the demand and a tanker truck capacity of 7,000 gallons. Startup of the deliveries is expected to be available within 48 to 72 hours of notification.

We would welcome the opportunity to discuss details and pricing with you as project planning proceeds.

Thank you.

Sincerely,

Ken Frohlich, President

225 Lewis Lane ♦ Kingsport, Tennessee 37660 ♦ 423-230-2440 ♦ Fax: 423-245-3416 ♦
www.pristineh2o.com

KENTUCKY MONITORING WELL RECORD

Please read all instructions prior to completing this form. Do not write in shaded areas. Completed copies of this form are to be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 18 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Telephone (502) 564-3410.

(TYPE OR PRINT CLEARLY)

(1) Attach Monitoring Well Label Here
AKGWA NUMBER
(If Applicable)

(2) GENERAL INFORMATION:

Facility Name: Evapco Remediation LLC
Mailing Address: 1256 Manchester St.
City: Lexington
State: Ky Zip: 40504
Facility Address: Coal Field Indus. Pk
City: Hazard
State: Ky Zip:
Owner's Phone ( ):
Date Received:
(3) AKGWA NUMBER: 8 0 0 4 - 9 7 6 2

(4) WELL LOCATION:
USGS Quadrangle Name: Krypton
County: Perry
Latitude: ° ' " N
Longitude: ° ' " W

(5) GENERAL WELL CONSTRUCTION:
Start Date: 7-7-10
Finish Date: 7-7-10
Drilling Method: Sonic
Surface Elevation: 1227 AMSL ft.
Total Depth: 45.0 ft.
Depth to Bedrock: ft. (If Applicable)
Depth to Static Water: 40.9 ft.

(6) PHYSIOGRAPHIC/HYDROLOGIC REGION:
( ) Blue Grass ( ) Ohio River Alluvium
(X) E. Coal Field ( ) W. Coal Field
( ) Miss. Plateau ( ) Jackson Purchase

(7) FACILITY TYPE:
( ) RCRA ( ) Surface Mining
( ) CERCLA ( ) TSCA
( ) UST (X) Site Assessment
( ) Other: ( ) Solid Waste Landfill
( ) Landfarm

(8) WELL USE:
( ) Water Quality (X) Water Level Monitoring
( ) Ambient Monitoring ( ) Remediation
( ) Other

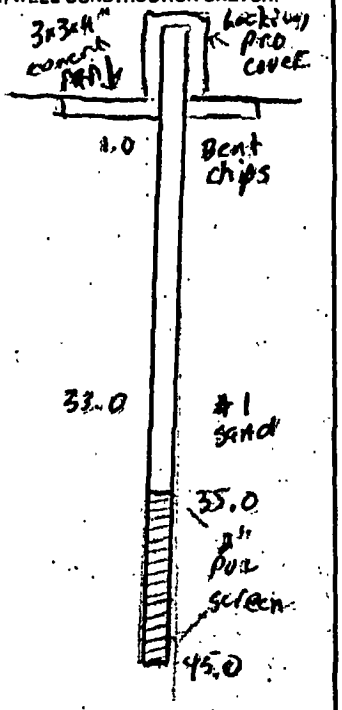
(9) LABORATORY ANALYSIS:
(Attach Copy of Results)
Sampling Date:
Analysis Date:
Laboratory Name:

(10) WELL COMPLETION INFORMATION

Feet Below Surface From:	To:	Hole Diameter	Casing Diameter	Casing Type
0	35'	6"	2"	PVC
35'	45'	6"	2"	Screen

Attach additional sheets if necessary

(11) WELL CONSTRUCTION SKETCH:



(12) LITHOLOGIC LOG:

Feet Below Surface From:	To:	Description
0	4.0	Fill, sand, gravel, clay, rock
4.0	45.0	Bedrock, sandstone

Attach additional sheets if necessary

(13) SITE SKETCH MAP:

(14) COMMENTS:

(15) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company	State Certification Number or Rig Operator's No.	Signature of Responsible Certified Driller
Mider Drilling Co.	313 70058	

Company Mailing Address	City	State	Zip Code	Date
107 Helton Dr	Lawrenceburg	TN	38464	7 7 10 Month, Day, Year

Number of Attached Sheets:

White Copy to Division of Water, Yellow copy to Owner, Pink Copy to Driller's Files

DEP-8043
Printed with State Funds 10/31/91

KENTUCKY MONITORING WELL RECORD

Please read all instructions prior to completing this form. Do not write in shaded areas. Completed copies of this form are to be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 18 Reilly Road, Frankfort Office Park, Frankfort, Kentucky 40601. Telephone (502) 5[illegible]3410.

(TYPE OR PRINT CLEARLY)

(1) Attach Monitoring Well Label Here
AKGWA NUMBER
(If Applicable)

(2) GENERAL INFORMATION:

Facility Name: Eng power Construc
Mailing Address: 154 Manchester St
City: Lexington
State: Ky Zip: 40504

Facility Address: Coal Field Indus Dr
City: Hazard
State: Ky Zip:
Owner's Phone ( )

Date Received:

(3) AKGWA NUMBER: 8004-9961

(4) WELL LOCATION:
USGS Quadrangle Name: Krypton
County: Perry
Latitude: Longitude:

(5) GENERAL WELL CONSTRUCTION:
Start Date: 6-29-10
Finish Date: 7-1-10
Drilling Method: Sonic
Surface Elevation: 1290 MSL ft.
Total Depth: 300 ft.
Depth to Bedrock: ft. (If Applicable)
Depth to Static Water: 171 ft.

(6) PHYSIOGRAPHIC/HYDROLOGIC REGION:
( ) Blue Grass
(X) E. Coal Field
( ) Miss. Plateau
( ) Ohio River Alluvium
( ) W. Coal Field
( ) Jackson Purchase

(7) FACILITY TYPE:
( ) RCRA
( ) CERCLA
( ) UST
( ) Other:
( ) Surface Mining
( ) TSCA
(X) Site Assessment
( ) Solid Waste Landfill
( ) Landfarm

(8) WELL USE:
( ) Water Quality
( ) Ambient Monitoring
( ) Other
(X) Water Level Monitoring
( ) Remediation

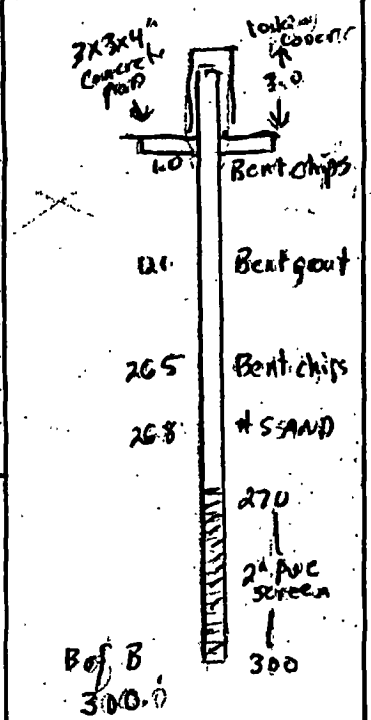
(9) LABORATORY ANALYSIS:
(Attach Copy of Results)
Sampling Date:
Analysis Date:
Laboratory Name:

(10) WELL COMPLETION INFORMATION

Feet Below Surface From:	To:	Hole Diameter	Casing Diameter	Casing Type
[illegible]	270	6"	2"	PVC
[illegible]	300	6"	2"	screen

Attach additional sheets if necessary

(11) WELL CONSTRUCTION SKETCH:



(12) LITHOLOGIC LOG:

Feet Below Surface From:	To:	Description
0	300	fill Rock, gravel & clay

Attach additional sheets if necessary

(13) SITE SKETCH MAP:

(14) COMMENTS: Pumped 2 skids (85 bags) of Bent Grout in well. grout only came up to 121.0. Used chips to surface because it lost grout in voids.

(15) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company	State Certification Number or Rig Operator's No.	Signature of Responsible Certified Driller
Miller Drilling Comp.	3137008	

Company Mailing Address	City	State	Zip Code	Date: 7 7 10 Month, Day, Year
127 Melton Dr.	Lawrenceburg	TN	38464	

Number of Attached Sheets:

White Copy to Division of Water, Yellow copy to Owner, Pink Copy to Driller's Files

DEP-8043
Printed with State Funds 10/31/91

Smith Management Group

MONITORING WELL CONSTRUCTION RECORD

STICK-UP COMPLETION

CLIENT: ecoPower Generation LLC
PROJECT NUMBER: 2010-4873
PROJECT NAME: ecoPower Generation LLC
SITE LOCATION: Perry County, Kentucky
WELL IDENTIFICATION: SMG-1

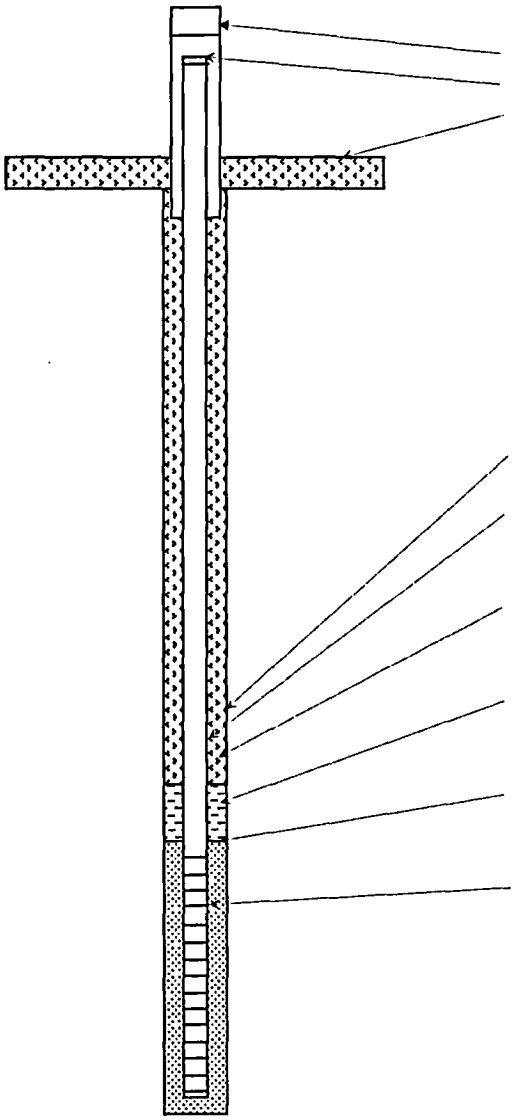
DATE STARTED: 7/7/2010
DATE COMPLETED: 7/7/2010
DRILLING CONTRACTOR: Miller Drilling Company
DRILLING METHOD: Sonic, Dual Casing
KY. DOW # 8004-9962

GROUND SURFACE (GS) ELEVATION (ft): Est. 1227' AMSL
TOP OF CASING (TOC) ELEVATION (ft): Est. 1229.6' AMSL
BORING DEPTH BELOW TOC (ft): EST 49'
WELL DEPTH BELOW TOC (ft): 47.45'
FIELD GEOLOGIST: Joe Sandman

CONSTRUCTION COMMENTS

NOT TO SCALE

BTOC = BELOW TOP OF CASING
BGS = BELOW GROUND SURFACE



PROTECTIVE COVER
LOCKING CAP
CONCRETE SURFACE PAD

SURFACE BORE HOLE DIAMETER (In):	6"
DRILLING METHOD:	Sonic Dual Casing

BORE HOLE DIAMETER (In):	6"
DRILLING METHOD:	Sonic Dual Casing
WELL RISER TYPE:	Schedule 40 Flush Tread
WELL RISER LENGTH (ft):	37.45'
WELL RISER DIAMETER (In):	2
GROUT TYPE:	Portland Bentonite grout
GROUT INTERVAL (ft):	1-31'
GROUT PLACEMENT:	Tremie Pipe
SEAL MATERIAL:	Bentonite Chips Hydrated
SEAL PLACEMENT:	Poured
TOP OF SEAL BTOC(ft):	31'
FILTER PACK MATERIAL:	Sand
TOP OF FILTER PACK BTOC (ft):	33'
TOP OF SCREEN BTOC (ft):	37.45'
SCREEN TYPE:	Schedule 40 Flush Tread
SCREEN LENGTH (ft):	10'
SCREEN DIAMETER (In):	2
SCREEN SLOT SIZE (In):	0.01
BOTTOM OF SCREEN BTOC (ft):	47.45'
TOTAL DEPTH OF WELL BTOC (ft):	47.45'
TOTAL DEPTH OF BORING BTOC (ft):	EST 49'

Smith Management Group

MONITORING WELL CONSTRUCTION RECORD

STICK-UP COMPLETION

CLIENT: ecoPower Generation LLC
PROJECT NUMBER: 2010-4873
PROJECT NAME: ecoPower Generation LLC
SITE LOCATION: Perry County, Kentucky
WELL IDENTIFICATION: SMG-2

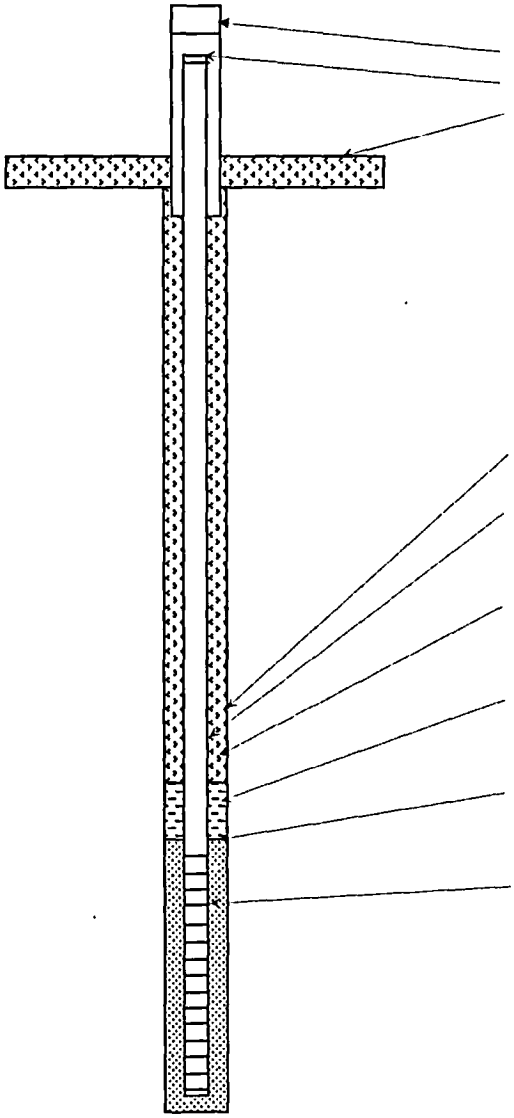
DATE STARTED: 6/29/2010
DATE COMPLETED: 7/1/2010
DRILLING CONTRACTOR: Miller Drilling Company
DRILLING METHOD: Sonic, Dual Casing
KY. DOW # 8004-9961

GROUND SURFACE (GS) ELEVATION (ft): 1290' AMSL
TOP OF CASING (TOC) ELEVATION (ft): Est. 1292.21' AMSL
BORING DEPTH BELOW TOC (ft): EST 300'
WELL DEPTH BELOW TOC (ft): 299.80'
FIELD GEOLOGIST: Joe Sandman

CONSTRUCTION COMMENTS During grouting of the well driller lost circulation at approximately 121'. Mixed and pumped 85 bags grout. Grouting was completed with bentonite chips to 1' below surface grade.

NOT TO SCALE

BTOC = BELOW TOP OF CASING
BGS = BELOW GROUND SURFACE



PROTECTIVE COVER
LOCKING CAP
CONCRETE SURFACE PAD

SURFACE BORE HOLE DIAMETER (In):	6"
DRILLING METHOD:	Sonic Dual Casing

BORE HOLE DIAMETER (In):	6"
DRILLING METHOD:	Sonic Dual Casing
WELL RISER TYPE:	Schedule 40 Flush Tread
WELL RISER LENGTH (ft):	269.8
WELL RISER DIAMETER (In):	2
GROUT TYPE:	Portland Bentonite Grout/Bentonite Chips
GROUT INTERVAL (ft):	265-121
GROUT PLACEMENT:	Tremie Pipe
SEAL MATERIAL:	Bentonite Chips Hydrated
SEAL PLACEMENT:	Poured
TOP OF SEAL BTOC(ft):	265'
FILTER PACK MATERIAL:	Sand
TOP OF FILTER PACK BTOC (ft):	268
TOP OF SCREEN BTOC (ft):	269.8
SCREEN TYPE:	Schedule 40 Flush Tread
SCREEN LENGTH (ft):	30'
SCREEN DIAMETER (In):	2
SCREEN SLOT SIZE (In):	0.01
BOTTOM OF SCREEN BTOC (ft):	299.80'
TOTAL DEPTH OF WELL BTOC (ft):	299.80'
TOTAL DEPTH OF BORING BTOC (ft):	EST 300'

U.S. Department of Labor

Mine Safety and Health Administration
3837 S. US Hwy. 25E
Barbourville, Kentucky 40906-9206

JUN 2 1 2011

Mr. Jeffery L. Kelly, General Manager
Wiley Miller Impoundment/Hollybush Impoundment, ID No. 15-17820
LCC Kentucky, LLC
P. O. Box 250
Dwale, Kentucky 41621

Dear Mr. Kelly:

This will acknowledge our receipt of a report, prepared by Mr. John C. Rall, Manager of Environmental Compliance, for the Hollybush Sediment Dam, Site ID No. 1211-KY07-07089-01. The report provides an Abandonment Plan for the impoundment in accordance with 30 CFR §77.216-5(b).

A review has been completed of the submitted information by the District Technical Division- Roof Control/Impoundments Branch staff. The review indicates that the following has been submitted:

1. A certification from a registered professional engineer that the Hollybush Sediment Dam substantially conforms to the approved design plan and specifications and that there are no apparent defects;
2. A certification from the property owner stating his willingness to assume responsibility for operation and maintenance of the structure;
3. An approval for the continued existence of the impoundment from the Kentucky Division of Water.

The review, therefore, indicates that the plan meets the requirements of 30 CFR 77.216-5(b) and is hereby approved.

A final site visit was made by a member of the District Technical Division-Roof Control/Impoundments Branch staff on May 25, 2011 of the Hollybush Sediment Dam. Because all requirements of the approved Abandonment Plan have been met, the Hollybush Sediment Dam is considered abandoned and will be deleted from our list of impoundments.

Regarding the above, if you have any questions/comments or need to schedule an appointment at our office for detailed discussions, please contact the District Technical Division—Roof Control/Impoundments Branch staff at (606) 546-5125.

Very truly yours,

Irvin T. Hooker
District Manager
District 7

ALS/als

LCC
KENTUCKY
P.O. Box 250
Dwale, Ky. 41621
Telephone (606) 285-1630
Fax (606) 285-1623

June 13, 2011

Mr. Irvin T. Hooker, District Manager
Mine Safety and Health Administrartion
3837 US 25E
Barbourville, KY 40906-9206

RE: Hollybush Dam
MSHA ID 1211-KY-07089-01

Dear Mr. Hoooker:

We hereby submit an abandonment request for the referenced facility. For that purpose and in accordance with 30 CFR 77.216-5(b), please find enclosed: (1) a letter from a professional engineer certifying that the structure substantially conforms to the approved design and there are no apparent defects, (2) a letter from the landowner certifying a willingness and ability to assume responsibility for operation and maintenance, and (3) a letter from the Division of Water stating that the dam has been added to their inventory.

Sincerely,

John C. Rall
Mgr., Environ. Compliance

CBC Engineers

Lexington Office

June 9, 2011

Irvin T. Hooker, District Manager
Mine Safety and Health Administration
3837 US 25E
Barbourville, KY 40906-9206

Re: LCC Kentucky, LLC
Hollybush Impoundment

Dear Mr. Hooker:

The applicant wishes to abandon the referenced dam in accordance with the requirements of 30 CFR 77.216-5(b). I certify that the structure substantially conforms to the design plan and specifications and there are no apparent defects.

Respectfully,

CBC Engineers & Associates, Ltd.

Roger Cornett
Senior Project Engineer

STATE OF KENTUCKY
ROGER W. CORNETT
12538
LICENSED PROFESSIONAL ENGINEER

cc: file 506-10215L/MSHA/Certification Letter.doc

I hereby certify this to be a true and accurate copy of the original.

Date: 6/13/11

Commission expiration: 10/04/11

LCC Kentucky, LLC
200 West Vine Street, Suite 300
Lexington, KY 40507
859-246-4220
859-246-1748 Fax

June 10, 2011

Irvin T. Hooker, District Manager
Mine Safety and Health Administration
3837 US 25E
Barbourville, KY 40906-9206

RE: Hollybush Dam
MSHA ID 1211-KY-07089-01

Dear Mr. Hooker:

This is to notify you that LCC Kentucky, LLC is the owner of the land upon which the referenced dam and associated impoundment are situated. We are willing and able to assume the responsibility for the operation and maintenance of this structure.

Sincerely,

Curtis W. Weittenhiller
President and CEO

I hereby certify this to be a true and accurate copy of the original.

Date: 6/13/11

Commission expiration: 10/04/11

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

June 1, 2011

LCC Kentucky
PO Box 250
Dwale, Kentucky 41621
ATTN: Jeffrey Kelly, General Manager

Re: Hollybush Dam (KY1218), Perry County, Ky., Hazard Class: HIGH

Dear Mr. Kelly:

Kentucky Revised Statutes, Chapter 151(KRS 151) and 401 KAR 4:030 establish minimum maintenance and design criteria for dams. KRS 151.125 gives the Division of Water authority to require any measures necessary to bring the dam into compliance with statutes and regulations. As the owner you are required to maintain the dam to assure public safety.

The above referenced dam has been added to our dams inventory database and assigned dam inventory no. KY1218. Please use this inventory number on correspondence relating to this dam.

Since the dam is classified as a HIGH hazard structure, it will be inspected by the Division of Water at least every two (2) years. We anticipate scheduling the first inspection this year. If you would like to be present during our inspections, please notify this office and provide a phone number at which you can be contacted. For your information, a copy of "Guidelines for Maintenance and Inspection of Dams in Kentucky" can be found on Division of Water's web site water.ky.gov . You should also be aware that that any modifications to the dam will require a Dam Construction Permit from the Division of Water.

If you have any questions concerning this matter or if you observe any unusual conditions at the dam, please contact me at (502) 564-3410 ext. 4992.

Sincerely,

Marilyn Thomas, P.E.
Dam Safety Section
Water Infrastructure Branch
Division of Water

I hereby certify this to be a true and accurate copy of the original.
Date: 6/13/11
Commission expiration: 10/04/11

pc: Hazard Regional Office
File

District copy

BOWSER-MORNER

420 DAVIS AVENUE, P.O. BOX 51, DAYTON, OHIO 45401

ENGINEERING REPORT

REPORT TO: Kem Coal Company, Inc.
P.O. Box 734
Hazard, Kentucky 41701

REPORT DATE: February 16, 1988

REPORT NO.: 29779-188-147

Attention: Mr. Chuck Davidson

REPORT ON: Final Certification for Hollybush Sediment Dam, MSHA I.D. #1211-KY7-07089-01

This report presents the final certification for the above-referenced embankment located in Perry County, Kentucky. The format of this report is in accordance with MSHA's Guide for Submission of Annual Status Reports.

1. CHANGE IN GEOMETRY

Site development began on November 30, 1987. As of December 31, 1987, the embankment has been constructed to its final crest elevation of 942.0 feet. The configuration of the embankment is shown on Figure 1.

2. INSTRUMENTATION

Two (2) pneumatic piezometers (P-1 and P-2) were installed within the embankment as shown on Figure 2. The elevations of the piezometers are contained in Table 1.

TABLE 1

PIEZOMETER NO.	ELEVATION (FT)
P-1	896.13
P-2	907.73

3. AVERAGE AND MAXIMUM DEPTHS AND ELEVATIONS OF REFUSE DISPOSAL

No slurry or coarse refuse will be disposed in this facility since it is a sediment control structure.

4. STORAGE CAPACITY

The embankment is designed to have a storage capacity of 89.0 acre-feet at the principal spillway elevation and 112.7 acre-feet at the emergency spillway crest elevation.

5. VOLUME STORED

No slurry or coarse refuse will be deposited in the structure since it is a sediment control structure.

6. FACTORS AFFECTING STABILITY

The embankment was constructed according to the plans and specifications and, therefore, has the following factors of safety as were determined in our original design report.

TABLE 2

HYPOTHESIS	LOCATION AND TYPE OF SLIDING SURFACE	FACTOR OF SAFETY STATIC	FACTOR OF SAFETY EARTHQUAKE
End of Construction (Total Stress)	Upstream Slope Circle	1.60	----
	Downstream Slope Circle	1.63	----
	Upstream Slope Cohesive Zone	4.61	----
Long-Term, Steady State (Effective Stress Composite Envelope)	Upstream Slope Circle	1.58	1.30
	Downstream Slope Circle	1.62	1.29
	Downstream Slope Wedge	2.01	1.74

These analyses were performed using the strength parameters generated in the design.

7. CERTIFICATION

Compaction tests, relative density tests, and gradation tests have been made throughout the construction in accordance with the specifications. All field testing met or exceeded the design specifications.

The embankment has been constructed in accordance with the plans and specifications. The structure meets or exceeds all requirements relative to stability and impounding capabilities.

If you have any questions, please contact me.

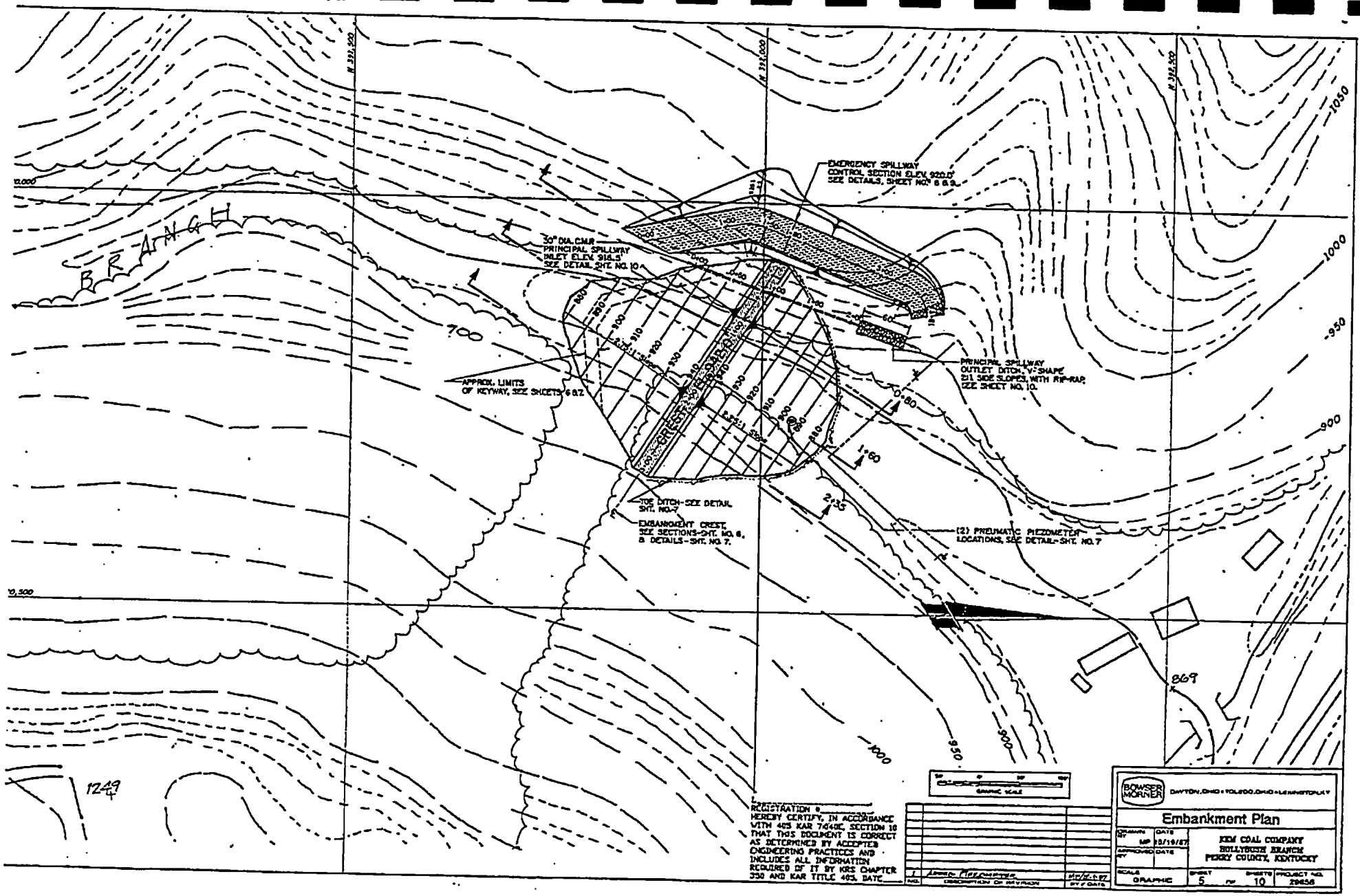
Respectfully submitted,

Bowser-Morner Associates, Inc.

David C. Cowherd, M.S., P.E. C.
President and
Chief Geotechnical Engineer

DCC/mja(#91)
3-Client
1-Leeco, Inc.
Attn: Mr. Daniel J. Geiger
1-DCC
2-File

BOWSER MORNER


EMERGENCY SPILLWAY
CONTROL SECTION ELEV. 920.0'
SEE DETAILS, SHEET NOS 8 & 9
30" DIA. CMP
PRINCIPAL SPILLWAY
INLET ELEV. 916.3'
SEE DETAIL SHT. NO. 10
APPROX. LIMITS
OF KEYWAY, SEE SHEETS 6 & 7
PRINCIPAL SPILLWAY
OUTLET DITCH, V-SHAPE
2:1 SIDE SLOPES, WITH RIP-RAP
SEE SHEET NO. 10.
TOE DITCH - SEE DETAIL
SHT. NO. 7
EMBANKMENT CREST.
SEE SECTIONS - SHT. NO. 6,
& DETAILS - SHT. NO. 7.
(2) PNEUMATIC PIEZOMETER
LOCATIONS, SEE DETAIL - SHT. NO. 7
BRANCH
1249
869
GRAPHIC SCALE
REGISTRATION #
HEREBY CERTIFY, IN ACCORDANCE
WITH 405 KAR 7:040E, SECTION 16
THAT THIS DOCUMENT IS CORRECT
AS DETERMINED BY ACCEPTED
ENGINEERING PRACTICES AND
INCLUDES ALL INFORMATION
REQUIRED OF IT BY KRS CHAPTER
350 AND KAR TITLE 405. DATE
BOWSER MORNER
DAYTON, OHIO • TOLEDO, OHIO • LEXINGTON, KY
Embankment Plan
DRAWN BY MP DATE 03/19/87
APPROVED BY DATE
KEM COAL COMPANY
HOLLYBUSH BRANCH
PERRY COUNTY, KENTUCKY
SCALE GRAPHIC
SHEET 5 OF 10 SHEETS
PROJECT NO. 29656