KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING

IN RE: **Application of SunCoke Energy South Shore LLC CASE NO. 2014-00162:**

NOTICE OF FILING

Comes the undersigned Counsel for the Applicant herein and states that attached are a letter to Ronald T. Price, dated February 17, 2015, with a detailed response to the Kentucky Department of Environmental Protection's comments concerning the Cumulative Environmental Assessment, and a redraft of that Assessment which has been filed with the Department of Environmental Protection.

While not required, these documents have been prepared to clarify the record herein.

This the 17th day of February, 2015.

Respectfully submitted,

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Counsel for Applicant, SunCoke Energy South Shore LLC

CERTIFICATE OF SERVICE

This is to certify that the original and ten true and correct copies of the foregoing have been filed in the office of the Kentucky State Board on Electric Generation and Transmission Siting, 211 Sower Blvd., Frankfort, Kentucky 40601 and that the following have been served via Federal Express on this the 17th day of February, 2015:

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February 17, 2015

Ronald T. Price
Kentucky Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40601

RE: Cumulative Environmental Assessment
SunCoke Energy Southshore, LLC

Dear Mr. Price:

Attached please find two (2) documents. The first is a comment by comment response to your letter addressed to me received dated December 8, 2014, concerning the Cumulative Environmental Assessment for the proposed SunCoke Energy Southshore, LLC facility. Also attached please find an Amended Cumulative Environmental Assessment for that merchant electric generating facility and the associated non-regulated electric transmission line which incorporates the revisions identified in the initial document.

If we may be of any further assistance to you in this matter, please do not hesitate to contact us.

Sincerely,

George Seay

GLS
cc: R. Bruce Scott, Commissioner
Department for Environmental Protection

Lisa Natter, Counsel
SunCoke Energy
Enclosures
61303736.1

The following are SunCoke Energy South Shore LLC's ("SESS") responses to the Kentucky Department for Environmental Protection (KDEP) comment letter dated December 8, 2014. To assist in KDEP's review, excerpts from the KDEP letter are presented below in *italic* type with SESS' comments presented in plain-type text. In addition to providing the responses set forth below, SESS has revised the Cumulative Environmental Assessment (CEA) accordingly, a copy of which is attached hereto.

1. ***Page 2, Section 1.3 Facility Description and Equipment Summary,*** *second paragraph:*

   The CEA states that a "nominal 40-80 megawatts (MW) of electricity will be produced from the waste heat."

   Throughout the Air Quality permitting process, the applicant maintained that a nominal 40 to 75 MW of electricity would be produced. This was based on the assumption of available heat that would be sent to the HRSGs, and the resulting steam sent to the turbine, with a maximum of 13-25 MW produced from each HRSG, or a 40-75 MW total.

   Division of Air Quality Opinion:

   Although this is a discrepancy, the description of the amount of electricity produced in MWs is not binding. The limit imposed in the final permit, expressed in MWe-hrs, is binding in order to avoid applicability of the Acid Rain Program regulation 40 CFR 72, Subpart A. SunCoke may apply to be an 80MW facility, but they may not have an output greater than the 219,000MWe-hrs per unit and may not upload to the grid (and sell) more than 1/3 of the power from each HRSG in a three year period. If the facility violates this proscription, it will become subject to the Acid Rain Program and will require a permit revision.

   SESS has applied for the ability to inject up to 80 MW of power to the Millbrook Park substation via the PJM interconnection study process. The 80 MW indicates the maximum amount of instantaneous power generation capable. SESS understands and will comply with the limitations of the issued permit which are based on an annual limit. To maintain consistency in permitting documentation and project documentation, SESS has modified Section 1.3 of the CEA to reflect the same language used throughout the air quality permitting process, "nominal 40 to 75 MW."

2. ***Page 2, Section 1.3 Facility Description and Equipment Summary,*** *Third paragraph, third and fourth bullets:*

   The description of the coal handling and preparation equipment and the coke pushing and handling equipment includes the phrase "include, but are not limited to..." This is misleading because the permit, as it stands, has assigned emission. unit numbers to all of the proposed equipment and also requires that certain technologies be applied to some equipment in order to satisfy 401 KAR 51:017, Prevention of significant deterioration (PSD).

   For example, the requirement that particular Best Available Control Technology (BACT) controls be applied to certain pieces of equipment is included as an operational limitation for coal handling. Coke screening has an operational limit that requires completion of construction in accordance with the design proposed as a compliance method.

   Division of Air Quality Opinion:

   Although the facility may add administrative controls not specifically required in the permit, changing-out or removing equipment (emission units) or controls currently listed in the permit would require a revision to the permit. Therefore, the Division suggests removing the "but are not limited to" phrase in assessment.

SESS has modified the CEA in response to this comment by removing the "but are not limited to" phrases in Section 1.3.

3. ***Page 4-5, Section 1.4 Summary of Assessment and Permitting History, Air Permit Application:***

The paragraph states "The draft permit establishes operation limitations, compliance demonstration methods..." Since the Draft was issued in December 2013, and the final permit was issued in July 2014, the tense used in the paragraph is in error.

Division of Air Quality Opinion:

The tense used in the paragraph should be changed to past tense. Also, the paragraph should include that emissions limitations were also established, i.e. "The draft permit established operating limitations, emissions limitations, compliance demonstration methods, testing requirements, specific monitoring requirements, specific recordkeeping requirements, specific reporting requirements,.." Since one of the functions of the CEA is to discuss air pollutants and how they are controlled, some mention of the enforceable limits of emissions should be included.

Finally, the date the final permit was issued is July 2, 2014 rather than August 8th, 2014. The permit was signed on that date and a signed receipt from SunCoke was received on July 15, 2014.

SESS has modified the CEA in response to this comment by changing the tense of "establishes," inserting a reference to "emissions limitations," and changing the date of the final permit issuance from August 8, 2014 to July 2, 2014 in Section 1.4.

4. ***Page 6, Section 2.1 Air Pollutants, Table 1:***

The final table of estimated pollutants in the assessment varies in all but three (3) instances (H_2SO_4, HG, HCl) from the final estimate of pollutants the Division published in the SOB for the permit.

CEA Table 1

Pollutant	Estimated Potential Emissions (tons per year)
PM (filterable)	174.8
PM_{10} (filterable and condensable)	208.3
$PM_{2.5}$ (filterable and condensable)	160.0
CO	218.3
VOC	44.7
SO_2	634.0
NOx	692.9
Pb	0.22
H_2SO_4	33.4
GHGs (CO_2e)	1,374,000
Hg	0.20
HCl	117.5

Statement of Basis Table 1

Pollutant	PTE Tons per year
PM (filterable, only)	174.13
PM_{10} (filterable and condensable)	207.20
$PM_{2.5}$ (filterable and condensable)	158.72
CO	255.74
VOC	43.11
SO_2	634.58
NOx	753.21
Pb	0.25
H_2SO_4	33.396
GHGs (CO_2e)	1,410,000
Hg	0.202
HCl	117.48

Division Air Quality Opinion:

These minor discrepancies are due, in part, to differences of opinion for emission factors and calculation assumptions likely for the proposed facility design as well as the number of

significant digits used to calculate each emission. The largest differences are for CO, NOx and GHGs with the Division estimates higher than the SunCoke estimates.

However, even though there are differences in the estimates, there is no real impact for the project. No estimate difference is large enough to cause a regulation to become applicable or non-applicable. In addition, the project emissions are restricted by operational and emissions limitations included in the permit and not by the projected estimated emissions. The SunCoke project was subjected to a thorough regulatory and BACT analysis and the limits imposed in the final permit are the most stringent permit limits achievable in accordance with the BACT requirements.

Finally, although the Division asserts that there is no real impact for the project due to the differences in emissions estimated between the CEA and the permit documents, if there is a revision to the CEA, the facility should quote the table in the SOB to avoid any confusion between the two documents.

While SESS finds its emissions calculations to be accurate, the Division provided certain differing calculations in the Statement of Basis, and while, as noted, there is no impact for the project due to the differences estimated by SESS and the Division, SESS has modified the CEA in response to this comment by updating Table 1 in Section 2.1 to reflect the estimated potential emissions in the Statement of Basis.

5. ***Page 7, Section 2.2 Control Methods,*** *first paragraph:*

The statement that the SESS coke plant will be the "best-controlled of its type..." is clearly a subjective statement and the opinion of the applicant.

Division of Air Quality Opinion:

For its part, the Division states that the project has undergone a thorough BACT analysis, the Division has applied limits in accordance with all applicable regulations, and the project has been awarded a permit to construct and operate the facility in the Commonwealth.

SESS has sole proprietorship of the technology that will be implemented at the plant. Therefore, this represents a factual statement based on existing plant operation data in comparison to the projected operation of the proposed facility. No change to the CEA has been made.

6. ***Page 8, Section 2.2 Control Methods, <u>Coke Ovens,</u>*** *fourth paragraph:*

In the second sentence, the document reads "...so that a circulating dry scrubber (CDS) system ***or equivalent*** *performing technology can be used..." The phrase "or equivalent" implies that technology other than CDS/Baghouse can be easily substituted for control of particulate from the main stack. This is not true.*

Division of Air Quality Opinion:

Although the words "or equivalent" were used in the BACT summary table in the SOB (issued at the proposed permit stage), the final permit specifically requires the use of the CDS and Baghouse system during Coking as a compliance demonstration for the mass emissions standard. To change the control from CDS and Baghouse system would necessitate a permit revision and a new BACT analysis of the substituted technology. The phrase, which had been inadvertently left in the SOB, should have been excised from the SOB table and should be removed from the CEA.

SESS has modified the CEA to in response to this comment by removing the phrase "or equivalent" in Section 2.2.

7. ***Page 8, Section 2.2 Control Methods, Coal handling:***

The CEA states "Water will be added to the coal, as needed, after the coal leaves the barge area and at the coal pile to control PM emissions..." This description is incomplete.

Division of Air Quality Opinion:

The brief description of this equipment leaves out one important design element. The coal is added to the storage pile(s) through use of a radial arm crane using "good engineering practice drop height" to reduce fugitive particulate emissions generation. Since this shows up in the Fugitive PM BACT determination listed in Table 2 (page 10), it should have been briefly listed here.

SESS has modified Section 2.2 of the CEA ("Control Methods, Coal Handling") in response to this comment by inserting "Water will be added to the coal, as needed, after the coal leaves the barge area and **is placed in one of four piles by a radial stacker arm using good engineering practice drop height and therefore minimizing emissions."**

8. ***Page 10, Section 2.2 Control Methods, BACT,*** *Table 2, PM/PM10/PM2.5, Coking-main stack (EU07):*

In the BACT Determination for Coking-main stack (EU07) for PM/PM10/PM2.5, the table lists "CDS/BH ***or equivalent."*** *The phrase "or equivalent" implies that technology other than CDS/Baghouse can be easily substituted for control of particulate from the main stack. This is not true.*

Division of Air Quality Opinion:

Although the words "or equivalent" were used in the BACT summary table in the SOB (issued at the proposed permit stage), the final permit specifically requires the use of the CDS and Baghouse system during Coking as a compliance demonstration for the mass emissions standard. To change the control from CDS and Baghouse system would necessitate a permit revision and a new BACT analysis of the substituted technology. The phrase, which had been inadvertently left in the SOB, should have been excised from the SOB table and should be removed from the CEA. This is the same issue as discussed, in ***Issue:*** *2.2 Control Methods, Coke Ovens, fourth paragraph, above*

In response to this comment, SESS has modified the CEA by removing the phrase "or equivalent" in Section 2.2, Table 2, PM/PM10/PM2.5, Coking-main stack (EU07).

9. ***Page 12, Section 2.3 Air Permitting,*** *first paragraph:*

The paragraph states "The draft permit establishes operation limitations, compliance demonstration methods..." Since the Draft was issued in December 2013, and the final permit was issued in July 2014, the tense used in the paragraph is in error. This is the same issue discussed in ***issue: 1.4 Summary of Assessment and Permitting History,*** *above.*

Division of Air Quality Opinion:

The tense used in the paragraph should be changed to past tense. Also, the paragraph should include that emissions limitations were also established, i.e. "The draft permit established operating limitations, ***emissions limitations,*** *compliance demonstration methods, testing requirements, specific monitoring requirements, specific recordkeeping requirements, specific reporting requirements..." Since one of the functions of the CEA is to*

discuss air pollutants and how they are controlled, some mention of the enforceable limits of emissions should be included.

Finally, the date the final permit was issued is July 2, 2014 rather than August 8th, 2014. The permit was signed on that date and a signed receipt from SunCoke was received on July 15, 2014.

SESS has modified the CEA in response to this comment by changing the tense of "establishes," inserting a reference to "emissions limitations," and changing the date of the final permit issuance from August 8, 2014 to July 2, 2014 in Section 2.3.

10. ***Page 14, Section 2.3 Air Permitting, 401 KAR 51:017,*** *Prevention of significant deterioration of air quality:*

The paragraph ends by stating the final permit was awarded on August 8th, 2014. This is an error.

Division of Air Quality Opinion:

As mentioned, above, the final permit was signed July 2, 2014.

SESS has modified the CEA by revising the date of the final permit issuance from August 8, 2014 to July 2, 2014 in Section 2.3 Air Permitting, 401 KAR 51:017.

11. ***Page 14, Section 2.3 Air Permitting, 401 KAR 51:017,*** *Prevention of significant deterioration of air quality, paragraphs 3,4 and 5 (including bullets):*

Information regarding the PSD Air Quality Impact Analyses is minimal.

Division of Air Quality Opinion:

The AQIA section of the document could include more information about the findings regarding the AQIA and should, as a minimum, mention that the closest designate Class I Area to the project is Otter Creek Wilderness, West Virginia, located approximately 283 km east.

SESS has modified the CEA in response to this comment by inserting the AQIA discussion from the April 1, 2014 Permit Statement of Basis.

12. ***Page 17, Section 3.3 Water Discharge Permitting,*** *KPDES Individual Permit:*

The CEA states "coverage under the KPDES Individual Permit will be required to be maintained by the facility."

Division of Water Opinion:

They are correct; a KPDES Individual Permit has been drafted but is under internal review and not ready for public notice.

So noted.

13. ***Page 18, Section 3.3 Water Discharge Permitting,*** *KPDES Construction Storm Water Discharge General Permit:*

The CEA acknowledges their intended compliance with KYR10 — Storm Water Construction general permit by filing a Notice of Intent (NOI) prior to the commencement of construction and a Notice of Termination (NOT) will be submitted once construction is completed.

Division of Water Opinion:

Paper notices of intent and termination are no longer accepted. Electronic

NOI/NOT can be filled by following this link
http://dep.kyqov/formslibrary/Documents/KYR1OPermitPage.pdf

So noted.

14. ***Page 19, Section 4.0 Waste Evaluation,*** *first paragraph:*

The CEA states "Landfills in Walton and Ashland, Kentucky are known to accept similar quantities of non-hazardous waste ash from industrial facilities and may be contracted to dispose of SESS ash waste."

Division of Waste Management Opinion:

They are correct, the waste will likely be non-hazardous, but they will need to check with the facilities to determine their testing requirements for waste characterization in order to accept the waste.

So noted. Bavarian Waste Services in Walton, Kentucky and Big Run Landfill in Ashland, Kentucky were both contacted, and testing requirements for waste characterization were obtained.

15. ***Page 20, Section 5.1 Surface Water,*** *paragraph 1, 2 and 3:*

The CEA states "Surface water will be utilized as a source for cooling and quenching water. The cooling water intake structure (CWIS) will be designed to withdraw cooling water at approximately 2.0 million gallons per day (MGD) from the Ohio River."

Division of Water Opinion:

A water withdrawal permit was issued in July of 2014 after evaluating availability at the source (Ohio River). A withdrawal of around 2.0 MGD for cooling water purposes is well within permitting guidelines for availability.

The CEA used a reasonable estimate of the flow in the Ohio River to determine that their intake structure complied with Section 316(b) of the Clean Water Act. At the rates they propose for withdrawal the intake will be well below the "5 percent of mean annual flow" threshold for the daily rate of withdrawal.

So noted.

16. ***Page 21, Section 5.2 Stormwater,*** *paragraph 2:*

The City of South Shore is indicated as a supplemental source of cooling water in the event of drought or other interruptions from the Ohio River source.

Division of Water Opinion:

Currently the City of South Shore produces 450,000 to 550,000 gallons of potable water per day from a plant with a 1.0 MGD design capacity and could reasonably supplement only a small percentage of the stated 2 MGD withdrawal for cooling water.

SESS understands the capacity limitations of the City of South Shore water supply. The facility is designed to operate under various scenarios, and significant reserve water capacity

is provided in the onsite retention pond. A water balance indicating anticipated facility operating flow ranges was provided with the NPDES permit application (Appendix A). This water balance indicates that the maximum flow from city water sources (Stream No. C1) under "worst-case" conditions is 645 gpm or approximately 930,000 gallons per day. This flow represents extreme conditions and SESS understands the limitations associated with the current water supply. SESS further recognizes that the City of South Shore may not be able to provide this flow on a sustained basis.

17. ***Page 21, Section 5.3 Water Use Permitting:***

The CEA indicates that there will be one or more retention ponds that collect storm water/rainwater that will then be used for supplying water for purposes of "coal storage pile water sprays, the stationary ram cooling water feed, the washdown service water feed, the PCM cooling water feed and the quench settling basin, as needed."

Division of Water Opinion:

The applicant should contact the Water Quantity Management section of the Division of Water if retention pond usage will exceed 10,000 gpd.

SESS understands this 10,000 gpd limitation likely references the water withdrawal provisions of the Kentucky Revised Statutes. The proposed SESS stormwater retention pond will collect and store stormwater which falls within the site boundary. As such, SESS does not believe this provision applies to withdrawal of water from an onsite stormwater retention basin. KRS 151.140 states that *"no person, business, industry, city, counter, water district or other political subdivision shall have the right to withdraw, divert, or transfer* ***public water*** *from a stream, lake, groundwater source or other body of water unless such person, business, industry, city, counter, water district or other political subdivision has been granted a permit by the cabinet."* Based on the definition of public water from KRS 151.120, the retention pond is not considered to be a "public water."

SUNCOKE ENERGY
SOUTH SHORE FACILITY

CUMULATIVE ENVIRONMENTAL ASSESSMENT
MERCHANT ELECTRIC GENERATING FACILITY AND
NON-REGULATED ELECTRIC TRANSMISSION LINE

Prepared for:
SunCoke Energy South Shore LLC
1011 Warrenville Road, Suite 600
Lisle, Illinois 60532

SunCoke Energy

Prepared by: URS

525 Vine Street, Suite 1800
Cincinnati, Ohio 45202

Case #: 2014-00162

Revision 1
February 2015

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1.0 INTRODUCTION

1.1 Project Introduction

SunCoke Energy South Shore LLC (SESS) owned by Sun Coal and Coke LLC, which is owned by SunCoke Energy, Inc., (SunCoke) is proposing to construct and operate a heat recovery coke plant located on approximately 250 acres of land in an industrial area near South Shore, Kentucky in Greenup County. **Figure 1 – Site Location Map** shows the site location and approximate site boundaries. Heat recovery steam generators (HRSGs) will recover waste heat from the ovens to produce steam and electricity. To date, extensive assessment and permitting activities have been completed for the proposed facility. Currently, the primary permit applications have been prepared and submitted and are undergoing review by the respective agencies. A number of permits associated with the proposed facility have been approved.

Construction may begin as early as Second Quarter 2015. Due to the complexity of the project, construction is expected to last approximately two (2) years. 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.

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 CEA to the Commonwealth of Kentucky Energy and Environment Cabinet (Cabinet) with the permit application. The regulation also describes required CEA elements. In accordance with KRS 224.10-280(3), this CEA addresses the following considerations:

- 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 Description and Equipment Summary

The proposed facility will consist of 120 heat recovery coke ovens. The general areas include buildings (administration, warehouse, maintenance, steam turbine generator, etc.), a blended coal barge unloading and transfer facility, a coal handling and processing area, the coke plant, the coke handling area, heat recovery, air quality control systems, and the power island. Coal will be shipped to the facility via barge, and the finished coke product will be conveyed to end users via rail.

HRSGs will recover waste heat from the ovens to produce steam and electricity. At design capacity, the facility will carbonize 1,226,400 tons/year of coal and produce up to 831,100 tons/year of coke product. A nominal 40–75 megawatts (MW) of electricity will be produced from the waste heat.

The general facility design includes the following major equipment and structures:

- One hundred twenty (120) heat recovery coke ovens;
- Three (3) waste HRSGs;
- Coal handling and preparation equipment that include a barge unloading facility, a coal hopper, conveyor system, radial stackers, coal crushers, storage bins, and mobile charging/pushing machines;
- Coke pushing and handling equipment that include a mobile flat push hot car, coke crushers and screeners, radial stackers, and rail and truck loading systems;
- One (1) quench tower;
- One main exhaust stack;

- Ancillary equipment and systems (i.e., mechanical systems, potable and service water systems, fire protection system, compressed air system, cranes, front end loaders, steam and condensate systems, heating and cooling systems, start-up natural gas burner system, ash handling systems, storage tanks, drainage and sewer systems, electrical systems, emergency fire pump and generators);

- Various administrative, support, and operations buildings; and

- 138 kilovolt (kV) electrical transmission line from the facility to the Millbrook Park Substation in New Boston, Ohio.

1.4 Summary of Assessment and Permitting History

Since the SESS project was conceived, its developers have focused on the details and aspects needed to ensure a successful and sustainable project, and one that minimizes impact to the environment. Significant studies, permitting and design work have been completed for various aspects of the facility's development and regulatory review. References will be made throughout this section to the various reports, investigations, and permit applications that have been conducted and/or prepared. The primary environmentally-related studies and permitting efforts with brief summaries are listed below:

- **Section 10/404 Permit Application** - In order for SESS to construct and operate the proposed facility, SESS will need to undertake certain activities, including the construction of structures in and around the Ohio River, a navigable water of the United States (US). In addition, development of the facility requires discharge of fill materials to delineated wetlands. Accordingly, SESS applied for a United States Army Corps of Engineers (USACE) Section 10/404 Permit in January 2013 to undertake the aforementioned activities. The following extensive studies were included with the permit application:

    - A Wetland Delineation, Stream Assessment, and Threatened and Endangered Species Habitat Survey report was prepared in October 2008 with addendums in 2009, 2011 and 2012 prepared in response to additional project areas. These ecological surveys identified a total of 15 wetlands and six non-jurisdictional drainage swales within the project survey boundary.

    - A Wetland Mitigation Plan was developed and submitted with the Section 10/404 permit application. The Wetland Mitigation Plan addresses approximately 6.4 acres of wetland associated with the project site for which impact was unavoidable. The conceptual wetland mitigation plan utilizes the Kentucky in-lieu-fee wetland mitigation program.

    - A mussel survey was conducted in response to the United States Fish and Wildlife Services' (USFWS) question regarding any potential for the proposed project-associated barge loading and fleeting facility to adversely affect federally

listed mussels. Results from the September 2008 mussel survey determined that the proposed project would not likely adversely affect federally listed mussels.

- Cultural, Historic and Archaeological Studies have been submitted to the State Historic Preservation Office, including:
  - June 2011 Phase I Survey of Two Land Parcels (45.2-acres) in Greenup County, Kentucky
  - June 2011 Phase II NRHP Eligibility Testing of Sites 15GP183 and 15GP219 in Greenup County, Kentucky
  - June 2012 Phase I Survey of a 25-acre Addition to the Proposed SunCoke Energy South Shore Facility in Greenup County, Kentucky
  - June 2012 Data Recovery Plan For Sites 15GP183 and 15GP219 with the SunCoke Energy, Inc. South Shore Project, Greenup County, Kentucky

- **Section 401 Water Quality Certification Permit Application** - The Section 401 Water Quality Certification Program implemented by the Kentucky Division of Water (KDOW) is the Commonwealth's review and authorization of selected federal license and permits. SESS submitted an application for water quality certification (WQC) in October 2013 to the KDOW. The KDOW approved and issued the WQC in January 2014.

- **Kentucky Stream Construction Permit Application** - The project involves construction of minor structures which will be located within, and adjacent to, the Ohio River. In addition, there are several areas of fill which will be located within the 100-year floodplain and floodway of the Ohio River. Therefore, a Stream Construction Permit (SCP) application was submitted in October 2013 to the KDOW. In order to analyze the effects of the proposed construction on existing flood conditions, URS modeled existing and proposed conditions using the USACE's Hydrologic Engineering Centers River Analysis System (HEC-RAS 4.1.0). Based on this analysis, it was demonstrated that the proposed floodplain construction would not result in a significant, measurable change, and the project is appropriate for a "No Impact" Certification. The KDOW approved and issued the SCP to SESS in November 2013.

- **Air Permit Application** - The air permit application was submitted to the Kentucky Division for Air Quality (KDAQ) on December 10, 2012. Additional information was submitted that addressed requests from KDAQ at various times throughout 2013. A draft construction and operating permit (V-13-007) for SESS was issued for public review on December 26, 2013. The draft permit established operating limitations, emissions limitations, compliance demonstration methods, testing requirements, specific monitoring requirements, specific recordkeeping requirements, specific reporting requirements, and (where appropriate) specific control equipment operating conditions for each of the Emission Units at the SESS Plant. The public comment period ended and KDAQ responded to the comments. KDAQ issued the "proposed" permit on May 6, 2014 that

allowed construction activities while United States Environmental Protection Agency (EPA) reviewed the Title V (operating) portion of the permit. The final permit was awarded on July 2, 2014. The complete KDAQ public record is maintained by the agency under Agency Interest No. 105793. The air permit addresses all applicable federal and state air quality regulations that must be satisfied to construct and operate SESS. In addition, dispersion modeling of SESS emissions demonstrated acceptable environmental impacts for all regulated air pollutants.

The above efforts have resulted in extensive study of the proposed project site and surrounding areas. These investigation efforts have been important in defining features such that the development and design teams could minimize the effect of the proposed facility on the surrounding environment.

2.0 AIR POLLUTANT EVALUATION

As required by KRS 224.10-280(3), this section presents an evaluation of air pollutants emitted by the facility and the associated control measures.

2.1 Air Pollutants

SESS is expected to be a source of stack emissions of the criteria pollutants Particulate Matter (PM), Particulate Matter 10 microns diameter and smaller (PM_{10}), Particulate Matter 2.5 microns diameter and smaller ($PM_{2.5}$), Sulfur Dioxide (SO_2), Nitrogen Oxides (NOx), Carbon Monoxide (CO), Volatile Organic Contaminants (VOCs), sulfuric acid (H_2SO_4), and Lead (Pb) as well as Hazardous Air Pollutants (HAPs) including Hydrochloric Acid (HCl) and Mercury (Hg) and other HAPs in small amounts. Greenhouse gases (GHGs) will also be emitted and will be comprised of mostly Carbon Dioxide (CO_2). SESS will also be a source of fugitive PM, PM_{10}, and $PM_{2.5}$ emissions.

The potential emissions of regulated air pollutants have been estimated and are presented in Table 1. SESS calculated its emissions to be slightly different than KDAQ's final estimate of pollutants published in the Statement of Basis for the air permit. As recognized by the Kentucky Department for Environmental Protection, the differences are minor and have no real impact on the project. While SESS finds its emissions calculations to be accurate, to avoid confusion, Table 1 contains the estimate of pollutants that KDAQ published in the Statement of Basis. These values represent the maximum potential emissions from the entire facility. More information about emissions from individual operations and equipment is available in the permit application and in KDAQ's public record (Agency Interest No. 105793).

Table 1

Pollutant	Estimated Potential Emissions (tons per year)
PM (filterable)	174.13
PM_{10} (filterable and condensable)	207.20
$PM_{2.5}$ (filterable and condensable)	158.72
CO	255.74
VOC	43.11
SO_2	634.58
NOx	753.21
Pb	0.25

Pollutant	Estimated Potential Emissions (tons per year)
H_2SO_4	33.396
GHGs (CO_2e)	1,410,000
Hg	0.202
HCl	117.48

2.2 Control Methods

The SESS coke plant will be the best-controlled of its type in the United States, if not the world, due to the coke plant design, the air pollution controls, and planned equipment redundancy.

The SESS coke oven design will be a heat recovery type of oven. This differs from the traditional coke oven design in that the volatile fraction of the coal is oxidized within the ovens releasing heat. Heat is recovered in HRSGs as steam. The steam is used to make electricity. With the traditional byproduct coke making process coal volatiles and combustion products are collected downstream of the oven chamber and refined in a chemical plant to produce coke oven gas and other products such as tar, ammonia, and light oils. There is no chemical plant with the heat recovery coke making process.

The heat recovery coke making process is also much more environmentally stringent than the byproduct process because of a fundamental design difference. Byproduct ovens are kept at a positive pressure to avoid oxidizing recoverable products and overheating the ovens. Heat recovery ovens are kept at a negative pressure, adding air from the outside to oxidize volatile matter and release the heat of combustion within the oven system. The opposite operating pressure condition and combustion within the oven system are important design differences between heat recovery ovens and byproduct ovens. Small openings or cracks in byproduct ovens allow raw coke oven gas and HAPs to leak into the atmosphere. The openings or cracks in the heat recovery ovens simply allow additional air to be drawn into the oven as part of the carbonization process.

The following paragraphs summarize the air pollution controls for the primary emission units at SESS.

Coke Ovens

The coke ovens are the largest potential source of emissions. Controls for the various pollutants are discussed in the following paragraphs.

CO and VOCs are produced as products of incomplete combustion. In the heat recovery process, volatile matter is released from the coal bed and combusted within the coke oven. Heat that is generated drives the coking process. The heat recovery coke ovens use three discrete regions for combustion of the coal volatiles. The regions are the crown, the sole flues, and the common tunnel. The gases remain in the sole flues and common tunnel for approximately 7 seconds where they are exposed to oxidizing conditions and temperatures from 1,600 to 2,400 degrees Fahrenheit (°F). This approach naturally produces low emissions of CO and VOCs. Because of the inherently excellent combustion the primary gas produced is CO_2 which results in minimal GHG emissions of compounds such as methane that have a high global warming potential.

NOx emissions will be inherently controlled by staged combustion. Staged combustion controls NOx by limiting the oxygen present at temperatures where NOx formation is likely and/or suppressing peak temperatures that increase NOx formation during gas combustion. Air enters the coke oven in the crown which operates in a reducing atmosphere where minimal oxygen is present for NOx formation. The sole flues receive secondary air and operate in a reducing or oxidizing atmosphere as dictated by the oven gas rates. NOx formation is minimized in the sole flues by controlling the temperatures. The final stage is the common tunnel afterburner, which is always operated in an oxidizing mode. NOx formation is limited in this region by adding enough tertiary air to cool the gases below temperatures where thermal NOx is formed (<2,400°F).

PM and SO_2 will be controlled by downstream pollution control devices. The HRSGs that recover heat to make steam and produce electricity also cool the flue gases so that a circulating dry scrubber (CDS) system performing technology can be used. This system will include a baghouse for particulate removal. H_2SO_4, HCl, and particulate metals will also be controlled by the CDS system. Redundant HRSG and CDS systems will be utilized. Three HRSGs, each sized to handle 50% of the hot flue gas, will typically be online. In the event maintenance is required, two HRSGs will be operated at a higher load while the third is offline being maintained. A 100% redundant SO_2/PM control that provides equivalent performance will be installed in parallel so that one system can be taken offline for maintenance while the flue gases are routed through the other system.

Coal handling

Blended coal will be delivered to the facility by barge. Coal will be stored in open pile(s) that will have a berm or wind screen. Water will be added to the coal, as needed, after the coal leaves the barge area and is placed in one of four piles by a radial stacker arm using good engineering practice drop height and therefore minimizing emissions. Emissions from material transfer will also be controlled by enclosures except in a few areas where enclosures are physically prohibited due to moving equipment.

Coal charging

Coal will be charged into the coke ovens by mobile pushing/charging machines that charge coal into one side of the ovens. The negative pressure inherent to the heat recovery design captures most of the emissions. PM is controlled by a traveling hood/baghouse system contained on the pusher/charger machine.

Coke pushing

At the end of the cycle, after the coal has been converted to coke, the coke is pushed into a mobile flat push hot car. The coke loaf is pushed essentially intact. SESS will employ the work practice of physically looking into each oven prior to pushing. If the coke bed has stopped gassing and no smoke is observed, the oven can be pushed. This substantially reduces potential pushing emissions. The negative pressure inherent to the heat recovery design captures most of any remaining emissions. PM is controlled by a traveling hood/multicyclone system contained on the flat push hot car.

Coke quenching

The flat push hot car travels to the end of the batteries where the coke bed is transferred to a quench car, then into a stationary quench tower. Quenching will be performed by deluging the hot coke with water in a specially designed quench tower with baffles. PM emissions from quenching will be controlled by using water with controlled levels of total dissolved solids that represents Maximum Achievable Control Technology (MACT) and by SESS's baffle design.

Coke handling

PM emissions from material handling will be controlled by enclosures except where interference with dispersion of steam from quenched coke may pose a safety hazard. A dust collection

system with a baghouse will be used to control PM emissions from coke screening and crushing.

Vehicles

Personal vehicles, maintenance trucks, and trucks hauling coke, breeze, and other materials will travel roads around the facility. These roads will be paved and appropriate control measures applied (e.g., flushing) when needed. Sections of roads in the lower tier of the property are susceptible to flooding and will not be paved. The unpaved roads will be treated with chemical suppressant and watered as needed for dust control.

BACT

As part of the permitting process, the KDAQ evaluated the air pollution controls for each emission unit to determine whether they demonstrate Best Available Control Technology (BACT). The BACT requirement is an emission limitation or work practice based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act, on a case-by-case basis, taking into account technical feasibility and energy, environmental, and economic impacts and other costs. The results of KDAQ's BACT determinations are summarized in Table 2.

Table 2

Pollutant	Emission Unit	BACT Determination
$PM/PM_{10}/PM_{2.5}$	Coking-main stack (EU07)	CDS/BH
	Coal Charging (EU05, EU06)	Onboard, travelling hood with baghouse
	Coke Pushing (EU08)	Onboard, travelling hood with Multicyclone, flat pushing
	Coke Crushing/Screening (EU15)	Enclosure and baghouse
	Emergency Stacks/Lids(EU10)	Time limit for testing, required draft fan operation
	Natural Gas Lances/Spargers (EU11)	Natural gas use limit
	Group II Start-Up	Coal throughput limit, expedite start-up
	Storage Silos (EU20, EU21, EU22)	Bin vent filters with 99% efficiency design
	Crane Diesel Engines (EU29, EU29)	Maximum use of 16 hours per day
Fugitive $PM/PM_{10}/PM_{2.5}$	Coal and Coke Handling/Transfer Units (EU01-EU04, EU13, EU14,	Full and partial enclosures, wetting of materials, good

Pollutant	Emission Unit	BACT Determination
	EU16)	engineering practice drop heights, berms, wind screens, all as applicable to the individual emission point
	Quench Tower (EU09)	Wet quench, improved baffles, limited TDS
	Paved Roads (EU17)	Flushing paved surfaces
	Unpaved Roads (EU18)	Chemical suppressants, wetting of materials
	Cooling Tower (EU19)	Maximum 0.0005% drift (and water recirculation rate)
CO and VOC	Coking (EU07)	Combustion Optimization
	Coal Charging (EU05, EU06)	Negative pressure oven design
	Coke Pushing (EU08)	Work practices
	Group II Start-Up	Limit coal charge each oven during start-up, 40 day time limit to operation of CDS/BH
SO_2	Coking (EU07)	CDS, Designed to meet 0.96 lb SO_2 per ton Coal at maximum production. Coal sulfur limit 1.3 %
	Coal Charging (EU05, EU06)	Coal sulfur limit of 1.3 %
	Coke Pushing (EU08)	Coal sulfur 1.3%
	Group II Start-Up	Coal sulfur 1.1%, limit coal charge each oven during start-up, 40 day time limit to operation of CDS/BH
H_2SO_4	Coking (EU07)	CDS/BH, Design efficiency 98%, Coal sulfur limit 1.3%
	Coal Charging (EU05, EU06)	Coal sulfur 1.3%
	Coke Pushing (EU08)	Coal sulfur 1.3%
	Group II Start-up	Limit coal charge each oven during start-up, 40 day time limit to operation of CDS/BH
NOx	Coking (EU07)	Staged Combustion
	Coal Charging (EU05, EU06)	Work practices
	Coke Pushing (EU08)	Work practices, coal throughput
	Group II Start-up	Limit of coal charged to each oven
GHGs [CO_2(e)]	Coking (EU07)	Facility design elements, combustion optimization, work Practices
	Coal Charging (EU05, EU06)	Negative pressure oven design
	Coke Pushing (EU08)	Ensure complete carbonization (Work practices)
	Emergency Stacks/Lids (EU10)	Time limit for testing, required draft fan operation

Pollutant	Emission Unit	BACT Determination
	Natural Gas Lances/Spargers (EU11)	Natural gas use limit
	Group II Start-up	Limit coal charge each oven during start-up
	Emergency Engines (EU24-EU27)	Good combustion practices, implement GHG work practices plan
	Crane Diesel Engines (EU29, EU29)	Good combustion practices, limit daily hours operation, implement GHG work practices plan

2.3 Air Permitting

SESS submitted an application to KDAQ for a metallurgical coke production facility to be located in Greenup County, Kentucky, on December 10, 2012. Additional information was submitted that addressed requests from KDAQ at various times throughout 2013. A draft construction and operating permit (V-13-007) for SESS was issued for public review on December 26, 2013. The draft permit established operating limitations, emissions limitations, compliance demonstration methods, testing requirements, specific monitoring requirements, specific recordkeeping requirements, specific reporting requirements, and (where appropriate) specific control equipment operating conditions for each of the Emission Units at the SESS plant. The public comment period ended and KDAQ responded to the comments. KDAQ issued the "proposed" permit on May 6, 2014 that allowed construction activities while EPA reviewed the Title V (operating) portion of the permit. The final permit was awarded on July 2, 2014. The complete KDAQ public record is maintained by the agency under Agency Interest No. 105793.

The air permit addresses applicable air quality regulations that must be satisfied to construct and operate SESS. In addition to general requirements, seven federal regulations will specifically apply to SESS. These are summarized below:

40 CFR 60, Subpart Y, Standards of Performance for Coal Preparation Plants. This regulation applies to coal transfer, storage and processing equipment. It establishes opacity limits and requires that a fugitive coal dust emissions control plan to be submitted and implemented.

40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. This regulation applies to emergency and non-emergency diesel engines of various sizes on the site, including an emergency fire pump, emergency generators, and cranes. It establishes emissions limits, testing, and fuel standards.

40 CFR 63, Subpart L, National Emission Standards for Coke Oven Batteries. This regulation applies to the coke ovens and oven charging. It establishes operating, emissions and opacity limits and requires the installation of control equipment to minimize emissions from charging and requires a work practice plan as well as a startup, shutdown and malfunction plan.

40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. This regulation also applies to emergency and non-emergency engines of various sizes on the site. It establishes emission and operating limitations as a means to limit HAPs emitted by reciprocating internal combustion engines (RICE).

40 CFR 63, Subpart CCCCC, National Emission Standards for HAPs for Coke Ovens: Pushing, Quenching, and Battery Stacks. This regulation applies to heat recovery coke pushing and quenching and sets various operating and emission limits as well as testing, parametric, inspection, monitoring and recordkeeping requirements for the equipment.

40 CFR 64, Compliance Assurance Monitoring (CAM). This regulation requires that sources monitor and maintain their control devices to ensure continuing compliance with pollutant specific emissions limitations. At SESS, CAM applies to the CDS system used to control SO_2 and PM emissions from coking that are emitted from the main stack.

40 CFR 98, Mandatory Greenhouse Gas Reporting (GHGs). This regulation requires that sources report the amounts of GHGs emitted annually.

In addition to federal requirements, the air permit addresses six state regulations that will specifically apply to SESS.

401 KAR 52:020, Title V permits. This Kentucky Administrative Regulation (KAR), establishes requirements for air contaminant sources located in Kentucky that are required to obtain a Title V operating permit because SESS will be a major source of regulated air pollutants (PM, PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, and HCl). The draft Title V permit has been issued.

401 KAR 59:010, New Process Operations. This KAR provides for the control of particulate emissions from new process operations not subject to another particulate standard.

401 KAR 63:010, Fugitives. This KAR provides for the control of fugitive emissions. Fugitive emissions are those released into open air rather than from a stack.

401 KAR 63:020, Toxic Substances. This KAR provides for control of emissions of potentially hazardous matter and toxic substances. Toxic substances are those which may be harmful to the health and welfare of humans, animals, and plants and this regulation forbids any source from emitting these substances in a quantity or for a duration that could be detrimental.

401 KAR 59:105, New process gas streams. This regulation provides for control of emissions from new process gas streams. It applies specifically to SO_2 emissions from coking.

401 KAR 51:017, Prevention of significant deterioration of air quality. The purpose of this regulation is prevention of significant deterioration (PSD) of ambient air quality. This complicated regulation has many components that apply to SESS. The public comment period ended and KDAQ responded to the comments. KDAQ issued the "proposed" permit on May 6, 2014 that allowed construction activities while EPA reviewed the Title V (operating) portion of the permit. The final permit was awarded on July 2, 2014.

The PSD regulation requires that a BACT analysis be performed and controls or work practice standards (if feasible) be applied for the PSD pollutant(s). For this project, BACT is required for units that emit PM, PM_{10}, $PM_{2.5}$, SO_2, NOx, CO, VOCs, GHGs, and H_2SO_4. Table 2 summarizes the controls identified as BACT that are required for each emission unit.

The PSD regulation also requires an analysis of ambient air quality impacts. For SESS, this applies to CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. SESS submitted an ambient air quality analysis for each of these pollutants. Dispersion modeling was performed for CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ to determine the impacts on PSD increments (ambient impacts due to SESS and other new sources) and on the National Ambient Air Quality Standards (NAAQS) [ambient impacts due to SESS and all other sources plus background]. The modeling demonstrated that emissions of regulated pollutants from the proposed project will not adversely affect air quality levels surrounding the facility.

The PSD regulation also requires an Air Quality Impact Analyses (AQIA) that assesses impacts on soils, vegetation, visibility, and Class I areas caused by the increase in emissions from the new source. Class 1 lands include areas such as national parks, national wilderness areas, and national monuments that are granted special air quality protections under the Clean Air Act.

Discussions of the impacts assessed by SESS were provided in the April 1, 2014 Permit Statement of Basis, and are summarized below:

Impact on Soils, Vegetation, and Visibility

The NAAQS are established for people and the environment, including effects on soils and vegetation. As discussed in the December 2012 SunCoke Energy South Shore Application for Major Source Permit to Construct ("Air Permit Application") and in the response to the second modeling Notice of Deficiency dated October 10, 2013, the emissions resulting from this project do not exceed the secondary NAAQS or EPA Screening Levels. Therefore, no adverse impact to soil or vegetation is expected.

SESS submitted VISCREEN modeling to the KDAQ on November 5, 2013, demonstrating the absence of visual impacts at the closest scenic vista, Shawnee State Park located near West Portsmouth, Ohio. Therefore, visibility impacts are also not expected.

Growth

As discussed in the Air Permit Application, an impact on air quality due to regional growth attributed to the proposed SESS project is projected to be negligible.

Ozone Impacts

As discussed in the Air Permit Application, an adverse impact on ambient ozone concentrations due to the proposed project is not expected.

Impact on Class I Areas

Otter Creek Wilderness, West Virginia, located approximately 280 miles east of the proposed SESS facility, is a designated Class I area. The Federal Land Manager does not anticipate adverse impacts of any air quality related values (AQRVs) at Forest Service Class I Areas by the proposed SESS project.

Additionally, to demonstrate compliance with the Class I Increment Levels, SESS provided the KDAQ with a comparative analysis using the Riverside Generating Company, LLC as a surrogate to their facility. This analysis is described in the additional dispersion modeling information document dated November 12, 2013.

3.0 WATER POLLUTANT EVALUATION

Operation of the SESS facility will result in the discharge of a non-process water stream (e.g., HRSG blowdown and cooling tower blowdown) and may also result in the discharge of stormwater on an intermittent and infrequent basis. These wastewater streams are further described below.

3.1 Non-Process Water Stream

The non-process water stream is associated with the operation of the HRSG and cooling tower systems (HRSG blowdown and cooling tower blowdown). The cooling water will be supplied directly from the Ohio River (under a water withdrawal permit) and may also be supplemented from the local potable water system. This non-process water stream will be used for cooling waters, concentrated as part of the evaporative process, and discharged directly to the Ohio River. The anticipated average discharge of the non-process water stream to the Ohio River is 120 gallons per minute based on the facility design water balance (see Figure SC-1 in **Exhibit A Kentucky Pollutant Discharge Elimination System (KPDES) permit application**). The anticipated additives and their compositions of the cooling water are summarized in Table 3. The non-process water stream is further described in KPDES Form SC provided in with the KPDES application

Table 3

Additive	Composition	Concentration
ChemTreat CT775	Phosphoric Acid	4.0 mg/L
ChemTreat CL3857	2-Phosphono-1,2,4-butane tricarboxylic acid	1.0 mg/L
Sulfuric Acid	H_2SO_4	15.0 mg/L (estimate)
Sodium Hypochlorite (Bleach)	NaClO	50.0 mg/L

3.2 Stormwater and Other Facility Wastewaters

Under normal operating conditions, stormwater from the facility will be used for quenching and other operations-related needs. The facility design includes a stormwater retention basin which is used to supply water to the quenching system. The quench system is a closed-loop system

and no wastewater is discharged from this process. There are also coal ponds utilized to capture rain water which are controlled by evaporative losses only. On an emergency basis and during extreme storm events, stormwater collected in the retention basin(s) may overflow from the basin (due to basin capacity limitations) and be discharged to the Ohio River via an unnamed tributary of Newberry Branch. The stormwater discharge is described in KPDES Form F provided in the KPDES application. Due to the nature of the facility, this discharge would be considered "stormwater associated with industrial activity."

Other facility wastewaters that will not be directly discharged include sanitary wastes and wastewater from the quench and other process-related systems. The sanitary wastes will be discharged directly to the City of South Shore Wastewater Treatment Plant. The quench system is a closed-loop system and wastewaters generated as part of these operations are either continually reused in the system or lost to evaporation.

3.3 Water Discharge Permitting

KPDES Individual Permit

As described above, the proposed SESS facility will be discharging a non-process water stream and "stormwater associated with industrial activity" to waters of the Commonwealth. Discharges will comply with Kentucky Surface Water Standards. Therefore, coverage under the KPDES Individual Permit will be required to be maintained by the facility. SESS submitted this application March 22, 2013 to the KDOW. The final Socioeconomic Demonstration and Alternatives Analysis was amended per KDOW and resubmitted September 17, 2014.

The Code of Federal Regulations (40 CFR 420 Subpart A) provides effluent limitations and other standards for the Iron and Steel Manufacturing Point Source Category, Coke making subcategory. Specifically, New Source Performance Standards for Cokemaking are provided in 40 CFR 420.14. The proposed facility falls under the requirements for "Coke making – nonrecovery" (40 CFR 420.14(b)) which prohibits the discharge of process wastewaters to waters of the United States (US). The facility is designed such that there will be no discharge of process wastewaters to a Publically Owned Treatment Works (POTW) or waters of the US.

As discussed above, the facility design includes a stormwater retention basin which is used to supply water to the quenching system. On an emergency basis and during extreme storm events, stormwater collected in the retention basin may overflow from the basin and be discharged to the Ohio River via an unnamed tributary of Newberry Branch. The

Antidegradation Implementation Procedure found in 401 KAR 10:030, Section 1(3)(b)3 requires KPDES permit applicants for new or expanded discharges to waters categorized as "Exceptional or High Quality Waters" to conduct a socioeconomic demonstration and alternatives analysis to justify the necessity of lowering local water quality to accommodate important economic or social development in the area in which the water is located. Newberry Branch is considered a "High Quality Water," thus necessitating the preparation and submittal of a SDAA to the KDOW. The SDAA has been submitted and is currently undergoing agency review. URS anticipates the KDOW to issue the draft KPDES permit fourth quarter 2014.

KPDES Construction Storm Water Discharge General Permit

Construction activities that disturb one acre or more require coverage under the KDOW KPDES Construction Stormwater Permit. The permit requires development of a Stormwater Pollution Prevention Plan that details conditions at the site, project activities, and measures that will be taken to control sediment, erosion, and other pollutants that can migrate from the site during rain storms or snowmelt. The one-acre rule includes all bare ground, including areas of excavation, fill, clearing, and off-site borrows or soil disposal areas. The General Permit (KYR10) can be used if the project does not discharge into sediment-impaired water with an approved TMDL, cold water aquatic habitat, or outstanding national or state resource water, none of which apply to the receiving waters (Ohio River & Newberry Branch).

A Notice of Intent (NOI) will be filed prior to the commencement of construction as application of coverage under the General Permit for Stormwater Discharges Associated with Construction Activities (KYR10). A Notice of Termination will be submitted once construction is completed.

4.0 WASTE EVALUATION

An advantage of SunCoke's heat recovery coke making technology is the minor amount of solid waste produced. The primary waste product is flue gas desulfurization ash, consisting mostly of calcium sulfate ($CaSO_4$) with some calcium sulfite ($CaSO_3$) and unreacted calcium hydroxide $Ca(OH)_2$. This waste is not hazardous and is generally landfilled as a solid (non-hazardous) waste facility. SESS may expect to generate 20,000 to 50,000 tons of flue gas desulfurization ash each year. Landfills in Walton and Ashland, Kentucky are known to accept similar quantities of non-hazardous ash from industrial facilities and may be contracted to dispose of SESS ash waste.

SESS will generate minor amounts of hazardous waste typical of industrial facilities, such as aerosol cans of paint, penetrating oils, and other flammable materials, as well as sulfuric and hydrochloric acid wastes. SESS will generate less than 220 pounds of hazardous waste per month, and as such, will be considered a conditionally exempt small quantity generator (CESQG) of hazardous waste. CESQGs are generally not subject to hazardous waste labeling and other requirements, but are required to identify hazardous wastes and ensure that they are sent to an authorized facility for management.

SESS will be a small-quantity handler of universal waste containing lead, mercury, and polychlorinated biphenyls (PCBs), such as batteries, fluorescent lamps, transformers, and ballasts. Small-quantity handlers of universal waste are required to adhere to specific regulations regarding labeling, storage containers, accumulation, and shipping of universal waste.

All plant trash and other 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.

5.0 WATER USE EVALUATION

The proposed facility will primarily utilize surface water from the Ohio River and stormwater for its process and non-process operations (including cooling, cleaning, coal wetting, quenching, and environmental controls (reactant conditioning, flue gas saturation)). If necessary, process and non-process water will be supplemented from City Water Supply on a temporary basis during drought conditions.

5.1 Surface Water

Surface water will be utilized as a source for cooling and quenching water. The cooling water intake structure (CWIS) will be designed to withdraw cooling water at approximately 2.0 million gallons per day (MGD) from the Ohio River. The water intake will be downstream of the Greenup County Dam, and located at Ohio River Mile Marker 351.25.

Water balance projections estimate that the river water intake (make up water) mean case flow will range between 1,025 – 1,400 gallons per minute (GPM) with maximum case flow ranging between 1,375 – 1,750 GPM. It is anticipated that water withdrawal and daily production will occur 24 hours per day. The facility expects to withdraw approximately 2,016,000 gallons per average operational day. The maximum daily pumping rate is anticipated to be 2,520,000 gallons per day (GPD).

Section 316(b) of the Clean Water Act requires that design, construction and location of CWISs utilize the best available technology (BAT) to minimize adverse environmental impact. These provisions have been considered as part of the on-going design activities, and the proposed facility design is believe to comply with these requirements.

In accordance with 40 CFR 125.84(c)(2), the total design intake flow must be no greater than five percent of the source water body flow when the CWIS is located in a freshwater river. In order to quantify this flow, URS used the available resources of the United States Geological Society (USGS). USGS annual mean flow data was obtained at the nearest upstream and downstream Ohio River locations. The nearest upstream location is Greenup Dam, Kentucky (#03216600) located at Ohio River Mile Marker 341. The nearest downstream location is Maysville, Kentucky (#03238000) located at Ohio River Mile Marker 480.5. The proposed CWIS is located at mile marker 351.25. The mean annual flow data for the Greenup Dam, Kentucky station (upstream) is available from the USGS for the period from 1969 to 2008. The mean annual flow for this period is 59,972 MGD. It is reasonable to assume that the mean annual

flow at the proposed CWIS is greater than this because it is located downstream. The proposed CWIS intake flow rate for this facility is approximately 2.0 MGD. This is less than one-hundredth of a percent (0.01%) of the Ohio River mean annual flow at the proposed location (approximately 60,000 MGD). The intake flow is therefore significantly less than the regulatory requirement of 5-percent.

5.2 Stormwater

As described in Section 3.2, under normal operating conditions, stormwater from the facility will be used for quenching and other operations-related needs. A retention pond at the facility has been designed to contain stormwater from the facility. There are also coal ponds utilized to capture rain water. Water which is not lost in evaporation is used the process. In this manner, stormwater recycled for the use in facility operations provide benefits to the environment through both minimization of water use and reduction of surface water discharge flows from the facility. This retention pond is used to supply water to the coal storage pile water sprays, the stationary ram cooling water feed, the washdown service water feed, the PCM cooling water feed and the quench settling basin, as needed. Under normal operating conditions, stormwater collecting in this pond will be utilized within the process.

In the event of drought or other water shortage, cooling water will be supplemented from the City of South Shore Water Works Company on a temporary basis. SESS would enter into a water purchase agreement with the City of South Shore Water Works Company once facility design is finalized.

5.3 Water Use Permitting

The KDOW Water Withdrawal Program governs all withdrawals of water greater than 10,000 GPD from any surface water feature. The Application for a Permit to Withdraw Water has been prepared and submitted to the KDOW.

6.0 CONCLUSION

This 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.