

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

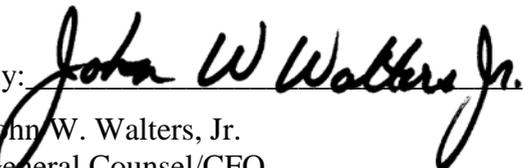
In the Matter of:

INVESTIGATION OF KENTUCKY UTILITIES)	
COMPANY'S AND LOUISVILLE GAS &)	
ELECTRIC COMPANY'S RESPECTIVE NEED)	CASE NO. 2015-00194
FOR AND COST OF MULTIPHASE)	
LANDFILLS AT THE TRIMBLE COUNTY AND)	
GHENT GENERATING STATIONS)	

RESPONSE TO DATA REQUEST OF
KENTUCKY UTILITIES COMPANY AND
LOUISVILLE GAS AND ELECTRIC COMPANY

Sterling Ventures, LLC hereby responds to the Data Request of Kentucky Utilities Company and Louisville Gas and Electric Company Dated July 2, 2015 in accordance with the Commission's Order of Procedure entered in this matter.

Respectfully submitted,
Sterling Ventures, LLC

By: 
John W. Walters, Jr.
General Counsel/CFO
376 South Broadway
Lexington, KY 40508
Phone: (859) 259-9600
johnwalters@sterlingventures.com

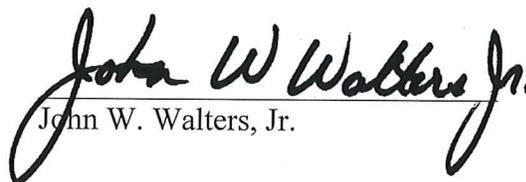
Dennis G. Howard II
Howard & Farley, PLLC
Attorneys at Law
455 S. 4th Street, Suite 1250
Louisville, KY 40202
Phone: (502) 473-6464
Cell: (859) 536-0000
Fax: (502) 473-6462
dennis@howardfarley.com

Dated: July 16, 2015

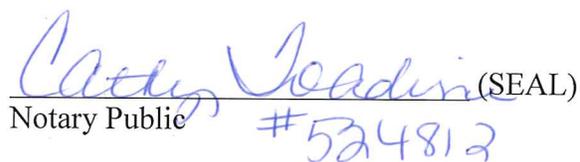
VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF FAYETTE)

The undersigned, John W. Walters, Jr., being duly sworn, deposes and states that he is the CFO of Sterling Ventures, LLC, that he has personal knowledge of the matters set forth in the responses for which he has identified as the witness, and the answers contained therein are true and accurate to the best of his knowledge, information and belief formed after a reasonable inquiry.


John W. Walters, Jr.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 16th day of July, 2015.

 (SEAL)
Notary Public #524812

My Commission Expires:

1/31/19

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 1

Responding Witness: John Walters

Q-1. Provide a list of all instances when Sterling's mining operations have been suspended, the number of days any such suspensions have lasted, and the reasons for the suspension. This list should include, but should not be limited to: (a) the suspension related to the death of Angela Common in May 2012; (b) any suspension related to the death of Melvin Jones in 2009; (c) any suspension related to the truck accident involving Sterling workers in September 2008; (d) any suspension related to the death of a Sterling worker in December 1999; and (e) any suspension related to the cave-in and entrapment of two Sterling workers in 1998.

A-1. The purpose of this and the next two questions appear to be an attempt to show that if Sterling's operations are temporarily suspended for any reason, the alternative of Sterling beneficially using Trimble's Gypsum is not viable and could result in the shut down of the Trimble plant. Sterling has no desire to enter into an agreement with KU/LG&E (the "Companies") without a viable, cost effective and reasonable alternative available for disposal of Trimble CCR if any event temporarily or permanently suspends Sterling's operations.

Other than the accident involving Ms. Common, MSHA has only suspended Sterling's mining operations one time, for 1 day in 2011 as a result of a piece of mobile equipment catching on fire. No injuries occurred as a result of the fire.

- (a) Sterling's surface operations were not suspended in connection with Ms. Common's accident. MSHA suspended all underground aggregate production for 37 days.
- (b) MSHA did not suspend operations as a result of Melvin Jones accident.
- (c) MSHA did not suspend operations as a result of the accident in September 2008. Sterling's access to the immediate area surrounding the accident was limited for a period of 2 days.
- (d) To the best of Sterling's knowledge, MSHA did not suspend operations in connection with the December 1999 death of a Sterling worker. Sterling's access to the immediate area surrounding the accident was limited for a period of 15 days.

- (e) Sterling has no knowledge of any entrapment as a result of a cave-in in 1998, which was before Sterling began operations. Sterling is aware of a rock fall that hit a man lift during construction of the mine, however, to the best of Sterling's knowledge, mine operations were not suspended, and no miners were entrapped.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 2

Responding Witness: John Walters

- Q-2. Provide copies of any and all accident and/or injury reports related to accidents and/or injuries that have occurred at the Sterling mines in Kentucky during the last 20 years.-
- A-1. Objection. Sterling objects to the request to the extent that such discovery is overly broad, unduly burdensome, expensive, oppressive, or excessively time consuming as written, especially given the short time frame Sterling has been given to respond to Data Request. In addition, accident and injury reports are prepared in consultation with Sterling's in-house counsel. Any response to this question necessarily requires Sterling to reveal the contents of communications with counsel and the mental impressions of counsel, which information is protected from disclosure by the attorney-client privilege and the work product doctrine. Finally, some injury reports contain information subject to employee privacy rights under HIPPA.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 3

Responding Witness: John Walters

- Q-3. Provide copies and/or related documentation of any and all citations, fines, permit suspensions, violations and/or notice of violations issued to Sterling from any local, state, or federal agency within the last 20 years.
- a. Has Sterling satisfied all outstanding fines or other penalties or obligations noted in response to Data Request No. 3? If not, why not, and when and how does Sterling plan to satisfy the remaining fines, penalties, or obligations?
 - b. How does Sterling's record of recordable incidents compare to the industry average for the past ten years?
 - c. What steps has Sterling taken to improve its safety performance?
- A-3. Objection. Sterling objects to the request to the extent that such discovery is overly broad, unduly burdensome, expensive, oppressive, or excessively time consuming as written, especially given the short time frame Sterling has been given to respond to Data Request. Sterling's operations are subject to inspections at least quarterly by representatives of MSHA, under the strict liability standard statutorily set forth under the Mine Act. Attached is a summary of all violation as listed on MSHA's website. To the extent that Sterling has retained copies of individual citations, they will be provided on request.
- a. Sterling satisfied all outstanding fines or other penalties or obligations noted in response to Data Request No. 3 that have not been contested through the Mine Acts appeal process. Fines and penalties are paid at the conclusion of appeals or contests of the underlying alleged violations.
 - b. Please see information provided to the Companies in Sterling's October 24, 2014 response to the Companies preliminary questions – Response to Mr. Straight's question 10.
 - c. Sterling's goal with respect to safety is continuous improvement of operating procedures and techniques. Examples of the continuous improvement actions for the last three years are as follows:

- i. Hired Steve Brierly as full time Safety Director. Mr. Brierly has twenty five years' experience in safety and holds instructor certifications from OSHA, MSHA, and the United States Coast Guard for river operations, and also holds a crane and rigging inspector certification. Mr. Brierly is also a certified KY State Blaster.
- ii. Hired Mason Flinchum as the new Plant Manager. Mr. Flinchum has twenty nine years' experience in mining, and is past president of the Bluegrass KY Chapter of the Joseph A. Holmes Safety Association. Mr. Flinchum is also a certified MSHA instructor and a certified KY State Blaster.
- iii. Retained a safety consultant to review and update safety manuals.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 4

Responding Witness: John Walters

- Q-4. Provide a copy of the Registered Permit by Rule for Beneficial Reuse of Special Waste referred to in Paragraph 20 of Sterling's Complaint.
- A-4. Please see attached.



**Kentucky Energy and Environment Cabinet
Department for Environmental Protection
Division of Waste Management**

PERMIT

Facility: **Sterling Ventures LLC**
100 Sierra Dr
Verona, KY 41092

Permittee: **Sterling Materials**
376 South Broadway
Lexington, KY 40508

Agency Interest: **Sterling Ventures LLC**
100 Sierra Dr
Verona, KY 41092

The Division has issued the permit under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. This permitted activity or activities are subject to all conditions and operating limitations contained herein. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses or approvals required by this Division or other state and local agencies.

No deviation from the plans and specifications submitted with your application or any condition specified herein is allowed, unless authorized in writing from the Division. Violation of the terms and conditions specified herein may render this permit null and void. All rights of inspection by representatives of the Division are reserved. Conformance with all applicable Waste Management Regulations is the responsibility of the permittee.

Agency Interest ID #: **1461**

Solid Waste Permit #: **SW00800023**

County: **Gallatin**

Permitted Activities:

Subject Item	Activity	Type	Status
ACTV001	Beneficial Reuse-Special Waste-RPBR/00800023	Registered Permit by Rule	Active

PERMIT

First Operational Permit Effective Date: 11/19/2010

Permit Effective Date: 11/19/2010

Permit Expiration Date: Life of facility

Permit issued: 11/19/2010



**Ronald D. Gruzesky, P.E.
Manager, Solid Waste Branch**

Permit Conditions:

Subject Items

ACTV0001 - Beneficial Reuse-Special Waste-RPBR

Standard Requirements:

1. General: The owner or operator of a special waste facility shall comply with KRS Chapter 224 and 401 KAR Chapters 30, 40 and 45 for the operation of special waste facilities. [KRS 224.50-760]
2. General: For operation of the special waste beneficial reuse that is not otherwise specified in 401 KAR 45:060, the owner or operator shall comply with KRS Chapter 224.50-760, 401 KAR 45:070 and the approved permit application(s). [401 KAR 45:070]

Variances, Alternate Specifications and Special Conditions:

1. Operation: The owner or operator is approved to beneficially reuse flue gas desulfurization gypsum produced by the KU Ghent Power Station in mined out sections of the Sterling Mine on the first level, in the Tyrone Limestone. [401 KAR 45:070 Section 3]
2. Operation: The owner or operator shall submit a revised registration prior to beneficially reusing sources or types of wastes other than FGD sludge from the KU Ghent power station, beneficially reusing FGD gypsum in areas other than the first level of the mine, changing the method of processing waste, adding new processes, changing the operator, or changing ownership. [401 KAR 45:070 Section 4]

PERMIT

3. Operation: The owner or operator shall comply with the Environmental Performance Standards of 401 KAR 30:031. [401 KAR 30:031]
4. Operation: The owner or operator is approved to beneficially reuse up to 800,000 tons per year of FGD gypsum. [401 KAR 45:070 Section 3]
5. Operation: The owner or operator shall ensure that no water, except that necessary for dust suppression, shall enter the beneficial reuse area. [401 KAR 45:140 Section 2]
6. Operation: The owner or operator shall ensure that the FGD gypsum is stored only in areas with no standing water. [401 KAR 45:140 Section 2]

County Sources - The owner or operator may accept waste as authorized by the cabinet pursuant to KRS 224 and/or 401 KAR Chapter 47 from the following counties:

Kentucky: Carroll

Approved Applications - The owner or operator shall comply with applicable statutes and regulations and the following approved applications:

1. 11-19-2010 - ARP20100001 - Registered Permit-by-Rule Beneficial Reuse

STERLING VENTURES, LLC

CASE NO. 2015-00194

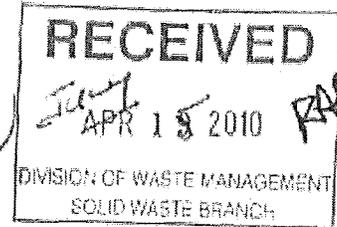
**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 5

Responding Witness: John Walters

- Q-5. Provide all supporting analyses and data possessed by Sterling that supports the determination that placement of Coal Combustion Residuals (“CCR”) in the mine would meet Kentucky’s beneficial reuse standards in 401 KAR Chapter 45, including analyses related to Kentucky’s environmental performance standards at 401 KAR 30:031.

- A-5. Please see attached application for Registered Permit-By-Rule For Beneficial Reuse of Special Waste.



ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
14 REILLY ROAD
FRANKFORT, KY 40601
TELEPHONE NUMBER (502) 564-6716

REGISTERED PERMIT-BY-RULE
For BENEFICIAL REUSE OF SPECIAL WASTE
DEP 7059F (1/06)

GENERAL INSTRUCTIONS

1. **APPLICABILITY** - This registration form must be completed and submitted to the Cabinet by persons who propose to beneficially re-use special waste.
2. **ASSISTANCE** - Questions regarding this form may be directed in writing to the Division of Waste Management, Solid Waste Branch at the address listed above, or by calling (502) 564-6716.
3. **SUBMISSION** - Please type or print legibly in permanent ink. Submit the original and one (1) copy of the completed registration form to the Division of Waste Management at the address noted above. If an item is not applicable to your facility write "N/A" in the space provided.
4. **LAWS AND REGULATIONS** - Registrants are expected to understand and comply with all laws and regulations applicable to beneficial reuse of special waste.

**REGISTERED PERMIT-BY-RULE
BENEFICIAL REUSE OF SPECIAL WASTE**

1. New Registration - A registration number will be assigned by the Cabinet.
2. This is a proposed modification of an existing registration.

Note: (If you checked **item 2**, complete one or both of the following two items.)

3. Agency Interest #: _____ 4. Registration #: _____

Registrant Information

(The corporation, LLC, business, person, government agency, etc., that owns or operates the facility.)

5. Registrant Name: Sterling Ventures, LLC d/b/a Sterling Materials
6. Registrant Mailing Address: 376 South Broadway
7. City: Lexington 8. State: KY 9. Zip Code: 40508
10. Contact Person: Samuel A.B. Boone 11. Title: President
12. Phone #: (859) 259-9600 13. Cell #: (859) 621-4121
14. Fax #: (859) 259-9601 15. E-Mail Address: aboone@sterlingventures.com

Special Waste Facility Information

16. Facility Name: Sterling Mine 17. County: Gallatin
18. Facility Location: 100 Sierra Drive 19. E-Mail Address: _____
(For street or physical location only. Do not use P. O. Box #'s, etc.)
20. City: Verona 21. Zip Code: 41092
22. Facility Contact Person: Sam Van 23. Title: Mine Superintendent
24. Phone #: (859) 567-7300 Fax #: (859) 567-7313 Cell #: (859) 621-2142

Preparer Information

(Complete items 27 – 36 if the following information concerning the person preparing this registration is different from the contact persons named above.)

27. Preparers Name: John Walters 28. Company: Sterling Ventures, LLC
29. Mailing Address: 376 S. Broadway 30. E-mail Address: johnwalters@sterlingventures.com
31. City: Lexington 32. State: KY 33. Zip Code: 40508
34. Phone #: (859) 259-9600 35. Fax #: (859) 259-9601 36. Cell #: (859) 621-3990

37. List the source (special waste generating facility) of the special waste to be beneficially reused. If there are multiple sources and more space is needed, use additional sheets and label as **Attachment 1**.

Special waste generator: KU Ghent Generation Station, Ghent, Carroll County, Kentucky

Special waste generator: _____

Special waste generator: _____

Special waste generator: _____

38. Provide, as **Attachment 2**, a description of the type and anticipated volume of special waste to be beneficially reused.

39. Provide as **Attachment 3**, a copy of the Toxicity Characteristic Leaching Procedure (TCLP) laboratory analysis for each type of special waste to be beneficially reused.

Note: You may omit the TCLP analysis or specific parameters of the analysis based upon your knowledge of the Special Waste, pursuant to 40 CFR 262.11. Should you elect to do this, a certified statement accepting responsibility will be required. Polychlorinated Biphenyls (PCBs) may also be omitted from the parameters listed in 401 KAR 45:100 Section 6(20)(b). Any certified statement for the omission of the TCLP or PCB data should be labeled as **Attachment 4**.

40. Provide, as **Attachment 5**, a description of how the special waste will be managed.

41. Provide, as **Attachment 6**, a description of how management and reuse of the special waste meets the environmental performance standards of 401 KAR 30:031.

42. **Attachment 7** is to be used to maintain a record of the special waste sources and amounts received. This form shall be utilized for quarterly reports submitted to the Cabinet.

43. Certification pursuant to 401 KAR 45:030 Section 10(4):

"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 gathered and evaluated the information submitted. Based on my inquiry of the person or 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 such violations."

Signature of Registrant _____ Date _____

Name of Registrant (Typed or Printed) _____

Title _____

Subscribed and sworn to before me by _____

this the _____ day of _____, 20 _____.

Notary Public Signature _____

My Commission Expires _____

Attachment 2

Type and Volume of Special Waste

Sterling Ventures is proposing to use up to 800,000 tons per year of FGD Gypsum produced from the KU Ghent Power Station in Ghent Kentucky to fill mine voids in mined out sections of Sterling's underground limestone mine located at 100 Sierra Drive, Verona, Gallatin County, Kentucky. Gypsum is calcium sulfate dihydrate, or $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, which comes primarily from two sources: (i) Mined gypsum, a common mineral found around the world in sedimentary rock formations, from which it is mined or quarried, and (ii) FGD gypsum, which is produced as a byproduct from coal-fired electric utilities and is a synthetic material essentially identical in chemical structure to mined gypsum. The underground mine has the capacity to use 1,000,000 tons per year of gypsum for as long as the mine is operating at current limestone sales volumes.

FGD Gypsum

Scrubbers are attached to coal-fired power plants to limit emissions of the sulfur which is released when coal is burned. The scrubbers spray liquid lime or limestone slurry into the flue gas path, where it reacts with sulfur in the gas to form calcium sulfite, an intermediate product with little practical value. Calcium sulfite is commonly known as "scrubber sludge."

However, newer FGD scrubbing technologies can add an extra step to the scrubbing process known as "forced oxidation" which oxidizes the calcium sulfite and produces calcium sulfate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), or FGD gypsum. The FGD gypsum is easily dewatered and can be marketable in the wallboard and agricultural industries.

The Ghent power plant has installed forced oxidation scrubbers on all four of its generating units with a projected FGD gypsum production of approximately 800,000 tons per year. The Ghent plant has a contract to provide the FGD Gypsum to the CertainTeed, Inc. wallboard plant located in East Carrolton, Kentucky. KU has projected CertainTeed's usage to be approximately 222,000 ton per year. Excess FGD Gypsum at Ghent is placed on the plant's Gypsum Stacking Pond. The Stacking Pond is currently listed as one of the 49 High Hazard impoundment facilities in the United States listed by the EPA in its *Coal Combustion Residues (CCR) - Surface Impoundments with High Hazard Potential Ratings* report. (See EPA530-F-09-006 June 2009 (updated August 2009)).

Because CertainTeed cannot utilize all of Ghent's FGD Gypsum, the opportunity to beneficially reuse this excess of FGD gypsum for filling Sterling's underground mine voids is an attractive alternative. In addition to providing a benefit to Sterling in filling underground voids to promote improved airflow in the mine, placing the Ghent's excess gypsum at Sterling is important to substantially reducing or eliminating the volume of excess gypsum in the gypsum stacking pond.

Attachment 3
Toxicity Characteristic Leaching Procedure Laboratory Analysis

See attached Exhibit 3-A

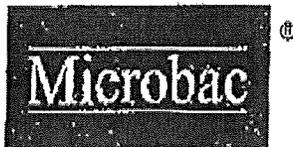


EXHIBIT 3A
Microbac Laboratories, Inc.

KENTUCKY TESTING LABORATORY DIVISION
 3323 Gilmore Industrial Blvd. Louisville, KY 40213 502.962.6400 Fax: 502.962.6411
 Evansville, IN 812.464.9000 Lexington, KY 859.276.1506 Paducah, KY 270.898.7637

Member
ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1005-00672

IG & E (E ON US)
 PAUL PUCKETT
 EON-US / ANNUAL CCP EVALUATION

Date Reported 05/19/2010
 Date Received 05/11/2010
 Dates Sampled 05/04/2010-05/06/2010

Analysis	Out of Spec	Qualif	Result	Unit	Min	Max	Method	Cua Limit	PERCENT Std Dev	Date	Time	Tech
<p>Sample: 014 GHENT - UNIT 1 FLY ASH continued</p> <p style="text-align: right;">Date & Time Sampled: 05/06/2010 @ 12:00</p>												
<p>Sample: 015 GHENT - UNIT 2 FLY ASH DATE EXTRACTED TCLP COMPLETED ---</p> <p style="text-align: right;">Date & Time Sampled: 05/06/2010 @ 12:00</p>												
[TCLP Metals]							SW846 60100			04/13/10	10:00	RFV
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 60100	0.2	05/19/10	2:11	EML	
BARIUM, TCLP			0.45	MG/L	100.0	5.0	SW846 60100	0.002	05/19/10	2:11	EML	
CADMIUM, TCLP			<0.10	MG/L	1.0	5.0	SW846 60100	0.004	05/19/10	13:39	EML	
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.01	05/19/10	13:39	EML	
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.02	05/19/10	13:39	EML	
MERCURY, TCLP			<0.10	MG/L	0.2	5.0	SW846 60100	0.004	05/19/10	13:39	EML	
SELENIUM, TCLP			<0.20	MG/L	1.0	5.0	SW846 60100	0.1	05/19/10	2:11	EML	
SILVER, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.01	05/19/10	13:39	EML	
<p>Sample: 016 GHENT - GYPSUM STACK DATE EXTRACTED TCLP COMPLETED ---</p> <p style="text-align: right;">Date & Time Sampled: 05/06/2010 @ 12:00</p>												
[TCLP Metals]							SW846 60100			04/13/10	10:00	RFV
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 60100	0.2	05/19/10	2:16	EML	
BARIUM, TCLP			<0.10	MG/L	100.0	5.0	SW846 60100	0.002	05/19/10	2:16	EML	
CADMIUM, TCLP			<0.10	MG/L	1.0	5.0	SW846 60100	0.004	05/19/10	13:43	EML	
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.01	05/19/10	13:43	EML	
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.02	05/19/10	13:43	EML	
MERCURY, TCLP			<0.10	MG/L	0.2	5.0	SW846 60100	0.004	05/19/10	13:43	EML	
SELENIUM, TCLP			<0.20	MG/L	1.0	5.0	SW846 60100	0.1	05/19/10	2:16	EML	
SILVER, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.01	05/19/10	13:43	EML	
<p>Sample: 017 GHENT - GYPSUM DATE EXTRACTED TCLP COMPLETED ---</p> <p style="text-align: right;">Date & Time Sampled: 05/06/2010 @ 12:00</p>												
[TCLP Metals]							SW846 60100			04/13/10	10:00	RFV
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 60100	0.2	05/19/10	2:19	EML	
BARIUM, TCLP			<0.20	MG/L	100.0	5.0	SW846 60100	0.002	05/19/10	2:29	EML	
CADMIUM, TCLP			<0.10	MG/L	1.0	5.0	SW846 60100	0.004	05/19/10	13:48	EML	
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.01	05/19/10	13:48	EML	
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 60100	0.02	05/19/10	13:48	EML	
MERCURY, TCLP			<0.10	MG/L	0.2	5.0	SW846 60100	0.004	05/19/10	13:48	EML	



Microbac Laboratories, Inc.

Member

KENTUCKY TESTING LABORATORY DIVISION
3323 Gilmoro Industrial Blvd. Louisville, KY 40213 502.962.6400 Fax: 502.962.6411
Evansville, IN 812.464.9000 | Lexington, KY 859.276.3505 | Paducah, KY 270.899.2637



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EON-US / ANNUAL CCP EVALUATION

Date Reported 05/19/2010

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Dates Sampled 05/04/2010-05/06/2010

Analysis	Out of Spec	Qualif	Result	Unit	Min	Max	Method	Cus Limit	REL or Std Limit	Date	Time	Tech
Sample: 017 GHENT - GYPSUM										Date & Time Sampled: 05/06/2010	0 - 12:00	
.....continued												
SELENIUM, TCLP			<0.10	MG/L	1.0		SW846 5010C		0.1	05/19/10	13:29	EML
SILVER, TCLP			<0.10	MG/L	5.0		SW846 5010C		0.01	05/19/10	13:48	EML

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE:

LABORATORY DIRECTOR, KENTUCKY DIVISION

As regulatory limits change frequently, Microbac advises the recipient of this report to confirm such limits with the appropriate Federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Andrew Clifton, the Laboratory Director at 502.962.6400. You may also contact both James Nokes, President and Robert Morgan, Chief Operating Officer at president@microbac.com.

Attachment 5

Management of Special Waste

Gypsum will be excavated from the Ghent's Gypsum Stacking Pond by excavator and loaded in tarped, tri-axel dump trucks for transportation to Sterling's mine. Sterling Venture's Verona mine produces limestone from underground operations only. It does not mine any limestone from open pits. Sterling mines from three underground levels, located in solid limestone bedrock. From a geological standpoint, the sea level elevation of the roof of the uppermost level is approximately 136 feet above sea level. The roofs of the second and third levels are approximately 28 feet above, and 149 feet below sea level, respectively. From a reference point, the lowest most level of the Ohio River adjacent to the Sterling Mine is approximately 401 feet above sea level. (see Exhibit 6C)

Once at the mine, the gypsum will be dumped directly from the dump trucks, via shaft, to the first level (the "Tyrone" seam) of the underground mine. Once underground, the gypsum will be carried by loader or conveyor to the mined out areas then stacked, pushed and compacted to fill the mine voids.

Attachment 6

Management and Reuse in compliance with 401 KAR 30:031

The following is a summary of the how the management and reuse meets each of the Sections of 401 KAR 30:031.

Section 2. Floodplains.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or restrict the flow of, the 100 year floodplain.

Section 3. Endangered Species.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or result in the destruction of the habitat of any threatened or endangered species.

Section 4. Surface Waters.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or cause a discharge into, any waters of the Commonwealth.

Section 5. Groundwater.

All gypsum will be placed in solid bedrock in an area below the bottom level of the uppermost aquifer. Gypsum will not be placed or stored above ground and therefore will have no impact on, or cause a discharge into, any waters of the Commonwealth.

The uppermost mining level of Sterling's underground mine is located in what is known as the Tyrone seam of limestone. The Tyrone Limestone in north central Kentucky contains at least five potassium bentonites. Bentonite is a soft, low-specific-gravity, expandable clay. It is altered volcanic ash and because of its peculiar property of expanding when wet, bentonite is effective as a water sealer, especially to prevent pond leakage, and is also used in rotary drilling muds to prevent contaminating formations with drilling fluid. Drillers have labeled the two most prominent Tyrone bentonite beds the Mud Cave and Pencil Cave. The bentonite acts as an acquitard or confining layer that will prevent any contact of the gypsum with groundwater.

Attached as Exhibit 6-A is an excerpt from the U.S. Geological Survey - Hydrologic Atlas 730-K, Orville B. Lloyd, Jr., and William L. Lyke, 1995, describing the impact of the bentonite as a barrier to groundwater contact.

The roof of the uppermost mining level is over 200 feet below the bottom of any recorded well in the area. Regional wells do not extend below the bentonite levels in the Tyrone limestone. Attached as Exhibit 6-B is a listing of all recorded water wells in the area, their depth and distance between the bottom of the well and the roof of the Tyrone mining level.

Attached as Exhibit 6-C is a cross section of the Sterling's underground mine showing the Tyrone level mine in relation to the Mud Cave and Pencil Cave bentonite seams.

Section 6. Application to Land Use.

All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on land use.

Section 7. Polychlorinated Biphenals.

FGD Gypsum does not contain PCBs.

Section 8. Disease.

All gypsum will be placed underground and therefore will be automatically covered. Gypsum is an inert naturally occurring mineral. Underground placement will eliminate any human health or environmental issues. No sewage sludge or septic tank materials are pumped or stored underground at Sterling's underground mine.

Section 9. Air.

Underground storage will not involve burning of gypsum, which is not a flammable material. Underground storage approximately 400 feet below the surface will prohibit the airborne release of gypsum.

Section 10. Safety.

Neither limestone mining nor gypsum produces any explosive gases or a fire hazard. Sterling's underground mine is gated, which prohibits any type of uncontrolled public access.

Section 11. Public Nuisance.

Underground storage will eliminate any public nuisance due to blowing litter, debris or other waste.

Section 12. Wetlands.

All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on any wetlands

Section 13. Karst.

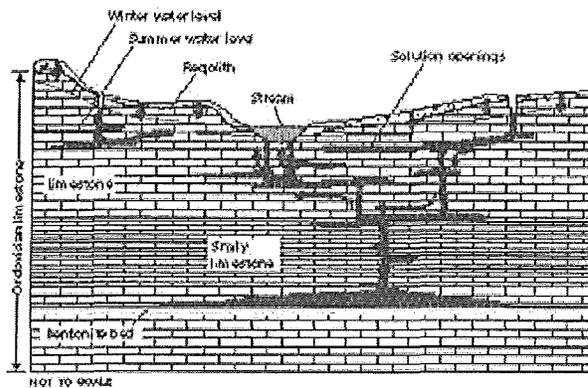
There are no sinkholes on or near the approximately 1,000 acres owned by Sterling. No surface water enters or exits the mine through any karst terrain or feature.

Section 14. Compliance.

Sterling will comply with all applicable requirements of KRS Chapter 224 and administrative regulation promulgated thereto.

Exhibit 6A

Confining units, such as beds of shaly limestone and bentonite, affect the depth to which freshwater circulates (fig. 97). Thin bentonite zones, which consist of clay particles that expand or swell when they become wet, form layers of low permeability that effectively impede the vertical movement of ground water. For example, in areas where the bentonite layers are continuous, the downward movement of ground water is restricted. This restriction isolates the ground water below the bentonite from the zone of dynamic circulation above the bentonite. U.S. Geological Survey - Hydrologic Atlas 730-K, Orville B. Lloyd, Jr., and William L. Lyke, 1995



EXPLANATION

⇒ Direction of ground-water movement

Modified from Zurawski, Ann, 1978, Summary appraisals of the Nation's ground-water resources—Tennessee region; U.S. Geological Survey Professional Paper 813-L, 35 p.

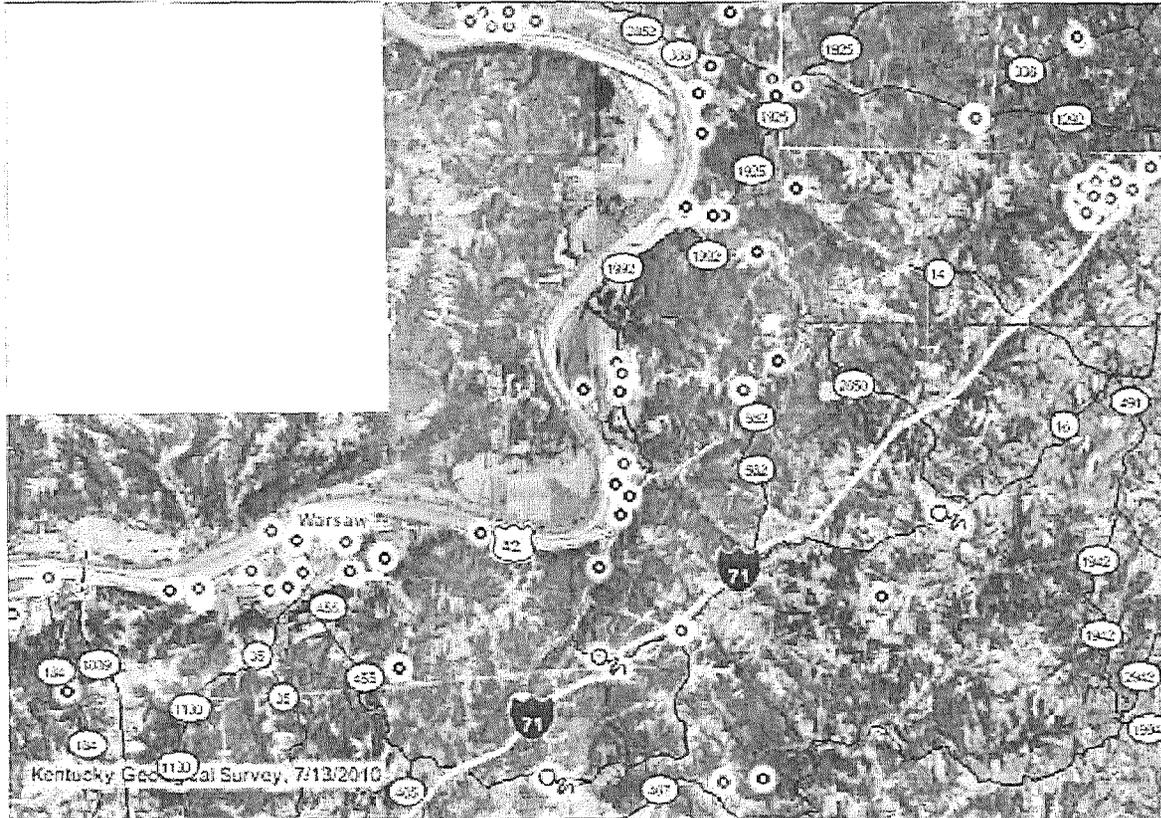
Figure 97. The limestone and dolomite aquifers contain small quantities of insoluble material and, therefore, produce only a thin layer of residuum when weathered. Recharge water percolates through the thin layer of surface material, called regolith, and subsequently moves through vertical fractures and horizontal bedding planes in the rocks. The slightly acidic water dissolves some of the limestone and dolomite as it moves to streams and other areas of discharge, such as springs and wells. The vertical movement of the recharge water and, therefore, the depth of development of solution openings, are restricted by zones of low permeability.

Kentucky Groundwater Data Repository
Kentucky Geological Survey
Water Well and Spring Location Map

Note: please disable popup blocking software for full functionality.

[KGS Home](#) > [Maps, Pubs, & Data](#) > [Groundwater Info](#) > [Water Well and Spring Map](#)

Search Criteria:
no search criteria



— Sterling Mine

EXHIBIT 6B

Current Scale = 1:175,972

Note: all wells and springs are displayed at scales below 1:100,000

Change Map Scale: choose a map scale

Change Basemap (background): color imagery (fsa)

Change Map Size: half pg (6.8 x 4.7 in) | full pg (6.8 x 9.4 in)

TIP: to print map to scale, be sure to "File -> Print Preview..." and print at 100% scaling.

Overview Map:

Map Tools:

zoom in	zoom out	zoom full
zoom last	pan	get coords
Move Map:		

Other Tools:



zoom to a location



Bookmark Map

AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
210	38.77528	-84.8131	Patriot	Gallatin	3/12/1987	DOMESTIC - SINGLE HOUSEHOLD	480	95	384	248	Wessells Constru		
950	38.81611	-84.8061	Patriot	Gallatin	6/22/1987	DOMESTIC - SINGLE HOUSEHOLD	510	99	411	275	Doolin		
2070	38.7525	-84.8722	Patriot	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	570				Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	570				Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	2/28/1986	DOMESTIC - SINGLE HOUSEHOLD	570	90	480	344	Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	2/28/1986	DOMESTIC - SINGLE HOUSEHOLD	570	90	480	344	Hayton		
2071	38.7975	-84.8078	Patriot	Gallatin	4/7/1986	DOMESTIC - SINGLE HOUSEHOLD	470	78	392	256	Wilker / Mcintos		
2072	38.79167	-84.8039	Patriot	Gallatin	4/22/1986	DOMESTIC - SINGLE HOUSEHOLD	460	57	403	267	Perry		
3030	38.82306	-84.7594	Patriot	Gallatin	8/13/1985	DOMESTIC - SINGLE HOUSEHOLD	600	100	500	364	Whalen		
3885	38.82278	-84.8069	Patriot	Gallatin	7/30/1987	DOMESTIC - SINGLE HOUSEHOLD	524	142	382	246	Sproul		
6426	38.79722	-84.8072	Patriot	Gallatin	3/28/1988	DOMESTIC - SINGLE HOUSEHOLD	475	50	425	289	Hudepohl		
6427	38.775	-84.9003	Florence	Gallatin	8/31/1988	INDUSTRIAL - GENERAL	485	92	393	257		Irving Materials Inc	
6429	38.7875	-84.8064	Patriot	Gallatin	5/16/1989	DOMESTIC - SINGLE HOUSEHOLD	475	65	410	274	Heil		
7861	38.87556	-84.7808	Rising Sun	Boone	10/8/1990	DOMESTIC - SINGLE HOUSEHOLD	495	70	425	289	Ralston		
8554	38.79639	-84.8078	Patriot	Gallatin	10/29/1987	DOMESTIC - SINGLE HOUSEHOLD	470	93	377	241	Schwab		
10409	38.75417	-84.9117	Florence	Gallatin	1/22/1993	DOMESTIC - SINGLE HOUSEHOLD	550	83	467	331	Fender		
14147	38.88472	-84.7817	Rising Sun	Boone	12/13/1988	DOMESTIC - SINGLE HOUSEHOLD	530	86	444	308	Wood		
14148	38.88472	-84.7817	Rising Sun	Boone	12/14/1988	DOMESTIC - SINGLE HOUSEHOLD	430	93	337	201	Wood		
20278	38.78389	-84.8475	Patriot	Gallatin	8/18/1986	DOMESTIC - SINGLE HOUSEHOLD	470	80	390	254	Boschert		
20583	38.88778	-84.7597	Rising Sun	Boone	1/1/1900		550				Waljih		
21565	38.76806	-84.7294	Verona	Grant	10/3/1986	DOMESTIC - SINGLE HOUSEHOLD	710	80	630	494	Ellis		
21577	38.88389	-84.7586	Rising Sun	Boone	6/5/1994	DOMESTIC - SINGLE HOUSEHOLD	520	80	440	304	Wilbur		
27010	38.8575	-84.7864	Patriot	Boone	6/8/1992	DOMESTIC - SINGLE HOUSEHOLD	477	56	421	285	Fred		
29603	38.77078	-84.9396	Florence	Gallatin	1/1/1900	PUBLIC - TRANSIENT, NON-COMMUNITY	460				Loewendick	Rivers Edge Campground	
34428	38.87778	-84.6744	Union	Boone	7/20/1993		810	63	747	611	Vaske		
34436	38.84806	-84.765	Patriot	Boone	1/20/1987	DOMESTIC - SINGLE HOUSEHOLD	495	64	431	295	Gilliand		
34438	38.90361	-84.7714	Rising Sun	Boone	12/10/1986	DOMESTIC - SINGLE HOUSEHOLD	600	100	500	364	Kurkel		
34474	38.89556	-84.6681	Union	Boone	4/23/1993		810	83	727	591	Allen		
34475	38.89694	-84.6694	Union	Boone	12/4/1992	DOMESTIC - SINGLE HOUSEHOLD	820	103	717	581	McDaniel		
37305	38.78611	-84.8903	Florence	Gallatin	10/1/1994	HEAT PUMP - OPEN LOOP	485	94	401	265		Gallatin County Schools	
37311	38.76583	-84.9856	Florence	Gallatin	1/19/1995	INDUSTRIAL - GENERAL	470	91	379	243		Steel Technologies Inc	
37376	38.78222	-84.9017	Florence	Gallatin	1/1/1930	PUBLIC - COMMUNITY	491	136	355	219		Warsaw Water Works	Drinking Water
37377	38.78252	-84.9017	Florence	Gallatin	1/1/1930	PUBLIC - COMMUNITY	491	96	395	259		Warsaw Water Works	Drinking Water
37378	38.77417	-84.8856	Florence	Gallatin	1/1/1967	AGRICULTURE - LIVESTOCK WATERING	505	78	427	291	Smith		
37400	38.77861	-84.8778	Florence	Gallatin	4/27/1995		500				Oldendick	Sugar Bay Golf Inc	
39222	38.77889	-84.8764	Florence	Gallatin	1/1/1965		503				Oldendick	Sugar Bay Golf Inc	
48660	38.77528	-84.8867	Florence	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	510				Beall		
49372	38.78583	-84.8931	Florence	Gallatin	11/1/1999	HEAT PUMP - OPEN LOOP	495					Gallatin County Schools	
49377	38.77063	-84.9102	Florence	Gallatin	2/28/2000	PUBLIC - COMMUNITY	500					Gallatin County Water District	Drinking Water
51920	38.89969	-84.7986	Rising Sun	Boone	1/1/1974	PUBLIC - TRANSIENT, NON-COMMUNITY	470	9	461	325		Camp Turn About	
55811	38.85639	-84.7742	Patriot	Boone	4/19/2002	DOMESTIC - SINGLE HOUSEHOLD	490	70	420	284		Big Bone Marina	
58332	38.85639	-84.7775	Patriot	Boone	5/2/2002	DOMESTIC - SINGLE HOUSEHOLD	460	63	397	261		Big Bone Marina	
58338	38.89111	-84.7776	Rising Sun	Boone	1/23/2002	DOMESTIC - SINGLE HOUSEHOLD	605	80	525	389	Parker		
65141	38.82028	-84.8053	Patriot	Gallatin	1/1/1900	INDUSTRIAL - GENERAL	523					Nugent Sand Co - Warsaw Plant	
40004237	38.72534	-84.7774	Glencoe	Grant		DOMESTIC - SINGLE HOUSEHOLD							
40004241	38.78173	-84.8874	Florence	Gallatin		UNKNOWN	475						
40004243	38.79923	-84.8049	Patriot IN	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		140					
40004245	38.81673	-84.8169	Patriot IN	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		101					
40005375	38.77145	-84.9049	Florence	Gallatin		UNKNOWN	515						
40005376	38.77423	-84.9747	Florence	Gallatin		UNKNOWN	455						
40005378	38.78257	-84.9019	Florence	Gallatin		PUBLIC	490	140	350	214			
40005886	38.72618	-84.7655	Glencoe	Grant		UNKNOWN							

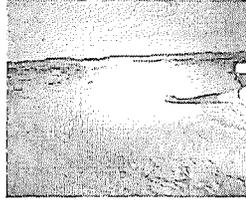
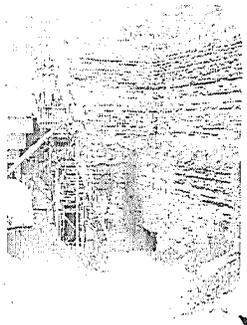
AKGWA				Construction	Surface	Bottom	Delta to	Owner	Owner Business	Regulatory Program
NUMBER	lat27	lon27	Quadrangle	Date	Elevation	Total Depth	Elevation	Mine Roof		
40005892	38.76951	-84.9305	Florence			55				
40005893	38.76951	-84.9305	Florence							
40005894	38.77395	-84.9747	Florence							
40005895	38.85867	-84.7858	Patriot IN					325		
40006041	38.78173	-84.8874	Florence							
40006325	38.77812	-84.8761	Florence					374		
40006326	38.78173	-84.8874	Florence					339		
40006327	38.79479	-84.8077	Patriot IN							
40006328	38.79923	-84.8049	Patriot							
40006757	38.72534	-84.7774	Glencoe							
40006762	38.77145	-84.9049	Florence			146				
40006763	38.77423	-84.9747	Florence			87				
40006764	38.86256	-84.7527	Patriot IN							
40007580	38.72618	-84.7655	Glencoe							
40007585	38.74757	-84.9699	Sanders							
40007586	38.77395	-84.9747	Florence			453				
40007588	38.77812	-84.8761	Florence							
80003234	38.8625	-84.6614	Verona	7/22/1993	800	18	782	646	Bavarian Trucking Co Inc	Solid Waste
80003235	38.86139	-84.6572	Verona	7/14/1993	800	20.7	779.3	643.3	Bavarian Trucking Co Inc	Solid Waste
80003236	38.86083	-84.6592	Verona	7/10/1993	780	17.5	762.5	626.5	Bavarian Trucking Co Inc	Solid Waste
80003239	38.85917	-84.6619	Verona	7/22/1993	740	18.2	721.8	585.8	Bavarian Trucking Co Inc	Solid Waste
80003240	38.85944	-84.6628	Verona	7/10/1993	720	27	693	557	Bavarian Trucking Co Inc	Solid Waste
80003241	38.85972	-84.6639	Verona	7/10/1993	720	22.9	697.1	561.1	Bavarian Trucking Co Inc	Solid Waste
80003242	38.85917	-84.665	Verona	7/21/1993	720	18.4	701.6	565.6	Bavarian Trucking Co Inc	Solid Waste
80003243	38.85972	-84.6667	Verona	7/21/1993	700	18.1	681.9	545.9	Bavarian Trucking Co Inc	Solid Waste
80003244	38.85944	-84.6678	Verona	7/20/1993	720	18.9	701.1	565.1	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	12/30/2000	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	12/30/2000	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	7/14/1993	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	7/14/1993	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	12/30/2000	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	12/30/2000	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	7/14/1993	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	7/14/1993	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003245	38.85556	-84.6678	Verona	7/14/1993	800	18.1	781.9	645.9	Bavarian Trucking Co Inc	Solid Waste
80003246	38.86	-84.6642	Verona	7/27/1993	720	18.3	701.7	565.7	Bavarian Trucking Co Inc	Solid Waste
80011401	38.86139	-84.6542	Verona	1/1/1900	847.49				Bavarian Trucking Co Inc	Solid Waste
80011402	38.86167	-84.6539	Verona	1/1/1900	847.92				Bavarian Trucking Co Inc	Solid Waste
80011403	38.85778	-84.6592	Verona	1/1/1900	833.59				Bavarian Trucking Co Inc	Solid Waste
80011404	38.85806	-84.6589	Verona	1/1/1900	833.65				Bavarian Trucking Co Inc	Solid Waste
80011405	38.85583	-84.6619	Verona	1/1/1900	834.72				Bavarian Trucking Co Inc	Solid Waste
80011406	38.855	-84.6639	Verona	1/1/1900	816.7				Bavarian Trucking Co Inc	Solid Waste
80011407	38.85611	-84.6672	Verona	1/1/1900	800.5				Bavarian Trucking Co Inc	Solid Waste
80011408	38.85861	-84.67	Verona	1/1/1900	766.27				Bavarian Trucking Co Inc	Solid Waste
80011409	38.85	-84.6692	Verona	1/1/1900	767.85				Bavarian Trucking Co Inc	Solid Waste
80011410	38.86222	-84.6689	Verona	1/1/1900	641.24				Bavarian Trucking Co Inc	Solid Waste
80011411	38.86222	-84.6669	Verona	1/1/1900	643.85				Bavarian Trucking Co Inc	Solid Waste
80011412	38.86222	-84.6681	Verona	1/1/1900	604.9				Bavarian Trucking Co Inc	Solid Waste
80011413	38.8625	-84.6622	Verona	1/1/1900	828.1				Bavarian Trucking Co Inc	Solid Waste
80011414	38.8625	-84.6622	Verona	1/1/1900	828.01				Bavarian Trucking Co Inc	Solid Waste
80011415	38.86417	-84.6594	Verona	1/1/1900	780.48				Bavarian Trucking Co Inc	Solid Waste
80011416	38.86417	-84.6589	Verona	1/1/1900	780.26				Bavarian Trucking Co Inc	Solid Waste
80011417	38.86556	-84.6625	Verona	1/1/1900	784.79				Bavarian Trucking Co Inc	Solid Waste

AKGWA				Construction			Surface	Bottom		Delta to	Owner	Owner Business	Regulatory Program
NUMBER	lat27	lon27	Quadrangle	County	Date	Primary Use	Elevation	Total Depth	Elevation	Mine Roof			
80011418	38.86361	-84.6642	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	762.46				Bavarian Trucking Co Inc	Solid Waste	
80011419	38.86361	-84.6583	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	784.17				Bavarian Trucking Co Inc	Solid Waste	
80012127	38.90417	-84.8358	Rising Sun	Boone	11/10/1980	MONITORING WELL - AMBIENT MONITORING	530	86	444	308	Cincinnati Gas & Electric	Solid Waste	
80012127	38.90417	-84.8358	Rising Sun	Boone	11/10/1980	MONITORING WELL - AMBIENT MONITORING	530	86	444	308	Duke Energy Kentucky Inc	Solid Waste	
80012133	38.90083	-84.8483	Rising Sun	Boone	11/26/1980	MONITORING WELL - AMBIENT MONITORING	475	57	418	282	Cincinnati Gas & Electric	Solid Waste	
80012133	38.90083	-84.8483	Rising Sun	Boone	11/26/1980	MONITORING WELL - AMBIENT MONITORING	475	57	418	282	Duke Energy Kentucky Inc	Solid Waste	
80012134	38.90083	-84.8411	Rising Sun	Boone	11/13/1980	MONITORING WELL - AMBIENT MONITORING	475	108	367	231	Cincinnati Gas & Electric	Solid Waste	
80012134	38.90083	-84.8411	Rising Sun	Boone	11/13/1980	MONITORING WELL - AMBIENT MONITORING	475	108	367	231	Duke Energy Kentucky Inc	Solid Waste	
80012135	38.90111	-84.8361	Rising Sun	Boone	3/28/1991	MONITORING WELL - AMBIENT MONITORING	475	33	442	306	Cincinnati Gas & Electric	Solid Waste	
80012135	38.90111	-84.8361	Rising Sun	Boone	3/28/1991	MONITORING WELL - AMBIENT MONITORING	475	33	442	306	Duke Energy Kentucky Inc	Solid Waste	
80012488	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	18	662	526	Old Starlite Tavern	UST	
80012489	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	15	665	529	Old Starlite Tavern	UST	
80012490	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	8.5	671.5	535.5	Old Starlite Tavern	UST	
80026034	38.85972	-84.6603	Verona	Boone	5/8/1995	MONITORING WELL - AMBIENT MONITORING	759.34	16	743.34	607.34	Bavarian Trucking Co Inc	Solid Waste	
80026035	38.86	-84.665	Verona	Boone	5/10/1995	MONITORING WELL - AMBIENT MONITORING	723.22	16.3	706.92	570.92	Bavarian Trucking Co Inc	Solid Waste	
80026544	38.90278	-84.8417	Rising Sun	Boone	11/1/1993	MONITORING WELL - AMBIENT MONITORING	540	80	460	324	Cincinnati Gas & Electric	Solid Waste	
80026544	38.90278	-84.8417	Rising Sun	Boone	11/1/1993	MONITORING WELL - AMBIENT MONITORING	540	80	460	324	Duke Energy Kentucky Inc	Solid Waste	
80026545	38.90056	-84.8419	Rising Sun	Boone	10/13/1995	MONITORING WELL - AMBIENT MONITORING	475	41	434	298	Cincinnati Gas & Electric	Solid Waste	
80026545	38.90056	-84.8419	Rising Sun	Boone	10/13/1995	MONITORING WELL - AMBIENT MONITORING	475	41	434	298	Duke Energy Kentucky Inc	Solid Waste	
80026547	38.90417	-84.8444	Rising Sun	Boone	10/17/1995	MONITORING WELL - AMBIENT MONITORING	520	80.5	439.5	303.5	Cincinnati Gas & Electric	Solid Waste	
80026547	38.90417	-84.8444	Rising Sun	Boone	10/17/1995	MONITORING WELL - AMBIENT MONITORING	520	80.5	439.5	303.5	Duke Energy Kentucky Inc	Solid Waste	
80026549	38.90194	-84.8292	Rising Sun	Boone	10/18/1995	MONITORING WELL - AMBIENT MONITORING	470	30.5	439.5	303.5	Cincinnati Gas & Electric	Solid Waste	
80026549	38.90194	-84.8292	Rising Sun	Boone	10/18/1995	MONITORING WELL - AMBIENT MONITORING	470	30.5	439.5	303.5	Duke Energy Kentucky Inc	Solid Waste	
80029573	38.90121	-84.8476	Rising Sun	Boone	11/30/2005	MONITORING WELL - AMBIENT MONITORING	120				Cincinnati Gas & Electric	Solid Waste	
80029573	38.90121	-84.8476	Rising Sun	Boone	11/30/2005	MONITORING WELL - AMBIENT MONITORING	120				Duke Energy Kentucky Inc	Solid Waste	
80029577	38.902	-84.8484	Rising Sun	Boone	12/2/2005	MONITORING WELL - AMBIENT MONITORING	120				Cincinnati Gas & Electric	Solid Waste	
80029577	38.902	-84.8484	Rising Sun	Boone	12/2/2005	MONITORING WELL - AMBIENT MONITORING	120				Duke Energy Kentucky Inc	Solid Waste	
80029864	38.74278	-84.8358	Glencoe	Gallatin	5/29/1996	MONITORING WELL - AMBIENT MONITORING	680	7.5	672.5	536.5	Glencoe Carry-out	UST	
80029865	38.74278	-84.8358	Glencoe	Gallatin	5/29/1996	MONITORING WELL - AMBIENT MONITORING	680	12	668	532	Glencoe Carry-out	UST	
80029872	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	15	665	529	Glencoe Carry-out	UST	
80029873	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	13	667	531	Glencoe Carry-out	UST	
80029874	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	23	657	521	Glencoe Carry-out	UST	
80029875	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	30	650	514	Glencoe Carry-out	UST	
80030354	38.74278	-84.8358	Glencoe	Gallatin	6/19/1996	MONITORING WELL - AMBIENT MONITORING	680	30	650	514	Glencoe Carry-out	UST	
80030355	38.74278	-84.8358	Glencoe	Gallatin	6/19/1996	MONITORING WELL - AMBIENT MONITORING	680	18	662	526	Glencoe Carry-out	UST	
80030356	38.74278	-84.8358	Glencoe	Gallatin	6/20/1996	MONITORING WELL - AMBIENT MONITORING	680	43	637	501	Glencoe Carry-out	UST	
80030955	38.74222	-84.8347	Glencoe	Gallatin	9/4/1996	MONITORING WELL - AMBIENT MONITORING	690	25	665	529	Glencoe Carry-out	UST	
80030956	38.74222	-84.8347	Glencoe	Gallatin	9/4/1996	MONITORING WELL - AMBIENT MONITORING	690	25	665	529	Glencoe Carry-out	UST	
80032432	38.86667	-84.6483	Verona	Boone	7/12/1999	MONITORING WELL - AMBIENT MONITORING	840	23.7	816.3	680.3	Bavarian Trucking Co Inc	Solid Waste	
80032433	38.86667	-84.6483	Verona	Boone	7/12/1999	MONITORING WELL - AMBIENT MONITORING	831	30.5	800.5	664.5	Bavarian Trucking Co Inc	Solid Waste	
80035870	38.74194	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	700	30.5	669.5	533.5	Glencoe Carry-out	UST	
80035879	38.74222	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	690	6	684	548	Glencoe Carry-out	UST	
80035880	38.74222	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	690	7	683	547	Glencoe Carry-out	UST	
80037728	38.88611	-84.7522	Rising Sun	Boone	7/16/2004	MONITORING WELL - AMBIENT MONITORING	460				Kentucky State Parks		
80038750	38.74278	-84.8358	Glencoe	Gallatin	1/12/2000	MONITORING WELL - AMBIENT MONITORING	680	20.2	659.8	523.8	Glencoe Carry-out	UST	
80039695	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5	Dans Marina	UST	
80039696	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5	Dans Marina	UST	
80039697	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5	Dans Marina	UST	
80040053	38.77556	-84.5156	Florence	Gallatin	9/29/2000	MONITORING WELL - AMBIENT MONITORING	490	139	351	215	Warsaw Water Works		
80040054	38.78444	-84.9092	Florence	Gallatin	9/29/2000	MONITORING WELL - AMBIENT MONITORING	480	117	363	227	Warsaw Water Works		
80043988	38.74278	-84.8358	Glencoe	Carrroll	10/29/2001	MONITORING WELL - AMBIENT MONITORING	680	25	655	519	Glencoe Carry-out	UST	
80044011	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	6.5	733.5	597.5	Matracia & Matracia Partnershi	UST	

AKGWA						Construction			Surface			Bottom	Delta to			Owner	Owner Business	Regulatory Program
NUMBER	lat27	lon27	Quadrangle	County	Date	Primary Use	Elevation	Total Depth	Elevation	Mine Roof								
80044012	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	10.2	729.8	593.8						Matracia & Matracia Partnershi	UST	
80044013	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	9.3	730.7	594.7						Matracia & Matracia Partnershi	UST	
80044014	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	9	731	595						Matracia & Matracia Partnershi	UST	
80049181	38.76056	-84.7889	Patriot	Gallatin	5/4/2004	MONITORING WELL - AMBIENT MONITORING	850									Napoleon Grocery	UST	
80049182	38.76056	-84.7889	Patriot	Gallatin	5/3/2004	MONITORING WELL - AMBIENT MONITORING	850									Napoleon Grocery	UST	
80049185	38.76056	-84.7889	Patriot	Gallatin	5/3/2004	MONITORING WELL - AMBIENT MONITORING	850									Napoleon Grocery	UST	
80049186	38.76056	-84.7889	Patriot	Gallatin	5/4/2004	MONITORING WELL - AMBIENT MONITORING	850									Napoleon Grocery	UST	
80049425	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	6	734	598						Matracia & Matracia Partnershi	UST	
80049426	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	8	732	596						Matracia & Matracia Partnershi	UST	
80049427	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	8.5	731.5	595.5						Matracia & Matracia Partnershi	UST	
80049428	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	6.5	733.5	597.5						Matracia & Matracia Partnershi	UST	
80049429	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	4	736	600						Matracia & Matracia Partnershi	UST	
80050961	38.85639	-84.6669	Verona	Boone	11/9/2005	MONITORING WELL - AMBIENT MONITORING	800									Bavarian Trucking Co Inc	Solid Waste	
80053954	38.90083	-84.8369	Rising Sun	Boone	9/20/2007	MONITORING WELL - AMBIENT MONITORING		45								Duke Energy Kentucky Inc	Solid Waste	
80053955	38.90389	-84.8369	Rising Sun	Boone	9/18/2007	MONITORING WELL - AMBIENT MONITORING		117.5								Duke Energy Kentucky Inc	Solid Waste	

Exhibit 6C

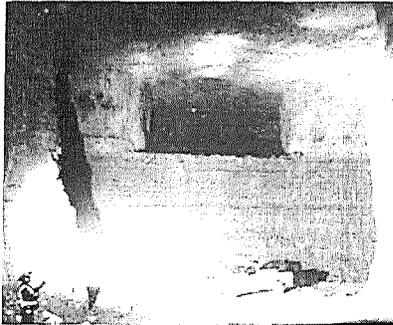
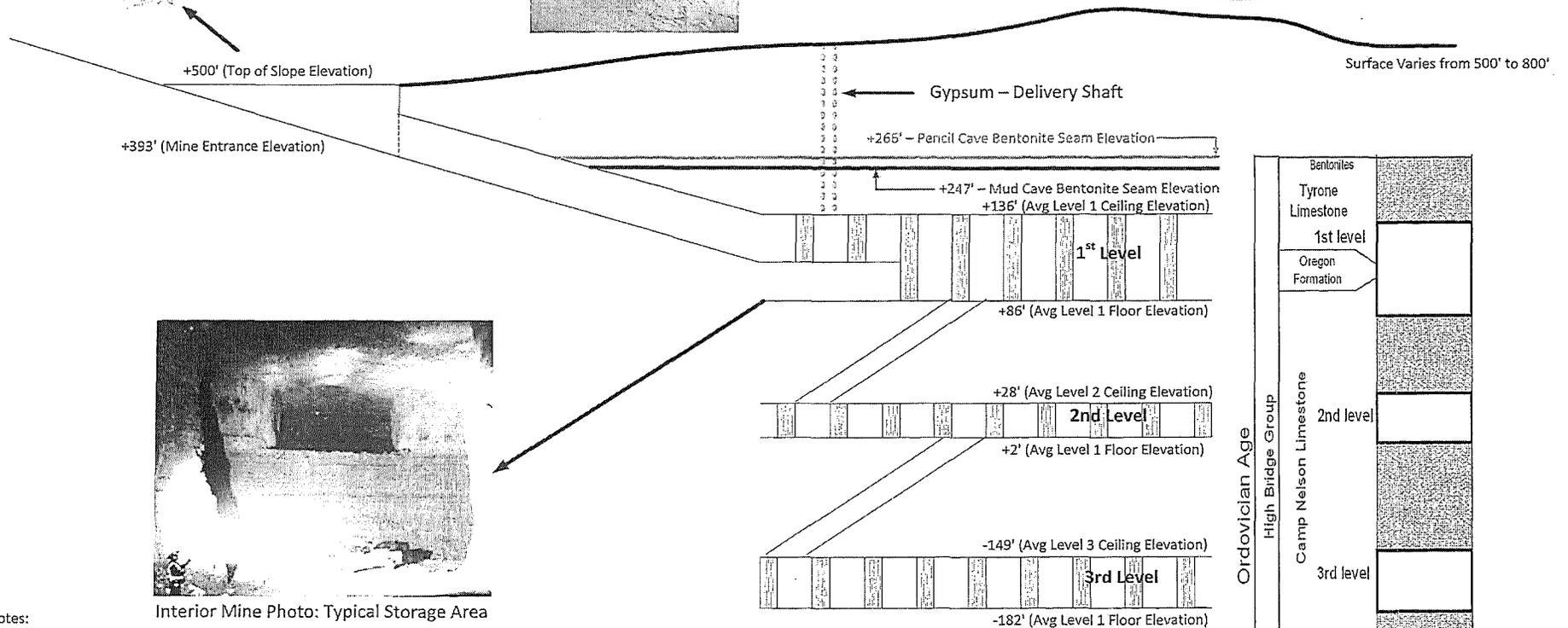
Sterling Materials – Verona, KY Underground Cross Section



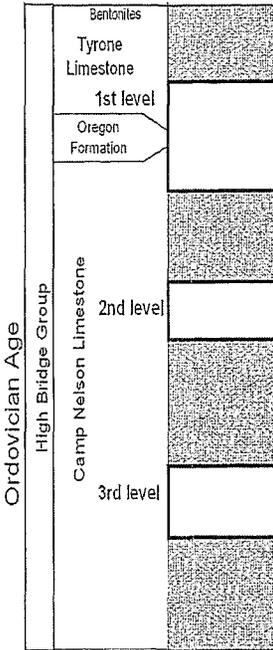
Pencil Cave Bentonite Seam
Thickness: $\approx 18''$
Elevation: +266'



Mud Cave Bentonite Seam
Thickness: $\approx 24''$
Elevation: +247'



Interior Mine Photo: Typical Storage Area



- Notes:
- ❖ Drawing Not to Scale.
 - ❖ Mine ceiling and floor elevations are based on average elevations across each level.
 - ❖ Bentonite Seam and Rock Stratigraphy Information Resource: Kentucky Geological Survey, University of Kentucky, Lexington Series X, 1974. High Carbonate Rock in the High Bridge Group (Middle Ordovician), Boone County, Kentucky. Author: Garland R. Dever, Jr.
 - ❖ Elevations are referenced at Sea Level.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 6

Responding Witness: John Walters

- Q-6. Provide a detailed description of the basis upon which Sterling relies for the position that disposal of the Companies' CCR in Sterling's mine constitutes a beneficial use under the federal CCR Rule published April 17, 2015 (80 Fed. Reg. 21302), and provide all supporting analyses and data, and specifically address:
- a. The "functional benefit" that CCR would provide as referred to in the May 26, 2015 e-mail from Steve Souders to John Walters and any expected cost savings;
 - b. The "virgin material" the CCR would be substituting as referred to in the May 26, 2015 e-mail from Steve Souders to John Walters; and
 - c. Whether managing CCR in Sterling's mine would comply with federal CCR Rule requirements regulating environmental releases to groundwater, surface water, soil, and air as referred to in the May 26, 2015 e-mail from Steve Souders to John Walters.
- A-6. Please see response to Question 18: Letter to U.S. Army Corps of Engineers, Louisville District, dated July 11, 2015, which details Sterling's position on beneficial use of CCR in Sterling's mine.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 7

Responding Witness: John Walters

- Q-7. Provide all documents relied upon by Sterling for its response to Item 6 above.
- A-7. Please refer to *Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals for Electric Utilities; Final Rule* at *Federal Register*/Vol. 80, No. 74 / Friday, April 17, 2015 / Rules and Regulations at 21301-21501.

STERLING VENTURES, LLC

CASE NO. 2015-00194

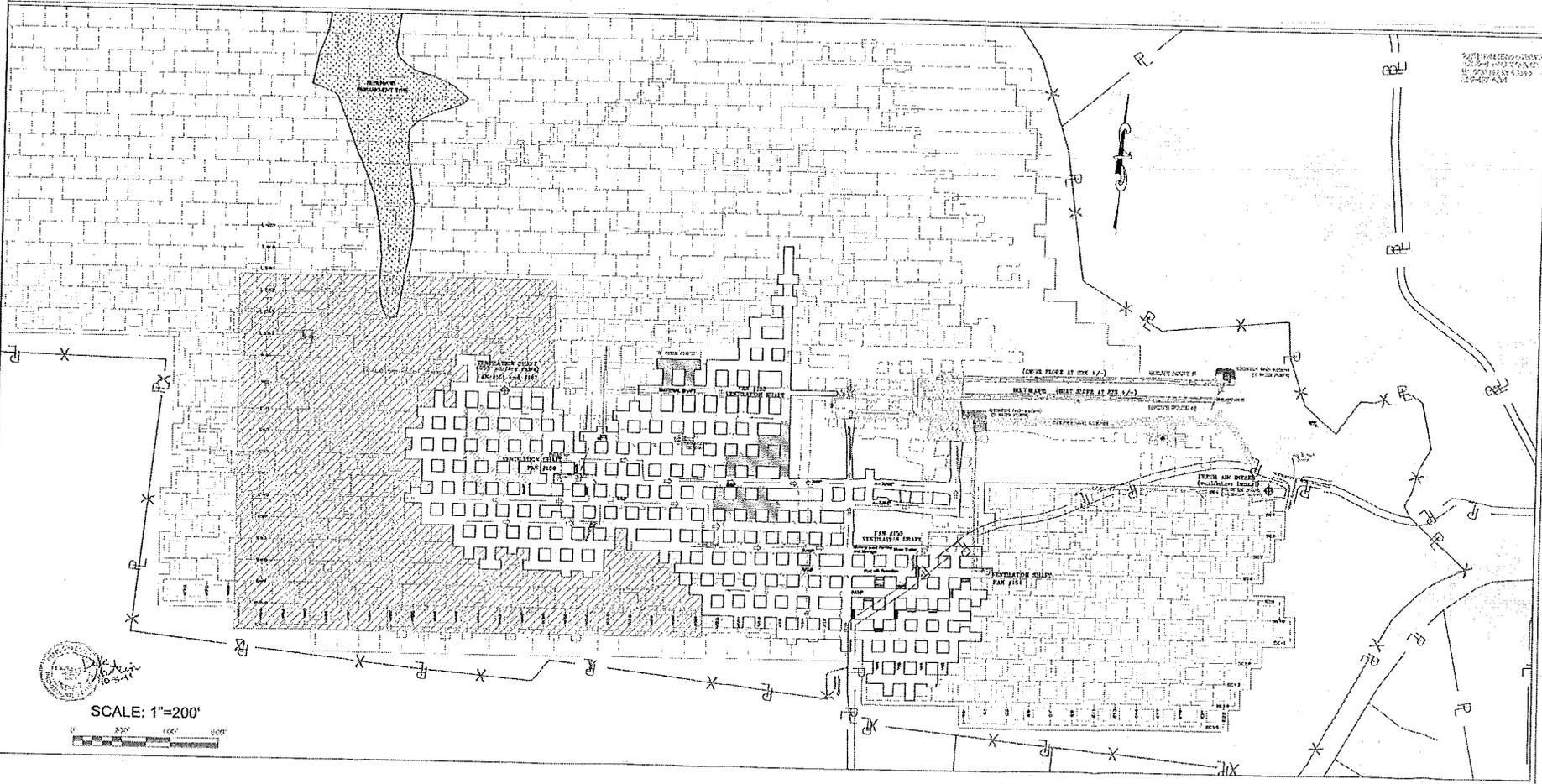
**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 8

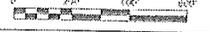
Responding Witness: John Walters

- Q-8. Provide all plans and maps that depict, in whole or in part, the following information:
- a. The extent of underground mining works as of January 1, 2011, 2012, 2013, 2014, 2015 on each of the three limestone seams;
 - b. Mine ventilation plans and controls;
 - c. Future underground mining areas on each of the three limestone seams; and
 - d. The underground mine areas currently available for disposal, beneficial use (as defined in 40 CFR 257.53), or storage of CCR.
- A-8.
- a. See attached.
 - b. See attached.
 - c. Future underground mining areas include all areas between the existing underground mining operations and the property boundaries, plus removing the floor in levels 1 and 2 of the mine. See attached.
 - d. See map in response to c. above showing current mine workings.

SUPPLEMENTARY
DRAWING SHEET
NO. 10-1-11
10-1-11

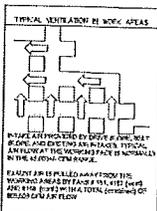


SCALE: 1"=200'



STERLING MATERIALS
MSHA ID # 15-18068
Level 2 - Nelson Seam
2010 Sup Mining Extents/
2011 Projected Mining Limits
and Escapeway Maps
Date: 10-1-11

- LEGEND**
- Existing Mine Works Tyrone Seam Level 1
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 3
 - Oct 1, 2010 Projected Mining Limits (Nelson Seam Level 2)
 - Proposed Floor Mined
 - Air Flow Direction and Quantity
 - Escapeway #1 Direction
 - Escapeway #2 Direction
 - Asphyxiant Escapeway Corridor
 - Working Face Escapeway
 - Cribber
 - Emergency Evacuation Sign
 - Ventilation Shaft with Exhaust Fan (shown as the circle with a dot)
 - Ventilation Shaft with Exhaust Fan (shown as the circle with a dot)
 - Ventilation Shaft without Fan
 - Auxiliary Fan Number and Air Direction
 - Road Tail
 - Highwall
 - Berm



Note: The purpose of this map is to show the mining extents through December 15, 2011, and to show the projected mining for the period ending December 30, 2012, along with the location of the ventilation infrastructure, air flow direction, and escapeway route and direction.

Note: Mining extents shown are based on Sub-survey information and projected mining limits. The 2010 survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the area. No and pillar corner location was not part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses.

Note: All mining methods and sections, along with escapeway routing information, will be updated and approved by the mine operator. Proposed mine operations layout and location, and proposed mining advancement is also subject to the owner. Air direction and/or control design verification by others. Certification of roof control and ventilation is not expressed or implied by this map.

GENERAL NOTES:
If there are no seals in the mine, the mine shall be sealed to the mine.

- Mine Use Requirements**
- Air flow in through drill string, belt slope, and air intake shaft. Air on exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 168.
 - Note: All Fan Blades are set at 23 (degrees)
 - Fan # 151 - Horizontal Fan - 207 HP Testbed - 220,000 CFM
15 FT Diameter - 1020 RPM - 0.3 Static Pressure**
 - Fan # 167 - Horizontal Fan - 203 HP Testbed - 223,000 CFM
15 FT Diameter - 1020 RPM - 0.3 Static Pressure**
 - *Welder Gun Fans are used on any 12 FT Diameter or and exhaust shafts**
 - **Welder Gun Fans operate on bleed off the surface**
 - Fan # 168 - Horizontal Fan - 120 HP Testbed - 223,000 CFM
9 FT Diameter - 1160 RPM - 0.3 Static Pressure
 - Fan # 154 - Buffalo Fan - 012 HP Testhouse - 37,000 CFM
3.5 FT Diameter - 1750 RPM - 0.3 Static Pressure
 - Fan # 155 - Buffalo Fan - 010 HP Testhouse - 37,000 CFM
3.5 FT Diameter - 1750 RPM - 0.3 Static Pressure
 - Fan # 163 - Buffalo Fan - 009 HP Testhouse - 35,000 CFM
3 FT Diameter - 1160 RPM - 0.3 Static Pressure
 - Fan # 169 - Horizontal Fan - 100 HP Testhouse - 125,000 CFM
9 FT Diameter - 1160 RPM - 0.3 Static Pressure

- Fan # 125 - Horizontal Fan - 020 HP Testhouse - 43,000 CFM
3 FT Diameter - 1200 RPM - 0.3 Static Pressure
 - Fan # 177 - Horizontal Fan - 020 HP Testhouse - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.3 Static Pressure
 - Fan # 173 - Horizontal Fan - 025 HP Testhouse - 50,000 CFM
4 FT Diameter - 1750 RPM - 0.3 Static Pressure
 - Fan # 179 - Horizontal Fan - 015 HP Testhouse - 40,000 CFM
4 FT Diameter - 1750 RPM - 0.3 Static Pressure
 - Fan # 180 - Buffalo Fan - 020 HP Testhouse - 35,000 CFM
3 FT Diameter - 1160 RPM - 0.3 Static Pressure
 - Fan # 182 - Buffalo Fan - 010 HP Testhouse - 35,000 CFM
4 FT Diameter - 1200 RPM - 0.3 Static Pressure
 - Fan # 183 - Buffalo Fan - 010 HP Testhouse - 35,000 CFM
4 FT Diameter - 1750 RPM - 0.3 Static Pressure
- There are no sufficient openings known to be sealed to the mine openings.
-There are no sections of known size or size well on map. The mine does not create any water, but it may have ventilation shafts or openings, or obstructions.
-Underground communications: Primary number phone communications and low-voltage radio. Control (2) underground - Control (1) surface.
-Off road diesel fuel (1100 gallons) storage located on the 2nd Level SE-B corner (confinement not verified).

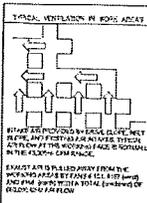
Drawn by: JAC Date: 10-1-11
Checked by: JAC Date: 10-1-11
Scale: 1"=200'



SCALE: 1"=200'

STERLING MATERIALS
 MSHA ID # 15-18068
 Level 3 - Nelson Seam
 2011 Sep Mining Extent/
 2012 Projected Mining Limits/
 and Escapeway Map
 Date: 10-1-11

- LEGEND**
- Existing Mine Works Type 1 Seam Level 1
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 3
 - Oct 1, 2012 Projected Mining Limits (Nelson Seam Level 3)
 - Previous Floor Level
 - Air Flow Direction and Capacity
 - Escapeway #1 Direction
 - Escapeway #2 Direction
 - Working Face Escapeway
 - Cluster
 - Emergency Evacuation Egress
 - Ventilation Shafts with Exhaust Fan (Nelson Seam Level 3)
 - Ventilation Shafts with Exhaust Fan (2nd level of mine)
 - Ventilation Shafts without Fan
 - Auxiliary Fan Number and Air Extension
 - Road Fan
 - Highwall
 - Bath



Note: The purpose for this map is to show the mining extent through September 18, 2011, and to show the projected mining for the period ending September 30, 2012, along with the location of the ventilation infrastructure, air infrastructure, and escapeway routes and direction.

Note: Mining extent shown are based on field survey information and projected mining limits. The field survey data is limited to access the areas of the mine. The survey includes mining projection points in the mine. Road and pillar corner markers are not part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses.

Note: All heading, distance and direction, along with escapeway routing information was supplied and prepared by the contractor. Prepared mine geometric layout and location, and equipped mining infrastructure is as so applied by the owner. Ventilation and road control design/operation by others. Coordination of road control and ventilation is not provided or implied by this map.

GENERAL NOTES

IF THERE ARE NO CHANGES TO THE MINE, IT SHOULD BE RE-SURVEYED AT THE MINIMUM.

Mine Map Requirements

Air flows in through drive steps, belt drive, and air intake shafts. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 188.

Note: Air Fan Block are set of 20 (degrees)

Fan # 151 - Horizontal Fan - 200 HP (Static) - 220,000 CFM
 13 FT Diameter - 1300 RPM - 0.5 Static Pressure

Fan # 167 - Horizontal Fan - 200 HP (Static) - 220,000 CFM
 13 FT Diameter - 1300 RPM - 0.5 Static Pressure

White Belt Fans are used on one 13 FT Diameter air and exhaust shafts.

White Belt Fan capacity are located on the surface.

Fan # 152 - Horizontal Fan - 150 HP (Static) - 220,000 CFM
 9 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 154 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 2.5 FT Diameter - 1720 RPM - 0.5 Static Pressure

Fan # 155 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 2.5 FT Diameter - 1720 RPM - 0.5 Static Pressure

Fan # 153 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 2.5 FT Diameter - 1720 RPM - 0.5 Static Pressure

Fan # 156 - Horizontal Fan - 100 HP (Static) - 125,000 CFM
 8 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 620 HP (Static) - 400,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 172 - Horizontal Fan - 620 HP (Static) - 400,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 620 HP (Static) - 400,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 620 HP (Static) - 400,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 180 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 4 FT Diameter - 1720 RPM - 0.5 Static Pressure

Fan # 182 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 4 FT Diameter - 1720 RPM - 0.5 Static Pressure

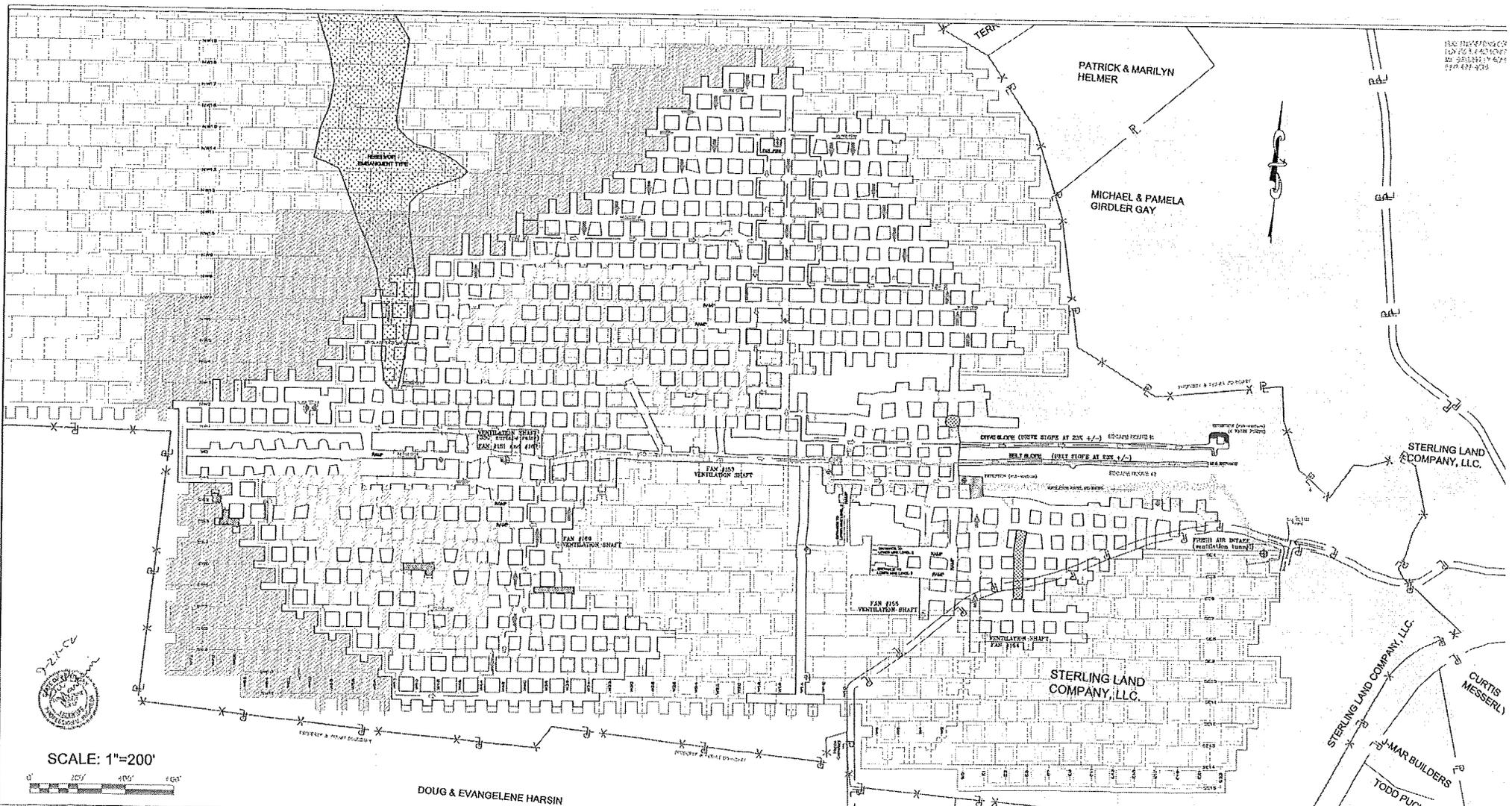
Fan # 183 - Buffalo Fan - 640 HP (Static) - 220,000 CFM
 4 FT Diameter - 1720 RPM - 0.5 Static Pressure

-There are no official shaft logs to be located in the mine workings.

-There are no locations of known gas or oil wells on map. The mine does not create any wells, nor does it have ventilation doors, or regulators, or stoplogs.

-Underground communication: Primary escape phone communications and secondary radio. Control (2) Underground - Ground (1) Surface

-Off road steel road (1100 gallon) storage located on the 2nd Level SS-8 center (conformance with regulation).



SCALE: 1"=200'



STERLING MATERIALS

MSHA ID # 15-18068
 Level 1- Tyrone Seam
 2012 Sep Mining Extents/
 2013 Projected Mining Limits/
 and Escapeway Map
 Date: 9-27-12

Drawn By: [Signature] Date: 10-20-12 File Name: [Filename]
 No. CM: [Number] Rev: 016 MSHA LEVEL 1-A

LEGEND	
[Symbol]	Existing Mine Works Tyrone Seam Level 1
[Symbol]	Existing Mine Works Nelson Seam Level 2
[Symbol]	Existing Mine Works Nelson Seam Level 3
[Symbol]	Oct 1, 2013 Projected Mining Limits (Tyrone Seam Level 1)
[Symbol]	Previous Floor Mined
[Symbol]	Air Flow Direction and Quantity
[Symbol]	Escapeway #1 Direction
[Symbol]	Escapeway #2 Direction
[Symbol]	Auxiliary Escapeway Connection
[Symbol]	Working Face Escapeway
[Symbol]	Telephone
[Symbol]	Cusher
[Symbol]	Emergency Evacuation Sign
[Symbol]	Ventilation Shafts with Exhaust Fan (shown with the number of fans)
[Symbol]	Ventilation Shafts with Exhaust Fan (shown with the number of fans)
[Symbol]	Ventilation Shafts without Fan
[Symbol]	Auxiliary Fan Number and Air Direction
[Symbol]	Roof Fall
[Symbol]	Highwall
[Symbol]	Item

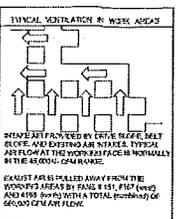
Note: The purpose for this map is to show the mining extents through September 13, 2011, and to show the projected mining for the period ending September 30, 2013, along with the location of the ventilation infrastructure, air flow directions, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits. The field survey data is limited to accessible areas at the time of the survey. The survey included locality intersection points in the mine. Rio and pillar corner locations was not part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

Note: Air reading quantities and direction, along with escapeway routing information, was supplied and obtained by the operator. Proposed mine geometry beyond a 1/4 location, and proposed mining advancement is also supplied by the owner. Ventilation was not tested or inspected by others. Certification of roof control and ventilation geometry, is not expressed or implied by this map.

GENERAL NOTES
 1) THERE ARE NO KEYS IN THE MINE
 2) THERE ARE NO "VAL" OR "GAP" VALVES IN THE MINE.



Mine Map Requirements

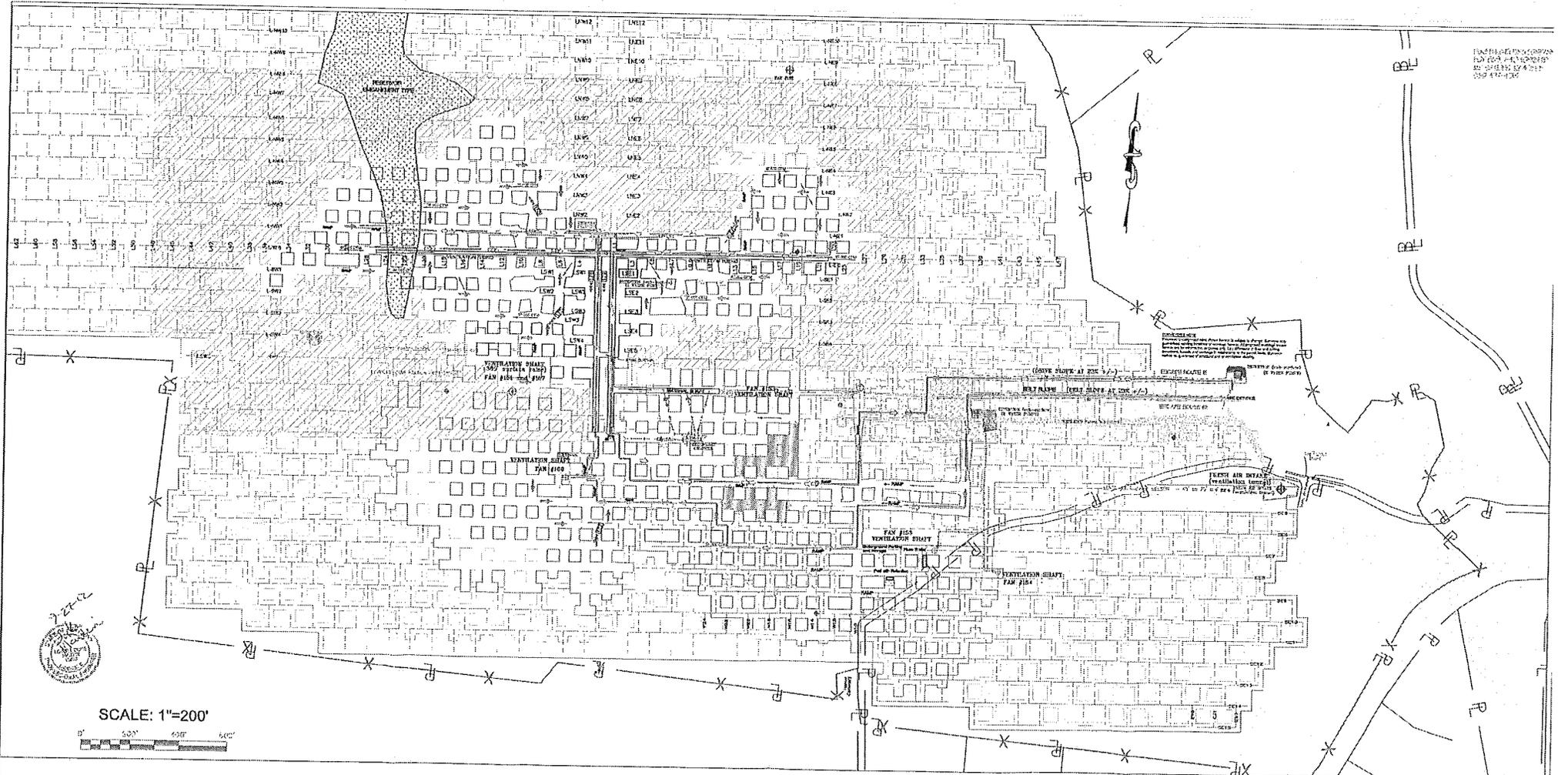
Air flows in through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 168.

Note: All Fan Blades are set at 25 (degrees)

Fan # 151 - Horizontal Fan - 200 HP Top-Jack - 220,000 CFM 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**	Fan # 175 - Horizontal Fan - 620 HP Westinghouse - 40,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Fan # 107 - Horizontal Fan - 200 HP Top-Jack - 220,000 CFM 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**	Fan # 177 - Horizontal Fan - 620 HP Westinghouse - 40,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft	Fan # 178 - Horizontal Fan - 620 HP Westinghouse - 40,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Note: Both Fans are located on the surface	Fan # 179 - Horizontal Fan - 620 HP Westinghouse - 40,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Fan # 168 - Horizontal Fan - 100 HP Westinghouse - 220,000 CFM 7 FT Diameter - 1160 RPM - 0.5 Static Pressure	Fan # 180 - Buffalo Fan - 620 HP Westinghouse - 35,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Fan # 154 - Buffalo Fan - 640 HP Westinghouse - 37,500 CFM 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure	Fan # 182 - Buffalo Fan - 620 HP Westinghouse - 35,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Fan # 155 - Buffalo Fan - 640 HP Westinghouse - 37,500 CFM 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure	Fan # 183 - Buffalo Fan - 620 HP Westinghouse - 35,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
Fan # 153 - Buffalo Fan - 620 HP Westinghouse - 35,000 CFM 3 FT Diameter - 1750 RPM - 0.5 Static Pressure	Fan # 169 - Horizontal Fan - 100 HP Westinghouse - 220,000 CFM 8 FT Diameter - 1160 RPM - 0.5 Static Pressure

EXHAUST AIRS PULLED AWAY FROM THE WORKING AREAS BY FANS # 151, 167 (level 1) AND FAN # 168 WITH A TOTAL CAPACITY OF 660,000 CFM AIR FLOW.

There are no locations of known gas or oil wells on map. The mine does not create any water, nor does it have ventilation down, or respirators, or other underground communications. Primary cusper phone communications and two-way radio channels (2) Underground - Channel (1) Surface - Off road diesel fuel and 600-gallon fuel storage located on the 2nd Level SE-B corner (contaminant) well matched.



THIS FILE IS THE PROPERTY OF MSHA AND SHOULD BE KEPT IN A SAFE PLACE.

NOTICE: This map shows the mine's air flow and ventilation system as of September 13, 2011. It is not intended to be used for any other purpose. The mine operator is responsible for maintaining the accuracy of this information.

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NOTICE: This map shows the mine's air flow and ventilation system as of September 13, 2011. It is not intended to be used for any other purpose. The mine operator is responsible for maintaining the accuracy of this information.

SCALE: 1"=200'

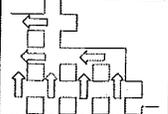


STERLING MATERIALS
 MSHA ID # 16-18068
 Level 3 - Nelson Seam
 2012 Sep Mining Extents/
 2013 Projected Mining Limits/
 and Escapeway Map
 Date: 9-27-2012

LEGEND

- Existing Mine Works Tyson Seam Level 1
- Existing Mine Works Nelson Seam Level 2
- Existing Mine Works Nelson Seam Level 3
- Oct 1, 2013 Projected Mining Limits (Nelson Seam Level 3)
- Previous Face Mine
- Air Flow Direction and Quantity
- Escapeway #1 Direction
- Escapeway #2 Direction
- Auxiliary Escapeway Connection
- Working Face Escapeway
- Crusher
- Emergency Evacuation Egress
- Ventilation Shafts with Exhaust Fan (Flow to the Outside of Mine)
- Ventilation Shafts with Exhaust Fan (Flow Downward in Mine)
- Ventilation Shafts with Fan
- Auxiliary Fan Number and Air Direction
- Roof Fan
- Highwall
- Belt

TYPICAL VENTILATION IN WORK AREAS



EXHAUST AIR IS DRAINED FROM THE WORK AREAS BY FAN # 151, FAN # 157 AND FAN # 169. A TOTAL CAPACITY OF 60,000 CFM AIR FLOW.

Note: The purpose for this map is to show the mining extents through September 13, 2011, and to show the projected mining for the period ending September 30, 2013, along with the location of the ventilation infrastructure, air flow direction, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits. The field survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the mine. RFD and/or owner location was not part of the survey.

Note: Priority lines shown are approximate and shall be verified by the operator as mining progresses. Confirmation of priority is not expressed or implied.

Note: All existing quantities and direction, along with escapeway routing information, was supplied and prepared by the operator. Proposed mine geometry layout and location, and proposed mining advancement is also supplied by this owner. Ventilation and roof control depicted is based on information provided by the operator. Confirmation of roof control and ventilation and geometry, is not expressed or implied by this map.

GENERAL NOTES:
 1) THERE ARE NO SEALS IN THE MINE.
 2) THERE ARE NO "CAT" WELLS IN THE MINE.

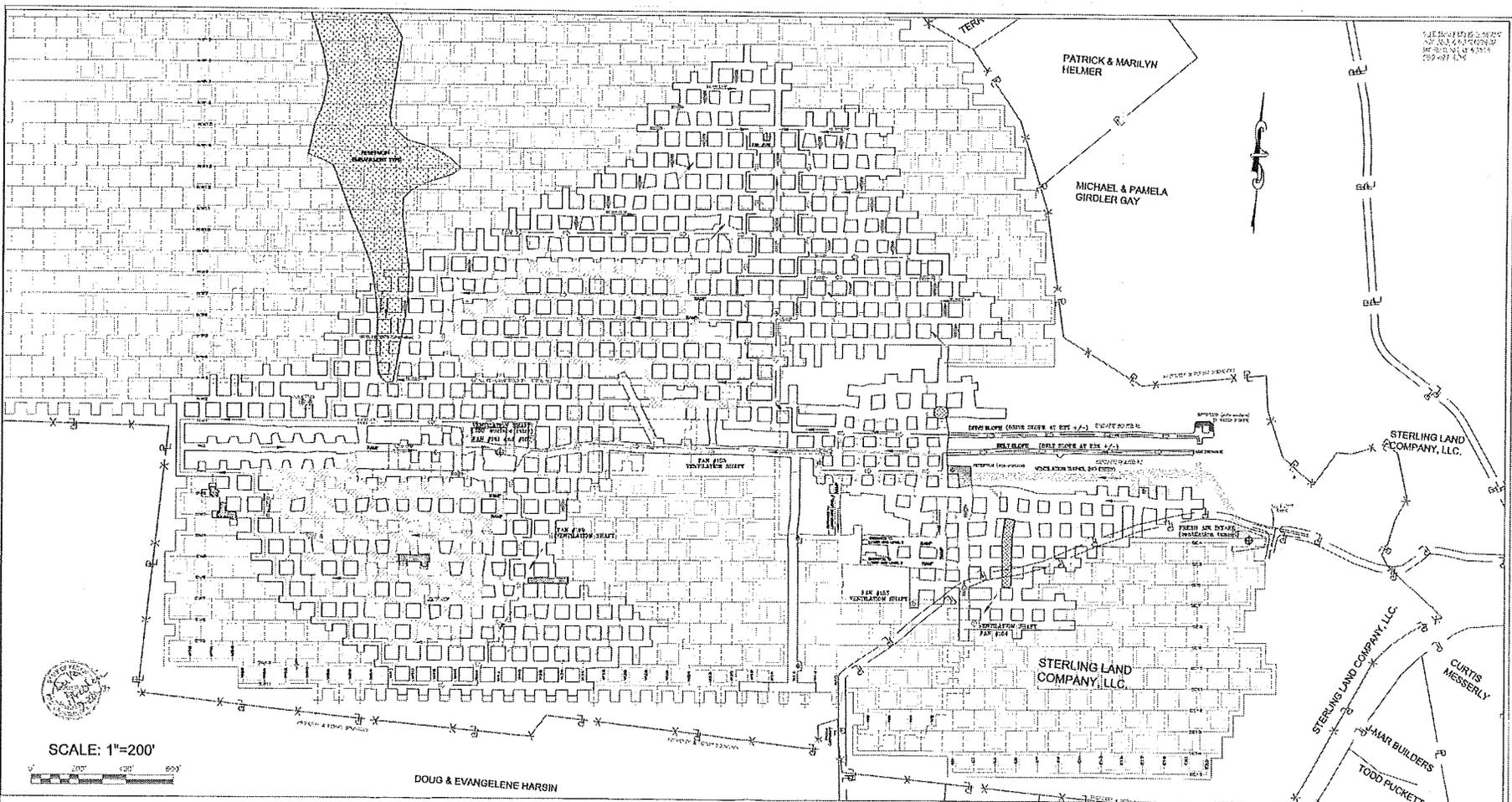
Mine Map Requirements

Air flows to through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 169.

Note: All Fan Blades are set at 25 (degrees)

- Fan # 151 - Horizontal Fan - 230 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure*
- Fan # 157 - Horizontal Fan - 230 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure*
- **Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft.**
- **Note: Both Fan controls are located at the surface.**
- Fan # 169 - Horizontal Fan - 100 HP Toshiba - 220,000 CFM
 7 FT Diameter - 1100 RPM - 0.5 Static Pressure
- Fan # 151 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure
- Fan # 155 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure
- Fan # 163 - Buffalo Fan - 050 HP Westinghouse - 65,000 CFM
 5 FT Diameter - 1100 RPM - 0.5 Static Pressure
- Fan # 169 - Horizontal Fan - 100 HP Westinghouse - 125,000 CFM
 9 FT Diameter - 1100 RPM - 0.5 Static Pressure

- Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 180 - Buffalo Fan - 010 HP Toshiba - 35,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
 4 FT Diameter - 1250 RPM - 0.5 Static Pressure
 - Fan # 183 - Buffalo Fan - 050 HP Westinghouse - 65,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure
- *There are no adjacent openings known to be located to the mine openings.
 *There are no locations of known gas or oil seals in mine. The mine does not create any water, nor do we have ventilation chokes, or regulators, or stoppings.
 Underground communications: Primary: miner phone, communication and two-way radio. Channel (2) Underground - Channel (1) Surface.
 Off-road diesel fuel and bio-diesel fuel storage located on the 2nd Level SE-B corner (contaminated and blocked).

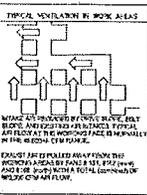


SCALE: 1"=200'

STERLING MATERIALS
 MSHA ID # 15-10008
 Level 1- Tyrone Seam
 2013 Sep Mining Extent
 and Escapeway Map
 Date: 9-25-13

LEGEND

Existing Mine Works Tyrone Seam Level 1	Drift
Existing Mine Works Nelson Seam Level 2	Emergency Evacuation Sign
Existing Mine Works Nelson Seam Level 3	Ventilation Shaft with Exhaust Fan (Relative to Level 1 only)
Previous First Mine	Ventilation Shaft with Exhaust Fan (Relative to all levels)
Air Flow Direction and Quantity	Ventilation Shafts without Fan
Escapeway #1 Direction	Auxiliary Fan Number and Air Direction
Escapeway #2 Direction	Roof Fan
Auxiliary Escapeway Connection	Highway
Working Face Escapeway	Beam
Telephone	



GENERAL NOTES:
 1. THIS MAP IS FOR INFORMATION ONLY.
 2. THIS MAP IS NOT TO BE USED AS A BASIS FOR ANY LEGAL ACTION.

Note: The purpose for this map is to show the mining extents through September 19, 2013, along with the location of the ventilation infrastructure, air flow direction, and escapeway routes and direction.

Note: Mining extent shown are based on full survey information and projected mining limits. The full survey data is limited to accessible areas at the time of the survey. The survey included locating elevation points in the mine. All other corner locations were not part of the survey.

Note: Property lines shown are approximations and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

Note: Air flow direction and direction, along with escapeway routing information, was obtained and reported by the operator. Proposed mine geometric layout and location, and proposed mining arrangement is also reported by the owner. Ventilation and roof control determination by others. Certification of roof control and ventilation and geometry, is not expressed or implied by this map.

Mine Map Requirements

Air flow in through drifts shall, not show, one of: back, shall, air and exhaust fan out through ventilation shafts and fan # 151, # 197, and # 168.

Note: All Fan Blowers are set at 45 degrees.

Fan # 151 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 167 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 168 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 180 - Auxiliary Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 182 - Auxiliary Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 180 - Auxiliary Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

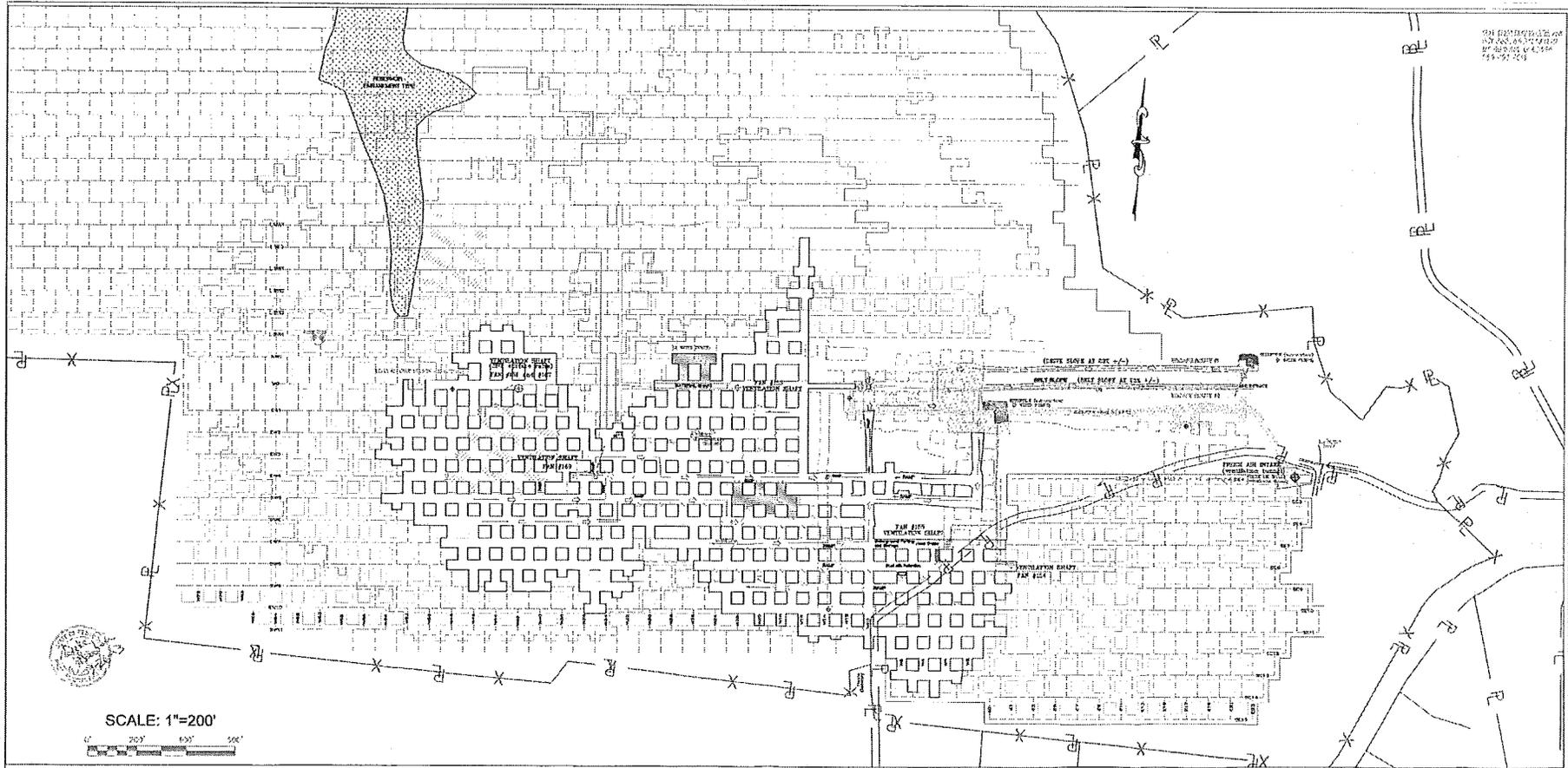
Fan # 182 - Auxiliary Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 200 HP - 1200 CFM - 0.5 Static Pressure
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure

There are no 30 degree openings known to be located in the mine workings. There are no bottlenecks known to be located in the mine workings. There are no underground communications known to be located in the mine workings. There are no underground communications known to be located in the mine workings. There are no underground communications known to be located in the mine workings.

Printed by: MSHA
 Date: 9-25-13
 File Name: 15-10008-1A.dwg

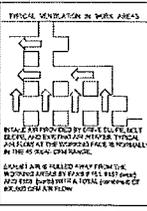
THIS DOCUMENT IS THE PROPERTY OF MSHA AND IS LOANED TO YOU. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



SCALE: 1"=200'

STERLING MATERIALS
MSHA ID # 15-18069
Level 2 - Nelson Seam
2013 Sup Mining Extent
and Escapeway Map
Date: 9-25-2013

- LEGEND**
- Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 2
 - ▨ Previous Floor Mined
 - Air Flow Direction and Quantity
 - Escapeway #1 Direction
 - Escapeway #2 Direction
 - Auxiliary Escapeway Connection
 - Working Face Escapeway
 - ⊕ Shaft
 - ⊕ Emergency Escapeway Shaft
 - ⊕ Ventilation Shafts with Exhaust Fan (Square for Exhaust Fan)
 - ⊕ Ventilation Shafts with Exhaust Fan (Circle for Exhaust Fan)
 - ⊕ Ventilation Shafts without Fan
 - ⊕ Auxiliary Fan Headers and Air Direction
 - ⊕ Roof Fan
 - ⊕ Ingham
 - ⊕ Beam



Note: The purpose for this map is to show the mining extent through September 19, 2013, along with the location of the ventilation infrastructure, air flow direction, and escapeway routes and direction.

Note: Mining extent shown are based on field survey information and projected mining limits. The field survey data is limited to accessible areas at the time of the survey. The survey included locating in-take/return points in the mine. R28-a pillar corner location was not part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator an existing properties. Confirmation of capacity is not expressed or implied.

Note: Air routing quantities and direction, along with necessary routing information was supplied and prepared by the mine owner. Proposed mine geometry, layout and location, and proposed mining advancement is also supplied by the owner. Ventilation and roof control development on any other, Confirmation of roof control and ventilation and geometry, is not guaranteed or implied by this map.

Note: Part of Level 2 are abandoned and inaccessible.

Mine Map Requirements

All flows in through drive shafts, tail shafts, and air intake shafts. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 168.

Note: All Fan Buckers are set at 25 (degrees)

Fan # 161 - Horizontal Fan - 200 HP Intake - 220,000 CFM
13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Fan # 167 - Horizontal Fan - 275 HP Intake - 220,000 CFM
13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Intake Both Fans are used on one 12 FT Diameter air and exhaust shaft

Fan # 168 - Horizontal Fan - 150 HP Intake - 210,000 CFM
7 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 184 - Buffalo Fan - 640 HP Intake - 37,000 CFM
3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 188 - Buffalo Fan - 640 HP Intake - 37,000 CFM
3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 183 - Buffalo Fan - 640 HP Intake - 37,000 CFM
3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 169 - Horizontal Fan - 100 HP Intake - 120,000 CFM
8 FT Diameter - 1180 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 620 HP Intake - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 620 HP Intake - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 620 HP Intake - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 620 HP Intake - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 180 - Buffalo Fan - 640 HP Intake - 37,000 CFM
3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 182 - Buffalo Fan - 640 HP Intake - 37,000 CFM
3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

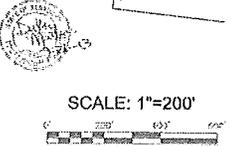
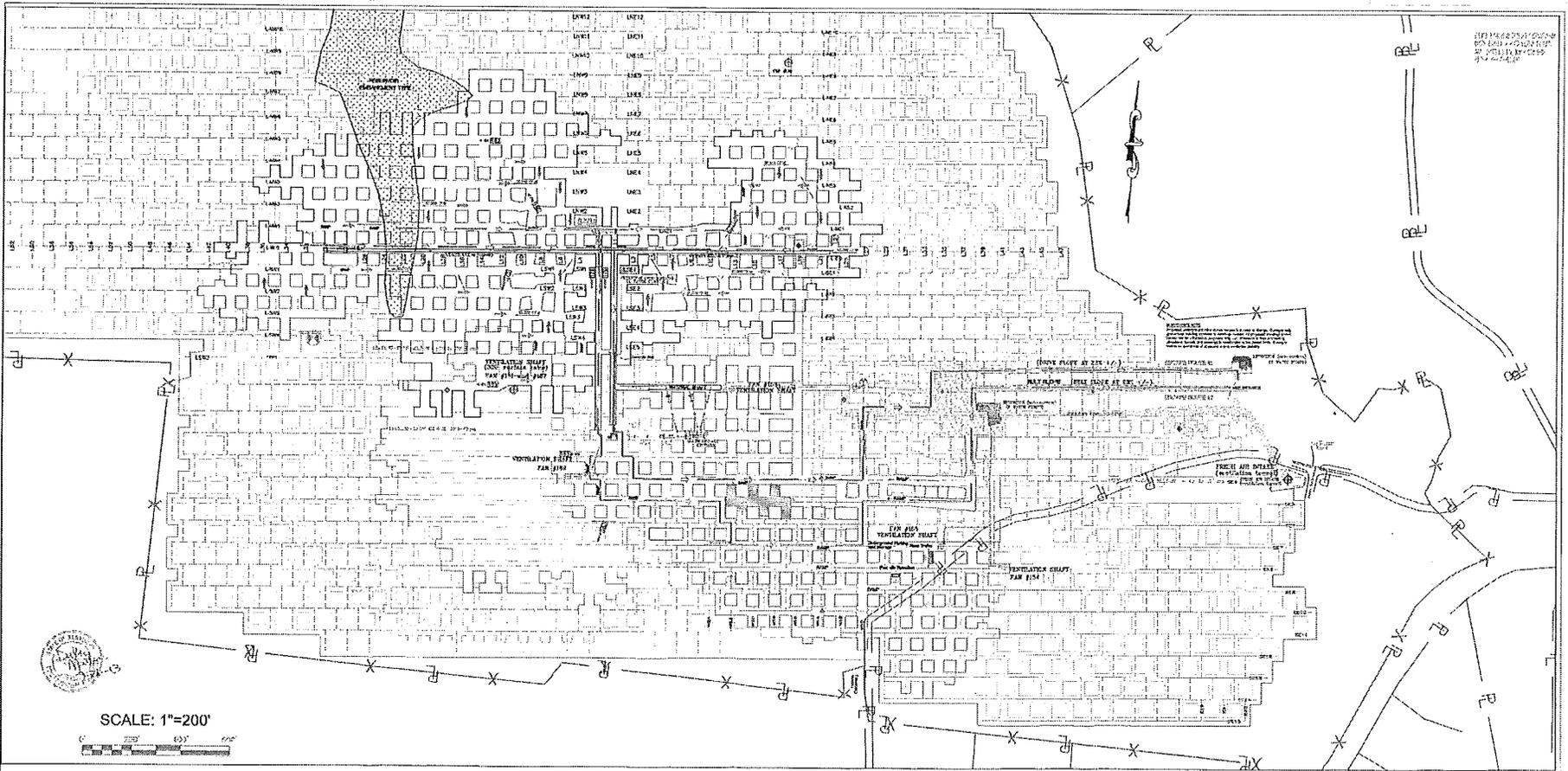
Fan # 183 - Horizontal Fan - 620 HP Intake - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure

-there are no adjacent openings known to be located in this mine opening -there are no locations of known gas or oil wells on map, the mine does not create any water, nor do we have ventilation control equipment, or stoplogs. Underground communications Primary: cellular phone communication and two-way radio. Channel (2) Underground - Channel (3) Surface -off road street but one non-drink fuel storage located on the 2nd Level SE-S corner (contingency exit) installed.

GENERAL NOTES:

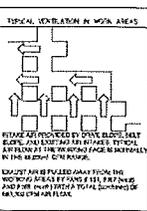
1) THIS MAP IS NOT TO BE USED AS A BASIS FOR ANY OTHER PURPOSES.

2) THIS MAP IS NOT TO BE USED AS A BASIS FOR ANY OTHER PURPOSES.



STERLING MATERIALS
 MSHA ID # 15-18068
 Level 3 - Nelson Seam
 2013 Sep Mining Extents
 and Escapeway Map
 Date: 9-25-2013

- LEGEND**
- Existing Mine Work Nelson Seam Level 1
 - Existing Mine Work Nelson Seam Level 2
 - Existing Mine Work Nelson Seam Level 3
 - Previous Floor Mined
 - 20 Flow Direction and Quantity
 - Escapeway #1 Direction
 - Escapeway #2 Direction
 - Auxiliary Escapeway Connection
 - Working Face Escapeway
 - Shaft
 - Emergency Evacuation Stairs
 - Ventilation Shaft with Exhaust Fan (Refer to the Column of Mine)
 - Ventilation Shaft with Exhaust Fan (Refer to the Column of Mine)
 - Ventilation Shafts without Fan
 - Auxiliary Fan Number and Air Direction
 - Rock Fall
 - Highwall
 - Belt



Note: The purpose for this map is to show the mining extents through September 13, 2013, along with the location of the ventilation infrastructure, air flow directions, and escapeway flow and direction.

Note: Mining extents shown are based on field survey information and projected mining limits. The field survey data is limited to accessible areas at the time of the survey. The survey includes locating inaccessible points in the mine. RB and other corner locations were not part of the survey.

Note: Property lines shown are approximate and shall be verified by the contractor at mining completion. Continuation of property is not expressed or implied.

Note: Air handling equipment and clearcut, along with escapeway routing information, was supplied and prepared by the operator. Prepared mine geologic layout and location, and escapeway routing information is also supplied by the owner. Ventilation and air flow control responsibilities by others. Continuation of roof control and ventilation and quantity, is not expressed or implied by this map.

GENERAL NOTE:
 IF THERE ARE NO NOTES IN THE MINE, IT MEANS THE MINE IS NOT OPEN TO THE PUBLIC.

Mine Map Requirements

20 Feet in through-draw drive, belt drive, and all shaft shafts, AB and central flow out through ventilation shafts and fan # 151, # 187, and # 166.

Note: AF Fan Blades are set at 25 (degrees)

Fan # 151 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Fan # 187 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Note: Both fans are used on one 13 FT diameter air and without shaft.

Note: Both fan controls are located at the surface.

Fan # 166 - Horizontal Fan - 150 HP Toshiba - 220,000 CFM
 7 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 154 - Buffalo Fan - 610 HP Westinghouse - 37,400 CFM
 35 FT Diameter - 1150 RPM - 0.5 Static Pressure

Fan # 155 - Buffalo Fan - 610 HP Westinghouse - 37,400 CFM
 35 FT Diameter - 1150 RPM - 0.5 Static Pressure

Fan # 151 - Buffalo Fan - 610 HP Westinghouse - 37,400 CFM
 35 FT Diameter - 1150 RPM - 0.5 Static Pressure

Fan # 181 - Horizontal Fan - 100 HP Westinghouse - 120,000 CFM
 8 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 176 - Horizontal Fan - 610 HP Westinghouse - 60,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 610 HP Westinghouse - 60,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 610 HP Westinghouse - 60,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 610 HP Westinghouse - 60,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

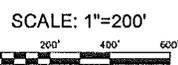
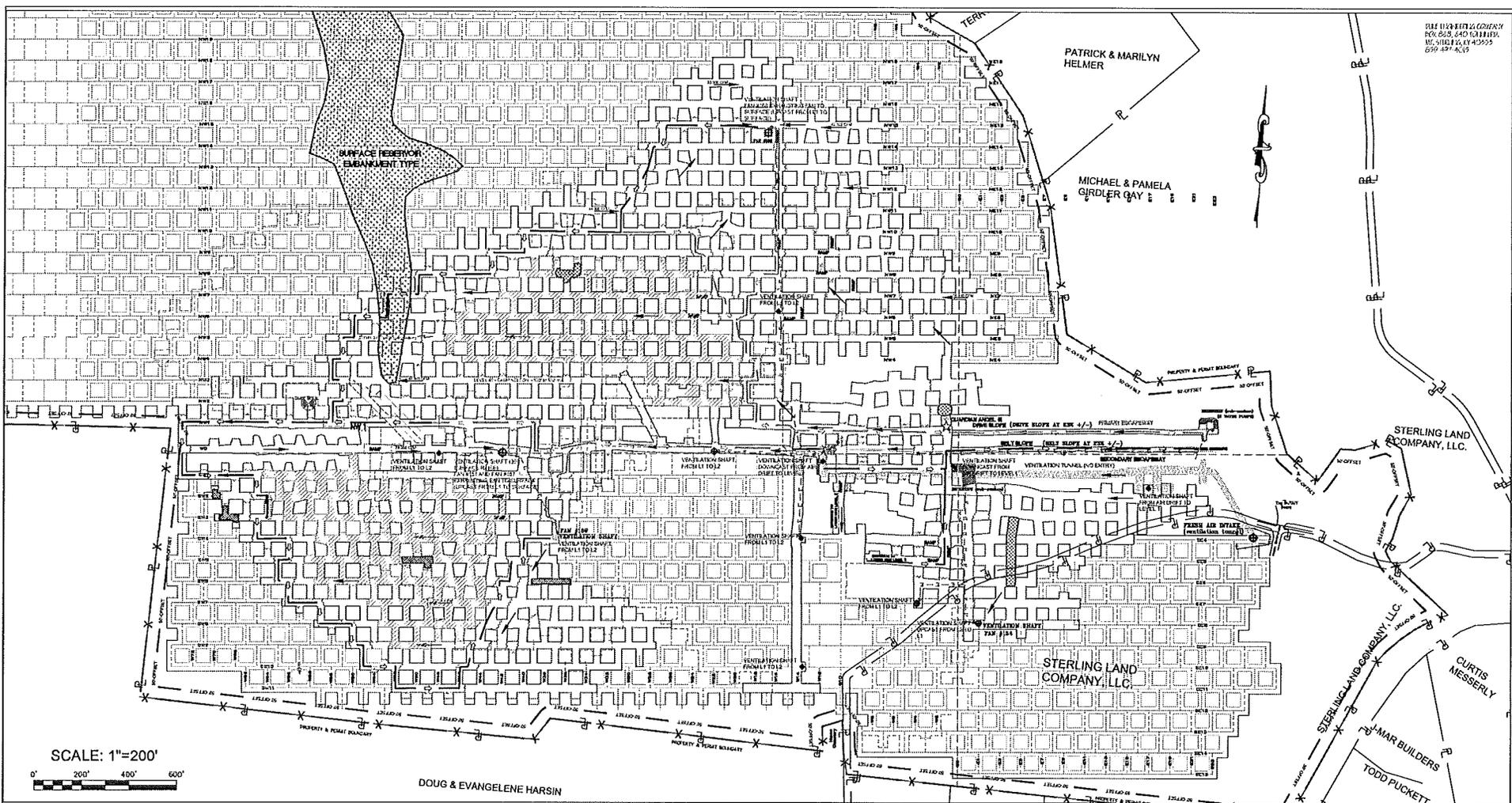
Fan # 183 - Buffalo Fan - 610 HP Westinghouse - 37,400 CFM
 35 FT Diameter - 1150 RPM - 0.5 Static Pressure

Fan # 182 - Buffalo Fan - 610 HP Westinghouse - 37,400 CFM
 35 FT Diameter - 1150 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 610 HP Westinghouse - 60,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

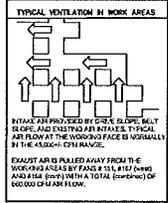
**There are no assigned operating hours to be specified for mine operating. There are no locations of mine gas or air vents on map. The mine does not create any noise, nor do we have ventilation noise, air recirculation or stacking. Underground communication Primary number 704-666-6666 and Secondary 704-666-6666 (Underground - General (1)) Surface - 604-666-6666 (Underground and Surface) fuel storage located on the 2nd level 66-66 corner (cardinal)巷巷 installed.

DATE: 06-18-14
 FOR: B&B, 640 CALLETA
 11511-11514-11515
 6591-6591-6595



STERLING MATERIALS
 MSHA ID # 15-1806B
 Level 1- Tyrone Seam
 Work Map
 and Escapeway Map
 Date: 6-18-14

LEGEND	
	Existing Mine Works Tyrone Seam Level 1
	Existing Mine Works Nelson Seam Level 2
	Existing Mine Works Nelson Seam Level 3
	Previous Floor Mined
	Air Flow Direction and Quantity
	Primary Escapeway
	Secondary Escapeway
	Auxiliary Escapeway Connection
	Telephone
	Permit Boundary
	Property Boundary
	Crusher
	Emergency Evacuation Siren
	Ventilation Shafts with Exhaust Fan (Down to the Grades of Mine)
	Ventilation Shafts with Exhaust Fan (Up to the Grades of Mine)
	Ventilation Shafts without Fan
	Auxiliary Fan Number and Air Direction
	Roof Fall
	Highway
	Berm
	Water Retention Area



Note: The purpose for this map is to show the mining extents through June 8, 2014, along with the location of the ventilation infrastructure, air flow directions, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits, and daily face mapping updates. The field survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the mine. Limited Rib and pillar corner location was part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

Note: Air reading quantities and direction, along with escapeway routing information, was supplied and proposed by the operator. Proposed mine geometric layout and location, and proposed mining advancement is also supplied by the owner. Ventilation and roof control designation by others. Certification of roof control and ventilation, escapeway routes and geometry, are not expressed or implied by this map.

Note: Part of Level 1 are abandoned and inaccessible.

GENERAL NOTES:
 1) THERE ARE NO SEALS IN THE MINE.
 2) THERE ARE NO TIES OR TIE WELLS IN THE MINE.

Miner Map Requirements

Air flows in through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 168.

Note: Unless Noted All Fan Blades are set at 23 (degrees)

Fan # 151 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Fan # 187 - Puff's Repair Shop - 250 HP - Fan One 72-00, 220,000 CFM
 -8 FT Diameter - 40 degree blade setting 1180 RPM - 0.3 Static Pressure**

Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft

Note: Both Fan controls are located on the surface

Fan # 155 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 7 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 154 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 169 - Horizontal Fan - 100 HP Westinghouse - 155,000 CFM
 8 FT Diameter - 1180 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1700 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1120 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1120 RPM - 0.5 Static Pressure

Fan # 180 - Buffalo Fan - 020 HP Toshiba - 35,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

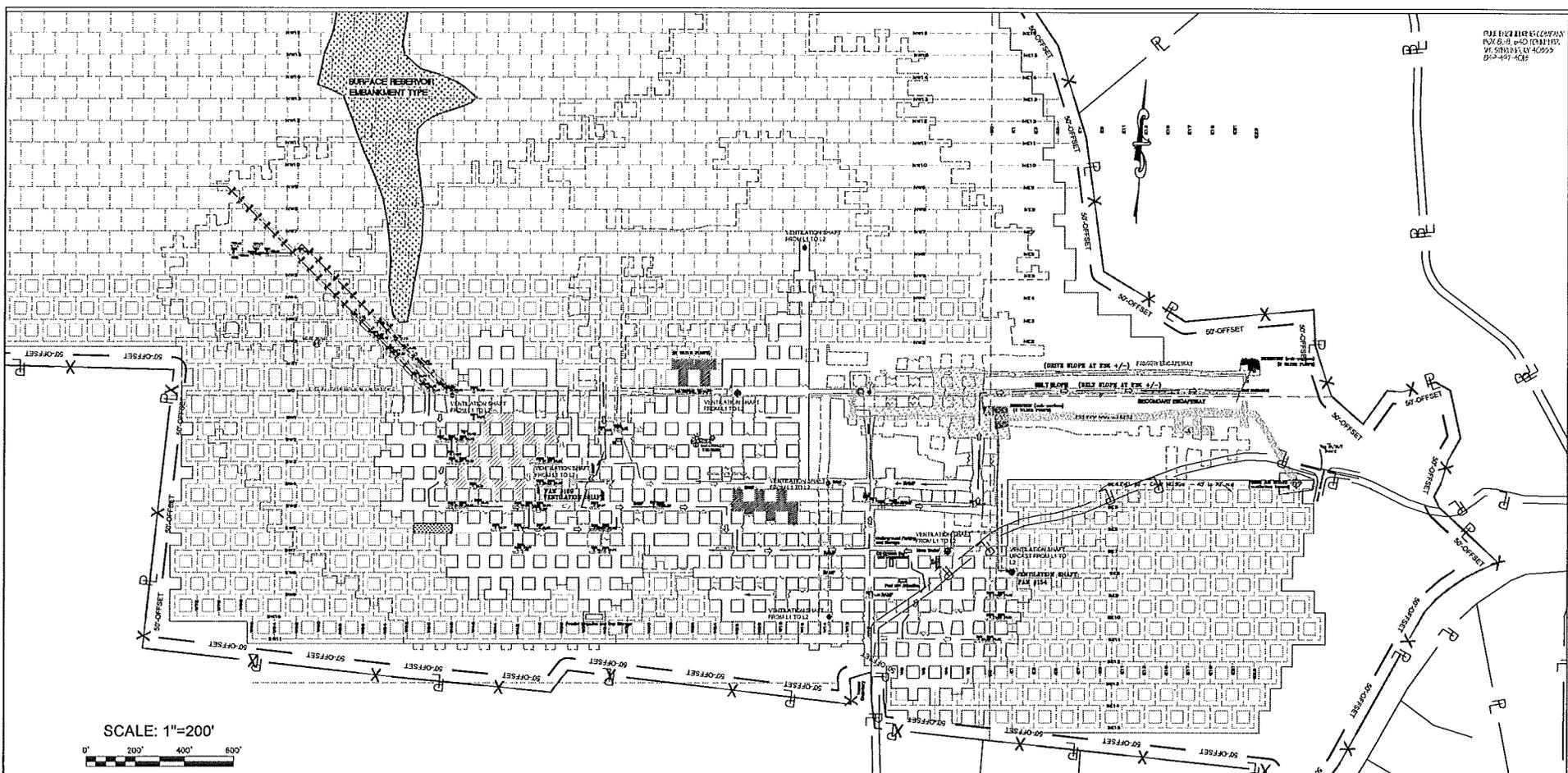
Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

-There are no adjacent openings known to be located to the mine openings.
 -There are no locations of known gas or oil sites on map. The mine does not create any water, nor do we have ventilation doors, air regulators, or stoppings.
 Underground communications: Primary radio phone communications and two-way radio Channel (2) Underground - Channel (1) Surface
 -Oil road diesel fuel and bio-diesel fuel storage located on the 2nd Level SE-B corner fuel bay (berm in place).

Drawn By: [Name] Date: 6-18-14
 Checked By: [Name] Date: 6-18-14

PLATE ENGINEERING COMPANY
 1001 E. 10th Street, Suite 100
 Ft. Smith, AR 72305
 501-497-4038

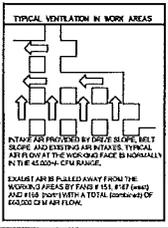


SCALE: 1"=200'



STERLING MATERIALS
 MSHA ID # 15-18068
 Level 2 - Nelson Seam
 Work Map
 and Escapeway Map
 Date: 6-18-14

- LEGEND**
- Existing Mine Works Tyson Seam Level 1
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 3
 - Previous Floor Mined
 - Air Flow Direction and Quantity
 - Primary Escapeway
 - Secondary Escapeway
 - Telephone
 - Permit Boundary
 - Property Boundary
 - Crusher
 - Emergency Evacuation Sign
 - Ventilation Shafts with Exhaust Fan (Exhaust to the Outside of Mine)
 - Ventilation Shafts with Exhaust Fan (Exhaust to the Inside of Mine)
 - Auxiliary Fan Number and Air Direction
 - Road Fall
 - Highwall
 - Berm
 - Water Retention Area



Note: The purpose for this map is to show the mining extents through May 28, 2014, along with the location of the ventilation infrastructure, air flow directions, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits, and daily face mapping updates. The field survey data is limited to accessible areas at the time of the survey. This survey included locating intersection points in the mine. Limited Rib and pillar corner location was part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

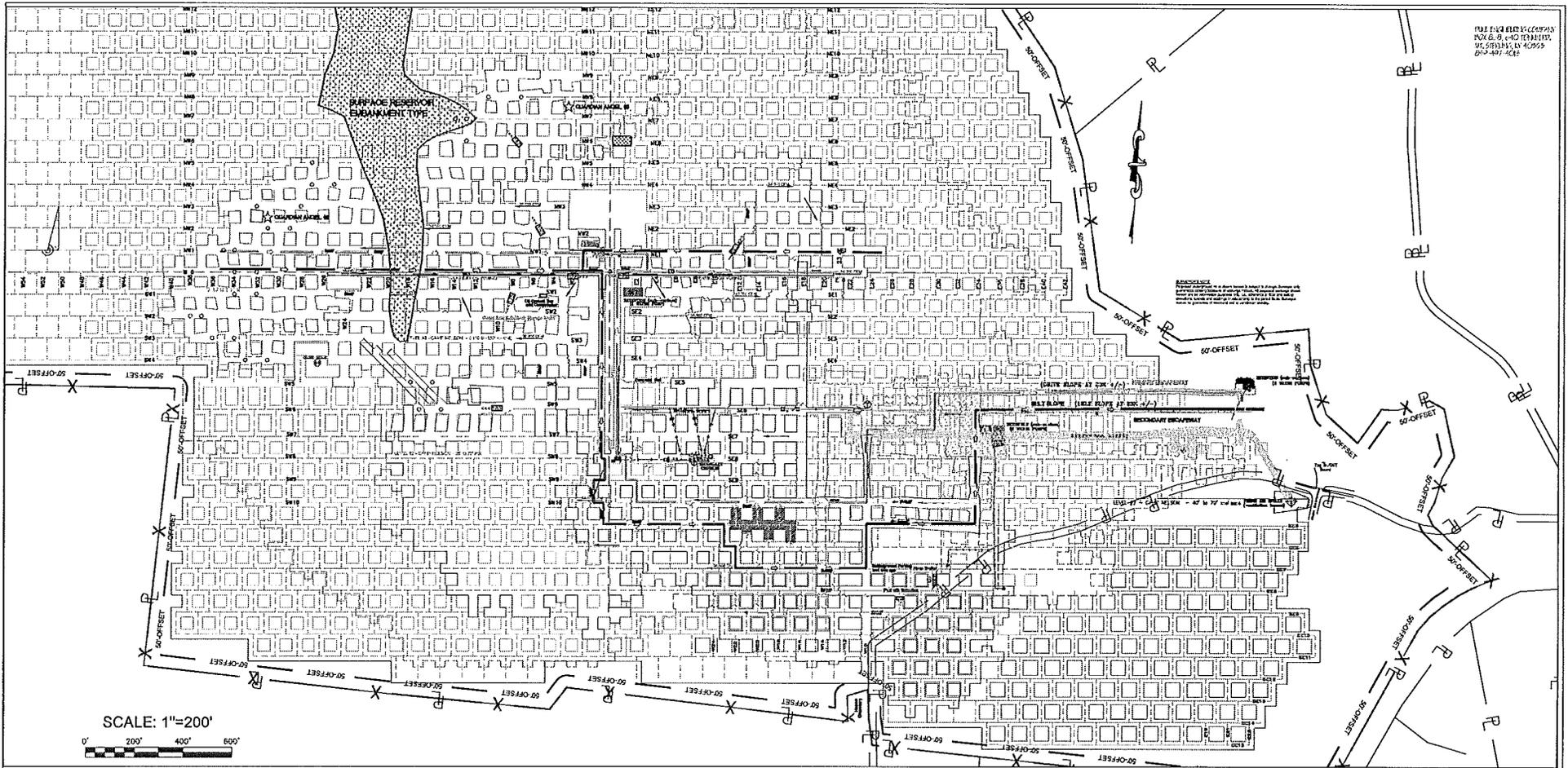
Note: Air reading quantities and direction, along with escapeway routing information, was supplied and proposed by the operator. Proposed mine geometric layout and location, and proposed mining advancement is also supplied by the owner. Ventilation and roof control design information by others. Certification of roof control and ventilation, escapeway routes and geometry, are not expressed or implied by this map.

Note: Part of Level 2 are abandoned and inaccessible.

GENERAL NOTES:
 1) THERE ARE NO DEALS IN THE MINE.
 2) THERE ARE NO "OLD" OR "NEW" WELLS IN THIS MINE.

- Mine Map Requirements**
- Air flows in through draw slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and fan # 151, # 167, and # 168.
 - Note: Unless Noted All Fan Blades are set at 23 (degrees)
 - Fan # 151 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**
 - Fan # 167 - Pauley Rapid Shop - 250 HP - Fan Dia 72"-D9, 230,000 CFM
 8 FT Diameter - 40 degree blades setting 1180 RPM - 0.5 Static Pressure**
 - **Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft.**
 - **Note: Both Fan controls are located on the surface.**
 - Fan # 168 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 7 FT Diameter - 1180 RPM - 0.5 Static Pressure
 - Fan # 154 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 187 - Horizontal Fan - 100 HP Westinghouse - 125,000 CFM
 8 FT Diameter - 1180 RPM - 0.5 Static Pressure

- Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 180 - Buffalo Fan - 020 HP Toshiba - 35,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
 3 FT Diameter - 1200 RPM - 0.5 Static Pressure
 - Fan # 183 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure
- There are no adjacent openings known to be located to the mine openings. There are no locations of known gas or air seals on map. The mine does not create any water, nor do we have ventilation doors, air regulators, or stoppings.
- Underground communications: Primary crusher phone communications and two-way radio. Channel (2) Underground - Channel (1) Surface - Off road diesel fuel and bio-diesel fuel storage located on the 2nd Level SE-8 corner fuel bay (barn in place). Bulk oil and grease storage with air compressor located on 2nd level, W9 crosscut connecting SE-7 and SE-8.



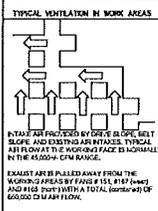
THIS PLAN IS THE PROPERTY OF STERLING MATERIALS, INC. AND IS LOANED TO YOU BY THE COMPANY. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF STERLING MATERIALS, INC.

SCALE: 1"=200'



STERLING MATERIALS
MSHA ID # 15-18068
Level 3 - Nelson Seam
Work Map
and Escapeway Map
Date: 6-18-2014

- LEGEND**
- Existing Mine Works Tyrone Seam Level 1
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 3
 - Previous Floor Mined
 - As Flow Direction and Quantity
 - Primary Escapeway
 - Secondary Escapeway
 - Telephone
 - Purmt Boundary
 - Property Boundary
 - Crusher
 - Emergency Evacuation Sign
 - Ventilation Shafts with Exhaust Fan (Submits the Output of Mine)
 - Ventilation Shafts with Exhaust Fan (Operational at this time)
 - Ventilation Shafts without Fan
 - Auxiliary Fan Number and Air Direction
 - Roof Fall
 - Highwall
 - Berm
 - Water Retention Area



Note: The purpose for this map is to show the mining extents through June 9, 2014, along with the location of the ventilation infrastructure, air flow directions, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits, and daily face mapping updates. The field survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the mine, Limited Rd and pillar corner location was part of the survey.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

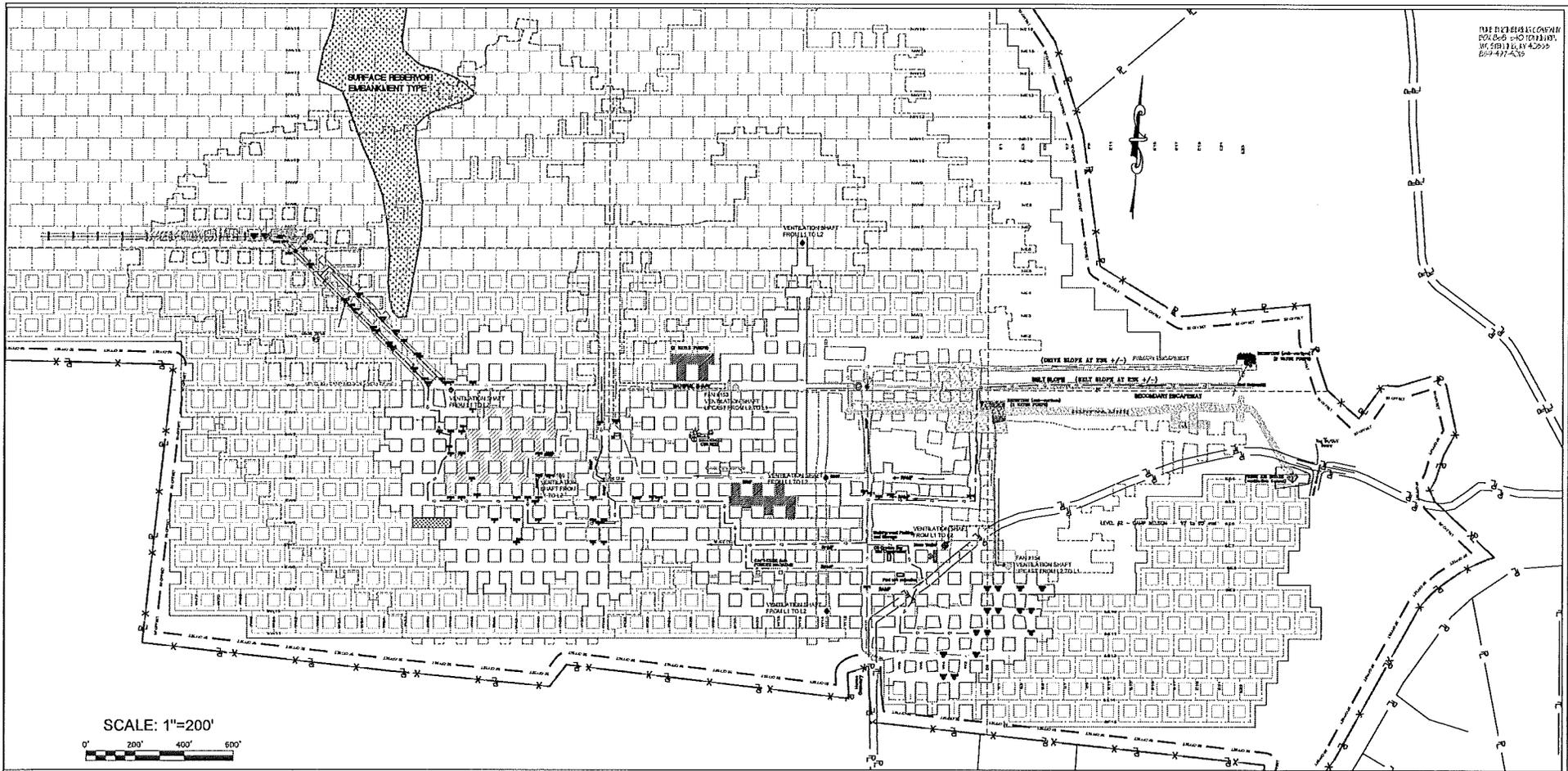
Note: Air reading quantities and direction, along with escapeway routing information, was supplied and proposed by the operator. Proposed mine geometric layout and location, and proposed mining advancement is also supplied by the owner. Ventilation and roof control designation by others. Certification of roof control and ventilation, escapeway routes and geometry, are not expressed or implied by this map.

Note: Part of Level 3 are abandoned and inaccessible.

GENERAL NOTES:
1) THERE ARE NO REALS IN THE MINE.
2) THERE ARE NO "CR" OR "DAS" WALLS IN THIS MINE.

- Mine Map Requirements**
- Air flows in through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 178.
- Note: Unless Noted All Fan Blades are set at 23 (degrees)
- Fan # 151 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
13 FT Diameter - 1200 RPM - 0.5 Static Pressure*
 - Fan # 167 - Paul's Repair Shop - 250 HP Fan One 72-09, 230,000 CFM
- 8 FT Diameter - 40 degree blade setting 1150 RPM - 0.5 Static Pressure**
 - *Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft.**
 - *Note: Both Fan controls are located on the surface.**
 - Fan # 168 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
7 FT Diameter - 1180 RPM - 0.5 Static Pressure
 - Fan # 154 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 169 - Horizontal Fan - 100 HP Westinghouse - 125,000 CFM
8 FT Diameter - 1180 RPM - 0.5 Static Pressure
 - Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 60,000 CFM
4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 60,000 CFM
4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 180 - Buffalo Fan - 020 HP Toshiba - 35,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
4 FT Diameter - 1750 RPM - 0.5 Static Pressure
 - Fan # 183 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
3 FT Diameter - 1750 RPM - 0.5 Static Pressure
- There are no adjacent openings known to be located by the mine openings.
-There are no locations of known gas or oil wells on map. The mine does not create any meter, nor do we have ventilation doors, air regulators, or stoppings.
Underground communications: Primary crusher phone communications and two-way radio. Channel (2) Underground - Channel (1) Surface
-off road diesel fuel and bio-diesel fuel storage located on the 2nd level
SE-4 corner fuel box (berm in place).
But oil and grease storage into oil compressor located in SW in the WS portal crosscut.
- Portable Fan #1 - Paul's Repair Shop - Fan One 95-46D-048 HP - 183,000 CFM - 8 FT Diameter - 700 RPM - 21 degree blade setting - 2.5 Static Pressure
 - Portable Fan #2 - Paul's Repair Shop - Fan One 72-46D-048 HP - 133,000 CFM - 8 FT Diameter - 800 RPM - 21 degree blade setting - 1.2 Static Pressure

THE BYRDELL COMPANY
 200 S. 10TH STREET
 WASHINGTON, DC 20005, BY 42525
 202-477-4250

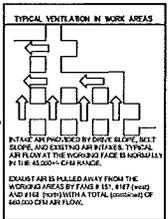


SCALE: 1"=200'
 0' 200' 400' 600'

STERLING MATERIALS
 MSHA ID # 15-18068
 Level 2 - Nelson Seam
 Work Map
 and Escapeway Map
 Date: 6-18-15

LEGEND

	Existing Mine Works Tyone Seam Level 1		Cluster
	Existing Mine Works Nelson Seam Level 2		Emergency Evacuation Sign
	Existing Mine Works Nelson Seam Level 3		Ventilation Shafts with Exhaust Fan (blow to the Outside of Mine)
	Previous Floor Mined		Ventilation Shafts without Fan
	Air Flow Direction and Quantity		Auxiliary Fan Number and Air Direction
	Primary Escapeway		Roof Fall
	Secondary Escapeway		Highwall
	Telephone		Blam
	Permit Boundary		Water Retention Area
	Property Boundary		Cap Hoist



Note: The purpose for this map is to show the mining extents in areas updated on April 14, 2015, along with the location of the ventilation infrastructure, air flow direction, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits, and daily face mapping updates. The field survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the mine. Limited Rib and pillar corner location was part of the survey. Current working face locations may vary.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

Note: Air reading quantities and direction, along with escapeway routing information, was supplied and proposed by the operator. Proposed mine geometric layout and location, and proposed mining advancement is also suggested by the owner. Ventilation and roof control design/operation by others. Certification of roof control and ventilation, escapeway routes and geometry, are not expressed or implied by this map.

Note: Part of Level 2 are abandoned and inaccessible.

GENERAL NOTES

- 1) THERE ARE NO SEALS IN THE MINE.
- 2) THERE ARE NO "VAL" OR "GAS" WELLS IN THIS MINE.

Mine Map Requirements:
 Air flow in through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 182.

Note: Unless Noted All Fan Blades are set at 25 (degrees)

Fan # 151 - Horizontal Fan - 200 HP Toolbars - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Fan # 167 - Pow'r Repair Shop - 250 HP - Fan One 72-D9, 230,000 CFM
 - 8 FT Diameter - 40 degree blade setting 1180 RPM - 0.5 Static Pressure**

Note: Both Fan controls are located on the surface.

Fan # 153 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 168 - Horizontal Fan - 200 HP Toolbars - 220,000 CFM
 7 FT Diameter - 1160 RPM - 0.5 Static Pressure

Fan # 184 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure (Not in Service)

Fan # 189 - Horizontal Fan - 100 HP Westinghouse - 125,000 CFM
 8 FT Diameter - 1180 RPM - 0.5 Static Pressure

Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 80,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 180 - Buffalo Fan - 020 HP Toolbars - 35,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
 3 FT Diameter - 1200 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

-There are no adjacent openings known to be located to the mine openings. -There are no locations of knees ops or all sets on mine. The mine does not create any water, nor do we have ventilation doors, air regulators, or stoppings.

Underground communications: Primary crusher phone communications and two-way radio. (Ground) - Channel (1) Surface -Off roof diesel fuel and bio-diesel fuel storage located on the 2nd level SE-8 corner fuel bay (barn in photo). Bulk oil and grease storage with air compressor located on 2nd level, W9 crosscut connecting SE-7 and SE-8.

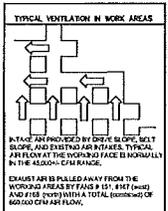
DATE: 6-18-2015
 DRAWN BY: J. W. WELLS
 CHECKED BY: J. W. WELLS
 PROJECT: 15-18068



SCALE: 1"=200'
 0 200 400 600

STERLING MATERIALS
 MSHA ID # 15-18068
 Level 3 - Nelson Seam
 Work Map
 and Escapeway Map
 Date: 6-18-2015

- LEGEND**
- Existing Mine Works Tyrone Seam Level 1
 - Existing Mine Works Nelson Seam Level 2
 - Existing Mine Works Nelson Seam Level 3
 - Previous Floor Mined
 - All Flow Direction and Quantity
 - Primary Escapeway
 - Secondary Escapeway
 - Telephone
 - Highwall
 - Permit Boundary
 - Property Boundary
 - Crusher
 - Emergency Evacuation Sign
 - Ventilation Shafts with Exhaust Fan (Shown in the Outline of Mine)
 - Ventilation Shafts with Exhaust Fan (Not Shown in Outline)
 - Ventilation Shafts without Fan
 - Auxiliary Fan Number and Air Direction
 - Roof Fall
 - Highwall
 - Berm
 - Water Retention Area



Note: The purpose for this map is to show the mining extents in areas updated on April 14, 2015, along with the location of the ventilation infrastructure, air flow directions, and escapeway routes and direction.

Note: Mining extents shown are based on field survey information and projected mining limits, and daily face mapping updates. The field survey data is limited to accessible areas at the time of the survey. The survey included locating intersection points in the mine. Limited rib and pillar corner location was part of the survey. Current working face locations may vary.

Note: Property lines shown are approximate and shall be verified by the operator as mining progresses. Certification of property is not expressed or implied.

Note: Air flow quantities and direction, along with escapeway routing information, was supplied and prepared by the operator. Proposed mine geometric layout and location, and proposed mining advancement is also supplied by the owner. Ventilation and roof control design/certification by others. Certification of roof control and ventilation, escapeway routes and geometry, are not expressed or implied by this map.

Note: Parts of Level 3 are abandoned and inaccessible.

GENERAL NOTES

1) THERE ARE NO DEALS IN THE MINE.

2) THERE ARE NO "OLD" OR "GAS" WELLS IN THIS MINE.

Mine Map Requirements:
 Air flow in through drive slope, belt slope, and air intake shaft, air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 188.

Note: Unless Noted All Fan Blades are set at 25 (degrees)

Fan # 151 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 13 FT Diameter - 1200 RPM - 0.5 Static Pressure**

Fan # 167 - Paul's Repair Shop - 250 HP - Fan One 72-29, 230,000 CFM
 8 FT Diameter - 40 degree blade setting 1180 RPM - 0.5 Static Pressure

Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft

Note: Both Fan controls are located on the surface.

Fan # 153 - Horizontal Fan - 078 HP Westinghouse - 50,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 158 - Horizontal Fan - 200 HP Toshiba - 220,000 CFM
 7 FT Diameter - 1180 RPM - 0.5 Static Pressure

Fan # 154 - Buffalo Fan - 040 HP Westinghouse - 37,500 CFM
 3.5 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 169 - Horizontal Fan - 100 HP Westinghouse - 125,000 CFM
 8 FT Diameter - 1180 RPM - 0.5 Static Pressure

Portable Fan #1 - Paul's Repair Shop - Fan One 88-450-048 HP - 185,000 CFM - 8 FT Diameter - 750 RPM - 21 degree blade setting - 2.3 Static Pressure

Portable Fan #2 - Paul's Repair Shop - Fan One 72-460-048 HP - 135,000 CFM - 8 FT Diameter - 800 RPM - 21 degree blade setting - 1.2 Static Pressure

Fan # 175 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 177 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 178 - Horizontal Fan - 075 HP Westinghouse - 60,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

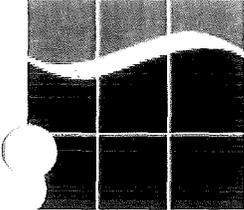
Fan # 179 - Horizontal Fan - 075 HP Westinghouse - 60,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 180 - Buffalo Fan - 020 HP Toshiba - 35,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 182 - Buffalo Fan - 010 HP Westinghouse - 25,000 CFM
 4 FT Diameter - 1750 RPM - 0.5 Static Pressure

Fan # 183 - Horizontal Fan - 020 HP Westinghouse - 40,000 CFM
 3 FT Diameter - 1750 RPM - 0.5 Static Pressure

-There are no adjacent openings known to be located to the mine openings.
 -There are no locations of known gas or air seals on map. The mine does not create any water, nor do we have ventilation doors, air regulators, or stoppings.
 Underground communications: Primary crusher phone communications and two-way radio Channel (2) Underground - Channel (1) Surface
 -Off road diesel fuel and bio-diesel fuel storage located on the 2nd Level
 SEC-8 corner fuel by (down in place)
 Bus oil and grease storage with air compressor located in SW in the WS partial crosscut.



Sterling Materials, LLC
Mine Emergency Plan
Mine I.D. 15-18068
Ventilation Plan for Underground
57.8520
Mine Map Requirements

Air flows in through drive slope, belt slope, and air intake shaft. Air and exhaust flow out through ventilation shafts and Fan # 151, # 167, and # 168

Note: All Fan Blades are set at 25° (degrees)

Fan # 151 – Hartzell Fan – 200 HP Toshiba – 220,000 CFM

13 FT Diameter – 1200 RPM – 0.5 Static Pressure**

Fan # 167 – Paul's Repair Shop – 250 HP – Fan One 72 – D9, 230,000 CFM

–6 FT Diameter – 40° degree blade setting 1180 RPM – 0.5
Static Pressure**

Note: Both Fans are used on one 13 FT Diameter air and exhaust shaft.

**Note: Both Fan controls are located on the surface.

Fan# 153 – Hartzell Fan – 075 HP Westinghouse – 50,000 CFM

4 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 168 – Hartzell Fan – 200 HP Toshiba – 220,000 CFM

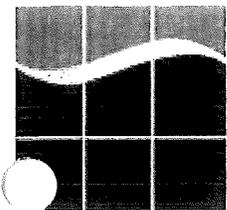
7 FT Diameter – 1160 RPM – 0.5 Static Pressure

(Not in Service) Fan # 154 – Buffalo Fan – 040 HP Westinghouse – 37,500 CFM

3.5 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 169 – Hartzell Fan – 100 HP Westinghouse – 125,000 CFM

8 FT Diameter – 1180 RPM – 0.5 Static Pressure



Sterling Materials, LLC

Mine Emergency Plan

Mine I.D. 15-18068

Fan # 175 – Hartzell Fan – 020 HP Westinghouse – 40,000 CFM

3 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 177 – Hartzell Fan – 020 HP Westinghouse – 40,000 CFM

3 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 178 – Hartzell Fan – 075 HP Westinghouse – 80,000 CFM

4 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 179 – Hartzell Fan – 075 HP Westinghouse – 80,000 CFM

4 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 180 – Buffalo Fan – 020 HP Toshiba – 35,000 CFM

3 FT Diameter – 1750 RPM – 0.5 Static Pressure

Fan # 182 – Buffalo Fan – 010 HP Westinghouse – 25,000 CFM

4 FT Diameter – 1200 RPM – 0.5 Static Pressure

Fan # 183 – Hartzell Fan – 020 HP Westinghouse – 40,000 CFM

3 FT Diameter – 1750 RPM – 0.5 Static Pressure

There are no adjacent openings known to be located to the mine openings. There are no locations of known gas or oil wells on map. The mine does not create any water, nor do we have ventilation doors, air regulators, or stoppings.

Underground Communications: Crusher Phone Communications and Two-Way Radio

Channel (2) Underground – Channel (1) Surface

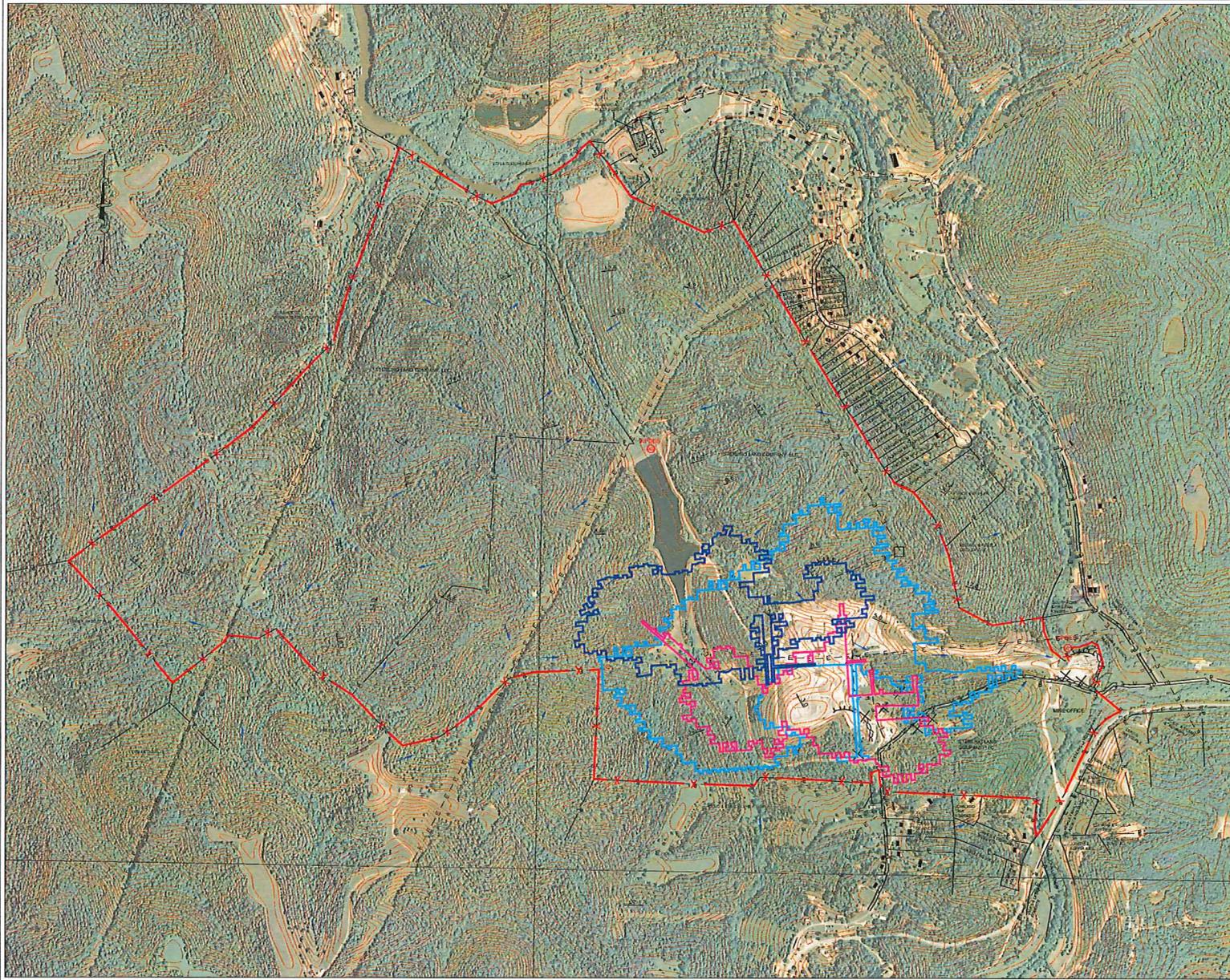
Off road diesel fuel and Bio-diesel fuel storage located on the 2nd Level SE-8 corner (containment wall installed).

8/20/14

STERLING MATERIALS
PERMIT BOUNDARY & MINE WORKS
7-10-2015

LEGEND

-  LEVEL 1 WORKS
-  LEVEL 2 WORKS
-  LEVEL 3 WORKS



STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 9

Responding Witness: John Walters

- Q-9. Provide a detailed description of the operating and management plan that is proposed for receipt, storage, transport, placement, and/or compaction of CCR at the mine's surface facilities and within the mine, including any equipment that will be utilized for that purpose. Also address how CCR placement will be coordinated with active mining operations, including, but not limited to, any changes in ventilation or other operations. Please include in your descriptions how Sterling would handle and place wet CCR versus dry CCR, and any cost and logistical differences between management of the two.
- A-9. The Companies have failed to provide Sterling with substantive details about the physical properties of the CCR (moisture content, density etc.), how it will be staged for delivery and delivery schedule, and whether the product will be mixed in barges or truck. However, based upon assumptions of general material handling requirements of the CCR, the attached are plan options for transport, storage and placement. With respect to barge operations and transfer equipment, Sterling has adopted the Companies' plans for a barge unloading facility as set forth in the Sterling Alternative to the December 2014 Supplement to Alternatives Analysis.

Transfer on Surface (Manual)

1. Material is delivered via Over-the-Road (OTR) tractor-trailer with a 25 ton capacity.
2. Truck pulls into building on-site at Sterling location on surface.
3. Material is dumped inside building into transfer system (to be designed).
4. Material is loaded into 45 ton articulated hauler (CAT 745C or equivalent).
5. Material is hauled underground to designated heading location.
6. Material is unloaded at designated heading location.
7. Material is placed and graded by wheeled dozer (CAT 824K or equivalent).

Transfer on Surface (Shaft)

1. Material is delivered via Over-the-Road (OTR) tractor-trailer with a 25 ton capacity.
2. Truck pulls into building on-site at Sterling location on surface.
3. Material is dumped inside building into transfer system (to be designed).
4. Material is conveyed underground through 8 foot shaft to first level hopper and transfer system (to be designed)
5. Material is loaded into 45 ton articulated hauler (CAT 745C or equivalent).
6. Material is transported to designated heading location.
7. Materials is unloaded at designated heading location.
8. Material is placed and graded by wheeled dozer (CAT 824K or equivalent).

Transfer in Mine

1. Material is delivered via Tri-Axle Dump Truck with a 25 ton capacity.
2. Truck drives into mine through drive in slope (new) at Sterling location in underground mine.
3. Truck pulls to designated heading location.
4. Materials is unloaded at designated heading location.
5. Material is placed and graded by wheeled dozer (CAT 824K or equivalent).

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 10

Responding Witness: John Walters

- Q-10. Provide a copy of any reports or analyses prepared by consultants for Sterling or Sterling's staff that evaluated the mine's viability from a technical or economic standpoint, including, but not limited to, Morgan Worldwide's greenfield evaluation and greenfield reports.
- A-10. Objection. Sterling objects to the request as the information requested constitutes trade secrets or confidential commercial or financial information of a proprietary nature which are protected from disclosure pursuant to KRS 61.878(1)(c)(1). Morgan Worldwide prepared a valuation of the greenfield mineral reserves only in 1998, which is wholly irrelevant to the issues presented in this matter.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 11

Responding Witness: John Walters

Q-11. Provide information on any groundwater monitoring wells installed by Sterling in the vicinity of the mine, including location, surface elevation, bottom elevation, and monitoring data collected to date.

A-11. Sterling's operations do not require groundwater monitoring wells.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 12

Responding Witness: John Walters

Q-12. Provide all schedules in electronic format with cells intact and all work-papers, source documents, and electronic spreadsheets used in the development of Exhibit G to Sterling's Complaint (Sterling's Present Value Revenue Requirement of placing gypsum in the Ghent Landfill).

A-12. See attached.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 13

Responding Witness: John Walters

Q-13. Provide all known examples where CCR has been or is being beneficially used or disposed of in underground limestone mines. For each such example, please state the source(s) of the CCR if known.

A-13. Sterling has no knowledge of examples where CCR has been or is being beneficially used or disposed of in an underground limestone mine. The Companies have proposed what Sterling believes to be the largest and most expensive CCR landfill ever constructed by a utility. Underground limestone mines are the exception, not the rule, with respect to limestone extraction. Most extraction is by quarrying operations. As a result, the unique opportunity to use the mine is based upon the immense cost of the Trimble landfill, and its proximity to Sterling's underground mine.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 14

Responding Witness: John Walters

Q-14. Provide audited financials for Sterling for the years 2006 – 2014.

A-14. Objection. Sterling objects to the request as the information requested constitutes trade secrets or confidential commercial or financial information of a proprietary nature which are protected from disclosure pursuant to KRS 61.878(1)(c)(1). The response to this question would require Sterling to provide confidential financial information to KU/LG&E that would provide KU/LG&E the ability to determine Sterling's cost of operations giving KU/LG&E a grossly unfair advantage in negotiating a contract for placing CCR in Sterling's mine in the event that the proposed Trimble Landfill is not a viable option for disposal of Trimble County's CCR.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 15

Responding Witness: John Walters

- Q-15. Provide all correspondence from 2009 to date authored by any officer and/or director of Sterling (including but not limited to Alex Boone, Steve Evans, John Walters, and/or Tim Stout) to any person affiliated with Sterling related to the disposal or beneficial use of CCR at Sterling mines.
- A-15. Objection. Sterling objects to the request to the extent that such discovery is overly broad, unduly burdensome, expensive, oppressive, or excessively time consuming as written, especially given the short time frame Sterling has been given to respond to Data Request. The response to this question would also require the Company to reveal the contents of communications with counsel and the work product of counsel, which information is protected from disclosure by the attorney-client privilege and the work product doctrine.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 16

Responding Witness: John Walters

Q-16. Provide minutes of all of Sterling's board meetings from 2009 to date related to the disposal or beneficial use of CCR at Sterling mines.

A-16. Sterling is a single member Kentucky limited liability company. There have been no "board meetings" related to the disposal or beneficial use of CCR.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 17

Responding Witness: John Walters

Q-17. Provide the date, location, and time of all discussions or conversations between Sterling personnel and any representative of any federal or state agency, including, but not limited to, the Kentucky Division of Waste Management (“DWM”) and the U.S. Environmental Protection Agency (“EPA”), and any other participants related to CCR disposal or beneficial use at any of Sterling’s mines.

- a. Provide the names of all people involved in those discussions, their employment positions or titles, and any notes of those discussions, and describe the substance of those discussions.

A-17. John Walters, Sterling’s counsel, has had various discussions with the following representatives of federal and state agencies with respect to beneficial use of CCR in Sterling’s mine. Sterling has no ability to determine, other than generally, the specifics of each conversation at any specific date or time. However, the following is a summary to the best of Mr. Walters’ recollection, of the conversations with each individual.

- a. Eric Summerville, Frank Ney and Steve Souders, US Environmental Protection Agency, Mr. Walters has discussed the following topics with Mr. Summerville, Mr. Ney and/or Mr. Souders:
 - i. Sterling’s existing beneficial reuse permit for gypsum from the Ghent Generating Station.
 - ii. The concerns of the EPA as expressed in letters from the EPA to the Corps with respect to the Trimble Landfill.
 - iii. The CWA 404 permit review process and the role of the Corps and the EPA in that process.
 - iv. The cost differences between the Trimble Landfill as originally contemplated and the most recent cost.
 - v. The EPA’s position with respect to Sterling’s proposed beneficial use of CCR.
 - vi. The PVRR cost analysis process employed by the KY PSC when comparing alternatives as compared to the method the Companies’ employed in their various 404 Alternatives Analyses submitted to the Corps.

Kimberly Simpson, US Army Corps of Engineers, Louisville District. Mr. Walters has discussed the following topics with Ms. Simpson:

- i. The concerns of the EPA as expressed in letters from the EPA to the Corps with respect to the Trimble Landfill.
- ii. The CWA 404 permit review process and the role of the Corps and the EPA in that process.
- iii. The cost differences between the Trimble Landfill as originally contemplated and the most recent cost.
- iv. The EPA's position with respect to Sterling's proposed beneficial use of CCR.
- v. The PVRR cost analysis process employed by the KY PSC when comparing alternatives as compared to the method the Companies employed in their various 404 Alternatives Analyses submitted to the Corps.

Bob Bickner, Todd Hendricks and Robin Green, Kentucky Division of Solid Waste. Mr. Walters has discussed the following topics with Mr. Bickner, Ms. Green and Mr. Hendricks:

- i. The effect of the new CCR regulations on Sterling's existing Beneficial Reuse permit and ability to obtain a modification of that permit to receive CCR from Trimble County Generating Station.
- ii. Methods of obtaining the necessary TCLP and SPLP information needed to modify existing Beneficial Reuse permit.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 18

Responding Witness: John Walters

Q-18. Provide copies of all correspondence between Sterling personnel and any representative of any federal or state agency, including, but not limited to, DWM and EPA, and any other parties related to CCR disposal or beneficial use at any of Sterling's mines.

A-18. See attached.

**STERLING
VENTURES**

John Walters <johnwalters@sterlingventures.com>

Trimble County Landfill

1 message

John Walters <johnwalters@sterlingventures.com>

Sat, Jun 27, 2015 at 1:10 PM

To: "Somerville, Eric" <Somerville.eric@epa.gov>, "Simpson, Kimberly J LRL" <Kimberly.J.Simpson@usace.army.mil>

Kimberly and Eric:

Please see attached information presented during the informal conference at the Kentucky Public Service Commission with regard to LG&E/KU's position that Sterling's mine can no longer be considered a LEDPA alternative under the new CCR regulations.

If LG&E/KU is unwilling to sit down with Sterling and the KDSW, the Corps and/or the EPA, and then provides a legal conclusion to the Corps that Sterling mine's cannot be considered as a practical alternative because of the new CCR regs, how will the Corps proceed? Will it defer to its own legal counsel, LG&E/KU's legal conclusion, the position of of the KDSW or request an opinion of the EPA?

Thanks for your consideration. I look forward to hearing from you.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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2 attachments **20150627112923452.pdf**
629K **062615-1_Sterling_Comments_to_IC_Memo.pdf**
84K

Question about the Sterling option's viability in light of EPA's new CCR Rule. (May 26, 2015 email from EPA)

- The definition of "CCR Landfill" includes "an area of land or excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For the purpose of this subpart, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of beneficial reuse." 80 Fed. Reg. at 21469 (April 17, 2015).

Question about the Sterling option's viability in light of EPA's new CCR Rule. (May 26, 2015 email from EPA)

- Sterling contends that placement of CCRs in its mine will constitute beneficial use of CCRs, rather than disposal subject to the full requirements of EPA's CCR Rule.
- The May 26, 2015 email from one EPA employee does not find that Sterling's proposed use would constitute beneficial use exempt from the CCR Rule. It merely states that it would be beneficial use if it meets the four requirements of the rule, but would be considered "disposal" subject to the CCR Rule if it fails to meet the requirements.

Question about the Sterling option's viability in light of EPA's new CCR Rule. (May 26, 2015 email from EPA)

- EPA's Preamble for the CCR Rule expressly states that "large-scale placement, akin to disposal, of CCR under the guise of 'beneficial use' – the beneficial use being the filling up of old quarries or gravel pits..." is not considered beneficial use under the CCR Rule. 80 Fed. Reg. at 21330 (April 17, 2015).
- EPA explained in a March 18, 2015 memorandum that the only mines excluded from the definition of CCR "landfill" are coal mines (which will be addressed by future rules).

Question about the Sterling option's viability in light of EPA's new CCR Rule. (May 26, 2015 email from EPA)

- The fact that Sterling has a Kentucky beneficial reuse permit does not establish that the proposal would be beneficial use under the CCR Rule because the new federal requirements are substantially different from those under the state program.
- Sterling's option does not appear to meet at least two prongs of the test – placement of CCRs would serve no functional benefit and it would not substitute for the use of a virgin material that would otherwise be utilized.

Question about the Sterling option's viability in light of EPA's new CCR Rule. (May 26, 2015 email from EPA)

- If subject to the rule as a new landfill, it is unclear that it would be technically feasible for the Sterling mine to comply with design, and operating requirements applicable to landfills, such as double liners with leachate collection. Certainly, the Sterling cost estimates do not take such costs into account or provide any assurance they could be met.



STERLING
VENTURES

June 26, 2015

Jeff DeRouen
Executive Director
KY Public Service Commission
211 Sower Boulevard
Frankfort, KY 40601

VIA ELECTRONIC FILING

RE: Investigation of Kentucky Utilities Company's and Louisville Gas and Electric Company's Respective Need for and Cost of Multiphase Landfills at the Trimble County and Ghent Generating Stations Case No. 2015-00194

Dear Mr. DeRouen:

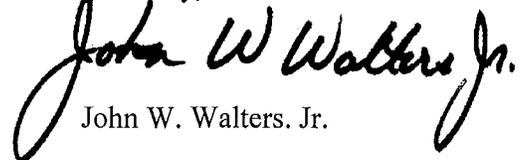
Sterling Ventures would respectively submit the following comments to the Inter-Agency Memorandum dated June 24, 2015 summarizing the informal conference held on June 19, 2015.

The first sentence of the third paragraph should be corrected by adding the following italicized phrase: "Mr. John Walters for Sterling Ventures agreed that the mine could not compete with the cost to construct phase 1 of the landfill as originally approved by the Commission, ..."

Also, the first sentence of the first full paragraph on the second page states: "The Companies stated that none of Mr. Walter's claims regarding his talks with federal and state agencies are documented." It should also be noted that in response to the above comment, Sterling proposed a meeting with representatives of LG&E/KU and Sterling with the EPA, US Army Corps of Engineers, and/or the Kentucky Division of Waste Management, Solid Waste Branch to discuss whether Sterling's mine can be considered as an option for Trimble County CCR, and that LG&E/KU declined.

Please let me know should there be any questions regarding the above. Thank you for your consideration.

Sincerely,


John W. Walters, Jr.

cc: Parties of Record

**STERLING
VENTURES**John Walters <johnwalters@sterlingventures.com>

FYI

1 message

John Walters <johnwalters@sterlingventures.com>
To: "Somerville, Eric" <Somerville.eric@epa.gov>

Wed, Jun 17, 2015 at 10:05 AM

See attached

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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11648K

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

INVESTIGATION OF KENTUCKY UTILITIES)	
COMPANY'S AND LOUISVILLE GAS &)	
ELECTRIC COMPANY'S RESPECTIVE NEED)	CASE NO. 2015-00194
FOR AND COST OF MULTIPHASE)	
LANDFILLS AT THE TRIMBLE COUNTY AND)	
GHENT GENERATING STATIONS)	

ORDER

On June 26, 2009, Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") (collectively, the "Companies") filed separate applications in Case Nos. 2009-00197¹ and 2009-00198,² respectively, seeking multiple Certificates of Public Convenience and Necessity ("CPCN"), pursuant to KRS 278.020(1), in conjunction with their respective environmental compliance plans filed pursuant to KRS 278.183. In Case No. 2009-00197, KU requested, *inter alia*, authority to construct new landfills at the Ghent Generating Station ("Ghent Landfill") and the Trimble County Generating Station ("Trimble County Landfill") to deposit gypsum and coal ash. In Case No. 2009-00198, LG&E requested, *inter alia*, authority to construct the Trimble County Landfill. Because of their joint ownership of the Trimble County Generating Station Unit

¹ Case No. 2009-00197, *Application of Kentucky Utilities Company for Certificates of Public Convenience and Necessity and Approval of Its 2009 Compliance Plan for Recovery by Environmental Surcharge* (filed June 26, 2009).

² Case No. 2009-00198, *Application of Louisville Gas and Electric Company for Certificates of Public Convenience and Necessity and Approval of Its 2009 Compliance Plan for Recovery by Environmental Surcharge* (filed June 26, 2009).

2, KU and LG&E would co-own the Trimble County Landfill, with KU assuming 36 percent and LG&E assuming 39 percent of the Companies' share of the costs associated with the construction of the Trimble County Landfill.

KU stated that the new Ghent Landfill was to be constructed in three phases, with Phase I estimated to cost \$204 million and be completed within 18-24 months. The Companies proposed a four-phase construction of the new Trimble County Landfill, with Phase I estimated to cost \$94 million. The Companies would be responsible for 75 percent of the total cost of the new Trimble County Landfill, for an approximately \$70.5 million total.³ Phase I of the Trimble County Landfill was estimated to be completed by January of 2013. KU noted that the new landfills were required to comply with the Clean Water Act, the Resource Conservation and Recovery Act, and various state air quality environmental regulations.⁴ By Orders issued on December 23, 2009, in Case Nos. 2009-00197 and 2009-00198, the Commission granted KU a CPCN to construct the Ghent and Trimble County Landfills and LG&E a CPCN to construct the Trimble County Landfill, respectively.⁵

³ The remaining 25 percent of the Trimble County Landfill is to be owned by the Indiana Municipal Power Agency and the Illinois Municipal Electric Agency.

⁴ Case No. 2009-00197, *Kentucky Utilities Company* (Ky. PSC Dec. 23, 2009), Order at 7.

⁵ *Id.*; and Case No. 2009-00198, *Louisville Gas and Electric Company* (Ky. PSC Dec. 23, 2009).

On April 21, 2015, the Commission held a combined public hearing in Case Nos. 2014-00371⁶ and 2014-00372,⁷ involving the applications of KU and LG&E, respectively, to adjust their base rates. In the course of the cross-examination of the Companies' witnesses, Mr. Paul W. Thompson, Chief Operating Officer, responded to questions regarding the status of the Trimble County Landfill.⁸ Mr. Thompson testified that construction on the Trimble County Landfill has not yet begun, that the landfill is to be constructed in phases and that construction of the first phase will begin soon. Mr. Thompson expressed his belief that the approximately \$70 million cost to construct the Trimble County Landfill, as set forth in the Commission's December 23, 2009 Orders in Case Nos. 2009-00197 and 2009-00198, was the cost to construct only the landfill's first phase and that as originally proposed the total project consisted of four phases and the total cost would exceed \$460 million.⁹ Mr. Thompson stated that due to the passage of time, the total Trimble County Landfill project cost has increased by approximately 10 percent to bring the total cost to approximately \$500 million.¹⁰ While acknowledging that the Commission's Orders authorizing the Trimble County Landfill construction referred only to a total cost of \$94 million, which represented just Phase I, with KU and LG&E being responsible for 75 percent of that cost, Mr. Thompson stated that the

⁶ Case No. 2014-00371, *Application of Kentucky Utilities Company for an Adjustment of Its Electric Rates* (filed Nov. 26, 2014).

⁷ Case No. 2014-00372, *Application of Louisville Gas and Electric Company for an Adjustment of Its Electric and Gas Rates* (filed Nov. 26, 2014).

⁸ Case No. 2014-00371, *Kentucky Utilities Company*; and Case No. 2014-00372, *Louisville Gas and Electric Company*, Hearing Video at 11:28:06.

⁹ *Id.* at 11:30:03-11:30:40.

¹⁰ *Id.* at 11:35:28-11:36:05.

Companies interpreted the Orders as granting authority to construct all phases of the project.¹¹ When asked whether the Companies would submit an application to afford the Commission an opportunity to re-examine the Trimble County Landfill project, Mr. Thompson responded in the affirmative.¹²

On May 20, 2015, Sterling Ventures, LLC ("Sterling Ventures"), a business headquartered in Lexington, Kentucky, and a customer of KU, tendered a formal Complaint to the Commission wherein it alleged that the costs of the two landfills have dramatically increased. A copy of Sterling Ventures' Complaint, without the voluminous exhibits, is set forth in the Appendix to this Order.¹³ Sterling Ventures, which owns and operates a limestone mine in Verona, Kentucky, states that, in the Companies' respective Rate Applications in Case Nos. 2014-00371 and 2014-00372, the Companies indicated that Phase I of the Trimble County Landfill would cost over \$429 million, up from the \$94 million reflected in their CPCN Applications in Case Nos. 2009-00197 and 2009-00198. Similarly, Sterling Ventures states that the estimated cost of Phase I of the Ghent Landfill has risen from \$205 million to \$341 million.

Sterling Ventures asserts that its mine is located 17 miles from the Ghent Generating Station and 50 miles from the Trimble County Generating Station. Sterling Ventures notes that it has a Registered Permit by Rule for Beneficial Reuse of Special Waste for storing gypsum in its mine. It avers that depositing excess gypsum in its mine rather than in the Ghent Landfill would result in savings of \$41 million. Sterling

¹¹ *Id.* at 11:37:39-11:37:46.

¹² *Id.* at 11:38:04-11:38:19

¹³ Sterling Ventures' Complaint with the exhibits is available for viewing on the Commission's website at http://psc.ky.gov/PSC_WebNet/2015-00194.

Ventures states that in 2011 it presented its proposal to KU to construct only those portions of the Ghent Landfill necessary to deposit coal ash and to deposit the excess gypsum in the Sterling Ventures mine. Sterling Ventures notes that, of the estimated total cost to construct the Ghent Landfill, approximately \$53 million was related to storing gypsum plus ongoing operating and maintenance expenses.

In regard to the Trimble County Landfill, Sterling Ventures asserts that the present value savings for depositing gypsum in its mine rather than in the new Trimble County Landfill would be between \$46 million and \$257 million, dependent upon whether infrastructure to dry the coal combustion residuals is required. Accordingly, Sterling Ventures argues that the Trimble County Landfill is no longer the least-cost option, particularly due to the changing economic factors, including the mounting cost increases to construct the landfill. Sterling Ventures therefore requests that the Commission revoke the Companies' CPCNs with respect to the Trimble County Landfill and to limit KU's recovery of environmental costs related to the Ghent Landfill.

On May 22, 2015, the Companies tendered a Joint Application, using the Commission's electronic filing procedures, requesting a declaratory order affirming their authority to construct all phases of the Trimble County Landfill and to recover costs through their respective environmental cost-recovery mechanisms. In the Companies' Joint Application, which was docketed as Case No. 2015-00156, the Companies detailed the significant delays they have encountered in securing the necessary permits to construct the Trimble County Landfill, as well as the costs that have already been incurred, which are in excess of \$24 million. On June 3, 2015, Kentucky Industrial

Utility Customers, Inc.'s ("KIUC") petition to intervene was granted in Case No. 2015-00156.

Based upon a review of Sterling Ventures' Complaint and the Companies' Joint Application in Case No. 2015-00156, the Commission finds that one investigation should be initiated for the purpose of examining all of the issues raised regarding the need for, and the cost of, the multi-phase Trimble County and Ghent Landfills. Although the Commission is unable to determine at this time whether Sterling Ventures' Complaint establishes a *prima facie* case, we do find that Sterling Ventures has alleged sufficient facts to support our further investigation into the merits of its Complaint. The Commission further finds that the Companies' Joint Application and Sterling Ventures' Complaint raise issues in common and, in the interest of administrative economy, the Companies' Joint Application and Sterling Ventures' Complaint should be consolidated into this instant investigation pursuant to 807 KAR 5:001, Section 4(14). The Commission will utilize its electronic filing procedures for this investigation pursuant to 807 KAR 5:001, Section 8. All documents filed in the Companies' Joint Application, Case No. 2015-00156, along with Sterling Venture's Complaint, should be placed in this case file, Case No. 2015-00194, and Case No. 2015-00156 should be closed and removed from the Commission's active docket.

Finally, contemporaneous with filing their Joint Application in Case No. 2015-00156, the Companies moved the Commission to schedule an informal conference for the purpose of assisting in the understanding of the issues in that proceeding and to respond to any questions. On May 27, 2015, Sterling Ventures also tendered a motion requesting the Commission to schedule an informal conference. The Commission finds

that an informal conference would assist in the Commission's investigation of these issues and in the establishment of a procedural schedule, which should provide an opportunity for the Companies to respond to Sterling Ventures' Complaint and for all parties to file prepared testimony and to engage in discovery. For these reasons, the Companies' and Sterling Ventures' motion for an informal conference should be granted.

IT IS THEREFORE ORDERED that:

1. This case is established pursuant to KRS 278.040, KRS 278.250, and the electronic filing procedures set forth in 807 KAR 5:001, Section 8, to investigate:

a. The need for and cost of the multi-phase Trimble County and Ghent Landfills;

b. The issues raised in Sterling Ventures' Complaint; and

c. The Companies' Joint Application in Case No. 2015-00156.

2. The record of Case No. 2015-00156 is physically consolidated into this case and an Order shall be entered in Case No. 2015-00156 that:

a. Closes that case and removes it from the Commission's docket;
and

b. Makes all parties of Case No. 2015-00156 parties to this case.

3. All documents filed in the future relating to these issues shall contain only the caption of Case No. 2015-00194.

4. Sterling Ventures' Complaint is filed in and consolidated with this case for purposes of investigation and determination as to whether the Complaint alleges a *prima facie* case as required by 807 KAR 5:001, Section 20(4).

5. The pending motions for an informal conference are granted.

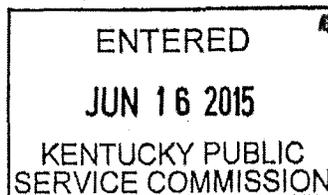
6. An informal conference shall be held on Friday, June 19, 2015, at 10:00 a.m. Eastern Daylight Time, at the Commission's offices at 211 Sower Boulevard, Frankfort, Kentucky, for the purpose of discussing the issues in this case and establishing a procedural schedule.

7. Unless Sterling Ventures files an objection to the use of electronic filing procedures within seven days of the date of this Order, Sterling Ventures shall:

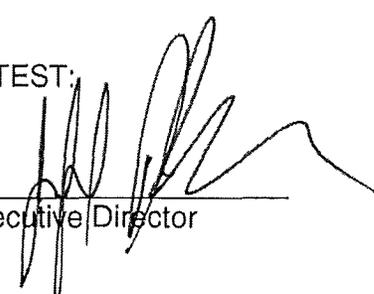
a. Be deemed to have consented to the use of electronic filing procedures and the service of all documents, including Orders of the Commission, by electronic means; and

b. File within seven days from the date of this Order, a written statement, with a copy to parties of record, a certification that it, or its agent, possesses the facilities to receive electronic transmissions and sets forth the electronic mail address to which all electronic notices and messages related to this proceeding should be served.

By the Commission



ATTEST:



Executive Director

Case No. 2015-00194

APPENDIX

APPENDIX TO AN ORDER OF THE KENTUCKY PUBLIC SERVICE
COMMISSION IN CASE NO. 2015-00194 DATED **JUN 16 2015**

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

MAY 20 2015

In the Matter of:

STERLING VENTURES, LLC)

COMPLAINANT)

vs.)

KENTUCKY UTILITIES COMPANY)

DEFENDANT)

PUBLIC SERVICE
COMMISSION

CASE NO. 2015-_____

FORMAL COMPLAINT

1) By Order dated December 23, 2009, the Public Service Commission (the "Commission") granted Kentucky Utilities Company ("KU") and Louisville Gas and Electric Company ("LG&E") a Certificate of Public Convenience and Necessity (the "CPCN") (i) to build the first phase of a coal combustion residuals ("CCR") landfill at the Trimble County Generating Station ("the Trimble Landfill"), and (ii) to build the first phase of a CCR landfill at the Ghent Generating Station (the "Ghent Landfill")¹.

2) Pursuant to KRS §§ 278.260, 278.280(1) and 807 KAR 5:001 § 12, Sterling Ventures, LLC ("Sterling") requests that the Commission revoke the 2009 CPCN granted to KU and LG&E (the "Companies") to build the first phase of the Trimble Landfill, and to limit the environmental cost recovery surcharge paid by KU ratepayers for the Ghent Landfill.

3) The Companies have not been able to obtain the various federal and state permits required to begin construction of the Trimble Landfill. As explained below, since 2009, the design, capital

¹ *In the matter of Application of Kentucky Utilities Company for Certificates of Public Convenience and Necessity and Approval of Its 2009 Compliance Plan for Recovery by Environmental Surcharge*, KU Case No. 2009-00197 (the "2009 KU Application"), LG&E Case No. 2009-00198 (the "2009 LG&E Application") (Orders of December 23, 2009).

cost, location, operational expense and capacity requirements of the Trimble Landfill have dramatically changed, and it is now clear that the Trimble Landfill will not serve the public convenience, is not necessary and is unjust, unreasonable and improper. Due to a staggering increase in the capital cost of the first phase of the Trimble Landfill, a substantial reduction in the annual CCR capacity requirements of the Trimble Landfill and the availability of a less costly off-site disposal alternative for Trimble's CCR, the Trimble Landfill is unnecessary, and is a wasteful duplication of facilities.

4) Sterling also requests the Commission cap the environmental cost recovery surcharge (the "ECR") allowed on the Ghent Landfill. KU failed to take advantage of a known, less costly disposal alternative that would have substantially reduced the ECR.

I. PARTIES

3) Complainant, Sterling Ventures, LLC, is a KU customer, with its business office in Lexington, Fayette County, Kentucky, and is in the business of operating an underground limestone mine in Gallatin County, Kentucky. Sterling Ventures' business address is:

Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508

4) KU is a public utility, as defined in KRS § 278.010(3)(a), engaged in the business of furnishing retail electric service in the Commonwealth of Kentucky. KU's mailing address is:

Kentucky Utilities Company
Post Office Box 32010,
220 West Main Street, Louisville, Kentucky 40232.

II. JURISDICTION

5) The Commission's authority to review the CPCN for the Trimble and Ghent Landfills derives from KRS §§ 278.260(1) and 278.280(1).

III. FACTS

BACKGROUND

6) On December 23, 2009, the Commission granted LG&E and KU a CPCN to build the first phase of two multi-phase landfills at the Trimble and Ghent generating Stations to dispose of coal combustion residuals ("CCR"). The PSC approved recovery of the landfill construction, capital and operating cost through LG&E and KU's ECR.

7) In his filed testimony before the PSC in the 2009 KU Application, John Voyles, Vice President, Transmission and Generation Services for KU and LG&E, described the Trimble Landfill project as follows:

Project 32 -- Trimble County Station Landfill

Q. Please describe the new Trimble County Station landfill (Project 32), the anticipated cost and the associated timeline.

A. Project 32 consists of constructing the first phase (Phase I of four phases) of a new 210 acre onsite landfill at the Trimble County station. Phase I is expected to cost \$94.0 million (total). The total landfill project capital cost, with the inclusion of the Synthetic Materials and Holcim beneficial reuse contracts, is estimated to be \$551.4 million. The Synthetic Materials and Holcim beneficial reuse opportunities allow the deferral of future phases and the capital expenditures associated with those phases. Construction of Phase I is expected to take 18-24 months to complete and is expected to be in-service in January 2013.

As presented in Exhibit CRS-4, Coal Combustion Byproduct Plan for Trimble County Station, the total Phase I cost of the landfill is anticipated to be approximately \$94.04 million. The Companies will be co-owners of 75% of the landfill, with partners IMPA and IMEA owning jointly approximately 25%. The Companies will share the utility portion of the landfill, with LG&E

owning approximately 52% and KU owning approximately 48% of the facility. Accordingly, KU's share of the Phase I cost of the landfill is expected to be approximately \$33.86 million.²

8) Mr. Voyles similarly described the Ghent Landfill as follows:

Project 30 -- Ghent Station Landfill

Q. Please describe the new landfill at the Ghent Station (Project 30), the anticipated cost and the associated timeline.

A. Project 30 consists of the first phase (Phase I) of a three phase, new landfill construction project at the Ghent station for continued on-site management of CCP. Completion of this project requires the procurement of approximately 350 acres of land and relocation of approximately 2,500 linear feet of transmission line, existing underground utilities and a small cemetery (currently known to contain six burial plots). The project includes a transport system for the CCP material and the installation of a leachate collection/sediment retention pond. Phase I is expected to cost approximately \$204 million with a total project capital cost (Phases I-III) estimated to be approximately \$360 million. Phase I construction is expected to take 18-24 months to complete and is expected to be in-service by 2013.³

9) However, according to documents recently filed in the 2014 KU and LG&E Rate Increase Application, the Companies now project that Phase I of the Trimble Landfill will cost \$429.3 million – a staggering 457% increase over the original approved projected cost of \$94 million.⁴ (As Mr. Voyles described, the Companies effectively own 75% of the Trimble Generating Station, and therefore, the Companies' capital cost of Phase I has risen from \$70.5 million to \$322 million).

² 2009 KU Application, Direct Testimony of John Voyles, at 31-32.

³ *Id.* at 23-24.

⁴ See Exhibit A: *In re Application of Kentucky Utilities Company for an Adjustment of Its Electric Rates - Case No. 2014-00371* ("2014 Rate Increase Application"), Capital Review-Trimble County CCR, Attachment to Filing Requirement, 807 KAR 5:001, Section 167(7)(c)I, Witness K. Blake/Thompson, at 228 of 272.

10) The cost of the Ghent Landfill project has also exploded. Based on the 2014 Rate Increase Application, Phase I of the Ghent Landfill will now cost \$341 Million – \$137 million over the Commission's approved CPCN cost of \$205 million.⁵

11) Fundamental to the PSC's review of an application for a CPCN is the principal that the proposed project must be the least, reasonable cost alternative, and one that will not result in wasteful duplication.⁶ Kentucky Courts have defined wasteful duplication as "an excess of capacity over need" and "an excessive investment in relation to productivity or efficiency, and an unnecessary multiplicity of physical properties."⁷

12) Accordingly, if a chosen capital project requires the utility to invest substantially more to achieve essentially the same results as a lesser cost alternative, the utility is not fulfilling the requirement that capital expenditures be the least, reasonable cost alternative.

13) In addition to review of initial capital costs of project alternatives, the PSC also reviews projected future operating and maintenance costs over the life of the project.⁸

14) The accepted method in Kentucky for a utility to identify the lesser cost alternatives of various capital projects is to determine the Present Value Revenue Requirement (PVRR) of the capital and operational cost of each alternative.

⁵ *Id.* at 226 of 272.

⁶ See *Public Service Comm'n v. Continental Tel. Co.*, 692 S.W.2d 794, 799 (Ky. 1985) (where the court noted that a key objective the PSC must consider is whether the proposed utility project will result in the lowest possible cost to the ratepayers).

⁷ See *Kentucky Utilities Co. v. Public Service Comm'n*, 252 S.W.2d 885 (Ky. 1952).

⁸ See *In the Matter of: Application of Kentucky-American Water Company for a Certificate of Public Convenience and Necessity Authorizing Construction of the Northern Division Connection*, Case No. 2012-0096 (Order entered February 28, 2013) (approving an alternative where lower O&M expenses would eventually erase any initial difference in capital cost from a lower capital cost alternative).

15) KU and LG&E confirmed that the PVRR alternatives analysis is the proper method for determining the overall lowest cost alternative for CCR disposal, including comparing the cost of off-site disposal alternatives to the construction of new CCR landfills:

While many factors impact decisions on how to proceed (such as safety, ability to acquire needed permit(s), etc.) **present value of revenue requirements is used as the primary economic decision metric**. In some instances, additional cost metrics (such as cost per cubic yard or cost per ton) may also be quantified. Documentation for the evaluation is typically produced in close proximity to completing the evaluation. Often the supporting documentation is the source from which many internal and external presentations or business cases discussing the issue are developed. As previously stated, documentation regarding the alternatives is typically developed in coordination with consultants, however, the economic evaluation and associated documentation summarizing the economic evaluation is developed within E.ON U.S. At each decision point (such as formulation of alternatives, evaluation of options, development of documentation), oversight is built into the process to serve as a check. The function of this validation step is to subject the alternatives, evaluation or documentation to extensive "what ifs" and to confirm that a better alternative or solution does not possibly exist. **For example, is it possible that more favorable economics could not be achieved by selecting an alternative site or location?**⁹

16) Attached to this Complaint as Exhibits B and C are the PVRR Alternatives Analysis for each the Ghent Landfill and the Trimble Landfill, respectively.

17) Attached as Exhibits D and E are summaries of the projected capital and maintenance and operating costs for the Ghent and Trimble Landfills thorough 2018 that the Companies filed with the Commission as part of their respective 2009 Applications.

⁹ See 2009 KU Application and 2009 LG&E Application, Exhibit, *E.ON Comprehensive Strategy for Management of Coal Combustion Byproducts*, June 2009 (the "Comprehensive Strategy"), at 14 (emphasis added).

IV. ANALYSIS: STERLING VENTURES' DISPOSAL OPTIONS

1. Sterling's Ghent Proposal

- 18) Sterling Ventures, LLC owns and operates an underground limestone mine near Verona, Kentucky, approximately 17 miles from the Ghent Generating Station, and 50 miles from Trimble. Sterling has been mining on the site since 2000, and has mined and sold approximately 17,000,000 tons of limestone from the mine since its opening. Sterling currently mines between 900,000 and 1,500,000 tons of limestone per year. Average annual production is approximately 1,200,000 tons.
- 19) In addition to producing limestone for the general aggregate construction market, Sterling also mines high calcium limestone for Mississippi Lime Company for use in a lime kiln located on Sterling's property. This high calcium limestone exceeds Trimble's specifications for use as scrubber stone in Trimble's flue gas desulfurization ("FGD") scrubber system.
- 20) Sterling also has a Registered Permit by Rule for Beneficial Reuse of Special Waste issued by the Kentucky Department of Environmental Protection, Division of Solid Waste to use FGD gypsum in Sterling's mine.
- 21) In September 2011, Sterling presented KU an alternative proposal for the planned construction of the Ghent landfill (the "Ghent Gypsum Proposal"). Sterling proposed that KU utilize Sterling's beneficial reuse permit and construct only that portion of the proposed Ghent Landfill necessary for coal ash, and use Sterling' underground mine for Ghent's excess gypsum.
- 22) According to projections filed with the 2009 KU Application, capital costs directly attributed to improvements and equipment necessary for gypsum disposal were \$53.1 million of

the \$204 million Phase I Ghent landfill cost.¹⁰ In addition, operating expenses directly related to gypsum disposal were \$9.6 million of the projected \$19.6 million total annual operating and maintenance cost.¹¹

23) Attached as Exhibit G is Sterling's PVRR calculation of placing gypsum in the Ghent Landfill, based on the above capital cost assumptions, and the present value assumption in Exhibit B. The PVRR cost of placing gypsum in the Ghent Landfill would have been approximately \$275.5 million, with the "all-in"¹² cost for disposal in the Ghent Landfill in 2013 to be approximately \$19.43 per cubic yard, including transportation.¹³ Sterling proposed to place Ghent's gypsum in the mine for \$12.29 per cubic yard (\$10.50 per ton at 1.17 conversion).¹⁴ Even without considering the PVRR savings from delaying Phase II of the Ghent Landfill and completely eliminating Phase III, the PVRR savings for using Sterling's mine verses the Ghent Landfill would have been approximately \$41 million.¹⁵ Delaying the construction of Phases II and III (projected at the time to cost another \$157.4 million) would have dramatically increased the PVRR savings.

24) In addition, at the time Sterling presented the Ghent Gypsum Proposal, KU knew that Phase I of the Ghent Landfill project was already at least \$99 million over the projected cost

¹⁰ See Exhibit F, 2009 KU Application, Ghent Landfill (Phase I) Capital Expenditures, Attachment to Response to KIUC Question No. 1-4(a), at 1.

¹¹ *Id.*

¹² All-in cost charged to the Companies' ratepayers as an Environmental Surcharge is the sum of (i) the return on rate base (10.68% x net base), (ii) depreciation, (iii) taxes and (iv) operational and maintenance expenses.

¹³ See Exhibit G, Sterling's PVRR Calculation of Ghent Landfill Gypsum Disposal Cost.

¹⁴ See Exhibit H, Sterling's Ghent Station Alternative for CCP/Gypsum Disposal.

¹⁵ See Exhibit G, *supra* note 13.

presented to, and approved by, the Commission.¹⁶ (As noted above, KU now projects that Phase I will be \$137 million over budget.) If the improvements and equipment related to gypsum disposal caused the cost overruns, the PVRR savings noted above would have increased.

25) Sterling attempted numerous times between September and December 2011 to meet with KU and discuss the concepts presented and logistics of Ghent Gypsum Proposal. On December 12, 2011, Scott Straight, Project Engineer on the Ghent Landfill, responded by email with KU's determination that: "[T]his potential opportunity you have presented would not eliminate the need to construct the infrastructure required to process the by-products at Ghent, nor would it eliminate the construction of the landfill infrastructure. Instead, it potentially could have merit in a few years to defer the next phased expansion of the landfill [and] the next phase of the landfill is years away"

26) The decision not to pursue the Sterling mine alternative was improper. The opportunity to use Sterling's Beneficial Reuse Permit had arisen. (In fact, it had been available for over a year.) It was an immediate beneficial reuse opportunity, not a potential future opportunity. It was a current opportunity with a lower PVRR cost alternative that would have substantially reduced the cost, size and scope of Phase I of the landfill, and substantially delayed Phase II and eliminated the need for Phase III. Delaying the full PVRR review and analysis to some date in the future was completely contrary to KU's commitment to the Commission on the procedures that it would follow in making an unbiased decision on whether to spend capital, or to take advantage of a beneficial reuse opportunity.

¹⁶ See Exhibit I, 2014 Rate Increase Application, Capital Review-Ghent CCR, Attachment to Response to AG-1 Question No. 106, Witness K. Blake, at 819 of 1615.

All beneficial reuse opportunities will be screened, discussed, evaluated and documented (in conjunction with the current plan) **when their availability first becomes known** - not solely when a need for additional storage capacity has been identified, as the evaluation of each prudent reuse opportunity could provide a delay of the next phase of construction (emphasis added).¹⁷

27) KU improperly decided to spend \$53.1 million on gypsum specific infrastructure cost for the Ghent Landfill, use up valuable space in the landfill, incur an additional \$9.6 million per year transporting gypsum to the landfill, in order to determine at some time in the future whether all of that cost and expense was the least expensive alternative for gypsum disposal.

2. Proposed Trimble County Landfill

28) As of the filing of this Complaint, it has been over 5 years since the PSC granted KU and LG&E the CPCN for the Trimble County Landfill, and construction has not yet begun. The delay is the direct result of the Companies' inability to obtain the required state and federal permits necessary to begin construction. Relevant to this Complaint are two permits – a Landfill Construction permit from the Kentucky Division of Waste Management, Solid Waste Branch ("KDWM"), and a site permit from the U.S. Army Corps of Engineers (the "Corps") for impacts to wetlands under Section 404 of the federal Clean Water Act ("CWA 404 Permit")

29) An applicant for a CWA 404 Permit must demonstrate to the Corps that, among other things, the proposed project is the least environmentally damaging practicable alternative (LEDPA) to achieve the project's purpose, which must include, in addition to the environmental impact analysis, an accurate analysis of the cost of the considered alternatives. To determine the

¹⁷ See Comprehensive Strategy, *supra* note 9, at 13.

LEDPA, an applicant conducts a 404(b)(1) Alternatives Analysis.¹⁸ With respect to the “practical alternatives,” the regulations state:

An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

30) The CWA 404(b)(1) Guidelines require consideration of “overall” project costs when comparing LEDPA alternatives.¹⁹ According to the EPA, “[t]he determination of what constitutes an unreasonable expense should generally consider whether the projected cost is substantially greater than the costs normally associated with the *particular type of project*.”²⁰

31) The particular type of project in this case is construction by a regulated utility subject to Commission jurisdiction, and, as the Companies have acknowledged, the PVRR of the capital and operational cost of disposal alternatives is the recognized method of determining the lowest overall project cost. Therefore, the critical component of the 404(b)(1) Alternatives Analysis would be the overall project cost of each alternative on a PVRR basis. As detailed below, the Companies initially acknowledged that the PVRR comparative analysis method was the appropriate method for determining overall cost of alternatives. However, the Companies quickly abandoned that method as the appropriate alternative overall cost analysis as the cost of Phase I of the Trimble landfill exploded.

¹⁸ 40 C.F.R. § 230.10(a).

¹⁹ See 45 Fed. Reg. at 85339 (the practicability determination requires consideration of the “*overall scope/cost of the proposed project*”) (emphasis added).

²⁰ EPA, *Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*, at 3(b) (emphasis added).

a. *MACTEC 404(b)(1) Alternatives Analysis*

32) In December 2010, the Companies submitted their first application for the CWA 404 Permit to the Corps, which included a 404(b)(1) Alternatives Analysis prepared by MACTEC. After this initial filing, LG&E and KU met with the EPA and the Corp in May 2011 to discuss the Alternatives Analysis. As a result of that meeting, in March 2012, the Companies submitted a revised CWA 404 Permit application with a revised 404(b)(1) Alternatives Analysis prepared by MACTEC (the "MACTEC 2012 Analysis"), which is attached to this Complaint as Exhibit J.

33) The MACTEC 2012 Analysis was submitted 6 months after Sterling submitted its proposal to KU to use the underground mine as an alternative for gypsum disposal. However, MACTEC did not include Sterling's underground mine option in its comparative analysis.

34) It is clear that the MACTEC Analysis adopted the PVRR Alternatives Analysis used in filings with the Commission as the proper method of determining the least cost alternative under the 404 Alternatives Analysis. The Evaluation Criteria in the MACTEC Analysis included the following cost criteria:

Cost of Disposal/Storage – As a public utility regulated by the Public Service Commission, LG&E is required to seek out measures with the least cost to the ratepayers.²¹

35) The MACTEC 2012 Analysis concluded that chosen alternative of building the Trimble County Landfill in Ravine B "fulfills the responsibility of a publically regulated utility by the Public Service Commission to provide the least cost alternative to LG&E rate payers."²² The only

²¹ See Exhibit J, MACTEC Engineering and Consulting, Inc., *Section 404 Alternatives Analysis, Coal Combustion Residuals Storage Project, LG&E Trimble County Generating Station*, Issued December 2010 and Revised March 2012 (the "MACTEC 2012 Analysis"), at 1-2.

²² *Id.* at 6-3.

alternatives analysis prepared at the time of the MACTEC analysis was the PVRR comparative analysis used by the Companies in their respective 2009 Applications for the CPCN.

36) KU, LG&E and MACTEC also knew at the time they submitted the MACTEC Analysis that Phase I of the Ravine B Landfill Project was \$183 Million over budget (\$137 Million over budget net of IMPA/IMEA).²³

37) MACTEC also computed capacity requirements for Trimble CCR as follows:

2.2 NEED

Unit 1 currently generates approximately 367,571 tons of CCR per year and Unit 2 generates 480,142 tons of CCR per year for a combined annual CCR production of about 847,713 tons. Estimated annual CCR production rates are illustrated in Table 1. Tons of CCR are converted to CY to determine the pond or landfill volume required for storage of the material. The Trimble County Generating Station will exceed existing CCR storage capacity within approximately one year of bringing Unit 2 on-line. Due to lack of CCR storage, expansion of the on-site Bottom Ash Pond (BAP) and Gypsum Storage Pond (GSP) will address short term needs for CCR storage. To meet long term needs within the window created by these short term measures, LG&E has developed several alternatives to assess CCR storage options.

Units	Tons Per Year			TONS/CY	CY PER YEAR
Material	Unit 1	Unit 2	Total	Density	Volume
Pyrites	3,411	4,440	7,850	1.823	4,306
Bottom Ash	30,965	39,950	70,645	1.080	65,412
Economizer/ Duct Ash	4,263	5,550	9,813	0.810	12,115
Fly Ash	132,160	172,034	304,195	0.878	346,463
Gypsum	197,041	258,169	455,210	0.945	481,703
Total	367,571	480,142	847,713		910,000

²³ See Exhibit K, 2014 Rate Increase Application, Capital Review-Trimble County CCR, Attachment to Response to AG-1 Question No. 106, Witness K. Blake, at 820 of 1615.

38) In response to the MACTEC 2012 Analysis, Region 4 of the EPA expressed numerous reservations and issues with the Trimble Landfill. Specifically, in a letter dated April 25, 2012, the EPA concluded that the Companies' 404(b)(1) Alternatives Analysis was improperly overstating the required capacity of the landfill:

The applicant's alternatives analysis included as Appendix 1 of their CWA 404 permit application bases the evaluation of potential alternatives on a need to dispose of 910,000 cubic yards of CCR material annually throughout the anticipated 38-year lifetime of the facility's two power generating units (Mactec, rev. 2012). Many of the alternatives for CCR waste disposal considered, but eliminated from further consideration by LG&E were rejected due to the inability of those alternatives to accommodate the total 910,000 annual cubic yards of material. However, based on information provided by LG&E, the EPA believes that it will likely be unnecessary to dispose of this volume of CCR, and consequently, the applicant's alternatives analysis does not comply with the requirements of the Guidelines (40 CFR 230.12).

The total volume of CCR material generated at the Trimble County Generating Station is actually comprised of five different waste streams. As illustrated in Table 1, over 90-percent of this material consists of fly ash and synthetic gypsum. In its alternatives analysis, LG&E indicates that approximately 11 percent of the annual fly ash and bottom ash produced at the facility and approximately 93-percent of synthetic gypsum is adaptively reused. On December 8, 2011, representatives of LG&E verbally informed representatives of the EPA that up to 75-percent of its fly ash production may be reused. In fact, LG&E is presently constructing two new barge loading facilities at the Trimble County Generating Station to increase its capacity to facilitate adaptive reuse of its CCR material, one for fly ash and a second for gypsum.

The EPA believes that the actual volume of CCR material necessary for annual disposal may be between 17-percent and 46-percent of the 910,000 cubic yards used by LG&E in its alternatives analysis. Deducting the proportional volumes of reused material cited in the alternatives analysis results in a revised total waste volume necessary for disposal of approximately 417,000 cubic yards per year (Table 2), or 46 percent of the volume used in the alternatives analysis. Similarly, deducting the proportional volumes of material assuming reuse of up to 75 percent of fly ash and bottom ash reduces the total annual volume for disposal to approximately 153,000 cubic yards per year (Table 2), or 17 percent of the volume used in the alternatives analysis.

[. . .]The EPA believes it is inconsistent with the intent of the Guidelines to discount potentially practicable alternatives based, at least in part, on the inability of those alternatives to provide a storage volume that ignores the already

demonstrated volumetric reductions in CCR as a result of adaptive reuse. Even further reductions in the necessary storage capacity are likely as evidenced by LG&E's laudable commitment to facilitate CCR reuse and its stated goals to significantly increase the quantity of material reused. These considerations warrant a more detailed alternatives analysis in order to properly consider all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem, as required by the Guidelines. In the absence of such an analysis, identification of the least environmentally damaging practicable alternatives cannot be made definitively.²⁴

39) In addition to the above issues raised by the EPA, the KDWM's review of the Landfill Construction Permit found problems with the Landfill's proposal. In March 2013, KDWM notified the Companies that it would be denying the permit application after concluding that the Landfill, as initially proposed, would fill a natural karst cave, and violate the Kentucky Cave Protection Act.

b. *GAI Consultants 404(b)(1) Alternatives Analysis*

40) In January 2014, the Companies submitted another revised CWA 404 Permit application to the Corps for the Trimble Landfill using the alternative location that avoided the karst cave. However, the 404(b)(1) Alternatives Analysis included in this new application was prepared by GAI Consultants, not MACTEC. A copy of the GAI Alternatives Analysis is attached as Exhibit M.

41) The GAI Consultants report for the first time included specific cost data for each alternative disposal option. However, because the Companies knew that the cost of Phase I of the Trimble Landfill had, by this time, increased by over 400%²⁵, and that a cost PVR analysis

²⁴ See Exhibit L, Letter from James D. Giattina, Director, Water Protection Division, U.S. Environmental Protection Agency, to Colonel Luke T. Leonard, District Engineer, Louisville District Corps of Engineers (April 25, 2012) at 2-3, enclosure Table 2 .

²⁵ See Exhibit N, *2014 Rate Increase Application*, Capital Review-Trimble County CCR, Attachment to Response to AG-1 Question No. 106, Witness K. Blake, at 141 of 1615.

would not show that Ravine B was the lowest cost alternative, the Companies abandoned the PVRR comparative analysis method in favor of a limited specific cost method.²⁶

42) The Companies however did address the beneficial reuse issue the EPA voiced in its April 25th letter, and analyzed the disposal alternatives assuming a projected a 30% beneficial use of CCR (637,000 cubic yards per year).²⁷

43) The EPA responded to the new GAI Alternatives Analysis in a letter to the Corps dated July 11, 2014, and again expressed concerns that the Companies' new 404(b)(1) Alternatives Analysis was insufficient:

We do not believe that the applicant has adequately demonstrated that the proposed alternative to fill nearly 17 miles of headwater stream represents the least environmentally practicable alternative, consistent with the Guidelines. The alternatives analysis should more clearly and completely describe the process by which the least environmentally damaging practicable alternative was identified. The information provided to date appears to rely considerably on undocumented or undefined cost information and with very little to no comparative analysis of the range of environmental impacts associated with different alternatives that were considered or estimated compensatory mitigation costs.

...
The EPA believes that potentially feasible alternatives may have been eliminated in the alternatives analysis based on incompletely vetted economic considerations and that these sites warrant closer scrutiny.²⁸

44) The EPA followed up its July 11, 2014 letter with another letter to the Corps dated August 7, 2014. Specifically at issue was the failure to identify and evaluate a known disposal alternative:

²⁶ See Exhibit M, GAI Consultants, Inc., *Alternatives Analysis Report, LG&E and KU Services Company, Trimble County Generating Station Landfill Project*, January 2014 (the "GAI Alternatives Analysis"), at Attachment 5.

²⁷ *Id.* at Figure A-9, note 5.

²⁸ See Exhibit O, Letter from James D. Giattina, Director, Water Protection Division, U.S. Environmental Protection Agency, to Colonel Luke T. Leonard, District Engineer, Louisville District Corps of Engineers (July 11, 2014), at 2.

In addition, since providing the July 11, 2014, comment letter, the EPA has learned of a potentially feasible alternative not considered by the applicant. Sterling Ventures, LLC owns and operates an underground limestone mine in Gallatin County, Kentucky that holds a Special Waste Facility permit from the Kentucky Division of Waste Management (KDWM) to accept synthetic gypsum produced during the flue gas desulfurization (FGD) process at the Kentucky Utilities Ghent Power Station to fill mine voids in the mined out sections of the underground mine. It is the EPA's understanding that, subsequent to KDWM's issuance of the Special Waste Facility permit for Sterling Ventures which had originally identified the Ghent Power Station as a source of FGD, Kentucky Utilities elected to dispose of this material on-site of the Ghent Power Station instead of utilizing the Sterling Ventures mine. Based on information contained in the Sterling Ventures permit application approved by KDWM (summarized in enclosure 1), the mine may have the storage- capacity necessary to accommodate all of the CCR material generated by the LG&E Trimble County Generating Station. Use of the existing Gallatin County site would likely significantly reduce impacts to wetlands, surface waters, floodplains and groundwater resources in comparison to those impacts associated with construction and operation of the proposed new landfill. In addition, according to KDWM, it would require only a permit modification to the Sterling Ventures Special Waste Facility permit in order to allow for storage of CCR generated at the Trimble County Generating Station. Pursuant to 40 C.F.R. § 230.10(a), it is the applicant's responsibility to consider all practicable alternatives and to select a practicable alternative that does not involve a special aquatic site unless it can be clearly demonstrated that one is not available. The EPA believes that opportunities to utilize the underground limestone mine to store CCR from the Trimble County Generating Station warrant careful consideration as a potentially feasible alternative.²⁹

c. *Supplemental 404(b)(1) Alternatives Analysis*

45) In response to the most recent EPA letters, KU and LG&E filed a Supplement to the GAI Consultants original 404(b)(1) Alternatives Analysis with the Corps in December 2014.³⁰ For the first time, in this Supplemental Alternatives Analysis, the Companies' addressed the Sterling beneficial use option as an alternative.

²⁹ *Id.* Letter from Heather McTeer Toney, Regional Administrator, U.S. Environmental Protection Agency, to Colonel Christopher G. Beck, District Engineer, Louisville District Corps of Engineers (August 7, 2014), at 2.

³⁰ See Exhibit P, excerpts from Lee Wilson and Associates, Inc., et al., *Supplement to Alternatives Analysis, LG&E and KU Services Company, Trimble County Generating Station Landfill Project*, December 2014 (Exhibit P includes portions of the Supplemental Analysis applicable to this Complaint).

46) The Supplemental Analysis did include an analysis of the Kentucky law with respect to the cost analysis applicable when issuing a CPCN.³¹ However, the Companies concluded that the accepted method of examining the lowest cost alternative for public utility projects based on the PVRR of the project should not apply to the 404(b)(1) Alternatives Analysis:

No consideration is given to timing factors that are common in many types of financial analyses, such as for a rate-of-return determination. There is no adjustment for inflation on future operations costs, possible future increases in energy costs, discounting to bring future costs to present value, or return on investment if operation costs are fully funded on Day 1 but only expended over time. LG&E considers the gross costs for construction and 37 years of operations to provide the fairest comparison of relative costs among alternatives.³²

47) The only conclusion to be drawn from the Companies' position is that the Trimble Landfill was no longer the lowest cost PVRR alternative when viewed in the traditional manner of analyzing the costs of alternative long-term public utility project options.

48) With respect to the beneficial use and capacity issue raised by the EPA, the Companies flip-flopped again, and abandoned the 30% beneficial reuse assumption used in GAI's January 2014 Alternatives Analysis. In the Supplemental Analysis the Companies decided to ignore their history of beneficial reuse of CCR from Trimble and the long-term beneficial reuse contracts in place, and based the Supplemental Alternatives Analysis on the need for a landfill for 100% of annual CCR production:

The volume of CCR produced at the TC Station is projected to average approximately 910,000 cubic yards per year, with an uncertain potential for waste reduction through beneficial use. For planning purposes, the total waste volume is estimated to be on the order of 33.4 million cubic yards over the nearly 37 year minimum lifetime that remains for the TC Station.³³

³¹ *Id.* Appendix III.D-2 at 140 of 183, Kentucky Public Service Commission Consideration of Least-Cost Alternatives Certificates of Public Convenience and Necessity.

³² *Id.* Appendix III.D-1 at 116 of 183, Methods for Assessment of Costs, at 2.

³³ *Id.* at Section I. Introduction, at 1 (page 5 of 183)

49) By abandoning any reasonable estimate of beneficial use, the Companies are improperly ignoring existing executed contracts to purchase a minimum of 50% of Trimble CCR over the next 16 years. As indicated above in the EPA's April 25, 2012 letter, the Companies indicated a substantial amount of CCR was being beneficially reused.³⁴ In addition, attached is various information Sterling has discovered from internet research related to CCR beneficial use at Trimble, which further confirms the EPA discussions with the Companies.³⁵

3. Sterling's Trimble Proposal

50) As noted above, in August of 2014, the EPA specifically questioned the omission of Sterling's underground mine as part of the CWA 404 Alternatives Analysis for the Landfill. When Sterling discovered the August 2014 letter, it contacted Scott Straight, Director of Project Engineering for the Companies, by email to inquire if the Companies were interested in meeting to discuss using the Sterling mine as an alternative CCR disposal site for Trimble's CCR.³⁶

51) Mr. Straight responded by email on October 3, 2014 stating that as a result of the EPA's August 2014 letter, the Companies were now evaluating Sterling's mine as an alternative CCR disposal option, and he requested basic information as a preliminary step in his analysis. On October 24, 2014 Sterling responded to Mr. Straight's questions by email, but specifically noted that the responses were based upon limited knowledge of specific details concerning how the CCR would be staged at the plant, and the contemplated terms of the contractual obligations between the parties. Sterling noted that it may be appropriate to meet and discuss any issues and questions

³⁴ See Exhibit L, *supra* note 24, at Attachment.

³⁵ See Exhibit Q.

³⁶ See Exhibit R, E-mail from John Walters, General Counsel/CFO, Sterling Ventures, LLC, to Scott Straight, Director of Project Engineering, LG&E and KU (Sept. 24, 2014)..

regarding its responses, as well as meet with the USACE and KDWM. Sterling based its proposal on transporting the CR by truck. However, Sterling indicated that it would be interested in discussing the option of constructing a new barge facility near Sterling's mine for CCR transportation.³⁷

52) On October 31, 2014, Mr. Straight emailed Sterling that no more information was required to allow them to complete their evaluation. There was no request to meet, discuss or obtain any additional information on the barge option.³⁸

53) On December 1, 2014, Sterling discovered that a barge permit had been issued to the owner of an industrial parcel of property in Warsaw, Kentucky near Sterling's mine. Sterling immediately contacted Mr. Straight by email about this development to ask if he would be interested in discussing the possibilities of this barge site. Mr. Straight responded on December 5, 2014 questioning whether an existing barge load-out facility was physically on the new site. Sterling responded that same day telling Mr. Straight that the riverside improvements were in place, but construction of a new load-out facility would be required. After that brief email exchange, Sterling heard nothing more from the Companies. Sterling sent two additional emails on December 11, and December 30, 2014 asking Mr. Straight if he wanted to sit down and talk about the newly discovered barge site option, with no response.³⁹

³⁷ *Id.* E-mail from Scott Straight, Director of Project Engineering, LG&E and KU, to John Walters, General Counsel/CFO, Sterling Ventures, LLC (Oct. 3, 2014); E-mail from John Walters, General Counsel/CFO, Sterling Ventures, LLC, to Scott Straight, Director of Project Engineering, LG&E and KU (Oct. 24, 2014).

³⁸ *Id.* E-mail from Scott Straight, Director of Project Engineering, LG&E and KU, to John Walters, General Counsel/CFO, Sterling Ventures, LLC (Oct. 31, 2014)

³⁹ *Id.* E-mail from John Walters, General Counsel/CFO, Sterling Ventures, LLC, to Scott Straight, Director of Project Engineering, LG&E and KU (Dec. 1, 2014); E-mail from Scott Straight, Director of Project Engineering, LG&E and KU, to John Walters, General Counsel/CFO, Sterling

54) Sterling has prepared a PVRP comparative analysis of CCR disposal in the proposed Trimble Landfill verses in Sterling's underground mine (the "Sterling PVRP Analysis") based on using the Warsaw barge location.⁴⁰ Attached to the Sterling PVRP Analysis are assumptions on which Sterling based its calculations.

55) Sterling is projecting that, based upon 30% beneficial reuse, its mine option is by far the least cost alternative from a PVRP standpoint, and will save the Companies' ratepayers \$256,915,601 on a PVRP basis over the life of the project (total savings of \$491,983,428). The "all in cost" charged to the Companies ratepayers for using the Sterling option in 2018 is \$23.83 per cubic yard, verses \$75.41 per cubic yard disposing of CCR in the Trimble Landfill.⁴¹

56) The Sterling PVRP Analysis, attached as Exhibit S, also assumes that the Companies will not need to construct the CCR Treatment infrastructure to dry the CCR. The Companies currently transport CCR to buyers for beneficial reuse without treating the CCR.⁴² However, even if the Companies spend an additional \$152.3⁴³ (net of IMPA/IMEA) for infrastructure necessary to treat the CCR before shipment to Sterling, the Sterling landfill is still the lowest cost alternative, with a PVRP that is \$46.7 million lower than the Trimble Landfill option.⁴⁴

Ventures, LLC (Dec. 5, 2014, 02:58 EST); E-mail from John Walters, General Counsel/CFO, Sterling Ventures, LLC, to Scott Straight, Director of Project Engineering, LG&E and KU (Dec. 5, 2014, 04:26 EST); *id.* (Dec. 11, 2014); *id.* (Dec. 30, 2014).

⁴⁰ See Exhibit S, Sterling's PVRP Analysis of Trimble CCR to Sterling Materials.

⁴¹ *Id.*

⁴² See Exhibit J, MACTEC 2012 Analysis, *supra* note 21, at 3-1 to 3-2.

⁴³ See Exhibit T, 2014 Rate Increase Application, Project Engineering 2015 Business Plan, Attachment 1 to Response to Sierra Club Question No. 2.7, Witness Voyles, at 2 of 11. (Note that Sterling added the summary of cost at Bottom of Projected Engineering 2015 Business Plan).

⁴⁴ See Exhibit U, Sterling's PVRP Analysis of Trimble CCR to Sterling Materials.

57) In addition, as beneficial use increases, the cost savings from the Sterling option increase dramatically due to the enormous cost of Phase I of the landfill. Attached as Exhibits V and W are Sterling's PVRR comparative analyzes with CCR volume reductions as set forth in Scenarios 1 and 2 of the April 25, 2012 EPA letter (assuming the requirement of having to build the treatment infrastructure as a following analysis from Exhibit U).⁴⁵ If the total CCR capacity required is reduced to 416,709 cubic yards from beneficial use (EPA Scenario #1), the PVRR cost savings increases from \$46,699,283 to \$67,764,060, and increases to \$82,441,874 under EPA Scenario #2 (153,109 cubic yards).

58) As Exhibits U, V and W indicate, when landfill construction costs are pushed into Phase I, substantial cost saving from increased beneficial use are essentially lost. The enormous up front infrastructure costs are "sunk cost," and future beneficial use options are therefore only compared to the landfill's operational cost. As a result, a future beneficial use option has a higher cost hurdle to overcome, thereby reducing the viability of the future options, which then results in more CCR placed in the landfill, leading to the necessity of building all landfill phases.

59) As indicated earlier, in response to the EPA's comments in its August 2014 letter, the Companies did finally address the option of using Sterling's mine as an alternative to the Trimble Landfill. The Supplemental Analysis included a barge/conveyor option for Sterling's mine that contemplated building a massive conveyor system up a steep mountain with accompanying roads, bridges and ancillary facilities, on a parcel of property adjacent to Sterling's mine (the "Adjacent Parcel Barge Plan")⁴⁶. This construction alternative was a complete surprise to Sterling. Given the

⁴⁵ See Exhibit L, Letter from James D. Giattina, Director, Water Protection Division, U.S. Environmental Protection Agency, to Colonel Luke T. Leonard, District Engineer, Louisville District Corps of Engineers (April 25, 2012).

⁴⁶ See Exhibit P, Table III.D-3 at 59 of 183

complexity and issues involved with the Adjacent Parcel Barge Plan, it is surprising that not one representative of the Companies ever contacted Sterling to request a meeting, ask any question about the Adjacent Parcel Barge Plan, explore options, discuss and resolve potential issues, or obtain any information of any kind from Sterling concerning the Adjacent Parcel Barge Plan. This is even more surprising given that Sterling is in the business of moving materials by conveyor over long distances.

60) According to the Supplemental Analysis, the Adjacent Parcel Barge Plan would have a capital cost \$75.2 million (net of IMPA and IMEA). Given the option for a barge facility near Warsaw, KY., the Adjacent Parcel Barge Plan is overly complex, expensive and unnecessary.

V. LEGAL ANALYSIS OF PSC REVIEW

61) The Commission has the authority to review a previously approved CPCN:

A proceeding that examines the continued need for approved facilities in light of drastically changed economic conditions, however, is distinguishable from merely reopening a closed proceeding. Old issues are not re-litigated. New evidence not previously in existence at the time of the original proceedings and economic conditions not reasonably foreseeable at the time of the original proceedings is considered to determine if construction of the approved, but uncompleted, facilities is still necessary, reasonable and economically prudent. The Commission has previously initiated new proceedings to examine the continued need for approved facilities. As to this allegation, we have subject matter jurisdiction.⁴⁷

62) The commission has previously held that in circumstances substantially identical to the case at hand, a review of a CPCN is appropriate:

While the Commission does not typically investigate issues that have already been adjudicated, there are unique facts and circumstances relating to Smith 1 that justify this course of action. They include the passage of over 3.5 years since the date the Commission approved the facility and all necessary permits still not obtained by

⁴⁷ *In the Matter of Chris Schimmoller and Connie Lemley v. Kentucky American Water Company*, Case No. 2009-00096 (Ky. P.S.C. 2009).

East Kentucky, a very substantial escalation in the estimated cost of construction, and issues raised by three retail customers in a separate complaint case challenging Smith 1 as neither needed nor least-cost.⁴⁸

63) It has now been over five (5) years since the date the Commission approved Phase I of the Trimble Landfill, and the Companies still have not obtained all necessary permits required for construction. By the Companies' own admissions, if the Corp agrees to issue the CWA 404 Permit, the resulting litigation will delay construction for at least one more year. The projected cost for building the Landfill have increased by over 400%, and based upon cost overruns after the Companies began construction of the Ghent Landfill, the cost of the Trimble Landfill will most likely increase even more than it already has increased. Finally, a viable, less costly alternative to building the Trimble Landfill has emerged that would eliminate the need for the Landfill.

64) Upon the Commission determining that there has been a drastic change in the economics on which a CPCN is based, or when a more economically viable alternative has emerged, Kentucky law prevents the Companies from building the Trimble Landfill until the Commission's review of the CPCN determinations that "public convenience and necessity require the service or construction."⁴⁹

65) As a condition of the Commission granting the CPCN for a new facility, it must determine that there is both a need for the facility and "an absence of wasteful duplication resulting from the construction of the new system or facility."⁵⁰ This statutory mandate is designed to avoid "wasteful duplication" and to foreclose "excessive investment in relation to productivity or efficiency, [or] an unnecessary multiplicity of physical properties." *Id.* To demonstrate that a

⁴⁸ *In the Matter of Application of East Kentucky Power Corporative, Inc. 's Need for the Smith 1 Generating Facility.*, Case No. 2010-00238 (Ky. P.S.C. 2010).

⁴⁹ KRS § 278.020(1).

⁵⁰ *Kentucky Utilities Co.v. Public Service Com'n*, 252 S.W.2d 885, 890 (Ky. 1952).

proposed facility does not result in wasteful duplication, the Commission has held that the applicant must demonstrate that a thorough review of all reasonable alternatives has been performed.⁵¹

66) When reviewing a CPCN application, the Commission has the authority to "issue or refuse to issue the certificate, or issue it in part and refuse it in part."⁵² The Commission's review is guided by the overall requirement that utility rates are "fair, just, and reasonable."⁵³ The Commission has consistently recognized that "'least cost' is one of the fundamental principles utilized when setting rates that are fair, just, and reasonable."⁵⁴

67) The Commission also has the authority to modify any order or decision under 278.930, which provides in pertinent part: "Every order entered by the commission shall continue in force... until revoked or modified by the commission"

VI. CLAIMS FOR RELIEF

CLAIM ONE (MULTIPLE CHANGES IN SITUATION)

68) Complainant incorporates by reference paragraphs 1 - 67.

⁵¹ *In the matter of Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for a Certificate of Public Convenience and Necessity for the Construction of Transmission Facilities in Jefferson, Bullitt, Meade, and Hardin Counties, Kentucky Case No. 2005-00142 (Ky. P.S.C., 2005).*

⁵² KRS § 278.020(1).

⁵³ KRS § 278.030(1); KRS § 278.040; *Kentucky Public Service Com'n v. Com. ex rel. Conway*, 324 S.W.3d 373, 377 (Ky. 2010).

⁵⁴ *In the Matter of Application of Kentucky Power Co.*, Case No. 2009-00545 (Ky. P.S.C. 2010).

69) Numerous changes since the Commission issued the CPCN for Phase I of the Trimble Landfill in 2009 indicate that the construction of the Trimble Landfill is not needed or convenient.

These include:

1. The capital cost of Phase I of the Trimble Landfill has increased dramatically;
2. Environmental Regulations defining the classification of CCR have been issued; and
3. A less costly alternative for CCR disposal is now available.

70) Therefore, the construction of the Trimble Landfill will result in wasteful duplication.

CLAIM TWO
(BREACH OF CONDITION OF GRANTING CPCN)

71) Complainant incorporates by reference paragraphs 1 - 67.

72) The Commission granted the CPCNs for the first phases of the Trimble and Ghent Landfills based and conditioned upon the direct testimony of LGE/KU representatives, and documents entered into the record. The testimony and documents state that KU would pursue, and fully analyze, future beneficial reuse opportunities in order to reduce or eliminate the Landfills' capital costs and their operating and maintenance costs.

73) With respect to the Sterling Ventures mine option, KU has failed to follow the procedures that it committed to the Commission would be used in evaluating and capturing future beneficial reuse opportunities that would reduce the impact of ECR surcharges on KU's ratepayers.

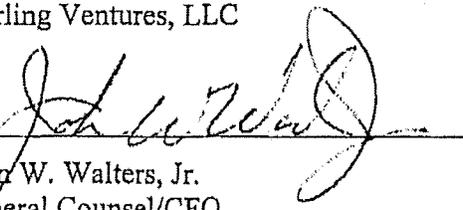
74) The failure to follow those procedures has resulted in KU needlessly increasing Ghent's ECR Rate Base, and, as a result, is improperly charging its ratepayers for unnecessary environmental compliance costs.

VII. PRAYER FOR RELIEF

75) Therefore, for the reasons stated above, the Complainant respectfully requests that the Commission:

- (i) revoke the CPCN with respect to the Trimble Landfill;
- (ii) conduct a review and evaluation of KU's analysis and decision process with respect to Sterling Ventures' beneficial reuse opportunity for Ghent and Trimble CCR;
- (iii) disallow ECR recovery of any operating and maintenance cost and capital expenditures associated with flue gas desulfurization ("FGD") gypsum disposal in the Ghent Landfill above and beyond the PVRR cost of gypsum placement in the Sterling mine;
and/or
- (v) provide all other relief that is just and proper.

Respectfully submitted,
Sterling Ventures, LLC

By: 

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**STERLING
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Alternative cost analysis

1 message

John Walters <johnwalters@sterlingventures.com>

Thu, Sep 4, 2014 at 4:39 PM

To: Somerville.eric@epa.gov

Eric:

Thanks for taking the time to talk with me this morning about the Section 404 alternatives evaluation process, and how the projected cost impacts the alternatives analysis.

Attached for your information is an example of how the cost of various alternatives have been presented to the Kentucky Public Service Commission to determine the lowest cost alternative. The lowest cost alternative for PSC purposes is based on the lowest net present value of the amount that must be charged to the utility's customers in order to pay for the project (the Present Value of the Revenue Requirement - or PVRR).

The attached example shows the methodology of comparing the PVRRs of two on-site landfill alternatives and an off-site landfill. In this case, the total capital construction cost of all three phases of the chosen alternative (Case A) was projected to be \$102,382,000, and total operating and maintenance cost over the entire life of the project was expected to be \$66,648,000 (see page 11). The PVRR of Case A's capital construction cost was \$99,763,000, and the PVRR of the operating cost was \$30,169,000, for a total PVRR of Case A of \$129,932,000 (page 14). The off-site alternative, by comparison, had no capital construction cost, but a total operating cost over the entire life of the project of \$545,148,000 (page 13), with a corresponding PVRR of \$249,968,000 (page 16). Case A was the obvious choice by \$120,000,000.

By contrast, if the capital construction cost of the Case A landfill was 5 times greater, or \$511,911,000 in total, with the same phasing period and percentage cost per phase, the PVRR of the capital construction cost of the landfill option would have been \$498,815,000 (5 x \$99,763,000). In this case, from a pure cost analysis, the off-site alternative would have been the obvious choice, even before adding in the PVRR of the operating and maintenance expenses.

The interplay between the cost of construction, the cost of operating and maintaining the on-site landfill, and the cost of off-site disposal, is therefore critical to analyzing the ultimate cost of on-site and off-site landfill alternatives.

I hope this is helpful to your review. Please do not hesitate to call if you have any questions.

John

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 **EW Brown Landfill Cost Analysis.pdf**
1910K

Coal Combustion Residuals Plan for E.W. Brown Station



PPL companies

Generation Planning & Analysis
May 2011

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1.0 Executive Summary

Kentucky Utilities Company's ("KU's") E.W. Brown Generating Station ("Brown") produces three primary coal combustion residuals ("CCR"): bottom ash, fly ash, and gypsum. The ash is currently stored in Brown's Auxiliary Pond ("Aux Pond"). The gypsum is currently being used in the expansion of the Aux Pond but will start being stored in the Aux Pond in 2012. The Aux Pond is expected to reach full capacity in 2015, creating a need for additional CCR management solutions.

On June 21, 2010, the EPA issued a proposed ruling to establish federal guidelines for CCR storage. It is expected that the Main Pond will not meet the proposed regulations. Therefore, KU has stopped construction of the Main Pond and is proposing to construct a landfill in its place to be in service in 2014.

In developing Brown's revised CCR storage plan, five options were reviewed. Two options were determined to be infeasible under the anticipated environmental regulations. The three remaining options were further evaluated to determine the least cost plan. These options are summarized as follows:

- **Case A:** The first landfill option stops construction of the Main Pond Starter Dike immediately, completes the expansion of the Aux Pond to 900 feet by 2012, and converts the Main Pond to a dry landfill by 2014.
- **Case B:** The second landfill option continues the construction of the Main Pond Starter Dike, continues the expansion of the Aux Pond by 2014, and converts the Main Pond to a landfill by 2016.
- **Offsite Landfill:** The third option is for stopping all construction of onsite storage facilities immediately and for a contractor to haul away all CCR for storage in an offsite commercial landfill.

The least cost option for the long-term storage needs at Brown is the first landfill option (Case A) with an onsite landfill in service in 2014. The present value of revenue requirement ("PVRR") of this case is \$23 million lower than the second onsite landfill option (Case B) and is \$80 million lower than the offsite disposal option.

2.0 Background

The Brown station is located in Mercer County, Kentucky and comprises three coal-fired generating units and seven gas-fired combustion turbines. The total net summer capacity for the three coal units is 683 MW. A flue gas desulfurization ("FGD") system was commissioned in 2010 to control SO₂ emissions from the three coal units. Bottom ash and fly ash are produced as byproducts of burning coal and are currently stored in the Aux Pond. Gypsum is produced as a chemical byproduct of using limestone reagent to remove sulfur dioxide from flue gas with the FGD system. Brown's gypsum is currently being used in the Aux Pond expansion and will be stored in the Aux Pond until a new long-term option is available.

The original CCR storage plan at Brown included

- a phased expansion of the Main Pond and
- a phased construction of the Aux Pond for interim storage of CCR during the Main Pond expansion and for storage of bottom ash once the Main Pond was to be available.

Environmental cost recovery ("ECR") treatment for the first phase of Brown's on-site storage plan was approved by the Kentucky Public Service Commission ("Commission") on June 20, 2005, as Project 20 in Case No. 2004-00426. This phase included raising the elevation of Brown's Main Pond to 902 feet and raising the elevation of the Aux Pond to 880 feet. The second phase was approved on December 23, 2009, as Project 29 in Case No. 2009-00197, and included expanding the Aux Pond to an elevation of 900 feet and expanding the Main Pond to 912 feet.

The Main Pond was removed from service in September 2008 to facilitate construction of the approved Phase I elevation of 902 feet which was scheduled for completion in 2010. The Aux Pond was completed to the approved Phase I elevation of 880 feet in 2008 and has been accepting fly ash and bottom ash since its completion. The second phase of construction, designated Aux Pond elevation 900', is currently ongoing and will expand the Aux Pond to the final design elevation. This second phase commenced in June 2010 and was originally planned to reach completion in mid-2013.

On June 21, 2010, the EPA issued a proposed CCR ruling to establish federal guidelines for CCR storage. These new regulations are expected to result in the possible need to either discontinue the current plans for the Main Pond or to modify its design to comply with the proposed regulations. The specific impacts of the proposed regulations to Brown's CCR plan are detailed in Exhibit JNV-4. Given the potential new requirements, new alternatives for dry landfill disposal of Brown's CCR were developed. The evaluation of these options is discussed herein.

3.0 Process and Methodology

KU and Louisville Gas and Electric Company (collectively "the Companies") develop a least-reasonable-cost plan for meeting the CCR storage needs at each generating station based on the information available at the time of the planning, including information concerning applicable environmental requirements. The process of identifying the plan consists of the three following primary tasks which are performed by several departments within the Companies.

- Needs assessment
- Development of alternatives
- Comparison of alternatives

CCR storage needs are defined by comparing the available storage capacity to the forecast of CCR production. The Project Engineering department and the applicable generating station are responsible for providing an estimate of remaining capacity.

The planned life of the storage facilities is based on CCR production forecast, which is developed by Generation Planning for all stations as a function of the expected coal usage for each unit. The Companies compile information regarding the cost of generation for each unit (e.g., fuel, variable operating and maintenance ("O&M") expenses, and emission costs), a description of the generation capabilities of each unit (e.g., capacity, heat rate curve, commitment parameters, emission rates, availability schedules), a load forecast, the market price of electricity, and the volumetric ability (transfer capability) to access the market. All of this information is brought together in the PROSYM software, which is used to model the economic operation of the Companies' generating system.¹ The projected coal usage data provided by this model is checked for reasonableness by comparing the results to historical data.

The Project Engineering department develops alternatives for onsite CCR storage solutions and their associated costs. Any alternatives for offsite disposal such as beneficial reuse or offsite landfill disposal are provided by each generating station's staff and a CCR team focused on exploring alternatives for byproduct storage. The cash flows for selected options are summarized and provided to Generation Planning for evaluation.

The Generation Planning department evaluates the storage and disposal options received from Project Engineering to determine the PVRR associated with the capital expenditures and O&M expenses of each option. This analysis is performed using the Capital Expenditure Recovery module of the Strategist software model.²

4.0 Needs Assessment

As of April 2010, the remaining available capacity of the Aux Pond is 272 thousand cubic yards ("KCY").³ Completion of the second phase of the Aux Pond is expected to increase its capacity by 1,095 KCY in December 2011. The Aux Pond's remaining capacity was estimated by forecasting the CCR production of ash and gypsum at Brown. The quantity of ash produced at Brown is estimated at a coal specification of 12% ash by weight of the total quantity of coal

¹ The PROSYM model has formed the foundation of prior analyses involving certificates of convenience and necessity for new generating plants, environmental cost recovery for pollution control equipment, and the fuel adjustment clause.

² Strategist is a proprietary resource planning computer model. The Capital Expenditure Recovery module is used to quantify the revenue requirements impact associated with capital projects.

³ Current storage capacities are provided to Generation Planning by Project Engineering based on bathymetric surveys. Based on expected coal burn, Generation Planning forecasts that by the end of 2011, the remaining capacity of the Aux Pond will be 176 KCY, excluding the Phase II expansion.

used, or approximately 12 tons of ash per 100 tons of coal. Converting to volumetric measurement, assuming ash production consists of 80% fly ash and 20% bottom ash, approximately 11 cubic yards ("CY") of total ash is produced per 100 tons of coal. These values are based on Brown's switch to high-sulfur coal in 2011.

The chemical reaction by which gypsum is produced results in a net gypsum production of approximately 18% by weight of the total quantity of coal used,⁴ or approximately 18 tons of gypsum per 100 tons of coal. Converting to volumetric measurement, approximately 15 CY of dry-stored gypsum is produced per 100 tons of coal.

Table 1 shows the forecasted CCR production for Brown. The relatively low gypsum production in 2011 is due to the expectation to burn low-sulfur coal through 2011 to conclude a low-sulfur fuel contract. The lower sulfur content results in less gypsum produced.

Table 2 shows the associated quantities of coal forecasted to be burned at Brown, and contains the historical quantities of coal burned as a comparison to the forecast. The forecasted generation and the resulting coal usage at Brown correspond to an average capacity factor of approximately 40 - 45% before the anticipated retirements in 2016 of the coal units at the Cane Run, Green River, and Tyrone stations. After these retirements, Brown's capacity factor is forecasted to increase to approximately 60 - 70%. Variances in load or unexpected outages could result in future CCR production variances and changes to the long-term CCR storage plan at Brown.

Table 1: CCR Production Forecast

CCR Production Forecast (KCY – wet storage)			
	Bottom Ash	Fly Ash	Gypsum
2011	26	106	87
2012	32	127	226
2013	35	139	248
2014	34	135	240
2015	35	138	246
2016	43	172	307
2017	46	184	327
2018	46	186	330
2019	45	180	320
2020	48	192	341

⁴ Fuel specification assumptions include SO₂ content of approximately 5.85 lb/MMBtu and heat content of 22.4 MMBtu/ton.

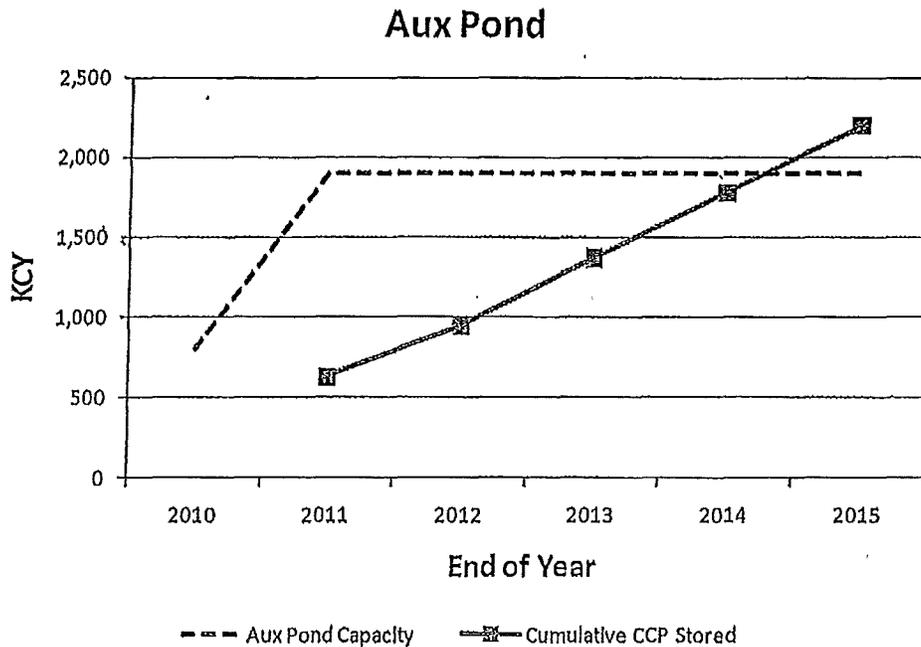
Table 2: Brown Coal Usage (Million Tons)

Brown Coal Usage (M Tons)	
<i>Historical</i>	
2006	1.5
2007	1.7
2008	1.8
2009	1.1
2010	1.3
<i>Forecast</i>	
2011	1.1
2012	1.3
2013	1.4
2014	1.3
2015	1.4
2016	1.7
2017	1.8
2018	1.8
2019	1.8
2020	1.9

Figure 1 demonstrates that the Aux Pond is expected to reach full capacity in 2015, with the following assumptions:

- The April 2011 forecast for CCR production
- Onsite beneficial reuse of all gypsum produced until May 2012
- No additional onsite capacity available at the Main Pond site
- No offsite CCR storage or reuse
- The Aux Pond Phase II expansion to 900' is completed in 2011

Figure 1: Aux Pond Capacity



5.0 Development of Alternatives

As a result of the EPA's proposed CCR Ruling, Project Engineering reevaluated long-term onsite CCR storage at Brown as discussed in Exhibit JNV-2. Of the four onsite options considered, two options were determined to be infeasible. Plans for the two remaining options for onsite landfills to replace the main pond were developed for further financial evaluation. In addition, an offsite alternative was compared to the onsite options. These three options are summarized as follows:

- Case A – Discontinue construction of the Main Pond Starter Dike, complete construction of the Aux Pond 900', and construct a dry landfill to be in service in 2014.
- Case B – Continue construction of the Main Pond Starter Dike and Aux Pond 900' per the original design. Once the CCR Ruling becomes effective, take the Main Pond out of service to construct a landfill over the Main Pond Starter Dike to be in service in 2016.
- Off-Site Storage - As an alternative to constructing onsite storage facilities, the offsite storage option represents the projected costs (\$28/ton) of hiring a third-party contractor to haul all CCR produced offsite for disposal in a landfill.

6.0 Comparison of Alternatives

The Brown station has three viable alternatives for CCR disposal: Landfill Case A, Landfill Case B, and Offsite Storage. A PVRR evaluation of each of these alternatives was completed.

The capital and O&M costs for Cases A and B were provided by the Project Engineering group as detailed in Exhibit JNV-2. The O&M expenses for Offsite Storage are based on estimated costs for CCR disposal in an offsite landfill as shown in Table 3. Appendix 1 shows detailed assumptions for financial inputs and CCR characteristics. Appendix 2 shows the capital and O&M costs for each alternative.

Table 3: Off-site Disposal Cost

	\$ per ton (2011)
Excavating and Loading	\$1.82
Tipping Fee	\$20.01
Hauling	\$6.06
Total	\$27.88

Table 4 shows that the PVRR for Case A is the least cost. The PVRR for Case B is \$23 million greater than that of Case A. The PVRR for offsite storage is \$80 million greater than that of the Case A. Appendix 3 shows the annual revenue requirements associated with each alternative.

Table 4: PVRR Comparison

2010 million \$	Case A	Case B	Offsite Disposal
PVRR	130	153	250
Delta to Least Cost Case	Least Cost	23	80

7.0 Recommendation

The needs assessment demonstrates a need for additional CCR storage capacity at the Brown station by 2015. Analysis of the onsite and offsite storage options demonstrates that a completion of the Aux Pond expansion to elevation 900 feet that was part of the original 2005 ECR plan is advisable. And it is recommended to immediately begin converting the Main Pond to an onsite landfill to begin service in 2014 to allow for long-term CCR storage at Brown while complying with anticipated environmental regulations in a least cost manner.

The entire phased landfill Case A is more cost-effective than the delayed Main Pond conversion of Case B and offsite disposal. This plan will provide Brown with sufficient capacity to store CCR through 2031, with the potential to modify the future phases to accommodate changes in the CCR production forecast.

8.0 Appendices

8.1 Appendix 1 - Analysis Assumptions

Study Period: 2010-2031 for O&M costs Impacts; 2010 through the book life of final project phase for capital costs

The revenue requirements associated with capital costs are determined via the Capital Expenditure and Recovery module of the Strategist production and capital costing software. To completely account for capital projects costs over their lifetime, the revenue requirements associated with new capital projects were extended through the end of their book life beyond the study period as needed.

Capital and O&M costs associated with the addition of new environmental projects will be recovered through the ECR mechanism.

Financial data

- Discount rate: 6.70%
- Income tax rate: 38.9%
- Insurance rate: 0.07%
- Property tax rate: 0.15 %
- Percentage of debt in capital structure: 47.13%
- Debt interest rate/weighted cost of debt: 3.76%
- Return on equity: 10.63%
- Aux Pond 900' capital book life: 17-20 years
- Landfill phase average book life, Case A: 11 years
- Landfill phase average book life, Case B: 9 years
- All CCR storage projects tax life: 20 years
- Annual capital escalation rate: 6%
- Annual O&M escalation rate: 3%
- Overhead: 3.5%

CCR Specifications Assumptions

- Coal % ash: 12%
- Bottom ash % of total ash: 20%
- CCR % moisture for hauling: 15%
- Density

Tons/CY	Bottom Ash	Fly Ash	Gypsum
Wet Storage	0.945	0.945	1.0125
Dry Storage	1.215	1.080	1.242

CCR Plan for E.W. Brown Station
May 2011

8.2 Appendix 2 - Annual Cash Flows

E.W. Brown Landfill - Case A										
Annual Cash Flows (\$ thousands)										
	Capital					O&M			Total Cash Flows	
	Aux Pond	Landfill				Total Capital	Gypsum Dewatering	Landfill		Total O&M
		Phase 1	Phase 2	Phase 3	Final Cap					
2010	2,743	2,018	-	-	-	4,761	250	-	250	5,011
2011	8,393	5,869	-	-	-	14,262	515	-	515	14,777
2012	-	26,722	-	-	-	26,722	-	-	-	26,722
2013	-	24,064	-	-	-	24,064	-	-	-	24,064
2014	-	-	-	-	-	-	563	2,251	2,814	2,814
2015	-	-	-	-	-	-	580	2,319	2,898	2,898
2016	-	-	-	-	-	-	597	2,388	2,985	2,985
2017	-	-	-	-	-	-	615	2,460	3,075	3,075
2018	-	-	9,321	-	-	9,321	633	2,534	3,167	12,488
2019	-	-	899	-	-	899	652	2,610	3,262	4,161
2020	-	-	-	-	-	-	672	2,688	3,360	3,360
2021	-	-	-	-	-	-	692	2,768	3,461	3,461
2022	-	-	-	-	-	-	713	2,852	3,564	3,564
2023	-	-	-	18,434	-	18,434	734	2,937	3,671	22,105
2024	-	-	-	1,203	-	1,203	756	3,025	3,781	4,985
2025	-	-	-	-	-	-	779	3,116	3,895	3,895
2026	-	-	-	-	-	-	802	3,209	4,012	4,012
2027	-	-	-	-	-	-	826	3,306	4,132	4,132
2028	-	-	-	-	-	-	851	3,405	4,256	4,256
2029	-	-	-	-	-	-	877	3,507	4,384	4,384
2030	-	-	-	-	-	-	903	3,612	4,515	4,515
2031	-	-	-	-	2,714	2,714	930	3,721	4,651	7,365
Total	11,136	58,674	10,220	19,637	2,714	102,382	13,942	52,706	66,648	169,029

CCR Plan for E.W. Brown Station
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E.W. Brown Landfill - Case B

	Annual Cash Flows (\$ thousands)									
	Capital					O&M				Total Cash Flows
	Aux Pond	Landfill				Total Capital	Gypsum Dewatering	Landfill	Total O&M	
	Phase 1	Phase 2	Phase 3	Final Cap						
2010	1,708	13,352	-	-	-	15,059	250	-	250	15,309
2011	2,907	-	-	-	-	2,907	515	-	515	3,422
2012	3,082	523	-	-	-	3,605	530	-	530	4,136
2013	4,499	6,287	-	-	-	10,786	546	-	546	11,333
2014	-	31,135	-	-	-	31,135	-	-	-	31,135
2015	-	31,387	-	-	-	31,387	-	-	-	31,387
2016	-	-	-	-	-	-	597	2,388	2,985	2,985
2017	-	-	-	-	-	-	615	2,460	3,075	3,075
2018	-	-	-	-	-	-	633	2,534	3,167	3,167
2019	-	-	-	-	-	-	652	2,610	3,262	3,262
2020	-	-	16,476	-	-	16,476	672	2,688	3,360	19,836
2021	-	-	1,132	-	-	1,132	692	2,768	3,461	4,592
2022	-	-	-	-	-	-	713	2,852	3,564	3,564
2023	-	-	-	-	-	-	734	2,937	3,671	3,671
2024	-	-	-	-	-	-	756	3,025	3,781	3,781
2025	-	-	-	24,727	-	24,727	779	3,116	3,895	28,622
2026	-	-	-	1,514	-	1,514	802	3,209	4,012	5,526
2027	-	-	-	-	-	-	826	3,306	4,132	4,132
2028	-	-	-	-	-	-	851	3,405	4,256	4,256
2029	-	-	-	-	-	-	877	3,507	4,384	4,384
2030	-	-	-	-	-	-	903	3,612	4,515	4,515
2031	-	-	-	-	2,280	2,280	930	3,721	4,651	6,931
Total	12,196	82,684	17,608	26,242	2,280	141,009	13,876	48,137	62,013	203,022

Off-Site Landfill Option

	Annual Cash Flows (\$ thousands)	
	Capital	O&M
2010	-	3,960
2011	-	6,974
2012	-	12,750
2013	-	14,417
2014	-	14,385
2015	-	15,156
2016	-	19,487
2017	-	21,399
2018	-	22,261
2019	-	22,218
2020	-	24,363
2021	-	26,387
2022	-	27,047
2023	-	28,549
2024	-	30,280
2025	-	32,787
2026	-	32,151
2027	-	35,381
2028	-	36,194
2029	-	38,842
2030	-	38,218
2031	-	41,942
Total	-	545,148

CCR Plan for E.W. Brown Station
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8.3 Appendix 3 - Revenue Requirements

E.W. Brown Landfill - Case A										
Annual Revenue Requirements (\$ thousands)										
	Capital					Total Capital	O&M			Total Revenue Requirements
	Aux Pond	Landfill			Final Cap		Gypsum Dewatering	Landfill	Total O&M	
	Phase 1	Phase 2	Phase 3							
2010	244	179	-	-	-	423	250	-	250	673
2011	1,158	701	-	-	-	1,859	515	-	515	2,374
2012	1,680	3,076	-	-	-	4,755	-	-	-	4,755
2013	1,611	5,214	-	-	-	6,825	-	-	-	6,825
2014	1,544	11,226	-	-	-	12,771	563	2,251	2,814	15,584
2015	1,480	10,712	-	-	-	12,192	580	2,319	2,898	15,090
2016	1,418	10,210	-	-	-	11,628	597	2,388	2,985	14,613
2017	1,357	9,721	-	-	-	11,078	615	2,460	3,075	14,152
2018	1,298	9,242	828	-	-	11,368	633	2,534	3,167	14,535
2019	1,240	8,773	908	-	-	10,922	652	2,610	3,262	14,183
2020	1,183	8,313	1,960	-	-	11,456	672	2,688	3,360	14,816
2021	1,126	7,863	1,870	-	-	10,858	692	2,768	3,461	14,319
2022	1,068	7,413	1,782	-	-	10,264	713	2,852	3,564	13,828
2023	1,011	6,964	1,697	1,638	-	11,309	734	2,937	3,671	14,981
2024	953	6,432	1,613	1,745	-	10,743	756	3,025	3,781	14,525
2025	896	892	1,531	3,767	-	7,087	779	3,116	3,895	10,982
2026	839	787	1,451	3,594	-	6,671	802	3,209	4,012	10,683
2027	781	682	1,372	3,426	-	6,262	826	3,306	4,132	10,394
2028	724	577	1,294	3,261	-	5,856	851	3,405	4,256	10,113
2029	666	472	1,215	3,101	-	5,455	877	3,507	4,384	9,839
2030	582	367	1,123	2,943	-	5,015	903	3,612	4,515	9,530
2031	7	262	156	2,789	241	3,456	930	3,721	4,651	8,107
2032	0	158	138	2,638	513	3,446	-	-	-	3,446
2033	0	52	120	2,487	490	3,149	-	-	-	3,149
2034	-	-	101	2,336	467	2,904	-	-	-	2,904
2035	-	-	83	2,158	445	2,685	-	-	-	2,685
2036	-	-	64	301	423	788	-	-	-	788
2037	-	-	46	265	401	713	-	-	-	713
2038	-	-	28	230	380	638	-	-	-	638
2039	-	-	9	194	360	563	-	-	-	563
2040	-	-	-	159	339	498	-	-	-	498
2041	-	-	-	124	319	442	-	-	-	442
2042	-	-	-	88	294	383	-	-	-	383
2043	-	-	-	53	40	93	-	-	-	93
2044	-	-	-	18	35	53	-	-	-	53
2045	-	-	-	-	31	31	-	-	-	31
2046	-	-	-	-	26	26	-	-	-	26
2047	-	-	-	-	21	21	-	-	-	21
2048	-	-	-	-	17	17	-	-	-	17
2049	-	-	-	-	12	12	-	-	-	12
2050	-	-	-	-	7	7	-	-	-	7
2051	-	-	-	-	2	2	-	-	-	2
2010 PVRR	13,635	66,297	7,916	11,022	894	99,763	6,620	23,549	30,169	129,932

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E.W. Brown Landfill - Case B

Annual Revenue Requirements (\$ thousands)										
	Capital					Total Capital	O&M			Total Revenue Requirements
	Aux Pond	Landfill					Gypsum Dewatering	Landfill	Total O&M	
		Phase 1	Phase 2	Phase 3	Final Cap					
2010	152	1,186	-	-	-	1,338	250	-	250	1,588
2011	515	1,186	-	-	-	1,702	515	-	515	2,217
2012	965	1,233	-	-	-	2,198	530	-	530	2,728
2013	1,543	1,792	-	-	-	3,334	546	-	546	3,881
2014	1,810	4,558	-	-	-	6,368	-	-	-	6,368
2015	1,734	7,347	-	-	-	9,082	-	-	-	9,082
2016	1,661	17,585	-	-	-	19,246	597	2,388	2,985	22,231
2017	1,590	16,746	-	-	-	18,336	615	2,460	3,075	21,410
2018	1,521	15,925	-	-	-	17,446	633	2,534	3,167	20,613
2019	1,453	15,122	-	-	-	16,575	652	2,610	3,262	19,837
2020	1,387	14,334	1,464	-	-	17,186	672	2,688	3,360	20,545
2021	1,322	13,561	1,565	-	-	16,448	692	2,768	3,461	19,908
2022	1,256	12,802	3,717	-	-	17,775	713	2,852	3,564	21,339
2023	1,191	12,054	3,539	-	-	16,785	734	2,937	3,671	20,456
2024	1,126	11,214	3,366	-	-	15,706	756	3,025	3,781	19,487
2025	1,060	1,591	3,197	2,197	-	8,045	779	3,116	3,895	11,940
2026	995	1,439	3,030	2,332	-	7,796	802	3,209	4,012	11,808
2027	929	1,288	2,867	5,539	-	10,624	826	3,306	4,132	14,756
2028	864	1,136	2,706	5,276	-	9,982	851	3,405	4,256	14,239
2029	799	985	2,549	5,017	-	9,349	877	3,507	4,384	13,733
2030	705	833	2,371	4,765	-	8,674	903	3,612	4,515	13,189
2031	30	682	333	4,517	203	5,764	930	3,721	4,651	10,415
2032	14	530	301	4,273	475	5,594	-	-	-	5,594
2033	4	379	269	4,034	452	5,138	-	-	-	5,138
2034	-	227	238	3,799	430	4,694	-	-	-	4,694
2035	-	76	206	3,534	408	4,224	-	-	-	4,224
2036	-	-	174	496	387	1,058	-	-	-	1,058
2037	-	-	143	449	366	958	-	-	-	958
2038	-	-	111	402	346	859	-	-	-	859
2039	-	-	79	354	326	759	-	-	-	759
2040	-	-	48	307	303	658	-	-	-	658
2041	-	-	16	260	42	317	-	-	-	317
2042	-	-	-	213	38	250	-	-	-	250
2043	-	-	-	165	34	199	-	-	-	199
2044	-	-	-	118	30	148	-	-	-	148
2045	-	-	-	71	26	97	-	-	-	97
2046	-	-	-	24	22	45	-	-	-	45
2047	-	-	-	-	18	18	-	-	-	18
2048	-	-	-	-	14	14	-	-	-	14
2049	-	-	-	-	10	10	-	-	-	10
2050	-	-	-	-	6	6	-	-	-	6
2051	-	-	-	-	2	2	-	-	-	2
2010 PVRR	19,939	86,740	11,993	12,931	750	126,353	6,682	20,136	26,818	153,171

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Off-Site Landfill Option		
Annual Revenue Requirements(\$ thousands)		
	Capital	O&M
2010	-	3,960
2011	-	6,974
2012	-	12,750
2013	-	14,417
2014	-	14,385
2015	-	15,156
2016	-	19,487
2017	-	21,399
2018	-	22,261
2019	-	22,218
2020	-	24,363
2021	-	26,387
2022	-	27,047
2023	-	28,549
2024	-	30,280
2025	-	32,787
2026	-	32,151
2027	-	35,381
2028	-	36,194
2029	-	38,842
2030	-	38,218
2031	-	41,942
PVRR	-	249,968

**Revenue Requirements Summary
2011 Amended Plan - KU**

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Project 29									
Brown Landfill (Phase I)									
Revenue Requirement									
Eligible Plant	34,810,113	58,874,420	58,874,420	58,874,420	58,874,420	58,874,420	58,874,420	58,874,420	58,874,420
Less: Retired Plant	-	-	-	-	-	-	-	-	-
Less: Accumulated Depreciation	-	-	(1,574,430)	(3,217,314)	(4,860,198)	(6,503,082)	(8,146,986)	(9,788,849)	(11,431,733)
Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-
Less: Deferred Tax Balance	-	-	(223,495)	(1,149,392)	(1,961,725)	(2,669,298)	(3,279,646)	(3,800,319)	(4,237,810)
Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-
Environmental Compliance Rate Base	34,810,113	58,874,420	58,876,495	54,307,714	51,852,497	49,502,043	47,248,809	45,085,252	43,004,877
Rate of return	11.04%	11.04%	11.04%	11.04%	11.04%	11.04%	11.04%	11.04%	11.04%
	<u>\$ 3,819,558</u>	<u>\$ 6,476,281</u>	<u>\$ 6,276,863</u>	<u>\$ 5,993,373</u>	<u>\$ 5,722,417</u>	<u>\$ 5,463,022</u>	<u>\$ 5,214,358</u>	<u>\$ 4,975,587</u>	<u>\$ 4,745,898</u>
Operating expenses									
Annual Depreciation expense	-	-	2,813,772	2,898,186	2,985,131	3,074,885	3,166,925	3,261,933	3,359,791
Less depreciation on retired plant	-	-	-	-	-	-	-	-	-
Annual Property Tax expense	11,832	51,915	88,012	85,650	83,186	80,721	78,257	76,793	73,328
Total OE	<u>\$ 11,832</u>	<u>\$ 51,915</u>	<u>\$ 4,476,214</u>	<u>\$ 4,626,719</u>	<u>\$ 4,711,200</u>	<u>\$ 4,798,250</u>	<u>\$ 4,886,066</u>	<u>\$ 4,980,609</u>	<u>\$ 5,076,003</u>
Total E(m)	3,831,387	6,527,196	10,763,077	10,820,092	10,433,817	10,281,312	10,102,422	9,956,198	9,822,001



John Walters <johnwalters@sterlingventures.com>

Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

1 message

John Walters <johnwalters@sterlingventures.com>

Tue, Dec 30, 2014 at 1:51 PM

To: johnston.jon@epa.gov

Cc: Somerville.eric@epa.gov

Bcc: Samuelabboone@sterlingventures.com

Mr. Johnston:

Thank you for taking the time to talk with me yesterday afternoon. As promised, the following is a brief summary of the issue we discussed.

Sterling Ventures, LLC operates an underground limestone mine in Gallatin County, Kentucky, approximately 50 miles from the LG&E Trimble County Generating Station, where a 189 acre, \$551 million dollar CCR landfill immediately adjacent to the Ohio River has been proposed. According to a letter dated August 7, 2014 from Heather McTeer Toney to Colonel Beck of the Louisville District Corp of Engineers, this new landfill "will affect approximately 840 acres of land and result in direct impacts to 87,254 linear feet of streams, 2.6 acres of wetlands and .05 acres of open pond waters." Ms. Toney's letter specifically cited Sterling's underground mine as a possible feasible alternative that was not considered by LG&E in its initial alternatives analysis for the proposed landfill.

Sterling Ventures has recently located property on the Ohio river with an approved permit for a barge facility approximately 9 miles from our underground mine. As of now however, only site work on the banks of the river have been completed in connection with the permit, and the barge facility itself has not been built.

We have contacted LG&E about the possibility of completing the barge facility and using Sterling's underground mine as an alternative to Trimble County's new CCR landfill. Our preliminary estimates are that the barge facility alternative could result in an approximately \$200 million dollar in Present Value Revenue Requirement (PVRR) savings over the costs of building the Trimble CCR landfill (the PVRR alternatives analysis is the method used by the Kentucky Public Service Commission to ensure that regulated utilities select the lowest cost alternative for long term capital projects).

As indicated in Ms. Toney's letter, in November of 2010, the Kentucky Department of Environmental Protection, Division of Solid Waste granted Sterling a Registered Permit by Rule for placement of up to 800,000 tons annually of FGD gypsum from LG&E's Ghent Generating Station in the mine. Attached to this email is a .pdf of Sterling's Permit and the Application for Permit. For reference, also attached is a photo showing an example of the space in the mine available for CCR.

Sterling would be placing CCR approximately 300 feet underground. The mine started as an underground operation. There has never been a limestone quarry (open/unencapsulation pit) operation on Sterling's site. The roof of the mine is over 200 feet below the bottom of any recorded well in the area (see attached Application). For

reference, also attached is a photo showing an example of the space in the mine available for CCR.

As you can see from the Permit, Sterling is required to comply with Kentucky's environmental performance standards, as outlined in 401 KAR 30:031. Part of the Permit by Rule application process in Kentucky is to demonstrate the ability to comply with those environmental performance standards. Before the Permit approval, representatives from the Division of Solid Waste, including their geologist, made two trips to the mine to inspect the underground gypsum disposal area.

I am attempting to confirm where Sterling's underground mine would fall under the new Coal Combustion Residuals regulations. I have assumed first that, as the CCR would be placed 300 feet underground, the mine would not fall under the definition of a "Surface Impoundment". The primary issue is whether Sterling's underground mine is excluded from the definition of a CCR Landfill as the definition specifically excludes "an underground or surface mine or cave". However, the definition of a CCR Landfill does include "sand and gravel pits and quarries that receive CCR." Sand and gravel pits and quarries are further defined in the new regulations as "an excavation for the extraction of aggregate, minerals, or metals," excluding surface and subsurface coal mines.

As indicated, Sterling is not, nor has ever been, a quarrying operation. In limestone production, quarries are open pit/open air excavations from the surface involving removing overburden to access the limestone deposit from above, verses accessing the limestone from a mine several hundred feet underground. Specifically, the preamble notes that the reason for the pit and quarry inclusion was that the damage cases showed that the the placement of CCR in unencapsulated aggregate pits resulted in problems from the CCR direct contact with surface water, and the dry CCR blowing off-site. Obviously, CCR placed in Sterling's mine would be encapsulated by hundreds of feet of sold rock, and would have no exposure to any external factors (wind or rain), and no contact with the uppermost aquifer.

Based on the above, and the exclusion of underground coal mines from the definition of a CCR Landfill, we have concluded that Sterling's underground limestone mine would also not meet the definition of a CCR Landfill under the new regulations, as it is a underground mine, and it is not a quarry.

As LG&E is quickly proceeding with approvals to build the Trimble County CCR Landfill, your help analyzing the application of the new regulations to Sterling's underground limestone mine, and the ability of the mine to be a viable alternative to the proposed landfill, is much appreciated.

Please let me know if you have any questions.

John

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1971K

 **Level 1 pic.pdf**
998K



Kentucky Energy and Environment Cabinet
Department for Environmental Protection
Division of Waste Management

PERMIT

Facility: Sterling Ventures LLC
100 Sierra Dr
Verona, KY 41092

Permittee: Sterling Materials
376 South Broadway
Lexington, KY 40508

Agency Interest: Sterling Ventures LLC
100 Sierra Dr
Verona, KY 41092

The Division has issued the permit under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. This permitted activity or activities are subject to all conditions and operating limitations contained herein. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits, licenses or approvals required by this Division or other state and local agencies.

No deviation from the plans and specifications submitted with your application or any condition specified herein is allowed, unless authorized in writing from the Division. Violation of the terms and conditions specified herein may render this permit null and void. All rights of inspection by representatives of the Division are reserved. Conformance with all applicable Waste Management Regulations is the responsibility of the permittee.

Agency Interest ID #: 1461

Solid Waste Permit #: SW00800023

County: Gallatin

Permitted Activities:

Subject Item	Activity	Type	Status
ACTV001	Beneficial Reuse-Special Waste-RPBR/00800023	Registered Permit by Rule	Active

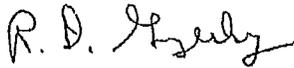
PERMIT

First Operational Permit Effective Date: 11/19/2010

Permit Effective Date: 11/19/2010

Permit Expiration Date: Life of facility

Permit issued: 11/19/2010



**Ronald D. Gruzesky, P.E.
Manager, Solid Waste Branch**

Permit Conditions:

Subject Items

ACTV0001 - Beneficial Reuse-Special Waste-RPBR

Standard Requirements:

1. General: The owner or operator of a special waste facility shall comply with KRS Chapter 224 and 401 KAR Chapters 30, 40 and 45 for the operation of special waste facilities. [KRS 224.50-760]
2. General: For operation of the special waste beneficial reuse that is not otherwise specified in 401 KAR 45:060, the owner or operator shall comply with KRS Chapter 224.50-760, 401 KAR 45:070 and the approved permit application(s). [401 KAR 45:070]

Variances, Alternate Specifications and Special Conditions:

1. Operation: The owner or operator is approved to beneficially reuse flue gas desulfurization gypsum produced by the KU Ghent Power Station in mined out sections of the Sterling Mine on the first level, in the Tyrone Limestone. [401 KAR 45:070 Section 3]
2. Operation: The owner or operator shall submit a revised registration prior to beneficially reusing sources or types of wastes other than FGD sludge from the KU Ghent power station, beneficially reusing FGD gypsum in areas other than the first level of the mine, changing the method of processing waste, adding new processes, changing the operator, or changing ownership. [401 KAR 45:070 Section 4]

PERMIT

3. Operation: The owner or operator shall comply with the Environmental Performance Standards of 401 KAR 30:031. [401 KAR 30:031]
4. Operation: The owner or operator is approved to beneficially reuse up to 800,000 tons per year of FGD gypsum. [401 KAR 45:070 Section 3]
5. Operation: The owner or operator shall ensure that no water, except that necessary for dust suppression, shall enter the beneficial reuse area. [401 KAR 45:140 Section 2]
6. Operation: The owner or operator shall ensure that the FGD gypsum is stored only in areas with no standing water. [401 KAR 45:140 Section 2]

County Sources - The owner or operator may accept waste as authorized by the cabinet pursuant to KRS 224 and/or 401 KAR Chapter 47 from the following counties:

Kentucky: Carroll

Approved Applications - The owner or operator shall comply with applicable statutes and regulations and the following approved applications:

1. 11-19-2010 - ARP20100001 - Registered Permit-by-Rule Beneficial Reuse



**ENVIRONMENTAL AND
PUBLIC PROTECTION CABINET**

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
14 REILLY ROAD
FRANKFORT, KY 40601
TELEPHONE NUMBER (502) 564-6716

**REGISTERED PERMIT-BY-RULE
For BENEFICIAL REUSE OF SPECIAL WASTE
DEP 7059F (1/06)**

GENERAL INSTRUCTIONS

1. **APPLICABILITY** - This registration form must be completed and submitted to the Cabinet by persons who propose to beneficially re-use special waste.
2. **ASSISTANCE** – Questions regarding this form may be directed in writing to the Division of Waste Management, Solid Waste Branch at the address listed above, or by calling (502) 564-6716.
3. **SUBMISSION** – Please type or print legibly in permanent ink. Submit the original and one (1) copy of the completed registration form to the Division of Waste Management at the address noted above. If an item is not applicable to your facility write “N/A” in the space provided.
4. **LAWS AND REGULATIONS** – Registrants are expected to understand and comply with all laws and regulations applicable to beneficial reuse of special waste.

**REGISTERED PERMIT-BY-RULE
BENEFICIAL REUSE OF SPECIAL WASTE**

1. New Registration - A registration number will be assigned by the Cabinet.
2. This is a proposed modification of an existing registration.

Note: (If you checked item 2, complete one or both of the following two items.)

3. Agency Interest #: _____ 4. Registration #: _____

Registrant Information

(The corporation, LLC, business, person, government agency, etc., that owns or operates the facility.)

5. Registrant Name: Sterling Ventures, LLC d/b/a Sterling Materials
6. Registrant Mailing Address: 376 South Broadway
7. City: Lexington 8. State: KY 9. Zip Code: 40508
10. Contact Person: Samuel A.B. Boone 11. Title: President
12. Phone #: (859) 259-9600 13. Cell #: (859) 621-4121
14. Fax #: (859) 259-9601 15. E-Mail Address: aboone@sterlingventures.com

Special Waste Facility Information

16. Facility Name: Sterling Mine 17. County: Gallatin
18. Facility Location: 100 Sierra Drive 19. E-Mail Address: _____
(For street or physical location only. Do not use P. O. Box #'s, etc.)
20. City: Verona 21. Zip Code: 41092
22. Facility Contact Person: Sam Van 23. Title: Mine Superintendent
24. Phone #: (859) 567-7300 Fax #: (859) 567-7313 Cell #: (859) 621-2142

Preparer Information

(Complete items 27 – 36 if the following information concerning the person preparing this registration is different from the contact persons named above.)

27. Preparers Name: John Walters 28. Company: Sterling Ventures, LLC
29. Mailing Address: 376 S. Broadway 30. E-mail Address: johnwalters@sterlingventures.com
31. City: Lexington 32. State: KY 33. Zip Code: 40508
34. Phone #: (859) 259-9600 35. Fax #: (859) 259-9601 36. Cell #: (859) 621-3990

37. List the source (special waste generating facility) of the special waste to be beneficially reused. If there are multiple sources and more space is needed, use additional sheets and label as **Attachment 1**.

Special waste generator: KU Ghent Generation Station, Ghent, Carroll County, Kentucky

Special waste generator: _____

Special waste generator: _____

Special waste generator: _____

38. Provide, as **Attachment 2**, a description of the type and anticipated volume of special waste to be beneficially reused.
39. Provide as **Attachment 3**, a copy of the Toxicity Characteristic Leaching Procedure (TCLP) laboratory analysis for each type of special waste to be beneficially reused.

Note: You may omit the TCLP analysis or specific parameters of the analysis based upon your knowledge of the Special Waste, pursuant to 40 CFR 262.11. Should you elect to do this, a certified statement accepting responsibility will be required. Polychlorinated Biphenyls (PCBs) may also be omitted from the parameters listed in 401 KAR 45:100 Section 6(20)(b). Any certified statement for the omission of the TCLP or PCB data should be labeled as **Attachment 4**.

40. Provide, as **Attachment 5**, a description of how the special waste will be managed.
41. Provide, as **Attachment 6**, a description of how management and reuse of the special waste meets the environmental performance standards of 401 KAR 30:031.
42. **Attachment 7** is to be used to maintain a record of the special waste sources and amounts received. This form shall be utilized for quarterly reports submitted to the Cabinet.

DEP 7059F (1/06)

43. Certification pursuant to 401 KAR 45:030 Section 10(4):

“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 gathered and evaluated the information submitted. Based on my inquiry of the person or 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 such violations.”

Signature of Registrant _____ Date _____

Name of Registrant (Typed or Printed) _____

Title _____

Subscribed and sworn to before me by _____

this the _____ day of _____, 20 _____.

Notary Public Signature _____

My Commission Expires _____

Attachment 2

Type and Volume of Special Waste

Sterling Ventures is proposing to use up to 800,000 tons per year of FGD Gypsum produced from the KU Ghent Power Station in Ghent Kentucky to fill mine voids in mined out sections of Sterling's underground limestone mine located at 100 Sierra Drive, Verona, Gallatin County, Kentucky. Gypsum is calcium sulfate dihydrate, or $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$, which comes primarily from two sources: (i) Mined gypsum, a common mineral found around the world in sedimentary rock formations, from which it is mined or quarried, and (ii) FGD gypsum, which is produced as a byproduct from coal-fired electric utilities and is a synthetic material essentially identical in chemical structure to mined gypsum. The underground mine has the capacity to use 1,000,000 tons per year of gypsum for as long as the mine is operating at current limestone sales volumes.

FGD Gypsum.

Scrubbers are attached to coal-fired power plants to limit emissions of the sulfur which is released when coal is burned. The scrubbers spray liquid lime or limestone slurry into the flue gas path, where it reacts with sulfur in the gas to form calcium sulfite, an intermediate product with little practical value. Calcium sulfite is commonly known as "scrubber sludge."

However, newer FGD scrubbing technologies can add an extra step to the scrubbing process known as "forced oxidation" which oxidizes the calcium sulfite and produces calcium sulfate dihydrate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), or FGD gypsum. The FGD gypsum is easily dewatered and can be marketable in the wallboard and agricultural industries.

The Ghent power plant has installed forced oxidation scrubbers on all four of its generating units with a projected FGD gypsum production of approximately 800,000 tons per year. The Ghent plant has a contract to provide the FGD Gypsum to the CertainTeed, Inc. wallboard plant located in East Carrolton, Kentucky. KU has projected CertainTeed's usage to be approximately 222,000 ton per year. Excess FGD Gypsum at Ghent is placed on the plant's Gypsum Stacking Pond. The Stacking Pond is currently listed as one of the 49 High Hazard impoundment facilities in the United States listed by the EPA in its *Coal Combustion Residues (CCR) - Surface Impoundments with High Hazard Potential Ratings* report. (See EPA530-F-09-006 June 2009 (updated August 2009)).

Because CertainTeed cannot utilize all of Ghent's FGD Gypsum, the opportunity to beneficially reuse this excess of FGD gypsum for filling Sterling's underground mine voids is an attractive alternative. In addition to providing a benefit to Sterling in filling underground voids to promote improved airflow in the mine, placing the Ghent's excess gypsum at Sterling is important to substantially reducing or eliminating the volume of excess gypsum in the gypsum stacking pond.

Attachment 3
Toxicity Characteristic Leaching Procedure Laboratory Analysis

See attached Exhibit 3-A



FEMIBIT 3A

Microbac Laboratories, Inc.

KENTUCKY TESTING LABORATORY DIVISION
 3323 Oilmore Industrial Blvd. Louisville, KY 40213 502.962.6400 Fax: 502.962.6411
 Evansville, IN 813.464.9000 | Lexington, KY 859.276.3506 | Paducah, KY 270.398.1637

Member
ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1005-00672

LG & E (E ON US)
 PAUL PUCKETT
 EON-US / ANNUAL CCP EVALUATION

Date Reported 05/19/2010
 Date Received 05/11/2010
 Date Sampled 04/04/2010-05/06/2010

Analysis	Out of Spec	Qualif	Result	Unit	Min	Max	Method	CUA Limit	EQE or Std Limit	Date	Time	Tech
Sample: 014 GHENT - UNIT 1 FLY ASHcontinued												
Date & Time Sampled: 05/06/2010 @ 12:00												
Sample: 015 GHENT - UNIT 2 FLY ASH DATE EXTRACTED TCLP COMPLETED ---												
Date & Time Sampled: 05/06/2010 @ 12:00												
SW846 1311												
[TCLP Metals]												
SW846 6010C												
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 6010C	0.2	05/18/10	2:11		EML
BARIUM, TCLP			0.45	MG/L	100.0	100.0	SW846 6010C	0.002	05/18/10	2:11		EML
CADMIUM, TCLP			<0.10	MG/L	1.0	1.0	SW846 6010C	0.004	05/19/10	13:29		EML
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.01	05/19/10	13:39		EML
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.02	05/19/10	13:39		EML
MERCURY, TCLP			<0.10	MG/L	0.2	0.2	SW846 6010C	0.004	05/19/10	13:39		EML
SELENIUM, TCLP			<0.20	MG/L	1.0	1.0	SW846 6010C	0.1	05/18/10	2:11		EML
SILVER, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.01	03/19/10	13:39		EML
Sample: 016 GHENT - GYPSUM STACK DATE EXTRACTED TCLP COMPLETED ---												
Date & Time Sampled: 05/06/2010 @ 12:00												
SW846 1311												
[TCLP Metals]												
SW846 6010C												
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 6010C	0.2	05/18/10	2:16		EML
BARIUM, TCLP			<0.10	MG/L	100.0	100.0	SW846 6010C	0.002	05/18/10	2:16		EML
CADMIUM, TCLP			<0.10	MG/L	1.0	1.0	SW846 6010C	0.004	05/19/10	13:43		EML
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.01	05/19/10	13:43		EML
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.02	05/19/10	13:43		EML
MERCURY, TCLP			<0.10	MG/L	0.2	0.2	SW846 6010C	0.004	05/19/10	13:43		EML
SELENIUM, TCLP			<0.20	MG/L	1.0	1.0	SW846 6010C	0.1	05/18/10	2:16		EML
SILVER, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.01	05/19/10	13:43		EML
Sample: 017 GHENT - GYPSUM DATE EXTRACTED TCLP COMPLETED ---												
Date & Time Sampled: 05/06/2010 @ 12:00												
SW846 1311												
[TCLP Metals]												
SW846 6010C												
ARSENIC, TCLP			<0.20	MG/L	5.0	5.0	SW846 6010C	0.2	05/18/10	2:29		EML
BARIUM, TCLP			<0.10	MG/L	100.0	100.0	SW846 6010C	0.002	05/18/10	2:29		EML
CADMIUM, TCLP			<0.10	MG/L	1.0	1.0	SW846 6010C	0.004	05/19/10	13:48		EML
CHROMIUM, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.01	03/19/10	13:48		EML
LEAD, TCLP			<0.10	MG/L	5.0	5.0	SW846 6010C	0.02	05/19/10	13:48		EML
MERCURY, TCLP			<0.10	MG/L	0.2	0.2	SW846 6010C	0.004	05/19/10	13:48		EML



Microbac Laboratories, Inc.

KENTUCKY TESTING LABORATORY DIVISION
 3323 Gilmora Industrial Blvd, Louisville, KY 40213 502.962.6400 Fax: 502.962.6411
 Evansville, TN 812.464.9000 | Lexington, KY 859.276.3506 | Paducah, KY 270.898.3637

Member

ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1005-00672

LG & E (EON US)

PAUL PUCKETT

EON-US / ANNUAL CCP EVALUATION

Date Reported

05/19/2010

Date Received

05/11/2010

Dates Sampled

05/04/2010-05/06/2010

Analysis	Out of Spec	Quallf	Result	Unit	Min	Max	Method	Cus Limit	PQL or Std Limit	Date	Time	Tech
Sample: 017 GHENT - GYPSUM										Date & Time Sampled: 05/06/2010 @ 12:00		
.....continued												
SELENIUM, TCLP			<0.20	MG/L	1.0	5WB46 5010C		0.1	05/19/10	2129		EHL
SILVER, TCLP			<0.10	MG/L	5.0	6WB46 5010C		0.01	05/19/10	13148		EHL

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE:

F.R. Clifton
 LABORATORY DIRECTOR, KENTUCKY DIVISION

As regulatory limits change frequently, Microbac advises the recipient of this report to confirm such limits with the appropriate Federal, state, or local authorities before acting in reliance on the regulatory limits provided.

For any feedback concerning our services, please contact Andrew Clifton, the Laboratory Director at 502.962.6400. You may also contact both James Nokes, President and Robert Morgan, Chief Operating Officer at president@microbac.com.

Attachment 5

Management of Special Waste

Gypsum will be excavated from the Ghent's Gypsum Stacking Pond by excavator and loaded in tarped, tri-axel dump trucks for transportation to Sterling's mine. Sterling Venture's Verona mine produces limestone from underground operations only. It does not mine any limestone from open pits. Sterling mines from three underground levels, located in solid limestone bedrock. From a geological standpoint, the sea level elevation of the roof of the uppermost level is approximately 136 feet above sea level. The roofs of the second and third levels are approximately 28 feet above, and 149 feet below sea level, respectively. From a reference point, the lowest most level of the Ohio River adjacent to the Sterling Mine is approximately 401 feet above sea level. (see Exhibit 6C)

Attachment 6

Management and Reuse in compliance with 401 KAR 30:031

The following is a summary of the how the management and reuse meets each of the Sections of 401 KAR 30:031.

Section 2. Floodplains.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or restrict the flow of, the 100 year floodplain.

Section 3. Endangered Species.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or result in the destruction of the habitat of any threatened or endangered species.

Section 4. Surface Waters.

All gypsum will be placed in Sterling's underground mine. Gypsum will not be placed or stored above ground and therefore will have no impact on, or cause a discharge into, any waters of the Commonwealth.

Section 5. Groundwater.

All gypsum will be placed in solid bedrock in an area below the bottom level of the uppermost aquifer. Gypsum will not be placed or stored above ground and therefore will have no impact on, or cause a discharge into, any waters of the Commonwealth.

The uppermost mining level of Sterling's underground mine is located in what is known as the Tyrone seam of limestone. The Tyrone Limestone in north central Kentucky contains at least five potassium bentonites. Bentonite is a soft, low-specific-gravity, expandable clay. It is altered volcanic ash and because of its peculiar property of expanding when wet, bentonite is effective as a water sealer, especially to prevent pond leakage, and is also used in rotary drilling muds to prevent contaminating formations with drilling fluid. Drillers have labeled the two most prominent Tyrone bentonite beds the Mud Cave and Pencil Cave. The bentonite acts as an acquitard or confining layer that will prevent any contact of the gypsum with groundwater.

Attached as Exhibit 6-A is an excerpt from the U.S. Geological Survey - Hydrologic Atlas 730-K, Orville B. Lloyd, Jr., and William L. Lyke, 1995, describing the impact of the bentonite as a barrier to groundwater contact.

The roof of the uppermost mining level is over 200 feet below the bottom of any recorded well in the area. Regional wells do not extend below the bentonite levels in the Tyrone limestone. Attached as Exhibit 6-B is a listing of all recorded water wells in the area, their depth and distance between the bottom of the well and the roof of the Tyrone mining level.

Attached as Exhibit 6-C is a cross section of the Sterling's underground mine showing the Tyrone level mine in relation to the Mud Cave and Pencil Cave bentonite seams.

Section 6. Application to Land Use.

All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on land use.

Section 7. Polychlorinated Biphenals.

FGD Gypsum does not contain PCBs.

Section 8. Disease.

All gypsum will be placed underground and therefore will be automatically covered. Gypsum is an inert naturally occurring mineral. Underground placement will eliminate any human health or environmental issues. No sewage sludge or septic tank materials are pumped or stored underground at Sterling's underground mine.

Section 9. Air.

Underground storage will not involve burning of gypsum, which is not a flammable material. Underground storage approximately 400 feet below the surface will prohibit the airborne release of gypsum.

Section 10. Safety.

Neither limestone mining nor gypsum produces any explosive gases or a fire hazard. Sterling's underground mine is gated, which prohibits any type of uncontrolled public access.

Section 11. Public Nuisance.

Underground storage will eliminate any public nuisance due to blowing litter, debris or other waste.

Section 12. Wetlands.

All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on any wetlands

Section 13. Karst.

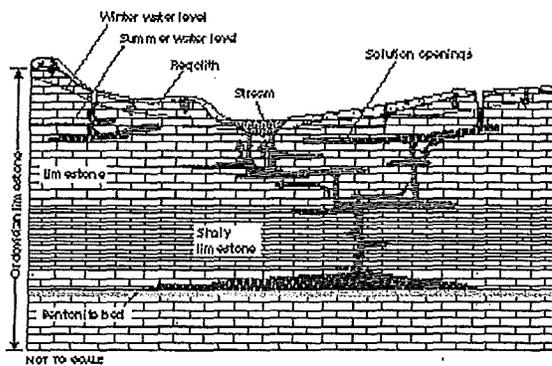
There are no sinkholes on or near the approximately 1,000 acres owned by Sterling. No surface water enters or exits the mine through any karst terrain or feature.

Section 14. Compliance.

Sterling will comply with all applicable requirements of KRS Chapter 224 and administrative regulation promulgated thereto.

Exhibit 6A

Confining units, such as beds of shaly limestone and bentonite, affect the depth to which freshwater circulates (fig. 97). Thin bentonite zones, which consist of clay particles that expand or swell when they become wet, form layers of low permeability that effectively impede the vertical movement of ground water. For example, in areas where the bentonite layers are continuous, the downward movement of ground water is restricted. This restriction isolates the ground water below the bentonite from the zone of dynamic circulation above the bentonite. U.S. Geological Survey - Hydrologic Atlas 730-K, Orville B. Lloyd, Jr., and William L. Lyke, 1995



EXPLANATION

→ Direction of ground-water movement

Modified from Zurawski, Ann, 1978, Summary appraisals of the Nation's ground-water resources—Tennessee region: U.S. Geological Survey Professional Paper 813-L, 35 p.

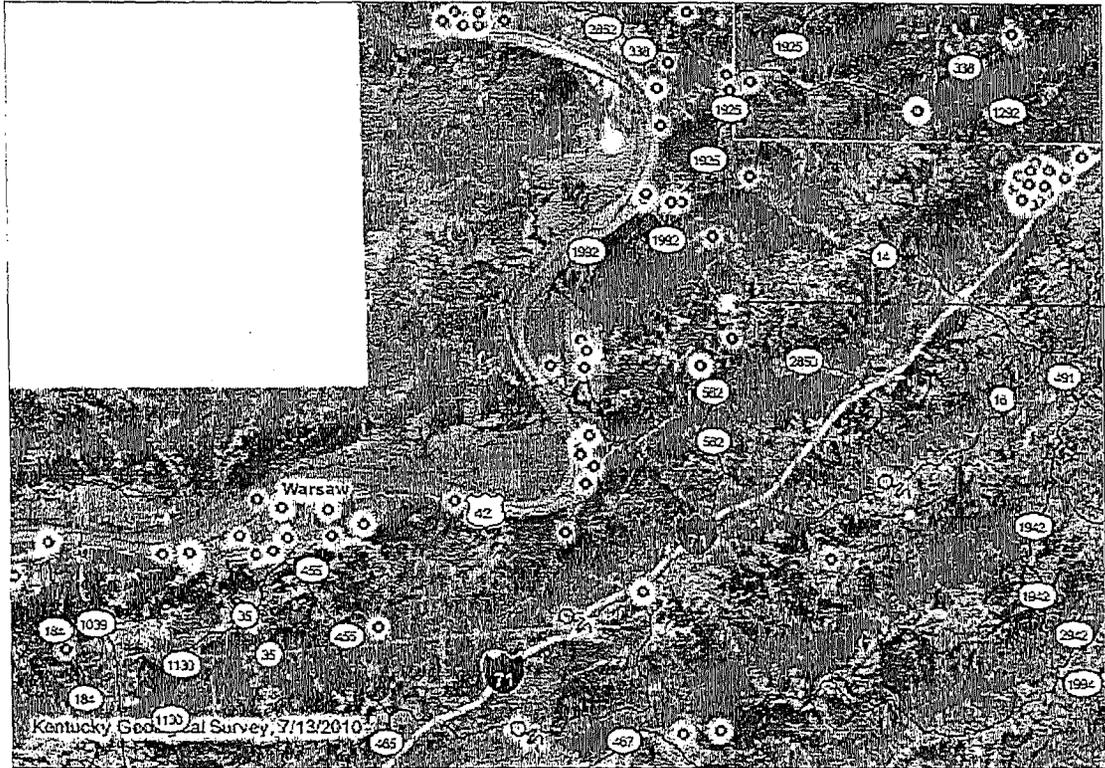
Figure 97. The limestone and dolomite aquifers contain small quantities of insoluble material and, therefore, produce only a thin layer of residuum when weathered. Recharge water percolates through the thin layer of surface material, called regolith, and subsequently moves through vertical fractures and horizontal bedding planes in the rocks. The slightly acidic water dissolves some of the limestone and dolomite as it moves to streams and other areas of discharge, such as springs and wells. The vertical movement of the recharge water and, therefore, the depth of development of solution openings, are restricted by zones of low permeability.

Kentucky Groundwater Data Repository
Kentucky Geological Survey
Water Well and Spring Location Map

Note: please disable popup blocking software for full functionality.

KGS Home > Maps, Pubs, & Data > Groundwater Info > Water Well and Spring Map

Search Criteria:
no search criteria



Sterling Mine

EXHIBIT 6B

Current Scale = 1:175,972

Note: all wells and springs are displayed at scales below 1:100,000

Change Map Scale:

Change Basemap (background):

Change Map Size: half pg (6.8 x 4.7 in) | full pg (6.8 x 9.4 in)

TIP: to print map to scale, be sure to "File -> Print Preview..." and print at 100% scaling.

Overview Map:

Map Tools:

zoom in	zoom out	zoom full
zoom last	pan	get coords
Move Map:		

Other Tools:

zoom to a location

[Bookmark Map](#)

AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
210	38.77528	-84.8191	Patriot	Gallatin	3/12/1987	DOMESTIC - SINGLE HOUSEHOLD	480	96	384	248	Wessells Constru		
950	38.81611	-84.8061	Patriot	Gallatin	6/22/1987	DOMESTIC - SINGLE HOUSEHOLD	510	99	411	275	Doolin		
2070	38.7525	-84.8722	Patriot	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	570				Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	570				Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	2/28/1986	DOMESTIC - SINGLE HOUSEHOLD	570	90	480	344	Hayton		
2070	38.7525	-84.8722	Patriot	Gallatin	2/28/1986	DOMESTIC - SINGLE HOUSEHOLD	570	90	480	344	Hayton		
2071	38.7975	-84.8078	Patriot	Gallatin	4/7/1986	DOMESTIC - SINGLE HOUSEHOLD	470	78	392	256	Wilker / Mcintos		
2072	38.79167	-84.8039	Patriot	Gallatin	4/22/1985	DOMESTIC - SINGLE HOUSEHOLD	460	57	403	267	Perry		
3030	38.82306	-84.7594	Patriot	Gallatin	8/13/1985	DOMESTIC - SINGLE HOUSEHOLD	600	100	500	364	Whalen		
3885	38.82278	-84.8069	Patriot	Gallatin	7/30/1987	DOMESTIC - SINGLE HOUSEHOLD	524	142	382	246	Sproul		
6426	38.79722	-84.8072	Patriot	Gallatin	3/28/1988	DOMESTIC - SINGLE HOUSEHOLD	475	50	425	289	Hudepohl		
6427	38.775	-84.9003	Florence	Gallatin	8/31/1988	INDUSTRIAL - GENERAL	485	92	393	257		Irving Materials Inc	
6429	38.7875	-84.8064	Patriot	Gallatin	5/16/1989	DOMESTIC - SINGLE HOUSEHOLD	475	65	410	274	Heil		
7861	38.87556	-84.7808	Rising Sun	Boone	10/8/1990	DOMESTIC - SINGLE HOUSEHOLD	495	70	425	289	Ralston		
8554	38.79639	-84.8078	Patriot	Gallatin	10/29/1987	DOMESTIC - SINGLE HOUSEHOLD	470	93	377	241	Schwab		
10409	38.75417	-84.9117	Florence	Gallatin	1/22/1993	DOMESTIC - SINGLE HOUSEHOLD	550	83	467	331	Fender		
14147	38.88472	-84.7817	Rising Sun	Boone	12/13/1988	DOMESTIC - SINGLE HOUSEHOLD	530	86	444	308	Wood		
14148	38.88472	-84.7817	Rising Sun	Boone	12/14/1988	DOMESTIC - SINGLE HOUSEHOLD	430	93	337	201	Wood		
20278	38.78389	-84.8475	Patriot	Gallatin	8/18/1986	DOMESTIC - SINGLE HOUSEHOLD	470	80	390	254	Boschert		
20583	38.88778	-84.7597	Rising Sun	Boone	1/1/1900		550				Waljih		
21565	38.76806	-84.7294	Verona	Grant	10/3/1986	DOMESTIC - SINGLE HOUSEHOLD	710	80	630	494	Ellis		
21577	38.88389	-84.7586	Rising Sun	Boone	6/5/1994	DOMESTIC - SINGLE HOUSEHOLD	520	80	440	304	Wilbur		
27010	38.8575	-84.7864	Patriot	Boone	6/8/1992	DOMESTIC - SINGLE HOUSEHOLD	477	56	421	285	Fred		
29603	38.77078	-84.9396	Florence	Gallatin	1/1/1900	PUBLIC - TRANSIENT, NON-COMMUNITY	460				Loewendick	Rivers Edge Campground	
34428	38.87778	-84.6744	Union	Boone	7/20/1993		810	63	747	611	Vaske		
34436	38.84806	-84.765	Patriot	Boone	1/20/1987	DOMESTIC - SINGLE HOUSEHOLD	495	64	431	295	Gilliand		
34438	38.90361	-84.7714	Rising Sun	Boone	12/10/1986	DOMESTIC - SINGLE HOUSEHOLD	600	100	500	364	Kurkel		
34474	38.89556	-84.6681	Union	Boone	4/23/1993		810	83	727	591	Allen		
34475	38.89694	-84.6694	Union	Boone	12/4/1992	DOMESTIC - SINGLE HOUSEHOLD	820	103	717	581	McDaniel		
37305	38.78611	-84.8903	Florence	Gallatin	10/1/1994	HEAT PUMP - OPEN LOOP	495	94	401	265		Gallatin County Schools	
37311	38.76583	-84.9856	Florence	Gallatin	1/19/1995	INDUSTRIAL - GENERAL	470	91	379	243		Steel Technologies Inc	
37376	38.78222	-84.9017	Florence	Gallatin	1/1/1930	PUBLIC - COMMUNITY	491	136	355	219		Warsaw Water Works	Drinking Water
37377	38.78262	-84.9017	Florence	Gallatin	1/1/1930	PUBLIC - COMMUNITY	491	96	395	259		Warsaw Water Works	Drinking Water
37378	38.77417	-84.8856	Florence	Gallatin	1/1/1967	AGRICULTURE - LIVESTOCK WATERING	505	78	427	291	Smith		
37400	38.77861	-84.8778	Florence	Gallatin	4/27/1995		500				Oldendick	Sugar Bay Golf Inc	
39222	38.77889	-84.8764	Florence	Gallatin	1/1/1965		503				Oldendick	Sugar Bay Golf Inc	
48660	38.77528	-84.8867	Florence	Gallatin	1/1/1900	DOMESTIC - SINGLE HOUSEHOLD	510				Beall		
49372	38.78583	-84.8931	Florence	Gallatin	11/1/1999	HEAT PUMP - OPEN LOOP	495					Gallatin County Schools	
49377	38.77063	-84.9102	Florence	Gallatin	2/28/2000	PUBLIC - COMMUNITY	500					Gallatin County Water District	Drinking Water
51920	38.89969	-84.7986	Rising Sun	Boone	1/1/1974	PUBLIC - TRANSIENT, NON-COMMUNITY	470	9	461	325		Camp Turn About	
55811	38.85639	-84.7742	Patriot	Boone	4/19/2002	DOMESTIC - SINGLE HOUSEHOLD	490	70	420	284		Big Bone Marina	
58332	38.85639	-84.7775	Patriot	Boone	5/1/2002	DOMESTIC - SINGLE HOUSEHOLD	460	63	397	261		Big Bone Marina	
58338	38.89111	-84.7776	Rising Sun	Boone	1/23/2002	DOMESTIC - SINGLE HOUSEHOLD	605	80	525	389	Parker		
65141	38.82028	-84.8053	Patriot	Gallatin	1/1/1900	INDUSTRIAL - GENERAL	523					Nugent Sand Co - Warsaw Plant	
40004237	38.72534	-84.7774	Glencoe	Grant		DOMESTIC - SINGLE HOUSEHOLD							
40004241	38.78173	-84.8874	Florence	Gallatin		UNKNOWN	475						
40004243	38.79923	-84.8049	Patriot IN	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		140					
40004245	38.81673	-84.8169	Patriot IN	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		101					
40005375	38.77145	-84.9049	Florence	Gallatin		UNKNOWN	515						
40005376	38.77423	-84.9747	Florence	Gallatin		UNKNOWN	455						
40005378	38.78257	-84.9019	Florence	Gallatin		PUBLIC	490	140	350	214			
40005886	38.72618	-84.7655	Glencoe	Grant		UNKNOWN							

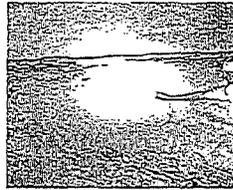
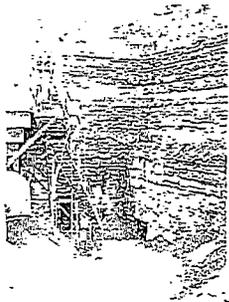
AKGWA						Construction			Surface			Bottom	Delta to			Owner	Owner Business	Regulatory Program
NUMBER	lat27	lon27	Quadrangle	County	Date	Primary Use	Elevation	Total Depth	Elevation	Mine Roof								
40005892	38.76951	-84.9305	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		55										
40005893	38.76951	-84.9305	Florence	Gallatin		UNKNOWN	460											
40005894	38.77395	-84.9747	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		58										
40005895	38.85867	-84.7858	Patriot IN	Boone		DOMESTIC - SINGLE HOUSEHOLD	490	29	461	325								
40006041	38.78173	-84.8874	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		40										
40006325	38.77812	-84.8761	Florence	Gallatin		UNKNOWN	510		510	374								
40006326	38.78173	-84.8874	Florence	Gallatin		UNKNOWN	475		475	339								
40006327	38.79479	-84.8077	Patriot IN	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		60										
40006328	38.79923	-84.8049	Patriot	Gallatin		UNKNOWN	490											
40006757	38.72534	-84.7774	Glencoe	Grant		UNKNOWN												
40006762	38.77145	-84.9049	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		146										
40006763	38.77423	-84.9747	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		87										
40006764	38.86256	-84.7527	Patriot IN	Boone		PUBLIC												
40007580	38.72618	-84.7655	Glencoe	Grant		DOMESTIC - SINGLE HOUSEHOLD												
40007585	38.74757	-84.9699	Sanders	Gallatin		DOMESTIC - SINGLE HOUSEHOLD												
40007586	38.77395	-84.9747	Florence	Gallatin		UNKNOWN	453											
40007588	38.77812	-84.8761	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		80										
80003234	38.8625	-84.6614	Verona	Boone	7/22/1993	ITORING WELL - WATER LEVEL MONITORING	800	18	782	646					Bavarian Trucking Co Inc		Solid Waste	
80003235	38.86139	-84.6572	Verona	Boone	7/14/1993	ITORING WELL - WATER LEVEL MONITORING	800	20.7	779.3	643.3					Bavarian Trucking Co Inc		Solid Waste	
80003236	38.86083	-84.6592	Verona	Boone	7/10/1993	ITORING WELL - WATER LEVEL MONITORING	780	17.5	762.5	626.5					Bavarian Trucking Co Inc		Solid Waste	
80003239	38.85917	-84.6619	Verona	Boone	7/22/1993	MONITORING WELL - AMBIENT MONITORING	740	18.2	721.8	585.8					Bavarian Trucking Co Inc		Solid Waste	
80003240	38.85944	-84.6628	Verona	Boone	7/10/1993	MONITORING WELL - AMBIENT MONITORING	720	27	693	557					Bavarian Trucking Co Inc		Solid Waste	
80003241	38.85972	-84.6639	Verona	Boone	7/10/1993	MONITORING WELL - AMBIENT MONITORING	720	22.9	697.1	561.1					Bavarian Trucking Co Inc		Solid Waste	
80003242	38.85917	-84.665	Verona	Boone	7/21/1993	MONITORING WELL - AMBIENT MONITORING	720	18.4	701.6	565.6					Bavarian Trucking Co Inc		Solid Waste	
80003243	38.85972	-84.6667	Verona	Boone	7/21/1993	MONITORING WELL - AMBIENT MONITORING	700	18.1	681.9	545.9					Bavarian Trucking Co Inc		Solid Waste	
80003244	38.85944	-84.6678	Verona	Boone	7/20/1993	MONITORING WELL - AMBIENT MONITORING	720	18.9	701.1	565.1					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	12/30/2000	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	12/30/2000	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	7/14/1993	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	7/14/1993	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	12/30/2000	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	12/30/2000	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	7/14/1993	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003245	38.85556	-84.6678	Verona	Boone	7/14/1993	MONITORING WELL - AMBIENT MONITORING	800	18.1	781.9	645.9					Bavarian Trucking Co Inc		Solid Waste	
80003246	38.86	-84.6642	Verona	Boone	7/27/1993	MONITORING WELL - AMBIENT MONITORING	720	18.3	701.7	565.7					Bavarian Trucking Co Inc		Solid Waste	
80011401	38.86139	-84.6542	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	847.49								Bavarian Trucking Co Inc		Solid Waste	
80011402	38.86167	-84.6539	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	847.92								Bavarian Trucking Co Inc		Solid Waste	
80011403	38.85778	-84.6592	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	833.59								Bavarian Trucking Co Inc		Solid Waste	
80011404	38.85806	-84.6589	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	833.65								Bavarian Trucking Co Inc		Solid Waste	
80011405	38.85583	-84.6619	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	834.72								Bavarian Trucking Co Inc		Solid Waste	
80011406	38.855	-84.6639	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	816.7								Bavarian Trucking Co Inc		Solid Waste	
80011407	38.85511	-84.6672	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	800.5								Bavarian Trucking Co Inc		Solid Waste	
80011408	38.85851	-84.67	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	766.27								Bavarian Trucking Co Inc		Solid Waste	
80011409	38.86	-84.6692	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	767.85								Bavarian Trucking Co Inc		Solid Waste	
80011410	38.86222	-84.6689	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	641.24								Bavarian Trucking Co Inc		Solid Waste	
80011411	38.86222	-84.6669	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	643.85								Bavarian Trucking Co Inc		Solid Waste	
80011412	38.86222	-84.6681	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	604.9								Bavarian Trucking Co Inc		Solid Waste	
80011413	38.8625	-84.6622	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	828.1								Bavarian Trucking Co Inc		Solid Waste	
80011414	38.8625	-84.6622	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	828.01								Bavarian Trucking Co Inc		Solid Waste	
80011415	38.86417	-84.6594	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	780.48								Bavarian Trucking Co Inc		Solid Waste	
80011416	38.86417	-84.6589	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	780.26								Bavarian Trucking Co Inc		Solid Waste	
80011417	38.86556	-84.6625	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	784.79								Bavarian Trucking Co Inc		Solid Waste	

AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
80011418	38.86361	-84.6642	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	762.46					Bavarian Trucking Co Inc	Solid Waste
80011419	38.86361	-84.6583	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	784.17					Bavarian Trucking Co Inc	Solid Waste
80012127	38.90417	-84.8358	Rising Sun	Boone	11/10/1980	MONITORING WELL - AMBIENT MONITORING	530	86	444	308		Cincinnati Gas & Electric	Solid Waste
80012127	38.90417	-84.8358	Rising Sun	Boone	11/10/1980	MONITORING WELL - AMBIENT MONITORING	530	86	444	308		Duke Energy Kentucky Inc	Solid Waste
80012133	38.90083	-84.8483	Rising Sun	Boone	11/26/1980	MONITORING WELL - AMBIENT MONITORING	475	57	418	282		Cincinnati Gas & Electric	Solid Waste
80012133	38.90083	-84.8483	Rising Sun	Boone	11/26/1980	MONITORING WELL - AMBIENT MONITORING	475	57	418	282		Duke Energy Kentucky Inc	Solid Waste
80012134	38.90083	-84.8411	Rising Sun	Boone	11/13/1980	MONITORING WELL - AMBIENT MONITORING	475	108	367	231		Cincinnati Gas & Electric	Solid Waste
80012134	38.90083	-84.8411	Rising Sun	Boone	11/13/1980	MONITORING WELL - AMBIENT MONITORING	475	108	367	231		Duke Energy Kentucky Inc	Solid Waste
80012135	38.90111	-84.8361	Rising Sun	Boone	3/28/1991	MONITORING WELL - AMBIENT MONITORING	475	33	442	306		Cincinnati Gas & Electric	Solid Waste
80012135	38.90111	-84.8361	Rising Sun	Boone	3/28/1991	MONITORING WELL - AMBIENT MONITORING	475	33	442	306		Duke Energy Kentucky Inc	Solid Waste
80012488	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	18	662	526		Old Starlite Tavern	UST
80012489	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	15	665	529		Old Starlite Tavern	UST
80012490	38.81611	-84.7694	Patriot	Gallatin	4/20/1994	MONITORING WELL - AMBIENT MONITORING	680	8.5	671.5	535.5		Old Starlite Tavern	UST
80026034	38.85972	-84.6603	Verona	Boone	5/8/1995	MONITORING WELL - AMBIENT MONITORING	759.34	16	743.34	607.34		Bavarian Trucking Co Inc	Solid Waste
80026035	38.86	-84.665	Verona	Boone	5/10/1995	MONITORING WELL - AMBIENT MONITORING	723.22	16.3	706.92	570.92		Bavarian Trucking Co Inc	Solid Waste
80026544	38.90278	-84.8417	Rising Sun	Boone	11/1/1993	MONITORING WELL - AMBIENT MONITORING	540	80	460	324		Cincinnati Gas & Electric	Solid Waste
80026544	38.90278	-84.8417	Rising Sun	Boone	11/1/1993	MONITORING WELL - AMBIENT MONITORING	540	80	460	324		Duke Energy Kentucky Inc	Solid Waste
80026545	38.90056	-84.8419	Rising Sun	Boone	10/13/1995	MONITORING WELL - AMBIENT MONITORING	475	41	434	298		Cincinnati Gas & Electric	Solid Waste
80026545	38.90056	-84.8419	Rising Sun	Boone	10/13/1995	MONITORING WELL - AMBIENT MONITORING	475	41	434	298		Duke Energy Kentucky Inc	Solid Waste
80026547	38.90417	-84.8444	Rising Sun	Boone	10/17/1995	MONITORING WELL - AMBIENT MONITORING	520	80.5	439.5	303.5		Cincinnati Gas & Electric	Solid Waste
80026547	38.90417	-84.8444	Rising Sun	Boone	10/17/1995	MONITORING WELL - AMBIENT MONITORING	520	80.5	439.5	303.5		Duke Energy Kentucky Inc	Solid Waste
80026549	38.90194	-84.8292	Rising Sun	Boone	10/18/1995	MONITORING WELL - AMBIENT MONITORING	470	30.5	439.5	303.5		Cincinnati Gas & Electric	Solid Waste
80026549	38.90194	-84.8292	Rising Sun	Boone	10/18/1995	MONITORING WELL - AMBIENT MONITORING	470	30.5	439.5	303.5		Duke Energy Kentucky Inc	Solid Waste
80029573	38.90121	-84.8476	Rising Sun	Boone	11/30/2005	MONITORING WELL - AMBIENT MONITORING	120	120				Cincinnati Gas & Electric	Solid Waste
80029573	38.90121	-84.8476	Rising Sun	Boone	11/30/2005	MONITORING WELL - AMBIENT MONITORING	120	120				Duke Energy Kentucky Inc	Solid Waste
80029577	38.902	-84.8484	Rising Sun	Boone	12/2/2005	MONITORING WELL - AMBIENT MONITORING	120	120				Cincinnati Gas & Electric	Solid Waste
80029577	38.902	-84.8484	Rising Sun	Boone	12/2/2005	MONITORING WELL - AMBIENT MONITORING	120	120				Duke Energy Kentucky Inc	Solid Waste
80029864	38.74278	-84.8358	Glencoe	Gallatin	5/29/1996	MONITORING WELL - AMBIENT MONITORING	680	7.5	672.5	536.5		Glencoe Carry-out	UST
80029865	38.74278	-84.8358	Glencoe	Gallatin	5/29/1996	MONITORING WELL - AMBIENT MONITORING	680	12	668	532		Glencoe Carry-out	UST
80029872	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	15	665	529		Glencoe Carry-out	UST
80029873	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	13	667	531		Glencoe Carry-out	UST
80029874	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	23	657	521		Glencoe Carry-out	UST
80029875	38.74278	-84.8358	Glencoe	Gallatin	6/7/1996	MONITORING WELL - AMBIENT MONITORING	680	30	650	514		Glencoe Carry-out	UST
80030354	38.74278	-84.8358	Glencoe	Gallatin	6/19/1996	MONITORING WELL - AMBIENT MONITORING	680	30	650	514		Glencoe Carry-out	UST
80030355	38.74278	-84.8358	Glencoe	Gallatin	6/19/1996	MONITORING WELL - AMBIENT MONITORING	680	18	662	526		Glencoe Carry-out	UST
80030356	38.74278	-84.8358	Glencoe	Gallatin	6/20/1996	MONITORING WELL - AMBIENT MONITORING	680	43	637	501		Glencoe Carry-out	UST
80030955	38.74222	-84.8347	Glencoe	Gallatin	9/4/1996	MONITORING WELL - AMBIENT MONITORING	690	25	665	529		Glencoe Carry-out	UST
80030956	38.74222	-84.8347	Glencoe	Gallatin	9/4/1996	MONITORING WELL - AMBIENT MONITORING	690	25	665	529		Glencoe Carry-out	UST
80032432	38.86667	-84.6483	Verona	Boone	7/12/1999	MONITORING WELL - AMBIENT MONITORING	840	23.7	816.3	680.3		Bavarian Trucking Co Inc	Solid Waste
80032433	38.86667	-84.6483	Verona	Boone	7/12/1999	MONITORING WELL - AMBIENT MONITORING	831	30.5	800.5	664.5		Bavarian Trucking Co Inc	Solid Waste
80035870	38.74194	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	700	30.5	669.5	533.5		Glencoe Carry-out	UST
80035879	38.74222	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	690	6	684	548		Glencoe Carry-out	UST
80035880	38.74222	-84.8347	Glencoe	Gallatin	11/9/1998	MONITORING WELL - AMBIENT MONITORING	690	7	683	547		Glencoe Carry-out	UST
80037728	38.88611	-84.7522	Rising Sun	Boone	7/16/2004	MONITORING WELL - AMBIENT MONITORING	460					Kentucky State Parks	
80038750	38.74278	-84.8358	Glencoe	Gallatin	1/12/2000	MONITORING WELL - AMBIENT MONITORING	680	20.2	659.8	523.8		Glencoe Carry-out	UST
80039695	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5		Dans Marina	UST
80039696	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5		Dans Marina	UST
80039697	38.77111	-84.9311	Florence	Gallatin	5/24/2000	MONITORING WELL - AMBIENT MONITORING	460	15.5	444.5	308.5		Dans Marina	UST
80040053	38.77556	-84.9156	Florence	Gallatin	9/29/2000	MONITORING WELL - AMBIENT MONITORING	490	139	351	215		Warsaw Water Works	
80040054	38.78444	-84.9092	Florence	Gallatin	9/29/2000	MONITORING WELL - AMBIENT MONITORING	480	117	363	227		Warsaw Water Works	
80043988	38.74278	-84.8358	Glencoe	Carroll	10/29/2001	MONITORING WELL - AMBIENT MONITORING	680	25	655	519		Glencoe Carry-out	UST
80044011	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	6.5	733.5	597.5		Matracia & Matracia Partnershi	UST

AKGWA			Construction			Surface	Bottom	Delta to	Owner	Owner Business	Regulatory Program	
NUMBER	lat27	lon27	Quadrangle	County	Date	Primary Use	Elevation	Total Depth	Elevation	Mine Roof		
80044012	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	10.2	729.8	593.8	Matracia & Matracia Partnershi	UST
80044013	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	9.3	730.7	594.7	Matracia & Matracia Partnershi	UST
80044014	38.87861	-84.6994	Union	Boone	12/4/2001	MONITORING WELL - AMBIENT MONITORING	740	9	731	595	Matracia & Matracia Partnershi	UST
80049181	38.76056	-84.7889	Patriot	Gallatin	5/4/2004	MONITORING WELL - AMBIENT MONITORING	850				Napoleon Grocery	UST
80049182	38.76056	-84.7889	Patriot	Gallatin	5/3/2004	MONITORING WELL - AMBIENT MONITORING	850				Napoleon Grocery	UST
80049185	38.76056	-84.7889	Patriot	Gallatin	5/3/2004	MONITORING WELL - AMBIENT MONITORING	850				Napoleon Grocery	UST
80049186	38.76056	-84.7889	Patriot	Gallatin	5/4/2004	MONITORING WELL - AMBIENT MONITORING	850				Napoleon Grocery	UST
80049425	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	6	734	598	Matracia & Matracia Partnershi	UST
80049426	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	8	732	596	Matracia & Matracia Partnershi	UST
80049427	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	8.5	731.5	595.5	Matracia & Matracia Partnershi	UST
80049428	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	6.5	733.5	597.5	Matracia & Matracia Partnershi	UST
80049429	38.87861	-84.6994	Union	Boone	1/5/2004	MONITORING WELL - AMBIENT MONITORING	740	4	735	600	Matracia & Matracia Partnershi	UST
80050961	38.85639	-84.6669	Verona	Boone	11/9/2005	MONITORING WELL - AMBIENT MONITORING	800				Bavarian Trucking Co Inc	Solid Waste
80053954	38.90083	-84.8369	Rising Sun	Boone	9/20/2007	MONITORING WELL - AMBIENT MONITORING		45			Duke Energy Kentucky Inc	Solid Waste
80053955	38.90389	-84.8369	Rising Sun	Boone	9/18/2007	MONITORING WELL - AMBIENT MONITORING		117.5			Duke Energy Kentucky Inc	Solid Waste

Exhibit 6C

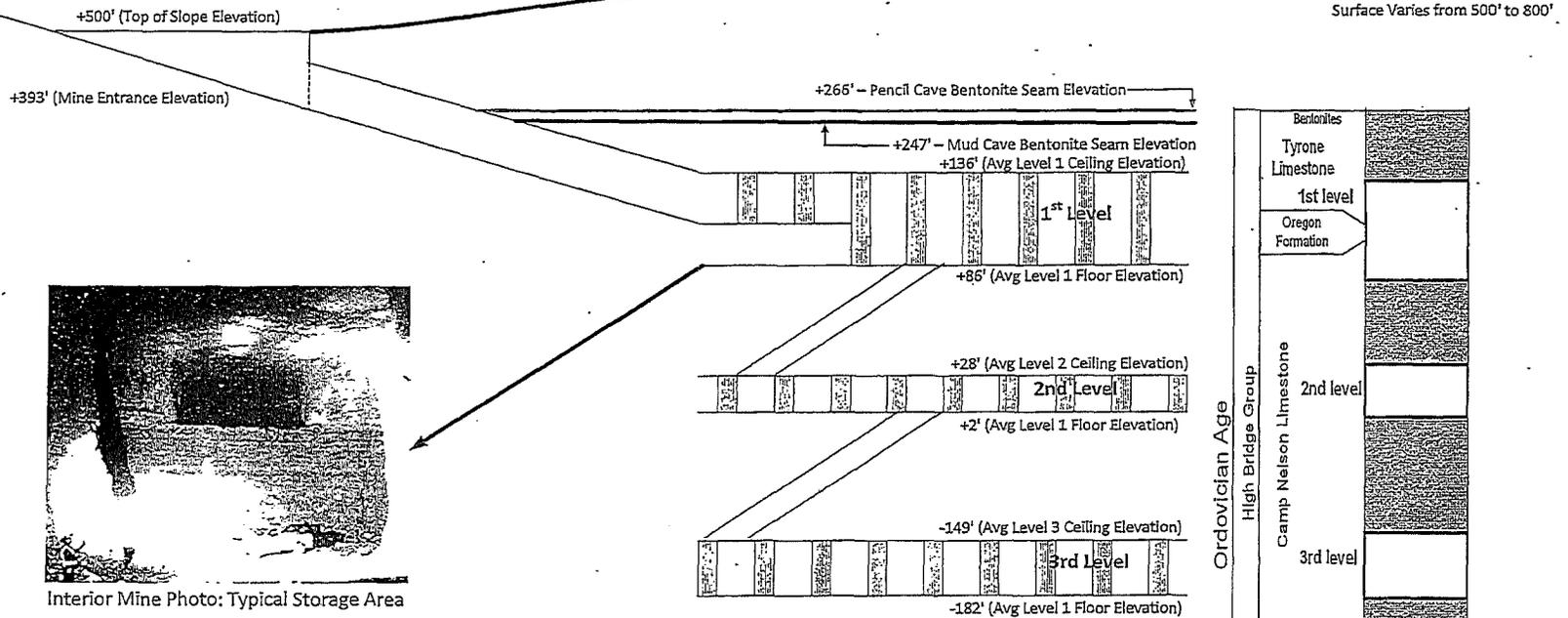
Sterling Materials – Verona, KY Underground Cross Section



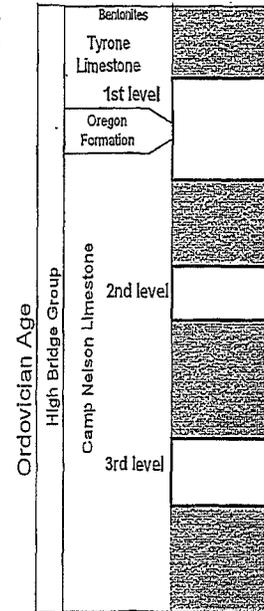
Pencil Cave Bentonite Seam
Thickness: $\approx 18''$
Elevation: +266'



Mud Cave Bentonite Seam
Thickness: $\approx 24''$
Elevation: +247'



Interior Mine Photo: Typical Storage Area



Notes:

- ❖ Drawing Not to Scale.
- ❖ Mine ceiling and floor elevations are based on average elevations across each level.
- ❖ Bentonite Seam and Rock Stratigraphy Information Resource: Kentucky Geological Survey, University of Kentucky, Lexington Series X, 1974. High Carbonate Rock in the High Bridge Group (Middle Ordovician), Boone County, Kentucky. Author: Garland R. Dever, Jr.
- ❖ Elevations are referenced at Sea Level.





John Walters <johnwalters@sterlingventures.com>

Trimble County CCR Landfill

1 message

John Walters <johnwalters@sterlingventures.com>

Wed, Dec 31, 2014 at 4:09 PM

To: Somerville.eric@epa.gov

Bcc: Alex Boone <ABoone@sterlingmaterials.com>, Tim Stout <tstout@sterlingventures.com>

Eric:

Please find attached information regarding LG&E's capacity needs for Trimble County CCR.

The first attachment is information LG&E provided to the KY PSC in a recently filed rate case regarding the effect of allowing CCR to be used for existing pond closures. It appears from the comment in 4.11 that if CCR can be used for pond closure, the time frame for later phases of the landfill would be pushed back as the annual capacity requirement for the landfill would be reduced. Unfortunately, the exact impact of this on Trimble capacity requirements is unclear and requires some further investigation, assuming CCR can be used for pond closure.

Also attached are pages from LG&E's 2009 analysis of the Trimble County Plan for CCR presented to the Ky PSC as part of the original request to build the CCR Landfill. As you can see, the off-site landfill alternative indicated a need for 27 million cubic yards over a 44 year period (2013-2057), or 613,636 cubic yards a year. It is unclear whether that amount was net of beneficial reuse of CCR, but for whatever reason, the clearly stated option of off-site disposal required 27 million cubic yards over 44 years versus 33.4 million over 37 years.

You will also see attached a May 22, 2012 letter from James Giattina letter to Colonel Leonard at the USACE (although I realize you are already aware of this letter as it is attached to your May 22, 2012 letter to Colonel Leonard), where Mr. Giattina succinctly pointed out that based upon LG&E own statements, beneficial reuse contracts will substantially reduce capacity needs. However, Mr. Giattina's letter indicates that the reduced capacity needs, and his computations, were based upon verbal representations from LG&E personnel.

In connection with those representations to Mr. Giattina by LG&E, I have also attached a page from a presentation by LG&E dated December 28, 2011 summarizing existing beneficial reuse contracts for Trimble County CCR. The information in this presentation appears to back up the information verbally supplied to Mr. Giattina. In addition, I have attached a November 2014 press release from Charah announcing new agreements with LG&E/KU to market CCR.

On page 7 of 46 of the Trimble County Plan, you will note that the Company summarizes the cubic yards of ash and gypsum produced base upon the coal burn tonnage (19 cubic yards of Gypsum and 9.8 cubic yards of Ash per 100 tons of coal burned - also note that these CCR production numbers are based on wet storage, not dry, which should require less capacity).

According to information filed by the Company in connection with its semi-annual fuel clause rate adjustments, actual coal burns at Trimble have been as follows:

Between 5/1/2012 and 10/31/2012	1,831,685 tons
Between 11/1/2012 and 4/30/2013	1,287,110 tons
Between 5/1/2013 and 10/31/2013	1,837,009 tons
Between 11/1/2013 and 4/30/2014	1,471,254 tons

The coal burn numbers also would appear to confirm (based on the cubic yard per ton conversion) the approximately 900,000 thousand total cubic yards per year of CCR set out by Mr. Giattina in the chart attached to his letter.

The bottom line is that the actual capacity requirements for Trimble County CCR, net of beneficial re-use contracts, appears to be at the most 500,000 cubic yards annually, and possibly much less depending on whether fly ash sales hit the possible 95% of production noted by Mr. Giattina, and gypsum re-use increase

beyond 50% of production. This net CCR production is well within Sterling's capacity based on current availability and future production.

Please don't hesitate to call should you have any questions on the attached.

Happy New Year!

John

John W. Walters, Jr.
Sterling Ventures, LLC
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Lexington, KY 40508
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6 attachments

 **20141231143103479.pdf**
253K

 **20141231153710108.pdf**
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 **20141231143120766.pdf**
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 **20141231143135173.pdf**
113K

 **20141231143152709.pdf**
402K

 **20141231143210714.pdf**
503K

Major Assumptions

4. Coal Combustion Residuals (CCR's)

4.2 Trimble County Landfill and Transport.

- The projected in-service date for the transport and treatment system is September, 2017.
- The projected in-service date for the landfill is April, 2018.
 - Approval of DWM permit is in January, 2015.
 - One year litigation of permits (1/15 – 1/16)
 - Construction period of 2.75 years.

Major Assumptions

4. Coal Combustion Residuals (CCR's) (cont)

4.3 Brown Ash Pond is being converted to a landfill, with an expected in-service date of second quarter, 2016 for Phase

- KYDWM permit expected third quarter, 2014.
- Construction schedule is approximately 18 months.
- All three phases will be staged concurrently.

4.4 Ghent Landfill Phase 1 construction went in service in June, 2014.

- Transport portion of the project is trending toward a September, 2014 in-service date.

4.5 A new Mill Creek landfill will be in-service by December 31, 2019.

- Landfill location is 1.5 miles from Mill Creek with a 1.5 mile transport pipe conveyor.

4.6 The Cane Run MSE Wall will be completed in 4th Quarter 2014.

4.7 The Cane Run Landfill will be closed in 2016.

4.8 The Cane Run Ash pond Cap & Closure project will be completed in 2017.

4.9 All CCR Capital Projects use an annual escalation rate of 4.0%.

Major Assumptions

4. Coal Combustion Residuals (CCR's) (cont)

- 4.10 The pond closure projects assume that existing CCR materials from each plant can be used to fill in each pond, similar to Cane Run. If that is not allowed by rule, the estimated cost of having to instead procure top soil and clay is an additional \$450M.
- 4.11 If CCR materials are allowed for Pond Closure, Phases II and III of the landfill projects will move further out in time relative to what is in the 10-year projections.

*Coal Combustion Byproduct
Plan for Trimble County Station
For*



*Subsidiaries
Kentucky Utilities and
Louisville Gas and Electric*

June 2009

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CONFIDENTIAL INFORMATION REDACTED

Table 4: Alternatives for Long-Term Storage

		On-Site			Beneficial Reuse	Off-Site Landfill
Case		16	21	23		
Description		2 Landfills	1 Landfill	1 Landfill		
Ash		Lower Ravine B	Landfill Ravine B	Landfill Ravine B	Holcim	Off-Site
Gypsum		Upper Ravine B			SynMat	
Total Capacity (MCY)		26.8	28.1	30.0	9.5	27.0 needed
Nominal Cost (\$M)	Capital O&M ¹²					

Each of the alternatives for on-site long-term storage was designed to hold at least 35 years of CCP production, assuming expected densities for the CCP stored, and will be constructed in a phased approach in ravine "B". Table 5 shows the construction periods, the in-service years, and the capacity for each phase of the on-site cases.

Table 5: Construction Phases for On-Site Storage Options

Case		16	21	23	
Site		Lower Ravine B	Upper Ravine B	Ravine B	Ravine B
Phase 1	Construction	2011-12	2012-13	2011-12	2011-12
	In-Service	2013	2014	2013	2013
	Capacity (MCY)	16.1	10.7	8.0	13.9
Phase 2	Timing	--	--	2021-22	2029-30
	In-Service	--	--	2024	2032
	Capacity (MCY)	--	--	14.8	4.2
Phase 3	Timing	--	--	2040-41	2034-35
	In-Service	--	--	2043	2037
	Capacity (MCY)	--	--	5.3	11.9
Total Capacity		16.1	10.7	28.1	30.0

¹² The O&M figures in Table 4 include the cost for power to operate the on-site storage alternatives. The power costs are used to compare options, but are not used to calculate ECR billing factors.

Figure 11: Ash and Gypsum Landfill Capacity-Case 21 with Beneficial Reuse

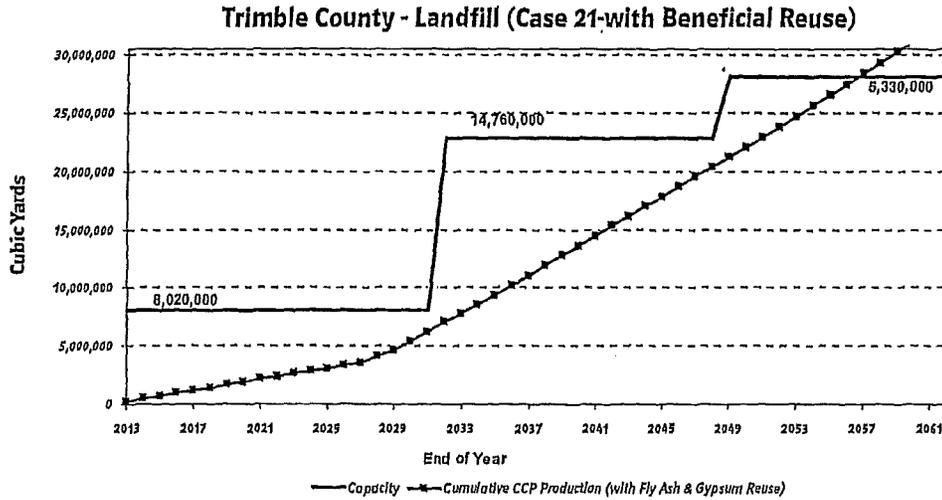
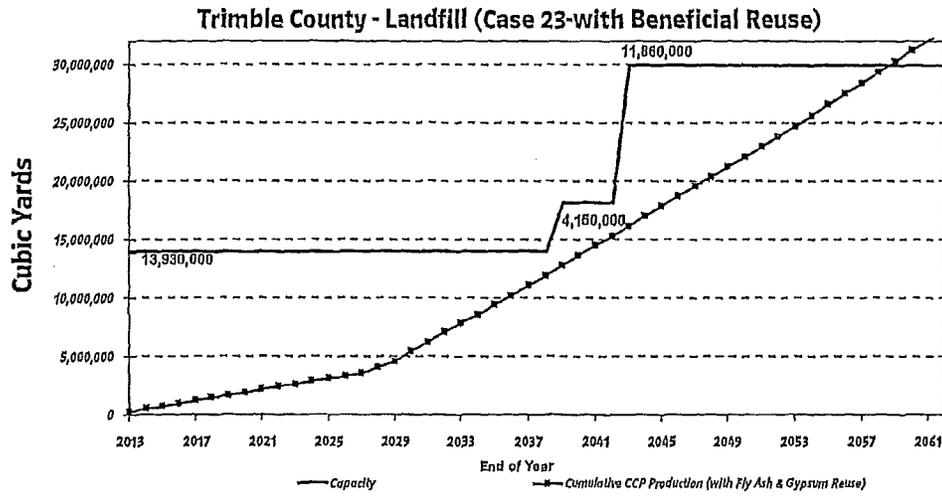


Figure 12: Ash and Gypsum Landfill Capacity-Case 23 with Beneficial Reuse



5.2.3 Long-Term Off-Site Landfill Disposal

CONFIDENTIAL INFORMATION REDACTED

The third option is to dispose of CCP in an existing off-site commercial landfill. This option requires moving 27.0 MCY of CCP, which is the cumulative CCP production at Trimble from 2013 until 2057 at an estimated nominal cost of \$ [REDACTED] per cubic yard.

6. Comparison of Alternatives

6.1 Short-Term Alternatives

The pre-2013 disposal analysis compares the cost of on-site storage (extending the BAP dikes and relining the GSP) to the beneficial reuse initiative and to the cost of off-site landfill disposal. As seen in Table 6, the beneficial reuse with SynMat is the least-cost option, but does not fully meet the short term capacity needs. On a PVRR basis, the combination of expanding the BAP, lining the GSP, and beneficial reuse is 50% less costly than the off-site landfill option.

Table 6: PVRR Analysis Summary of Short-Term Alternatives
(2009 PVRR million \$)

Alternatives	Expanding BAP/ Lining GSP	Beneficial Reuse	Off-Site Landfill
PVRR			
Capital			
O&M			
Total			
<i>Delta to Least Cost Case</i>	39.6	<i>Least Cost</i>	85.4
Capacity (MCY)	3.15	1.08	2.84
Unit Cost (2009 PVRR \$/CY)			

6.2 Long-Term Alternatives

The long-term storage evaluation (summarized in Table 7) compares the cost of three on-site storage alternatives, in addition to disposal in an off-site commercial landfill. The financial assumptions related to the analysis of these cases are shown in Appendix 1, the projected cash flows are shown in Appendix 2, and the annual revenue requirements are detailed in Appendix 3.

The following is a brief comparison of the results:

Case 16. Case 16 consists of separate landfills for ash and gypsum constructed in a single phase and two conveyor systems requiring \$106 million higher capital costs through 2013 compared to Case 21. Case 16 also requires \$13.2 million more in O&M than Case 21 due to material handling costs associated with operating two landfills.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

APR 25 2012

Colonel Luke T. Leonard
District Engineer
Louisville District Corps of Engineers
Attn: Kimberley J. Simpson
CELRL-OP-FS, Room 752
P.O. Box 59
Louisville, Kentucky 40201-0059

Subject: Louisville Gas & Electric Company (LG&E)
Coal Combustion Residuals Landfill, Trimble County, Kentucky
LRL-2010-711

Dear Colonel Leonard:

The U.S. Environmental Protection Agency, Region 4, has completed a preliminary review of the above referenced project. Although this project was announced on public notice from the U.S. Army Corps of Engineers (Corps), Louisville District on October 26, 2011, the applicant immediately began revising his permit application and opined that a completely revised application would be forthcoming. On December 8, 2011, the applicant hosted an interagency meeting and site visit at the LG&E Trimble County Generating Station. Subsequently and based at least in part on feedback provided to the company from the state and federal agencies present at that meeting, LG&E submitted a completely revised CWA Section 404 permit application to the Corps' Louisville District in March 2012. On March 29, 2012, Ms. Kimberley Simpson and Ms. Lee Anne Devine of your staff officially extended the comment period for this project to April 30, 2012, and further clarified that all comments submitted by the EPA before that date would be accepted by the Corps and considered fully in accordance with the 1992 Clean Water Act Section 404(q) Memorandum of Agreement between the EPA and the Department of the Army.

The EPA's review of this project has been informed by the above referenced site meeting on December 8, 2011, the March 2012 revised CWA 404 permit application and all attendant reports, as well as additional data, maps and other information provided by the permit applicant on numerous dates throughout the first week of April 2012. The EPA is especially appreciative of the applicant's diligent response to the many queries for additional information and clarification during our review.

The proposed project is a 218-acre landfill designed to accommodate coal combustion residual (CCR) material from the existing LG&E Trimble County Generating Station for the next 38 years. The proposed landfill and its appurtenant structures and operation will result in direct impacts to 54,661 linear feet of stream, 1.14 acres of wetland and 0.27 acres of ponds. All of these proposed impacts to jurisdictional waters of the U.S. will occur in a watershed drained by an unnamed tributary to Corn Creek that has been documented as having excellent water quality and a diverse biological community, as evidenced by an "excellent" Macroinvertebrate Bioassessment Index (MBI) rating. Sampling

conducted by LG&E's consultants (Mactec 2007) documented that conditions in the stream proposed to be impacted by the construction of the CCR landfill were in fact better (i.e. higher scoring on the MBI) than conditions documented in a stream lying immediately to the north that is designated by the Commonwealth of Kentucky as an Exceptional Water of the Commonwealth and an Outstanding State Resource Water. That stream is also included in the state's biological reference reach network.

Information available to the EPA suggests that the aquatic resources proposed to be impacted as a result of this project may be among the highest quality headwater stream resources in this region of the Commonwealth. Headwater streams provide numerous physical, chemical and biological functions that directly affect the physical, chemical and biological integrity of downstream waters. The functions of headwater streams include providing hydrologic retention capacity that reduces downstream flooding and augments baseflow; sediment retention; temperature regulation; uptake, transformation and retention of nutrients and contaminants; organic matter processing and export to support downstream food webs; and contributions to the biological integrity of river networks via provision of spawning and nursery habitats and niche habitat for unique and threatened species. High gradient headwater streams such as those proposed to be impacted by this project are characterized by riffle and pool complexes that are considered special aquatic sites in 40 CFR §230.45 due to their special ecological characteristics that are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region (40 CFR §230.3(q-1)).

For reasons outlined below, the EPA does not believe that the applicant has undertaken a proper alternatives analysis required under the Clean Water Act Section 404(b)(1) Guidelines in order to justify the proposed alternative as the least environmentally damaging practicable alternative.

Alternatives Analysis – 40 CFR §230.10(a)

The Clean Water Act Section 404(b)(1) Guidelines, at 40 CFR §230.10(a), provide that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. The Guidelines consider an alternative practicable if it is capable of being done after taking into consideration cost, existing technology and logistics in light of the overall project purpose.

The applicant's alternatives analysis included as Appendix 1 of their CWA 404 permit application bases the evaluation of potential alternatives on a need to dispose of 910,000 cubic yards of CCR material annually throughout the anticipated 38-year lifetime of the facility's two power generating units (Mactec, rev. 2012). Many of the alternatives for CCR waste disposal considered, but eliminated from further consideration by LG&E were rejected due to the inability of those alternatives to accommodate the total 910,000 annual cubic yards of material. However, based on information provided by LG&E, the EPA believes that it will likely be unnecessary to dispose of this volume of CCR, and consequently, the applicant's alternatives analysis does not comply with the requirements of the Guidelines (40 CFR §230.12).

The total volume of CCR material generated at the Trimble County Generating Station is actually comprised of five different waste streams. As illustrated in Table 1, over 90-percent of this material consists of fly ash and synthetic gypsum. In its alternatives analysis, LG&E indicates that approximately 11-percent of the annual fly ash and bottom ash produced at the facility and approximately 93-percent of

synthetic gypsum is adaptively reused. On December 8, 2011, representatives of LG&E verbally informed representatives of the EPA that up to 75-percent of its fly ash production may be reused. In fact, LG&E is presently constructing two new barge loading facilities at the Trimble County Generating Station to increase its capacity to facilitate adaptive reuse of its CCR material, one for fly ash and a second for gypsum.

The EPA believes that the actual volume of CCR material necessary for annual disposal may be between 17-percent and 46-percent of the 910,000 cubic yards used by LG&E in its alternatives analysis. Deducting the proportional volumes of reused material cited in the alternatives analysis results in a revised total waste volume necessary for disposal of approximately 417,000 cubic yards per year (Table 2), or 46 percent of the volume used in the alternatives analysis. Similarly, deducting the proportional volumes of material assuming reuse of up to 75-percent of fly ash and bottom ash reduces the total annual volume for disposal to approximately 153,000 cubic yards per year (Table 2), or 17 percent of the volume used in the alternatives analysis.

The Clean Water Act Section 404(b)(1) Guidelines specify that the proposed disposal sites for dredged or fill material must be specified as failing to comply with the requirements of the Guidelines where the proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem (40 CFR §230.12(3)(iii)). The EPA believes it is inconsistent with the intent of the Guidelines to discount potentially practicable alternatives based, at least in part, on the inability of those alternatives to provide a storage volume that ignores the already demonstrated volumetric reductions in CCR as a result of adaptive reuse. Even further reductions in the necessary storage capacity are likely, as evidenced by LG&E's laudable commitment to facilitate CCR reuse and its stated goals to significantly increase the quantity of material reused. These considerations warrant a more detailed alternatives analysis in order to properly consider all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem, as required by the Guidelines. In the absence of such an analysis, identification of the least environmentally damaging practicable alternatives cannot be made definitively.

Other Considerations

The EPA also has concerns with other aspects of the project as proposed, including but not necessarily limited to the potential for significant degradation of waters of the U.S. (40 CFR §230.10(c)) and the potential inconsistency of the proposed compensatory mitigation plan with the Final Rule on *Compensatory Mitigation for Losses of Aquatic Resources* (Federal Register 73(70):19594-19705; 33 CFR Part 332; Subpart J of the Guidelines). However, these concerns are superseded by the need to conduct a detailed alternatives analysis consistent with the issues outlined above. The EPA will therefore defer detailed comment on these aspects of the project until a defensible least environmentally damaging practicable alternative can be identified.

National Environmental Policy Act (NEPA)

The EPA has commenting responsibilities under NEPA and the CEQ implementing regulations (40 CFR, Parts 1500-08), and under Section 309 of the Clean Air Act, to review and publicly comment on proposed Federal actions with potentially significant impacts on the quality of the environment. The EPA believes it may be appropriate for the Corps to prepare an Environmental Impact Statement (EIS) concerning this proposed project. In making the determination regarding the need to prepare an EIS, we recommend that the Corps consider the potentially significant adverse impacts associated with the

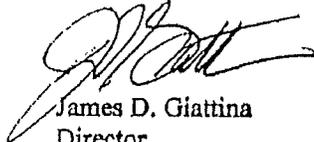
proposed project and provide assurances that the proposed mitigation will reduce the severity of the potential direct, indirect and cumulative impacts in order to support a Finding of No Significant Impact. The potentially significant adverse impacts associated with this project include (but may not be limited to) the loss of 54,661 linear feet of high quality streams in an unnamed tributary to Corn Creek. Further, the project could potentially impact a "cave" that may have historical significance.¹ The EPA recommends further investigation regarding the potential for this project to impact a historically significant site.

Conclusion

In conclusion, the EPA believes that the project, as proposed, may not comply with the Clean Water Act Section 404(b)(1) Guidelines. The EPA finds this project may have substantial and unacceptable adverse impacts on aquatic resources of national importance (ARNI). Therefore, we recommend denial of this project as currently proposed. As summarized above, a significantly revised alternatives analysis is necessary to reevaluate all alternatives to the proposed CCR landfill in the unnamed tributary of Corn Creek, with particular emphasis on those alternatives previously dismissed based on a lack of holding capacity. This letter follows the field level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding § 404(q) of the CWA.

I want to thank you and your staff for your cooperation and willingness to address our concerns. We look forward to working closely with you and the applicant to resolve the concerns outlined above. If you have any questions, please call me at (404) 562-9345 or Eric Somerville (706) 355-8514 of my staff.

Sincerely,



James D. Giattina
Director
Water Protection Division

cc: Mr. Jim Townsend, U.S. Army Corps of Engineers Louisville District
Mr. Lee Andrews, U.S. Fish and Wildlife Service
Mrs. Sandy Gruzsky, Kentucky Division of Water

Enclosure (Tables 1 and 2)

Table 1. Estimated annual volume of coal combustion residuals at the LG&E Trimble County Generating Station.

¹ In letters dated November 30, 2011, and March 12, 2012, the Kentucky Division of Waste Management (KDWM) indicates that the proposed project may impact a cave within the footprint of the landfill. KDWM has opined that the project may violate the Kentucky Cave Protection Act. In addition, there are unverified reports from the 1970's that this "cave" may have been part of the network of secret routes and safe houses used by 19th-century black slaves in the United States to escape to free states and Canada with the aid of abolitionists and allies who were sympathetic to their cause. The EPA understands that the Kentucky Archaeological Survey is presently investigating these claims.

Material	Volume per Year (cubic yards)	Percent of Total
Pyrites	4,306	0.5%
Bottom Ash	65,412	7%
Economizer / Duct Ash	12,115	1%
Fly Ash	346,463	38%
Gypsum (Flue Gas Desulfurization waste)	481,703	53%
SUM	910,000	100%

Source: Mactec, 2012.

Table 2. Revised estimated coal combustion residuals volume (cubic yards) necessary for disposal under two adaptive reuse scenarios.

Material	Volume per Year	Adaptive Reuse Scenario #1		Adaptive Reuse Scenario #2	
		Percent Reused	Revised Disposal Volume per Year	Percent Reused	Revised Disposal Volume per Year
Pyrites	4,306	0.0%	4,306	0.0%	4,306
Bottom Ash	65,412	11%	58,217	75%	16,353
Economizer / Duct Ash	12,115	0%	12,115	0%	12,115
Fly Ash	346,463	11%	308,352	75%	86,616
Gypsum (Flue Gas Desulfurization waste)	481,703	93%	33,719	93%	33,719
Sum Waste Volume per Year	910,000	--	416,709	--	153,109

Source: Mactec (2012); LG&E personal communication (December 8, 2011).

• Trimble County Station Combustion Byproducts

Combustion By-Product Beneficial Re-Use

- ***Flyash (used as a cement filler and cement kiln feedstock)***
 - Recently signed a long-term (15-year base) contract to beneficially re-use most (40 – 95%) of flyash generated by TC1 and TC2 (barge).
- ***Gypsum (used to manufacture wallboard)***
 - Recently signed a long-term (20-year base) contract to remove a minimum of 50% of the gypsum generated by TC1 and TC2 (barge).
- ***Bottom Ash (used to manufacture blasting grit and roofing shingles)***
 - Currently have a contract in place which has resulted in the beneficial re-use bottom ash generated by TC1 (truck).
- ***Ash Pond Life Extension***
 - Biggest benefit provided by combustion byproduct beneficial re-use is it extends byproduct disposal pond life, thereby postponing construction of additional disposal ponds (which require significant capital investment and are subject to environmental scrutiny)



(<http://charah.com>)

Charah, Inc. Secures Multiple Ash Marketing Contracts with LG&E and KU Facilities

Posted November 24th, 2014

Multi-plant agreements ensure reliable supply for region's ready mix concrete producers

LOUISVILLE, KY (November 24, 2014) – Charah®, Inc. (<http://charah.com>), a total solutions company providing unparalleled service and innovation for the coal-fired electric utility industry, today announced that it has entered into or renewed multiple agreements to manage and beneficially use the coal combustion products (CCPs) produced by several Louisville Gas and Electric Company and Kentucky Utilities Company (LG&E and KU) facilities.

Charah has entered into a long term agreement to sell and actively market fly ash from three LG&E and KU facilities including Mill Creek Generating Station in southwest Jefferson County, Trimble County Generating Station, 50 miles northeast of Louisville in Trimble County, and Ghent Generating Station northeast of Carrollton, Kentucky. Charah expects

to market the fly ash from all three generating facilities to ready mix concrete producers
<http://charah.com/charah-inc-secures-multiple-ash-marketing-contracts-with-lge-and-ku-facilities/>

to market the fly ash from all three generating facilities to ready mix concrete producers throughout the Midwest region, providing the producers with multiple supply options of high quality fly ash.

With Charah's commitment to expanding the beneficial use of the CCPs generated at Kentucky plants coupled with LG&E and KU's commitment to ongoing environmental improvements, these products will serve as a reliable source of ASTM C618 Class F fly ash for regional ready mix concrete companies. As validated in an United States Environmental Protection Agency (EPA) report from February 2014, EPA found fly ash to be a viable construction material to replace cement in the production of concrete related products. The report stated, "Based on the conclusion of the analysis in this document stated above, and the available environmental and economic benefits, EPA supports the beneficial use of coal fly ash in concrete and FGD gypsum in wallboard." A copy of the full report can be accessed on EPA's website at:

http://www.epa.gov/waste/conservation/imr/ccps/pdfs/ccr_bu_eval.pdf
(http://www.epa.gov/waste/conservation/imr/ccps/pdfs/ccr_bu_eval.pdf).

These combined contracts with LG&E and KU will provide for beneficial use of high quality fly ash resulting in a reduction of CO2 emissions achieved by the replacement of portland cement in concrete products. As part of these contracts, the expanded beneficial use also prevents the CCPs from being placed in landfills, thus preserving landfill space and the expenses associated with disposal.

According to Charles Price, Charah President and CEO, "As one of the largest companies involved in managing CCPs not just in Kentucky but throughout the United States, Charah is delighted to enter into this multi-plant effort with LG&E and KU. We believe that our innovative solutions will continue to pay dividends for our utility partners and their consumers, and we are proud to have been LG&E and KU's partner since 1998.

Furthermore, we will be able to ensure a steady and reliable supply of ash for the ready mix concrete producers during a time of substantial change in the utility and fly ash industry."

About Charah, Inc.

Founded in 1987, Charah®, Inc. is a total solutions company providing unparalleled service and innovation. Based in Louisville, KY, Charah today is one of the largest providers of coal combustion product management and power plant support services for the coal-fired electric utility industry. Charah assists utilities with all aspects of managing and recycling ash byproducts generated from the combustion of coal in the production of electricity. Services include landfill construction, operations, management & closure; fly ash, bottom ash, Gypsum & FGD byproduct management; coal combustion product (CCP) sales & marketing; innovative products for the agricultural market; power plant support services including limestone supply, gypsum operations & wastewater treatment; ash pond conversion & closure; wet to dry fly ash conveyance and collection system conversion; ash pond management; Integrated Gasification Combine Cycle (IGCC) slag beneficiation and other innovative solutions. For more information, please visit www.charah.com (<http://charah.com>).

About LG&E and KU

Louisville Gas and Electric Company and Kentucky Utilities Company, part of the PPL Corporation (NYSE: PPL) family of companies, are regulated utilities that serve a total of 1.2 million customers and have consistently ranked among the best companies for customer service in the United States. LG&E serves 321,000 natural gas and 397,000 electric customers in Louisville and 16 surrounding counties. KU serves 543,000 customers in 77 Kentucky counties and five counties in Virginia. More information is available at www.lge-ku.com (<http://www.lge-ku.com>) and www.pplweb.com (<http://www.pplweb.com>).

Contact Us

12601 Plantside Drive
Louisville, KY 40299

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**AN EXAMINATION OF THE APPLICATION OF THE)
FUEL ADJUSTMENT CLAUSE OF LOUISVILLE GAS) CASE NO.
AND ELECTRIC COMPANY FROM NOVEMBER 1, 2013) 2014-00228
THROUGH APRIL 30, 2014)**

**RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
INFORMATION REQUESTED IN
APPENDIX OF COMMISSION'S ORDER
DATED AUGUST 13, 2014**

FILED: AUGUST 27, 2014

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Information Requested in Appendix of
Commission's Order Dated August 13, 2014

Case No. 2014-00228

Question No. 4

Witness: Charles R. Schram / Mike Dotson

Q-4. For each generating station or unit for which a separate coal pile is maintained, state, for the period from November 1, 2013, through April 30, 2014, the actual amount of coal burned in tons, the actual amount of coal deliveries in tons, the total kWh generated, and the actual capacity factor at which the plant operated.

A-4. The information requested from November 1, 2013 to April 30, 2014 is shown in the table below:

Plant	Coal Burn (Tons)	Coal Receipts (Tons)	Net MWh	Capacity Factor (Net MWh)/ (period hrs x MW rating)
Cane Run	684,159	618,827	1,405,235	57.5%
Mill Creek	2,048,705	2,105,645	4,522,974	70.3%
Trimble County HS	N/A	955,646	N/A	N/A
Trimble County PRB	N/A	176,441	N/A	N/A
Trimble County 1	822,173	N/A	1,709,720	77.1%
Trimble County 2	649,081	N/A	1,498,686	45.4%

Notes: 1 – Trimble County values reflect 100% of the unit. Trimble County 2 is owned by KU (60.75%), LG&E (14.25%), IMPA (12.88%), and IMEA (12.12%).

2 – The North American Electric Reliability Council Generation Availability Data System defines capacity factor as the value equal to the net MWh produced divided by the product of the hours in the period and the unit rating.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**AN EXAMINATION OF THE APPLICATION OF THE)
FUEL ADJUSTMENT CLAUSE OF LOUISVILLE GAS) CASE NO.
AND ELECTRIC COMPANY FROM MAY 1, 2013) 2013-00447
THROUGH OCTOBER 31, 2013)**

**RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
INFORMATION REQUESTED IN
APPENDIX OF COMMISSION'S ORDER
DATED FEBRUARY 7, 2014**

FILED: FEBRUARY 28, 2014

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Information Requested in Appendix of
Commission's Order Dated February 7, 2014**

Case No. 2013-00447

Question No. 4

Witness: Charles R. Schram / Mike Dotson

Q-4. For each generating station or unit for which a separate coal pile is maintained, state, for the period from May 1, 2013, through October 31, 2013, the actual amount of coal burned in tons, the actual amount of coal deliveries in tons, the total kWh generated, and the actual capacity factor at which the plant operated.

A-4. The information requested from May 1, 2013 to October 31, 2013 is shown in the table below:

Plant	Coal Burn (Tons)	Coal Receipts (Tons)	Net MWh	Capacity Factor (Net MWh)/ (period hrs x MW rating)
Cane Run	631,669	632,079	1,279,985	51.5%
Mill Creek	1,898,370	1,810,277	4,173,284	64.2%
Trimble County HS	N/A	1,678,753	N/A	N/A
Trimble County PRB	N/A	196,392	N/A	N/A
Trimble County 1	781,722	N/A	1,674,410	74.2%
Trimble County 2	1,055,287	N/A	2,421,642	74.9%

Notes: 1 – Trimble County values reflect 100% of the unit. Trimble County 2 is owned by KU (60.75%), LG&E (14.25%), IMPA (12.88%), and IMEA (12.12%).

2 – The North American Electric Reliability Council Generation Availability Data System defines capacity factor as the value equal to the net MWh produced divided by the product of the hours in the period and the unit rating.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**AN EXAMINATION OF THE APPLICATION OF THE)
FUEL ADJUSTMENT CLAUSE OF LOUISVILLE GAS) CASE NO.
AND ELECTRIC COMPANY FROM NOVEMBER 1,) 2013-00264
2012 THROUGH APRIL 30, 2013)**

**RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
TO
INFORMATION REQUESTED IN
APPENDIX OF COMMISSION'S ORDER
DATED AUGUST 8, 2013**

FILED: AUGUST 29, 2013

LOUISVILLE GAS AND ELECTRIC COMPANY

**Response to Information Requested in Appendix of
Commission's Order Dated August 8, 2013**

Case No. 2013-00264

Question No. 4

Witness: Charles R. Schram / Mike Dotson

Q-4. For each generating station or unit for which a separate coal pile is maintained, state, for the period from November 1, 2012 through April 30, 2013, the actual amount of coal burned in tons, the actual amount of coal deliveries in tons, the total kWh generated, and the actual capacity factor at which the plant operated.

A-4. The information requested from November 1, 2012 to April 30, 2013 is shown in the table below:

Plant	Coal Burn (Tons)	Coal Receipts (Tons)	Net MWh	Capacity Factor (Net MWh)/ (period hrs x MW rating)
Cane Run	640,331	577,513	1,291,124	52.8%
Mill Creek	2,014,096	1,911,665	4,366,684	67.8%
Trimble County HS	N/A	1,045,477	N/A	N/A
Trimble County PRB	N/A	152,992	N/A	N/A
Trimble County 1	875,187	N/A	1,857,012	83.7%
Trimble County 2	411,923	N/A	917,347	27.8%

Notes: 1 – Trimble County values reflect 100% of the unit. Trimble County 2 is owned by KU (60.75%), LG&E (14.25%), IMPA (12.88%), and IMEA (12.12%).

2 – The North American Electric Reliability Council Generation Availability Data System defines capacity factor as the value equal to the net MWh produced divided by the product of the hours in the period and the unit rating.



a PPL company

Mr. Jeff DeRouen
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40602

March 1, 2013

RE: *AN EXAMINATION OF THE APPLICATION OF THE FUEL
ADJUSTMENT CLAUSE OF LOUISVILLE GAS AND ELECTRIC
COMPANY FROM NOVEMBER 1, 2010 THROUGH OCTOBER 31,
2012 - CASE NO. 2012-00553*

Dear Mr. DeRouen:

Please find enclosed and accept for filing the original and eight (8) copies of the Direct Testimony of Charles R. Schram and Mike Dotson and the Response of Louisville Gas and Electric Company to the First Request for Information in Appendix B of the Commission's Order dated February 13, 2013, in the above-referenced matter.

Also enclosed are an original and ten (10) copies of a Petition for Confidential Protection regarding certain information provided in response to Question Nos. 6, 9, 22 and 25.

Should you have any questions concerning the enclosed, please contact me at your convenience.

Sincerely,

Robert M. Conroy

Enclosures

RECEIVED

MAR 1 2013

PUBLIC SERVICE
COMMISSION

Louisville Gas and
Electric Company
State Regulation and Rates
220 West Main Street
PO Box 32010
Louisville, Kentucky 40232
www.lge-ku.com

Robert M. Conroy
Director - Rates
T 502-627-3324
F 502-627-3213
robert.conroy@lge-ku.com

LOUISVILLE GAS AND ELECTRIC COMPANY

Response to Commission Staff's First Request for Information
in Appendix B of Commission's Order Dated February 13, 2013

Case No. 2012-00553

Question No. 30

Witness: Mike Dotson / Charles R. Schram

Q-30. For each generating station or unit for which a separate coal pile is maintained, state for the period from May 1, 2012 to October 31, 2012 the actual amount of coal burned in tons, actual amount of coal deliveries in tons, total kWh generated, and actual capacity factor at which the plant operated.

A-30. The information requested from May 1, 2012 to October 31, 2012 is shown in the table below:

Plant	Coal Burn (Tons)	Coal Receipts (Tons)	Net MWh	Capacity Factor (Net MWh)/ (period hrs x MW rating)
Cane Run	715,837	709,139	1,442,771	58.0%
Mill Creek	1,824,196	1,789,470	3,935,038	60.5%
Trimble County HS	N/A	1,443,348	N/A	N/A
Trimble County PRB	N/A	292,566	N/A	N/A
Trimble County 1	926,255	N/A	1,990,948	88.3%
Trimble County 2	905,430	N/A	2,065,466	63.9%

- Notes: 1 Trimble County values reflect 100% of the unit. Trimble County 2 is owned by KU (60.75%), LG&E (14.25%), IMPA (12.88%), and IMEA (12.12%).
- 2 The North American Electric Reliability Council Generation Availability Data System defines capacity factor as the value equal to the net MWh produced divided by the product of the hours in the period and the unit rating.



STERLING
VENTURES

John Walters <johnwalters@sterlingventures.com>

CCR/Sterling Ventures KY Underground Limestone Mine

1 message

John Walters <johnwalters@sterlingventures.com>

Mon, Jan 12, 2015 at 4:56 PM

To: Ney.Frank@epa.gov

Cc: Somerville.eric@epa.gov

Frank

Just checking to see if I can get an estimate on receiving your thoughts concerning the info forwarded to you on our underground limestone mine and the new CCR regulations.

Thanks

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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**STERLING
VENTURES**John Walters <johnwalters@sterlingventures.com>

Re: CCR/Sterling Ventures KY Underground Limestone Mine

1 message

John Walters <johnwalters@sterlingventures.com>

Wed, Jan 14, 2015 at 10:40 AM

To: "Somerville, Eric" <Somerville.Eric@epa.gov>Bcc: Samuelabboone <aboone@sterlingventures.com>, Tim Stout <tstout@sterlingventures.com>, Steve Evans <sevans@sterlingventures.com>

Eric:

We would be more than happy to meet with you on February 24th. I think the mine is the best place to meet so that you can see the facility and take a underground tour. The mine is about 1 hour and 15 minutes from Louisville. Hard toe shoes are necessary if you want to get out of the truck during the tour (which, however is not absolutely necessary as the truck can access the entire mine.) We can supply all of the other safety gear (hardhat, etc...).

On a related note, do you happen to have an estimate of when we would receive a response to my questions concerning whether the EPA will characterize underground limestone mines the same as underground coal mines for purposes of the new CCR regulations? Frank Ney e-mailed that he would be meeting with staff on my question this week.

Thanks. Look forward to seeing you.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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On Tue, Jan 13, 2015 at 9:41 PM, Somerville, Eric <Somerville.Eric@epa.gov> wrote:

John-

I am going to be in Louisville for part of the week of Feb 23rd and would like to meet with you to discuss some specifics of the Sterling Mine in Gallatin County, if you are available. I am going to be traveling extensively from now until the end of January, so we can discuss this in more detail in early February. I did, however, want to go ahead and get this on your radar now in case you are able to accommodate me. Tuesday, 1/24 would be the ideal date for me, and I could meet you anywhere in northern KY, including but not limited to Louisville or the mine itself.

Regards.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

From: John Walters [mailto:johnwalters@sterlingventures.com]

Sent: Monday, January 12, 2015 4:57 PM

To: Ney, Frank

Cc: Somerville, Eric

Subject: CCR/Sterling Ventures KY Underground Limestone Mine

Frank

Just checking to see if I can get an estimate on receiving your thoughts concerning the info forwarded to you on our underground limestone mine and the new CCR regulations.

Thanks

John

John W. Walters, Jr.

Sterling Ventures, LLC

376 South Broadway

Lexington, KY 40508

Phone (859) 259-9600

Fax (859) 259-9601

johnwalters@sterlingventures.com

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7/16/2015

Sterling Ventures, LLC Mail - Re: CCR/Sterling Ventures KY Underground Limestone Mine

the destruction or return of this transmission to us.



John Walters <johnwalters@sterlingventures.com>

Re: Q&A - Sterling Mine voids

1 message

John Walters <johnwalters@sterlingventures.com>

Tue, Feb 3, 2015 at 5:37 PM

To: "Somerville, Eric" <Somerville.Eric@epa.gov>

Bcc: Samuelabboone <aboone@sterlingventures.com>, Tim Stout <tstout@sterlingventures.com>

Eric

In response to LG&E's questions regarding capacity, Sterling stated that the mine has at least 5,000,000 cubic yards of existing space in the mine for CCR, and that annual future mining production should be between 900,000 and 1,500,000 tons of limestone each year going forward. The 5.5 year figure LG&E is referring to is the existing 5,000,000 cubic yards capacity divided by the 910,000 cubic yards of total Trimble CCR production.

However, as your office has already noted, it appears that after considering beneficial reuse contracts currently in place, the Trimble County Station's actual space needs for CCR is no more than 500,000 cubic yards per year, and possible much less. Based on the density of our rock of approximately 1.8 tons per cubic yard, and an average production of 1,200,000 tons per year, Sterling would be creating approximately 600,000 cubic yards of space annually for CCR. The bottom line is that at 500,000 cubic yards per year net CCR production after beneficial reuse, the mine has a 10 year capacity with no mining whatsoever, and with normal mining, will stay 10 years ahead.

Please feel free to contact me at any time with questions. I have a FOIA request in with the Louisville Corps to get the revised 404 alternatives analysis so that I can see, and reply to, the issues or problems LG&E has raised in connection with using Sterling's mine as an off-site alternative.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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On Tue, Feb 3, 2015 at 8:46 AM, Somerville, Eric <Somerville.Eric@epa.gov> wrote:

Good Morning John-

I am beginning an earnest review of the voluminous materials provided to EPA by LG&E in response to our comment letters. Information characterizing the Sterling Ventures limestone mine, or at least relevant thereto, is scattered throughout the 15 inches of paper provided to me by the company in December. I hope that you will pardon the lack of formality and allow me to send you questions/observations as they occur to me during my review of this information. To that end, LG&E states the following:

“At present, Sterling Ventures has capacity to sufficiently store 910,000 cubic yards/year of CCR for approximately 5.5 years....there is no basis to know if the capacity at any future time beyond five years will be adequate, and recent Sterling Ventures mining rates have not consistently created sufficient void space annually.”

Can you comment on this?

Many thanks.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

**STERLING
VENTURES**John Walters <johnwalters@sterlingventures.com>

Re: Q&A - Sterling Mine voids

1 message

John Walters <johnwalters@sterlingventures.com>

Tue, Feb 3, 2015 at 5:37 PM

To: "Somerville, Eric" <Somerville.Eric@epa.gov>Bcc: Samuelabboone <aboone@sterlingventures.com>, Tim Stout <tstout@sterlingventures.com>

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John

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Can you comment on this?

Many thanks.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

**STERLING
VENTURES**

John Walters <johnwalters@sterlingventures.com>

LG&E Trimble County Landfill

1 message

John Walters <johnwalters@sterlingventures.com>

Tue, Feb 10, 2015 at 11:38 AM

To: "Somerville, Eric" <Somerville.eric@epa.gov>

Eric:

Per our conversation yesterday, please see attached Landfill Cost Budget for Trimble County Landfill from recent LGE/KU filings with Ky PSC. Please note that this is direct capital cost only, and excludes cost of capital, depreciation, operation and maintenance.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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**Trimble Landfill Cost Budget.pdf**

1013K

**Project Engineering 2015 Business Plan
Budget - Investment Accrual (Removal Included)**
8/8/2014

DRAFT

2014-2023 Business Plan 2015-2024 Business Plan		In Service Date	Total Project Forecast	Total Projected LTP	Before 2014 Spend	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
\$ in Millions																
TC CCR - Ponds (Net) BAP/GSP	2010		28.6	28.6	28.6	-	-	-	-	-	-	-	-	-	-	-
TC CCR - Ponds (Net) BAP/GSP	2010		28.3	28.3	28.3	-	-	-	-	-	-	-	-	-	-	-
Variance			0.3	0.3	0.3	-	-	-	-	-	-	-	-	-	-	-
TC CCR - Landfill (PH I) (Net) Project	2018		91.6	112.3	10.4	2.2	19.3	27.7	32.3	8.4	10.0	0.5	0.4	0.7	0.4	-
TC CCR - Landfill (PH I) (Net) Project	2018		148.1	148.1	12.3	3.1	5.1	44.0	37.7	42.2	0.7	0.7	0.7	0.5	0.7	0.5
Variance			(56.6)	(35.9)	(1.9)	(0.9)	14.2	(16.3)	(5.4)	(33.8)	9.3	(0.2)	(0.3)	0.1	(0.3)	(0.5)
TC CCR - CCR Treatment (Net)	2017		139.3	139.3	1.3	0.5	22.3	74.2	40.9	0.1	-	-	-	-	-	-
TC CCR - CCR Treatment (Net)	2017		152.3	152.3	-	-	20.2	68.1	41.4	22.6	-	-	-	-	-	-
Variance			(13.0)	(13.0)	1.3	0.5	2.1	6.0	(0.4)	(22.5)	-	-	-	-	-	-
TC CCR - CCR Transport (Net)	2017		25.9	25.9	7.2	-	6.5	11.4	0.8	-	-	-	-	-	-	-
TC CCR - CCR Transport (Net)	2017		21.5	21.5	7.2	-	-	11.7	2.3	0.3	-	-	-	-	-	-
Variance			4.5	4.5	-	-	6.5	(0.2)	(1.5)	(0.3)	-	-	-	-	-	-
TC CCR - Landfill PH II (Net) Project	2027		29.2	29.2	-	-	-	-	-	-	-	-	-	19.0	10.2	-
TC CCR - Landfill PH II (Net) Project	2027		60.4	60.4	-	-	-	-	-	-	-	-	-	28.7	26.2	5.6
Variance			(31.2)	(31.2)	-	-	-	-	-	-	-	-	-	(9.7)	(16.0)	(5.6)
TC CCR - Landfill (PH III/IV) (Net) Project	2034/2045		119.2	-	-	-	-	-	-	-	-	-	-	-	-	-
TC CCR - Landfill (PH III/IV) (Net) Project	2034/2045		119.2	-	-	-	-	-	-	-	-	-	-	-	-	-
Variance			-	-	-	-	-	-	-	-	-	-	-	-	-	-
TC CCR - River Flyash Barge Loading (Net)	2012		9.0	9.0	9.0	-	-	-	-	-	-	-	-	-	-	-
TC CCR - River Flyash Barge Loading (Net)	2012		8.9	8.9	8.9	-	-	-	-	-	-	-	-	-	-	-
Variance			0.1	0.1	0.1	-	-	-	-	-	-	-	-	-	-	-
Total TC CCR - Ponds/Landfill (Net)			442.8	344.3	56.5	2.7	48.1	113.3	74.0	8.5	10.0	0.5	0.4	19.7	10.6	-
Total TC CCR - Ponds/Landfill (Net)			538.7	419.5	56.7	3.1	25.3	123.8	81.3	65.1	0.7	0.7	0.7	29.2	26.9	6.0
Variance			(95.9)	(75.2)	(0.2)	(0.4)	22.8	(10.5)	(7.4)	(56.6)	9.3	(0.2)	(0.3)	(9.5)	(16.3)	(6.0)
Total All CCR Projects (TC Net)			1,285.4	1,030.5	445.3	77.7	88.1	133.8	85.1	78.3	64.1	1.4	2.2	29.9	24.7	-
Total All CCR Projects (TC Net)			1,422.4	1,156.4	448.7	73.9	103.0	148.8	123.2	138.8	17.3	1.6	2.5	39.4	41.0	18.2
Variance			(137.0)	(125.9)	(3.4)	3.8	(15.0)	(15.0)	(38.1)	(60.6)	46.8	(0.2)	(0.3)	(9.5)	(16.3)	(18.2)
Total Trimble County 2 (Net)	2010		884.5	884.5	880.8	0.8	3.0	-	-	-	-	-	-	-	-	-
Total Trimble County 2 (Net)	2011		887.0	887.0	882.5	1.5	3.0	-	-	-	-	-	-	-	-	-
Variance			(2.5)	(2.5)	(1.7)	(0.7)	-	-	-	-	-	-	-	-	-	-
Trimble Co.2 DSI (Net)	2013		5.5	5.5	2.6	2.9	-	-	-	-	-	-	-	-	-	-
Trimble Co.2 DSI (Net)	2014		6.7	6.7	2.7	3.9	-	-	-	-	-	-	-	-	-	-
Variance			(1.2)	(1.2)	(0.2)	(1.0)	-	-	-	-	-	-	-	-	-	-
Ohio Falls Redevelopment	2016		138.0	138.0	94.8	16.9	16.3	9.9	-	-	-	-	-	-	-	-
Ohio Falls Redevelopment	2017		139.0	139.0	92.8	11.1	15.3	16.0	3.8	-	-	-	-	-	-	-
Variance			(1.0)	(1.0)	2.0	5.8	1.1	(6.1)	(3.8)	-	-	-	-	-	-	-
Cane Run 7	2015		549.0	549.0	387.3	125.5	36.2	-	-	-	-	-	-	-	-	-
Cane Run 7	2015		562.5	562.5	407.7	124.4	30.4	-	-	-	-	-	-	-	-	-
Variance			(13.5)	(13.5)	(20.4)	1.1	5.8	-	-	-	-	-	-	-	-	-
Green River 5	2018		683.0	683.0	2.5	1.0	84.6	394.4	155.3	44.9	-	-	-	-	-	-
Green River 5	2021		816.5	816.5	3.6	2.0	0.3	0.4	2.9	87.2	496.1	169.6	44.5	-	-	-
Variance			(133.5)	(133.5)	(1.1)	(1.0)	84.6	394.0	152.4	(52.2)	(496.1)	(169.6)	(44.5)	-	-	-
Combined Cycle GT 2022	2025		913.1	856.6	2.5	-	-	-	-	-	-	-	4.8	135.1	502.6	211.5
Combined Cycle GT 2031	2031		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variance			913.1	856.6	2.5	-	-	-	-	-	-	-	4.8	135.1	502.6	211.5

Phase I *\$148.1 M
112.3
21.5
\$381.9M → SEE ATTACHED CAPITAL REVIEW LANDFILL PHASE I/TREATMENT \$322M

Phase II \$60.4 M } \$119.6 M - SEE ATTACHED CAPITAL REVIEW LANDFILL PHASES II, III, IV

Phase III II \$19.2 M }
\$501.5 M (NET OF IMAA/INRA 25%)

TOTAL COST \$668.7 M (INCLUDING IMAA/INRA SHARE)

Capital Review – Trimble County CCR

Accrual Basis, \$Millions

Authority/ECR Comparison

	Total Projection	Current Authority	ECR Filing	Variance to Authority	Variance to ECR Filing
BAP/GSP	\$28	\$30	\$25	\$2	(\$3)
Landfill Phase I/Treatment & Transport	\$322	\$76	\$73	(\$246)	(\$249)
Landfill Phase II, III, & IV	\$180	\$0	\$0	(\$180)	(\$180)
Holcim	\$9	\$9	\$8	\$0	(\$1)
Total	\$539	\$115	\$106	(\$424)	(\$433)

Business Plan Comparison

	Pre-2014	2014	2015	2016	2017	2018	2019	Post 2019	Total
2014 BP									
BAP/GSP	\$29	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$29
Landfill Phase I	\$10	\$2	\$19	\$28	\$32	\$8	\$10	\$2	\$112
Treatment & Transport	\$8	\$1	\$29	\$86	\$42	\$0	\$0	\$0	\$165
Landfill Phase II, III, Close & Cap	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$148	\$148
Holcim	\$9	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9
Total 2014 BP	\$57	\$3	\$48	\$113	\$74	\$9	\$10	\$150	\$463
2015 BP									
BAP/GSP	\$28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$28
Landfill Phase I	\$12	\$3	\$5	\$44	\$38	\$42	\$1	\$3	\$148
Treatment & Transport	\$7	\$0	\$20	\$80	\$44	\$23	\$0	\$0	\$174
Landfill Phase II, III, Close & Cap	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$180	\$180
Holcim	\$9	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9
Total 2015 BP	\$57	\$3	\$25	\$124	\$81	\$65	\$1	\$183	\$539
Variance to 2014 BP									
BAP/GSP	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Landfill Phase I	(\$2)	(\$1)	\$14	(\$16)	(\$5)	(\$34)	\$9	(\$1)	(\$36)
Treatment & Transport	\$1	\$1	\$9	\$6	(\$2)	(\$23)	\$0	\$0	(\$9)
Landfill Phase II, III, Close & Cap	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$31)	(\$31)
Holcim	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Variance to 2014 BP	(\$0)	(\$0)	\$23	(\$10)	(\$7)	(\$57)	\$9	(\$32)	(\$75)

Key Messages

- All numbers are net of IMPA/IMEA reimbursement.
- The increase over the ECR Filing is due to refined engineering on the Transport System, permit delays, new landfill layout, and project contingencies added.
- Permitting issues have delayed Phase I at least 2 years.



PPL companies



John Walters <johnwalters@sterlingventures.com>

EPA letter 2.12.2015

1 message

Somerville, Eric <Somerville.Eric@epa.gov>
To: "Somerville, Eric" <Somerville.Eric@epa.gov>

Tue, Feb 17, 2015 at 9:02 AM

Good Day-

I have greatly appreciated the numerous discussions we have had over the previous many months regarding the LG&E project in Trimble County, KY. In respect of your time spent corresponding with me, I am providing you a copy of the attached letter that EPA Region 4 submitted to the Louisville District, U.S. Army Corps of Engineers on Thursday afternoon of last week.

As the attached letter states, the Agency has determined that the information LG&E provided to EPA in December 2014, is generally responsive to the comments EPA provided to the Corps in our letters dated July 11 and August 7, 2014. The Agency is bound by the regulations and processes that govern how it interacts with the Corps in regard to projects seeking authorization to impact waters of the United States under Section 404 of the Clean Water Act.

This does not end EPA's involvement with this project, but it does now shift the lead role back to the Corps. If/when the Corps reaches a draft decision on the company's CWA 404 permit application, EPA will receive notification and opportunity to review that decision. Until that time, EPA will not play a significant role in this process.

Again, let me give my personal thanks for the innumerable conversations we have had and the many pieces of information you have provided me. This email is not an "Agency action," but a personal one. Thank you.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

EPA ltr to Corps, LG&E CCR landfill_2.12.15.pdf
32K



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

FEB 12 2015

Ms. Lee Anne Devine
Chief
Regulatory Branch
Louisville District Corps of Engineers
CELRL-OP-FS, Room 752
P.O. Box 59
Louisville, Kentucky 40201-0059

Subject: Louisville Gas & Electric Company
Coal Combustion Residuals Landfill, Trimble County, Kentucky
LRL-2010-711

Dear Ms. Devine:

The U.S. Environmental Protection Agency is in receipt of information submitted by the Louisville Gas & Electric Company (LG&E) on December 26, 2014, titled "Supplement to Alternatives Analysis Report" for the above referenced project. This information was submitted in response to the EPA comment letters dated July 11, 2014, and August 7, 2014, pursuant to Part IV, paragraphs 3(a) and 3(b), respectively, of the 1992 Clean Water Act Section 404(q) Memorandum of Agreement (MOA) between the EPA and the Department of the Army.

The EPA has reviewed this information, and although we remain concerned with the magnitude of proposed impacts to jurisdictional waters of the United States, we find that the information is generally responsive to the comments outlined in our comment letters. We look forward to the receipt of the Louisville District Corps of Engineers' *Notice of Intent to Proceed* consistent with Part IV, paragraph 3(c) of the above referenced MOA.

If you have any questions, please do not hesitate to call me at (404) 562-9243, or Mr. Eric Somerville at (706) 355-8514.

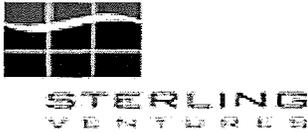
Sincerely,

Thomas McGill
Chief

Ocean, Wetlands & Streams Protection Branch

cc: Mr. Lee Andrews, U.S. Fish and Wildlife Service
Mr. Peter Goodman, Kentucky Division of Water

Internet Address (URL) • <http://www.epa.gov>



John Walters <johnwalters@sterlingventures.com>

cancelling next week's meeting

1 message

Somerville, Eric <Somerville.Eric@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>

Tue, Feb 17, 2015 at 1:40 PM

John-

I failed to note in my previous message that I will also not be traveling to Kentucky next week. Consequently, nor will I be able to meet you and visit the Gallatin mine.

Regrets.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

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Sent: Tuesday, February 17, 2015 9:02 AM
To: Somerville, Eric
Subject: EPA letter 2.12.2015

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Again, let me give my personal thanks for the innumerable conversations we have had and the many pieces of information you have provided me. This email is not an "Agency action," but a personal one. Thank you.

-Eric

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

**STERLING
VENTURES**

John Walters <johnwalters@sterlingventures.com>

FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

1 message

Somerville, Eric <Somerville.Eric@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>

Wed, Mar 11, 2015 at 1:54 PM

FYI-

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

From: xxxx, Steve
Sent: Wednesday, March 11, 2015 1:49 PM
To: Somerville, Eric; Ney, Frank
Cc:
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

No, nothing new. To my knowledge the memorandum has not been signed by the AA yet and in fact I believe it's being revised. I know everyone wants this to be done soon, though. I'll let you know when I hear something.

Steve

From: Somerville, Eric
Sent: Wednesday, March 11, 2015 1:43 PM
To: xxx, Steve; Ney, Frank
Cc Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Greetings Steve,

Any update to report on this matter?

Thanks.

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

From: xxxx, Steve

Sent: Wednesday, March 04, 2015 9:42 AM

To: Ney, Frank; Somerville, Eric

Cc: Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Hi Frank,

I spoke to Eric Somerville this morning. I explained to Eric that this issue will be addressed in a memorandum which I believe is at the AA's office for signature. Hopefully we'll be able to provide an official answer within the next week but if I hear otherwise, I'll let you know.

Steve

From: Ney, Frank

Sent: Wednesday, March 04, 2015 9:02 AM

To: xxxx, Steve; Somerville, Eric

Cc:

Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Steve,

I just received another voice mail from John Walters from Sterling Ventures. Let me know if there is anything I can tell him besides a decision is pending.

Thanks.

Frank



John Walters <johnwalters@sterlingventures.com>

Re: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

1 message

John Walters <johnwalters@sterlingventures.com>
To: "Somerville, Eric" <Somerville.Eric@epa.gov>

Wed, Mar 11, 2015 at 2:39 PM

Eric:

Thanks for the update. Do you happen to know the issues that may be driving a revision? If there is something causing concern, I would like to have the opportunity, if possible, address those issues or concerns.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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On Wed, Mar 11, 2015 at 1:54 PM, Somerville, Eric <Somerville.Eric@epa.gov> wrote:

FYI-

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

From: xxxx, Steve

Sent: Wednesday, March 11, 2015 1:49 PM

To: Somerville, Eric; Ney, Frank

Cc:

Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

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Steve

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Sent: Wednesday, March 11, 2015 1:43 PM
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Cc: Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Greetings Steve,

Any update to report on this matter?

Thanks.

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch
c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720
tel 706.355.8514 | somerville.eric@epa.gov

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To: Ney, Frank; Somerville, Eric
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Cc:

Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

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I just received another voice mail from John Walters from Sterling Ventures. Let me know if there is anything I can tell him besides a decision is pending.

Thanks.

Frank

**STERLING**
VENTURES

John Walters <johnwalters@sterlingventures.com>

Re: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

1 message

John Walters <johnwalters@sterlingventures.com>

Wed, Mar 11, 2015 at 2:52 PM

To: "Somerville, Eric" <Somerville.Eric@epa.gov>

OK. Thanks.

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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On Wed, Mar 11, 2015 at 2:40 PM, Somerville, Eric <Somerville.Eric@epa.gov> wrote:

I'm sorry, but I do not know, John.

Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

From: John Walters [mailto:johnwalters@sterlingventures.com]**Sent:** Wednesday, March 11, 2015 2:40 PM**To:** Somerville, Eric**Subject:** Re: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Eric:

Thanks for the update. Do you happen to know the issues that may be driving a revision? If there is something causing concern, I would like to have the opportunity, if possible, address those issues or concerns.

John

John W. Walters, Jr.

Sterling Ventures, LLC

376 South Broadway

Lexington, KY 40508

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Eric Somerville

U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

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Cc:

Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

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Cc: Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Hi Frank,

I spoke to Eric Sommerville this morning. I explained to Eric that this issue will be addressed in a memorandum which I believe is at the AA's office for signature. Hopefully we'll be able to provide an official answer within the next week but if I hear otherwise, I'll let you know.

Steve

From: Ney, Frank
Sent: Wednesday, March 04, 2015 9:02 AM
To: xxxx, Steve; Somerville, Eric
Cc:

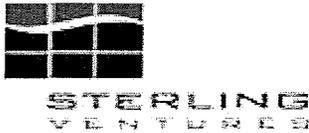
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Steve,

I just received another voice mail from John Walters from Sterling Ventures. Let me know if there is anything I can tell him besides a decision is pending.

Thanks.

Frank



John Walters <johnwalters@sterlingventures.com>

KU/LG&E Trimble Landfills - Sterling Ventures CCR Beneficial Use Permit

1 message

John Walters <johnwalters@sterlingventures.com>

Tue, Jun 16, 2015 at 4:39 PM

To: todd.hendricks@ky.gov

Todd

I understand that Bob Bickner is out of the office until next week. I am writing to request a meeting either tomorrow or Thursday, as I just found out that the KY Public Service Commission has scheduled an informal conference this Friday morning at 10:00 to discuss the Trimble County Landfill Project.

Some background. Sterling filed a Complaint against KU at the PSC requesting that the Certificate of Public Convenience and Necessity (CPCN) for the Trimble landfill be revoked. The essence of Sterling's the argument in the Complaint is that because the cost of the first phase of the Trimble Landfill has increased from \$94 million to \$429 million, it is much less expensive to use Sterling's CCR beneficial reuse permit.

The following is a link to the Order the PSC published today, which includes a copy of Sterling's Complaint:

http://psc.ky.gov/pscscf/2015%20Cases/2015-00194//20150616_PSC_ORDER.pdf

As indicated in the PSC's Order above, just after Sterling filed its Complaint, LG&E and KU filed an Application for Declaratory Order proceeding requesting affirmation that the CPCN was still valid. The following is a link to that filing:

http://psc.ky.gov/pscecf/2015-00156/kendrick.riggs%40skofirm.com/05222015032449/LGE-KU_Joint_Application_5-22-15.pdf

On page 14 of LG&E's Application , footnote 13 states

13 In an August 2014 letter to the U.S. Army Corps of Engineers concerning the Companies' Clean Water Act Section 404 permit application, the U.S. EPA suggested that Sterling Ventures, LLC's limestone mine might be an economical off-site alternative to building the Trimble County Landfill. (A copy of the letter is available at <http://kwalliance.org/wp-content/uploads/2014/08/EPA-Trimble-letter-8.14.pdf>.) The Sterling Ventures proposal did not take into account the final CCR Rule requirements pertaining to new CCR landfills, which Sterling Ventures' limestone mine would be if used to store CCR beginning after October 2015. See 40 CFR 257.53. These requirements render Sterling Ventures' proposal impracticable.

As a result of the above, I contacted Steve Souders at the EPA in Washington concerning whether Sterling' mine could still beneficially reuse CCR under the new regs. His response is attached to this email.

It would be helpful if we could meet prior to the Friday morning PSC informal conference to discuss Kentucky's take on the new CCR regs, and whether there would be any impact on Sterling's existing permit, or a revision to the permit to beneficially reuse Trimble County's CCR.

Thank you for your help. I look forward to hearing from you.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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Souders-Sterling Ventures, LLC Mail - RE_ LG&E Trimble County Landfill.pdf

172K

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John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

Tue, May 26, 2015 at 1:52 PM

John,

Footnote #13 on page 14 of the action filed by LG&E with the Kentucky Public Service Commission includes the following sentence which is not necessarily accurate.

"The Sterling Ventures proposal did not take into account the final CCR Rule requirements pertaining to new CCR landfills, which Sterling Ventures' limestone mine would be if used to store CCR beginning after October 2015. See 40 CFR 257.53."

If the use of CCR in a limestone mine meets the beneficial use criteria given in the definition of beneficial use of CCR, then the use is a beneficial use and not disposal. The criteria that must be met are:

- (1) The CCR must provide a functional benefit;
- (2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction;
- (3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and
- (4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

However, if the use does not meet these criteria, the use is disposal and subject to the CCR rule. Beneficial use and the beneficial use criteria are discussed in detail in the preamble to the CCR rule beginning at 80 FR 21347.

I hope this helps. Please let me know if you have questions or need additional information.

Regards,

Steve Souders

5/28/2015

Sterling Ventures, LLC Mail - RE: LG&E Trimble County Landfill

Office of Resource Conservation and Recovery (5304P)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0002
Phone: 703-308-8431

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, May 26, 2015 9:39 AM
To: Souders, Steve
Cc: Somerville, Eric
Subject: LG&E Trimble County Landfill

Steve

Thanks for the time to talk with me this morning. Per our conversation, please find attached the action filed by LG&E with the Ky Public Service Commission last Friday. The footnote we discussed is on page 14 of the Declaratory Action filing.

Thanks for your help.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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John Walters <johnwalters@sterlingventures.com>

RE: KU/LG&E Trimble Landfills - Sterling Ventures CCR Beneficial Use Permit

1 message

Hendricks, Todd (EEC) <todd.hendricks@ky.gov>
To: John Walters <johnwalters@sterlingventures.com>

Wed, Jun 17, 2015 at 9:56 AM

John,

I have not heard anything from management re: your meeting request.

It is our position that Sterling Ventures has a permit for beneficial use of CCR material from Ghent, and that the permit reflects the fact that our agency considers the placement of CCR in that mine in the specified fashion to be beneficial use.

I will let you know when I hear something from management.

Regards,

Todd Hendricks, P.G.

Geologist

Kentucky Division of Waste Management

Solid Waste Branch

200 Fair Oaks Lane

Frankfort, KY 40601

502-564-6716 ext. 4653

From: John Walters [<mailto:johnwalters@sterlingventures.com>]

Sent: Tuesday, June 16, 2015 4:40 PM

To: Hendricks, Todd (EEC)

Subject: KU/LG&E Trimble Landfills - Sterling Ventures CCR Beneficial Use Permit

Todd

I understand that Bob Bickner is out of the office until next week. I am writing to request a meeting either tomorrow or Thursday, as I just found out that the KY Public Service Commission has scheduled an informal conference this Friday morning at 10:00 to discuss the Trimble County Landfill Project.

Some background. Sterling filed a Complaint against KU at the PSC requesting that the Certificate of Public Convenience and Necessity (CPCN) for the Trimble landfill be revoked. The essence of Sterling's the argument in the Complaint is that because the cost of the first phase of the Trimble Landfill has increased from \$94 million to \$429 million, it is much less expensive to use Sterling's CCR beneficial reuse permit.

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Thank you for your help. I look forward to hearing from you.

John

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Lexington, KY 40508
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Fax (859) 259-9601

johnwalters@sterlingventures.com

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John Walters <johnwalters@sterlingventures.com>

Trimble County Landfill

1 message

John Walters <johnwalters@sterlingventures.com>

Sat, Jun 27, 2015 at 1:10 PM

To: "Somerville, Eric" <Somerville.eric@epa.gov>, "Simpson, Kimberly J LRL" <Kimberly.J.Simpson@usace.army.mil>

Kimberly and Eric:

Please see attached information presented during the informal conference at the Kentucky Public Service Commission with regard to LG&E/KU's position that Sterling's mine can no longer be considered a LEDPA alternative under the new CCR regulations.

If LG&E/KU is unwilling to sit down with Sterling and the KDSW, the Corps and/or the EPA, and then provides a legal conclusion to the Corps that Sterling mine's cannot be considered as a practical alternative because of the new CCR regs, how will the Corps proceed? Will it defer to its own legal counsel, LG&E/KU's legal conclusion, the position of the KDSW or request an opinion of the EPA?

Thanks for your consideration. I look forward to hearing from you.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

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2 attachments



20150627112923452.pdf
629K



062615-1_Sterling_Comments_to_IC_Memo.pdf
84K



John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

Tue, May 26, 2015 at 1:52 PM

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I hope this helps. Please let me know if you have questions or need additional information.

Regards,

Steve Souders

Office of Resource Conservation and Recovery (5304P)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0002
Phone: [703-308-8431](tel:703-308-8431)

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, May 26, 2015 9:39 AM
To: Souders, Steve
Cc: Somerville, Eric
Subject: LG&E Trimble County Landfill

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STERLING
VENTURES

June 25, 2015

Via Electronic Mail

U.S. Army Corps of Engineers,
Louisville District
ATTN: Kimberly J. Simpson
Senior Project Manager, South
Regulatory Branch, Operations Division,
OP-FS, Room 752
600 Dr. Martin Luther King Jr. Place
Louisville, KY 40202-2239.
Email: Kimberly.J.Simpson@usace.army.mil

RE: Trimble County Generating Station Landfill Permit, Project ID No. LRL-2010-711

Dear Ms. Simpson:

I wanted to update you on recent developments with respect to the information letter Sterling Ventures, LLC submitted to you by letter dated June 4, 2015. The Kentucky Public Service Commission has consolidated the Complaint Sterling filed and the Application for Declaratory Order that LG&E/KU filed with respect to the Trimble County Landfill Project. You can follow factual discovery, testimony and pleadings in that case by using the following link:

http://psc.ky.gov/PSC_WebNet/ViewCaseFilings.aspx?Case=2015-00194

The parties attended an informal conference in this case on June 19, 2015 to discuss issues and a procedural schedule for moving forward. The schedule will be formalized in an Order from the Commission and accessible at the above link.

Based on statements by LG&E/KU at the informal conference regarding current CCR capacity at the Trimble County Station, time is of the essence with respect to a decision from the Commission, the Corps and potentially the EPA as to whether the Trimble Landfill is LEDPA. Critical to that decision is an initial determination as to whether the new CCR regulations prevent Sterling from beneficially using or otherwise placing CCR in its underground limestone mine.

Sterling currently has a Registered Permit by Rule (the "Beneficial Reuse Permit") issued by the Kentucky Division of Solid Waste ("KDSW") to beneficially reuse gypsum from KU's Ghent Generating Station. Sterling's Permit is based on using CCR to eliminate air voids in

mined out areas to maximize air flow to active areas of mining. Every cubic foot of voids in the mined out sections of the mine increases the amount of energy (i.e., electricity) necessary to adequately ventilate the mine. Using the CCR also eliminates the need to construct concrete mine stoppings, install electric booster fans (additional electric usage), air doors or other elements to direct and control the flow of air within the mine.

Sterling mines limestone from three levels located between approximately 250 feet and 650 feet underground. Between the surface and the first mining level are two bentonite seams – the Pencil Cave seam (approximately 18 inches” thick and 235 feet below the surface) and the Mud Cave seam (approximately 24inches thick and 250 feet below the surface). The bentonite seams are effective aquitards or confining layers preventing water moving between the surface and the underground mine. There are no water wells in the area that extend below the bentonite seams as there are no interconnected aquifers below the bentonite seams and the surface that would yield any usable water.

In connection with Sterling’s Application for the Beneficial Reuse Permit, Todd Hendricks, KDSW’s geologist, and Robin Green, KDSW’s Permit Administration Supervisor, visited Sterling’s mine and confirmed that CCR placed in the mine would have no contact with surface water, no contact with ground water, no contact with soils, no fugitive dust emissions and no leachate to monitor. I would encourage you to contact Mr. Hendricks and/or Ms. Green at (502) 564-6716, as they have direct knowledge of the mine’s geology.

As shown in the following analysis of the new regulations, the proposed use of CCR in the underground mine meets the conditions for beneficial use outlined in 40 CFR §257.53.

(1) *The CCR must provide a functional benefit.*

Eliminating air voids in the mine provides the functional benefit of effectively and efficiently directing air to working areas of the mine.

(2) *The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction.*

The CCR substitutes for concrete, steel and other materials used to construct air stoppings in the mine, as well as substantially reducing the amount of electricity required to run ventilation fans to move air in the mine, thereby reducing the environmental consequences of additional electric generation.

(3) *The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities.*

There are no product specifications relevant to Sterling’s beneficial use of CCR. Sterling’s requirement to maintain an active mining operation prevents excess quantities of CCR beyond what is necessary to fill voids in mined out, abandoned areas of the mine.

(4) *When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.*

As indicated above, given the geology of the mine and the strata between the surface and the mining levels, once the CCR is placed in the mine, there will be no environmental releases possible to the groundwater, surface water, soil or air.

Sterling has met with the KDSW concerning the effect, if any, of the new CCR regulations on Sterling's Beneficial Reuse Permit, and Sterling's ability to place or beneficially use CCR in the mine. KDSW assured Sterling that the new CCR regulations would have no effect on Sterling's Beneficial Reuse Permit. Sterling is also filing for a modification of the Beneficial Reuse Permit to allow Sterling to use fly ash and bottom ash from Trimble County, in addition to gypsum from the Ghent Generating Station, to fill air voids for ventilation purposes. Again, KDSW has indicated that the new CCR regulations would not prevent Sterling obtaining that modification.

With respect to the first beneficial use criteria above - functional benefit - the background discussion of the CCR regulation as published in the Federal Register provides that: "To the extent that a state regulatory program has determined that a particular use provides a functional benefit, this may serve as evidence that this criteria has been met."¹

In addition, with respect to the second beneficial reuse criteria above, the background discussion notes that: "Here as well, potential users of CCR may choose to rely on a state determination to provide evidence that this criterion has been met."²

However, despite the above, in its Application for Declaratory Order to the Commission, LG&E/KU made the following statement: "The Trimble County Landfill remains the most economical means of disposing of the CCR the Trimble County coal-fired units will produce"³. This statement is footnoted with the additional following comment:

¹ *Federal Register*/Vol. 80, No. 74 / Friday, April 17, 2015 / Rules and Regulations at 21349.

² *Id.*

³ *In the matter of Joint Application of Louisville Gas & Electric Company and Kentucky Utilities Company for Declaratory Order Concerning Construction of the Trimble County Landfill and Related Cost Recovery*, KU Case No. 2015-00194, LGE-KU Joint Application dated May 22, 2015 at 14.

In an August 2014 letter to the U.S. Army Corps of Engineers concerning the Companies' Clean Water Act Section 404 permit application, the U.S. EPA suggested that Sterling Ventures, LLC's limestone mine might be an economical off-site alternative to building the Trimble County Landfill. (A copy of the letter is available at <http://kwalliance.org/wp-content/uploads/2014/08/EPA-Trimble-letter-8.14.pdf>.) The Sterling Ventures proposal did not take into account the final CCR Rule requirements pertaining to new CCR landfills, which Sterling Ventures' limestone mine would be if used to store CCR beginning after October 2015. *See* 40 CFR § 257.53. These requirements render Sterling Ventures' proposal impracticable.⁴

As a result of LG&E/KU's statement and footnote above, Sterling immediately contacted Steve Souders at the EPA in Washington. His emailed response, which was subsequently provided to LG&E/KU on June 17, is attached to this letter as Exhibit A. Mr. Souders states in his letter that LG&E's position "is not necessarily accurate" and that the use of CCR in a limestone mine is not a disposal that must meet landfill requirements as long as it meets the beneficial use criteria analyzed above.

At the Commission's informal conference on June 19, LG&E/KU clearly and definitively stated that the Companies have determined, after contacting the governing regulatory agencies, that Sterling's proposed beneficial use is prohibited under the new regulations, and that the opinion of one employee of the EPA is not definitive. In addition, LG&E/KU represented that Sterling would be required to construct a liner in the underground mine in order to receive CCR in the mine after October 2015, effectively preventing Sterling from ever obtaining any kind of permit to place CCR in the mine.

In response to those assertions at the informal conference, Sterling proposed a meeting with representatives of LG&E/KU and Sterling with the EPA, Corps, and/or the KDSW to discuss whether Sterling's mine can be considered in a LEDPA alternatives analysis after final publication of the CCR regulations. That proposal was declined by LG&E/KU. However, again, I would encourage you to contact Mr. Hendricks and/or Ms. Green at KDSW concerning their analysis of how the new CCR regulations would impact the ability of Sterling to beneficially use Trimble County's CCR.

I also thought it may be helpful to provide a brief summary of how the Kentucky Service Commission analyzes the economics of various alternatives to determine the lowest cost alternative. This may assist in your review of Exhibit S of the Complaint, and the determination of the costs that should have been considered, but omitted, from LG&E/KU's 404 Alternatives Analysis.

Kentucky is a "Rate of Return" regulation state. Rate of return regulation is used to determine reasonable prices for services supplied by utility companies operating under a monopoly access to ratepayers. Under this method of regulation, government regulators examine

⁴ *Id.*

the firm's base rate, cost of capital, operating expenses, and overall depreciation in order to estimate the total revenue needed for the firm to fully cover its expenses.

Rate of return regulation generally uses the following formula to calculate the amount necessary for the utility to recover all of its cost and expense, but not overcharge the ratepayer:

$$R=(B \times r) + E + d$$

R=Revenue Requirement: The amount of revenue the company requires in order to cover its costs in their entirety (“all-in cost”).

B=Rate Base: The amount of capital and assets the company utilizes in order to provide its services. This is the depreciated book value of the utility’s assets.

r=Government Permitted Rate of Return: The cost the company incurs to finance its rate base including debt and equity

E=Operating and Maintenance Expenses: The cost of materials, supplies and labor used in order to provide services

d=Depreciation Expense: The annual amount the company spends on accounting for depreciation of its capital assets. Because a capital asset will be used over a long period of time, the proper way to financially and economically account for an asset’s cost is not when the asset is purchased, but over its useful life.

Rate of return regulation therefore adjusts overall price levels according to the company’s accounting costs and cost of capital. In most cases, the regulator reviews the company’s overall price level in response to a claim by the company that the rate of return that it is receiving is less than its cost of capital, or in response to a suspicion of the regulator or claim by a consumer group that the actual rate of return is greater than the cost of capital. Critical issues for the regulator include how to value the rate base, whether to add investments to the rate base as they are made or when the facilities go into service, the amount of depreciation, and whether expenditures have been prudently made and whether they relate to items that are used and useful for providing the utility service.

When a utility is proposing a new project to meet an operational need, the regulatory authority looks at the projected future impact of alternative investments to meet that need. A present value rate of return calculation is used to compare project alternatives to make sure that the utility is making the best decision among alternatives that will result in the lowest cost to the utility ratepayers.

Assume, for example that the utility needs to generate x more electricity, and that there are two proposed alternatives to meet that additional electric need. Also assume that the utility’s cost of capital is 10%. The first alternative (“Alternative 1”) has a capital cost of \$100, an operating life of 20 years and will cost \$5 annually in operational expenses. \$80 of the required

\$100 in capital cost will be incurred in year one, with the remaining \$20 paid in year 15. Alternative 2 also costs \$100, but will have \$7 in annual operating cost, and requires \$30 of the \$100 in capital in year 1, and \$70 in year 15. In both alternatives, assume operating cost will increase 2.5% a year for inflation.

Exhibit B attached to this letter illustrates the future capital and operating cost of these two alternatives, and their present value conversion in order to compare the cost in present day dollars. As you can see in Exhibit B, when only looking at total dollars over 20 years, Alternative 1 has a total cost of \$309.72, and Alternative 2 has a total annual cost of \$328.31. Therefore without considering the time value of money, Alternative 1 is less expensive. However, comparing the alternatives on total cost does not accurately reflect the true cost of the project in today's dollars cost because the difference in timing of the expenditures does not result in an apples-to-apples comparison. The time value of money is ignored. The apples-to-apples cost is the present value of the future annual cost discounted back to present day dollars using the discount rate.

The purchase cost of \$100 is expensed as depreciation over 20 years, not as an upfront capital cost because the asset is being used over a 20 year period. The cost of capital is based on the depreciated book cost of the asset (the rate base). So, for example, the projected cost of Alternative 1 in year 5 is \$15.52, as follows.

Rate Base (Depreciated Asset Value)	\$ 60
Cost of Capital Rate	<u>x 10%</u>
Cost of Capital	\$ 6.00
O&M Costs	5.52
Depreciation	<u>4.00</u>
Total Projected Year 5 Cost	\$15.52

However, the present value of \$15.52 of cost incurred in year 5 is \$11.49 as a result of the time value of money (using a 7.81% discount rate).

The overall present value cost of Alternative 1 is \$166.15, and Alternative 2's present value cost is \$151.91. Under the apples-to-apples comparison in present value dollars, Alternative 2 is the least expense alternative by \$14.23, as a result of the timing of capital and O&M expenses.

In essence, the proper economic question when comparing the two alternatives is as follows: Is it better to spend \$80 today and \$20 fifteen years from now, or \$30 today and \$70 fifteen years from now, even though the O&M cost for the second alternative is \$2 more per year? The present value analysis tells us that Alternative 2 is the least cost alternative in today's dollars.

It is impossible to compare two project alternatives with differing capital requirements and differing O&M cost without using a present value analysis to adjust those two projects to present day dollars. The comparison is apples-to-oranges without the present value comparison.

For this reason, rate based utility regulators use a present value rate base analysis to accurately compare the cost of two project alternatives.

In fact, the EPA has acknowledged that using a present value comparison is an appropriate method to compare alternatives with differing capital requirements:

An appropriate method to evaluate practicability is by calculating the annual discounted net present value (NPV) of the stream of costs and revenues over the lifespan of each alternative. The NPV analysis is theoretically and empirically sound and EPA is legally required to use such analysis when evaluating all new regulations. Using the discounted NPV, projects of different lengths can be compared on equal terms. EPA (NCEE) has prepared an NPV table using OMB mandated discounted rates of 3 percent and 7 percent comparing the project alternatives.⁵

I would also like to follow up on the reference in my June 4, 2015 letter to the difference between the capital cost information LG&E/KU provided to the Corps for the Ravine B landfill in the December 2014 Supplement to Alternatives Analysis (the "404 Supplement"), and the capital cost provided to the Commission in the 2014 Rate Case. According to the cost summary included in the 404 Supplement, the capital cost of the Ravine B alternative is \$179.7 million.⁶ However, LG&E/KU provided information to the Commission in late 2014 that the total capital cost of the Ravine B landfill would be \$668.7 million.⁷ Although the footnotes to the Ravine B cost analysis provided to the Corps noted that the cost did not include all cost, only "incremental cost,"⁸ the difference is \$490 million. It is hard to imagine that incremental cost alone can explain that difference.

As I indicated in my letter of June 4, 2015, the scant economic cost information LG&E/KU submitted in their 404 Supplement is wholly inadequate for the Corps to conduct a meaningful review of the economic portion of the "practicability" component of the LEDPA analysis. How, for example, is the Corp supposed to evaluate the present value effect of the omitted \$490 million of capital? Are the Companies planning to spend that amount in the early years of the Trimble Landfill development, or will those cost be incurred later in the projects life, or will they be spread out over the life of the project? If that omitted capital cost is incurred early in the project's life, on a present value comparison to other alternatives, it may dramatically increase the economic cost of the project.

Sterling would respectively submit that the purpose of the requirement in the Guidelines that "[t]he determination of what constitutes an unreasonable expense should generally consider

⁵ See Exhibit C attached, Letter, U.S. Environmental Protection Agency, Region 4, to Colonel Jefferson Ryscavage, District Engineer, Wilmington District Corps of Engineers (July 23, 2008) at 7.

⁶ See Complaint, Exhibit P at 57 of 183.

⁷ See Complaint, Exhibit T

⁸ See Complaint, Exhibit P at 57 of 183, footnotes 2 and 5.

June 25, 2015

Page 8

whether the projected cost is substantially greater than the costs normally associated with the *particular type of project*,”⁹ is to prevent an applicant from picking and choosing which cost data to include or omit for a project alternative in order to reach a desired result. The economic costing analysis should match what would be considered industry standard. Industry standard for utility projects in Kentucky is the present value rate of return analysis outlined above.

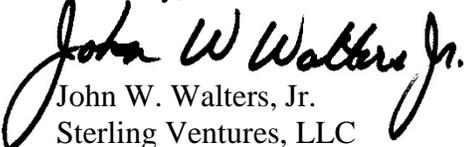
At the informal conference on June 19, when asked why the Companies did not simply include in their 404 Alternatives Analysis the same PVRR computation of each alternative that the Commission would use to review the economics of the alternative, the response was simply: “Because we are not required to”. Sterling would disagree. The cost of capital, and a present value analysis based on the timing of capital expenditures, is a critical component of a LEDPA alternatives analysis of a utility proposing a project in Kentucky impacting waters of the US.

Because the Ravine B alternative and Sterling’s mine alternative have different capital costs occurring at different times in the future, and the annual operating costs are also different, it is impossible to correctly compare the economic cost of the two alternatives without doing a present value analysis. Exhibits S, U, V and W of Sterling’s Complaint is the present value comparative analysis of the alternatives based upon the costs presented to the Commission, and the costs presented to the Corps in the 404 Supplement, adjusting for the requirement to dry the CCR, and the amount of beneficial reuse. Those Exhibits clearly show that the Ravine B alternative is not the least cost alternative for dealing with Trimble’s CCR.

Should you have any questions concerning any of the above, or any of the attached, please do not hesitate to call.

Thank you for your consideration.

Sincerely,



John W. Walters, Jr.
Sterling Ventures, LLC
General Counsel/CFO

enclosures

⁹ EPA, *Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*, at 3(b) (emphasis added).

EXHIBIT A

5/28/2015

Sterling Ventures, LLC Mail - RE: LG&E Trimble County Landfill



John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

Tue, May 26, 2015 at 1:52 PM

John,

Footnote #13 on page 14 of the action filed by LG&E with the Kentucky Public Service Commission includes the following sentence which is not necessarily accurate.

"The Sterling Ventures proposal did not take into account the final CCR Rule requirements pertaining to new CCR landfills, which Sterling Ventures' limestone mine would be if used to store CCR beginning after October 2015. See 40 CFR 257.53."

If the use of CCR in a limestone mine meets the beneficial use criteria given in the definition of beneficial use of CCR, then the use is a beneficial use and not disposal. The criteria that must be met are:

- (1) The CCR must provide a functional benefit;
- (2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction;
- (3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and
- (4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

However, if the use does not meet these criteria, the use is disposal and subject to the CCR rule. Beneficial use and the beneficial use criteria are discussed in detail in the preamble to the CCR rule beginning at 80 FR 21347.

I hope this helps. Please let me know if you have questions or need additional information.

Regards,

Steve Souders

EXHIBIT C



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

July 23, 2008

Colonel Jefferson Ryscavage
District Engineer
U.S. Army Corps of Engineers
Wilmington District
P.O. Box 1890
Wilmington, NC 28402-1890

Attn: Tom Walker
Project Manager
File Number 2001-10096

Subject: COE Regulatory Final Environmental Impact Statement (FEIS) for
"PCS Phosphate Mine Continuation"; Aurora, Beaufort County, NC;
CEQ# 20080213; ERP# COE-E67005-NC

Dear Colonel Ryscavage:

Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA Region 4 has reviewed the above-referenced U.S. Army Corps of Engineers (COE) regulatory Final Environmental Impact Statement (FEIS). This FEIS evaluates the environmental consequences of the Applicant's (Potash Corporation of Saskatchewan Phosphate Division: PCS) proposed expansion of its phosphate mining operations adjacent to the Pamlico River, South Creek and associated tributaries, north of Aurora in Beaufort County, North Carolina.

EPA has previously provided NEPA comment letters on the Draft EIS (DEIS) and its Draft Supplement (DSEIS). Our December 28, 2007, DSEIS letter continued to describe our environmental objections to this mine continuation project, as proposed. Similarly, from a Clean Water Act (CWA) section 404 permitting standpoint, the EPA Region 4 Wetlands Regulatory Section also objected to this proposal pursuant to CWA Section 404(q), Part IV, paragraphs 3(a) and 3(b), in letters dated February 9 and March 6, 2007, respectively. The Wetlands Regulatory Section also provided pre-FEIS comments in a April 30, 2008, letter regarding the significant natural heritage area on the Bonnerton tract, the scope of the section 404 silviculture exemption, and the economic evaluation/Least Environmentally Damaging Practicable Alternative (LEDPA) determination. We offer the following comments on our current review of the FEIS.

Background

In November 2000, PCS submitted to the COE Wilmington District an application for the mine continuation project in the Aurora area. PCS modified the original permit application in response to public notice comments to further reduce impacts to federal waters of the U.S. This modified application was the subject of the COE's regulatory DEIS (10/2006), which described the No Action Alternative and nine action alternatives. PCS's application evaluated in the DEIS was for mining of the NCPC tract involving 2,408 acres of mining impacts to waters of the U.S. (*i.e.*, Applicant Preferred or AP alternative). Among the alternatives, the DEIS included three basic tracts (NCPC, S33 and Bonnerton tracts) with varying impacts to waters of the U.S. as holistic mining plans, including the Applicant's expanded AP alternative (EAP) with 5,667 acres of mining impacts of waters of the U.S. The public review of the DEIS and further discussions with the Applicant concerning economic practicability lead to the development of the DSEIS (11/2007), which introduced new Alternatives L and M. Alternative L follows the SCR boundary (see section 2.4.1.2) on the NCPC tract and defines a new boundary on the Bonnerton and S33 tracts. Alternative M was developed by the Applicant and consists of a boundary with three more years of mining on the NCPC tract than the L alternative and is identical to the L alternative on the Bonnerton and S33 tracts. In an April 25, 2008, letter, the Applicant requested its application be modified to request a permit for Alternative L.

Impacts & Alternatives

EPA's primary concerns with the proposed continuation of phosphate mining at Aurora are the associated wetland and stream impacts to watersheds supporting the Albemarle Pamlico Estuary system over an extended timeframe, together with the cumulative impacts of ongoing mining. EPA understands the rationale behind the development of the new Alternatives L and M through the NEPA process, but has concerns over the level of impacts to waters of the U.S. associated with these alternatives.

EPA appreciates that several alternatives were considered by the Applicant and COE during the NEPA process and documented in the EIS. In the FEIS, these alternatives were the AP, EAP, SJA, SCR, DL1, S33AP, L and M alternatives. Of these, EPA has identified the S33AP Alternative, which the COE has determined to not be practical (see below), as the NEPA "environmentally preferable alternative," because it substantially reduces the wetland impacts for the proposed mining continuation. Although the acreage of impacted wetlands for S33AP is not insignificant (1,123 acres: ac), this action alternative impacts the fewest wetland acres. We believe that impacts to wetlands north of NC33 will have a potentially greater impact to the watersheds supporting the nationally significant Albemarle Pamlico Estuary system. Moreover, based on EPA's economic evaluation of practicability, we also find that S33AP is economically practicable (see *Economic Considerations* section and *Detailed Comments* enclosure of this letter). We also note that S33AP would nevertheless impact a high number of stream sections (33,486 linear feet: lf). Any implementation of S33AP should further avoid and minimize stream and wetland impacts.

The FEIS (5/2008) provided additional information on Alternatives L and M. The FEIS lists Alternatives SCRA¹, SCRB, SJAB, DL1B, S33AP and the No Action alternative as not being practicable, while finding that Alternatives AP, EAPA, EAPB, SJAA, L and M were practicable. The COE indicates that of the alternatives identified as practicable, the L alternative is the most restrictive and therefore avoids the most aquatic resources. Alternative L would impact approximately 4,135 acres of waters of the U.S. over a 37-year mining span. The 11 community types within the impacted waters of the U.S. include pocosin-bay forests (264 ac), bottomland hardwood forests (73 ac), hardwood forests (1,075 ac) as well as 29,288 linear feet of perennial and intermittent streams. These community types are located within an approximate 11,909-acre mine advance distributed throughout the project area. Impacts of Alternative M include 4,592 acres of waters of the U.S. and 36,990 linear feet of streams over a 41-year mining span.

The COE does not identify a NEPA “preferred alternative” or a LEDPA in the FEIS. However, Alternative L was considered the Applicant’s “Proposed Action” in the COE’s FEIS and Public Notice (pg. e). PCS’s previous mining application was for the AP (NCPC tract only).

“Modified Alternative L”

While we believe that S33AP is the “environmentally preferable alternative”, EPA prefers Alternative L (of the alternatives determined to be practicable by the COE in the FEIS) from a NEPA perspective since it avoids valuable wetland habitat, mainly on the NCPC tract. The COE’s economic analysis indicates Alternative L is the alternative which would allow the least environmental impacts and still be economically practicable (pg. 2-32). EPA agrees that Alternative L is economically practicable (see *Detailed Comments*); however, we also believe that it could be improved environmentally through further avoidance of waters of the U.S.

Nevertheless, we acknowledge that Alternative L does avoid a large portion of the important tidal creeks and some of their associated watersheds on the NCPC tract and an approximate 58-acre area of biocommunity type 7 (“wetland hardwood forest”) on the Bonnerton tract, as shown on Figure 4-7b (Vol. I). This is the eastern portion of an approximate 271-acre plot within the Bonnerton base tract that has been designated as a “nationally significant” Significant Natural Heritage Area (SNHA) by the North Carolina Natural Heritage Program (NHP).

While we appreciate the Applicant’s avoidance of this eastern portion of the SNHA, EPA strongly believes that the entire SNHA tract should be avoided. Therefore, in order for Alternative L to be improved environmentally, we recommend that Alternative L be further modified to also exclude the remaining approximate 213-acre component of the SNHA tract from the proposed mining. For convenience of reference, we have designated this modified alternative as “Modified Alternative L”. Overall, EPA considers “Modified Alternative L” to be an economically practicable and

¹ The ‘A’ and ‘B’ portions of ‘SCRA’ and ‘SCRB’ indicate a sequencing for the SCR Alternative. Other sequenced alternatives were also labeled this way.

environmentally reasonable alternative that is more environmentally preferable than Alternative L.

In addition to the exclusion of the remaining 213-acre portion of the SNHA from mining, EPA also recommends that “Modified Alternative L” follow the original SCR boundary on the S33 tract rather than the proposed Alternative L boundary (this would approximately reduce wetland impacts by an additional 38 acres and stream impacts by 10,167 lf). Since we understand that the main purpose for developing the L alternative was to allow 15 years of mining north of NC33, it remains unclear why the SCR avoidance boundary on the S33 tract was decreased for Alternative L. We find no information in the FEIS which would indicate the COE has determined that the use of the original SCR boundary in the S33 tract would fail to make Alternative L economically practicable. In addition, the COE’s response to the EPA comment on this issue in our DSEIS letter (Response R6, Appendix J) did not clarify our understanding of the need for this mining expansion on S33.

Avoidance, Minimization & Mitigation

Even with the exclusion of the SNHA from Alternative L and a return to the SCR boundary on the S33 tract, it is nevertheless clear that significant impacts to wetlands (3,864 ac) and streams (19,121 lf) would still occur by mining the Alternative L area over an extended period of time. Therefore, for any implementation of “Modified Alternative L” to be successful, we strongly believe the following actions would need to occur: 1) the ongoing process of minimization and avoidance of waters of the U.S. and the implementation of acceptable mitigation and reclamation of mined areas would continue to be applied to the remaining acreage; 2) the Wilmington District would continue its commitment to oversight of the reclamation process in a timely manner; and 3) strict compliance with mining Best Management Practices (BMPs) would be used during the permitted mining. In addition, for the excluded SNHA, the permitted mining in the surrounding areas must also not be allowed to indirectly affect the SNHA. Such indirect impacts could include disruption of its hydrology, the routing of mining stormwater runoff into the SNHA area, and degradation of the SNHA connecting areas such that they are no longer providing the connectivity function. To ensure success, the COE should provide a commitment to continue successful implementation of the avoidance, minimization and mitigation processes required under section 404(b)(1) in its prospective Record of Decision (ROD) for this EIS.

Because the SNHA would be wholly excluded from mining under “Modified Alternative L,” silvicultural practices should not occur in this area until a final project decision is made. Logging on the SNHA site should be avoided since timbering degrades the SNHA’s wetland value and national significance. We provided additional comments on the related section 404 silviculture exemption in the *Detailed Comments* and in EPA’s April 30, 2008 letter.

If the S33 tract is mined under the S33AP Alternative or as part of the "Modified Alternative L", EPA recommends the completion of a detailed mitigation plan for impacts to the S33 tract well in advance of any plans to mine this area. The potential economic reopener clause may be an appropriate means to address this issue, if this tract were to be mined under "Modified Alternative L". EPA also recommends that the reopener clause, or other suitable measures, remain an option for future adaptive management needs. We also believe compensation for impacts to mature, high quality wetlands would require greater than the 2:1 mitigation ratio specified in the current mitigation plan. We understand the overall stream mitigation ratio of 1.8:1 is based on the 2003 Stream Mitigation Guidelines ratio determination methodology utilizing stream quality ratings of "poor," "good," and "excellent". We support the use of this methodology to determine appropriate stream compensation, but recommend the stream quality ratings be confirmed by the COE.

Significance of the SNHA Resource

The need to preserve the entire SNHA tract is based on the NHP designation (*i.e.*, nationally significant SNHA), the community types represented, and the contiguous nature of the SNHA. The NHP rates SNHAs by significance as national, state, regional and county. The "nationally significant" rating of the Bonneron nonriverine wetland hardwood forest SNHA means the NHP considers this area to one of the five best examples of this community type in the nation. The size and maturity of this area are critical to the NHP rating.

Valuable biocommunity types are represented in the nationally significant SNHA. In addition to the eastern portion (58 ac) of the SNHA (within Porter Creek headwaters) already excluded from mining by Alternative L, the remaining 213 acres primarily consist of a western portion (135 ac) and a northwestern portion (45 ac). There are also two secondary connecting sections (totaling approximately 33 ac) for continuity of the wetland hardwood forest community. Of these, the most mature plots are the eastern portion within the Porter Creek headwaters and the western portion across from the Porter Creek area, which both have stands of mature (75-100 years old) "wetland hardwood forest" (biocommunity type 7). The two secondary areas of different biocommunity types serve to connect the main areas. Biocommunity type 5 ("wetland scrub-shrub") is found in the secondary area between Porter Creek and the western area and the biocommunity type 6 ("wetland pine plantation") is found in the portion between the western and northwestern areas. The northwestern area also contains biocommunity type 7, and was added to the SNHA after the recent NHP site visit. Although this area is not as mature as the other areas, the NHP concluded it should be added to the SNHA due to the rarity of the community type. The NHP considers this area to also be highly significant and to have good recovery potential over time. (We also note that if the biocommunity type 8 area ("wetland mixed pine-hardwood forest") located west of the northwestern portion of the SNHA was not mined due to logistical mining restrictions, it would provide an excellent opportunity for mitigation enhancement/rehabilitation, as recommended by the NHP.)

Beyond the functional significance of these biocommunities in terms of water quality and habitat value, the contiguous nature of the SNHA enhances its value. While not all of the SNHA acreage consists of wetland hardwood forested wetlands (e.g., the western portion includes 20 acres of Suffolk scarp and the two secondary connection areas include biocommunity types 5 and 6), the interconnection of the three primary plots by the secondary areas makes the SNHA a functional unit of sufficient size to be sustainable. As a contiguous unit, this refuge “island” surrounded by permitted mining impacts, would allow for wildlife movement, foraging, and reproduction. In order to ensure this continuity, we recommend that the two secondary connection areas be maintained (if used as temporary crossing sites for mining equipment) so as to allow them to retain their connectivity functions for the wetland hardwood forest areas. The mast-producing stands of this “island” could also serve as a future seed source for the surrounding areas during post-mining reclamation. We commend the Applicant for its appreciation of the importance of SNHAs as supported by the statements in its mitigation plan encouraging preservation that will protect or extend SNHA(s) along the South Creek corridor.

Economic Considerations

We appreciate the COE’s considerable efforts to evaluate the economic practicability component of the LEDPA requirement. However, we continue to have concerns with some aspects of the approach discussed in Section 2.7 of the FEIS. As we have stated on numerous occasions, the decision by the COE to incorporate the Applicant’s position on how to average the cost of the mine relocation to a new tract, has made it very difficult to avoid some of the important project wetland areas in the LEDPA process. We acknowledge that the avoidance of an additional 213 acres on the Bonnerton tract under the “Modified L Alternative” would reduce the Applicant’s mining north of NC33 to less than 15 years. However, our review of the dragline plan layout map for Alternative L (Vol. II, App. D) indicates this would only reduce part of years 11 and 12 for a likely overall reduction of approximately one year of mining. We understand this would not satisfy the COE’s LEDPA requirement of 15 years north of NC33, but we believe such a reduction would not be an unreasonable alternative modification – especially considering the remaining concerns we have over the economic evaluation approach used to determine the LEDPA (see below). With the adjustments in mining on Bonnerton and S33 incorporated in “Modified Alternative L,” the overall timeframe for mining would likely still exceed 35 years (instead of 37 years for Alternative L).

EPA’s review of the FEIS included our National Center for Environmental Economics (NCEE) in Washington, DC. NCEE and other EPA staff have been involved extensively in economic practicability discussions with the COE, including the most recent meeting (1/30/08) with the COE and the Pamlico Tar River Foundation and its economist, to further discuss PCS economic practicability issues. In general, EPA does not believe considering costs in isolation, *i.e.*, without considering revenues, is a useful means to evaluate the economic practicability of the project alternatives. Comparing costs to revenues does not consider an applicant’s financial standing or market share any

more than looking only at costs. As is pointed out numerous times in the FEIS, phosphate prices are determined by the global and national market (and not influenced by the Applicant's production levels). Comparing estimated costs (which the Applicant can control) to expected market prices (which the firm does not control) simply adds context to the cost numbers and allows for better decision making.

An appropriate method to evaluate practicability is by calculating the annual discounted net present value (NPV) of the stream of costs and revenues over the lifespan of each alternative. The NPV analysis is theoretically and empirically sound and EPA is legally required to use such analysis when evaluating all new regulations. Using the discounted NPV, projects of different lengths can be compared on equal terms. EPA (NCEE) has prepared an NPV table using OMB mandated discounted rates of 3 percent and 7 percent comparing the project alternatives. This summary table, with additional discussion on the economic practicability of the alternatives, is included in EPA's comments on the COE's responses to our DEIS comment letter provided in the enclosed *Detailed Comments*. We are available to discuss information concerning this summary table and how it was prepared.

Based on these calculations and as shown in our summary table, EPA believes that more alternatives appear to be practicable than those determined by the COE (*i.e.*, the COE believes that Alternatives AP, EAPA, EAPB, SJAA, L and M are practicable), including SCRA and SCRB, S33AP, SJAB and DL1. In fact, we find that all alternatives considered in the FEIS, except the No Action Alternative (*i.e.*, all the action alternatives), are economically practicable. Based on this analysis, the "Modified Alternative L" would also be an economically practicable alternative, despite its slightly shorter mining term. Since "Modified Alternative L" allows more mining than the SCR alternative (but less than the original Alternative L), we strongly believe that "Modified Alternative L" will be economically practicable and will have a positive NPV greater than the SCRA and SCRB Alternatives, but slightly less than the original Alternative L. With detailed cost and annual production estimates, it would be relatively straightforward to calculate a more precise value.

Other Comments

In addition to these primary concerns, EPA has also reviewed the COE's responses in the FEIS to our EPA NEPA letter on the DEIS (pg. J-111.A.1) and DSEIS (pg. J-111.B.1), as well as the EPA Wetlands Regulatory Section's letter pursuant to CWA Section 404(q), Part IV, paragraph 3(a) (pg. J-111.A.2) and the EPA Regional Administrator's letter pursuant to CWA Section 404(q), Part IV, paragraph 3(b) (pg. J-111.A.3). Copies of these letters and the COE's responses to comments are found in Appendix J of Volume IV. Our follow-up comments on selected responses, as well as other project topics, are provided in the enclosed *Detailed Comments*.

Summary

EPA finds that the proposed continuation of PCS mining at Aurora would have significant and long-term, direct and cumulative impacts to biocommunities in various waters of the U.S. which support the nationally significant Albemarle Pamlico Estuary System. Accordingly, we continue to have environmental objections to this project, as proposed, under Alternative L (Applicant's Proposed Action). However, we believe that S33AP is the NEPA "environmentally preferable alternative" and that Alternative L could be improved environmentally as "Modified Alternative L". EPA finds both to be economically practicable and, from an industry standpoint, both would allow the continuance of phosphate mining at Aurora for many years.

"Modified Alternative L" would avoid not only the eastern portion (58 ac) of the SNHA (Alternative L) but would also avoid the remaining acreage (approximately 213 ac) of the entire SNHA tract (approximately 271 ac). This alternative would also use the original SCR boundary for S33, as opposed to the additional wetland (38 ac) and stream (10,167 lf) impacts to this area proposed in Alternative L. EPA believes the SNHA to be an aquatic resource of national importance. The NHP-designated "nationally significant" SNHA includes nonriverine wetland hardwood forest and other functional community types and, if excluded from mining, would continue to be a contiguous and sustainable refuge "island" of one of the most threatened of North Carolina's natural communities. EPA considers "Modified Alternative L" to be an economically practicable and environmentally reasonable alternative that is more environmentally preferable than new Alternative L. However, for any implementation of "Modified Alternative L" to be successful, it should be understood that the ongoing processes, such as avoidance and minimization of impacts to waters of the U.S., implementation of acceptable mitigation and reclamation, and use of mining BMPs would need to continue for the permitted mining. The COE should commit to such process continuance with appropriate monitoring in its ROD.

Overall, EPA believes that our remaining project issues with the proposed mining continuation at Aurora can be successfully resolved within the brackets of these comments and the S33 and "Modified Alternative L" alternatives. We stand ready to further discuss these comments and alternatives. However, if our remaining issues are not adequately resolved, EPA reserves the right to take further action on this project in accordance with its authority under Section 404 of the CWA.



STERLING
VENTURES

June 4, 2015

Via Federal Express (with Exhibits) and Electronic Mail (with electronic access to referenced Complaint via box.net)

U.S. Army Corps of Engineers,
Louisville District
ATTN: Kimberly J. Simpson
Senior Project Manager, South
Regulatory Branch, Operations Division,
OP-FS, Room 752
600 Dr. Martin Luther King Jr. Place
Louisville, KY 40202-2239.
Email: Kimberly.J.Simpson@usace.army.mil

RE: Trimble County Generating Station Landfill Permit, Project ID No. LRL-2010-711-kjs

Dear Ms. Simpson:

Please accept the following information submitted by Sterling Ventures, LLC regarding the application of Louisville Gas and Electric Company (“LG&E”) and Kentucky Utilities Company (“KU”) (together the “Companies”) for a permit under section 404 of the Clean Water Act (“CWA”) to allow for construction of a coal combustion residuals (“CCR”) landfill at the Trimble County generating station. These comments address LG&E and KU’s January 2014 Alternatives Analysis Report (“GAI 2014”) and December 2014 Supplement to Alternatives Analysis (“SAA”) for the Trimble Landfill.

On May 20, 2015 Sterling filed a Complaint with the Kentucky Public Service Commission (the “Commission”) requesting that the Commission revoke the Certificate of Public Convenience and Necessity (“CPCN”) granted to the Companies in 2009 to construct the Trimble Landfill. A copy of that Complaint with Exhibits is included with this letter, and is also available at <https://sterlingventures.box.com/s/vyel2jjkv3pdo7q0d785caz2kb4iq4c9>.

On May 22, 2015, the Companies filed with the Commission an Action for a Declaratory Order Concerning the Construction of the Trimble Landfill and Recovery of Related Cost.¹ Access to that case can be found at: http://psc.ky.gov/PSC_WebNet/ViewCaseFilings.aspx?Case=2015-00156.

¹ *In re the Matter of: Verified Joint Application of Louisville Gas and Electric Company and Kentucky Utilities Company for Declaratory Order Concerning Construction of the Trimble County Landfill and Related Cost Recovery*, Case No. 2015-00156.

These cases may have a direct impact on, and be the source of additional factual information relevant to, the Companies' application for the CWA 404 permit to build the Trimble County Landfill.

On April 25, 2012, the US EPA, Region 4 provided your office its initial comments on the Companies' CWA 404 permit application and noted that the Trimble Landfill will impact a special aquatic site. For activities that involve filling of special aquatic sites, but which are not water dependent, there is a dual presumption that (1) "practicable alternatives that do not impact special aquatic sites are presumed to be available, unless clearly demonstrated otherwise"; and (2) that such alternatives "are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise."²

Landfills, and disposal of CCR, do not inherently require access or proximity to, or siting in, wetlands. Additionally, as noted by the Companies' own alternatives analysis, off-site options can be provided in ways that have no wetlands footprint or impact. Therefore, because the Trimble Landfill is not water dependent, the dual presumption in 40 C.F.R. § 230.10(a)(3) applies – i.e., the Corps must presume that LEDPAs are available and that alternatives will have less adverse environmental impact on the aquatic ecosystem than the Trimble Landfill.

To overcome this burden, the Companies must produce, with independent verification by the Corps, "detailed, clear and convincing evidence *proving*' that an alternative with less adverse impact is 'impracticable.'"³

The EPA provided additional comments to your office dated August 7, 2014. Specifically at issue in that letter was the Companies' failure to identify and evaluate Sterling's underground limestone mine as a known disposal alternative in its January 2014 CWA 404 Alternatives Analysis. The SAA was submitted to address the failure to include the Sterling mine in the January 2014 Alternatives Analysis, as well as other issues. The SAA concluded that the Sterling mine alternative was not the least cost alternative and impracticable for a variety of reasons.

Based on the reasons below, Sterling Ventures respectfully maintains the Companies' analysis and determination that Sterling Ventures' Mine Alternative was "impracticable" was flawed and incorrect, and therefore the application should be denied.

First, to determine which option is the least environmentally damaging practicable alternative ("LEDPA") requires accurate forecasts of the capacity requirements of the Trimble Landfill. The Companies, however, have incorrectly projected the CCR capacity needs of the Trimble Landfill, and thus have failed, per se, to meet their burden under 40 C.F.R. § 230.10(a). If the Companies had provided the correct capacity needs analysis, it would be immediately clear that their forecast of CCR capacity requirements of the Trimble Landfill is grossly inflated and that it used unreasonable planning assumptions. The effect of those errors is to substantially overstate and accelerate the need for the Trimble Landfill when compared to other alternatives. Because capacity needs have been overstated, the Corps cannot meaningfully compare alternatives.

² 40 C.F.R. § 230.10(a)(3)

³ *Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1269 (10th Cir. 2004) (emphasis in original) (quoting *Utahns for Better Transp. v. U.S. Dept of Transp.*, 305 F.3d 1152, 1186-87 (10th Cir. 2003)).

Second, the Companies did not compare full project costs in its Alternatives Analysis. Instead, the Analysis admittedly looked at certain specific costs only – effectively comparing only \$180 Million of the \$669.3 Million capital cost of the Trimble Landfill, and ignoring a substantial portion of the ongoing maintenance cost of the Landfill. More importantly, in order to show that the Trimble Landfill was the least costly alternative, the Companies failed to use the generally accepted method of identifying the overall project cost – the environmental cost recovery surcharge billed to LG&E and KU’s customers to cover the cost required to build and operate the Trimble Landfill. Once this is corrected, and the correct project cost components are used in the Alternatives Analysis, the Sterling Limestone Mine alternative is in fact far cheaper and, therefore, better meets the project purpose of reliable and affordable CCR disposal than does the Trimble Landfill.

Third, the Companies developed, without any input from Sterling, an alternatives analysis of Sterling Ventures’ Mine Alternative based upon acquiring and building a barge facility and extensive conveyor system on property located between Sterling’s underground mine and the Ohio River. Sterling notified LG&E and KU of an available barge site location on the northern edge of Warsaw near Sterling’s mine that would avoid the technical, logistical and other issues that the Companies needlessly created with the adjacent site plan. The Companies failed to reassess capacity, cost and other issues in light of the availability of the Warsaw barge facility location, which would have a material and substantial effect on the cost and logistical requirements for transporting the CCR to Sterling’s underground mine.

Fourth, even if the Companies could cure the many legal and factual flaws in their application, they would still not be eligible for a 404 Permit because Sterling Ventures has presented a practicable alternative that is less environmentally damaging. Using Sterling Ventures’ Mine Alternative provides the same or better CCR disposal reliability at less cost than the Trimble Landfill, with no impacts to wetlands and with minimal, if any, overall environmental impact. Accordingly, the Trimble Landfill is not LEDPA and is not permissible.

In fact, when analyzing Sterling Ventures’ Mine Alternative there are no technical, environmental, or logistical issues that make the alternative impracticable. Thus, the Companies’ application not only fails to meet its burden under 40 C.F.R. § 230.10(a), when full, complete and correct project cost and capacity needs are included, it actually proves the opposite – that the Sterling Ventures’ Mine Alternative it reviewed can meet the Company’s CCR disposal needs at lower cost and with less environmental impact.

Sterling’s Complaint against KU requesting revocation of the CPCN to build the Trimble Landfill provides details in support of the issues highlighted above. However, although the Complaint includes a discussion of the overall cost that should be used to correctly determine which alternative for CCR disposal is the least environmental damaging practical alternative, the following is a further analysis of that issue for your consideration.

Kentucky Revised Statute § 278.183(1) is commonly known as the Environmental Surcharge Statute and provides, in pertinent part, as follows:

Notwithstanding any other provision of this chapter, effective January 1, 1993, a utility shall be entitled to the current recovery of its costs of complying with the

Federal Clean Air Act as amended and those federal, state, or local environmental requirements which apply to coal combustion wastes and by-products from facilities utilized for production of energy from coal in accordance with the utility's compliance plan as designated in subsection (2) of this section. *These costs shall include a reasonable return on construction and other capital expenditures and reasonable operating expenses for any plant, equipment, property, facility, or other action to be used to comply with applicable environmental requirements set forth in this section. Operating expenses include all costs of operating and maintaining environmental facilities, income taxes, property taxes, other applicable taxes and depreciation expenses as these expenses relate to compliance with the environmental requirements set forth in this section.* (Emphasis added).

The highlighted section identifies the categories of cost that a utility can recover on this type of project. Utility projects typically involve capital construction costs that are expended at different times during a project and costs in subsequent years that are required to implement and maintain the facility after the different capital construction phases (e.g., annual operating and maintenance costs).

The Present Value of the Revenue Requirement (PVRR) is used to convert the ratepayer revenue required to repay all of the cost highlighted in KRS § 278.183(1) over a project's life into a common basis in current-year dollars that will be charged to Kentucky ratepayers to cover all of the costs of having to build and operate a facility. The PVRR is a function of the amount of money that will be spent on an alternative, and the timing of the expenditure.

However, the SAA improperly ignores a cost specifically identified in KRS § 273.183(1), and fails to use a present value calculation to compare alternatives with different cash flow requirements.⁴ The effect is a substantially flawed calculation of the actual cost of each alternative.

Attached as Exhibit A is a comparison of two alternatives for a hypothetical 22 year project. Alternative 1 has an upfront capital cost of \$10,000,000, an initial annual O&M cost of \$5,000,000 (with an assumed 2.5% annual inflation), a \$13,750,000 capital cost in year 10, and a capital cost to close the project in year 22 of \$60,000,000. Alternative 2 has an upfront capital cost of \$90,000,000, an initial annual O&M cost of \$2,500,000 (with an assumed 2.5% annual inflation), a \$10,000,000 capital cost in year 10, and a capital cost to close the project in year 22 of \$10,000,000. Based on the above, the total of the annual cash flows for Alternative 1 is \$218,064,280, which is \$35,907,140 higher than the total of the annual cash flows of Alternative 2 of \$182,157,140.

The SAA adopts a cost comparison method that only looks at the sum of all costs over the life of the project, and completely ignores the timing of those expenditures. Under this method of comparing alternative projects, Alternative 2 is the least cost alternative in the above example. This is clearly an incorrect method of analyzing the comparative cost of the projects as it fails to acknowledge the economic effect of the timing of the annual costs. Based on an assumed discount rate of 7.81%, Alternative 1 is actually \$35,945,404 *less* expensive than Alternative 2, when taking into account the timing of project cost expenditures.

⁴ See SAA, Appendix III.D-1 – Methods of Assessment of Cost; third and fourth bullet paragraphs at 2-3, attached as an Exhibit to Sterling's May 20, 2015 Complaint to the Commission.

In addition, the Companies failed to consider a critical cost component of KRS § 273.183(1) – the “cost [of a] reasonable return on the construction and other capital expenditures.” This return on capital cost is determined by the Commission, and, based on prior certificates of public convenience and necessity granted to the Companies for construction projects, would be approximately 10%. The USEPA and Corps’ *Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the Section 404(b)(1) Guidelines Alternatives Requirements*, at 3(b) states: “The determination of what constitutes an unreasonable expense should generally consider whether the projected cost is substantially greater than *the costs normally associated with the particular type of project* (Emphasis added).”

KRS § 278.183(1) specifically identifies the cost of capital as a cost to be considered when evaluating projects by a regulated utility. The cost of capital is therefore, by specific definition of the Kentucky statute, a “cost normally associated with this type of project.” The Companies’ decision to exclude the cost of capital in the consideration of the overall Trimble Landfill project cost in the SAA is improper.

An example of how all of the above fits together is the PVRR analysis KU did for the new Ghent Generating Station Landfill. Attached as Exhibit B is the summary of the specific projected capital and O&M cost for the Ghent Landfill through 2018 that the Companies filed with the Commission as part of KU’s original 2009 Application for the CPCN. Exhibit C attached is the calculation of the projected total annual cost of the Ghent Landfill through 2018 based upon the specific capital and O&M cost detailed in Exhibit B.

The first section of Exhibit C is the calculation of the annual cost of obtaining the capital required to build the Ghent Landfill. The second section is the O&M cost, plus depreciation. The two combined is the overall project cost by year that KU must recover from the ratepayers for each year of the Ghent Landfill’s life (the “Total (E)m”).

Specifically with respect to Exhibit C, the calculation of the cost of capital for the project starts with the total cumulative project construction cost by year – the row titled “Eligible Plant” (in this case \$203.9 million by year 2017). The next step is to reduce the total Eligible Plant by accumulated depreciation. Depreciation is the actual construction cost spread over the landfill’s useful life, and taken into account for cost purposes in the next section. The third step is to reduce the total Eligible Plant further by the accumulated Deferred Tax Balance.⁵ The net amount (Eligible Plant less depreciation less deferred tax balance) is referred to as the “Environmental Surcharge Rate Base” or “E(m) Rate Base.” The E(m) Rate Base is then multiplied by the allowed “rate of return” (in this case 10.97% - set by the Commission) which determines the allowed annual cost of the capital required to build the landfill.

⁵ This step is designed to account for the excess cash the Company projects that it will generate through bonus tax depreciation. That additional cash temporarily reduces the amount of cash required to build the landfill, and therefore reduces the cost of obtaining the required capital.

The second section of Exhibit C is the calculation of the annual O&M cost for the Ghent Landfill, plus depreciation. KU increased the O&M cost each year based on an assumed inflation rate.⁶

Therefore, according to KU's projection, the overall total cost of the Ghent Landfill (the "Total E(m)") in 2013 would be \$44,705,239 – the sum of (i) the cost of the capital required to build the facility (\$20,543,486), and (ii) the O&M cost, plus depreciation (\$24,380,117). The PVRR would be the present value of each year's Total E(m) cost over the life of the project calculated using a discount rate of 7.81%⁷.

The above PVRR economic cost analysis KU used to establish the total annual cost of the Ghent Landfill project over its entire useful life is the proper method of comparing cost of CCR disposal alternatives that the Companies should have included in the Trimble Landfill SAA. Based upon the method of comparing the cost of project alternatives used in the SAA, if the Companies were presenting a 404(b)(1) Alternatives Analysis for the Ghent Landfill to the Corps, they would have provided the Corp only a limited portion of the capital and O&M cost detailed in Exhibit B, and omitted completely the PVRR analysis information that was provided to the Commission in Exhibit C.

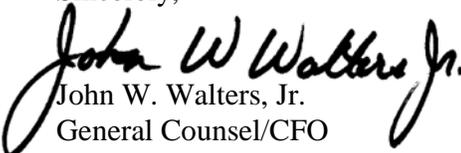
The simple fact is that the Companies cannot build the Trimble Landfill without first obtaining a CPCN from the Commission, which requires analyzing the cost of the alternative disposal options based on each option's PVRR. Although the standards for analyzing a lesser cost alternative may be more stringent under 40 C.F.R. § 230.10, from a purely economic cost standpoint it is inexplicable why the SAA does not use the same overall project cost comparison method as is used to obtain a CPCN from the Commission.

For the reasons above, Sterling respectfully maintains that the Corps should find that the Trimble Landfill is not the least environmentally damaging practicable alternative and therefore, pursuant to 40 C.F.R. § 230.10(a), the project is ineligible for a 404 Permit. In the alternative, the Companies' CWA 404(b) Alternatives Analysis has utilized an improper method of comparing overall project cost of considered alternatives, and should therefore be rejected.

Should you have any questions concerning any of the above or regarding any of the information or Exhibits in Sterling's Complaint filed with the Commission, please do not hesitate to call.

Thank you for your consideration.

Sincerely,


John W. Walters, Jr.
General Counsel/CFO

enclosures

⁶ In this case 6%- See PVRR calculation assumptions on page 22 of the Ghent Plan, attached as Exhibit A to Sterling's May 20, 2015 Complaint to the Commission.

⁷ *Id.*

EXHIBIT A

Alternative 1		2.5%		
Capital Cost	O&M Cost	Total Cost	Date	
\$ 10,000,000	\$ 5,000,000	\$ 15,000,000	12/31/2015	
	\$ 5,125,000	\$ 5,125,000	12/31/2016	
	\$ 5,253,125	\$ 5,253,125	12/31/2017	
	\$ 5,384,453	\$ 5,384,453	12/31/2018	
	\$ 5,519,064	\$ 5,519,064	12/31/2019	
	\$ 5,657,041	\$ 5,657,041	12/30/2020	
	\$ 5,798,467	\$ 5,798,467	12/30/2021	
	\$ 5,943,429	\$ 5,943,429	12/30/2022	
	\$ 6,092,014	\$ 6,092,014	12/30/2023	
	\$ 6,244,315	\$ 6,244,315	12/29/2024	
\$ 13,750,000	\$ 6,400,423	\$ 20,150,423	12/29/2025	
	\$ 6,560,433	\$ 6,560,433	12/29/2026	
	\$ 6,724,444	\$ 6,724,444	12/29/2027	
	\$ 6,892,555	\$ 6,892,555	12/28/2028	
	\$ 7,064,869	\$ 7,064,869	12/28/2029	
	\$ 7,241,491	\$ 7,241,491	12/28/2030	
	\$ 7,422,528	\$ 7,422,528	12/28/2031	
	\$ 7,608,091	\$ 7,608,091	12/27/2032	
	\$ 7,798,294	\$ 7,798,294	12/27/2033	
	\$ 7,993,251	\$ 7,993,251	12/27/2034	
	\$ 8,193,082	\$ 8,193,082	12/27/2035	
\$ 50,000,000	\$ 8,397,909	\$ 58,397,909	12/26/2036	PVRR
\$ 73,750,000	\$ 144,314,280	\$218,064,280	7.81%	\$ 94,872,076
Total Cost Difference		\$ 35,907,140		
Alternative 1 PVRR Cost Savings				\$ (35,945,404)

Alternative 2		2.5%		
Capital Cost	O&M Cost	Total Cost	Date	
\$ 90,000,000	\$ 2,500,000	\$ 92,500,000	12/31/2015	
	\$ 2,562,500	\$ 2,562,500	12/31/2016	
	\$ 2,626,563	\$ 2,626,563	12/31/2017	
	\$ 2,692,227	\$ 2,692,227	12/31/2018	
	\$ 2,759,532	\$ 2,759,532	12/31/2019	
	\$ 2,828,521	\$ 2,828,521	12/30/2020	
	\$ 2,899,234	\$ 2,899,234	12/30/2021	
	\$ 2,971,714	\$ 2,971,714	12/30/2022	
	\$ 3,046,007	\$ 3,046,007	12/30/2023	
	\$ 3,122,157	\$ 3,122,157	12/29/2024	
\$ 10,000,000	\$ 3,200,211	\$ 13,200,211	12/29/2025	
	\$ 3,280,217	\$ 3,280,217	12/29/2026	
	\$ 3,362,222	\$ 3,362,222	12/29/2027	
	\$ 3,446,278	\$ 3,446,278	12/28/2028	
	\$ 3,532,435	\$ 3,532,435	12/28/2029	
	\$ 3,620,745	\$ 3,620,745	12/28/2030	
	\$ 3,711,264	\$ 3,711,264	12/28/2031	
	\$ 3,804,046	\$ 3,804,046	12/27/2032	
	\$ 3,899,147	\$ 3,899,147	12/27/2033	
	\$ 3,996,625	\$ 3,996,625	12/27/2034	
	\$ 4,096,541	\$ 4,096,541	12/27/2035	
\$ 10,000,000	\$ 4,198,955	\$ 14,198,955	12/26/2036	PVRR
\$ 110,000,000	\$ 72,157,140	\$182,157,140	7.81%	\$ 130,817,480

Assumptions

Inflation on O&M	2.50%
Discount Rate	7.81%

EXHIBIT B

GHENT LANDFILL (PHASE I)

Capital Expenditures (\$ million)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Property Acquisition											
Disposal Site(s)	-	-	4.66	-	-	-	-	-	-	-	4.66
Overhead Electric Line(s)	-	-	0.03	-	-	-	-	-	-	-	0.03
Buffer Zones	-	-	-	-	2.37	-	-	-	-	-	2.37
Higher End House Acquisition											
Engineering, Permits and Fees, and Construction Documents	0.46	2.00	-	-	-	-	-	-	-	-	1.40
Stream and Wetland Mitigation	-	-	4.14	-	-	-	-	-	-	-	4.14
Ground Water Monitoring System	-	0.27	-	-	-	-	-	-	-	-	0.27
Transmission Line Relocation Design, Engineering, and Construction	-	-	-	-	0.82	-	-	-	-	-	0.82
CCWD Relocation	-	-	0.12	-	-	-	-	-	-	-	0.12
Pump House Fly Ash and Bottom Ash Segregation	-	0.72	-	-	-	-	-	-	-	-	0.72
Dry Ash/Pyrites Handling System - Conveyor	-	-	16.29	27.08	38.93	-	-	-	-	-	82.31
Dry Gypsum Handling System	-	-	7.79	15.96	13.05	-	-	-	-	-	36.80
Gypsum Fines Project	-	0.74	6.30	6.30	-	-	-	-	-	-	13.34
Initial Site Preparation											
Clearing, Grubbing, and Site Preparation	-	-	-	0.62	0.65	0.69	-	-	-	-	1.96
Stripping and Stockpiling Soil	-	-	-	0.50	0.53	0.56	-	-	-	-	1.58
Hauling Topsoil - Phase 1 - 1.0 Mile Round Trip	-	-	-	0.19	0.20	0.21	-	-	-	-	0.59
Erosion and Sedimentation Controls	-	-	-	0.06	0.06	0.06	-	-	-	-	0.18
Sedimentation Pond	-	-	-	0.33	-	-	-	-	-	-	0.33
Collection Channels (Fabriform)	-	-	-	0.36	0.38	0.40	-	-	-	-	1.15
Diversion Channels (Riprap)	-	-	-	0.11	0.12	0.12	-	-	-	-	0.35
Liner Subgrade Preparation											
Scraping and Hauling - 0.25 Mile Round Trip	-	-	-	0.32	0.33	0.35	-	-	-	-	1.01
Excavating	-	-	-	0.15	0.16	0.17	-	-	-	-	0.49
Hauling Subgrade - Phase 1 - 1.0 Mile Round Trip	-	-	-	0.31	0.33	0.35	-	-	-	-	0.99
Spreading and Compacting Subgrade	-	-	-	0.49	0.52	0.55	-	-	-	-	1.57
Subgrade QA/QC	-	-	-	0.24	0.25	0.27	-	-	-	-	0.76
Gypsum Dewatering Facility Earthwork											
Excavating	-	-	-	0.73	-	-	-	-	-	-	0.73
Hauling Earth - 1.0 Mile Round Trip	-	-	-	1.53	-	-	-	-	-	-	1.53
Spreading and Compacting	-	-	-	1.21	-	-	-	-	-	-	1.21
Earthwork QA/QC	-	-	-	0.24	-	-	-	-	-	-	0.24

EXHIBIT B

GHENT LANDFILL (PHASE I)

Capital Expenditures (\$ million)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
Haul Roads											
CCP Disposal On-Landfill Haul Road (60 Feet Wide)	-	-	-	-	0.61	0.05	0.05	0.05	0.05	0.06	0.87
CCP Disposal Off-Landfill Haul Road (60 Feet Wide)	-	-	-	0.30	1.03	-	-	-	-	-	1.33
Liner											
Landfill - Single Liner System	-	-	-	-	7.00	7.43	7.87	-	-	-	22.30
Liner System QA/QC	-	-	-	-	1.23	1.30	1.38	-	-	-	3.90
Leachate Collector Line	-	-	-	-	0.19	0.20	0.21	-	-	-	0.60
On-Landfill Leachate Trunk Line	-	-	-	-	0.08	0.08	0.09	-	-	-	0.25
Off-Landfill Leachate Trunk Line	-	-	-	-	0.07	-	-	-	-	-	0.07
Leachate Storage Pond	-	-	-	-	0.29	-	-	-	-	-	0.29
Leachate Pump House	-	-	-	-	0.09	-	-	-	-	-	0.09
Leachate Pipe Line	-	-	-	-	0.08	-	-	-	-	-	0.08
Underdrains - Trunk	-	-	-	-	0.17	0.18	0.19	-	-	-	0.54
Underdrains - Collector	-	-	-	-	0.11	0.12	0.12	-	-	-	0.35
Cap											
Intermediate Soil Cover	-	-	-	-	-	-	0.28	0.30	0.32	0.34	1.24
Cap System	-	-	-	-	-	-	0.22	0.23	0.25	0.26	0.96
Cap System QA/QC	-	-	-	-	-	-	0.03	0.03	0.03	0.03	0.12
Total	0.46	3.72	40.73	57.01	69.65	13.10	10.44	0.62	0.65	0.69	197.07
E.ON-US Overheads	0.02	0.13	1.43	2.00	2.44	0.46	0.37	0.02	0.02	0.02	6.90
Total with Overheads	0.47	3.85	42.16	59.01	72.09	13.56	10.81	0.64	0.68	0.72	203.97

EXHIBIT B

GHENT LANDFILL (PHASE I)

Operating & Maintenance Costs (\$)	2010	2011	2012	2013	2014	2015	2016	2017
Ground Water Sampling and Testing	14,045	14,888	15,781	16,728	17,731	18,795	19,923	21,118
Leachate Management	-	-	-	83,639	88,657	93,977	99,616	105,592
Surveying (As-builts)	16,292	17,270	-18,306	19,404	20,569	21,803	23,111	24,497
Pump House Fly Ash and Bottom Ash Segregation	75,843	80,394	85,217	-	-	-	-	-
Dry Ash/Pyrites Handling System - Conveyor	-	-	-	2,161,234	2,290,908	2,428,363	2,574,065	2,728,509
Dry Gypsum Handling System	-	-	-	682,495	723,445	766,851	812,863	861,634
Leachate Pump House	15,169	16,079	17,043	18,066	19,150	20,299	21,517	22,808
Hauling Fly Ash and Bottom Ash to Landfill								
Loading	-	-	-	1,338,226	1,418,519	1,503,630	1,593,848	1,689,479
Phase 1 - 2.25 Mile Round Trip	-	-	-	2,822,723	2,992,087	3,171,612	3,361,909	3,563,623
Hauling Gypsum to Landfill								
Loading	-	-	-	1,746,384	1,851,167	1,962,237	2,079,972	2,204,770
Phase 1 - 2.25 Mile Round Trip	-	-	-	3,997,156	4,236,986	4,491,205	4,760,677	5,046,318
Landfilling Fly Ash and Bottom Ash	-	-	-	2,408,806	2,553,334	2,706,534	2,868,927	3,041,062
Landfilling Gypsum	-	-	-	3,143,492	3,332,101	3,532,027	3,743,949	3,968,586
Ash/Gypsum Placement QA/QC	-	-	-	54,198	57,450	60,897	64,551	68,424
Maintenance								
Landfills	-	-	-	301,101	319,167	338,317	358,616	380,133
Haul Roads	-	-	-	53,529	56,741	60,145	63,754	67,579
Dust Control	-	-	-	156,126	165,494	175,424	185,949	197,106
TOTAL	121,349	128,630	136,348	19,003,308	20,143,507	21,352,117	22,633,244	23,991,239

Exhibit C

Revenue Requirements Summary 2009 Amended Plan - KU

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Project 30										
Ghent Landfill - Phase I										
Revenue Requirement										
Eligible Plant	4,321,671	46,478,848	105,485,803	177,577,356	191,133,918	201,941,953	202,578,976	203,254,220	203,969,979	203,969,979
Less: Retired Plant	-	-	-	-	-	-	-	-	-	-
Less: Accumulated Depreciation	-	-	-	-	(5,110,443)	(10,744,624)	(16,396,577)	(22,067,370)	(27,758,132)	(33,448,895)
Plus: Accumulated Depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
Less: Deferred Tax Balance	-	-	-	-	(732,114)	(3,915,287)	(6,717,731)	(9,167,825)	(11,289,716)	(13,100,909)
Plus: Deferred Tax Balance on retired plant	-	-	-	-	-	-	-	-	-	-
Environmental Compliance Rate Base	4,321,671	46,478,848	105,485,803	177,577,356	185,291,361	187,282,042	179,464,668	172,019,025	164,922,131	157,420,175
Rate of return	11.12%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%	10.97%
	\$ 480,509	\$ 5,098,393	\$ 11,571,030	\$ 19,478,952	\$ 20,325,122	\$ 20,543,486	\$ 19,685,976	\$ 18,869,243	\$ 18,090,765	\$ 17,267,855
Operating expenses	84,800	121,349	128,630	136,348	19,003,308	20,143,507	21,352,117	22,633,244	23,991,239	25,430,713
Annual Depreciation expense	-	-	-	-	5,110,443	5,634,180	5,651,953	5,670,793	5,690,762	5,690,762
Less depreciation on retired plant	-	-	-	-	-	-	-	-	-	-
Annual Property Tax expense	-	6,483	69,718	158,229	266,366	279,035	286,796	279,274	271,780	264,318
Total OE	\$ 84,800	\$ 127,832	\$ 198,348	\$ 294,577	\$ 24,380,117	\$ 26,056,723	\$ 27,290,866	\$ 28,583,310	\$ 29,953,782	\$ 31,385,793
Total E(m)	565,309	5,226,225	11,769,378	19,773,528	44,705,239	46,600,208	46,976,843	47,452,553	48,044,547	48,653,648

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 19

Responding Witness: John Walters

- Q-19. Provide copies of all offers and/or proposals made to the Companies for CCR disposal or beneficial use at Sterling's mines.
- A-19. Objection. The response to this question would require Sterling to provide information that has already been provided, as is readily available to, to the Companies. As such, the response would not provide any new, relevant evidence.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 20

Responding Witness: John Walters

- Q-20. Provide copies of all offers and/or proposals to any entity for CCR disposal or beneficial use at Sterling's mines from 2006-2015.
- A-20. There are no offers or proposals other than to Kentucky Utilities for Ghent gypsum, and the current offer for Trimble County.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 21

Responding Witness: John Walters

Q-21. Provide the current amount of capacity at Sterling's mines for the disposal or beneficial use of CCR, the disposal or beneficial use capacity for each year from 2011 to 2014, and the expected disposal or beneficial use capacity for each year from 2015 to 2055. Provide all workpapers and support for the capacity numbers provided, including annual sales figures from 2006 to 2014, as well as 2015 sales to date.

A-21. See attached.

Period	1,281,031.99 Sales Tons	1,297,875.00 Production Tons	Est Cubic Yds	Tons per Cu Yd: Usability Factor	2.093 Usable Cubic Yds	Annual CCRs Generated:	637,000 Net Space Avail	Years of CCR
99-'14	20,496,512	20,766,000	9,921,644		7,855,112			
15-'55	52,521,000	52,521,000	25,093,645		22,584,281			
Totals:	73,017,512	73,287,000	35,015,289		30,439,393			
1999	525,511	508,937	243,161	0.50	121,581		121,581	
2000	1,056,267	922,627	440,816	0.50	220,408	-	341,989	
2001	1,629,529	1,426,453	681,535	0.75	511,151	-	853,140	
2002	1,252,542	1,201,988	574,290	0.75	430,717	-	1,283,857	
2003	1,504,008	1,453,082	694,258	0.80	555,406	-	1,839,263	
2004	1,514,460	1,541,249	736,383	0.80	589,106	-	2,428,370	
2005	1,645,787	1,738,039	830,406	0.85	705,845	-	3,134,214	
2006	1,536,865	1,545,447	738,388	0.85	627,630	-	3,761,845	
2007	1,337,847	1,518,386	725,459	0.90	652,913	-	4,414,758	
2008	1,584,167	1,706,031	815,113	0.75	611,335	-	5,026,092	
2009	1,295,416	1,310,855	626,304	0.75	469,728	-	5,495,821	
2010	1,023,883	1,112,560	531,562	0.80	425,250	-	5,921,070	
2011	1,451,671	1,454,174	694,780	0.80	555,824	-	6,476,894	
2012	933,726	978,380	467,453	0.85	397,335	-	6,874,230	
2013	1,141,262	1,200,504	573,581	0.85	487,543	-	7,361,773	
2014	1,063,571	1,147,288	548,155	0.90	493,339	-	7,855,112	
2015	1,281,000	1,281,000	612,040	0.90	550,836	-	8,405,949	
2016	1,281,000	1,281,000	612,040	0.90	550,836	-	8,956,785	
2017	1,281,000	1,281,000	612,040	0.90	550,836	-	9,507,621	
2018	1,281,000	1,281,000	612,040	0.90	550,836	637,000	9,421,457	1
2019	1,281,000	1,281,000	612,040	0.90	550,836	637,000	9,335,293	2
2020	1,281,000	1,281,000	612,040	0.90	550,836	637,000	9,249,129	3
2021	1,281,000	1,281,000	612,040	0.90	550,836	637,000	9,162,965	4
2022	1,281,000	1,281,000	612,040	0.90	550,836	637,000	9,076,801	5
2023	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,990,638	6
2024	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,904,474	7
2025	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,818,310	8
2026	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,732,146	9
2027	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,645,982	10
2028	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,559,818	11
2029	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,473,654	12
2030	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,387,490	13
2031	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,301,326	14
2032	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,215,163	15
2033	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,128,999	16
2034	1,281,000	1,281,000	612,040	0.90	550,836	637,000	8,042,835	17
2035	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,956,671	18
2036	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,870,507	19
2037	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,784,343	20
2038	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,698,179	21
2039	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,612,015	22
2040	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,525,852	23
2041	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,439,688	24
2042	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,353,524	25
2043	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,267,360	26
2044	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,181,196	27
2045	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,095,032	28
2046	1,281,000	1,281,000	612,040	0.90	550,836	637,000	7,008,868	29
2047	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,922,704	30
2048	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,836,541	31
2049	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,750,377	32
2050	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,664,213	33
2051	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,578,049	34
2052	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,491,885	35
2053	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,405,721	36
2054	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,319,557	37
2055	1,281,000	1,281,000	612,040	0.90	550,836	637,000	6,233,393	38

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 22

Responding Witness: John Walters

- Q-22. Please provide the contract terms for each and every contract for limestone sales that demonstrates the Sterling mine will have adequate available capacity for 37 years of disposal or beneficial use of CCR generated at Ghent and Trimble County Stations.
- A-22. Sterling does not enter into contracts for aggregate limestone sales. Sterling does have a contract to supply Mississippi Lime Company its requirements for high calcium limestone for a lime kiln located on Sterling's property.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 23

Responding Witness: John Walters

Q-23. Provide copies of all contracts in place between Sterling and any entity for the disposal or beneficial use of CCR or other waste products at Sterling's mines.

A-23. None.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 24

Responding Witness: John Walters

Q-24. Please provide a list of any and all sources of CCR that have been placed on property managed by Sterling Ventures including the limestone mine suggested for utilization of CCR materials from Ghent or Trimble County stations.

A-24. None.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 25

Responding Witness: John Walters

- Q-25. Identify the personnel and expertise in place at Sterling that enables Sterling to store CCR in accordance with all applicable regulations in the amounts produced by the Companies, including but not limited to MSHA, the Office of Surface Mining, and other mining regulatory authority standards. For each individual possessing such expertise, provide in detail their educational and vocational experience supporting that claimed expertise.
- A-25. Attached is information the Companies provided to the Kentucky Division of Waste Management, Solid Waste Branch, detailing equipment that is necessary to operate the movement of materials to and in the proposed Trimble Landfill (“Attachment 13”). Sterling is in the business of moving bulk materials by conveyor, heavy equipment and trucks. Other than concrete trucks and Tree Clearing Shears and mulching equipment (which are unnecessary as Sterling will not be stripping acres of vegetation to place material in the mine), Sterling’s management and employees have extensive experience using the same bulk material handling equipment the Companies provided in Attachment 13. Also attached are resumes of key personnel who would oversee placement of CCR materials in the mine.

ATTACHMENT 13

Equipment to Construct, Operate, and Maintain Special Waste Landfill Trimble County Generating Station Landfill

The following equipment is expected to be used to construct, operate, and maintain the Special Waste Landfill Facility.

- Backhoes;
- Dozers;
- Scrapers;
- Excavators;
- Off-Road Haul Trucks;
- Fixed Body and Articulated Dump Trucks;
- Dump Trucks;
- Passenger Vehicles (Such As Pickup Trucks);
- Hoe Rams;
- Front End Loaders;
- Rollers and Compactors;
- Water Trucks;
- Concrete Trucks;
- Motor Graders;
- Skid Steer Loaders;
- Telehandler Loaders;
- Fuel and Maintenance Trucks;
- Tree Clearing Shears and Mulching Equipment;
- Low-Boy Tractor/Trailer;
- General Handtools; and
- Mower.

1. Compliance Training

- MSHA Part 48 Approved Instructor
- MSHA Part 46 Competent Instructor
- OSHA Construction Outreach Instructor (10 and 30 hour)
- Crane Institute Mobile Crane Inspector
- Crane Institute Rigging Inspector
- LG&E Energy Passport Contractor Train-the-Trainer
- American Heart Association Adult/Child First Aid
- American Heart Association Adult/Child/Infant CPR
- American Heart Association Environmental Emergencies

2. Supplied Training MSHA CFR 30

- First Aid – American Heart Association
- Bloodborne Pathogens – American Heart Association
- Hazard Communication – CFR 30 Part 47
- Personal Protection – CFR 30 Subpart N
- Electrical Hazards – CFR 30 Subpart K
- Fire Prevention and Control – CFR 30 Subpart C
- Lock-out Tag-out – CFR 30 56.12016/17
- Respirators CFR 30 56.5001
- Ground Control – CFR 30 Subpart B
- Berms – CFR 30 56.9300
- Occupational Noise Exposure – CFR 30 Part 62
- Hearing Conservation Program - CFR 30 62.150
- Mobile Equipment Safety and Examinations CFR 30 56.14100
- Equipment Guarding CFR 30 56.14112
- Work Place Safety and Examinations CFR 30 56.18002
- Welding / Cutting / Compressed Gases – CFR 30 56.4600-.4603

Supplied Training OSHA CFR 29 1926

- First Aid – American Heart Association
- Bloodborne Pathogens – American Heart Association
- Hazard Communication – CFR 29
- Personal Protection – CFR 29
- Electrical Hazards – CFR 29
- Fire Prevention and Control – CFR 29
- Lock-out Tag-out – CFR 29
- Respirators CFR 29
- Berms – CFR 29
- Occupational Noise Exposure – CFR 29
- Mobile Equipment Safety and Examinations CFR 29
- Equipment Guarding CFR 29
- Welding / Cutting / Compressed Gases – CFR 29
- Scaffolding

Steve Evans

1010 Happy Top Road • Clay City, KY • 40312

Mobile: 859.707.5952 • Home: 606.663.0203 • g.steve.evans@gmail.com

Senior Operations Executive

Trustworthy professional with broad-based experience in manufacturing and not-for-profit organizations

Proven ability to organize and lead cross functional teams to create successful outcomes

High-integrity leader known for developing performance based teams, effective interdepartmental communication and customer responsiveness. Effective in fast paced manufacturing environments requiring quick problem solving to protect business and customer interests. *Areas of Strength include:*

- Integrity
- Departmental Organization
- Process Improvement
- Designing Business Programs & Processes
- Developing & Leading Teams
- Vendor & Customer Relationship Building
- Employee Development

Experience

Sterling Ventures, LLC

(A privately-held company with diverse business units)

Vice President – Human Resources (2009 – Present)

Provide strategic planning to the CEO in the areas of human resources, Health, Safety & Environmental, regulatory compliance, new business development and operations.

- Developed and successfully implemented a plan to manage HR functions, improve data visibility, plan HR expenses effectively and reduce administrative costs by eliminating manual and automated payroll and human resources systems of diverse multi-state business units and implementing a single human resource information system managed from one location for all business units.
- Implemented biometric time systems resulting in lower administrative costs, improved employee and supervisor accountability in attendance performance and enhancements labor tracking.
- Improved recruiting performance in a competitive labor market and employee moral through enhancements to and brooding of benefits package.

Prime Finish, LLC

(A privately-held company utilizing robotic paint application, pad printing and 3-D Hydrographic printing in decorative manufacturing)

Vice President – Production (2005 – 2009)

Report to the President Key Performance Indicators related to production operations to include the support functions of Engineering, Facilities, Purchasing, Shipping & Receiving and Human Resources.

- Implemented KANBAN and other inventory control systems resulting in an 80% reduction in inventory.
- Managed 95 production and support employees over three shifts with seven production lines producing a wide variety of products with combined revenue of \$6M.

- Key team member for aggressive twelve month ISO/TS19649 and ISO 9001 certification launch in 2005 and recertification in 2008 and implementation of a new ERP system.
- Coordinated installation of two robotic paint application lines valued at \$3 Million utilizing internal and external engineering personnel, domestic and international vendors and consultants.
- Completed five year Conditional Major Air Permit renewal application through Kentucky DAQ. Navigated several DAQ surprise inspections without issuance of a single NOV during nine years of operation.
- Made permit application for three paint line installations.
- Launched thirteen automotive, numerous consumer electronic, medical and automotive aftermarket programs.
- Through continuous process improvement, Kaizen, Taguchi Trials, Fishbone and Microscopic Defect Analysis improved plant wide yields from 82% to 88% resulting in an \$80K reduction in scrap over a six month period covering four programs.
- Provided all labor and tooling inputs to the quoting system for all Request-For-Quotations.
- Through labor and process improvements reduced one program from a two shift operation to a one shift operation resulting in 400 hours per week labor reduction.
- Increased revenue dollars to labor dollars 30% through pricing adjustments, improved yields and more efficient use of labor through scheduling improvements and reduced changeovers.
- Managed \$5M budget for all production, facilities, and administrative related functions.

Human Resource Director (2003 – 2005)

Report to the President in directing HR policies and programs to include company staffing, compensation, benefits, employee relations, training, and health and safety programs to achieve the cooperate vision of a high quality, low cost, profitable product.

- Developed and implemented a wage reduction plan that resulted in an 18% reduction in average hourly wages over a three year period without the loss of employee morale.
- Maintained a rich benefit plan and contained escalating healthcare premiums below national average increases by nurturing broker relationships, annual competitive quoting, adjusting employee contributions and increasing employee awareness related to over utilization of benefits.
- Provide inputs in the development of strategic business plan.
- Minimized the cost of unemployment claims through well managed terminations and favorable rulings following unemployment hearings through effective presentation of company position.
- Created employment policies and procedures covering recruitment, hiring and termination.
- Insured implementation of and compliance to all state and federal employment regulations.

Human Resource Manager (2001 – 2003)

Managed HR efforts and staffs to ensure all requests and HR issues were resolved in a timely manner.

- Administered benefits, enrollments, qualifying events, FMLA and COBRA.
- Interfaced with insurance brokers and agents.
- Oversaw the equitable implementation of company discipline procedures.
- Create, maintain, audit and archive employee files, insurance files and training files.

Health, Safety, Environmental Program Manager (2000 – 2001)

Created and implemented a comprehensive Health, Safety and Environmental Program.

- Negotiated with the DAQ to a successful conclusion a point of contention regarding a permit application as either a Minor or Significant Revision. This resolution prevented the idling of a \$500K robotic paint application booth, the potential loss of \$750K annual revenue and damage of company reputation with a key customer.

Production Technician 1999-2000

Responsible for writing Standard Operating Procedures and Quality Assurance Instructions and for training.

Baptist Church

(A not-for-profit Christian organization established for the communication of the Gospel, the support of missionary ministries and community service.)

Pastor 1996-Present

ITT Aerospace/Communications Division

(A major supplier of sophisticated military defense systems and advanced technical and operational services to a broad range of government agencies)

Test Analyst 1990 - 1992

Supported the Test Operations Manager with proposal development and administration of project budget measurement and control.

- Developed innovative structures using spreadsheets which simplified and improved management's understanding of estimates.
- Constructed proposals valued from \$3 million to \$45 million.
- Justified \$300,000 in new capital vibration equipment expenditures resulting in a 75% increase in reliability testing.
- Restructured the project performance reporting system. This resulted in a reduction of material and process labor while enhancing the project's visibility to management.
- Prepared bids for the Production Test Department with inputs from Test Engineering, to be compatible with other systems, i.e. Program Cost-To-Complete, Program Cost-At-Complete, Earned Hours Reporting, and Labor.
- Rendered inputs to the Cost Performance System for six projects in simultaneous production valued over \$160M.
- Generated Level-of-Effort budgets for labor, travel, and subcontractor labor.
- Provided the initial Program Baseline Budget for new projects after contract negotiations and award.
- Budgeted all direct labor hours and direct labor dollars for all projects.
- Generated five year forecasts based on actual projects and marketing projections.
- Compiled Work Package Budgets with time-phased distribution of labor hours, materials and/or other direct costs for all program tasks.

Sr. Test Engineering Technician 1988-1990

- Responsible for systems diagnostics, technical support, fault analysis, performance and environmental testing.
- Unit cycle time was reduced from seven days per unit to three days per unit.

Electronic Technician 1988-1989

Conducted diagnostic fault analysis, repair, and modification of electronic equipment.

EDUCATION/CAREER DEVELOPMENT

SPHR Certification – Human Resource Certification Institute, 2006

SHRM-SCP – Society for Human Resource Management, 2015

Masters of Divinity

Southeastern Baptist Theological Seminary - Wake Forest, N. Carolina

Major: Christian Education with Languages

Bachelor of Arts

Barry University – Miami, Florida

Major: Professional Studies (Business)

Associate of Science

Brevard Community College - Cocoa, Florida

Major: Digital Electronics

Certificate in Principles of Safety – National Safety Council, 2003

Society for Human Resource Management – Current Member

MASON FLINCHUM

1001 Winding Circle, Lexington, Kentucky 40517 | H: 859-271-3211 | C: 859-382-0494 | masoninlex@aol.com

MANAGEMENT PROFILE

Skilled Operations Manager talented at improving team performance through innovative management techniques. Offers thoughtful, comprehensive and constructive feedback to staff members to promote productivity and company loyalty.

PROFESSIONAL HIGHLIGHTS

- MSHA Certified Instructor surface and underground
- Certified KY State Blaster
- President Holmes Safety Bluegrass KY Chapter
- Team building
- Staff retention
- Relationship building
- Troubleshooting and problem solving
- Lean manufacturing and design
- Cost reduction and containment
- Process improvement strategies
- Strategic planning
- Multi-unit operations management
- Dedicated
- Procedure development

ACCOMPLISHMENTS

Spearheaded an employee engagement safety program, (Behavior Based Safety) resulting in a decrease in accidents and near misses. Reduced employee turnover by 75%. Streamlined the mine operations, resulting in a reduction in operating costs. Reduced inventory adjustments from flyover review each year. Raised plant margin and cash margin yearly. Reduced total cost of sales.

EXPERIENCE

07/2006 to 10/2013

Plant Manager, Central Quarry and Georgetown Road Vulcan Materials Company - Lexington, KY

Managed all aspects of a 3 level underground crushed limestone quarry. Annual production at this facility over 1.2 million tons per year. 26 hourly reports and 2 salary reports. Oversaw the idle surface quarry (Georgetown Road).

09/1999 to 07/2006

Plant Manager, Richmond Road Quarry Vulcan Materials Company - Lexington, KY

Managed all aspects of a 2 level underground limestone quarry. 22 hourly reports and 1 salary report. Annual production at this facility 800,000 tons per year.

01/1996 to 09/1999

Plant Foreman, Princeton Quarry Hanson Aggregates - Princeton, NC

Oversaw daily production of a surface granite quarry. 24 hourly reports. Annual production at this facility 2 million tons per year.

03/1986 to 01/1996

Hourly Union Employee, Teamsters Local Union #7156 American Aggregates - Indianapolis, IN

Excelled in a wide variety of positions. Surface, underground limestone mining as well as the extraction of sand and gravel via dragline and dredge. Assisted in opening the underground mine in 1989.

EDUCATION

2006

Associate of Science: Business Management Indiana Institute of Technology - Indianapolis, IN, USA

Associate of Science: Business Management Sullivan University - Lexington, KY, USA

Timothy E. Stout

Home: 502-316-9466 ▪ Mobile 859-707-5951 ▪ kystout@gmail.com

SENIOR OPERATING EXECUTIVE

Proven, results-driven senior leader with over 20 years of experience and expertise in operations management, manufacturing, engineering and process improvements with direct P&L responsibility. Highly qualified and knowledgeable in production management, supply chain logistics, employee management & leadership in startup and business turnaround efforts and process engineering improvements. Areas of Excellence are:

- Managing Budgets & P&Ls
 - Growing Revenue & Profit
 - Information Technology
 - Automotive
 - ERP/MRP Integration
 - Planning & Scheduling
 - Program/Project Management
 - Regulatory Compliance – Health, Safety & Env.
 - Cash Management
 - Maintenance Management
 - Manufacturing Management
 - TS16949/ISO 9000 Implementation
 - Leading & Developing Teams
 - Fire Safety
 - Technology & Engineering
 - Redesigning Business Processes
-

CAREER DEVELOPMENT

Sterling Ventures, Lexington, KY
Chief Operating Officer

Oct. 2008 – present

Senior operating executive with full strategic planning and P&L responsibility for a \$15M limestone mining and land development company. Responsible for all financial management at the operational level for multiple business units.

Notable Accomplishments

- Key officer in a takeover of airport fueling business resulting in future sale of business in less than 9 months at twice the anticipated return.
- Successfully implemented a move to a centralized accounting system resulting in a 20% reduction in costs associated with administration and accounting.
- Implemented a cloud-based paperless Purchasing/AP system, resulting in faster month-end closes and improved communication across all business units.
- Lead officer in merger of landscaping and maintenance company into the Land Development business unit.
- Led company to implement a Lean/Six Sigma Management System including Whitebelt and Greenbelt training for approximately 15 employees.

PRIME FINISH, Paris, KY
President

Dec. 2003 – Oct. 2008

Senior operating executive with full strategic planning and P&L responsibility for a \$8M manufacturing business supplying products to the automotive and consumer electronics industries. Report to parent company's Chairman.

Notable Accomplishments

- Successfully implemented values based vision and strategic plan resulting in complete turn around of company culture.
 - Led a team of senior executives through implementing a Quality Management System that resulted in TS16949:2002 (and ISO 9000) certification in an aggressive 9 month time frame.
 - Successfully implemented Lean Manufacturing using principles of the TPS (Toyota Production System) through all levels of the organization.
 - Increased revenue by 44% in the first year through diversification of markets served.
-

CAREER DEVELOPMENT (continued)

- Improved bottom line results by 300% in three years by increasing revenue, decreasing scrap and related expenses and aggressive cost controls.
- Reduced working capital requirements by over 90% in a three-year time frame by reducing inventory and managing vendor relationships.
- Improved employee retention from 83% to 98% by implementing a culture that rewards employees for their behavior, skills and initiative.
- Led company's initiative to file first two patent applications that resulted in a royalty revenue stream approaching over \$1.0M over 2 years.

Vice President – Production

Jan. 1999 – Dec. 2003

Managed and held profit & loss responsibility for the production and manufacturing areas of a new manufacturing company specializing in robotic spray painting, assembly and distribution. Defined operational and engineering objectives and executed operating budgets and plans.

Notable Accomplishments

- Plant engineering/design and construction on a Greenfield site for a new manufacturing company involving all engineering disciplines including mechanical, civil, electrical and industrial.
- Implemented a detailed production planning process increasing “Shipped in Full On-Time” from 75% to 95%.
- Successful implementation of business systems to support the new business, including MRP and G/L in a server/client environment.
- Reduced time from customer order to shipment from 10 days to 2.1 days through interaction with customer and suppliers.
- Spearheaded the development of HR policies and procedures to support large employee growth plan including self-directed work teams and pay-for-skills compensation plan.
- Recruited, trained and established a professional team for materials management, shop-floor supervision, production planning, engineering and maintenance, and health, safety and environmental compliance.
- Implemented manufacturing cells for robotic painting, custom printing operations, inspection and assembly.
- Developed and implemented programs to meet objectives relating to Regulatory Compliance including Health & Safety and Environmental Affairs.

COURTAULDS COATINGS, INC., Louisville, KY
(dba Porter Paints Company and PPG Industries - Worldwide Coatings Manufacturer)

1989 - 1999

Operations Manager
Packaging and Coil Coatings

1994 - 1999

Responsible for management of all operations (including P&L), including manufacturing, purchasing, maintenance and engineering; oversee all environmental, health and safety affairs on site. Interface with all aspects of the business to ensure complete customer satisfaction, including COS (Customer Order Service Department), sales, marketing information systems and human resources. Direct engineering for capital projects required to grow the business.

Notable Accomplishments:

- Successful new plant startup, including engineering, design and construction of facilities to manufacture coil and packaging coatings.
- Renovation/construction of laboratory and office buildings to support the manufacturing operations.
- Recruited, trained and implementation of self directed work teams, including development of team charter and mission, development of job description and placement of new team members.
- MRPII implementation for manufacturing through the “Business Excellence” model, including production planning, master scheduling, raw material MRP, capacity planning, routings and bill of material modules using MFG/PRO (a QAD product).

CAREER DEVELOPMENT (continued)

- Developed and implemented effective materials management program resulting in reduced working capital by 30% over a six month period.
- Developed procedures and work instructions for ISO9000 implementation at the manufacturing level.

Corporate Group Engineer

1993 - 1994

Coatings and Sealants Division - North American

Responsible for project management for projects whose budgets were greater than \$500K, development of engineering codes and practices, all health, safety and environmental engineering activities and projects, hazardous operations review (HAZOPs) for all equipment and plant startups, ADA coordinator for all corporate sites, support the development of ISO9000 procedures, provide engineering support to all North American sites.

Plant Engineer

1990 - 1993

Manufacturing Division - Architectural Coatings

Responsibilities include plant and process engineering for two manufacturing sites, project engineering for seven manufacturing sites in five states, development of the annual Capital Expenditure Plan for those sites, maintenance support for all manufacturing sites and engineering assistance to the environmental department in developing systems to meet federal regulations (including CAAA, CWA, RCRA, SARA 312 and 313).

Project Specialist

1989 - 1990

Manufacturing Division - Architectural Coatings

Responsibilities include drafting and support for manufacturing and engineering operations. Coordinate outside contractors and vendors to complete assigned projects.

Community Service & Volunteer Work

St. Michael Catholic Church Parish Council (Louisville) • Diocese of Lexington – Diocesan Pastoral Council
Ss. Francis & John Parish Finance Council (Georgetown) • Ss. Francis & John Parish Council (Georgetown) – Past President
St. John School – School Board Member • Knights of Columbus Council 11470 – Past Grand Knight • Habitat for Humanity

Education & Training

Bachelor of Science in Engineering Science; Industrial Engineering
Speed Scientific School; University of Louisville, Louisville, Kentucky

Vistage Membership 2004-2009 • Certificate in Lean Manufacturing from Lean Masters
American Society of Safety Engineers' Certificate in "Safety Management" • Certificate in OSHA Process Safety Management • Certificate in Automation and Control of Batch & Sequential Operations • Certified AutoCAD Operator
DuPont "STOP...for Safety" Course

Past Member of: American Institute of Plant Engineers
Institute of Industrial Engineers
National Fire Protection Association
American Society of Safety Engineers
National Metal Decorators Association
Institute of Packaging Professionals

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 26

Responding Witness: John Walters

- Q-26. Provide all documents Sterling has received from government agencies or personnel regarding whether Sterling's proposed method of managing CCR in its mines is beneficial use or reuse under federal or state law.
- A-26. The only written documentation from any Federal or State agency is the email from Steve Sounders of the EPA previously provided to the Companies. See attached.



John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov>
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

Tue, May 26, 2015 at 1:52 PM

John,

Footnote #13 on page 14 of the action filed by LG&E with the Kentucky Public Service Commission includes the following sentence which is not necessarily accurate.

“The Sterling Ventures proposal did not take into account the final CCR Rule requirements pertaining to new CCR landfills, which Sterling Ventures’ limestone mine would be if used to store CCR beginning after October 2015. See 40 CFR 257.53.”

If the use of CCR in a limestone mine meets the beneficial use criteria given in the definition of beneficial use of CCR, then the use is a beneficial use and not disposal. The criteria that must be met are:

- (1) The CCR must provide a functional benefit;
- (2) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction;
- (3) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and
- (4) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

However, if the use does not meet these criteria, the use is disposal and subject to the CCR rule. Beneficial use and the beneficial use criteria are discussed in detail in the preamble to the CCR rule beginning at 80 FR 21347.

I hope this helps. Please let me know if you have questions or need additional information.

Regards,

Steve Souders

Office of Resource Conservation and Recovery (5304P)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460-0002
Phone: [703-308-8431](tel:703-308-8431)

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, May 26, 2015 9:39 AM
To: Souders, Steve
Cc: Somerville, Eric
Subject: LG&E Trimble County Landfill

Steve

Thanks for the time to talk with me this morning. Per our conversation, please find attached the action filed by LG&E with the Ky Public Service Commission last Friday. The footnote we discussed is on page 14 of the Declaratory Action filing.

Thanks for your help.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone [\(859\) 259-9600](tel:859-259-9600)
Fax [\(859\) 259-9601](tel:859-259-9601)

johnwalters@sterlingventures.com

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STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 27

Responding Witness: John Walters

- Q-27. Provide all analyses or studies Sterling has performed or caused to be performed that have evaluated whether CCR placed in Sterling's mines over the next 37 years will stay dry.
- A-27. Please see existing Beneficial Reuse Permit application attached in response to Question 5 for analysis of underground location with respect to exposure of CCR placed in the mine to precipitation. Based upon the location at least 250 feet underground, CCR in the mine will remain substantially more "dry" than when placed in a surface landfill. Moisture in bulk materials will also evaporate in colder months from dryer air in the mine.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 28

Responding Witness: John Walters

- Q-28. Provide all analyses or studies Sterling has performed or caused to be performed that have evaluated whether placing CCR in Sterling's mines will have any effect on surface or ground water.
- A-28. Please see existing Beneficial Reuse Permit application for analysis of underground location with respect to exposure of CCR placed in the mine to surface and groundwater. Specific reference should be given to the well locations exhibit included as part of that application. As a result of the two bentonite seams, and hundreds of feet of solid limestone, there is no contact between the underground mine where CCR will be placed and the groundwater zone of saturation.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 29

Responding Witness: John Walters

Q-29. Provide all analyses or studies performed or caused to be performed by Sterling regarding: the hydrogeological setting of the areas in Sterling's mines proposed for CCR disposal or beneficial use (including aquifer locations and groundwater flow patterns); surface water drainage and flow; and the potential hydrologic impact of storing CCR in the proposed locations.

A-29. Please see response to question 28 above.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 30

Responding Witness: John Walters

- Q-30. Provide a copy of Sterling's long-term management plan for the disposal or beneficial use of CCR in its mines that existed at the time of the filing of Sterling's Complaint in this matter. Provide a copy of any such plan developed since the filing of Sterling's Complaint.
- A-30. As a result of KU's failing to provide any of the information that Sterling requested in its email responses to Scott Straight dated October 24, 2014, Sterling did not develop a long term written beneficial use plan specifically tailored to Trimble's CCR. LG&E/KU have confirmed, as a result of their specific plan for the Sterling option as presented in the December, 2014 Supplement to Alternatives Analysis, that the CCR can be moved by conveyor to Sterling's mine. Sterling has the expertise in moving, stacking and pushing materials by conveyor, truck, and heavy equipment. If the materials can be conveyed, they can be moved using the same or similar equipment, and, the infrastructure as currently utilized at the mine. Until KU/LG&E provide Sterling with more specific information regarding moisture content of each product, including volumes, etc. no plans can be finalized. However, see preliminary plans and options provided in response to Question 9..

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 31

Responding Witness: John Walters

Q-31. Provide all schedules in electronic format with cells intact and all work-papers, source documents, all sources or other bases of cost estimates, and electronic spreadsheets used in the development of Exhibit S to Sterling's Complaint (Sterling's Present Value Revenue Requirement of Trimble CCR to Sterling Materials).

- a. According to *Sterling's PVRR Alternative Analysis Support Document* included in Exhibit S, the estimated cost of the Barge On-Load and Off-Load Facilities was taken from Table III.D-3 on page 59 of 183 of the Companies' *Supplement to Alternatives Analysis*. The *Supplement to Alternatives Analysis* is included in Exhibit P.
 - i. Were the capital costs in Table III.D-3 for General Project / Permitting / Infrastructure Cost Impacts (lines 1-10), CCR Transportation (lines 11-17), or Additional Capital Costs included in the Sterling analysis?
 - ii. If yes, how were they included in the analysis? If not, why not?

A-31. See attached. None of the Infrastructure Cost Impacts (lines 1-10) or CCR Transportation (lines 11-17) were included as they would be inapplicable to the Warsaw industrial site or immaterial with respect to the PVRR impact. KU/LG&E overheads and engineering cost were included. See Support Document attached to Exhibit S of Sterling's Complaint, explanation of Row 8.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 32

Responding Witness: John Walters

- Q-32. Provide all schedules in electronic format with cells intact and all work-papers, source documents, all sources or other bases of cost estimates, and electronic spreadsheets used in the development of Exhibit U to Sterling's Complaint (Sterling's Present Value Revenue Requirement of Trimble CCR to Sterling Materials).
- A-32. Exhibit U is dynamically created adding the cost of the CCRT into Cell J9 of Exhibit S Spreadsheet. See comment to Cell J9.

STERLING VENTURES, LLC

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**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 33

Responding Witness: John Walters

- Q-33. Provide all schedules in electronic format with cells intact and all work-papers, source documents, all sources or other bases of cost estimates, and electronic spreadsheets used in the development of Exhibit V to Sterling's Complaint (Sterling's Present Value Revenue Requirement of Trimble CCR to Sterling Materials).
- A-33. Exhibit V is dynamically created by reducing the net amount of the CCR placed in Sterling's mine into Cell D4 of Exhibit S Spreadsheet. See comment to Cell D4.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 34

Responding Witness: John Walters

- Q-34. Provide all schedules in electronic format with cells intact and all work-papers, source documents, all sources or other bases of cost estimates, and electronic spreadsheets used in the development of Exhibit W to Sterling's Complaint (Sterling's Present Value Revenue Requirement of Trimble CCR to Sterling Materials).
- A-34. Exhibit W is dynamically created by reducing the net amount of the CCR placed in Sterling's mine into Cell D4 of Exhibit S Spreadsheet. See comment to Cell D4.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 35

Responding Witness: John Walters

- Q-35. If the Companies chose to use Sterling's mines as their sole disposal or storage site for CCR from the Trimble County Generating Station, what financial assurances could Sterling provide to the Companies to protect their customers from the effects of increased costs resulting from an interruption or reduction to the Companies' ability to store CCR in Sterling's mines?
- A-35. Sterling will agree to ship by barge or truck any net CCR that cannot be beneficially used in Sterling's mine to another qualified disposal site or beneficial user, and proposes to provide bonding or other similar financial assurances to guarantee protection from any adverse effects of interruption or reduced capacity of Sterling's mine.

STERLING VENTURES, LLC

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**Response to Data Request of
Kentucky Utilities Company and
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Dated July 2, 2015**

Question No. 36

Responding Witness: John Walters

Q-36. To the extent not already provided, provide copies of all current and historical mine maps, mine-ventilation plans, and active void maps for the mine Sterling proposes to use to dispose of CCR.

A-36. See response to Question 8 above.

STERLING VENTURES, LLC

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**Response to Data Request of
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Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 37

Responding Witness: John Walters

Q-37. Please describe all applicable requirements for managing ventilation in Sterling's mine and all past or current measures taken by Sterling to comply with those requirements or otherwise manage ventilation. Has Sterling Ventures built any concrete baffles in its limestone mine since it began operation?

A-37. Sterling is required to meet MSHA ventilation standards as set forth in 30 CFR 57 Subpart G – Ventilation.

Yes, Sterling has built a concrete baffle in its mine to replace a barrier using mined stone as a baffle. Sterling also uses mined stone, plastic curtains, or a combination of both to block and direct airflow.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Question No. 38

Responding Witness: John Walters

- Q-38. How would Sterling propose to dispose of CCR in its mine if it were determined that such disposal would not be a beneficial use under the EPA's CCR Rule? Please include in your response all additional retrofit measures, costs, and logistical changes such disposal would require.
- A-38. In the event that placement of CCR in Sterling's mine would not be considered a beneficial use, Sterling will agree to ship by barge or truck any net CCR that cannot be beneficially used in Sterling's mine to another qualified disposal site or beneficial user for a period of up to three years, and provide bonding for that purpose to ensure the protection from any adverse effects of interruption from placing CCR in Sterling's mine. The three time period gives the Companies the ability to proceed with the construction of the Trimble Landfill in the remote chance that Sterling mine closes or is completely inaccessible for any reason.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 39

Responding Witness: John Walters

Q-39. In Sterling's responses to questions from Mr. Straight in October 2014, Sterling indicated one option for trucking to the mine would involve staging the materials on-site on the surface at the mine prior to placement in the mine.

- a. Does Sterling have any permits that allow placement of CCR materials on-site prior to final placement in the mine? If not, when does Sterling intend to submit an application for a permit to allow such placement?
- b. Describe how CCR would be managed on-site, and facilities used to ensure compliance with the federal CCR Rule.
- c. How will rainwater and leachate from such staging of CCR materials be managed?
- d. What will be the cost additions to the initial tipping fee identified by Sterling?

A-39.

- a. Because Sterling has not been given the opportunity to sit down and have substantive discussions with KU/LG&E regarding the beneficial use, or to obtain information necessary to determine whether additional relevant permits are required. If any additional permits are required, based upon the method Sterling chooses for transporting the CCR into the mine, those permits will be obtained. If temporary placement on the surface requires a containment facility, Sterling will construct that facility to meet the requirements of the CCR regulations.
- b. Please see response to Question 9.
- c. If required, with a containment facility to be constructed per CCR regulations.
- d. As indicated in Sterling's response to Mr. Straight on October 24, the final tipping fee cannot be calculated until KU/LG&E provides Sterling the information requested in the October 24 response.

STERLING VENTURES, LLC

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**Response to Data Request of
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Dated July 2, 2015**

Question No. 40

Responding Witness: John Walters

Q-40. Please describe in detail Sterling's plan for transporting CCR from the barge unloading facility to the mine.

- a. What route will be taken?
- b. How will the CCR be transported (e.g., by truck, by conveyor)?
- c. What capital and on-going maintenance costs are included in the analysis to prepare and maintain the route for transporting CCR?
- d. What permits will be required to transport CCR via this route?
- e. If the CCR will be trucked from the barge unloading facility to the mine:
 - i. How many tons of CCR will each truck carry?
 - ii. On average, how many days per year will the trucks operate?
 - iii. On average, how many trucks will be required per day assuming 745,000 tons of CCR per year?
 - iv. Provide documentation of the projected costs per ton for transport.
 - v. If trucks are used between the facility and the mine, will any materials off-loaded at the river facility be staged at the facility prior to transferring to the mine for placement? If so, what permitting activity has been undertaken to allow such staging?
 - vi. How will the CCR material be removed from the barges prior to being placed in trucks or on conveyor?
 - vii. What is the expected duration to unload CCR from a barge?

A-40.

- a. US Route 42.
- b. Truck.
- c. None. US Federal Highway.
- d. None.
- e.
 - i. 25 tons.
 - ii. Depends on net volume of CCR from Trimble County.
 - iii. At 745,000 tons, the trucks would work 5 days per week, 10 hours per day. Based upon a one hour turn, 12 trucks would haul 750,000 tons.
 - iv. Objection. The response to this question would require Sterling to provide confidential financial information that would provide KU/LG&E an unfair advantage in negotiating a contract for placing CCR in Sterling' mine in the event that the proposed Trimble Landfill is not a viable option for disposal of Trimble County's CCR.
 - v. No staging is anticipated. If staging is required, it would be in a containerized facility. No permitting is possible at this time without substantive meetings with KU/LG&E.
 - vi. Sterling has used and prepared its PVRR using the Fenner Dunlop barge unloading design for the Sterling option that KU/LG&E submitted to the Corps. However, Sterling believes that a less expensive alternative with sufficient capacity is possible.
 - vii. Depends on final barge design. Using the Fenner Dunlop design, 2 hours per barge.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 41

Responding Witness: John Walters

Q-41. Sterling indicates that in December 2014 it became aware of a barge unloading permit that had been issued to the owner of an industrial parcel near its mine in Warsaw, KY.

- a. Please provide any documentation indicating Sterling would have access to this facility.
- b. When will the facility be constructed and provide all cost estimates for such construction?
- c. Does Sterling currently own or have rights to utilize property between this unloading facility and its mine?
- d. If CCR is to be transported from Trimble County to Sterling via barge, did Sterling plan to arrange and pay for barge transportation from the loading dock at Trimble County to the unloading dock at Warsaw, KY? What costs have been included in Sterling's estimates for this move?
- e. In the Sterling proposal, who will be responsible for developing the barge unloading facility, maintaining barge fleeting services at the dock, and assuming the risk associated with potential cost variances?

A-41.

- a. See Attachment A to Sterling's Data request to Kentucky Utilities.
- b. Sterling has proposed that KU/LG&E lease the site per the proposal identified in a. above, and construct and operate the Barge Unloading Facility. Sterling based its PVRR analysis on the Sterling Alternative building and operating the barge unloading facility as provided to the Corps in the December 2014 Supplemental Analysis.
- c. No, Sterling does not own the property between the proposed barge facility in Warsaw and the mine. This property is 9 miles from Sterling's facility with access via US Route 42.

- d. Sterling's PVRR used the barge operating cost of \$1,100,000 per year for the loading and unloading facilities as set forth in the Sterling Alternative presented to the Corps in the December 2014 Supplement to Alternatives Analysis. See Row 18 of Exhibit S.

- e. The Sterling PVRR makes the same assumptions KU/LG&E used in developing the Sterling Alternative in the December 2014 Supplement to Alternatives Analysis: KU/LG&E would be responsible for developing the barge unloading facility, maintaining barge fleeting services at the dock, and assuming the risk associated with potential cost variances. The cost variance risks are no different than with any PVRR alternatives analysis, or any contract with cost adjustments (i.e. fuel surcharges in coal or limestone delivery contracts)

STERLING VENTURES, LLC

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**Response to Data Request of
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Question No. 42

Responding Witness: John Walters

Q-42. With regard to installing a barge unloading facility related to disposing of CCR from the Companies' Ghent and Trimble County coal-fired units:

- a. Provide the date, location, and time of all discussions or conversations between Sterling personnel and any representative of any relevant permitting authority. Provide the names of the people involved in those discussions, their employment positions or titles, notes of those discussions, and describe the substance of those discussions.
- b. Provide copies of all correspondence between Sterling personnel and any representative of any relevant permitting authority.

A-42. Kimberly Simpson, US Army Corps of Engineers, Louisville District. Mr. Walters discussed by phone in general regarding the amendments necessary to the existing barge permit at the industrial site in Warsaw, KY that Sterling has proposed to use for a barge unloading facility.

STERLING VENTURES, LLC

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**Response to Data Request of
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Question No. 43

Responding Witness: John Walters

- Q-43. Please provide any documentation regarding the design and construction of a barge unloading system that would be sufficient to handle CCR from the Companies' Ghent and Trimble County coal-fired units, as well as the expected cost of such system.
- A-43. Sterling has never proposed a barge unloading system to handle CCR from the Companies' Ghent coal-fired units. Sterling's PVRR used the design and construction cost of the barge unloading that the Companies presented to the Corp in the December 2014 Supplement to Alternatives Analysis.

STERLING VENTURES, LLC

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**Response to Data Request of
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Question No. 44

Responding Witness: John Walters

- Q-44. Please describe how, in the absence of gypsum treatment (drying) equipment installed for Phase 1 of the Ghent landfill project, Sterling planned to transport the gypsum to the mine.
- A-44. Sterling was proposing that gypsum continue to be placed in the Ghent Gypsum Stacking Pond, and loaded from the stacking pond directly onto trucks for transport to Sterling's mine. Gypsum from the Ghent Stacking Pond was sufficiently dry for transportation and placement in Sterling's mine.

STERLING VENTURES, LLC

CASE NO. 2015-00194

**Response to Data Request of
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Dated July 2, 2015**

Question No. 45

Responding Witness: John Walters

Q-45. In the absence of gypsum drying facilities at Ghent, did Sterling plan to charge KU for dry tons or wet tons in its proposal?

A-45. Sterling proposed charging Ghent for the tonnage at the moisture content of the gypsum as removed from the stacking pond.

STERLING VENTURES, LLC

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**Response to Data Request of
Kentucky Utilities Company and
Louisville Gas and Electric Company
Dated July 2, 2015**

Question No. 46

Responding Witness: John Walters

Q-46. As discussed in the informal conference at the KPSC, LG&E and KU's CCR material either requires to be dried (gypsum, bottom ash, partial fly ash sluiced from the units) for landfill placement or partially wetted (fly ash removed from the Units dried).

- a. What costs have been included in Sterling's estimates to provide the conditioning (de-watering) of gypsum and bottom ash to allow the material to be transported off-site?
- b. Regarding fly ash, what costs have been included in Sterling estimates to convert the wet systems to dry removal systems and to partially wet the dry removed fly ash?
- c. What costs are included in Sterling's estimates for on-site storage at Trimble County for fly ash, gypsum and bottom ash for periods outside of the direct placement of CCR on barges or trucks for transport?

A-46.

- a. In the Exhibit S PVRR, Sterling proposed using the same method as is currently used to dry and transport gypsum from the Synmat barge onloading facility, and transport fly ash to the Holcim barge onloading facility at Trimble. Exhibits U, V, and W assumed that the CCRT would be constructed.
- b. See above.
- c. Sterling assumes that there would be no additional cost for continuing to store gypsum in Trimble's Gypsum Stacking Pond. There is no provision for storing Fly ash or bottom ash in the Exhibit S PVRR. Exhibit's U, V and W PVRR calculations include the cost of the CCRT, and therefore the storage silos constructed as part of that project are included in the costs.