Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Saturday, June 27, 2015 1:11 PM
To: Somerville, Eric; Simpson, Kimberly J LRL
Subject: Trimble County Landfill
Attachments: 20150627112923452.pdf; 062615-1_Sterling_Comments_to_IC_Memo.pdf

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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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 <u>if</u> 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 <u>not</u> 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.

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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 on 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.

John W. Walters. Jr.

cc: Parties of Record

Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Thursday, June 25, 2015 10:22 AM
To: Simpson, Kimberly J LRL
Cc: Somerville, Eric
Subject: Trimble County Generating Station Landfill Permit, Project ID No. LRL-2010-711-kjs
Attachments: USACE 6-25-15 ltr2 with Exhibits.pdf

Ms. Simpson,

Please find attached a letter regarding the above project for your review. Should you have any questions, please feel free to contact me at 859-621-3990.

Thanks you for your time.

John Walters

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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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:

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[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

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[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	x 10%	
Cost of Capital		$ 6.00
O&M Costs		5.52
Depreciation		4.00
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 1is $166.15, and Alterative 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

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[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.

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.

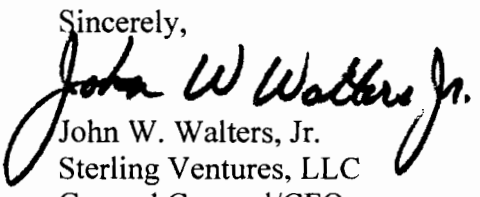
At the informal conference on June 19, when asked why the Companies did not simply include in their 404 Alternatives Analysis the same PVRR computation of each alternative that the Commission would use to review the economics of the alternative, the response was simply: "Because we are not required to". 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

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[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

STERLING VENTURES

John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov> Tue, May 26, 2015 at 1:52 PM
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

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 B

Alternative 1

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$80.00	$5.00	$4.00	$76.00	$7.60	$16.60	$16.60	12/31/2015
2		$5.13	$4.00	$72.00	$7.20	$16.33	$15.14	12/31/2016
3		$5.25	$4.00	$68.00	$6.80	$16.05	$13.81	12/31/2017
4		$5.38	$4.00	$64.00	$6.40	$15.78	$12.60	12/31/2018
5		$5.52	$4.00	$60.00	$6.00	$15.52	$11.49	12/31/2019
6		$5.66	$4.00	$56.00	$5.60	$15.26	$10.48	12/30/2020
7		$5.80	$4.00	$52.00	$5.20	$15.00	$9.55	12/30/2021
8		$5.94	$4.00	$48.00	$4.80	$14.74	$8.71	12/30/2022
9		$6.09	$4.00	$44.00	$4.40	$14.49	$7.94	12/30/2023
10		$6.24	$4.00	$40.00	$4.00	$14.24	$7.24	12/29/2024
11		$6.40	$4.00	$36.00	$3.60	$14.00	$6.60	12/29/2025
12		$6.56	$4.00	$32.00	$3.20	$13.76	$6.02	12/29/2026
13		$6.72	$4.00	$28.00	$2.80	$13.52	$5.49	12/29/2027
14		$6.89	$4.00	$24.00	$2.40	$13.29	$5.00	12/28/2028
15	$20.00	$7.06	$4.00	$40.00	$4.00	$15.06	$5.26	12/28/2029
16		$7.24	$8.00	$32.00	$3.20	$18.44	$5.97	12/28/2030
17		$7.42	$8.00	$24.00	$2.40	$17.82	$5.35	12/28/2031
18		$7.61	$8.00	$16.00	$1.60	$17.21	$4.79	12/27/2032
19		$7.80	$8.00	$8.00	$0.80	$16.60	$4.29	12/27/2033
20		$7.99	$8.00	$0.00	$0.00	$15.99	$3.83	12/27/2034
		$127.72	$100.00		$82.00	$309.72	$166.15	

Alternative 2

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$30.00	$7.00	$1.50	$28.50	$2.85	$11.35	$11.35	12/31/2015
2		$7.18	$1.50	$27.00	$2.70	$11.38	$10.55	12/31/2016
3		$7.35	$1.50	$25.50	$2.55	$11.40	$9.81	12/31/2017
4		$7.54	$1.50	$24.00	$2.40	$11.44	$9.13	12/31/2018
5		$7.73	$1.50	$22.50	$2.25	$11.48	$8.50	12/31/2019
6		$7.92	$1.50	$21.00	$2.10	$11.52	$7.91	12/30/2020
7		$8.12	$1.50	$19.50	$1.95	$11.57	$7.37	12/30/2021
8		$8.32	$1.50	$18.00	$1.80	$11.62	$6.86	12/30/2022
9		$8.53	$1.50	$16.50	$1.65	$11.68	$6.40	12/30/2023
10		$8.74	$1.50	$15.00	$1.50	$11.74	$5.97	12/29/2024
11		$8.96	$1.50	$13.50	$1.35	$11.81	$5.57	12/29/2025
12		$9.18	$1.50	$12.00	$1.20	$11.88	$5.20	12/29/2026
13		$9.41	$1.50	$10.50	$1.05	$11.96	$4.85	12/29/2027
14		$9.65	$1.50	$9.00	$0.90	$12.05	$4.53	12/28/2028
15	$70.00	$9.89	$1.50	$77.50	$7.75	$19.14	$6.68	12/28/2029
16		$10.14	$15.50	$62.00	$6.20	$31.84	$10.31	12/28/2030
17		$10.39	$15.50	$46.50	$4.65	$30.54	$9.17	12/28/2031
18		$10.65	$15.50	$31.00	$3.10	$29.25	$8.15	12/27/2032
19		$10.92	$15.50	$15.50	$1.55	$27.97	$7.22	12/27/2033
20		$11.19	$15.50	$0.00	$0.00	$26.69	$6.39	12/27/2034
		$178.81	$100.00		$49.50	$328.31	$151.91	

Projected annual cost of Alternative 1	$309.72
Projected annual cost of Alternative 2	$328.31
	-$18.59
PVRR Cost of Alternative 1 @7.81% Discount Rate	$166.15
PVRR Cost of Alternative 2 @7.81% Discount Rate	$151.91
	$14.23

Assumptions

Cost of Capital	10%
Inflation on O&M	2.5%
Discount Rate	7.81%

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 SCRA[1], 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 Bonnerton 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.

Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Thursday, June 04, 2015 1:24 PM
To: Simpson, Kimberly J LRL
Cc: Somerville, Eric
Subject: Trimble County Generating Station Landfill PErmit, Project ID No. LRL-2010-711-kjs
Attachments: USACE 6-4-15 ltr.pdf

Ms. Simpson:

Please see attached. Do not hesitate to call if you have any questions.

Thanks for your time.

John Walters

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
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johnwalters@sterlingventures.com
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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.

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[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 permittable.

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.

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[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 thorough 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.

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[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.

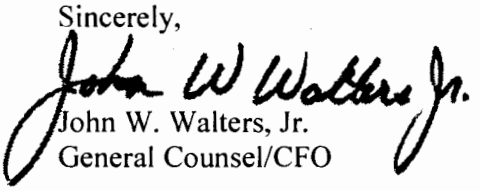
The simple fact is that the Companies cannot build the Trimble Landfill without first obtaining a CPCN from the Commission, which requires analyzing the cost of the alternative disposal options based on each option's PVRR. Although the standards for analyzing a lesser cost alternative may be more stringent 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

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[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	-	-	1.40	-	-	-	-	-	-	-	1.40
Engineering, Permits and Fees, and Construction Documents	0.46	2.00	-	-	-	-	-	-	-	-	2.46
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

Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Tuesday, May 26, 2015 9:39 AM
To: Souders, Steve
Cc: Somerville, Eric
Subject: LG&E Trimble County Landfill
Attachments: LGE-KU_Joint_Application_5-22-15 1-20.pdf

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
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johnwalters@sterlingventures.com
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May 22, 2015

ELECTRONIC FILING

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

RE: ***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

Dear Mr. DeRouen:

Please find enclosed Louisville Gas and Electric Company and Kentucky Utilities Company's Verified Joint Application for a Declaratory Order, Joint Petition for Confidential Protection and Joint Motion for Informal Conference in the above-referenced matter.

I certify that Louisville Gas and Electric Company and Kentucky Utilities Company's May 22, 2015 electronic filing of the Verified Joint Application, Joint Petition for Confidential Protection and Joint Motion for Informal Conference are a true and accurate copy of the same documents being filed in paper medium; that the electronic filing has been transmitted to the Commission on May 22, 2015; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that an original in paper medium of the Verified Joint Application, Joint Petition for Confidential Protection and Joint Motion for Informal Conference are being mailed, by first class U.S. mail, postage prepaid, to the Commission on May 22, 2015.

Should you have any questions, please feel free to contact me at your convenience.

Yours very truly,

Kendrick R. Riggs

Kendrick R. Riggs

KRR:ec
Enclosure

400001.151218/1221525.1

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

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**

VERIFIED JOINT APPLICATION OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND KENTUCKY UTILITIES COMPANY
FOR A DECLARATORY ORDER

Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") (collectively, the "Companies"), pursuant to 807 KAR 5:001 Section 19, hereby apply to the Kentucky Public Service Commission ("Commission") for a declaratory order that the Commission's orders granting the Companies a Certificate of Public Convenience and Necessity ("CPCN") to construct a multi-phase landfill for coal-combustion residuals ("CCR") and related facilities, including CCR treatment and transport facilities, at the Trimble County Generating Station ("Trimble County Landfill") and to recover the cost of the first phase of the landfill through the Companies' environmental-cost-recovery ("ECR") mechanisms remain in full effect and continue to provide the Companies all the authority needed for the Companies to continue constructing the landfill and related facilities, including CCR treatment and transport facilities, and to have ECR recovery of the construction costs.[1] Since the Commission issued these final

[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,* Case No. 2009-00197, Order (December 23, 2009); *In the Matter of Louisville Gas and Electric Company for a Certificate of Public Convenience and Necessity and Approval of its 2009 Compliance Plan for Recovery by Environmental Surcharge,* Case No. 2009-00198, Order (December 23, 2009).

orders, the Companies have worked continuously to perform additional required engineering, to construct or engage in related activities on and around the landfill site that are all related to the landfill's construction, and to obtain all necessary permits, and have expended over $24.4 million to advance landfill development under the authority the Commission granted. Because the Companies expect to acquire all of the necessary permits soon, have completed landfill engineering and development (subject to additional permitting-required changes), expect to issue in the second quarter of 2015 a request for quotations for several key landfill-related facilities (including CCR treatment and transport facilities), and expect to begin additional significant procurement and construction activities in the fourth quarter of this year, the Companies are now requesting a declaratory order from the Commission to ensure the Companies' existing CPCN and ECR-cost-recovery authority for the landfill remain valid and fully sufficient before committing to expend additional significant resources and engage in additional significant construction activities. Because the Trimble County Landfill as currently designed is in the same location as originally proposed and will have essentially the same storage capacity, and because it continues to be economical and necessary for the Companies to continue to operate the Trimble County coal-fired units, the Companies respectfully request that the Commission issue the requested declaratory order. The Companies further respectfully request that the Commission issue the requested declaratory order by October 1, 2015, to permit the Companies to enter timely into required procurement and construction contracts later this year.

In support of their Application, the Companies state as follows:

1. The full name and mailing address of KU are: Kentucky Utilities Company, Post Office Box 32010, 220 West Main Street, Louisville, Kentucky 40202. KU may be reached by electronic mail at the electronic mail addresses of its counsel set forth below.

2. The full name and mailing address of LG&E are: Louisville Gas and Electric Company, Post Office Box 32010, 220 West Main Street, Louisville, Kentucky 40202. LG&E may be reached by electronic mail at the electronic mail addresses of its counsel set forth below.

3. KU is a utility engaged in the electric business. KU generates and purchases electricity, and distributes and sells electricity at retail in the following counties in Central, Northern, Southeastern and Western Kentucky:

Adair	Edmonson	Jessamine	Ohio
Anderson	Estill	Knox	Oldham
Ballard	Fayette	Larue	Owen
Barren	Fleming	Laurel	Pendleton
Bath	Franklin	Lee	Pulaski
Bell	Fulton	Lincoln	Robertson
Bourbon	Gallatin	Livingston	Rockcastle
Boyle	Garrard	Lyon	Rowan
Bracken	Grant	Madison	Russell
Bullitt	Grayson	Marion	Scott
Caldwell	Green	Mason	Shelby
Campbell	Hardin	McCracken	Spencer
Carlisle	Harlan	McCreary	Taylor
Carroll	Harrison	McLean	Trimble
Casey	Hart	Mercer	Union
Christian	Henderson	Montgomery	Washington
Clark	Henry	Muhlenberg	Webster
Clay	Hickman	Nelson	Whitley
Crittenden	Hopkins	Nicholas	Woodford
Daviess			

4. LG&E is a utility engaged in the electric and gas business. LG&E generates and purchases electricity, and distributes and sells electricity at retail in Jefferson County and portions of Bullitt, Hardin, Henry, Meade, Oldham, Shelby, Spencer, and Trimble Counties. LG&E also purchases, stores, and transports natural gas and distributes and sells natural gas at retail in Jefferson County and portions of Barren, Bullitt, Green, Hardin, Hart, Henry, Larue, Marion, Meade, Metcalfe, Nelson, Oldham, Shelby, Spencer, Trimble, and Washington Counties.

5. KU was incorporated in Kentucky on August 17, 1912, and in Virginia on November 26, 1991 (and effective as of December 1, 1991), and is in good standing in both Kentucky and Virginia. Copies of KU's good standing certificates from the Kentucky Secretary of State and the Virginia State Corporation Commission are attached as Exhibit 1.

6. LG&E was incorporated in Kentucky on July 2, 1913, and is currently in good standing in Kentucky. A copy of LG&E's good standing certificate from the Kentucky Secretary of State is attached as Exhibit 2.

7. Copies of all orders, pleadings and other communications related to this proceeding should be directed to: [2]

Edwin "Ed" R. Staton
Vice President – State Regulation and Rates
LG&E and KU Services Company
220 West Main Street
Louisville, Kentucky 40202
ed.staton@lge-ku.com

Allyson K. Sturgeon
Senior Corporate Attorney
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Kendrick R. Riggs
W. Duncan Crosby III
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2000 PNC Plaza
500 West Jefferson Street
Louisville, Kentucky 40202-2828
kendrick.riggs@skofirm.com
duncan.crosby@skofirm.com

[2] The May 18, 2015 letter from the Executive Director of the Commission acknowledged the receipt of the May 15, 2015 notice of election of use of electronic filing procedures filed by LG&E and KU.

The Companies' 2009 Applications for the Trimble County Landfill

8. On June 26, 2009, the Companies filed applications with the Commission requesting CPCNs for various construction projects and approval of the Companies' 2009 ECR Plan to permit recovery of the projects' costs through the Companies' ECR mechanisms. Among the CPCNs and projects proposed was the Trimble County Landfill, including the necessary CCR treatment and transport system, leachate collection system, the lined landfill itself, and eventual capping and closing of the landfill.[3] As proposed in accordance with the preliminary engineering information then available, the landfill was to be located on property owned by the Companies (at the head of what the Companies called Ravine B), and was to have a storage capacity of 34.5 million cubic yards ("MCY").[4] The Companies proposed to construct the landfill in phases; the Companies' share of the total estimated capital cost for entire landfill was estimated to be $404.3 million, of which the Companies estimated they would expend $70.5 million to build Phase I.[5] The Companies had scheduled Phase I of the landfill to be complete in 2012, with the Companies' share of the landfill's estimated operation and maintenance ("O&M") costs to be a total of $15.3 million for 2013-2018.[6]

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[3] *See 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,* Case No. 2009-00197, Application (June 26, 2009); Case No. 2009-00197, Direct Testimony of John N. Voyles at 18, 20, and 32-35 (June 26, 2009); Case No. 2009-00197, Direct Testimony of Charles R. Schram at Exhibit CRS-4 Appendix 4 at 45 (June 26, 2009); *In the Matter of Louisville Gas and Electric Company for a Certificate of Public Convenience and Necessity and Approval of its 2009 Compliance Plan for Recovery by Environmental Surcharge*, Case No. 2009-00198, Application (June 26, 2009); Case No. 2009-00198, Direct Testimony of John N. Voyles at 17-18 and 30-32 (June 26, 2009); Case No. 2009-00198, Direct Testimony of Charles R. Schram at Exhibit CRS-2 Appendix 4 at 45 (June 26, 2009).

[4] *Id.*

[5] The total Phase I capital cost estimate was $94.04 million, with 25% of the cost allocated to Indiana Municipal Power Association ("IMPA") and Illinois Municipal Energy Association ("IMEA"), the other partial owners of the Trimble County coal units. KU's Project 32 included $33.86 million and LG&E's Project 24 included $36.68 million for the Trimble County Landfill.

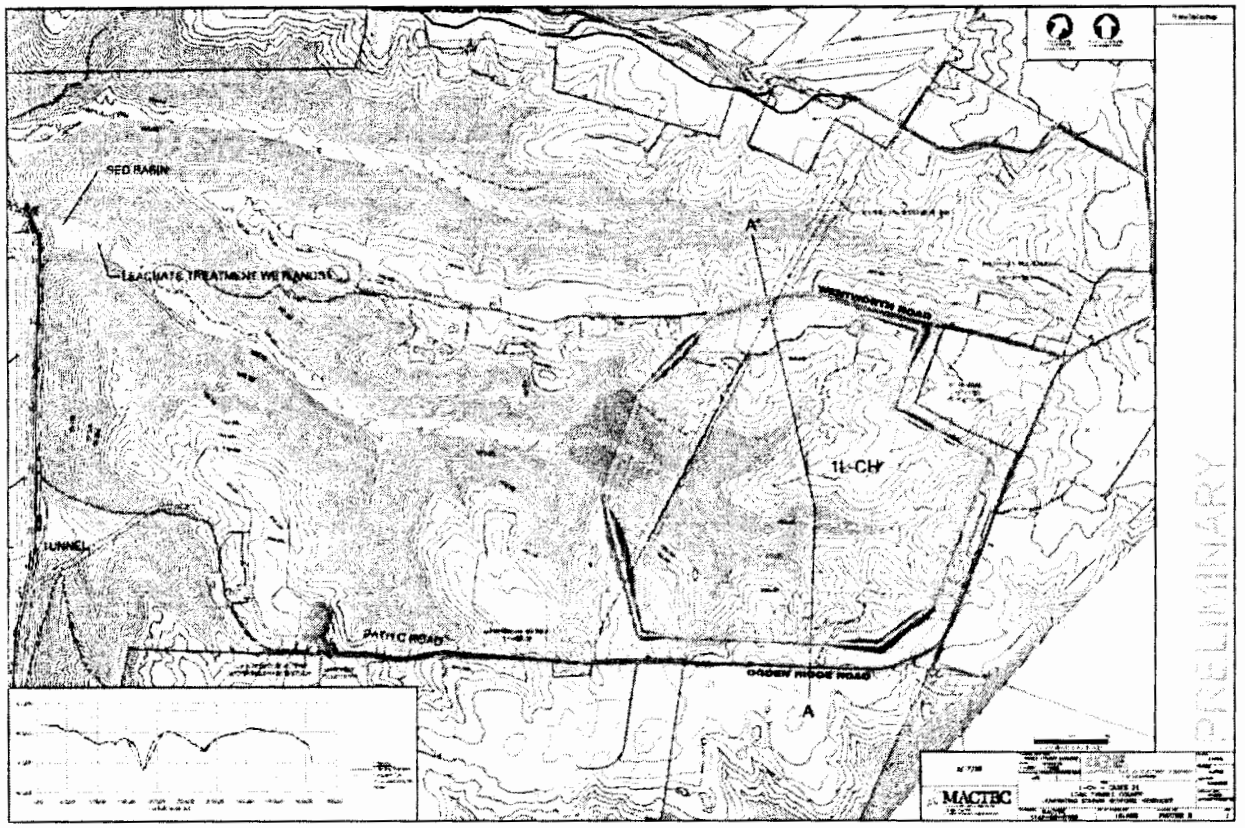
[6] Case No. 2009-00197, Application (June 26, 2009); Case No. 2009-00198, Application (June 26, 2009).

9. The Companies presented evidence in the 2009 cases demonstrating that the proposed Trimble County Landfill would be the least-cost means of meeting the need to dispose of the Trimble County coal units' CCR.[7] The Companies initially evaluated 26 different possible landfill configurations, and then performed a present-value cost-benefit analysis evaluating the three most promising landfill designs and potential off-site CCR storage.[8] The analysis showed that, based on the preliminary landfill designs, the Companies' proposed design (the "Case 21" option) was $26 million less costly than the next-best on-site landfill option, and was $385 million less costly than the off-site alternative.[9]

(This space is intentionally blank.)

[7] *Id.*
[8] *Id.*
[9] Schram LG&E Testimony at 9 (June 26, 2009).

10. As the Companies described in their 2009 applications, the Companies had conducted preliminary engineering for the Trimble County Landfill and received positive responses in early meetings with the Kentucky Division of Waste Management, the Kentucky Division of Water, and the Army Corps of Engineers based on preliminary landfill designs and preliminary field reviews.[10] The preliminary landfill design the Companies presented in their 2009 applications and that received positive initial feedback from the above-listed authorities is shown below:



11. On December 23, 2009, the Commission issued orders that, among other things, granted the Companies' requested CPCN for the Trimble County Landfill and approved recovery of the landfill's Phase I cost through the Companies' ECR mechanisms (Project 32 for KU and Project 24 for LG&E). The Commission stated that the landfill project was "required for the

[10] Voyles KU Testimony at 16 (June 26, 2009).

long-term operation of both the existing generating unit, Trimble County Unit No. 1, and Trimble 2 ... in the manner necessary to comply with the provisions of the Clean Water Act, the Resource Conservation and Recovery Act, and numerous state air quality environmental regulations which pertain to landfill operations. ... Taken as a whole, the evidence indicates that the project is reasonable and cost-effective and will not result in a wasteful duplication of facilities and, therefore, we find that the requested CPCN should be granted."[11]

The Companies Have Worked Continuously on the Trimble County Landfill since Receiving Authority from the Commission in 2009

12. After the Commission issued its final orders on December 23, 2009, the Companies continued their engineering and permitting efforts, which have continued without interruption since the Commission issued its orders. The Companies have sought or are preparing to seek eight different permits from five regulatory agencies: the U.S. Army Corps of Engineers, the Kentucky Division of Waste Management, the Kentucky Division of Water, the Kentucky Division for Air Quality, and the Kentucky Transportation Cabinet. A timeline of the Companies' continuous permitting efforts is attached as Exhibit 3. The Companies have received or expect to receive all the permits listed on Exhibit 3 by early 2016, with the exception of a revised Title V Air Permit from the Kentucky Division for Air Quality, which the Companies will not need in order to construct the landfill, but which the Companies will need to operate the landfill before it goes into service in 2018. The Companies plan to apply for a revised Title V Air Permit for the Trimble County Generating Station in the first quarter of 2017, and expect to receive the permit by July 2017.

[11] Case No. 2009-00198, Order at 6 (Dec. 23, 2009). *See also* Case No. 2009-00197, Order at 8 (Dec. 23, 2009).

13. In addition to their continuous and ongoing engineering and permitting efforts, the Companies have engaged in numerous construction-related activities on and around the landfill site that are all related to the landfill's construction, including purchasing 250 additional acres of land, fencing the perimeter of the landfill site, installing a fly ash barge loading system, relocating the station's helicopter pad, and installing a telecommunication tower. These construction activities account for approximately $15 million of the approximately $24.4 million the Companies have expended to date under the authority the Commission granted in Case Nos. 2009-00197 and 2009-00198. The Commission has reviewed the vast majority of the approximately $24.4 the Companies have expended to date in connection with numerous six-month and two-year investigations pursuant to KRS 278.183(3).[12]

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[12] *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending April 30, 2010,* Case No. 2010-00241, Order (Dec. 9, 2010); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending April 30, 2010,* Case No. 2010-00242, Order (Dec. 10, 2010); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2010,* Case No. 2010-00474, Order (Mar. 18, 2011); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending October 31, 2010,* Case No. 2010-00475, Order (Mar. 18, 2011); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Two-Year Billing Period Ending April 30, 2011,* Case No. 2011-00231, Order (Jan. 31, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Two-Year Billing Period Ending April 30, 2011,* Case No. 2011-00232, Order (Jan. 31, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Periods Ending October 31, 2011 and April 30, 2012,* Case No. 2012-00207, Order (Sep. 26, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Periods Ending October 31, 2011 and April 30, 2012,* Case No. 2012-00208, Order (Sep. 26, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2012,* Case No. 2012-00546, Order (Apr. 19, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending October 31, 2012,* Case No. 2012-00547, Order (Apr. 19, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Two-Year Billing Period Ending April 30, 2013,* Case No. 2013-00242, Order (Nov. 14, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Two-Year Billing Period Ending April 30, 2013,* Case No. 2013-00243, Order (Nov. 14, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2013,* Case No. 2013-00436, Order (July 11, 2014); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the*

14. In sum, the Companies have worked continuously and with all possible speed to advance the construction of the Trimble County Landfill since receiving the Commission's final orders in Case Nos. 2009-00197 and 2009-00198.

15. In addition to the Commission's six-month and two-year reviews under KRS 278.183(3), the Companies have also worked to apprise the Commission Staff of the status of the landfill project through periodic meetings scheduled through the Commission's meeting request process. There were three meetings in total, held on November 4, 2010, June 14, 2013, and February 5, 2015. The Attorney General was invited to all three meetings, and attended the 2010 and 2015 meetings. A copy of the slides the Companies presented at each meeting is attached as Exhibit 4.

The Companies Have Revised the Trimble County Landfill Design to Address Permitting Challenges and Are Continuing to Move with All Possible Speed to Obtain Permits and Construct the Landfill under Existing Authority from the Commission

16. Permitting challenges have required the Companies to revise the Trimble County Landfill's design and cost. These permitting challenges have also created unanticipated delays in being able to begin constructing the landfill, delays that have also added cost due to cost escalation.

17. The most significant and costly permitting challenge the Companies have encountered concerning the Trimble County Landfill concerns the Kentucky Division of Waste Management's determination that a karst feature located in the planned landfill layout is a cave that must be protected under Kentucky's Cave Protection Act (KRS 433.871 *et seq.*). The Companies worked in good faith to preserve its original landfill design by seeking to

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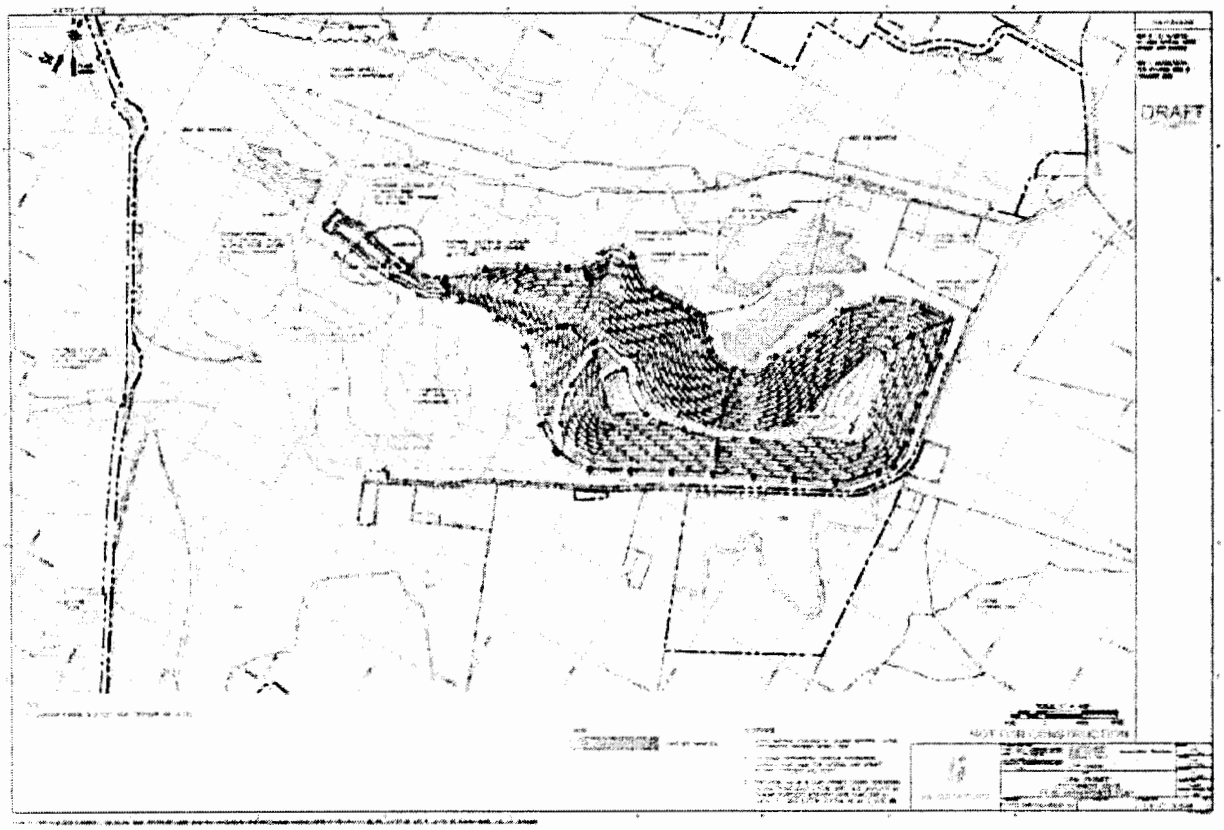
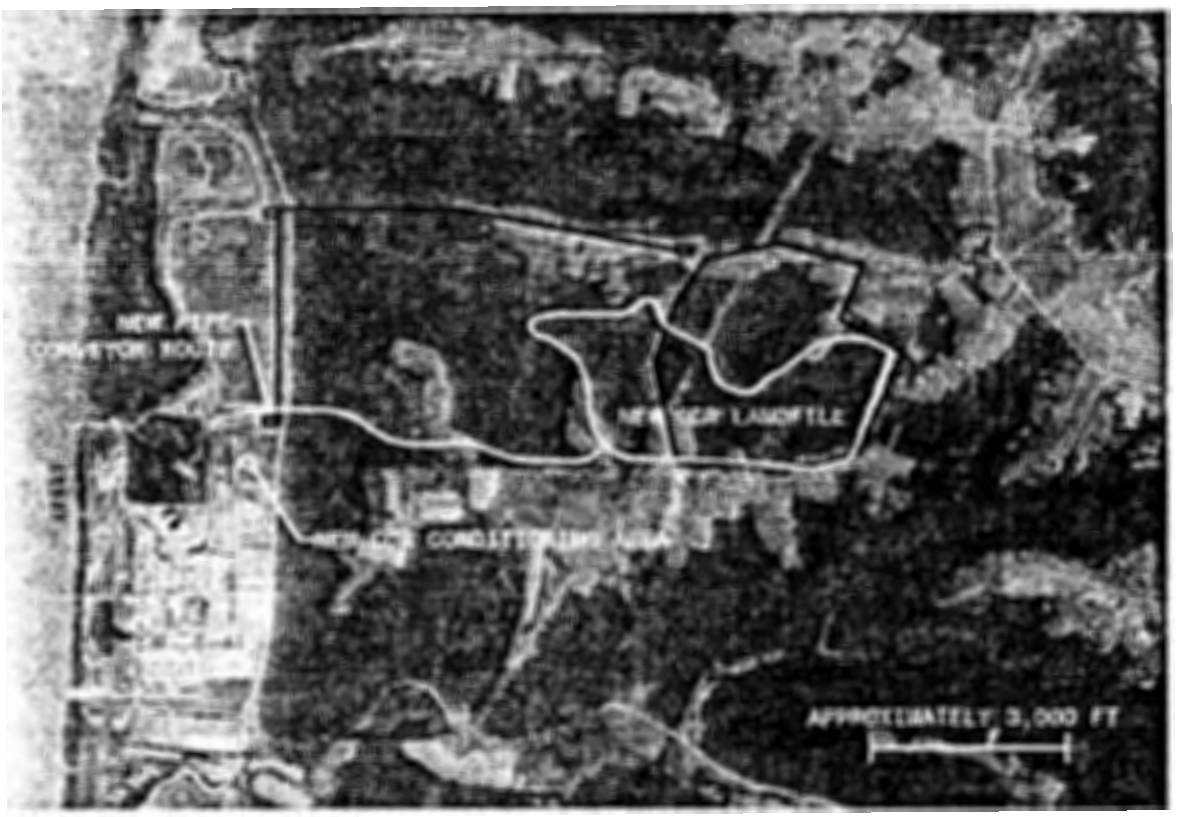
Six-Month Billing Period Ending October 31, 2013, Case No. 2013-00437, Order (July 11, 2014); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Periods Ending April 30, 2014 and October 31, 2014,* Case No. 2015-00020; *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric for the Six-Month Billing Periods Ending April 30, 2014 and October 31, 2014,* Case No. 2015-00021.

demonstrate to the Division of Waste Management that the karst was not a cave. Ultimately, the Companies were unsuccessful, and the Division of Waste Management denied the Companies' landfill-permit application on May 2, 2013. The Companies subsequently revised their proposed layout for the Trimble County Landfill as shown below, though the landfill's currently planned location and storage capacity remain essentially identical:



18. By way of comparison, the image below shows the outline of the originally proposed landfill design and planned CCR-conveyor route in black and the approximate outline of the revised proposed landfill design and planned CCR-conveyor route in yellow. It demonstrates that the revised proposed landfill is in the same location as the originally proposed design, and that their proposed footprints significantly overlap:



19. The Companies' revised Trimble County Landfill remains a phased design that will provide large amounts of CCR storage, with a storage capacity of 33.4 MCY (original design was 34.5 MCY).

20. The estimated nominal capital cost of the revised design as compared to the original design, as well as an interim revised cost estimate presented to the Commission Staff

and the Attorney General at the November 4, 2010 meeting discussed above, are shown in the table below:

Trimble County Landfill Capital Estimate Comparison (nominal (as-spent) $M net)					
Category	Phase I	Phase II	Phase III	Final Cap Phase IV	Total
2009 ECR Landfill Proposal	70.5	108.0	103.5	122.3	404.4
2010 ECR Update	126.5	108.0	103.5	122.3	460.4
February 2015 estimate	321.9	60.4	70.7	48.5	501.5

The total capital cost estimate for all phases of the project in the revised design has increased $41.1 million or approximately 10% since the 2010 informal conference. Phase I costs have increased $195.4 million while future phases have decreased by $154 million. The drivers for the Phase I cost increase have been $27 million in escalation due to the permitting delays, $41 million from design changes incorporating the permitting impacts, $102 million in CCR treatment and transport system costs from incorporating the lessons learned on similar equipment that went into operation at the Ghent Station landfill project in 2014, and $25 million in additional engineering and permitting efforts and fees. The reductions in the latter phases of the total project are driven by a $100 million refinement of the estimate and timing of the capping and closure scopes and a $54 million refinement of moving from three phases in the 2009 concept to four phases in this design.

21. Although the estimated nominal capital cost of the Trimble County Landfill has increased, estimated O&M costs are not projected to be materially different from those estimated in the Companies' 2009 applications.

22. The Trimble County Landfill remains the most economical means of disposing of the CCR the Trimble County coal-fired units will produce.[13] The attached cost-benefit analysis (Exhibit 5) shows that continuing to construct the Trimble County Landfill is at least $781 million PVRR (in 2015 dollars) more favorable than retiring the Trimble County coal units when the current CCR storage reaches capacity and replacing the retired units' 932 MW baseload generating capacity with natural gas combined cycle generating capacity.[14]

23. In addition, as the Companies noted in their original applications for the Trimble County Landfill, taking a phased approach to construction helps ensure that subsequent landfill phases are constructed as and when necessary.[15] That is why the Companies requested, and the Commission approved, a CPCN for the entire landfill but ECR cost recovery for only the first phase: The Companies will need to return to the Commission to seek additional ECR-cost-recovery authority for subsequent phases, ensuring the Commission will have multiple opportunities to review the costs and benefits of each phase of expanding the landfill.

24. Maintaining a phased approach to the landfill and returning to the Commission for ECR-cost-recovery authority for later phases also reflects and confirms the Companies' long-standing commitment to ongoing analysis to ensure that future investments in utility facilities are the lowest-reasonable-cost means of serving customers. The Companies seek to invest and recover only those resources that are necessary to serve customers; this application and its supporting analysis, as well as the phased approach the Companies are continuing to take

---

[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.

[14] As the analysis further explains, this assumes the EPA's Clean Power Plan is implemented as proposed.

[15] Case No. 2009-00197, Direct Testimony of John Voyles at 21-22 (June 26, 2009); Case No. 2009-00198, Direct Testimony of John Voyles at 20 (June 26, 2009).

concerning the Trimble County Landfill, demonstrate that the Companies make such investments only when and to the extent they are prudent and necessary.

The Companies Will Soon Commit Significant Additional Financial Resources to Building Phase I of the Trimble County Landfill and Request Assurance that the CPCN and ECR-Cost-Recovery Authority the Commission Granted in 2009 Remain Valid and Sufficient

25. Although expansion of the Companies' existing CCR-storage facilities and beneficial reuse have allowed the Companies to continue operating the Trimble County coal units without CCR-related constraints to date, the remaining storage capacity is nearing exhaustion. In addition, the U.S. Environmental Protection Agency ("EPA") issued in April 2015 its Disposal of Coal Combustion Residuals from Electric Utilities final rule ("CCR Rule").[16] Under the CCR Rule, the Companies must assess and determine if their existing CCR storage facilities (bottom ash pond and gypsum storage pond) may continue to operate under the new rule or must be closed. The rule requires the assessments be completed no later than April 2018.[17] The gypsum storage pond is a synthetic-membrane-lined facility; the bottom ash pond is not lined with a synthetic membrane, making it the Companies' current expectation that the bottom ash pond will not meet the CCR Rule's requirements for further wet CCR storage. Therefore, the Companies must soon begin constructing Phase I of the Trimble County Landfill, and particularly the CCR treatment facility that is part of Phase I, to ensure they can continue to operate the Trimble County coal-fired units—two of the Companies' lowest-cost units—without CCR-related constraints. To that end, the Companies plan to issue to the market in the second quarter of 2015 a request for quotations to procure and construct the necessary CCR treatment and transport facilities, road, and bridge, with a four-month bid period and targeted contract

[16] 40 CFR Parts 257 and 261 (2015), 80 Fed. Reg. 21,302 (Apr. 17, 2015). Available at: http://www.gpo.gov/fdsys/pkg/FR-2015-04-17/pdf/2015-00257.pdf.
[17] *See* 40 CFR 257.90(b).

award in the October-November 2015 time-frame, which will allow detailed engineering, procurement, and construction to start in the fourth quarter of this year.

26. These and other landfill-related construction contracts will require significant additional capital commitments by the Companies. To ensure the Companies are operating within the authority they have continuously exercised and believe they have, the Companies respectfully ask the Commission to issue a declaratory order affirming the ongoing validity and sufficiency of the Trimble County Landfill CPCN (for the entire landfill) and ECR-cost-recovery authority (for Phase I of the landfill) the Commission granted the Companies in Case Nos. 2009-00197 and 2009-00198.

27. Because time is of the essence, the Companies further respectfully request that the Commission issue a final order in this proceeding by October 1, 2015.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission issue a declaratory order affirming the ongoing validity and sufficiency of the Trimble County Landfill CPCN (for the entire landfill) and ECR-cost-recovery authority (for Phase I of the landfill) the Commission granted the Companies in Case Nos. 2009-00197 and 2009-00198. The Companies further respectfully request that the Commission issue the requested order by October 1, 2015.

Dated: May 22, 2015

Respectfully submitted,

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Counsel for Louisville Gas and Electric Company and Kentucky Utilities Company

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001 Section 8(7), this is to certify that Kentucky Utilities Company and Louisville Gas and Electric Company's May 22, 2015 electronic filing of their Verified Joint Application is a true and accurate copy of the documents being filed in paper medium; that the electronic filing has been transmitted to the Commission on May 22, 2015; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; that an original of the filing is being mailed by first class U.S. mail, postage prepaid, to the Commission on May 22, 2015; and that on May 22, 2015, electronic mail notification of the electronic filing will be provided to the following:

Jennifer B. Hans
Lawrence W. Cook
Office of the Attorney General
Office of Rate Intervention
1024 Capital Center Drive, Suite 200
Frankfort, KY 40601-8204
jennifer.hans@ag.ky.gov
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Counsel for Louisville Gas and Electric Company and Kentucky Utilities Company

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **John N. Voyles, Jr.**, being duly sworn, deposes and says that he is the Vice President, Transmission and Generation Services for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the foregoing application, and the information contained therein is true and correct to the best of his information, knowledge and belief.

John N. Voyles, Jr.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of May 2015.

(SEAL)
Notary Public

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 19, 2017
Notary ID # 485723

Pearce, Jennifer

From: Somerville, Eric
Sent: Friday, June 26, 2015 10:14 AM
To: Ney, Frank; Johnston, Jon; Redleaf-Durbin, Joan
Cc: Mcgill, Thomas; Able, Tony; Souders, Steve; Mancusi-Ungaro, Philip
Subject: LG&E CCR landfill project - potentially misleading statements before the KPSC
Attachments: USACE 6-25-15 ltr2 with Exhibits.pdf

FYI-

I respectfully draw your attention to paragraphs 3 and 4 on page 4 of the attached letter provided by Sterling Ventures to the U.S. Army Corps of Engineers. The above rreferenced paragraphs summarize an informal conference that took place before the Kentucky Public Service Commission (KPSC) on June 19th to hear statements from parties involved in the official complaint filed by Sterling Ventures and the resulting application for declaratory order filed by LG&E in regards to LG&E's proposed CCR landfill in Trimble County, KY.

In short, LG&E is telling the KPSC that the Final CCR Rule precludes the use of the Sterling Ventures limestone mine to store CCR generated at its Trimble County Generating Station as a beneficial reuse. In contrast, the Kentucky Division of Waste Mgmnt and EPA HQ have suggested to Sterling that it does not, so long as beneficial use requirements are met.

At the June 19th meeting, 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 CWA 404 alternatives analysis after final publication of the CCR regulations. That proposal was declined by LG&E/KU.

I bring this to your attention primarily to (a) alert you that the details of the Final CCR Rule are being discussed (and potentially misinterpreted) before the Kentucky Public Service Commission, and (b) to also alert you that EPA may be contacted by parties of this complaint, including but not limited to the KPSC itself, to provide our opinion of the conflicting positions being presented.

-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

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:

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[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

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[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	x 10%	
Cost of Capital		$ 6.00
O&M Costs		5.52
Depreciation		4.00
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 1is $166.15, and Alterative 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

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[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.

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.

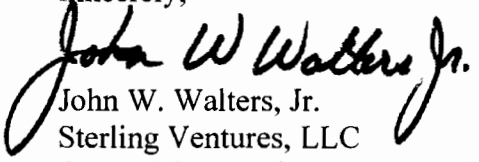
At the informal conference on June 19, when asked why the Companies did not simply include in their 404 Alternatives Analysis the same PVRR computation of each alternative that the Commission would use to review the economics of the alternative, the response was simply: "Because we are not required to". 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

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[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

STERLING VENTURES

John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov> Tue, May 26, 2015 at 1:52 PM
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

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 B

Alternative 1

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$80.00	$5.00	$4.00	$76.00	$7.60	$16.60	$16.60	12/31/2015
2		$5.13	$4.00	$72.00	$7.20	$16.33	$15.14	12/31/2016
3		$5.25	$4.00	$68.00	$6.80	$16.05	$13.81	12/31/2017
4		$5.38	$4.00	$64.00	$6.40	$15.78	$12.60	12/31/2018
5		$5.52	$4.00	$60.00	$6.00	$15.52	$11.49	12/31/2019
6		$5.66	$4.00	$56.00	$5.60	$15.26	$10.48	12/30/2020
7		$5.80	$4.00	$52.00	$5.20	$15.00	$9.55	12/30/2021
8		$5.94	$4.00	$48.00	$4.80	$14.74	$8.71	12/30/2022
9		$6.09	$4.00	$44.00	$4.40	$14.49	$7.94	12/30/2023
10		$6.24	$4.00	$40.00	$4.00	$14.24	$7.24	12/29/2024
11		$6.40	$4.00	$36.00	$3.60	$14.00	$6.60	12/29/2025
12		$6.56	$4.00	$32.00	$3.20	$13.76	$6.02	12/29/2026
13		$6.72	$4.00	$28.00	$2.80	$13.52	$5.49	12/29/2027
14		$6.89	$4.00	$24.00	$2.40	$13.29	$5.00	12/28/2028
15	$20.00	$7.06	$4.00	$40.00	$4.00	$15.06	$5.26	12/28/2029
16		$7.24	$8.00	$32.00	$3.20	$18.44	$5.97	12/28/2030
17		$7.42	$8.00	$24.00	$2.40	$17.82	$5.35	12/28/2031
18		$7.61	$8.00	$16.00	$1.60	$17.21	$4.79	12/27/2032
19		$7.80	$8.00	$8.00	$0.80	$16.60	$4.29	12/27/2033
20		$7.99	$8.00	$0.00	$0.00	$15.99	$3.83	12/27/2034
		$127.72	$100.00		$82.00	$309.72	$166.15	

Alternative 2

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$30.00	$7.00	$1.50	$28.50	$2.85	$11.35	$11.35	12/31/2015
2		$7.18	$1.50	$27.00	$2.70	$11.38	$10.55	12/31/2016
3		$7.35	$1.50	$25.50	$2.55	$11.40	$9.81	12/31/2017
4		$7.54	$1.50	$24.00	$2.40	$11.44	$9.13	12/31/2018
5		$7.73	$1.50	$22.50	$2.25	$11.48	$8.50	12/31/2019
6		$7.92	$1.50	$21.00	$2.10	$11.52	$7.91	12/30/2020
7		$8.12	$1.50	$19.50	$1.95	$11.57	$7.37	12/30/2021
8		$8.32	$1.50	$18.00	$1.80	$11.62	$6.86	12/30/2022
9		$8.53	$1.50	$16.50	$1.65	$11.68	$6.40	12/30/2023
10		$8.74	$1.50	$15.00	$1.50	$11.74	$5.97	12/29/2024
11		$8.96	$1.50	$13.50	$1.35	$11.81	$5.57	12/29/2025
12		$9.18	$1.50	$12.00	$1.20	$11.88	$5.20	12/29/2026
13		$9.41	$1.50	$10.50	$1.05	$11.96	$4.85	12/29/2027
14		$9.65	$1.50	$9.00	$0.90	$12.05	$4.53	12/28/2028
15	$70.00	$9.89	$1.50	$77.50	$7.75	$19.14	$6.68	12/28/2029
16		$10.14	$15.50	$62.00	$6.20	$31.84	$10.31	12/28/2030
17		$10.39	$15.50	$46.50	$4.65	$30.54	$9.17	12/28/2031
18		$10.65	$15.50	$31.00	$3.10	$29.25	$8.15	12/27/2032
19		$10.92	$15.50	$15.50	$1.55	$27.97	$7.22	12/27/2033
20		$11.19	$15.50	$0.00	$0.00	$26.69	$6.39	12/27/2034
		$178.81	$100.00		$49.50	$328.31	$151.91	

Projected annual cost of Alternative 1	$309.72
Projected annual cost of Alternative 2	$328.31
	-$18.59
PVRR Cost of Alternative 1 @7.81% Discount Rate	$166.15
PVRR Cost of Alternative 2 @7.81% Discount Rate	$151.91
	$14.23

Assumptions

Cost of Capital	10%
Inflation on O&M	2.5%
Discount Rate	7.81%

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 SCRA[1], 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 Bonnerton 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.

Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Wednesday, June 17, 2015 10:06 AM
To: Somerville, Eric
Subject: FYI
Attachments: 201500194_06162015.pdf

See attached

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Phone (859) 259-9600
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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 FOR AND COST OF MULTIPHASE LANDFILLS AT THE TRIMBLE COUNTY AND GHENT GENERATING STATIONS	)	CASE NO. 2015-00194

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. 2009-00197[1] 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]

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[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. 2014-00371[6] 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

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[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

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[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

ENTERED
JUN 16 2015
KENTUCKY PUBLIC
SERVICE COMMISSION

ATTEST:

Executive Director

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

PUBLIC SERVICE COMMISSION

In the Matter of:

STERLING VENTURES, LLC	)	
COMPLAINANT	)	
vs.	)	CASE NO. 2015-_____
	)	
KENTUCKY UTILITIES COMPANY	)	
DEFENDANT	)	

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).

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[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.

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[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.

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[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

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[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.

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[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

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[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.

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[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)(l) 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)(l) 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

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[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 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.

TABLE 1
LG&E Trimble County Generating Station Estimated Coal Combustion

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)(l) 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 necessity 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 PVRR analysis

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[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)(l) 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 end 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:

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[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)(l) 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.

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[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]

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[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

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[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]

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[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 PVRR comparative analysis of CCR disposal in the proposed Trimble Landfill verses in Sterling's underground mine (the "Sterling PVRR Analysis") based on using the Warsaw barge location.[40] Attached to the Sterling PVRR 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 PVRR standpoint, and will save the Companies' ratepayers $256,915,601 on a PVRR 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 PVRR 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 $152.3[43] (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 PVRR 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 PVRR 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 PVRR 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

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[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

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[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.

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[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 wastefull 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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*Denotes Served by Email

Pearce, Jennifer

From: Souders, Steve
Sent: Tuesday, May 26, 2015 1:52 PM
To: John Walters
Cc: Somerville, Eric
Subject: RE: LG&E Trimble County Landfill

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

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.
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Lexington, KY 40508
Phone (859) 259-9600
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johnwalters@sterlingventures.com
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175

140722 Monday

Steve Evans, Sterling Ventures

* Mining since 1990
* Site is 1,000 acres in size → will be mining for another 300 yrs
* 1.2 millions/year of limestone being exported

John Hughes recently completed permit appl. due in 2010, & could provide me w/ more details until

John Hughes 859/621.3990 Sterling Ventures

+ GI is a "capital expenditure pass through state"
+ Cement buys limestone "off the river," even though the Sterling Mine produces limestone of a higher calcium content than Cement Scrubber - specs
+ LG&E contracts Sterling along LRD permit cycle, & Sterling purposes lease Sterling property @ the mine

Sterling proposed LG&E a detailed economic proposal to haul limestone to Trimble & back-haul CCR (CA 2012-13) "environmental surcharge" passed through to customers

! The only way LG&E gains profit is earn % on capital investment
* 10% depreciated gains on capital

140729 (cont)

- Sierling's proposal:
  - 750k tons to Trimble → limestone — $9.58 mon + haul
  - 350k tons Gibson to Sierling → gypsum
    - ↳ gypsum hauled from Trimble to Gibson @ $6/ton
  - 12,000 c.f. to Ohio River
    - est $7 million for construction of barge unloading / conveyor to move from river
- "could spot on river for barge" / Clarion Co. owns land at mine / river
- Initial development document LGE
  - cost of operating project in '10 & '12 ('13) to Sierling
- Implications to Public Service Comm. should have all details ec info.

[illegible]

101

140903 Hearing

John Haines (859) 621 3990

* Original application to KY PSC - 3 phase 551 Megawatt project, not incl. transmission costs (in 2009)

* LG&E's PSC application had to include a "Present Value" economic analysis, which is very critical, since the entire life of the project

PVRR = present value revenue requirement

150522 FRIDAY

JOHN HARRIS

* HAS OFFICIALLY SUBMITTED A COMPLAINT TO KY PSC
* IS ABOUT TO SUBMIT COMMENTS TO COE
* CONTACTED HE ABOUT WHETHER THE STREAMS ARE CONSIDERED "SPECIAL AQUATIC SITES"

150526 THURSDAY

JOHN WATERS 859.621.3990

LG&E FILES 'DECLARATORY ACTION' IN FAV TO HAVE PSC CONFIRM CERTIFICATE OF NEED

* ROB BERGER, KY DIV OF WATER, HAS DE BENEFICIAL REUSE SECTION
→ PARAGRAPH "13, PG 14 OF THIS FILING, LG&E STATES THAT NEW CCR RULE "RENDERS SERVICES VENTURES MORE IMPORTANT"

REDACTED

Pearce, Jennifer

From: Mancusi-Ungaro, Philip
Sent: Tuesday, April 28, 2015 1:32 PM
To: Somerville, Eric
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Here you go

From: Redleaf-Durbin, Joan
Sent: Tuesday, April 28, 2015 1:29 PM
To: Mancusi-Ungaro, Philip
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

This is what you all needed

Thx
joan

Joan Redleaf Durbin
Associate Regional Counsel
US EPA, Region 4
404/562-9544

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From: Ney, Frank
Sent: Tuesday, April 28, 2015 1:18 PM
To: Redleaf-Durbin, Joan
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

From: Souders, Steve
Sent: Tuesday, April 28, 2015 1:00 PM
To: Ney, Frank
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Yes, it's in the docket at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-RCRA-2009-0640-12145. FYI, I've had two calls from John Walters of Sterling Ventures, the most recent was this morning. I've explained that the revised definition of CCR landfill only excludes underground and surface coal mines and that placement of CCR in all other mines would need to meet the beneficial use criteria or the placement is disposal. I believe Mr. Walters understands how the rule applies to underground limestone mines.

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

REDACTED

From: Ney, Frank
Sent: Tuesday, April 28, 2015 12:53 PM
To: Souders, Steve
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Was the memorandum published?

Frank

From: Johnston, Jon
Sent: Tuesday, March 31, 2015 11:25 AM
To: Johnson, Barnes; Salyer, Kathleen
Cc: Souders, Steve; Ney, Frank
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Barnes and Kathleen: here is Steve's last update. Thanks again for your help.

Jon D. Johnston, Chief
Materials and Waste Management Branch
Resource Conservation and Restoration Division
EPA Region 4
404-562-8527

From: Souders, Steve
Sent: Tuesday, March 31, 2015 9:26 AM
To: Ney, Frank; Somerville, Eric

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

REDACTED

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
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REDACTED

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:04 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4_2015-009317) _ 2 of 6
Attachments: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; POC Regional Counsel in Waste Div; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: Sterling Ventures/CCR in Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: Sterling Ventures/CCR in Underground Limestone Mine; FW: Sterling Ventures/CCR in Underground Limestone Mine; Sterling Ventures/CCR in Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Attached.

Pearce, Jennifer

From: Ney, Frank
Sent: Tuesday, March 31, 2015 9:01 AM
To: John Walters; Somerville, Eric
Subject: RE: Sterling Ventures/CCR in Underground Limestone Mine

John,

I was out of the office Thursday and Friday. I heard your voice mail yesterday and I followed up with an e-mail to our Headquarters contact. His last e-mail said he would keep me apprized so it may still be the same. I'll let you know when I hear back from him.

Frank

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Monday, March 23, 2015 3:05 PM
To: Ney, Frank; Somerville, Eric
Subject: Sterling Ventures/CCR in Underground Limestone Mine

Frank and Eric,

Any updates?

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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Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Monday, March 23, 2015 3:05 PM
To: Ney, Frank; Somerville, Eric
Subject: Sterling Ventures/CCR in Underground Limestone Mine

Frank and Eric,

Any updates?

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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Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Tuesday, February 03, 2015 5:38 PM
To: Somerville, Eric
Subject: Re: Q&A - Sterling Mine voids

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 on 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-

Pearce, Jennifer

From: Somerville, Eric
Sent: Thursday, January 15, 2015 10:52 AM
To: 'John Walters'
Subject: RE: CCR/Sterling Ventures KY Underground Limestone Mine

Thank you, John. I don't have any hard toe shoes, but will see if a colleague or friend has some I can borrow. I'm not typically one to restrict myself to car rides, but will accept what I can get. I will touch base with you again early in Feb to coordinate logistics.

I'm afraid that I have no role in whatever discussions Frank may be having, other than to express encouragement. If I glean any useful information from Frank I will pass it on.

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

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Wednesday, January 14, 2015 10:40 AM
To: Somerville, Eric
Subject: Re: CCR/Sterling Ventures KY Underground Limestone Mine

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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Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Tuesday, December 30, 2014 1:52 PM
To: Johnston, Jon
Cc: Somerville, Eric
Subject: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill
Attachments: 20120320113128306.pdf; 20120320105854450.pdf; Level 1 pic.pdf

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 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

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Cell (859) 621-3990
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

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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

R. D. Gruzesky

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.

DEP 7059F (1/06)

REGISTERED PERMIT-BY-RULE
BENEFICIAL REUSE OF SPECIAL WASTE

1. X 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 $CaSO_4 \cdot 2H_2O$, 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 ($CaSO_4 \cdot 2H_2O$), 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®

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 859.276.3506 | Paducah, KY 270.898.1637

Member ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1006-00672

LG & 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	Cus Limit	PQL or Std Limit	Date	Time	Tech
Sample: 014 GHENT - UNIT 1 FLY ASH								Date & Time Sampled:		05/06/2010	@ 12:00	
.....continued												
Sample: 015 GHENT - UNIT 2 FLY ASH								Date & Time Sampled:		05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	16:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:11	EML
BARIUM, TCLP			0.45	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:11	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:39	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:39	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:39	EML
SELENIUM, TCLP			<0.20	MG/L		1.0	SW846 6010C		0.1	05/18/10	2:11	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
Sample: 016 GHENT - GYPSUM STACK								Date & Time Sampled:		05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	16:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:16	EML
BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:16	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:43	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:43	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:43	EML
SELENIUM, TCLP			<0.20	MG/L		1.0	SW846 6010C		0.1	05/18/10	2:16	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
Sample: 017 GHENT - GYPSUM								Date & Time Sampled:		05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	16:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:19	EML
BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:19	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:48	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:48	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:48	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:48	EML

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

Analysis	Out of Spec	Qualif	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	SW846 6010C		0.1	05/19/10	2:29	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		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)

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 acqutiard 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.

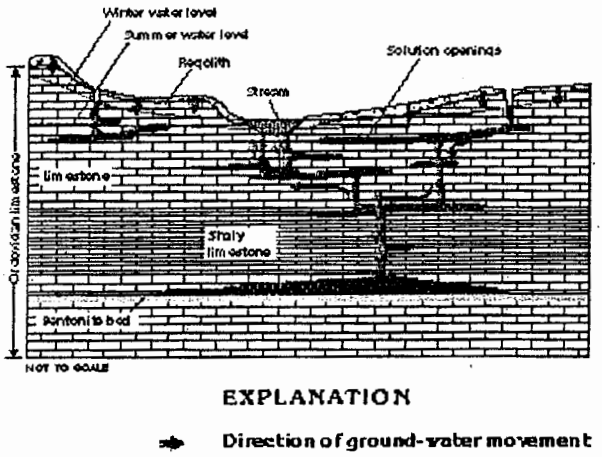
Section 12. Wetlands.
All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on any wetlands

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



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.

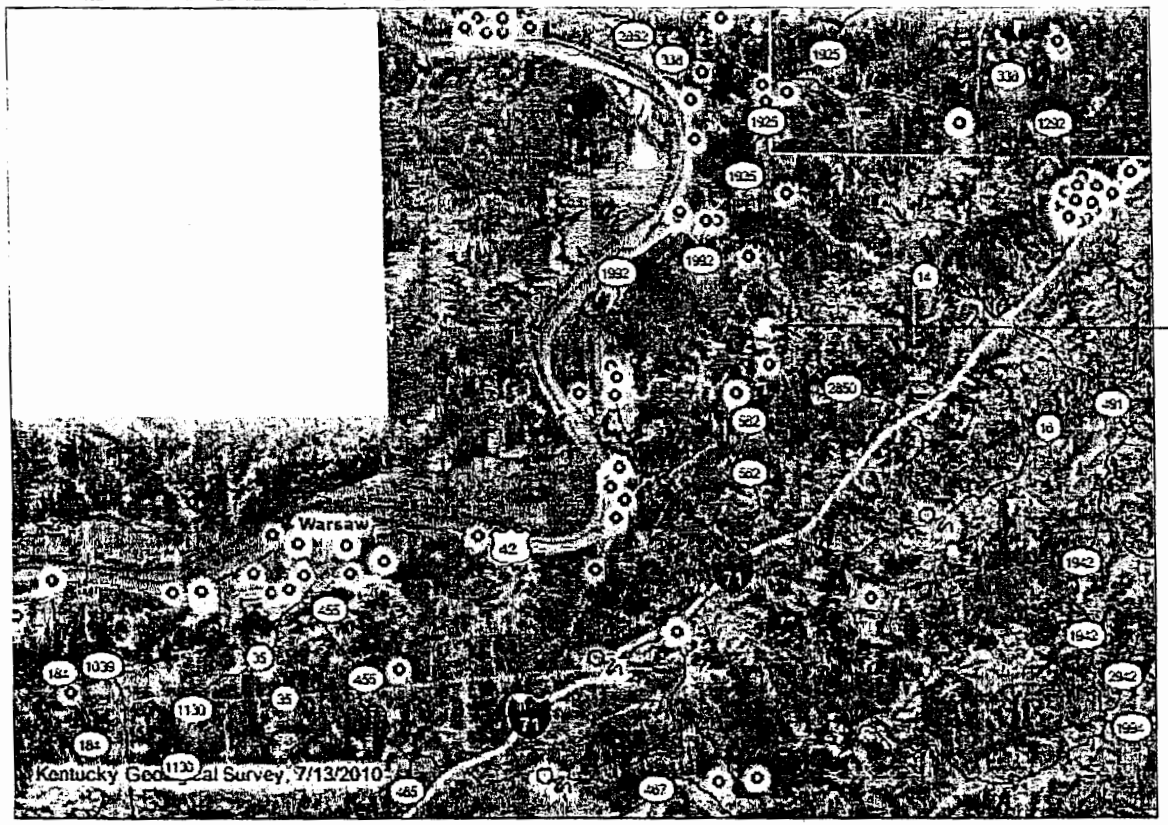
Figure 97. The limestone and dolomite aquifers contain small quantities of insoluble material and, therefore, produce only a thin layer of residuum when weathered. Recharge water percolates through the thin layer of surface material, called regolith, and subsequent-ly moves through vertical frac-tures 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 de-velopment 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

KY MAPS

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	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	4/22/1986	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	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							

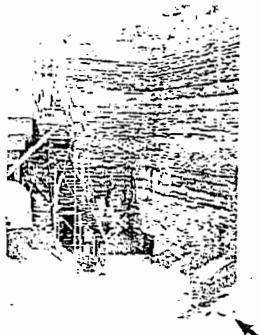
AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
40005892	38.76951	-84.9305	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		55					
40005893	38.76951	-84.9305	Florence	Gallatin		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	38.85611	-84.6672	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	800.5					Bavarian Trucking Co Inc	Solid Waste
80011408	38.85861	-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	-84.6639	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

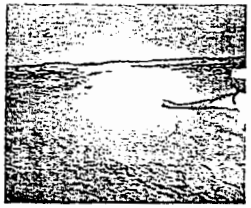
AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
80011418	38.86361	-84.6642	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	762.46					Bavarian Trucking Co Inc	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				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	-84.9156	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 NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
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

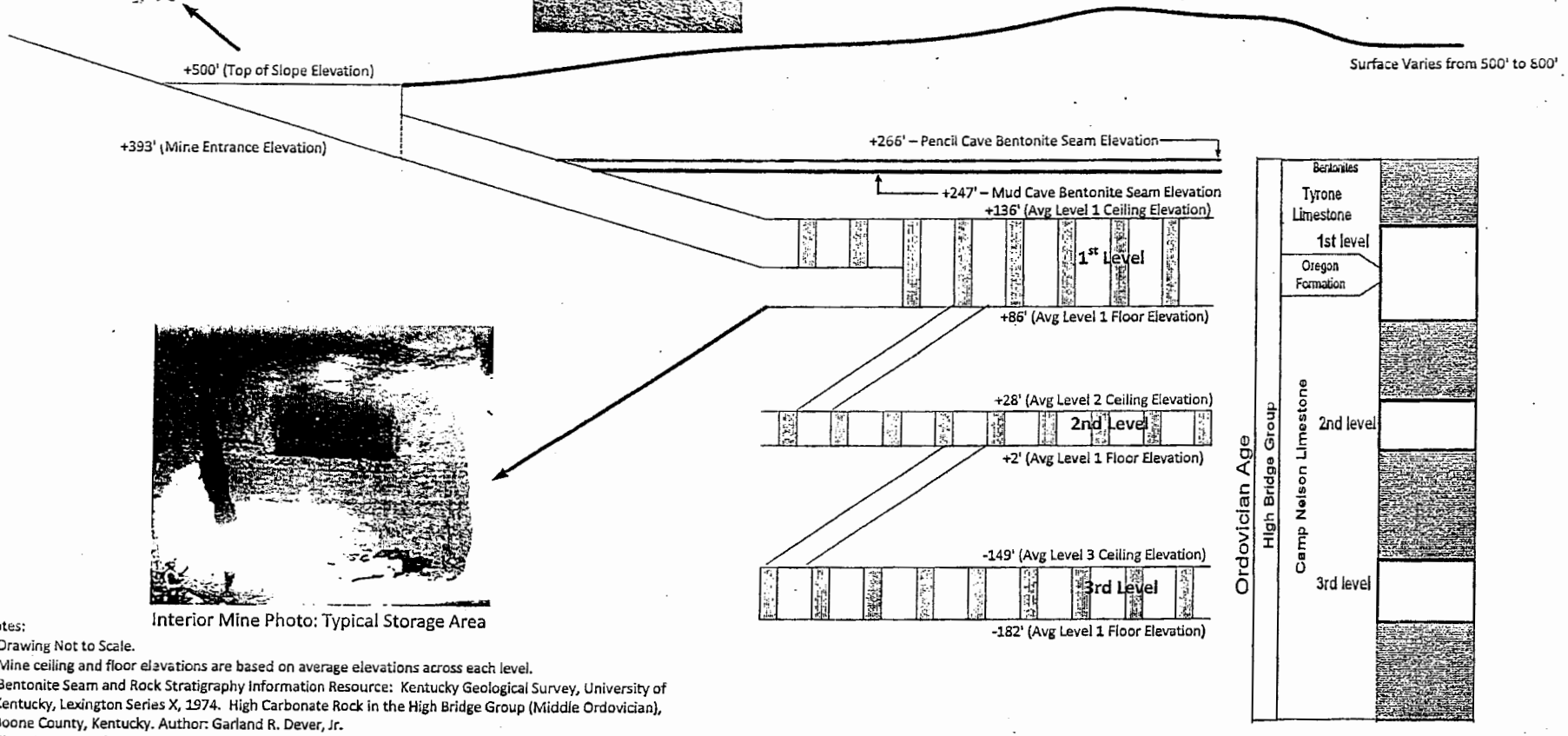
Sterling Materials – Verona, KY
Underground Cross Section





Pencil Cave Bentonite Seam
Thickness: ≈ 18"
Elevation: +266'

Mud Cave Bentonite Seam
Thickness: ≈ 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.

DEP 7059F (1/06)

Attachment 7
Special Waste Sources and Amounts Log Sheet

1. Registrant Name: _____ 2. County: _____

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

5. Contact Person: _____ 6. Title: _____

7. Phone #: (___)___-____ 8. Fax #: (___)___-____ 9. Cell #: (___)___-____

Report prepared for the months of: _____, _____ and _____ Year: ____

Name of Special Waste Generator (Source of Special Waste)	Amount Received (Dry Tons)

10. "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."

Authorized Signature _____ Date _____

Name: (Typed or Printed) _____ Title: _____

Pearce, Jennifer

From: Johnston, Jon
Sent: Tuesday, December 30, 2014 2:03 PM
To: John Walters
Cc: Somerville, Eric; Simonson, Davy; Bassett, Jay; Ney, Frank
Subject: RE: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

Thank you for the details, Mr. Walters. We'll go over the information as quickly as possible and be in touch with you. Best regards,

Jon D. Johnston
RPMMB Chief, RCRA Division
404-562-8527

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, December 30, 2014 1:52 PM
To: Johnston, Jon
Cc: Somerville, Eric
Subject: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

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 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.

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Please let me know if you have any questions.

John

John W. Walters, Jr.
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508
Cell (859) 621-3990
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com
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Pearce, Jennifer

From: Somerville, Eric
Sent: Tuesday, December 30, 2014 2:05 PM
To: Mcgill, Thomas; Able, Tony; Landers, Timothy
Cc: Mancusi-Ungaro, Philip
Subject: FW: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill
Attachments: 20120320113128306.pdf; 20120320105854450.pdf; Level 1 pic.pdf

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: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, December 30, 2014 1:52 PM
To: Johnston, Jon
Cc: Somerville, Eric
Subject: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

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Please let me know if you have any questions.

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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

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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

R. D. Gruzesky

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

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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

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Sent: Tuesday, December 30, 2014 2:05 PM
To: Mcgill, Thomas; Able, Tony; Landers, Timothy
Cc: Mancusi-Ungaro, Philip
Subject: FW: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill
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FYI-

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U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch
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tel 706.355.8514 | somerville.eric@epa.gov

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

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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.

DEP 7059F (1/06)

REGISTERED PERMIT-BY-RULE
BENEFICIAL REUSE OF SPECIAL WASTE

1. X 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 $CaSO_4 \cdot 2H_2O$, 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 ($CaSO_4 \cdot 2H_2O$), 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®

Microbac Laboratories, Inc.

KENTUCKY TESTING LABORATORY DIVISION
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Evansville, IN 812.464.9000 | Lexington, KY 859.276.3506 | Paducah, KY 270.898.7637

Member ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1006-00672

LG & 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	Cus Limit	PQL or Std Limit	Date	Time	Tech
Sample: 014 GHENT - UNIT 1 FLY ASH							Date & Time Sampled:			05/06/2010	@ 12:00	
.....continued												
Sample: 015 GHENT - UNIT 2 FLY ASH							Date & Time Sampled:			05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	18:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:11	EML
BARIUM, TCLP			0.45	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:11	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:39	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:39	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:39	EML
SELENIUM, TCLP			<0.20	MG/L		1.0	SW846 6010C		0.1	05/18/10	2:11	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
Sample: 016 GHENT - GYPSUM STACK							Date & Time Sampled:			05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	18:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:16	EML
BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:16	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:43	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:43	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:43	EML
SELENIUM, TCLP			<0.20	MG/L		1.0	SW846 6010C		0.1	05/18/10	2:16	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
Sample: 017 GHENT - GYPSUM							Date & Time Sampled:			05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	18:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:19	EML
BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:19	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:46	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:46	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:46	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:46	EML

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Analysis	Out of Spec	Qualif	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	SW846 6010C		0.1	05/18/10	2:29	EHL
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:48	EHL

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)

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 acqutiard 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.

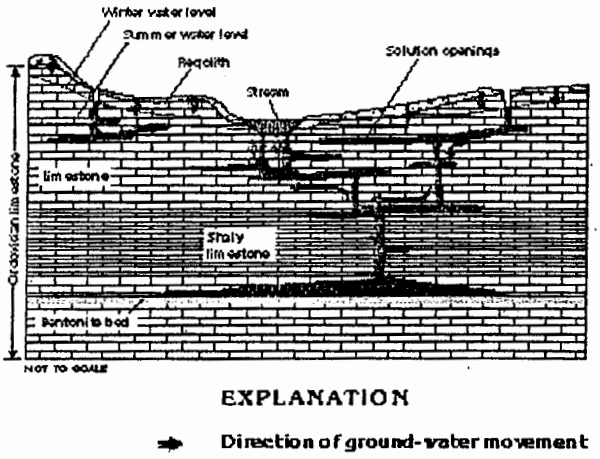
Section 12. Wetlands.
All gypsum will be placed underground. Gypsum will not be placed or stored above ground and therefore will have no impact on any wetlands

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



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.

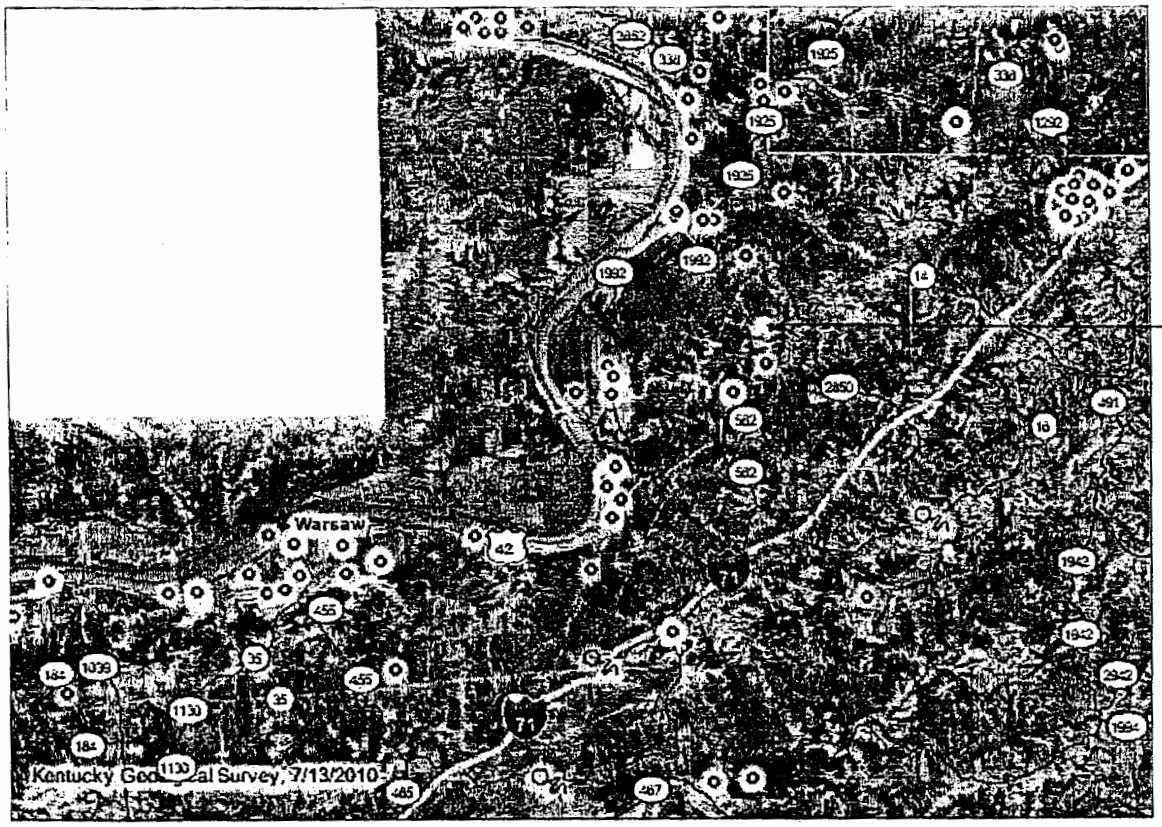
Figure 97. The limestone and dolomite aquifers contain small quantities of insoluble material and, therefore, produce only a thin layer of residuum when weathered. Recharge water percolates through the thin layer of surface material, called regolith, and subsequent-ly moves through vertical frac-tures 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 de-velopment 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

KY MAPS

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	38.77526	-84.8131	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	4/22/1986	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	Gilliland		
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	-84.8367	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							

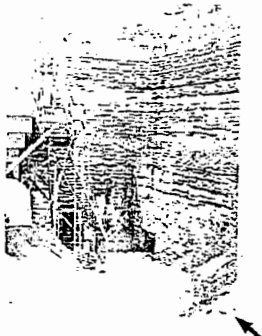
AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
40005892	38.76951	-84.9305	Florence	Gallatin		DOMESTIC - SINGLE HOUSEHOLD		55					
40005893	38.76951	-84.9305	Florence	Gallatin		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	38.85611	-84.6672	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	800.5					Bavarian Trucking Co Inc	Solid Waste
80011408	38.85861	-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

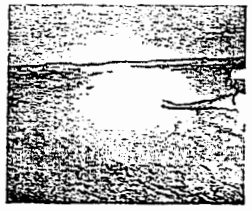
AKGWA NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
80011418	38.86361	-84.6642	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	762.46					Bavarian Trucking Co Inc	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				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	-84.9156	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 NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
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

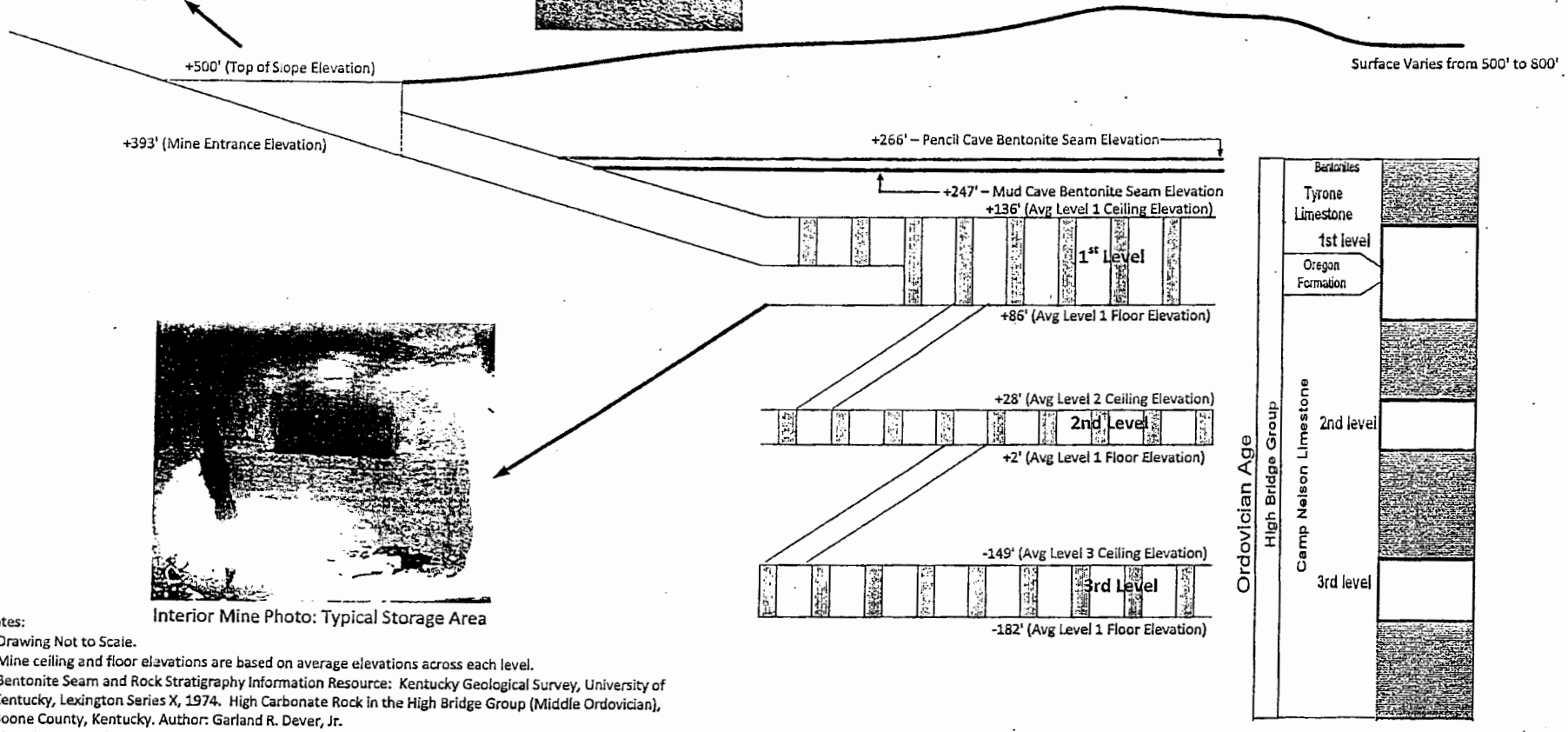
Sterling Materials – Verona, KY
Underground Cross Section





Pencil Cave Bentonite Seam
Thickness: ≈ 18"
Elevation: +266'

Mud Cave Bentonite Seam
Thickness: ≈ 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.

Attachment 7
Special Waste Sources and Amounts Log Sheet

1. Registrant Name: _____ 2. County: _____

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

5. Contact Person: _____ 6. Title: _____

7. Phone #: (___)___-____ 8. Fax #: (___)___-____ 9. Cell #: (___)___-____

Report prepared for the months of: _____, _____ and _____ Year: ____

Name of Special Waste Generator (Source of Special Waste)	Amount Received (Dry Tons)

10. "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."

Authorized Signature _____ Date _____

Name: (Typed or Printed) _____ Title: _____

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:06 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4-2015-009317) 5 of 6
Attachments: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill; RE: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill; FW: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill; Trimble County CCR Landfill; Re: CCR/Sterling Ventures KY Underground Limestone Mine; RE: CCR/Sterling Ventures KY Underground Limestone Mine; CCR/Sterling Ventures KY Underground Limestone Mine; Alternative cost analysis

Attached.

ENERGY AND ENVIRONMENT CABINET

Steven L. Beshear
Governor

Department for Environmental Protection
Division of Waste Management
200 Fair Oaks Lane, Second Floor
Frankfort, Kentucky 40601
www.kentucky.gov

Leonard K. Peters
Secretary

November 19, 2010

John W. Walters, Vice President
Sterling Ventures, LLC
376 South Broadway
Lexington, KY 40508

Certified Mail No. 7010 0780 0001 1440 8766

RE: Registered Permit-By-Rule for Beneficial Reuse
Sterling Mine
Agency Interest No. 1461
Application No. ARP20100001
Gallatin County

Dear Mr. Walters:

The Division of Waste Management has reviewed the above referenced application and found it to be complete. The application received on July 15, 2010 is accepted with the conditions listed on the enclosed permit and as described in the approved plans and application.

Be advised, if you consider yourself aggrieved by the issuance of this permit, you have a right, pursuant to KRS 224.10-420(2) and 401 KAR 47:130 Section 2(3), to file with the cabinet a petition demanding a hearing. This right to demand a hearing shall be limited to a period of thirty (30) days after receipt of this permit. Be advised this acceptance does not supersede any local or county land use ordinances. If you need clarification or additional information, please contact Bob Bickner at (502) 564-6716 extension 4674.

Sincerely,

R. D. Gruzesky

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

Enclosure
RDG/RAB/rcg

c: Reading file

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

R. D. Gruzesky

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

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, July 21, 2014 4:14 PM
To: 'Simpson, Kimberly J LRL'
Subject: RE: Addt info_re: LG&E landfill alternative (3 of 5)
Attachments: Approved App 11-19-2010(10327DEPC999636) Exhibit 6B.pdf

Email 3 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6B of the approved permit application,

Eric Somerville
U.S. EPA Region 4 | Wetlands, Coastal & Oceans Branch
c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720
tel 706.355.8514 | somerville.eric@epa.gov

From: Somerville, Eric
Sent: Monday, July 21, 2014 4:12 PM
To: 'Simpson, Kimberly J LRL'
Cc: Lee Anne Devine; Able, Tony
Subject: Addt info_re: LG&E landfill alternative (1 of 5)

Good Afternoon Kimberly-

I have received additional information regarding the limestone mine in Gallatin County that I referenced in an email to you last week. I am going to send you six (6) files, four of which are actually a single document that is too large to send you as a single file. This email contains the bulk of that large document, minus three of its exhibits (Exhibits 6A, 6B and 6C).

In reading through these materials, it seems apparent that Sterling Ventures approached KDWM with this permit application in 2010, expressly with the intent of accommodating ash from the Kentucky Utilities' Ghent facility. Note the first sentence of Attachment 2, which states:

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It would seem unusual for Sterling Ventures to think of such an idea and spend the time and resources to submit a permit application to KDWM without first discussing it with Kentucky Utilities. Which in turn leaves me puzzled why LG&E would fail to acknowledge this site as an alternative for storing the CCR generated at the Trimble County Generating Station. Elsewhere in the application, Sterling notes that they can accommodate up to 1,000,000 cubic yards annually (see last sentence of first paragraph in Attachment 2), but this seems to be referencing "new" storage space that would become available annually. I am unclear how much storage space there already exists.

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Email 2 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6A of the approved permit application,
Email 3 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6B of the approved permit application,
Email 4 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6C of the approved permit application,

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tel 706.355.8514 | somerville.eric@epa.gov

From: Somerville, Eric
Sent: Thursday, July 17, 2014 2:57 PM
To: Simpson, Kimberly J LRL
Cc: Lee Anne Devine; Able, Tony
Subject: an LG&E landfill alternative?

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I have recently learned of a potential alternative to LG&E's proposed CCR landfill in Trimble County that they did not include in their alternative analysis, but seems to be ripe for consideration. The site is an underground limestone mine in Gallatin County that is already approved by the KY Division of Waste Mgmnt to store coal combustion residuals (Sterling Ventures Mine).

While true that it lies approximately 50 river miles upstream and would therefore require barge fleeting and unloading facilities there, I cannot help but wonder whether those costs would be less than (perhaps significantly less than) the costs contemplated at the proposed site related to engineering, construction of cap, liner, underdrain, etc., compensatory mitigation, and perhaps even the surface water and groundwater monitoring costs. It would clearly have less impacts to waters of the U.S. The company's alternatives analysis roundly dismissed all alternatives requiring barge transport of this material, but as our letter noted, we do not believe these alternatives should be so quickly dismissed.

This limestone mine is reportedly located outside of even a 500-year floodplain and has no contact with groundwater. I cannot vouch for the veracity of this, but I hope to obtain some additional information about the site soon. I will pass it on to you if/when I receive it.

Respectfully,

Eric

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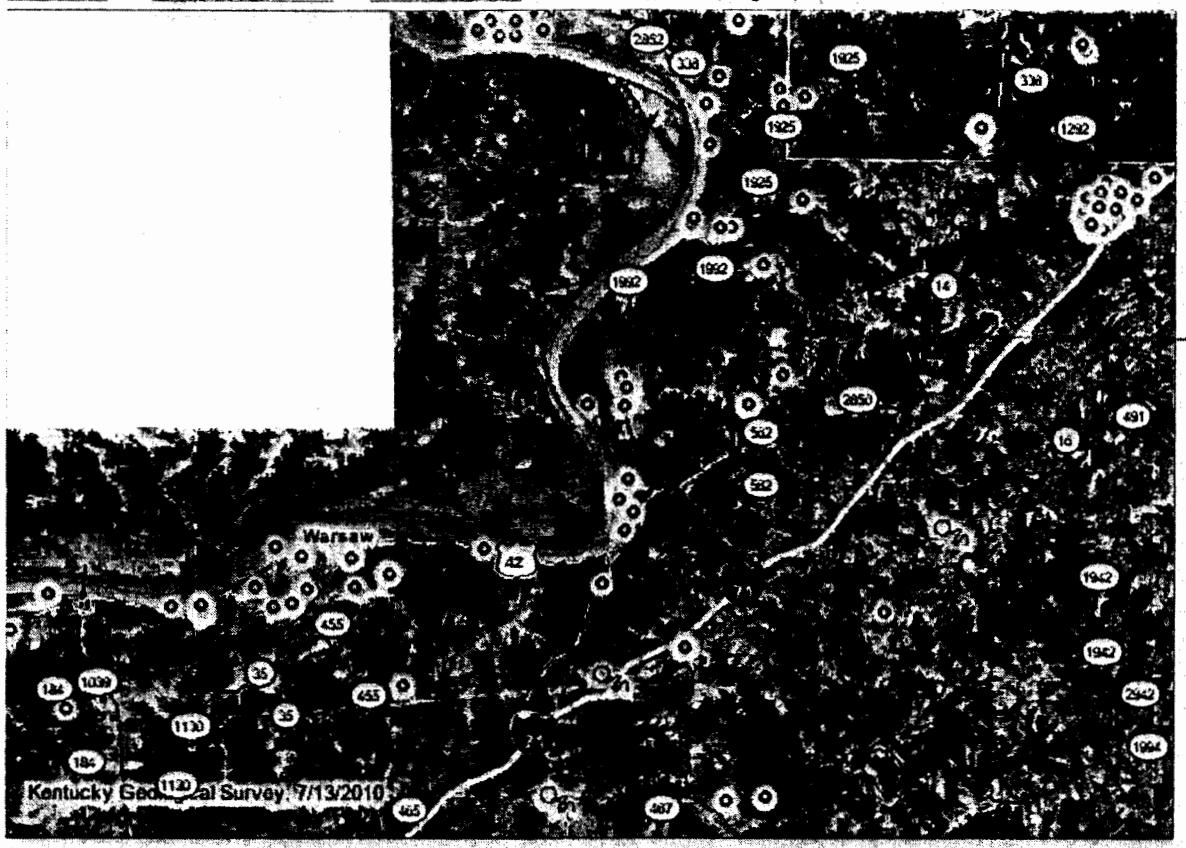
tel 706.355.8514 | somerville.eric@epa.gov

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

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 (lsa)

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

KY MAPS

Bookmark Map

EXHIBIT 6B

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, July 21, 2014 4:12 PM
To: Simpson, Kimberly J LRL
Cc: Lee Anne Devine; Able, Tony
Subject: Addt info_re: LG&E landfill alternative (1 of 5)
Attachments: Approved App 11-19-2010(10327DEPC999636) minus exhibits.pdf

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Email 3 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6B of the approved permit application,
Email 4 of 5: "Beneficial Re-Use of Special Waste," Exhibit 6C of the approved permit application,
Email 5 of 5: "Beneficial Re-Use of Special Waste," KDWM approval letter and Permit (11.19.2010).

Eric Somerville
U.S. EPA Region 4 | Wetlands, Coastal & Oceans 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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DEP 7059F (1/06)

[redacted] 4461 - SRP2010001

RECEIVED
July 15 RAB
~~APR 19~~ 2010
DIVISION OF WASTE MANAGEMENT
SOLID WASTE BRANCH

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.

APPROVED
COMMONWEALTH OF KENTUCKY
DEPARTMENT FOR
ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT

R. D. Sparks
BRANCH MANAGER SIGNATURE

SOLID WASTE BRANCH
TITLE

19 NOV 2010
DATE

DEP 7059F (1/06)

REGISTERED PERMIT-BY-RULE
BENEFICIAL REUSE OF SPECIAL WASTE

1. X 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 7/15/10

Name of Registrant (Typed or Printed) JOHN W. WALTERS JR.

Title VICE-PRESIDENT

Subscribed and sworn to before me by John W. Walters, Jr.

this the 15th day of July, 20 10.

Notary Public Signature Cathy Toadvine

My Commission Expires 1/31/2011

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 $CaSO_4 \cdot 2H_2O$, 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 ($CaSO_4 \cdot 2H_2O$), 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®

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 859.276.3506 | Paducah, KY 270.898.7637

Member ACIL

Chemical, Biological, Physical, Molecular, and Toxicological Services

ELECTRONIC CERTIFICATE OF ANALYSIS

1006-00672

LG & 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	Cus Limit	PQL or Std Limit	Date	Time	Tech
Sample: 014 GHENT - UNIT 1 FLY ASH								Date & Time Sampled:		05/06/2010	@ 12:00	
.....continued												
Sample: 015 GHENT - UNIT 2 FLY ASH								Date & Time Sampled:		05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	18:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:11	EML
BARIUM, TCLP			0.48	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:11	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:39	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:39	EML
MERCURY, TCLP			<0.10	MG/L		0.2	SW846 6010C		0.004	05/19/10	13:39	EML
SELENIUM, TCLP			<0.20	MG/L		1.0	SW846 6010C		0.1	05/18/10	2:11	EML
SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:39	EML
Sample: 016 GHENT - GYPSUM STACK								Date & Time Sampled:		05/06/2010	@ 12:00	
DATE EXTRACTED TCLP			COMPLETED	---			SW846 1311			04/13/10	18:00	RFV
[TCLP Metals]							SW846 6010C					
ARSENIC, TCLP			<0.20	MG/L		5.0	SW846 6010C		0.2	05/18/10	2:16	EML
BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:16	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:43	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:43	EML
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SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:43	EML
Sample: 017 GHENT - GYPSUM								Date & Time Sampled:		05/06/2010	@ 12:00	
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[TCLP Metals]							SW846 6010C					
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BARIUM, TCLP			<0.10	MG/L		100.0	SW846 6010C		0.002	05/18/10	2:29	EML
CADMIUM, TCLP			<0.10	MG/L		1.0	SW846 6010C		0.004	05/19/10	13:48	EML
CHROMIUM, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:48	EML
LEAD, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.02	05/19/10	13:48	EML
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1005-00672

LG & 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	Cus Limit	PQL or Std Unit	Date	Time	Tech
Sample: 017 GHENT - GYPSUM								Date & Time Sampled:		05/06/2010	@ 12:00	
.....continued												
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SILVER, TCLP			<0.10	MG/L		5.0	SW846 6010C		0.01	05/19/10	13:48	EML

THIS REPORT HAS BEEN REVIEWED AND APPROVED FOR RELEASE: A.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)

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 acqutiard 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.

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	96	384	248	Wesselis 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	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 NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
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	38.85611	-84.6672	Verona	Boone	1/1/1900	MONITORING WELL - AMBIENT MONITORING	800.5					Bavarian Trucking Co Inc	Solid Waste
80011408	38.85861	-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
80D11412	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				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	-84.9156	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 NUMBER	lat27	lon27	Quadrangle	County	Construction Date	Primary Use	Surface Elevation	Total Depth	Bottom Elevation	Delta to Mine Roof	Owner	Owner Business	Regulatory Program
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

DEP 7059F (1/06)

Attachment 7

Special Waste Sources and Amounts Log Sheet

1. Registrant Name: _____ 2. County: _____

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

5. Contact Person: _____ 6. Title: _____

7. Phone #: (___)___-____ 8. Fax #: (___)___-____ 9. Cell #: (___)___-____

Report prepared for the months of: _____, _____ and _____ Year: ____

Name of Special Waste Generator (Source of Special Waste)	Amount Received (Dry Tons)

10. "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."

Authorized Signature _____ Date _____

Name: (Typed or Printed) _____ Title: _____

Pearce, Jennifer

REDACTED

From: Somerville, Eric
Sent: Monday, August 03, 2015 1:14 PM
To: Giattina, James
Cc: Mancusi-Ungaro, Philip; Able, Tony
Subject: FW: Sterling Materials & CCR
Attachments: EPA letter.pdf

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

From: Edmundo Laporte [mailto:elaporte@engrservices.com]
Sent: Monday, August 03, 2015 12:48 PM
To: Jeff Baird; J. Steven Gardner; Somerville, Eric
Cc: Doug Mynear
Subject: RE: Sterling Materials & CCR

Giattina.jim@epa.gov

From: Jeff Baird
Sent: Monday, August 03, 2015 12:31 PM
To: J. Steven Gardner; somerville.eric@epa.gov
Cc: Doug Mynear; Edmundo Laporte
Subject: RE: Sterling Materials & CCR

Steve,

I just forwarded to you the letter from EPA to the Corps regarding the Sterling plan. The letter was signed by Heather McTeer Toney, Regional Administrator, and lists James Giattina, Director of the Water Protection Division, as the point of contact at EPA. I don't have Giattina's email address but his phone number is 404-562-9345.

Attaching the letter to this email for Doug and Edmundo's reference as well.

Jeff

From: Somerville, Eric
Sent: Monday, August 03, 2015 11:56 AM
To: 'J. Steven Gardner'
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: RE: Sterling Materials & CCR

Good Day Steven-

I am afraid that I am unaware of any proposal for LG&E to send its CCR from the Trimble County Generating Station to the Sterling Ventures Mine. To my knowledge, LG&E has consistently discounted any such idea as impractical. So, I am not sure exactly what information you might have that I am unaware of, and in any event I am certainly not familiar enough with any new plans or proposal from LG&E to discuss them.

I am also compelled to reiterate that the Army Corps of Engineers is the lead federal agency on any permitting matters pursuant to Section 404 of the Clean Water Act, and so I would advise that you touch base with them. Ms. Kimberly Simpson is the Louisville District POC for this project, and you may reach her at (502) 315-6691 or kimberly.j.simpson@usace.army.mil.

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: J. Steven Gardner
Sent: Monday, August 03, 2015 11:39 AM
To: somerville.eric@epa.gov
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: Sterling Materials & CCR

Eric,

We would like to set up a time to discuss the proposal for LG&E to send their CCR from the Trimble plant to the Sterling underground operation today or tomorrow if possible.

Thanks,

Steve

J. Steven Gardner, *PE, PS, SME-RM*
President/CEO
ECSI, LLC
Engineers–Consultants–Scientists–International
an e&e partner company

340 South Broadway, Suite 200
Lexington, KY 40508

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jsgardner@engrservices.com
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

AUG - 7 2014

Colonel Christopher G. Beck
District Engineer
Louisville District Corps of Engineers
Attn: Kimberly J. Simpson
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 Colonel Beck:

The enclosed July 11, 2014, letter from the U. S. Environmental Protection Agency provides comments in response to a Clean Water Act (CWA) Section 404 permit application submitted by the Louisville Gas & Electric Company (LG&E) proposing to construct a 189-acre landfill in jurisdictional waters of the U.S. located in Trimble County, Kentucky. The proposed landfill is designed to accommodate Coal Combustion Residuals (CCR) from the existing LG&E Trimble County Generating Station for the next 37-38 years, and together with its appurtenant structures and operations plan, 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 0.5 acres of open water ponds.

The EPA's July 11, 2014, letter was sent pursuant to Part IV, paragraph 3(a) of the 1992 CWA Section 404(q) Memorandum of Agreement (MOA) between the EPA and the Department of the Army. As noted below, this letter is being sent pursuant to Part IV, paragraph 3(b) of the 1992 CWA Section 404(q) MOA. The proposed LG&E project would have direct impacts, as stated above, on a watershed drained by an unnamed tributary to Corn Creek that has been documented as having high water quality and a diverse biological community, as evidenced by an "excellent" Macroinvertebrate Bioassessment Index (MBI) rating. An additional indication of the quality of this stream system can be found by comparing the system that is proposed to be impacted to a nearby stream. Sampling conducted by LG&E's consultants in 2007, documented that conditions in the streams proposed to be impacted by construction and operation 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 northern stream is designated by the Commonwealth of Kentucky as an Exceptional Water of the Commonwealth, an Outstanding State Resource Water and is also included in the Commonwealth's biological reference reach network. The Kentucky Division of Water resampled the streams proposed to be impacted in March 2013 and again found that the stream's biological community ranked as "excellent" according to the MBI.

The EPA's July 11, 2014 comments were based on information contained in the CWA 404 permit application dated January 2014 and provided the EPA's views regarding compliance with the CWA Section 404(b)(1) Guidelines - 40 C.F.R. § 230 (Guidelines). The EPA expressed concerns that the permit applicant had not undertaken a proper alternatives analysis required under the Guidelines in order to justify the proposed alternative as the least environmentally damaging practicable alternative (LEDPA), consistent with 40 C.F.R. § 230.10(a). Specifically, the EPA commented that the applicant dismissed numerous potentially feasible alternatives based on economic considerations that were neither defined, nor documented. Further, the applicant's alternative analysis included little to no comparative analysis of the range of environmental impacts associated with different alternatives or their comparative estimated compensatory mitigation costs.

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.

The EPA continues to be concerned that the proposed discharge of dredged or fill material into waters of the U.S. would eliminate 16.5 miles of streams that have been documented to be among the highest quality in this region of Kentucky. In addition, potential opportunities to avoid and minimize impacts to these resources have either not yet been considered, or have been dismissed for reasons that are not clearly defined or documented. The EPA recommends that the applicant undertake a thorough and transparent analysis of alternatives and associated environmental impacts to ensure that the LEDPA can be selected. Without this analysis, we do not believe there is sufficient information to make a determination that the proposed alternative represents the LEDPA, as required by the Guidelines. Given the potential elimination of high quality streams as described above, and consistent with Part IV, paragraph 3(b) of the 1992 CWA Section 404(q) MOA between the EPA and the Department of the Army, the EPA believes that the discharge, as proposed, will have a substantial and unacceptable impact on aquatic resources of national importance.

The EPA believes that there are opportunities to address these concerns. We look forward to working with your staff and the applicant to discuss and resolve these issues. If you have any questions, please call Mr. James D. Giattina, Director, Water Protection Division, at (404) 562-9345.

Sincerely,

Heather McTeer Toney
Regional Administrator

Enclosures

cc: Ms. Lee Anne Devine, U.S. Army Corps of Engineers, Louisville District
Mr. Lee Andrews, U.S. Fish and Wildlife Service
Mr. Peter Goodman, Kentucky Division of Water

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 11:56 AM
To: J. Steven Gardner
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: RE: Sterling Materials & CCR

Good Day Steven-

I am afraid that I am unaware of any proposal for LG&E to send its CCR from the Trimble County Generating Station to the Sterling Ventures Mine. To my knowledge, LG&E has consistently discounted any such idea as impractical. So, I am not sure exactly what information you might have that I am unaware of, and in any event I am certainly not familiar enough with any new plans or proposal from LG&E to discuss them.

I am also compelled to reiterate that the Army Corps of Engineers is the lead federal agency on any permitting matters pursuant to Section 404 of the Clean Water Act, and so I would advise that you touch base with them. Ms. Kimberly Simpson is the Louisville District POC for this project, and you may reach her at (502) 315-6691 or kimberly.j.simpson@usace.army.mil.

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: J. Steven Gardner [mailto:jsgardner@engrservices.com]
Sent: Monday, August 03, 2015 11:39 AM
To: Somerville, Eric
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: Sterling Materials & CCR

Eric,

We would like to set up a time to discuss the proposal for LG&E to send their CCR from the Trimble plant to the Sterling underground operation today or tomorrow if possible.

Thanks,

Steve

J. Steven Gardner, *PE, PS, SME-RM*
President/CEO
ECSI, LLC
Engineers–Consultants–Scientists–International
an e&e partner company

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Lexington, KY 40508

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Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 2:19 PM
To: J. Steven Gardner
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: RE: Sterling Materials & CCR

Yes, Steve. That's true. I have been corresponding with John Walters about the Sterling Ventures Mine. However, I may have misinterpreted your previous email to suggest that LG&E has in fact proposed to send the CCR to the mine, which as far as I know is not the case at all.

That said, I can speak with you about CWA 404, but I am less able to discuss "beneficial use" as that term is used in the final EPA rule on CCR. That rule was promulgated under an EPA regulation that I have no experience with. In fact, I am likely no more familiar with the nuances of beneficial reuse as you might be; my only exposure to the term as it applies here is reading the above referenced rule.

If you would still like to chat, I am available this afternoon and all day tomorrow, except for 11:45am – 12:45pm.

-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: J. Steven Gardner [mailto:jsgardner@engrservices.com]
Sent: Monday, August 03, 2015 2:12 PM
To: Somerville, Eric
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: RE: Sterling Materials & CCR

Eric,

We were under the impression that you had been talking with John Walters of Sterling Materials about this proposal. I had some additional clarification questions on Beneficial Use that I thought you could help with.

Thanks,

Steve

J. Steven Gardner, *PE, PS, SME-RM*
President/CEO
ECSI, LLC
Engineers–Consultants–Scientists–International
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Lexington, KY 40508
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859-806-5826 (mobile)

jsgardner@engrservices.com
www.engrservices.com

From: Jeff Baird
Sent: Monday, August 03, 2015 12:31 PM
To: J. Steven Gardner; somerville.eric@epa.gov
Cc: Doug Mynear; Edmundo Laporte
Subject: RE: Sterling Materials & CCR

Steve,

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Attaching the letter to this email for Doug and Edmundo's reference as well.

Jeff

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Sent: Monday, August 03, 2015 11:39 AM
To: somerville.eric@epa.gov
Cc: Doug Mynear; Edmundo Laporte; Jeff Baird
Subject: Sterling Materials & CCR

Eric,

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Thanks,

Steve

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Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 10, 2015 11:00 AM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4-2015-009317)
Attachments: FW: Sterling Materials & CCR ; RE: Sterling Materials & CCR ; RE: Sterling Materials & CCR

A couple of additional email records that might be relevant to the above referenced FOIA request.

Eric Somerville
U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch
c/o SE5D (F120-6) | 980 College Station Road | Athens, GA 30605-2720
tel 706.355.8514 | somerville.eric@epa.gov

Pearce, Jennifer

REDACTED

From: Somerville, Eric
Sent: Wednesday, February 11, 2015 3:15 PM
To: Giattina, James; Mcgill, Thomas; Mancusi-Ungaro, Philip; Able, Tony

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
SpecificPrivilege: Deliberative Process Privilege

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
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REDACTED

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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

Pearce, Jennifer REDACTED

From: Somerville, Eric
Sent: Thursday, February 12, 2015 8:47 AM
To: Souders, Steve
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Information Redacted pursuant to
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Specific Privilege: Deliberative Process Privilege

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Specific Privilege: Deliberative Process Privilege

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

Pearce, Jennifer REDACTED

From: Ney, Frank
Sent: Tuesday, January 20, 2015 9:59 AM
To: Somerville, Eric

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Information Redacted pursuant to
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Specific Privilege: Deliberative Process Privilege

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Monday, January 12, 2015 4:57 PM
To: Ney, Frank
Cc: Somerville, Eric
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Fax (859) 259-9601

johnwalters@sterlingventures.com

Pearce, Jennifer

From: Somerville, Eric
Sent: Tuesday, February 03, 2015 8:47 AM
To: 'John Walters'
Subject: Q&A - Sterling Mine voids

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

REDACTED

Pearce, Jennifer

From: Somerville, Eric
Sent: Thursday, February 12, 2015 8:24 AM
To: Ney, Frank; Souders, Steve
Cc: Johnston, Jon; Able, Tony; Mcgill, Thomas
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Information Redacted pursuant to
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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

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Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

Pearce, Jennifer REDACTED

From: Souders, Steve
Sent: Thursday, February 12, 2015 8:45 AM
To: Somerville, Eric
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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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

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Thanks

John

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Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com

Pearce, Jennifer

From: Somerville, Eric
Sent: Tuesday, February 17, 2015 1:41 PM
To: 'John Walters'
Subject: cancelling next week's meeting

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

From: Somerville, Eric
Sent: Tuesday, February 17, 2015 9:02 AM
To: Somerville, Eric
Subject: EPA letter 2.12.2015

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

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:04 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4-2015-009317) _ 3 of 6
Attachments: LG&E Trimble County Landfill; FOIA Request; more LG&E info for tomorrow's discussion; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; cancelling next week's meeting

Attached.

Pearce, Jennifer REDACTED

From: Somerville, Eric
Sent: Tuesday, January 20, 2015 3:27 PM
To: Ney, Frank
Cc: Johnston, Jon; Able, Tony; Mcgill, Thomas
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

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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

REDACTED

Pearce, Jennifer

From: Somerville, Eric
Sent: Friday, January 16, 2015 4:16 PM
To: Ney, Frank
Cc: Able, Tony; Mcgill, Thomas
Subject: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
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Specific Privilege: Deliberative Process Privilege

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

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:04 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4_2015-009317) _ 4 of 6
Attachments: Re: Q&A - Sterling Mine voids; Q&A - Sterling Mine voids; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: CCR/Sterling Ventures KY Underground Limestone Mine

Attached.

From: Somerville, Eric
Sent: Thursday, July 17, 2014 2:57 PM
To: Simpson, Kimberly J LRL
Cc: Lee Anne Devine; Able, Tony
Subject: an LG&E landfill alternative?

REDACTED

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Classification: UNCLASSIFIED
Caveats: NONE

Pearce, Jennifer

REDACTED

From: Somerville, Eric
Sent: Monday, July 21, 2014 4:14 PM
To: Simpson, Kimberly J LRL
Cc: Lee Anne Devine; Able, Tony
Subject: RE: Addt info_re: LG&E landfill alternative (4 of 5)
Attachments: Approved App 11-19-2010(10327DEPC999636) Exhibit 6C.pdf

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Exhibit 6C

Sterling Materials – Verona, KY
Underground Cross Section

Pencil Cave Bentonite Seam
Thickness: ≈ 18"
Elevation: +266'

Mud Cave Bentonite Seam
Thickness: ≈ 24"
Elevation: +247'

Surface Varies from 500' to 800'

+500' (Top of Slope Elevation)

+393' (Mine Entrance Elevation)

Gypsum – Delivery Shaft

+266' – Pencil Cave Bentonite Seam Elevation

+247' – Mud Cave Bentonite Seam Elevation

+136' (Avg Level 1 Ceiling Elevation)

1st Level

+86' (Avg Level 1 Floor Elevation)

+28' (Avg Level 2 Ceiling Elevation)

2nd Level

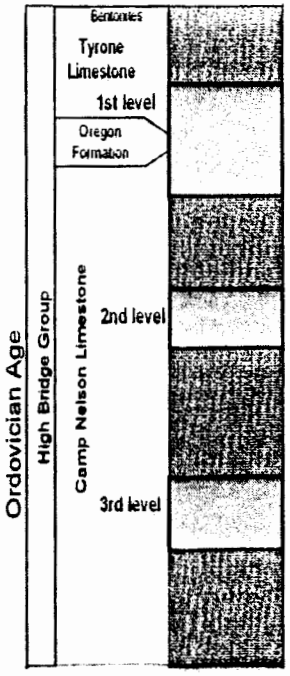
+2' (Avg Level 1 Floor Elevation)

-149' (Avg Level 3 Ceiling Elevation)

3rd Level

-182' (Avg Level 1 Floor Elevation)

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.

Pearce, Jennifer

REDACTED

From: Somerville, Eric
Sent: Monday, July 21, 2014 4:13 PM
To: 'Simpson, Kimberly J LRL'
Subject: RE: Addt info_re: LG&E landfill alternative (2 of 5)
Attachments: Approved App 11-19-2010(10327DEPC999636) Exhibit 6A.pdf

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Information Redacted pursuant to
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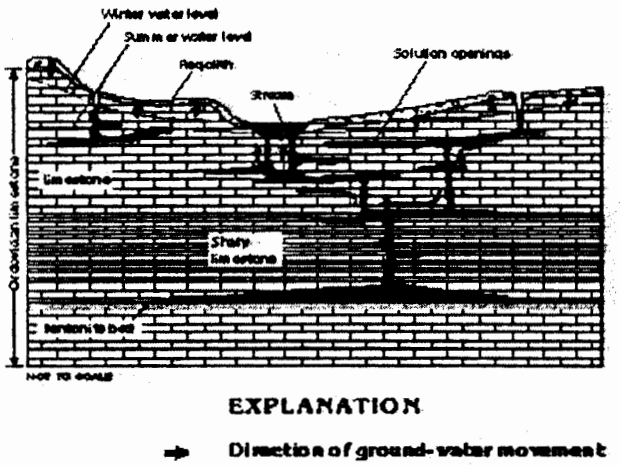
Exhibit 6A

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



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 subsequent-ly moves through vertical frac-tures 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 de-velopment of solution openings, are restricted by zones of low permeability.

Pearce, Jennifer

From: Simpson, Kimberly J LRL <Kimberly.J.Simpson@usace.army.mil>
Sent: Friday, July 18, 2014 9:21 AM
To: Somerville, Eric
Cc: Devine, Lee Anne LRL; Able, Tony
Subject: RE: an LG&E landfill alternative? (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Eric,

Thank you for the information. If you obtain any additional information, please forward it to me. I appreciate it.

I will send this email to the applicant along with your comments received this week.

Thank you,

Kimberly J. Simpson
Senior Project Manager, South
Regulatory Branch
Operations Division
Louisville District
US Army Corps of Engineers
502-315-6691 (office)
502-315-6677 (fax)
POB 59
Louisville, KY 40201-059
kimberly.j.simpson@usace.army.mil
Please visit our website at http://www.lrl.usace.army.mil Click on "How do I...Obtain a permit"
Please comment on our service. Our National Customer Service Survey is located
at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

-----Original Message-----
From: Somerville, Eric [mailto:Somerville.Eric@epa.gov]
Sent: Thursday, July 17, 2014 2:57 PM
To: Simpson, Kimberly J LRL
Cc: Devine, Lee Anne LRL; Able, Tony EPA@SAD
Subject: [EXTERNAL] an LG&E landfill alternative?

Good Afternoon Kimberly-

I have recently learned of a potential alternative to LG&E's proposed CCR landfill in Trimble County that they did not include in their alternative analysis, but seems to be ripe for consideration. The site is an underground limestone mine in Gallatin County that is already approved by the KY Division of Waste Mgmnt to store coal combustion residuals (Sterling Ventures Mine).

While true that it lies approximately 50 river miles upstream and would therefore require barge fleeting and unloading facilities there, I cannot help but wonder whether those costs would be less than (perhaps significantly less than) the costs contemplated at the proposed site related to engineering, construction of cap, liner, underdrain, etc., compensatory mitigation, and perhaps even the surface water and groundwater monitoring costs. It would clearly have less impacts to waters of the U.S. The company's alternatives analysis roundly dismissed all alternatives requiring barge transport of this material, but as our letter noted, we do not believe these alternatives should be so quickly dismissed.

This limestone mine is reportedly located outside of even a 500-year floodplain and has no contact with groundwater. I cannot vouch for the veracity of this, but I hope to obtain some additional information about the site soon. I will pass it on to you if/when I receive it.

Respectfully,

Eric

Eric Somerville

U.S. EPA Region 4 | Wetlands, Coastal & Oceans Branch

c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720

tel 706.355.8514 | somerville.eric@epa.gov

Classification: UNCLASSIFIED
Caveats: NONE

Pearce, Jennifer

From: Somerville, Eric
Sent: Thursday, July 17, 2014 2:57 PM
To: Simpson, Kimberly J LRL
Cc: Lee Anne Devine; Able, Tony
Subject: an LG&E landfill alternative?

Good Afternoon Kimberly-

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c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720
tel 706.355.8514 | somerville.eric@epa.gov

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:08 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4-2015-009317) _ 6 of 6
Attachments: RE: Clarification: LG&E vs Kentucky Utilities; RE: Addt info_re: LG&E landfill alternative (1 of 5) (UNCLASSIFIED); RE: Addt info_re: LG&E landfill alternative (5 of 5); RE: Addt info_re: LG&E landfill alternative (4 of 5); RE: Addt info_re: LG&E landfill alternative (3 of 5); RE: Addt info_re: LG&E landfill alternative (2 of 5); Addt info_re: LG&E landfill alternative (1 of 5); RE: an LG&E landfill alternative? (UNCLASSIFIED); an LG&E landfill alternative?

Attached.

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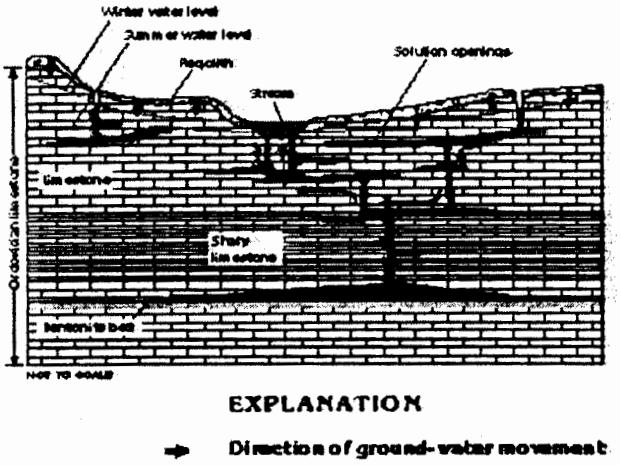

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Elevation: +266'

Mud Cave Bentonite Seam
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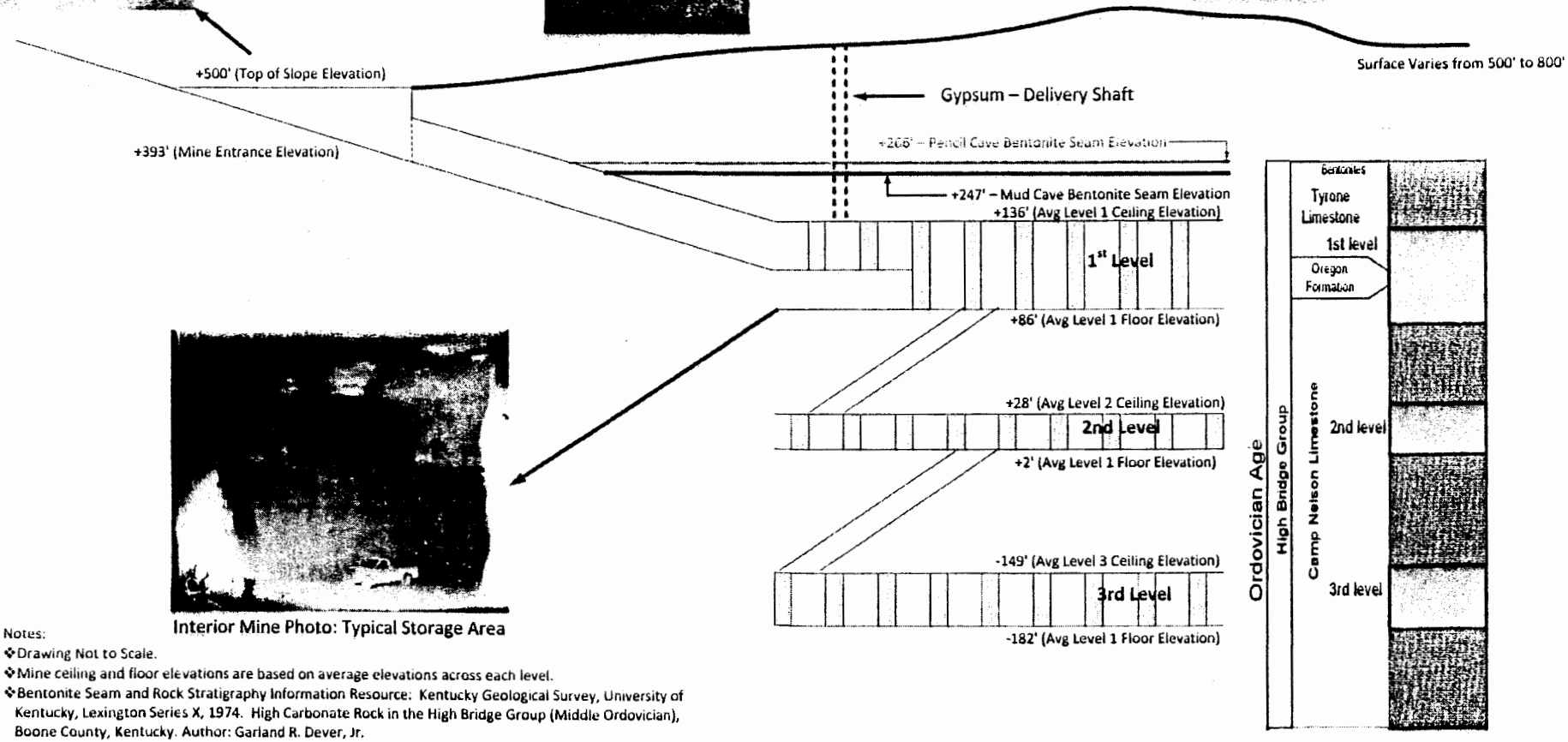
Elevation: +247'



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.

REDACTED

Pearce, Jennifer

From: Somerville, Eric
Sent: Tuesday, February 17, 2015 1:41 PM
To: 'John Walters'
Subject: cancelling next week's meeting

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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

From: Somerville, Eric
Sent: Tuesday, February 17, 2015 9:02 AM
To: Somerville, Eric
Subject: EPA letter 2.12.2015

Information Redacted pursuant to
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Specific Privilege: Deliberative Process Privilege

Pearce, Jennifer

From: Somerville, Eric
Sent: Monday, August 03, 2015 12:04 PM
To: Pearce, Jennifer
Subject: CCR FOIA (EPA-R4-2015-009317) _ 3 of 6
Attachments: LG&E Trimble County Landfill; FOIA Request; more LG&E info for tomorrow's discussion; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; cancelling next week's meeting

Attached.

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:

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[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

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[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	x 10%	
Cost of Capital		$ 6.00
O&M Costs		5.52
Depreciation		4.00
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 1is $166.15, and Alterative 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

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[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.

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.

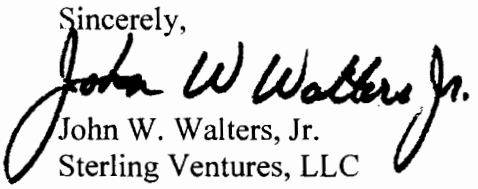
At the informal conference on June 19, when asked why the Companies did not simply include in their 404 Alternatives Analysis the same PVRR computation of each alternative that the Commission would use to review the economics of the alternative, the response was simply: "Because we are not required to". 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

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[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

STERLING VENTURES

John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov> Tue, May 26, 2015 at 1:52 PM
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

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 B

Alternative 1

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$80.00	$5.00	$4.00	$76.00	$7.60	$16.60	$16.60	12/31/2015
2		$5.13	$4.00	$72.00	$7.20	$16.33	$15.14	12/31/2016
3		$5.25	$4.00	$68.00	$6.80	$16.05	$13.81	12/31/2017
4		$5.38	$4.00	$64.00	$6.40	$15.78	$12.60	12/31/2018
5		$5.52	$4.00	$60.00	$6.00	$15.52	$11.49	12/31/2019
6		$5.66	$4.00	$56.00	$5.60	$15.26	$10.48	12/30/2020
7		$5.80	$4.00	$52.00	$5.20	$15.00	$9.55	12/30/2021
8		$5.94	$4.00	$48.00	$4.80	$14.74	$8.71	12/30/2022
9		$6.09	$4.00	$44.00	$4.40	$14.49	$7.94	12/30/2023
10		$6.24	$4.00	$40.00	$4.00	$14.24	$7.24	12/29/2024
11		$6.40	$4.00	$36.00	$3.60	$14.00	$6.60	12/29/2025
12		$6.56	$4.00	$32.00	$3.20	$13.76	$6.02	12/29/2026
13		$6.72	$4.00	$28.00	$2.80	$13.52	$5.49	12/29/2027
14		$6.89	$4.00	$24.00	$2.40	$13.29	$5.00	12/28/2028
15	$20.00	$7.06	$4.00	$40.00	$4.00	$15.06	$5.26	12/28/2029
16		$7.24	$8.00	$32.00	$3.20	$18.44	$5.97	12/28/2030
17		$7.42	$8.00	$24.00	$2.40	$17.82	$5.35	12/28/2031
18		$7.61	$8.00	$16.00	$1.60	$17.21	$4.79	12/27/2032
19		$7.80	$8.00	$8.00	$0.80	$16.60	$4.29	12/27/2033
20		$7.99	$8.00	$0.00	$0.00	$15.99	$3.83	12/27/2034
		$127.72	$100.00		$82.00	$309.72	$166.15	

Alternative 2

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$30.00	$7.00	$1.50	$28.50	$2.85	$11.35	$11.35	12/31/2015
2		$7.18	$1.50	$27.00	$2.70	$11.38	$10.55	12/31/2016
3		$7.35	$1.50	$25.50	$2.55	$11.40	$9.81	12/31/2017
4		$7.54	$1.50	$24.00	$2.40	$11.44	$9.13	12/31/2018
5		$7.73	$1.50	$22.50	$2.25	$11.48	$8.50	12/31/2019
6		$7.92	$1.50	$21.00	$2.10	$11.52	$7.91	12/30/2020
7		$8.12	$1.50	$19.50	$1.95	$11.57	$7.37	12/30/2021
8		$8.32	$1.50	$18.00	$1.80	$11.62	$6.86	12/30/2022
9		$8.53	$1.50	$16.50	$1.65	$11.68	$6.40	12/30/2023
10		$8.74	$1.50	$15.00	$1.50	$11.74	$5.97	12/29/2024
11		$8.96	$1.50	$13.50	$1.35	$11.81	$5.57	12/29/2025
12		$9.18	$1.50	$12.00	$1.20	$11.88	$5.20	12/29/2026
13		$9.41	$1.50	$10.50	$1.05	$11.96	$4.85	12/29/2027
14		$9.65	$1.50	$9.00	$0.90	$12.05	$4.53	12/28/2028
15	$70.00	$9.89	$1.50	$77.50	$7.75	$19.14	$6.68	12/28/2029
16		$10.14	$15.50	$62.00	$6.20	$31.84	$10.31	12/28/2030
17		$10.39	$15.50	$46.50	$4.65	$30.54	$9.17	12/28/2031
18		$10.65	$15.50	$31.00	$3.10	$29.25	$8.15	12/27/2032
19		$10.92	$15.50	$15.50	$1.55	$27.97	$7.22	12/27/2033
20		$11.19	$15.50	$0.00	$0.00	$26.69	$6.39	12/27/2034
		$178.81	$100.00		$49.50	$328.31	$151.91	

Projected annual cost of Alternative 1	$309.72
Projected annual cost of Alternative 2	$328.31
	-$18.59
PVRR Cost of Alternative 1 @7.81% Discount Rate	$166.15
PVRR Cost of Alternative 2 @7.81% Discount Rate	$151.91
	$14.23

Assumptions

Cost of Capital	10%
Inflation on O&M	2.5%
Discount Rate	7.81%

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 SCRA[1], 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 Bonnerton 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.

Pearce, Jennifer

From: Ney, Frank
Sent: Tuesday, July 28, 2015 4:33 PM
To: Pearce, Jennifer
Cc: Ney, Frank
Subject: CCR FOIA
Attachments: FW: LG&E CCR landfill project - potentially misleading statements before the KPSC; RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine; LG&E CCR landfill project - potentially misleading statements before the KPSC

Pearce, Jennifer

From: John Walters <johnwalters@sterlingventures.com>
Sent: Tuesday, February 10, 2015 11:39 AM
To: Somerville, Eric
Subject: LG&E Trimble County Landfill
Attachments: Trimble Landfill Cost Budget.pdf

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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	Date	Forecast	EFC	Spend	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
P/GSP	2010	28.6	28.6	28.6	-	-	-	-	-	-	-	-	-	-
P/GSP	2010	28.3	28.3	28.3	-	-	-	-	-	-	-	-	-	-
		0.3	0.3	0.3	-	-	-	-	-	-	-	-	-	-
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
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
		(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)
(Net)	2017	139.3	139.3	1.3	0.5	22.3	74.2	40.9	0.1	-	-	-	-	-
(Net)	2017	152.3	152.3	-	-	20.2	68.1	41.4	22.6	-	-	-	-	-
		(13.0)	(13.0)	1.3	0.5	2.1	6.0	(0.4)	(22.5)	-	-	-	-	-
Net)	2017	25.9	25.9	7.2	-	6.5	11.4	0.8	-	-	-	-	-	-
Net)	2017	21.5	21.5	7.2	-	-	11.7	2.3	0.3	-	-	-	-	-
		4.5	4.5	-	-	6.5	(0.2)	(1.5)	(0.3)	-	-	-	-	-
let) Project	2027	29.2	29.2	-	-	-	-	-	-	-	-	-	19.0	10.2
let) Project	2027	60.4	60.4	-	-	-	-	-	-	-	-	-	28.7	26.2
		(31.2)	(31.2)	-	-	-	-	-	-	-	-	-	(9.7)	(16.0)
IV) (Net) Project	2034/2045	119.2	-	-	-	-	-	-	-	-	-	-	-	-
IV) (Net) Project	2034/2045	119.2	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-
rge Loading (Net)	2012	9.0	9.0	9.0	-	-	-	-	-	-	-	-	-	-
rge Loading (Net)	2012	8.9	8.9	8.9	-	-	-	-	-	-	-	-	-	-
		0.1	0.1	0.1	-	-	-	-	-	-	-	-	-	-
ndfill (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**
ndfill (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**
		(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)
: 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**
: 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**
		(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)
)	2010	884.5	884.5	880.8	0.8	3.0	-	-	-	-	-	-	-	-
)	2011	887.0	887.0	882.5	1.5	3.0	-	-	-	-	-	-	-	-
		(2.5)	(2.5)	(1.7)	(0.7)	-	-	-	-	-	-	-	-	-
	2013	5.5	5.5	2.6	2.9	-	-	-	-	-	-	-	-	-
	2014	6.7	6.7	2.7	3.9	-	-	-	-	-	-	-	-	-
		(1.2)	(1.2)	(0.2)	(1.0)	-	-	-	-	-	-	-	-	-
	2016	138.0	138.0	94.8	16.9	16.3	9.9	-	-	-	-	-	-	-
	2017	139.0	139.0	92.8	11.1	15.3	16.0	3.8	-	-	-	-	-	-
		(1.0)	(1.0)	2.0	5.8	1.1	(6.1)	(3.8)	-	-	-	-	-	-
	2015	549.0	549.0	387.3	125.5	36.2	-	-	-	-	-	-	-	-
	2015	562.5	562.5	407.7	124.4	30.4	-	-	-	-	-	-	-	-
		(13.5)	(13.5)	(20.4)	1.1	5.8	-	-	-	-	-	-	-	-
	2018	683.0	683.0	2.5	1.0	84.9	394.4	155.3	44.9	-	-	-	-	-
	2021	816.5	816.5	3.6	2.0	0.3	0.4	2.9	97.2	496.1	169.6	44.5	-	-
		(133.5)	(133.5)	(1.1)	(1.0)	84.6	394.0	152.4	(52.2)	(496.1)	(169.6)	(44.5)	-	-
	2025	913.1	856.6	2.5	-	-	-	-	-	-	-	4.8	135.1	502.6
	2031	-	-	-	-	-	-	-	-	-	-	-	-	-
		913.1	856.6	2.5	-	-	-	-	-	-	-	4.8	135.1	502.6

PHASE I *$148.1 M
152.3
21.5
$321.9M → SEE ATTACHED CAPITAL REVIEW LANDFILL PHASE I/TREATMENT $322M

PHASE II O $60.4 M
III $119.2 M
$179.6M – SEE ATTACHED CAPITAL REVIEW LANDFILL PHASES II, III & IV

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 & Transpo	$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.

LG&E KU
PPL companies

Simonson, Davy REDACTED

From: Simonson, Davy
Sent: Tuesday, June 30, 2015 9:18 AM
To: Mooney, Susan; Jackson, Mary; Chow, Rita
Cc: Ney, Frank
Subject: FW: LG&E CCR landfill project - potentially misleading statements before the KPSC
Attachments: USACE 6-25-15 ltr2 with Exhibits.pdf; ATT00001.htm

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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:

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[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

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[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	x 10%	
Cost of Capital		$ 6.00
O&M Costs		5.52
Depreciation		4.00
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 1is $166.15, and Alterative 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

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[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.

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.

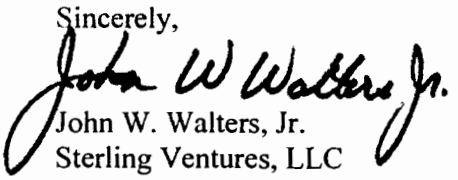
At the informal conference on June 19, when asked why the Companies did not simply include in their 404 Alternatives Analysis the same PVRR computation of each alternative that the Commission would use to review the economics of the alternative, the response was simply: "Because we are not required to". 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

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[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

STERLING VENTURES

John Walters <johnwalters@sterlingventures.com>

RE: LG&E Trimble County Landfill

1 message

Souders, Steve <Souders.Steve@epa.gov> Tue, May 26, 2015 at 1:52 PM
To: John Walters <johnwalters@sterlingventures.com>
Cc: "Somerville, Eric" <Somerville.Eric@epa.gov>

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 B

Alternative 1

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$80.00	$5.00	$4.00	$76.00	$7.60	$16.60	$16.60	12/31/2015
2		$5.13	$4.00	$72.00	$7.20	$16.33	$15.14	12/31/2016
3		$5.25	$4.00	$68.00	$6.80	$16.05	$13.81	12/31/2017
4		$5.38	$4.00	$64.00	$6.40	$15.78	$12.60	12/31/2018
5		$5.52	$4.00	$60.00	$6.00	$15.52	$11.49	12/31/2019
6		$5.66	$4.00	$56.00	$5.60	$15.26	$10.48	12/30/2020
7		$5.80	$4.00	$52.00	$5.20	$15.00	$9.55	12/30/2021
8		$5.94	$4.00	$48.00	$4.80	$14.74	$8.71	12/30/2022
9		$6.09	$4.00	$44.00	$4.40	$14.49	$7.94	12/30/2023
10		$6.24	$4.00	$40.00	$4.00	$14.24	$7.24	12/29/2024
11		$6.40	$4.00	$36.00	$3.60	$14.00	$6.60	12/29/2025
12		$6.56	$4.00	$32.00	$3.20	$13.76	$6.02	12/29/2026
13		$6.72	$4.00	$28.00	$2.80	$13.52	$5.49	12/29/2027
14		$6.89	$4.00	$24.00	$2.40	$13.29	$5.00	12/28/2028
15	$20.00	$7.06	$4.00	$40.00	$4.00	$15.06	$5.26	12/28/2029
16		$7.24	$8.00	$32.00	$3.20	$18.44	$5.97	12/28/2030
17		$7.42	$8.00	$24.00	$2.40	$17.82	$5.35	12/28/2031
18		$7.61	$8.00	$16.00	$1.60	$17.21	$4.79	12/27/2032
19		$7.80	$8.00	$8.00	$0.80	$16.60	$4.29	12/27/2033
20		$7.99	$8.00	$0.00	$0.00	$15.99	$3.83	12/27/2034
		$127.72	$100.00		$82.00	$309.72	$166.15	

Alternative 2

Yr	Capital Cost	O&M Cost	Capital Cost/ Depreciation	Rate Base	Cost of Capital at 10%	Annual Cost	Present Value Cost	Date
1	$30.00	$7.00	$1.50	$28.50	$2.85	$11.35	$11.35	12/31/2015
2		$7.18	$1.50	$27.00	$2.70	$11.38	$10.55	12/31/2016
3		$7.35	$1.50	$25.50	$2.55	$11.40	$9.81	12/31/2017
4		$7.54	$1.50	$24.00	$2.40	$11.44	$9.13	12/31/2018
5		$7.73	$1.50	$22.50	$2.25	$11.48	$8.50	12/31/2019
6		$7.92	$1.50	$21.00	$2.10	$11.52	$7.91	12/30/2020
7		$8.12	$1.50	$19.50	$1.95	$11.57	$7.37	12/30/2021
8		$8.32	$1.50	$18.00	$1.80	$11.62	$6.86	12/30/2022
9		$8.53	$1.50	$16.50	$1.65	$11.68	$6.40	12/30/2023
10		$8.74	$1.50	$15.00	$1.50	$11.74	$5.97	12/29/2024
11		$8.96	$1.50	$13.50	$1.35	$11.81	$5.57	12/29/2025
12		$9.18	$1.50	$12.00	$1.20	$11.88	$5.20	12/29/2026
13		$9.41	$1.50	$10.50	$1.05	$11.96	$4.85	12/29/2027
14		$9.65	$1.50	$9.00	$0.90	$12.05	$4.53	12/28/2028
15	$70.00	$9.89	$1.50	$77.50	$7.75	$19.14	$6.68	12/28/2029
16		$10.14	$15.50	$62.00	$6.20	$31.84	$10.31	12/28/2030
17		$10.39	$15.50	$46.50	$4.65	$30.54	$9.17	12/28/2031
18		$10.65	$15.50	$31.00	$3.10	$29.25	$8.15	12/27/2032
19		$10.92	$15.50	$15.50	$1.55	$27.97	$7.22	12/27/2033
20		$11.19	$15.50	$0.00	$0.00	$26.69	$6.39	12/27/2034
		$178.81	$100.00		$49.50	$328.31	$151.91	

Projected annual cost of Alternative 1	$309.72
Projected annual cost of Alternative 2	$328.31
	-$18.59
PVRR Cost of Alternative 1 @7.81% Discount Rate	$166.15
PVRR Cost of Alternative 2 @7.81% Discount Rate	$151.91
	$14.23

Assumptions

Cost of Capital	10%
Inflation on O&M	2.5%
Discount Rate	7.81%

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 SCRA[1], 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 Bonnerton 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.

REDACTED

Souders, Steve

From: Souders, Steve
Sent: Tuesday, April 28, 2015 1:00 PM
To: Ney, Frank
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Yes, it's in the docket at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-RCRA-2009-0640-12145. FYI, I've had two calls from John Walters of Sterling Ventures, the most recent was this morning. I've explained that the revised definition of CCR landfill only excludes underground and surface coal mines and that placement of CCR in all other mines would need to meet the beneficial use criteria or the placement is disposal. I believe Mr. Walters understands how the rule applies to underground limestone mines.

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

From: Ney, Frank
Sent: Tuesday, April 28, 2015 12:53 PM
To: Souders, Steve
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Was the memorandum published?

Frank

From: Johnston, Jon
Sent: Tuesday, March 31, 2015 11:25 AM
To: Johnson, Barnes; Salyer, Kathleen
Cc: Souders, Steve; Ney, Frank
Subject: FW: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Barnes and Kathleen: here is Steve's last update. Thanks again for your help.

Jon D. Johnston, Chief
Materials and Waste Management Branch
Resource Conservation and Restoration Division
EPA Region 4
404-562-8527

From: Souders, Steve
Sent: Tuesday, March 31, 2015 9:26 AM
To: Ney, Frank; Somerville, Eric
Cc: Johnston, Jon; Able, Tony; Mcgill, Thomas
Subject: RE: review status_ CCR/Sterling Ventures KY Underground Limestone Mine

Information Redacted pursuant to
5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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5 U.S.C. Section 552 (b)(5), Exemption 5,
Privileged Inter/Intra Agency Document
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Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

Information Redacted pur[illegible]
5 U.S.C. Section 552 (b)(5), Ex[illegible]
Privileged Inter/Intra Agency Document
Specific Privilege: Deliberative Process Privilege

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

Souders, Steve

From: Souders, Steve
Sent: Tuesday, May 26, 2015 1:52 PM
To: John Walters
Cc: Somerville, Eric
Subject: RE: LG&E Trimble County Landfill

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

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.
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Lexington, KY 40508
Phone (859) 259-9600
Fax (859) 259-9601

johnwalters@sterlingventures.com
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Souders, Steve

From: Souders, Steve
Sent: Tuesday, January 13, 2015 12:22 PM
To: Ney, Frank
Subject: RE: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

Thanks, Frank. Hopefully we can get back to you soon.

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

From: Ney, Frank
Sent: Tuesday, January 13, 2015 11:46 AM
To: Souders, Steve
Cc: Johnston, Jon
Subject: FW: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill
Importance: High

Steve,

Per the e-mail to Mary that I just copied you on – below is some background info on placement of CCR in a limestone mine 300 feet underground.

Thanks!

Frank
404-562-9532

From: Johnston, Jon
Sent: Tuesday, December 30, 2014 2:04 PM
To: Ney, Frank; Bassett, Jay; Simonson, Davy
Subject: FW: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill
Importance: High

Here are the attachments to Mr. Walter's email re: Sterling and CCR.

Jon D. Johnston
RPMMB Chief, RCRA Division
404-562-8527

From: John Walters [mailto:johnwalters@sterlingventures.com]
Sent: Tuesday, December 30, 2014 1:52 PM
To: Johnston, Jon

Cc: Somerville, Eric
Subject: Sterling Ventures Limestone Mine alternative to Trimble County Generating Station CCR Landfill

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 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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May 22, 2015

ELECTRONIC FILING

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

RE: ***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

Dear Mr. DeRouen:

Please find enclosed Louisville Gas and Electric Company and Kentucky Utilities Company's Verified Joint Application for a Declaratory Order, Joint Petition for Confidential Protection and Joint Motion for Informal Conference in the above-referenced matter.

I certify that Louisville Gas and Electric Company and Kentucky Utilities Company's May 22, 2015 electronic filing of the Verified Joint Application, Joint Petition for Confidential Protection and Joint Motion for Informal Conference are a true and accurate copy of the same documents being filed in paper medium; that the electronic filing has been transmitted to the Commission on May 22, 2015; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; and that an original in paper medium of the Verified Joint Application, Joint Petition for Confidential Protection and Joint Motion for Informal Conference are being mailed, by first class U.S. mail, postage prepaid, to the Commission on May 22, 2015.

Should you have any questions, please feel free to contact me at your convenience.

Yours very truly,

Kendrick R. Riggs

KRR:ec
Enclosure

400001.151218/1221525.1

COMMOI EALTH OF KENTUCKY

BEFORE THE P LIC SERVICE COMMISSION

In re the Matte :

VERIFIE INT APPLICATI OF	)	
LOUISVI GAS AND ELEC IC	)	
COMPAN ND KENTUCKY ILITIES	)	
COMPAN OR DECLARATO Y	)	**CASE NO. 2015-00156**
ORDER CERNING	)	
CONSTRI ION OF THE TRI BLE	)	
COUNTY NDFILL AND	)	
RELATE OST RECOVERY	)	

VERIFIED INT APPLICATION OF
LOUISVILLE GA AND ELECTRIC COMPANY
AND KENTU Y UTILITIES COMPANY
FOR A DI LARATORY ORDER

Louisvil Gas and Electric Co pany ("LG&E") and Kentucky Utilities Company ("KU") (collecti y, the "Companies"), pursuant to 807 KAR 5:001 Section 19, hereby apply to the Kentucky I lic Service Commission ("Commission") for a declaratory order that the Commission's rs granting the Companies a Certificate of Public Convenience and Necessity ("CPCN") to co uct a multi-phase landfill for coal-combustion residuals ("CCR") and related facilities, inclu CCR treatment and transport facilities, at the Trimble County Generating Station ("Trimb County Landfill") and to recover the cost of the first phase of the landfill through the Co nies' environmental-cost-recovery ("ECR") mechanisms remain in full effect and continue to vide the Companies all the authority needed for the Companies to continue constructing the dfill and related facilities, including CCR treatment and transport facilities, and to have EC ecovery of the construction costs.[1] Since the Commission issued these final

[1] *In the Matter of: lication of Kentucky Utilities Company for Certificates of Public Convenience and Necessity and Approval of its 09 Compliance Plan for Recovery by Environmental Surcharge,* Case No. 2009-00197, Order (December 23, 200 *In the Matter of Louisville Gas and Electric Company for a Certificate of Public Convenience and Necessity and roval of its 2009 Compliance Plan for Recovery by Environmental Surcharge,* Case No. 2009-00198, Order cember 23, 2009).

orders, the Companies have worked continuously to perform additional required engineering, to construct or engage in related activities on and around the landfill site that are all related to the landfill's construction, and to obtain all necessary permits, and have expended over $24.4 million to advance landfill development under the authority the Commission granted. Because the Companies expect to acquire all of the necessary permits soon, have completed landfill engineering and development (subject to additional permitting-required changes), expect to issue in the second quarter of 2015 a request for quotations for several key landfill-related facilities (including CCR treatment and transport facilities), and expect to begin additional significant procurement and construction activities in the fourth quarter of this year, the Companies are now requesting a declaratory order from the Commission to ensure the Companies' existing CPCN and ECR-cost-recovery authority for the landfill remain valid and fully sufficient before committing to expend additional significant resources and engage in additional significant construction activities. Because the Trimble County Landfill as currently designed is in the same location as originally proposed and will have essentially the same storage capacity, and because it continues to be economical and necessary for the Companies to continue to operate the Trimble County coal-fired units, the Companies respectfully request that the Commission issue the requested declaratory order. The Companies further respectfully request that the Commission issue the requested declaratory order by October 1, 2015, to permit the Companies to enter timely into required procurement and construction contracts later this year.

In support of their Application, the Companies state as follows:

1. The full name and mailing address of KU are: Kentucky Utilities Company, Post Office Box 32010, 220 West Main Street, Louisville, Kentucky 40202. KU may be reached by electronic mail at the electronic mail addresses of its counsel set forth below.

2. The full name and mailing address of LG&E are: Louisville Gas and Electric Company, Post Office Box 32010, 220 West Main Street, Louisville, Kentucky 40202. LG&E may be reached by electronic mail at the electronic mail addresses of its counsel set forth below.

3. KU is a utility engaged in the electric business. KU generates and purchases electricity, and distributes and sells electricity at retail in the following counties in Central, Northern, Southeastern and Western Kentucky:

Adair	Edmonson	Jessamine	Ohio
Anderson	Estill	Knox	Oldham
Ballard	Fayette	Larue	Owen
Barren	Fleming	Laurel	Pendleton
Bath	Franklin	Lee	Pulaski
Bell	Fulton	Lincoln	Robertson
Bourbon	Gallatin	Livingston	Rockcastle
Boyle	Garrard	Lyon	Rowan
Bracken	Grant	Madison	Russell
Bullitt	Grayson	Marion	Scott
Caldwell	Green	Mason	Shelby
Campbell	Hardin	McCracken	Spencer
Carlisle	Harlan	McCreary	Taylor
Carroll	Harrison	McLean	Trimble
Casey	Hart	Mercer	Union
Christian	Henderson	Montgomery	Washington
Clark	Henry	Muhlenberg	Webster
Clay	Hickman	Nelson	Whitley
Crittenden	Hopkins	Nicholas	Woodford
Daviess			

4. LG&E is a utility engaged in the electric and gas business. LG&E generates and purchases electricity, and distributes and sells electricity at retail in Jefferson County and portions of Bullitt, Hardin, Henry, Meade, Oldham, Shelby, Spencer, and Trimble Counties. LG&E also purchases, stores, and transports natural gas and distributes and sells natural gas at retail in Jefferson County and portions of Barren, Bullitt, Green, Hardin, Hart, Henry, Larue, Marion, Meade, Metcalfe, Nelson, Oldham, Shelby, Spencer, Trimble, and Washington Counties.

5. KU was incorporated in Kentucky on August 17, 1912, and in Virginia on November 26, 1991 (and effective as of December 1, 1991), and is in good standing in both Kentucky and Virginia. Copies of KU's good standing certificates from the Kentucky Secretary of State and the Virginia State Corporation Commission are attached as Exhibit 1.

6. LG&E was incorporated in Kentucky on July 2, 1913, and is currently in good standing in Kentucky. A copy of LG&E's good standing certificate from the Kentucky Secretary of State is attached as Exhibit 2.

7. Copies of all orders, pleadings and other communications related to this proceeding should be directed to: [2]

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Vice President – State Regulation and Rates
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[2] The May 18, 2015 letter from the Executive Director of the Commission acknowledged the receipt of the May 15, 2015 notice of election of use of electronic filing procedures filed by LG&E and KU.

The Companies' 2009 Applications for the Trimble County Landfill

8. On June 26, 2009, the Companies filed applications with the Commission requesting CPCNs for various construction projects and approval of the Companies' 2009 ECR Plan to permit recovery of the projects' costs through the Companies' ECR mechanisms. Among the CPCNs and projects proposed was the Trimble County Landfill, including the necessary CCR treatment and transport system, leachate collection system, the lined landfill itself, and eventual capping and closing of the landfill.[3] As proposed in accordance with the preliminary engineering information then available, the landfill was to be located on property owned by the Companies (at the head of what the Companies called Ravine B), and was to have a storage capacity of 34.5 million cubic yards ("MCY").[4] The Companies proposed to construct the landfill in phases; the Companies' share of the total estimated capital cost for entire landfill was estimated to be $404.3 million, of which the Companies estimated they would expend $70.5 million to build Phase I.[5] The Companies had scheduled Phase I of the landfill to be complete in 2012, with the Companies' share of the landfill's estimated operation and maintenance ("O&M") costs to be a total of $15.3 million for 2013-2018.[6]

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[3] *See 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,* Case No. 2009-00197, Application (June 26, 2009); Case No. 2009-00197, Direct Testimony of John N. Voyles at 18, 20, and 32-35 (June 26, 2009); Case No. 2009-00197, Direct Testimony of Charles R. Schram at Exhibit CRS-4 Appendix 4 at 45 (June 26, 2009); *In the Matter of Louisville Gas and Electric Company for a Certificate of Public Convenience and Necessity and Approval of its 2009 Compliance Plan for Recovery by Environmental Surcharge*, Case No. 2009-00198, Application (June 26, 2009); Case No. 2009-00198, Direct Testimony of John N. Voyles at 17-18 and 30-32 (June 26, 2009); Case No. 2009-00198, Direct Testimony of Charles R. Schram at Exhibit CRS-2 Appendix 4 at 45 (June 26, 2009).

[4] *Id.*

[5] The total Phase I capital cost estimate was $94.04 million, with 25% of the cost allocated to Indiana Municipal Power Association ("IMPA") and Illinois Municipal Energy Association ("IMEA"), the other partial owners of the Trimble County coal units. KU's Project 32 included $33.86 million and LG&E's Project 24 included $36.68 million for the Trimble County Landfill.

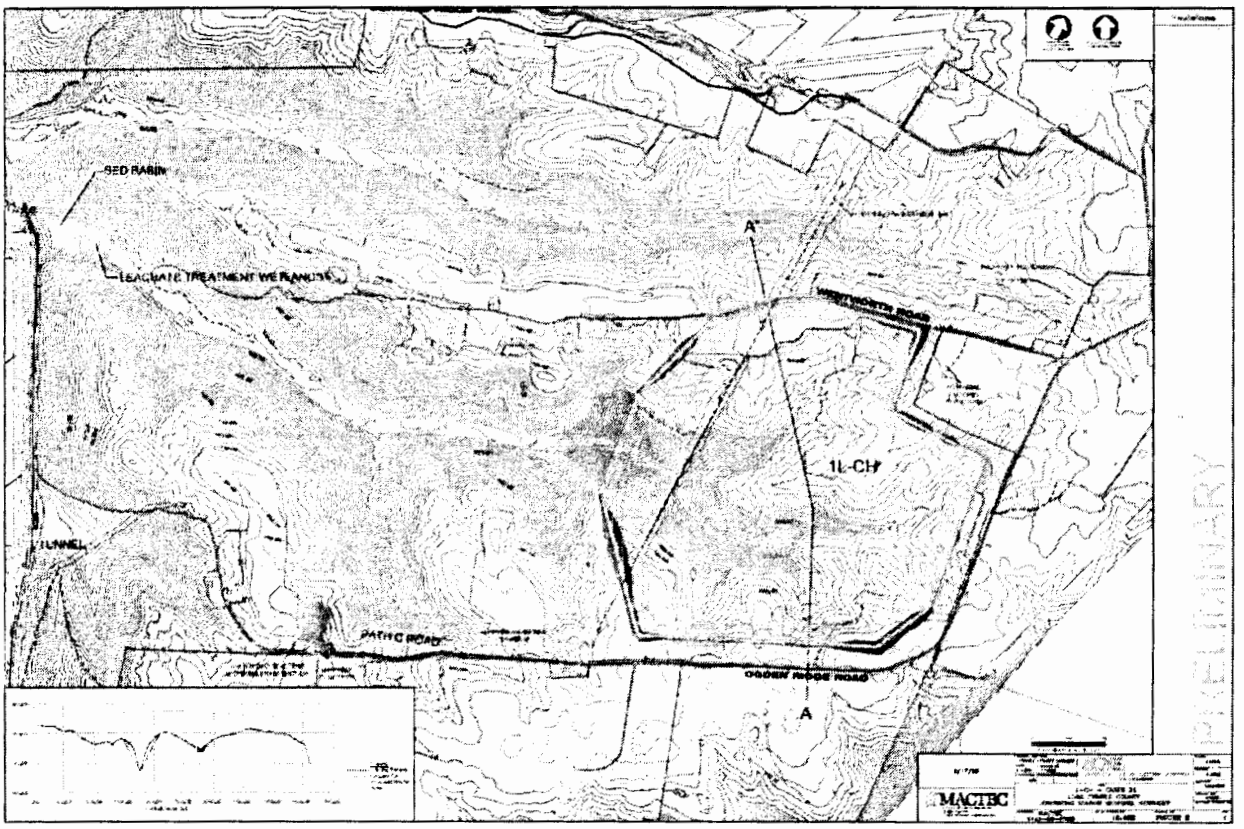
[6] Case No. 2009-00197, Application (June 26, 2009); Case No. 2009-00198, Application (June 26, 2009).

9. The Companies presented evidence in the 2009 cases demonstrating that the proposed Trimble County Landfill would be the least-cost means of meeting the need to dispose of the Trimble County coal units' CCR.[7] The Companies initially evaluated 26 different possible landfill configurations, and then performed a present-value cost-benefit analysis evaluating the three most promising landfill designs and potential off-site CCR storage.[8] The analysis showed that, based on the preliminary landfill designs, the Companies' proposed design (the "Case 21" option) was $26 million less costly than the next-best on-site landfill option, and was $385 million less costly than the off-site alternative.[9]

(This space is intentionally blank.)

[7] *Id.*
[8] *Id.*
[9] Schram LG&E Testimony at 9 (June 26, 2009).

10. As the Companies described in their 2009 applications, the Companies had conducted preliminary engineering for the Trimble County Landfill and received positive responses in early meetings with the Kentucky Division of Waste Management, the Kentucky Division of Water, and the Army Corps of Engineers based on preliminary landfill designs and preliminary field reviews.[10] The preliminary landfill design the Companies presented in their 2009 applications and that received positive initial feedback from the above-listed authorities is shown below:



11. On December 23, 2009, the Commission issued orders that, among other things, granted the Companies' requested CPCN for the Trimble County Landfill and approved recovery of the landfill's Phase I cost through the Companies' ECR mechanisms (Project 32 for KU and Project 24 for LG&E). The Commission stated that the landfill project was "required for the

[10] Voyles KU Testimony at 16 (June 26, 2009).

long-term operation of both the existing generating unit, Trimble County Unit No. 1, and Trimble 2 ... in the manner necessary to comply with the provisions of the Clean Water Act, the Resource Conservation and Recovery Act, and numerous state air quality environmental regulations which pertain to landfill operations. ... Taken as a whole, the evidence indicates that the project is reasonable and cost-effective and will not result in a wasteful duplication of facilities and, therefore, we find that the requested CPCN should be granted."[11]

The Companies Have Worked Continuously on the Trimble County Landfill since Receiving Authority from the Commission in 2009

12. After the Commission issued its final orders on December 23, 2009, the Companies continued their engineering and permitting efforts, which have continued without interruption since the Commission issued its orders. The Companies have sought or are preparing to seek eight different permits from five regulatory agencies: the U.S. Army Corps of Engineers, the Kentucky Division of Waste Management, the Kentucky Division of Water, the Kentucky Division for Air Quality, and the Kentucky Transportation Cabinet. A timeline of the Companies' continuous permitting efforts is attached as Exhibit 3. The Companies have received or expect to receive all the permits listed on Exhibit 3 by early 2016, with the exception of a revised Title V Air Permit from the Kentucky Division for Air Quality, which the Companies will not need in order to construct the landfill, but which the Companies will need to operate the landfill before it goes into service in 2018. The Companies plan to apply for a revised Title V Air Permit for the Trimble County Generating Station in the first quarter of 2017, and expect to receive the permit by July 2017.

[11] Case No. 2009-00198, Order at 6 (Dec. 23, 2009). *See also* Case No. 2009-00197, Order at 8 (Dec. 23, 2009).

13. In addition to their continuous and ongoing engineering and permitting efforts, the Companies have engaged in numerous construction-related activities on and around the landfill site that are all related to the landfill's construction, including purchasing 250 additional acres of land, fencing the perimeter of the landfill site, installing a fly ash barge loading system, relocating the station's helicopter pad, and installing a telecommunication tower. These construction activities account for approximately $15 million of the approximately $24.4 million the Companies have expended to date under the authority the Commission granted in Case Nos. 2009-00197 and 2009-00198. The Commission has reviewed the vast majority of the approximately $24.4 the Companies have expended to date in connection with numerous six-month and two-year investigations pursuant to KRS 278.183(3).[12]

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[12] *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending April 30, 2010,* Case No. 2010-00241, Order (Dec. 9, 2010); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending April 30, 2010,* Case No. 2010-00242, Order (Dec. 10, 2010); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2010,* Case No. 2010-00474, Order (Mar. 18, 2011); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending October 31, 2010,* Case No. 2010-00475, Order (Mar. 18, 2011); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Two-Year Billing Period Ending April 30, 2011,* Case No. 2011-00231, Order (Jan. 31, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Two-Year Billing Period Ending April 30, 2011,* Case No. 2011-00232, Order (Jan. 31, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Periods Ending October 31, 2011 and April 30, 2012,* Case No. 2012-00207, Order (Sep. 26, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Periods Ending October 31, 2011 and April 30, 2012,* Case No. 2012-00208, Order (Sep. 26, 2012); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2012,* Case No. 2012-00546, Order (Apr. 19, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Six-Month Billing Period Ending October 31, 2012,* Case No. 2012-00547, Order (Apr. 19, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Two-Year Billing Period Ending April 30, 2013,* Case No. 2013-00242, Order (Nov. 14, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the Two-Year Billing Period Ending April 30, 2013,* Case No. 2013-00243, Order (Nov. 14, 2013); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Period Ending October 31, 2013,* Case No. 2013-00436, Order (July 11, 2014); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric Company for the*

14. In sum, the Companies have worked continuously and with all possible speed to advance the construction of the Trimble County Landfill since receiving the Commission's final orders in Case Nos. 2009-00197 and 2009-00198.

15. In addition to the Commission's six-month and two-year reviews under KRS 278.183(3), the Companies have also worked to apprise the Commission Staff of the status of the landfill project through periodic meetings scheduled through the Commission's meeting request process. There were three meetings in total, held on November 4, 2010, June 14, 2013, and February 5, 2015. The Attorney General was invited to all three meetings, and attended the 2010 and 2015 meetings. A copy of the slides the Companies presented at each meeting is attached as Exhibit 4.

The Companies Have Revised the Trimble County Landfill Design to Address Permitting Challenges and Are Continuing to Move with All Possible Speed to Obtain Permits and Construct the Landfill under Existing Authority from the Commission

16. Permitting challenges have required the Companies to revise the Trimble County Landfill's design and cost. These permitting challenges have also created unanticipated delays in being able to begin constructing the landfill, delays that have also added cost due to cost escalation.

17. The most significant and costly permitting challenge the Companies have encountered concerning the Trimble County Landfill concerns the Kentucky Division of Waste Management's determination that a karst feature located in the planned landfill layout is a cave that must be protected under Kentucky's Cave Protection Act (KRS 433.871 *et seq.*). The Companies worked in good faith to preserve its original landfill design by seeking to

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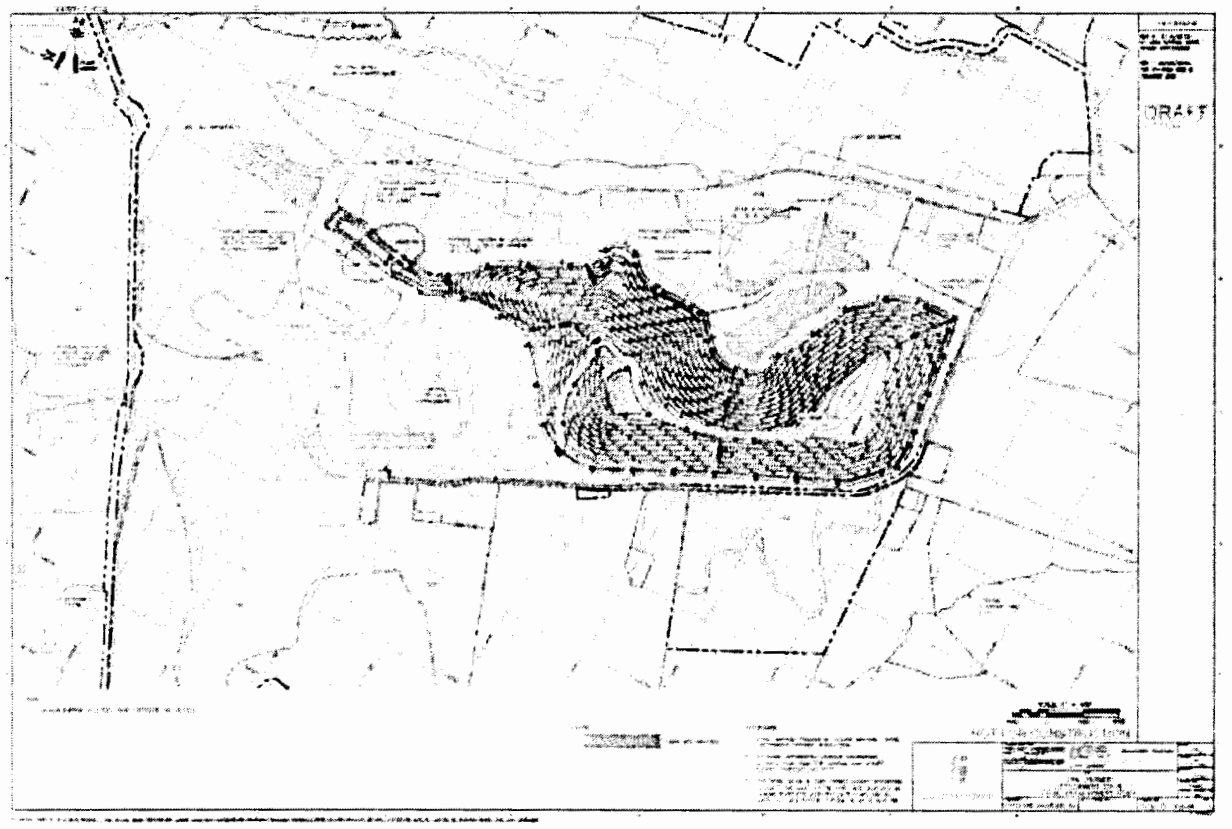
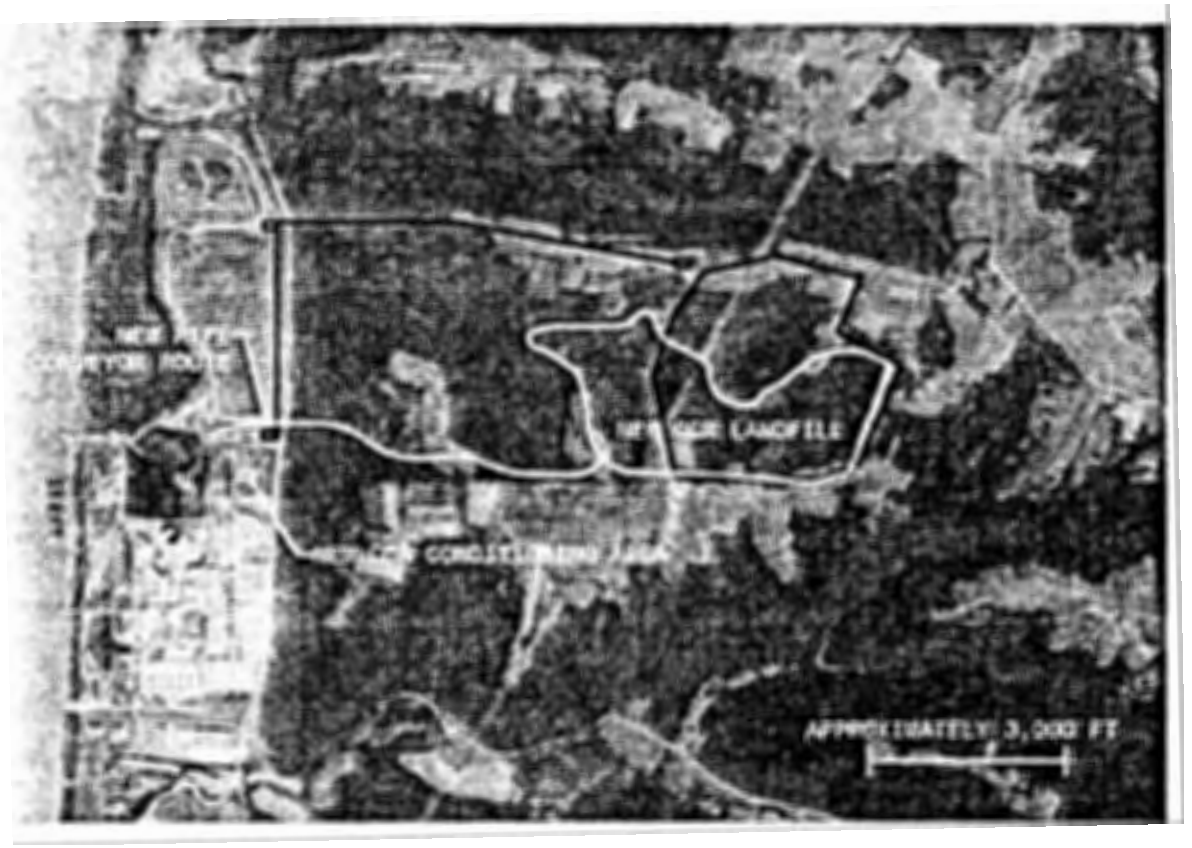
Six-Month Billing Period Ending October 31, 2013, Case No. 2013-00437, Order (July 11, 2014); *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Kentucky Utilities Company for the Six-Month Billing Periods Ending April 30, 2014 and October 31, 2014,* Case No. 2015-00020; *In the Matter of: An Examination by the Public Service Commission of the Environmental Surcharge Mechanism of Louisville Gas and Electric for the Six-Month Billing Periods Ending April 30, 2014 and October 31, 2014,* Case No. 2015-00021.

demonstrate to the Division of Waste Management that the karst was not a cave. Ultimately, the Companies were unsuccessful, and the Division of Waste Management denied the Companies' landfill-permit application on May 2, 2013. The Companies subsequently revised their proposed layout for the Trimble County Landfill as shown below, though the landfill's currently planned location and storage capacity remain essentially identical:



18. By way of comparison, the image below shows the outline of the originally proposed landfill design and planned CCR-conveyor route in black and the approximate outline of the revised proposed landfill design and planned CCR-conveyor route in yellow. It demonstrates that the revised proposed landfill is in the same location as the originally proposed design, and that their proposed footprints significantly overlap:



19. The Companies' revised Trimble County Landfill remains a phased design that will provide large amounts of CCR storage, with a storage capacity of 33.4 MCY (original design was 34.5 MCY).

20. The estimated nominal capital cost of the revised design as compared to the original design, as well as an interim revised cost estimate presented to the Commission Staff

and the Attorney General at the November 4, 2010 meeting discussed above, are shown in the table below:

Trimble County Landfill Capital Estimate Comparison (nominal (as-spent) $M net)					
Category	Phase I	Phase II	Phase III	Final Cap Phase IV	Total
2009 ECR Landfill Proposal	70.5	108.0	103.5	122.3	404.4
2010 ECR Update	126.5	108.0	103.5	122.3	460.4
February 2015 estimate	321.9	60.4	70.7	48.5	501.5

The total capital cost estimate for all phases of the project in the revised design has increased $41.1 million or approximately 10% since the 2010 informal conference. Phase I costs have increased $195.4 million while future phases have decreased by $154 million. The drivers for the Phase I cost increase have been $27 million in escalation due to the permitting delays, $41 million from design changes incorporating the permitting impacts, $102 million in CCR treatment and transport system costs from incorporating the lessons learned on similar equipment that went into operation at the Ghent Station landfill project in 2014, and $25 million in additional engineering and permitting efforts and fees. The reductions in the latter phases of the total project are driven by a $100 million refinement of the estimate and timing of the capping and closure scopes and a $54 million refinement of moving from three phases in the 2009 concept to four phases in this design.

21. Although the estimated nominal capital cost of the Trimble County Landfill has increased, estimated O&M costs are not projected to be materially different from those estimated in the Companies' 2009 applications.

22. The Trimble County Landfill remains the most economical means of disposing of the CCR the Trimble County coal-fired units will produce.[13] The attached cost-benefit analysis (Exhibit 5) shows that continuing to construct the Trimble County Landfill is at least $781 million PVRR (in 2015 dollars) more favorable than retiring the Trimble County coal units when the current CCR storage reaches capacity and replacing the retired units' 932 MW baseload generating capacity with natural gas combined cycle generating capacity.[14]

23. In addition, as the Companies noted in their original applications for the Trimble County Landfill, taking a phased approach to construction helps ensure that subsequent landfill phases are constructed as and when necessary.[15] That is why the Companies requested, and the Commission approved, a CPCN for the entire landfill but ECR cost recovery for only the first phase: The Companies will need to return to the Commission to seek additional ECR-cost-recovery authority for subsequent phases, ensuring the Commission will have multiple opportunities to review the costs and benefits of each phase of expanding the landfill.

24. Maintaining a phased approach to the landfill and returning to the Commission for ECR-cost-recovery authority for later phases also reflects and confirms the Companies' long-standing commitment to ongoing analysis to ensure that future investments in utility facilities are the lowest-reasonable-cost means of serving customers. The Companies seek to invest and recover only those resources that are necessary to serve customers; this application and its supporting analysis, as well as the phased approach the Companies are continuing to take

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[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.

[14] As the analysis further explains, this assumes the EPA's Clean Power Plan is implemented as proposed.

[15] Case No. 2009-00197, Direct Testimony of John Voyles at 21-22 (June 26, 2009); Case No. 2009-00198, Direct Testimony of John Voyles at 20 (June 26, 2009).

concerning the Trimble County Landfill, demonstrate that the Companies make such investments only when and to the extent they are prudent and necessary.

The Companies Will Soon Commit Significant Additional Financial Resources to Building Phase I of the Trimble County Landfill and Request Assurance that the CPCN and ECR-Cost-Recovery Authority the Commission Granted in 2009 Remain Valid and Sufficient

25. Although expansion of the Companies' existing CCR-storage facilities and beneficial reuse have allowed the Companies to continue operating the Trimble County coal units without CCR-related constraints to date, the remaining storage capacity is nearing exhaustion. In addition, the U.S. Environmental Protection Agency ("EPA") issued in April 2015 its Disposal of Coal Combustion Residuals from Electric Utilities final rule ("CCR Rule").[16] Under the CCR Rule, the Companies must assess and determine if their existing CCR storage facilities (bottom ash pond and gypsum storage pond) may continue to operate under the new rule or must be closed. The rule requires the assessments be completed no later than April 2018.[17] The gypsum storage pond is a synthetic-membrane-lined facility; the bottom ash pond is not lined with a synthetic membrane, making it the Companies' current expectation that the bottom ash pond will not meet the CCR Rule's requirements for further wet CCR storage. Therefore, the Companies must soon begin constructing Phase I of the Trimble County Landfill, and particularly the CCR treatment facility that is part of Phase I, to ensure they can continue to operate the Trimble County coal-fired units—two of the Companies' lowest-cost units—without CCR-related constraints. To that end, the Companies plan to issue to the market in the second quarter of 2015 a request for quotations to procure and construct the necessary CCR treatment and transport facilities, road, and bridge, with a four-month bid period and targeted contract

[16] 40 CFR Parts 257 and 261 (2015), 80 Fed. Reg. 21,302 (Apr. 17, 2015). Available at: http://www.gpo.gov/fdsys/pkg/FR-2015-04-17/pdf/2015-00257.pdf.
[17] *See* 40 CFR 257.90(b).

award in the October-November 2015 time-frame, which will allow detailed engineering, procurement, and construction to start in the fourth quarter of this year.

26. These and other landfill-related construction contracts will require significant additional capital commitments by the Companies. To ensure the Companies are operating within the authority they have continuously exercised and believe they have, the Companies respectfully ask the Commission to issue a declaratory order affirming the ongoing validity and sufficiency of the Trimble County Landfill CPCN (for the entire landfill) and ECR-cost-recovery authority (for Phase I of the landfill) the Commission granted the Companies in Case Nos. 2009-00197 and 2009-00198.

27. Because time is of the essence, the Companies further respectfully request that the Commission issue a final order in this proceeding by October 1, 2015.

WHEREFORE, Louisville Gas and Electric Company and Kentucky Utilities Company respectfully request that the Commission issue a declaratory order affirming the ongoing validity and sufficiency of the Trimble County Landfill CPCN (for the entire landfill) and ECR-cost-recovery authority (for Phase I of the landfill) the Commission granted the Companies in Case Nos. 2009-00197 and 2009-00198. The Companies further respectfully request that the Commission issue the requested order by October 1, 2015.

Dated: May 22, 2015

Respectfully submitted,

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Counsel for Louisville Gas and Electric Company and Kentucky Utilities Company

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001 Section 8(7), this is to certify that Kentucky Utilities Company and Louisville Gas and Electric Company's May 22, 2015 electronic filing of their Verified Joint Application is a true and accurate copy of the documents being filed in paper medium; that the electronic filing has been transmitted to the Commission on May 22, 2015; that there are currently no parties that the Commission has excused from participation by electronic means in this proceeding; that an original of the filing is being mailed by first class U.S. mail, postage prepaid, to the Commission on May 22, 2015; and that on May 22, 2015, electronic mail notification of the electronic filing will be provided to the following:

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VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS:
COUNTY OF JEFFERSON)

The undersigned, **John N. Voyles, Jr.**, being duly sworn, deposes and says that he is the Vice President, Transmission and Generation Services for Louisville Gas and Electric Company and Kentucky Utilities Company and an employee of LG&E and KU Services Company, and that he has personal knowledge of the matters set forth in the foregoing application, and the information contained therein is true and correct to the best of his information, knowledge and belief.

John N. Voyles, Jr.

Subscribed and sworn to before me, a Notary Public in and before said County and State, this 21st day of May 2015.

(SEAL)
Notary Public

My Commission Expires:

SUSAN M. WATKINS
Notary Public, State at Large, KY
My Commission Expires Mar. 19, 2017
Notary ID # 485723