

Archived: Thursday, May 31, 2012 3:41:10 PM
From: Eric M. Robeson
Sent: Monday, December 12, 2011 6:01:40 PM
To: ADAM.C.LANDRY@sargentlundy.com
Subject: Re: SL-010881 Big Rivers Electric Corporation - Environmental Compliance Study (Final)
Importance: Normal

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Will not occur. Mgt wants to digest report first. Will be back in office tomorrow

On Dec 12, 2011, at 5:47 PM, "ADAM.C.LANDRY@sargentlundy.com"
<ADAM.C.LANDRY@sargentlundy.com> wrote:

>
> Eric - any feedback on an S&L presentation / meeting this Friday?
>
>
> Best Regards,
> Adam C. Landry PE
>
>
> ----- Original Message -----
> From: ADAM C LANDRY
> Sent: 12/09/2011 01:47 PM CST
> To: eric.robesson@bigrivers.com
> Cc: TODD HANSSEN; CALEB KADERA
> Subject: SL-010881 Big Rivers Electric Corporation - Environmental
> Compliance Study (Final)
> Eric,
>
> Attached is the final report for the Environmental Compliance Study. If
> you have any additional comments, we can quickly make those modifications
> and reissue early next week.
>
> (See attached file: SL-010881 Big Rivers Electric Corporation -
> Environmental Compliance Study (Final).pdf)
>
>
> As a summary, below are the specific responses to the comments and
> questions raised on the draft report:
>
>
> Item 1: Section 1.1 - Not sure escalating gas price 2.5% per year is
> correct. What does that give us 10/20 years out?
> Response 1: A sensitivity analysis was conducted on our initial price
> assumption and used to justify conclusions for natural gas modifications.
> Report has been updated accordingly.
>
> Item 2: Section 3.2.1.1.2 - 3rd line talks about lime slurry; should
> also reflect limestone slurry
> Response 2: Report has been updated
>
> Item 3: Section 3.2.1.2 - Comment section for Coleman FGD: We believe we

- > operate much higher than 93.5%
- > Response 3: "return to design" condition reflects an emission rate of 0.25
- > lb/MMBtu. These "reductions" are reflective of the differential between
- > the reported EPA data and the 0.25lb/MMBtu rate provided by BREC
- >
- > Item 4: Section 3.2.4.1.1 - Don't believe ESP upgrades will be adequate
- > at Coleman and HMPL (see comments #2 for more details
- > Response 4: Response included in detail further below in Response 16.
- >
- > Item 5: Section 3.2.6.1.4 - Last line paragraph 2 - We believe cooling
- > tower is an option at Coleman
- > Response 5: Paragraph adjusted to state that it is not economically
- > justifiable for 316(b) when compared to other available options.
- >
- > Item 6: Section 4.1.4 - One of only 5 still in existence? Thought Wilson
- > and Gibson were only ones still in existence, and only 5 were ever built
- > Response 6: Kellogg Weir Scrubbers were built
- > Thomas Hill 3 - Not in operation
- > Gibson 5 - Being replaced
- > Bruce Mansfield 3 - In Operation
- > Coronado Units 1 & 2 - Unit 2 has been replaced and Unit
- > 1 replacement is in construction
- > D B. Wilson - In Operation
- >
- > Item 7: Section 4.1.5 - Doesn't really say what conclusion is i.e.
- > Wilson FGD, HMPL upgrade
- > Response 7: Section was removed
- >
- > Item 8: Section 4.3.5 - Doesn't really say what conclusion is
- > Response 8: Section was removed
- >
- > Item 9: Section 4.4.2 - Coleman and HMPL issue: not adequate
- > Response 9: Report has been revised
- >
- > Item 10: Section 4.6.1 - Can Coleman really achieve this much improvement?
- > Response 10: See response to Item 3 above
- >
- > Item 11: Section 4.6.1 - Table 4-3 - typo Advanced Burners (hanging d)
- > Response 11: Report has been revised
- >
- > Item 12: Section 5.1.1 - Last 2 lines - pretty broad wiggle words +/-
- > 20% in section 1.1.1
- > Response 12: Report has been revised
- >
- > Item 13: Section 5.2.1 - Paragraph under Table 5-5: last sentence
- > natural gas conversion ... "does not appear to be economically justifiable"
- >
- > Response 13: Report has been revised
- >
- > Item 14: Section 5.2.2 - Table 5-6 - Where did NPV numbers come from?
- > What is NPV for various SO₂, NO_x, MACT options? How were they calculated?
- > (do we need these type of tables in another appendix, or in body of report
- > somewhere?)
- > Response 14: Calculation tables have been added to appendix
- >
- > Item 15: Section 5.3.1 - Figure 5-4 and Table 5-8: talked to Caleb about
- > this: signs seem backward: surplus should be positive number (at first
- > glance I thought I was really short SO₂ in early years)
- > Response 15: Introductory statement and figure headings have been revised
- > to indicate that the plot represents cumulative emissions above or below
- > allocations. The "O" line represents BREC emitting exactly their allowance

> tonnage.

>

> Item 16: Precipitator Upgrades: I do not believe that ESP upgrades will
> work at Coleman or HMP&L. The precipitators on these units are quite small
> compared to Green and Wilson having only three collecting fields compared
> to seven or more for the other units. The physical sizes of the
> precipitator boxes are quite small, and the gas velocity through the
> collecting fields is more than double what is recommended for effective
> particle collection. Without increasing the physical size of the boxes
> enough to reduce the gas velocity to allow sufficient time for particle
> charging I don't believe PM collection will improve. If we use ACI at
> Coleman for Mercury control I know that it takes significantly longer to
> charge the carbon particles than to charge fly ash for collection. We
> learned that while experimenting with burning pet coke in the HMP&L units.
> I don't know what the resistivity is for hydrated lime if we choose it for
> SO3 control at HMP&L, but if it is greater than fly ash, I expect that it
> will pass through the precipitator to the WFGD.

> Response 16: The testing that BREC performed at the Coleman and HMP&L
> systems showed that the PM emissions were above the proposed MACT limits
> primarily due to condensible PM emissions as can be seen in the table
> below.

> (Embedded image moved to file: pic19169.gif)

> The recommended use of dry sorbent (hydrated lime) injection to reduce the
> condensible PM emissions with only a slight increase in inlet dust loading
> to the ESP. S&L is working with another Utility client to upgrade their
> older, existing, ESPs. The upgrade plans involve replacement of the
> discharge electrodes (DE) with newer advanced designs with more discharge
> points and also replacement of the existing T/R sets with high frequency
> T/R sets permitting more power to charge the fly ash in the ESP. Coupled
> with replacement of the conventional T/R sets will be some increased
> sectionalization of the existing precipitators for both power (less plate
> area be "served" by a single T/R set) and reliability reasons (loss of a
> T/R set has less of an effect on overall ESP performance). These upgrades
> are on ESP's that are over 30 years old which are the same age range as the
> ESP's at HMP&L and Coleman.

> Additionally, S&L has recently participated in a number of activated carbon
> injection tests where PM was measured both baseline and during the tests.
> With carbon injection rates as high as 9 lb activated carbon/million acf
> there was minimal increases in the outlet PM loading. Testing with
> hydrated lime has also shown minimal increases in the particulate loading.
> As was pointed out by BREC, any lime that penetrates the ESP will pass
> through to the wet FGD systems at HMP&L and Coleman and will aid in SO2
> removal. Under the proposed Utility MACT particulate monitoring will be
> performed in the chimney (as is done now by the PM monitors operating at
> HMP&L 1 & 2). Report has been updated.

>

> Item 17: Reid/HMP&L Fly Ash Collection - Just a reminder that the fly ash
> transport system from the dry ash collectors to the HMP&L storage silo is
> also pressure pneumatic. I did not notice that mentioned in table 2-8.

> Response 17: Report has been revised

>

> Item 18: Sebree Intake Structure 316(b) Compliance -If the Reid 1 Unit is
> retired the Circulating Water Pumps at the intake structure could be
> downsized for make up to the HMP&L cooling towers, HMP&L units sluice water
> make up, and to supply HWU's South Water Treatment facility. As stated in
> the paragraph following Table 4.4 on page 4-13, a study would need to be
> conducted to determine the pump size required, and if the reduced
> requirement would bring the overall intake flow velocity below the 0.5 fps
> limit.

> Response 18: Report has been revised

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> Item 19: Reid/HMP&L Waste Water Streams - The entire Reid/HMP&L plant foot
> print drains to a sump adjacent to the HMP&L fly ash silo and is pumped to
> the ash pond for disposal. As mentioned in the last paragraph on page 4-14
> a waste water treatment facility would need to be added or the site sump
> redirected to the Green Station waste water treatment facility before the
> existing ash pond could be closed.
> Response 19: Report has been revised
>
> Item 20: Page 2-10 Table 2-8 - Wilson Pyrites Handling "Sluiced to Bottom
> Ash SSC" should read "Handled Dry"; Modifications Required "Eliminate Ash
> Storage Ponds and install Dewatering Equipment" should read "Dewatering
> Equipment in Place, Ash Handled Dry"
> Response 20: Report has been revised
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> Item 21: Page 3-4 Table 3-1 Wilson Increase L/G - This is the premise for
> URS proposed modifications for Kellogg scrubbers; however, field experience
> at other utilities does not support their theoretical removal rates;
> therefore I question the validity of offering this as a viable control
> strategy. Past experimentation leads me to believe that changes in L/G do
> not produce results of the anticipated magnitude primarily due to inherent
> inefficiencies in the cross current design. Additives - "Either DBA or
> Sodium Formate could be used" should read "Currently using both DBA and
> Sodium Bisulfite"
> Response 21: Report has been revised
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> Item 22: Page 3-18 Section 3.2.7.2 CCR Strategies - Wilson Station does
> not have an ash pond.
> Response 21: Report has been revised
>
> Item 23: Page 4-3 Section 4.1.3 Additives - "In the past, this organic
> acid" should read "Wilson Station currently uses organic acid to
> enhance FGD performance."
> Response 21: Report has been revised
>
> Item 24: Page 4-8 Section 4.4.3 Sorbent Injection - Wilson Station
> currently has a DSI system, are we already obtaining some amount of CPM
> reduction? If so is the estimated 50% reduction realistic? - report has
> been revised to indicate
> Response 24: Wilson has a DSI system in place accounts for slight
> improvement in reduction with increased hydrated lime injection. 50%
> reduction can be expected for Coleman and HMP&L. (see Response 16)
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>
> Regards,
> _____
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> Project Manager
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