From: Saunders, Eileen
To: Straight, Scott
Sent: 11/8/2010 9:21:37 AM
Subject: FW: 168908.41.0803 101105 Mill Creek Validation Meeting Presentation - Final
Attachments: ArchiveInfo.htm

Scott,

Please disregard the earlier presentation I sent you for MC. Here is the final version that will be used tomorrow.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, November 05, 2010 11:05 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.; Hillman, Timothy M.
Subject: 168908.41.0803 101105 Mill Creek Validation Meeting Presentation - Final

Eileen,

Please find attached a PDF of the Mill Creek Validation Meeting Presentation. We plan to bring color copy handouts as well as the electronic PowerPoint to the meeting on November 9th. I assume you can provide the PC projector again.
Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Mill Creek Validation Presentation.pdf

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Sent:	11/8/2010 11:15:45 AM
Subject:	168908.28.3000 101108 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

Attached is the updated action item list for our weekly Monday conference call.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Saunders, Eileen
To: Smith, Dave
Sent: 11/8/2010 12:43:08 PM
Subject: FW: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)
Attachments: ArchiveInfo.htm

Dave,

I am not sure if you have any comments on this but it is a living document and can be amended later. I only have a few comments and will include you on my response to B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, October 21, 2010 5:20 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Smith, Dave; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Subject: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Eileen,

As defined in our scope of work under Task 5, attached please find a copy of the Project Design Memorandum (PDM) for the Ghent Plant. As you are already aware from Mill Creek, the purpose of the PDM is to summarize and define the technical and functional requirements on which the Ghent Phase II AQC study will be based. The PDM is a dynamic document subject to change as new project information is made available, but B&V will control this document and will be responsible for updates and revisions.

This PDM document includes Ghent project specific information and was built upon the initial design basis prepared for the Phase I project; however, Phase II requires additional information. Thus, there are several tables that require specific input from E.ON. These tables were included with the Ghent Information Request, sent on 10/18/10. Please review the document and use the "track changes" feature of the Word software to include your comments. We would request comments from E.ON no later than Thursday 10/28/10.

Please let us know if you have any questions.
Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

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The following attachments were archived from this message:
- EON Ghent Project Design Memo.doc

From:	Saunders, Eileen
To:	'Hillman, Timothy M.'
CC:	168908 E.ON-AQC; Jackson, Audrey; Smith, Dave; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Sent:	11/8/2010 12:44:57 PM
Subject:	RE: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Tim,

Here are my two comments:

- On page 1-10, we do not have any additional information to address the comment at this time. Our Environmental Affairs department is aware of this issue.
- Please change all documents to read "LG&E KU" instead of E.ON

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, October 21, 2010 5:20 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Smith, Dave; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Subject: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Eileen,

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Please let us know if you have any questions.
Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-7928
Email: hillmantm@bv.com

From: Smith, Dave
To: Saunders, Eileen
Sent: 11/8/2010 12:45:17 PM
Subject: RE: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Eileen:

Thanks. Definitely keep me in the loop. If I can review and respond later that would be great.

Dave

From: Saunders, Eileen
Sent: Monday, November 08, 2010 12:43 PM
To: Smith, Dave
Subject: FW: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Dave,

I am not sure if you have any comments on this but it is a living document and can be amended later. I only have a few comments and will include you on my response to B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, October 21, 2010 5:20 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Smith, Dave; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Subject: 168908.22.1000 101021 - Ghent Project Design Memorandum (PDM)

Eileen,

As defined in our scope of work under Task 5, attached please find a copy of the Project Design Memorandum (PDM) for the Ghent Plant. As you are already aware from Mill Creek, the purpose of the PDM is to summarize and define the technical and functional requirements on which the Ghent Phase II AQC study will be based. The PDM is a dynamic document subject to change as new project information is made available, but B&V will control this document and will be responsible for updates and revisions.

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Please let us know if you have any questions.
Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Crabtree, Jonathan D.
To: Smith, Dave
CC: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Sent: 11/9/2010 2:35:38 PM
Subject: 168908.41.0100 101109 Ghent Information Request - Priority 1

Dave,
The following are responses to the Priority 1 information submitted on 10/27.

Civil/Struct #1 - Unit 1 SCR Superstructures and Foundations: Please provide drawings "SCR-GH1-S7028 and S7030" which are referenced by the drawing LG&E/KU provided (SCR-GH1-S7029). Also, provide drawings of superstructures supporting the Unit 1 SCR.

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Civil/Struct #3 - Foundation drawings for Unit 2 AQCS Area: If available, please provide an area plan drawing. Otherwise, we can make do with the information provided.

Electrical/Control #4 - Drawings for UAT's, RAT's, and GSU's: Please provide the drawing list mentioned in the word document previously provided for Priority 1.

You and your team have done a great job with the Ghent Data Request thus far. A lot of good information has been provided and it will be very helpful during the conceptual design portion of this project. Also, we will be reviewing the information provided for Priority 2 this week and will get back to you as soon as we can with any responses that might come up.

Thanks for your help,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403
Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Thursday, November 04, 2010 2:52 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: Priority 2 Ghent Data Request
Importance: High

Tim:

Ghent Priority 2 data request information has been placed on IBackup.

Please note: Priority 2, Item 6 (EE/Control for aux loads): We will not have Unit 4 data until 11/12 when the Unit 4 DCS historian is back in service.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Saunders, Eileen
To: Kirkland, Mike
Sent: 11/9/2010 5:36:44 PM
Subject: FW: 15.0200 100819 Mill Creek AQC Workshop of Aug 5-6 - Final Meeting Minutes
Attachments: ArchiveInfo.htm

Mike,

Please see the last page of the minutes where you see costs associated with a NID system and w/o a NID system. I am searching my emails to see if I have something that more clearly shows the NID costs without the rest of the costs included.

Thanks,

Eileen

From: Saunders, Eileen
Sent: Thursday, August 26, 2010 7:49 AM
To: Kirkland, Mike; Revlett, Gary; Imber, Philip; Gregory, Ronald
Cc: Straight, Scott
Subject: FW: 15.0200 100819 Mill Creek AQC Workshop of Aug 5-6 - Final Meeting Minutes

All,

Here are the final minutes from the Workshop on August 5-6 issued by B&V.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, August 19, 2010 2:46 PM
To: Straight, Scott
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.; Saunders, Eileen
Subject: 15.0200 100819 Mill Creek AQC Workshop of Aug 5-6 - Final Meeting Minutes

Scott,

As we discussed in our Tuesday (8/17) conference call, please find attached final meeting minutes from our Mill Creek AQC Workshop of August 5th and 6th.

Best Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Hillman, Timothy M.
Sent: Monday, August 16, 2010 8:18 AM

To: 'Straight, Scott'
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.; Saunders, Eileen
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work

Scott,

Please find attached a revised table indicating 96 percent removal for the refurbished scrubbers. We also made a slight revision to the AQC schematic and cost table, adding a key to the legend indicating that Unit 1's ESP would be removed.

We look forward talking to you tomorrow during our conference call.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Straight, Scott [mailto:Scott.Straight@eon-us.com]
Sent: Thursday, August 12, 2010 1:34 PM
To: Hillman, Timothy M.; Saunders, Eileen
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work

Tim,

The targeted SO2 removal for the Unit 1, Unit 2 and Unit 4 (to serve Unit 3) FGDs is 96%, not 93%. They are doing this now at times.

Scott Straight, P.E.
Project Engineering - E.ON U.S.
Director, Project Engineering
O (502) 627-2701
F (502) 217-2040
scott.straight@eon-us.com

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, August 10, 2010 7:47 PM
To: Saunders, Eileen; Straight, Scott
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.; Hillman, Timothy M.
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work
Importance: High

Scott and Eileen,

Please find attached the draft meeting minutes and spreadsheet with schematic and costs from our AQC Workshop last Thursday and Friday in your office. We look forward to reviewing this with you during our conference call on Wednesday (2 pm your time).

Best regards,

Tim Hillman | Project Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

---

nothy M.
ıgust 10, 2010 2:18 PM
en; Wehrly, M. R.; Straight, Scott; Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike)
Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work
/, August 11, 2010 1:00 PM-2:00 PM (GMT-06:00) Central Time (US & Canada).
ıV Folks)

Call in number

877-603-8688

Conf ID: 8791684

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Mill Creek AQC Workshop Aug 5-6 - Conf Memo Final 081910.pdf

From: Smith, Dave
To: 'Crabtree, Jonathan D.'
CC: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Sent: 11/10/2010 8:31:24 AM
Subject: RE: 168908.41.0100 101109 Ghent Information Request - Priority 1

Jonathan:

Will do; I'll pass these on.

Dave

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, November 09, 2010 2:36 PM
To: Smith, Dave
Cc: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Subject: 168908.41.0100 101109 Ghent Information Request - Priority 1

Dave,
The following are responses to the Priority 1 information submitted on 10/27.

Civil/Struct #1 - Unit 1 SCR Superstructures and Foundations: Please provide drawings "SCR-GH1-S7028 and S7030" which are referenced by the drawing LG&E/KU provided (SCR-GH1-S7029). Also, provide drawings of superstructures supporting the Unit 1 SCR.

Civil/Struct #2 - Coal Conveyor Superstructures and Foundations: Please provide supporting information to the foundation drawing previously provided for Priority 1. The single drawing shows several foundation details, but no overall plan to indicate which foundation is being shown. Additionally, no superstructures drawings were in the files that were submitted, please provide.

Civil/Struct #3 - Foundation drawings for Unit 2 AQCS Area: If available, please provide an area plan drawing. Otherwise, we can make do with the information provided.

Electrical/Control #4 - Drawings for UAT's, RAT's, and GSU's: Please provide the drawing list mentioned in the word document previously provided for Priority 1.

You and your team have done a great job with the Ghent Data Request thus far. A lot of good information has been provided and it will be very helpful during the conceptual design portion of this project. Also, we will be reviewing the information provided for Priority 2 this week and will get back to you as soon as we can with any responses that might come up.

Thanks for your help,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Thursday, November 04, 2010 2:52 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul

Subject: Priority 2 Ghent Data Request
Importance: High

Tim:

Ghent Priority 2 data request information has been placed on IBackup.

Please note: Priority 2, Item 6 (EE/Control for aux loads): We will not have Unit 4 data until 11/12 when the Unit 4 DCS historian is back in service.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Imber, Philip; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Sent: 11/12/2010 9:13:20 AM
Subject: RE: Eco Power Solutions

Eileen,

I'll have the team look into it and we'll get back to you.

Also, I'm available this morning if we need to talk. Just let me know.

Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, November 12, 2010 8:08 AM
To: Hillman, Timothy M.; Lucas, Kyle J.; Mahabaleshwarkar, Anand
Cc: Imber, Philip
Subject: Eco Power Solutions

All,

Have any of you heard of an energy recovery and emission control technology proposed by Eco Power Solutions? Their approach is "based on converting the pollutants to water soluble compounds and then capturing the resulting acids in wastewater by condensation which can then be neutralized by adding a suitable reagent".

I received a paper and presentation from Philip and wondered if B&V were aware of this company and their technology.

Thanks,

Eileen

From: Mahabaleshwarkar, Anand
To: Hillman, Timothy M.; Saunders, Eileen
CC: Imber, Philip; Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Sent: 11/12/2010 11:30:38 AM
Subject: RE: Eco Power Solutions

B&V did multiple CO2 mitigation studies and also the due diligence of PowerSpan ECO technology and learned that the ECO is not a practical technology for several reasons. If you call PowerSpan they will tell you the same thing and that is reason the public interest in this technology did not spruce up any further. PowerSpan has abandoned their NOX reduction ECO technology.

Thanks

Anand

From: Hillman, Timothy M.
Sent: Friday, November 12, 2010 8:13 AM
To: Saunders, Eileen
Cc: Imber, Philip; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
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Thanks

Tim Hillman | Project Manager
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I received a paper and presentation from Philip and wondered if B&V were aware of this company and their technology.

Thanks,

Eileen

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Smith, Dave
To: Yocum, James
CC: Wright, Paul; Saunders, Eileen; Bickers, Troy
Sent: 11/12/2010 1:06:58 PM
Subject: FW: 168908.41.0100 101109 Ghent Information Request - Priority 1

James:

B&V is asking for some additional data regarding the Priority 1 items already submitted. Two of the Civil/Struct items listed below were originally yours, so I am forwarding this to you. Also, did you provide the foundation drawing for AQCS?

No exact due date on these.

Dave

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, November 09, 2010 2:36 PM
To: Smith, Dave
Cc: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Subject: 168908.41.0100 101109 Ghent Information Request - Priority 1

Dave,
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You and your team have done a great job with the Ghent Data Request thus far. A lot of good information has been provided and it will be very helpful during the conceptual design portion of this project. Also, we will be reviewing the information provided for Priority 2 this week and will get back to you as soon as we can with any responses that might come up.

Thanks for your help,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Thursday, November 04, 2010 2:52 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: Priority 2 Ghent Data Request
Importance: High

Tim:

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Please note: Priority 2, Item 6 (EE/Control for aux loads): We will not have Unit 4 data until 11/12 when the Unit 4 DCS historian is back in service.

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Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

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From: Imber, Philip
To: 'Mahabaleshwarkar, Anand'; Hillman, Timothy M.; Saunders, Eileen
CC: Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Sent: 11/12/2010 2:46:55 PM
Subject: RE: Eco Power Solutions

This is not the Frank Alix PowerSpan. This company chose an unfortunately similar name. Their technology is not a major CO2 capture (they captured 20% of the gas stream while I was in their demo plant last week) – but it is very efficient at NOx and SOx capture. The technology cools the flue gas stream and adds a "fog" (same technology as inlet air cooling for gas turbines) to capture the condensed acids in a water stream that is then neutralized.
Philip.

From: Mahabaleshwarkar, Anand [mailto:MahabaleshwarkarA@bv.com]
Sent: Friday, November 12, 2010 11:31 AM
To: Hillman, Timothy M.; Saunders, Eileen
Cc: Imber, Philip; Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Subject: RE: Eco Power Solutions

B&V did multiple CO2 mitigation studies and also the due diligence of PowerSpan ECO technology and learned that the ECO is not a practical technology for several reasons. If you call PowerSpan they will tell you the same thing and that is reason the public interest in this technology did not spruce up any further. PowerSpan has abandoned their NOX reduction ECO technology.

Thanks

Anand

From: Hillman, Timothy M.
Sent: Friday, November 12, 2010 8:13 AM
To: Saunders, Eileen
Cc: Imber, Philip; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Subject: RE: Eco Power Solutions

Eileen,

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Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-7928
Email: hillmantm@bv.com

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, November 12, 2010 8:08 AM
To: Hillman, Timothy M.; Lucas, Kyle J.; Mahabaleshwarkar, Anand
Cc: Imber, Philip
Subject: Eco Power Solutions

All,

Have any of you heard of an energy recovery and emission control technology proposed by Eco Power Solutions? Their approach is "based on converting the pollutants to water soluble compounds and then capturing the resulting acids in wastewater by condensation which can then be neutralized by adding a suitable reagent".

I received a paper and presentation from Philip and wondered if B&V were aware of this company and their technology.

Thanks,

Eileen

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Smith, Dave
CC: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul; Lucas, Kyle J.
Sent: 11/12/2010 3:02:05 PM
Subject: RE: B&V Data Request Priority 3 items

Thanks Dave for your time and effort on this.

You have a nice weekend as well.

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Friday, November 12, 2010 1:18 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: B&V Data Request Priority 3 items

Tim:

Ghent Priority 3 data request information has been placed on IBackup.

Please note: Priority 3, Request item 5 (General Arrangement for substation): I thought this data was being provided by Project Engineering; however, we need to obtain permission to get this data, so it will be included at a later time.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Mooney, Mike (BOC 3); King, Michael L. (Mike); Harris, David K. (Dave); Wehrly, M. R.; Lucas, Kyle J.
Sent:	11/12/2010 3:41:21 PM
Subject:	168908.28.0000 101112 Monthly Project Progress Report
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached the Monthly Project Progress Report for work completed in October.

Don't hesitate to call me if you have any questions at all.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- LGE KU Monthly Progress Report - October 2010.pdf

From: Mahabaleshwarkar, Anand
To: Imber, Philip; Hillman, Timothy M.; Saunders, Eileen
CC: Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Sent: 11/12/2010 4:18:40 PM
Subject: RE: Eco Power Solutions

I apologize for mixing up the name with the PDF file that I saw in another e-mail for electro catalytic oxidation (ECO) which is the PowerSpan technology. However, B&V did receive the brochure from ECO Power Solution based in Louisville KY and about two months ago our Technical Review team did not see any merit in the claims from ECO Power Solutions and showed no further interest then.

We discontinued our effort for any further evaluation/investigation of this technology for not being practical for large scale units.

Thanks

Anand Mahabaleshwarkar
Air Quality Control Section Lead
Black & Veatch Corporation
(913) 458-7736
mahabaleshwarkara@bv.com
(913) 558-7003 Cell

From: Imber, Philip [mailto:Philip.Imber@lge-ku.com]
Sent: Friday, November 12, 2010 1:47 PM
To: Mahabaleshwarkar, Anand; Hillman, Timothy M.; Saunders, Eileen
Cc: Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Subject: RE: Eco Power Solutions

This is not the Frank Alix PowerSpan. This company chose an unfortunately similar name. Their technology is not a major CO2 capture (they captured 20% of the gas stream while I was in their demo plant last week) – but it is very efficient at NOx and SOx capture. The technology cools the flue gas stream and adds a "fog" (same technology as inlet air cooling for gas turbines) to capture the condensed acids in a water stream that is then neutralized.
Philip.

From: Mahabaleshwarkar, Anand [mailto:MahabaleshwarkarA@bv.com]
Sent: Friday, November 12, 2010 11:31 AM
To: Hillman, Timothy M.; Saunders, Eileen
Cc: Imber, Philip; Lucas, Kyle J.; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Subject: RE: Eco Power Solutions

B&V did multiple CO2 mitigation studies and also the due diligence of PowerSpan ECO technology and learned that the ECO is not a practical technology for several reasons. If you call PowerSpan they will tell you the same thing and that is reason the public interest in this technology did not spruce up any further. PowerSpan has abandoned their NOX reduction ECO technology.

Thanks

Anand

From: Hillman, Timothy M.
Sent: Friday, November 12, 2010 8:13 AM
To: Saunders, Eileen
Cc: Imber, Philip; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Lausman, Rick L.; Wehrly, M. R.; Hintz, Monty E.
Subject: RE: Eco Power Solutions

Eileen,

I'll have the team look into it and we'll get back to you.

Also, I'm available this morning if we need to talk. Just let me know.

Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, November 12, 2010 8:08 AM
To: Hillman, Timothy M.; Lucas, Kyle J.; Mahabaleshwarkar, Anand
Cc: Imber, Philip
Subject: Eco Power Solutions

All,

Have any of you heard of an energy recovery and emission control technology proposed by Eco Power Solutions? Their approach is "based on converting the pollutants to water soluble compounds and then capturing the resulting acids in wastewater by condensation which can then be neutralized by adding a suitable reagent".

I received a paper and presentation from Philip and wondered if B&V were aware of this company and their technology.

Thanks,

Eileen

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Sent:	11/15/2010 11:03:31 AM
Subject:	168908.28.3000 101115 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

Attached is the updated action item list for our weekly Monday conference call.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: 168908 E.ON-AQC; Jackson, Audrey; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Crabtree, Jonathan D.; Hintz, Monty E.
Sent: 11/15/2010 3:19:50 PM
Subject: 168908.13.0000 101115 Mill Creek - Alstom scrubber upgrade contact for MC U1 and U2

Eileen,

Below is the Alstom contact as we discussed.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Mahabaleshwarkar, Anand
Sent: Monday, November 15, 2010 1:35 PM
To: Hillman, Timothy M.; Lucas, Kyle J.; Wehrly, M. R.
Subject: Alstom scrubber upgrade contact for MC U1 and U2

Please forward this contact to Eileen,

Tapan Mukherjee
Director, Business Development
Alstom Power
Environmental Services Operation
(678) 318 1252 (work)
(865) 207 4337 (cell)

Thanks

Anand

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Sent:	11/16/2010 11:39:35 AM
Subject:	168908.14.1000 101116 Brown - Draft Kickoff Meeting Minutes for Review
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached the draft Brown Kickoff Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Brown Kickoff and Site Walkdown Meeting Minutes - Draft with Attachments.pdf

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Sent:	11/16/2010 11:39:41 AM
Subject:	168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached the draft Mill Creek Validation Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Mill Creek AQC Validation Meeting Minutes - Draft with Attachments.pdf

From: Crabtree, Jonathan D.
To: Smith, Dave
CC: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Sent: 11/16/2010 2:21:41 PM
Subject: 168908.41.0100 101116 Ghent Data Request - Priority 2 Follow Up
Attachments: ArchiveInfo.htm

Dave-

The following are responses to the Priority 2 information submitted on 11/4.

Transient Design Pressures: Please identify which unit(s) the ID fan motor nameplate pictures are for (pictures labeled "ID Fan Motors 009.jpg" through "ID Fan Motors 013.jpg")

Unit 1 FGD Arrangements: Several of the Ghent drawings we have in-house are marked "void." In particular, the arrangement for the Unit 1 scrubber and chimney show a distinct kink in the duct centerline that, from memory and photos, doesn't exist. The drawing in question is GH1-M-10025, and it has an area clouded that states "this clouded area... void; for latest GA see GH1-M-10027 thru GH1-M-10029 and GH1-M-10031 thru GH1-M-10038." Please provide these 11 referenced drawings or their equivalent current revision.

As a reminder, the items in the attached email are still open from the Priority 1 follow up response I sent last week.

You and your team are continuing to provide great information. The Black & Veatch team greatly appreciates your efforts with this data request process. FYI- Follow up on the Priority 3 information will be sent in the next day or so.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Thursday, November 04, 2010 2:52 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: Priority 2 Ghent Data Request
Importance: High

Tim:

Ghent Priority 2 data request information has been placed on IBackup.

Please note: Priority 2, Item 6 (EE/Control for aux loads): We will not have Unit 4 data until 11/12 when the Unit 4 DCS historian is back in service.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith

Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- 168908.41.0100 101109 Ghent Information Request - Priority 1

From: Smith, Dave
To: 'Crabtree, Jonathan D.'
CC: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Sent: 11/16/2010 2:26:07 PM
Subject: RE: 168908.41.0100 101116 Ghent Data Request - Priority 2 Follow Up

Jonathan:

We will pass these out and get started on them

Thanks.

Dave

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, November 16, 2010 2:22 PM
To: Smith, Dave
Cc: Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Hintz, Monty E.
Subject: 168908.41.0100 101116 Ghent Data Request - Priority 2 Follow Up

Dave-

The following are responses to the Priority 2 information submitted on 11/4.

Transient Design Pressures: Please identify which unit(s) the ID fan motor nameplate pictures are for (pictures labeled "ID Fan Motors 009.jpg" through "ID Fan Motors 013.jpg")

Unit 1 FGD Arrangements: Several of the Ghent drawings we have in-house are marked "void." In particular, the arrangement for the Unit 1 scrubber and chimney show a distinct kink in the duct centerline that, from memory and photos, doesn't exist. The drawing in question is GH1-M-10025, and it has an area clouded that states "this clouded area... void; for latest GA see GH1-M-10027 thru GH1-M-10029 and GH1-M-10031 thru GH1-M-10038." Please provide these 11 referenced drawings or their equivalent current revision.

As a reminder, the items in the attached email are still open from the Priority 1 follow up response I sent last week.

You and your team are continuing to provide great information. The Black & Veatch team greatly appreciates your efforts with this data request process. FYI- Follow up on the Priority 3 information will be sent in the next day or so.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Thursday, November 04, 2010 2:52 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: Priority 2 Ghent Data Request
Importance: High

Tim:

Ghent Priority 2 data request information has been placed on IBackup.

Please note: Priority 2, Item 6 (EE/Control for aux loads): We will not have Unit 4 data until 11/12 when the Unit 4 DCS historian is back in service.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Straight, Scott; Kirkland, Mike
Sent: 11/17/2010 3:14:20 PM
Subject: RE: Mill Creek Follow-up

Thanks Eileen. I'll forward this on and discuss with our team. I agree with you though, we will probably need another call to discuss. I'll get back to you.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Wednesday, November 17, 2010 1:27 PM
To: Hillman, Timothy M.
Cc: Straight, Scott; Kirkland, Mike
Subject: Mill Creek Follow-up

Tim,

Yesterday, I had the opportunity to speak with Mike Kirkland about our conference call. As discussed on our call, B&V needs to follow through with estimating a scenario where the MC 1 and MC 2 Units are refurbished. However, if we determine through our studies that the units cannot be upgraded, we will need to seriously consider installing new FGDs.

With this in mind, Mike wanted us to consider the following scenario:

· Can we install baghouses on Units 1, 3 and 4 but use a NID system as a scrubber on Unit 2 and construct a common FGD in the footprint of the existing Unit 2 FGD? In both cases, we would eliminate the Unit 1 and Unit 2 precipitators and we would still reconnect Unit 3 to Unit 4's FGD and build a new WFGD.

Please pass this along to your team and let me know what you think. If necessary, we can have another call to further discuss this idea.

Thanks,

Eileen

From:	Crabtree, Jonathan D.
To:	Smith, Dave
CC:	Hillman, Timothy M.; Wehrly, M. R.; Saunders, Eileen; Wright, Paul; Keltner, Erik J.
Sent:	11/17/2010 6:20:07 PM
Subject:	168908.41.0100 101117 Ghent Data Request - Priority 3 Follow Up
Attachments:	ArchiveInfo.htm

Dave-

The following are responses to Priority 3 information submitted on 11/12.

Transient Design Pressures: The attached spreadsheet you all provided is impressive and very helpful. Please confirm the transient design pressures for the following items: (5a.) Units 3 & 4 SCRs and surrounding ductwork are included in the values for "Ductwork, ESP-APH"
(9a.) Unit 2 FGD absorbers and surrounding ductwork are included in "Ductwork, IDF-Chimney" and Units 3 & 4 FGD absorbers and surrounding ductwork are included in "Ductwork, Discharge Damper-Chimney."

General Arrangement for substation (Priority 3, Request item 5): As you mentioned below, this item is still open.

The rest of the items for Priority 3 were sufficient and can be closed. Thanks for your help.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Friday, November 12, 2010 1:18 PM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Saunders, Eileen; Wright, Paul
Subject: B&V Data Request Priority 3 items

Tim:

Ghent Priority 3 data request information has been placed on IBackup.

Please note: Priority 3, Request item 5 (General Arrangement for substation): I thought this data was being provided by Project Engineering; however, we need to obtain permission to get this data, so it will be included at a later time.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station

(502) 347-4145
dave.smith@eon-us.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Flue Gas Design Pressures.xlsx

From: Saunders, Eileen
To: Ritchey, Stacy
Sent: 11/18/2010 9:19:07 AM
Subject: FW: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work
Attachments: ArchiveInfo.htm

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, August 16, 2010 9:18 AM
To: Straight, Scott
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.; Saunders, Eileen
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work

Scott,

Please find attached a revised table indicating 96 percent removal for the refurbished scrubbers. We also made a slight revision to the AQC schematic and cost table, adding a key to the legend indicating that Unit 1's ESP would be removed.

We look forward talking to you tomorrow during our conference call.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Straight, Scott [mailto:Scott.Straight@eon-us.com]
Sent: Thursday, August 12, 2010 1:34 PM
To: Hillman, Timothy M.; Saunders, Eileen
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work

Tim,

The targeted SO2 removal for the Unit 1, Unit 2 and Unit 4 (to serve Unit 3) FGDs is 96%, not 93%. They are doing this now at times.

Scott Straight, P.E.
Project Engineering - E.ON U.S.
Director, Project Engineering
O (502) 627-2701
F (502) 217-2040
scott.straight@eon-us.com

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, August 10, 2010 7:47 PM
To: Saunders, Eileen; Straight, Scott
Cc: Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike); Wehrly, M. R.; Ballard, Michael W; Lucas, Kyle J.; Hillman, Timothy M.
Subject: RE: E.ON Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work
Importance: High

Scott and Eileen,

Please find attached the draft meeting minutes and spreadsheet with schematic and costs from our AQC Workshop last Thursday and Friday in your office. We look forward to reviewing this with you during our conference call on Wednesday (2 pm your time).
Best regards,

Tim Hillman | Project Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

---

nothy M.
igust 10, 2010 2:18 PM
en; Wehrly, M. R.; Straight, Scott; Mahabaleshwarkar, Anand; Lausman, Rick L.; Harris, David K. (Dave); King, Michael L. (Mike)
Conference Call - Review Workshop Meeting Minutes and Next Phase Scope of Work
/, August 11, 2010 1:00 PM-2:00 PM (GMT-06:00) Central Time (US & Canada).
:V Folks)

Call in number

877-603-8688

Conf ID: 8791684

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- EON cost Analysis Mill Creek Upgrade Final Rev 1.pdf

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Straight, Scott; Kirkland, Mike; Wehrly, M. R.; Lucas, Kyle J.; Crabtree, Jonathan D.; Hintz, Monty E.; Mahabaleshwarkar, Anand; Goodlet, Roger F.; 168908 E.ON-AQC
Sent: 11/19/2010 8:53:06 AM
Subject: 168908.41.0803 101119 Mill Creek Follow-up Validation Meeting Discussions

Eileen,

As we discussed previously, I have directed the team at this time to assume MC1 and MC2 scrubbers will be refurbished for both the conceptual design and the cost estimate. We do of course still need direction on which arrangements to proceed with for all units.

In review of Mike's scenario below, the B&V team has identified the following comments/concerns:
1. A new common WFGD will not fit in the footprint of the existing MC2 scrubber. However, since MC2 is on the north end, there is room for the equipment to grow to the north. The absorber vessel will roughly fit in the area occupied by MC2 scrubber and the pump building, WFGD auxiliaries, and Unit 2 NID could be built to the north.
2. The 345kV transmission line will have to be relocated to fit the common WFGD and a new NID for Unit 2.
3. There will be a significant amount of fill work because the new equipment will extend out to the lower parking lot.
4. Meeting SO2 compliance during construction of the common WFGD will be an issue when using only a NID for SO2 control and the current, high sulfur coal.
5. The advantages of the NID over a PJFF will no longer apply when MC2 is tied in to the state of the art, common WFGD.
Additionally, B&V still believes that it is probable that the existing scrubbers can be upgraded at a cost. However, it is the expense of this upgrade that is unknown. Therefore, we would recommend that criteria be established for the cost breakpoint between refurbishing the MC1 and MC2 scrubbers and installing a brand new common WFGD. We can help LG&E/KU establish this criteria if so desired. Then using the established criteria, if it is determined a new WFGD is more cost effective than refurbishing the existing scrubbers, B&V can develop/recommend the most cost effective, constructible, and emission compliant option for installing a new WFGD.

Please let us know if you have any questions. As you mentioned, it may be best to have a conference call to discuss this further. I recommend we discuss this during the weekly conference call next Monday.

Have a nice weekend.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-7928
Email: hillmantm@bv.com

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Wednesday, November 17, 2010 1:27 PM
To: Hillman, Timothy M.
Cc: Straight, Scott; Kirkland, Mike
Subject: Mill Creek Follow-up

Tim,

Yesterday, I had the opportunity to speak with Mike Kirkland about our conference call. As discussed on our call, B&V needs to follow through with estimating a scenario where the MC 1 and MC 2 Units are refurbished. However, if we determine through our studies that the units cannot be upgraded, we will need to seriously consider

installing new FGDs.

With this in mind, Mike wanted us to consider the following scenario:

· Can we install baghouses on Units 1, 3 and 4 but use a NID system as a scrubber on Unit 2 and construct a common FGD in the footprint of the existing Unit 2 FGD? In both cases, we would eliminate the Unit 1 and Unit 2 precipitators and we would still reconnect Unit 3 to Unit 4's FGD and build a new WFGD.

Please pass this along to your team and let me know what you think. If necessary, we can have another call to further discuss this idea.

Thanks,

Eileen

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Sent: 11/19/2010 8:53:50 AM
Subject: 168908.41.0100 101119 Brown Engineering Data Request
Attachments: ArchiveInfo.htm

Eileen,

Please find attached our Engineering Information Request with Priority List spreadsheet for Brown. As we did on Mill Creek and Ghent, we have spent a considerable amount of time researching, cross-referencing with data we already have, and narrowing this list to only those items essential to our work. I have also attached for your information the "Brown Data Index", which is our current inventory of information that we already have on file for Brown. As you will see, it has a considerable amount less than the other two facilities because we have not recently performed other projects at Brown.

Additionally, attached are three word documents each with a table that needs to be filled-in for the Project Design Memorandum (PDM), which is scheduled to be sent for LG&E/KU's review late next week. These tables are referenced within the information request. If you prefer, you can just provide the information necessary to fill in the tables and then we will fill them in.

Please don't hesitate to call if you have any questions. I request that you copy M.R. Wehrly and Jonathan Crabtree (copied on this email) on any questions related to this request.

Attachments included:

- Brown Information Request -11-18-2010.doc - Official Request
- Brown Priority List for Info Req 111810.xls - Info Request organized by priority due date
- Brown Data Index.xls - Spreadsheet of B&V filed information
- Table 1_02 Water Analysis.doc - Water Analysis Table for PDM
- Table 1_10 Electrical.doc - Electrical Design Data Table for PDM
- Table 1_13 - Load Model.doc - Recent Operating Information Table for PDM

Best Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Brown Information Request -11-18-2010.doc
- Brown Priority List for Info Req 111810.xls
- Brown Data Index.xls
- Table 1_02 Water Analysis.doc
- Table 1_10 Electrical.doc
- Table 1_13 Load Model.doc

From: Saunders, Eileen
To: Greenwell, Sarah
Sent: 11/19/2010 3:05:47 PM
Subject: FW: 168908.41.0100 101119 Brown Engineering Data Request
Attachments: ArchiveInfo.htm

Sarah,

Please see the enclosed information. I suggest that you and I have a quick call to run through what I have sent so I can share with you the methods used by the other plants to retrieve the data. Please let me know if you can be available for a few minutes on Monday to talk with me and suggest a time. I am good around 9:00 am.

Also, I believe Tim misspoke below. He stated that this information was "considerably less" . I believe he meant to say considerably more.

Let me know when you may be available on Monday. I look forward to working with you.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, November 19, 2010 8:54 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Subject: 168908.41.0100 101119 Brown Engineering Data Request

Eileen,

Please find attached our Engineering Information Request with Priority List spreadsheet for Brown. As we did on Mill Creek and Ghent, we have spent a considerable amount of time researching, cross-referencing with data we already have, and narrowing this list to only those items essential to our work. I have also attached for your information the "Brown Data Index", which is our current inventory of information that we already have on file for Brown. As you will see, it has a considerable amount less than the other two facilities because we have not recently performed other projects at Brown.

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Best Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211

Phone: (913) 458-7928
Email: hillmantm@bv.com

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- Brown Priority List for Info Req 111810.xls
- Brown Data Index.xls
- Table 1_02 Water Analysis.doc
- Table 1_10 Electrical.doc
- Table 1_13 Load Model.doc

From: Greenwell, Sarah
To: Saunders, Eileen
Sent: 11/19/2010 3:10:16 PM
Subject: RE: 168908.41.0100 101119 Brown Engineering Data Request

Eileen,

I am good at 9 as well on Monday, so I will give you a call around 9.

Sarah

From: Saunders, Eileen
Sent: Friday, November 19, 2010 3:06 PM
To: Greenwell, Sarah
Subject: FW: 168908.41.0100 101119 Brown Engineering Data Request

Sarah,

Please see the enclosed information. I suggest that you and I have a quick call to run through what I have sent so I can share with you the methods used by the other plants to retrieve the data. Please let me know if you can be available for a few minutes on Monday to talk with me and suggest a time. I am good around 9:00 am.

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Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, November 19, 2010 8:54 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Subject: 168908.41.0100 101119 Brown Engineering Data Request

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Best Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen
To: Greenwell, Sarah
Sent: 11/19/2010 3:37:00 PM
Subject: RE: 168908.41.0100 101119 Brown Engineering Data Request

I'll call you because I may be either at Mill Creek or at Ghent depending on how my fan situation at Ghent is going.

Thanks,

Eileen

From: Greenwell, Sarah
Sent: Friday, November 19, 2010 3:10 PM
To: Saunders, Eileen
Subject: RE: 168908.41.0100 101119 Brown Engineering Data Request

Eileen,

I am good at 9 as well on Monday, so I will give you a call around 9.

Sarah

From: Saunders, Eileen
Sent: Friday, November 19, 2010 3:06 PM
To: Greenwell, Sarah
Subject: FW: 168908.41.0100 101119 Brown Engineering Data Request

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Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, November 19, 2010 8:54 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Subject: 168908.41.0100 101119 Brown Engineering Data Request

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- Table 1_13 - Load Model.doc - Recent Operating Information Table for PDM

Best Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Sent:	11/22/2010 10:36:59 AM
Subject:	168908.28.3000 101122 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

Attached is the updated action item list for our weekly Monday call.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

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The following attachments were archived from this message:

- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Saunders, Eileen
To: 'Hillman, Timothy M.'
CC: Greenwell, Sarah
Sent: 11/22/2010 11:27:52 AM
Subject: RE: 168908.28.3000 101122 - Action Item List

Tim,

Sarah Greenwell from the Brown team will be joining us for the first few minutes of our call to get some clarity on the Brown information request. She and I have a few questions for the team.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 10:37 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Subject: 168908.28.3000 101122 - Action Item List

Eileen,

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Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-7928
Email: hillmantm@bv.com

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Greenwell, Sarah; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.
Sent: 11/22/2010 11:32:35 AM
Subject: RE: 168908.28.3000 101122 - Action Item List

Ok...thanks Eileen.

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Monday, November 22, 2010 10:28 AM
To: Hillman, Timothy M.
Cc: Greenwell, Sarah
Subject: RE: 168908.28.3000 101122 - Action Item List

Tim,

Sarah Greenwell from the Brown team will be joining us for the first few minutes of our call to get some clarity on the Brown information request. She and I have a few questions for the team.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 10:37 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Subject: 168908.28.3000 101122 - Action Item List

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Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From:	Saunders, Eileen
To:	Kirkland, Mike; Buckner, Mike; Didelot, Joe; Bennett, Mike; Betz, Alex; Cecil, Ray; Craigmyle, Kenny; Moehrke, William
CC:	Straight, Scott
Sent:	11/22/2010 2:40:22 PM
Subject:	FW: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review
Attachments:	ArchiveInfo.htm

All,

Please see the attached meeting minutes for review. The due date is actually Monday, November 29, 2010. B&V extended the date due to vacations etc. If you have any comments, please send them to me and I will forward them along with my comments to B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, November 16, 2010 11:40 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

Eileen,

Please find attached the draft Mill Creek Validation Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Mill Creek AQC Validation Meeting Minutes - Draft with Attachments.pdf

From: Hillman, Timothy M.
To: Saunders, Eileen; Mahabaleshwarkar, Anand
CC: Straight, Scott; Wehrly, M. R.
Sent: 11/22/2010 4:22:52 PM
Subject: RE: MC SCR Question

I concur.

Anand, do you wish to elaborate or clarify anything?

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Monday, November 22, 2010 3:18 PM
To: Hillman, Timothy M.
Cc: Straight, Scott
Subject: MC SCR Question

Tim,

As discussed on our conference call today, B&V does not count on the co-benefits of the SCR for Hg removal. The baghouse and pac injection systems that B&V has proposed will remove mercury at the specified levels without need of the SCR. If I have misstated anything, please let me know.

Thanks,

Eileen

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Wehrly, M. R.; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Smith, Dave; Jackson, Audrey; Keltner, Erik J.
Sent:	11/22/2010 4:53:59 PM
Subject:	168908.41.0811 101122 Ghent Unit 2 Heat Rates
Attachments:	ArchiveInfo.htm

Eileen-

As we discussed in today's conference call, for the Ghent combustion calculations, we will need verification of the Net Unit Heat Rate (provided in Phase I) and the estimated Total Heat Input from our Phase I design basis. In the attached spreadsheet sent on May 3, 2010 under the "Plant Size and Operation Data" section, the following Net Unit Heat Rates were provided for each unit.

Unit	Phase I - Net Unit Heat Rate
Ghent 1	10567 Btu/kWh
Ghent 2	8904 Btu/kWh
Ghent 3	11180 Btu/kWh
Ghent 4	11070 Btu/kWh

As shown above, Unit 2 is significantly lower than the other 3 units and lower than what B&V would expect for this age of coal-fired unit.

From these numbers and an estimated Net MW Rating, a Total Heat Input was calculated for each unit. The Net MW Rating was assumed to be 94% of the provided Gross MW Rating (assumed a 6 percent aux load per unit). The following are the Phase I total heat inputs:

Unit	Phase I - Heat Input
Ghent 1	5369 Mbtu/hr
Ghent 2	4327 Mbtu/hr
Ghent 3	5496 Mbtu/hr
Ghent 4	5473 Mbtu/hr

Please verify the numbers above for both Net Unit Heat Rate and the approximate Total Heat Input for each unit. This information is critical for the Ghent validation and a timely response will be greatly appreciated.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

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The following attachments were archived from this message:

- EON Power Plant AQCS Information Data Request May 3 2010.xls

From: Saunders, Eileen
To: Smith, Dave; Wright, Paul
CC: 'Hillman, Timothy M.'
Sent: 11/22/2010 4:57:29 PM
Subject: FW: 168908.41.0811 101122 Ghent Unit 2 Heat Rates
Attachments: ArchiveInfo.htm

Dave and Paul,

Can you help me clarify this information for B&V?

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 4:54 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Wehrly, M. R.; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Smith, Dave; Jackson, Audrey; Keltner, Erik J.
Subject: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

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Overland Park, KS 66211
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Email: **hillmantm@bv.com**

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- EON Power Plant AQCS Information Data Request May 3 2010.xls

From: Mahabaleshwarkar, Anand
To: Hillman, Timothy M.; Saunders, Eileen
CC: Straight, Scott; Wehrly, M. R.
Sent: 11/22/2010 6:23:28 PM
Subject: RE: MC SCR Question

I concur. No more need to elaborate.

Anand

From: Hillman, Timothy M.
Sent: Monday, November 22, 2010 3:23 PM
To: Saunders, Eileen; Mahabaleshwarkar, Anand
Cc: Straight, Scott; Wehrly, M. R.
Subject: RE: MC SCR Question
Importance: High

I concur.

Anand, do you wish to elaborate or clarify anything?

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
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From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Monday, November 22, 2010 3:18 PM
To: Hillman, Timothy M.
Cc: Straight, Scott
Subject: MC SCR Question

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Thanks,

Eileen

From: Saunders, Eileen
To: Whitworth, Wayne
Sent: 11/23/2010 12:18:09 PM
Subject: RE: Scott Request

Thank you. These are not signed but I assume the dates in the contract are correct.

Eileen

From: Whitworth, Wayne
Sent: Tuesday, November 23, 2010 11:06 AM
To: Saunders, Eileen
Subject: RE: Scott Request
Importance: High

Eileen,
Let me know if this is what you need. They should be duplicates of what I had previously sent to you.
<< File: Change Order #1 - Contract 43658 (8-3-2010).pdf >> << File: Contract 43658 Black Veatch for signature(4-30-2010) .pdf >>
<< File: B&V Phase II AQCS Contract (UNNUMBERED)0001.pdf >> **W. Wayne Whitworth**
Project Engineering
LG&E and KU Services Company
820 West Broadway - BOC 3
P.O. Box 32020
Louisville, KY 40202

email: wayne.whitworth@lge-ku.com

Office: 502.627.2641

Fax: 502.217.2843

Cell: 502.762.6614

Please note that my email address has changed from wayne.whitworth@eon-us.com to wayne.whitworth@lge-ku.com. Please take the opportunity to update my address in your address book and delete any reference to the former email address. The old email address will only continue to work for a very short time, and I will be unable to receive email at that address.

From: Saunders, Eileen
Sent: Tuesday, November 23, 2010 10:58 AM
To: Whitworth, Wayne
Subject: Scott Request

Wayne,

I am working on a request for Scott Straight today. Please send me the contract signature date for the Phase 1 and Phase 2 B&V work for the Environmental Compliance Project asap.

Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

From: Whitworth, Wayne
To: Saunders, Eileen
Sent: 11/23/2010 12:39:36 PM
Subject: RE: Scott Request

I will get you the executed contracts if you need them. The effective dates should be correct. The signature date will be the date signed by each individual party.

W. Wayne Whitworth

Project Engineering

LG&E and KU Services Company

820 West Broadway - BOC 3

P.O. Box 32020

Louisville, KY 40202

email: wayne.whitworth@lge-ku.com

Office: 502.627.2641

Fax: 502.217.2843

Cell: 502.762.6614

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Eileen

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To: Saunders, Eileen
Subject: RE: Scott Request
Importance: High

Eileen,

Let me know if this is what you need. They should be duplicates of what I had previously sent to you.

<< File: Change Order #1 - Contract 43658 (8-3-2010).pdf >> << File: Contract 43658 Black Veatch for signature(4-30-2010) .pdf >>

<< File: B&V Phase II AQCS Contract (UNNUMBERED)0001.pdf >> **W. Wayne Whitworth**

Project Engineering

LG&E and KU Services Company

820 West Broadway - BOC 3

P.O. Box 32020

Louisville, KY 40202

email: wayne.whitworth@lge-ku.com

Office: 502.627.2641

Fax: 502.217.2843

Cell: 502.762.6614

Please note that my email address has changed from wayne.whitworth@eon-us.com to wayne.whitworth@lge-ku.com. Please take the opportunity to update my address in your address book and delete any reference to the former email address. The old email address will only continue to work for a very short time, and I will be unable to receive email at that address.

From: Saunders, Eileen
Sent: Tuesday, November 23, 2010 10:58 AM
To: Whitworth, Wayne
Subject: Scott Request

Wayne,

I am working on a request for Scott Straight today. Please send me the contract signature date for the Phase 1 and Phase 2 B&V work for the Environmental Compliance Project asap.

Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

From: Saunders, Eileen
To: Whitworth, Wayne
Sent: 11/23/2010 12:39:54 PM
Subject: RE: Scott Request

No-I'm good!

From: Whitworth, Wayne
Sent: Tuesday, November 23, 2010 12:40 PM
To: Saunders, Eileen
Subject: RE: Scott Request

I will get you the executed contracts if you need them. The effective dates should be correct. The signature date will be the date signed by each individual party.

W. Wayne Whitworth
Project Engineering
LG&E and KU Services Company
820 West Broadway - BOC 3
P.O. Box 32020
Louisville, KY 40202

email: wayne.whitworth@lge-ku.com

Office: 502.627.2641

Fax: 502.217.2843

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From: Saunders, Eileen
Sent: Tuesday, November 23, 2010 12:18 PM
To: Whitworth, Wayne
Subject: RE: Scott Request

Thank you. These are not signed but I assume the dates in the contract are correct.

Eileen

From: Whitworth, Wayne
Sent: Tuesday, November 23, 2010 11:06 AM
To: Saunders, Eileen
Subject: RE: Scott Request

Importance: High

Eileen,
Let me know if this is what you need. They should be duplicates of what I had previously sent to you.
<< File: Change Order #1 - Contract 43658 (8-3-2010).pdf >> << File: Contract 43658 Black Veatch for signature(4-30-2010) .pdf >>
<< File: B&V Phase II AQCS Contract (UNNUMBERED)0001.pdf >> **W. Wayne Whitworth**
Project Engineering
LG&E and KU Services Company
820 West Broadway - BOC 3
P.O. Box 32020
Louisville, KY 40202

email: wayne.whitworth@lge-ku.com

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Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

From: Wright, Paul
To: Saunders, Eileen
CC: 'Hillman, Timothy M.'; Smith, Dave
Sent: 11/23/2010 3:43:07 PM
Subject: RE: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Eileen,
The Net Heat Rate for the Ghent Units in 2009 was:
Unit 1 10,437
Unit 2 10,465
Unit 3 11,131
Unit 4 10,988

Auxiliary usage averages around 9% for the station, so Net MW's would be about 91% of Gross. Heat input should be over 5200 Mbtu/hr per unit.

Hope this works for your needs.

Paul Wright

From: Saunders, Eileen
Sent: Monday, November 22, 2010 4:57 PM
To: Smith, Dave; Wright, Paul
Cc: 'Hillman, Timothy M.'
Subject: FW: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Dave and Paul,

Can you help me clarify this information for B&V?

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 4:54 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Wehrly, M. R.; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Smith, Dave; Jackson, Audrey; Keltner, Erik J.
Subject: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Eileen-

As we discussed in today's conference call, for the Ghent combustion calculations, we will need verification of the Net Unit Heat Rate (provided in Phase I) and the estimated Total Heat Input from our Phase I design basis. In the attached spreadsheet sent on May 3, 2010 under the "Plant Size and Operation Data" section, the following Net Unit Heat Rates were provided for each unit.

Unit	Phase I - Net Unit Heat Rate
Ghent 1	10567 Btu/kWh
Ghent 2	8904 Btu/kWh
Ghent 3	11180 Btu/kWh
Ghent 4	11070 Btu/kWh

As shown above, Unit 2 is significantly lower than the other 3 units and lower than what B&V would expect for this age of coal-fired unit.

From these numbers and an estimated Net MW Rating, a Total Heat Input was calculated for each unit. The Net MW Rating was assumed to be 94% of the provided Gross MW Rating (assumed a 6 percent aux load per unit). The following are the Phase I total heat inputs:

Unit	Phase I - Heat Input
Ghent 1	5369 Mbtu/hr
Ghent 2	4327 Mbtu/hr
Ghent 3	5496 Mbtu/hr
Ghent 4	5473 Mbtu/hr

Please verify the numbers above for both Net Unit Heat Rate and the approximate Total Heat Input for each unit. This information is critical for the Ghent validation and a timely response will be greatly appreciated.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Hillman, Timothy M.
To: Wright, Paul; Saunders, Eileen
CC: Smith, Dave; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Sent: 11/23/2010 5:58:49 PM
Subject: RE: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Thank you for your timely response.

I hope you all have a pleasant Thanksgiving Holiday.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Wright, Paul [mailto:Paul.Wright@lge-ku.com]
Sent: Tuesday, November 23, 2010 2:43 PM
To: Saunders, Eileen
Cc: Hillman, Timothy M.; Smith, Dave
Subject: RE: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Eileen,
The Net Heat Rate for the Ghent Units in 2009 was:
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Unit 2 10,465
Unit 3 11,131
Unit 4 10,988

Auxiliary usage averages around 9% for the station, so Net MW's would be about 91% of Gross. Heat input should be over 5200 Mbtu/hr per unit.

Hope this works for your needs.

Paul Wright

From: Saunders, Eileen
Sent: Monday, November 22, 2010 4:57 PM
To: Smith, Dave; Wright, Paul
Cc: 'Hillman, Timothy M.'
Subject: FW: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Dave and Paul,

Can you help me clarify this information for B&V?

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 4:54 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Wehrly, M. R.; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Smith, Dave; Jackson, Audrey; Keltner, Erik J.
Subject: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Eileen-

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As shown above, Unit 2 is significantly lower than the other 3 units and lower than what B&V would expect for this age of coal-fired unit.

From these numbers and an estimated Net MW Rating, a Total Heat Input was calculated for each unit. The Net MW Rating was assumed to be 94% of the provided Gross MW Rating (assumed a 6 percent aux load per unit). The following are the Phase I total heat inputs:

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Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen
To: 'HillmanTM@bv.com'
Sent: 11/23/2010 6:05:14 PM
Subject: Re: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Happy Thanksgiving to you and all the folks at B&V! I will be off tomorrow so I figured I would send my well wishes tonight!

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, November 23, 2010 05:58 PM
To: Wright, Paul; Saunders, Eileen
Cc: Smith, Dave; Wehrly, M. R. <WehrlyMR@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>
Subject: RE: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Thank you for your timely response.

I hope you all have a pleasant Thanksgiving Holiday.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Wright, Paul [mailto:Paul.Wright@lge-ku.com]
Sent: Tuesday, November 23, 2010 2:43 PM
To: Saunders, Eileen
Cc: Hillman, Timothy M.; Smith, Dave
Subject: RE: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Eileen,
The Net Heat Rate for the Ghent Units in 2009 was:
Unit 1 10,437
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Unit 4 10,988

Auxiliary usage averages around 9% for the station, so Net MW's would be about 91% of Gross. Heat input should be over 5200 Mbtu/hr per unit.

Hope this works for your needs.

Paul Wright

From: Saunders, Eileen
Sent: Monday, November 22, 2010 4:57 PM
To: Smith, Dave; Wright, Paul

Cc: 'Hillman, Timothy M.'
Subject: FW: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

Dave and Paul,

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Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 22, 2010 4:54 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Wehrly, M. R.; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Smith, Dave; Jackson, Audrey; Keltner, Erik J.
Subject: 168908.41.0811 101122 Ghent Unit 2 Heat Rates

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Regards,

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Email: **hillmantm@bv.com**

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From:	Crabtree, Jonathan D.
To:	Greenwell, Sarah
CC:	Wehrly, M. R.; Lucas, Kyle J.; Hillman, Timothy M.; Saunders, Eileen; 168908 E.ON-AQC
Sent:	11/24/2010 9:23:38 AM
Subject:	168908.41.0100 101124 Brown ID Fan Motor Drawing Questions
Attachments:	ArchiveInfo.htm

Sarah-

If you can provide a drawing similar to the attached, that will sufficiently answer the request. Typically, the motor drawing will be from the manufacturer.

Additionally, we only need to focus on the drawings and information for your current fans.

Let me know if you have any more questions.

Have a great Thanksgiving,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403
Building a World of Difference®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Tuesday, November 23, 2010 1:42 PM
To: Crabtree, Jonathan D.
Cc: Wehrly, M. R.; Lucas, Kyle J.; Hillman, Timothy M.; Saunders, Eileen
Subject: ID Fan Motor Drawing Questions

Jonathan,

I have a question regarding the ID fan motor drawing. What specifically do you all want on the drawing? Do you want a basic drawing or one with specific details and if so, what details?

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- MYSCAN_20101118_0001.pdf

From:	Crabtree, Jonathan D.
To:	Smith, Dave
CC:	Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Sent:	11/24/2010 2:08:23 PM
Subject:	168908.41.0100 101124 Ghent Data Request - Priority 4 Follow Up
Attachments:	ArchiveInfo.htm

Dave-

The following are responses to Priority 4 information submitted on 11/19.

ID Fan Motor Drawings: The ID fan motor drawing for Ghent Unit 1 that we received does not appear to be the most recent motor as its rating is only 6000 hp as opposed to the current 9000 hp referenced in other documents and is also dated 1992. Please provide drawings of the Unit 1 9000 hp motors. Also, ID fan motor drawings for Ghent Unit 3 or 4 were not received. Please provide only Unit 3 or Unit 4 as directed by your note stating they are same motors.

Unit 4 ID Fan Arrangement: Please provide the vendor arrangement drawings.

Operating info for Load Model: If available, please provide number of operating hours per load rating per year(e.g., low, medium, high or 70%, 80%, 90%, 100%). Please see attached for example of Mill Creek. In addition, we need total Gross and/or Net MW-hrs/year per unit. With these numbers we can create a load model. To clarify, the load model table will only be used for economic analysis for evaluation of equipment and material selections, when required.

As a reminder, please provide at least Priority 1 and 2 follow up requests as soon as you get the chance, since these items are critical to the Ghent Validation presentation and report.

We are getting much closer to complete with all four priorities now being submitted. Again, tell your team at Ghent thanks. You all have done an excellent job preparing and gathering all of our information requests. We appreciate your efforts.

Have a great Thanksgiving,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Friday, November 19, 2010 1:45 PM
To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: B&V Priority 4 Ghent Data Request
Importance: High

Tim:

Ghent Priority 4 data request information has been placed on IBackup.

Please note:

1. Priority 4, Request item 4a and 4b (SCAH data sheet and drawings): We did not find data for Unit 1. We can

only find a drawing for the U-2 air heater coils, which are tri sector heaters, common to Ghent U-2,3,4. The U-1 air heater is a bisector model which we cannot find a drawing on; we can continue to look, if needed.

2. B&V Priority 2, Request 3 (Air heater general arrangement) – there was a note on the email sent to me with the drawings stating that drawings: 0018, 0019, AH gas Duct to ID fan, and Structural Steel and AH support are most likely invalid at this point, with the installation of the new ID fan on Unit 4 – just wanted to pass this along. If we need updated drawings hopefully we have them or can get them.

3. Follow-up information from the previous requests are starting to come in to me. I will place the follow-up responses on IBackup in their own folders.

If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Operating_Load_Analysis[1].pdf

From: Smith, Dave
To: 'Crabtree, Jonathan D.'
CC: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Sent: 11/24/2010 2:22:25 PM
Subject: RE: 168908.41.0100 101124 Ghent Data Request - Priority 4 Follow Up

Jonathan:

Thanks.

You too have a great holiday.

Dave

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Wednesday, November 24, 2010 2:08 PM
To: Smith, Dave
Cc: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Subject: 168908.41.0100 101124 Ghent Data Request - Priority 4 Follow Up

Dave-

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ID Fan Motor Drawings: The ID fan motor drawing for Ghent Unit 1 that we received does not appear to be the most recent motor as its rating is only 6000 hp as opposed to the current 9000 hp referenced in other documents and is also dated 1992. Please provide drawings of the Unit 1 9000 hp motors. Also, ID fan motor drawings for Ghent Unit 3 or 4 were not received. Please provide only Unit 3 or Unit 4 as directed by your note stating they are same motors.

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We are getting much closer to complete with all four priorities now being submitted. Again, tell your team at Ghent thanks. You all have done an excellent job preparing and gathering all of our information requests. We appreciate your efforts.

Have a great Thanksgiving,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Friday, November 19, 2010 1:45 PM

To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: B&V Priority 4 Ghent Data Request
Importance: High

Tim:

Ghent Priority 4 data request information has been placed on IBackup.

Please note:

1. Priority 4, Request item 4a and 4b (SCAH data sheet and drawings): We did not find data for Unit 1. We can only find a drawing for the U-2 air heater coils, which are tri sector heaters, common to Ghent U-2,3,4. The U-1 air heater is a bisector model which we cannot find a drawing on; we can continue to look, if needed.

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If you have any questions, please let me know.

Thanks and have a good weekend.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

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From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.; Greenwell, Sarah
Sent:	11/29/2010 9:42:30 AM
Subject:	168908.28.3000 101129 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

Attached is the updated action item list for our weekly Monday call.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- 168908 LG&E AND KU ACTION ITEM LIST.xls

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	Jackson, Audrey; Betz, Alex; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Mehta, Pratik D.; 168908 E.ON-AQC
Sent:	11/29/2010 2:58:17 PM
Subject:	168908.22.1000 101129 Mill Creek PDM - Revision C
Attachments:	ArchiveInfo.htm

Eileen,

Attached is Revision C of the LG&E/KU Mill Creek Project Design Memorandum (PDM). We have incorporated all LG&E/KU comments and information received regarding the various tables included in the information request. Additionally, we have incorporated some additional in-house comments. We have included both a "Track Changes" version so you can easily see the changes we made, and a pdf file copy with all changes accepted. The purpose of this document is to capture all of the significant design requirements of the project. It has been and will continue to be dynamic with changes and revisions as more information become available. This is re-issued for project use for this phase of the project. Please let us know if you have any comments or questions.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- LGEKU Mill Creek Project Design Memo.doc
- LGE KU Mill Creek Project Design Memo.pdf

From: Crabtree, Jonathan D.
To: Smith, Dave; Hillman, Timothy M.
CC: Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Sent: 11/29/2010 3:09:02 PM
Subject: RE: Ghent Follow-up information

Dave-

Thanks for the update. We will look through the information and hopefully be able to close these items.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Monday, November 29, 2010 8:53 AM
To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: Ghent Follow-up information

Tim:

Ghent Priority 1 and 2 Follow-up request information has been placed on IBackup.

Will be working on follow-up request 3 and 4.

If you have any questions, please let me know.

Thanks.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@eon-us.com

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Lucas, Kyle J.; Hintz, Monty E.; Mahabaleshwarkar, Anand; Goodlet, Roger F.; King, Michael L. (Mike)
Sent: 11/29/2010 4:37:56 PM
Subject: 168908.14.1000 101129 Ghent - Draft Validation Meeting Agenda
Attachments: ArchiveInfo.htm

Eileen,

Please find attached a draft agenda for Ghent's Validation Meeting scheduled for December 7th.
Please let me know by Thursday, December 2nd if you have any comments.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Validation Meeting Agenda.doc

From: Saunders, Eileen
To: 'Hillman, Timothy M.'
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Lucas, Kyle J.; Hintz, Monty E.; Mahabaleshwarkar, Anand; Goodlet, Roger F.; King, Michael L. (Mike)
Sent: 11/30/2010 7:35:32 AM
Subject: RE: 168908.14.1000 101129 Ghent - Draft Validation Meeting Agenda

Looks good to me!

Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 29, 2010 4:38 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Lucas, Kyle J.; Hintz, Monty E.; Mahabaleshwarkar, Anand; Goodlet, Roger F.; King, Michael L. (Mike)
Subject: 168908.14.1000 101129 Ghent - Draft Validation Meeting Agenda

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Please find attached a draft agenda for Ghent's Validation Meeting scheduled for December 7th.
Please let me know by Thursday, December 2nd if you have any comments.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Hillman, Timothy M.
To: Smith, Dave
CC: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Sent: 11/30/2010 9:49:07 AM
Subject: RE: Ghent Priority 1 update

Thank you Dave.

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Tuesday, November 30, 2010 8:02 AM
To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: Ghent Priority 1 update

Tim:

FYI: I placed an area plan drawing for Unit 2 AQCS on IBackup as requested for the Priority 1 follow-up data. This was Civil/Structural Request #3.

Dave

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Sent: 12/2/2010 4:46:34 PM
Subject: 168908.41.0803 101202 Ghent Validation Meeting Presentation
Attachments: ArchiveInfo.htm

Eileen,

Please find attached a PDF of the Ghent Validation Meeting Presentation. We plan to bring color copy handouts as well as the electronic PowerPoint to the meeting on December 7th. I assume you can provide the PC projector again.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Validation Presentation 120210.pdf

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Sent:	12/2/2010 4:47:24 PM
Subject:	168908.41.0803 101202 Ghent Draft Validation Report
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached an electronic copy of the Draft Ghent AQC Validation Report for your review and LG&E/KU's use during the technology validation meeting next week. The real intent of the draft report is to capture the considerations, reviews, constraints, and analyses conducted to date to validate that the selected AQC technologies could be accommodated and arranged on site with no obvious fatal flaws. The presentation next week will highlight the most salient points of the report, and the report will also serve as a reference document to address any detailed questions that may arise during the course of the meeting.

Finally, you will notice that the conclusion section of the report is incomplete at this point. Following the validation meeting, B&V anticipates that LG&E/KU will complete their review of the report and provide comments and direction in order to advance the project to conceptual design and cost estimating. B&V will then finalize the validation report by incorporating LG&E/KU's comments and completing the conclusions section.

We look forward to meeting with you and your team next week.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Draft Ghent Validation Report 120210.pdf

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/2/2010 7:20:58 PM
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information
Attachments: ArchiveInfo.htm

Sarah,

Thanks for the information. You have provided a lot of useful information. We will review it and let you know if we have any follow-up responses. Please see answers to your questions below in red.

Also, it appears the first round of information you provided is no longer on i-backup. In the future, you can leave past submittals on ibackup so that we have record of it in case we need to go back to it for some reason or didn't get to it in time. Additionally, one thing that Dave Smith at Ghent did that made things easier for us was he placed compressed ZIP folders on to I-backup and then we just had to download one item per submittal. I think that will also cut down on the time it takes for you to upload the information. Either way works so its up to you.

Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Questions and Uploaded Information

Jonathan,

In gathering the requested information, I have a few more questions.

Can you please send me an example of an ID fan arrangement drawings? Please see attached.

And do you want both the nameplate and data sheets for the ID fans or will one or the other be sufficient? I believe either one will be sufficient. I will check with our fan engineer when he returns to the office, but for now assume either will be fine.

Do you want me to upload a Word document with the sacred ground list and answers to the questions? If not, how would you like me to give you that information? Word documents are fine.

Also, I uploaded more information yesterday and will continue to upload throughout today. The following items are available now:

- Utility information

- 2 & 3 stack foundation drawings
- FGD drawings
- FGD one-line diagrams
- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- G-3568 41487-A Ghent Unit 1 ID Fan General Arrangement.pdf

From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/3/2010 3:14:45 PM
Subject: RE: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Jonathan,

All the other information has been uploaded, except for a couple drawings that we're still looking for:

- Unit 2 bypass ductwork
- Ductwork of precipitators to ID fans for Unit 1 and 3—I've included some extra ductwork with the FGD drawings that may cover it, but I am still looking into it

I want to note that the Unit 1 and 3 ID fan motor and arrangement drawings are not final drawings. I also wanted to note that I was unable to find the Unit 2 ID fan arrangement drawing, so I uploaded a drawing that I thought would be beneficial.

Sarah Greenwell

Environmental Coordinator
E.W. Brown Generating Station
859-748-4414

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Thursday, December 02, 2010 7:21 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Sarah,

Thanks for the information. You have provided a lot of useful information. We will review it and let you know if we have any follow-up responses. Please see answers to your questions below in red.

Also, it appears the first round of information you provided is no longer on i-backup. In the future, you can leave past submittals on ibackup so that we have record of it in case we need to go back to it for some reason or didn't get to it in time. Additionally, one thing that Dave Smith at Ghent did that made things easier for us was he placed compressed ZIP folders on to I-backup and then we just had to download one item per submittal. I think that will also cut down on the time it takes for you to upload the information. Either way works so its up to you.

Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]

Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Questions and Uploaded Information

Jonathan,

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Can you please send me an example of an ID fan arrangement drawings? Please see attached.

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- Utility information
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- FGD drawings
- FGD one-line diagrams
- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

From: Saunders, Eileen
To: 'Hillman, Timothy M.'
CC: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Sent: 12/6/2010 8:49:40 AM
Subject: RE: 168908.41.0803 101202 Ghent Validation Meeting Presentation

Looks great Tim! I will make a projector available.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 02, 2010 4:47 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Subject: 168908.41.0803 101202 Ghent Validation Meeting Presentation

Eileen,

Please find attached a PDF of the Ghent Validation Meeting Presentation. We plan to bring color copy handouts as well as the electronic PowerPoint to the meeting on December 7th. I assume you can provide the PC projector again.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
Building a World of Difference.®

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Sent: 12/6/2010 9:00:12 AM
Subject: RE: 168908.41.0803 101202 Ghent Validation Meeting Presentation

Great. See you tomorrow then.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Monday, December 06, 2010 7:50 AM
To: Hillman, Timothy M.
Cc: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Subject: RE: 168908.41.0803 101202 Ghent Validation Meeting Presentation

Looks great Tim! I will make a projector available.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 02, 2010 4:47 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Crabtree, Jonathan D.
Subject: 168908.41.0803 101202 Ghent Validation Meeting Presentation

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+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.; Greenwell, Sarah
Sent:	12/6/2010 10:23:11 AM
Subject:	168908.28.3000 101206 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

While we have cancelled the Monday conference call for today, I thought I would still send out the action item list. We may be able to find a few minutes to review after the validation presentation tomorrow.

Thanks,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Sent: 12/6/2010 11:17:33 AM
Subject: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble
Attachments: ArchiveInfo.htm

Eileen,

As you requested, please find attached a PowerPoint containing the PFD graphics for subject plants. Mill Creek and Ghent PFDs are from the validation work, Brown PFDs are from kickoff meeting and Phase 1, and the Trimble Co PFD is from the Phase 1 work.

Let me know if you need anything else.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- LGEKU Process Flows.ppt

From: Saunders, Eileen
To: 'HillmanTM@bv.com'
Sent: 12/6/2010 11:22:29 AM
Subject: Re: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Thanks!

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, December 06, 2010 11:17 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC <168908EONAQC@bv.com>; Wehrly, M. R. <WehrlyMR@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>
Subject: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

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TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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From: Saunders, Eileen
To: Straight, Scott
Sent: 12/6/2010 12:22:19 PM
Subject: Fw: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble
Attachments: ArchiveInfo.htm

Per your request.

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, December 06, 2010 11:17 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC <168908EONAQC@bv.com>; Wehrly, M. R. <WehrlyMR@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>
Subject: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

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Let me know if you need anything else.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- LGEKU Process Flows.ppt

From: Straight, Scott
To: Saunders, Eileen
Sent: 12/6/2010 2:23:24 PM
Subject: RE: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Please have these modified for the following:

- Mill Creek – need the NIDS shown as being evaluated. I would do this by removing the NIDS/PJFF and replacing with PJFF*. The * can be a footnote saying the Alstom NIDS is being evaluated.
- Why isn't MC2 showing the DESP being removed like Unit 1?

Call if you want to discuss.

Scott

From: Saunders, Eileen
Sent: Monday, December 06, 2010 12:22 PM
To: Straight, Scott
Subject: Fw: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Per your request.

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, December 06, 2010 11:17 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC <168908EONAQC@bv.com>; Wehrly, M. R. <WehrlyMR@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>
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Let me know if you need anything else.

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Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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From: Saunders, Eileen
To: Straight, Scott
Sent: 12/6/2010 2:33:46 PM
Subject: Re: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

I will work on this in the morning. I am heading home because I have not been feeling well today.

The DESP was still in the plan when these presentations were put together.

Thanks,

Eileen

From: Straight, Scott
Sent: Monday, December 06, 2010 02:23 PM
To: Saunders, Eileen
Subject: RE: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Please have these modified for the following:

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Eileen

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Sent: Monday, December 06, 2010 11:17 AM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC <168908EONAQC@bv.com>; Wehrly, M. R. <WehrlyMR@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>
Subject: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

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Let me know if you need anything else.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211

+ 1 913-458-7928 P |HillmanTM@BV.com
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From:	Saunders, Eileen
To:	Smith, Dave
CC:	Scott, Randy
Sent:	12/7/2010 1:51:22 PM
Subject:	Fw: 168908.41.0803 101202 Ghent Validation Meeting Presentation
Attachments:	ArchiveInfo.htm

Dave,

Please forward this soft copy of the presentation to the rest of the Ghent team.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 02, 2010 04:46 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC <168908EONAQC@bv.com>; Jackson, Audrey; Wehrly, M. R. <WehrlyMR@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Hintz, Monty E. <HintzME@bv.com>; Goodlet, Roger F. <GoodletRF@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: 168908.41.0803 101202 Ghent Validation Meeting Presentation

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The following attachments were archived from this message:
- Ghent Validation Presentation 120210.pdf

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/7/2010 2:06:30 PM
Subject: Fw: 168908.41.0803 101202 Ghent Draft Validation Report
Attachments: ArchiveInfo.htm

Scott,

Here is a copy of the report B&V handed out during the presentation.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 02, 2010 04:47 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC <168908EONAQC@bv.com>; Jackson, Audrey; Wehrly, M. R. <WehrlyMR@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Hintz, Monty E. <HintzME@bv.com>; Goodlet, Roger F. <GoodletRF@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: 168908.41.0803 101202 Ghent Draft Validation Report

Eileen,

Please find attached an electronic copy of the Draft Ghent AQC Validation Report for your review and LG&E/KU's use during the technology validation meeting next week. The real intent of the draft report is to capture the considerations, reviews, constraints, and analyses conducted to date to validate that the selected AQC technologies could be accommodated and arranged on site with no obvious fatal flaws. The presentation next week will highlight the most salient points of the report, and the report will also serve as a reference document to address any detailed questions that may arise during the course of the meeting.

Finally, you will notice that the conclusion section of the report is incomplete at this point. Following the validation meeting, B&V anticipates that LG&E/KU will complete their review of the report and provide comments and direction in order to advance the project to conceptual design and cost estimating. B&V will then finalize the validation report by incorporating LG&E/KU's comments and completing the conclusions section.

We look forward to meeting with you and your team next week.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Draft Ghent Validation Report 120210.pdf

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/7/2010 2:05:29 PM
Subject: Fw: 168908.41.0803 101202 Ghent Validation Meeting Presentation
Attachments: ArchiveInfo.htm

Scott,

Here is a copy of the presentation we are reviewing at Ghent today.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 02, 2010 04:46 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC <168908EONAQC@bv.com>; Jackson, Audrey; Wehrly, M. R. <WehrlyMR@bv.com>; Lucas, Kyle J. <LucasKJ@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Hintz, Monty E. <HintzME@bv.com>; Goodlet, Roger F. <GoodletRF@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: 168908.41.0803 101202 Ghent Validation Meeting Presentation

Eileen,

Please find attached a PDF of the Ghent Validation Meeting Presentation. We plan to bring color copy handouts as well as the electronic PowerPoint to the meeting on December 7th. I assume you can provide the PC projector again.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Validation Presentation 120210.pdf

From:	Lucas, Kyle J.
To:	Saunders, Eileen
CC:	Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Sent:	12/8/2010 2:45:55 PM
Subject:	168908 101208 - Example Mill Creek Unit 1 AQC Table
Attachments:	ArchiveInfo.htm

Eileen,
As discussed yesterday on our conference call with Scott Straight, please find attached a draft table containing a high level summary of Mill Creek Unit 1's AQC equipment. The table includes those pollutants from the Phase II project which we are targeting specific emissions reductions (illustrated in a percent removal). Also, the table includes a notation for certain AQC equipment which has the potential to provide a level of co-benefit control of certain pollutants (removal efficiencies not provided as they have not been calculated for this project). Please review this example table and provide your comments. Once we have these, we'll draft 17 other tables, one for each of the remaining coal-fired units. It would be helpful to receive your comments by COB today to allow us to complete these additional tables by Friday.
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Mill Creek Unit 1.pdf

From: Saunders, Eileen
To: 'LucasKJ@bv.com'
Sent: 12/8/2010 3:44:24 PM
Subject: Re: 168908 101208 - Example Mill Creek Unit 1 AQC Table

Kyle,

I will forward this to Scott.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Wednesday, December 08, 2010 02:45 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/8/2010 3:47:19 PM
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table
Attachments: ArchiveInfo.htm

Scott,

Per our discussion with B&V yesterday, please see Kyle's email below as well as the attachment. I am in the doctor's office and cannot review it well on my blackberry.

Thanks,

Scott

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Sent: Wednesday, December 08, 2010 02:45 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Email: **lucaskj@bv.com**

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The following attachments were archived from this message:
- Mill Creek Unit 1.pdf

From: Straight, Scott
To: Saunders, Eileen
Sent: 12/8/2010 3:52:03 PM
Subject: RE: 168908 101208 - Example Mill Creek Unit 1 AQC Table

While this is not exactly what I was thinking, it will work fine. Instead of drafting a sheet for each unit, they can simple add columns for each unit and make a table formatted for 11x17. This way, it is all on one page.

Also, the NOx removal note for the new SCR seems very low, 56%?

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Sent: Wednesday, December 08, 2010 3:47 PM
To: Straight, Scott
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/8/2010 4:04:19 PM
Subject: Re: 168908 101208 - Example Mill Creek Unit 1 AQC Table

I will get your comments to them.

From: Straight, Scott
Sent: Wednesday, December 08, 2010 03:52 PM
To: Saunders, Eileen
Subject: RE: 168908 101208 - Example Mill Creek Unit 1 AQC Table

While this is not exactly what I was thinking, it will work fine. Instead of drafting a sheet for each unit, they can simple add columns for each unit and make a table formatted for 11x17. This way, it is all on one page.

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Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: 'lucaskj@bv.com'
Sent: 12/8/2010 4:21:22 PM
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

Kyle,

Please see Scott's comments. I was unable to review so please go with his instructions.

Thanks,

Eileen

From: Straight, Scott
Sent: Wednesday, December 08, 2010 03:52 PM
To: Saunders, Eileen
Subject: RE: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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To: Straight, Scott
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Wednesday, December 08, 2010 02:45 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Lucas, Kyle J.
To: Saunders, Eileen
CC: Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.; Wehrly, M. R.
Sent: 12/8/2010 4:31:08 PM
Subject: RE: 168908 101208 - Example Mill Creek Unit 1 AQC Table

Eileen,
Thanks for the direction. We will proceed based on Scott's directions below and try to get all the units onto one 11x17 page. If not, we'll try to put the Phase II units on one page and the remaining Phase I units on another. Also, to clarify the MC1 SCR Nox removal efficiency, this value was calculated based on the inlet NOx and the emission target identified in the Phase II study for this unit.

Regards,
Kyle

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11401 Lamar Avenue
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Email: **lucaskj@bv.com**

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Wednesday, December 08, 2010 3:21 PM
To: Lucas, Kyle J.
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

Kyle,

Please see Scott's comments. I was unable to review so please go with his instructions.

Thanks,

Eileen

From: Straight, Scott
Sent: Wednesday, December 08, 2010 03:52 PM
To: Saunders, Eileen
Subject: RE: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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To: Straight, Scott
Subject: Fw: 168908 101208 - Example Mill Creek Unit 1 AQC Table

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Scott

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Sent: Wednesday, December 08, 2010 02:45 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From:	Lucas, Kyle J.
To:	Saunders, Eileen
CC:	Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Sent:	12/10/2010 11:56:26 AM
Subject:	168908 101210 - AQC Summary Table for 18 Coal-Fired Units
Attachments:	ArchiveInfo.htm

Eileen,
Attached, please a draft table containing a high level summary of the AQC technologies for the 18 coal-fired units. The table includes those pollutants from the Phase II project which we are targeting specific emissions reductions (illustrated in a percent removal). Also, the table includes a notation for certain AQC equipment which has the potential to provide a level of co-benefit of control of certain pollutants (removal efficiencies not provided as they have not been calculated for this project). Additionally, those Phase I units do not contain specific emission reductions as they are not part of the Phase II study. However, similar to those Phase II units, an indication has been made for co-benefit should technology be implemented for these units.

Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

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Email: **lucaskj@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- AQC Technologies 121010.pdf

From: Saunders, Eileen
To: 'Lucas, Kyle J.'
Sent: 12/10/2010 12:34:25 PM
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Received. I will forward to Scott.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/10/2010 12:48:46 PM
Subject: FW: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units
Attachments: ArchiveInfo.htm

Scott,

Here is the information you requested from B&V. Also, here is the response from Kyle regarding your NOx question:
.

Also, to clarify the MC1 SCR Nox removal efficiency, this value was calculated based on the inlet NOx and the emission target identified in the Phase II study for this unit.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
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Email: **lucaskj@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- AQC Technologies 121010.pdf

From: Straight, Scott
To: Saunders, Eileen
Sent: 12/10/2010 1:48:01 PM
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

I need the native format so I can modify it and put disclaimers and the such on it. Please have them resend in Excel.

Scott

From: Saunders, Eileen
Sent: Friday, December 10, 2010 12:49 PM
To: Straight, Scott
Subject: FW: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Here is the information you requested from B&V. Also, here is the response from Kyle regarding your NOx question:
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Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: 'LucasKJ@bv.com'
Sent: 12/10/2010 1:53:18 PM
Subject: Re: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Scott needs this in Excel. Please resend as soon as possible.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/10/2010 1:56:44 PM
Subject: Re: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

I have requested a different format.

From: Straight, Scott
Sent: Friday, December 10, 2010 01:48 PM
To: Saunders, Eileen
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

I need the native format so I can modify it and put disclaimers and the such on it. Please have them resend in Excel.

Scott

From: Saunders, Eileen
Sent: Friday, December 10, 2010 12:49 PM
To: Straight, Scott
Subject: FW: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Scott,

Here is the information you requested from B&V. Also, here is the response from Kyle regarding your NOx question:
.

Also, to clarify the MC1 SCR Nox removal efficiency, this value was calculated based on the inlet NOx and the emission target identified in the Phase II study for this unit.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Eileen,
Attached, please a draft table containing a high level summary of the AQC technologies for the 18 coal-fired units. The table includes those pollutants from the Phase II project which we are targeting specific emissions reductions (illustrated in a percent removal). Also, the table includes a notation for certain AQC equipment which has the potential to provide a level of co-benefit of control of certain pollutants (removal efficiencies not provided as they have not been calculated for this project). Additionally, those Phase I units do not contain specific emission reductions as they are not part of the Phase II study. However, similar to those Phase II units, an indication has been made for co-benefit should technology be implemented for these units.

Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: 'HillmanTM@bv.com'
Sent: 12/10/2010 2:17:13 PM
Subject: Fw: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Tim,

I am sending this to you in case Kyle is tied up. We need this information in native format.

Thanks,

Eileen

From: Saunders, Eileen
Sent: Friday, December 10, 2010 01:53 PM
To: 'LucasKJ@bv.com' <LucasKJ@bv.com>
Subject: Re: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Scott needs this in Excel. Please resend as soon as possible.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-9062 | Fax: (913) 458-9062
Email: lucaskj@bv.com

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Lucas, Kyle J.
Sent: 12/10/2010 2:24:39 PM
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Received.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, December 10, 2010 1:17 PM
To: Hillman, Timothy M.
Subject: Fw: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Tim,

I am sending this to you in case Kyle is tied up. We need this information in native format.

Thanks,

Eileen

From: Saunders, Eileen
Sent: Friday, December 10, 2010 01:53 PM
To: 'LucasKJ@bv.com' <LucasKJ@bv.com>
Subject: Re: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Scott needs this in Excel. Please resend as soon as possible.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 11:56 AM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
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removal). Also, the table includes a notation for certain AQC equipment which has the potential to provide a level of co-benefit of control of certain pollutants (removal efficiencies not provided as they have not been calculated for this project). Additionally, those Phase I units do not contain specific emission reductions as they are not part of the Phase II study. However, similar to those Phase II units, an indication has been made for co-benefit should technology be implemented for these units.

Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Lucas, Kyle J.
To: Saunders, Eileen
CC: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Sent: 12/10/2010 2:47:23 PM
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units
Attachments: ArchiveInfo.htm

Eileen,
As requested.

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-9062 | Fax: (913) 458-9062
Email: lucaskj@bv.com

From: Lucas, Kyle J.
Sent: Friday, December 10, 2010 10:56 AM
To: 'Saunders, Eileen'
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: (913) 458-9062 | Fax: (913) 458-9062
Email: lucaskj@bv.com

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- AQC Technologies.xls

From: Saunders, Eileen
To: 'LucasKJ@bv.com'
Sent: 12/10/2010 2:49:11 PM
Subject: Re: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Thanks!

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 02:47 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Eileen,
As requested.

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Lucas, Kyle J.
Sent: Friday, December 10, 2010 10:56 AM
To: 'Saunders, Eileen'
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/10/2010 2:49:55 PM
Subject: Fw: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units
Attachments: ArchiveInfo.htm

Scott,

Hopefully this meets your needs.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 02:47 PM
To: Saunders, Eileen
Cc: Wehrly, M. R. <WehrlyMR@bv.com>; Hillman, Timothy M. <HillmanTM@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Mehta, Pratik D. <MehtaPD@bv.com>; Crabtree, Jonathan D. <CrabtreeJD@bv.com>
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Eileen,
As requested.

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

From: Lucas, Kyle J.
Sent: Friday, December 10, 2010 10:56 AM
To: 'Saunders, Eileen'
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

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Have a nice weekend,
Regards,

Kyle

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Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- AQC Technologies.xls

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Sent:	12/10/2010 4:52:29 PM
Subject:	168908.14.1000 101210 Ghent - Draft Validation Meeting Minutes for Review
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached the draft Ghent Validation Meeting Minutes for your review. Please provide comments by Friday, December 17th.

Thanks, and have a nice weekend.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Draft Ghent Validation Meeting Minutes with Att.pdf

From: Saunders, Eileen
To: Reed, Kathleen
Sent: 12/13/2010 11:23:23 AM
Subject: FW: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units
Attachments: ArchiveInfo.htm

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Friday, December 10, 2010 2:47 PM
To: Saunders, Eileen
Cc: Wehrly, M. R.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
Subject: RE: 168908 101210 - AQC Summary Table for 18 Coal-Fired Units

Eileen,
As requested.

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

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een'
.; Hillman, Timothy M.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.
8 101210 - AQC Summary Table for 18 Coal-Fired Units

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Please let me know if you have any questions.

Have a nice weekend,
Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-9062** | Fax: **(913) 458-9062**
Email: **lucaskj@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- AQC Technologies.xls

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: 168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.; Greenwell, Sarah
Sent: 12/13/2010 11:40:34 AM
Subject: 168908.28.3000 101213 - Action Item List
Attachments: ArchiveInfo.htm

Eileen,

Attached is the action item list for our weekly Monday conference call.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Saunders, Eileen
To: Joyce, Jeff; Drake, Michael; Wright, Paul; Bickers, Troy; Yocum, James; Smith, Dave; Scott, Randy
CC: 'Hillman, Timothy M.'
Sent: 12/13/2010 1:16:33 PM
Subject: FW: 168908.14.1000 101210 Ghent - Draft Validation Meeting Minutes for Review
Attachments: ArchiveInfo.htm

Please take a look at these minutes and let me know if you have any comments by 12/17.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, December 10, 2010 4:52 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101210 Ghent - Draft Validation Meeting Minutes for Review

Eileen,

Please find attached the draft Ghent Validation Meeting Minutes for your review. Please provide comments by Friday, December 17th.

Thanks, and have a nice weekend.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
Building a World of Difference.®

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The following attachments were archived from this message:
- Draft Ghent Validation Meeting Minutes with Att.pdf

From:	Saunders, Eileen
To:	'Hillman, Timothy M.'
CC:	Jackson, Audrey; Betz, Alex; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Mehta, Pratik D.; 168908 E.ON-AQC
Sent:	12/13/2010 1:21:56 PM
Subject:	RE: 168908.22.1000 101129 Mill Creek PDM - Revision C

Tim,

I have reviewed the document and I am comfortable with the changes.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, November 29, 2010 2:58 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; Betz, Alex; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Hintz, Monty E.; Goodlet, Roger F.; Mehta, Pratik D.; 168908 E.ON-AQC
Subject: 168908.22.1000 101129 Mill Creek PDM - Revision C

Eileen,

Attached is Revision C of the LG&E/KU Mill Creek Project Design Memorandum (PDM). We have incorporated all LG&E/KU comments and information received regarding the various tables included in the information request. Additionally, we have incorporated some additional in-house comments. We have included both a "Track Changes" version so you can easily see the changes we made, and a pdf file copy with all changes accepted. The purpose of this document is to capture all of the significant design requirements of the project. It has been and will continue to be dynamic with changes and revisions as more information become available. This is re-issued for project use for this phase of the project. Please let us know if you have any comments or questions.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

From: Saunders, Eileen
To: Straight, Scott; Fraley, Jeffrey; Arnold, Gerald; Sumner, Brian; Pabian, Brad; Carman, Barry; Greenwell, Sarah; Steele, Mike; Duncan, Donald; Revlett, Gary; Gregory, Ronald; Imber, Philip; White, Charles
Sent: 12/13/2010 1:29:53 PM
Subject: FW: 168908.14.1000 101116 Brown - Draft Kickoff Meeting Minutes for Review
Attachments: ArchiveInfo.htm

All,

My apologies but I thought I forwarded these meeting minutes along. Please take a look at the minutes and let me know if you have any comments. The first 5-6 pages are the notes and the rest are copies of presentations. I have reviewed and did not see obvious issues but please let me know if you disagree with anything as written.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, November 16, 2010 11:40 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101116 Brown - Draft Kickoff Meeting Minutes for Review

Eileen,

Please find attached the draft Brown Kickoff Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Brown Kickoff and Site Walkdown Meeting Minutes - Draft with Attachments.pdf

From:	Saunders, Eileen
To:	Straight, Scott; Mooney, Mike (BOC 3)
Sent:	12/13/2010 1:30:46 PM
Subject:	FW: 168908.28.0000 101112 Monthly Project Progress Report
Attachments:	ArchiveInfo.htm

FYI-

October Report from B&V.

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Friday, November 12, 2010 3:41 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mooney, Mike (BOC 3); King, Michael L. (Mike); Harris, David K. (Dave); Wehrly, M. R.; Lucas, Kyle J.
Subject: 168908.28.0000 101112 Monthly Project Progress Report

Eileen,

Please find attached the Monthly Project Progress Report for work completed in October.

Don't hesitate to call me if you have any questions at all.

Best regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- LGE KU Monthly Progress Report - October 2010.pdf

From:	Saunders, Eileen
To:	'Hillman, Timothy M.'
CC:	Betz, Alex
Sent:	12/13/2010 1:44:23 PM
Subject:	FW: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review
Attachments:	ArchiveInfo.htm

Tim,

I did not receive any additional comments and I believe you captured the key issues.

Thanks,

Eileen

From: Saunders, Eileen
Sent: Monday, November 22, 2010 2:40 PM
To: Kirkland, Mike; Buckner, Mike; Didelot, Joe; Bennett, Mike; Betz, Alex; Cecil, Ray; Craigmyle, Kenny; Moehrke, William
Cc: Straight, Scott
Subject: FW: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

All,

Please see the attached meeting minutes for review. The due date is actually Monday, November 29, 2010. B&V extended the date due to vacations etc. If you have any comments, please send them to me and I will forward them along with my comments to B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, November 16, 2010 11:40 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

Eileen,

Please find attached the draft Mill Creek Validation Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Mill Creek AQC Validation Meeting Minutes - Draft with Attachments.pdf

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Betz, Alex; Jackson, Audrey; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Bayless, James W. III (Jim); Keltner, Erik J.; 168908 E.ON-AQC
Sent: 12/13/2010 4:05:39 PM
Subject: 168908.14.1000 101213 Mill Creek - Final Validation Meeting Minutes
Attachments: ArchiveInfo.htm

Eileen,

Thank you for the review. Please find attached the final version of the Mill Creek validation meeting minutes for your records.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Monday, December 13, 2010 12:44 PM
To: Hillman, Timothy M.
Cc: Betz, Alex
Subject: FW: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

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Thanks,

Eileen

From: Saunders, Eileen
Sent: Monday, November 22, 2010 2:40 PM
To: Kirkland, Mike; Buckner, Mike; Didelot, Joe; Bennett, Mike; Betz, Alex; Cecil, Ray; Craigmyle, Kenny; Moehrke, William
Cc: Straight, Scott
Subject: FW: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

All,

Please see the attached meeting minutes for review. The due date is actually Monday, November 29, 2010. B&V extended the date due to vacations etc. If you have any comments, please send them to me and I will forward them along with my comments to B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, November 16, 2010 11:40 AM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101116 Mill Creek - Draft Validation Meeting Minutes for Review

Eileen,

Please find attached the draft Mill Creek Validation Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

Thanks,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Mill Creek AQC Validation Meeting Minutes - Final with Att.pdf

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.; Mehta, Pratik D.
Sent: 12/13/2010 5:52:52 PM
Subject: RE: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Eileen

Regarding your question this afternoon: Why do some unit process flow diagrams (PFD) have 2X50% PJFF, while others have a 1X100% PJFF. The simple answer is that it is a function of unit size and facility space constraints. For example, 2 x 50% PJFF are illustrated for Ghent Units 1 and 2, and 1 x 100% PJFF for Ghent Units 3 and 4. The different number of PJFF casings for Ghent is based on available space onsite and the desire to minimize relocation of underground utilities.

For Brown, all we have right now is the Phase I results, which indicates 2X50% PJFF for Units 2 and 3. In Phase I, we assumed that the PJFF would be built on top of the existing ESPs for Unit 2 - keeping the existing ESPs in operation. Unit 2 has 2 ESP casings, and hence 2 PJFF casings. Based on the preliminary Phase II work for Brown, we believe all three units will be 1X100% PJFF when validation is complete.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

From: Hillman, Timothy M.
Sent: Monday, December 06, 2010 10:18 AM
To: 'Saunders, Eileen'
Cc: 'Jackson, Audrey'; 168908 E.ON-AQC; Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.
Subject: 168908.41.0815 101206 AQC Process Flow Diagrams for Brown, Mill Creek, Ghent and Trimble

Eileen,

As you requested, please find attached a PowerPoint containing the PFD graphics for subject plants. Mill Creek and Ghent PFDs are from the validation work, Brown PFDs are from kickoff meeting and Phase 1, and the Trimble Co PFD is from the Phase 1 work.

<< File: LGEKU Process Flows.ppt >>
Let me know if you need anything else.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From:	Crabtree, Jonathan D.
To:	Greenwell, Sarah
CC:	Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent:	12/14/2010 3:01:04 PM
Subject:	168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Sarah,

The following are responses to the Priority 1 information submitted on 11/24 and 12/02. I apologize for the delayed response from reviewing the information you provided.

Boiler/Fans #1 Fan Data c.) Fan Arrangements: Please provide the Unit 3 new ID fan vendor arrangement and outline (physical) drawings.

Boiler/Fans #2 Ductwork c1.) From each unit to common WFGD: Please provide ductwork elevation drawings from each unit to new common WFGD as well as foundation drawings for ductwork supports. We noted that we received a key plan for all the new ductwork (BRO-M-00125). From other drawings referenced on the key plan, if we could get BRO- M-00126, BRO-M-00127, BRO-M-00129, and BRO-M-00130, we'd likely get the rest of the detail info and dimensions we would need for elevation and plan drawings (excluding foundation drawings).

Boiler/Fans #2 Ductwork c2.) Boiler to Air Heater:

Please provide unit 2 boiler to air heater flue gas ductwork drawing.

Boiler/Fans #2 Ductwork c4.) Unit 2 Bypass: Please provide unit 2 bypass ductwork to Unit 3 stack elevation drawing as well as foundation drawings for ductwork supports.

Electrical/Control #5 - Drawings for UAT's, RAT's, and GSU's: Please provide general arrangement and layout drawings of these transformers.

Electrical/Control #8 - New WFGD electrical system one-line diagrams: Good start. Please provide BR3-E-10010-001, BR0-E-00150-001, BRO-E-00092, BR1-E-10025.

Electrical/Control #9 - Spare Capacity in existing electrical system: Please provide roughly what percentage of WFGD 13.2 kV and 4.16 kV switchgear bus rating spare capacity is available. (10%, 20%, 30% etc.) Can we have operating amps printout for the WFGD 13.2 kV and 4.16 kV switchgear buses from your DCS PI system?

Additionally, the following requests have come up during the validation process and are of high priority:

1. Please confirm whether or not Unit 2 has exhauster coal mills (primary air fans integral with the coal pulverizers).
2. Confirm that Unit 1 has hot primary air fans. This information will be helpful with the sizing of the new FD fans and air heaters we are planning on for Units 1 and 2.
3. Please provide a topography or contour drawing for the site. Compared to the other two sites being relatively flat, we didn't realize we would need one for Brown at the time of the initial request.

Thanks for submitting the Priority 2 information. We will review it and send a similar list of responses. Additionally, we are currently looking in to your question regarding Priority 3.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Friday, December 03, 2010 2:15 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Jonathan,

All the other information has been uploaded, except for a couple drawings that we're still looking for:

- Unit 2 bypass ductwork
- Ductwork of precipitators to ID fans for Unit 1 and 3—I've included some extra ductwork with the FGD drawings that may cover it, but I am still looking into it

I want to note that the Unit 1 and 3 ID fan motor and arrangement drawings are not final drawings. I also wanted to note that I was unable to find the Unit 2 ID fan arrangement drawing, so I uploaded a drawing that I thought would be beneficial.

Sarah Greenwell

Environmental Coordinator
E.W. Brown Generating Station
859-748-4414

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Thursday, December 02, 2010 7:21 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Sarah,

Thanks for the information. You have provided a lot of useful information. We will review it and let you know if we have any follow-up responses. Please see answers to your questions below in red.

Also, it appears the first round of information you provided is no longer on i-backup. In the future, you can leave past submittals on ibackup so that we have record of it in case we need to go back to it for some reason or didn't get to it in time. Additionally, one thing that Dave Smith at Ghent did that made things easier for us was he placed compressed ZIP folders on to I-backup and then we just had to download one item per submittal. I think that will also cut down on the time it takes for you to upload the information. Either way works so its up to you.

Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

Building a World of Difference®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.

Subject: Questions and Uploaded Information

Jonathan,

In gathering the requested information, I have a few more questions.

Can you please send me an example of an ID fan arrangement drawings? Please see attached.

And do you want both the nameplate and data sheets for the ID fans or will one or the other be sufficient? I believe either one will be sufficient. I will check with our fan engineer when he returns to the office, but for now assume either will be fine.

Do you want me to upload a Word document with the sacred ground list and answers to the questions? If not, how would you like me to give you that information? Word documents are fine.

Also, I uploaded more information yesterday and will continue to upload throughout today. The following items are available now:

- Utility information
- 2 & 3 stack foundation drawings
- FGD drawings
- FGD one-line diagrams
- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/14/2010 4:55:58 PM
Subject: 168908.41.0100 101214 Brown Priority 3 Question
Attachments: ArchiveInfo.htm

Sarah,

Please find the following response from our project environmental specialist regarding your question below.

Plant documentation indicated there were two NOVs dealing with major capital expenditures for Unit 3 based on increasing electrical production from the unit to 446 MW through installation of a new LP turbine and replacement and HP/IP turbine enhancement. Based on the issues associated with these NOVs and potential litigation surrounding the issue, please provide associated documentation or a description summarizing operational and/or emission limitations for any of the units at the facility that are directly related to the above. We specifically want information that may limit the unit(s) beyond the parameters we currently have defined in the PDM document (attached). If the parameters defined in the PDM are accurate, no further information on this issue is required. Please provide a response confirming direction on this issue.

Let me know if you have any more questions. Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
Building a World of Difference.®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Tuesday, December 14, 2010 12:57 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.
Subject: Priority 3 Question

Jonathan,

What exactly do you want for implementation documentation for the consent decree? Any specific information would be helpful in getting you the most beneficial information. For the pollutant emission rates, do you want what we currently emit or what our limits are?

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- LG&EKU Brown Project Design Memo.doc

From: Crabtree, Jonathan D.
To: Betz, Alex
CC: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Sent: 12/14/2010 5:13:48 PM
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Alex-

In looking at ammonia storage on site, we have done a few calculations to determine current storage capacities and future capacities when adding SCRs for Units 1 and 2. Below is the results from our calculation for Mill Creek.

Current Capacity: **17.7 days storage** for 2x60,000 gal tanks. Design basis is 1,099 lb/hr for Units 3 and 4 ammonia usage and 82% of ammonia storage tank usable volume.

Future Capacity: **12 days storage** for 2x60,000 gal tanks. Design basis is 1,629 lb/hr ammonia usage (1099 lb/hr for Units 3 and 4 + 530 lb/hr for future Units 1 and 2). The ammonia storage tank usable volume is 82%.

However, in review of some information we previously received, we found a training document that stated the current ammonia storage tanks supply approximately 7 - 8 days of ammonia for both units 3 and 4.

Therefore, please define the current design basis for the ammonia storage system so that we can determine how much extra storage, if any, is needed.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Mooney, Mike (BOC 3); King, Michael L. (Mike); Harris, David K. (Dave); Wehrly, M. R.; Lucas, Kyle J.
Sent:	12/14/2010 6:08:47 PM
Subject:	168908.28.0000 101213 Monthly Project Progress Report
Attachments:	ArchiveInfo.htm

Eileen,

Please find attached the Monthly Project Progress Report for work completed in November.

Don't hesitate to call me if you have any questions at all.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- LGE KU Monthly Progress Report - November 2010.pdf

From: Saunders, Eileen
To: 'Crabtree, Jonathan D.'; Betz, Alex
CC: 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Sent: 12/15/2010 11:07:49 AM
Subject: RE: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Jonathan,

Alex is out of the office through the end of the year. I will forward this along to his manager for a response.

Thanks,

Eileen

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 5:14 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System

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JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Saunders, Eileen
To: Didelot, Joe; Buckner, Mike
Sent: 12/15/2010 11:08:38 AM
Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Joe and Mike,

Since Alex is out of the office, can you forward this email to someone who can provide me with the answer to the question posed by B&V?

Thanks,

Eileen

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 5:14 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System

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Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Crabtree, Jonathan D.
To: Saunders, Eileen; Betz, Alex
CC: 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Sent: 12/15/2010 11:13:32 AM
Subject: RE: 168908.41.0804 101214 Mill Creek Existing Ammonia System

OK. Thanks Eileen.

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Wednesday, December 15, 2010 10:08 AM
To: Crabtree, Jonathan D.; Betz, Alex
Cc: 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: RE: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Jonathan,

Alex is out of the office through the end of the year. I will forward this along to his manager for a response.

Thanks,

Eileen

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 5:14 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System

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Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
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From: Saunders, Eileen
To: Straight, Scott
Sent: 12/15/2010 11:33:29 AM
Subject: FW: 168908.28.0000 101213 Monthly Project Progress Report
Attachments: ArchiveInfo.htm

Monthly report from B&V.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Tuesday, December 14, 2010 6:09 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Jackson, Audrey; Mooney, Mike (BOC 3); King, Michael L. (Mike); Harris, David K. (Dave); Wehrly, M. R.; Lucas, Kyle J.
Subject: 168908.28.0000 101213 Monthly Project Progress Report

Eileen,

Please find attached the Monthly Project Progress Report for work completed in November.

Don't hesitate to call me if you have any questions at all.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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The following attachments were archived from this message:
- LGE KU Monthly Progress Report - November 2010.pdf

From: Hillman, Timothy M.
To: Greenwell, Sarah; Saunders, Eileen
CC: Wehrly, M. R.; Lucas, Kyle J.; Harris, Anne F.; Goodlet, Roger F.; Mahabaleshwarkar, Anand
Sent: 12/15/2010 12:59:03 PM
Subject: RE: Brown Technology/Arrangement Validation Meeting

Sarah,

The validation meeting will just be one day, approximately 6 hours.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 15, 2010 11:49 AM
To: Saunders, Eileen
Cc: Hillman, Timothy M.
Subject: RE: Brown Technology/Arrangement Validation Meeting

Eileen,

The week of January 17 will work. Alstom will also be here sometime during that week as well for another project. We will have to coordinate the schedules, so everybody is available because several people are involved in both the B&V and Alstom projects. How long is B&V expecting to be on site?

Thanks,

Sarah

From: Saunders, Eileen
Sent: Tuesday, December 14, 2010 1:42 PM
To: Greenwell, Sarah
Cc: 'Hillman, Timothy M.'
Subject: Brown Technology/Arrangement Validation Meeting

Sarah,

Part of B&V's cost estimating project includes holding a technology/arrangement validation meeting at the station. The purpose of this meeting is to show the station arrangements and a 3-D model of what B&V has come up with and have us validate if those scenarios represent what we want them to estimate.

At this time, B&V is proposing coming to the station the week of January 17, 2011. I will check calendars but if you

will socialize this timeframe with your management team and let me know if there are any major barriers to having us come during that week, I would appreciate it.

Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Saunders, Eileen
To: 'Hillman, Timothy M.'; Greenwell, Sarah
CC: Wehrly, M. R.; Lucas, Kyle J.; Harris, Anne F.; Goodlet, Roger F.; Mahabaleshwarkar, Anand
Sent: 12/15/2010 1:07:09 PM
Subject: RE: Brown Technology/Arrangement Validation Meeting

Sarah,

Let me know what day that week works better for the plant and I will make the necessary arrangements to we do not impact your previously scheduled Alstom meetings. Also, if you would prefer the next week, let me know that as well.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Wednesday, December 15, 2010 12:59 PM
To: Greenwell, Sarah; Saunders, Eileen
Cc: Wehrly, M. R.; Lucas, Kyle J.; Harris, Anne F.; Goodlet, Roger F.; Mahabaleshwarkar, Anand
Subject: RE: Brown Technology/Arrangement Validation Meeting

Sarah,

The validation meeting will just be one day, approximately 6 hours.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 **p** |HillmanTM@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 15, 2010 11:49 AM
To: Saunders, Eileen
Cc: Hillman, Timothy M.
Subject: RE: Brown Technology/Arrangement Validation Meeting

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Sarah

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Sent: Tuesday, December 14, 2010 1:42 PM
To: Greenwell, Sarah
Cc: 'Hillman, Timothy M.'
Subject: Brown Technology/Arrangement Validation Meeting

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Thanks,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

From: Buckner, Mike
To: 'Alex Betz'
CC: Didelot, Joe; Bennett, Mike; Saunders, Eileen
Sent: 12/15/2010 2:13:51 PM
Subject: RE: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Alex,

The numbers that Black & Veatch have are close but here are numbers based off of actual operation;

1) The actual usable volume of ammonia in each storage tank is only 74% because of a trip points that shut the pumps down at 8% (Low Level Trip) and 82% (High Level Trip).
2) The design basis of 1,099 lbs/hr is close to what our average hourly use for the year was for both Units but there were times during those hot summer stretches where we exceeded that (in August we averaged approximately 1,282 lbs/hr).
3) Based on a percentage of ammonia used on a daily basis and how many trucks we unloaded, I would have to say that our current storage capacity during normal usage would be approximately 14.8 days and during periods of extended high load requirements would drop down to approximately 12.3 days.

Let me know if you need any additional info.

Mike

From: Alex Betz [mailto:mabetz01@gmail.com]
Sent: Tuesday, December 14, 2010 10:17 PM
To: Buckner, Mike
Cc: Didelot, Joe; Bennett, Mike
Subject: Fwd: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Mike,

Can you confirm the ammonia storage tanks supply (see email beow)?

Thanks,

Alex Betz

---------- Forwarded message ----------
From: **Betz, Alex** <Alex.Betz@lge-ku.com>
Date: Tue, Dec 14, 2010 at 5:15 PM
Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: mabetz01@gmail.com

From: Crabtree, Jonathan D.[SMTP:CRABTREEJD@BV.COM]
Sent: Tuesday, December 14, 2010 5:13:48 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System
Auto forwarded by a Rule

Alex-

In looking at ammonia storage on site, we have done a few calculations to determine current storage capacities and future capacities when adding SCRs for Units 1 and 2. Below is the results from our calculation for Mill Creek.

Current Capacity: **17.7 days storage** for 2x60,000 gal tanks. Design basis is 1,099 lb/hr for Units 3 and 4 ammonia usage and 82% of ammonia storage tank usable volume.

Future Capacity: **12 days storage** for 2x60,000 gal tanks. Design basis is 1,629 lb/hr ammonia usage (1099 lb/hr for Units 3 and 4 + 530 lb/hr for future Units 1 and 2). The ammonia storage tank usable volume is 82%.

However, in review of some information we previously received, we found a training document that stated the current ammonia storage tanks supply approximately 7 - 8 days of ammonia for both units 3 and 4.

Therefore, please define the current design basis for the ammonia storage system so that we can determine how much extra storage, if any, is needed.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Hillman, Timothy M.
To: Smith, Dave
CC: Wehrly, M. R.; Crabtree, Jonathan D.; Wright, Paul; Saunders, Eileen
Sent: 12/15/2010 3:51:31 PM
Subject: RE: Ghent Priority 4 follow-up Data

Thanks Dave,

Thanks for the outstanding support.

Happy Holidays!

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Wednesday, December 15, 2010 8:26 AM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Wright, Paul; Saunders, Eileen
Subject: Ghent Priority 4 follow-up Data

Tim:

I have placed Ghent Priority 4 Follow-up data on IBackup for the operating load model information.

We have two other Priority 4 follow-up data requests, both for drawings we are still looking for. We also have two outstanding items for Priority 3 follow-up data for reviewing the transient design pressures and obtaining a general arrangement drawing for the substation.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@lge-ku.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.; 168908 E.ON-AQC
Sent: 12/16/2010 1:57:01 PM
Subject: 168908.41.0806 101216 PJFF Technical Information and References
Attachments: ArchiveInfo.htm

Eileen,

One of the action items (AI #48) that came out of our Ghent validation meeting last week was to provide technical information and reference material associated with PJFFs. Our AQC team assembled the attached documents, which we think might be useful as it relates to describing the general characteristics and operation of PJFFs. Please distribute appropriately.

Best regards,

TIM HILLMAN | Project Manager, Energy
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+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Mehta, Pratik D.
Sent: Wednesday, December 15, 2010 1:47 PM
To: Hillman, Timothy M.
Cc: Lucas, Kyle J.; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand
Subject: Fabric Filter Description

AI # 48:

Fabric filter presentation

Technical Paper

Brochure

Fabric Filter Operational Review

Hope this helps.

Thanks,

Pratik Mehta

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- LG&E-KU Fabric Filter Presentation.pdf
- BR-1786[1].pdf
- e101-3199[1].pdf
- Fabric Filter Operation Review[0][1].pdf
- Fabric Filter Bag Cleaning[0][1].pdf
- Fabric Filter Design Variables[0][1].pdf
- Fabric Filter Material[0][1].pdf
- Fabric Filter Design Review[0][1].pdf
- Fabric Filter Maintenance and Operation[0][1].pdf
- Industrial Applications for Fabric Filters[0][1].pdf
- Baghouse Glossary of Terms[0][1].pdf

From:	Saunders, Eileen
To:	Smith, Dave; Betz, Alex; Greenwell, Sarah
CC:	'Hillman, Timothy M.'; Straight, Scott; Imber, Philip; Revlett, Gary; Gregory, Ronald
Sent:	12/16/2010 2:22:48 PM
Subject:	FW: 168908.41.0806 101216 PJFF Technical Information and References
Attachments:	ArchiveInfo.htm

All,

During our validation meeting at Ghent, a request was made to provide more technical information regarding baghouses. Please see the resources provided by B&V and feel free to share them with your management and other staff that participated in the site meetings.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 16, 2010 1:57 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.; 168908 E.ON-AQC
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- Fabric Filter Design Review[0][1].pdf
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- Industrial Applications for Fabric Filters[0][1].pdf
- Baghouse Glossary of Terms[0][1].pdf

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.
Sent: 12/16/2010 2:23:46 PM
Subject: 168908.41.0806 101216 Trona Injection upstream of PJFF - References
Attachments: ArchiveInfo.htm

Eileen,

Another action item (AI #55) that came out of our Ghent validation meeting was for B&V to provide a reference/experience list of plants injecting Trona upstream of their PJFFs. Please find below our response.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Mehta, Pratik D.
Sent: Wednesday, December 15, 2010 2:00 PM
To: Hillman, Timothy M.
Cc: Lucas, Kyle J.; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand
Subject: Trona Injection upstream of PJFF - References

AI # 55

Trona injection upstream of PJFF is done at:

1. Xcel Energy Arapahoe Station, Denver, CO - 48 MW and 112 MW units
2. Xcel Energy Cherokee Station, Denver, CO - 2 x125 MW, 170 MW, 381 MW
3. Golden Valley Electric Association, Healy, AK - Healy Power Plant - 28 MW

Additional testing done on full-scale demonstration by ADA at:

1. PSNH Merrimac
2. WE Energies Presque Isle
3. Cornell University

E-mail conversation with Nol-Tec, UCC, ADA-ES and Solvay as attached.

Regards,

Pratik Mehta

This message and its attachments have been archived. To retrieve, double click the message in the message list.

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- RE: US Utility Plant References for Trona Injection Upstream of PJFF

From: Saunders, Eileen
To: Smith, Dave
Sent: 12/16/2010 2:30:19 PM
Subject: FW: 168908.41.0806 101216 Trona Injection upstream of PJFF - References
Attachments: ArchiveInfo.htm

Dave,

Jeff asked for a list of references from B&V which they have provided in this email. Please pass this along to the rest of the group.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 16, 2010 2:24 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.
Subject: 168908.41.0806 101216 Trona Injection upstream of PJFF - References

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tik D.
December 15, 2010 2:00 PM
thy M.
; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand
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- RE: US Utility Plant References for Trona Injection Upstream of PJFF

From: Straight, Scott
To: Saunders, Eileen
Sent: 12/16/2010 2:31:30 PM
Subject: Re: 168908.41.0806 101216 PJFF Technical Information and References

Are we going to share this with all stations getting bag houses?

From: Saunders, Eileen
Sent: Thursday, December 16, 2010 02:22 PM
To: Smith, Dave; Betz, Alex; Greenwell, Sarah
Cc: 'Hillman, Timothy M.' <HillmanTM@bv.com>; Straight, Scott; Imber, Philip; Revlett, Gary; Gregory, Ronald
Subject: FW: 168908.41.0806 101216 PJFF Technical Information and References

All,

During our validation meeting at Ghent, a request was made to provide more technical information regarding baghouses. Please see the resources provided by B&V and feel free to share them with your management and other staff that participated in the site meetings.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 16, 2010 1:57 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.; 168908 E.ON-AQC
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Filter Description

AI # 48:

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Technical Paper

Brochure

Fabric Filter Operational Review

Hope this helps.

Thanks,

Pratik Mehta

From: Saunders, Eileen
To: Straight, Scott
Sent: 12/16/2010 2:44:32 PM
Subject: Re: 168908.41.0806 101216 PJFF Technical Information and References

The people that this went to are the representatives from Ghent, Brown and Mill Creek. They are responsible for sharing this with the others at their station. I don't have a contact at Trimble but I can send it to Tom.

Eileen

From: Straight, Scott
Sent: Thursday, December 16, 2010 02:31 PM
To: Saunders, Eileen
Subject: Re: 168908.41.0806 101216 PJFF Technical Information and References

Are we going to share this with all stations getting bag houses?

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Cc: 'Hillman, Timothy M.' <HillmanTM@bv.com>; Straight, Scott; Imber, Philip; Revlett, Gary; Gregory, Ronald
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Fabric Filter Operational Review

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Thanks,

Pratik Mehta

From: Alex Betz
To: Saunders, Eileen
Sent: 12/16/2010 2:55:34 PM
Subject: Fwd: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Eileen,

I saw your email to Jonathan about getting this information so I'm just sending you the email response from Mike Buckner.

As a side note, I go back to the doctor on Monday so there's a good chance I'll be coming back to work on Tuesday and if so, I can take care of this then. I'm sure you would already do so, but just copy me on the responses to Jonathan that way I know what he still needs.

Thanks Eileen. If I don't get a chance to talk to you, I hope you have a Merry Christmas!

Alex

---------- Forwarded message ----------
From: **Buckner, Mike** <Mike.Buckner@lge-ku.com>
Date: Wed, Dec 15, 2010 at 2:13 PM
Subject: RE: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: Alex Betz <mabetz01@gmail.com>
Cc: "Didelot, Joe" <Joe.Didelot@lge-ku.com>, "Bennett, Mike" <Mike.Bennett@lge-ku.com>, "Saunders, Eileen" <Eileen.Saunders@lge-ku.com>

Alex,

The numbers that Black & Veatch have are close but here are numbers based off of actual operation;

1) The actual usable volume of ammonia in each storage tank is only 74% because of a trip points that shut the pumps down at 8% (Low Level Trip) and 82% (High Level Trip).

2) The design basis of 1,099 lbs/hr is close to what our average hourly use for the year was for both Units but there were times during those hot summer stretches where we exceeded that (in August we averaged approximately 1,282 lbs/hr).

3) Based on a percentage of ammonia used on a daily basis and how many trucks we unloaded, I would have to say that our current storage capacity during normal usage would be approximately 14.8 days and during periods of extended high load requirements would drop down to approximately 12.3 days.

Let me know if you need any additional info.

Mike

From: Alex Betz [mailto:mabetz01@gmail.com]
Sent: Tuesday, December 14, 2010 10:17 PM
To: Buckner, Mike
Cc: Didelot, Joe; Bennett, Mike
Subject: Fwd: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Mike,

Can you confirm the ammonia storage tanks supply (see email beow)?

Thanks,

Alex Betz

---------- Forwarded message ----------
From: **Betz, Alex** <Alex.Betz@lge-ku.com>
Date: Tue, Dec 14, 2010 at 5:15 PM
Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: mabetz01@gmail.com

From: Crabtree, Jonathan D.[SMTP:CRABTREEJD@BV.COM]
Sent: Tuesday, December 14, 2010 5:13:48 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
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Alex-

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Thanks,

JONATHAN CRABTREE | Mechanical Engineer

Black & Veatch Corporation | Energy Division | Power Generation Services

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From: Saunders, Eileen
To: 'Alex Betz'
Sent: 12/16/2010 3:18:57 PM
Subject: RE: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Thanks Alex! I will go ahead and send this to Jonathon. I hope all goes well at the doctor's on Monday and I hope you have a Merry Christmas too!!

Eileen

From: Alex Betz [mailto:mabetz01@gmail.com]
Sent: Thursday, December 16, 2010 2:56 PM
To: Saunders, Eileen
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Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: mabetz01@gmail.com

From: Crabtree, Jonathan D.[SMTP:CRABTREEJD@BV.COM]
Sent: Tuesday, December 14, 2010 5:13:48 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
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From: Saunders, Eileen
To: Crabtree, Jonathan D.
CC: 'Hillman, Timothy M.'; Wehrly, M. R.; Betz, Alex
Sent: 12/16/2010 3:19:40 PM
Subject: FW: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Jonathan,

This email should answer your questions.

Thank you,

Eileen

From: Buckner, Mike
Sent: Wednesday, December 15, 2010 2:14 PM
To: 'Alex Betz'
Cc: Didelot, Joe; Bennett, Mike; Saunders, Eileen
Subject: RE: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Alex,

The numbers that Black & Veatch have are close but here are numbers based off of actual operation;

1) The actual usable volume of ammonia in each storage tank is only 74% because of a trip points that shut the pumps down at 8% (Low Level Trip) and 82% (High Level Trip).
2) The design basis of 1,099 lbs/hr is close to what our average hourly use for the year was for both Units but there were times during those hot summer stretches where we exceeded that (in August we averaged approximately 1,282 lbs/hr).
3) Based on a percentage of ammonia used on a daily basis and how many trucks we unloaded, I would have to say that our current storage capacity during normal usage would be approximately 14.8 days and during periods of extended high load requirements would drop down to approximately 12.3 days.

Let me know if you need any additional info.

Mike

From: Alex Betz [mailto:mabetz01@gmail.com]
Sent: Tuesday, December 14, 2010 10:17 PM
To: Buckner, Mike
Cc: Didelot, Joe; Bennett, Mike
Subject: Fwd: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Mike,

Can you confirm the ammonia storage tanks supply (see email beow)?

Thanks,

Alex Betz

---------- Forwarded message ----------
From: **Betz, Alex** <Alex.Betz@lge-ku.com>
Date: Tue, Dec 14, 2010 at 5:15 PM

Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: mabetz01@gmail.com

From: Crabtree, Jonathan D.[SMTP:CRABTREEJD@BV.COM]
Sent: Tuesday, December 14, 2010 5:13:48 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System
Auto forwarded by a Rule

Alex-

In looking at ammonia storage on site, we have done a few calculations to determine current storage capacities and future capacities when adding SCRs for Units 1 and 2. Below is the results from our calculation for Mill Creek.

Current Capacity: **17.7 days storage** for 2x60,000 gal tanks. Design basis is 1,099 lb/hr for Units 3 and 4 ammonia usage and 82% of ammonia storage tank usable volume.

Future Capacity: **12 days storage** for 2x60,000 gal tanks. Design basis is 1,629 lb/hr ammonia usage (1099 lb/hr for Units 3 and 4 + 530 lb/hr for future Units 1 and 2). The ammonia storage tank usable volume is 82%.

However, in review of some information we previously received, we found a training document that stated the current ammonia storage tanks supply approximately 7 - 8 days of ammonia for both units 3 and 4.

Therefore, please define the current design basis for the ammonia storage system so that we can determine how much extra storage, if any, is needed.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Smith, Dave
To: Saunders, Eileen
Sent: 12/16/2010 3:27:47 PM
Subject: RE: 168908.41.0806 101216 Trona Injection upstream of PJFF - References

Will do.

From: Saunders, Eileen
Sent: Thursday, December 16, 2010 2:30 PM
To: Smith, Dave
Subject: FW: 168908.41.0806 101216 Trona Injection upstream of PJFF - References

Dave,

Jeff asked for a list of references from B&V which they have provided in this email. Please pass this along to the rest of the group.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 16, 2010 2:24 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; 168908 E.ON-AQC; Wehrly, M. R.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Lucas, Kyle J.; Crabtree, Jonathan D.
Subject: 168908.41.0806 101216 Trona Injection upstream of PJFF - References

Eileen,

Another action item (AI #55) that came out of our Ghent validation meeting was for B&V to provide a reference/experience list of plants injecting Trona upstream of their PJFFs. Please find below our response.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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tik D.
December 15, 2010 2:00 PM
thy M.
; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand
Injection upstream of PJFF - References

AI # 55

Trona injection upstream of PJFF is done at:

1. Xcel Energy Arapahoe Station, Denver, CO - 48 MW and 112 MW units
2. Xcel Energy Cherokee Station, Denver, CO - 2 x125 MW, 170 MW, 381 MW
3. Golden Valley Electric Association, Healy, AK - Healy Power Plant - 28 MW

Additional testing done on full-scale demonstration by ADA at:

1. PSNH Merrimac
2. WE Energies Presque Isle
3. Cornell University

E-mail conversation with Nol-Tec, UCC, ADA-ES and Solvay as attached.

Regards,

Pratik Mehta

From: Smith, Dave
To: Saunders, Eileen
Sent: 12/16/2010 3:32:23 PM
Subject: RE: 168908.41.0806 101216 PJFF Technical Information and References

Thanks, will do.

Dave

From: Saunders, Eileen
Sent: Thursday, December 16, 2010 2:23 PM
To: Smith, Dave; Betz, Alex; Greenwell, Sarah
Cc: 'Hillman, Timothy M.'; Straight, Scott; Imber, Philip; Revlett, Gary; Gregory, Ronald
Subject: FW: 168908.41.0806 101216 PJFF Technical Information and References

All,

During our validation meeting at Ghent, a request was made to provide more technical information regarding baghouses. Please see the resources provided by B&V and feel free to share them with your management and other staff that participated in the site meetings.

Thank you,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, December 16, 2010 1:57 PM
To: Saunders, Eileen
Cc: Jackson, Audrey; Wehrly, M. R.; Lucas, Kyle J.; Mahabaleshwarkar, Anand; Mehta, Pratik D.; Crabtree, Jonathan D.; 168908 E.ON-AQC
Subject: 168908.41.0806 101216 PJFF Technical Information and References

Eileen,

One of the action items (AI #48) that came out of our Ghent validation meeting last week was to provide technical information and reference material associated with PJFFs. Our AQC team assembled the attached documents, which we think might be useful as it relates to describing the general characteristics and operation of PJFFs. Please distribute appropriately.

Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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---

tik D.
December 15, 2010 1:47 PM
thy M.
; Wehrly, M. R.; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand
Filter Description

AI # 48:

Fabric filter presentation

Technical Paper

Brochure

Fabric Filter Operational Review

Hope this helps.

Thanks,

Pratik Mehta

From: Crabtree, Jonathan D.
To: Saunders, Eileen; Betz, Alex
CC: Hillman, Timothy M.; Wehrly, M. R.; 168908 E.ON-AQC
Sent: 12/16/2010 3:44:31 PM
Subject: 168908.41.0804 101216 Mill Creek Existing Ammonia System

Eileen and Alex,

This is very helpful. Thanks.

Jonathan

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Thursday, December 16, 2010 2:20 PM
To: Crabtree, Jonathan D.
Cc: Hillman, Timothy M.; Wehrly, M. R.; Betz, Alex
Subject: FW: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Jonathan,

This email should answer your questions.

Thank you,

Eileen

From: Buckner, Mike
Sent: Wednesday, December 15, 2010 2:14 PM
To: 'Alex Betz'
Cc: Didelot, Joe; Bennett, Mike; Saunders, Eileen
Subject: RE: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Alex,

The numbers that Black & Veatch have are close but here are numbers based off of actual operation;

1) The actual usable volume of ammonia in each storage tank is only 74% because of a trip points that shut the pumps down at 8% (Low Level Trip) and 82% (High Level Trip).
2) The design basis of 1,099 lbs/hr is close to what our average hourly use for the year was for both Units but there were times during those hot summer stretches where we exceeded that (in August we averaged approximately 1,282 lbs/hr).
3) Based on a percentage of ammonia used on a daily basis and how many trucks we unloaded, I would have to say that our current storage capacity during normal usage would be approximately 14.8 days and during periods of extended high load requirements would drop down to approximately 12.3 days.

Let me know if you need any additional info.

Mike

From: Alex Betz [mailto:mabetz01@gmail.com]
Sent: Tuesday, December 14, 2010 10:17 PM
To: Buckner, Mike

Cc: Didelot, Joe; Bennett, Mike
Subject: Fwd: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System

Mike,

Can you confirm the ammonia storage tanks supply (see email beow)?

Thanks,

Alex Betz

---------- Forwarded message ----------
From: **Betz, Alex** <Alex.Betz@lge-ku.com>
Date: Tue, Dec 14, 2010 at 5:15 PM
Subject: FW: 168908.41.0804 101214 Mill Creek Existing Ammonia System
To: mabetz01@gmail.com

From: Crabtree, Jonathan D.[SMTP:CRABTREEJD@BV.COM]
Sent: Tuesday, December 14, 2010 5:13:48 PM
To: Betz, Alex
Cc: 168908 E.ON-AQC; Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Ngaoaram, Sunee
Subject: 168908.41.0804 101214 Mill Creek Existing Ammonia System
Auto forwarded by a Rule

Alex-

In looking at ammonia storage on site, we have done a few calculations to determine current storage capacities and future capacities when adding SCRs for Units 1 and 2. Below is the results from our calculation for Mill Creek.

Current Capacity: **17.7 days storage** for 2x60,000 gal tanks. Design basis is 1,099 lb/hr for Units 3 and 4 ammonia usage and 82% of ammonia storage tank usable volume.

Future Capacity: **12 days storage** for 2x60,000 gal tanks. Design basis is 1,629 lb/hr ammonia usage (1099 lb/hr for Units 3 and 4 + 530 lb/hr for future Units 1 and 2). The ammonia storage tank usable volume is 82%.

However, in review of some information we previously received, we found a training document that stated the current ammonia storage tanks supply approximately 7 - 8 days of ammonia for both units 3 and 4.

Therefore, please define the current design basis for the ammonia storage system so that we can determine how much extra storage, if any, is needed.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer
Black & Veatch Corporation | Energy Division | Power Generation Services
11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 **P/F** | CrabtreeJD@BV.com
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From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/17/2010 7:56:40 AM
Subject: RE: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Jonathan,

I thought I had uploaded the Unit 3 ID fan drawings..sorry about that, but it is there now. For the second item, the specified drawings are now available as well. The Unit 2 boiler to air heater drawing is uploaded. For the Unit 2 bypass duct, the duct is the same as what is currently there and can be found in drawing M-570, which is in the Unit 2 Boiler and AQC drawing folder. The additional one-line diagrams are also available. Currently we don't have operating amps data for the FGD 13.2 kV and 4.16 kV switchgear buses in the PI system. I realize this is not all the information yet, but I'm working on getting the rest and will send it to you as soon as I have it.

Here are the answers to your questions:

1. Yes, Unit 2 does have exhauster fans on the discharge.
2. Yes, Unit 1 has hot primary air fans on the inlet.
3. Two drawings are now available, but neither one includes the FGD equipment. Our drafter is currently looking for a drawing that is updated with the FGD area included.

Priority 3 information will be uploaded by the end of the day.

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 3:01 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Sarah,

The following are responses to the Priority 1 information submitted on 11/24 and 12/02. I apologize for the delayed response from reviewing the information you provided.

Boiler/Fans #1 Fan Data c.) Fan Arrangements: Please provide the Unit 3 new ID fan vendor arrangement and outline (physical) drawings.

Boiler/Fans #2 Ductwork c1.) From each unit to common WFGD: Please provide ductwork elevation drawings from each unit to new common WFGD as well as foundation drawings for ductwork supports. We noted that we received a key plan for all the new ductwork (BRO-M-00125). From other drawings referenced on the key plan, if we could get BRO- M-00126, BRO-M-00127, BRO-M-00129, and BRO-M-00130, we'd likely get the rest of the detail info and dimensions we would need for elevation and plan drawings (excluding foundation drawings).

Boiler/Fans #2 Ductwork c2.) Boiler to Air Heater: Please provide unit 2 boiler to air heater flue gas ductwork drawing.

Boiler/Fans #2 Ductwork c4.) Unit 2 Bypass: Please provide unit 2 bypass ductwork to Unit 3 stack elevation drawing as well as foundation drawings for ductwork supports.

Electrical/Control #5 - Drawings for UAT's, RAT's, and GSU's: Please provide general arrangement and layout drawings of these transformers.

Electrical/Control #8 - New WFGD electrical system one-line diagrams: Good start. Please provide BR3-E-10010-001, BR0-E-00150-001, BRO-E-00092, BR1-E-10025.

Electrical/Control #9 - Spare Capacity in existing electrical system: Please provide roughly what percentage of WFGD 13.2 kV and 4.16 kV switchgear bus rating spare capacity is available. (10%, 20%, 30% etc.) Can we have operating amps printout for the WFGD 13.2 kV and 4.16 kV switchgear buses from your DCS PI system?

Additionally, the following requests have come up during the validation process and are of high priority:

1. Please confirm whether or not Unit 2 has exhauster coal mills (primary air fans integral with the coal pulverizers).
2. Confirm that Unit 1 has hot primary air fans. This information will be helpful with the sizing of the new FD fans and air heaters we are planning on for Units 1 and 2.
3. Please provide a topography or contour drawing for the site. Compared to the other two sites being relatively flat, we didn't realize we would need one for Brown at the time of the initial request.

Thanks for submitting the Priority 2 information. We will review it and send a similar list of responses. Additionally, we are currently looking in to your question regarding Priority 3.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Friday, December 03, 2010 2:15 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Jonathan,

All the other information has been uploaded, except for a couple drawings that we're still looking for:

- Unit 2 bypass ductwork
- Ductwork of precipitators to ID fans for Unit 1 and 3—I've included some extra ductwork with the FGD drawings that may cover it, but I am still looking into it

I want to note that the Unit 1 and 3 ID fan motor and arrangement drawings are not final drawings. I also wanted to note that I was unable to find the Unit 2 ID fan arrangement drawing, so I uploaded a drawing that I thought would be beneficial.

Sarah Greenwell

Environmental Coordinator
E.W. Brown Generating Station
859-748-4414

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Thursday, December 02, 2010 7:21 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Sarah,

Thanks for the information. You have provided a lot of useful information. We will review it and let you know if we have any follow-up responses. Please see answers to your questions below in red.

Also, it appears the first round of information you provided is no longer on i-backup. In the future, you can leave past submittals

on ibackup so that we have record of it in case we need to go back to it for some reason or didn't get to it in time. Additionally, one thing that Dave Smith at Ghent did that made things easier for us was he placed compressed ZIP folders on to I-backup and then we just had to download one item per submittal. I think that will also cut down on the time it takes for you to upload the information. Either way works so its up to you.

Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403
Building a World of Difference®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Questions and Uploaded Information

Jonathan,

In gathering the requested information, I have a few more questions.

Can you please send me an example of an ID fan arrangement drawings? Please see attached.

And do you want both the nameplate and data sheets for the ID fans or will one or the other be sufficient? I believe either one will be sufficient. I will check with our fan engineer when he returns to the office, but for now assume either will be fine.

Do you want me to upload a Word document with the sacred ground list and answers to the questions? If not, how would you like me to give you that information? Word documents are fine.

Also, I uploaded more information yesterday and will continue to upload throughout today. The following items are available now:

- Utility information
- 2 & 3 stack foundation drawings
- FGD drawings
- FGD one-line diagrams
- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

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From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	Jackson, Audrey; 168908 E.ON-AQC; Smith, Dave; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Sent:	12/17/2010 10:42:20 AM
Subject:	168908.22.1000 101217 Ghent Project Design Memorandum (PDM) - Revision C
Attachments:	ArchiveInfo.htm

Eileen,

Attached is Revision C of the LG&E/KU Ghent Project Design Memorandum (PDM). We have incorporated all LG&E/KU comments and information received regarding the various tables included in the information request. Additionally, we have incorporated some additional in-house comments. We have included both a "Track Changes" version so you can easily see the changes we made, and a pdf file copy with all changes accepted for your records. The purpose of this document is to capture all of the significant design requirements of the project. It has been and will continue to be dynamic with changes and revisions as more information become available. This is re-issued for project use for this phase of the project.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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The following attachments were archived from this message:
- LG&E KU Ghent Project Design Memo.doc
- LG&E KU Ghent Project Design Memo.pdf

From: Saunders, Eileen
To: Greenwell, Sarah
Sent: 12/17/2010 2:07:49 PM
Subject: FW: 168908.41.0100 101215 Ghent Table 1-14 Load Model
Attachments: ArchiveInfo.htm

From: Smith, Dave
Sent: Wednesday, December 15, 2010 2:26 PM
To: 'Crabtree, Jonathan D.'
Cc: 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: RE: 168908.41.0100 101215 Ghent Table 1-14 Load Model

Jonathan:

Not sure if this helps; see attached table. The 2008 values are overall similar to the Phase I values. I think my 2007 generation values are suspect – I need to find another source of data.

Regarding the Gross MW capacity values listed below which were provided by us in the Phase I data: If I were to give you values today, I would probably say 520 MW for unit 1 and 510 MW for unit 2, units 3 and 4 would be about the same. However, Paul Wright would be a better one to comment on these values.

Dave

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Wednesday, December 15, 2010 12:37 PM
To: Smith, Dave
Cc: 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: 168908.41.0100 101215 Ghent Table 1-14 Load Model

Dave-

Thank you for submitting the load model information.

Attached is the revised PDM Table 1-13 Load Model. We used the provided operating data from 2009 and simplified the ranges to a single point for each low, medium, and high rating to allow for easier use during economic analysis. The points were selected so that when multiplied by the respective operating hours and summed they would match the provided 2009 Gross Generation in MW hours/year values.

As a check, I calculated the capacity factors using the provided gross generation (2009) and the gross MW capacity for each unit (from the PDM) shown in the table below. I then compared the calculated capacity factors to the capacity factors defined by LG&E/KU in Phase I (which are included in the economic criteria table 1-12 in the PDM). As you can see, the 2009 numbers are much less than the Phase I numbers. It was not expected for them to match exactly, but I wanted to confirm that the 2009 numbers were fairly representative of how the units typically operate during the year and confirm that we are using the correct numbers for Gross MW capacity. With that said, note the load model table will only be used for economic analysis for evaluation of equipment and material selections, when required.

Unit	Gross MW Capacity	Capacity Factor	
		2009 Calc	Phase I
1	541	65%	81%
2	517	58%	71%
3	523	77%	78%

4	526	69%	77%

Please let me know if you have any comments or concerns. After receiving confirmation of the attached table, we will revise and re-issue the PDM for project use.
Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Wednesday, December 15, 2010 8:26 AM
To: Hillman, Timothy M.
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Wright, Paul; Saunders, Eileen
Subject: Ghent Priority 4 follow-up Data

Tim:

I have placed Ghent Priority 4 Follow-up data on IBackup for the operating load model information.

We have two other Priority 4 follow-up data requests, both for drawings we are still looking for. We also have two outstanding items for Priority 3 follow-up data for reviewing the transient design pressures and obtaining a general arrangement drawing for the substation.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@lge-ku.com

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Gross CapacityFactor.xls

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: Greenwell, Sarah; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Sent: 12/20/2010 9:40:39 AM
Subject: RE: Important Questions from Brown

Eileen,

Sorry I missed your call. I had just stepped out of the office. We did receive questions and are preparing a response. We can discuss in more detail if necessary during our call this afternoon.

Thanks,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, December 17, 2010 1:55 PM
To: Hillman, Timothy M.; Crabtree, Jonathan D.; Wehrly, M. R.
Cc: Greenwell, Sarah
Subject: Important Questions from Brown

Tim, Jonathan and M.R.,

Sarah and the team from Brown posed the following questions to mean and need B&V to clarify asap:

- Electrical: When B& V asked for 138kV information, do you need data for Brown Station or Brown North (which I believe is the substation)?

- Electrical: When B&V asked for 13.2kV information, do you need data for the FGD only or for West Cliff (which I also believe is a substation)?

- Operational: The request for Table 1-13 is confusing. I sent Sarah what Alex submitted (only his table was 1-14) and we need to know if that format is ok for her to follow. The best plan of action is for Jonathan to call Sarah directly on 859-748-4414 as soon as possible so she can make sure she is providing you what you need.

I have left voicemails for both Tim and Jonathan regarding this issue. If Jonathan can catch up with Sarah quickly, it would be greatly appreciated.

Thank you,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Saunders, Eileen
To: 'Hillman, Timothy M.'
CC: Greenwell, Sarah; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Sent: 12/20/2010 9:43:58 AM
Subject: RE: Important Questions from Brown

Tim,

I just spoke with Jonathan and he informed me that he has taken care of Sarah's questions and will be emailing me shortly. I will talk to you this afternoon.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, December 20, 2010 9:41 AM
To: Saunders, Eileen
Cc: Greenwell, Sarah; Crabtree, Jonathan D.; Wehrly, M. R.; Lucas, Kyle J.
Subject: RE: Important Questions from Brown
Importance: High

Eileen,

Sorry I missed your call. I had just stepped out of the office. We did receive questions and are preparing a response. We can discuss in more detail if necessary during our call this afternoon.

Thanks,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 **p** |HillmanTM@BV.com
Building a World of Difference.®

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, December 17, 2010 1:55 PM
To: Hillman, Timothy M.; Crabtree, Jonathan D.; Wehrly, M. R.
Cc: Greenwell, Sarah
Subject: Important Questions from Brown

Tim, Jonathan and M.R.,

Sarah and the team from Brown posed the following questions to mean and need B&V to clarify asap:

· Electrical: When B& V asked for 138kV information, do you need data for Brown Station or Brown North (which I believe is the substation)?

· Electrical: When B&V asked for 13.2kV information, do you need data for the FGD only or for West Cliff (which I also believe is a substation)?

· Operational: The request for Table 1-13 is confusing. I sent Sarah what Alex submitted (only his table was 1-14) and we need to know if that format is ok for her to follow. The best plan of action is for Jonathan to call Sarah directly on 859-748-4414 as soon as possible so she can make sure she is providing you what you need.

I have left voicemails for both Tim and Jonathan regarding this issue. If Jonathan can catch up with Sarah quickly, it would be greatly appreciated.

Thank you,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Crabtree, Jonathan D.
To: Saunders, Eileen; Greenwell, Sarah
CC: Hillman, Timothy M.; Wehrly, M. R.
Sent: 12/20/2010 10:52:41 AM
Subject: RE: Important Questions from Brown
Attachments: ArchiveInfo.htm

Eileen and Sarah-

Sorry again for the late response. I was out of the office on Friday and didn't see your messages till this morning. As we discussed on the phone, please see responses below in red. Thanks again for your diligence with these data requests.

Merry Christmas and Happy New Year,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation | 11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
Building a World of Difference.®

From: Saunders, Eileen [mailto:Eileen.Saunders@lge-ku.com]
Sent: Friday, December 17, 2010 1:55 PM
To: Hillman, Timothy M.; Crabtree, Jonathan D.; Wehrly, M. R.
Cc: Greenwell, Sarah
Subject: Important Questions from Brown

Tim, Jonathan and M.R.,

Sarah and the team from Brown posed the following questions to mean and need B&V to clarify asap:

- Electrical: When B& V asked for 138kV information, do you need data for Brown Station or Brown North (which I believe is the substation)? Please provide 138kV information for the Unit 1, 2, and 3 Main Transformers which are respectively OCB716, OCB726, and OCB152-73**6** (last number was difficult to read and may be something else for Unit 3.) Additionally, please provide info on the high side of the Unit 1 and 2 Reserve Aux Transformer OCB738 and the Unit 3 Reserve Aux Transformer (West Cliff Substation).

- Electrical: When B&V asked for 13.2kV information, do you need data for the FGD only or for West Cliff (which I also believe is a substation)?Please provide 13.2 kV information for both the FGD and the West Cliff Substation.

- Operational: The request for Table 1-13 is confusing. I sent Sarah what Alex submitted (only his table was 1-14) and we need to know if that format is ok for her to follow. The best plan of action is for Jonathan to call Sarah directly on 859-748-4414 as soon as possible so she can make sure she is providing you what you need. Sarah, as we discussed, we are looking for operating information that shows how long the three Brown units operate and at which partial loads. We basically just need operating hours per point or range of Gross MW output in one year as well as the total Gross Generation for that same year. From those values we can create the load model. Please see attached table for one unit at Mill Creek. Ghent was able to provide something similar to the attached. FYI- Alex's table is labeled 1-14 because the Mill Creek PDM has an extra limestone table in it.

I have left voicemails for both Tim and Jonathan regarding this issue. If Jonathan can catch up with Sarah quickly, it would be greatly appreciated.

Thank you,

Eileen

Please note that as of 11/2/10, my email domain has changed to eileen.saunders@lge-ku.com

Eileen Lamar Saunders
Manager, Major Capital Projects
LG&E and KU Services Company
820 W. Broadway (BOC)
Louisville, KY 40202
BOC: (502) 627-2431
Ghent Site: (502) 347-4023
Mill Creek Site: (502) 933-6558

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The following attachments were archived from this message:
- Operating_Load_Analysis[1].pdf

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.; Greenwell, Sarah
Sent:	12/20/2010 12:25:39 PM
Subject:	168908.28.3000 101220 - Action Item List
Attachments:	ArchiveInfo.htm

Eileen,

Attached is the action item list for our weekly Monday conference call.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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The following attachments were archived from this message:
- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Saunders, Eileen
To: Jackson, Audrey
Sent: 12/20/2010 1:56:54 PM
Subject: Fw: 168908.28.3000 101220 - Action Item List
Attachments: ArchiveInfo.htm

Please print for me.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, December 20, 2010 12:25 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC <168908EONAQC@bv.com>; Jackson, Audrey; Crabtree, Jonathan D. <CrabtreeJD@bv.com>; Mahabaleshwarkar, Anand <MahabaleshwarkarA@bv.com>; Wehrly, M. R. <WehrlyMR@bv.com>; Hintz, Monty E. <HintzME@bv.com>; Goodlet, Roger F. <GoodletRF@bv.com>; Betz, Alex; Lucas, Kyle J. <LucasKJ@bv.com>; Smith, Dave; Mehta, Pratik D. <MehtaPD@bv.com>; Greenwell, Sarah
Subject: 168908.28.3000 101220 - Action Item List

Eileen,

Attached is the action item list for our weekly Monday conference call.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- 168908 LG&E AND KU ACTION ITEM LIST.xls

From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/21/2010 10:57:56 AM
Subject: RE: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Jonathan,

I uploaded the transformer drawings I could find. Please note that the Unit 2 Auxiliary transformer is in the process of being replaced and there is a possibility of it being moved to the same area by the main transformer. The moving of the transformer is not finalized and may not happen, but I wanted you to be aware of the situation in case it impacts any of your calculations. Also, we estimate there is 25-30% capacity available.

I just realized the drawing I referred you to for the ductwork for the Unit 2 bypass to the Unit 3 stack is incorrect. I apologize for any convenience on that mistake. I'm still trying to find it, but it is proving to be harder than expected. Other than that, I believe all the priority 1 information is complete, if I missed something, let me know.

Thanks,

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 3:01 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Sarah,

The following are responses to the Priority 1 information submitted on 11/24 and 12/02. I apologize for the delayed response from reviewing the information you provided.

Boiler/Fans #1 Fan Data c.) Fan Arrangements: Please provide the Unit 3 new ID fan vendor arrangement and outline (physical) drawings.

Boiler/Fans #2 Ductwork c1.) From each unit to common WFGD: Please provide ductwork elevation drawings from each unit to new common WFGD as well as foundation drawings for ductwork supports. We noted that we received a key plan for all the new ductwork (BRO-M-00125). From other drawings referenced on the key plan, if we could get BRO- M-00126, BRO-M-00127, BRO-M-00129, and BRO-M-00130, we'd likely get the rest of the detail info and dimensions we would need for elevation and plan drawings (excluding foundation drawings).

Boiler/Fans #2 Ductwork c2.) Boiler to Air Heater: Please provide unit 2 boiler to air heater flue gas ductwork drawing.

Boiler/Fans #2 Ductwork c4.) Unit 2 Bypass: Please provide unit 2 bypass ductwork to Unit 3 stack elevation drawing as well as foundation drawings for ductwork supports.

Electrical/Control #5 - Drawings for UAT's, RAT's, and GSU's: Please provide general arrangement and layout drawings of these transformers.

Electrical/Control #8 - New WFGD electrical system one-line diagrams: Good start. Please provide BR3-E-10010-001, BR0-E-00150-001, BRO-E-00092, BR1-E-10025.

Electrical/Control #9 - Spare Capacity in existing electrical system: Please provide roughly what percentage of WFGD 13.2 kV and 4.16 kV switchgear bus rating spare capacity is available. (10%, 20%, 30% etc.) Can we have operating amps printout for the WFGD 13.2 kV and 4.16 kV switchgear buses from your DCS PI system?

Additionally, the following requests have come up during the validation process and are of high priority:

1. Please confirm whether or not Unit 2 has exhauster coal mills (primary air fans integral with the coal pulverizers).
2. Confirm that Unit 1 has hot primary air fans. This information will be helpful with the sizing of the new FD fans and air heaters we are planning on for Units 1 and 2.
3. Please provide a topography or contour drawing for the site. Compared to the other two sites being relatively flat, we didn't realize we would need one for Brown at the time of the initial request.

Thanks for submitting the Priority 2 information. We will review it and send a similar list of responses. Additionally, we are currently looking in to your question regarding Priority 3.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403
Building a World of Difference®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Friday, December 03, 2010 2:15 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Jonathan,

All the other information has been uploaded, except for a couple drawings that we're still looking for:

- Unit 2 bypass ductwork
- Ductwork of precipitators to ID fans for Unit 1 and 3—I've included some extra ductwork with the FGD drawings that may cover it, but I am still looking into it

I want to note that the Unit 1 and 3 ID fan motor and arrangement drawings are not final drawings. I also wanted to note that I was unable to find the Unit 2 ID fan arrangement drawing, so I uploaded a drawing that I thought would be beneficial.

Sarah Greenwell

Environmental Coordinator
E.W. Brown Generating Station
859-748-4414

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Thursday, December 02, 2010 7:21 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Sarah,

Thanks for the information. You have provided a lot of useful information. We will review it and let you know if we have any follow-up responses. Please see answers to your questions below in red.

Also, it appears the first round of information you provided is no longer on i-backup. In the future, you can leave past submittals on ibackup so that we have record of it in case we need to go back to it for some reason or didn't get to it in time. Additionally, one thing that Dave Smith at Ghent did that made things easier for us was he placed compressed ZIP folders on to I-backup and

then we just had to download one item per submittal. I think that will also cut down on the time it takes for you to upload the information. Either way works so its up to you.

Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Questions and Uploaded Information

Jonathan,

In gathering the requested information, I have a few more questions.

Can you please send me an example of an ID fan arrangement drawings? Please see attached.

And do you want both the nameplate and data sheets for the ID fans or will one or the other be sufficient? I believe either one will be sufficient. I will check with our fan engineer when he returns to the office, but for now assume either will be fine.

Do you want me to upload a Word document with the sacred ground list and answers to the questions? If not, how would you like me to give you that information? Word documents are fine.

Also, I uploaded more information yesterday and will continue to upload throughout today. The following items are available now:

- Utility information
- 2 & 3 stack foundation drawings
- FGD drawings
- FGD one-line diagrams
- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

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From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Sent: 12/21/2010 12:36:36 PM
Subject: 168908.41.0100 101221 Brown Information Request - Priority 1 Follow up

Sarah-

Thanks for following up on all of the Priority 1 open items. I have passed it on to the team. It appears everything is closed except for the Bypass ductwork. Please let me know when you locate it.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
Building a World of Difference.®

From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Tuesday, December 21, 2010 9:58 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

Jonathan,

I uploaded the transformer drawings I could find. Please note that the Unit 2 Auxiliary transformer is in the process of being replaced and there is a possibility of it being moved to the same area by the main transformer. The moving of the transformer is not finalized and may not happen, but I wanted you to be aware of the situation in case it impacts any of your calculations. Also, we estimate there is 25-30% capacity available.

I just realized the drawing I referred you to for the ductwork for the Unit 2 bypass to the Unit 3 stack is incorrect. I apologize for any convenience on that mistake. I'm still trying to find it, but it is proving to be harder than expected. Other than that, I believe all the priority 1 information is complete, if I missed something, let me know.

Thanks,

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 14, 2010 3:01 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101214 Brown Information Request - Priority 1 Follow up

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3. Please provide a topography or contour drawing for the site. Compared to the other two sites being relatively flat, we didn't realize we would need one for Brown at the time of the initial request.

Thanks for submitting the Priority 2 information. We will review it and send a similar list of responses. Additionally, we are currently looking in to your question regarding Priority 3.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Friday, December 03, 2010 2:15 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Jonathan,

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- Unit 2 bypass ductwork
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Sarah Greenwell

Environmental Coordinator
E.W. Brown Generating Station
859-748-4414

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Thursday, December 02, 2010 7:21 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; 168908 E.ON-AQC
Subject: 168908.41.0100 101202 Brown - Questions and Uploaded Information

Sarah,

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Thanks for all the information you have provided so far. You and your team are making good progress.

Thanks,

Jonathan D. Crabtree
Black & Veatch Corporation
11401 Lamar Avenue
Overland Park, KS 66211 USA
* CrabtreeJD@bv.com
((913) 458-2403

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Thursday, December 02, 2010 10:08 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Questions and Uploaded Information

Jonathan,

In gathering the requested information, I have a few more questions.

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- U1 & U3 ID fan data sheets
- U2 ID motor drawing
- SCR General Arrangement Plan
- SCR elevation drawing

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

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NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Saunders, Eileen
CC: 168908 E.ON-AQC; Jackson, Audrey; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike); Greenwell, Sarah
Sent: 12/21/2010 1:19:16 PM
Subject: 168908.14.1000 101221 Brown - Final Kickoff Meeting Minutes
Attachments: ArchiveInfo.htm

Eileen,

Thank you for your review. Having received no comments on the draft, please find attached the final issue of the Brown Kickoff Meeting Minutes.
Best regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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From: Hillman, Timothy M.
Sent: Tuesday, November 16, 2010 10:40 AM
To: 'Saunders, Eileen'
Cc: 168908 E.ON-AQC; 'Jackson, Audrey'; Mahabaleshwarkar, Anand; Wehrly, M. R.; Hintz, Monty E.; Lucas, Kyle J.; Goodlet, Roger F.; Crabtree, Jonathan D.; Mehta, Pratik D.; Bayless, James W. III (Jim); Keltner, Erik J.; King, Michael L. (Mike)
Subject: 168908.14.1000 101116 Brown - Draft Kickoff Meeting Minutes for Review

Eileen,

Please find attached the draft Brown Kickoff Meeting Minutes for your review. Please provide comments by Monday, November 22nd.

<< File: Brown Kickoff and Site Walkdown Meeting Minutes - Draft with Attachments.pdf >>

Thanks

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:

- Brown Kickoff and Site Walkdown Meeting Minutes - Final with Att.pdf

From: Crabtree, Jonathan D.
To: Smith, Dave
CC: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Sent: 12/21/2010 3:43:00 PM
Subject: 168908.41.0100 101221 Ghent Follow-up Requests

Dave-

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Also, in addition to the Unit 4 ID fan arrangement, I believe we also still need an ID fan motor drawing for either Unit 3 or Unit 4.

As mentioned below, the substation general arrangement drawing is also still an open item.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation | 11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
Building a World of Difference.®

From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Monday, December 20, 2010 2:05 PM
To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: Ghent Follow-up Requests

Tim:

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I assume we'll get the Unit 4 fan drawing sometime. Please let me know if we need to continue looking for the Unit 1 drawing.

Dave

David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@lge-ku.com

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Smith, Dave
To: 'Crabtree, Jonathan D.'
CC: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Sent: 12/21/2010 3:51:19 PM
Subject: RE: 168908.41.0100 101221 Ghent Follow-up Requests

Jonathan:

I did not send the motor nameplate picture on this update, will do after this email.

I think we had sent the Unit 3 or 4 drawing, I will look to see where it is/what happened to it.

Also, just as an FYI, I will be on vacation after today through 1/3/11. I will have my cell and access to emails, but won't really be able to do much since I won't be at the plant.

Dave
David A. Smith
Power Production Environmental Supervisor
Ghent Generating Station
(502) 347-4145
dave.smith@lge-ku.com
(502) 640-4326 cell

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 21, 2010 3:43 PM
To: Smith, Dave
Cc: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Subject: 168908.41.0100 101221 Ghent Follow-up Requests

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From: Crabtree, Jonathan D.
To: Smith, Dave
CC: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Sent: 12/21/2010 4:04:37 PM
Subject: RE: 168908.41.0100 101221 Ghent Follow-up Requests

Dave-

Thanks for letting me know. Merry Christmas and Happy Holidays,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Tuesday, December 21, 2010 2:51 PM
To: Crabtree, Jonathan D.
Cc: Hillman, Timothy M.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen; 168908 E.ON-AQC
Subject: RE: 168908.41.0100 101221 Ghent Follow-up Requests

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(502) 347-4145
dave.smith@lge-ku.com
(502) 640-4326 cell

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David A. Smith
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Ghent Generating Station
(502) 347-4145
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The information contained in this transmission is intended only for the person or entity to which it is directly addressed or copied. It may contain material of confidential and/or private nature. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon, this information by persons or entities other than the intended recipient is not allowed. If you received this message and the information contained therein by error, please contact the sender and delete the material from your/any storage medium.

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Sent: 12/21/2010 4:29:44 PM
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the priority 3 info (including the Draft Title V Permit). The load information looked like it will be very helpful. I will send the updated load model table for your review when I complete it.

With the zip file being labeled priority 3 part 1, I am assuming there will be a second round of Priority 3. So we will hold off on any Priority 3 follow up responses until we hear from you again.

Thanks,

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Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Monday, December 20, 2010 9:50 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Priority 3 Uploaded Info

Jonathan,

The zip file that I uploaded includes:

- Air heater data sheets
- BPEI executive summary, which includes the AH leakage, precipitator leakage and economizer excess air
- PM test
- Quarter 1 & 2 data
- ICR database
- Water Analysis Table

After reading the emission targets from the PDM, everything appears to be accurate. However, I want to add that the total hourly heat input to Unit 3 cannot be greater than 5300 lb/mmbtu. From our draft Title V permit, we will have to meet a 12 month rolling total for SAM emissions of 473.1 tons/year. This total is a combination of all three units and will apply after the startup and initial performance testing of Unit 3's SCR. Unit 3 has to comply with a PM emission rate of 0.030 lb/mmbtu and must continuously operate the ESP.

I've also uploaded a spreadsheet with the load information. If you have any questions about it or need some more

information, just let me know.

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Hillman, Timothy M.
To: Smith, Dave
CC: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Sent: 12/21/2010 4:52:00 PM
Subject: RE: Ghent Priority 4 follow up

Thanks Dave.

Have a nice holiday and Happy New Year.

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
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From: Smith, Dave [mailto:Dave.Smith@lge-ku.com]
Sent: Tuesday, December 21, 2010 3:38 PM
To: Hillman, Timothy M.
Cc: Crabtree, Jonathan D.; Wehrly, M. R.; Wright, Paul; Saunders, Eileen
Subject: Ghent Priority 4 follow up

Tim:

I have placed Unit 1 ID fan motor nameplate pictures on IBackup.

Regarding the Unit 3 or 4 ID fan motor drawings. I thought we had submitted a Unit 4 drawing (with Unit 3 being similar). However, I have asked James Yocum to review what we submitted and then just email Jonathan the drawing(s). I will check in tomorrow with James.

Also, the Unit 4 ID fan arrangement drawing should have been provided under Priority 4.1.e, please let me know if this is not the case.

Dave

From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Sent: 12/22/2010 8:43:50 AM
Subject: RE: Priority 3 Uploaded Info

Jonathan,

I'm still waiting on the proposed drawings for the SCR ductwork, the proposed ammonia system information, the electrical design data, and looking for Unit 3's air heater general arrangement drawing. Other than those items, priority 3 should be completed. I just uploaded Unit 1 and 2's air heater drawings this morning. If I didn't mention it before, we don't have any mercury testing results available. Feel free to gather responses for the priority 3 information uploaded if you would like. It does not matter to me either way.

On another note, I uploaded Unit 2's DCS drawings that were missing from the priority 2 information. They are located in the file labeled "Additional DCS Drawings".

Also, when I was looking for the ductwork for Unit 2 to the Unit 3 stack, I noticed Black & Veatch was listed as the engineer/architect on many of the drawings I saw. Many of these drawings were for duct support, but I was curious as to how involved you all (B&V) were in the project and what the possibilities are that you all might have the drawings for the ductwork (I still haven't located the drawings yet). It was the Dispersion Project back in 1993.

Thanks,

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 21, 2010 4:30 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Sarah-

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Monday, December 20, 2010 9:50 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Priority 3 Uploaded Info

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Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Sent: 12/22/2010 10:55:29 AM
Subject: RE: Priority 3 Uploaded Info

Jonathan,

Here's the information I found on those drawings:

PO# 9-35398-001
BV 19256.71.0402.05-22181
BV 19256.71.0402.05-22193
BV 19256.71.0402.05-22199

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Wednesday, December 22, 2010 10:04 AM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the update on the open items for Priority 3.

Also, we can take a look for the ductwork drawings that you mentioned, but we will need the project number to do so. Can you provide the full drawing number on a few of the drawings? We will hopefully be able to get the project number from the drawing numbers and then locate the project files either on our database or in long term cave storage. Let me know.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 22, 2010 7:44 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

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Sent: Tuesday, December 21, 2010 4:30 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
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Sent: Monday, December 20, 2010 9:50 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
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From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Wehrly, M. R.; Hintz, Monty E.; Crabtree, Jonathan D.; Jackson, Audrey; Smith, Dave
Sent:	12/22/2010 4:39:28 PM
Subject:	168908.41.0803 101222 Ghent Comparison of Sorbent Receiving and Distribution Systems Study
Attachments:	ArchiveInfo.htm

Eileen,

In response to Action Item #56 that came out of the Ghent Validation meeting regarding the high level comparison of a centralized sorbent/PAC injection system versus individual systems per unit, please find the attached high-level study for LG&E/KU review. Please review and comment by January 10th. Let us know if you have any questions or if you would like to have a conference call to discuss this further.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 p |HillmanTM@BV.com
Building a World of Difference.®

This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- Ghent Sorbent-PAC Receiving Study.pdf

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; 168908 E.ON-AQC; Hillman, Timothy M.; Wehrly, M. R.
Sent: 12/28/2010 11:19:16 AM
Subject: 168908.41.0100 101228 Brown Information Request - Priority 1 & 2 Follow up

Sarah,

The following are additional responses to Priority 1 follow-up information submitted on 12/14.

Boiler/Fans #2 Ductwork c1.) From each unit to common WFGD: Two things: **1)** We missed one of the drawings we meant to request with the last follow-up. Please provide BRO-M-00131. Sorry for the confusion. **2)** Additionally, most of the WFGD associated ductwork drawings have been plan or overhead views. Are there any additional elevation views available? if not we will make do.

The following are responses to the Priority 2 information submitted on 12/10.
Boiler/Fans #10 Operation a&b.) Actual/predicted draft temperatures and pressures: B&V understands that there is no predicted operating data associated with the Unit 3 SCR since it is not installed at this time. However, B&V would expect that predictions or guarantees on pressure drop and inlet/outlet temperatures from the contractor would be available. With this data B&V could more accurately determine future AQC equipment sizing and performance, but if the data is not available we can make assumptions.

Boiler/Fans #4 Preheaters a&b.) Data Sheets and General Arrangement Drawings: B&V acknowledges that Brown does not have any steam coil preheaters. However, do any Brown units have any other air preheating capabilities (potentially glycol or hot water preheaters)? Particularly on Units 1 and 2 since we are looking at replacing air heaters and FD fans.

EE/Control #7 Provide maximum running amps on each 4160, 2400 and 480 V switchgear: **LG&E/KU Answer:** The Unit 2 & 3 switchgears, 2.4 kV and 4.16 kV, respectively, are ITE SHK 250 switchgears with a short circuit rating of 30.2 kA. The maximum running amps for Units 2 & 3 is rated at 2000 amps, but typically runs at 1200-1600 amps. Unit 1 is an Allis Chalmers AM 150 switchgear; I am still tracking down the rest of its information. **B&V Response:** Confirm if the maximum running amps for Units 2 & 3 is rated at 2000 amps per two switchgear bus total or per one switchgear bus each? Also, confirm if the typical running amps at 1200-1600 amps per two switchgear bus total or per one switchgear bus each. Note that Unit 2 Aux Transformer is rated 10,000/12,000 kVA and would be rated 3000 amps at 2400V. Also, Unit 3 Auxiliary Transformer is 15/20/25 MVA @65 C and would be rated 3469A at 4.16 kV.
Additionally, the following questions and requests have come up during the validation process and are of high priority:

1. What are the plans to power the future Unit 3 SCR?
2. Are there more detail switchgear single-lines for 2400V buses 1A, 1B, 2A, and 2B that show the loads that are connected to them?

Thanks for all your effort with these requests and questions. You and your team have been a great help.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Sent: 12/28/2010 11:44:21 AM
Subject: Brown Unit 2 FD Fans

Sarah,

As you are aware we are currently working on our Validation Report and Presentation for Brown. One of the options is to put in a new air heater on both Units 1 and 2 to accommodate new SCRs. Therefore, we have to look at reusing or replacing the FD fans. Our project's Fan and Boiler engineer, Erik Keltner, would like to have a conversation with one of your plant engineers/operators that is familiar with the Unit 2 FD Fans. I have shown Erik's contact information below. Please have the plant contact give Erik a call this week or next or please provide us the number and Erik will call him/her. If you or Eileen would prefer, we can make this a conference call and include others on the call. Let me know.

Erik Keltner
Phone: 913-458-8159
Email: KeltnerEJ@bv.com
Availability: 8:30am to 6:30pm EST through Thursday noon (12/30) this week and Monday through Thursday next week.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah
To: 'Crabtree, Jonathan D.'
CC: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Sent: 12/28/2010 1:28:16 PM
Subject: RE: Brown Unit 2 FD Fans

Jonathan,

I forwarded this email to Brad Pabian, our mechanical maintenance supervisor. He should be able to answer Erik's questions. He is on vacation this week, but will be back next week.

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 28, 2010 11:44 AM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Subject: Brown Unit 2 FD Fans

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Erik Keltner
Phone: 913-458-8159
Email: KeltnerEJ@bv.com
Availability: 8:30am to 6:30pm EST through Thursday noon (12/30) this week and Monday through Thursday next week.

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JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Sent: 12/28/2010 1:37:11 PM
Subject: RE: Brown Unit 2 FD Fans

Thanks Sarah. Erik will be expecting a call from Brad next week.

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Tuesday, December 28, 2010 12:28 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Subject: RE: Brown Unit 2 FD Fans

Jonathan,

I forwarded this email to Brad Pabian, our mechanical maintenance supervisor. He should be able to answer Erik's questions. He is on vacation this week, but will be back next week.

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 28, 2010 11:44 AM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.; Keltner, Erik J.
Subject: Brown Unit 2 FD Fans

Sarah,

As you are aware we are currently working on our Validation Report and Presentation for Brown. One of the options is to put in a new air heater on both Units 1 and 2 to accommodate new SCRs. Therefore, we have to look at reusing or replacing the FD fans. Our project's Fan and Boiler engineer, Erik Keltner, would like to have a conversation with one of your plant engineers/operators that is familiar with the Unit 2 FD Fans. I have shown Erik's contact information below. Please have the plant contact give Erik a call this week or next or please provide us the number and Erik will call him/her. If you or Eileen would prefer, we can make this a conference call and include others on the call. Let me know.

Erik Keltner
Phone: 913-458-8159
Email: KeltnerEJ@bv.com
Availability: 8:30am to 6:30pm EST through Thursday noon (12/30) this week and Monday through Thursday next week.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
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From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.
Sent: 12/28/2010 4:05:06 PM
Subject: RE: Priority 4 Uploaded Information

Thanks Sarah. Have a good extended weekend and a happy New Year.

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Tuesday, December 28, 2010 2:41 PM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Hillman, Timothy M.; Wehrly, M. R.; Lucas, Kyle J.
Subject: Priority 4 Uploaded Information

Jonathan,

I've uploaded the KPDES permit, Unit 2 FD fan motor drawing and data sheet, and the piping drawings. However, several of the drawings are under revision: BR-M-00075, BR-M-00231, BR-M-00068, BR-M-00226, BR-M-00229, and BR-M-00073. I don't know when the revised drawings will be available, so I uploaded the older versions that are available. With people being out for the holidays, I haven't been able to locate the transient design pressures.

I will be out for the rest of the week, so I will address your other responses on Monday and get you the information as soon as possible.

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

NOTE: The extension for all E.ON U.S. e-mail addresses has changed from @eon-us.com to @lge-ku.com. Please update your address book accordingly.

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.; Hintz, Monty E.
Sent: 12/29/2010 5:03:09 PM
Subject: RE: Priority 3 Uploaded Info

Sarah-

Good news. As you suspected, B&V designed the ductwork for the Unit 2 bypass to the Unit 3 stack. We were able to locate the drawings you mentioned below in our drawing archives stored on microfilm. For this stage of the project, the drawings we were able to locate will be sufficient and we can close that item. We appreciate your efforts in locating those drawings and through your investigation we were able to locate the drawings.

Thanks for your help,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 22, 2010 9:55 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Jonathan,

Here's the information I found on those drawings:

PO# 9-35398-001
BV 19256.71.0402.05-22181
BV 19256.71.0402.05-22193
BV 19256.71.0402.05-22199

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Wednesday, December 22, 2010 10:04 AM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the update on the open items for Priority 3.

Also, we can take a look for the ductwork drawings that you mentioned, but we will need the project number to do so. Can you provide the full drawing number on a few of the drawings? We will hopefully be able to get the project number from the drawing numbers and then locate the project files either on our database or in long term cave storage. Let me know.

Thanks,

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 22, 2010 7:44 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Jonathan,

I'm still waiting on the proposed drawings for the SCR ductwork, the proposed ammonia system information, the electrical design data, and looking for Unit 3's air heater general arrangement drawing. Other than those items, priority 3 should be completed. I just uploaded Unit 1 and 2's air heater drawings this morning. If I didn't mention it before, we don't have any mercury testing results available. Feel free to gather responses for the priority 3 information uploaded if you would like. It does not matter to me either way.

On another note, I uploaded Unit 2's DCS drawings that were missing from the priority 2 information. They are located in the file labeled "Additional DCS Drawings".

Also, when I was looking for the ductwork for Unit 2 to the Unit 3 stack, I noticed Black & Veatch was listed as the engineer/architect on many of the drawings I saw. Many of these drawings were for duct support, but I was curious as to how involved you all (B&V) were in the project and what the possibilities are that you all might have the drawings for the ductwork (I still haven't located the drawings yet). It was the Dispersion Project back in 1993.

Thanks,

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 21, 2010 4:30 PM
To: Greenwell, Sarah
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the priority 3 info (including the Draft Title V Permit). The load information looked like it will be very helpful. I will send the updated load model table for your review when I complete it.

With the zip file being labeled priority 3 part 1, I am assuming there will be a second round of Priority 3. So we will hold off on any Priority 3 follow up responses until we hear from you again.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Monday, December 20, 2010 9:50 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Priority 3 Uploaded Info

Jonathan,

The zip file that I uploaded includes:

- Air heater data sheets
- BPEI executive summary, which includes the AH leakage, precipitator leakage and economizer excess air
- PM test
- Quarter 1 & 2 data
- ICR database
- Water Analysis Table

After reading the emission targets from the PDM, everything appears to be accurate. However, I want to add that the total hourly heat input to Unit 3 cannot be greater than 5300 lb/mmbtu. From our draft Title V permit, we will have to meet a 12 month rolling total for SAM emissions of 473.1 tons/year. This total is a combination of all three units and will apply after the startup and initial performance testing of Unit 3's SCR. Unit 3 has to comply with a PM emission rate of 0.030 lb/mmbtu and must continuously operate the ESP.

I've also uploaded a spreadsheet with the load information. If you have any questions about it or need some more information, just let me know.

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

859-748-4414

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From:	Crabtree, Jonathan D.
To:	Smith, Dave
CC:	Saunders, Eileen; Hillman, Timothy M.; Lucas, Kyle J.; Wehrly, M. R.; Keltner, Erik J.; Gamble, Kris A.; 168908 E.ON-AQC
Sent:	12/29/2010 5:54:29 PM
Subject:	168908.41.0803 101229 Ghent Flow Biasing
Attachments:	ArchiveInfo.htm

Dave-

Please find the attached memorandum from our Boiler and Draft System engineer in response to Action Item #51 that came out of the Ghent Validation meeting regarding B&V's suggestions for balancing/biasing flows at Ghent Units 3 and 4 while using a common duct and PJFF. The memo covers an overview of the discussion at the Validation meeting. Additionally, there is a list of questions for you and the Ghent operations staff that will help us gain a better understanding of the flow biasing issue so that we can properly account for it during conceptual design and the cost estimate. We would suggest having a conference call to discuss answers to the questions and anything else that comes up as a result of the conversation. Please let us know if there is a time the weeks of January 3rd or 10th that you and your team would have time to discuss this with us.

Thanks,

JONATHAN CRABTREE | Mechanical Engineer, Energy
Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
+1 913-458-2403 P/F | CrabtreeJD@BV.com
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This message and its attachments have been archived. To retrieve, double click the message in the message list.

The following attachments were archived from this message:
- LG&E-KU_Ghent_Flow Biasing Memo.doc

From: Crabtree, Jonathan D.
To: Greenwell, Sarah
CC: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Sent: 12/22/2010 10:03:44 AM
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the update on the open items for Priority 3.

Also, we can take a look for the ductwork drawings that you mentioned, but we will need the project number to do so. Can you provide the full drawing number on a few of the drawings? We will hopefully be able to get the project number from the drawing numbers and then locate the project files either on our database or in long term cave storage. Let me know.

Thanks,

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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Wednesday, December 22, 2010 7:44 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Jonathan,

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Thanks,

Sarah

From: Crabtree, Jonathan D. [mailto:CrabtreeJD@bv.com]
Sent: Tuesday, December 21, 2010 4:30 PM
To: Greenwell, Sarah

Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: RE: Priority 3 Uploaded Info

Sarah-

Thanks for the priority 3 info (including the Draft Title V Permit). The load information looked like it will be very helpful. I will send the updated load model table for your review when I complete it.

With the zip file being labeled priority 3 part 1, I am assuming there will be a second round of Priority 3. So we will hold off on any Priority 3 follow up responses until we hear from you again.

Thanks,

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Black & Veatch Corporation |11401 Lamar Ave, Overland Park, KS 66211
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From: Greenwell, Sarah [mailto:Sarah.Greenwell@lge-ku.com]
Sent: Monday, December 20, 2010 9:50 AM
To: Crabtree, Jonathan D.
Cc: Saunders, Eileen; Wehrly, M. R.; Hillman, Timothy M.; Lucas, Kyle J.
Subject: Priority 3 Uploaded Info

Jonathan,

The zip file that I uploaded includes:

- Air heater data sheets
- BPEI executive summary, which includes the AH leakage, precipitator leakage and economizer excess air
- PM test
- Quarter 1 & 2 data
- ICR database
- Water Analysis Table

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I've also uploaded a spreadsheet with the load information. If you have any questions about it or need some more information, just let me know.

Thanks,

Sarah Greenwell

Environmental Coordinator

E.W. Brown Generating Station

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From:	Saunders, Eileen
To:	Kirkland, Mike; Buckner, Mike; Didelot, Joe; Bennett, Mike; Betz, Alex
CC:	Straight, Scott; Hillman, Timothy M.; Moehrke, William; Craigmyle, Kenny
Sent:	1/28/2011 10:13:08 AM
Subject:	FW: 168908.41.0402 110127 Mill Creek Building/Equipment Relocations
Attachments:	MC Arrangement A.pdf; MC Arrangement B.pdf

All,

Please see Tim's email below and let me know if it is representative of where we would locate key pieces of equipment/buildings depending on which arrangement is ultimately chosen for Mill Creek. I gave B&V direction based on previous discussions with the plant but I want to make sure that nothing was lost in translation. I need your input as soon as possible so B&V can continue with their estimate.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Thursday, January 27, 2011 5:35 PM
To: Saunders, Eileen
Cc: 168908 E.ON-AQC; Wehrly, M. R.; Lucas, Kyle J.; Hintz, Monty E.; Crabtree, Jonathan D.; Betz, Alex; Jackson, Audrey
Subject: 168908.41.0402 110127 Mill Creek Building/Equipment Relocations
Importance: High

Eileen,

Per our discussion after the Brown Validation Meeting on Tuesday (1/25), we have reviewed your proposed locations for the relocated buildings/equipment at Mill Creek and wanted to confirm with you that we interpreted your direction correctly. Please find the attached pdf's with buildings/equipment marked up accordingly.

Unit 4 Arrangement A (North-South)
The first attachment shows two options for locating the ammonia storage tanks. One option is located west of the dewatering facility (can move further south if necessary but the area identified appears to be available and near the access road.) The second option would to place the tanks northeast of dewatering where the old fuel oil storage tanks were located. This area also appears to be available and is near the access road. Please advise if there is a preference or we can assume one.
Unit 4 Arrangement B (East-West)
The second attachment shows the new warehouse/loading dock building on the left of the entrance road as you approach the plant in the parking lot area. With this addition, the demolished Lab and Annex building can be placed in the old warehouse/loading dock located north of Unit 2 boiler building (assuming the existing building will be remodeled after the new warehouse is built). Please confirm these locations.

As discussed, we will work with our T&D group to come up with a relocation and route for both the Unit 1 & 2 345kV Overhead transmission line and the Unit 3 & 4 345kV Overhead transmission line.

Please provide confirmation of the relocations mentioned above at your earliest convenience.

Regards,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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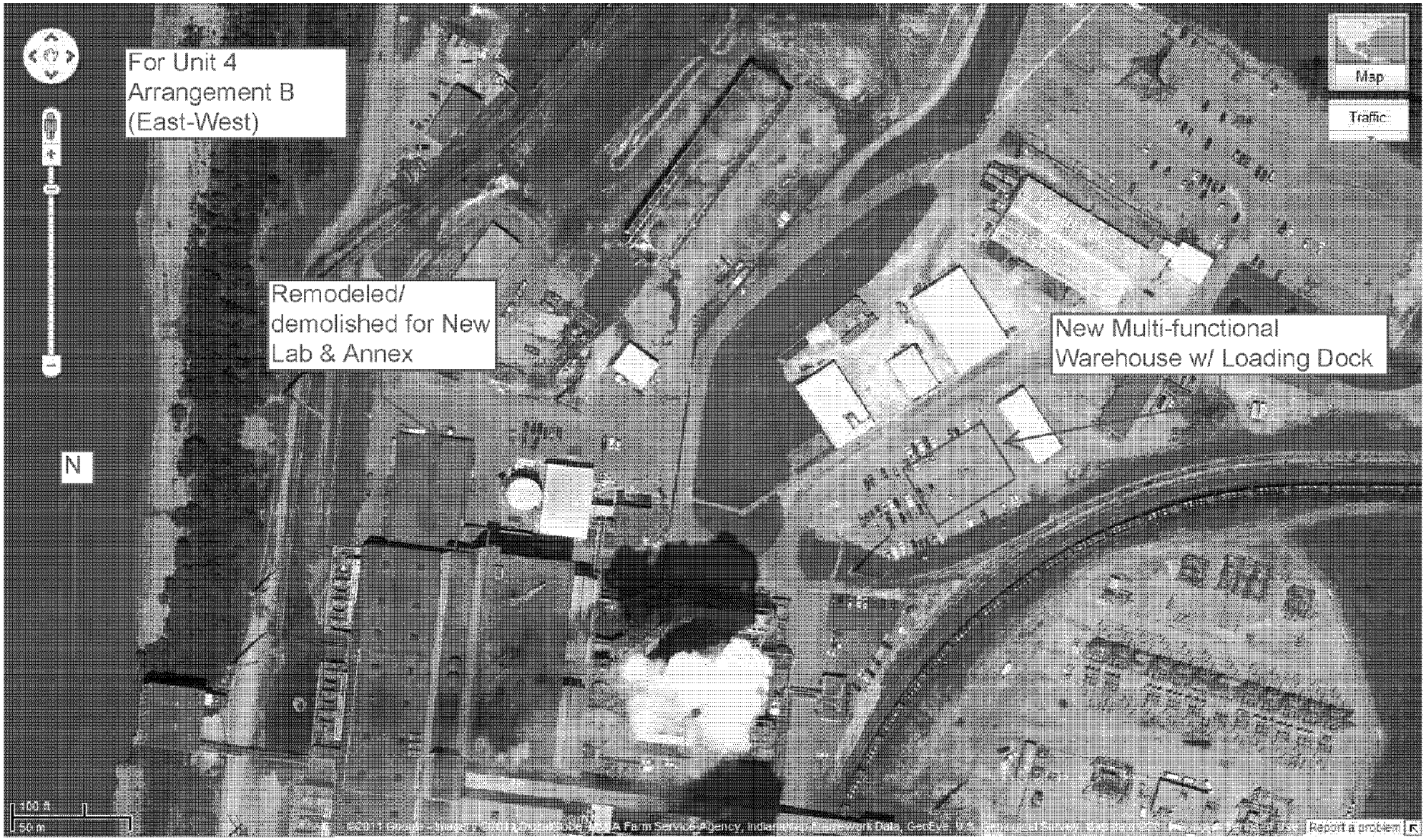
For Arrangement A
(North South)
Option for Relocated Ammonia Tanks in Old
Fuel Oil Storage Location
Option for Relocated Ammonia Tanks
N
Map
Traffic
200 ft
100 m
©2011 Google - Imagery ©2011 DigitalGlobe, USDA Farm Service Agency
Report a problem


For Unit 4
Arrangement B
(East-West)
Remodeled/
demolished for New
Lab & Annex
New Multi-functional
Warehouse w/ Loading Dock
N
Map
Traffic
100 ft
50 m
Report a problem

From:	Saunders, Eileen
To:	Kirkland, Mike; Buckner, Mike; Didelot, Joe; Bennett, Mike; Nichols, Jim (Mill Creek); Betz, Alex; Koller, Tiffany
CC:	'Hillman, Timothy M.'; Straight, Scott
Sent:	3/15/2011 9:54:26 AM
Subject:	FW: 168908.41.0402 110314 Ghent - Existing Warehouse relocation/replaced

All,

Please see Tim's message below. In the past, I have communicated that there is a desire to build one common warehouse to accommodate new parts as well as to replace buildings that will have to be demolished. I recall that the plant suggested that a new warehouse be built in the parking lot below the hill across from the training building and locker room. Please confirm.

Also, according to the email below, the maintenance shops between Units 2 and 3 will have to go and I don't recall talking with anyone about where we would put the replacement. If you have suggestions, I need to know by 3/18 so I can communicate that information to Tim.

Lastly, I received the draft report from B&V for MC yesterday evening. I am checking for completeness and will send it out to you by tomorrow morning for your own review. We will need to work together to coordinate our comments and questions so we can get them back to Tim within 2 weeks.

Thanks,

Eileen

From: Hillman, Timothy M. [mailto:HillmanTM@bv.com]
Sent: Monday, March 14, 2011 6:09 PM
To: Saunders, Eileen
Cc: Wehrly, M. R.; Crabtree, Jonathan D.; Lucas, Kyle J.; Hintz, Monty E.; 168908 E.ON-AQC
Subject: 168908.41.0402 110314 Ghent - Existing Warehouse relocation/replaced
Importance: High

Eileen,

As you may recall, the existing warehouse north of Ghent Unit 4 WFGD will need to be demolished and replaced to make way for the new Unit 4 PJFF. We need to know if there is a preferred location for the warehouse so we can add it to the site arrangements. We also need to know if LG&E/KU wants the warehouse to get larger to account for additional spare PJFF parts and particularly a full set of bags and cages. There was some discussion concerning this at the validation presentation and documented in the meeting minutes.

In addition, for Unit 3, the existing maintenance shops between Units 2 and 3 will need to be demolished and replaced to make room for the new Unit 3 PJFF. We need to know if there is a preferred location for the maintenance shops so we can add it to the site arrangements.

We recall that the plant indicated they had ideas of where these new facilities should be located, so hopefully we can get a quick answer.

Please respond as soon as possible, but no later than Friday 3/18 if possible.

Thanks,

TIM HILLMAN | Project Manager, Energy
Black & Veatch Corporation | 11401 Lamar Ave., Overland Park, KS 66211
+ 1 913-458-7928 P |HillmanTM@BV.com
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From:	Saunders, Eileen
To:	Schroeder, Andrea; Cosby, David; Karavayev, Louanne
CC:	Straight, Scott; Wilson, Stuart; Hudson, Rusty; Ritchey, Stacy; Mooney, Mike (BOC 3); Conroy, Robert
Sent:	4/29/2011 12:26:54 PM
Subject:	RE: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

Andrea,

The plant voted to move the outage on Mill Creek Unit 3 and provided that information to Brian Hurst in Gen planning. If outages are moved then that impacts our in-service dates. As far as I know, that Unit is the only one moved during this round of outage review.

Thanks,

Eileen

From: Schroeder, Andrea
Sent: Friday, April 29, 2011 11:13 AM
To: Saunders, Eileen; Cosby, David; Karavayev, Louanne
Cc: Straight, Scott; Wilson, Stuart; Hudson, Rusty; Ritchey, Stacy; Mooney, Mike (BOC 3); Conroy, Robert
Subject: RE: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

Eileen,

For the ECR filing, we will continue to use the previously provided estimates for the schedules, application and testimony. This should ensure consistency in all of the documents and notices.

From the bullet point below for MC3 Sam Mitigation/SCR Turndown, has the in-service date of the project changed? Do you anticipate the in-service dates for any of the other projects changing in the near future?

Thank you for keeping the group informed as the information is updated.

Andrea

From: Saunders, Eileen
Sent: Friday, April 29, 2011 10:25 AM
To: Schroeder, Andrea; Cosby, David; Karavayev, Louanne
Cc: Straight, Scott; Wilson, Stuart; Hudson, Rusty; Ritchey, Stacy; Mooney, Mike (BOC 3)
Subject: FW: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

All,

Please see the revised Environmental Air File that includes the following:

Attached is an updated Environmental Air File which includes the following changes:

- Brown 3 - updated to reflect revised B&V numbers for Capital, Removal, and O&M.
- Mill Creek 3 SAM Mitigation/SCR Turndown – updated to align by year capital with changed outage start date from 3/13 to 9/13.
- Ghent SAM Mitigation – Revised by year numbers and added $200k removal in 2011 per the IC paper prepared by Philip Imber.

Also, I have attached the latest backup data for Brown that we received from B&V. Please do not look at

the information for Units 1 and 2. They are based on a scenario that uses individual baghouses for each unit instead of the combined baghouse in our plan.

I am sharing this in the spirit of keeping everyone informed. We will continue to keep receiving revised estimates over the next few months. After talking with Andrea this morning, it was suggested that we leave the spreadsheets we currently have alone for the ECR filing unless Gen Planning or Financial folks think differently.

Andrea, Stacy has already updated our Environmental Air Summary spreadsheet with the new information so take a look at that and decide if you want to use the new information.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Monday, April 25, 2011 3:49 PM
To: Saunders, Eileen
Cc: Mooney, Mike (BOC 3); Ritchey, Stacy; Hillman, Timothy M.; Wehrly, M. R.; Crabtree, Jonathan D.; 168908 E.ON-AQC
Subject: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

Eileen,

Please find attached the draft Brown cost estimates for each unit along with the apportioned cost spreadsheet requested by LG&E/KU. This version does not include the SCR on Units 1 and 2. These costs are issued in draft for client review 1 week ahead of the scheduled May 2nd draft report.

Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager, Energy
Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211
+ 1 913-458-9062 P | +1 913-458-9062 F
LucasKJ@BV.com
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From: Straight, Scott
To: Schroeder, Andrea
Sent: 5/2/2011 8:26:47 AM
Subject: Accepted: Discuss supporting documents for Voyles ECR Testimony

From: Saunders, Eileen
To: Kirkland, Mike; Buckner, Mike; Mooney, Mike (BOC 3)
CC: Straight, Scott
Sent: 5/2/2011 4:01:03 PM
Subject: FW: 168908.14.1000 110425- MC Phase II Review Meeting Notes
Attachments: Summary of Meeting discussion points 042511b.pdf

All,

Please see the notes from our trip. My apologies for not sending this earlier. I missed it in my inbox. I would appreciate any comments you may have on the notes especially the highlighted items. If you would like to have a quick call, let me know and I will set it up.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Monday, April 25, 2011 11:08 AM
To: Saunders, Eileen
Cc: Hillman, Timothy M.; Crabtree, Jonathan D.; Wehrly, M. R.; 168908 E.ON-AQC
Subject: 168908.14.1000 110425- MC Phase II Review Meeting Notes

Eileen,
Attached, please find a draft summary of notes from the LG&E/KU and B&V Phase II report review session in our offices on 4/19 and 4/20. Please review the document and let us know if you have any additional comments.

Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager, Energy
Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211
+ 1 913-458-9062 p | +1 913-458-9062 f
LucasKJ@BV.com
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LG&E/KU Meeting with B&V in Overland Park, KS
Mill Creek Phase II Report Review

Discussion Notes

Day 1 - 4/19/11

Note 1
No. 4 existing scrubber has had issues with the mist eliminators/quenching system. The FRP Mist Eliminators have not lasted as anticipated. For the mist eliminator materials, there is a cost difference between the alloy material and the FRP system.

Note 2
For Unit 4 Arrangement C and the Combined Unit 1 and 2 WFGD, LG&E/KU indicated the new outlet/mist eliminator zone could be sized for lower velocities and an alloy material may be more suitable.

Note 3
Unit 4 was the only unit that a water mass balance (WMB) was performed in the Phase II study. It may be advantageous to conduct another WMB for the combined U1/U2 WFGD and another relook at the water supply system.

Note 4
The labor rates used in the Phase II study seemed appropriate. LG&E/KU indicated that they consider incentive programs as part of their labor rates.

Note 5
For the NFPA requirements – B&V did not stiffen the existing Unit 1 and 2 ESPs as these removed for the installation of the SCRs. However, now that B&V has developed the "without SCR" costs LG&E to consider if the ESP has previously been stiffened or if an allowance needs to be added to stiffen the ESPs (and other components). Consider including a footnote in this section of the report.

Note 6
B&V included new dry ash handling system. A wet to dry conversion for bottom ash and wastewater treatment plant for WFGD or any other waste stream treatments was not included. Consider including a footnote in this section of the report.

Note 7
B&V indicated that there are some types of fan materials available that would resist corrosion from ash issue when the ESP's are de-energized on Unit 3 and 4. However, the best option may be to re-locate this equipment.

Note 8
Trimble County Unit 2 does not have a fire suppression system in the PJFF and it does not have a booster fan. LG&E/KU will investigate and advise the size and type of fan at TC2.

LG&E/KU Meeting with B&V in Overland Park, KS
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Note 9
For the electrical systems for the Unit 1 and 2 combined WFGD, consider building in redundancy (i.e., 110-120% additional power capacity).

Note 10
For the Unit 1 and 2 combined WFGD pumps sizing is important to be able to push the scrubber slurry to the new WFGD location. B&V recommends keeping the recirculation loop in its current location and install flow control valve near loop and run pipe down the hill to the new combined Unit 1 and 2 WFGD.

Note 11
Unit 4 Arrangement C; LG&E/KU is concerned about the PJFF booster fans sucking in limestone dust from the existing limestone conveyor and storage pile. Enclosures were discussed as a mitigation option to limit dust.

Note 12
Discussed the location of the Unit 4 Arrangement C stack next to the existing ammonia storage and potential problems during construction. B&V indicated an exclusion zone and need to include a temporary protection cover to minimize chances of damage to the ammonia equipment from dropping/falling debris. Facility RMP plan should be reviewed.

Day 2 - 4/20/11

Note 13
Jim Bayless of B&V led the telephone conversation to review LG&E/KU's electrical comments provided on 4/15/11 with LG&E/KU staff. Following the conference call LG&E/KU was to provide information on the generator breaks currently installed at Brown Units 1 and 3. Unit 3 would be nearest match to what the MC units are; it is an HECS-100L which should suffice for MC1 & 2. However, due to the additional current from MC Unit 3 and 4, the design may need to step up to the HECS-100XLp or even the HECS-130XLp (depending on a potential load study).

Note 14
For the "without SCR" scenario, the new combined unit 1 and 2 WFGD scenario, and Unit 4 Arrangement C an updated LG&E/KU load model with capacity factor analysis was suggested. If completed, this information would be included in the PDM and O&M estimate.

LG&E/KU Meeting with B&V in Overland Park, KS
Mill Creek Phase II Report Review

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Note 15
For Unit 4 Arrangement C, to minimize the impact of ash on the existing fans when the ESPs are de-energized, considering installing ductwork directly off the back of the Unit 4 ESPs, bypass the existing fans, and duct directly to the new PJFF. Consideration of fan sizing will be necessary for this new arrangement.

Note 16
For Unit 4 Arrangement C, flow biasing options were considered. In the end, LG&E/KU indicated flow biasing was not as critical as if new ID fans after the PJFF would solve the potential erosion issues. However, it would be advantageous if both options could be achieved.

Note 17
For Unit 4 Arrangement C, LG&E/KU suggested a three PJFF box and 3 fan configuration. Due to the tight spacing in this location the fan locations could be staggered (southwest to north east) to get these to fit. Three staggered fans should fit in the area between the limestone conveyor and the pipe rack, although a retaining wall may be needed at the east side of the limestone pile to maximize available clearances and access to the Reagent Prep Building.

Note 18
For Unit 4 Arrangement C, LG&E/KU requested whether the PAC and sorbent silos could be moved from the location shown north of fly ash building to south of sample building to improve truck access. A better solution, if room for two silos can be found, would be to located the silos near the existing Unit 4 scrubber adjacent to the main road.

Note 19
For Unit 4 Arrangement C, if new larger fans are installed downstream of the proposed PJFFs, can the existing Unit 4 fans be reused for the Unit 3 arrangement after the PJFF before the unit 4 WFGD.

Note 20
For Unit 4 Arrangement C, LG&E/KU indicated the need for additional margin for the PJFF (i.e., to exceed 100% capacity). Thus, if we have two boxes instead of 50% each consider 60% each; three boxes instead of 33% each consider 40-45% each. Build in some additional redundancy to help with flow control....this also should be considered in the fan sizing for Unit 4. Currently, all PJFF's included in the estimate are an N+1 arrangement (1 spare compartment), so some margin has already been designed.

LG&E/KU Meeting with B&V in Overland Park, KS
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Note 21
The white paper titled "Impact of PAC injection" included in Section 3.13 of the Mill Creek Report discusses which units have existing fans located between ESPs and proposed PJFFs and could be eroded by ash should the ESPs be de-energized.

Note 22
For the NFPA requirements for Mill Creek unit 3 and 4 SCR installation, LG&E/KU indicated that the boiler was not stiffened but the ductwork and the ESPs were stiffened. LG&E/KU will confirm to what level these systems were stiffened.

Note 23
For future analyses on Mill Creek Unit 1 and Unit 2, the design should consider appropriate fan sizing for installation of future SCRs, but there should be no other consideration for SCRs at this time.

Note 24
Provide the SCR fan apportioned costs (i.e., 20% difference from the "with SCR" to "without SCR" cost estimate).

Note 25
LG&E/KU to consider conducting Electrical Transient & Analysis Program (ETAP) and load studies for the entire Mill Creek facility.

Note 26
LG&E/KU to provide an updated outage schedule for all units at the three stations which includes their current proposed plan of AQC equipment installation.

Note 27
B&V not to update the cash flows for Mill Creek as LG&E has already taken the B&V Phase II costs and adjusted. B&V cash flows are now outdated.

Note 28
The MC draft Phase II report will not be issued as a final report. Instead sections of the document may be updated as necessary, and issued as report addendum documents.

From: Straight, Scott
To: Saunders, Eileen
Sent: 5/4/2011 2:54:40 PM
Subject: RE: Environmental Compliance Study Timeline (els-may 4 2011 rev 2).docx
Attachments: Exhibit JPM-5 (KU) SO3 Technology Evaluation Report060106.doc; FINAL CCPStrategy062309.doc

This will be a good start to the bridging document. Attached below are ones developed in the past for reference.

From: Saunders, Eileen
Sent: Wednesday, May 04, 2011 1:58 PM
To: Straight, Scott
Subject: Environmental Compliance Study Timeline (els-may 4 2011 rev 2).docx

Scott,

I accepted your changes and inserted the tables. I plan to send this later today.

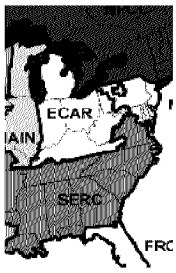
Thanks,

Eileen

<< File: Environmental Compliance Study Timeline (els-may 4 2011 rev 2).docx >>

e·on U.S.
Generation Services

Engineering
Laboratory
Planning



2006 SO_3 Mitigation Strategy for Kentucky Utilities and Louisville Gas and Electric

April 2006

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2006 SO_3 Mitigation Strategy for Kentucky Utilities and Louisville Gas and Electric

Executive Summary

Selective Catalytic Reactors (SCRs) have been installed at Ghent 1, 3, 4, Trimble 1 and Mill Creek 3 and 4 to reduce NOx emissions in compliance with the current regulations. The SCRs increase SO_3/H_2SO_4 in the flue gas which impacts particulate stack emissions. In order to mitigate the SCR impact on particulate emissions while maintaining NOx reduction, it is necessary to reduce the SO_3 levels in the flue gas.

E.On U.S. employed Sargent & Lundy (S&L) to evaluate all commercially available SO_3 reduction technologies and develop capital and O&M cost estimates for each technology to determine the most economic and technically effective approach to mitigate the impact of SO_3 on visible emissions for the SCR equipped units in the fleet. An economic evaluation was performed of the viable technologies to determine the best compliance option.

As a result of the study, sorbent injection was identified as a least cost option for units with cold-side ESP equipment. In order to select the most economic sorbent, it is recommended that KU and LG&E proceed with testing of hydrated lime and Trona injection at Ghent 1 and Trimble 1. Pending results of the testing the most economic sorbent will be selected as the technology of choice for all generating units with cold-side ESPs.

For Ghent 3&4, the units with hot-side ESP equipment, replacement of catalyst in conjunction with sorbent injection in the boiler and flue gas path was identified as the least cost option for SO3 reduction. In search of a lower cost option it is recommended that hydrated lime and Trona injection be tested at Ghent 3 & 4 while burning high sulfur coal. This approach is unproven but could save capital investment at these units if successful.

1.0 Background

During the combustion of sulfur-containing fossil fuels, a percentage of the sulfur dioxide (SO_2) formed is further oxidized to sulfur trioxide (SO_3). As the flue gas cools across the air heater and wet flue gas desulphurization equipment (WFGD), the SO_3 combines with flue gas moisture to form vapor-phase and/or condensed sulfuric acid (H_2SO_4). Sulfuric acid in flue gas has long been known to cause a variety of plant operation problems including plume visible emissions. The retrofit of selective catalytic reduction (SCR) units for nitrogen oxide (NOx) control can more than double flue gas SO_3/H_2SO_4 concentrations.

The SCR units at Ghent 1, 3, and 4, Trimble 1 and Mill Creek 3 and 4 increase SO_3/H_2SO_4 and thus particulate stack emissions. The amount of sulfur in the coal supply, the volume of SCR catalyst, along with various other equipment operating conditions, determines the total volume of SO_3 in the flue gas. Due to the specific conditions at Ghent 1 and Trimble 1, the addition of SCR equipment has increased flue gas SO_3 to a level that may result in visible emissions exceedences as measured by EPA Method 9. Under current conditions and with the existing fuel quality, the Mill Creek units and Ghent 3 and 4 are not experiencing visible emissions exceedences during SCR operation, though the particulate levels are elevated above normal operating levels. Plans to build FGD modules at Ghent 3 and 4 will result in a fuel switch to higher sulfur levels. This will increase the SO_3 and visible emissions levels at these units. The addition of catalyst in the Mill Creek SCRs to maintain NOx compliance will result in increased SO_3 and visible emissions.

E.On U.S. embarked on a SO_3 Mitigation Study to determine the most economic and technically effective approach to mitigate the impact of SO_3 on visible emissions for the SCR equipped units in the fleet. As part of the SO_3 mitigation study Generation Services employed Sargent & Lundy to investigate currently available SO_3 control technologies potential application at each unit. An economic evaluation of viable technologies was completed and combined with the technical evaluation to produce a lowest evaluated cost plan.

2.0 SO_3 Mitigation Alternatives

In order to mitigate SO_3/H_2SO_4 increases created by operation of the SCR, E.On U.S. has considered multiple alternatives.

1. Purchase of NOx Allowances
2. SO_3 Reduction Technologies
    a. Alkaline Additive Technology
    b. Sorbent Injection Technology
    c. Wet ESP Technology
    d. Low SO_2 to SO_3 conversion rate SCR catalyst
    e. Combination Technologies

2.1 Purchase NOx Allowances

By purchasing NOx allowances the SCR equipment can be turned off, reducing the formation of SO_3 in the flue gas. This option was considered during development of the NOx compliance strategy and was rejected. Dependence on the NOx allowance market results in the Companies being exposed to a volatile allowance market with significant price risk and the possibility that there will be minimal volumes of allowances available at any price. Installation of a combination of combustion NOx control equipment and SCR equipment has been demonstrated to be the least cost compliance strategy for NOx compliance.

2.2 SO_3 Reduction Technologies

EON-US employed Sargent & Lundy (S&L)to evaluate the feasibility of applying each commercially available SO_3 technology at each SCR unit in the combined company. As part of the evaluation S&L developed capital construction costing and annual operation and maintenance (O&M) costing for each technology at each unit. This data provides the basis for further technical and economic evaluation and development of an SO_3/visible emissions control strategy.

2.2.1 Alkaline Additive Technology

The alkaline components in flyash react with the SO_3 produced in the furnace to form sulfates, which are removed by the electrostatic precipitator (ESP). Introducing alkaline additives into the furnace allows higher SO_3 reaction and removal rates. These additives only capture boiler generated SO_3 and are not effective at capturing SCR-generated SO_3. Alkaline additives may also modify the slagging and fouling tendencies of the coal ash and increase furnace exit gas temperatures. Higher exit gas temperatures increase the SO_2 to SO_3 conversion in the SCR. For these reasons alkaline additives have been eliminated from consideration as viable SO_3 reduction options.

2.2.2 Sorbent Injection Technology

A variety of sorbents are available that can be added at various points in the flue gas path to reduce SO_3 and visible emissions. The following sorbent injection options were evaluated by S&L:

- Ammonia
- Humidification Water
- Hydrated Lime
- Magnesium Hydroxide
- Magnesium Oxide
- Micronized Limestone
- Sodium Bisulfite (SBS)
- Soda Ash
- Trona

Sorbent injection captures the SO_3 by reacting to form salts or sulfates which can be collected in the existing ESP, thus reducing the SO_3 impact on visible emissions. The use of sorbent injection technologies will be limited at Ghent Units 3&4 due to the hot-side ESPs, which are

located upstream of the SCRs. Sorbent injection downstream of the ESP depends on particulate removal in the FGD and thus may be limited. A full assessment of each technology determined the viability at each unit as shown below in Table I.

Viability of Sorbent Injection Technologies

	Ghent - Unit 1	Ghent - Unit 3	Ghent - Unit 4	Mill Creek - Unit 3	Mill Creek - Unit 4	Trimble - Unit 1	Expected SO_3 Reduction
Ammonia	No	No	No	No	No	No	70%
Humidification	No	No	No	No	No	No	27%
Hydrated Lime	Yes	Yes*	Yes*	Yes	Yes	Yes	**90%**
Magnesium Hydroxide	Yes	Yes	Yes	Yes	Yes	Yes	90% Boiler/40-60%Overall
Magnesium Oxide	No	No	No	No	No	No	80%
Micronized Limestone	No	No	No	No	No	No	70%
Soda Ash	Yes	Yes*	Yes*	Yes	Yes	Yes	90%
Sodium BiSulfite (SBS)	Yes	Yes*	Yes*	Yes	Yes	Yes	90%
Trona	Yes	Yes*	Yes*	Yes	Yes	Yes	90%
Required SO_3 Reduction	90%	90%	90%	87%	85%	90%	

* Limited by capacity of FGD to collect particulate matter.

TABLE I

2.2.3 West ESP (WESP) Technology

Wet ESPs use water to clean collection plates while dry ESPs clean by mechanically rapping. Wet cleaning reduces particle re-entrainment and allows collection of fine particulate, mercury and aerosols. WESP technology is a primary candidate for compliance with proposed mercury and PM2.5 regulations. However, the capital cost of a wet ESP ranges from $50 to $70 million for the units in the KU and LG&E systems. For this reason it is prudent to avoid the installation of WESP technology until and unless additional regulations make this a cost-effective approach. Meanwhile, the Companies will pursue other means of reducing SO_3 and visible emissions.

2.2.4 Low Conversion Catalyst Technology

Catalyst manufacturers recognized the need for NOx reduction catalyst with lower SO_2 to SO_3 conversion rates and have brought 'low conversion' catalyst to market. New catalyst purchased for the LG&E and KU fleet in 2005 is low conversion type catalyst. By replacing existing catalyst with low conversion type, the level of SO_3 in the flue gas could be reduced by 28-43%. New catalyst alone will not reach the target of 5ppm SO_3 at the stack, but could work in combination with other technologies to reach the goal.

2.2.5 Combination Technologies

Sorbent injection technologies are potentially limited by the ability of the cold-side ESP or FGD (depending on the injection location) to collect the salts or sulfates produced. It may prove necessary to employ a combination of technologies to reduce the SO_3 to target levels, particularly at units with low ESP collection area. Table II identifies the technology combinations recommended by S&L in their evaluation.

Viability of Combination Technologies

	Ghent - Unit 1	Ghent - Unit 3	Ghent - Unit 4	Mill Creek - Unit 3	Mill Creek - Unit 4	Trimble - Unit 1	Expected SO_3 Reduction
Low Conversion Catalyst	Yes	Yes	Yes	Yes	Yes	Yes	28-43%
Combination Technologies							
Low Conv. Catalyst + Sorbent Injection	Yes			Yes	Yes	Yes	95%
Magnesium Hydroxide + Sorbent Injection	Yes			Yes	Yes		95%
Mag Hydroxide + Low Conv Catalyst + Sorbent Inj.		Yes	Yes				
Trona + Sorbacal (pending test results)		Yes	Yes				
Required SO_3 Reduction	90%	90%	90%	87%	85%	90%	

TABLE II

3.0 Cost of Particulate Control Alternatives

The Companies performed a full economic evaluation of all viable technologies to determine the present value of revenue requirements. The result of this evaluation is an economic ranking of viable technologies by unit. Table III-KU and Table III-LG&E summarize the results of the cost evaluation.

Kentucky Utilities Technology Ranking Economic Evaluation Results of all Viable Technologies		
Ghent 1	**PVRR**	**Rank**
Soda Ash	$19.88	1
LCC + Soda Ash	$21.62	2
LCC + Sodium BiSulfite	$29.29	3
LCC + Hyd Lime	$30.46	4
Sodium BiSulfite	$33.56	5
Magnesium Hydroxide + Soda Ash	$40.24	6
Hydrated Lime	$41.45	7
LCC + Trona	$42.26	8
Magnesium Hydroxide + Sodium BiSulfite	$50.03	9
Magnesium Hydroxide + Hydrated Lime	$53.58	10
Trona	$66.14	11
Magnesium Hydroxide + Trona	$69.93	12
Wet ESP (Horizontal)	$89.26	13
Wet ESP (Veritcal)	$108.54	14
Ghent 3	**PVRR**	**Rank**
LCC + Mag Hyd+ Soda Ash	$43.56	1
LCC + Mag Hyd+ Hyd Lime	$44.59	2
LCC + Mag Hyd+ Sodium BiSulfite	$45.55	3
LCC + Mag Hyd+ Trona	$48.92	4
Wet ESP (Horizontal)	$86.12	5
Wet ESP (Veritcal)	$108.79	6
Ghent 4	**PVRR**	**Rank**
LCC + Mag Hyd+ Soda Ash	$44.57	1
LCC + Mag Hyd+ Hyd Lime	$45.57	2
LCC + Mag Hyd+ Sodium BiSulfite	$46.77	3
LCC + Mag Hyd+ Trona	$50.45	4
Wet ESP (Horizontal)	$88.10	5
Wet ESP (Veritcal)	$113.22	6

Table III-KU

Note: "Sorbents" include Soda Ash, Sodium Bisulfite, Hyd Lime, Magnesium Hydroxide and Trona.

Louisville Gas & Electric Technology Ranking Economic Evaluation Results of all Viable Technologies		
Mill Creek 3	**PVRR**	**Rank**
Soda Ash	$15.91	1
LCC + Soda Ash	$20.26	2
Magnesium Hydroxide + Soda Ash	$24.57	3
Sodium BiSulfite	$24.82	4
LCC + Hyd Lime	$25.88	5
LCC + Sodium BiSulfite	$26.19	6
Hydrated Lime	$27.85	7
Magnesium Hydroxide + Sodium BiSulfite	$30.49	8
LCC + Trona	$35.18	9
Magnesium Hydroxide + Hydrated Lime	$41.13	10
Trona	$43.55	11
Magnesium Hydroxide + Trona	$50.41	12
Wet ESP (Veritcal)	$109.21	13
Mill Creek 4	**PVRR**	**Rank**
Soda Ash	$16.75	1
LCC + Soda Ash	$21.33	2
Magnesium Hydroxide + Soda Ash	$25.26	3
Sodium BiSulfite	$26.24	4
LCC + Sodium BiSulfite	$28.12	5
LCC + Hyd Lime	$28.18	6
Hydrated Lime	$29.33	7
Magnesium Hydroxide + Sodium BiSulfite	$31.30	8
LCC + Trona	$37.56	9
Magnesium Hydroxide + Hydrated Lime	$43.10	10
Trona	$44.52	11
Magnesium Hydroxide + Trona	$50.87	12
Wet ESP (Veritcal)	$109.04	13
Trimble 1	**PVRR**	**Rank**
Soda Ash	$15.49	1
LCC + Soda Ash	$19.32	2
Sodium BiSulfite	$21.05	3
Magnesium Hydroxide + Soda Ash	$25.89	4
Hydrated Lime	$26.64	5
LCC + Hyd Lime	$26.96	6
LCC + Sodium BiSulfite	$28.50	7
Magnesium Hydroxide + Hydrated Lime	$30.56	8
Magnesium Hydroxide + Sodium BiSulfite	$32.84	9
LCC + Trona	$36.90	10
Trona	$42.39	11
Magnesium Hydroxide + Trona	$52.63	12
Wet ESP (Veritcal)	$81.56	13

Table III-LG&E

Note: "Sorbents" include Soda Ash, Sodium Bisulfite, Hyd Lime, Magnesium Hydroxide and Trona.

4.0 Overall Evaluation of Top Ranking Technologies

The results of the economic evaluation must be considered in the context of economic and technologic risks and engineering evaluation. While all of the options evaluated are viable, the risks and potential side effects of each vary greatly. A summary of these risks is provided in Table IV, as provided in the S&L evaluation study report.

Risk Assessment Summary					
Technology	**Capital Cost**	**O&M Cost**	**Performance**	**Reliability**	**Overall**
Low Conversion Catalyst	Low	Low	Low	Low	Low
Sodium BiSulfite (SBS)	Low	Medium	Low	Medium	Low to Medium
Soda Ash	Low	Medium	Low	Medium	Low to Medium
Trona	Low	High	Low	Medium	Low to Medium
Hydrated Lime (Sorbacal)	Low	Medium	Medium	Medium	Medium
Magnesium Hydroxide	Medium	Medium	Medium	Medium	Medium
Wet ESP (Vertical)	High	Medium	Low	Medium	High
Wet ESP (Horizontal)	High	Medium	Low	Medium	High

Table IV

For all generating units with cold-side ESPs sorbent injection is the most economic technology. Soda ash, hydrated lime and sodium bisulfite are the top sorbent options. The cost estimates provided by S&L are based on predicted sorbent flow rates and average market prices. To make a final selection of the type of sorbent to be used at each unit, more accurate sorbent costs from suppliers must be obtained. Additionally, stoichiometric ratios for SO_3 reduction must be confirmed by testing.

Sorbacal is a type of hydrated lime with higher surface area and greater porosity. Sorbacal is expected to perform more efficiently than standard hydrated lime products. Testing of Sorbacal is being conducted at the Ghent 1 and Trimble 1 units. Initial results at Ghent 1 are favorable, while testing at Trimble 1 is currently underway. Long term testing (5 months) is being considered to fully evaluate the impact of Sorbacal injection on ESP performance. Current stoichiometric ratios for Sorbacal are below the hydrated lime estimates in the S&L study.

Trona sorbent injection is also being tested at Ghent 1 and Trimble 1. The price of Trona has dropped locally since the construction of a nearby distribution facility. Based on test results of Trona injection at these facilities stoichiometric ratios in the S&L study may be adjusted.

Refinement of the economic analysis after test results will be conducted to select the least cost sorbent injection option for cold-side ESP units.

For generating units with hot-side ESPs a combination of sorbent injection in the boiler and the gas path and catalyst replacement is the first choice technology on an economic basis.

It has been proposed that Sorbacal injection in combination with Trona may provide adequate SO_3 reduction on hot-side ESP units. The equipment arrangement on these units (Ghent 3 and 4) limits the use of sorbent injection downstream of the ESP. By injecting in two locations negative visible emissions impacts can be mitigated. A test of this combination is warranted before committing to the capital cost of catalyst replacement. Currently Ghent 3 and 4 are burning low sulfur coal and testing is not possible. When the flue gas desulphurization units have been installed and the units begin to burn high sulfur fuel a test will be conducted to prove the concept.

If the testing of split location sorbent injection is unsuccessful, Ghent 3 and 4 will require multiple reduction technologies to meet the target SO_3 emission level of 5 ppm. Magnesium hydroxide injection in the boiler coupled with replacement of existing NOx reduction catalyst with new 'low conversion' catalyst and sorbent injection in the gas path will be required.

5.0 Conclusion and Recommended Plan

The SCR units at Ghent 1, 3, 4, Trimble 1 and Mill Creek 3 and 4 increase SO_3/H_2SO_4 and thus particulate stack emissions. In order to mitigate the SCR impact on particulate emissions while maintaining NOx reduction, it is necessary to reduce the SO_3 levels in the flue gas.

All commercially available SO_3 reduction technologies were evaluated by S&L and the viable technologies were then subject to economic evaluation by the Companies. As a result it is recommended that KU and LG&E proceed with testing injection of various sorbents at Ghent 1 and Trimble 1. Pending success of the testing the most economic sorbent will become the technology of choice for all generating units with cold-side ESPs.

It is further recommended that a combination of Sorbacal and Trona injection be tested at Ghent 3 & 4 with high sulfur coal to prove the technology. Pending success of the testing, Sorbacal and Trona injection will become the technology of choice for Ghent 3 and 4. Failure of the tests will result in the need to inject sorbent in the boiler and flue gas path as well as replacement of the catalyst.

Comprehensive Strategy For Management of Coal Combustion Byproducts For

Subsidiaries
Kentucky Utilities and
Louisville Gas and Electric

June 2009

E.ON U.S. Regulated Generation
Comprehensive Strategy for
Management of Coal Combustion Byproducts

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Executive Summary

Over 98% of Kentucky Utilities ("KU") and Louisville Gas and Electric ("LG&E") 2008's annual energy production was sourced from coal-fired generation. KU and LG&E (the "Companies" or "E.ON U.S.") anticipate coal-fired generation to be the primary source of energy for the foreseeable future. The coal combustion process produces various byproducts. Combustion of coal at the seven KU/LG&E generating stations is projected to increase coal combustion byproducts ("CCP") to over 4.7 million cubic yards by year-end 2011- the first full year of operation of the new coal-fired unit at Trimble County. With the existing fleet of generating units aging and Trimble County 2 scheduled to be placed in-service in 2010, the existing on-site disposal facilities are nearing maximum desired capacity. Complex issues associated with the comprehensive management of CCP for KU and LG&E have short and long-term operational and cost implications for all generating stations. As such, the Companies, in conjunction with qualified professional engineering firms, evaluate alternatives for CCP disposal to ensure continued operation of the low-cost units. Alternatives typically include on-site disposal and beneficial reuse. Opportunities for beneficial reuse of coal combustion byproducts have shifted from a net revenue position to a net cost position. Ultimately, the Companies select only the best CCP management plan based on economic and environmental criteria.

The Companies have been managing CCP at all of the coal-fired power plants for several decades. Currently, the Companies have identified a need for additional CCP storage capacity at four generating stations (E.W. Brown, Cane Run, Ghent and Trimble County) by the year 2014. The Companies currently are pursuing five beneficial reuse options. Four off-site options are: Holcim Cement and Synthetic Materials, Louisville Underground, and Trans Ash at Trimble County, Cane Run, and Ghent respectively. Additionally, gypsum is being used on-site at the E.W. Brown station. Execution of these options reduces the near-term on-site storage capacity requirement and the present value of the revenue requirements ("PVRR"). A summary of these options follows:

Station	Company	Approximate Amount of CCP	PVRR Benefit
Ghent	Trans Ash, Inc	1.5 million tons of gypsum	$ 2.4 million
Trimble County	Holcim (US) Inc	5.8 million tons of fly ash	$ 6.9 million
Trimble County	Synthetic Materials	6.0 million tons of gypsum	$ 72.3 million
Cane Run	Louisville Underground, LLC	6.0 million tons of spent scrubber material	$ 22.7 million

Even considering the reuse alternatives identified in the above table, presently, economic and environmentally responsible beneficial reuse projects can not satisfy the full need for additional storage requirements at all stations. As a result, the Companies must begin, or in the case of E.W. Brown, continue construction of on-site CCP management facilities in conjunction with the identified beneficial reuse opportunities.

Working with external experts, the Companies performed engineering studies at each of the four stations to identify alternatives. The studies contain various site reviews and detailed economic analyses of the various alternatives. As a result, the Companies have identified the phased construction of three new landfills (at Ghent, Trimble County and Cane Run generating stations) and continued construction of the second phase of the

E.W. Brown impoundments as the appropriate next steps for long-term, cost effective, and environmentally responsible management of CCP. Also identified were the expansion of the existing ash impoundment and the relining/commissioning of a gypsum impoundment, both located at the Trimble County station. The Companies' total costs of the next phase of these on-site facilities are shown below:

Station	Alternative	Phase	Cost of Phase ($million)[1]
Ghent	Landfill	1	203.97
Trimble County[2]	Impoundments	n/a	24.71
Trimble County[2]	Landfill	1	70.53
Cane Run[3]	Landfill	1	4.60
E.W. Brown	Impoundments	2	24.86
			328.66

1. Capital cost only.

2. Costs exclude any barge loadout costs associated with Holcim and IMEA/IMPA associated captial

3. In absence of Louisville Underground the capital cost of Phase I is projected to be $18.5 M.

Background

When coal is burned for power generation (reference *Figure 5*) the residues that remain are referred to as ash. There are, primarily, three types of ash: fly ash, boiler slag and bottom ash. Fly ash (*Figure 1*) is a fine, powdery material that can be removed from exhaust gases primarily by electrostatic precipitators. Boiler slag (*Figure 2*) is a molten ash, typically collected from cyclone type boilers[1] while bottom ash (*Figure 3*) refers to the heavier ash particles too large or heavy to be carried by the exhaust gases and either adhere to the walls of the boiler or fall to the bottom of the boiler where they are collected in bins or hoppers.

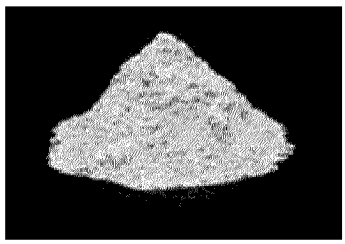

Figure 1: Fly Ash

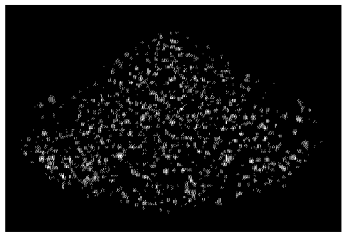

Figure 2: Boiler Slag

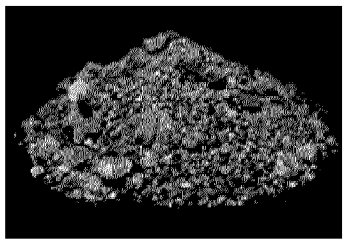

Figure 3: Bottom Ash

The capture of certain chemical components in boiler exhaust gases for environmental compliance (such as SO_2), depending on the specific flue gas desulfurization (or "FGD") technology used, forms a variety of materials with physical properties ranging from a wet sludge to a dry powdered material (*Figures 4 and 5*). For example, gypsum (calcium sulfate) is a wet product formed by a limestone based reagent in a wet scrubbing process. Dry scrubbers, and some wet scrubbing processes, produce a calcium sulfite material that can be blended with fly ash to create a fixated form of calcium sulfite.

Each of these materials, collectively referenced as coal combustion-by products ("CCP"), must be managed in a cost effective and environmentally responsible manner to support continued long-term station operation. This document intends to summarize recently completed evaluations in this area[2].

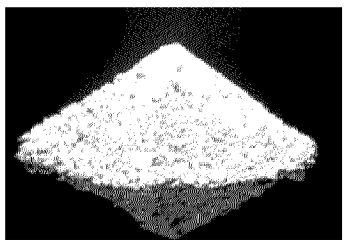

Figure 4: FGD Material

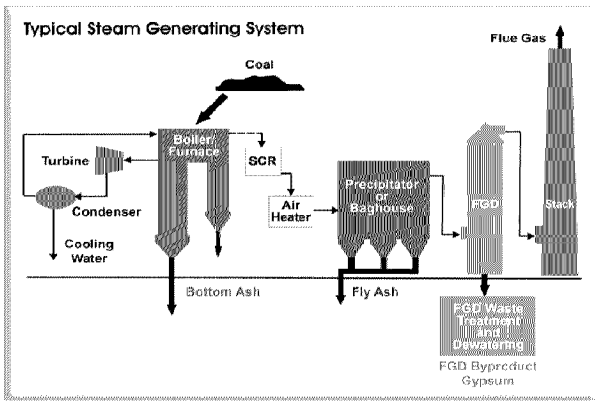

Figure 5: Typical Coal-Fired Steam Generation System

All Figures Used by Permission of the American Coal Ash Association

[1] As a point of fact, the Companies do not own or operate any cyclone type boilers.
[2] See References for a list of reports detailing the CCP management needs, available alternatives, associated evaluation and resulting tactical plan for each station identified in Table 2.

Historical CCP Management

Kentucky Utilities and Louisville Gas and Electric (the "Companies" " or "E.ON U.S.") have over 50 years of experience in the operation and maintenance of landfills and impoundments. With seven coal–fired generation facilities (approximately 95% of the Companies annual energy production is sourced from coal) resulting in about 3.6 million cubic yards (see *Figure 6*) of CCP formation in 2009, the Companies have had to periodically increase the size of existing on-site facilities to manage CCP (see *Table 1*). For example, E.W. Brown generating station's the main ash pond was originally commissioned in 1957 and was expanded in 1964, 1973, and 1990 to accommodate the CCP associated with continued operation of the unit. Additional impoundment expansions have been completed at Cane Run (1977), Ghent (1977, 1995, and 2003) and Mill Creek (1978) and expansions are in progress at the Cane Run and Mill Creek landfills. Each time the expansion was designed and conducted with sound engineering principles. The Companies have safely and competently managed all CCP facilities, performing frequent self-inspections (often utilizing external engineering companies proficient in impoundment design or inspection) and state inspections as required and the Companies remain committed to continuing to do so.

	Power Station	Facility Name	Year Commissioned	Materials Contained
1	E.W. Brown (KU)	Ash Pond	1957, Expanded 1964, 1973, 1990	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites)
2	E.W. Brown (KU)	Auxiliary Pond	2008	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites)
3	Ghent (KU)	Ash Pond Basin 1	1972, Expanded 1977	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites, Treated Sanitary Wastewater)
4	Ghent (KU)	Secondary Ash Treatment Basin	1972	Bottom Ash, Fly Ash
5	Ghent (KU)	Ash Pond Basin 2	1995, Expanded 2003	Bottom Ash, Fly Ash, Other (Pyrites)
6	Ghent (KU)	Gypsum Stacking Facility	1995	Flue Gas Emission Controls Residual
7	Ghent (KU)	Gypsum Stack Surge/Reclaim Pond	1995	Flue Gas Emission Controls Residual
8	Green River (KU)	Main Ash Pond	1977	Bottom Ash, Fly Ash, Other (Coal Fines, Pyrites)
9	Green River (KU)	Scrubber Pond	1975	Flue Gas Emission Controls Residual
10	Green River (KU)	Ash Pond Number 2	1949	Bottom Ash, Fly Ash, Other (Coal Fines)
11	Green River (KU)	Finishing Pond Number 3	1949	Bottom Ash, Fly Ash
12	Green River (KU)	Former Ash Pond (current Coal Run-Off Pond)	1949	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites, Treated Sanitary Wastewater)
13	Pineville (KU)	Ash Pond	1977	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites)
14	Tyrone (KU)	Ash Pond	1977	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites, Treated Sanitary Wastewater)
15	Tyrone (KU)	Finishing Pond	1977 (Estimated)	Bottom Ash, Fly Ash
16	Cane Run (LG&E)	Ash Pond	1972, Expanded 1977	Bottom Ash, Fly Ash, Other (Coal Fines, Process Water Drainage, Pyrites, Treated Sanitary Wastewater)
17	Cane Run (LG&E)	Clearwell Pond	1976, Expanded 1982	Flue Gas Emission Controls Residual
18	Cane Run (LG&E)	Dead Storage Pond	1976, Expanded 1982	Flue Gas Emission Controls Residual
19	Cane Run (LG&E)	EmergencyPond	1977	Flue Gas Emission Controls Residual. Other (Process Water Drainage)
20	Cane Run (LG&E)	Basin Pond	1976	Flue Gas Emission Controls Residual, Other (Process Water Drainage)
21	Mill Creek (LG&E)	Ash Pond	1972, Expanded 1978	Bottom Ash, Fly Ash, Flue Gas Emission Controls Residual, Other (Coal Fines, Process Water Drainage, Pyrites)
22	Mill Creek (LG&E)	Emergency Pond	1981	Flue Gas Emission Controls Residual
23	Mill Creek (LG&E)	Dead Storage Pond	1978	Flue Gas Emission Controls Residual
24	Mill Creek (LG&E)	Clearwell Pond	1978	Flue Gas Emission Controls Residual
25	Mill Creek (LG&E)	Construction Run Off Pond	1978	Flue Gas Emission Controls Residual
26	Trimble County (LG&E)	Ash Pond	1990	Bottom Ash, Fly Ash, Flue Gas Emission Controls Residual, Other (Coal Fines, Process Water Drainage, Pyrites, Treated Sanitary Wastewater)
27	Cane Run (LG&E)	Landfill	1982, Expansion in progress	Bottom Ash, Fly Ash, Poz-O-Tec, Flue Gas Emission Controls Residual
28	Mill Creek (LG&E)	Landfill	1982, Expansion in progress	Bottom Ash, Fly Ash, Poz-O-Tec, Flue Gas Emission Controls Residual

Table 1: Existing E.ON U.S. Impoundments/Landfills Containing CCP

In addition to the normal inspection processes described above, on December 22, 2008, the Tennessee Valley Authority ("TVA") experienced a breach in a CCP containment dike at its Kingston coal-fired generating station and released about 5.4 million cubic yards of coal ash. In response to this event E.ON U.S., and many other companies, stepped up the focus on ensuring the integrity of all their impoundments. By the week of January 12, 2009, less than one month after the breach at TVA, personnel within the Companies' Generation Engineering Department had completed visual inspections of all the Companies' state-regulated CCP impoundment structures utilizing the Kentucky Division of Water's, "Guidelines for Maintenance and Inspection of Dams in Kentucky," as a guideline[3]. The Kentucky Division of Water classifies dam structures as high, moderate or low hazard[4] structures based on the potential for damage that might occur to existing/future downstream developments resulting from a sudden breach of the dam. The hazard classification is based on the amount of potential damage in the event of failure and is not associated with current or past structural integrity.

Also in January 2009, the Companies updated the communications portion of each generating station's emergency action plan and retained ATC Associates ("ATC") to perform an independent third-party visual assessment of all CCP impoundment facilities classified by the Kentucky Department of Environmental Protection ("KDEP") as high- or moderate hazard dams. Consistent with the state inspections and internal inspections (performed by E.ON U.S. personnel), ATC's visual assessment of the high- and moderate- hazard structures did not indicate any dam safety deficiencies for normal loading conditions with any of the KDEP classified CCP impoundments. In February 2009, the Companies engaged ATC to perform the same inspections at the CCP impoundments that the KDEP classifies as low-hazard facilities. Once again, ATC did not detect any dam safety deficiencies under normal loading conditions with any of the CCP impoundments classified by the KDEP as low-hazard.

Furthermore, the Companies have non-classified impoundments that do not meet KDEP's criteria for classification.[5] The Companies believe that these facilities require the same level of diligence as classified impoundments and labor to ensure their continued safe and environmentally responsible history of operation continues. To that end, the Companies asked ATC to assess the Companies' non-classified facilities, which ATC did in April 2009. ATC's final report on the non-classified facilities is expected to be completed in July of 2009.

In 2009 the Companies will be conducting more robust inspections on all KDEP classified impoundments, as well performing dam breach analyses with inundation mapping.

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[3] For "Guidelines for Maintenance and Inspection of Dams in Kentucky" see http://www.water.ky.gov/NR/rdonlyres/0FA1460E-9E9C-4F7E-8DB6-B8D1A354AA34/0/WRInsp_Guidelines_Dams.pdf

[4] Excluding the Dix Dam hydro generation facility, the Companies have 6 impoundments classified as "high hazard", 2 classified as "moderate hazard" and 4 classified as "low hazard" by the Kentucky Division of Water.

[5] Non-classified impoundments are impoundments whose dams are lower than the 25' and impound less than 80,667 cubic yards (50 acre-feet). The Companies have 16 non-classified CCP impoundments.

Future Needs

The Companies anticipate coal-fired generation to be the primary source of energy for the foreseeable future with total annual CCP production projected to increase to over 4.7 million cubic yards by year-end 2011- the first full year of operation of the new coal-fired unit at Trimble County (see *Figure 6*) and completion of the KU FGD installations. To allow continued low-cost coal-fired generation to be realized, additional alternatives to managing CCP have been identified and acted upon. Each of the Companies' generating stations is positioned slightly differently for having adequate on-site volume remaining in landfills or impoundments. *Table 2* summarizes each station's need for additional CCP management capacity. Seven of the Companies' active impoundments or landfills will reach their maximum desired capacity (or minimum desired remaining capacity) levels within 5 years. The maximum desired capacity is site specific based on unique characteristics of each facility (such as production, fuel quality, impoundment/landfill operations, etc).

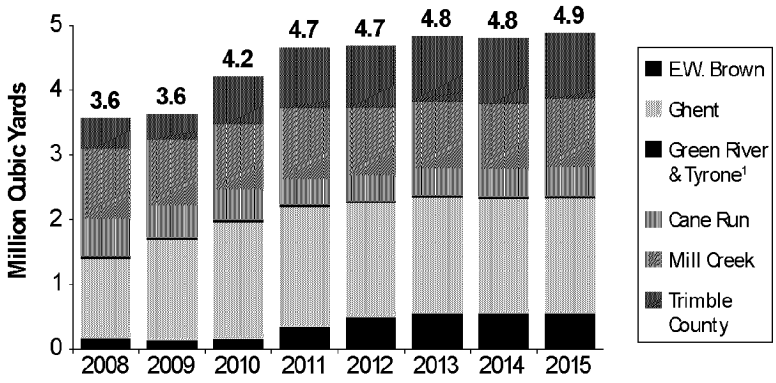


Figure 6: Recent and Forecasted KU/LG&E CCP Production

A detailed discussion of the Companies' needs, available alternatives, construction and operational costs, offsite disposal alternatives and beneficial reuse opportunities is beyond the intended scope of this summary document. That information, however, can be found in detailed individual reports associated with each generating station[6].

Station	Landfill or Impoundment	Year Need Identified
E.W. Brown	Ash Pond	2012
	Auxilary Pond	2014
Ghent	Gypsum Stacking	2012
	Ash Pond 1	Full
	Ash Pond 2	2012
Trimble County	Ash Pond	2010
Cane Run	Ash Pond	2011
	Landfill	2012
Green River	Ash Pond	2038
Mill Creek	Ash Pond	2025
	Landfill	2024
Tyrone*	Ash Pond	Inactive Reserve

** Tyrone station is on "inactive reserve", however, beneficial reuse opportunities are stil possible.*

Table 2: Year of Identified Need for E.ON U.S. Impoundments/ Landfills

Remaining storage capacity is typically included to allow for variability in forecasting CCP production, potential permitting issues associated with future on-site construction alternatives or weather/scheduling related construction delays. The site specific CCP management plan is reviewed in conjunction with the projected CCP production forecast and the remaining

[6] See References (attached) for a list of reports detailing the CCP management needs, available alternatives, associated evaluation and resulting tactical plan for each station identified in Table 2.

capacity. The current site specific CCP management plan is then validated or revised accordingly.

Alternatives for Management of CCP

Though additional federal and state regulations and public sentiment resulting from the TVA incident could have a material impact on the short- and long-term methods of managing CCP from coal-fired generating stations, at the present time expansion of existing facilities or new construction of the following general options exists[7]. For reference, the basic definitions of CCP management alternatives are:

1. ***Landfill-*** a disposal facility where waste is placed in or on land; a facility where "dry" (actually moistened for fugitive dust control) coal combustion or flue gas cleaning byproducts are placed for disposal in or on land. Coal combustion or flue gas cleaning byproducts are transported to this facility directly from the coal-fired plant after they are produced or after they are dredged from storage impoundments that are used as interim facilities. The disposed materials remain in the landfill after closure. Also as these materials are dry and have the consistency of soil, dams or dikes are not required to provide stability. Most large landfills are divided into sections or cells and the coal combustion or flue gas cleaning byproducts are placed in layers that are referred to as lifts that can vary in thickness. Typically captive landfills designed and permitted to receive only coal combustion or flue gas cleaning byproducts are classified as mono-fills.
2. ***Surface Impoundment-*** a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials) which is designed to hold an accumulation of liquid wastes or materials containing free liquids and which is not an injection well; a type of waste management facility consisting of an excavated, a dammed or diked reservoir in which coal combustion and flue gas cleaning wastes are disposed of as a slurry or sludge.
    a. *Ash Pond-* an impoundment or surface impoundment used to store or dispose of ash primarily from the combustion of coal. A type of waste management facility consisting of an excavated, a dammed or diked reservoir in which coal ashes are stored for future removal or disposed of as a slurry or sludge. The coal ash solids settle out and leave relatively clear water at the surface that is discharged through a designed and managed outlet structure to a nearby stream, surface water or plant process water system. Ash pond designs reflect local site conditions, federal and state regulations, and whether fly ash, bottom ash, boiler slag or a combination of coal ashes are disposed in the ash pond. Though some electric utility generating power companies combine the ashes during storage or disposal, other power companies use separate ash ponds for fly ash, bottom ash and boiler slag. The ash pond is referred to as a bottom ash pond, fly ash pond, boiler slag pond when it receives one type of ash.

[7] The definitions that follow are based on American Coal Ash Association , Inc's Glossary of Terms Concerning The Management and Use of Coal Combustion Products (CCPs) Effective: April 2003. The ACAA website currently limits access to this document to ACAA members.

Also a large ash pond is referred to as an ash impoundment, ash reservoir, or surface impoundment.

b. *Gypsum Ponding/Stacking-* Gypsum is typically handled in sluice streams from FGD blowdown of hyrodroclone dewatering operations. This stream can be directed to an impoundment for simple settling of the solids or the solids can be managed in a stacking operation within the impoundment. The method used in the phosphate fertilizer industry and applied to the power industry for stacking the wet FGD byproduct (material) that is predominantly calcium sulfate (gypsum). It involves placement of the FGD byproduct slurry in an impoundment and stacking of the reclaimed settled solid in two operations. The primary operation accepts the FGD byproduct slurry directly from the scrubber in a diked or bermed ponding area (settling ponds). These settling ponds provide for primary settling of the FGD solids. The effluent from the ponds is decanted from the pond and either recycled back to the scrubber operation or sent to treatment and discharge. The solids that are settled in the primary/ponding operation are periodically excavated and placed into piles or stacks typically adjoining the ponds to minimize the distance for transporting the dewatered material. Draining/excavating and stacking/drying operations alternate between diked areas to enable continuous storage and excavated material is used to raise dikes and to increase the site capacity.

3. **Beneficial Reuse-** the use of or substitution of the coal combustion byproduct for another product based on performance criteria. For purposes of this definition, beneficial use includes, but is not restricted to, raw feed for cement clinker, concrete, grout, flowable fill, controlled low strength material; structural fill; road base/sub-base; soil- modification; mineral filler; snow and ice traction control; blasting grit and abrasives; roofing granules; mining applications; wallboard; waste stabilization/solidification; soil amendment and agriculture.

E.ON U.S. burns coal and utilizes specific flue gas cleaning technologies in the production of energy and makes every effort to make use of all environmentally responsible and economically prudent beneficial reuse alternatives as a way to manage the resulting CCP. In absence of a location to place CCP or a market in which to reuse CCP, the Companies' low-cost coal-fired generating units could no longer operate. The Companies continually seek economical and environmentally sound beneficial reuse opportunities and have a history of utilizing beneficial reuse CCP (see *Figure 7*). Historically, the Companies have successfully identified and negotiated beneficial reuse contracts for wall board gypsum production, cement feed, and fill or backfill. Efforts are underway to expand the Companies' presence in other reuse areas.

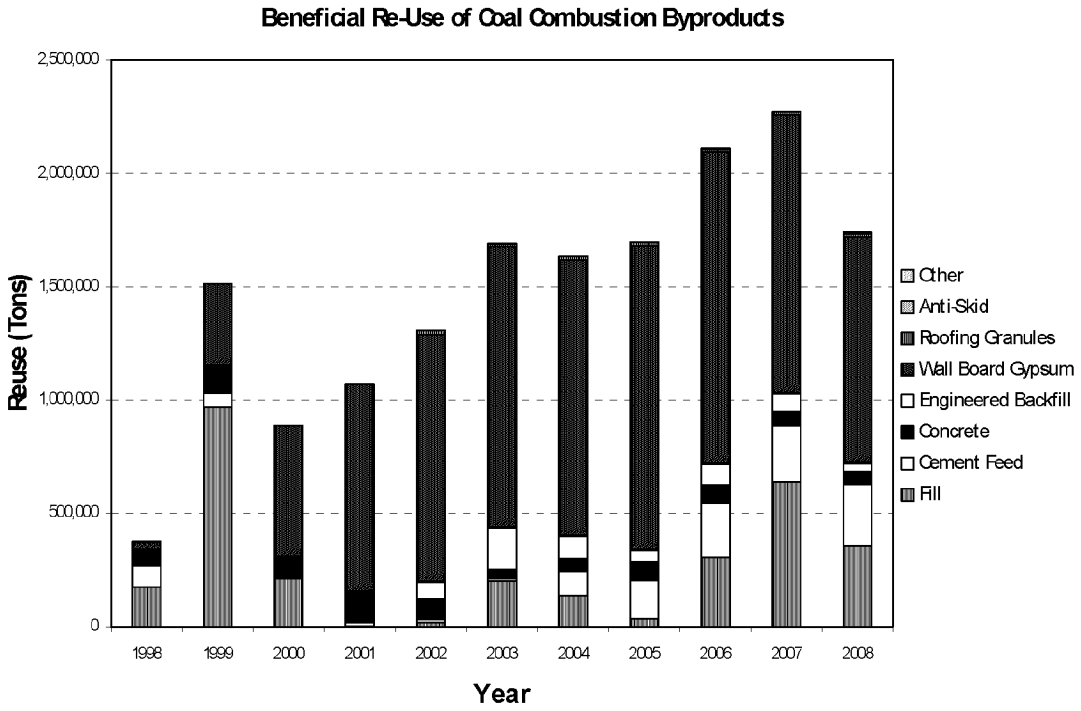


Figure 7: Historical Beneficial Reuse

Reuse of CCP has several interrelated benefits. First, it is environmentally friendly by conserving resources; for example, using synthetic gypsum from CCP to make wallboards displaces gypsum that would have to be produced by other means. Second, it alleviates the difficulty managing physical space constraints at the Companies' generating stations posed by the continuing production of, and the need to store, CCP. Third, because the Companies pursue only economical beneficial reuse opportunities, the Companies and their customers benefit from the cost-sayings associated with such beneficial reuse. The cost savings associated with beneficial reuse come primarily in the form of avoided CCP disposal costs, such as delaying the construction of new or expanded impoundments or landfills. The Companies experience has indicated that in order to maximize the amount of reuse and realize the above stated benefits in a rapidly changing beneficial reuse environment it is imperative that each reuse opportunity be expeditiously evaluated (from environmental assessment and rigorous evaluation to finalization of contract) as most reuse opportunities are rapidly changing and have temporary nature as other companies vie for access to the same opportunity.

However, it has been the experience of E.ON U.S. that insufficient amounts of economical and environmentally responsible beneficial reuse projects exist and, in order to maintain assurance that sufficient storage capacity exists, construction of on-site, special waste landfills (or impoundments) or utilization of municipally owned special waste landfills is inevitably required, even with an aggressive CCP reuse program. The Companies have significant experience with each alternative for managing CCP and subject each alternative to a thorough evaluation process to identify the short and long term plans for managing CCP at each station.

Regardless of whether landfills or impoundments are constructed, the phased approach to their construction is the approach the Companies are taking in regard to all of the proposed CCP projects. Phased construction consists of dividing a single project into multiple, but smaller individual projects. Permitting, engineering and design is completed for the entire project, and only the construction is phased. Utilizing the phased approach provides flexibility to react to unanticipated circumstances (a new reuse opportunity for example) and minimizes the cost impact associated with the project by better timing of the need for the project and the annual cost (or spend) associated with the project. For example, KU is currently utilizing the phased approach in the ash pond construction work in progress at E.W. Brown. The phased approach to landfill or ash pond construction allows any beneficial reuse opportunities that were unknown (or uneconomical) at the start of the project to be re-considered and, if cost effect, acted upon – which could further delay or even eliminate subsequent phases of the project.

Evaluation Process

The cost and operational exposure associated with not having a plan to manage CCP production in place at a specific generating station well in advance of the need is significant. To help minimize this risk, the Companies have developed a process for the identification of the necessary steps to cost effectively manage projected CCP volumes. Many of the components occur in parallel but, for simplicity, are briefly discussed individually below. Those steps are:

- identification of alternatives
- evaluation of alternatives,
- documentation of the analysis and
- identification of necessary refinements to the Companies implementation plan or CCP management strategy.

This CCP Evaluation Process helps to ensure that consistent and timely assessments are conducted and leverages the expertise in many areas within the Companies. As is currently the practice, the Companies are committed to continually reviewing their tactical plans in accordance with the CCP Management Strategy to ensure adequate on-site CCP storage capacity exists and to confirm the plans for future on-site storage are on schedule and continue to be cost effective. As such the CCP Evaluation Process is expected to be refined as additional experience in evaluating CCP evaluations is gained, as new environmental laws and regulations are promulgated, and as the CCP beneficial reuse market develops.

Identify Need for Additional Storage

Identification of the quantity of physical resources[8] needed to manage CCP production is a logical component of the process and comprises periodic reviews of each station's CCP production forecast to project when the existing on-site storage facilities and existing reuse contracts are no longer sufficient. Any timing or CCP capacity shortfall issues

[8] Physical resources are the "tools" currently in place to mange CCP production (including existing on site or off site reuse opportunities) and remaining on-site CCP storage capacity.

noted in the assessment which require a revision to the CCP Management Strategy are discussed.

The assessment of need begins with a determination of the remaining storage capacity of existing on-site facilities. The remaining storage capacity is quantified through engineering surveys of the storage facilities. Capacity is typically included to allow for variability in forecasting CCP production, potential permitting issues associated with future on-site construction alternatives or weather/scheduling related construction delays. The site specific CCP management plan is reviewed in conjunction with the projected CCP production forecast and the remaining capacity. The current site specific CCP management plan is validated or revised accordingly.

Identify Alternatives

With the timing of the need for additional storage known, a list of alternatives that could potentially provide the required additional storage capacity is formulated. This compilation of alternatives includes the current site specific CCP Management Plan, any new on-site construction alternatives, off-site options or any beneficial reuse alternatives that currently is (or is reasonably expected to be) available at the time of need. E.ON U.S. typically develops the list of alternatives and their associated projected capital construction and operational cost in conjunction with experienced external consultants.

Opportunities for beneficial reuse arise much more frequently than impoundments/ landfills reach capacity. Stated another way, reuse opportunities can come at any time, not just when a plan to meet a CCP disposal need is being developed. 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.

Opportunities for beneficial reuse of coal combustion byproducts are shifting from a net revenue position to a net cost position. Opportunities to move coal combustion byproducts off-site at little to no cost have been virtually eliminated due to

- increased competition in the market associated with the increased number of utility FGD retrofits producing high quality synthetic gypsum,
- NO_x compliance having a negative impact on (or deteriorating) ash quality and
- Utilities willing to pay to move their coal combustion byproducts off-site as a preferred alternative.

The CCP evaluation methodology allows for the impacts of each potential beneficial reuse to be understood, evaluated and supported with analytics, in a timely manner, so that short-lived cost effective, environmentally responsible options can be acted upon.

To confirm each of the alternatives on the list is viable, each is subjected to an environmental and operational impact assessment. Those alternatives that pass are then evaluated, quantified and documented and, if necessary, a revision is made to the site

specific CCP Management plan (which serves as the starting point for the next evaluation).

Evaluation, Documentation and Validation

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?

Implementation

The final component of the evaluation process involves bring the identified strategy into reality and finalizing all remaining contractual issues and obtaining all necessary approvals (internal and external) to implement the contract. Internal approvals necessitate the development of a business case and presentation to senior management. Some projects may require a Certificate of Convenience and Necessity be obtained from the Kentucky Public Service Commission prior to beginning site construction. Additionally new permits (or permit modifications) are often required.

Site Specific CCP Management Plan

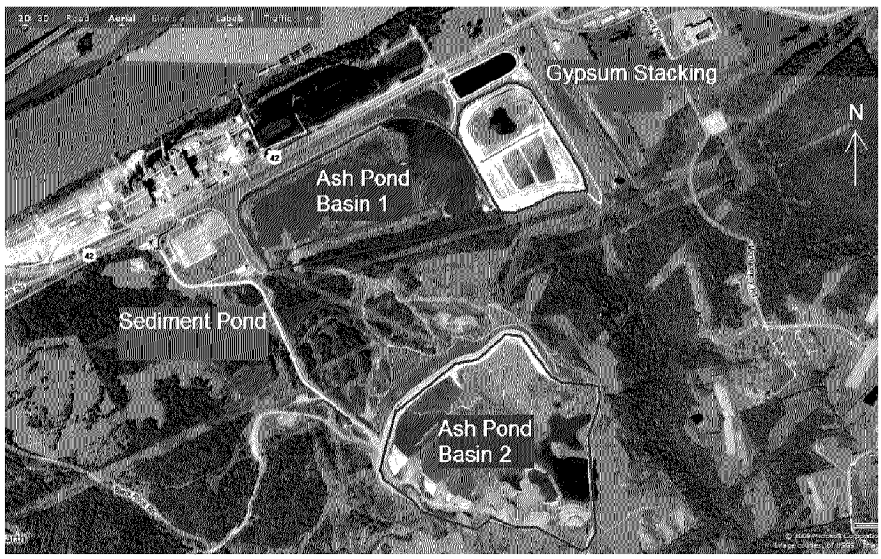
The following is a brief overview of the four generating stations within *Table 2* that are projected to have a need for additional CCP storage capacity by the end of 2014. Included for each station is a "Fact Box" which is a quick reference to CCP production, reuse and CCP management facilities (impoundments or landfills) currently in use at the station as well as the associated capital cost and in-service date of future CCP management facilities. An aerial photograph provides a point of reference and the current plan for CCP management is briefly noted. The information on each station is intended to provide a condensed summary of the detailed evaluations listed in the reference section of this document.

Ghent Generating Station

Ghent generating station is located in Carroll and Gallatin Counties, Kentucky and is comprised of four coal-fired generating units. Each unit is approximately 525 MW for a total station capacity of approximately 2,100 MW. The production of energy at the station produces three primary coal combustion byproducts: bottom ash, fly ash and gypsum and has three existing on-site storage basins for CCP: Ash Treatment Basins 1 and 2 and the Gypsum stacking facility. The site also includes a sediment pond which is a non-process pond receiving only rainfall runoff.

Ghent CCP Fact Box and Overview

		Fly Ash	Bottom Ash	Gypsum	Fixated Calcium Sulfite
Produced	CCP Produced	☑	☑	☑	☐
	2010 Total CCP Forecasted Production (tons)				*1,797,836*
Reuse	Any CCP Reused?	☑ Yes	☑ No		
	Predominant Historical Beneficial Reuse Application				*Wall Board*
	Annual Reuse Amount-(approx tons)				
		2005	2006	2007	2008
		430,607	*403,598*	*263,114*	*374,682*
CCP Facilities			Ash Pond 1	Ash Pond 2	Gypsum Stacking
	In-Service Date		*1972*	*1995*	*1994*
	Surface Area (acres)		*125*	*146*	*75*
	CCP Stored		*Ash*	*Ash*	*Gypsum*
	End of Life		*Full*	*2013*	*2013*
	Future CCP Management Plans				*Landfill (Phase I) + Reuse*
	In-Service Year/Capital Construction Cost (M$)				*2013/ $203.97 million*



As detailed in the report titled "*Coal Combustion Byproduct Plan for Ghent Station*" the existing on site CCP management facilities are projected to obtain their maximum desired capacity in early 2013. In preparation for this the Companies have evaluated numerous alternatives to allow Ghent Station to continue to provide low cost reliable energy into the future.

Ghent Station's CCP management plans includes the short-term proposal for beneficial reuse of 1.5 million tons of gypsum by Trans Ash, Inc. at total cost of $8.9 million (operating and maintenance cost only, reuse opportunity requires no capital) and building the first phase of an on-site landfill (to store both ash and gypsum) to be in-service in 2013 at a total capital cost of $203.97 million and a total operating and maintenance cost of $132.94 million (2010-2018).

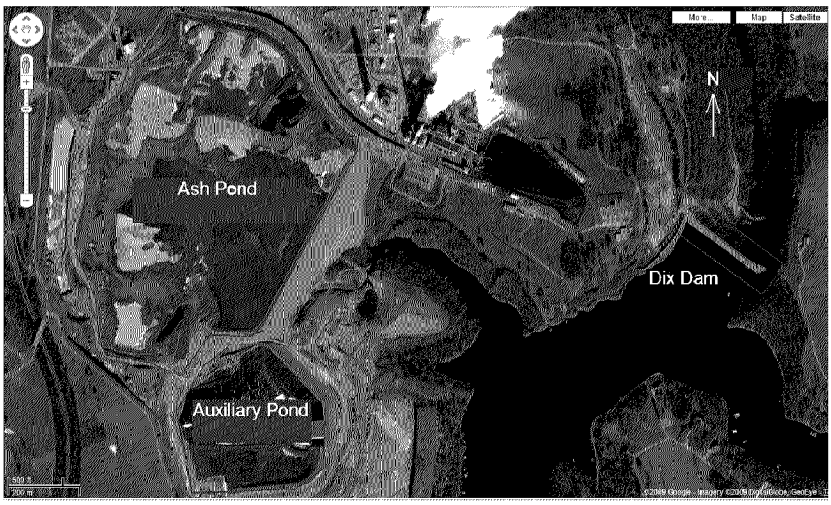
E.W. Brown Generating Station

E.W. Brown generating station is located on Lake Herrington in Mercer County near Harrodsburg Kentucky and is comprised of three coal-fired generating units totaling approximately 697 MW. Presently, the production of energy at the station produces two primary coal combustion byproducts: bottom ash and fly ash. However, an FGD system, currently under construction for a summer 2010 commissioning, will control SO_2 emissions from the three units. The gypsum will be beneficially reused in the construction of the embankment for both ash treatment basins.

E.W. Brown CCP Fact Box and Overview

Produced		Fly Ash	Bottom Ash	Gypsum	Fixated Calcium Sulfite
	CCP Produced	☑	☑	☑ in 2010	☐
	2011 Total CCP Forecasted Production (tons)				*337,243*
Reuse	Any CCP Reused?	☑ Yes	☐ No		
	Predominant Historical Beneficial Reuse Application				*Fill*
	Annual Reuse Amount-(approx tons)	2005	2006	2007	2008
		0	*0*	*56,400*	*35,688*
CCP Facilities				Main Pond	Auxiliary Pond 2
	In-Service Date			*1990*	*2008*
	Surface Area (acres)			*126*	*35*
	CCP Stored			*Ash, Gypsum ('10)*	*Ash*
	End of Life			*2012*	*2012*
	Future CCP Management Plans			*Impoundment Expansions (Ph II) + Reuse*	
	In-Service Year/Capital Construction Cost (M$)				*2012/ $24.86 million*

As detailed in the report titled "*Coal Combustion Byproduct Plan for E.W. Brown Station*" the existing on site CCP management facilities are projected to obtain their maximum desired capacity in 2012. In preparation for this the Companies have evaluated numerous alternatives to allow E.W. Brown Station to continue to provide low cost reliable energy into the future.



The current CCP production schedule identifies a need for the Phase 2 expansion at both the Auxiliary impoundment to an elevation of 900' (at a capital cost of $13.4 million) and the main Ash Treatment Basin to an elevation of 912' (at a capital cost of $9.82 million). Additional capital of $1.63 million associated with gypsum dewatering facilitates on-site beneficial reuse of approximately 3.9 million tons of gypsum in construction of the embankments. Total capital costs associated with this project total $24.86 million with no incremental operation and maintenance costs. These needs, and the proposed construction plan, remain consistent with the 2006 update to the Companies' 2004 ECR filing.

Cane Run Generating Station

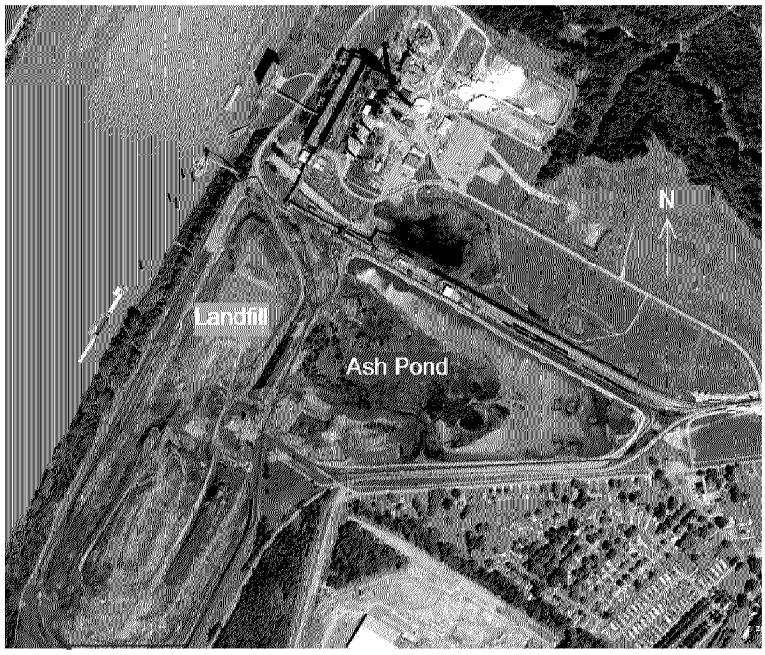
The Cane Run generating station is located in southwestern Jefferson County in Louisville, Kentucky and is comprised of three coal-fired generating units totaling approximately 563MW. The station produces three primary coal combustion byproducts: bottom ash, fly ash and fixated calcium sulfite and has two existing on-site storage basins for CCP: an Ash Treatment Pond and a landfill. The Cane Run station is the only generating station within E.ON U.S. that manages fixated calcium sulfite. Fixated calcium sulfite is a stabilized material that can be placed in a landfill.

Cane Run CCP Fact Box and Overview

		Fly Ash	Bottom Ash	Gypsum	Fixated Calcium Sulfite
Produced	CCP Produced	☑	☑	☐	☑
	2010 Total CCP Forecasted Production (tons)				*321,531*
Reuse	Any CCP Reused?	☑ Yes	☐ No		
	Predominant Historical Beneficial Reuse Application				*Fill*
	Annual Reuse Amount-(approx tons)				
		2005	2006	2007	2008
		5,310	*11,296*	*23,854*	*7,347*

		Ash Pond	Landfill
CCP Facilities	In-Service Date	*1972*	*1982*
	Surface Area (acres)	*40*	*110*
	CCP Stored	*Ash*	*Fixated Calcium Sulfite, Ash, FGD sludge*
	End of Life	*2011*	*2012*
	Future CCP Management Plans		*Landfill (Phase I) or Reuse*
	In-Service Yr/Cap Constr Cost (M$)		*2015 @ $18.5 or 2010 @ $4.6 million*

As detailed in the report titled "*Coal Combustion Byproduct Plan for Cane Run Station*" the existing on site CCP management facilities are projected to obtain their maximum desired capacity in 2011 and 2012. In preparation for this the Companies have evaluated numerous alternatives to allow Cane Run Station to continue to provide low cost reliable energy into the future.



While the on-site alternatives to manage Cane Run's CCP are well documented, a significant volume, economical beneficial reuse opportunity is currently under negotiations (Louisville Underground, LLC).

Engineering, design, permitting, construction and operation of Phase I of the Cane Run special waste landfill are projected to cost $18.52 million (capital) and $24.88 million (O&M through 2018). The cost for engineering, design and permitting (included in the

total capital cost above) is $4.60 million. To ensure sufficient on-site storage is available (long-term) should the reuse opportunity not be finalized or terminate unexpectedly, it is prudent execute the lower cost reuse alternative while moving forward with only the engineering, designing and permitting cost associated with Phase I ($4.6 million). Therefore, the Cane Run CCP management plan is to complete the engineering, designing and permitting of Phase I of the on-site landfill and execute the Louisville Underground contract at a capital cost of $4.60 million and an operating and maintenance cost (through 2018) of $44.60 million, respectively. In absence of the Louisville Underground opportunity the total capital cost of Phase I is projected to be $18.5 million.

(This space intentionally left blank)

Trimble County Generating Station

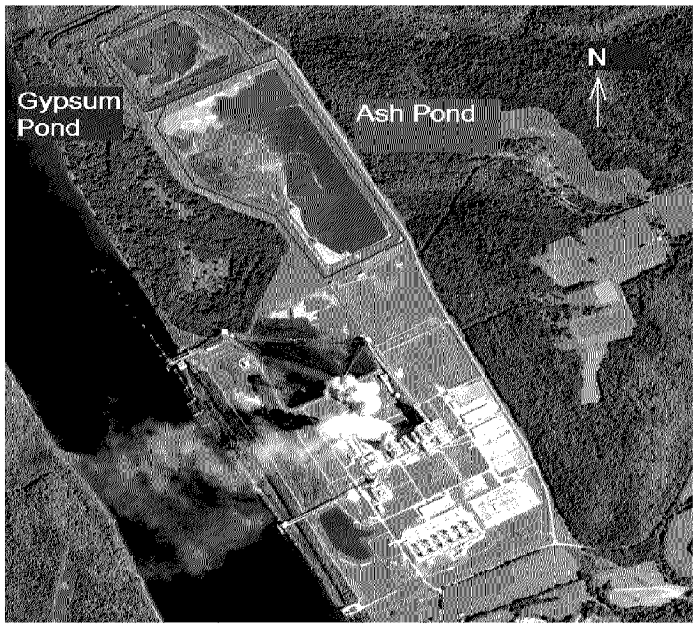
The Trimble County generating station is located in Trimble County Kentucky and is comprised of one 514 MW coal-fired generating unit. A second coal-fired generating unit (760 MW) is currently under construction with an expected in-service date of mid-2010. The station produces three primary coal combustion byproducts: bottom ash, fly ash and gypsum. The station has one active impoundment that receives all CCP managed on site. A second impoundment (originally an Emergency Fly Ash Pond) was constructed at the same time as Unit 1 was being constructed but has never been placed into service. The company suspects that the original clay liner is in need of repair.

Trimble County CCP Fact Box and Overview

		Fly Ash	Bottom Ash	Gypsum	Fixated Calcium Sulfite
Produced	CCP Produced	☑	☑	☑	☐
	2011 Total CCP Forecasted Production (tons)				*1,093,390*
Reuse	Any CCP Reused?	☑ Yes	☐ No		
	Predominant Historical Beneficial Reuse Application				*Wall Board*
	Annual Reuse Amount-(approx tons)	2005	2006	2007	2008
		279,327	*288,835*	*238,706*	*224,642*
CCP Facilities					Ash Pond
	In-Service Date				*1991*
	Surface Area (acres)				*82*
	CCP Stored				*Ash & Gypsum Fines*
	End of Life				*2010*
	Future CCP Management Plans				*Impoundments/Landfill (Ph I) + Reuse*
	In-Service Year/Capital Construction Cost (M$)				
	CCP Treatment Basins				*2010/ $32.9 mill (100%); $24.7 mill (75%)*
	Reuse Capital (Barge Loadout)				*2010/ $11.6 million (100%); $8.7 million (75%)*
	Landfill				*2013/ $94.0 million (100%); $70.5 million (75%)*

Note: IMEA and IMPA have 25% ownership share. KU/LGE's costs correspond to 75%.

As detailed in the report titled "*Coal Combustion Byproduct Plan for Trimble County Station*" the existing ash pond is projected to obtain maximum desired capacity in 2010. In preparation for this the Companies have evaluated numerous alternatives to allow Trimble County to continue to provide low cost reliable energy into the future. A significant low-cost, long-term beneficial reuse opportunity utilizing more 350,000 tons of gypsum each year has been executed with Synthetic Materials. The associated costs are based on minimum take of 350,000 at 2.00 $/ton and utilized a barge load-out facility to be constructed, owned and operated by Synthetic Materials by March 2010. As mentioned, this contract has been executed, however, per the contract; no expenses will be incurred by the Companies until the barge load-out facility is completed.



Additionally, a second significant long-term beneficial reuse alternative that reuses approximately 95% of Trimble County's fly ash is currently in final stages of negotiations. This second opportunity requires a total capital investment of $11.57 million and approximately $8.74 million in O&M (through 2018). These opportunities are discussed in the report titled "*Coal Combustion Byproduct Plan for Trimble County Station for E.ON U.S. Subsidiaries Kentucky Utilities and Louisville Gas and Elec*tric" and have allowed significant long-term cost saving to be realized associated with CCP management at the Trimble County station.

Trimble County's short term CCP management plan includes vertical expansion of the dikes of the BAP (at a total capital cost of $25.36 million[9]) and, after completing the liner repair within the gypsum pond (formerly named the emergency fly ash pond), placing the gypsum pond into service (at a total capital cost of $7.58 million[10]).

Even with the significant reuse opportunities a long-term need exists to complete Phase I of the special waste landfill at Trimble County by 2013 at a total capital cost of $94.0 million[11] and an O&M cost of $20.3 million[12].

Therefore, Trimble County's CCP management plan currently is to move forward with the negotiations of the fly ash reuse opportunity, vertically expand the existing CCP treatment basin, place the gypsum storage basin into operation and complete Phase I of the special waste landfill.

Summary

The Companies have identified a need for additional CCP storage capacity at four generating stations (E.W. Brown, Cane Run, Ghent and Trimble County) by the year 2014. The Companies currently are pursuing five beneficial reuse options. Four off-site options are: Holcim Cement and Synthetic Materials, Louisville Underground, and Trans Ash at Trimble County, Cane Run, and Ghent respectively. Additionally, gypsum is being used on-site at the E.W. Brown station. Execution of these options reduces the near-term on-site storage capacity requirement and the present value of the revenue requirements ("PVRR"). A summary of these options follows:

Station	Company	Approximate Amount of CCP	PVRR Benefit
Ghent	Trans Ash, Inc	1.5 million tons of gypsum	$ 2.4 million
Trimble County	Holcim (US) Inc	5.8 million tons of fly ash	$ 6.9 million
Trimble County	Synthetic Materials	6.0 million tons of gypsum	$ 72.3 million
Cane Run	Louisville Underground, LLC	6.0 million tons of spent scrubber material	$ 22.7 million

Table 3: Future Beneficial Reuse Plans

Even considering the reuse alternatives identified in the above table, presently, economic and environmentally responsible beneficial reuse projects can not satisfy the full need for additional storage requirements at all stations. As a result, the Companies must begin, or

[9] Includes IMEA/IMPA cost allocation.
[10] Includes IMEA/IMPA cost allocation.
[11] Includes IMEA/IMPA cost allocation.
[12] Includes IMEA/IMPA cost allocation.

in the case of E.W. Brown, continue construction of on-site CCP management facilities in conjunction with the identified beneficial reuse opportunities.

Working with external experts, the Companies performed engineering studies at each of the four stations to identify alternatives. The studies contain various site reviews and detailed economic analyses of the various alternatives. As a result, the Companies have identified the phased construction of three new landfills (at Ghent, Trimble County and Cane Run generating stations) and continued construction of the second phase of the E.W. Brown impoundments as the appropriate next steps for long-term, cost effective, and environmentally responsible management of CCP. Also identified were the expansion of the existing ash impoundment and the relining/commissioning of a gypsum impoundment, both located at the Trimble County station. The Companies' total capital costs of the next phase of these on-site facilities are shown below:

Station	Alternative	Phase	Cost of Phase ($million)[1]
Ghent	Landfill	1	203.97
Trimble County[2]	Impoundments	n/a	24.71
Trimble County[2]	Landfill	1	70.53
Cane Run[3]	Landfill	1	4.60
E.W. Brown	Impoundments	2	24.86
			328.66

1. Capital cost only.

2. Costs exclude any barge loadout costs associated with Holcim and IMEA/IMPA associated captial

3. In absence of Louisville Underground the capital cost of Phase I is projected to be $18.5 M.

Table 4: Future On-Site CCP Related Construction Plans

List of Reference Documents

1. Coal Combustion Byproduct Plan for Ghent Station for E.ON U.S. Subsidiaries Kentucky Utilities and Louisville Gas and Electric (June 2009)
2. Coal Combustion Byproduct Plan for E.W. Brown Station for E.ON U.S. Subsidiaries Kentucky Utilities and Louisville Gas and Electric (June 2009)
3. Coal Combustion Byproduct Plan for Cane Run Station for E.ON U.S. Subsidiaries Kentucky Utilities and Louisville Gas and Electric (June 2009)
4. Coal Combustion Byproduct Plan for Trimble County Station for E.ON U.S. Subsidiaries Kentucky Utilities and Louisville Gas and Electric (June 2009)

From: Straight, Scott
To: Voyles, John
Sent: 5/12/2011 8:02:18 AM
Subject: Fw: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

---

From: Saunders, Eileen
Sent: Thursday, May 12, 2011 07:43 AM
To: Straight, Scott
Subject: FW: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

FYI

From: Schroeder, Andrea
Sent: Friday, April 29, 2011 11:13 AM
To: Saunders, Eileen; Cosby, David; Karavayev, Louanne
Cc: Straight, Scott; Wilson, Stuart; Hudson, Rusty; Ritchey, Stacy; Mooney, Mike (BOC 3); Conroy, Robert
Subject: RE: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

Eileen,

For the ECR filing, we will continue to use the previously provided estimates for the schedules, application and testimony. This should ensure consistency in all of the documents and notices.

From the bullet point below for MC3 Sam Mitigation/SCR Turndown, has the in-service date of the project changed? Do you anticipate the in-service dates for any of the other projects changing in the near future?

Thank you for keeping the group informed as the information is updated.

Andrea

From: Saunders, Eileen
Sent: Friday, April 29, 2011 10:25 AM
To: Schroeder, Andrea; Cosby, David; Karavayev, Louanne
Cc: Straight, Scott; Wilson, Stuart; Hudson, Rusty; Ritchey, Stacy; Mooney, Mike (BOC 3)
Subject: FW: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

All,

Please see the revised Environmental Air File that includes the following:

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- Brown 3 - updated to reflect revised B&V numbers for Capital, Removal, and O&M.
- Mill Creek 3 SAM Mitigation/SCR Turndown – updated to align by year capital with changed outage start date from 3/13 to 9/13.
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Also, I have attached the latest backup data for Brown that we received from B&V. Please do not look at the information for Units 1 and 2. They are based on a scenario that uses individual baghouses for each unit instead of the combined baghouse in our plan.

I am sharing this in the spirit of keeping everyone informed. We will continue to keep receiving revised estimates over the next few months. After talking with Andrea this morning, it was suggested that we leave the spreadsheets we currently have alone for the ECR filing unless Gen Planning or Financial folks think differently.

Andrea, Stacy has already updated our Environmental Air Summary spreadsheet with the new information so take a look at that and decide if you want to use the new information.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Monday, April 25, 2011 3:49 PM
To: Saunders, Eileen
Cc: Mooney, Mike (BOC 3); Ritchey, Stacy; Hillman, Timothy M.; Wehrly, M. R.; Crabtree, Jonathan D.; 168908 E.ON-AQC
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Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager, Energy
Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211
+ 1 913-458-9062 P | +1 913-458-9062 F
LucasKJ@BV.com
Building a World of Difference.®

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To: Saunders, Eileen
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Subject: 168908.14.4100 110425 Brown - Draft Phase II Cost Estimate - Apportioned by Categories

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Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager, Energy
Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211
+ 1 913-458-9062 P | +1 913-458-9062 F
LucasKJ@BV.com
Building a World of Difference.®

From: Straight, Scott
To: Voyles, John
Sent: 5/26/2011 9:41:17 AM
Subject: Re: Mercury limits question

Yes it was the combined effects of emission rate and heat rate going from 8000 to 10000 as I suspected and mentioned in my comment. Made sense. Do you want me to forward his note?

From: Voyles, John
Sent: Thursday, May 26, 2011 08:10 AM
To: Straight, Scott
Subject: Mercury limits question

S,

Did you get any feedback from Gary on your question re: 1.0 to 1.2 correlating with 8 to 13 lbs/TWh?

JV

Please note that my e-mail address has changed from john.voyles@eon-us.com to john.voyles@lge-ku.com. Please take this opportunity to update my address in your address book and delete the old e-mail address immediately. The old e-mail address will soon expire, and I will no longer be able to receive e-mails at that address.

From: Saunders, Eileen
To: Straight, Scott
Sent: 6/6/2011 3:44:40 PM
Subject: FW: Cane Run - Combined SCR or WFGD

Scott,

Stuart asked me a couple of questions last week that I asked B&V to verify. Please see that B&V included individual WFGDs and a common stack for Cane Run.

Thanks,

Eileen

From: Lucas, Kyle J. [mailto:LucasKJ@bv.com]
Sent: Monday, June 06, 2011 3:30 PM
To: Saunders, Eileen
Cc: Hillman, Timothy M.; Crabtree, Jonathan D.; Chang, Daniel; Wehrly, M. R.
Subject: Cane Run - Combined SCR or WFGD

Eileen,
In response to your questions regarding the potential for a combined SCR or Combined WFGD for the three Cane Run units:

Combined SCR
SCR equipment and operation is sensitive to load changes, flow distribution, and temperature variations. Additionally, unit outages need to be considered in this configuration. For these reasons a common SCR for multiple units is not the industry standard and was not considered in the Phase I study.

Combined WFGD
A combined WFDG was not considered as part of the Phase I effort. The Phase I documentation indicates individual WFGDs and a common stack. Appendix G of the Phase I study (Cane Run) illustrates this configuration.

Regards,
Kyle

Kyle Lucas | Environmental Permitting Manager, Energy
Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211
+ 1 913-458-9062 P | +1 913-458-9062 F
LucasKJ@BV.com
Building a World of Difference.®

From: Straight, Scott
To: Voyles, John
CC: Bowling, Ralph
Sent: 10/13/2010 3:22:02 PM
Subject: FW: Environmental Compliance-DRAFT
Attachments: Environmental Summay alternate scenario Rev4 - Pras (4) 10-13-10.xlsx

John,

Keeping you in the loop on execution information provided to Rates for the air compliance projects. The initial major commitment dates for many of the projects are sooner than the CCN's will be obtained.

Please have Janice schedule a meeting if you want me to run through this with you.

Scott

From: Saunders, Eileen
Sent: Wednesday, October 13, 2010 11:44 AM
To: Conroy, Robert
Cc: Straight, Scott; Ritchey, Stacy
Subject: Environmental Compliance-DRAFT

Robert,

Scott and I conference this morning regarding the enclosed spreadsheet. Here are some general comments for you to consider while conducting your review:

- For the most part, we approached each station as a program. Mill Creek is slightly different due to the variety of work that is planned for the station.
- The start dates for construction are based on the earliest unit to be installed.
- For Mill Creek, the FGD upgrades on Units 1, 2, 3 and SCR upgrades on Unit 4 are tied to the same construction dates. All MC Baghouses, PAC Injection Systems and Unit 3 Removal dates are linked together. Lastly, all new MC SCR's are tied to the same date.
- I did not make any changes to the ECR Filing column, the SAM Mitigation row or the financials.
- As discussed, we do not have a corporate contracting strategy at this time so I used the worst case scenario of an EPC contract as my starting point. Additionally, these construction dates are based on schedules provided by B&V during their Phase I Study. That study is not representative of Level I Engineering.

Please let me know if you would like to arrange a conference call to discuss the information provided.

Thanks,

Eileen

	A	C	D	E	F	G	H	I	J
1	**Environmental Air - CATR by January 2015, NAAQS by January 2016, HAPs by January 2017**			DRAFT					
2	$ in thousands								
3		**Capital Cost**	**ECR Filing**	**pportable Docume st Major Commitme**		2011	2012	2013	2014
4	**Alternate Plan**								
5	**Brown**								
6	Brown 1 - SCR	$59,000	Dec-10		See BR- Unit 2	$2,950	$17,700	$23,600	$14,750
7	Brown 1 - Baghouse	$34,000	Dec-10		See BR- Unit 2	$1,700	$11,900	$13,600	$6,800
8	Brown 1 - PAC Injection	$1,599	Apr-12		See BR- Unit 2			$800	$800
10	Brown 1 - SAM Mitigation	$4,000	Dec-10			$200	$1,200	$1,600	$1,000
12	Brown 1 - Escalation	$15,476				$371	$3,679	$6,504	$4,922
13	Total Brown 1	**$114,075**				**$5,221**	**$34,479**	**$46,103**	**$28,272**
14									
15	Brown 2 - SCR	$92,000	Dec-10		May, 2011	$9,200.0	$34,500	$43,700	$4,600
16	Brown 2 - Baghouse	$34,000	Jul-11		May, 2011		$1,360	$10,200	$10,880
17	Brown 2 - PAC Injection	$2,476	Apr-13		May, 2011				$1,238
20	Brown 2 - SAM Mitigation	$4,000	Dec-10			$200	$1,600	$2,200	
22	Brown 2 - Escalation	$21,300				$718	$4,475	$9,214	$3,524
23	Total Brown 2	**$153,776**				**$10,118**	**$41,935**	**$65,314**	**$20,242**
24									
27	Brown 3 - Baghouse	$61,000	Apr-12		See BR- Unit 2			$1,830	$21,350
28	Brown 3 - PAC Injection	$5,426	Apr-13		See BR- Unit 2				$1,000
31	Brown 3 - Escalation	$16,475			See BR- Unit 2	$0	$0	$301	$4,711
32	Total Brown 3	**$82,901**				**$0**	**$0**	**$2,131**	**$27,061**
33									
34	**Total Brown**	**$350,751**				**$15,339**	**$76,414**	**$113,547**	**$75,575**
35									
36	**Ghent**								
37	Ghent 1 - Baghouse	$131,000	Apr-12		See GH-Unit 2			$3,930	$45,850
38	Ghent 1 - PAC Injection	$6,380	Apr-13		See GH-Unit 2				$1,000
42	Ghent 1 - Escalation	$34,012				$0	$0	$645	$9,876
43	Total Ghent 1	**$171,392**				**$0**	**$0**	**$4,575**	**$56,726**
44									
45	Ghent 2 - SCR	$227,000	Dec-10		June, 2011	$11,350	$68,100	$90,800	$56,750
46	Ghent 2 - Baghouse	$120,000	Apr-12		June, 2011			$4,800	$42,000
47	Ghent 2 - PAC Injection	$6,109	Apr-13		June, 2011				$1,000
52	Ghent 2 - Escalation	$66,928				$867	$8,135	$15,701	$21,028
53	Total Ghent 2	**$420,037**				**$12,217**	**$76,235**	**$111,301**	**$120,778**
54									
55	Ghent 3 - Baghouse	$138,000	Apr-12		See GH-Unit 2			$16,560	$48,300
56	Ghent 3 - PAC Injection	$6,173	Apr-13		See GH-Unit 2				$3,087
60	Ghent 3 - Escalation	$33,660			See GH-Unit 2	$0	$0	$2,720	$10,832
61	Total Ghent 3	**$177,833**				**$0**	**$0**	**$19,280**	**$62,219**
62									
63	Ghent 4 - Baghouse	$117,000	Apr-12		See GH-Unit 2			$11,700	$40,950
64	Ghent 4 - PAC Injection	$6,210	Apr-13		See GH-Unit 2				$3,105
68	Ghent 4 - Escalation	$28,990				$0	$0	$1,922	$9,287
69	Total Ghent 4	**$152,200**				**$0**	**$0**	**$13,622**	**$53,342**
71	**Total Ghent**	**$921,461**				**$12,217**	**$76,235**	**$148,777**	**$293,065**
72									

	K	L	M	N	O	P
1						
2						
3	2015	2016	2017	2018	Total	
4						
5						
6					$59,000	$0
7					$34,000	$0
8					$1,599	$0
10					$4,000	$0
12					$15,476	$0
13	**$0**	**$0**	**$0**	**$0**	**$114,075**	**$0**
14						
15					$92,000	$0
16	$10,540	$1,020			$34,000	$0
17	$1,238				$2,476	$0
20					$4,000	$0
22	$3,053	$316			$21,300	$0
23	**$14,831**	**$1,336**	**$0**	**$0**	**$153,776**	**$0**
24						
27	$28,670	$9,150			$61,000	$0
28	$3,426	$1,000			$5,426	$0
31	$8,320	$3,142			$16,475	$0
32	**$40,416**	**$13,292**	**$0**	**$0**	**$82,901**	**$0**
33						
34	**$55,248**	**$14,628**	**$0**	**$0**	**$350,751**	**$0**
35						
36						
37	$61,570	$19,650			$131,000	$0
38	$4,380	$1,000			$6,380	$0
42	$17,097	$6,393			$34,012	$0
43	**$83,047**	**$27,043**	**$0**	**$0**	**$171,392**	**$0**
44						
45					$227,000	$0
46	$56,400	$16,800			$120,000	$0
47	$4,109	$1,000			$6,109	$0
52	$15,686	$5,511			$66,928	$0
53	**$76,195**	**$23,311**	**$0**	**$0**	**$420,037**	**$0**
54						
55	$66,240	$6,900			$138,000	$0
56	$3,087				$6,173	$0
60	$17,972	$2,136			$33,660	$0
61	**$87,298**	**$9,036**	**$0**	**$0**	**$177,833**	**$0**
62						
63	$58,500	$5,850			$117,000	$0
64	$3,105				$6,210	$0
68	$15,970	$1,811	$0	$0	$28,990	$0
69	**$77,575**	**$7,661**	**$0**	**$0**	**$152,200**	**$0**
70						
71	**$324,115**	**$67,052**	**$0**	**$0**	**$921,461**	**$0**
72						

	A	C	D	E	F	G	H	I	J
73	**Mill Creek**								
74	Mill Creek 1 - FGD Upgrade	$41,250	Apr-12		June, 2011			$10,313	$28,875
75	Mill Creek 1 - SCR	$97,020	Apr-12		December, 2011			$2,911	$27,166
76	Mill Creek 1 - Baghouse	$80,850	Jul-11		See MC-Unit 4		$8,085	$28,298	$40,425
77	Mill Creek 1 - Electrostatic Precipitator	$0			See MC-Unit 4		$0	$0	$0
78	Mill Creek 1 - PAC Injection	$4,290	Jul-11		See MC-Unit 4		$429	$1,502	$2,360
81	Mill Creek 1 - SAM Mitigation	$7,920	Apr-12					$396	$792
83	Mill Creek 1 - Escalation	$52,077				$0	$1,017	$7,131	$21,000
84	Total Mill Creek 1	**$283,407**				**$0**	**$9,531**	**$50,549**	**$120,617**
85									
86	Mill Creek 2 - FGD Upgrade	$41,250	Jul-11		June, 2011		$10,313	$28,875	$2,063
87	Mill Creek 2 - SCR	$97,020	Jul-11		December, 2011		$2,911	$27,166	$29,106
88	Mill Creek 2 - Baghouse	$80,850	Dec-10		See MC-Unit 4	$8,085	$28,298	$40,425	$4,043
89	Mill Creek 2 - Electrostatic Precipitator	$33,000	Dec-10		See MC-Unit 4	$3,300	$11,550	$16,500	$1,650
90	Mill Creek 2 - PAC Injection	$4,290	Dec-10		See MC-Unit 4	$429	$1,502	$2,360	
91	Mill Creek 2 - SAM Mitigation	$7,920	Jul-11				$396	$792	$2,376
92	Mill Creek 2 - Escalation	$45,866				$903	$6,566	$19,070	$8,271
93	Total Mill Creek 2	**$310,196**				**$12,717**	**$61,534**	**$135,188**	**$47,508**
94									
97	Mill Creek 3 - FGD (U4 update and tie in)	$63,750	Apr-13		June, 2011				$47,813
98	Mill Creek 3 - FGD (Unit 3 Removal)	$25,500	Apr-13		See MC-Unit 4				$6,375
99	Mill Creek 3 - Baghouse	$104,125	Jul-11		See MC-Unit 4		$2,083	$31,238	$39,568
100	Mill Creek 3 - PAC Injection	$5,525	Jul-11		See MC-Unit 4		$111	$1,658	$2,100
101	Mill Creek 3 - Escalation	$43,488				$0	$262	$5,402	$20,206
102	Total Mill Creek 3	**$242,388**				**$0**	**$2,455**	**$38,297**	**$116,061**
103									
104	Mill Creek 4 - FGD	$236,250	Dec-10		March, 2011	$18,900	$80,325	$89,775	$47,250
105	Mill Creek 4 - SCR Upgrade	$5,250	Dec-10		June, 2011	$4,200	$1,050		
106	Mill Creek 4 - Baghouse	$131,250	Dec-10		March, 2011	$5,250	$45,938	$52,500	$27,563
107	Mill Creek 4 - PAC Injection	$6,825	Dec-10		March, 2011	$273	$2,389	$2,730	$1,433
108	Mill Creek 4 - Ammonia	$10,500	Dec-10		June, 2011	$5,250	$5,250		
109	Mill Creek 4 - Escalation	$58,596				$2,588	$16,121	$23,815	$16,073
110	Total Mill Creek 4	**$448,671**				**$36,461**	**$151,072**	**$168,820**	**$92,319**
111									
112	**Total Mill Creek**	**$1,284,663**				**$49,177**	**$224,592**	**$392,854**	**$376,505**
113									
114	**Trimble**								
115	Trimble 1 - Baghouse	$128,000	Apr-12		December, 2012			$12,800	$44,800
116	Trimble 1 - PAC Injection	$6,451	Apr-13		December, 2012				$3,226
117	Trimble 1 - Escalation	$31,635				$0	$0	$2,102	$10,124
118	Total Trimble 1	**$166,086**				**$0**	**$0**	**$14,902**	**$58,149**
119									
120	**Total Trimble**	**$166,086**				**$0**	**$0**	**$14,902**	**$58,149**
121									
122	**Total Environmental Compliance Air - Alternate Plan**	**$2,722,961**				**$76,733**	**$377,241**	**$670,080**	**$803,294**
123									
124									
125	Scope	$2,274,459							
126	Escalation	$448,502							
127		**$2,722,961**							

	K	L	M	N	O	P
73						
74	$2,063				$41,250	$0
75	$29,106	$35,897	$1,940		$97,020	$0
76	$4,043				$80,850	$0
77	$0				$0	$0
78					$4,290	$0
81	$2,376	$3,960	$396		$7,920	$0
83	$9,744	$12,340	$846		$52,077	$0
84	**$47,331**	**$52,197**	**$3,182**	**$0**	**$283,407**	**$0**
85						
86					$41,250	$0
87	$35,897	$1,940			$97,020	$0
88					$80,850	$0
89					$33,000	$0
90					$4,290	$0
91	$3,960	$396			$7,920	$0
92	$10,332	$723	$0		$45,866	$0
93	**$50,190**	**$3,060**	**$0**	**$0**	**$310,196**	**$0**
94						
97	$15,938				$63,750	$0
98	$19,125				$25,500	$0
99	$31,238				$104,125	$0
100	$1,658				$5,525	$0
101	$17,617	$0			$43,488	$0
102	**$85,575**	**$0**	**$0**	**$0**	**$242,388**	**$0**
103						
104					$236,250	$0
105					$5,250	$0
106					$131,250	$0
107					$6,825	$0
108					$10,500	$0
109	$0				$58,596	$0
110	**$0**	**$0**	**$0**	**$0**	**$448,671**	**$0**
111						
112	**$183,095**	**$55,257**	**$3,182**	**$0**	**$1,284,663**	**$0**
113						
114						
115	$64,000	$6,400			$128,000	$0
116	$3,226				$6,451	$0
117	$17,427	$1,981			$31,635	$0
118	**$84,653**	**$8,381**	**$0**	**$0**	**$166,086**	**$0**
119						
120	**$84,653**	**$8,381**	**$0**	**$0**	**$166,086**	**$0**
121						
122	**$647,111**	**$145,319**	**$3,182**	**$0**	**$2,722,961**	**$0**
123						
124						
125						
126						
127						

	A	C	D	E	F	G	H	I	J
128									
129									
130									
131									
132									
133									
134							3.5%	3.5%	3.5%
135							1	2	3

	K	L	M	N	O	P
128						
129						
130						
131						
132						
133						
134	3.5%	3.5%	3.5%	3.5%	3.5%	
135	4	5	6	7	8	

	A	B	D	E	F	G	H	I	J	K	L	M	N
1		**Environmental Air - CATR by January 2015, NAAQS by January 2016, HAPs by January 2017**											
2		$ in thousands											
3			**Capital Cost**		2011	2012	2013	2014	2015	2016	2017	2018	Total
4		**Alternate Plan**											
5	1	Brown 1 - SCR	$59,000		$2,950	$17,700	$23,600	$14,750					$59,000
6	1	Brown 1 - Baghouse	$34,000		$1,700	$11,900	$13,600	$6,800					$34,000
7	1	Brown 1 - SAM Mitigation	$4,000		$200	$1,200	$1,600	$1,000					$4,000
10	1	Brown 2 - SCR	$92,000		$9,200	$34,500	$43,700	$4,600					$92,000
11	1	Brown 2 - SAM Mitigation	$4,000		$200	$1,600	$2,200						$4,000
12	1	Ghent 2 - SCR	$227,000		$11,350	$68,100	$90,800	$56,750					$227,000
16	1	Mill Creek 2 - Baghouse	$80,850		$8,085	$28,298	$40,425	$4,043					$80,850
19	1	Mill Creek 2 - Electrostatic Precipitator	$33,000		$3,300	$11,550	$16,500	$1,650					$33,000
20	1	Mill Creek 2 - PAC Injection	$4,290		$429	$1,502	$2,360						$4,290
23	1	Mill Creek 4 - FGD	$236,250		$18,900	$80,325	$89,775	$47,250					$236,250
24	1	Mill Creek 4 - SCR Upgrade	$5,250		$4,200	$1,050							$5,250
28	1	Mill Creek 4 - Baghouse	$131,250		$5,250	$45,938	$52,500	$27,563					$131,250
29	1	Mill Creek 4 - PAC Injection	$6,825		$273	$2,389	$2,730	$1,433					$6,825
30	1	Mill Creek 4 - Ammonia	$10,500		$5,250	$5,250							$10,500
35	2	Brown 2 - Baghouse	$34,000			$1,360	$10,200	$10,880	$10,540	$1,020			$34,000
36	2	Mill Creek 1 - Baghouse	$80,850			$8,085	$28,298	$40,425	$4,043				$80,850
37	2	Mill Creek 1 - PAC Injection	$4,290			$429	$1,502	$2,360					$4,290
41	2	Mill Creek 2 - FGD Upgrade	$41,250			$10,313	$28,875	$2,063					$41,250
42	2	Mill Creek 2 - SCR	$97,020			$2,911	$27,166	$29,106	$35,897	$1,940			$97,020
46	2	Mill Creek 2 - SAM Mitigation	$7,920			$396	$792	$2,376	$3,960	$396			$7,920
47	2	Mill Creek 3 - Baghouse	$104,125			$2,083	$31,238	$39,568	$31,238				$104,125
48	2	Mill Creek 3 - PAC Injection	$5,525			$111	$1,658	$2,100	$1,658				$5,525
49	3	Brown 1 - PAC Injection	$1,599				$800	$800					$1,599
50	3	Brown 3 - Baghouse	$61,000				$1,830	$21,350	$28,670	$9,150			$61,000
53	3	Ghent 1 - Baghouse	$131,000				$3,930	$45,850	$61,570	$19,650			$131,000
55	3	Ghent 2 - Baghouse	$120,000				$4,800	$42,000	$56,400	$16,800			$120,000
56	3	Ghent 3 - Baghouse	$138,000				$16,560	$48,300	$66,240	$6,900			$138,000
57	3	Ghent 4 - Baghouse	$117,000				$11,700	$40,950	$58,500	$5,850			$117,000
58	3	Mill Creek 1 - FGD Upgrade	$41,250				$10,313	$28,875	$2,063				$41,250
59	3	Mill Creek 1 - SCR	$97,020				$2,911	$27,166	$29,106	$35,897	$1,940		$97,020
60	3	Mill Creek 1 - SAM Mitigation	$7,920				$396	$792	$2,376	$3,960	$396		$7,920
63	3	Trimble 1 - Baghouse	$128,000				$12,800	$44,800	$64,000	$6,400			$128,000
64	4	Brown 2 - PAC Injection	$2,476					$1,238	$1,238				$2,476
65	4	Brown 3 - PAC Injection	$5,426					$1,000	$3,426	$1,000			$5,426
66	4	Ghent 1 - PAC Injection	$6,380					$1,000	$4,380	$1,000			$6,380
67	4	Ghent 2 - PAC Injection	$6,109					$1,000	$4,109	$1,000			$6,109
68	4	Ghent 3 - PAC Injection	$6,173					$3,087	$3,087				$6,173
69	4	Ghent 4 - PAC Injection	$6,210					$3,105	$3,105				$6,210
70	4	Mill Creek 3 - FGD (U4 update and tie in)	$63,750					$47,813	$15,938				$63,750
71	4	Mill Creek 3 - FGD (Unit 3 Removal)	$25,500					$6,375	$19,125				$25,500
72	4	Trimble 1 - PAC Injection	$6,451					$3,226	$3,226				$6,451
73													
74													
75													

	O
1	
2	
3	
4	
5	$0
6	$0
7	$0
10	$0
11	$0
12	$0
16	$0
19	$0
20	$0
23	$0
24	$0
28	$0
29	$0
30	$0
35	$0
36	$0
37	$0
41	$0
42	$0
46	$0
47	$0
48	$0
49	$0
50	$0
53	$0
55	$0
56	$0
57	$0
58	$0
59	$0
60	$0
63	$0
64	$0
65	$0
66	$0
67	$0
68	$0
69	$0
70	$0
71	$0
72	$0
73	
74	
75	

	A	B	D	E	F	G	H	I	J	K	L	M	N
76													
77													
78													
79					3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
80					1	2	3	4	5	6	7	8	

From: Rhoads, Jeff
To: Voyles, John; Whelan, Chris
Sent: 4/25/2011 10:00:37 AM
Subject: RE: Management Meeting Presentation
Attachments: MM_042611_Voyles_IRP_ECR_v01.pptx

I've made a few minor tweaks; nothing of substance. Thanks...

Jeff Rhoads
Senior Communications Specialist
LG&E and KU
Phone: (859) 367-5517
Fax: (859) 367-1185
Cell: (859) 421-3191

Please note that my e-mail address has changed to ***jeff.rhoads@lge-ku.com***. Please update your records accordingly; the old address will soon be deactivated. Thanks!

From: Voyles, John
Sent: Monday, April 25, 2011 8:21 AM
To: Rhoads, Jeff; Whelan, Chris
Subject: Management Meeting Presentation

Jeff,

Attached is the presentation I will make tomorrow. Slide 5 needs a sub-title box removed.

Thanks for the extra time. Hope you enjoyed the weekend.

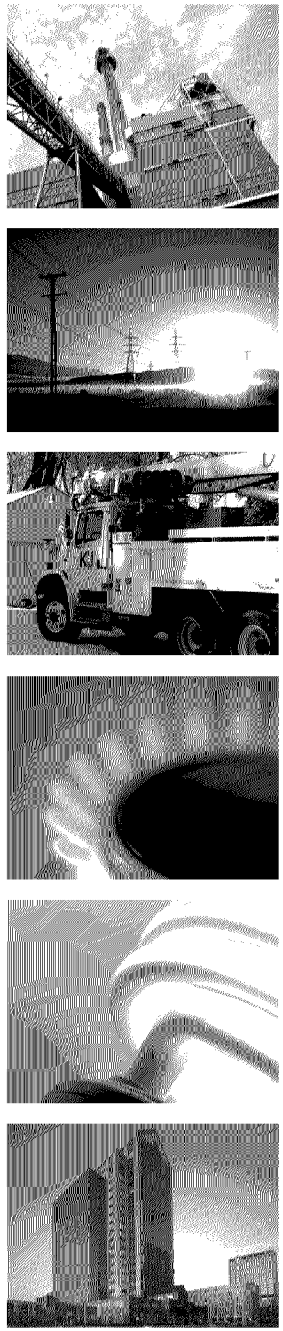
John V.

<< File: MM_0426_IRP_ECR.pptx >>

PPL companies

2011 KPSC Updated Filings: IRP — ECR

John Voyles
Vice President, Transmission/Generation Services



2011 IRP Highlights — Filed April 21

- Net peak demand grows at ~1.5% annually (2011-2025)
- Expected DSM peak reduction of 500 MW by 2017
- Target reserve margin moves up from 14% to 16%
- Significant impact from EPA regulations — older, smaller coal units retired
- New generation is expected to be combined cycle gas

LG&E KU
PPL companies

Generation Resource Plan

- Environmental regulations result in 800 MW of retirements at Cane Run, Green River and Tyrone in 2016
- New combined cycle plant planned in 2016 to meet 875 MW reserve margin deficit
- Second combined cycle unit in 2018 to meet future load growth

LG&E KU
PPL companies

Ongoing Planning Process

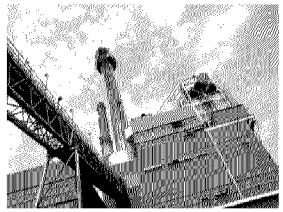
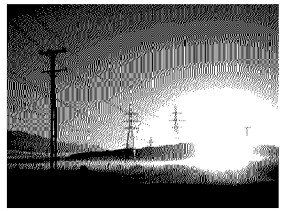
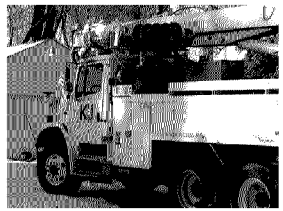
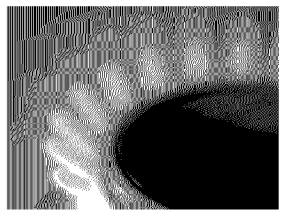
- IRP communicates how the company might meet customers' energy needs based on certain assumptions about the future
- Continue to evaluate future resource alternatives including a Request for Proposals for third-party capacity
- Final decisions require further study and regulatory approvals

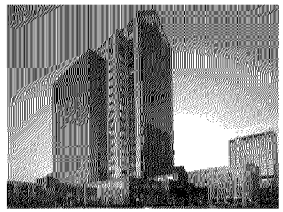
PPL companies

LG&E KU

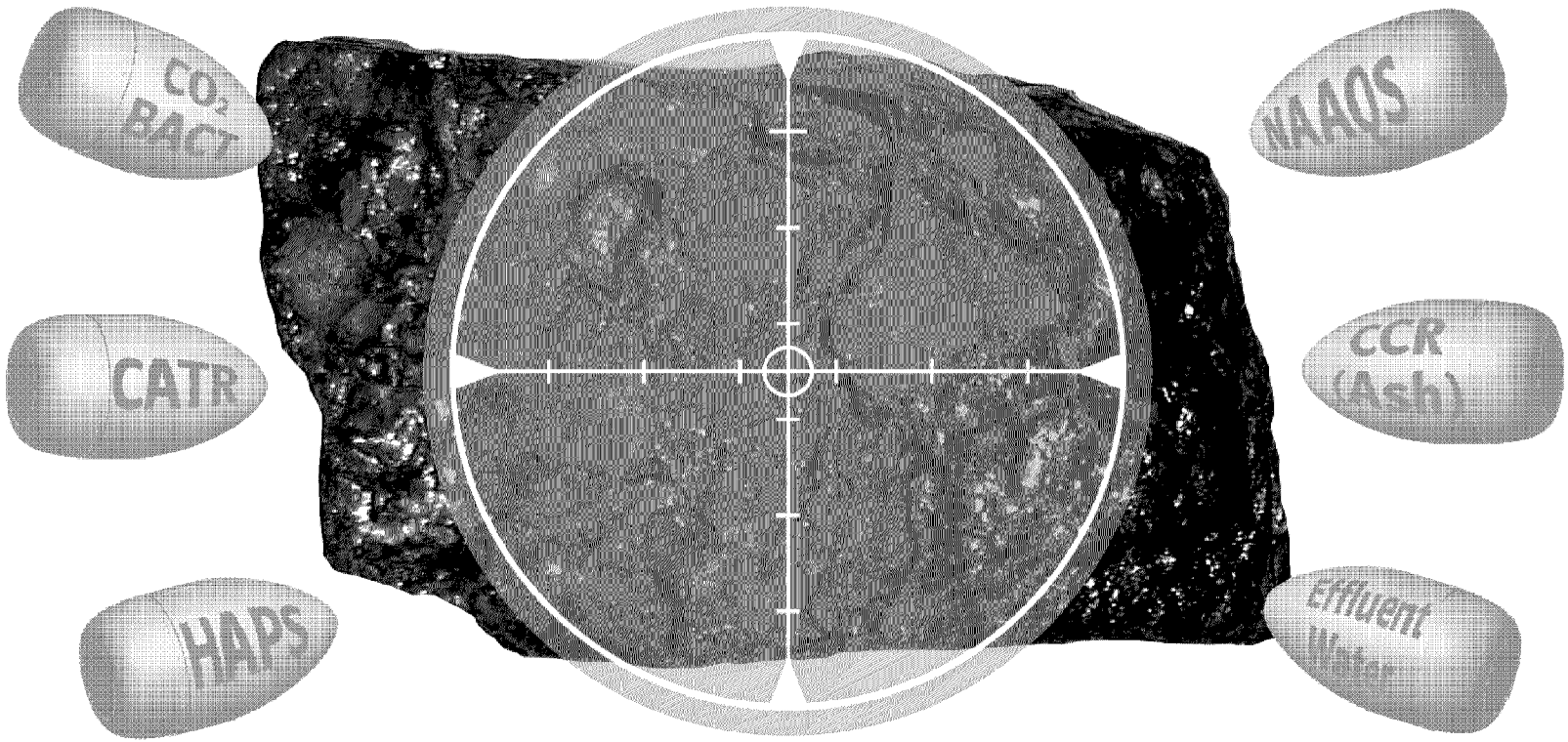
PPL companies

Environmental Cost Recovery Plan Update



EPA Regulatory Drivers



LG&E KU
PPL companies

2010-11 Engineering Activities & Studies

- Control equipment studies for all stations
  - *Level 1 engineering completed for Mill Creek, E.W. Brown and Ghent Stations.*
- Mill Creek scrubber (FGD) Performance Improvement study & structural review
- Precipitator (ESP) upgrade study
- Flow modeling studies for the SCR upgrades
- E.W. Brown study of a smaller ash pond, with delayed conversion to a landfill

LG&E KU
PPL companies

Engineering & Analytical Findings/Results

- Demonstrate prudency of installing emission controls (versus retiring units)
  - *Installing controls at Cane Run, Green River and Tyrone not cost effective*
- HAPs (MACT)
  - *Baghouses needed for mercury control*
- NAAQS & CATR
  - *Construct new FGD/chimney for Mill Creek Units 1 & 2*
  - *Construct new FGD/chimney on Mill Creek Unit 4*
  - *Upgrade existing SCR operations*
- CCR
  - *Conversion ash pond project at Brown to a landfill*

LG&E KU
PPL companies

2011 Environmental Compliance Plan Filing

- Fabric filter baghouses for Brown, Ghent, Mill Creek and Trimble Co. (TC1)
  - *Sorbent injection technologies included in the projects*
- FGD replacements and upgrades at Mill Creek
  - *New stacks to facilitate construction schedule*
- Conversion of Brown ash pond project to a dry landfill

LG&E KU
PPL companies

ECR Capital Plan Costs

- Total company capital costs estimated at $2.3 billion
  - *KU approximately $940 million*
  - *LG&E approximately $1.4 billion*
- Projected rate impacts
  - *KU estimated at 11 % by 2015*
  - *LG&E estimated at 19% by 2015*

PPL companies

Risks

- Schedule — completion by 2016
- Major equipment lead times
- Equipment availability for fans and electrical motors
- Shop fabrication space
- Engineering and construction labor availability
- Cost escalations

PPL companies

ECR Filing Schedule

- May 2 — File notice of intent with KPSC
- May 25 — Publication of KU and LG&E newspaper notices begin
- June 1 — File Certificates of Public Convenience & Necessity (CPCN) and Environmental Cost Recovery (ECR) applications
- November — KPSC orders expected

PPL companies


LG&E
KU
PPL companies

From: Voyles, John </O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JOHNVOYLES>
Sent: 5/3/2011 11:04:29 AM
Subject: Hold for ECR testimony review
Start: Wed 5/4/2011 8:00:00 AM
End: Wed 5/4/2011 10:00:00 AM
Recurrence: (none)

From: Rives, Brad
To: Farr, Paul
CC: Voyles, John
Sent: 5/11/2011 8:33:46 AM
Subject: FW: Bag Houses

Here is a summary of current estimates. Note amounts are still subject to change.

From: Voyles, John
Sent: Wednesday, May 11, 2011 8:32 AM
To: Rives, Brad
Subject: RE: Bag Houses

Brad,

Here's the information:

Pending final engineering assessments, we currently plan to construct 11 baghouses (currently the plan is to have 1 baghouse for Brown 1 & 2 combined) .

The costs which we have in the plan and our ECR filing includes supporting subsystems required for retrofit applications as well (these subsystems include lime and carbon injection systems, any needed ductwork, new fans and associated electrical system upgrades).

Assuming regulatory approvals, the installations will begin in 2012 and conclude in late 2015.

The costs range from approximately $300 to $470 per kw installed.

Rough costs per unit:

Brown 1&2 = $95M
Brown 3 = $ 80M
Ghent 1 = $155M
Ghent 2 = $165M
Ghent 3 = $190M
Ghent 4 = $175M
Trimble 1 = $165M
Mill Creek 1 = $155M
Mill Creek 2 = $150M
Mill Creek 3 = $140M
Mill Creek 4 = $150M

JV

From: Rives, Brad
Sent: Wednesday, May 11, 2011 7:06 AM
To: Voyles, John
Subject: Fwd: Bag Houses

Can you provide a quick response please? Thx

Sent from my iPhone

Begin forwarded message:

From: "Farr, Paul" <PFarr@pplweb.com>
Date: May 11, 2011 6:26:13 AM EDT
To: "Rives, Stephen B" <brad.rives@lge-ku.com>
Subject: Bag Houses

How many will we be installing, at what rough cost per installation and over what time frame?

Sent from my BlackBerry Wireless Handheld

From:	Kevin Crapsey
To:	Voyles, John
Sent:	5/27/2011 1:29:56 PM
Subject:	RE: Eco Power Solutions, Louisville - Mercury and PM Solution
Attachments:	EPA Names Eco Power Solutions to Multi-Pollutant Removal Technology Short-List.pdf; image002.gif; Kentucky Utilities to seek $1.1 billion increase in electric bill.docx

John,

I wanted to circle back on the below email from Paul Brooks (Introduction 4/13/2011).

I have been following recent news regarding KU (see attached) and would like to discuss our technology with you.

Eco Power Solutions is engaged in the deployment of our turnkey emission control technology which provides a greater than 95% reduction in emissions (i.e. sulphur dioxide - SOx and nitrogen oxide – NOx, Mercury – Hg, Particulate – >PM2), along with an average of 20% reduction in Carbon Dioxide (CO_2). The company's technology is also capable of generating supplementary energy by recovering waste heat that normally escapes into the atmosphere, thus providing a significant reduction in operating costs. The company's technology is a self-contained multi-chamber system marketed as the COMPLY 2000®, characterized by:

Significantly lower cost than competition ($380 per kW - $500 per kW)
Meets stringent EPA regulations for Mercury, PM, HCl, NOx and SOx emissions reduction and was recently identified by the EPA as a multi-pollutant emissions reduction solution provider of choice
Reduces CO_2 through a Non Storage / Non Sequestration Strategy
Heat recapture and energy generation capabilities
Low installation, production and maintenance costs
Adaptable to existing systems
Minimizes down time of plant during installation
Attractive payback, including emissions credits from European Allowances (EUAs) and the Clean Development Mechanism (CDM)

You may have noticed recent developments involving Eco Power and the numerous advances and developments that our organization has recently enjoyed, including:

- Our March 28, 2011 press release announcing that Eco Power Solutions, developer of the world's only multi-pollutant emission control and energy recovery system, its COMPLY 2000™ technology, has consistently achieved greater than 95 percent removal levels on six key pollutant categories—surpassing the new Environmental Protection Agency (EPA) standards and Boiler MACT (Maximum Achievable Control Technologies) air pollutant regulations (release attached).

- Eco Power Solutions' COMPLY 2000™ multi-pollutant removal system was named by the United States Environmental Protection Agency (EPA) to a short-list of technologies that "offer(s) the potential of reduced compliance costs and improved overall environmental performance", according to the reference stated on pages 517-18 of the March 16, 2011, EPA proposed new source performance standards and MACT (Maximum Achievable Control Technologies) standards for fossil fuel-fired Electric Generating Units (EGUs).

- Capital market participants analysis and confirmation of the commercial bankability of the COMPLY 2000 technology

- Eco Power Solutions is a recipient of the 2010 Most Promising Energy and Clean Technology Company award at the 8th Annual Rice Alliance Energy and Technology Venture Forum

Please let me know when might be a convenient time to speak with me. I look forward to your forthcoming response.

My Best,

Kevin

Kevin L. Crapsey
Vice President
Eco Power Solutions
513-702-2616
kevin.crapsey@ecopowersolutions.com

From: Brooks, Paul (EEC) [mailto:Paul.Brooks@ky.gov]
Sent: Wed 4/13/2011 10:03 AM
To: Voyles, John
Cc: Kevin Crapsey
Subject: Eco Power Solutions, Louisville

John,

You may already be familiar with Eco Power Solutions in Louisville. This company has demonstrated technology for cost-effective removal of SO2, NOX, and Hg from flue gas as well as reduction in CO2. More important, Eco Power Solutions has a working demonstration plant at the company's facility on Strawberry Lane. This plant treats site-generated flue gas on a semi-continuous basis with real-time monitoring. It is of sufficient size to be scaled directly to operating plant dimensions and flows.

Kevin Crapsey, Vice President, Sales and Marketing for Eco Power Solutions, has asked me to give you this heads-up in case you are not familiar with the company and technology. Several EEC staff have visited the demonstration facility, including John Lyons of DAQ, and have all reported very favorable impressions. There may be several LGE-KU operations that could benefit from this technology.

John may I help you and Kevin get together for a visit to the demonstration plant? I am confident that a meeting at the plant will be well worth your time and that of others you may wish to include. Compared with our visit to the lab in Lexington, the folks at Eco Power Solutions are substantially more up-scale and down-stream. Their process is ready to help with your issues today.

By way of disclaimer, I have no current or potential personal involvement with Eco Power Solutions. DEDI succeeds when LGE-KU succeeds. I believe both you and Kevin are high-integrity straight-shooters who can talk of real solutions to tough problems and benefit both organizations. When the two of you get together, I step aside.

Attached is a press release that briefly describes the process. I'll be happy to talk with you further about this, or, better, help you and Kevin get together for a meaningful discussion and demonstration. Please let me know if we can set up a meeting, or call Kevin directly at the number below. Thanks John.

Best regards,

Paul Brooks
Executive Advisor
Lane
Department for Energy Development
and Independence

Kevin L. Crapsey
Vice President, Sales and marketing
Eco Power Solutions
Suite 170, 950 Breckenridge

Louisville, KY 40207
Office: 502-716-7195

502-564-7192
502-564-7193
http://energy.ky.gov
www.facebook.com/KentuckyDEDI

Cell: 513-702-2616
kevin.crapsey@ecopowersolutions.com
www.ecopowersolutions.com

Eco Power Solutions
Energy Recovery & Emissions Control Systems

FOR IMMEDIATE **RELEASE**

EPA Names Eco Power Solutions to Multi-Pollutant Removal Technology Short-List

EPA to Reward Early Adopters with Potential Exemption
from New Source Performance Limits

BOSTON – April 7, 2011 - Eco Power Solutions' COMPLY 2000® multi-pollutant removal system was named by the United States Environmental Protection Agency (EPA) to a short-list of technologies that "offer(s) the potential of reduced compliance costs and improved overall environmental performance", according to the reference stated on pages 517-18 of the March 16, 2011, EPA proposed new source performance standards and MACT (Maximum Achievable Control Technologies) standards for fossil fuel-fired Electric Generating Units (EGUs).

As part of this proposed rule, one that would tighten performance standards for SO2, NOx and particulate matter for EGUs nationwide, the EPA is also proposing to provide incentives, including exemption from the new restricted standards, to a limited number of early adopters of newer and more promising multi-pollutant removal technology, such as the COMPLY2000.

Eco Power Solutions' COMPLY 2000 has consistently achieved unrivalled emission reduction levels of:

- 99 per cent removal levels for sulfur oxides including sulfur dioxide (SO2) and sulfur trioxide (SO3)
- 95 per cent removal of nitric oxide (NO) and nitrogen dioxide (NO2)
- 99 per cent removal of mercury (Hg)
- 99 per cent removal of 2.5 and 10-micron particulate matter
- 99 per cent removal of halogens including fluoride, chlorine and bromide and others
- 99 per cent removal of heavy metals including arsenic, cadmium, chromium and others
- And an average of 20 per cent removal of carbon dioxide (CO2)

"The EUG MACT ruling is designed to encourage the adoption of technologies that can provide considerable cost savings while providing a substantial reduction in emissions to help protect the health of our planet" said Eco Power Solutions CEO, Tom Thompson. "The unrivalled emissions reduction levels realized by deploying our COMPLY 2000 will allow power generators to achieve the emission reduction targets beyond those outlined in this recent ruling – something our competitors can't provide."

Tel: (617) 328-3101
email: info@ecopowersolutions.com

www.ecopowersolutions.com

Eco Power Solutions
Energy Recovery & Emissions Control Systems

FOR IMMEDIATE **RELEASE**

About the COMPLY 2000 Technology (hi-res image available from Eco Power Solutions)

The scalable COMPLY 2000 is designed to remove multi-products of combustion typically classified as NOx, SO2, CO2, unburned hydrocarbons (UHC), particulate matter and heavy metals. Unlike current methods that reduce each of these emissions individually, the COMPLY 2000 eliminates virtually all of these emissions from flue gasses concurrently, therefore, controlling costs. Another major benefit of the system is energy recovery; the COMPLY 2000 generates supplemental energy by recovering waste heat that normally escapes into the atmosphere to help reduce a plant's operating costs significantly.

To achieve the unprecedented multi-pollutant removal levels announced today, the COMPLY 2000 uses an ozone injection process for NOx conversion. A fogging spray is mixed with a hydrogen peroxide solution for SO2 conversion that is condensed concurrently with other pollutants over coils to remove all combustion emissions from the exhaust gas stream. This process converts NOx and SO2 to nitric and sulfuric acid in the wastewater stream collected at the bottom of the COMPLY 2000 unit. Simultaneously, unburned hydrocarbons and particulate matter is removed during the condensation phase along with carbonic acid resulting from dissolved CO2. This wastewater can then be treated and recycled.

About Eco Power Solutions

Eco Power Solutions, (www.ecopowersolutions.com), a recipient of the 2010 Most Promising Energy and Clean Technology Company award at the 8th Annual Rice Alliance Energy and Technology Venture Forum, is a leading developer and provider of a patented turnkey energy recovery and multi-pollutant emission control technology, COMPLY 2000, to utility and industrial clients. Eco Power Solutions technology provides a greater than 95 percent reduction in emissions, i.e., sulfur dioxide (SOx), nitrogen oxide (NOx), Mercury (Hg), and Particulate (>PM2.5), along with an average of 20 percent reduction in Carbon Dioxide (CO2). Additionally, the company's technology is capable of generating supplementary energy by recovering waste heat that normally escapes into the atmosphere, thus providing a significant reduction in operating costs and increase energy reliability.

- 30 -

For More Information:
Kevin Crapsey
513-702-2616
E-Mail: kevin.crapsey@ecopowersolutions.com

Tel: (617) 328-3101
email: info@ecopowersolutions.com

Kentucky Utilities to seek $1.1 billion increase in electric bills

May 26 - Lexington Herald-Leader (Lexington, Ky.)

Kentucky Utilities said Wednesday that it plans to ask the state Public Service Commission for permission to raise the environmental surcharges on customers' bills beginning in 2012 to pay for federally mandated improvements at its coal-fired plants.

The utility said it is seeking to recover $1.1 billion that it will spend to upgrade its Ghent and E.W. Brown plants, the latter of which is on the banks of Herrington Lake.

If the request is approved by the PSC, customers would see bills increase 1.5 percent in 2012. The increases would amount to a maximum of 12.2 percent in 2016.

For a residential customer using 1,000 kilowatt hours a month, the initial monthly increase would be $1.13 during 2012 and the maximum would be $9.46 a month in 2016, according to the utility.

The moves come as the U.S. Environmental Protection Agency has taken steps to further reduce emissions of pollutants.

At both plants, KU will install systems to better control particulates and mercury. The utility also will convert a wet storage facility at Brown to a dry landfill.

"These are changes that we are forced to do," said KU spokesman Chip Keeling. "We don't have a choice."

KU's affiliated company, Louisville Gas & Electric, will ask the PSC for permission to increase its environmental surcharges by $1.4 billion for the same reason.

Both companies were bought last year by Pennsylvania-based PPL Corp. A stipulation of that sale was that the utilities would not seek an increase in base rates until 2013. That doesn't apply in this case, though, as environmental surcharges are different than base rates.

Rate cases typically see utilities ask for a certain amount and then agree to a smaller increase. In environmental cases, though, "typically you will not see settlements where they get together with the other parties and make concessions on what the amount of recovery will be," said PSC spokesman Andrew Melnykovych.

KU and LG&E plan to file their requests with the PSC on Wednesday. Melnykovych said state statutes give the PSC six months to rule on the requests.

Keeling noted that this might be just the first step of more changes coming for KU's energy production portfolio. The new requirements might force the retirement of KU's Green River and Tyrone plants, and LG&E's Cane Run plant. Replacing the energy produced from those three plants could cost $800 million, he estimated.

The utility would have to examine whether to build other plants or generating units or buy energy from other producers.

The presumption now, Keeling said, is that the utility will install natural gas-fired turbines.

The moves mean bills are rising, but Keeling expects rates to continue to be attractive in Kentucky because nearby states that also rely heavily on coal for energy will see the same increases.

"The drivers for this are stakeholders in the east and the west," he said. "They don't have and don't burn coal, so they're not going to be impacted like we will be."

From:	Hillman, Timothy M.
To:	Saunders, Eileen
CC:	168908 E.ON-AQC; Jackson, Audrey; Crabtree, Jonathan D.; Mahabaleshwarkar, Anand; Wehrly, M. R.; Lausman, Rick L.; Hintz, Monty E.; Goodlet, Roger F.; Betz, Alex; Lucas, Kyle J.; Smith, Dave; Mehta, Pratik D.
Sent:	11/22/2010 10:36:59 AM
Subject:	168908.28.3000 101122 - Action Item List
Attachments:	168908 LG&E AND KU ACTION ITEM LIST.xls

Eileen,

Attached is the updated action item list for our weekly Monday call.

Regards,

Tim Hillman | Project Manager
Power Generation - Environmental Services
Black & Veatch - Building a World of Difference™
11401 Lamar Avenue
Overland Park, KS 66211
Phone: **(913) 458-7928**
Email: **hillmantm@bv.com**

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1	ITEM #	SOURCE		DESCRIPTION	FILE NO.	FACILITY	RESPONSIBILITY		DATE ADDED	IG DUE DA	RR DUE DA	OMPL DAT
2		DOC/MTNG	DATE				CO.	INITIAL				
3		**GENERAL**				n--	A					
4	27	Conf Call 10102	10/25/10	Prepare letter spec for Fabric Filter workshop.	41.0806	n--	B&V	AM/RL	10/19/10	TBD		
5		**MILL CREEK**				Mill Creek	A					
6	35	--	11/8/10	Incorporate LG&E and KU comments to Mill Creek PDM	22.1000	Mill Creek	B&V	MW/JC	11/08/10	11/16/10	11/24/10	
7	32	Email 41.0803 1	11/5/10	Provide comments and direction on Mill Creek Validatio	41.0803	Mill Creek	LG&E/KU	ES	11/08/10	11/16/10	11/22/10	
8	43	Email 14.1000 1	11/16/10	Provide LG&E/KU comments on Mill Creek validation pr	14.1000	Mill Creek	LG&E/KU	ES	11/16/10	11/22/10		
9		**GHENT**				Ghent	A					
10	40	--	11/8/10	Incorporate LG&E and KU comments to Ghent PDM an	22.1000	Ghent	B&V	MW/JC	11/15/10	11/30/10		
11		**E.W. BROWN**				Brown	A					
12	34	--	11/8/10	Prepare and issue draft of Project Design Memorandum	22.1000	Brown	B&V	TH	11/08/10	11/25/10		
13	41	Brown KO Mtg M	11/15/10	Review U3 SCR arrgmnts & comment on potential PJFF	14.1000	Brown	B&V	TH/ MH	11/16/10	12/10/10		
14	38	Brown KO Mtg M	11/15/10	Prepare Unit 1 and 2 sketches with and without SCR	14.1000	Brown	B&V	TH	11/15/10	01/10/11		
15	36	Brown KO Mtg M	11/15/10	Provide a list of "sacred ground" areas at Brown.	14.1000	Brown	LG&E/KU	ES	11/15/10	11/19/10		
16	39	Brown KO Mtg M	11/15/10	Identify a contact person for data collection	14.1000	Brown	LG&E/KU	ES	11/15/10	11/19/10		
17	42	Email 14.1000 1	11/16/10	Provide LG&E/KU comments on Brown Kick Off Meetin	14.1000	Brown	LG&E/KU	ES	11/16/10	11/22/10		
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1	STATUS	NOTES					
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4	Open	Discuss what the spec and workshop would look like during the 11/22 conference call (11/15).					
5							
6	In Progress	Waiting for confirmation of the updated Table 1-14: Load Model.					
7	Open						
8	Open						
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10	In Progress						
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12	In Progress	PDM issued for In-House Review (11/18)					
13	Open	Pending the receipt of the Unit 3 SCR arrangements from the Brown Info Request					
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