

From: Byrd, Larry(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E011284)
To: Byrd, Larry
CC:
BCC:
Subject: Fwd: 2014 Unit unplanned outage costs
Sent: 01/06/2015 11:49:29 PM -0500 (EST)
Attachments: 2014 unplanned outage cost.xls; ATT00001.htm;

Sent from my iPhone

Begin forwarded message:

From: "Cuzick, Fred" <Fred.Cuzick@lge-ku.com>
Date: January 5, 2015 at 11:28:10 PM EST
To: "Joyce, Jeff" <Jeff.Joyce@lge-ku.com>, "Byrd, Larry" <Larry.Byrd@lge-ku.com>
Subject: 2014 Unit unplanned outage costs

Attached is file that contains detail of the 2014 unplanned outage costs that wrecked our budget.

Thought you would want to see how much it added up to in 2014 at (\$1.1M) in total.

Fred M. Cuzick, CPA, CGMA
Budget Coordinator
LG&E / Trimble County Station
(502)627-6213 (Office)
(502)627-6226 (Fax)
Fred.Cuzick@lge-ku.com

Produced as Native

Original File Name: 2014 unplanned outage cost.xls

Stored File Name: Exchange00000648.xls

From: Cuzick, Fred(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009048)
To: Joyce, Jeff; Byrd, Larry
CC:
BCC:
Subject: 2014 Unit unplanned outage costs
Sent: 01/05/2015 11:28:10 PM -0500 (EST)
Attachments: 2014 unplanned outage cost.xls;

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Produced as Native

Original File Name: 2014 unplanned outage cost.xls

Stored File Name: Exchange00000762.xls

Thompson

From: Cuzick, Fred(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009048)
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph; Henderson, Trent
CC:
BCC:
Subject: 2014 YTD Budget variance explanations
Sent: 01/05/2015 11:20:21 PM -0500 (EST)
Attachments: TC 2014 over budget variance expl.xls;

The attached file gives detail of the items driving the 2014 Full-Year (\$884K) 2014 OPEX Budget Variance.

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Fred.Cuzick@lge-ku.com

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Byrd, Larry; Rabe, Phil; Joyce, Jeff; Ransdell, Charles
CC:
BCC:
Subject: 2014 TC 1 & 2 Outage Summarys
Sent: 01/05/2015 07:02:43 AM -0500 (EST)
Attachments: 2014 TC1 Yearly Outage Summary .docx; 2014 TC2 Outage Summary.docx;

Larry,

I will attempt to put these documents on sharepoint.

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

December 31, 2014

2014 TRIMBLE COUNTY UNIT 2 OUTAGE SUMMARY

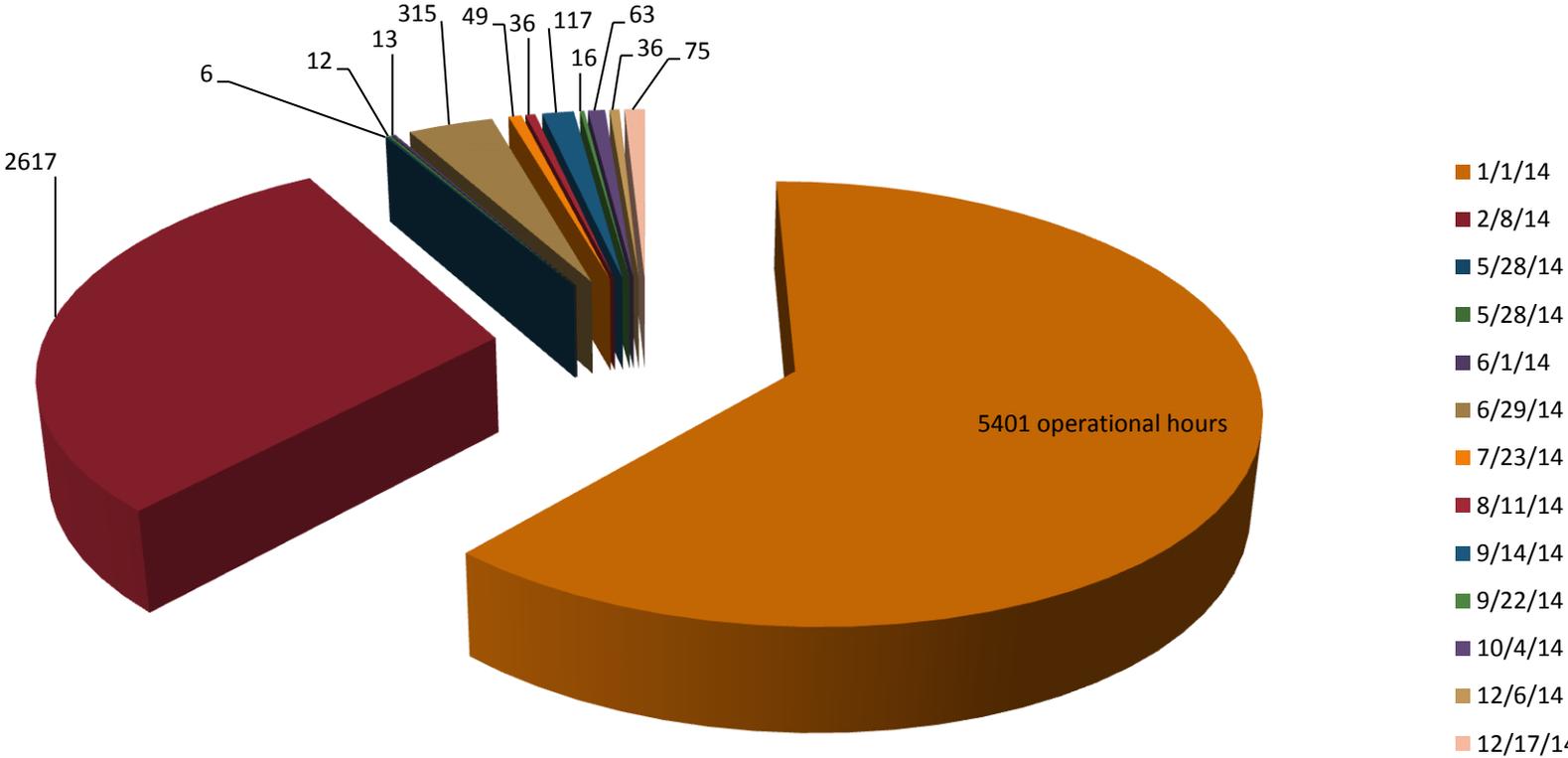
Outage ID	Date	Outage Duration (Hours)	Outage Duration (Minutes)	Cause
NA	1/1/2014	8760	0	8760 Operational Hours per Year
TC2S14	2/8/2014	2617	38	TC2 Planned Burner Replacement Outage
-	5/28/2014	6	40	Excessive Feedwater Flow Trip
-	5/28/2014	12	7	Inadequate SH Spray – High Steam Temp
-	6/1/2014	13	31	TC2 tripped offline when the instrument air dryer de-pressurized
TC2-25	6/29/14	315	45	The Unit was taken offline due to EHC system and turbine valve issues.
-	7/23/2014	49	17	14kV switch gear failed causing unit trip. The failure was from a plugged AC unit which caused water to overflow and drip into the 14kV room and contact 14kV switch gear
-	8/11/14	36	27	During control valve testing, the master trip block in the EHC system had a solenoid operate incorrectly causing hydraulic oil pressure to drop and the turbine steam valves to close. Unit then tripped on reverse power.

December 31, 2014

2014 TRIMBLE COUNTY UNIT 2 OUTAGE SUMMARY

TC2-26	9/14/14	117	23	Unit on forced outage due to tube leak. Screen tube failure lead to 7 other tube failures around original tube failure. Tubes have been cut out for replacement with dutchmans and 8 tube samples will be analyzed to determine a root cause.
TC2-27	9/22/14	16	10	Packing leak on feedwater start-up bypass valve required unit to be taken off-line in order to repair the valve and return the unit to service.
TC2-28	10/4/2014	63	16	TC2 was taken offline for a maintenance outage to repair a leak in the economizer outlet vent piping.
-	12/6/2014	36	01	While attempting to isolate the 8A heater for repair, the 8A heater bypass valve packing began to leak.
TC2-29	12/17/2014	75	19	Unit came offline due to a boiler tube leak on the Superheater Platen tube, Element 10 circuits 6 and 7.

8760 Operational Hours Per Year



Produced as Native

Original File Name: Microsoft_Excel_Worksheet1.xlsx

Stored File Name: Exchange00000869.xlsx

Thompson

From: Cuzick, Fred(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009048)
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph; Henderson, Trent
CC:
BCC:
Subject: 2014 O&M and Capital spend and commitments (latest 12-16-14) and Other Important Cost data
Sent: 12/16/2014 01:34:54 PM -0500 (EST)
Attachments: TC Committed & Other Costs Data 2014-NOVEMBER (12-16-14) .xls;

Attached is the latest 2014 Committed cost report for O&M and Capital by project as of 12-16-14. Please review each tab for O&M spend and Capital spend and active/open PO's committed against them (also includes PO's that pertain to 2015 as well).

Please review the Open PO's Tab and let Ron or Marci know if a PO needs to be closed out. If a PO does not need to carry into 2015 please have it closed out as well.

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(502)627-6226 (Fax)
Fred.Cuzick@lge-ku.com

From: Anderson, Dave (Trimble County)/(O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Byrd, Larry
CC:
BCC:
Subject: 2014 TC2 Outage Summary.docx
Sent: 11/20/2014 07:24:32 AM -0500 (EST)
Attachments: 2014 TC2 Outage Summary.docx;

FYI.....

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

November 18,
2014

2014 TRIMBLE COUNTY UNIT 2 OUTAGE SUMMARY

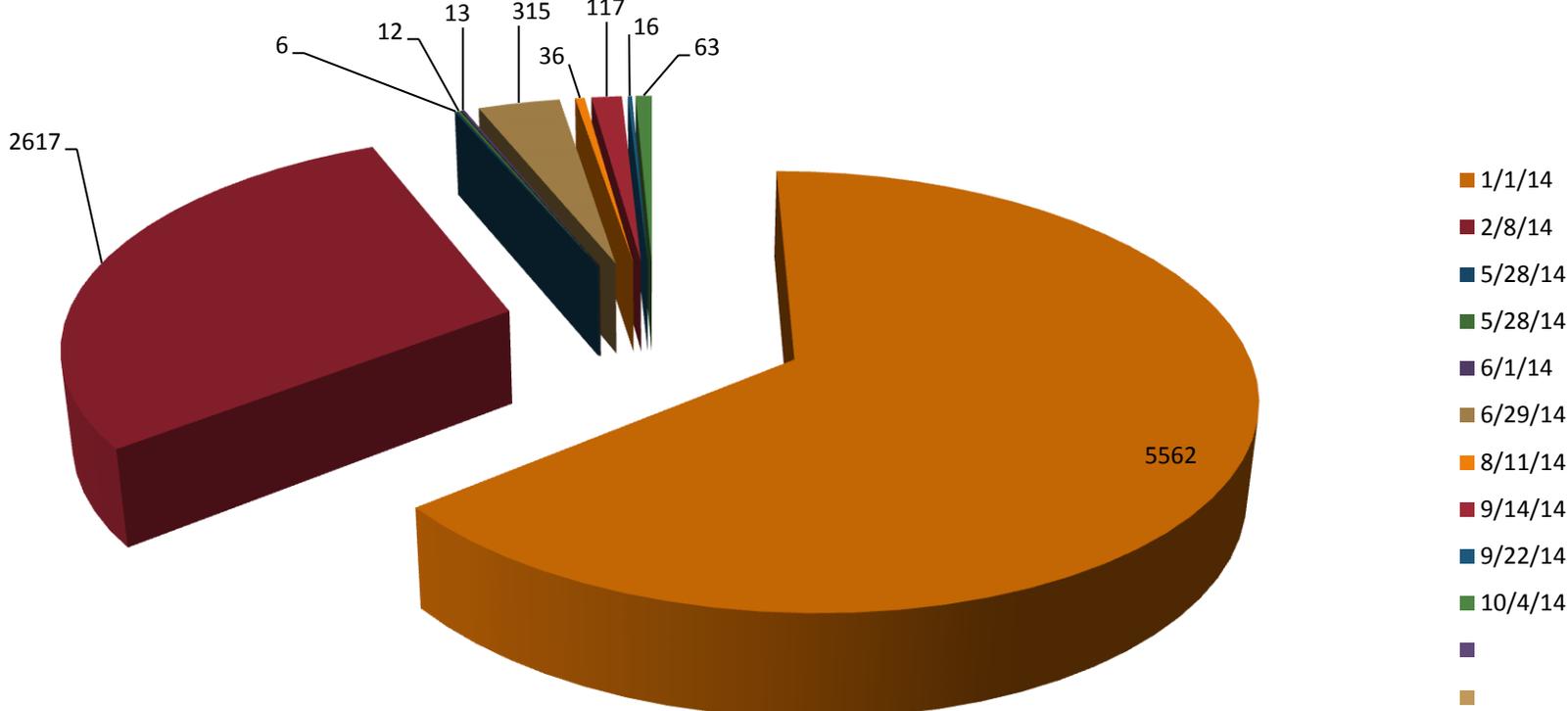
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November 18,
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2014 TRIMBLE COUNTY UNIT 2 OUTAGE SUMMARY

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TC2-28	10/4/2014	63	16	TC2 was taken offline for a maintenance outage to repair a leak in the economizer outlet vent piping.

8760 Operational Hours Per Year



Produced as Native

Original File Name: Microsoft_Excel_Worksheet1.xlsx

Stored File Name: Exchange00003735.xlsx

Thompson

From: Cuzick, Fred(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009048)
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph; Henderson, Trent
CC:
BCC:
Subject: 2014 O&M and Capital spend and commitments (latest 11-12-14) and Other Important Cost data
Sent: 11/12/2014 05:02:05 PM -0500 (EST)
Attachments: TC Committed & Other Costs Data 2014-YTD OCT (11-12-14) .xls;

Attached is the latest Committed cost report for O&M and Capital by project as of 11-12-14. Please review each tab for O&M spend and Capital spend and active/open PO's committed against them.

There are several projects on the Capital Tab that do not show a PO committed against that particular project. Please review this and let me know.

Please review the Open PO's Tab and let Ron or Marci know if a PO needs to be closed out. If a PO is shown as "open" then that tells me we might owe something still.

Not much O&M money left to spend, so please communicate what you plan to spend if something comes up. We are trying not to over extend ourselves with only 2 months left in the year.

Fred M. Cuzick , CPA, CGMA
Budget Coordinator
LG&E / Trimble County Station
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Fred.Cuzick@lge-ku.com

Thompson

From: Cuzick, Fred(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009048)
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph; Henderson, Trent
CC:
BCC:
Subject: FW: 2014 O&M and Capital spend and commitments (latest 10-14-14) and Other Important Cost data
Sent: 10/28/2014 08:42:22 AM -0400 (EDT)
Attachments: TC Committed & Other Costs Data 2014-YTD SEP (10-14-14) .xls;

Please review and make sure PO's are closed out if they are no longer needed. You will need to see Tab 7.

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(502)627-6213 (Office)
(502)627-6226 (Fax)
Fred.Cuzick@lge-ku.com

From: Cuzick, Fred
Sent: Tuesday, October 14, 2014 12:30 PM
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph
Subject: 2014 O&M and Capital spend and commitments (latest 10-14-14) and Other Important Cost data
Importance: High

Attached is the latest Committed cost report for O&M and Capital by project as of 10-14-14. Please review each tab for O&M spend and Capital spend and active/open PO's committed against them.

Please review the Open PO's Tab and let Ron or Marci know if a PO needs to be closed out.

Not much O&M money left to spend, so please communicate what you plan to spend if something comes up. We are trying not to over extend ourselves with only 2.5 months left in the year.

Fred M. Cuzick , CPA, CGMA
Budget Coordinator
LG&E / Trimble County Station
(502)627-6213 (Office)
(502)627-6226 (Fax)
Fred.Cuzick@lge-ku.com

Type: Meeting Request
Organizer: Anderson, Dave (Trimble County)
Subject: TC2 Spring Outage Meeting
Location: ERT Training room 2nd floor
Start: 01/24/2014 02:30:00 PM -0500 (EST)
End: 01/24/2014 03:00:00 PM -0500 (EST)
All Day Event: False
Attendees: Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Chin, Doug; Craft, Jim; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Park, Marci; Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; TC Fourth Floor Conference Area; Black, Ken; Withrow, Jimmy; Wilson, Gregory
Sent On: 01/24/2014 10:26:53 AM -0500 (EST)
Attachments: TC2S14 Spring Outage Plan_201405073596600003764_04BD177E.zip; 1-24-14 Outage Meeting Agenda_201405071766600003764_5339A7B7.zip;

Documents for today's meeting.

MEETING HAS BEEN MOVED TO 2ND FLOOR ERT TRAINING ROOM!

All,

Would like to meet briefly to discuss the current tasks that will take place the evening we come offline and through the weekend.

Space is limited on the fourth floor but we will make do and relocate if necessary.

Thanks,

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

1. Safety Reminders

- a. Contractor Safety Meetings (Mon. – Fri. at 9:00, 3rd floor lunch room).
- b. Goals
 - i. *0 RECORDABLE INJURIES & 0 FIRST AIDS*
 1. *Business Partners*
 2. *LG&E*
- c. Housekeeping- Emphasize

2. Outage Plan review

- a. Executive Summary
- b. EFOR Drivers
- c. Shutdown Procedure
- d. Areas of Responsibility
- e. Safety Walk down schedule
- f. Schedules
 - i. Doosan
 - ii. Bechtel
 - iii. HEP
 - iv. LG&E

3. MISC-

- a. Observations/ “Lessons Learned” review
- b. Guard Coverage/ Parking
- c. Warehouse Coverage- Normal Schedule, extra coverage available upon request.
- d. House Crane
- e. TC2 Elevator (plant & scrubber) Operator- **Melvin & Sons**
 - i. Use keys and operate in attendant mode
 - ii. Issue Radio for communication of loading issues.
 - iii. Shut elevator down when overloaded or conflict arises.
 - iv. Limit the trips/ use of elevator.

2014 TC2 Spring Outage Dates:

- February 3rd- May 19th

Produced as Native

Original File Name: TC2S14 Spring Outage Plan_201405073596600003764_04BD177E.xlsm

Stored File Name: Exchange00006624.xlsm

From: Byrd, Larry(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E011284)
To: Cuzick, Fred
CC: Joyce, Jeff
BCC:
Subject: RE: 2014 O&M and Capital spend and commitments (latest 12-16-14) and Other Important Cost data
Sent: 12/17/2014 05:04:35 AM -0500 (EST)
Attachments: Copy of TC Committed Other Costs Data 2014-NOVEMBER (12-16-14) .xls;

Fred,

I added the two columns on the right of your spreadsheet (attached), and then highlighted any projected negative variances that are bigger than- \$100k in orange. Can we drill down into these items later today? If for no other reason, it may help us dial in our O&M budgeting a little better in the future, but I think some of them warrant a close look to make sure the accounting is correct.

Larry

From: Cuzick, Fred
Sent: Tuesday, December 16, 2014 1:35 PM
To: Joyce, Jeff; Rabe, Phil; Byrd, Larry; Ransdell, Charles; Mohn, Laura; Payne, Nicholas; Slaughter, Mitch; Joyce, Kenny; Raker, Adam; Feider, Ryan; Hannon, Hannah; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Gray, Jeffrey; Anderson, Dave (Trimble County); Simmons, Jill; Turner, Tyler; Waller, Logan; Della Rocco, Thomas; Schultz, Joseph; Henderson, Trent
Subject: 2014 O&M and Capital spend and commitments (latest 12-16-14) and Other Important Cost data

Attached is the latest 2014 Committed cost report for O&M and Capital by project as of 12-16-14. Please review each tab for O&M spend and Capital spend and active/open PO's committed against them (also includes PO's that pertain to 2015 as well).

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Fred.Cuzick@lge-ku.com

From: Byrd, Larry(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E011284)
To: Dukes, David
CC: Bullock, Sam; Joyce, Jeff; Turner, Tyler
BCC:
Subject: RE: Pulverizer Report 12-3-14 REVISED
Sent: 12/04/2014 09:47:22 AM -0500 (EST)
Attachments:

Dave,

I would change the word "rebuilt" to "weld overlaid," regarding the work done to the rolls and races (grinding segments) during the spring 2014 TC2 outage, and also use that description for any weld overlay work done in the future, on any of the TC2 or TC1 mills. That's more specific and less likely to create confusion in the future.

Larry

From: Dukes, David
Sent: Thursday, December 04, 2014 7:54 AM
To: Bullock, Sam; Byrd, Larry; Carlisle, Gary; Dorwart, Jordan; Hudson, Glen; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Mohn, Laura; Phelps, Grant; Rabe, Phil; Sedam, Dale; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Turner, Tyler
Subject: Pulverizer Report 12-3-14 REVISED

All,
I have updated the report to include the comment for Unit 2 rolls and races weld overlaid during 2014 outage.

Thanks,
Dave

From: Williams, James (Dayton)(james.williams@fmglobal.com)
To: Byrd, Larry; Payne, Nicholas; Joyce, Jeff
CC: Ferguson, Nina
BCC:
Subject: FW: 2009 Hitachi unit at PPL LGE Trimble county
Sent: 03/24/2014 11:32:09 AM -0400 (EDT)
Attachments: EH report.pdf;

Attached is a preliminary copy of my report. Sorry this took so long, it got hung up due for 2 weeks due to an admin issue with our process. Let me know if you have any questions.

By the way, I checked with our other offices and we do not have any Turbine-Generator bulletins from Hitachi, but we do insure a couple TC4F units in Singapore and a smaller Hitachi unit in the UK. I assume you already know you can sign up to the <http://www.generatortechnicalforum.org/html/forum.htm>, which is an open forum and typically questions are responded to by the moderators and members (free).

Hitachi was recently taken over by Mitsubishi and perhaps things will be different going forward. Apparently Mitsubishi maintains a website with bulletins and sends bulletins by mail.

I'll try to get more on this.

Jim Williams

AVP Sr. Engineering Specialist
FM Global Equipment Hazards
937-469-0058 (cell)

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[FM Global Property Loss Prevention Data Sheets](#) | [FM Approval Guide](#) | [FM Global Online Training](#)

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From: Williams, James (Dayton)
Sent: Thursday 13 March 2014 12:36
To: Verloop, Erik
Cc: Schutt, Anthony; Petitgout, Stephen
Subject: 2009 Hitachi unit at PPL LGE Trimble county

Eric,

My 2009 vintage, 830 MW Hitachi Turbine Generator is the only Hitachi unit my customer has and the only Hitachi unit in our Ops center (to my knowledge).

The insured says that Hitachi claims they have no problems, no memos, no bulletin items etc. My customer is used to GE TILs and similar action from OEMs and is frustrated by this and they would like to know if we have any information, contacts etc. we could share where they can get some user group type support on potential problems with these. I don't think we have anything for them, but I thought I'd bounce it off you.

Turbine Type TC4F-40
Generator Type TFLQQ Form KD 2 pole

Thanks,

Jim Williams

AVP Sr. Engineering Specialist
FM Global Equipment Hazards
937-469-0058 (cell)

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FM Global Risk Report (Preliminary)

PPL Corporation

LG&E / KU
Trimble County Generating Station & Substation
Highways 754 & 1488
Bedford, Kentucky 40006
USA

Equipment Hazards Regular Risk Evaluation

Visit by: James R. Williams
Visit date: 11 March 2014
Conference with: Mr. Jeff Joyce, General Manager

Principal Site Activity

This location includes two base loaded, coal-fired boiler turbine generators (540 MW-subcritical and an 800 MW-supercritical) and six 150 MW-gas turbine generators for peaking service.

Understanding the Risk at this Facility

This coal fired electric generating plant was visited to complete a regular review of equipment hazards.

There are many equipment hazards at a coal fired electric generation station. A large boiler low water accident or explosion, a turbine generator accident, or an electrical apparatus fire can be very costly and shut down the plant for many months. These hazards are mitigated with good control systems, alarms and trip set-up and management, good operator training, detailed inspections, preventive maintenance testing and timely overhauls of this equipment and it's support equipment. This report outlines some of these efforts and includes suggestions for improvements.

Summary of Recommendations

Rec Number	Recommendation Synopsis	Loss Expectancies (USD)
14-03-001	Over speed trip testing should be completed on an annual basis for each turbine.	Reduces probability or severity.

The recommendations in this report are directly related to the context of this visit. For example, Equipment Hazard visits will typically not include Fire Hazard recommendations and vice versa. Similarly, Focus visits may be done to cover very specific subjects. Thus it is important to note that this is not a list of all recommendations for this location. The author of the report determines what specific recommendations to display. For a full list of recommendations please contact your account engineer.

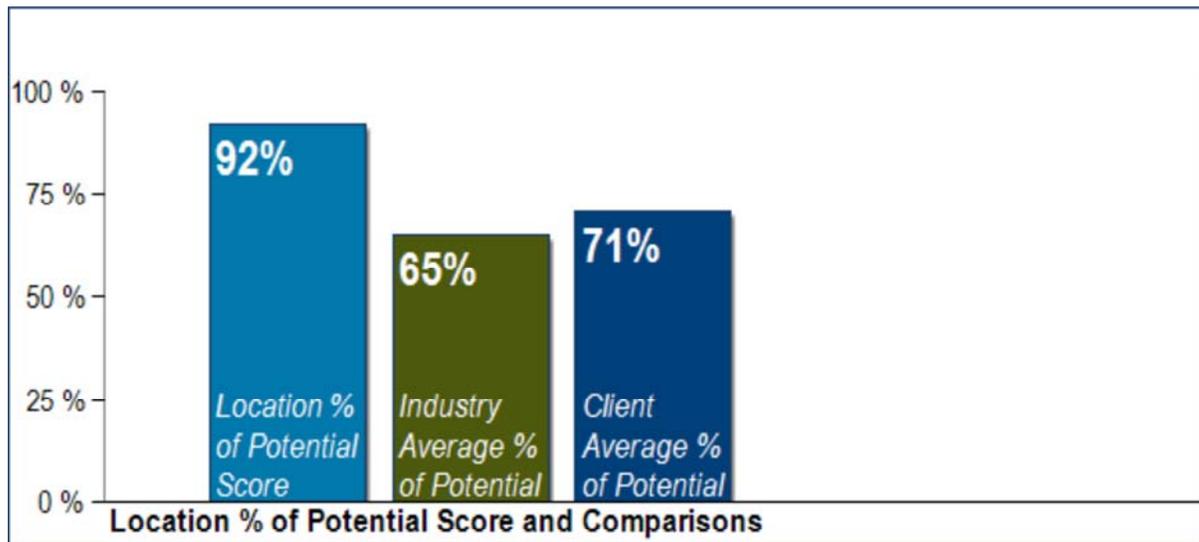
Factory Mutual Insurance Company (FM Global) has developed this report for insurance underwriting purposes. The report is provided to you for informational purposes only to reduce the possibility of loss to insured property by bringing to your attention certain potential hazards or conditions. Life, safety, or health issues are not addressed. You must make the decision whether to take any action. FM Global undertakes no duty to you or any other party by providing this report or the activities on which it is based. The liability of FM Global is limited to that contained in its insurance policies.

Location Overview

The following display(s) show RiskMark information for this location. Note that the RiskMark scores and displays are different than in the past. RiskMark was recalibrated and enhanced to now include Equipment Hazards and an emphasis on Human Element programs. RiskMark will now provide additional points for risk improvement in these and other areas. Your contacts at FM Global can help you to see the advantages of this more comprehensive benchmarking tool.

RiskMark Comparisons

This display shows a comparison of your RiskMark score (on a percent of potential score basis) to the average percent of potential scores of other groups as noted in the display.



The Industry used in the above chart is Fossil Fuel Power Plant.

Management of Exposures

Certain potential hazards and conditions were evaluated at this facility. Completion of the following items will help lower both the frequency and severity of losses and minimize the possibility of costly interruptions to your business.

14-03-001

Over speed trip testing should be completed on an annual basis for each turbine.

The Hazard	Without routine verification of the over speed protection, the risk of a catastrophic over speed event is unacceptably high for these very large rotating machines.	
Technical Detail	<p>Although kept on an annual schedule in the past, currently, an up-to-date over speed trip tests is not formally recorded for the 6 Combustion Turbines and Unit No. 2 (though perhaps done in October 2013 without a record).</p> <p>This station has historically been doing actual over speed trip tests (taking the machine above 110-15% rated speed) in most cases, but the use of simulated methods is approved for these machines because of the type of over speed trips they have (modern electronic multi-signal systems with capability of tripping at a lower speed). The exercise of the over speed trip function does require the actual trip of the machine (and observation of the stop valves and non return valves etc.), but the simulation of the over speed condition is allowed.</p>	
Loss Expectancies	Acting on this item would reduce the probability or severity of loss.	
	Exposure to Loss if Completed is approximately:	Minimal PD Minimal BI
Status	According to Mr. Mitch Slaughter, the recommendation will be completed by October 2014.	

Risk Reduction

Recommendations that have been completed or otherwise removed are summarized in this section.

Human Element Recommendations that have been completed often do not have an associated loss estimate since they usually serve to lower the frequency and/or severity of a loss. For this reason, we quantify them by counting the number of such items that have been completed.

The "Counts" of recommendations referenced in this section include each part of multi-part recommendations except in cases where each part represents options to address a single deficiency. In such cases, the recommendation is only counted once.

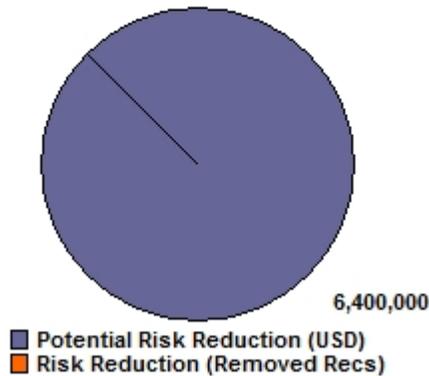
These charts illustrate current risk reduction status since the last inspection visit, and also include an historical account of previous risk reduction activity on a cumulative basis. Focus and special visits are not tracked separately, but the total outstanding recommendation counts reflect the full history since April 2013.

Though this report does not include every currently active recommendation (Fire, Natural or Equipment Hazards), these charts reflect the location's entire exposure and risk reduction activity for all active recommendations at this time.

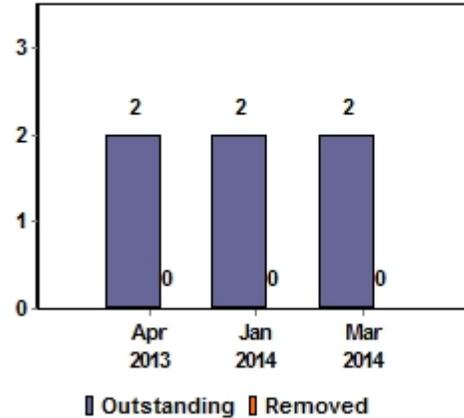
Physical Recommendations

No **Physical** recommendations have been completed or removed since our last evaluation.

Aggregate Physical Risk Reduction
(Current Sum of Loss Expectancies)



Physical Risk Reduction History
(Count of Recommendations)

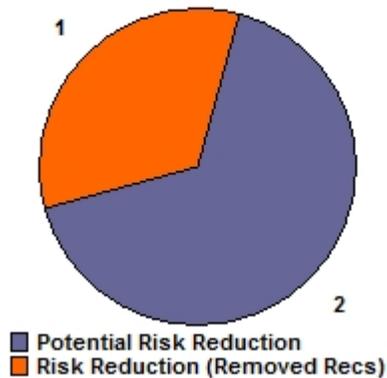
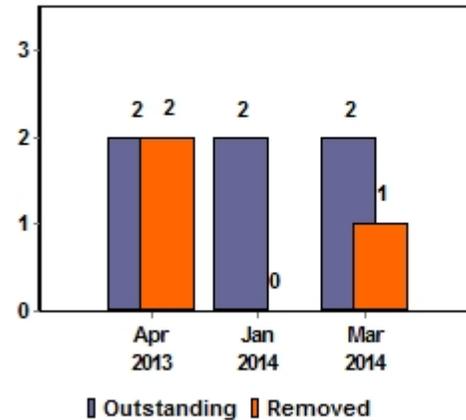


Human Element Recommendations

The following **Human Element** recommendation has been completed or removed as a result of this evaluation:

Rec Number	Recommendation Synopsis <i>Reason for Deletion/Completion</i>	Removal Method
11-09-001	<p>Improve protection against loss of generator hydrogen cooling for Unit No. 2. (revised)</p> <p><i>The installation of protection logic against loss of generator cooling for Unit No. 2. was being changed during this visit/outage. Change will be in effect by end of May 2014 when units starts back</i></p>	Completed 11 Mar 14

Human Element Recommendations continued

Human Element Risk Reduction
(Count of Recommendations)Human Element Risk Reduction History
(Count of Recommendations)

Comments

Unit No. 1 was on line near full load during this visit and Unit No. 2 was down for a Boiler outage for burner replacement. Welded boiler tube changes were required to accommodate the sixty new burners which replaced the original burners which did not perform to the specification. The welded repairs are being done by the code required methods with good NDE and documentation underway. This extended outage for Unit No. 2 is being used to provide various inspections and tests including replacement of lubrication filters (to reduce issues with static charges building up in the system) and inspection and testing of the auxiliary systems, isolated phase bus, excitation transformer, main and aux transformer bushings etc. Unit No. 2 will be back on line by the end of May 2104.

A review of forced outages for the past 12 months does not point up any concerns with maintenance or property protection schemes. It is expected that many of the previous issues with Unit No. 2 will be corrected with the new burners. A new root cause and failure analysis requirement was added this year which starts with the recording of forced outages and ends with good failure analysis, reports shared between stations and an excellent follow up process to improve reliability at all stations. A review of this process shows a great start to an excellent program.

The last Major Turbine and Generator overhaul for Unit No. 1 was completed in 2009 when HP-IP and both LP turbine sections were fully cleaned, examined, reconditioned etc. The outage also included a bore-sonic evaluation of each of the 4 rotors (including generator) with good reports for continued service. In 2009 the generator was re-wedged and fully inspected and tested (to 1.5E DC, with very good results) and TIL 1292 (calling for detailed rotor forging exam and modifications) was completed by the manufacturer. The 18-18 retaining rings (1996 vintage) were also examined inside and out (since they had to be removed) with good results. The Feed-water heaters, condensers, main steam and reheat piping were examined by several NDE techniques and

Comments continued

repaired as needed. A short circuit in the field winding was repaired at an unscheduled outage just after start-up the same year.

The new Generator stator cooling leak detection system on unit No. 1 showed good results at this time. Unit No. 2 does not require this device (according to the manufacturer), but it is being budgeted for addition in a few years as a precaution.

The only Turbine and Generator inspections of Unit No. 2 so far (newest unit which started up in 2011) have been limited inspections from various ports etc. during extended outages associated with start-up and problems with boiler burner performance. The Turbine generator bearings have also been inspected several times to repair scoring from contamination (errors in construction process which have now been corrected). Outages in the Spring of 2012 and 2013 included a limited inspection of the generator and electrical testing. All results have been satisfactory, except that several transformer bushings had to be replaced, due to deteriorated tap insulation. The HV and LV bushings on the large No. 2 spare Main step up transformer (900MW) were installed on the in-service unit last year and the original bushings have been repaired and replaced. During This outage these will be tested again.

The operators check stop, intercept and reheat valves daily and exercise boiler alarms, control valves and extraction valves weekly. Feed water controls and alarms are tested monthly, including dump, isolation and bypass arrangements. Boiler drum level trips are tested at 18-24 month outages. Water/steam purity is monitored continuously and treatment is adjusted as needed.

Construction is underway on a new bag house for Unit No. 1 (similar to Mill Creek Unit No. 4). This change will require that the 9,000 Hp ID fans will be replaced with 14,000 HP ID fans which also require larger variable frequency drives, new motors etc. The new bag house is to be on line by year end 2014. The transformers for these drives are exotic and a spare will be considered to prevent a long outage for a transformer failure. The Unit No. 2 excitation transformer also poses a similar concern which will be getting similar consideration.

Unit No. 2 boiler safety valves were hydraulically tested in early February 2014, prior to this outage (as is done every 12-24 months) and only three valves required rebuilding (will be replaced during the outage). Examination of high energy piping in 2011 revealed some minor cracking in some weld areas which was blended by grinding a new hot and cold inspection of the pipe hangers is being completed at this time.

Chemical analysis of bearing oils and EHC oils is conducted Monthly with good results. The results for Unit No. 2 showed a failure of a test for separation of water (demulsibility) and this will be addressed during this outage. A problem with static build up was discovered in the Unit No. 2 lubricating oil system and special filters are being installed during this outage to hopefully reduce this problem. Chemical tests do not show any other fluid degradation at this time. Several of the vibration monitoring system control cards had to be replaced (assumed due to the static buildup) and re calibrated also. These issues will be watched very carefully this year to verify that the solutions have been successful.

Comments continued

Over speed protection is provided by electronic systems which are common for electronic based protection schemes. The testing routines are being modified to abandon the actual over speed tests and replace them with simulated tests on each unit. A recommendation addresses the fact that some of these are overdue at this time and FM Global is being used for guidance on the new program.

Low water trip tests are conducted annually (last October 2013) for Unit No. 1 by a written procedure required by the preventive maintenance system. The Boiler Engineer and Instrument Engineer have written a similar procedure for testing the differential flow trip associated with the No. 2 (super critical boiler) which is now managed likewise (records to be generated by May 2014).

The Unit No. 2 Generator has Partial discharge analysis available and baseline tests were recorded last year. A follow up test each year or so will be used to review results as the unit ages. This technology is expected to add to the other predictive maintenance techniques available, but will not replace any of them.

The 2013 flux probe analysis suggested that there may be one shorted turn in the field of Unit No. 1 (similar result to the previous). This will be followed, but the effect on performance is very minor at this time and until other shorted turns develop, no action is needed.

The most deteriorated high voltage bushing on Unit No. 1 main auxiliary transformer was replaced with a good used bushing in 2012, then all were replaced in October 2013 with new ones. Without a good testing program, this issue might have developed into a big problem.

The Six GE 7FA type Combustion Turbines on the east edge of the property (Unit Nos. 5-10) are Model PG7241 with a dry low-nox design. There are multiple active Technical Information letters (TILs) which apply to these units, calling for inspections for design and operational problems discovered which can become bigger issues with time. Per TIL 1315 and 1334 bore scope inspections were completed to look at the progress of several problems.

Per TIL 1562 (and others) a bore scope examination of the first 5 rows of compressor blades (in unit Nos. 8-10) was used to look for migrated shims (several loose and/or damaged shims discovered Units 7 and 10 which required repair). All shims were staked (in all 14 compressor stages) in Units 8-10, so they cannot migrate again. Units 5 and 6 reportedly do not have shims in the compressor section, but are also inspected at the hot gas path inspections. Per TIL 1509 compressor R0 and R1 blade tips have been checked to look for crack indications and in many cases R0 blades were replaced. Per TIL 1398 generator stator winding end turns (collector end) were examined on all six units and minor epoxy repair of some looseness was completed. Several other TILs (1280, 1539, 1540, 1509-1) also call for examinations of various parts, but these do not become an issue until more hours of use. The number of starts (factored starts based upon nature of each machine use) for a Hot gas path inspection is 900 and each unit has now been given it's first extended hot gas path inspection (extended to include dismantle of the combustion turbine and compressor, with rotor removed). The owners are following all manufacturer recommended actions

Comments continued

and the document which manages the schedule is up to date.

The annual bore scope inspection was conducted on each of the Combustion turbines in October 2013. Only a minor follow up outage was needed on CT No. 8 because of some rubbing discovered on 8 of the 92 buckets on the 1st stage. These rubs near the root were spread over 4 quadrants of the machine and it is assumed that the vibration or movement which caused them was local to these blades. The entire row was changed with certified replacements from the manufacture (an extra set was maintained at the plant, from the previous changes required by TILS). The annual CT bore scope inspections will continue, but it should be noted that with this outage, there are no longer any 12,000 hour combustion parts and the Combustor and hot gas path frequencies will be the same (900 factored starts). The next round of hot gas path inspections will start around 2016 (based upon current use and projected starts). Some new TILs have recently come out which will be included starting in 2016 also.

Over-speed tests were updated on all 5 Combustion Turbines on January 24 and 25 2012. Each tripped at 3558 or 3559 (electronic over-speed trips). These will be repeated in the second quarter of 2014.

The motor operated isolation switches for the CT units have been performing poorly and this will ultimately threaten the ability to follow a proper operating standard and avoid availability problems. Several modifications have been tried, without complete success. These switches will perhaps be replaced over the next year. These issues do not prevent automatic trip or protection, but relate to isolation and preventing inadvertent energization (by having more than one switch between generator and grid when off line).

All four of the large transformers in the transmission yard (could be needed to start the plant from the grid) were replaced in 2012-13 due to age and load requirements. These are being inspected and test results reviewed along with all transformers at this station. All other transformer testing is up to date for this site. A minor issue with contamination on the No. 1 GSU and a trace of acetylene on TCT10 are being investigated.

All Medium and low voltage circuit breakers and relays were serviced during the 2012 (Unit 2) and 2013 (Unit 1) outages of each unit with good results.

The generator relay protection at this site does not include a stator ground alarm for the neutral end of each phase. Mr. Bryan Baker, Electrical Engineer, is equipping the disturbance monitoring system to characterize normal 180Hz signals at the neutral which can be used to provide such an alarm. This is expected to be complete by summer 2014 and this is going to be done across the fleet this year.

All station UPS, emergency bearing pump and transmission substation batteries are in good condition. The 2013 discharge test of each of the Unit No. 2 batteries produced good results. The one battery which was tested at the wrong load is being re-tested at this outage. New discharge test requirements are being rolled out in 2014 in response to new regulatory requirements. FM

Comments continued

Global will be providing support in the use of new discharge tests ever 6 years or so. Methods will be similar to those outlined in NFPA 70B.

Ongoing Services

FM Global is available to provide support in all areas of property loss prevention. These services include:

- New equipment installation reviews
- Electrical system evaluations
- Equipment preventive maintenance planning

Depending on your organization's insurance program, you may also have access to the FM Global MyRisk website. If so, you will find additional risk management tools that can help with your risk improvement strategy at:

<https://myrisk.fmglobal.com/portal/server.pt?fmgindex=05437000&sequencenum=03&accountid=07423&type=riskmarkredirect>

For access to these services, contact one of the following:

Cleveland Operations:

FM Global
25050 Country Club Blvd.
Suite 400
North Olmsted, OH 44070
USA
[1] (216) 362 4820

Skip Slauson,

Account Engineer (Equipment):

FM Global
1 Country View Road
Suite 200
Malvern, PA 19355
USA
[1] (610) 296 3100

Reference Information

PPL Corporation
 LG&E / KU
 Trimble County Generating Station & Substation
 Highways 754 & 1488
 Bedford, Kentucky 40006
 USA

Equipment Hazards
 Regular Risk Evaluation

Visit by: James R. Williams
Visit date: 11 March 2014
Site Contact: Mr. Philip Rabe, P.E., Operations Manager at
 +1 502 6276206, phil.rabe@lge-ku.com
Final Conference Attendees: Mr. Larry E. Byrd, Maintenance Manager;
 Mr. Jeff Joyce, General Manager;
 Mr. Nicholas Payne, Instrument & Electrical
 Supervisor
Location Index Number: 054370.00-03
Account Number: 1-07423
Additional discussions were held as follows: *07 March 2014 / Interim*
 Mr. Mitch Slaughter, Supervisor of Production
 Mr. Philip Rabe, P.E., Operations Manager
 Mr. Gary Dunlap, Maintenance Service Leader
 Mr. Emmett Moore, Electrical Engineer
 Mr. Tomas Manezes, Combustion Turbine
 Supt.
 Mr. Francisco Maldonado, Mechanical
 Engineer
 Mrs. Laura Shuffett-Mohn, Engineering Group
 Mngr

RiskMark Information included in this report is current as of 21 March 2014.

From: GMEINDER Jessie(jessie.gmeinder@power.alstom.com)
To: Maldonado, Francisco
CC: Mohn, Laura; Byrd, Larry; PALUTA Mark; WILLIAMS Mark J; Anderson, Dave (Trimble County); Joyce, Jeff; COWLEY Wes; GRIFFITH Ed
BCC:
Subject: TC2 Amstar additional scope based on UT data
Sent: 03/27/2014 03:16:27 PM -0400 (EDT)
Attachments: TC2 2014 WW overall loss.pdf - 39 KB; TC2 WW UT 2014 data.pdf - 57 KB;

Cisco,

Attached are the color coded datasheets showing the UT data from this outage and possible implications. The first set shows overall high to low variation so you can see where the worst wastage is occurring. The second set is color coded by percentage thickness lost and a prediction on wastage based on current rates. Given that the AMSE code calculation calls for .220" as a minimum thickness, I used .280" (which is close to original thickness) MWT to show 80% or greater (.224") as good. This takes into account the 3.5 safety factor built into the ASME calculation.

Then we applied the typical WW criteria that is used for Unit 1. It is important to note that though Unit 1 is subcritical and Unit 2 is supercritical, you verified with Generation Engineering that this is an acceptable criteria for the waterwalls as the temperatures and pressures are similar. The prediction for wall loss in 2016 was based on a calculation of wastage rates having been .040"-.050" annual based on 8000 hours per year.

Per our discussion today, you want to go after 28' wide x 20' long on the sidewalls only (which is 1120 sqft) for additional Amstar coating this outage. This is 14' on either side of boiler centerline wide and from Upper burner centerline to below Middle burner tall.

Thank you,
Jessie Gmeinder
Field Service Engineer
ALSTOM Power Thermal Services
Boiler Area Center (BAC)

ALSTOM Power Inc
Midwest Service Center
Erlanger, KY 41018

Mobile: (513)800-3022
Fax: (513)297-9021
jessie.gmeinder@power.alstom.com
<http://www.alstom.com/power>

CONFIDENTIALITY : This e-mail and any attachments are confidential and may be privileged. If you are not a named recipient, please notify the sender immediately and do not disclose the contents to another person, use it for any purpose or store or copy the information in any medium.

Thompson

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan
CC:
BCC:
Subject: TC2 Amstar and Start-up Documents
Sent: 04/11/2014 10:48:47 AM -0400 (EDT)
Attachments: TC2S14 Start-up Outage Planning Schedule.pdf - 441 KB; Restart Programme LG&E Interface (14-04-09).pdf - 48 KB;

FYI.....

Attached are the following documents:

- Start-up outage planning document has the steps listed for Amstar.
- Restart Program- Issued by Doosan and has Mitch's dates included for start-up activities beginning at the end of April.

REMEMBER TO SIGN OFF 2A & 2B ID FANS BY 6:00 P.M. SATURDAY, APRIL 12TH!

GAS PATH CLEAR FOR AMSTAR COATING BEGINNING 6:00 PM SATURDAY, APRIL 12TH THROUGH THURSDAY, APRIL 17TH UNLESS OTHERWISE NOTIFIED.

Thanks,

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

Type: Meeting Request
Organizer: Byrd, Larry
Subject: FW: End of the Quarter Accruals/PO Commitments Review
Location: TC 3rd Floor Training Room A
Start: 03/26/2014 10:30:00 AM -0400 (EDT)
End: 03/26/2014 12:00:00 PM -0400 (EDT)
All Day Event: False
Attendees:
Sent On: 03/25/2014 01:11:37 PM -0400 (EDT)
Attachments: PO COMMITMENTS 3-24-14.xlsx;

You weren't included on this meeting notice, but each of you are listed as a contact on the attached spreadsheet for some of the listed POs, and are welcome to attend if available and interested.

FYI,

Larry

-----Original Appointment-----

From: Byrd, Larry

Sent: Tuesday, March 25, 2014 1:06 PM

To: Byrd, Larry; TC Fifth Floor Conference Room; Cuzick, Fred; Mohn, Laura; Payne, Nicholas; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Anderson, Dave (Trimble County); Turner, Tyler; Mills, Ricky; Bullock, Sam; Sedam, Dale; Henderson, Trent; Osgood, Scott; Waller, Logan; Dunlap, Gary; Parson, Jonathan

Subject: End of the Quarter Accruals/PO Commitments Review

When: Wednesday, March 26, 2014 10:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: TC 3rd Floor Training Room A

All,

We'll be meeting with Fred Cuzick at 10 AM tomorrow in Training Room A to discuss our PO commitments and identify what needs to be included in the 1st quarter accruals. Please plan to attend this meeting, *unless* you've already responded back to Fred *and* provided him with all of the information he needs. If that's a problem for anyone, let me know today.

Thanks,

Larry

Type: Meeting Request
Organizer: Byrd, Larry
Subject: End of the Quarter Accruals/PO Commitments Review
Location: TC 3rd Floor Training Room A
Start: 03/26/2014 10:30:00 AM -0400 (EDT)
End: 03/26/2014 12:00:00 PM -0400 (EDT)
All Day Event: False
Attendees: TC Fifth Floor Conference Room; Cuzick, Fred; Mohn, Laura; Payne, Nicholas; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Anderson, Dave (Trimble County); Turner, Tyler; Mills, Ricky; Bullock, Sam; Sedam, Dale; Henderson, Trent; Osgood, Scott; Waller, Logan; Gary.Dunlap@lge-ku.com; Jon Parson (JONATHAN.PARSON@LGE-KU.COM)
Sent On: 03/25/2014 01:09:41 PM -0400 (EDT)
Attachments: PO COMMITMENTS 3-24-14.xlsx;

All,

We'll be meeting with Fred Cuzick at 10 AM tomorrow in Training Room A to discuss our PO commitments and identify what needs to be included in the 1st quarter accruals. Please plan to attend this meeting, *unless* you've already responded back to Fred *and* provided him with all of the information he needs. If that's a problem for anyone, let me know today.

Thanks,

Larry

Type: Meeting Request
Organizer: Byrd, Larry
Subject: End of the Quarter Accruals/PO Commitments Review
Location: TC 5th Floor Conference Room
Start: 03/26/2014 10:30:00 AM -0400 (EDT)
End: 03/26/2014 12:00:00 PM -0400 (EDT)
All Day Event: False
Attendees: TC Fifth Floor Conference Room; Cuzick, Fred; Mohn, Laura; Payne, Nicholas; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Anderson, Dave (Trimble County); Turner, Tyler; Mills, Ricky; Bullock, Sam; Sedam, Dale; Henderson, Trent; Osgood, Scott; Waller, Logan; Gary.Dunlap@lge-ku.com; Jon Parson (JONATHAN.PARSON@LGE-KU.COM)
Sent On: 03/25/2014 01:05:33 PM -0400 (EDT)
Attachments: PO COMMITMENTS 3-24-14.xlsx;

All,

We'll be meeting with Fred Cuzick at 10 AM tomorrow in Training Room A to discuss our PO commitments and identify what needs to be included in the 1st quarter accruals. Please plan to attend this meeting, *unless* you've already responded back to Fred *and* provided him with all of the information he needs. If that's a problem for anyone, let me know today.

Thanks,

Larry

From: Byrd, Larry(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E011284)
To: Anderson, Dave (Trimble County)
CC: Cuzick, Fred
BCC:
Subject: Accepted: TC2 Outage Progress Meeting
Sent: 03/25/2014 09:53:21 AM -0400 (EDT)
Attachments: TC2 SPRING 2014 OUTAGE March estimates.xlsx;

Dave,

Please ask all of the meeting attendees to come prepared to update their TC2 outage spend projections, and add the spreadsheet which was sent out by Fred yesterday (see attached), plus your spreadsheet that shows our planned TC2 outage spend numbers.

Also, please add Fred to the TC2 outage meeting notice, if he isn't already on it.

Thanks,

Larry

Type: Calendar
Organizer: Mohn, Laura
Subject: TC2 Fuel Box Test
Location: TC Fifth Floor Conference Room
Start: 08/25/2014 11:00:00 AM -0400 (EDT)
End: 08/25/2014 12:00:00 PM -0400 (EDT)
All Day Event: False
Attendees: Mohn, Laura; Allen, Ross; Dorwart, Jordan; Maldonado, Francisco; Schultz, Joseph; Carlisle, Gary; Dukes, Christopher; Rabe, Phil; Slaughter, Mitch; Roach, Sandra A; 'Trimble, James T. (Tom)' (TrimbleJT@BV.COM)
Sent On: 08/19/2014 08:42:38 AM -0400 (EDT)
Attachments: TC2 Fuel Box Test Protocol (05-Aug-2014).pdf; Restart Schedule - 30 Day Date Sequential (14-08-18).pdf; Restart Schedule (14-08-18).pdf;

This meeting is to discuss how we will be involved in overseeing Doosan's activities during the upcoming fuel box test. The final version of the test protocol is attached as well as Doosan's most up-to-date (18 Aug) schedule, which has the Group 1 fuel test starting on August 31st.

Regards,

Laura

Sandra and Tom – I wasn't sure who would be here from B&V at that time, but would like to include you if possible. I can follow-up with a call-in number or we can coordinate what number to call into closer to time.

* **DO NOT DELETE OR CHANGE ANY OF THE TEXT BELOW THIS LINE***

Laura Mohn has scheduled this WebEx meeting.

TC2 Fuel Box Test
Host: Laura Mohn

When it's time, start or join the WebEx meeting from here:

https://meetme.lge-ku.com/orion/joinmeeting.do?PW=BgAAAGcp3z-NVFeKNVvY4ZpBvCa6dZEWoybktzBNuX42Us2shVGM4KjTuCoCao4Agx_FPNHvtu7_v7i6yzDH35MNfxZd&MK=990445522

Access Information

Meeting Number: 990 445 522
Meeting Password: conference

Audio Connection

502-560-7450 (WebEx Call-in Number)
1-855-710-9964 (WEbex Toll Free)

Access Code:
990 445 522

Hosts, need your host access code or key? Go to the meeting information page:

<https://meetme.lge-ku.com/orion/meeting/meetingInfo?MeetingKey=990445522&PW=BgAAAGcfUd3FHeGMI9ixG1V7OdhElfy5ethquGvCi42CftCqsrLKK9tPwJxuU->

[xq1s4VXR50xXwrRsXiMuZRjmPpNGle](#)

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Trimble County 2 - 2014 Outage - Restart & Optimisation Programme



Doosan Babcock Thompson

Activity ID	Activity Name	Start	Finish	Aug 18							Aug 25							Sep 01							Sep 08							Sep 15							22		
				Sat	S	M	T	W	T	Fri	Sat	S	M	T	W	T	Fri	Sat	S	M	T	W	T	Fri	Sat	S	M	T	W	T	Fri	Sat	S	M	T	W	T	Fri		Sat	S
R3530	Oil Burner Optimisation	29-Jul-14 A	29-Aug-14	[Green bar spanning from Sat Aug 18 to Sat Sep 15]																																					
R3620	Final Control Logic /Tuning (O2 Dip, Cross Limiting)	08-Aug-14 A	21-Aug-14	[Green bar from Sat Aug 18 to Sat Aug 25]																																					
R1260	Optimal position for PA Hot Air control dampers - Monitoring	08-Aug-14 A	22-Aug-14	[Green bar from Sat Aug 18 to Sat Aug 25]																																					
R1320	Monitoring Optimal SA & OFA Windbox Damper Position	08-Aug-14 A	22-Aug-14	[Green bar from Sat Aug 18 to Sat Aug 25]																																					
R3490	O2 Optimisation (if required) - Phase 4	08-Aug-14 A	22-Aug-14	[Green bar from Sat Aug 18 to Sat Aug 25]																																					
R3580	Burner Inner - Outer Zone Adjustment - Phase 7a	18-Aug-14	18-Aug-14	[Green bar on Sun Aug 19]																																					
R1590	Test O2 bias at 0.1, 0.2, 0.3	18-Aug-14*	20-Aug-14	[Green bar from Mon Aug 20 to Wed Aug 22]																																					
R3650	O2 bias - Evaluate results and implement new fx curve & set points	20-Aug-14	20-Aug-14	[Green bar on Wed Aug 22]																																					
R3660	O2 Bias - Load Drop to test above changes	20-Aug-14	21-Aug-14	[Green bar from Wed Aug 22 to Thu Aug 23]																																					
R2500	Lime Injection - Commence pre AH Lime Injection Test Period	22-Aug-14		◆ Lime Injection - Commence pre AH Lime Injection Test Period																																					
R2890	Lime Injection - Bottom Mill O/S - 100% Maximum Feed Rate (70/30 Riverview/PRB)	23-Aug-14	23-Aug-14	[Green bar on Fri Aug 24]																																					
R2900	Lime Injection - Bottom Mill O/S - 75% Maximum Feed Rate (70/30 Riverview/PRB)	23-Aug-14	24-Aug-14	[Green bar from Fri Aug 24 to Sat Aug 25]																																					
R2910	Lime Injection - Bottom Mill O/S - 50% Maximum Feed Rate (70/30 Riverview/PRB)	24-Aug-14	24-Aug-14	[Green bar on Sat Aug 25]																																					
R2920	Lime Injection - Bottom Mill O/S - 0% Maximum Feed Rate (70/30 Riverview/PRB)	24-Aug-14	25-Aug-14	[Green bar from Sat Aug 25 to Sun Aug 26]																																					
R2950	Lime Injection - Top Mill O/S - 75% Maximum Feed Rate (70/30 Riverview/PRB)	25-Aug-14	25-Aug-14	[Green bar on Sun Aug 26]																																					
R2960	Lime Injection - Top Mill O/S - 50% Maximum Feed Rate (70/30 Riverview/PRB)	25-Aug-14	26-Aug-14	[Green bar from Sun Aug 26 to Mon Aug 27]																																					
R2970	Lime Injection - Contingency / Retest as required	26-Aug-14	27-Aug-14	[Green bar from Mon Aug 27 to Tue Aug 28]																																					
R3630	Final Combustion Settings/Tuning Evaluation & Demonstration	27-Aug-14	29-Aug-14	[Green bar from Tue Aug 28 to Thu Aug 30]																																					
R3640	Repeat SCR Outlet Grid By Ferco	28-Aug-14	29-Aug-14	[Green bar from Wed Aug 29 to Thu Aug 30]																																					
R3560	Load Ramps & Tuning - Phase 9 / AGC operation demo test	29-Aug-14	31-Aug-14	[Green bar from Thu Aug 30 to Sat Aug 31]																																					
R3600	Group 1 Fuel Test - Introduction of Armstrong / PRB 70/30 Blend	31-Aug-14	03-Sep-14	[Green bar from Fri Aug 31 to Sun Sep 2]																																					
R1600	Group 1 Fuel Test - Pre-requisite Test Set-up on 1 Mill	03-Sep-14	04-Sep-14	[Green bar on Mon Sep 4]																																					
R2730	Functional Tests - CO (30 Day Rolling Average)	03-Sep-14	03-Oct-14	[Green bar from Mon Sep 4 to Mon Sep 11]																																					
R1610	Group 1 Fuel Test - Final Stabilization	04-Sep-14	05-Sep-14	[Green bar from Tue Sep 5 to Wed Sep 6]																																					
R1620	Group 1 Fuel Test - Test Runs	05-Sep-14	08-Sep-14	[Green bar from Wed Sep 6 to Sat Sep 9]																																					
R2260	Functional Tests - Unburnt Carbon in Flyash (Precip Sample 3/5)	05-Sep-14	06-Sep-14	[Green bar from Thu Sep 7 to Fri Sep 8]																																					
R1630	Group 2 Fuel Test - Load 1 Mill with Group 2 Test Fuel	08-Sep-14	09-Sep-14	[Green bar from Sun Sep 9 to Mon Sep 10]																																					
R1640	Group 2 Fuel Test - Pre-requisite Test Set-up on 1 Mill	09-Sep-14	10-Sep-14	[Green bar from Mon Sep 10 to Tue Sep 11]																																					
R1650	Group 2 Fuel Test - Introduce Test Group 2 Test Fuel	10-Sep-14	11-Sep-14	[Green bar from Tue Sep 11 to Wed Sep 12]																																					
R1660	Group 2 Fuel Test - Tuning and Stabilization	11-Sep-14	16-Sep-14	[Green bar from Wed Sep 12 to Mon Sep 17]																																					
R1670	Group 2 Fuel Test - Final Stabilization	16-Sep-14	17-Sep-14	[Green bar from Mon Sep 17 to Tue Sep 18]																																					
R1680	Group 2 Fuel Test - Test Runs	17-Sep-14	21-Sep-14	[Green bar from Tue Sep 18 to Sat Sep 23]																																					
R2420	Functional Tests - Unburnt Carbon in Flyash (Precip Sample 4/5)	17-Sep-14	18-Sep-14	[Green bar from Wed Sep 19 to Thu Sep 20]																																					
R3610	SO3 Testing (STACs)	17-Sep-14	21-Sep-14	[Green bar from Wed Sep 19 to Sun Sep 24]																																					

■ Actual Work ◆ Milestone
■ Remaining Work ▼ Summary

Issue Date : 18-Aug-14



Trimble County 2 - 2014 Spring Outage Programme - Re-Start & Optimisation



Doosan Babcock Thompson

Activity ID	Activity Name	Start	Finish	April 2014							May 2014							June 2014							July 2014							August 2014							September 2014							October 2014							November 2014						
				7	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24																						
Trimble County 2 - Restart & Optimisation 2014 Outage		14-Apr-14 A	05-Nov-14																																																								
Milestones		28-Apr-14 A	05-Nov-14																																																								
R1870	Remove furnace scaffold	28-Apr-14 A	01-May-14 A																																																								
R1000	Gas Pass Permit Clearance	06-May-14 A																																																									
R1030	Main Draught Plant in Service (including PA Fans) - LG&E		08-May-14 A																																																								
R1050	1st Fire Oil	20-May-14 A																																																									
R1920	1st Fire Coal	26-May-14 A																																																									
R1060	Unit Synchronisation / Close Breaker	28-May-14 A																																																									
R1850	Performance Report Submitted		05-Nov-14																																																								
LG&E		25-Apr-14 A	13-Jul-14 A																																																								
R1880	Boiler Fill (Cold Water) and Leak Check - LG&E	25-Apr-14 A	26-Apr-14 A																																																								
R1230	Calibrate HAD & CAD actuators to achieve uniform blade positioning - (Check	28-Apr-14 A	06-May-14 A																																																								
R1900	Boiler Drain & Nitrogen Fill - LG&E	02-May-14 A	03-May-14 A																																																								
R1010	Air Heater Water Wash & Cleanliness Inspection - LG&E	04-May-14 A	05-May-14 A																																																								
R1020	Air Heater Dry - LG&E	05-May-14 A	06-May-14 A																																																								
R2600	Mill Ring to Roll Gap Setting (all 6 Mills) - LG&E	06-May-14 A	08-May-14 A																																																								
R1890	Main Draught Plant Start Up & Stabilise - LG&E	07-May-14 A	08-May-14 A																																																								
R2650	PJFF Leak Check - LG&E	12-May-14 A	13-May-14 A																																																								
R2660	PJFF Bag Coating - LG&E	12-May-14 A	13-May-14 A																																																								
R1040	Start heating Water on Medium Path - LG&E	16-May-14 A	17-May-14 A																																																								
R2680	Heating Water on Medium Path - LG&E	18-May-14 A	18-May-14 A																																																								
R2690	Heating Water and Fill the Boiler to Circulate on Long Path - LG&E	19-May-14 A	19-May-14 A																																																								
R1910	Initial Mill Test Firing & Steam on Bypass (Steam Quality Prepare for Synchro	27-May-14 A	28-May-14 A																																																								
R3420	Furnace De-Slag (LG&E)	26-Jun-14 A	26-Jun-14 A																																																								
R3550	Purge A & B Mills On Start Up - LG&E	12-Jul-14 A	13-Jul-14 A																																																								
Load Raising		28-May-14 A	05-Jun-14 A																																																								
R2670	Raise load to 400MW	28-May-14 A	29-May-14 A																																																								
R1070	Load at 400MW and held (Hot Commissioning and flame scanner tuning)	29-May-14 A	01-Jun-14 A																																																								
R1090	Coal Change Confirmed (Riverview/PRB Blend Coal) & Release for Optimisa		31-May-14 A																																																								
R2750	Raise load to 100%	02-Jun-14 A	03-Jun-14 A																																																								
R1080	Load at 100% and held for Optimisation activities	03-Jun-14 A	05-Jun-14 A																																																								
Burner Systems		14-Apr-14 A	14-Jul-14 A																																																								
Core Air Dampers		08-May-14 A	10-May-14 A																																																								
R1100	Set CA Damper Mech. Stops (A, B & E Mills)	08-May-14 A	10-May-14 A																																																								
R1110	Measure and record CA flow deviation between burners (A, B & E Mills)	08-May-14 A	10-May-14 A																																																								
R1930	Set CA Damper Mech. Stops (C, D & F Mills)	09-May-14 A	10-May-14 A																																																								
R1940	Measure and record CA flow deviation between burners (C, D & F Mills)	09-May-14 A	10-May-14 A																																																								
D-Nox Coal Burner		28-Apr-14 A	24-Jun-14 A																																																								
R1120	Stroke test new Shut-Off damper actuators & check back to DCS graphics	28-Apr-14 A	04-May-14 A																																																								
R1130	Check new TC multiplexers and confirm burner TC indications back to DCS gr	28-Apr-14 A	05-May-14 A																																																								
R1140	Verify burner adjustments are set to initial start-up settings	04-May-14 A	05-May-14 A																																																								
R1150	Balance burner SA flow using Shut-Off dampers and record actuator position-	10-May-14 A	12-May-14 A																																																								
R1950	Balance burner SA flow using Shut-Off dampers and record actuator position-	12-May-14 A	17-May-14 A																																																								
R2010	Obtain Characteristic of TSO Damper (400Mw)	29-May-14 A	01-Jun-14 A																																																								
R2020	Obtain Characteristic of TSO Damper (100% Load)	03-Jun-14 A	24-Jun-14 A																																																								
Oil Burners		14-Apr-14 A	14-Jul-14 A																																																								
R1160	Terminate Brad Harrison connectors on new COEN oil burners	14-Apr-14 A	21-Apr-14 A																																																								
R1170	Loop check new oil burner assy. & function test back to DCS graphics	22-Apr-14 A	09-May-14 A																																																								

■ Actual Work
 ■ Critical Remaining Work
 ▼ Summary
■ Remaining Work
 ◆ Milestone



Trimble County 2 - 2014 Spring Outage Programme - Re-Start & Optimisation



Doosan Babcock Thompson

Activity ID	Activity Name	Start	Finish	April 2014							May 2014							June 2014							July 2014							August 2014							September 2014							October 2014							November 2014						
				7	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24																						
R1450	Test new steam supply controls and tune PCV	30-May-14 A	06-Jun-14 A																																																								
R1460	Check S/B steam temperatures during operation	30-May-14 A	06-Jun-14 A																																																								
Logic Changes		28-Apr-14 A	15-Aug-14 A																																																								
R1490	Check implementation of new logic changes	28-Apr-14 A	07-May-14 A																																																								
R1500	Check / monitor operation of new logic changes	20-May-14 A	24-Jun-14 A																																																								
R1510	Optimise O2 Trim SA/OFA Bias	10-Jun-14 A	16-Jun-14 A																																																								
R1550	Monitor New Core Air Logic	29-Jul-14 A	15-Aug-14 A																																																								
Miscellaneous		10-May-14 A	05-Jun-14 A																																																								
Planned		01-Jun-14 A	05-Jun-14 A																																																								
R2800	FERCo Truck Arrives on Site	01-Jun-14 A	05-Jun-14 A																																																								
R1580	Re-Torque OFA Damper & EJ Bolts	04-Jun-14 A	05-Jun-14 A																																																								
R2790	Re-Torque OFA Damper Beck Drive Bolts	04-Jun-14 A	05-Jun-14 A																																																								
Unplanned		10-May-14 A	26-May-14 A																																																								
Exp Jnt Repair 10-May		10-May-14 A	10-May-14 A																																																								
X1000	Fans Out of Service for Exp Jnt repairs	10-May-14 A																																																									
X1010	Repair Exp Jnts - Effox	10-May-14 A	10-May-14 A																																																								
X1020	Re-Start Fans and Stabilise	10-May-14 A	10-May-14 A																																																								
Fan Stall 14-May		14-May-14 A	14-May-14 A																																																								
X1030	FD Fan Stalled	14-May-14 A																																																									
X1040	Repair Broken Damper Linkage	14-May-14 A	14-May-14 A																																																								
X1050	Re-Start Fans and Stabilise	14-May-14 A	14-May-14 A																																																								
Oil Swirler Mods		23-May-14 A	26-May-14 A																																																								
R2180	Modify D2 Oil Swirler (4 Vanes)	23-May-14 A	23-May-14 A																																																								
R2330	Modify Balance of Oil Swirlers (#29) (4 Vanes)	23-May-14 A	24-May-14 A																																																								
R2340	Modify E-Row (#5) Oil Swirlers (Donuts)	25-May-14 A	25-May-14 A																																																								
R2490	Modify E-Row (#5) Oil Swirlers (remove Donut, back to 4 Vanes)	26-May-14 A	26-May-14 A																																																								
FD Fan (B)		18-May-14 A	20-May-14 A																																																								
X1060	Replace Fan Blades, check blade actuation etc.	18-May-14 A	19-May-14 A																																																								
X1070	Restart Fan and stabilise	19-May-14 A	20-May-14 A																																																								
Hydrated Lime Injection Upstream of GAH		22-Aug-14	27-Aug-14																																																								
R2500	Lime Injection - Commence pre AH Lime Injection Test Period	22-Aug-14																																																									
R2890	Lime Injection - Bottom Mill O/S - 100% Maximum Feed Rate (70/30 Riverview)	23-Aug-14	23-Aug-14																																																								
R2900	Lime Injection - Bottom Mill O/S - 75% Maximum Feed Rate (70/30 Riverview)	23-Aug-14	24-Aug-14																																																								
R2910	Lime Injection - Bottom Mill O/S - 50% Maximum Feed Rate (70/30 Riverview)	24-Aug-14	24-Aug-14																																																								
R2920	Lime Injection - Bottom Mill O/S - 0% Maximum Feed Rate (70/30 Riverview/I)	24-Aug-14	25-Aug-14																																																								
R2950	Lime Injection - Top Mill O/S - 75% Maximum Feed Rate (70/30 Riverview/PF)	25-Aug-14	25-Aug-14																																																								
R2960	Lime Injection - Top Mill O/S - 50% Maximum Feed Rate (70/30 Riverview/PF)	25-Aug-14	26-Aug-14																																																								
R2970	Lime Injection - Contingency / Retest as required	26-Aug-14	27-Aug-14																																																								
AbS & SO3 Monitoring		22-May-14 A	21-Sep-14																																																								
R3610	SO3 Testing (STACs)	17-Sep-14	21-Sep-14																																																								
SCR to AH management - High Load		03-Jun-14 A	07-Jun-14 A																																																								
R2840	System Verification	03-Jun-14 A	03-Jun-14 A																																																								
R2850	High Load Data Analysis	04-Jun-14 A	06-Jun-14 A																																																								
R2860	System Verification	07-Jun-14 A	07-Jun-14 A																																																								
SCR to AH management - Low Load		22-May-14 A	02-Jun-14 A																																																								
R1970	Probe Commissioning	22-May-14 A	23-May-14 A																																																								
R2170	System Verification	30-May-14 A	30-May-14 A																																																								
R2820	Low Load Data Analysis	31-May-14 A	01-Jun-14 A																																																								

■ Actual Work
 ■ Critical Remaining Work
 ▼ Summary
■ Remaining Work
 ◆ Milestone



Trimble County 2 - 2014 Spring Outage Programme - Re-Start & Optimisation



Doosan Babcock Thompson

Activity ID	Activity Name	Start	Finish	April 2014							May 2014							June 2014							July 2014							August 2014							September 2014							October 2014							November 2014						
				7	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24																						
Mobilisation & Set Up		26-Sep-14	09-Oct-14																																																								
R2610	McHale Mobilised to Site	26-Sep-14																																									◆ McHale Mobilised to Site																
R2620	Site Inductions	26-Sep-14	27-Sep-14																																																								
R2630	Install Test Probes	27-Sep-14	02-Oct-14																																																								
R2640	Install Test Instruments	27-Sep-14	07-Oct-14																																																								
R1770	Preliminary Performance Test	08-Oct-14	09-Oct-14																																																								
Performance Guarantee Tests		03-Sep-14	17-Oct-14																																																								
PGT1 at SGPL		09-Oct-14	10-Oct-14																																																								
Boiler		09-Oct-14	10-Oct-14																																																								
R2040	PGT1 - Boiler Efficiency (Surrogate Test)	09-Oct-14	10-Oct-14																																								▼ 10-Oct-14, PGT1 at SGPL																
R2050	PGT1 - Airheater Leakage	09-Oct-14	10-Oct-14																																								▼ 10-Oct-14, Boiler																
R2060	PGT1 - Steam Temp at Superheat Outlet	09-Oct-14	10-Oct-14																																																								
R2070	PGT1 - Steam Temp at Reheater Outlet	09-Oct-14	10-Oct-14																																																								
R2080	PGT1 - Dust Emission	09-Oct-14	10-Oct-14																																																								
R2090	PGT1 - Unburnt Carbon in Flyash (Isokinetic)	09-Oct-14	10-Oct-14																																																								
R2100	PGT1 - Unburnt Carbon in Flyash (Precip Sample 1/5)	09-Oct-14	10-Oct-14																																																								
R2110	PGT1 - Aux Power (Surrogate Test)	09-Oct-14	10-Oct-14																																																								
R2120	PGT1 - Reheat Spray Flow	09-Oct-14	10-Oct-14																																																								
SCR		09-Oct-14	10-Oct-14																																																								
R2130	PGT1 - NH3 Slip	09-Oct-14	10-Oct-14																																								▼ 10-Oct-14, SCR																
R2140	PGT1 - NOx Removal Efficiency (522 lb/h NH3)	09-Oct-14	10-Oct-14																																																								
R2150	PGT1 - SCR Pressure Drop	09-Oct-14	10-Oct-14																																																								
R2160	PGT1 - NOx Removal Consumption (522 lb/h NH3)	09-Oct-14	10-Oct-14																																																								
Gas Emissions		09-Oct-14	10-Oct-14																																																								
R2190	PGT1 - Max CO (3 hr rolling)	09-Oct-14	10-Oct-14																																								▼ 10-Oct-14, Gas Emissions																
PGT2 at SGPL		10-Oct-14	11-Oct-14																																																								
Boiler		10-Oct-14	11-Oct-14																																																								
R2200	PGT2 - Boiler Efficiency (Surrogate Test)	10-Oct-14	11-Oct-14																																								▼ 11-Oct-14, PGT2 at SGPL																
R2210	PGT2 - Airheater Leakage	10-Oct-14	11-Oct-14																																								▼ 11-Oct-14, Boiler																
R2220	PGT2 - Steam Temp at Superheat Outlet	10-Oct-14	11-Oct-14																																																								
R2230	PGT2 - Steam Temp at Reheater Outlet	10-Oct-14	11-Oct-14																																																								
R2240	PGT2 - Dust Emission	10-Oct-14	11-Oct-14																																																								
R2250	PGT2 - Unburnt Carbon in Flyash (Isokinetic)	10-Oct-14	11-Oct-14																																																								
R2270	PGT2 - Aux Power (Surrogate Test)	10-Oct-14	11-Oct-14																																																								
R2280	PGT2 - Reheat Spray Flow	10-Oct-14	11-Oct-14																																																								
SCR		10-Oct-14	11-Oct-14																																																								
R2290	PGT2 - NH3 Slip	10-Oct-14	11-Oct-14																																								▼ 11-Oct-14, SCR																
R2300	PGT2 - NOx Removal Efficiency (522 lb/h NH3)	10-Oct-14	11-Oct-14																																																								
R2310	PGT2 - SCR Pressure Drop	10-Oct-14	11-Oct-14																																																								
R2320	PGT2 - NOx Removal Consumption (522 lb/h NH3)	10-Oct-14	11-Oct-14																																																								
Gas Emissions		10-Oct-14	11-Oct-14																																																								
R2350	PGT2 - Max CO (3 hr rolling)	10-Oct-14	11-Oct-14																																								▼ 11-Oct-14, Gas Emissions																
PGT7 SCR Tests at 80% TMCR & Ramp Rates		14-Oct-14	15-Oct-14																																																								
R2580	PGT7 - Ramp Tests 50% - 80% TMCR	14-Oct-14	15-Oct-14																																								▼ 15-Oct-14, PGT7 SCR Test																
R2590	PGT7 - Ramp Tests 80% - 100% TMCR	14-Oct-14	15-Oct-14																																																								
Functional Tests		03-Sep-14	17-Oct-14																																																								
R2730	Functional Tests - CO (30 Day Rolling Average)	03-Sep-14	03-Oct-14																																								▼ 17-Oct-14, Functional Test																
R2260	Functional Tests - Unburnt Carbon in Flyash (Precip Sample 3/5)	05-Sep-14	06-Sep-14																																																								
R2420	Functional Tests - Unburnt Carbon in Flyash (Precip Sample 4/5)	17-Sep-14	18-Sep-14																																																								

█ Actual Work
 █ Critical Remaining Work
 ▼ Summary
█ Remaining Work
 ◆ Milestone

Type: Calendar
Organizer: Anderson, Dave (Trimble County)
Subject: TC2 Outage Progress Attachments
Location: TC 5th Floor Conference room
Start: 04/09/2014 01:30:00 PM -0400 (EDT)
End: 04/09/2014 02:00:00 PM -0400 (EDT)
All Day Event: False
Attendees: Anderson, Dave (Trimble County); Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan; TC Fifth Floor Conference Room
Sent On: 04/02/2014 11:07:39 AM -0400 (EDT)
Attachments: TC2S14 Start-up Outage Planning Schedule.pdf; TC2S14 Spring Outage Gantt Chart.xlsx; TC-2 Restart Milestones 2014.docx;

All,

We will discuss TC2 outage progress prior to the 2:00 maintenance meeting Wednesday, Apr. 9th.

I will attach latest updates prior to Friday's meeting.

Thanks,

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

TC-2 Restart Milestone Schedule

R1880	April 25 th Boiler fill (cold) for leak check and flush x2. (14 to 16 hrs.)
R1010	May 4 th & 5 th Air Heater wash. (24 to 36 hrs.)
R1020	May 6 th Air Heater dry time. (12 to 24 hrs.)
R1000	May 8 th Gas path clear (0 hrs.)
R1890	May 8 th Fan start-up and boiler draught stabilizing (6 hrs.)
R0000	May 12 th PJFF leak check (24 hrs.)
R0000	May 14 th PJFF Bag Coating (24 hrs.)
R1040	May 17 th Start heating water on medium path. (24 hrs.)
R1040	May 18 th Heating water on medium path. (24 hrs.)
R1040	May 19 th Heating water and fill the boiler to circulate on long path. (24 hrs.)
R1190	May 20 th Test fire oil guns, <u>intermittently</u> for flame check out only. (36 hrs.)
R1920	May 22 nd First coal mill in service. (1 hr.)
R1060	May 23 rd TC-2 on line (16 hrs.)
R1070	May 23 rd TC-2 at 400 mw's for Combustion Optimization. (144 hrs)
R1080	May 29 th TC-2 at full load.

Produced as Native

Original File Name: TC2S14 Spring Outage Gantt Chart.xlsx

Stored File Name: Exchange00012581.xlsx

ID	Task Mode	Resource Names	Task Name	Start	Finish	% Complete	February		March		April		May		June										
							1/19	1/26	2/2	2/9	2/16	2/23	3/2	3/9	3/16	3/23	3/30	4/6	4/13	4/20	4/27	5/4	5/11	5/18	5/25
1	✓		Unit Offline- Scheduled time 00:01	Fri 2/7/14	Mon 5/26/14	100%																			
2	✓	SEdam	Id fan distance pipe installation that will allow isolation of the 2B ID Fan. (Parts to ship 3-28-14 from Howden)	Tue 4/1/14	Mon 4/7/14	100%																			
3			Amstar Application	Sat 4/12/14	Fri 4/18/14	0%																			
4	⬇	PIC/ MECH Maint,OPERATIONS	Clear Gas Path & Verify all gas path Doors sealed or closed	Sat 4/12/14	Sat 4/12/14	0%																			
5	⬇	R&P Chimney/ Bullock	Stack	Sat 4/12/14	Sat 4/12/14	0%																			
6	⬇	Waller	WESP	Sat 4/12/14	Sat 4/12/14	0%																			
7	⬇	Phelps/ Heinz	SDRS	Sat 4/12/14	Sat 4/12/14	0%																			
8	⬇	Waller	DESP	Sat 4/12/14	Sat 4/12/14	0%																			
9	⬇	H. Turner	PJFF	Sat 4/12/14	Sat 4/12/14	0%																			
10	⬇	SEdam/ Mills	Fans	Sat 4/12/14	Sat 4/12/14	0%																			
11	⬇	DORWART/ SE Boiler	SCR	Sat 4/12/14	Sat 4/12/14	0%																			
12	⬇	Bechtel/ Doosan/ SE Boiler	Boiler	Sat 4/12/14	Sat 4/12/14	0%																			
13	⬇	OPERATIONS	2A ID Fan In Service	Sun 4/13/14	Sun 4/13/14	0%																			
14	⬇	DOosan/ Amstar	Amstar Application	Sun 4/13/14	Thu 4/17/14	0%																			
15		OPERATIONS	2A ID Fan out of Service (LOTO)	Fri 4/18/14	Fri 4/18/14	0%																			
16			Water Clean Up			0%																			
17			Gas Path Clear	Wed 5/7/14	Wed 5/7/14	0%																			
18		SUBSTATION	Remove Generator Grounds			0%																			
19		OPERATIONS	Fans In Service @18:00 hrs.			0%																			
20		OPERATIONS	PA			0%																			
21		OPERATIONS	FD			0%																			
22		OPERATIONS	ID			0%																			
23		OPERATIONS	Fires In @ 10:00 hrs			0%																			
24			Pressure 1			0%																			
25		OPERATIONS	Turbine Roll			0%																			
26			Speed Hold 1			0%																			
27		OPERATIONS	Unit Online- Full Load Monday AM			0%																			

Project: TC2S14 Start-up Outage P
Date: Wed 4/9/14

Task		Project Summary		Inactive Milestone		Manual Summary Rollup		Deadline	
Split		External Tasks		Inactive Summary		Manual Summary		Progress	
Milestone		External Milestone		Manual Task		Start-only			
Summary		Inactive Task		Duration-only		Finish-only			

Type: Calendar
Organizer: Byrd, Larry
Subject: FW: End of the Quarter Accruals/PO Commitments Review
Location: TC 3rd Floor Training Room A
Start: 03/26/2014 10:30:00 AM -0400 (EDT)
End: 03/26/2014 12:00:00 PM -0400 (EDT)
All Day Event: False
Attendees: Byrd, Larry; Hudson, Glen; Simmons, Jill; Ransdell, Charles; Slaughter, Mitch; Raker, Adam; Gray, Jeffrey; Feider, Ryan; Hannon, Hannah; Gilliland, Dave; Rabe, Phil; TC Fifth Floor Conference Room; Cuzick, Fred; Mohn, Laura; Payne, Nicholas; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Anderson, Dave (Trimble County); Turner, Tyler; Mills, Ricky; Bullock, Sam; Sedam, Dale; Henderson, Trent; Osgood, Scott; Waller, Logan; Dunlap, Gary; Parson, Jonathan
Sent On: 03/25/2014 01:11:38 PM -0400 (EDT)
Attachments: PO COMMITMENTS 3-24-14.xlsx;

You weren't included on this meeting notice, but each of you are listed as a contact on the attached spreadsheet for some of the listed POs, and are welcome to attend if available and interested.

FYI,

Larry

-----Original Appointment-----

From: Byrd, Larry

Sent: Tuesday, March 25, 2014 1:06 PM

To: Byrd, Larry; TC Fifth Floor Conference Room; Cuzick, Fred; Mohn, Laura; Payne, Nicholas; Turner, Haley; Maldonado, Francisco; Phelps, Grant; Dorwart, Jordan; Moore, Emmett; Menezes, Tomas; Ball, Adam; Anderson, Dave (Trimble County); Turner, Tyler; Mills, Ricky; Bullock, Sam; Sedam, Dale; Henderson, Trent; Osgood, Scott; Waller, Logan; Dunlap, Gary; Parson, Jonathan

Subject: End of the Quarter Accruals/PO Commitments Review

When: Wednesday, March 26, 2014 10:30 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: TC 3rd Floor Training Room A

All,

We'll be meeting with Fred Cuzick at 10 AM tomorrow in Training Room A to discuss our PO commitments and identify what needs to be included in the 1st quarter accruals. Please plan to attend this meeting, *unless* you've already responded back to Fred *and* provided him with all of the information he needs. If that's a problem for anyone, let me know today.

Thanks,

Larry

Type: Calendar
Organizer: Anderson, Dave (Trimble County)
Subject: TC2 Outage Progress Meeting- Latest updates attached
Location: TC 5th Floor Conference room
Start: 03/26/2014 02:30:00 PM -0400 (EDT)
End: 03/26/2014 03:30:00 PM -0400 (EDT)
All Day Event: False
Attendees: Anderson, Dave (Trimble County); Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan; TC Fifth Floor Conference Room
Sent On: 03/25/2014 08:50:54 AM -0400 (EDT)
Attachments: TC2S14 Spring Outage Gantt Chart.xlsx;

All,

Please be prepared to discuss outage progress and remaining work scope for this meeting. I will attach to meeting notice- the latest updates I have later today.

Thanks,

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

Produced as Native

Original File Name: TC2S14 Spring Outage Gantt Chart.xlsx

Stored File Name: Exchange00012605.xlsx

From: (/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND) **Thompson**
To: Anderson, Dave (Trimble County); Joyce, Jeff; TC Fifth Floor Conference Room; Waller, Logan; Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Dearman, James (jdearman@bechtel.com)
CC: Withrow, Jimmy; Wilson, Gregory; Richardson, Stephen
BCC:
Subject: Meeting Documents attached
Sent: 01/01/4501 02:00:00 AM -0500 (EST)
Attachments: Budget vs Estimates vs Actual.xlsx; 3-19-14 Outage Meeting Agenda.docx;

All,

Please plan on attending meeting today to discuss new outage completion dates and gas path availability April 13th- 17th for boiler Amstar. We will need to discuss plans to make (stop or interrupt projects) gas path available and 1 ID fan for the April 13th date.

Thanks,

David

March 19, 2014

Outage Planning Meeting Agenda**1. Safety Reminders**

- a. Contractor Safety Meetings (Mon. – Fri. at 9:00, 3rd floor lunch room).
- b. Goals
 - i. *0 RECORDABLE INJURIES & 0 FIRST AIDS*
 - 1. *Business Partners*
 - 2. *LG&E*

2. Outage Dates

- a. **Gas Path Clear April 12th at 00:00 hrs. (Release clearance on 2A ID fan)**
- b. **2A ID Fan in service April 13th 00:01 hrs. - 06:00 hrs.**
- c. Amstar Coating- April 13th- 17th
- d. **2A ID Fan out of service & LOTO April 18th 00:00 hrs. - 06:00 hrs.**
- e. Gas Path available April 18th at 06:00 hrs.
- f. Gas Path Work completed and released for cold commissioning **May 7th @ 07:00 hrs.**

3. Review of Remaining work scope:

- a. Stack Inspection/ repair dates:
- b. WESP repair dates: **Bids due 3-20-14**
- c. Reaction Tank/ SDRS dates: **3-17-14 thru 4-7-14**
- d. DESP repair dates: **3-24-14 thru 4-4-14**
- e. PJFF bag coating dates: **5-7-14**
- f. SCR catalyst replacement dates: **2-24-14 thru 4-12-14**
- g. Boiler Inspection/ repair dates: **2-17-14 thru**
- h. Boiler Roof Tube repairs: **2-24-14 thru**
- i. Ash Pit Dipper plate repair dates:
- j. Air Heater Seal Repair dates:
- k. Air Heater Wash Dates:
- l. Ductwork/ Exp. Joint Repair Dates:
- m. Pulverizer Repairs: **3-17-14 thru 4-7-14**
- n. Turbine Repairs/ Insp.: **3-21-14 thru 3-28-14.**
- o. **Turbine Bypass Valves:**

2014 TC2 Spring Outage Dates:

- February 10th - May 7th (Cold Commissioning)

Type: Calendar
Organizer: Anderson, Dave (Trimble County)
Subject: TC2 Spring Outage Review
Location: TC 5th Floor Conference Room
Start: 01/30/2014 10:00:00 AM -0500 (EST)
End: 01/30/2014 12:00:00 PM -0500 (EST)
All Day Event: False
Attendees: Anderson, Dave (Trimble County); Afiyet, Hamit; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Chin, Doug; Craft, Jim; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sanders, Matt; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Security Trimble County; TC Fifth Floor Conference Room; Park, Marci
Sent On: 01/24/2014 03:24:08 PM -0500 (EST)
Attachments: 1-30-14 Outage Meeting Agenda.docx; TC2 2014 Weekend and First week Coordination.docx;

All,

Attached are the documents for today's TC2 outage meeting.

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

January 30, 2014

Outage Planning Meeting Agenda**1. Safety Reminders**

- a. Contractor Safety Meetings (Mon. – Fri. at 9:00, 3rd floor lunch room).
- b. Goals
 - i. *0 RECORDABLE INJURIES & 0 FIRST AIDS*
 1. *Business Partners*
 2. *LG&E*

2. Outage Plan review

- a. Executive Summary
- b. Shutdown Procedure
- c. Project/ Inspection Work Scopes
- d. Weekend & Week 1 Coordination

3. MISC-

- a. Safety Walk down schedule
- b. Guard Coverage/ Parking
- c. Warehouse Coverage- Coverage first Sat./ Sun. followed by Normal Schedule, extra coverage available upon request.
- d. House Crane- David Anderson
- e. TC2 Elevator (plant & scrubber) Operator- **Melvin & Sons**
 - i. Use keys and operate in attendant mode
 - ii. Issue Radio for communication of loading issues.
 - iii. Shut elevator down when overloaded or conflict arises.
 - iv. Limit the trips/ use of elevator.

2014 TC2 Spring Outage Dates:

- February 10th - May 26th

TC2 2014 Spring Outage

Weekend and First Week Coordination

- Friday, Feb. 7th
 - At 300 pounds of boiler pressure, inspect leak- **Maldonado**
- Saturday, Feb. 8th
 - Deslag Boiler & Burners- On site for standby at 4:00 AM.- **Maldonado/ TBD**
 - Internal Boiler Wash after Deslag- **TBD**
 - Disconnect Wiring on Burners- **I/E Maintenance**
 - WESP Irrigation out of service after deslag.- **Operations**
- Sunday, Feb. 9th
 - Drain Ash Hopper- **Operations**
 - Disconnect Ash Hopper Piping- **Mechanics**
 - Roll Out Ash Hopper- **Doosan**
- Monday, Feb. 10th
 - Boiler Scaffold Build- **SE Boiler (6 shifts)**
 - PJFF Filter Bag Sample Removal
 - Pulse Air Out of Service (LOTO)- **Operations**
 - SCR Doors open for “dirty” Inspection- **Mechanics/ Dorwart**
 - WESP Inspections
 - “Dirty” Inspection- Irrigation out of service and not carded.- **Waller/ Anderson**
 - Place irrigation in service and perform casing washes after “Dirty” Inspection.
- Tuesday, Feb. 11th
 - Boiler Scaffold Build- **SE Boiler (4 shifts)**
 - PJFF Filter Bag Sample Removal
 - Pulse Air Out of Service (LOTO)- **Operations**

- **WESP Inspections**
 - “WET” Inspection- Irrigation in service.

- **Wednesday, Feb. 12th**
 - **Boiler Scaffold Build- SE Boiler (2 shifts)**

- **Thursday, Feb. 13th**
 - **Put 1 ID Fan in service after scaffold completion.-
Operations/ Bechtel/ Doosan**
 - **Place 1 Recycle Pump in service to alleviate carry over into the WESP.**
 - **Sandblasting Burner Fronts/ Amstar- Doosan/**

- **Friday, Feb. 14th**
 - **Drain Reaction Tank**
 - **Reaction Tank Clean-out/Inspection – Heinz/Phelps**

From: Black, Ken(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=BLACKK)
To: 'Kirchner, Matt D.'; Roach, Sandra A
CC: Simmons, Jill; Cuzick, Fred; Rabe, Phil; Trimble, James T. (Tom); McCracken, Sheri (McCrackenSL@bv.com)
BCC:
Subject: RE: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services
Sent: 01/09/2015 10:37:48 AM -0500 (EST)
Attachments:

01/09/15

To: Black & Veatch Corp.
Attn: Matt Kirchner and Sandra Roach

From: Ken Black, LG&E/TC Station/Comm Oper Dept

We continue to hold your previous invoice #1191581 due to insufficient funds on PO880306. We await a final not to exceed amount from B&V totaling all remaining charges so that we may initiate a change order to permit processing and payment of the following:

Inv. #1193447 dated 12/19/14--\$10,526.00.
Inv. #1191581 dated 11/25/14--\$61,465.14.
Inv. #?????? dated mm/dd/yy-Est. \$20k.

We have accrued these amounts for the 2014 budget year. This PO will be closed after payment of these final invoices. However, we need a firm NTE amount for the final invoice in order to initiate the needed change order.

From: Kirchner, Matt D. [mailto:KirchnerMD@bv.com]
Sent: Tuesday, December 23, 2014 1:46 PM
To: Black, Ken
Cc: Simmons, Jill; Cuzick, Fred; Rabe, Phil; Trimble, James T. (Tom)
Subject: RE: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

That is correct, but my estimate is a few weeks old, and I don't have the people here during the holidays to give me an update. I'll give you an update when they return, but it should be pretty close to that.

- Matt Kirchner
913-458-7270

From: Black, Ken [mailto:Ken.Black@lge-ku.com]
Sent: Tuesday, December 23, 2014 11:59 AM
To: Kirchner, Matt D.
Cc: Simmons, Jill; Cuzick, Fred; Rabe, Phil
Subject: FW: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

12/23/14

Matt:

I recall that we had a carryover of invoices from the previous PO for these services in late 2012 and early 2013, and for that reason our respective listing of invoices is not the same for those charged to the current PO 880306. Both invoices nos. 1146336 and 1151100 exceeded the remaining authorized funds for old PO 857208 in late 2012, and therefore that PO was closed without further addition of monies. Those invoices were applied to PO 880306 in our record along with the three (3) smaller amounts shown in my message below. I pasted your table into this string of emails for comparison.

Thompson

Am I correct in estimating the total outstanding charges are a) the current invoice for \$61,465 + b) pending Nov. invoice for \$10,526 + c) an est. \$20,000 for Dec. & Jan. = about \$91,991?

Ken Black

Hi Ken,

I looked through our invoices, and the invoices we have on record that were intended to be applied to PO 880306 are as follows:

Invoice #	Billed Through	Amount	Hrs	PO#
1160418	5/2/2013	6,270.38	36	880306
1161514	5/31/2013	9,730.00	80	880306
1164253	6/28/2013	34,955.91	247	880306
1165319	8/2/2013	21,684.03	114	880306
1167722	8/30/2013	3,476.77	2	880306
1182925	6/27/2014	91,144.60	623	880306
1185778	8/1/2014	56,043.70	365	880306
1187468	8/29/2014	50,508.71	327	880306
1190078	9/26/2014	54,030.80	316	880306
1191581	10/31/2014	61,465.14	371	880306
PENDING	11/28/2014	10,526	76	880306

I get a total of \$399836.04 that we've invoiced against this PO which has an upper limit of \$450,000. Note that the last invoice listed has not yet been sent. Due to delays with both parties, the final report will be delivered in January. I anticipate a December and January invoice totaling around \$20,000.

From: Black, Ken

Sent: Tuesday, December 23, 2014 11:16 AM

To: 'Kirchner, Matt D.'; Simmons, Jill

Cc: Rabe, Phil; Cuzick, Fred

Subject: RE: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

12/23/14

To: Black & Veatch

Attn: Matt Kirchner

From: Ken Black, LG&E/TC Station/Comm Oper Dept

According to Phil Rabe, our plant Production Mgr., no more site visits are required for the burner test monitoring for TC2. Cancel any planned trips. Therefore, regardless of the accounting record it is my understanding that the only outstanding requirement from B & V is a written final report. We need a good estimate of the total remaining charges which will be invoiced by B&V. Your current invoice #1191581 for \$61,465 is one of those charges. We need to also accrue any remaining final charges tied to the final written report.

Anyway, rightly or wrongly, what follows is a listing of the invoices charged to PO 880306:

1184768-09/16/14-\$50,508.71

1190078-10/31/14-\$54,030.80

1182925-06/30/14-\$91,144.60

1185778-08/18/14-\$56,043.70
1171909-12/16/13-\$ 4,782.40
1170258-11/18/13-\$ 2,921.76
1146336-09/18/12-\$36,190.53
1165319-08/15/13-\$21,684.03
1164253-07/26/13-\$34,955.91
1161514-06/10/13-\$ 9,730.00
1160418-05/21/13-\$ 6,270.38
1158875-04/22/13-\$ 4,421.50
1151100-12/11/12-\$39,937.73
1167722-09/27/13-\$ 3,476.77

Total \$416,099

Plus current invoice for \$61,465 and the \$214,558 charged to the previous PO #857208 for these services, the current cumulative total of about \$692,122 has reached the limit of the approvals for these services.

I wish everyone on the Black & Veatch team and your families a very merry Christmas, a blessed Hanukkah, a wonderful Kwanzaa, and a happy and successful New Year in 2015.

From: Kirchner, Matt D. [<mailto:KirchnerMD@bv.com>]
Sent: Monday, December 22, 2014 5:57 PM
To: Black, Ken; Simmons, Jill
Subject: RE: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

Ken,

Is it easy for you to list the invoices that were credited to this PO? I know there was some confusion in the past, and I just want to make sure that the invoices were applied correctly.

- Matt Kirchner
913-458-7270

From: Black, Ken [<mailto:Ken.Black@lge-ku.com>]
Sent: Thursday, December 18, 2014 12:26 PM
To: Kirchner, Matt D.; Simmons, Jill
Cc: Brill, Dave J.; Veatch, Michelle; Rabe, Phil; McCracken, Sheri; Roach, Sandra A
Subject: RE: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

12/18/14

To: Black & Veatch
Attn: Matt Kirchner, Sandra Roach and Dave Brill

From: Ken Black, LG&E/TC Station/Comm Oper Dept

Confirm this is the final invoice for these services to monitor the TC2 burners. The invoice exceeds the approved funds for PO 880306. Before initiating a change order to add monies to allow processing and payment, I want to ensure we are all on the same page. When will a written final report be forthcoming?

From: Kirchner, Matt D. [<mailto:KirchnerMD@bv.com>]
Sent: Tuesday, November 25, 2014 3:23 PM

To: Simmons, Jill

Cc: Brill, Dave J.; Veatch, Michelle; Black, Ken; Rabe, Phil; McCracken, Sheri; Roach, Sandra A

Subject: B&V Invoice #1191581 - Trimble County Unit 2 New Burner Support Services

Jill,

Attached, please find an invoice covering Trimble County 2 New Burner Support services for work completed during the month of October. We are not mailing a hard copy of the invoice so please process this electronically.

Matt Kirchner, P.E.* | Performance Engineering Specialist

Black & Veatch Corporation | 11401 Lamar Ave, Overland Park, KS 66211

+1 913-458-7270 p,f | KirchnerMD@BV.com

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From: Allen, Ross(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ALLEN, ROSSB7F)
To: Joyce, Jeff; Rabe, Phil; Slaughter, Mitch; Carlisle, Gary; Mohn, Laura
CC:
BCC:
Subject: TC 2 Foresight Test Burn Report
Sent: 12/04/2014 11:21:17 AM -0500 (EST)
Attachments: TC 2 Foresight Test Burn Report.pdf;

All,

I've attached the TC2 Foresight Test Burn Report for your review. The report includes test schedule, test deviations, unit conditions, and future test considerations. I will send a revised copy once any comments are received and the fuel analysis is completed.

Ross Allen
Mechanical Engineer I
Power Plant Results Coordinator
LG&E
Trimble County Power Plant
Office: 502-627-6136
Fax: 502-217-3110
Cell: 502-475-3745
Email: Ross.Allen@lge-ku.com





From: Kerslake, Ian(ian.kerslake@doosan.com)
To: Hayes, Christopher
CC: Mohn, Laura; Rabe, Phil; Slaughter, Mitch; Watkins, Clyde (cwatkins@bechtel.com) (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX; Gratton, Ron; Hammond, Steve; McCallum, Neil; Davidson, Gordon
BCC:
Subject: RE: 07292 TC2 - LG&E D-NOx Burner Spares Final Status & Transfer of remaining Doosan Warehouse B Inventory
Sent: 11/12/2014 09:15:35 AM -0500 (EST)
Attachments: 07292 TC2 Copy of Burner Spares Stock Transfer to LGE - IK Update 12th Nov 14.xlsx; 07292 TC2 - Copy of Warehouse B Inventory 8th Sept 14.xlsx;

Hi Chris,

Further to our recent correspondence please find attached a final copy of our spreadsheet detailing the materials transferred as part of the burner replacement. Whilst a few of the part qtys have changed from those originally advised in our correspondence dated 4th Dec. '13, the overall value is greater. The final value transferred is \$717,431 in comparison to \$619,528.00 as originally advised.

For completeness we have also reattached our file dated 8th Sept. '14 which details the materials that Doosan have catalogued and transferred to LG&E at no cost. As discussed these are all serviceable parts Assc with the scope of the works from the Spring '14 outage ie GAH, PF pipework, WCAH, Burner, OFA, Purge air, Pressure parts etc

Thanks and best regards

Ian Kerslake
Project Procurement Manager
Doosan Babcock Limited
Doosan House
Crawley Business Quarter
Manor Royal, Crawley
West Sussex, RH10 9AD
Tel: +44 (0)1293 584855
Mobile +44 (0) 7774 965780
Email: ian.kerslake@doosan.com

Produced as Native

Original File Name: 07292 TC2 - Copy of Warehouse B Inventory 8th Sept 14.xlsx

Stored File Name: Exchange00013970.xlsx

Produced as Native

Original File Name: 07292 TC2 Copy of Burner Spares Stock Transfer to LGE - IK Update 12th Nov 14.xlsx

Stored File Name: Exchange00013971.xlsx

From: Kirchner, Matt D.(KirchnerMD@bv.com)
To: Simmons, Jill
CC: Brill, Dave J.; Veatch, Michelle; Black, Ken; Rabe, Phil; McCracken, Sheri; Roach, Sandra A
BCC:
Subject: B&V Invoice #1190078 - Trimble County Unit 2 New Burner Support Services
Sent: 11/04/2014 05:20:53 PM -0500 (EST)
Attachments: 182342.1000 1190078.pdf;

Jill,

Attached, please find an invoice covering Trimble County 2 New Burner Support services for work completed during the month of September. We are not mailing a hard copy of the invoice so please process this electronically.

Matt Kirchner, P.E. * | Performance Engineering Specialist

Black & Veatch Corporation | 11401 Lamar Ave, Overland Park, KS 66211

+1 913-458-7270 p,f | KirchnerMD@BV.com

*Licensed in Kansas

Building a World of Difference.®



INVOICE

PLEASE REMIT TO:
 BLACK & VEATCH CORPORATION
 P.O. BOX 803823
 KANSAS CITY MO 64180-3823
 FED ID: 431833073

ELECTRONIC FUNDS TRANSFER TO:
 BLACK & VEATCH CORPORATION
 ACCOUNT NUMBER: 5336422
 COMMERCE BANK, KC, MO. USA
 ABA NUMBER: 101000019
 S.W.I.F.T. NO. CBKCUS44
 PLEASE INCLUDE INVOICE NUMBER
 ORG ID 1204

CLIENT REF 182342
 CUSTOMER PO NUMBER PO 880306
 B&V PROJECT NO 182342
 PROJECT NAME 2014 LGE-KU POWERPLANTMD
 B&V CONTACT BRILL, DAVID J
 TELEPHONE +19134582232
 INVOICE NO 1190078
 INVOICE DATE 31-Oct-2014
 BILLED THRU 26-Sep-2014
 PAYMENT DUE 30-Nov-2014
 PAYMENT TERMS 30 NET
 INVOICE CURRENCY USD
 INVOICE AMOUNT 54,030.80

BILL TO:
 ATTN: ACCOUNTS PAYABLE
 LG&E AND KU SERVICES COMPANY
 820 WEST BROADWAY
 LOUISVILLE KY 40202

DESCRIPTION	DESCRIPTION	HOURS	BILL RATE	LABOR	EXPENSES	BILLING AMOUNT
ROACH, SANDRA A	STAFF PERFORMANCE ENGINEER	8.00	116.00	928.00		928.00
STEVENSON, WILLIAM P	SENIOR PERFORMANCE ENGINEER	7.00	138.00	966.00		966.00
TRIMBLE, JAMES T	SENIOR PERFORMANCE ENGINEER	200.00	138.00	27,600.00		27,600.00
WALLIS, JENNIFER L	OFFICE SUPPORT	5.00	62.00	310.00		310.00
KILSTOFTE, AARON G	STAFF PERFORMANCE ENGINEER	4.00	116.00	464.00		464.00
MERWALD, MICHAEL J	SENIOR PERFORMANCE ENGINEER	92.00	138.00	12,696.00		12,696.00
MERWALD, MICHAEL J	SENIOR PERFORMANCE ENGINEER				860.92	860.92
TRIMBLE, JAMES T	SENIOR PERFORMANCE ENGINEER				7,835.88	7,835.88
OFFICE EXPENSES BILLED AT \$7.50/LABOR HOUR						2,370.00
SUBTOTAL						54,030.80
TOTAL		316.00		42,964.00	8,696.80	54,030.80

INVOICE COMMENTS :

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Rabe, Phil; Slaughter, Mitch; Hammond, Steve (steve.hammond@doosan.com); Craft, Jim; Kerlake, Ian (ian.kerlake@doosan.com)
BCC:
Subject: As-built drawnigs
Sent: 11/01/2014 05:34:19 PM -0400 (EDT)
Attachments: Power supply revision.pdf;

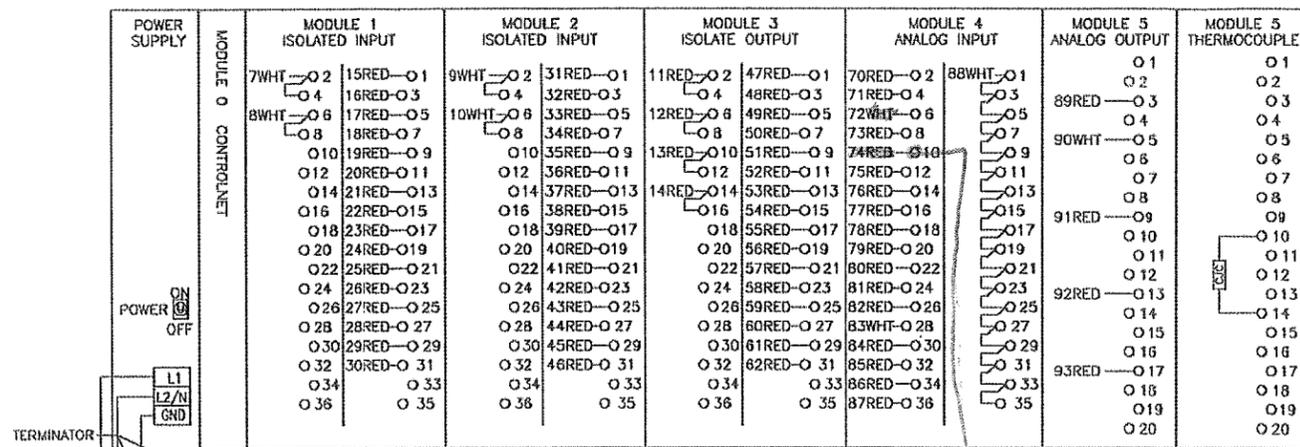
Laura,

As a requirement of final completion on the project, Bechtel/Doosan are to provide updated as-built drawings for the work done for the combustion system. Both Steve and I have checked our records and the attached Diamond drawing is the only one we are aware of that requires as-building. Enclosed is a "red-line" markup of the affected drawing, which will be updated prior to final completion of the project.

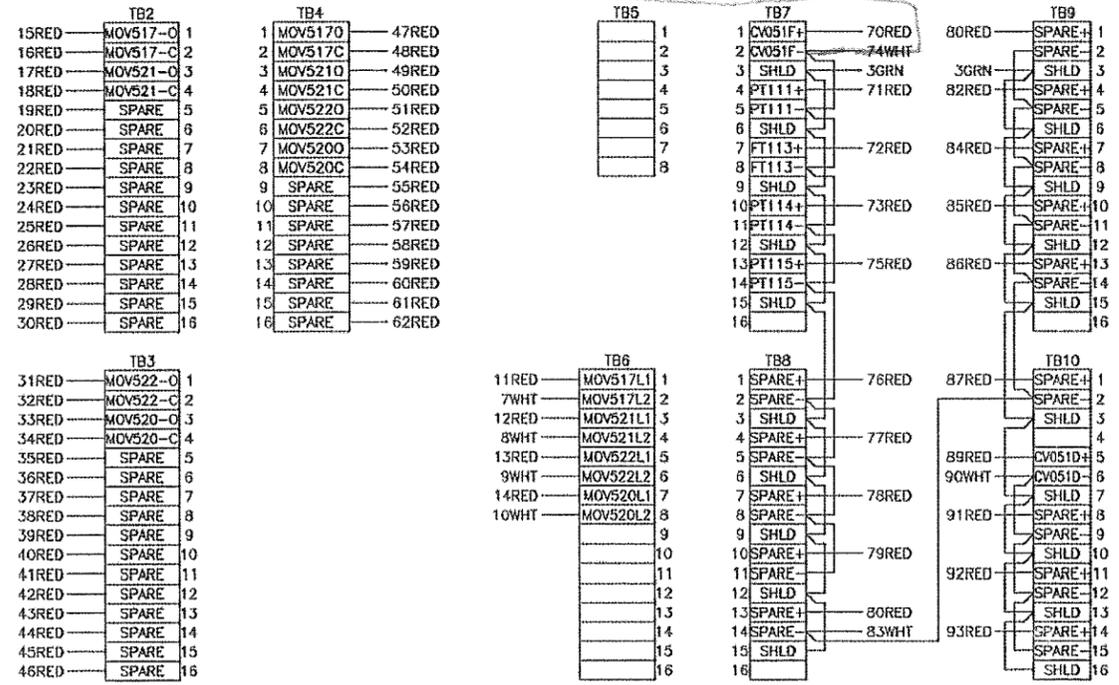
Thank You,

Mel

Mel Watkins
Project Manager
Trimble County Unit 2 Project
cwatkins@bechtel.com
work: 301-228-8035 (Frederick)
cell : 240-793-4490



Directions:
 Lift 74 wht from TB7-2 that goes up to mid 4 point D
 Mount 24VDC PS
 Inspect power, neutral, ground to new PS from Bottom of Encoder (6 RED) from TB1-2 for neutral from TB1-3 for ground
 Land 74 wht from TB7-2 to (+) of new PS
 New wire from (-) on new PS to mid 4 point D



L G & E ENERGY SERVICE COMPANY
 TRIMBLE COUNTY GENERATING STATION - UNIT 2
 BEDFORD - KENTUCKY
 PURCHASE ORDER NO. 25191-230-FOA-MBPX-00001

DOOSAN Doosan Babcock Energy

INTELLECTUAL PROPERTY EMBODIED IN THIS DOCUMENT SHALL BE TREATED AS THE LICENSED PROPERTY OF DOOSAN BABCOCK ENERGY LIMITED AND SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF DOOSAN BABCOCK ENERGY LIMITED.

SCHMATIC, SOOTBLOWER CONTROL, SENTRY 1000

PROJECT: 06350: TRIMBLE COUNTY UNIT 2
 DRAWING NO. 06350/CDH/AL/35700/2.0446
 BUYER'S DOCUMENT NO.:

DOOSAN BABCOCK ENERGY LTD FOR: LOUISVILLE GAS & ELECTRIC TRIMBLE COUNTY POWER STATION, UNIT 2 BEDFORD, KENTUCKY

SCHMATIC, SOOTBLOWER CONTROL, SENTRY 1000
 TRACED AND COMPILED FROM: DO NOT SCALE - USE DIMENSIONS ONLY

Diamond Power International, Inc.
 Lancaster, Ohio

CLIENT'S ORDER NO: 77195/06350
 ORDER REF CONTRACT NO: JNM
 DATE: 9-18-13
 DRAWING NUMBER: 701255-803C
 DOOSAN'S ORDER NO: 701255
 CHECKED BY: RMT
 SCALE: NTS
 APPROVED BY: FJP
 DRAWING NO SHEET 5 OF

ENCLOSURE TAG:
 2-SB-CAB-006

CAD DRAWING
 DO NOT REVISE MANUALLY

THIS DRAWING IS THE PROPERTY OF DIAMOND POWER INTERNATIONAL, INC. (DPII) AND ITS USE IS GOVERNED BY THE TERMS AND CONDITIONS OF THE CONTRACT FOR WHICH IT WAS CREATED. IT IS GRANTED A NON-EXCLUSIVE LICENSE TO USE, REPRODUCE, AND DISTRIBUTE THIS DRAWING SOLELY FOR THE MAINTENANCE, REPAIR AND OVERHAUL AND FOR SOLICITING BIDS FOR THE REPAIR OF THE EQUIPMENT DESCRIBED HEREIN.

REV	DATE	DESCRIPTION	BY	CHK	APP	DATE	REV	DATE	DESCRIPTION	BY	CHK	APP	DATE	REV	DATE	DESCRIPTION	BY	CHK	APP	DATE
A	10-7-2013	UPDATED TB2-4 TERMINAL BLOCK LAYOUTS; REVISED TO ADD DRAWING NUMBER IN DOOSAN TITLE BLOCK PER CUSTOMER MARKED PRINTS DATED 10-2-13	JNL/RSMT																	
B	10-14-2013	REVISED TO PTT114+/- FROM FT114+/- AT TB7 PER DOOSAN MARKED PRINTS	JNL/JNM																	
C		REVISED TO ADD 'C/C' AT MODULE 5 PER AS BUILT NOTATIONS	JNL/JNM																	

Thompson

From: Hammond, Steve(steve.hammond@doosan.com)
To: 'Watkins, Clyde'; Rabe, Phil
CC: Dukes, Christopher; Carlisle, Gary; Boone, James; 'James T. (Tom) Trimble'; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; 'Sandra Roach'; Smith, Timothy (Fuels); Henderson, Trent; Allen, Ross; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Smith, Mike; Young, Charles E H; Mackintosh, Alister
BCC:
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box) - TUNNEL RIDGE / PRB BLEND TEST REPORT
Sent: 11/01/2014 02:57:06 PM -0400 (EDT)
Attachments: 06350B80031000016 Rev 0 - Test 3 - Tunnel Ridge PRB 2014.pdf;

Mel / Phil

Please find attached a copy of the "Combustion System Demonstration Tests, Test 3 – Tunnel Ridge/PRB (70/30)" document numbered "06350/B800/TS/310000/2/0016 Rev 0".

This document is issued at revision 0 which Doosan consider to be final.

We will also submit this revision via the Bechtel e-room as required.

Let me know if you have any questions.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Hammond, Steve
Sent: 29 October 2014 17:17
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Allen, Ross'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Smith, Mike; Young, Charles E H; Mackintosh, Alister
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box) - GALATIA TEST REPORT

Mel / Phil

Please find attached a copy of the "Combustion System Demonstration Tests, Test 2 – 100% Galatia" document numbered "06350/B800/TS/310000/2/0015 Rev 0".

This document is issued at revision 0 which Doosan consider to be final.

We will also submit this revision via the Bechtel e-room as required.

Let me know if you have any questions.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Hammond, Steve
Sent: 20 October 2014 10:25
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Allen, Ross'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Smith, Mike; Young, Charles E H; Mackintosh, Alister
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box) - ARMSTRONG/PRB TEST REPORT

Mel / Phil

Please find attached a copy of the "Combustion System Demonstration Tests, Test 1 – Armstrong/PRB" document numbered "06350/B800/TS/310000/2/0014 Rev C".

The fuel analysis has been added to appendix 4 and the document re-issued at revision C which Doosan would consider to be final.

We will also submit this revision via the Bechtel e-room as required.

Let me know if you have any questions.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 30 September 2014 16:16
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; Allen, Ross; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Smith, Mike; Young, Charles E H; Mackintosh, Alister
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box) - ARMSTRONG/PRB TEST REPORT

Mel / Phil

Please find attached a copy of the "Combustion System Demonstration Tests, Test 1 – Armstrong/PRB" document numbered "06350/B800/TS/310000/2/0014 Rev B".

You will note that the fuel analysis has yet to be added to appendix 4, this is currently at SGS and will be added to the report upon receipt, and the whole document re-issued at revision C.

We will also submit this revision via the Bechtel e-room as required.

Let me know if you have any questions.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 01 September 2014 16:25
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Dearman, James'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Smith, Mike
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box)

Mel / Phil,

Following the decision to use Armstrong as a group one fuel and the revisions made to the stoichiometry curve last week it has been necessary to update the Combustion System Demonstration Test Protocol (Fuel Box) Protocol as follows;

1. Doosan has added the Armstrong / PRB blend to the list of fuels contained in section "2.1 Group 1 Test Fuel listed below" on page 2 and 3 of the document.

The Armstrong / PRB CV figure inserted in the document is the average from the previous Fuel Box test when we actually fired the same coal blend – it is exactly the same as derived from the LG&E data, so it has good pedigree, 10391 Btu/lb.

2. Doosan has revised the table contained in section "4.2 Test Mill Burner Stoichiometry" on page 4 as follows;

- The 70kpph point on the minimum stoichiometry curve is now 0.90, it was 0.825.
- The burner zone stoichiometry is now 0.91, it was 0.90.

Both as per the curves issued on Friday 29Aug14.

3. Doosan has revised the table contained in section "5.1 Test Mill Load Changes" as follows;

- The second action now reads "Test Mill in manual at coal flow to support unit load – nominally 780MWe summer rating or approx. 5300kpph steam flow (approximately 9 hours)", it was "Test Mill in manual at coal flow to support 809MW unit load (approximately 9 hours)".

This test was originally run during winter operations and this revision is to recognise that LGE-KU run at 780MWe during the summer months.

With this update to reflect revisions agreed since 05Aug14 we consider this the final document to move into the CS Demonstration Test with.

Let me know if you have any questions.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 12 August 2014 16:36
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Dearman, James'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box)

Mel / Phil

I have received no comments and advise that this document is now considered final, the AIL will be updated to reflect this.

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 05 August 2014 17:04
To: 'Watkins, Clyde'; 'Phil Rabe'
Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Dearman, James'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box)

Mel / Phil,

in response to morning meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box).

Please find attached a copy of the Combustion System Demonstration Test Protocol which has revised to include the comments made by Bechtel, see the e-mail below this for details. LGE-KU verbally advised during our meeting re the Power Consumption Surrogate Test Procedure on 29Jul14 that they had no comments

Would you review this document and confirm no later than COB on Friday 8th August 2014 that it can be considered final with no further comments.

Thanks and regards

Steve

Steve Hammond

Doosan Babcock

Email: steve.hammond@doosan.com

Tel: +1 502 255 5290

From: Babcock, James [<mailto:jbabcock@bechtel.com>]

Sent: 25 June 2014 22:38

To: Hammond, Steve

Cc: Watkins, Clyde; Brann, Devin

Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box)

Steve,

Please find my minor comments below:

- On page 3 of 15, section 3.2 pulverizers, the Mill Classifier Speed is shown as "72 – 86 rpm" and the potential for being from "72 – 90 rpm" based on the current test results could be realistic if a higher fineness was required for one of the other fuel box fuels. I would recommend making this change.
- On page 6 of 15, section 5.1 Test Mill Load Changes the fuel flow rate of 80-85 kpph refers to the recording of NOx and CO (Table 5.4), there is no table 5.4 and the typo shall be corrected to (Table 5.2).
- On the same page 6 of 15 delete the extra line/row from the table, it is not required and it leaves the "End Hold" away from the first part of the procedure.

Thank You,

Jim Babcock

(301) 228-8755

From: Hammond, Steve [<mailto:steve.hammond@doosan.com>]

Sent: Wednesday, June 04, 2014 8:51 AM

To: Watkins, Clyde; 'Phil Rabe'

Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; 'Sandra Roach'; 'Timothy Smith (Trimble)'; 'Trent Henderson'; Dearman, James; Allen, George K. (Chip); Babcock, James; Brann, Devin; O'Reilly, Daniel; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C
Subject: RE: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box) [*EXTERNAL*]

Mel / Phil,

Please accept our apologies, we updated an old version of the Combustion System Demonstration Test Protocol in error.

Attached to this e-mail is a copy of the latest Combustion System Demonstration Test Protocol which has revised to include the recently made comments.

Would you review this document and advise any comments by COB on Friday 20^h June 2014.

Thanks and regards

Steve

Steve Hammond

Doosan Babcock

Email: steve.hammond@doosan.com

Tel: +44 1293 584634

From: Hammond, Steve

Sent: 24 May 2014 20:38

To: 'Watkins, Clyde'; 'Phil Rabe'

Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; 'James T. (Tom) Trimble'; 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Pavne'; 'Richard Powell'; 'Rickv Melloan'; 'Sandra Roach'; 'Timothv Smith (Trimble)'; 'Trent Henderson'; 'Dearman.

James'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; Dan O'Reilly (dporeill@bechtel.com); McCall Thompson; Neil, Tankington, Ian R; Davidson, Gordon; Kerlake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C
Subject: 07292 - TC2 - Morning Meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box)

Mel / Phil,

in response to morning meeting AIL # B114, Combustion System Demonstration Test Protocol (Fuel Box).

Please find attached a copy of the Combustion System Demonstration Test Protocol which has revised to include the recently made comments.

Would you review this document and advise any comments by COB on Friday 6th June 2014.

Thanks and regards

Steve

Steve Hammond

Doosan Babcock

Email: steve.hammond@doosan.com

Tel: +1 502 255 5262

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Thompson

From: Slaughter, Mitch(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=SLAUGHTERM)
To: Murphy, Wayne; Barnes, Troy
CC: Turner, Lonnie
BCC:
Subject: FW: TC 2 corner NE 13 movement
Sent: 10/31/2014 12:49:15 PM -0400 (EDT)
Attachments: Video.MOV; ATT00001.txt; image1.JPG; image2.JPG; RE_ 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage .msg; RE_ 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage .msg;

FYI... Just some feedback on the pin issue on landing 13. Doosan and Cisco are looking at the problem. Thanks Mitch.

From: Hammond, Steve [mailto:steve.hammond@doosan.com]
Sent: Friday, October 31, 2014 11:36 AM
To: Slaughter, Mitch; Maldonado, Francisco
Cc: Mohn, Laura; Rabe, Phil; Gratton, Ron; Mel Watkins; Kerslake, Ian; 06350 TRIMBLE COUNTY MAILBOX
Subject: FW: TC 2 corner NE 13 movement

Mitch / Cisco

Attached are copies of e-mails sent earlier this year for reference.

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

Sent from my iPhone





Thompson

From: Kerslake, Ian(ian.kerslake@doosan.com)
To: Maldonado, Francisco; Brann, Devin (dmbrann@bechtel.com)
CC: Watkins, Clyde (cwatkins@bechtel.com) (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX; Elliott, Robert; Lee, John; Davis, Dez; Torkington, Ian R; Gratton, Ron; Hammond, Steve
BCC:
Subject: RE: 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage
Sent: 08/18/2014 01:17:00 PM -0400 (EDT)
Attachments: 06350X216314150108 Rev C.PDF;

Cisco and Devin,

Our engineering team in Crawley have reviewed the photos and our recommendation is to replace the pin and lock pin, details on the attached drawing.

We cannot see whether the plates have been deformed but have no reason to suspect that they have.

regards

Ian Kerslake
Project Procurement Manager
Doosan Babcock Limited
Doosan House
Crawley Business Quarter
Manor Royal, Crawley
West Sussex, RH10 9AD
Tel: +44 (0)1293 584855
Mobile +44 (0) 7774 965780
Email: ian.kerslake@doosan.com

-----Original Message-----

From: Maldonado, Francisco [mailto:Francisco.Maldonado@lge-ku.com]
Sent: 18 August 2014 14:58
To: Kerslake, Ian; Brann, Devin (dmbrann@bechtel.com)
Cc: Watkins, Clyde <cwatkins@bechtel.com> (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX
Subject: RE: 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage

Ian,

This particular pin is located on the NW corner on the 9th floor. Please advise on proper fix.

Thanks,
Cisco

-----Original Message-----

From: Kerslake, Ian [mailto:ian.kerslake@doosan.com]
Sent: Monday, August 18, 2014 9:50 AM
To: Maldonado, Francisco; Brann, Devin (dmbrann@bechtel.com)
Cc: Watkins, Clyde <cwatkins@bechtel.com> (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX
Subject: FW: 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage

Cisco / Devin,

Further to your email below, please can you confirm the exact location / level of the supports in question?

In checking with Crawley we just want to be sure as we did advise Bechtel to re work the boiler buck stay corner linkages back in November-December 2012/January-February 2013. You may recall that the pins that pass through the linkage were not correctly held in position and Bechtel replaced / re-formed them to provide positive restraint rather than pulling through as we saw - see attached photos.

regards

Ian Kerslake
Project Procurement Manager

Doosan Babcock Limited
Doosan House
Crawley Business Quarter
Manor Royal, Crawley
West Sussex, RH10 9AD
Tel: +44 (0)1293 584855
Mobile +44 (0) 7774 965780
Email: ian.kerslake@doosan.com

-----Original Message-----

From: Brann, Devin [mailto:dbrann@bechtel.com]
Sent: 18 August 2014 14:00
To: Kerslake, Ian; Watkins, Clyde
Cc: Hammond, Steve; Lee, John
Subject: FW: Emailing: IMG_1078.JPG, IMG_1077.JPG

Gentlemen,

Please see below from Cisco.

Have any of the supports similar to the one in the attached images been worked on in previous outages? If so can you provide a description on the work performed?

Thanks,

Devin M. Brann
Bechtel Corporation
Work: 301-228-6452
Cell: 240-344-3163
Email: dbrann@bechtel.com

-----Original Message-----

From: Maldonado, Francisco [mailto:Francisco.Maldonado@lge-ku.com]
Sent: Monday, August 18, 2014 7:38 AM
To: Brann, Devin
Subject: FW: Emailing: IMG_1078.JPG, IMG_1077.JPG [*EXTERNAL*]

James/Devin,

I believe that Bechtel fixed one of these during the TC2 spring outage. What was the repair and was there ever an RCF completed to let us know what happened?

Thank,
Cisco

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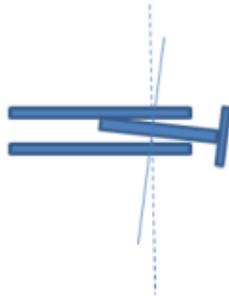
Thompson

From: Hammond, Steve(steve.hammond@doosan.com)
To: Maldonado, Francisco; Kerslake, Ian; Brann, Devin (dmbrann@bechtel.com)
CC: Watkins, Clyde (cwatkins@bechtel.com) (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX; Elliott, Robert; Lee, John; Davis, Dez; Torkington, Ian R; Gratton, Ron
BCC:
Subject: RE: 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage
Sent: 08/19/2014 10:54:54 AM -0400 (EDT)
Attachments:

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To enable insertion the buck stay will need to be square to get the pin in, our thoughts are that it's probably tilted which will stop it fitting into the bottom plate as per the picture below.



It will be difficult to replace the pin whilst the unit is hot and it maybe that you need to fit a temporary pin / taper pin until an opportunity presents itself to correctly fit the right pin

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

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Sent: 19 August 2014 12:52
To: Kerslake, Ian; Brann, Devin (dmbrann@bechtel.com)
Cc: Watkins, Clyde <cwatkins@bechtel.com> (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX; Elliott, Robert; Lee, John; Davis, Dez; Torkington, Ian R; Gratton, Ron; Hammond, Steve
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Project Procurement Manager

Doosan Babcock Limited

Doosan House

Crawley Business Quarter

Manor Royal, Crawley

West Sussex, RH10 9AD

Tel: +44 (0)1293 584855

Mobile +44 (0) 7774 965780

Email: ian.kerslake@doosan.com

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Mobile +44 (0) 7774 965780
Email: ian.kerslake@doosan.com

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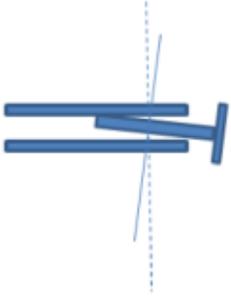
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Non Printable File - MOVie file

From: Hammond, Steve(steve.hammond@doosan.com)
To: Slaughter, Mitch; Maldonado, Francisco
CC: Mohn, Laura; Rabe, Phil; Gratton, Ron; Mel Watkins; Kerslake, Ian; 06350 TRIMBLE COUNTY MAILBOX
BCC:
Subject: FW: TC 2 corner NE 13 movement
Sent: 10/31/2014 11:35:36 AM -0400 (EDT)
Attachments: Video.MOV; ATT00001.txt; image1.JPG; image2.JPG; RE_ 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage .msg; RE_ 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage .msg;

Mitch / Cisco

Attached are copies of e-mails sent earlier this year for reference.

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Gratton, Ron
Sent: 31 October 2014 13:54
To: Hammond, Steve
Subject: FW: TC 2 corner NE 13 movement

FYI

From: Slaughter, Mitch [<mailto:Mitch.Slaughter@lge-ku.com>]
Sent: 31 October 2014 09:16
To: Maldonado, Francisco
Cc: Mohn, Laura; Rabe, Phil; Gratton, Ron; Watkins, Clyde (cwatkins@bechtel.com)
Subject: FW: TC 2 corner NE 13 movement

Cisco,

When you get back on Monday, please make sure you take a look at this issue on landing 13. I'm not sure if this is one of the pins we have worked on but we need to look at it and get it on the schedule. Thanks Mitch.

From: Turner, Lonnie
Sent: Sunday, October 26, 2014 9:16 PM
To: Barnes, Troy; Slaughter, Mitch
Subject: FW: TC 2 corner NE 13 movement

The movement in the video is mild compared to what I have seen. In the photos you can see the keeper pin is recessed about 1.5 to 2 inches. Just thought maybe it should be looked at.

From: Lonnie Turner [<mailto:ldturner427@aol.com>]
Sent: Sunday, October 26, 2014 8:45 PM
To: Turner, Lonnie
Subject: TC 2 corner NE 13 movement

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Sent from my iPhone





Thompson

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To: Maldonado, Francisco; Brann, Devin (dmbrann@bechtel.com)
CC: Watkins, Clyde (cwatkins@bechtel.com) (cwatkins@bechtel.com); 06350 TRIMBLE COUNTY MAILBOX; Elliott, Robert; Lee, John; Davis, Dez; Torkington, Ian R; Gratton, Ron; Hammond, Steve
BCC:
Subject: RE: 07292 TC2 - LG&E TQ re Boiler Support fix from previous outage
Sent: 08/18/2014 01:17:00 PM -0400 (EDT)
Attachments: 06350X216314150108 Rev C.PDF;

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We cannot see whether the plates have been deformed but have no reason to suspect that they have.

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Project Procurement Manager
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Mobile +44 (0) 7774 965780
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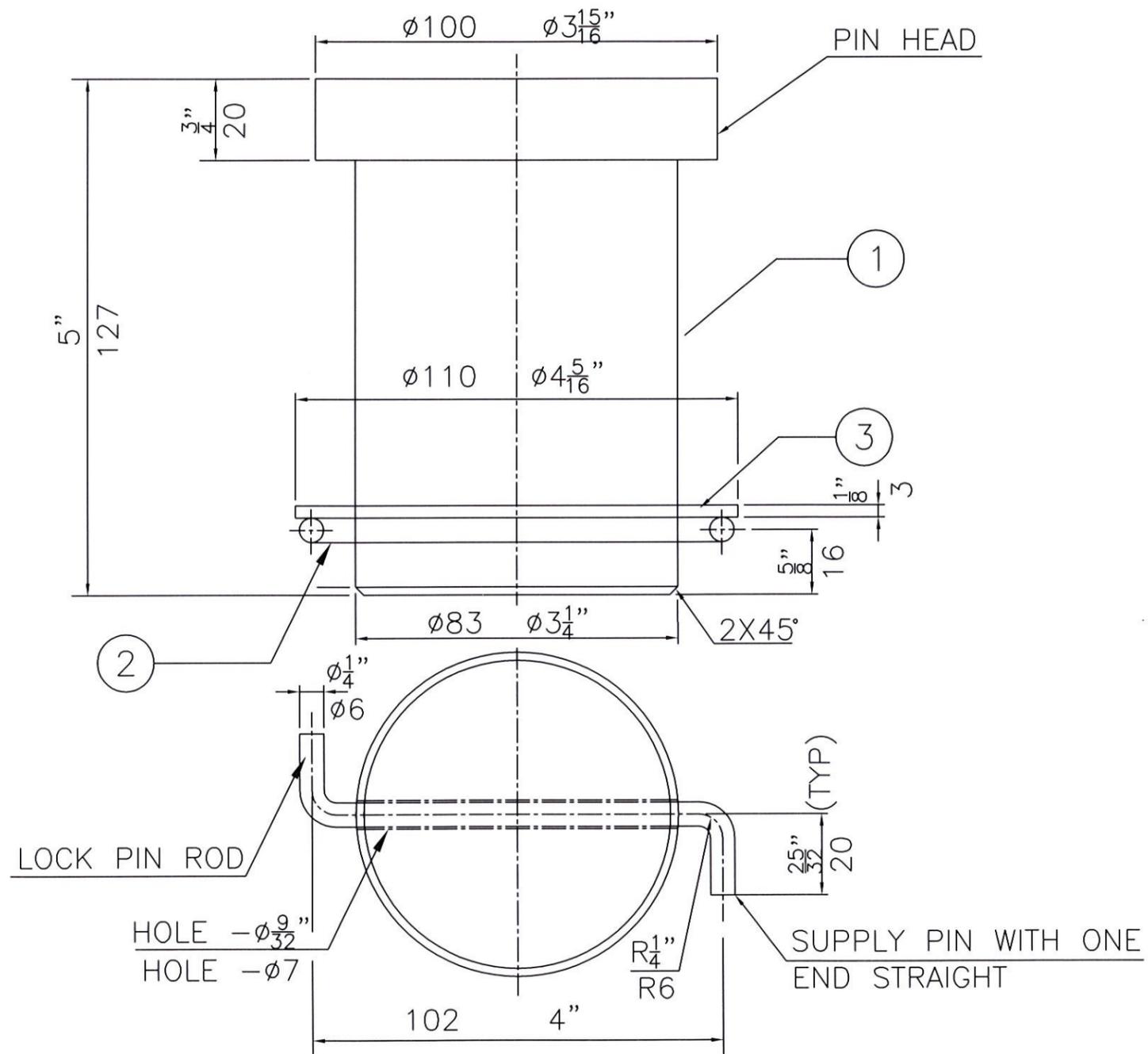
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NOTE:-ITEM 2 ALTERNATIVE - USE SPLIT PIN

ITEM No.	DESCRIPTION	DRAWING No.	MATERIAL	QTY	WGT.	TOTAL WEIGHT(Kg)
3	PLATE WASHER $\phi 110 \times 3$ Thk.	THIS DRAWING	ASTM A36	1	0.11	5.59
2	LOCK PIN ROD $\phi 6 \times 145$ LG.	THIS DRAWING	ASTM A36	1	0.03	
1	PIN $\phi 100 \times 127$ LG.	THIS DRAWING	ASTM A36	1	5.45	

BILL OF MATERIAL

L G & E ENERGY SERVICE COMPANY
 TRIMBLE COUNTY GENERATING STATION - UNIT 2
 BEDFORD - KENTUCKY
 PURCHASE ORDER NUMBER - 25191

DOOSAN Doosan Babcock Energy
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REV	BY	DATE	VER'D	APP'D	REVISIONS
C	PN	19.08.09	DIA	DIA	MATERIAL WAS 30CrMo ITEM 1 & SA387 Gr11 ITEMS 2 & 3.
B	PN	19.05.09	DIA	DIA	IMPERIAL DIMENSIONS ADDED
A	BRB	12.11.07	AKS	GKD	FIRST ISSUE

ORIGINAL ISSUE	
DRAWN	DATE
BRB	12.11.07
VERIFIED	DATE
AKS	12.11.07
APPROVED	DATE
GKD	12.11.07
SCALE	1:2

DRG TITLE	
BUCKSTAY PIN DETAIL	
PROJECT	06350: TRIMBLE COUNTY UNIT 2
NO. OF UNITS IN PROJECT	1
DRAWING NO.	06350/X216/DD/31415/2/0108
BUYER'S DOCUMENT NO.	

REV

B

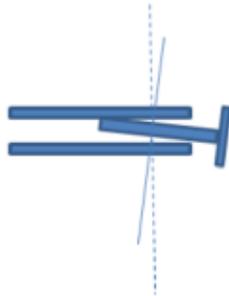
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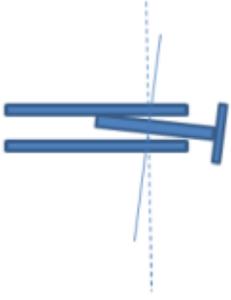
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BCC:
Subject: FW: TC 2 corner NE 13 movement
Sent: 10/31/2014 09:15:42 AM -0400 (EDT)
Attachments: Video.MOV; ATT00001.txt; image1.JPG; image2.JPG;

Cisco,

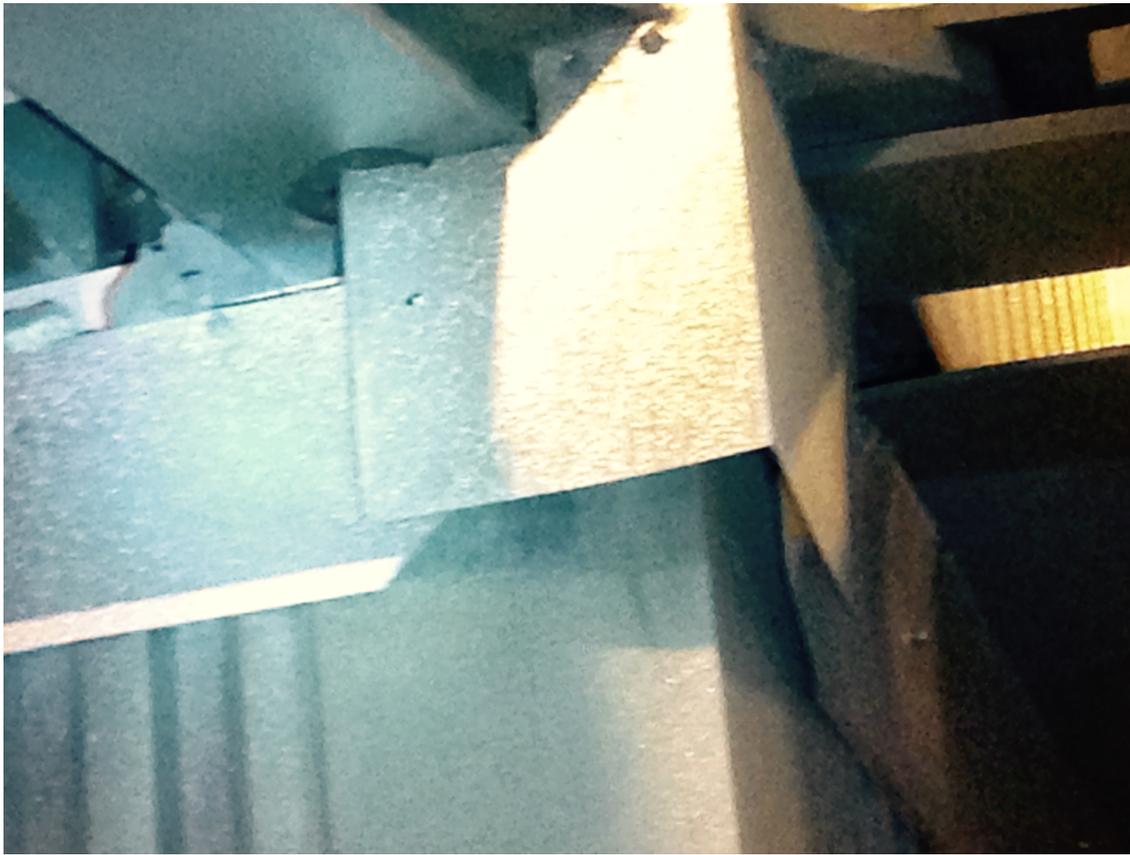
When you get back on Monday, please make sure you take a look at this issue on landing 13. I'm not sure if this is one of the pins we have worked on but we need to look at it and get it on the schedule. Thanks Mitch.

From: Turner, Lonnie
Sent: Sunday, October 26, 2014 9:16 PM
To: Barnes, Troy; Slaughter, Mitch
Subject: FW: TC 2 corner NE 13 movement

The movement in the video is mild compared to what I have seen. In the photos you can see the keeper pin is recessed about 1.5 to 2 inches. Just thought maybe it should be looked at.

From: Lonnie Turner [<mailto:ldturner427@aol.com>]
Sent: Sunday, October 26, 2014 8:45 PM
To: Turner, Lonnie
Subject: TC 2 corner NE 13 movement

Sent from my iPhone





Non Printable File - MOVie file

From: Williams, James (Dayton)(james.williams@fmglobal.com)
To: Payne, Nicholas
CC: Rabe, Phil
BCC:
Subject: Brief special report
Sent: 10/22/2014 02:39:54 PM -0400 (EDT)
Attachments: Trimble breif sp Rpt.pdf;

Nic,

Thanks for your time last Thursday.

Please review this brief report.

I need to upload it ASAP

Thanks,

Jim Williams

AVP Sr. Engineering Specialist
FM Global Equipment Hazards
937-469-0058 (cell)

FREE Resources available ! (just click on red links below)

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FM Global Risk Report (Preliminary)

Focus Visit Summary

PPL Corporation

LG&E / KU
Trimble County Generating Station & Substation
Highways 754 & 1488
Bedford, Kentucky 40006
USA

Equipment Hazards Special Risk Evaluation

Visit by: James R. Williams
Visit date: 16 October 2014
Conference with: Mr. Philip Rabe, P.E., Operations Manager

Visit Objective

This coal fired electric generating plant was visited to complete a special focused review of equipment protective device testing and electrical equipment.

There are many equipment and electrical hazards at a coal fired electric generation station. These large rotating machines are protected by controls and protective devices which help avert catastrophic events which can be very costly. These hazards are mitigated with good control systems maintenance, alarm and trip testing, preventive maintenance testing and timely overhaul/inspections of this equipment.

Comments

At the time of this visit coal fired Unit Nos. 1 and 2 were on line and operating normally. Unit No. 2 has been given limited inspections from various ports etc. during extended outages associated with past start-up issues. Turbine generator bearings and the EHC hydraulic system have had some problems associated with errors in the construction process and set-up by the vendors. It is believed that the last of these issues has now been corrected and all systems are operating well at this time.

Problems with the turbine EHC trip manifold experienced in July revealed a design weakness in the hydraulic trip manifold. The issue of origin was fluid quality, which has been corrected, but the scenario also pointed out the lack of on-line testability of this important trip system. The trip manifold is now scheduled to be completely replaced with a new system similar to Unit No. 1 which is fully testable on line. The new trip manifold was ordered last quarter and is scheduled to arrive December 17, 2014. The new system will have 3 main poppet valves (with 2 out of 3 logic to trip the turbine) and each poppet will have 2 master trip solenoids. Most of the provisions and piping changes will be completed in the first quarter 2015 and the new system will be installed during a 3-4 day outage at the end of March 2015.

The construction of the new bag house for Unit No. 1 (similar to Mill Creek Unit No. 4) continues. This additional draft equipment includes replacement of the 9,000 Hp ID fans with new 14,000 HP ID fans (and associated larger variable frequency drives, motors etc.). Studies were completed to review the implosion hazards to various components and reinforcement of the existing SCR, Air heater and precipitator ductwork is included in the project (the boiler was found of adequate designed for the levels of negative pressure possible). The new bag house is to be on line later in 2015. The transformers for the variable frequency drives are exotic and a spare will be ordered to ensure a quick recovery of the unit if a transformer were to fail (similar to the spare Unit No. 2 excitation transformer).

The generator relay protection at this site did not originally include a stator ground alarm for the neutral end of each phase (inner 15% of winding where voltage is low). Mr. Bryan Baker, Electrical Engineer, has equipping the disturbance monitoring system to characterize normal 180Hz signals at the neutral which are being used to provide an alarm when the response in this part of the winding changes. This will provide the intended neutral end stator ground fault protection to bring the electrical protection up the latest available levels.

All four of the large transformers in the transmission yard (several are key to start of this plant from the grid) were replaced in 2012-13 due to age and load requirements, but one of these failed in the past year and was being replaced during this visit (T6, 345/238kV 220MVA). This unit was energized for the first time during this visit and loaded systematically while observing temperatures etc. for many hours.

It was noted that the aluminum tubular bus and flexible connectors on the new T6 primary and secondary circuit breaker installations were putting some level of mechanical stress on the transformer and circuit breaker bushings. The vendor representing the bushing manufacturer has

reportedly stated that the stress does not exceed the bushing specifications, but it also appears that the hardware is not applied well (flexibility in the connections has bottomed out etc.). It was agreed that this should be given a second look at least from within the various substation groups within the company. The previous T-5 installation looks very good and these should be nearly identical as they have the same purpose and options.

It was also noted that 345kV system DC control batteries are fairly new and 138kV system batteries have been recently replaced and all are in good condition. Relay protection is up to date in the yard and transformer sudden pressure trip features are connected.

A minor leak was noted at the B phase potential head of the "A" bus 138kV underground cable system which will be investigated. Oil pressure is maintained on these underground cables

Ongoing Services

FM Global is available to provide support in all areas of property loss prevention. These services include:

- New equipment installation reviews
- Electrical system evaluations
- Equipment preventive maintenance planning

Depending on your organization's insurance program, you may also have access to the FM Global MyRisk website. If so, you will find additional risk management tools that can help with your risk improvement strategy at:

<https://myrisk.fmglobal.com/portal/server.pt?fmgindex=05437000&sequencenum=03&accountid=07423&type=riskmarkredirect>

For access to these services, contact one of the following:

Cleveland Operations:
FM Global
25050 Country Club Blvd.
Suite 400
North Olmsted, OH 44070
USA
[1] (216) 362 4820

**Skip Slauson,
Account Engineer (Equipment):**
FM Global
1 Country View Road
Suite 200
Malvern, PA 19355
USA
[1] (610) 296 3100

Reference Information

Focus Visit Summary

PPL Corporation
LG&E / KU
Trimble County Generating Station & Substation
Highways 754 & 1488
Bedford, Kentucky 40006
USA

Equipment Hazards
Special Risk Evaluation

Visit by: James R. Williams
Visit date: 16 October 2014

Site Contact:

Mr. Philip Rabe, P.E., Operations Manager at
+1 502 6276206, phil.rabe@lge-ku.com

Final Conference Attendees:

Mr. Nicholas Payne, Instrument & Electrical
Supervisor;
Mr. Tom Dellarocco, Electrical Engineer;
Mr. Philip Rabe, P.E., Operations Manager

Location Index Number:

054370.00-03

Account Number:

1-07423

From: Williams, James (Dayton)(james.williams@fmglobal.com)
To: Byrd, Larry; Payne, Nicholas; Joyce, Jeff
CC: Ferguson, Nina
BCC:
Subject: FW: 2009 Hitachi unit at PPL LGE Trimble county
Sent: 03/24/2014 11:32:09 AM -0400 (EDT)
Attachments: EH report.pdf;

Attached is a preliminary copy of my report. Sorry this took so long, it got hung up due for 2 weeks due to an admin issue with our process. Let me know if you have any questions.

By the way, I checked with our other offices and we do not have any Turbine-Generator bulletins from Hitachi, but we do insure a couple TC4F units in Singapore and a smaller Hitachi unit in the UK. I assume you already know you can sign up to the <http://www.generatortechnicalforum.org/html/forum.htm>, which is an open forum and typically questions are responded to by the moderators and members (free).

Hitachi was recently taken over by Mitsubishi and perhaps things will be different going forward. Apparently Mitsubishi maintains a website with bulletins and sends bulletins by mail.

I'll try to get more on this.

Jim Williams

AVP Sr. Engineering Specialist
FM Global Equipment Hazards
937-469-0058 (cell)

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From: Williams, James (Dayton)
Sent: Thursday 13 March 2014 12:36
To: Verloop, Erik
Cc: Schutt, Anthony; Petitgout, Stephen
Subject: 2009 Hitachi unit at PPL LGE Trimble county

Eric,

My 2009 vintage, 830 MW Hitachi Turbine Generator is the only Hitachi unit my customer has and the only Hitachi unit in our Ops center (to my knowledge).

The insured says that Hitachi claims they have no problems, no memos, no bulletin items etc. My customer is used to GE TILs and similar action from OEMs and is frustrated by this and they would like to know if we have any information, contacts etc. we could share where they can get some user group type support on potential problems with these. I don't think we have anything for them, but I thought I'd bounce it off you.

Turbine Type TC4F-40
Generator Type TFLQQ Form KD 2 pole

Thanks,

Jim Williams

AVP Sr. Engineering Specialist
FM Global Equipment Hazards
937-469-0058 (cell)

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FM Global Risk Report (Preliminary)

PPL Corporation

LG&E / KU
Trimble County Generating Station & Substation
Highways 754 & 1488
Bedford, Kentucky 40006
USA

Equipment Hazards Regular Risk Evaluation

Visit by: James R. Williams
Visit date: 11 March 2014
Conference with: Mr. Jeff Joyce, General Manager

Principal Site Activity

This location includes two base loaded, coal-fired boiler turbine generators (540 MW-subcritical and an 800 MW-supercritical) and six 150 MW-gas turbine generators for peaking service.

Understanding the Risk at this Facility

This coal fired electric generating plant was visited to complete a regular review of equipment hazards.

There are many equipment hazards at a coal fired electric generation station. A large boiler low water accident or explosion, a turbine generator accident, or an electrical apparatus fire can be very costly and shut down the plant for many months. These hazards are mitigated with good control systems, alarms and trip set-up and management, good operator training, detailed inspections, preventive maintenance testing and timely overhauls of this equipment and it's support equipment. This report outlines some of these efforts and includes suggestions for improvements.

Summary of Recommendations

Rec Number	Recommendation Synopsis	Loss Expectancies (USD)
14-03-001	Over speed trip testing should be completed on an annual basis for each turbine.	Reduces probability or severity.

The recommendations in this report are directly related to the context of this visit. For example, Equipment Hazard visits will typically not include Fire Hazard recommendations and vice versa. Similarly, Focus visits may be done to cover very specific subjects. Thus it is important to note that this is not a list of all recommendations for this location. The author of the report determines what specific recommendations to display. For a full list of recommendations please contact your account engineer.

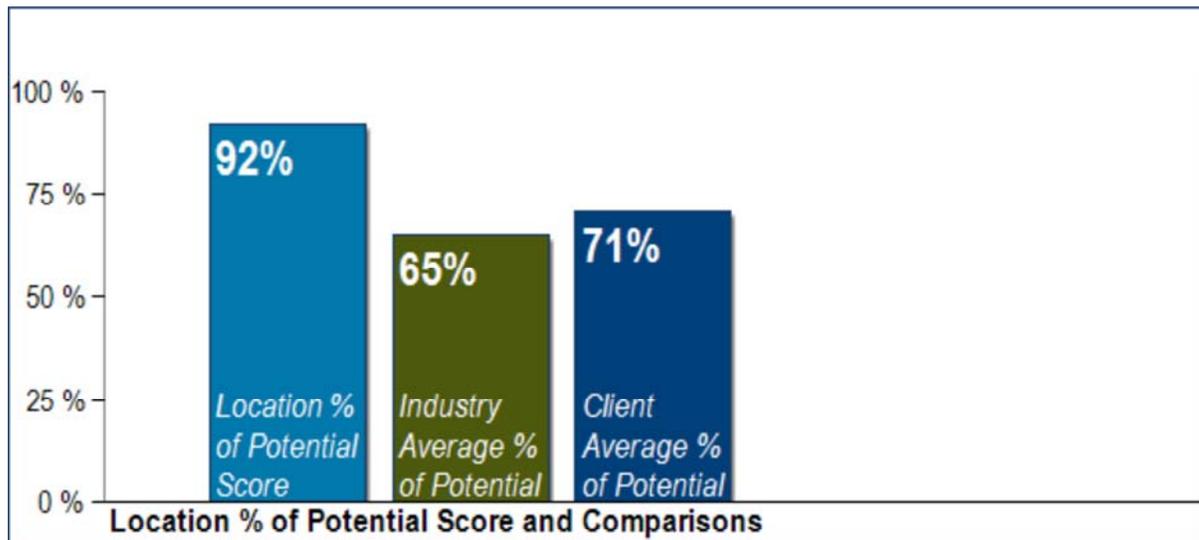
Factory Mutual Insurance Company (FM Global) has developed this report for insurance underwriting purposes. The report is provided to you for informational purposes only to reduce the possibility of loss to insured property by bringing to your attention certain potential hazards or conditions. Life, safety, or health issues are not addressed. You must make the decision whether to take any action. FM Global undertakes no duty to you or any other party by providing this report or the activities on which it is based. The liability of FM Global is limited to that contained in its insurance policies.

Location Overview

The following display(s) show RiskMark information for this location. Note that the RiskMark scores and displays are different than in the past. RiskMark was recalibrated and enhanced to now include Equipment Hazards and an emphasis on Human Element programs. RiskMark will now provide additional points for risk improvement in these and other areas. Your contacts at FM Global can help you to see the advantages of this more comprehensive benchmarking tool.

RiskMark Comparisons

This display shows a comparison of your RiskMark score (on a percent of potential score basis) to the average percent of potential scores of other groups as noted in the display.



The Industry used in the above chart is Fossil Fuel Power Plant.

Management of Exposures

Certain potential hazards and conditions were evaluated at this facility. Completion of the following items will help lower both the frequency and severity of losses and minimize the possibility of costly interruptions to your business.

14-03-001 Over speed trip testing should be completed on an annual basis for each turbine.

The Hazard	Without routine verification of the over speed protection, the risk of a catastrophic over speed event is unacceptably high for these very large rotating machines.	
Technical Detail	<p>Although kept on an annual schedule in the past, currently, an up-to-date over speed trip tests is not formally recorded for the 6 Combustion Turbines and Unit No. 2 (though perhaps done in October 2013 without a record).</p> <p>This station has historically been doing actual over speed trip tests (taking the machine above 110-15% rated speed) in most cases, but the use of simulated methods is approved for these machines because of the type of over speed trips they have (modern electronic multi-signal systems with capability of tripping at a lower speed). The exercise of the over speed trip function does require the actual trip of the machine (and observation of the stop valves and non return valves etc.), but the simulation of the over speed condition is allowed.</p>	
Loss Expectancies	Acting on this item would reduce the probability or severity of loss.	
	Exposure to Loss if Completed is approximately:	Minimal PD Minimal BI
Status	According to Mr. Mitch Slaughter, the recommendation will be completed by October 2014.	

Risk Reduction

Recommendations that have been completed or otherwise removed are summarized in this section.

Human Element Recommendations that have been completed often do not have an associated loss estimate since they usually serve to lower the frequency and/or severity of a loss. For this reason, we quantify them by counting the number of such items that have been completed.

The "Counts" of recommendations referenced in this section include each part of multi-part recommendations except in cases where each part represents options to address a single deficiency. In such cases, the recommendation is only counted once.

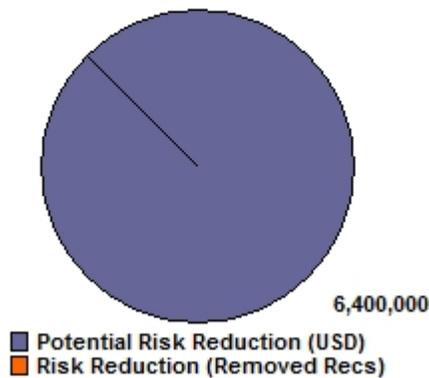
These charts illustrate current risk reduction status since the last inspection visit, and also include an historical account of previous risk reduction activity on a cumulative basis. Focus and special visits are not tracked separately, but the total outstanding recommendation counts reflect the full history since April 2013.

Though this report does not include every currently active recommendation (Fire, Natural or Equipment Hazards), these charts reflect the location's entire exposure and risk reduction activity for all active recommendations at this time.

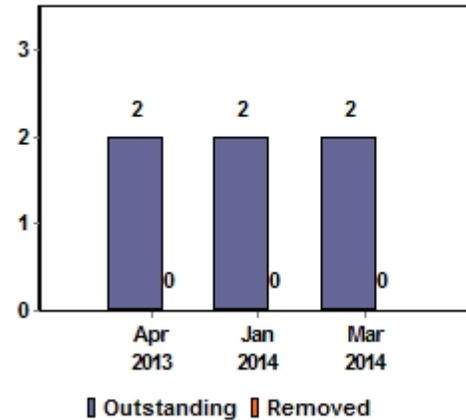
Physical Recommendations

No **Physical** recommendations have been completed or removed since our last evaluation.

Aggregate Physical Risk Reduction
(Current Sum of Loss Expectancies)



Physical Risk Reduction History
(Count of Recommendations)

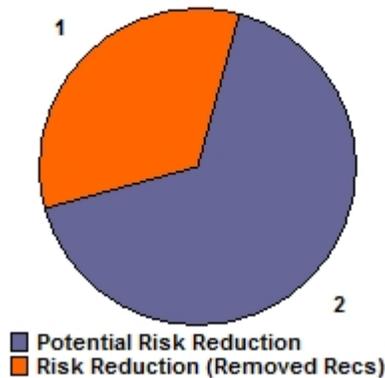
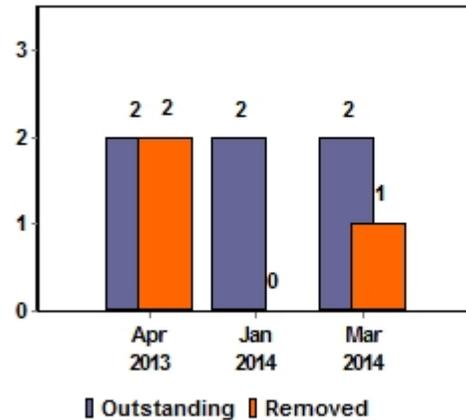


Human Element Recommendations

The following **Human Element** recommendation has been completed or removed as a result of this evaluation:

Rec Number	Recommendation Synopsis <i>Reason for Deletion/Completion</i>	Removal Method
11-09-001	<p>Improve protection against loss of generator hydrogen cooling for Unit No. 2. (revised)</p> <p><i>The installation of protection logic against loss of generator cooling for Unit No. 2. was being changed during this visit/outage. Change will be in effect by end of May 2014 when units starts back</i></p>	Completed 11 Mar 14

Human Element Recommendations continued

Human Element Risk Reduction
(Count of Recommendations)Human Element Risk Reduction History
(Count of Recommendations)

Comments

Unit No. 1 was on line near full load during this visit and Unit No. 2 was down for a Boiler outage for burner replacement. Welded boiler tube changes were required to accommodate the sixty new burners which replaced the original burners which did not perform to the specification. The welded repairs are being done by the code required methods with good NDE and documentation underway. This extended outage for Unit No. 2 is being used to provide various inspections and tests including replacement of lubrication filters (to reduce issues with static charges building up in the system) and inspection and testing of the auxiliary systems, isolated phase bus, excitation transformer, main and aux transformer bushings etc. Unit No. 2 will be back on line by the end of May 2104.

A review of forced outages for the past 12 months does not point up any concerns with maintenance or property protection schemes. It is expected that many of the previous issues with Unit No. 2 will be corrected with the new burners. A new root cause and failure analysis requirement was added this year which starts with the recording of forced outages and ends with good failure analysis, reports shared between stations and an excellent follow up process to improve reliability at all stations. A review of this process shows a great start to an excellent program.

The last Major Turbine and Generator overhaul for Unit No. 1 was completed in 2009 when HP-IP and both LP turbine sections were fully cleaned, examined, reconditioned etc. The outage also included a bore-sonic evaluation of each of the 4 rotors (including generator) with good reports for continued service. In 2009 the generator was re-wedged and fully inspected and tested (to 1.5E DC, with very good results) and TIL 1292 (calling for detailed rotor forging exam and modifications) was completed by the manufacturer. The 18-18 retaining rings (1996 vintage) were also examined inside and out (since they had to be removed) with good results. The Feed-water heaters, condensers, main steam and reheat piping were examined by several NDE techniques and

Comments continued

repaired as needed. A short circuit in the field winding was repaired at an unscheduled outage just after start-up the same year.

The new Generator stator cooling leak detection system on unit No. 1 showed good results at this time. Unit No. 2 does not require this device (according to the manufacturer), but it is being budgeted for addition in a few years as a precaution.

The only Turbine and Generator inspections of Unit No. 2 so far (newest unit which started up in 2011) have been limited inspections from various ports etc. during extended outages associated with start-up and problems with boiler burner performance. The Turbine generator bearings have also been inspected several times to repair scoring from contamination (errors in construction process which have now been corrected). Outages in the Spring of 2012 and 2013 included a limited inspection of the generator and electrical testing. All results have been satisfactory, except that several transformer bushings had to be replaced, due to deteriorated tap insulation. The HV and LV bushings on the large No. 2 spare Main step up transformer (900MW) were installed on the in-service unit last year and the original bushings have been repaired and replaced. During This outage these will be tested again.

The operators check stop, intercept and reheat valves daily and exercise boiler alarms, control valves and extraction valves weekly. Feed water controls and alarms are tested monthly, including dump, isolation and bypass arrangements. Boiler drum level trips are tested at 18-24 month outages. Water/steam purity is monitored continuously and treatment is adjusted as needed.

Construction is underway on a new bag house for Unit No. 1 (similar to Mill Creek Unit No. 4). This change will require that the 9,000 Hp ID fans will be replaced with 14,000 HP ID fans which also require larger variable frequency drives, new motors etc. The new bag house is to be on line by year end 2014. The transformers for these drives are exotic and a spare will be considered to prevent a long outage for a transformer failure. The Unit No. 2 excitation transformer also poses a similar concern which will be getting similar consideration.

Unit No. 2 boiler safety valves were hydraulically tested in early February 2014, prior to this outage (as is done every 12-24 months) and only three valves required rebuilding (will be replaced during the outage). Examination of high energy piping in 2011 revealed some minor cracking in some weld areas which was blended by grinding a new hot and cold inspection of the pipe hangers is being completed at this time.

Chemical analysis of bearing oils and EHC oils is conducted Monthly with good results. The results for Unit No. 2 showed a failure of a test for separation of water (demulsibility) and this will be addressed during this outage. A problem with static build up was discovered in the Unit No. 2 lubricating oil system and special filters are being installed during this outage to hopefully reduce this problem. Chemical tests do not show any other fluid degradation at this time. Several of the vibration monitoring system control cards had to be replaced (assumed due to the static buildup) and re calibrated also. These issues will be watched very carefully this year to verify that the solutions have been successful.

Comments continued

Over speed protection is provided by electronic systems which are common for electronic based protection schemes. The testing routines are being modified to abandon the actual over speed tests and replace them with simulated tests on each unit. A recommendation addresses the fact that some of these are overdue at this time and FM Global is being used for guidance on the new program.

Low water trip tests are conducted annually (last October 2013) for Unit No. 1 by a written procedure required by the preventive maintenance system. The Boiler Engineer and Instrument Engineer have written a similar procedure for testing the differential flow trip associated with the No. 2 (super critical boiler) which is now managed likewise (records to be generated by May 2014).

The Unit No. 2 Generator has Partial discharge analysis available and baseline tests were recorded last year. A follow up test each year or so will be used to review results as the unit ages. This technology is expected to add to the other predictive maintenance techniques available, but will not replace any of them.

The 2013 flux probe analysis suggested that there may be one shorted turn in the field of Unit No. 1 (similar result to the previous). This will be followed, but the effect on performance is very minor at this time and until other shorted turns develop, no action is needed.

The most deteriorated high voltage bushing on Unit No. 1 main auxiliary transformer was replaced with a good used bushing in 2012, then all were replaced in October 2013 with new ones. Without a good testing program, this issue might have developed into a big problem.

The Six GE 7FA type Combustion Turbines on the east edge of the property (Unit Nos. 5-10) are Model PG7241 with a dry low-nox design. There are multiple active Technical Information letters (TILs) which apply to these units, calling for inspections for design and operational problems discovered which can become bigger issues with time. Per TIL 1315 and 1334 bore scope inspections were completed to look at the progress of several problems.

Per TIL 1562 (and others) a bore scope examination of the first 5 rows of compressor blades (in unit Nos. 8-10) was used to look for migrated shims (several loose and/or damaged shims discovered Units 7 and 10 which required repair). All shims were staked (in all 14 compressor stages) in Units 8-10, so they cannot migrate again. Units 5 and 6 reportedly do not have shims in the compressor section, but are also inspected at the hot gas path inspections. Per TIL 1509 compressor R0 and R1 blade tips have been checked to look for crack indications and in many cases R0 blades were replaced. Per TIL 1398 generator stator winding end turns (collector end) were examined on all six units and minor epoxy repair of some looseness was completed. Several other TILs (1280, 1539, 1540, 1509-1) also call for examinations of various parts, but these do not become an issue until more hours of use. The number of starts (factored starts based upon nature of each machine use) for a Hot gas path inspection is 900 and each unit has now been given it's first extended hot gas path inspection (extended to include dismantle of the combustion turbine and compressor, with rotor removed). The owners are following all manufacturer recommended actions

Comments continued

and the document which manages the schedule is up to date.

The annual bore scope inspection was conducted on each of the Combustion turbines in October 2013. Only a minor follow up outage was needed on CT No. 8 because of some rubbing discovered on 8 of the 92 buckets on the 1st stage. These rubs near the root were spread over 4 quadrants of the machine and it is assumed that the vibration or movement which caused them was local to these blades. The entire row was changed with certified replacements from the manufacture (an extra set was maintained at the plant, from the previous changes required by TILS). The annual CT bore scope inspections will continue, but it should be noted that with this outage, there are no longer any 12,000 hour combustion parts and the Combustor and hot gas path frequencies will be the same (900 factored starts). The next round of hot gas path inspections will start around 2016 (based upon current use and projected starts). Some new TILs have recently come out which will be included starting in 2016 also.

Over-speed tests were updated on all 5 Combustion Turbines on January 24 and 25 2012. Each tripped at 3558 or 3559 (electronic over-speed trips). These will be repeated in the second quarter of 2014.

The motor operated isolation switches for the CT units have been performing poorly and this will ultimately threaten the ability to follow a proper operating standard and avoid availability problems. Several modifications have been tried, without complete success. These switches will perhaps be replaced over the next year. These issues do not prevent automatic trip or protection, but relate to isolation and preventing inadvertent energization (by having more than one switch between generator and grid when off line).

All four of the large transformers in the transmission yard (could be needed to start the plant from the grid) were replaced in 2012-13 due to age and load requirements. These are being inspected and test results reviewed along with all transformers at this station. All other transformer testing is up to date for this site. A minor issue with contamination on the No. 1 GSU and a trace of acetylene on TCT10 are being investigated.

All Medium and low voltage circuit breakers and relays were serviced during the 2012 (Unit 2) and 2013 (Unit 1) outages of each unit with good results.

The generator relay protection at this site does not include a stator ground alarm for the neutral end of each phase. Mr. Bryan Baker, Electrical Engineer, is equipping the disturbance monitoring system to characterize normal 180Hz signals at the neutral which can be used to provide such an alarm. This is expected to be complete by summer 2014 and this is going to be done across the fleet this year.

All station UPS, emergency bearing pump and transmission substation batteries are in good condition. The 2013 discharge test of each of the Unit No. 2 batteries produced good results. The one battery which was tested at the wrong load is being re-tested at this outage. New discharge test requirements are being rolled out in 2014 in response to new regulatory requirements. FM

Comments continued

Global will be providing support in the use of new discharge tests ever 6 years or so. Methods will be similar to those outlined in NFPA 70B.

Ongoing Services

FM Global is available to provide support in all areas of property loss prevention. These services include:

- New equipment installation reviews
- Electrical system evaluations
- Equipment preventive maintenance planning

Depending on your organization's insurance program, you may also have access to the FM Global MyRisk website. If so, you will find additional risk management tools that can help with your risk improvement strategy at:

<https://myrisk.fmglobal.com/portal/server.pt?fmgindex=05437000&sequencenum=03&accountid=07423&type=riskmarkredirect>

For access to these services, contact one of the following:

Cleveland Operations:

FM Global
25050 Country Club Blvd.
Suite 400
North Olmsted, OH 44070
USA
[1] (216) 362 4820

Skip Slauson,

Account Engineer (Equipment):

FM Global
1 Country View Road
Suite 200
Malvern, PA 19355
USA
[1] (610) 296 3100

Reference Information

PPL Corporation
 LG&E / KU
 Trimble County Generating Station & Substation
 Highways 754 & 1488
 Bedford, Kentucky 40006
 USA

Equipment Hazards
 Regular Risk Evaluation

Visit by: James R. Williams
Visit date: 11 March 2014
Site Contact: Mr. Philip Rabe, P.E., Operations Manager at
 +1 502 6276206, phil.rabe@lge-ku.com
Final Conference Attendees: Mr. Larry E. Byrd, Maintenance Manager;
 Mr. Jeff Joyce, General Manager;
 Mr. Nicholas Payne, Instrument & Electrical
 Supervisor
Location Index Number: 054370.00-03
Account Number: 1-07423
Additional discussions were held as follows: *07 March 2014 / Interim*
 Mr. Mitch Slaughter, Supervisor of Production
 Mr. Philip Rabe, P.E., Operations Manager
 Mr. Gary Dunlap, Maintenance Service Leader
 Mr. Emmett Moore, Electrical Engineer
 Mr. Tomas Manezes, Combustion Turbine
 Supt.
 Mr. Francisco Maldonado, Mechanical
 Engineer
 Mrs. Laura Shuffett-Mohn, Engineering Group
 Mngr

RiskMark Information included in this report is current as of 21 March 2014.

From: Rabe, Phil(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=PHILRABE)
To: Buckner, Mike
CC:
BCC:
Subject: TC2 EHC Outage_Summary Document.docx
Sent: 10/17/2014 10:06:41 AM -0400 (EDT)
Attachments: TC2 EHC Outage_Summary Document.docx;

Event

On June 29th, 2014, TC2 was removed from service due to issues with the turbine EHC system. The 2A main steam stop valve (MSV) had failed to re-open the previous morning following a valve test. After I/E performed trouble shooting and replacement of the MSV servo, it was discovered that a TCS 'master reset' had to be initiated to send a 4-20 mA control signal output to it. It was decided to wait and perform the master reset while the unit was down for scheduled deslag. The TCS was 'master reset' successfully and control current was re-established to the servo, but the valve still remained closed. The fast acting solenoid (FAS) located on the valve appeared to be dumping the actuator hydraulic supply based on the valve hydraulic drain line temperature. The decision was made to remove the unit from service to allow replacement of the FAS.

While decreasing load to come offline, the 2A CV was not closing as expected, and it stopped closing partially open. The 2B CV was fully closed. At 80 MW, the turbine tripped and an auto shutdown was executed. The 2B CV and both the 2A and 2B intercept valves (ICV) closed; however, the 2A reheat valve, 2B reheat valve, and 2B MSV remained fully open. The 2A CV remained partially open.

A successful sequential trip of the generator requires all steam paths to the turbine to be blocked until the generator "motorizes." When a reverse power relay confirms that the generator is motorizing for three seconds at -4% of the generator power (MVA) rating and all steam paths are blocked, the line breakers open islanding the turbine from the grid. If the generator motorizes for ten seconds the line breaker is opened even if all steam paths are not blocked. Since all steam paths were not blocked, the synchronizing breaker was not automatically opened. The generator line breaker remained closed and the unit stayed at 3600 rpm. Operations kept the line breaker closed to prevent an overspeed. The unit remained online for several minutes until the generator motorized for ten seconds. The generator reverse power 2 relay picked up and tripped the line breakers, opening them automatically. Turbine speed began to decay on the machine with the turbine HP and LP bypass valves closed and dropped to 3150 rpm. The LP bypass valve opened up as normal following a turbine trip, but with the 2B MSV open along with the 2B CV open, a path for steam flow through the HP turbine to the condenser was established without load being generated (i.e. the line breaker open). This flow path, coupled with the 2B MSV's inability to close, resulted in the turbine picking up speed. The EHC pumps were tripped from service, the boiler MFT'd and the 2A PORV was opened. The Manual trip handles on the master trip solenoid valves equipped on the hydraulic fluid tank were operated, but nothing happened. Turbine speed reached 3969 rpm before I/E personnel manually actuated the 2B MSV FAS with a hammer and punch causing the valve to go closed. EHC trip pressure was slow to decay and was at 1300 psi when the valve closed. It began to re-open when the FAS was released, and the FAS had to be manually held open until EHC trip pressure was bled off.

Root Cause Failure Analysis

Since original unit startup, the TC2 EHC system has had a history of particulate and varnish contamination issues. In the spring of 2011, a high velocity flush was performed to eliminate particulate. In the spring of 2012, a chemical flush was conducted to remove varnish within the system. Because of parts issues, jumpers were installed at the emergency trip valve manifold and it was not flushed. Fluid sample data indicated no issues with the EHC fluid at the time of the TC2 Spring 2014 burner outage. However, because there had been issues reported from Operations with testing the master trip solenoid valves, I/E changed the master trip solenoid valves and pilot-operated valves on the trip block during this outage.

Leading up to the event on June 29th, 2014, there was a known issue with water contamination in the EHC system that had first become apparent to plant personnel on Friday, June 20th. A vacuum dehydrator was brought in on Saturday, June 21st, and removed approximately 2.5 gallons of water over the course of several days. Although the water was removed from the system, the components throughout the system had been contaminated, so the decision was made to conduct a complete flush on the EHC system.

EHC fluid analysis from January 6th, 2014 indicates that the fluid was in good condition with water content of 0.08% (800 ppm) before coming off-line for the 15+ week burner outage in February, 2014. However, the first sample taken after the outage on June 17th indicated that there was 0.45% (4500 ppm) of water in the fluid. According to the fluid supplier, water in the EHC fluid can act as a solvent breaking up and releasing contaminants that may be in the system. Therefore, any varnish that may have been in the system could have been released by the water.

The potential sources of water were investigated to determine the root cause of the water contamination. A leak in the coolers seemed to be the most likely source of water of this magnitude, so they were pressure tested on-site with nitrogen and water. Both EHC Coolers were pressure tested at 80 psig of air for 1 hour with no noticeable depreciation of pressure observed. These coolers were pressurized again to 120 psig of water. One cooler held pressure for approximately 12 hours and the other for approximately 6 hours. However, to avoid the risk, the decision was made to replace the EHC coolers with temporary coolers until a new heating/cooling system was in place.

After the outage, the coolers were sent out and tested by National Heat Exchange Cleaning Corporation in Youngstown, Ohio. Both coolers passed hydro tests on both the shell and tube side at the OEM's test pressures indicating no leaks in either cooler.

According to MD&A, another source of water into the EHC system could be during start up when the Main Stop and Re-Heat Stop Valve stems are not back seated. These drain lines and pans were inspected and cleaned, and the stem bushings below the valves were verified to be free of obstructions to prevent water from backing up on top of the actuators. During the start-up, the drain lines were blown out and debris was removed from the collection channel at each valve to confirm that all drain lines were clear to prevent standing water from collecting on top of the valve actuators.

During the planned 2014 spring TC2 outage, the EHC tank was drained and that EHC fluid was stored in plastic totes for several weeks. When the TC2 outage was near completion, the EHC tank was refilled with some of the EHC fluid that had been stored in the totes. While refilling the EHC tank with the used EHC fluid, the mechanics noticed that there was visible quantity water floating on top of the fluid in the tote. Assuming that the fluid below the visible water would be sufficiently water-free to reuse it, an unknown quantity of the used EHC fluid was pumped from the bottom of the tote back into the EHC tank, and then the mechanics used new fluid to finish topping off the EHC tank. Although the used EHC fluid that was stored in the totes was not sampled and tested before it was put back in the EHC tank, it is assumed now that the fluid was contaminated with water while stored in the totes, and that this is the most likely source of the EHC fluid water contamination problem that was revealed after the unit was put back online.

Since the TC2 EHC system flush was completed and the unit returned to service in early July, an experiment has been underway to determine how much moisture EHC fluid can absorb from the air. New EHC fluid was put into a small jug, with the cap installed on the jug in a loose, non-air tight manner, similar to a tote. The jug was placed near the location where the totes of fluid were stored during the TC2 outage. The water content of the fluid increased from 252 ppm to 1246 ppm over a 3 week duration.

Follow-up Actions/Recommendations

- All personnel at the plant have been tailgated about the proper handling and storage of EHC fluid.
 - The mechanics have received training on EHC handling procedures and the proper way to add or remove EHC fluid from the tanks and drums.
 - Used EHC fluid is no longer reused and only clean, new containers are used to hold or transport EHC fluid.
 - Only fluid in unopened EHC drums is used to fill EHC tanks. Once a drum of EHC fluid is opened, any unused fluid remaining in the drum is discarded.
 - The pump used to transfer new EHC fluid into the EHC tanks is clearly labeled to be used for EHC fluid only, and is stored in a secure location that is only accessible by personnel who are trained to handle EHC fluid, the EHC pumps, and associated equipment.
- More training is being planned as well.
- Maintenance PMs have been created to inspect each turbine valve actuator's condensation collection channel, remove any debris from the channel, and blow out the drain lines to ensure that it is clear so that no standing water collects on top of the valve actuators.

From: Rabe, Phil(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=PHILRABE)
To: Mohn, Laura
CC:
BCC:
Subject: RCFA TC-2 on 6-29-14.xlsx
Sent: 10/14/2014 11:37:11 AM -0400 (EDT)
Attachments: RCFA TC-2 on 6-29-14.xlsx;

Laura,

Here is the RCFA I started on the EHC event. It has more details of the events leading up to the unit trip. Please take a look at incorporating these into your document.

Thanks,
Phil

Produced as Native

Original File Name: RCFA TC-2 on 6-29-14.xlsx

Stored File Name: Exchange00015754.xlsx

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Straight, Scott
CC: Brightman, Jeff
BCC:
Subject: Notice of Combustion System Completion
Sent: 11/03/2014 07:00:19 PM -0500 (EST)
Attachments: Letter T4C-GAM-00019(combustion system completion) .docx; Attachment 4_TC2 Cover Surrogate Test Prelim Report.pdf; Attachment 4_TC2 Surrogate Test Report - Preliminary.pdf;

Scott

We have sent to you the complete set of files and reports that support our notice above. However, knowing you are traveling, thought I would also send you an email with the letter and summary report showing the results of the surrogate tests

Please feel free to contact me should you have any questions or require clarification

Thank You

Mel

>

ATTACHMENT 4

**Trimble County Unit 2 Project
Surrogate Tests Preliminary Report**

TRIMBLE COUNTY UNIT 2 PROJECT

SURROGATE TESTS

PRELIMINARY REPORT

03 November, 2014

Rev. 0

TRIMBLE COUNTY UNIT 2 PROJECT
SURROGATE TESTS
PRELIMINARY REPORT
Table of Contents

Executive Summary

- 1.0 Overview
- 2.0 Introduction
- 3.0 Test Conditions
- 4.0 Laboratory Analyses
- 5.0 Pre-test Uncertainty Calculations
- 6.0 Test Results

Appendix

Title

- A Test Calculations Sheets (Net Electrical Output and Net Heat Rate)
- B Doosan Babcock, Boiler Efficiency and Boiler Auxiliary Power Consumption Preliminary Performance Test Report
 - McHale Test Report and Correction Curves (Boiler Efficiency)
 - Surrogate Power Consumption Calculations
 - STACS Test Report (Ammonia Slip)
 - Test Prerequisite Logsheets
 - Unit Stability Criteria and Calculations
 - Valve Isolation Records
 - Test Log Sheets
 - CEMS Reports and Emissions Calculations
 - Fuel and Ash Analyses
 - Manual Data Sheets
 - DCS Data (CDs)
 - Test Instrumentation Calibration Records
 - Test Deviations

EXECUTIVE SUMMARY

This report presents the preliminary results of the Surrogate Tests (Boiler Efficiency, Net Heat Rate, and Net Electrical Output), Ammonia Consumption, and identifies plant emissions as reported from permanent plant CEMS. The tests were carried out on 23th and 24th of October, 2014. The tests were carried out in accordance with Amendment 6, Exhibit 3 requirements including Doosan Babcock procedure number 06350/B800/CR/31000/2./0032, and Doosan Babcock procedure number 06350/B800/CR/31000/2./0031.

Preliminary results for the following Performance Guarantee Tests are given below:

Description	Units	Final Completion	Surrogate Test Results
Net Heat Rate, HHV	Btu/kWH	8,662	8,535.7
Net Electrical Output	MW	760.5	772.1
Air Emissions			
NOx	lb/MMBtu	0.04	0.038
CO (30 day Rolling)	lb/MMBtu	0.09	0.036
CO (3hr Rolling)	lb/MMBtu	0.5	0.046
Ammonia Consumption	lb/hr	593	460
Ammonia Slip	ppm	2	0.12

The preliminary results will be updated once laboratory results are received for the test fuel and ash analysis.

Overview

1.1. Surrogate Test

1.1.1. *Boiler Efficiency:*

Two Boiler Efficiency (BEF) Surrogate Tests of four (4) hours duration each were carried out to determine the boiler efficiency of Trimble County Unit 2 (TC2).

The first BEF Surrogate Test was carried out on the 23rd of October, 2014. The test was started at 14:00 hours and ended at 18:00 hours.

The second of the BEF Surrogate Test was carried out on the 24th of October, 2014. The test was started at 14:00 hours and ended at 18:00 hours.

For each four hour test, data was collected and averaged over the four hour test period and a boiler efficiency calculated for each test period. The two test results were then averaged to arrive at the average corrected BEF.

The average main steam flow generated during the two four hour tests is 5,269,715 lb/hr, which exceeds the “Target Main Steam Flow” of 5,204,000 lb/hr.

1.1.2. *Net Heat Rate:*

Two Net Heat Rate (NHR) calculations were carried out to determine the Net Heat Rate of the New Unit.

The first of the NHR calculations uses data from tests carried out on the 23rd of October, 2014. The tests were started at 14:00 hours and ended at 18:00 hours.

The second of the NHR calculations uses data from tests carried out on the 24th of October, 2014. The tests were started at 14:00 hours and ended at 18:00 hours.

For each four hour test, data was collected and averaged over the four hour test period and a NHR were calculated for each test period. The two results were then averaged to arrive at the average corrected NHR.

The preliminary average corrected NHR for the New Unit is 8,535.7 Btu/kWH (HHV), which is lower than the Guaranteed Net Heat Rate value of 8,662 Btu/kWH (HHV). Final results will be determined once the laboratory analyses are received.

1.1.3. *Net Electrical Output:*

Two Surrogate Net Electrical Output (NEO) Tests of four (4) hours duration each were carried out to determine the Net Electrical Output of TC2.

The first Surrogate NEO was carried out on the 23rd of October, 2014. The test was started at 14:00 hours and ended at 18:00 hours.

The second Surrogate NEO was carried out on the 24th of October, 2014. The test was started at 14:00 hours and ended at 18:00 hours.

For each four hour test, data was collected and averaged over the four hour test period. The two four hour averages were then averaged to arrive at the average corrected NEO.

The preliminary average corrected NEO during the two four hour tests for TC2 is 772.1 MW, which is greater than the Guaranteed Net Electrical Output value of 760.5 MW.

1.2. Air Emissions

The air emissions of CO and NO_x were measured using the existing CEMS during the Surrogate Tests, on the 23rd and 24th of October, 2014.

Final results for the pollutants are as follows:

- CO 0.046 lb/MMBtu
- NO_x 0.038 lb/MMBtu

1.3. Product Usage

1.3.1. *Ammonia Consumption:*

The ammonia consumption tests were run in conjunction with the Surrogate Tests, on the 23rd and 24th of October, 2014.

The preliminary average Ammonia Consumption during the two four hour tests is 460 lb/hr, which is less than the guaranteed Ammonia Consumption of 593 lb/hr. The limits for ammonia slip rate across the SCR were simultaneously measured throughout the Ammonia Consumption Test and averaged 0.12 ppm throughout the test periods which is less than the guaranteed ammonia slip rate of 2 ppm.

2. Introduction

2.1. Description of Surrogate Test

2.1.1. Boiler Efficiency (BEF)

The BEF consists of two 4-hour segments (Boiler Efficiency Surrogate Tests) in which the plant load was set to achieve the target main steam flow of 5,204,000 lb/hr. The results of which are arithmetically averaged and applied to the Net Heat Rate (NHR) calculation for the New Unit.

Each four hour surrogate test was conducted by McHale (third party contractor) in accordance with Doosan Babcock procedure number 06350/B800/CR/31000/2./0032 and PTC 4, Section 5.7.1 (energy balance method). The four hour test periods exclude any additional period required for the unit to stabilize. The results of the boiler efficiency tests are only acceptable if the measured efficiencies from the two tests are within one half of one percent (0.5%) of each other which the two tests met this criteria as the deviation was 0.07%. Refer to Appendix B for the Doosan Babcock Test Report which contains the McHale Test Report.

2.1.2. Net Heat Rate (NHR)

The NHR is a calculation that uses a combination of Interim Operation Thermal Test results from Dec. 2010 and Surrogate Test results for demonstrating the New Unit achieves Guaranteed Performance.

The variables Turbine Heat Rate (THR) and Gross Electrical Output (GEO) are as determined during Interim Operation Thermal Test performed in Dec. 2010. The results of which are 7,038.8 Btu/kWH and 819,528.5 kW, respectively. Refer to Appendix A for Net Heat Rate calculations.

2.1.3. Net Electrical Output (NEO)

The NEO consists of two 4 hour test segments (Surrogate Net Electrical Output Tests) of which auxiliary power consumption measured for the ID Fans, the FD Fans, the PA Fans, and the dilution air blowers; substituted for the values measured for these components during the Interim Operation Thermal Test and the new NEO calculated. The results from the two tests are arithmetically averaged to demonstrate compliance with the Guaranteed NEO.

The auxiliary power associated with the ID Fans, FD Fans, PA Fans, and dilution air blowers were measured in accordance with Doosan Babcock procedure number 06350/B800/CR/31000/2./0031. The auxiliary power corrections will be applied after final test fuel and ash analyses are received.

2.2. Air Emissions (CO and NOx)

Air emissions of CO and NOx, at all times during the Surrogate Tests, were monitored and recorded by the permanent plant CEMS. Refer to Appendix B for CEMS Reports and Emission Calculations.

2.3. Product Usage

2.3.1. Ammonia Consumption

Concurrent with the Surrogate Tests, ammonia consumption to the SCR was recorded. The two segments were arithmetically averaged and corrected to the boiler heat input of 6,540 MMBtu/hr to demonstrate ammonia consumption is less than or equal to the Guaranteed Ammonia Consumption. Refer to Appendix B for details on the calculation of Ammonia Consumption.

Simultaneously with Ammonia Consumption, STACS (subcontractor) measured ammonia slip in accordance with the approved test procedure number 25191-000-3PR-M16G-00001. Refer to Appendix B for STACS report.

3. **Test Conditions**

3.1. Ambient Conditions

Average ambient conditions during the Surrogate Tests were as follows:

TEST #1

- Dry Bulb Temperature: 62.97 °F
- Wet Bulb Temperature: 53.00 °F
- Barometric Pressure: 14.52 psia

TEST #2

- Dry Bulb Temperature: 67.45 °F
- Wet Bulb Temperature: 55.29 °F
- Barometric Pressure: 14.47 psia

3.2. Unit Load and Control Mode

Trimble County Unit 2 load during the testing was set to meet the agreed upon target main steam flow of the boiler, 5,204,000 lb/hr as measured by ASME nozzles located in the economizer inlet and high pressure spray water header. The unit was operated in Coordinated Control Turbine Follow (Turbine Follow + MW) mode.

4. Laboratory Analyses

A summary of the preliminary laboratory analysis performed is identified below. The sampling log which includes details on final sample identifications, time collected, and sampling locations is included in Appendix B.

4.1. Coal Analysis

For purposes of the Preliminary Report, coal analysis from 30th September, 2014 from SGS North America in Henderson, Kentucky was used for this calculation. Once the final results are received the calculations will be updated.

4.2. Ash Analysis

For purposes of the Preliminary Report, ash analysis from 2nd October, 2014 from SGS North America in Henderson, Kentucky was used for this calculation. Once the final results are received the calculations will be updated.

4.3. Ammonia Analysis

Bechtel and the Owner agreed during the development of the Test Procedure that sampling of anhydrous ammonia was not necessary given the associated safety precautions and risk. It was agreed that the ammonia certification sheet from a recent delivery would be used, which is included in Appendix B.

4.4. Test Fuel Analysis Comparison

The test coal samples have been compared and evaluated against the Owner's fuel data base and the contract performance fuel requirements and were deemed within limits for performance testing. The performance test fuel was made up of two coals by mixing approximately 70% Riverview and 30% PRB coals.

5. Pre-test Uncertainty Calculations

For the Surrogate Test pre-test uncertainties from the Interim Operation Thermal Test (performed in Dec. 2010) NHR pre-test uncertainty calculation will be applicable.

The calculated pre-test uncertainty associated with this Surrogate Test average is 0.657% which equates to a calculated tolerance of +/-56.2 Btu/kWH (HHV). This test tolerance has not been applied to the average corrected NHR since the Surrogate Test values for Final Completion were achieved without considering this tolerance.

6. Test Results

6.1. Surrogate Test

6.1.1. Boiler Efficiency Test

Two Boiler Efficiency Surrogate Tests were conducted, concurrent with the Surrogate NEO and NHR test. Corrected boiler efficiencies are as follows:

- TEST #1 Corrected Boiler Efficiency: 87.57%
- TEST #2 Corrected Boiler Efficiency: 87.50%
- **AVERAGE Corrected Boiler Efficiency: 87.53%**

The results of the measured boiler efficiencies from the two tests are within on half of one percent (0.5%) of each other and as such, meet the test procedure acceptance criteria.

6.1.2. Net Heat Rate

The NHR for the New Unit was calculated in accordance with the approved methodology provided in the Test Procedures. The corrected NHR for each of the periods were then averaged to obtain the average corrected NHR for TC2:

- TEST#1 Corrected NHR: 8,534.8 Btu/kWH (HHV)
- TEST #2 Corrected NHR: 8,536.6 Btu/kWH (HHV)
- **AVERAGE Corrected NHR: 8,535.7 Btu/kWH (HHV)**

The preliminary average corrected net heat rate is lower than the Guaranteed Net Heat Rate of 8,662 BTU/kWH (HHV).

The test tolerance associated with the average corrected net heat rate based on the pre-test uncertainty is +/- 56.2 BTU/kWH (HHV) and has not been applied to the corrected Net Heat Rate above.

6.1.3. Net Electrical Output

Two surrogate NEO tests were conducted and calculated in accordance with the approved methodology provided in the test procedure. The corrected NEO for the purposes of this preliminary report have only been corrected for the difference in power from the Interim Operation Thermal Performance Test.

- TEST #1 Corrected NEO: 772.2 MW
- TEST #2 Corrected NEO: 772.0 MW
- **AVERAGE Corrected NEO: 772.1 MW**

The average NEO for the two tests is greater than the Guaranteed Net Electrical Output of 760.5MW.

6.2. Air Emissions

Emissions monitoring was carried out concurrent with the Surrogate Tests via the permanent plant CEMS. The emissions for CO and NO_x were recorded. Refer to Section 6.4 for emissions data results.

6.3. Product Usage Test

6.3.1. Ammonia Consumption Test

Two ammonia consumption tests were conducted, one during each of the Surrogate Tests. Concurrent with the ammonia consumption test, ammonia slip tests were conducted.

Ammonia Consumption results are as follows:

- TEST #1 Ammonia Consumption: 453 lb/hr
- TEST #2 Ammonia Consumption: 467 lb/hr
- **AVERAGE Ammonia Consumption: 460 lb/hr**

The preliminary average Ammonia Consumption is less than the Guaranteed Ammonia Consumption of 593 lb/hr.

The ammonia slip test results are as follows:

- TEST #1 Ammonia Slip: 0.12 ppm
- TEST #2 Ammonia Slip: 0.12 ppm
- **AVERAGE Ammonia Slip: 0.12 ppm**

These results satisfy the limits for ammonia slip rate of 2 ppm required to be met simultaneously throughout the Ammonia Consumption test.

6.4. Performance Guarantee Test Result Summary

The proceeding table summarizes the results from the executed Surrogate Test and compares these results to the guarantees in the EPC Agreement.

Performance Guarantees	Units	Final Completion	Surrogate Test 1 Results	Surrogate Test 2 Results	Average Surrogate Test Results	Achieved Values (Y/N)
			10/23/2014	10/24/2014		
Net Heat Rate, HHV	Btu/kWH	8,662	8,534.8	8,536.6	8,535.7	Y
Net Electrical Output	MW	760.5	772.2	772.0	772.1	Y
Air Emissions						
NO _x	lb/MMBtu	0.04	0.039	0.036	0.038	Y
CO (30-day rolling average)	lb/MMBtu	0.09	0.041	0.031	0.036	Y
CO (3-hr rolling average)	lb/MMBtu	0.5	0.050	0.042	0.046	Y
Ammonia Consumption	lb/hr	593	453	467	460	Y
Ammonia Slip	ppm	2	0.12	0.12	0.12	Y

APPENDIX A
TEST CALCULATIONS SHEETS
(NET ELECTRICAL OUTPUT AND NET HEAT RATE)

TRIMBLE COUNTY - UNIT 2 SURROGATE PERFORMANCE TEST**NET HEAT RATE CALCULATIONS**

Test Date	10/23/2014
Test Period Start Time	14:00
Test Period End Time	18:00

Net Heat Rate Test 1

Calculate Net Heat Rate:

$$NHR = \frac{THR}{(NEO/GEO)(BEF)}$$

Turbine Heat Rate

THR = 7,038.8 Btu/kWH

Net Electrical Output

NEO = 772,168.5 kW

Gross Electrical Output

GEO = 819,528.5 kW

Boiler Efficiency Factor

BEF = 0.87530

Net Heat Rate

NHR = 8534.8 Btu/kWH (HHV)

TRIMBLE COUNTY - UNIT 2 SURROGATE PERFORMANCE TEST**NET ELECTRICAL OUTPUT**

Test Date	10/23/2014
Test Period Start Time	14:00
Test Period End Time	18:00

Net Electrical Output Test 1

		Interm Operation Thermal Test	Surrogate Net Electrical Output Test	Corrected Aux Loads	Aux Load Change
Aux Loads					
ID Fans	kW	16,418.0	16,722	-	
FD Fans	kW	3,539.0	3169	-	
PA Fans	kW	2,159.0	2238	-	
Dilution Air Blowers	kW	52.0	100	-	
Total	kW	22,168.0	22,229.0	0.0	-61.0
NEO (kW)		772,229.5			
Net Electrical Output		NEO =	772,168.5	kW	

TRIMBLE COUNTY - UNIT 2 SURROGATE PERFORMANCE TEST

NET HEAT RATE CALCULATIONS

Test Date	10/24/2014
Test Period Start Time	14:00
Test Period End Time	18:00

Net Heat Rate Test 2

Calculate Net Heat Rate:

$$NHR = \frac{THR}{(NEO/GEO)(BEF)}$$

Turbine Heat Rate

THR = 7,038.8 Btu/kWH

Net Electrical Output

NEO = 772,005.5 kW

Gross Electrical Output

GEO = 819,528.5 kW

Boiler Efficiency Factor

BEF = 0.87530

Net Heat Rate

NHR = 8536.6 Btu/kWH (HHV)

TRIMBLE COUNTY - UNIT 2 SURROGATE PERFORMANCE TEST**NET ELECTRICAL OUTPUT**

Test Date	10/24/2014
Test Period Start Time	14:00
Test Period End Time	18:00

Net Electrical Output Test 2

		Interm Operation Thermal Test	Surrogate Net Electrical Output Test	Corrected Aux Loads	Aux Load Change
Aux Loads					
ID Fans	kW	16,418.0	16,866	-	
FD Fans	kW	3,539.0	3175	-	
PA Fans	kW	2,159.0	2251	-	
Dilution Air Blowers	kW	52.0	100	-	
Total	kW	22,168.0	22,392.0	0.0	-224.0
NEO (kW)		772,229.5			
Net Electrical Output		NEO =	772,005.5	kW	

APPENDIX B
DOOSAN BABCOCK REPORT
(BOILER EFFICIENCY, AUXILIARY POWER, AMMONIA CONSUMPTION, AND
AMMONIA SLIP)

November 3, 2014

Mr. Scott Straight
Director, Project Engineering
LG&E KU Services Co.
820 W. Broadway
Louisville, KY 40202

Re: Trimble County Unit 2
Bechtel Job No. 25191
Notice of Successful Combustion System Demonstration and Combustion
System Completion
Letter Number: 25191-000-T4C-GAM-00019
File Number: T4C-GAM

Dear Scott:

Bechtel hereby gives notice that it is has achieved Successful Combustion System Demonstration and Combustion System Completion as of October 24th, 2014 in accordance with the EPC Agreement as amended by Amendment 6.

The requirements for achieving the above milestones are as given below:

- (i) Completion Plan Modifications (Amendment 6, Exhibit 3) completed during the Spring 2014 outage
- (ii) Combustion System Demonstration Test(s) successfully completed on:
 - a. Group 1 Fuel Test September 8th, 2014
 - b. Group 2 Fuel Test September 28th, 2014
 - c. Group 3 Fuel Test October 15th, 2014
- (iii) Thermal Performance Test successfully completed on:
 - a. Thermal Performance Test October 24, 2014

The following documents are enclosed to assist Owner's assessment of our notice:

- a. Attachment 1: Requirements for Combustion System Completion and Successful Combustion System Demonstration
- b. Attachment 2: Exhibit 3 Completion Plan Modifications
- c. Attachment 3: Combustion System Demonstration Test Report
- d. Attachment 4: Trimble County Unit 2 Project, Surrogate Tests Preliminary Report, 25191-002-30R-M16G-00017

In accordance with Sections 6.13.2 and 6.15.2 of the EPC Agreement, please confirm within 5 Business Days of this notice that you agree that Combustion System Completion and Successful Combustion System Demonstration have been achieved, pending receipt of the final laboratory results, at which time the Certificate of Combustion System Completion and Certificate of Successful Combustion System Demonstration will be issued.

Very truly yours,

Clyde M. Watkins
Project Manager
BECHTEL POWER CORPORATION

From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Hudson, Rusty
CC:
BCC:
Subject:
Sent: 10/21/2014 10:46:16 AM -0400 (EDT)
Attachments: RptGadsEventMonthly[1].pdf;

Contains the start backup

Jeff

EVENT Report

February, 2014

Thompson

Start Date	Start Time	End Date	End Time	Event No.	Event Type	Actual Event Duration	Equivalent Outage Duration	Total Equiv. Outage Time for Month	Failure Mech. Code	Cause Code	Amp Code	Reason
02/01/2014	00:01	02/01/2014	06:15	16	NC	6:14	0:00	0:00	FS00	1190	S0	Non-curtailing derate at 550 MW to conduct boiler OEM recommended deslag. Unit available to return to full load if required by dispatch.
02/02/2014	16:30	02/02/2014	19:00	17	D1	2:30	0:24	0:24	F400	0310	40	The 2D mill was performing poorly and was taken off-line to investigate. Some mill cleaning and sensing line purges were conducted when returning the mill to service.
02/04/2014	15:45	02/04/2014	16:15	18	D1	0:30	0:01	0:25	F660	1455	66	Derate required on the unit due to ID fan stall alarms. Required derate to avoid unit trip. Additional issue with high CO due to combustion issues, which created the ID fan stall alarm. Operators adjusted O2 bias and Nox setpoint accordingly and also placed the 2F coal feeder in manual and lowered feedrate to help with CO.
02/08/2014	03:21	03/01/2014	00:00	20	PO	500:39	500:39	501:04	F610	0360	61	TC2 began the planned outage for the replacement of all 30 burners. This effort is being handled by the Doosan, the boiler OEM. Additional major work items are listed in the additional work tab.

From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Hudson, Rusty
CC:
BCC:
Subject:
Sent: 10/21/2014 10:45:20 AM -0400 (EDT)
Attachments: RptGadsEventMonthly[1].pdf;

Back up for the outage dates

The outage began on 2/8/2014 03:21

Ended after a slight extension on 5/28/2014 04:59

The start date backup will be sent in a minute

Jeff J

EVENT Report

May, 2014

Thompson

Start Date	Start Time	End Date	End Time	Event No.	Event Type	Actual Event Duration	Equivalent Outage Duration	Total Equiv. Outage Time for Month	Failure Mech. Code	Cause Code	Amp Code	Reason
05/01/2014	00:00	05/26/2014	00:00	20	PO	600:00	600:00	600:00	F610	0360	61	TC2 began the planned outage for the replacement of all 30 burners. This effort is being handled by the Doosan, the boiler OEM. Additional major work items are listed in the additional work tab.
05/26/2014	00:00	05/28/2014	04:59	21	PE	52:59	52:59	652:59	F610	0360	61	Planned outage extension on the burner modifications due to delays in commissioning of the burners for start-up. Boiler OEM had delays in final commissioning of the 30 new burners and required extended outage time to correct all issues.
05/28/2014	07:35	05/28/2014	14:15	22	U1	6:40	6:40	659:39	F820	3499	T1	Forced outage due to excessive feedwater flow which caused the unit trip. High feedwater flow was a result of unit runback after loss of 2B coal mill on flame failure.
05/28/2014	20:48	05/29/2014	08:55	23	U1	12:07	12:07	671:46	F820	4303	T1	TC2 unit trip was from high steam temperature at the turbine due to inadequate superheat spray flows to control steam temperatures.
05/29/2014	23:15	06/01/2014	00:00	24	D4	48:45	21:55	693:41	F790	0360	79	TC2 is being held at 430MW for combustion testing and tuning following the installation of the 30 new burners.

Produced as Native

Original File Name: TC 2014 GROSS STEAM MONTHLY SUMMARY 9 + 3.xlsx

Stored File Name: Exchange00133706.xlsx

From: Violette, Kelsie(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=VIOLETTE, KELSIEC63)
To: Rohrer, Kathi
CC: Hudson, Rusty
BCC:
Subject: December RAC Schedule
Sent: 12/16/2014 02:29:19 PM -0500 (EST)
Attachments: RAC Executive Summary Dec-14_final.xlsx;

Kathi –

Attached is the final RAC schedule for December. Thanks!

Kelsie N. Violette

*Budget Analyst, Forecast & Budgeting - Corporate
LG&E and KU Energy
(502) 627-2519*

From: Violette, Kelsie(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=VIOLETTE, KELSIEC63)
To: Hudson, Rusty
CC:
BCC:
Subject: December RAC schedule
Sent: 12/11/2014 12:09:25 PM -0500 (EST)
Attachments: RAC Executive Summary Dec-14_preliminary.xlsx;

Rusty –

I've attached the December RAC schedule per everyone's emails. Please let me know if there are any changes needed. Thanks!

Kelsie N. Violette

*Budget Analyst, Forecast & Budgeting - Corporate
LG&E and KU Energy
(502) 627-2519*

From: Violette, Kelsie(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=VIOLETTE, KELSIE63)
To: Hudson, Rusty; Kuhl, Megan
CC:
BCC:
Subject: RE: Monthly capital forecast
Sent: 11/21/2014 11:47:55 AM -0500 (EST)
Attachments: RAC Executive Summary Nov-14_final.xlsx;

Rusty –

I have attached the final RAC report. Please note, the total decreased slightly by about \$2k from 1,338,744 (previously) to 1,338,742 (updated). Let me know if you have any questions. Thanks!

Kelsie N. Violette

From: Hudson, Rusty
Sent: Wednesday, November 19, 2014 5:22 PM
To: Kuhl, Megan; Violette, Kelsie
Subject: RE: Monthly capital forecast

Got it, thank you Megan. As in the past, if the amounts change by one's and two's that is fine.

From: Kuhl, Megan
Sent: Wednesday, November 19, 2014 5:11 PM
To: Hudson, Rusty; Violette, Kelsie
Subject: RE: Monthly capital forecast

I checked and it's not quite what it should be compared to RAC FC so I think people are still making changes. I'll check again in the morning.

From: Hudson, Rusty
Sent: Wednesday, November 19, 2014 4:27 PM
To: Kuhl, Megan; Violette, Kelsie
Subject: Monthly capital forecast

As soon as one of you can run the monthly capital forecast for the 10+2, I will then update the cash forecast/sensitivities for Heather M. and John W. Rusty

From: Violette, Kelsie(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=VIOLETTE, KELSIEC63)
To: Hudson, Rusty
CC: Kuhl, Megan
BCC:
Subject: November RAC Schedule
Sent: 11/18/2014 10:44:06 AM -0500 (EST)
Attachments: RAC Executive Summary Nov-14_prelim.xlsx;

Rusty,

Attached is the RAC Schedule for November. Let me know if you have any changes. Thanks!

Kelsie N. Violette

*Budget Analyst, Forecast & Budgeting - Corporate
LG&E and KU Energy
(502) 627-2519*

Type: Meeting Request
Organizer: Molnar, Mark R
Subject: TC2 HydroJet and AH sootblower issues
Location: Teleconference
Start: 06/10/2014 02:00:00 PM -0400 (EDT)
End: 06/10/2014 03:30:00 PM -0400 (EDT)
All Day Event: False
Attendees: Reynolds, Randy J; Payne, Nicholas; Rabe, Phil; Henderson, Trent; Richardson, Stephen; Powell, Richard; Colbert, Phillip; Gratton, Ron (Ron.Gratton@doosan.com); Owens, David; Joyce, Jeff; Tooill, Ryan M; Rauch, David S; Manning, William R
Sent On: 06/09/2014 03:44:34 PM -0400 (EDT)
Attachments: disclaimer.html;

All:

For those interested, please join the teleconference below to discuss the issues/concerns/questions raised by Nick Payne. I have taken Nick's email and broke it down into specific items

Call-In No.: (U.S.) 1-203-418-3123

PARTICIPANT PASSCODE # 4926331

We are having some AH sootblower and hydrojet problems on TC2 and need support to resolve these issues. We have had Diamond Power onsite but would like Ryan Tool's assistance to help resolve our problems. Ryan is familiar with our system and has worked with us in the past. Doosan has been working with Diamond Power as well, but some of the issues involve the hydrojet system and how it interfaces with the soot blower system. I need a service tech with a holistic view of our system, and not focused on only the changes that were made in the last outage. The Plant is willing to issue a P.O. for this service tech. If these issues are not resolved it can be very costly to us.

1) TC I/e group in in need of training describing what changes were made during the outage. I cannot speak directly for operations, but I believe they would benefit as well. An overall functional description on the new sootblowing system and the deviation from the old system, including the new interlocks associated with the air supply valve and steam supply valve for the air heater sootblowers is needed and probably best described by Diamond power. An open discussion on the scope of the PLC changes may help us understand the problematic interaction between the sootblower system and hydrojet system.

The issues we are having are below:

Hydrojet system:

2) The hydrojet system's "adaptive cleaning" function needs verification that it is working correctly. We suspect that the adaptive cleaning function is not working, but need the expertise of Diamond Power who understands how the system works to identify the issue.

3) Barry Petty did present several years ago some description on the hydrojet system. How I understand it, is that the operator cannot tell from the DCS that this "adaptive cleaning" feature is in service. Running without the feature makes the system less efficient. We suspect that shutting down the PLC/server causes the adaptive cleaning mode to stop. I/E and operations needs training so that they can identify and correct improper operation of this system. Even if Barry Pettie's presentation was available that would be helpful in the short time. If I can speak to somebody on the phone that may be enough to meet our immediate needs.

4) The hydrojet system had a fail to close on a valve that shut down the air heater sootblower steam header. The systems should not interact like that. The service tech (Bill Manning) previously onsite could not address this issue. I believe Ryan tool may be able to address this.

Air heater system:

5) The air hear sootblower air supply can't be put in manual and can't be tagged out from the DCS. We have not figured out how to do it from the PLC yet either.

6) The 516A and 516B valve cannot be controlled even with all sootblower steam supply valves closed. We cannot unselect to blow with steam in order to blow with air. The PIC will not let us select air as the medium for the DCS.

7) I believe Doosan is helping resolve the sequence 5 and sequence 40 problems on the air heater sootblower system, but we need Diamond Powers support to solve these as quickly as possible. Operations wants the capability to blow sootblowers one

at a time or two at a time.

The plant is struggling to blow the air heater sootblowers on schedule do to these issues and the overall unreliability of the system. I suspect these will not be the only issues that will come up after the significant changes to this system

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Attachment #1 to Response KIUC-1 Question No. 30(f)

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From: Kevin Wagner(kwagner@imea.org)
To: Joyce, Jeff; 'Short, Randy'
CC: Rodd Whelpley; Doc Mueller
BCC:
Subject: RE: IMEA Annual Meeting - Generation Presentation (Trimble County and Prairie State)
Sent: 10/14/2014 02:00:29 PM -0400 (EDT)
Attachments: SKMBT_C55014101411490.pdf;

Here's the pdf version.

Jeff – You video clip does run ok when I ran the PowerPoint in slide show mode.

-klw

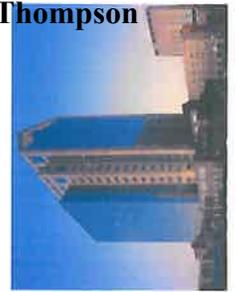
From: Kevin Wagner
Sent: Tuesday, October 14, 2014 12:34 PM
To: 'Joyce, Jeff'; 'Short, Randy'
Cc: Rodd Whelpley; Doc Mueller
Subject: IMEA Annual Meeting - Generation Presentation (Trimble County and Prairie State)

Jeff/Randy,

Thanks for sending your Power Point slides. They look great. I've merged them with my introductory slides and have attached the entire presentation for your final review. (Hopefully this file is not too large for your mail server. If so, I can send it as a pdf.) Please let me know if you see any additional edits that need to be made. Otherwise, I'll pass this along to Rodd so he can load it on his laptop for the program this Saturday morning. We'll try to keep the entire slide presentation to about 25 minutes so we'll have time to answer a few questions at the end. Kevin Gaden, Doc Mueller or Rodd may have a question or two that they'll throw at us if we have time and we're not getting questions from the rest of the audience. I'll try to give you a heads up on what they might ask.

Thanks again for your help. I look forward to seeing you this weekend.

Kevin Wagner
IMEA
(217) 789-4632



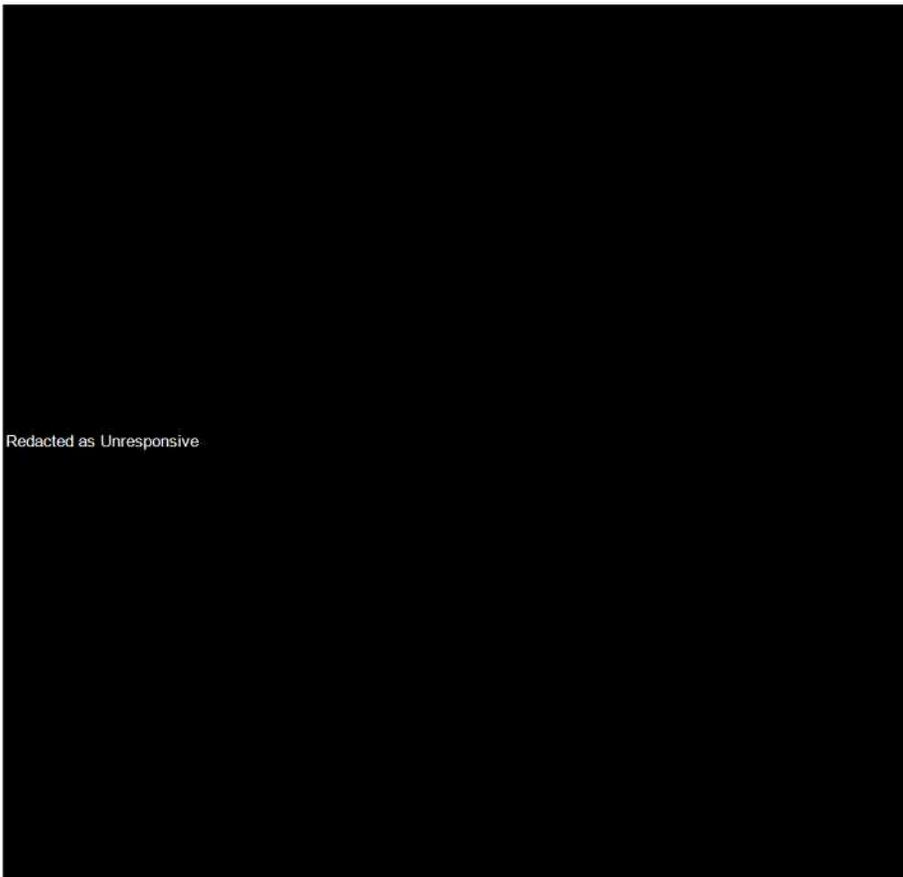
PPL companies

LG&E/IMEA Trimble County Station 2014 Annual Meeting

September 18, 2014

2014 Trimble Significant Events

- Trimble 2 – Combustion System Outage

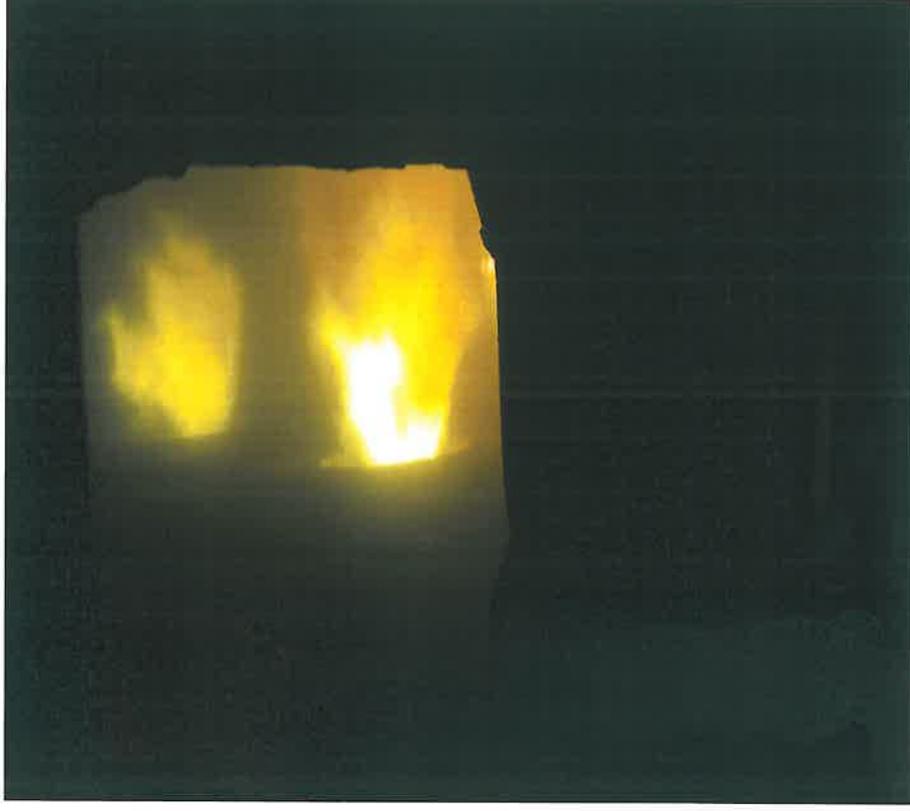


Redacted as Unresponsive



2014 Trimble Significant Events

- Forced outages are being formally documented (RCFAs) with the causes being determined and follow-up actions being developed. All events reviewed across the shift teams.
- Improvement /Reduction in air heater fouling on both Trimble 1 and 2
- Trimble 2 – discovered need for improvement in Turbine protection systems



2014 TC2 Spring Outage Summary (15 Weeks Planned)

Bechtel/ Doosan's Major Work Items:

- Installed 30 new burners
- Modified OFA ductwork
- Installed redesigned FD fan intake hoods
- Replaced all water coil air heaters
- Temporarily modified the economizer inlet piping supports
- Install 2 new safety silencers
- Replace seal air non-return dampers

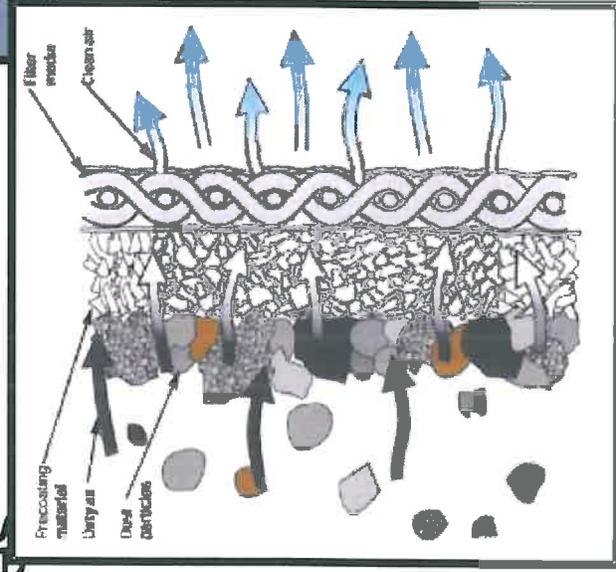
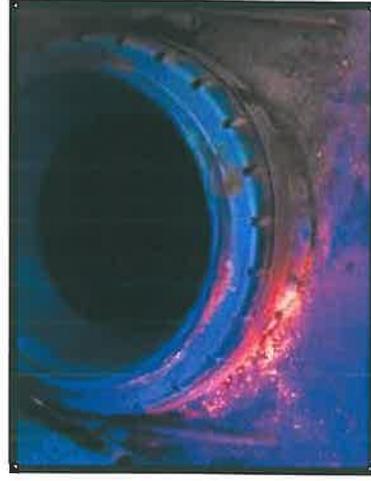
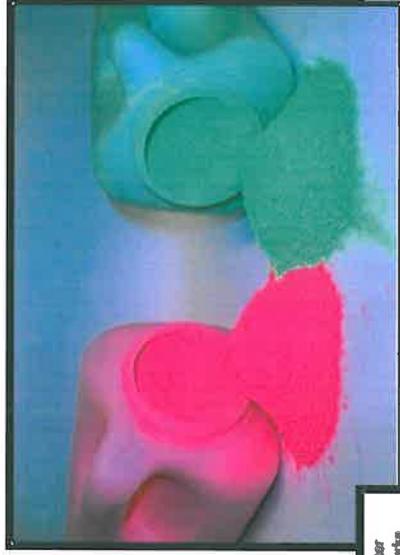
2014 TC2 Spring Outage Summary (15 Weeks Planned)

BOILER/ GAS PATH

- Installed 204 tube sections at the TC2 roof tube to cage inlet header transition
- Conducted boiler tube inspection, NDE & tube thickness mapping
- Inspected and repaired Amstar coating and installed additional 20X28 coating on both side walls
- Replaced both chains on submerged scraper conveyor and installed new “dipper” plate
- Replaced top layer of SCR catalyst, sampled, and installed new ash sweeper system
- Changed out the hubs on the 2B FD & ID fans and replaced the fan blades on the 2B FD fan
- Inspected AQ/back end equipment--DESP, WESP, FGD, SCR, PJFF, Duct, stack, duct, etc
- Inspected all coal pulverizers and installed weld overlay to rolls and races as needed
- Inspected high energy piping
- Overhauled SH and RH spray valves and tested and reset all boiler safety valves
- Replaced both HRH turbine bypass valves’ carbon steel elliptical heads with P22 material

TC2 PJFF Bag Replacement

- Bag Type
- Supplier / Installer
- Leak Test
- Pre-coat
- Start-up Procedures





PPL companies

TC2 Combustion System Update

TC2 Burner Replacement and Combustion Modifications During Spring 2014 Outage

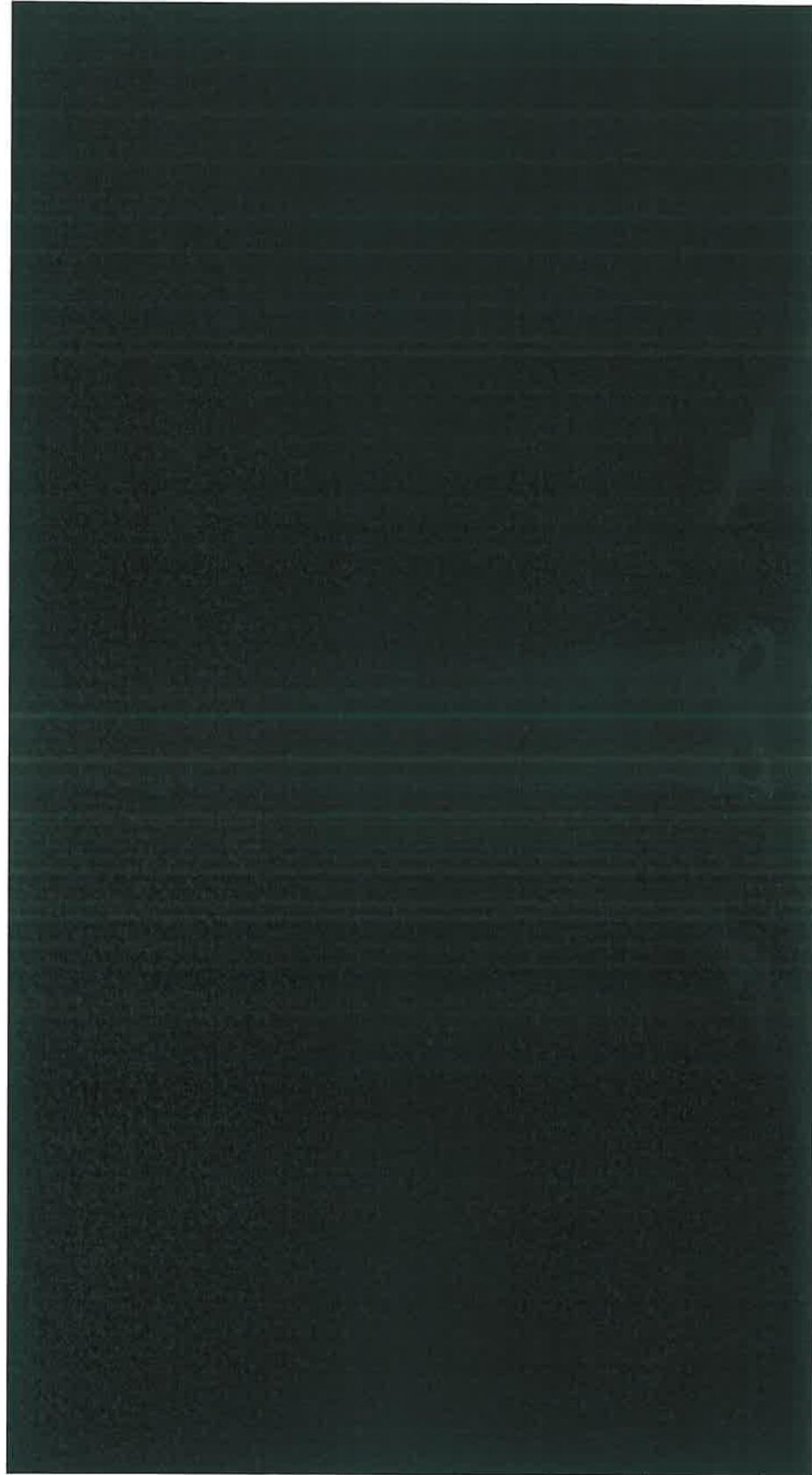
- New Oil Guns/Igniters
- Burner openings modified
- Increased overfire air (OFA) to 30%
 - *Two additional OFA ports on each wall*
 - *Modification of OFA Windbox*



- Other combustion-related activities
 - *Water coil air heater replacement*
 - *FD fan inlet hood re-design*
 - *Air heater sootblower system modifications*



Trimble 2 Burner Replacement



Overall Better Combustion Performance after Burner Replacement Outage

Parameters	Unit	Pre-Burner Outage	Post-Burner Outage
2A Stack CO	ppm	311	64
2B Stack CO	ppm	166	84
2A SCR Inlet NOx	ppm	157	123
2B SCR Inlet Nox	ppm	183	140
2A Econ Outlet Temp	°F	764	744
2B Econ Outlet Temp	°F	776	741

Pre-outage: 8/21/2013, Post Outage: 8/1/2014, Data at full load

- Reduction in CO and more manageable spikes with tuning
- Lower boiler outlet NOx
- Better airflow and modified water coil air heater eliminated issues leading to axial FD fan stall conditions
- Better WESP performance ~ less SO3 formation (lower temperatures and air flows)
- Better Baghouse performance ~ better airflow



TC2 Combustion System – Ongoing and Remaining Activities

- Combustion tuning
- Oil gun testing and tip replacement
- Combustion tests (Group 1, 2 and 3 fuels)
- Performance Guarantee and Functional tests (unburnt carbon, NOx removal, etc.)
- Surrogate Boiler Efficiency and Aux Power usage test



From: Wilson, Stuart(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WILSONST)
To: Brunner, Bob
CC:
BCC:
Subject: TC2 Outage Considerations
Sent: 01/13/2014 04:42:40 PM -0500 (EST)
Attachments: 20130723_Spring2014TC2OutageConsiderations_2014BP.pptx;

Bob,

Here's the presentation to which I think you're referring. Slide 8 contains a resource summary under peak February load conditions during a 1-in-20 outage event.

1. Based on the past four years, it's not uncommon to have loads in the first half of February in the 5,900-6,000 MW range (see slide 7).
2. Based on GADS data, there's a 1-in-20 chance of having at least 1,150 MW unavailable at any given time (see slide 4).

Total Resources in slide 8 include all the Trimble CTs and 44 MW for Cane Run 11, Zorn 1, and Haefling 3 (which was recently retired). If the 44 MW is removed, our reserve margin (in the midst of a 1-in-20 outage event and with a peak demand of 5,900 MW) is reduced from 208 MW (as shown in the slide) to about 160 MW. Obviously, if peak demand is 6,000 MW, our reserve margin is about 60 MW.

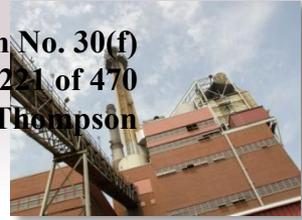
Stuart



PPL companies

Spring 2014 TC2 Outage Considerations

Generation Planning & Analysis
July 27, 2013



Optimal time to start the 15-week TC2 outage is the first week of February 2014; the purchase of additional generating capacity or firm transmission will be needed for February

- TC2 outage can begin as early as 1st week in February.
- 15-week outage period does not include time for testing and/or tuning the unit.
- TC2's availability following outage is uncertain
 - *Unit will be tuned during weeks following outage.*
 - *Burner testing period will extend through summer.*
- If outage begins first week of February, unit will return to service in mid May with time for tuning before June.
- To ensure reliability, the purchase of additional generating capacity or firm transmission will be required for February.
 - *Additional capacity or firm transmission will also be required in late May and early June if TC2's outage extends into June.*

Appendix

Based on GADS data (and assuming TC2 is offline), there's a 5% chance that at least 1,150-1,200 MW will be unavailable

Distribution of Unavailable MWs (Weekdays Only, No TC2, 2000-2011)

Unavailable MWs	Count of Weekday			Unavailable MWs	Count of Weekday		
	Hours	Probability	Cumulative Probability		Hours	Probability	Cumulative Probability
0-50	9,091	12.1%	12.1%	1150-1200	595	0.8%	95.3%
50-100	4,040	5.4%	17.5%	1200-1250	609	0.8%	96.1%
100-150	4,169	5.5%	23.0%	1250-1300	570	0.8%	96.9%
150-200	5,254	7.0%	30.0%	1300-1350	330	0.4%	97.3%
200-250	4,192	5.6%	35.6%	1350-1400	314	0.4%	97.7%
250-300	3,227	4.3%	39.9%	1400-1450	273	0.4%	98.1%
300-350	3,644	4.9%	44.8%	1450-1500	188	0.3%	98.3%
350-400	3,163	4.2%	49.0%	1500-1550	193	0.3%	98.6%
400-450	3,586	4.8%	53.7%	1550-1600	165	0.2%	98.8%
450-500	4,431	5.9%	59.6%	1600-1650	133	0.2%	99.0%
500-550	3,449	4.6%	64.2%	1650-1700	146	0.2%	99.2%
550-600	3,533	4.7%	68.9%	1700-1750	93	0.1%	99.3%
600-650	3,014	4.0%	72.9%	1750-1800	143	0.2%	99.5%
650-700	2,702	3.6%	76.5%	1800-1850	98	0.1%	99.6%
700-750	2,245	3.0%	79.5%	1850-1900	37	0.0%	99.7%
750-800	1,979	2.6%	82.2%	1900-1950	65	0.1%	99.8%
800-850	1,997	2.7%	84.8%	1950-2000	29	0.0%	99.8%
850-900	1,662	2.2%	87.0%	2000-2050	58	0.1%	99.9%
900-950	1,204	1.6%	88.6%	2050-2100	33	0.0%	99.9%
950-1000	1,433	1.9%	90.5%	2100-2150	12	0.0%	99.9%
1000-1050	1,109	1.5%	92.0%	2150-2200	28	0.0%	100.0%
1050-1100	1,045	1.4%	93.4%	2200+	21	0.0%	100.0%
1100-1150	818	1.1%	94.5%				

Note: Based on GADS data. Planned outage, non-curtailing, and reserve shutdown events are ignored.

Loads around 5,500 MW are not uncommon for early May; loads regularly hit 5,700 – 5,800 MW in late May

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Thompson

Count of High-Load Hours in May

May 1-15				
Load Range	2010	2011	2012	2013
5000-5100	4	2	6	
5100-5200		3	6	
5200-5300		3	6	
5300-5400		4	4	
5400-5500		5	3	
5500-5600		1	1	
5600-5700				
5700-5800				
5800-5900				
5900-6000				
6000-6100				
6100-6200				
6200-6300				

May 16-31				
Load Range	2010	2011	2012	2013
5000-5100	9	6	12	11
5100-5200	3	5	9	9
5200-5300	8	5	7	8
5300-5400	2	3	12	4
5400-5500	9	3	5	5
5500-5600	10	1	1	4
5600-5700	1	1	2	2
5700-5800	2	1	3	
5800-5900		1		
5900-6000		1		
6000-6100		2		
6100-6200		1		
6200-6300		3		

June loads regularly exceed 6,000 MW

Count of High-Load Hours in June

June 1-15				
Load Range	2010	2011	2012	2013
5000-5100	13	8	6	11
5100-5200	12	7	9	8
5200-5300	14	8	8	1
5300-5400	16	9	6	3
5400-5500	18	11	2	3
5500-5600	14	8	5	1
5600-5700	9	5	2	1
5700-5800	11	4	2	2
5800-5900	8	7		
5900-6000	3	8		2
6000-6100	2	10		
6100-6200	2	5		2
6200-6300	5	11		3
6300-6400	2	4		
6400-6500	4	2		

June 16-31				
Load Range	2010	2011	2012	2013
5000-5100	8	15	10	12
5100-5200	17	12	10	13
5200-5300	7	13	8	6
5300-5400	19	13	12	19
5400-5500	18	9	7	6
5500-5600	13	3	14	14
5600-5700	16	3	9	11
5700-5800	12	1	5	3
5800-5900	13	1	13	2
5900-6000	12	2	10	3
6000-6100	6		11	
6100-6200	7		9	
6200-6300	7		11	
6300-6400	3		3	
6400-6500	12		9	

Load levels in late February are comparable to load levels in early May

May

Count of High-Load Hours in February

Feb 1-15				
Load Range	2010	2011	2012	2013
5000-5100	19	13	4	2
5100-5200	11	12	1	3
5200-5300	15	24		3
5300-5400	14	12	2	4
5400-5500	9	11		4
5500-5600	7	5		2
5600-5700	5	4		
5700-5800	5	2		1
5800-5900	2	1		2
5900-6000		1		1
6000-6100		3		
6100-6200				
6200-6300				

Feb 16-28/29				
Load Range	2010	2011	2012	2013
5000-5100	12			4
5100-5200	9			3
5200-5300	13			2
5300-5400	12			
5400-5500	5			1
5500-5600	4			
5600-5700				
5700-5800				
5800-5900				
5900-6000				
6000-6100				
6100-6200				
6200-6300				

Given uncertainties that will exist when TC2 comes back on-line, ideal start date for 15-week outage is week of February 3; the purchase of additional generating capacity or firm transmission will likely be required

Resource Summary (1-in-20 Outage Scenario)

Week of...	Feb 3rd	Feb 10th	Feb 17th	Feb 24th	...	May 5th	May 12th	May 19th	May 26th	June 2nd	June 9th
Total Resources*	8,156	8,156	8,156	8,156		8,056	8,056	8,056	8,056	8,056	8,056
Access to Markets	0	0	0	0		0	0	0	0	0	0
Planned Outages	-570	-570	-570	-570		-570	-570	-570	-570	-570	-570
Unavailable MWs (5%)	-1,150	-1,150	-1,150	-1,150		-1,150	-1,150	-1,150	-1,150	-1,150	-1,150
Other Planned Outages	0	0	0	0		-483	0	0	0	0	0
Total Supply	6,436	6,436	6,436	6,436		5,853	6,336	6,336	6,336	6,336	6,336
Peak Demand	5,900	5,900	5,500	5,500		5,500	5,500	5,800	5,800	6,200	6,200
Contingency Reserves	328	328	328	328		328	328	328	328	328	328
Total Demand	6,228	6,228	5,828	5,828		5,828	5,828	6,128	6,128	6,528	6,528
Excess Capacity	208	208	608	608		25	508	208	208	-192	-192

*Total resources exclude all of Paddy's Run in the winter and Paddy's Run 11-12 in the summer.

Weeks included in 12-week outage window.

From: Schrader, Duane(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009758)
To: Early, John; Skaggs, Jennifer; Cocanougher, Beth
CC: Brunner, Bob
BCC:
Subject: AWARD REC devld TC 2.26.27.docx
Sent: 02/19/2014 03:06:22 PM -0500 (EST)
Attachments: AWARD REC devld TC 2.26.27.docx;

<<AWARD REC devld TC 2.26.27.docx>>

Attached is an Award Rec for the potential purchase of natural gas commodity for specified days beyond that authorized in the ALM. This is to assure ng supply for anticipated unusual cold and load in the absence of TC2 generation.

I'd like to get this signed yet this afternoon.

Thanks,

Duane



TO: Mr. David Sinclair – V.P., Energy Supply & Analysis
Mr. Bob Brunner – Director, Power Supply

FROM: Duane Schrader

DATE: February 19, 2014

SUBJECT: Award Recommendation
Firm natural gas commodity supply for Trimble County combustion turbines

EXECUTIVE SUMMARY

Unusually cold temperatures and the attendant high demand are forecast for the later days of the week of February 24th. The combination of these temperature conditions and the maintenance outages on TC 2 and other unit uncertainties may require the operation of all 6 Trimble County (TC) combustion turbines (CTs). The existing 125,000 MMBtus of Texas Gas Transmission (TGT) transport is not enough to run all 6 units for 24 hours a day. To this end we recommend supplementing the 125,000 MMBtu per day of Winter No-Notice Service (WNS) on TGT that we already own with the purchase of up to 100,000 MMBtu per day of natural gas commodity for the gas days of February 26 and 27. This potential additional natural gas requirement has previously been met through purchasing Short Term Firm (STF) pipeline transport on TGT and buying spot natural gas commodity supplies. TGT presently has no STF available for the specified days. The combination of our WNS and this purchase will allow all six of the TC combustion turbines to operate at full capability for 16 hours per day and at winter functional minimum for the remaining 8 hours.

The term of the requested commodity purchase is for the gas days of February 26th and 27th. This would begin at 10:00 A.M. EST on Wednesday Feb. 26 through the end of the gas day of February 27, 2014 which ends at 10:00 A.M EST on Friday, February 28th. Transacting for a couple of specified days a week forward is not a standard market product and there is no certainty of our ability to conclude a purchase for the targeted period. The cost for this natural gas commodity supply is presently unknown.

ALTERNATIVES CONSIDERED

Adding additional WNS service was considered but by tariff WNS cannot be purchased for this relatively short time period. Another alternative would be to purchase Short Term Firm transport however all of the TGT STF capacity is sold out up to their maximum transport capability. Non-firm Interruptible service was considered however in periods of high demand and stress on the

From: Schrader, Duane(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009758)
To: Brunner, Bob; Martin, Charlie
CC:
BCC:
Subject: AWARD REC devId TC 2.26.27.docx
Sent: 02/19/2014 02:54:42 PM -0500 (EST)
Attachments: AWARD REC devId TC 2.26.27.docx;

<<AWARD REC devId TC 2.26.27.docx>>



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Mr. Bob Brunner – Director, Power Supply

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Thompson

From: Schrader, Duane(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E009758)
To: Brunner, Bob; Martin, Charlie
CC:
BCC:
Subject: AWARD REC devld TC 2.26.27.docx
Sent: 02/19/2014 02:27:15 PM -0500 (EST)
Attachments: AWARD REC devld TC 2.26.27.docx;

<<AWARD REC devld TC 2.26.27.docx>>



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Mr. Bob Brunner – Director, Power Supply

FROM: Duane Schrader

DATE: February 19, 2014

SUBJECT: Award Recommendation
Firm natural gas commodity supply for Trimble County combustion turbines

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Serving electrical load from external power purchases is a potential alternative to providing additional natural gas supply for power generation at the TC combustion turbines. Obtaining secure power supplies from neighboring systems during periods of extreme demand requires not only the purchase of longer term Firm transmission on both the LG&E Transmission network and the origin system, but also the ownership of generation Capacity within that system. Capacity markets are ill-defined, sporadic and illiquid requiring significant negotiation and execution time. Securing external power supplies for the balance of this winter is not a viable alternative.

Combining the current amount of WNS capacity and contracting additional natural gas commodity delivered to TC on the Firm TGT transport of another party provides the desired level of supply certainty at the least cost.

SOLE SOURCE AUTHORIZATION

Natural gas service to the Trimble County site is provided only via the TGT interstate pipeline. Natural gas purchases will be limited to counterparties who transport natural gas on TGT Firm capacity.

RECOMMENDATION

The recommendation is as follows:

Supplier:	Unspecified approved counterparties
Scope of Work:	Purchase natural gas commodity delivered to Trimble County at TGT Zone 4 to supply the combustion turbines.
Price:	Unspecified
Volume:	100,000 MMBtu/day
Contract Term:	Gas days February 26 and 27, 2014
Contract Value:	Presently unknown.

APPROVAL

Please indicate your concurrence with this award recommendation by signature in the space provided below.

Recommended for Contract Action and Approved by:

Duane Schrader date
Manager, Trading

Jennifer Skaggs date
Senior Accounting Analyst

John Early date
Manager, Credit & Contract Admin

Elizabeth Cocanougher date
Senior Corporate Attorney

Bob Brunner date
Director, Power Supply

David Sinclair date
V.P., Energy Supply and Analysis

From: Melloan, Ricky(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MELLOAN, RICKYCF4)
To: Bowling, Ralph; Joyce, Jeff
CC:
BCC:
Subject: FW: TC2 Burner Replacement
Sent: 04/21/2014 11:41:37 AM -0400 (EDT)
Attachments:

Ralph and Jeff – TC/Bechtel/Doosan walkdown of roof vent, sootblower piping to AH, and WCAH systems scheduled today and burner fronts tomorrow. None of these systems are 100% complete but the intent is to start a preliminary punch list and not wait until final completion to identify issues. Amstar work completed this weekend and scaffold cleaning in progress. Scaffold will be removed after boiler has been filled and leak checked. Beck drives to TSODs are installed on front wall. All purge air piping has been reassembled and ready to connect up with hose. Good progress has been made on rear wall OFA as dampers and expansion joints are in place and duct is near fully enclosed. OFA ports have not been installed on rear wall. New WCAH coils fully connected but insulation remains. Checkout and startup vendors such as EFox and Emerson starting to arrive this week. No schedule issues known at this time.

Rick

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Sent: Monday, April 14, 2014 11:33 AM
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Subject: FW: TC2 Burner Replacement

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From: Melloan, Ricky
Sent: Thursday, April 03, 2014 1:01 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff - All burner work inside the furnace is complete and all burners are fully welded. The roof tube project remains in progress. All core air supplies and coal conduit connections are made up on the front wall but not fully bolted. Modifications to some platforms and handrail are required for access to the burner fronts. A new section of conduit on the rear wall was taken down when it was discovered that the end connection had been welded on backwards. CL Smith is in today to correct this fabrication error. The front corners of the new OFA ducts are well ahead of the back corners. Manpower is being moved from the burner work to the OFA work. The feedwater flow nozzle which was removed and sent out for recalibration is being welded back in. Amstar still scheduled for the 13th through the 17th after which the boiler scaffolding will be removed. Revised schedule re-commissioning meeting set for next Wednesday.

Rick

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orientation of the coal inlet nozzle was off by 30 degrees. When this was rotated to the correct position, the internal support feet on the core air tube were not at the correct location. The inlet nozzle flange was unbolted at the face and the elbow and core air tube pulled. The feet were cut off and re-welded by RVI and the burner has been reinstalled. This turned out not to be a major issue. All burners are installed with all welding complete, both pressure parts and connections on ten burners.

Core air supply connections have been fitted on several burners and new coal conduit sections are starting to be placed. The last two OFA support frames arrived and are being installed. OFA work will continue after the revised schedule for Amstar.

Rick

From: Melloan, Ricky
Sent: Tuesday, March 25, 2014 1:42 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff – Update - Yesterday Doosan reported that they had discovered a problem with the F1 core air tube orientation that will require rework. Today they reported that Early will rig and remove the core air tube and RV Industries will send people in for the rework. The orientation is off by 30 degrees. Correction will at a minimum mean cutting and re-welding some centering pins on the tube and may mean cutting and re-welding the attachment flange. Work including removal is expected to take 1 to 2 shifts and is now scheduled for next week. According to Doosan, the drawings were correct and this was a RVI fabrication error which is being investigated.

Rick

From: Melloan, Ricky
Sent: Monday, March 24, 2014 2:31 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Ralph and Jeff – Twenty nine burners are now in the hole. Twenty are set and aligned with various degrees of welding remaining. The F1 core air tube has to be removed because the orientation was found to be incorrect. After removal, some cutting and welding is required to remedy. Doosan's preference is to send this component back to RV Ind. to correct. All NDE on the burner and OFA pressure parts is complete with welding and NDE ongoing on the roof tube project. The NE and SE OFA ducts are nearest complete with re-insulation work started on these two new duct sections.. Early is still awaiting delivery of the structural reinforcing frames for the other two OFA corners. No new OFA ports have been installed. Otherwise the new WCAH coils are installed on the B side and both new intake hoods are in place.

Rick

From: Melloan, Ricky
Sent: Thursday, March 06, 2014 10:51 AM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff- Nine panels are now 100% welded. Nine others are in various stages of root welding. All panels are in the hole. 157 welds have been examined with no rejects. Today there was discussion of when the first burner would go in. This is now scheduled for March 17 on F row.. The original scheduled called the first burner install on March 24. It is desirable to get the first burner in ASAP in order to identify any possible issues ASAP.

Rick

From: Melloan, Ricky
Sent: Tuesday, March 04, 2014 10:31 AM
To: Bowling, Ralph; Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Thompson

Ralph and Jeff - As of this morning, six panels are 100% welded (tubes only) with four other panels between 70% and 90% welded. Twenty panels are "in the hole". F4 has been NDT examined with no findings. Additional NDE (50%) is scheduled for tonight possible getting the other five panels that are welded. The plan calls for starting to install burners after a row of throats is complete. F row will be first. There is considerable work to be done before this can start including membrane welding and windbox modifications. It is estimated that the first burners will start to be installed in 1 ½ to 2 weeks. In all, good progress with no major surprises. Doosan reports to be " on schedule".

Rick

From: Melloan, Ricky
Sent: Thursday, February 27, 2014 12:59 PM
To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph – A brief progress report on the burner replacement. You are likely getting this info from Jeff as well.

Nine of 30 throats are " in the hole". Weld in is near complete on F3 and D1 (tubes only, not membrane). Radiography on these two panels is scheduled for tonight. The other seven are in various stages of fitting and welding. Fit up is taking a lot of time as expected. For those tubes that do not align, the membrane is split to various degrees and wedges are used to move the tubes. Final welds look very good but it will be interesting to see first radiography results. By contract, we are testing 50% of the welds and taking steps to assure all welders receive near equal testing.

Rick

From: Melloan, Ricky
Sent: Tuesday, February 25, 2014 1:55 PM
To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Ralph – The first throat panel, F3, is set and tack welded in. Fine tuning of tube to tube alignment is taking place. Both Doosan and Southeast claim to be satisfied with overall fit, especially for the first panel. Membranes are split 4-5 inches and in some cases this is being lengthened to allow more tube to tube movement. As expected , much was learned from placing the first panel, both from a rigging and fit standpoint. While Doosan required the first opening to be cut large, Southeast is confident they can get an accurate fit and eliminate excessive trimming on remaining panels. Some degree of work is going on in almost all burner openings simultaneously. The B1 panel is next and will be placed later this afternoon. In all, no surprises and very good progress.

Rick

From: Bowling, Ralph
Sent: Tuesday, February 18, 2014 10:10 PM
To: Melloan, Ricky
Cc: Joyce, Jeff
Subject: Re: TC2 Burner Replacement

Good deal thanks for the update

R

Sent from my iPad

On Feb 18, 2014, at 10:53 AM, "Melloan, Ricky" <Ricky.Melloan@lge-ku.com> wrote:

Ralph – Already a change in plans for placing the new throats in the furnace. Doosan advised this morning, that instead of lifting the panels up through the furnace, the throats would be placed in through the windbox at each individual burner. This change was due to Southeast's lack of confidence in the beams supplied by PetroChem and with the burners out it could be determined that there was sufficient clearance to bring the throats through the windbox. This allows the use of existing permanent beams at each burner used for burner R&R. At this time the estimated impact to the schedule is at worst neutral and likely positive. It is definitely a much safer plan. The first cuts are now scheduled for mid week. Will keep you advised and things progress.

Rick

From: Bowling, Ralph
Sent: Tuesday, February 11, 2014 2:12 PM
To: Melloan, Ricky
Cc: Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Rick

Thanks for the update, as I said I am sure the structural integrity is a part of the plan, but it makes me feel better to know it is a specific consideration.

Thanks and good luck in helping to manage the challenge.

R

From: Melloan, Ricky
Sent: Tuesday, February 11, 2014 1:04 PM
To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: TC2 Burner Replacement

Ralph – Attached is the Doosan SMR (Site Modification Request) for the burner and throat replacements. This is a very high level overview of the scope and plan. We met with John Lee yesterday and went over the plan in more detail. As you may already know, after all scaffolding is erected and Amstar has completed coating removal, a jig will be attached to the wall for cut lines and the old throats will be removed in two halves. According to Doosan, all 30 throats could be removed with no structural impact on the furnace. The plan calls for no more than 10 to be out at any given time. The new panels will be lifted up the center and transferred to beams above each burner. These beams are supported from the scaffolding. There are 74 tube to tube fits per panel. The first panel is scheduled to be lifted in about two weeks. It was agreed that much would be learned at that time and the process would be adjusted with experience. A challenge for sure.

Rick Melloan
Trimble Co. Station
502-627-6259

Thompson

From: Melloan, Ricky(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MELLOAN, RICKYCF4)
To: Bowling, Ralph
CC:
BCC:
Subject: RE: TC2 Burner Replacement
Sent: 04/21/2014 01:37:26 PM -0400 (EDT)
Attachments:

Sorry. I hate it when people use acronyms and assume you know what it means. TSOD is total shut off damper on the burners. This is the Beck actuated sleeve damper which has a cooling position and a run position for secondary air. These positions will start out at 40% for cooling out of service burners and 80% for run but will be optimized to balance flow during cold air commissioning.

From: Bowling, Ralph
Sent: Monday, April 21, 2014 1:18 PM
To: Melloan, Ricky; Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Thanks Rick, sounds like progress. Having a senior moment what is the TSOD comment referring to?

Ralph

From: Melloan, Ricky
Sent: Monday, April 21, 2014 11:42 AM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

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Subject: RE: TC2 Burner Replacement
Sent: 04/21/2014 01:38:03 PM -0400 (EDT)
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To: Bowling, Ralph; Joyce, Jeff
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Subject: FW: TC2 Burner Replacement
Sent: 04/28/2014 11:37:48 AM -0400 (EDT)
Attachments:

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and lagging well along on front wall. On the rear wall, the airfoils, dampers, and toggle section of duct are in progress. This is critical path work but is reported to be on schedule. Amstar work started this weekend on schedule and should be complete this week. This includes both Doosan recoating around top elevation of burners and OFA ports and TC repairs and around new inspection doors. Flow nozzles are welded and being insulated. WCAH headers are welded but not fully connected with flex connections. Materials are in for WCAH trolley system but this work may continue after the outage. Work continues on the dipper plate.

From: Melloan, Ricky
Sent: Thursday, April 03, 2014 1:01 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff - All burner work inside the furnace is complete and all burners are fully welded. The roof tube project remains in progress. All core air supplies and coal conduit connections are made up on the front wall but not fully bolted. Modifications to some platforms and handrail are required for access to the burner fronts. A new section of conduit on the rear wall was taken down when it was discovered that the end connection had been welded on backwards. CL Smith is in today to correct this fabrication error. The front corners of the new OFA ducts are well ahead of the back corners. Manpower is being moved from the burner work to the OFA work. The feedwater flow nozzle which was removed and sent out for recalibration is being welded back in. Amstar still scheduled for the 13th through the 17th after which the boiler scaffolding will be removed. Revised schedule re-commissioning meeting set for next Wednesday.

Rick

From: Melloan, Ricky
Sent: Thursday, March 27, 2014 1:49 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Jeff and Ralph – The modification to the F1 burner was done today (not next Thurs as previously reported). Actually, the orientation of the coal inlet nozzle was off by 30 degrees. When this was rotated to the correct position, the internal support feet on the core air tube were not at the correct location. The inlet nozzle flange was unbolted at the face and the elbow and core air tube pulled. The feet were cut off and re-welded by RVI and the burner has been reinstalled. This turned out not to be a major issue. All burners are installed with all welding complete, both pressure parts and connections on ten burners. Core air supply connections have been fitted on several burners and new coal conduit sections are starting to be placed. The last two OFA support frames arrived and are being installed. OFA work will continue after the revised schedule for Amstar.

Rick

From: Melloan, Ricky
Sent: Tuesday, March 25, 2014 1:42 PM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff – Update - Yesterday Doosan reported that they had discovered a problem with the F1 core air tube orientation that will require rework. Today they reported that Early will rig and remove the core air tube and RV Industries will send people in for the rework. The orientation is off by 30 degrees. Correction will at a minimum mean cutting and re-welding some centering pins on the tube and may mean cutting and re-welding the attachment flange. Work including removal is expected to take 1 to 2 shifts and is now scheduled for next week. According to Doosan, the drawings were correct and this was a RVI fabrication error which is being investigated.

Rick

From: Melloan, Ricky
Sent: Monday, March 24, 2014 2:31 PM

To: Bowling, Ralph; Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Ralph and Jeff – Twenty nine burners are now in the hole. Twenty are set and aligned with various degrees of welding remaining. The F1 core air tube has to be removed because the orientation was found to be incorrect. After removal, some cutting and welding is required to remedy. Doosan's preference is to send this component back to RV Ind. to correct. All NDE on the burner and OFA pressure parts is complete with welding and NDE ongoing on the roof tube project. The NE and SE OFA ducts are nearest complete with re-insulation work started on these two new duct sections.. Early is still awaiting delivery of the structural reinforcing frames for the other two OFA corners. No new OFA ports have been installed. Otherwise the new WCAH coils are installed on the B side and both new intake hoods are in place.

Rick

From: Melloan, Ricky
Sent: Thursday, March 06, 2014 10:51 AM
To: Bowling, Ralph; Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph and Jeff- Nine panels are now 100% welded. Nine others are in various stages of root welding. All panels are in the hole. 157 welds have been examined with no rejects. Today there was discussion of when the first burner would go in. This is now scheduled for March 17 on F row.. The original scheduled called the first burner install on March 24. It is desirable to get the first burner in ASAP in order to identify any possible issues ASAP.

Rick

From: Melloan, Ricky
Sent: Tuesday, March 04, 2014 10:31 AM
To: Bowling, Ralph; Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Ralph and Jeff - As of this morning, six panels are 100% welded (tubes only) with four other panels between 70% and 90% welded. Twenty panels are "in the hole". F4 has been NDT examined with no findings. Additional NDE (50%) is scheduled for tonight possible getting the other five panels that are welded. The plan calls for starting to install burners after a row of throats is complete. F row will be first. There is considerable work to be done before this can start including membrane welding and windbox modifications. It is estimated that the first burners will start to be installed in 1 ½ to 2 weeks. In all, good progress with no major surprises. Doosan reports to be " on schedule".

Rick

From: Melloan, Ricky
Sent: Thursday, February 27, 2014 12:59 PM
To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: FW: TC2 Burner Replacement

Ralph – A brief progress report on the burner replacement. You are likely getting this info from Jeff as well.

Nine of 30 throats are " in the hole". Weld in is near complete on F3 and D1 (tubes only, not membrane). Radiography on these two panels is scheduled for tonight. The other seven are in various stages of fitting and welding. Fit up is taking a lot of time as expected. For those tubes that do not align, the membrane is split to various degrees and wedges are used to move the tubes. Final welds look very good but it will be interesting to see first radiography results. By contract, we are testing 50% of the welds and taking steps to assure all welders receive near equal testing.

Rick

From: Melloan, Ricky
Sent: Tuesday, February 25, 2014 1:55 PM
To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Ralph – The first throat panel, F3, is set and tack welded in. Fine tuning of tube to tube alignment is taking place. Both Doosan and Southeast claim to be satisfied with overall fit, especially for the first panel. Membranes are split 4-5 inches and in some cases this is being lengthened to allow more tube to tube movement. As expected, much was learned from placing the first panel, both from a rigging and fit standpoint. While Doosan required the first opening to be cut large, Southeast is confident they can get an accurate fit and eliminate excessive trimming on remaining panels. Some degree of work is going on in almost all burner openings simultaneously. The B1 panel is next and will be placed later this afternoon. In all, no surprises and very good progress.

Rick

From: Bowling, Ralph
Sent: Tuesday, February 18, 2014 10:10 PM
To: Melloan, Ricky
Cc: Joyce, Jeff
Subject: Re: TC2 Burner Replacement

Good deal thanks for the update

R

Sent from my iPad

On Feb 18, 2014, at 10:53 AM, "Melloan, Ricky" <Ricky.Melloan@lge-ku.com> wrote:

Ralph – Already a change in plans for placing the new throats in the furnace. Doosan advised this morning, that instead of lifting the panels up through the furnace, the throats would be placed in through the windbox at each individual burner. This change was due to Southeast's lack of confidence in the beams supplied by PetroChem and with the burners out it could be determined that there was sufficient clearance to bring the throats through the windbox. This allows the use of existing permanent beams at each burner used for burner R&R. At this time the estimated impact to the schedule is at worst neutral and likely positive. It is definitely a much safer plan. The first cuts are now scheduled for mid week. Will keep you advised and things progress.

Rick

From: Bowling, Ralph
Sent: Tuesday, February 11, 2014 2:12 PM
To: Melloan, Ricky
Cc: Joyce, Jeff
Subject: RE: TC2 Burner Replacement

Rick

Thanks for the update, as I said I am sure the structural integrity is a part of the plan, but it makes me feel better to know it is a specific consideration.

Thanks and good luck in helping to manage the challenge.

R

From: Melloan, Ricky
Sent: Tuesday, February 11, 2014 1:04 PM

To: Bowling, Ralph
Cc: Joyce, Jeff
Subject: TC2 Burner Replacement

Ralph – Attached is the Doosan SMR (Site Modification Request) for the burner and throat replacements. This is a very high level overview of the scope and plan. We met with John Lee yesterday and went over the plan in more detail. As you may already know, after all scaffolding is erected and Amstar has completed coating removal, a jig will be attached to the wall for cut lines and the old throats will be removed in two halves. According to Doosan, all 30 throats could be removed with no structural impact on the furnace. The plan calls for no more than 10 to be out at any given time. The new panels will be lifted up the center and transferred to beams above each burner. These beams are supported from the scaffolding. There are 74 tube to tube fits per panel. The first panel is scheduled to be lifted in about two weeks. It was agreed that much would be learned at that time and the process would be adjusted with experience. A challenge for sure.

Rick Melloan
Trimble Co. Station
502-627-6259

Thompson

From: Faith, Bobbie(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E026371)
To: Lewis, Donna
CC: Bowling, Ralph; Byrd, Larry; Cosby, David; Wilson, Dan; Gilliland, Dave; Voyles, John; Joyce, Jeff; Hincker, Loren; Mattingly, Jennifer; Kirkland, Mike; Bryant, Nancy; Rabe, Phil; Ransdell, Charles; Kiesler, Rosie; Turner, Steven
BCC:
Subject: TC Weekly Report -- Week ending 4 27 14.docx
Sent: 04/29/2014 11:35:40 AM -0400 (EDT)
Attachments: Week ending 4 27 14.docx;

Bobbie Faith

Assistant to Jeff Joyce, General Manager
Louisville Gas & Electric
Trimble County Generating Station
487 Corn Creek Road
Bedford, Kentucky 40006
502-627-6283
bobbie.faith@lge-ku.com

Thompson

From: Wyne, Lindsey(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=WYNE, LINDSEYFC1)
To: Lewis, Donna
CC: Faith, Bobbie; Bowling, Ralph; Byrd, Larry; Clark, Janice; Cosby, David; Wilson, Dan; Gilliland, Dave; Voyles, John; Joyce, Jeff; Hincker, Loren; Kirkland, Mike; Bryant, Nancy; Rabe, Phil; Ransdell, Charles; Kiesler, Rosie; Turner, Steven
BCC:
Subject: Week Ending 5-25-14
Sent: 05/27/2014 02:15:46 PM -0400 (EDT)
Attachments: Week ending 5 25 14.docx;

Please see the attachment.

Thank you,

Lindsey Wyne

Administrative Assistant

Louisville Gas & Electric

Trimble County Generating Station

487 Corn Creek Road

Bedford, Kentucky 40006

Phone: 502.627.6220

Fax: 502.627.6226

Lindsey.Wyne@lge-ku.com

-

Thompson

From: Bowling, Ralph(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=RALPHBOWLING)
To: Bellar, Lonnie; Hendricks, Claudia; Malloy, John; McRae, Callie; Sinclair, David; Thomas, Greg; Todd, Karen; Voyles, John; Whelan, Chris; Williams, Cheryl
CC:
BCC:
Subject: Generation Bi Weekly July 14, 2014.docx
Sent: 07/21/2014 03:32:39 PM -0400 (EDT)
Attachments: Generation Bi Weekly July 14, 2014.docx;

Power Generation
Bi-Weekly Update
July 14, 2014

Key Points

- Safety – No employee recordables since last report. So far, no injuries during stretch period
- Unit Status

TC2- Back on line from turbine valve EH Control issues. System required multiple flushes and several component replacements to correct oil contamination issues.

TC 1 was off over this past weekend to repair a suspected small boiler tube leak in the penthouse, but the leak could not be found. Several other small maintenance issues were addressed and the unit returned to service.

Brown 3 is out of service due to the failure of a support structure in the cooling tower. The failed component is a horizontal to vertical connector. Additional time has been taken to modify and change all of these connectors in addition to the one that failed. Will be firing the unit mid-day tomorrow 7/15.

All other units on and available.

- Plume issue at MC – Appears to be resolved. Actions taken include increasing SCR removal rates on units 3 and 4, lowering fuel sulfur and cleaning economizer on unit 1 to reduce gas outlet temperature.
- TC #6 aux transformer – Transmission is pursuing the purchase of a used transformer in order to provide required redundancy. Transformer is located in Wisconsin and attempting to resolve logistical and transportation issues.
Update: The Transmission group is hoping to cut a PO this week for the abovementioned transformer. The in-service estimate we have been given is September 1st.
- APCD – 2 meetings have been held with APCD; the first was to discuss the flyash issue at Mill Creek where the original report was in error overstating the flyash release. Initial indication is the NOV will be rescinded. The second was for the Feb. odor complaint at Cane Run, although the district understands our immediate actions, we believe the NOV will stand.

Metric Discussion

- June EFOR came in slightly higher than plan with an actual of 5.8% versus the targeted 5.1%. Year to date stands at 4.15%.

People Issues

- .

Key Upcoming Needs or Plans

- Plants in process of finalizing fall outage plans. Will be looking closely at potential schedule issue with PJFF tie in outage on Mill Creek MC4.

From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Bowling, Ralph
CC:
BCC:
Subject: AIP Project Approval - 140919LGE - ORIGINAL
Sent: 12/10/2013 10:52:58 AM -0500 (EST)
Attachments: 140919LGE-22.pdf; TC2 ROOF TUBES Internal Memo - 2014 AIPs.docx; TC2 Roof Transition Tube CEM .xlsm; TC2 Roof Tube Replacement IP.docx; TC2 Transition Roof Tube NSR.doc; TC2 roof tube replacements.txt;

LG&E project number 140919LGE (TC2 TRANSITION TUBE REPL) has been submitted for your approval. Please login to PowerPlant and respond to the items awaiting your approval.

[login to powerplant](#)

Attachment #1 to Response KIUC-1 Question No. 30(f)
AUTHORIZATION FOR INVESTMENT PROPOSAL **Page 270 of 470**

LG&E and KU Services Co.

Louisville Gas and Electric Co.

Kentucky Utilities **Champion**

Name of Project: TC2 TRANSITION TUBE REPL		Funding Project Type: LGE Steam NonBlink Excluding Land	
Date Requested: 7/11/2013	Project Number: 140919LGE	Budgeted: no	
Related Project Numbers: 140919KU		If unbudgeted, list alternate budget ref. Number(s): FUNDED FROM GENERATION POOL - THIS IS A 2014 BUDGETED PROJECT THAT NEEDS EARLY ACTIVATION IN ORDER TO ISSUE PO.	
Expected Start Date: 1/1/2009	Expected In Service Date: 12/31/2014	Expected Completion Date: 12/31/2014	
AIP Prepared by: Cuzick, Fred		Phone: 502/627-4122	
Project Manager: Byrd, Larry		Phone: 502/347-4002	
Asset Location: Trimble County - Unit 2		Environmental Code: N/A	
Resp. Center: 002650-GENERAL MANAGER - TC		Product Code: 111 - WHOLESALE GENERATION	

REASONS AND DETAILED DESCRIPTION OF PROJECT

140919LGE-TC2 TRANSITION TUBE REPL

This project is to replace two hundred four transition tubes on the TC2 boiler roof. In 2012 the aforementioned transition tubes were identified, through inspection, to have hardness values above the allowable numbers set forth by ASME codes for this material. The high hardness values make this material very susceptible to cold cracking. Cold cracking is more prevalent and increases in likeliness to happen when the roof tube metal temperatures are at or below 300o F. In the event of a forced outage or planned outage of the unit, tube temperatures will fall below the 300o F and increase the likelihood of creating a crack and subsequent leak in the roof tubes.

The existing transition pieces have been subjected, during manufacturing, to a heating process which tapers (swages) the tube from a certain thickness to a smaller thickness. It has been determined that the high hardness values found, are attributed to this swaging process. The new transition pieces will be fabricated in such a manner that the heated swage process will no longer be required. The tubes will be fabricated to have a thicker wall and machined to match the wall of the existing tubes thus removing the possibility of added heat stress. SEE ATTACHED IP FOR MORE DETAIL.

Costs	Capital Investment	Cost of Removal/Retirement	Capital Cost Subtotal	Initial O&M Cost	Lifetime Maintenance Cost	Subtotal	TOTAL INVESTMENT
Contract Labor	\$902,266.00	\$252,427.00	\$1,154,693.00	\$0.00	\$0.00	\$0.00	\$1,154,693.00
Other	\$21,925.00	\$0.00	\$21,925.00	\$0.00	\$0.00	\$0.00	\$21,925.00
Local Engineering	\$5,143.00	\$7,573.00	\$12,716.00	\$0.00	\$0.00	\$0.00	\$12,716.00
Subtotal - GAAP	\$929,334.00	\$260,000.00	\$1,189,334.00	\$0.00	\$0.00	\$0.00	\$1,189,334.00
Contributions	(\$232,335.00)	(\$65,000.00)	(\$297,335.00)	\$0.00	\$0.00	\$0.00	(\$297,335.00)
Net Expenditures - GAAP	\$696,999.00	\$195,000.00	\$891,999.00	\$0.00	\$0.00	\$0.00	\$891,999.00
2009 Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2010 Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2011 Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2012 Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2013 Total	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2014 Total	\$696,999.00	\$195,000.00	\$891,999.00	\$0.00	\$0.00	\$0.00	\$891,999.00

Approval Type: Non-IT Projects

Authorized by	Amount	Name	Date Approved	Req'd
Supervisor	\$25,000.00			N
Manager	\$100,000.00	Byrd, Larry	12/6/2013	Y
Budget Coordinator	\$0.00	Cuzick, Fred	12/9/2013	Y
Special Approvers	\$0.00	Feider, Ryan	12/9/2013	Y
Director	\$300,000.00	Joyce, Jeffrey	12/10/2013	Y
Vice President	\$750,000.00	Bowling, Donald		Y
Investment Committee Coordinator	\$0.00	Kuhl, Megan		Y
Financial Planning Director	\$0.00	Cosby, David		Y
Senior Officer	\$1,000,000.00	Thompson, Paul		Y
CFO	\$1,000,001.00	Blake, Kent		Y
CEO	\$1,000,002.00	Staffieri, Victor		Y
Property Accounting	\$0.00	Rose, Bruce		Y

INVESTMENT MATERIALS

UOP #	Utility Account Id		Quantity	Total Cost	
05727	131200	TUBING (ALL) (05727)	204	\$18,678.00	

RETIRED EQUIPEMENT (OR MATERIALS)

UOP #	Utility Account Id		Quantity	Vintage Year	Original Project Number

AIP QUESTIONS**Are there Related Project Numbers?**

Provide related project numbers or indicate 'N/A'.

140919KU**Is this an IT related project?**

IT project is any project that requires IT involvement or the purchase of hardware and software.

no**Purchase/Sale of Real Estate?**

Is this a transaction related to the sale/purchase of land or buildings?

no

AIP QUESTIONS

Budgeted?

Is the project budgeted or unbudgeted?

no

Alternate Budget Numbers?

If the project is unbudgeted, list alternate budget reference numbers. Enter N/A, if none.

FUNDED FROM GENERATION POOL - THIS IS A 2014 BUDGETED PROJECT THAT NEEDS EARLY ACTIVATION IN ORDER TO ISSUE PO.

Legal Asset Retirement Obligation?

Is there a legal or environmental requirement governing disposal of this asset?

no

Leased Asset?

Does this project involve a leased asset?

no

Obsolete Inventory?

Will this project create obsolete inventory?

no

Environmental Project

Is this an Environmental Project?

no

Environmental Cost Recovery

If an environmental project, is this an approved environmental cost recovery (ECR) project?

no

ECR Project Type

If this is an ECR project, indicate the project type.

N/A

ECR Compliance Number

If this is an ECR project, provide the ECR compliance plan number (see the approved project list on the Rates and Regulatory intranet site).

N/A

Environmental Affairs

Does Environmental Affairs need to review this project for environmental permitting issues (based on responses to the six questions in the Investment Proposal)?

no

Research and Experimental Credit

Is this an experimental project with the purpose of improving, enhancing, or adding to a current manufacturing process?

no

Sales Tax-Pollution Control

Is this project done for environmental regulations or statutes? (If yes, may qualify for the Pollution Control Exemption.)

no

Sales Tax-Manufacturing Integration

Is this project integrated in the Manufacturing Process? (Yes to this question and the following two questions may qualify for the New and Expanded Exemption.)

yes

Sales Tax-State Equipment Use

Is this equipment used in the state for the first time?

yes

Sales Tax-Upgrade or Improvement?

Is this project considered an upgrade or improvement? If yes, enter description on next line.

no

Sales Tax-Upgrade Description

Description of upgrade, if applicable (i.e., improved materials, increased capacity, longer life, etc.) from prior question. Enter N/A, if not applicable.

N/A

Produced as Native

Original File Name: Microsoft_Excel_97-2003_Worksheet1.xls

Stored File Name: OpenText00142099.xls

From: Hudson, Rusty
Sent: Friday, December 06, 2013 9:18 AM
To: Bowling, Ralph; Joyce, Jeff
Cc: Cuzick, Fred
Subject: TC2 roof tube replacements

The TC2 roof tube replacements project is at \$892k net with \$50k of contingency. The IC threshold is on a net basis, not gross. Given that we are still \$100k under the \$1m threshold, I am okay with this just going through the normal PowerPlant approval process and not the IC if that is okay with you guys. When they get over \$950k I prefer to take them, but with this one I think we will be okay. Rusty



MEMO

To: Financial Planning & Controlling
From: Fred Cuzick- Trimble County
Date: 12-6-13
Re: AIP-140919LGE- TC2 Transition Roof Tubes

The attached AIP for \$892k is included in the proposed 2014 BP which is currently in the process of being approved by RAC, Senior Management and/or the PPL Board. Due to the urgency of the project, it is imperative to open the project in 2013 while waiting on final BP approval expected in December. All spending to occur in 2013 has been approved through the internal RAC process. This project is a high priority so in the event of capital reductions during the approval process, this project would still likely be done.

New Source Review Routine Maintenance Project Determination Guide

Thompson

Facility: Trimble County	Unit: TC2
Project Name/Number: 140919LGE TC2 Transition Roof Tube Replacement	Project Date: February 2014, Outage
	Review Date: November 13, 2013
	Performed by: R. Cash, R. Feider
	Document Revision Date:

Part 1: Evaluate Individual Categories

Nature and Extent of Project:	
	Yes/No
1. Does the change require pre-approval of a state commission, in the case of utilities?	No
2. Does the source itself characterize the project as non-routine in any of its own documents?	No
3. For tube bundle replacements, how much of the total boiler tubing will this project replace?	<5%
4. Will the activity fit into a normal outage turnaround?	Yes
5. Does it involve outside engineering help?	Yes
6. Do the replacement parts have the same function and capacity as the original design?	Yes
<p>Explanation/Findings:</p> <p>This project is to replace 2ft sections of two hundred four transition tubes on the TC2 boiler roof (SA213 T23 2.5"x0.28" MWT). The tubes are fabricated of SA 213 T23 metal and subjected to a swage process. In 2012 the transition tubes on the TC2 roof were identified, through inspection, to have hardness values above the allowable numbers set forth by ASME codes for this material. The high hardness values make this material very susceptible to cold cracking, particularly when the roof tube metal temperatures are at or below 300° F.</p> <p>The project will consist of a like-in-kind replacement of the tubes with tubes fabricated of SA 213 23 metal not subjected to the swage process. The replacement tubes will also have a thicker wall for heat stress protection.</p>	

Is the nature and extent of the project consistent with RMRR objectives? Yes No

Purpose of Project: (how is funding justified?)	
	Yes/No
1. Has the unit deteriorated to the point that after the repair or replacement, it will regain achievable capacity it has not seen in the last 60 months?	No
2. Will the changes extend the useful life of the boiler?	No
3. Will the change result in more material throughput (i.e.; fuel, lime, limestone)?	No
4. Will the project alter the boiler's dispatch order?	No
<p>Explanation/Findings:</p> <p>TC2 has had only 1 forced outage/derate attributed with the roof tubes since the construction of TC2. This project will replace the remaining 2ft sections of the 204 SA 213 Grade 23 transition tubes. The Grade 23 material is a relatively new metal with limited operational and test data on this material. The ASME code case that governs the manufacturing of Grade 23 is currently in its sixth revision due to recent data in the last few years.</p> <p>The purpose of this project is preventative due to inspection and testing of the material of construction. The initial interest that led to the metallurgical analyses of the tubes was due to tube failures that occurred at field welds from original fabrication. When the repairs were made to the original tubes, stress concentrations were created. These concentrations created cold cracks in tubes at field weld line "D".</p> <p>Inspections and tests were utilized to determine the best options for repair. Seven roof tubes were replaced at this weld line for testing. The "test" tubes have performed well over the last six months and meet the hardness values set forth by ASME codes for this material.</p>	

Is the purpose of the project consistent with RMRR objectives? Yes No

Frequency of Project:	
	Yes/No
1. Is the project performed infrequently in a typical unit's life?	Yes
2. Is it common industrial practice to undergo this type or repair or replacement for this EGU?	Yes, when product does not meet industry design specifications
3. Even though this type of activity is regularly done in the industry, how frequent has this type of repair or replacement been done at this particular unit (or, is there an established pattern such as every 2 years, every 10 years, etc.)?	As Needed
4. Is there any repair or replacement activity within the entire project that is done rarely if ever?	No

Explanation/Findings:

It is routine to replace sections of boiler roof tubes as needed due to material defects or new data indicating future operational issues. The tubes have not performed to initial specifications and have failed to meet applicable ASME codes for hardness. Parts failing to meet the stress and hardness codes are routinely replaced in the industry to maintain equipment in accordance with good engineering practices.

Thompson

Is the frequency of the project consistent with RMRR objectives? Yes No

Cost of Project:	
	Yes/No
1. Is this an expected and planned cost for operating the unit?	Yes
2. Will a significant amount of the cost of the project be included in the source's capital expenses?	Yes*
3. Does the cost far exceed the typical expenditures associated with this type of equipment?	No
4. What is the percentage of the project's cost compared to a new comparable source and is it significant (e.g., less than 0.75 percent)?	<0.5%
Explanation/Finding: *LG&E and KU budgets a majority of maintenance expenditures during unit planned outages as capital expenditures.	

Is the cost of the project consistent with RMRR objectives? Yes No

CONCLUSION

Part 2: Routine Maintenance (Yes/No)

Summary/Conclusion:	Routine Maintenance (Yes/No)
<p>The like-in-kind replacement of sections of the boiler roof tubes meets the requirements of RMRR. The replacement sections are composed of the same material of construction, but without being fabricated with a swage process. It is routine in the industry to replace components that fail to meet industry code in accordance with good engineering practices. The change in the material fabrication process does not exclude the project from the definition of RMSS (see Case discussion below.) The project is not due to forced outages or derates and no emissions increase is anticipated as a direct result of this project.</p> <p>In the April 2010 case <i>National Parks Conservation Associations v. Tennessee Valley Authority, No. 3:01-CV-71</i>, the replacement of the superheater at Bull Run was deemed routine with a change in the material of construction. The judge agreed that replacement with a better product with the same function may sometimes be appropriate. In the final ruling, the change of material was reviewed under the purpose of the project. The judge did not find the change of material or the replacement of the superheater were adverse factors in relation to the project.</p>	Yes

If the answer to Part 2 is no, complete Part 3.

Part 3: Emissions Increase (Yes/No)

If the project is <u>not</u> routine, would the project reasonably be expected to result in an emissions increase, in regard to NSR (yes/no).	Emissions Increase (Yes/No)
	No
Justification:	

DOCUMENT REVIEW

<u>Reviewers:</u>			
Environmental Affairs		Trimble County	
Reviewer	Rebecca Cash	Reviewer	Ryan Feider
Date	12/6/2013	Date	11/13/2013

<u>Unit</u>	<u>Event</u> ▲	<u>Start</u>	<u>End</u>	<u>Type</u>	<u>Cause</u>	GAC	NAC	Description
Trimble County, TC2	268	10/16/2012 13:47	10/18/2012 16:29	U1	1090	0	0	F540This outage was due to a boiler roof tube leak, The unit was removed from service and the leak was pad welded until the fall outage.
Trimble County, TC2	287	12/10/2012 0:00	12/20/2012 10:07	PE	4401	0	0	F530The inspection outage was extended to allow for boiler tube repairs (roof tube iss

Thompson

From: Carter, Bud(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=BUDCARTER)
To: Bowling, Ralph
CC: Wilson, Stuart; Farhat, Monica; Simpson, Jeff; Horine, Charles; Saunders, Eileen; Cosby, David; Welsh, Elaine; Dorwart, Jordan; Lewis, Donna; Meadway, Rob; Baker, Bryan; Burns, Kyle; Sanders, Matt; Neal, Susan; Crutcher, Tom; Limberg, Brian; Kidwell, Victor; Hill, Ben; Tummonds, David; Wright, Paul; Hudson, Rusty
BCC:
Subject: GADS Events _ For FEBRUARY-YTD 2014.
Sent: 03/10/2014 04:56:58 PM -0400 (EDT)
Attachments: GADS Events _ FEBRUARY 2014-YTD.xlsx; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp;

The attached NERC GADS events file ... contains FEBRUARY-YTD 2014's GADS events ... sorted by ...

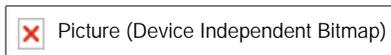
- Unit,
- System Impact,
- Cause Code, and
- BTF Type.

<<GADS Events _ FEBRUARY 2014-YTD.xlsx>>

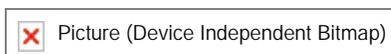
Within this file ...

- the events in bold with the unit name highlighted in yellow ... are the events that entered the fuel adjustment clause disallowance process, and
- the events in bold ... are the events that will be reported to the PSC through the fuel adjustment clause six-month review process.

FEBRUARY-YTD 2014's (*non-planned ... non-reserve*) total steam impacts ... by event cause code group ... were ...



FEBRUARY-YTD 2014's (*non-planned ... non-reserve*) top five steam impacts by event cause code group ... were ...



- *With ...*
- *This five accounting for ...*
- 78 % of the February-Ytd's megawatt-hours lost, and
- 73 % of February-Ytd's overall EFOR.
- *The top issue ... Boiler (non-BTF) ... accounting for ...*
- 28 % of February-Ytd's megawatt-hours lost, and
- 21% of February-Ytd's overall EFOR.

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**NERC GADS UNPLANNED EVENT IMPACT
BY CAUSE CODE GROUP
FEBRUARY-YTD 2014**

<u>Range</u>	<u>Cause Code Group</u>	<u>MWH_(system) Lost</u>	<u>EAF_(system) Lost</u>	<u>EUOR_(system) Impact</u>	<u>EFOR_(system) Impact</u>
0010-0130	Fuel Handling	0	0.00%	0.00%	0.00%
0200-0480	Fuel Firing	76,563	0.94%	0.90%	0.77%
0500-1999	Boiler (all)	305,641	3.67%	3.79%	1.18%
3110-3999	Balance Of Plant	42,964	0.53%	0.53%	0.47%
4000-4499	Steam Turbine	53,822	0.66%	0.68%	0.17%
4500-4899	Generator	1,398	0.02%	0.02%	0.02%
8000-8835	Pollution Control Equipment	30,269	0.37%	0.38%	0.18%
9000-9340	External	254	0.00%	0.00%	0.00%
9504-9720	Reg., Safety, & Environmental	10,490	0.13%	0.08%	0.08%
<u>9900-9999</u>	<u>Personnel Or Procedural Errors</u>	<u>4,175</u>	<u>0.05%</u>	<u>0.05%</u>	<u>0.05%</u>
		525,577	6.36%	6.43%	2.93%

Note: This data may not
match KPI values as this dat.
includes overlapping events

Boiler Tube Failures (# 13 outages)

<u>1000-1020</u>	<u>Waterwall (# 3 outage)</u>	25,390	0.31%	0.32%	0.00%
<u>1030-1050</u>	<u>Superheater (# 5 outages)</u>	49,701	0.61%	0.63%	0.38%
<u>1060-1070</u>	<u>Reheater (# 5 outages)</u>	82,016	1.00%	1.04%	0.18%
<u>1080-1099</u>	<u>Economizer (# 0 outage)</u>	0	0.00%	0.00%	0.00%
		157,107	1.92%	1.99%	0.56%
		29.89%	30.26%	30.95%	18.99%
		<i>of Total</i>	<i>of Total</i>	<i>of Total</i>	<i>of Total</i>
		<i>MWH_(lost)</i>	<i>EAF_(lost)</i>	<i>EUOR_(lost)</i>	<i>EFOR_(lost)</i>

<u>Range</u>	<u>Cause Code Group</u>	<u>MWH</u> <small>(system)</small>	<u>EAF</u> <small>(system)</small>	<u>EUOR</u> <small>(system)</small>	<u>EFOR</u> <small>(system)</small>
		<u>Lost</u>	<u>Lost</u>	<u>Impact</u>	<u>Impact</u>
1	0500-1999 Boiler (non-BTF)	148,534	1.74%	1.80%	0.62%
2	1060-1070 Reheater (# 2 outages)	82,016	1.00%	1.04%	0.18%
3	0200-0480 Fuel Firing	76,563	0.94%	0.90%	0.77%
4	4000-4499 Steam Turbine	53,822	0.66%	0.68%	0.17%
5	<u>1030-1050 Superheater (# 3 outages)</u>	<u>49,701</u>	<u>0.61%</u>	<u>0.63%</u>	<u>0.38%</u>
		410,636	4.95%	5.05%	2.13%
		78.13%	77.86%	78.55%	72.51%
		of Total	of Total	of Total	of Total
		MWH _(lost)	EAF _(lost)	EUOR _(lost)	EFOR _(lost)

Produced as Native

Original File Name: GADS Events _ FEBRUARY 2014-YTD.xlsx

Stored File Name: OpenText00145736.xlsx

Thompson

From: Carter, Bud(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=BUDCARTER)
To: Bowling, Ralph
CC: Wilson, Stuart; Farhat, Monica; Simpson, Jeff; Horine, Charles; Saunders, Eileen; Cosby, David; Welsh, Elaine; Dorwart, Jordan; Lewis, Donna; Meadway, Rob; Baker, Bryan; Burns, Kyle; Sanders, Matt; Neal, Susan; Crutcher, Tom; Limberg, Brian; Kidwell, Victor; Hill, Ben; Tummonds, David; Wright, Paul; Hudson, Rusty; McKinney, Adam
BCC:
Subject: GADS Events _ For JULY-YTD 2014.
Sent: 08/06/2014 10:33:42 AM -0400 (EDT)
Attachments: GADS Events _ JULY 2014-YTD.xlsx; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp;

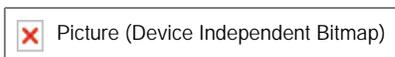
The attached NERC GADS events file ... contains JULY-YTD 2014's GADS events ... sorted by ...

- Unit,
- System Impact,
- Cause Code, and
- BTF Type.

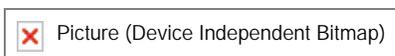
<<GADS Events _ JULY 2014-YTD.xlsx>>

And within the file ...

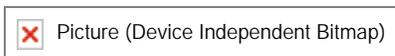
- the coal unit events highlighted in yellow (112 events) ... are forced outage (FO) events.
- the coal unit events highlighted in yellow with the unit names also highlighted in yellow (70 events) ... are the events that entered the fuel adjustment clause (FAC) disallowance process.
- the events in bold ... are the events that will be reported to the PSC through the fuel adjustment clause six-month review process.



JULY -YTD 2014's (*non-planned ... non-reserve*) total steam impacts ... by event cause code group ... were ...



JULY -YTD 2014's (*non-planned ... non-reserve*) top five steam impacts by event cause code group ... were ...



- *With ...*
 - *This five accounting for ...*
 - 76 % of July-Ytd's megawatt-hours lost, and
 - 74 % of July-Ytd's overall EFOR.
 - *The top issue ... Boiler (non-BTF) ... accounting for ...*
 - 26 % of July-Ytd's megawatt-hours lost, and

-
- 16% of July-Ytd's overall EFOR.

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<u>Unit</u>	<u>FO's</u>	<u>FAC FO's</u>
BR 1	6	3
BR 2	2	2
<u>BR 3</u>	<u>11</u>	<u>8</u>
BR Sta.	19	13
CR 4	4	2
CR 5	12	9
<u>CR 6</u>	<u>12</u>	<u>9</u>
CR Sta.	28	20
GH 1	1	1
GH 2	2	0
GH 3	4	2
<u>GH 4</u>	<u>2</u>	<u>0</u>
GH Sta.	9	3
GR 3	6	3
<u>GR 4</u>	<u>10</u>	<u>9</u>
GR Sta.	16	12
MC 1	8	1
MC 2	3	3
MC 3	6	3
<u>MC 4</u>	<u>8</u>	<u>3</u>
MC Sta.	25	10
TC 1	7	4
<u>TC 2</u>	<u>8</u>	<u>8</u>
TC Sta.	15	12
KU-LGE	112	70

**NERC GADS UNPLANNED EVENT IMPACT
BY CAUSE CODE GROUP
JULY-YTD 2014**

<u>Range</u>	<u>Cause Code Group</u>	MWH _(system) <u>Lost</u>	EAF _(system) <u>Lost</u>	EUOR _(system) <u>Impact</u>	EFOR _(system) <u>Impact</u>
0010-0130	Fuel Handling	718	0.00%	0.00%	0.00%
0200-0480	Fuel Firing	204,611	0.70%	0.72%	0.49%
0500-1999	Boiler (all)	1,056,950	3.60%	4.03%	2.00%
3110-3999	Balance Of Plant	406,801	1.39%	1.52%	1.00%
4000-4499	Steam Turbine	293,692	1.00%	1.14%	1.00%
4500-4899	Generator	9,569	0.03%	0.04%	0.04%
8000-8835	Pollution Control Equipment	177,178	0.60%	0.68%	0.41%
9000-9340	External	7,566	0.03%	0.03%	0.03%
9504-9720	Reg., Safety, & Environmental	21,421	0.07%	0.06%	0.05%
<u>9900-9999</u>	<u>Personnel Or Procedural Errors</u>	<u>4,940</u>	<u>0.02%</u>	<u>0.02%</u>	<u>0.02%</u>
		2,183,447	7.44%	8.24%	5.05%

Note: This data may not
match KPI values as this data
includes overlapping events

Boiler Tube Failures (# 40 outages)

<u>1000-1020</u>	<u>Waterwall (# 16 outages)</u>	<u>192,119</u>	<u>0.65%</u>	<u>0.74%</u>	<u>0.45%</u>
<u>1030-1050</u>	<u>Superheater (# 13 outages)</u>	<u>87,160</u>	<u>0.30%</u>	<u>0.34%</u>	<u>0.22%</u>
<u>1060-1070</u>	<u>Reheater (# 7 outages)</u>	<u>126,083</u>	<u>0.43%</u>	<u>0.49%</u>	<u>0.23%</u>
<u>1080-1099</u>	<u>Economizer (# 4 outages)</u>	<u>90,178</u>	<u>0.31%</u>	<u>0.35%</u>	<u>0.29%</u>
		495,540	1.69%	1.92%	1.18%
		22.70%	22.70%	23.24%	23.46%
		<i>of Total</i>	<i>of Total</i>	<i>of Total</i>	<i>of Total</i>
		<i>MWH_(lost)</i>	<i>EAF_(lost)</i>	<i>EUOR_(lost)</i>	<i>EFOR_(lost)</i>

<u>Range</u>	<u>Cause Code Group</u>	MWH _(system) <u>Lost</u>	EAF _(system) <u>Lost</u>	EUOR _(system) <u>Impact</u>	EFOR _(system) <u>Impact</u>
1	0500-1999 Boiler (non-BTF)	561,410	1.91%	2.12%	0.82%
2	3110-3999 Balance Of Plant	406,801	1.39%	1.52%	1.00%
3	4000-4499 Steam Turbine	293,692	1.00%	1.14%	1.00%
4	0200-0480 Fuel Firing	204,611	0.70%	0.72%	0.49%
<u>5</u>	<u>1000-1020 Waterwall (# 9 outages)</u>	<u>192,119</u>	<u>0.65%</u>	<u>0.74%</u>	<u>0.45%</u>
		1,658,634	5.65%	6.24%	3.75%
		75.96%	75.97%	75.71%	74.40%
		of Total	of Total	of Total	of Total
		MWH _(cost)	EAF _(cost)	EUOR _(cost)	EFOR _(cost)

Produced as Native

Original File Name: GADS Events _ JULY 2014-YTD.xlsx

Stored File Name: OpenText00145749.xlsx

Thompson

From: Carter, Bud(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=BUDCARTER)
To: Bowling, Ralph
CC: Wilson, Stuart; Farhat, Monica; Simpson, Jeff; Horine, Charles; Saunders, Eileen; Cosby, David; Welsh, Elaine; Dorwart, Jordan; Lewis, Donna; Meadway, Rob; Baker, Bryan; Burns, Kyle; Sanders, Matt; Neal, Susan; Crutcher, Tom; Limberg, Brian; Kidwell, Victor; Hill, Ben; Tummonds, David; Wright, Paul; Hudson, Rusty; McKinney, Adam
BCC:
Subject: GADS Events _ For JUNE-YTD 2014.
Sent: 07/03/2014 02:37:32 PM -0400 (EDT)
Attachments: GADS Events _ JUNE 2014-YTD.xlsx; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp;

The attached NERC GADS events file ... contains JUNE-YTD 2014's GADS events ... sorted by ...

- Unit,
- System Impact,
- Cause Code, and
- BTF Type.

<<GADS Events _ JUNE 2014-YTD.xlsx>>

And within the file ...

- the coal unit events highlighted in yellow (86 events) ... are forced outage (FO) events.
 - BR 15
 - CR 24
 - GH 8
 - GR 13
 - MC 16
 - TC 10

86

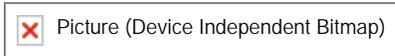
- the coal unit events highlighted in yellow with the unit names also highlighted in yellow (56 events) ... are the events that entered the fuel adjustment clause (FAC) disallowance process.
 - BR 11
 - CR 17
 - GH 3
 - GR 9
 - MC 7
 - TC 9

- the events in bold ... are the events that will be reported to the PSC through the fuel adjustment clause six-month review process.

JUNE-YTD 2014's (non-planned ... non-reserve) total steam impacts ... by event cause code group ... were ...



JUNE-YTD 2014's (non-planned ... non-reserve) top five steam impacts by event cause code group ... were ...



- *With ...*
 - *This five accounting for ...*
 - 74 % of June-Ytd's megawatt-hours lost, and
 - 69 % of June-Ytd's overall EFOR.
 - *The top issue ... Boiler (non-BTF) ... accounting for ...*
 - 31 % of June-Ytd's megawatt-hours lost, and
 - 21% of June-Ytd's overall EFOR.

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**NERC GADS UNPLANNED EVENT IMPACT
BY CAUSE CODE GROUP
JUNE-YTD 2014**

<u>Range</u>	<u>Cause Code Group</u>	MWH _(system) <u>Lost</u>	EAF _(system) <u>Lost</u>	EUOR _(system) <u>Impact</u>	EFOR _(system) <u>Impact</u>
0010-0130	Fuel Handling	718	0.00%	0.00%	0.00%
0200-0480	Fuel Firing	194,998	0.78%	0.83%	0.57%
0500-1999	Boiler (all)	890,161	3.55%	4.06%	1.88%
3110-3999	Balance Of Plant	215,634	0.86%	0.98%	0.65%
4000-4499	Steam Turbine	126,622	0.51%	0.59%	0.40%
4500-4899	Generator	8,592	0.03%	0.04%	0.04%
8000-8835	Pollution Control Equipment	151,266	0.60%	0.70%	0.49%
9000-9340	External	7,566	0.03%	0.04%	0.04%
9504-9720	Reg., Safety, & Environmental	20,452	0.08%	0.07%	0.06%
<u>9900-9999</u>	<u>Personnel Or Procedural Errors</u>	<u>4,175</u>	<u>0.02%</u>	<u>0.02%</u>	<u>0.02%</u>
		1,620,182	6.47%	7.32%	4.15%

Note: This data may not
match KPI values as this data
includes overlapping events.

Boiler Tube Failures (# 33 outages)

<u>1000-1020</u>	<u>Waterwall (# 12 outages)</u>	<u>126,507</u>	<u>0.51%</u>	<u>0.59%</u>	<u>0.26%</u>
<u>1030-1050</u>	<u>Superheater (# 12 outages)</u>	<u>83,904</u>	<u>0.34%</u>	<u>0.39%</u>	<u>0.24%</u>
<u>1060-1070</u>	<u>Reheater (# 6 outages)</u>	<u>99,585</u>	<u>0.40%</u>	<u>0.46%</u>	<u>0.15%</u>
<u>1080-1099</u>	<u>Economizer (# 3 outages)</u>	<u>72,475</u>	<u>0.29%</u>	<u>0.34%</u>	<u>0.35%</u>
		382,471	1.53%	1.77%	1.01%
		23.61%	23.60%	24.22%	24.20%
		<i>of Total</i>	<i>of Total</i>	<i>of Total</i>	<i>of Total</i>
		<i>MWH_(lost)</i>	<i>EAF_(lost)</i>	<i>EUOR_(lost)</i>	<i>EFOR_(lost)</i>

<u>Range</u>	<u>Cause Code Group</u>	MWH _(system) <u>Lost</u>	EAF _(system) <u>Lost</u>	EUOR _(system) <u>Impact</u>	EFOR _(system) <u>Impact</u>
1	0500-1999 Boiler (non-BTF)	507,690	2.03%	2.29%	0.88%
2	3110-3999 Balance Of Plant	215,634	0.86%	0.98%	0.65%
3	0200-0480 Fuel Firing	194,998	0.78%	0.83%	0.57%
4	8000-8835 Pollution Control Equipment	151,266	0.60%	0.70%	0.49%
5	1000-1020 Waterwall (# 9 outages)	126,507	0.51%	0.59%	0.26%
		1,196,094	4.78%	5.38%	2.85%
		73.82%	73.83%	73.53%	68.71%
		of Total	of Total	of Total	of Total
		MWH _{Total}	EAF _{Total}	EUOR _{Total}	EFOR _{Total}

Produced as Native

Original File Name: GADS Events _ JUNE 2014-YTD.xlsx

Stored File Name: OpenText00145753.xlsx

Thompson

From: Carter, Bud(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=BUDCARTER)
To: Bowling, Ralph
CC: Wilson, Stuart; Farhat, Monica; Simpson, Jeff; Horine, Charles; Saunders, Eileen; Cosby, David; Welsh, Elaine; Dorwart, Jordan; Lewis, Donna; Meadway, Rob; Baker, Bryan; Burns, Kyle; Sanders, Matt; Neal, Susan; Crutcher, Tom; Limberg, Brian; Kidwell, Victor; Hill, Ben; Tummonds, David; Wright, Paul; Hudson, Rusty; McKinney, Adam
BCC:
Subject: GADS Events _ For MARCH 2014.
Sent: 04/03/2014 03:13:09 PM -0400 (EDT)
Attachments: GADS Events _ MARCH 2014.xlsx; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp;

The attached NERC GADS events file ... contains MARCH 2014's GADS events ... sorted by ...

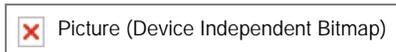
- Unit,
- System Impact,
- Cause Code, and
- BTF Type.

<<GADS Events _ MARCH 2014.xlsx>>

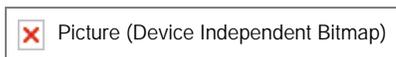
And within the file ...

- the coal unit events highlighted in yellow (*9 events*) ... are forced outage events.
- the coal unit events highlighted in yellow with the unit names also highlighted in yellow (*6 events*) ... are the events that will enter the fuel adjustment clause disallowance process.
- the events in bold ... are the events that will be reported to the PSC through the fuel adjustment clause six-month review process.

MARCH 2014's (*non-planned ... non-reserve*) total steam impacts ... by event cause code group ... were ...



MARCH 2014's (*non-planned ... non-reserve*) top five steam impacts by event cause code group ... were ...



- *With ...*
- *This five accounting for ...*
- *57 % of the March's megawatt-hours lost, and*
- *55 % of March's overall EFOR.*
- *The top issue ... Steam Turbine ... accounting for ...*
- *34 % of March's megawatt-hours lost, and*
- *34% of March's overall EFOR.*

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**NERC GADS UNPLANNED EVENT IMPACT
BY CAUSE CODE GROUP
MARCH 2014**

<u>Range</u>	<u>Cause Code Group</u>	<u>MWH_(system) Lost</u>	<u>EAF_(system) Lost</u>	<u>EUOR_(system) Impact</u>	<u>EFOR_(system) Impact</u>
0010-0130	Fuel Handling	0	0.00%	0.00%	0.00%
0200-0480	Fuel Firing	36,695	0.86%	0.83%	0.78%
0500-1999	Boiler (all)	36,148	0.84%	1.12%	0.92%
3110-3999	Balance Of Plant	11,601	0.27%	0.36%	0.25%
4000-4499	Steam Turbine	506	0.01%	0.02%	0.02%
4500-4899	Generator	0	0.00%	0.00%	0.00%
8000-8835	Pollution Control Equipment	19,056	0.44%	0.59%	0.25%
9000-9340	External	13	0.00%	0.00%	0.00%
9504-9720	Reg., Safety, & Environmental	4,245	0.10%	0.09%	0.09%
<u>9900-9999</u>	<u>Personnel Or Procedural Errors</u>	<u>0</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
		108,264	2.52%	3.00%	2.32%

Note: This data may not
match KPI values as this dat.
includes overlapping events

Boiler Tube Failures (# 3 outages)

<u>1000-1020</u>	<u>Waterwall (# 2 outage)</u>	12,808	0.30%	0.40%	0.40%
<u>1030-1050</u>	<u>Superheater (# 1 outages)</u>	5,093	0.12%	0.16%	0.16%
<u>1060-1070</u>	<u>Reheater (# - outages)</u>	0	0.00%	0.00%	0.00%
<u>1080-1099</u>	<u>Economizer (# -- outage)</u>	<u>0</u>	<u>0.00%</u>	<u>0.00%</u>	<u>0.00%</u>
		17,901	0.42%	0.55%	0.56%
		16.53%	16.53%	18.48%	24.06%
		<i>of Total</i>	<i>of Total</i>	<i>of Total</i>	<i>of Total</i>
		<i>MWH_(lost)</i>	<i>EAF_(lost)</i>	<i>EUOR_(lost)</i>	<i>EFOR_(lost)</i>

Range	Cause Code Group	MWH _(system)	EAF _(system)	EUOR _(system)	EFOR _(system)
		Lost	Lost	Impact	Impact
1 0200-0480	Fuel Firing	36,695	0.86%	0.83%	0.78%
2 8000-8835	Pollution Control Equipment	19,056	0.44%	0.59%	0.25%
3 0500-1999	Boiler (non-BTF)	18,246	0.43%	0.56%	0.36%
4 1000-1020	Waterwall (# 2 outage)	12,808	0.30%	0.40%	0.40%
5 3110-3999	Balance Of Plant	11,601	0.27%	0.36%	0.25%
		61,711	1.44%	1.91%	1.27%
		57.00%	57.00%	63.61%	54.76%
		of Total	of Total	of Total	of Total
		MWH _(lost)	EAF _(lost)	EUOR _(lost)	EFOR _(lost)

Produced as Native

Original File Name: GADS Events _ MARCH 2014.xlsx

Stored File Name: OpenText00145757.xlsx

From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Bowling, Ralph
CC:
BCC:
Subject: TC2 2014 Weekend and First week Coordination.docx
Sent: 02/10/2014 07:54:35 AM -0500 (EST)
Attachments: TC2 2014 Weekend and First week Coordination.docx;

TC2 2014 Spring Outage
Weekend and First Week Coordination

- **Friday, February 07, 2014 Offline after peak**
 - At 300 pounds of boiler pressure, inspect leak- **Maldonado**
- **Saturday, February, 8th, 2014**
 - Deslag Boiler & Burners- On site at 10:00 AM.- **Maldonado/ Expro**
 - **Started at 12:15 pm. Estimated 10-12 hrs. worst case.**
 - Disconnect Wiring on Burners- **I/E Maintenance**
 - WESP Irrigation out of service after deslag.- **Operations**
- **Sunday, February, 9th, 2014**
 - Drain Ash Hopper- **Operations**
 - Disconnect Ash Hopper Piping- **Mechanics**
 - Roll Out Ash Hopper- **Doosan/ Mechanics**
 - Ground WESP/ DESP- **I/E Maintenance**
- **Monday, February, 10th, 2014**
 - Boiler Scaffold Build- **SE Boiler (6 shifts)**
 - PJFF Filter Bag Sample Removal- **Mechanics**
 - Pulse Air Out of Service (LOTO)- **Operations**
 - WESP Inspections
 - “Dirty” Inspection- Irrigation out of service and not carded.- **Waller/ Anderson**
 - Place irrigation in service and perform casing washes after “Dirty” Inspection.
 - SCR Doors open for “dirty” Inspection- **Mechanics/ Dorwart**

- **Tuesday, February, 11th, 2014**
 - Boiler Scaffold Build- **SE Boiler (4 shifts)**
 - PJFF Filter Bag Sample Removal
 - Pulse Air Out of Service (LOTO)- **Operations**
 - WESP Inspections
 - “WET” Inspection- Irrigation in service.- **Siemens, LG&E, PCT, TES**
- **Wednesday, February, 12th, 2014**
 - Boiler Scaffold Build- **SE Boiler (2 shifts)**
 - Open Deaerator- **Mechanics**
 - Ground WESP/ DESP- **I/E Maintenance**
 - **CLEAR GAS PATH & SIGN OFF BOTH FANS**
- **Thursday, February, 13th, 2014**
 - Check for any open doors prior to starting fan- **Operations**
 - Put 2A ID Fan in service after scaffold completion.-
Operations/ Bechtel/ Doosan
 - Place 1 Recycle Pump in service to alleviate carry over into the WESP.- **Operations**
 - Sandblasting Burner Fronts/ Amstar (2- 24hr shifts) -
Doosan/
 - Pull 2A Turbine Oil Cooler- **Duncan/ Mechanics**
- **Friday, February 14th, 2014**
 - **SIGN ON GAS PATH- BOTH FANS**
 - Drain Reaction Tank- **Operations**
 - Remove 2A ID Fan and open gas path
 - Reaction Tank Clean-out/Inspection – **Heinz/Phelps**

From: Melloan, Ricky(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MELLOAN, RICKYCF4)
To: Bowling, Ralph
CC: Joyce, Jeff
BCC:
Subject: TC2 Burner Replacement
Sent: 02/11/2014 01:03:48 PM -0500 (EST)
Attachments: U2 Burner Replace SMR.pdf;

Ralph – Attached is the Doosan SMR (Site Modification Request) for the burner and throat replacements. This is a very high level overview of the scope and plan. We met with John Lee yesterday and went over the plan in more detail. As you may already know, after all scaffolding is erected and Amstar has completed coating removal, a jig will be attached to the wall for cut lines and the old throats will be removed in two halves. According to Doosan, all 30 throats could be removed with no structural impact on the furnace. The plan calls for no more than 10 to be out at any given time. The new panels will be lifted up the center and transferred to beams above each burner. These beams are supported from the scaffolding. There are 74 tube to tube fits per panel. The first panel is scheduled to be lifted in about two weeks. It was agreed that much would be learned at that time and the process would be adjusted with experience. A challenge for sure.

Rick Melloan
Trimble Co. Station
502-627-6259

 SITE MODIFICATION REQUEST	Contract No: 07292	Contract Name: Trimble County 2	Serial No. Thompson SMR 0132	Rev B
	Date: 03 December 2013		Raised By: Steve Hammond	

Brief Description of SMR

The thirty burners and throats are to be removed and replaced with thirty new DNOx burners and throats along with changes to ancillary equipment as described.

Item:

Burner body
Burner throat
Oil igniter
Flame scanner
PF Pipe

Drawings:

1. PF Pipe Drawings

- 06350/B250/34300/9005 - Modifications to Pipe 2-FC-L210E
- 06350/B250/34300/9006 - Modifications to Pipe 2-FC-L220E
- 06350/B250/34300/9007 - Modifications to Pipe 2-FC-L230E
- 06350/B250/34300/9008 - Modifications to Pipe 2-FC-L240E
- 06350/B250/34300/9009 - Modifications to Pipe 2-FC-L250E
- 06350/B250/34300/9010 - Modifications to Pipe 2-FC-L210D
- 06350/B250/34300/9011 - Modifications to Pipe 2-FC-L220D
- 06350/B250/34300/9012 - Modifications to Pipe 2-FC-L230D
- 06350/B250/34300/9013 - Modifications to Pipe 2-FC-L240D
- 06350/B250/34300/9014 - Modifications to Pipe 2-FC-L250D
- 06350/B250/34300/9015 - Modifications to Pipe 2-FC-L210A
- 06350/B250/34300/9016 - Modifications to Pipe 2-FC-L220A
- 06350/B250/34300/9017 - Modifications to Pipe 2-FC-L230A
- 06350/B250/34300/9018 - Modifications to Pipe 2-FC-L250A
- 06350/B250/34300/9019 - Modifications to Pipe 2-FC-L210A
- 06350/B250/34300/9020 - Modifications to Pipe 2-FC-L210F
- 06350/B250/34300/9021 - Modifications to Pipe 2-FC-L220F
- 06350/B250/34300/9022 - Modifications to Pipe 2-FC-L230F
- 06350/B250/34300/9023 - Modifications to Pipe 2-FC-L240F
- 06350/B250/34300/9024 - Modifications to Pipe 2-FC-L250F
- 06350/B250/34300/9025 - Modifications to Pipe 2-FC-L210C
- 06350/B250/34300/9026 - Modifications to Pipe 2-FC-L220C
- 06350/B250/34300/9027 - Modifications to Pipe 2-FC-L230C
- 06350/B250/34300/9028 - Modifications to Pipe 2-FC-L240C
- 06350/B250/34300/9029 - Modifications to Pipe 2-FC-L250C
- 06350/B250/34300/9030 - Modifications to Pipe 2-FC-L210B
- 06350/B250/34300/9031 - Modifications to Pipe 2-FC-L220B
- 06350/B250/34300/9032 - Modifications to Pipe 2-FC-L230B
- 06350/B250/34300/9033 - Modifications to Pipe 2-FC-L240B
- 06350/B250/34300/9034 - Modifications to Pipe 2-FC-L250B

2. Burner Drawings

- 06350/CRVI/34570/0002 Sht 1 - Furnace General Assembly – Front Wall (68-31940-1)
- 06350/CRVI/34570/0002 Sht 2 - Furnace General Assembly – Rear Wall (68-31940-2)
- 06350/CRVI/34570/0002 Sht 3 - Distribution Orifice Orientation – Front Wall (68-31940-3)
- 06350/CRVI/34570/0002 Sht 4 - Distribution Orifice Orientation – Rear Wall (68-31940-4)
- **06350/CRVI/34570/0001 - D68-31941 - D-NOx™ Burner - 81 MWt**
- 06350/B838/34570/0001 - Existing Mk V Burner Arrangement
- 06350/CSEQ/30000/1008 - Burner PF Isolation Valve

 SITE MODIFICATION REQUEST	Contract No: 07292	Contract Name: Trimble County 2	Serial No. Thompson SMR 0132	Rev B
	Date: 03 December 2013		Raised By: Steve Hammond	

	3. Pressure Part Drawings <ul style="list-style-type: none"> • 06350/B250/31100/0012 – Arrangement of Replacement Burner Throat 4. Windbox Drawings <ul style="list-style-type: none"> • 06350/B250/34715/0010 – Arrangement of Burner Windbox Type 1 • 06350/B250/34715/0011 – Arrangement of Burner Windbox Type 2 • 06350/B250/34715/0012 – Arrangement of Burner Windbox Type 3 • 06350/B250/34715/0122 – Burner Seal Box for 81MWt DB DNOx Burner • 06350/B250/34715/0151 – Detail of Windbox Seal Plate
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Action Required (Use Continuation Sheet as required)

- **Revision B – Drawings issued as highlighted in red on drawing list, revisions removed and transferred to SMR drawing register.**

1 Brief Description of Work Package

1.1 General Scope of Work

There are 30 burners in the boiler of Trimble County Unit 2, 15 in the front wall and 15 in the rear.

This work pack covers the replacement of the burners and associated work which includes replacement on average of 2 PF pipe spools per burner (this is due to a change in PF entry position into the new burner), renewal of the quarl openings, renewal of the associated seal box, the burner support and cutting away sections of the windbox and furnace external casing to gain access to the 30 repair areas and replacement of the windbox casing and seal box upon completion. The new burners are smaller in diameter than those currently fitted, therefore the furnace quarl opening panels need to be replaced and reduced in size to suit these new burners.

To change each of the furnace quarls there are 72 butt welds associated with each quarl panel in the furnace wall. The burners will be circumferentially welded to the front of the new seal box and also to the outside of the windbox, see drawings for details. The work scope includes, but is not limited to:

1. Removal and disposal of existing 30 burners
2. Removal and disposal of existing 30 burner openings, associated refractory and seal boxes
3. Lifting of 30 new burners
4. Lifting of 30 new seal boxes
5. Lifting and installation of 30 new burner openings
6. Welding of 30 new seal boxes to new burner openings
7. Insulation of burner assemblies through application of refractory in to burner opening seal boxes
8. Erection and alignment of new burners into new openings
9. Replacement of cut away windbox casing
10. Erection of modified PF pipe spools and erection of associated support trimmer steel work

There is an electrical content to this work package and details for this section of work will be found in SMR0158.

1.2 Erection

After establishing safe access to the inside of the windbox and any interaction with workers who may be within the furnace, work can commence with burner removal. The PF pipework will need to be disconnected prior to removal of the burners. There are a number of modifications required to the PF pipework including changes to supports, sling rods and trimmer steelwork in a limited number of instances. It would therefore be prudent to carry out this work while the furnace scaffold is being erected (especially if there are concerns regarding slag removal or dislodging and the interaction

 SITE MODIFICATION REQUEST	Contract No: 07292	Contract Name: Trimble County 2	Serial No. Thompson SMR 0132	Rev B
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this would cause during burner removal and furnace scaffold erection). There are a number of other disconnections to be dealt with prior to removing the burners which will include the core air pipe and bellows unit, PF knife gate isolation valve, oil feed to the burner lance gas feed, compressed air and C&I connections, disconnection of all thermocouple C&I and flame scanner C&I plus compressed air connections. The observation ports front threaded connection and flame monitor mounts are to be removed from the redundant burners and fitted to the new ones. The compressed air connections to the observation ports will also need to be disconnected. The PF pipework will need to be locked into position (including the first 2 spring supports and any additional spring support which requires modification) prior to disconnection from the burner as the system is supported on constant load springs. This is especially important as each PF pipe run will also be disconnected local to the mills to allow a replacement control orifice to be installed.

Several PF pipe spools are to be modified or replaced during the outage to change their entry into the burners from radial to tangential. These spools will need to be removed and lifted down from the boiler building where they will be collected by others and transported to an off-site fabricator's works where the modifications will be carried out.

The scope of this work package encompasses transportation of PF pipework around site but does not include transportation off-site and modification of the pipe spools. All pipe spools requiring modification will be free issued to the chosen fabricator (CL Smith). Details of the modified pipes are shown in arrangement drawings 06350/B250/34300/9005 to 06350/B250/34300/9034.

As this section of the work progresses, the furnace internal scaffold will be erected. The possibility of internal slagging of the burners should be taken into account and adequate measures taken in order to the safety of personnel building the scaffold.

To allow access into the furnace wall from the windbox side, removal of the existing seal box is required along with the adjacent section of the windbox casing. A new section of windbox casing plus a new seal box will be supplied therefore the old material is to be scrapped. Details of the new seal box are shown in drawing 06350/B250/34715/0151. It is however imperative that the section being removed is to the correct dimensions to accept the new casing section. There is a small amount of insulation between the windbox and the furnace wall which will require removal and replacement during the rebuild.

With the burner, tertiary liner, casing sections and seal box removed, the furnace quarl area will be accessible to allow the furnace tubes to be marked up in readiness for removal of the quarl. Cutting, prepping and welding of the furnace tubes will only be carried out by personnel who have undergone the correct training and familiarisation in the test rig, as well as having the correct qualifications. The existing quarl area will be marked for removal from the furnace side using a jig frame that will be supplied by Doosan Babcock. This frame will be accurately positioned firstly on the new panel, then onto the inside furnace wall to ensure the cut / butt weld positions are correct and that the new quarl opening is located in its correct position. It is imperative that the quarl is removed in a manner which will allow the existing tube ends to be weld prep' d to the exact dimensional requirements thereby allowing the new quarl to fit exactly. The new quarls are being supplied already prepared and to the exact dimensional requirements. It will be necessary to remove all end caps and VCI's (Volatile Corrosion Inhibitors) from within the tubes prior to welding. Once removed the existing quarl panel will be rigged and removed from inside the furnace, then out through the ash hopper.

The membrane attached to the existing furnace tubes is to be cut back a distance of approximately 60 mm (2 3/8") from the tube ends. The existing tubes are to be weld prep' d back to pre-set back marks and dimensional checks carried out prior to offering the new quarl into position. It is essential that tube ends (existing and new), are capped whenever they are not being worked upon and that cleanliness within the tube bores is kept to a high level. Ingress of foreign materials is not acceptable.

With the existing tube ends prepared to length, deposits removed from the tube bores and tube O/D's cleaned back to a bare, bright metal surface and visually inspected, the new quarl panel is to be offered up into position. Any minor adjustment should then take place to allow the quarl to be fitted into position and the 72 tube butt welds set for welding. Welding of these tubes can only commence

 Doosan Babcock Energy SITE MODIFICATION REQUEST	Contract No: 07292	Contract Name: Trimble County 2	Serial No. Thompson SMR 0132	Rev B
	Date: 03 December 2013		Raised By: Steve Hammond	

after it is deemed that butt welding of all 72 tubes is achievable. Upon completion of welding, the required NDE is to be carried out. Radiographic inspection is the preferred NDE process.

When each panel has been welded and associated NDE work has been completed, new membrane pieces will need to be welded into position in the butt weld areas. The gap in the membrane as a result of the work will be approximately 120 mm in length. Membrane pieces will be supplied pre-cut by Doosan Babcock to lengths of approximately 250 mm (10"). This is effectively twice the length required and it will be necessary to cut these membrane pieces to the right length prior to fitment. It should be noted that each membrane piece supplied is to be used for completing 2 gaps i.e. the 120mm off cut membrane piece should not be discarded. The membrane gap detail is shown in drawing 06350/B250/31100/0012; see 'Tube Welding Detail'. The membrane pieces are item 11 on this drawing.

The new burner quarls will be supplied with the seal box mounting ring already fitted and welded into position (see drawing 06350/B250/31100/0012 – Arrangement of Replacement Burner Throat, item 3). The seal box is to be welded to this ring but not until the burner is fitted into its final position to ensure that the burner is mounted centrally to the quarl opening.

With all pressure part welding completed (including attachments), the burner can be fitted into position. Burner orientation with respect to the PF pipe entry angle is detailed in drawings 68-31940-1 to 68-31940-4.

The burner seal box is to be rigged into position prior to fitting the burner. The burner is to be supported at the front and the rear and drawn into the opening utilising the existing overhead beam. As the front of the burner enters the windbox, the rigging equipment and load is to be transferred to the beam within the windbox which is directly above the burner's final position. Local strengthening may need to be carried out on this beam to allow it to take the weight during fitting. If strengthening is required, it will be necessary to ensure that this has been carried out prior to fitting the burners.

When each burner has been inserted into the wind-box opening, it is ready to be adjusted into its final location. This adjustment is carried out in both the vertical and horizontal planes. Horizontal adjustment (the insertion depth of the burner) is carried out utilising the sleeve length of the welded joint (the sleeve joint will be left un-welded for erection purposes) between the burner and the windbox outer sleeve. The interface between the burner and the burner quarl is shown in drawing D68-31941. The distance from the tip of the burner to the centre line of the furnace side wall tubes is the controlling dimension for the burner insertion length. Vertical adjustment of the burner is carried out utilising the inboard hanger rod which is located within the windbox which fits between the overhead channel (this is also used to support the burner during erection) and the attachment lug on the burner. Drawing D68-31941 shows the attachment lug, drawings 06350/B250/34715/0010 to 06350/B250/34715/0012 show the windbox arrangement including details of the overhead channel. The adjustment in the vertical plane is therefore by virtue of adjustment to the rod length of the internal support to ensure the burner tip is fitted centrally to the quarl opening. Once the burner is in its final position the seal box can be welded into position onto the location ring. Details of the seal box are shown in drawing 06350/B250/34715/0122. The external weld between the windbox outer casing penetration sleeve and the burner front ring can also be made. Once the burner is set to its final position, the welding is to be completed and all bolted joints correctly tightened, followed by removal of the rigging equipment.

With the seal box fitted the refractory can commence. On the burners refractory is not fitted from the furnace side, it is fitted through the 2 openings in the seal box only – see drawing 06350/B250/34715/0122. With the refractory fitted, the final section of work within the windbox is to refit the insulation between the furnace tubes and windbox inner casing and then the section of inner windbox casing. This casing is supplied in 2 halves and must be fully seal welded into position. See drawing 06350/B250/34715/0151.

The modified PF pipework will have been returned to site and is to be fitted and bolted back into position, the constant load supports de-gagged and set to the cold position - Note, there are a number of adjustments from the original settings, ensure that each spring is fitted and set in accordance to the new instruction

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	Date: 03 December 2013		Raised By: Steve Hammond	

Due to the different configuration of the PF inlet on the new burner, the PF gate valves will need to be orientated to ensure they are not fouling either in the cold or hot position and that they are operable. To achieve this, it may be necessary to modify the existing burner gallery floor and handrails. Details of the knife gate valve are shown in drawing 06350/CSEQ/30000/1008. The new burners are also shorter and smaller in diameter, therefore a safety survey will need to take place to ensure all floor openings and handrails meet the safety requirements and also allow hot to cold movement of the plant.

At this stage the remaining ancillary equipment can be fitted to the burners.

1.3 Post Outage / Non Critical Work

Modifications to floor gratings and safety handrails, ensuring temporary safety barriers remain in place until this work is complete.

The existing burners are to be dismantled to allow removal to segregated scrap upon completion of the work.

1.4 Work Access Systems

If required, conventional scaffold will be fitted to the windbox side. A design access system is to be fitted within the furnace which will have integral lifting points.

There are lifting beams fitted directly above each burner, these beams allow the burners to be withdrawn from the windbox. Additional temporary lifting and transportation trollies will be needed to transport the equipment out of and into the building.

1.5 Tools & Equipment

All construction equipment, assembly tools and lifting systems required to execute the work package are to be provided by the CONTRACTOR.

1.6 Quality Management, Acceptance Test and Inspection

1.6.1 Quality Assurance

The contractor shall operate a quality management system that meets US and Kentucky State accreditation including any subcontractors they employ.

1.6.2 Quality Control

The contractor shall determine the scope of inspection and testing requirements according to the US and Kentucky State applicable codes, unless otherwise advised by the ORDERER.

1.7 Bill of Quantities

All materials associated with this section of the work will be free issue, this includes fasteners and gaskets.

Thompson

From: Straight, Scott(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=SCOTTSTRAIGHT)
To: Voyles, John; Bowling, Ralph
CC: Thompson, Paul
BCC:
Subject: FW: Nighth shift report
Sent: 02/18/2014 07:23:53 AM -0500 (EST)
Attachments: TC #2 2014 Spring outage daily report.docx;

Gents,

I don't plan to send you these daily on TC2 burner work, but I wanted to send this to you so you know what PE Project Coordinators do each day, each shift on every project that PE manages. These come in handy at times to refute contractor claims, as well as document the history of the projects.

Scott

From: Harris, Gary
Sent: Tuesday, February 18, 2014 6:25 AM
To: Straight, Scott
Cc: Westcoat, Charles; Hance, Chuck; Anderson, Dave (Trimble County); Gilliland, Dave; Wilson, Gregory; Turner, Haley; Joyce, Jeff; Withrow, Jimmy; Lipp, Joan; Byrd, Larry; Slaughter, Mitch; Rabe, Phil
Subject: Nighth shift report



**PROJECT ENGINEERING DEPARTMENT
“DAILY CONSTRUCTION REPORT”
NIGHT SHIFT**

LG&E KU PROJECT COORDINATORS: Gary Harris, Chuck Wescoat	DATE: Tuesday 2/18/14
CONTRACTOR ON SITE: Bechtel /Southeast Doosan /Petrochem	SUPERVISORS NAME; Eric Moore
PROJECT NAME: TC Unit 2Spring Outage Original Start Date 02/01- 5/18 Actual Start Date 02/08- 5/25	NIGHT SHIFT HOURS 1700 to 0715
WEATHER	
<u>Temperature</u>	<u>Precipitation</u>
<i>High:</i> 36	<i>Amount:</i> NTR
<i>Low:</i> 31	<i>Time Beginning:</i>
<i>Wind:</i> Clam	<i>Time Ending:</i>
<i>Other:</i> Clear	<i>Type (Rain, Snow, Sleet):</i>

MAJOR CONSTRUCTION ACTIVITIES OF THE DAY

TC Unit 2 Burners

~ Southeast boiler- Work on various burner decks hanging rigging, removing the pulled burners from the plant. All 49 pc. of coal conduit has been pulled and ready to be shipped out to be modified for new burners.

~ Southeast boiler –Demo work to the OFA ductwork, cutting it out in small sections for removal. Removing duct work and dampers boxes on the NE, NW, SE and SW corners and started installing new duct work on NE and SE corner.

~ Petrochem- Installing scaffold in various locations.

FRONT WALL

BURNER	Burner Removed	Face Plate Secondary air barrel Removed	Air Register Removed				Re-Installed
C1	2/15	2/17	2/16				
C2	2/15	2/17	2/16				
C3	2/15	2/16	2/16				
C4	2/15	2/16	2/16				
C5	2/15	2/16	2/16				
D1	2/15	2/17	2/17				
D2	2/15	2/17	2/17				
D3	2/15	2/15	2/17				
D4	2/15	2/17	2/17				
D5	2/15	2/17	2/17				
B1	2/16						
B2	2/16						
B3	2/10						
B4	2/16						
B5	2/16						

REAR WALL

BURNER	Burner Removed	Face Plate Secondary air barrel Removed	Air Register Removed				Re-Installed
F1	2/15	2/16	2/17				
F2	2/15	2/16	2/17				
F3	2/15	2/16	2/17				
F4	2/15	2/16	2/17				
F5	2/16	2/16	2/17				
A1	2/16						
A2	2/16						
A3	2/10						
A4	2/16						
A5	2/16						
E1	2/17						
E2	2/17						
E3	2/17						
E4	2/17						
E5	2/17						

Work Quality/Observations/Concerns:

-

Safety /Environmental Issue:

- General housekeeping on site is being well maintained and on going.

Other:

- Meeting with Outage Coordinator Dave Anderson, Outage Project Engineering Meeting 2/18/14 @0645-0715

Contractors on Site

Bechtel- 1
Southeast Boiler- 58
Doosan- 2
Petrochem- 15

From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Bowling, Ralph
CC:
BCC:
Subject: FW: TC2 2014 Outage Furnace Detail
Sent: 02/18/2014 10:36:26 AM -0500 (EST)
Attachments: TC2 2014 Outage_Furnace Detail.pdf;

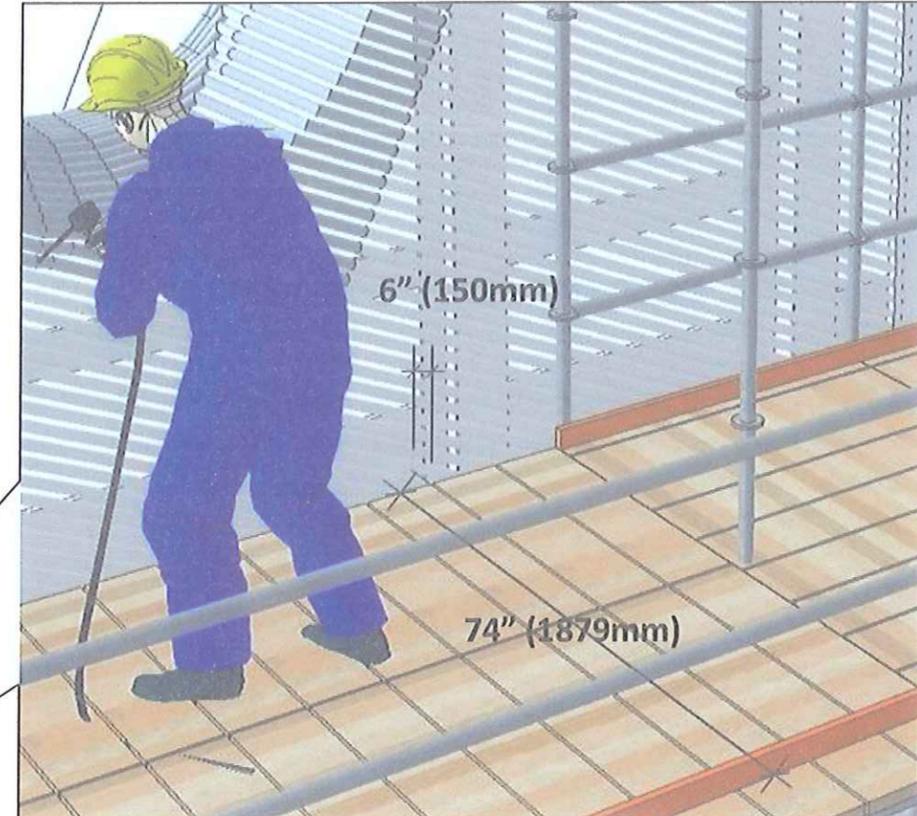
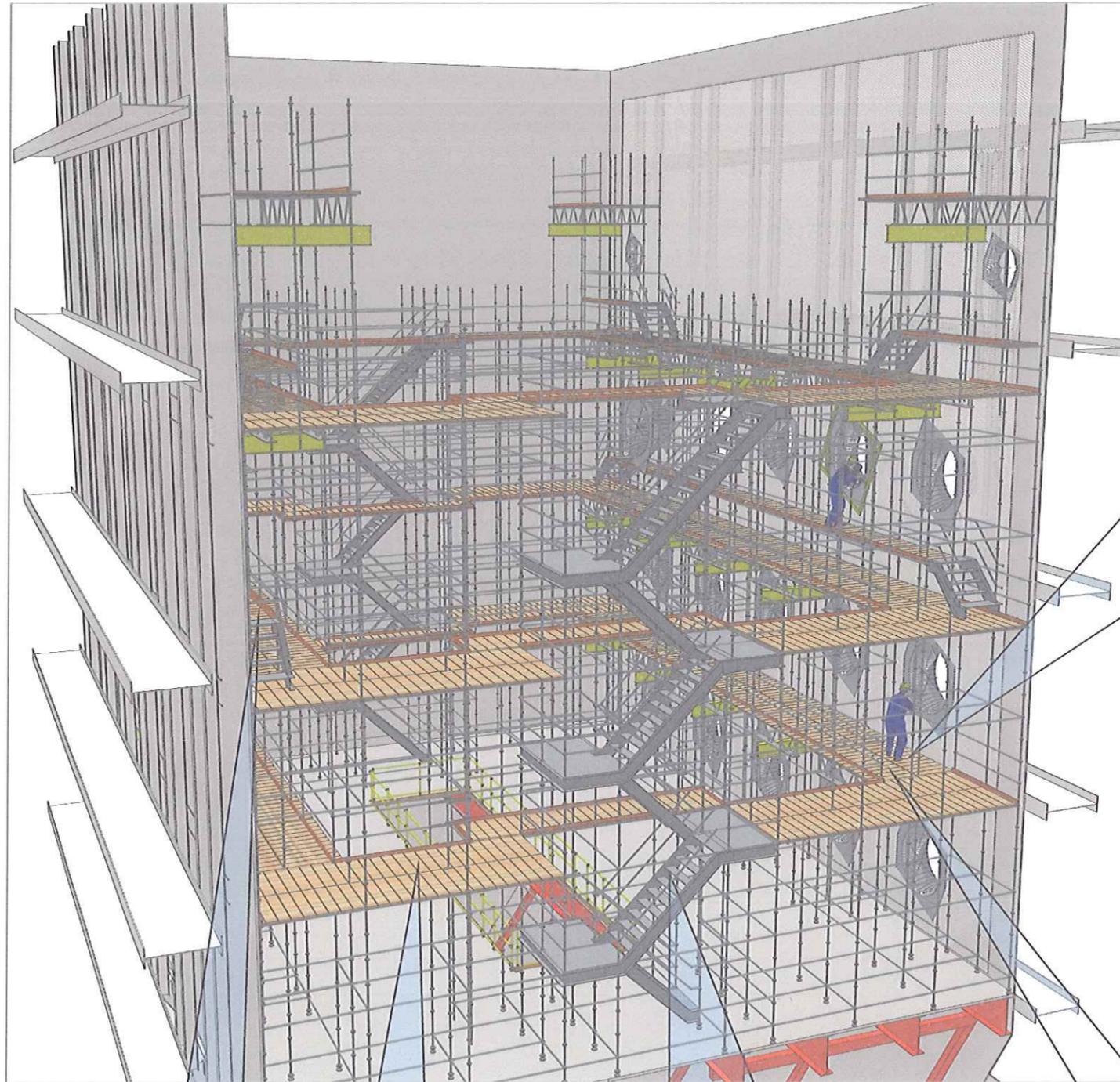
FYI

Trimble 2 Outage scaffold burner info

From: Faith, Bobbie
Sent: Monday, February 10, 2014 4:22 PM
To: Joyce, Jeff
Subject: TC2 2014 Outage Furnace Detail

Bobbie Faith

Assistant to Jeff Joyce, General Manager
Louisville Gas & Electric
Trimble County Generating Station
487 Corn Creek Road
Bedford, Kentucky 40006
[502-627-6283](tel:502-627-6283)
bobbie.faith@lge-ku.com



Every effort has been made to utilise a 'real' world Scaffold System to embrace the component nature of scaffold erection and suitability to the requirements of the Scope of Work. The Ring System Scaffold has been chosen as a good international example utilising both metric and imperial measurements as standard without requiring obscure metric to imperial conversions.

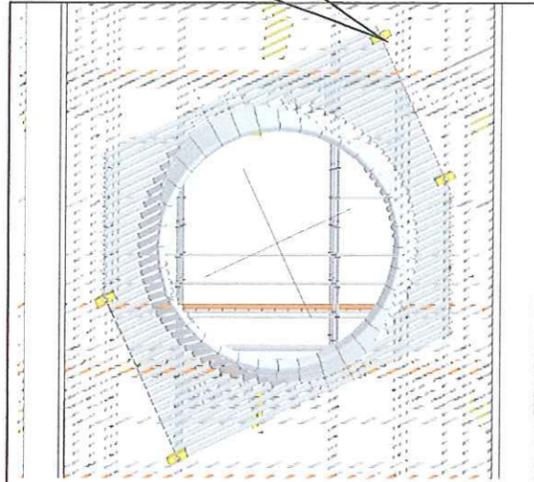
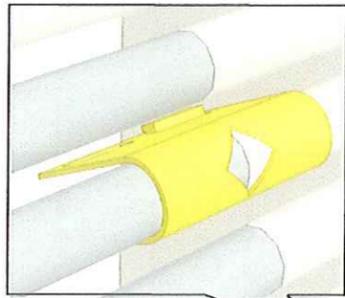
Workface hop up; depicting additional vertical access where necessary.

Access Scaffold; linked to the Stair Tower providing suitable access to the workface

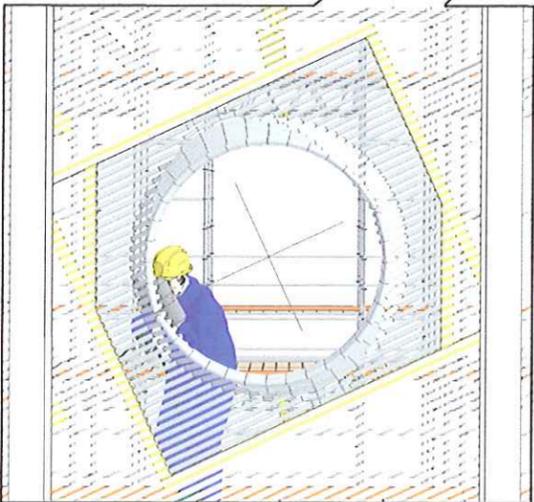
Stair Tower; utilising a SketchUp Plugin for Stair Creation – these should not be considered the engineered final article and instead only depict a suggested access and egress location.

Workface + Lifting Rig Scaffold; incorporating an overhead lifting beam under slung on the lattice girders and the next level scaffold deck.

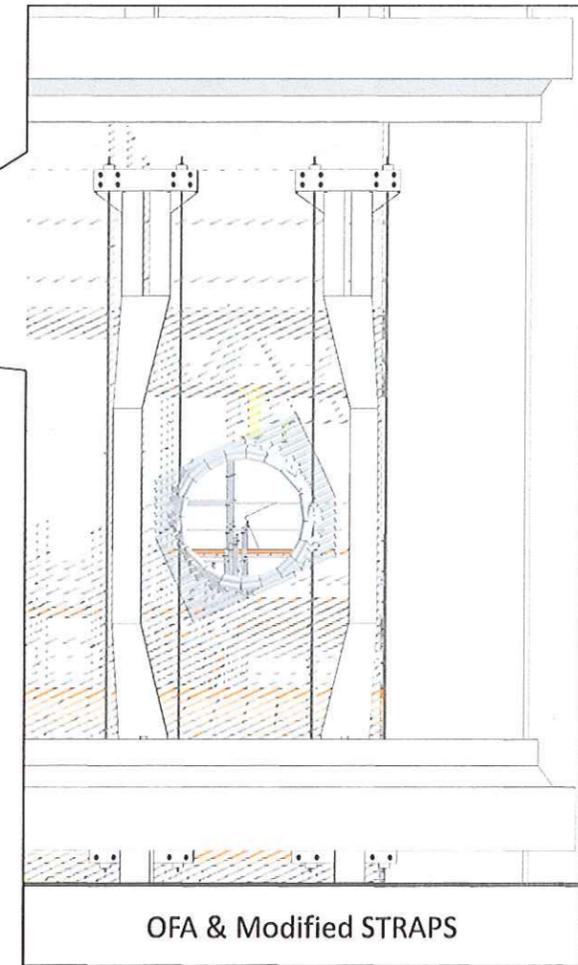
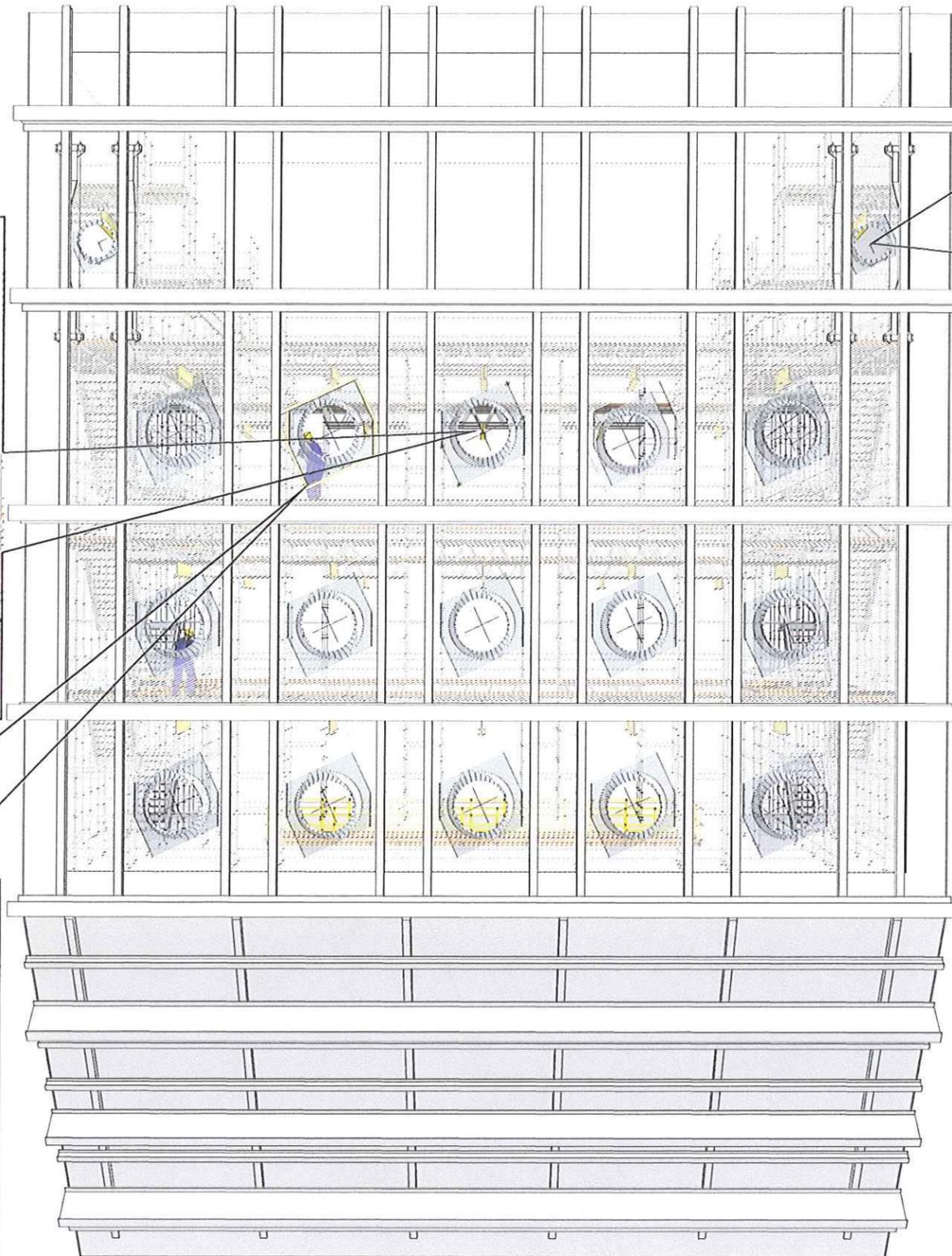
07292A - Trimble County 2 2014 Outage Lower Furnace Scaffold detail	
CONSTRUCTION PROPOSAL SUPPORT ILLUSTRATION	DATE: 02/09/2013
DRAWING TITLE: Lower Furnace_V00.Skp	
DRAWING No.	Various CAD Files



Band Clamps (In Position)
 Locating Panel Insert

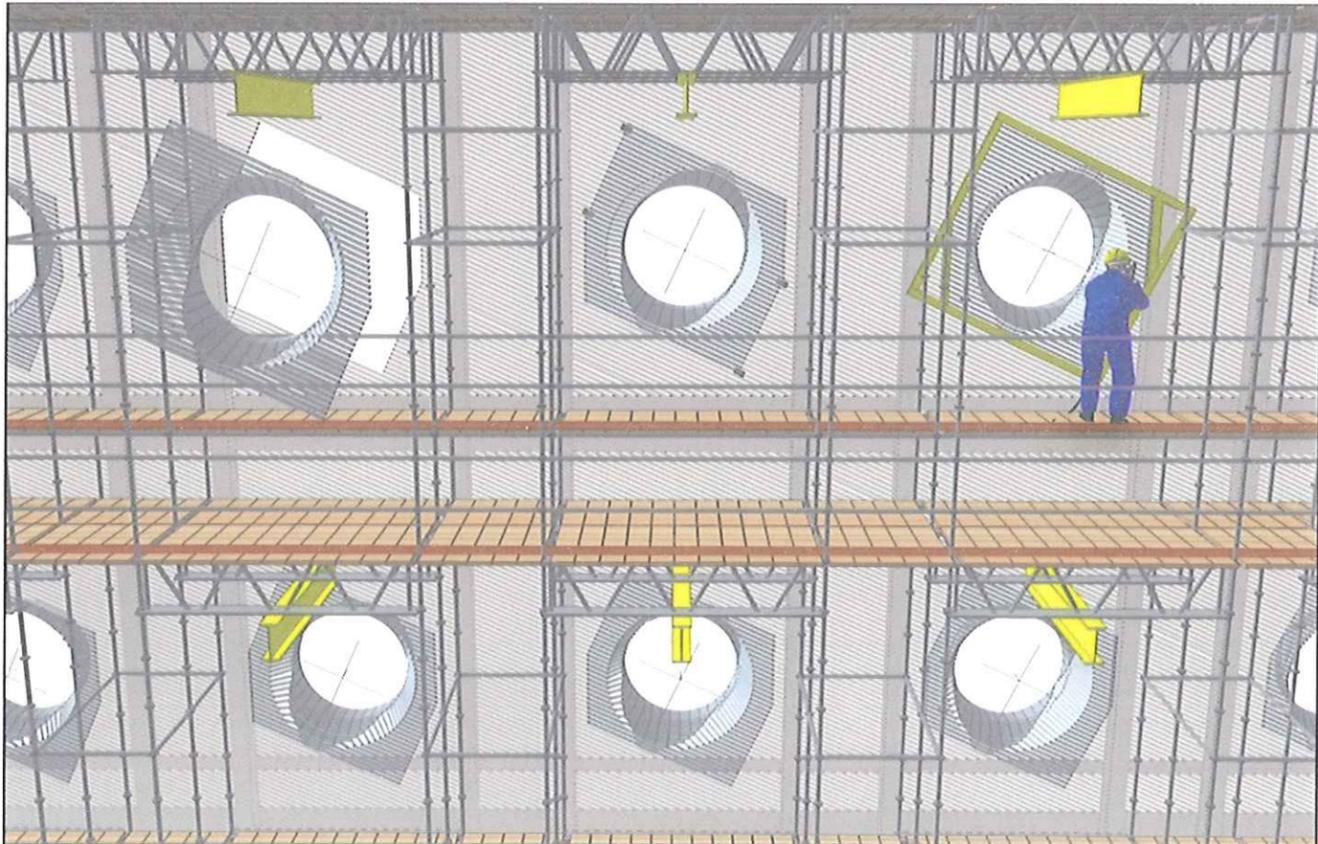
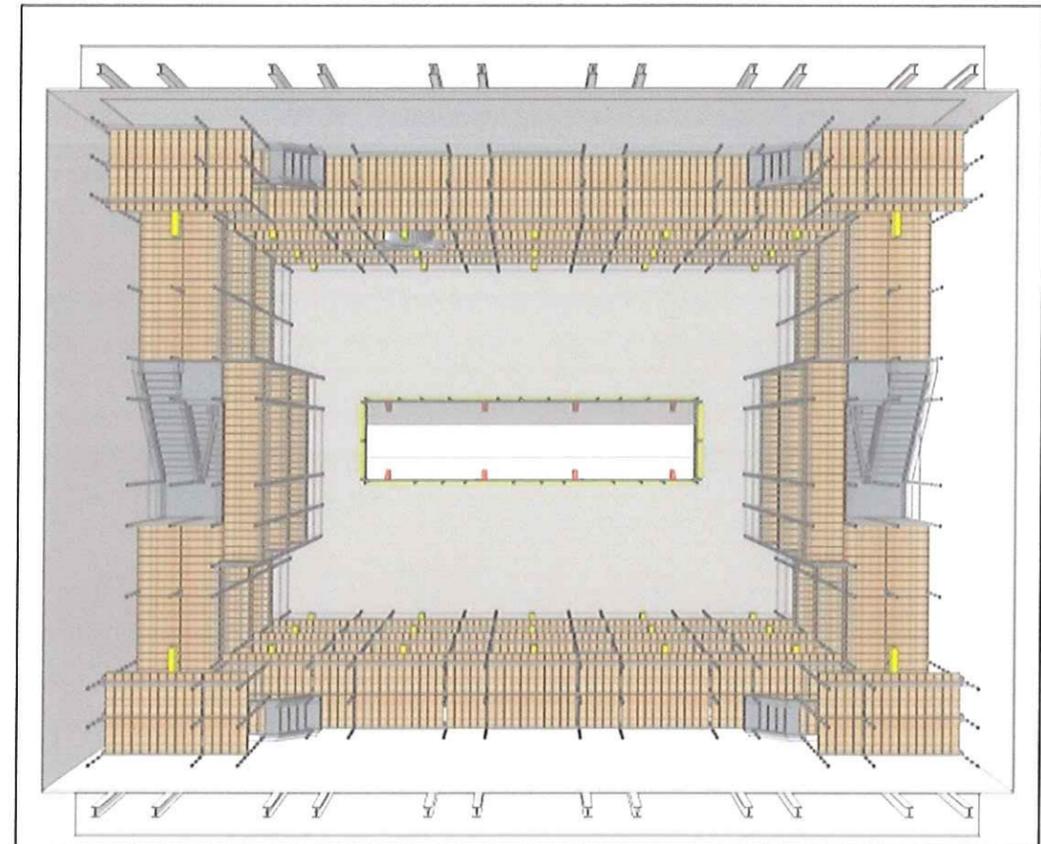
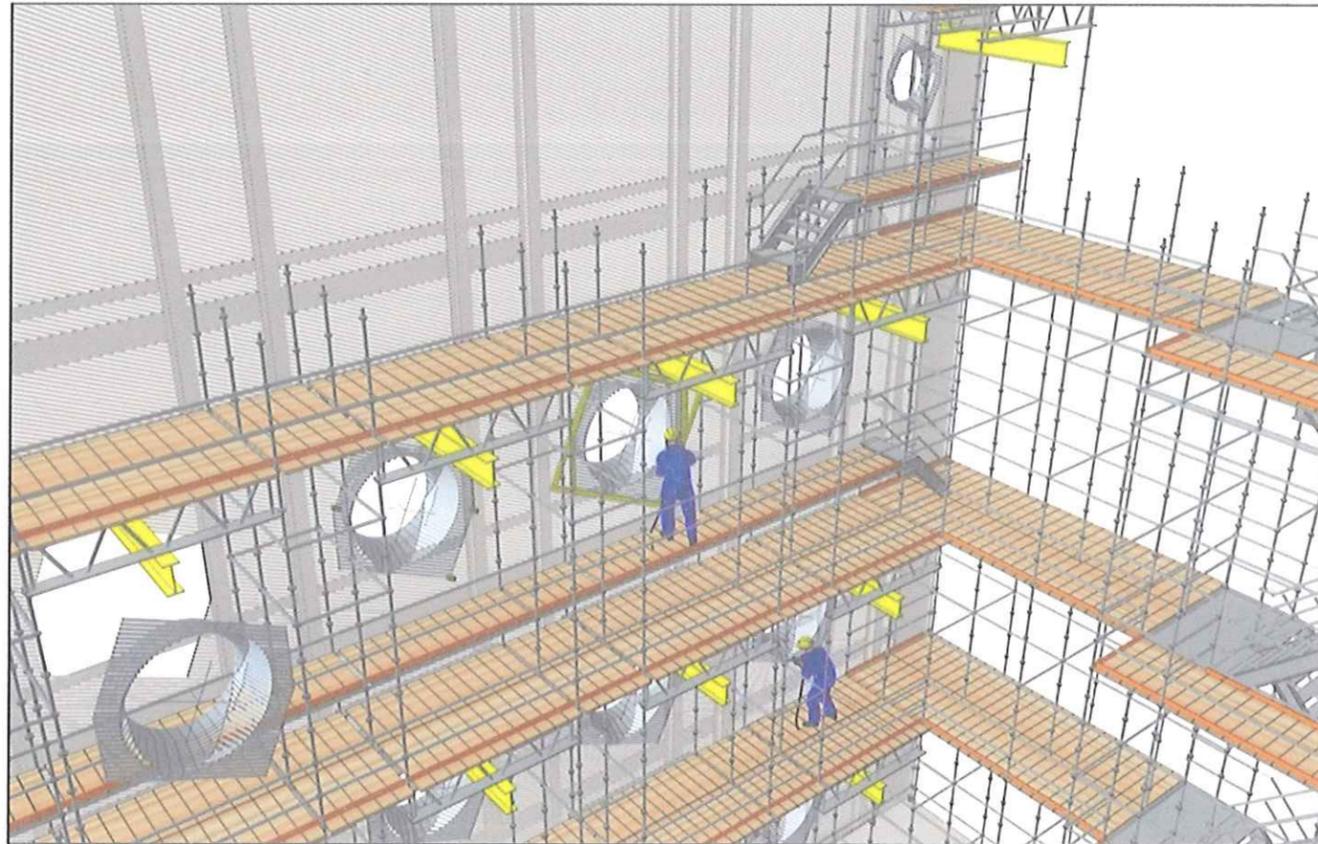


Marking Out Frame



OFA & Modified STRAPS

07292A - Trimble County 2 2014 Outage	
Lower Furnace Detail	
CONSTRUCTION PROPOSAL SUPPORT ILLUSTRATION	DATE: 13/09/2013
DRAWING TITLE: Lower Furnace_V00.skp	
DRAWING No. Various CAD Files	



07292A - Trimble County 2 2014 Outage Additional Furnace Views	
CONSTRUCTION PROPOSAL SUPPORT ILLUSTRATION	DATE: 30/10/2013
DRAWING TITLE: Lower Furnace_V00.skp	
DRAWING No. Various CAD Files	

Thompson

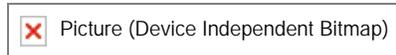
From: Carter, Bud(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=BUDCARTER)
To: Bowling, Ralph; Dowd, Deborah; Leitner, George; Welsh, Elaine; Wilson, Stuart; Fraley, Jeffrey; Hudson, Rusty; Joyce, Jeff; Kirkland, Mike; Martin, Charlie; Schram, Chuck; Spaulding, Jeffrey; Troost, Tom; Tummonds, David; Turner, Steven; Voyles, John; Wang, Chung-Hsiao; Wilson, Dan; Burns, Kyle; Sanders, Matt; Buckner, Mike; Neal, Susan; Saunders, Eileen; Crutcher, Tom; Limberg, Brian; Billiter, Delbert; Wright, Paul
CC: Power Generation Performance
BCC:
Subject: Interim Performance Report
Sent: 02/17/2014 04:14:53 PM -0500 (EST)
Attachments: Interim Performance Report _ FEBRUARY 1st-16th 2014.docx; Interim _ EAF and EFOR Report _ For FEBRUARY 1st - 16th.xlsx; Picture (Device Independent Bitmap).bmp; Picture (Device Independent Bitmap).bmp;

February 1st through 16th's interim results are summarized below ...

... with additional details available in the attached files ...

- February's ... 1,895,645 mwh MTD generation is ... 16.8% (272,347 mwh) above and ... favorable to budget.
 - MTD steam generation is 1,774,4096 ... 215,029 MWHs (13.8%) above budget.
 - MTD CT generation is 103,459 ... 48,949 MWHs (89.8%) above budget.
 - MTD hydro generation is 17,777 ... 8,369 MWHs (89.0%) above budget.
 - MTD native load is 1,809,853 ... 191,871 MWHs (11.9%) above budget ... while ...
 - MTD HDD's are at 599 HDDs ... 128 HDDs (27.3%) above budget, and
 - MTD CDD's are at 0 CDDs ... 0 CDDs (0.0%) above budget.
 - MTD's purchases are 51.071 ... 2,616 MWHs (5.4%) above budget.
 - February's ... 2.13% MTD EFOR_(stm) is ... 58.6% (3.0% pts.) below and ... favorable to budget.
 - *There is one (1) planned outage (TC 2) ... that will reduce EFOR's denominator ... allowing fewer forced outage hours to create higher EFORs.*
 - This is 64.8% (3.9 % pts.) below the 6.06% average EFOR_(stm) for February ... for the last five (2009-2013) years.
 - Four (4) of the top ten February MTD... 40% ... megawatts lost events are BTF related,
-  Picture (Device Independent Bitmap)
- February's ... 4.78% MTD EUOR_(stm) is ... 34.5% (2.5% pts.) below and ... favorable to budget.
 - February's ... 96.3% commercial availability (*the simple calc. version*) is favorable to target... with ...
 - Commercial Availability is tracking MTD EAF ... as all steam unit ... availabilities, forecast generation stack costs, and forecast transmission costs are clearing the forecast market price ... no units have been on planned outage ... no coal units have been on planned outage extensions.
 - Four (4) units (22% of all steam units) have MTD EAFs that are less than 90%. They are ...

- CR 5 at 84.0% (*Reheater Tube Leaks & ESP DCS Issues*),
- GR 4 at 88.9% (*Superheater Tube Leaks*),
- MC 2 at 84.0% (*Superheater Tube Leaks*).
- TC 2 at 44.5% (*Planned Outage*).
- February's ... unplanned unavailability steam unit performance has met budget thirteen (13) ... 81% ... of February's sixteen (16) MTD days.
- February's daily unavailability ... has averaged 3.9% ... 46.6% (3.4 % pts.) below and ... favorable to budget ...



The attached word file contains Generation's Interim Report ... for February 1st - 16th ...

<<Interim Performance Report _ FEBRUARY 1st-16th 2014.docx>>

And ... this excel file contains February 1st - 16th's unit specific EAFs, EFORs, and GADS events ...

<<Interim _ EAF and EFOR Report _ For FEBRUARY 1st - 16th.xlsx>>

A copy of this e-mail and the attached files will be saved on Sharepoint ...

Bud Carter

Generation System Planning
6th Floor

LG&E Center
LG&E and KU Energy LLC

502-627-2707

bud.carter@lge-ku.com

Produced as Native

Original File Name: Interim _ EAF and EFOR Report _ For FEBRUARY 1st - 16th.xlsx

Stored File Name: OpenText00148211.xlsx

From: Wyne, Lindsey(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=WYNE, LINDSEYFC1)
To: Lewis, Donna
CC: Bowling, Ralph; Byrd, Larry; Clark, Janice; Cosby, David; Wilson, Dan; Gilliland, Dave; Voyles, John; Joyce, Jeff; Hincker, Loren; Kirkland, Mike; Ransdell, Charles; Turner, Steven; Rabe, Phil
BCC:
Subject: TC Weekly Report - Week Ending 2 16 14
Sent: 02/17/2014 03:17:43 PM -0500 (EST)
Attachments: Week ending 2 16 14.docx;

Lindsey Wyne

Administrative Assistant

Louisville Gas & Electric

Trimble County Generating Station

487 Corn Creek Road

Bedford, Kentucky 40006

Phone: 502.627.6220

Fax: 502.627.6226

Lindsey.Wyne@lge-ku.com

Thompson

From: Neal, Susan(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=E005066)
To: Bowling, Ralph
CC: Hudson, Rusty
BCC:
Subject: 2014 BP plant written plans
Sent: 04/08/2014 03:44:42 PM -0400 (EDT)
Attachments: 2014 Business Plan_Ghent.pdf; 2014 Operating Plan - Brown Final 1-30-14.doc; 2014-2018 BusinessPlanTrimble CountyFinal 2013.docx; CR Operating Plan 2014-2018 FINAL.pdf; GR 2014 Operating Plan.docx; MC 2014-2018 Operating Plan (V3).doc; Ongoing Tyrone Maintenance and Monitoring Issues.docx;

Ralph

Attached are the plant written plans covering the 2014 Business plan. Paul has inquired to Rusty as to who was still preparing written plans in the COO organization and we are the only group still doing them. I believe Paul may bring this up in a future staff meeting. If he does bring it up and wants to pursue the rest of his organization preparing plans, we probably should develop a consistent format among all the COO groups. If he doesn't pursue it and we continue with Generation developing written plans, I would like to work with the management team to brainstorm on how we can continue to make this document meaningful.

<<2014 Business Plan_Ghent.pdf>> <<2014 Operating Plan - Brown Final 1-30-14.doc>> <<Ongoing Tyrone Maintenance and Monitoring Issues.docx>> <<2014-2018 BusinessPlanTrimble CountyFinal 2013.docx>> <<CR Operating Plan 2014-2018 FINAL.pdf>> <<GR 2014 Operating Plan.docx>> <<MC 2014-2018 Operating Plan (V3).doc>>

Thank you,
Susan Neal
Manager, Budgeting and Forecasting – Gen Ops
220 W. Main St.
Louisville, KY 40202
(502) 627-3447 W

(502) 974-3326 C
susan.neal@lge-ku.com

Thompson

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Afiyet, Hamit; Allen, Ross; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Coomer, Timothy; Craven, David; Della Rocco, Thomas; Dorwart, Jordan; Dukes, Christopher; Dunlap, Gary; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hannon, Hannah; Hayes, Christopher; Henderson, Trent; Hudson, Glen; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Menezes, Tomas; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Osgood, Scott; Park, Marci; Parson, Jonathan; Payne, Nicholas; Phelps, Grant; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sanders, Matt; Schultz, Joseph; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Stivers, Clinton; Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan; Winburn, Christopher; Afiyet, Hamit; Allen, Ross; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Della Rocco, Thomas; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Schultz, Joseph; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan
CC:
BCC:
Subject: Outage Work Order Reports
Sent: 06/25/2014 10:40:53 AM -0400 (EDT)
Attachments: tc1wkd report.pdf; tc1 not tc1wkd report.pdf; tc2wkd report.pdf; tc2 not tc2wkd report.pdf; tc0 all outage work orders including labor type.pdf;

All,

Please review the attached work order reports. Broken down as follows:

- TC000- Common area outage work orders
- TC1WKD- TC1 Weekend or short outage work orders
- Not TC1WKD- TC1 All outage work orders other than weekend outage work orders

- TC2WKD- TC2 Weekend or short outage work orders
- Not TC2WKD- TC2 All outage work orders other than weekend outage work orders

I have created Outage ID's for TC1 & TC2 non weekend outage work orders. These are based on the "major" planned maintenance outage years:

- TC1F15- Trimble County Unit 1 Fall Outage 2015
- TC1F17- Trimble County Unit 1 Fall Outage 2017
- TC1F19- Trimble County Unit 1 Fall Outage 2019
- TC1F21- Trimble County Unit 1 Fall Outage 2021
- TC1F23- Trimble County Unit 1 Fall Outage 2023

- TC2S16- Trimble County Unit 2 Spring Outage 2016
- TC2S18- Trimble County Unit 2 Spring Outage 2018
- TC2S20- Trimble County Unit 2 Spring Outage 2020
- TC2S22- Trimble County Unit 2 Spring Outage 2022
- TC2S24- Trimble County Unit 2 Spring Outage 2024

Please review attachments and close out completed work orders, make sure in proper "status" for example; "WOUT", and assign appropriate outage id.

I will once again start sending out the weekend outage work order lists every Friday. I will also have hard copies located in the planning office area.

I will be setting up meetings with individuals or small groups to make sure our lists are updated and accurate including budget estimates. I will hold off on these meetings for a little while to give planners time to clean up outage work order lists.

Thanks,

David W. Anderson

Trimble County Outage Coordinator

Tel. 502-627-6313

Fax 502-217-2199

email: dave.anderson@lge-ku.com

NOT TC2WKD OUTAGE WORK ORDERS

Start Date: 1/1/2007

End Date: 6/25/2014

TCCONT		Rick Boone/ TC Control Systems		
6199341	BMS mill logic - download and test new mill inert sequence logic	WOUT	OUTAGE	TC2S12
6298033	Condensate Polisher HMI; New Alarms No Longer Cause "Alarms" Tab to Flash Yellow	WOUT	OUTAGE	TC2S12

TCENGCHEM		Chemical Engineering Turner & Waller		
6535720	TC2 PJFF bag replacements.	WOUT	OUTAGE	TC2S14

TCMC		Bullock, Sam TRIMBLE COUNTY CONTRACTOR -- MECHANICAL		
6538227	PM-ANNUAL - & - 2C DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6540330	TC2 Stack Inspection Spring 2014. And repairs.	SCH	OUTAGE	TC2S14
6538226	PM-ANNUAL - & - 2B DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6538225	PM-ANNUAL - & - 2A DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6540329	TC2 Boiler Deslag Spring 2014.	WCOMP	OUTAGE	TC2S14
6532422	While SEB is on site for the Unit 2 outage, move spare BCWP (Unit 2) to landing below Pump (See S.	WSCH	ROUTINE	TC2S14

TCMSL2		POWELL,RICHARD - MAINTENANCE LEADER		
6541707	Please inspect the 2C hydrojet seal air motor during outage. Makes High pitched winding sound.	RMAT	OUTAGE	TC2S14
6536046	TC-2 Bottom Ash Submerged Scraper Conveyer Chain Tensioner west Press regulator needs adjusted.	SCH	OUTAGE	TC2S14
6530364	Inspect the TC2 Sootblower control valve. 2-SB-CV-050	SCH	OUTAGE	TC2S14
6542582	I/E support for Bechtel sootblower piping upgrade.	SCH	OUTAGE	TC2S14
6462893	2CWFT160B 2B CTWR Blowdown flowrate is reading bad quality.	SCH	ROUTINE	TC2S14
6547040	Investigate issues with TC2 ID fan hub heaters.	SCH	OUTAGE	TC2S14
6473413	Work with Dave Dukes on establishing TC2 instrument database.	SCH	ROUTINE	TC2S14
6531897	Work order to cover temporary power on TC2S14 outage.	SCH	7DAYS	TC2S14
6439451	TC2 7KV and 14KV breakers need to have the manual close	SCH	OUTAGE	TC2S14
6530230	PM- SEMI-ANNUAL - & - 2 SCR AMMONIA DETECTOR CALIBRATION	SCH	OUTAGE	TC2S14
6547030	The TC2 A SCR dP pressure tap location needs to be changed.	SCH	OUTAGE	TC2S14
6530233	PM- SEMI-ANNUAL - & - 2 SCR AMMONIA TANK LEVEL CHECK	SCH	ROUTINE	TC2S14
6428543	Make repairs to the TC2 ESOP panel.	WMAT	OUTAGE	TC2S14
6561535	Rebuild REXROTH Turbine Control Servos	WMAT	ROUTINE	TC2S14
6441278	Modify motor heater circuits on TC2 medium voltage motors.	WOUT	OUTAGE	TC2S14

TCMSL6		SEDAM, DALE, MAINTENANCE LEADER		
6542812	unit2 CC flange busted on 2A PA fan outboard bearing CC flow indicator.	SCH	24HOURS	TC2S14
6538152	extend piping for easy access on TC2 condensate low point drains below grating on mezz under	SCH	OUTAGE	TC2S14
6550578	Clean all Lime injection ports on duct work behind Air Heater.	SCH	OUTAGE	TC2S14

NOT TC2WKD OUTAGE WORK ORDERS

Start Date: 1/1/2007

End Date: 6/25/2014

6491865	The Boiler drains recovery vessel manual level control valves need replaced.	SCH	OUTAGE	TC2S14
6447938	Please Inspect Check Valves on TC2 O2 Injection Skids	WOUT	OUTAGE	TC2S14

TCMSLCC WALCOTT, DANNY - MAINTENANCE LEADER

6524398	INSULATE The 2A, 2B, and 2C CT pump motors need to have an Isol valve	SCH	OUTAGE	TC2S14
6533908	PLEASE PAINT Add back-up line for the Recycle pump mechanical seal water line.	SCH	OUTAGE	TC2S14
6410930	An inspection performed by LG&E, SESS and Bechtel of the WESP water irrigation balancing during the	WOUT	OUTAGE	TC2S14
6548755	TC2 leak at southwest corner away from condenser, steam dump bypass vlv under insulation. Identified	WSCH	OUTAGE	TC2S14

TCMSLENG ELECTRICAL ENGINEERING

6327090	Install full range level indication on unit 2 reaction tank. Provide tank connection/reference point	INPRG	OUTAGE	TC2S14
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TCMSLENGMECH MECHANICAL ENGINEERING

6550579	Repair, cover and make water tight inspection ports on sides of duct work down stream of the Air	INPRG	OUTAGE	TC2S14
6535768	TC2 SCR - Layer 1 Off-site Clean and store - Capital	INPRG	OUTAGE	TC2S14
6532526	TC2 CO Monitor - Mechanical and Electrical Installations - Capital	INPRG	OUTAGE	TC2S14
6522371	Submerged Scraper Conveyer inspection and Mat'l Analysis	SCH	7DAYS	TC2S14
6546799	Replace chain on TC2 SSC.	SCH	OUTAGE	TC2S14
6533751	Install Condensate Polisher outlet valve to allow for routing of TC1 pegging condensate back to TC1	SCH	OUTAGE	TC2S14
6533702	Pretest safety valves and repair valves as needed during outage.	SCH	OUTAGE	TC2S14
6535461	Install basalt tile on TC2 SSC.	WOUT	OUTAGE	TC2S14
6542978	Install refractory on new inspection doors and repair refractory on existing platform doors.	WOUT	OUTAGE	TC2S14
6521228	Purchase and install TC2 inspection doors during the TC2 spring outage.	WOUT	OUTAGE	TC2S14
6535458	TC2 boiler inspections and punchlist repairs resulting from inspections.	WOUT	OUTAGE	TC2S14
6542995	NDE on balancing/mising header welds on TC2. Repair as needed.	WOUT	OUTAGE	TC2S14
6535695	External boiler leak Unit 2 10th landing southwest corner at spiral to vertical transtion zone.	WOUT	OUTAGE	TC2S14
6501870	TC2 Ashpit Refractory--Inspect refractory and make any needed repairs.	WOUT	OUTAGE	TC2S14
6542829	Provide mechanic to assist with biasing damper inspection.	WOUT	OUTAGE	TC2S14
6535456	TC2 Air Heater inspections and repairs.	WOUT	OUTAGE	TC2S14
6414714	Following four (4) events in which a total of nine (9) boiler roof tubes failed, LG&E arranged for m	WSCH	OUTAGE	TC2S14
6533796	TC2 main safety PS904, PSV907 and PSV908 are leaking.	WSCH	OUTAGE	TC2S14

TCOPL3 Hudson, Glenn Trimble Co. Operation Production Leader 3

6493826	TC-2 Air Heater wash on the September 2013 outage	WOUT	OUTAGE	TC2-21
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OUTAGE WORK ORDERS

Start Date: 1/1/2010

Outage ID: TC2WKD

End Date: 6/25/2014

Thompson

TCMSL2**POWELL,RICHARD - MAINTENANCE LEADER**

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6576827	Install gauges on ISO phase bus duct. See Nick Payne	RMAT	OUTAGE	2.00	0.00
6531306	Pull wiring for additional Condenser waterbox thermocouples.	WOUT	OUTAGE	8.00	5,000.00
6576814	TC2 check all terminations on all Bentley Nevada equipment monitoring panels and terminal strips. Pay special attention to terminations for TC2 main Turbine 11Y Cap vibration (2MSTVR134YB.UNIT2@TC2)	WSCH	OUTAGE	2.00	0.00
6580480	2A TDBFP Bently Rack TDI card keeps resetting causing alarm to Operators. Same issue occurs on 2 MDBFP rack. TS&R during outage.	WSCH	OUTAGE	2.00	0.00

TCMSL6**SEDAM, DALE, MAINTENANCE LEADER**

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6554752	Add 2 four inch drain valves to the east side of the S.S.C.	WOUT	OUTAGE	16.00	0.00
6577374	2B TDBFP SUCTION LINE AQUA AMMONIA INJECTION LINE IS LEAKING	WOUT	OUTAGE	6.00	0.00
6577385	MAIN STEAM LINE ISOLATION VALVE 029 BEFORE TDRCV-019B DRAIN VALVE IS LEAKING	WOUT	OUTAGE	12.00	0.00
6577534	2B TDBFP Recirc valve is leaking through. TS/R Located on unit 2 6th landing East wall.	WOUT	OUTAGE	8.00	0.00
6579222	Repair steam leak on pressure tap piping. It is located just above valve 2-BLS-V645C. I think we will need scaffold to complete. We might look at P&ID to see what material and size pipe is so we can order new. I would probably replace elbow while there as well.	WOUT	OUTAGE	5.00	0.00
6580430	Replace WESP zone isolation valves with stainless steel valves. Valves are in warehouse under name Logan Waller and PO 902718. On drawing TC2-M-00006-QWP01 valves are labeled (nine total) 2-QWP-V-004A/B/C 2-QWP-V-005A/B/C 2-QWP-V-006A/B/C Also replace ~12 carbon steel nuts and bolts with stainless steel parts at irrigation header valves inside weather enclosure.	WOUT	OUTAGE	8.00	0.00
6580431	Replace broken lower casing wash nozzles in WESP zone C. Nozzles to be replaced are mostly in lower zones C2 and C3. See Logan Waller for parts.	WOUT	OUTAGE	6.00	0.00
6580413	Replace diaphragm to the B Train Service Inlet Valve OCV-117	WSCH	ROUTINE	6.00	0.00

TCMSLENGMECH**MECHANICAL ENGINEERING**

OUTAGE WORK ORDERS

Start Date: 1/1/2010

Outage ID: TC2WKD

End Date: 6/25/2014

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6575444	Adjust hangers on the TC2 boiler economizer inlet piping at the feedwater flow element 2BLS-FT-105	WOUT	OUTAGE	8.00	0.00

From: Trimble, James T. (Tom)(TrimbleJT@bv.com)
To: Mohn, Laura
CC: Roach, Sandra A; Carlisle, Gary; Melloan, Ricky; Rabe, Phil; Allen, Ross; Trimble, James T. (Tom); Hussey, Ryan J.
BCC:
Subject: RE: 07292 - TC2 - Coen Oil Gun Update
Sent: 06/05/2014 11:45:53 AM -0400 (EDT)
Attachments: 025.JPG; 024.JPG; Modified Swirler with Disc.jpg; 015.JPG;

Laura,

I've added some pictures that I took of the oil gun modifications – see notes below. Please pass these along to persons of your choosing.

Regards,

Tom Trimble, P.E.* | Steam Generation Section, Mechanical Engineer | Energy

Black & Veatch Corporation | 11401 Lamar Avenue, Overland Park, KS 66211 | P5C3

913-458-4354 p | 913-458-4354 f | trimblejt@bv.com

Building a World of Difference.®

*Licensed in Arkansas

From: Hammond, Steve [mailto:steve.hammond@doosan.com]

Sent: Wednesday, June 04, 2014 10:45 AM

To: 'Watkins, Clyde'; 'Phil Rabe'

Cc: 'Christopher Dukes'; 'Gary Carlisle'; 'James Boone'; Trimble, James T. (Tom); 'Jeff Joyce'; 'Jim Craft'; 'Laura Mohn'; 'Mitch Slaughter'; 'Nicholas Payne'; 'Richard Powell'; 'Ricky Melloan'; Roach, Sandra A; 'Timothy Smith (Trimble)'; 'Trent Henderson'; 'Dearman, James'; 'Allen, George K. (Chip)'; 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly (dporeill@bechtel.com)'; McCallum, Neil; Torkington, Ian R; Davidson, Gordon; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Maunder, Kevin; Jones, Gareth; Hough, David C; Mantle, Barry D G; Cartwright, Robert; Smith, Mike; Cahill, Michael; Cameron, Euan; Mackintosh, Alister; Gonese, Jean; Fleming, Ian; London, Alan; Elliott, Robert; Whitehouse, Matthew; Young, Charles E H; Heath, Justin; Farrow, David; Bartlett, Derek; Smith, John (Crawley)

Subject: 07292 - TC2 - Coen Oil Gun Update

Mel / Phil,

Please find following a short report outlining the status of the oil guns, the work carried out, the Coen proposed solution and our assessment of that solution.

Description of Problem

During initial start-up of the unit, the oil igniter combustion was poor and resulted in high levels of opacity. Steps were taken which improved the opacity, but when an attempt was made to introduce coal firing, the oil igniter flames became unstable and ignition was lost. What was emerging was an igniter which was displaying a degree of sensitivity to external factors which was unusual.

Site Actions

When initially trying to light off the oil guns with the unit cold and with cold core air as previously measured per our data sheet we had very smoky flames/furnace. LG&E reduced from 25 to 3 oil guns in service due to the 24 hour emissions limits, tasking Doosan with a game plan to clean up the smoky flames.

We increased cross-over duct pressure from 2.6 INWC design to 5 INWC to increase the core air flows and we also increased SA to windbox which resulted in a marginal improvement re the smoky furnace/stack emissions with no bag house and FGD in operation.

The total SA flow per wind box was 330 kpph; this was stepped up to 410 kpph.

We then noted that once there were 4 oil guns in service in a single wind box that when trying to light off the 5th oil gun the oil

pressure dropped off. To resolve this, the fuel oil pressure control valve was put in manual and the pressure increased.

We then adjusted the oil supply pressure and margins on atomising air. The oil pressure was changed from 75 psi to 65 psi and the atomising air changed from 10/15% differential to 20%, indicated 57 psi to 83 psi at the middle elevations. The adjustments to oil pressure and atomising air resulted in improvements to the smoky flames and following this LG&E permitted firing with multiple oil guns.

Whilst resolving the issue with the smoky flames, we still had issues with enough core air so we initially modified one swirler B1 on 23rd May, removing 8 blades and tested to see impact. We proposed to modify one complete row the same as B1 and re-test, but LG&E insisted that we modify all 30 off swirler assembly the same i.e. all gutted bar 4 blades – 23rd/24th May.

[Tom Trimble] File 025.jpg is the original oil gun swirler; File 024.jpg is the modified swirler referenced above.

We also tested E row with a gutted swirler assembly that had a “Doughnut ring” fitted on 25th May (per Coen TA suggestion based upon experience on another plant) and we also had a further alternative swirler design with additional blades added back in (suggested by John Grusha of RVi), that was to be fitted to B row, but following trials of E row v A row, it was then decided to remove the “doughnut ring” from E row 26th May and leave all swirlers to the gutted design with a 3” setback. A row had the 3” setback.

[Tom Trimble] File Modified swirler with Disc is self-explanatory. File 015.jpg is another version of the swirler with the disc.

We re-fired the unit and adjusted fuel oil/atomising air which had a positive impact on the smoky flames.

We then attempted to fire on coal with mills in Auto and core air dampers in manual control and by now the furnace temps were higher as multiple oil guns had been in service and it was found that the slightest amount of PA flow extinguished the oil gun flames in some cases only 30 kpph PA flow.

Keeping the cross over duct at the same pressure of 5 INWC the core air dampers were closed in on the common manifold take off to each of the 5 burners on A row and these were checked in to 10%. This resulted in shorter brighter flames.

Hot traverses completed on various rows showed that at 2.6” cross over duct pressure we had flows of over 3000 pph and even higher at 5 INWC cross over duct pressure.

It was noted that adding PA changed the flame shape again and this had a knock on effect to the scanners ability to detect the flames.

There are 3 flame shapes before coal is introduced, soft and fluffy with a smoky tail with core air open, hollow short flame that show the individual jets with core air closed in, short pencil flames when PA is introduced; generally no issues with coal on, but the odd burner does drop out. Flames do drop out when the core air is closed in, but do relight with the core air closed in.

It was also noted that when PF was added and mills in service the flame shape changes again and we also then struggled to relight the oil guns for oil support firing when preparing to take a mill out of service.

We also looked at pulling the tip assembly back into the core air tube, RVi looked at the max retraction available with 80° spray pattern without hitting the core air tube tip and this was calculated at 4 3/8”. Various trials were conducted across differing rows at both 2” and 3” retracted.

Throughout the above we have experienced various issues with sighting/gain adjustments on multiple scanners across all rows due to the 4 distinct flame shapes; initial firing core air dampers open, the core air dampers closed, PA flow on and PF Firing – see Forney report

Further adjustments were necessary to frequency and gain when lighting off burners at high load (noted at 600MW on C row). Scanner setting switching was part of the logic as load increased prior to the recent outage.

We are reviewing alternative locations for flame scanner position from down the 8” core air tube to inner and outer swirler zones on the burner. The outer zone was rejected and tests continued down the inner zone on A4 and B4 – results look positive apart from voting on coal flame with no oil in service. Our preference is to sight down the core air tube, assuming that the redesigned Coen tip minimises the changes in flame shape to allow this. As a contingency we are also reviewing the

operating procedures and NFPA 85 requirements to validate the possibility of using the inner swirler location. To date this looks possible but will require a formal review.

COEN Involvement

COEN had a commissioning advisor on site during the period where the problems were encountered and overcome. An initial telephone call was made with COEN to discuss the way forward. Doosan provided COEN with the core air flow traverse data in addition to the operational data provided by their site engineer. A follow up call was held with COEN to receive their response to the data provided and discuss solutions. Following this call Doosan requested a number of clarifications. COEN have responded to these queries.

COEN Proposed Solution

COEN have concluded that the atomiser tip design is too sensitive to external factors. Their proposed solution is a tip which will provide a more robust oil flame over the range of conditions that could be expected in normal operation. The main change in the tip is expected to be in the number of drillings in the tip. The current tip has 10 fuel flow paths, and the proposal is to reduce these to 8. The drilling diameters would be increased to maintain the same flow area and thus flow pressure characteristics. A change in the spray angle may also be considered. The reduction in the number of drillings increases the separation between the oil sprays allowing a channel for the air. The increase in the size and momentum of each individual jet will improve stability. COEN's view is that with the sensitivity removed the tip position can be restored to the original and the pressure flow relationships can be returned to the design values, restoring the igniter to the intended capacity. COEN do not propose to change the swirler from the currently installed site modified swirler. COEN have confirmed that 5-off tips manufactured to a new design will be delivered on Thursday 5th June 2014.

Assessment of Proposal

COEN's assessment of the root problem is the same as our own. The approach of removing the sensitivity is the correct one. A redesign of the tip will have the largest impact on the sensitivity and offers the best chance of a solution. Reducing the number of drillings is a tried and tested means of improving oil burner stability. We have experience of implementing this change ourselves with our own Y-Jet atomiser tips. We believe the approach is correct, but that an iterative solution may be required. This is not unusual with oil firing. Consequently testing will be required to satisfy all parties that we have a robust solution which can cope with all the variations in operating conditions.

Forward Plan

COEN are supplying sufficient tips to change one full row of burners. These will need to undergo testing to confirm the robustness of the solution. COEN have been requested to provide details of what testing would be required to provide this confirmation. This will be communicated to Bechtel/LG&E to establish a suitable time frame.

Current Status

An operating methodology for the oil igniters and the core air system has been established which allows the unit to be started up and loaded.

We await further information from Coen and will update you further upon its receipt.

Let us know if you have any questions regarding this – and/or we can discuss at tomorrow's AIL meeting

Regards

Steve

Steve Hammond

Doosan Babcock

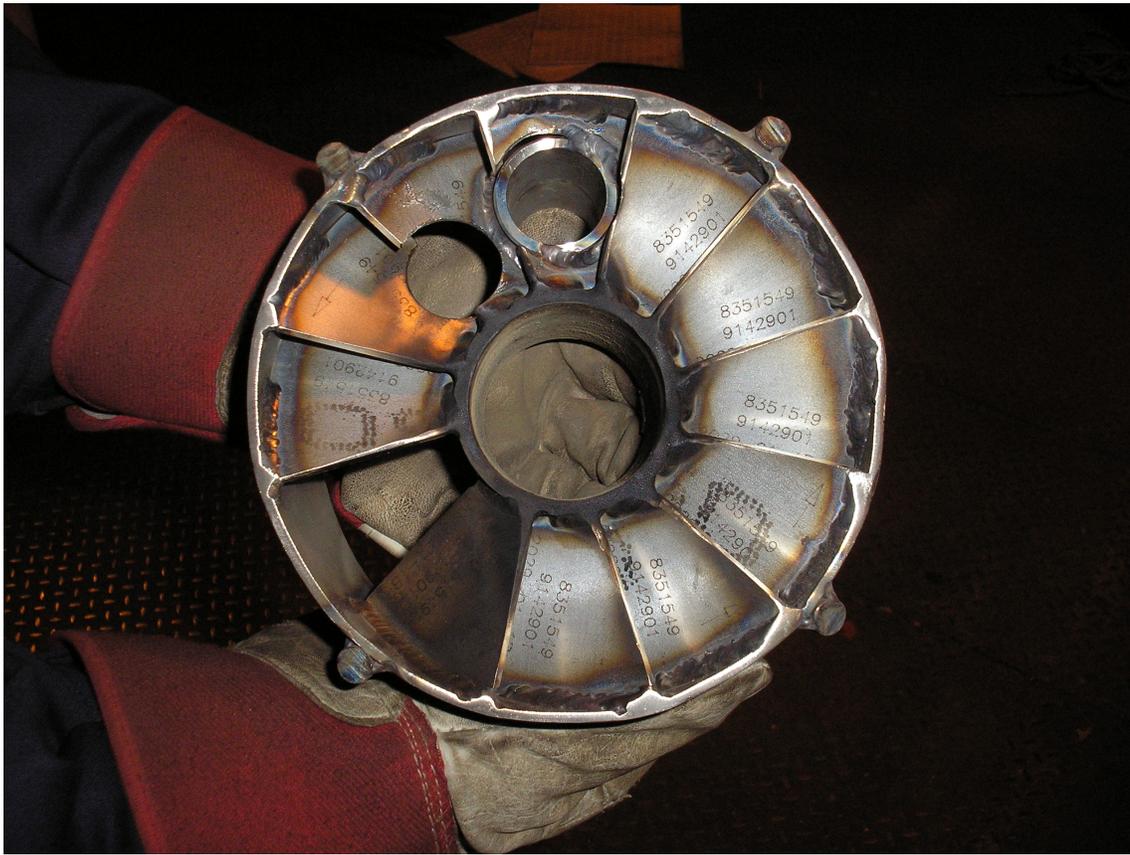
Email: steve.hammond@doosan.com

Tel: +44 1293 584634

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Thompson

From: Hammond, Steve(steve.hammond@doosan.com)
To: Watkins, Clyde; Babcock, James; Brann, Devin; Dearman, James; Scott Vierstra; Melloan, Ricky; Mohn, Laura; Rabe, Phil; Craft, Jim; O'Reilly, Daniel; Allen, George K. (Chip); Carlisle, Gary; Kerslake, Ian
CC: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX
BCC:
Subject: RE: 07292 - TC2 - Doosan Related Action Items Review Meeting
Sent: 06/25/2014 05:17:50 AM -0400 (EDT)
Attachments: AIL Update_25_Jun_14.xlsx;

Morning

Please find attached an updated AIL for today's meeting.

You only need to print the tab titled "Open Action Items" for the meeting.

Regards

Steve

 Steve Hammond
 Doosan Babcock
 Email: steve.hammond@doosan.com
 Tel: +44 1293 584634

-----Original Appointment-----

From: Watkins, Clyde [<mailto:cwatkins@bechtel.com>]
 Sent: 24 June 2014 16:28
 To: Watkins, Clyde; Babcock, James; Brann, Devin; Dearman, James; Scott Vierstra; 'Ricky Melloan'; 'Laura Mohn'; Rabe, Phil; Jim.Craft@lge-ku.com; O'Reilly, Daniel; Allen, George K. (Chip); 'Gary Carlisle'; Hammond, Steve; Kerslake, Ian
 Subject: Doosan Related Action Items Review Meeting
 When: 25 June 2014 10:00-11:00 (UTC-05:00) Eastern Time (US & Canada).
 Where: Becthel Conference Room

When: Occurs every Wednesday effective 6/25/2014 from 10:00 AM to 11:00 AM (UTC-05:00) Eastern Time (US & Canada).
 Where: Becthel Conference Room

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

Proposed Dated and Time: If this doesn't work, please suggest an alternate time.

Please dial into following conference number:

866-232-8005

Conf code: 301-228-8035

Thompson

From: Kerslake, Ian(ian.kerslake@doosan.com)
To: Turner, Haley; Robert L Branning; Daniel Menniti; Gratton, Ron; Reynolds, Paul (Crawley); Jones, Gareth; Young, Charles E H; Maunder, Kevin; Fleming, Ian; Carlisle, Gary; Rabe, Phil; Slaughter, Mitch; Mohn, Laura; Melloan, Ricky; Watkins, Clyde (cwatkins@bechtel.com) (cwatkins@bechtel.com); Brann, Devin (dmbrann@bechtel.com); Dearman, James (jdearman@bechtel.com); Babcock, James (jbabcock@bechtel.com)
CC: abergman@breenes.com; 06350 TRIMBLE COUNTY MAILBOX; Hammond, Steve; Cahill, Michael; Taylor, Robert; Smith, Mike; McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Cameron, Euan; Mackintosh, Alister; Elliott, Robert; Whitehouse, Matthew
BCC:
Subject: RE: 07292 TC2 - Breen Site Meeting Tuesday 10th June - Copy of trend data, program & testing TQ's
Sent: 06/09/2014 01:36:16 PM -0400 (EDT)
Attachments: FW_ 07292 TC2 - Breen PO 200053 - Trends Thurs 5th June.msg; TC2 Flue Gas Condensable Trends 3rd June 14.pdf; 20140602 Trimble 2 Flue Gas Condensable Trends w Notes.pdf; 20140601 Trimble 2 Flue Gas Condensable Trends w Notes.pdf; 20140531 Trimble 2 Flue Gas Condensable Trends w Notes.pdf; 20140530 Trimble 2 Flue Gas Condensable Trends w Notes.pdf; 20140529 Trimble 2 Flue Gas Condensable Trends w Notes.pdf; PastedGraphic-1.tiff; FW_ 07292 TC2 - Breen - PO # 200053 - Sorbent Testing and GAH outlet Duct Tr....msg; Trimble County 2 - 2014 Outage - 3 day Restart Programme (6-Jun).pdf;

Hayley,

Thank you for your email below and please find attached the following in preparation for tomorrow meeting with Breen;

Copies of trends issued by Breen since start up with supporting comments
Copy of current Doosan program incorporating sorbent feed tests
Copy of correspondence with Breen re sorbent feed tests and LG&E feedback – for discussion at tomorrow meeting

Our agenda for the morning was to include;

Introductions – All
Overview of causes, severity management and effect of sulphur condensable's AbS / SO3 from SCR systems - Breen
Current review of the data collected & any actions reqd – Breen
Review of planned sorbent feed test program – All
Finalisation & Issue of TC2 APH lime verification / injection procedure
Any additional actions with respect to lime injection
AOB

Dan / Bob,

We will be meeting in the LG&E 5th Floor conf. room tomorrow morning at 09.30 – please advise if you require projector or any other IT equipment for this meeting / your presentations?

Paul / Crawley team – please dial in as per our existing weekly Breen call conf # ie

International +44 207 897 0111

UK 0800 694 8053

US Toll Free number is 1-866-966-1187

Conference Access Code 692 884 7063#

Best regards

Ian Kerslake
Project Procurement Manager
Doosan Babcock Limited
Doosan House
Crawley Business Quarter
Manor Royal, Crawley
West Sussex, RH10 9AD
Tel: +44 (0)1293 584855
Mobile +44 (0) 7774 965780

Email: ian.kerslake@doosan.com

From: Turner, Haley [mailto:Haley.Turner@lge-ku.com]

Sent: 09 June 2014 17:19

To: Hammond, Steve; Cahill, Michael; Jones, Gareth; Kerslake, Ian; Gratton, Ron; Reynolds, Paul (Crawley); Robert L Branning; abergman@breenes.com; Daniel Menniti

Cc: Daniel Menniti

Subject: meeting tomorrow

Laura sent several of us a meeting request to hold the time 9:30 to 11 tomorrow in the TC 5th floor conference room for a Doosan/Bechtel/Breen discussion. She mentioned it would be followed up with a meeting request from you all but I haven't seen anything. Do you plan on meeting and would you like to use the 5th floor conference room? Also, I hadn't seen an updated testing schedule for the pre AH HL injection this week. Do you have one? I know there are some soot blower issues you are working thru before we begin but I would like to have one before the meeting. Thanks.

Haley

From: Dukes, Christopher

Sent: Monday, June 09, 2014 12:13 PM

To: Turner, Haley

Cc: Hammond, Steve; Cahill, Michael; Jones, Gareth; Kerslake, Ian; Gratton, Ron; Reynolds, Paul (Crawley); 06350 TRIMBLE COUNTY MAILBOX; Robert L Branning; abergman@breenes.com; Daniel Menniti

Subject: RE: 07292 TC2 - Breen - PO # 200053 - PI Data for Data Surveillance

Haley,

I have added the coal mill feedrates to the Breen report as requested by Steve Hammond.

The temporary HL feed rates have also been added. Tomorrow will have the new points on it, but will not have HL feedrate data for the first few hours of the day since the points were just added to the Pi historian this morning. Let me know if you see any problems.

Thanks,

Chris

From: Turner, Haley

Sent: Wednesday, June 04, 2014 12:02 PM

To: Dukes, Christopher

Cc: Hammond, Steve; Cahill, Michael; Jones, Gareth; Kerslake, Ian; Gratton, Ron; Reynolds, Paul (Crawley); 06350 TRIMBLE COUNTY MAILBOX; Robert L Branning; abergman@breenes.com; Daniel Menniti

Subject: RE: 07292 TC2 - Breen - PO # 200053 - PI Data for Data Surveillance

Could you also add the two new temporary Hydrated Lime feed rate totals to the report next week? Matt just added those. Thanks.

From: Dukes, Christopher

Sent: Wednesday, June 04, 2014 8:12 AM

To: Turner, Haley

Cc: Hammond, Steve; Cahill, Michael; Jones, Gareth; Kerslake, Ian; Gratton, Ron; Reynolds, Paul (Crawley); 06350 TRIMBLE COUNTY MAILBOX; Robert L Branning; abergman@breenes.com; Daniel Menniti

Subject: Re: 07292 TC2 - Breen - PO # 200053 - PI Data for Data Surveillance

Haley/Steve,

I am out of the office until June 9. I won't be able to update the report until then.

Regards,

Chris Dukes
Control Specialist
LG&E-KU
Trimble County Station

Phone: [502-627-6278](tel:502-627-6278)

Mobile: [502-667-3164](tel:502-667-3164)

Fax: [502-217-2013](tel:502-217-2013)

Pager: [502-332-9792](tel:502-332-9792)

Email: christopher.dukes@lge-ku.com

On Jun 4, 2014, at 7:20 AM, "Turner, Haley" <Haley.Turner@lge-ku.com> wrote:

Chris Dukes will be able to add those points to the report.

Haley

Sent from my iPhone

On Jun 4, 2014, at 6:10 AM, "Hammond, Steve" <steve.hammond@doosan.com> wrote:

Hi Haley

I believe you organised the issue of DCS/PI data to Breen to support our ongoing testing so can I ask for a little more assistance?

We had a call with Breen yesterday to discuss progress and one of the items discussed surrounded the effect of different mills in service, the upshot was a request to add mill coal flow to the data.

The tag numbers for the mill coal flows are;

- ? 2DCSFY320A.UNIT2@TC2
- ? 2DCSFY320B.UNIT2@TC2
- ? 2DCSFY320C.UNIT2@TC2
- ? 2DCSFY320D.UNIT2@TC2
- ? 2DCSFY320E.UNIT2@TC2
- ? 2DCSFY320F.UNIT2@TC2

If you could confirm this has been added that would be great – or who I should be speaking to if not you.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

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Thompson



Trimble County 2 - 2014 Outage - Restart & Optimisation Programme



Doosan Babcock Thompson

Activity ID	Activity Name	Start	Finish	TA Support	Jun 02							Jun 09							Jun 16							Jun 23							Jun 30							Jul 07		
					M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W
R1500	Check / monitor operation of new logic changes	20-May-14 A	27-Jun-14	Emerson	[Actual Work]																																					
R1360	Check/correct PF distribution on mills (Storm Sampling /Alstom Off Site Support)	30-May-14 A	13-Jun-14	Storm + Alstom	[Actual Work]																																					
R1370	Finalise mill classifier speed range (DPS/LG&E)	30-May-14 A	13-Jun-14	SGS	[Actual Work]																																					
R1540	Phase 3 - PF Distribution (see PF Distribution & Fineness activities above)	30-May-14 A	13-Jun-14		[Actual Work]																																					
R1450	Test new steam supply controls and tune PCV	30-May-14 A	06-Jun-14	Diamond Power	[Actual Work]																																					
R1460	Check S/B steam temperatures during operation	30-May-14 A	06-Jun-14		[Actual Work]																																					
R1290	Traverses on new OFA aerofoils (hot air) (Ferco)	03-Jun-14 A	08-Jun-14	FERCo	[Actual Work]																																					
R2020	Obtain Characteristic of TSO Damper (100% Load)	03-Jun-14 A	10-Jun-14		[Actual Work]																																					
R1240	Obtain characteristic of PA Hot & Cold Air control dampers (D, E & F Mills)	03-Jun-14 A	12-Jun-14		[Actual Work]																																					
R1310	Obtain characteristic of SA/OFA control dampers	03-Jun-14 A	12-Jun-14		[Actual Work]																																					
R2500	Lime Injection - Commence pre AH Lime Injection	09-Jun-14*			◆ Milestone																																					
R2880	Lime Injection - System Stabilisation / Baseline Data	09-Jun-14	11-Jun-14	Breen	[Actual Work]																																					
R1510	Optimise O2 Trim SA/OFA Bias	10-Jun-14	18-Jun-14	Emerson	[Actual Work]																																					
R2890	Lime Injection - 25% Maximum Feed Rate	11-Jun-14	12-Jun-14	Breen	[Actual Work]																																					
R2900	Lime Injection - 50% Maximum Feed Rate	12-Jun-14	13-Jun-14	Breen	[Actual Work]																																					
R2910	Lime Injection - 75% Maximum Feed Rate	13-Jun-14	14-Jun-14	Breen	[Actual Work]																																					
R1250	6 Mill Test	13-Jun-14	14-Jun-14	FERCo	[Actual Work]																																					
R2920	Lime Injection - 100% Maximum Feed Rate	14-Jun-14	15-Jun-14	Breen	[Actual Work]																																					
R1260	Optimal position for PA Hot Air control dampers	14-Jun-14	16-Jun-14		[Actual Work]																																					
R1300	Finalise K factors in the DCS	14-Jun-14	17-Jun-14		[Actual Work]																																					
R1320	Optimise optimal position for SA/OFA control dampers (X-Over Press. Set Point)	17-Jun-14	19-Jun-14		[Actual Work]																																					
R2930	Lime Injection - A Side Traverse Sorbent Off	19-Jun-14	19-Jun-14	Breen	[Actual Work]																																					
R1330	Tuning of SA/OFA control dampers (DPS/Emerson)	19-Jun-14	22-Jun-14	Emerson	[Actual Work]																																					
R1340	Monitor operation of SA/OFA control	19-Jun-14	04-Jul-14		[Actual Work]																																					
R2940	Lime Injection - B Side Traverse Sorbent Off	20-Jun-14	20-Jun-14	Breen	[Actual Work]																																					
R1550	Phase 4 - Burner Settings	22-Jun-14	27-Jun-14	RVI, FERCo	[Actual Work]																																					
R1560	Phase 5 - OFA Ports	27-Jun-14	02-Jul-14	RVI, FERCo	[Actual Work]																																					
R1800	Revise O & M manuals	01-Jul-14	06-Jul-14		[Actual Work]																																					
R1570	Phase 6 - Stoichiometry	02-Jul-14	05-Jul-14	RVI, FERCo	[Actual Work]																																					
R1590	Phase 7 - Oxygen Trim	05-Jul-14	08-Jul-14	RVI, FERCo	[Actual Work]																																					

█ Actual Work ◆ Milestone █ Breen
█ Remaining Work ▼ Summary

Issue Date : 06-Jun-14

Thompson

From: Hammond, Steve(steve.hammond@doosan.com)
To: Watkins, Clyde; McCallum, Neil; Mohn, Laura; Craft, Jim; Brann, Devin; Melloan, Ricky; Babcock, James
CC: Dukes, Christopher; Carlisle, Gary; Rabe, Phil; Allen, Ross; McCallum, Neil; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Reynolds, Paul (Crawley)
BCC:
Subject: RE: Action Items Meeting (03-Jun-2014)
Sent: 06/03/2014 04:45:45 AM -0400 (EDT)
Attachments: AIL Update_03_Jun_14.xlsx;

All

I have not seen a meeting invite for an Action Item Meeting today but attached is the Action Item List.

Note, if you print this then only the first three pages are required, the balance are close action items.

Mel and I reviewed the AIL before I left site last week and those updates have been included.

For info, I am away on vacation for the next two weeks, from COB Friday 06Jun14 and back in the office on Monday 23Jun14, and I would suggest that any items are taken up individually rather than trying to hold a meeting in my absence - I will send out details of cover for my absence shortly.

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 29 May 2014 15:04
To: 'Watkins, Clyde'; McCallum, Neil; 'Mohn, Laura'; 'Craft, Jim'; Brann, Devin; Melloan, Ricky; Babcock, James
Cc: 'Dukes, Christopher'; 'Carlisle, Gary'; 'Rabe, Phil'; Allen, Ross; McCallum, Neil; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX
Subject: RE: Action Items Meeting (29th May 2014)

It looks like today's meeting will again be overtaken by events happening on the unit so I have attached a current copy of the AIL. Can I ask you to review this and let me have any comments, additions, etc. so it can be updated ahead of next week's meeting.

<< File: AIL Update_27_May_14.xlsx >>

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

-----Original Appointment-----

From: Watkins, Clyde [<mailto:cwatkins@bechtel.com>]

Sent: 28 May 2014 16:52

To: Watkins, Clyde; Hammond, Steve; McCallum, Neil; 'Mohn, Laura'; 'Craft, Jim'; Brann, Devin; Melloan, Ricky; Babcock, James

Cc: Craft, Jim (EON); 'Dukes, Christopher'; 'Carlisle, Gary'; 'Rabe, Phil'; Allen, Ross

Subject: Action Items Meeting

When: 29 May 2014 11:00-12:00 (UTC-05:00) Eastern Time (US & Canada).

Where: Bechtel Startup Conference Room

When: Thursday, May 29, 2014 11:00 AM-12:00 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Bechtel Startup Conference Room

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*~*

This is the proposed meeting date/time for tomorrow only. If this time doesn't suit, please let me know of an alternate time.

Thank You

1. Open Engineering Action Items
2. Open RFI's on Outage Work
- 3.
- 4.

Thompson

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Afiyet, Hamit; Allen, Ross; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Della Rocco, Thomas; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Schultz, Joseph; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan
CC:
BCC:
Subject: TC2 active outage work orders
Sent: 06/17/2014 09:03:13 AM -0400 (EDT)
Attachments: tc2 all outage work orders including labor type.pdf;

FYI.....Current list of TC2 outage work orders.

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

TC2 ALL OUTAGE WORK ORDERS

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6538797	TC002AH-BACSCRAXXX	Dipper plate on southwest side of ash pit needs inspection & repair.	PAPPR	OUTAGE	MECH	
6538145	TC002BL-DRNRECIVES	TC2 inspect boiler drains vessel	PAPPR	OUTAGE	OPER	
6536638	TC002CNDDEAXXX	TC2 Remove Deaerator heater trays for inspection	PAPPR	OUTAGE	OPER	
6540394	TC002FG-ID-2A-XXX	Upgrade duct work on insector & diffuser seal air fans on TC2 ID fans. Moisture is getting inside.	PAPPR	OUTAGE	OTH	
6538148	TC002TA-CONFBXXX	Inspect TC2 condenser flash box	PAPPR	OUTAGE	OPER	
6538146	TC002TA-CONXXX	TC2 condenser shoot	PAPPR	OUTAGE	OPER	

WO COUNT: 6

CMM8

Noonan, Kenneth R. Manager - Turbine & Generator services

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6535539	TC002CND CNP2C-PMP	Pull the 2C Hotwell Pump for inspection and possible pump bearing upgrade	SCH	OUTAGE	MECH	TC2S14
6542417	TC002PF C PAF2A-FAN	PDM - Check shaft runout on the Outboard Fan Bearing	WSCH	OUTAGE	MECH	TC2S14

WO COUNT: 2

CMMRS1

Noonan, Kenny CENTRAL MAINTENANCE MECHANICAL REPAIR SHOP

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6360913	TC002TA-MSTXXX	TC2 Main Steam Valve Inspection.	WOUT	OUTAGE	MECH	

WO COUNT: 1

TCBW

TC2 Bechtel Maintenance Issues

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6551180	TC002BL-MS-2A-CV020A	2-TDR-CV-020A Leaking at Body Gasket--This valve was temporarily repaired by LGE-VT during a weekend REMARKS: Bechtel installed a modified VT valve	SCH	OUTAGE	MECH	TC2S14
6496138	TC002BL-MS-2B-CV020B	2-TDR-CV-020B is leaking at the body gasket. This valve's body gasket has been replaced in the past. REMARKS: Bechtel installed a modified VT valve	SCH	OUTAGE	MECH	TC2S14
6412361	TC002CBAWAHXXX	The present state of the Water Coil Air Heaters (WCAH) system on TC2 needs to be corrected. While L REMARKS: Doosan has installed a new design water coil	SCH	OUTAGE	MECH	TC2S14

6569720	TC002PFCPULA-PASAFAN	Both new Mill Seal Air Fan Isolation Dampers are not sealing off properly and causing the out of ser	PAPPR	OUTAGE	MECH	
6511593	TC002SCRAMMTRANPPG	Bechtel to modify existing Ammonia piping at the storage tank pump skid to eliminate damage to the tr	SCH	OUTAGE	MECH	TC2S14
REMARKS: Bechtel contracted Youngblood to make modifications to the piping						

WO COUNT: 5

TCCONT Rick Boone/ TC Control Systems

WONUM	LOCATION	DESCRIPTION	WO STATUS	PRIORITY	LABOR TYPE	OUTAGE ID
6316992	TC002CU-DCS-INSIDE	TC DCS Evergreen Upgrade	SCH	OUTAGE	CTRL	
6317867	TC002CU-DCSXXX	Trimble County PLC Software Upgrade	RMAT	OUTAGE	CTRL	
6199341	TC002PFCPULA-INERTCV030/	BMS mill logic - download and test new mill inert sequence logic	WOUT	OUTAGE	I&E	TC2S12
6298033	TC002WTRCP-XIC	Condensate Polisher HMI; New Alarms No Longer Cause "Alarms" Tab to Flash Yellow	WOUT	OUTAGE	I&E	TC2S12
REMARKS: Chris Dukes wants to make a backup of the PLC and we can get in there and look at the graphics while we are doing that. system needs to be shut down						

WO COUNT: 4

TCENGCHEM Chemical Engineering Turner & Waller

WONUM	LOCATION	DESCRIPTION	WO STATUS	PRIORITY	LABOR TYPE	OUTAGE ID
6535720	TC002PJFCMPXXX	TC2 PJFF bag replacements.	WOUT	OUTAGE	OTH	TC2S14

WO COUNT: 1

TCMC Bullock, Sam TRIMBLE COUNTY CONTRACTOR -- MECHANICAL

WONUM	LOCATION	DESCRIPTION	WO STATUS	PRIORITY	LABOR TYPE	OUTAGE ID
6540329	TC002BL-FRNXXX	TC2 Boiler Deslag Spring 2014.	WCOMP	OUTAGE	OTH	TC2S14
6522485	TC002BL-FRNXXX	Perform a deslag on unit 2 (drag chain)	WCOMP	OUTAGE	OTH	
6540330	TC002SDRSTKXXX	TC2 Stack Inspection Spring 2014. And repairs.	SCH	OUTAGE	MECH	TC2S14

WO COUNT: 3

TCMSL2 POWELL,RICHARD - MAINTENANCE LEADER

WONUM	LOCATION	DESCRIPTION	WO STATUS	PRIORITY	LABOR TYPE	OUTAGE ID
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Work Order ID	Location	Description	Category	Status	Priority	Assigned To	Due Date
6536046	TC002AH-BACSCRAXIC	TC-2 Bottom Ash Submerged Scraper Conveyor Chain Tensioner west Press regulator needs adjusted.	SCH	OUTAGE	I&E	Thompson	TC2S14
6495589	TC002AH-BACSCRAXXX	Please add a secondary level control on the Bottom Ash Submerged Scraper Conveyor (SSC).	WOUT	OUTAGE	I&E		
6541429	TC002AH-HOPECON	Install quick connects on economizer & A/H hoppers	WOUT	OUTAGE	I&E		
6530364	TC002BL-SBLCV050	Inspect the TC2 Sootblower control valve. 2-SB-CV-050	SCH	OUTAGE	I&E		TC2S14
6571576	TC002BL-SBLHJ1-XIC	With TC2 MFT in we could not clear the MFT because the hydrojet blower sequences would start	SCH	OUTAGE	I&E		
6541707	TC002BL-SBLHJ4-SAFAN	Please inspect the 2C hydrojet seal air motor during outage. Makes High pitched winding sound.	RMAT	OUTAGE	I&E		TC2S14
6535844	TC002BL-SBLHJCV521	TC2 hydrojet CV521 packing leak	WOUT	OUTAGE	I&E		
6540764	TC002BL-SBLPCS	PLC programs TC2 Sootblower and Hydrojet	SCH	OUTAGE	I&E		
6542582	TC002BL-SBLPPG	I/E support for Bechtel sootblower piping upgrade.	SCH	OUTAGE	I&E		TC2S14
6531306	TC002CW-CONXXX	Pull wiring for additional Condenser waterbox thermocouples.	WOUT	OUTAGE	I&E		TC2WKD
6510632	TC002ESPHVDDRY2B11T/RCN	DESP TR set 2A23 keeps tripping on UV TRIP. Bushing "A"	SCH	OUTAGE	I&E		TC2S14
6530148	TC002EXCEGRXXX	PM-ANNUAL- OUTAGE- Generator maintenace for outages.	SCH	OUTAGE	I&E		TC2S14
6441278	TC002FG-ID-2A-IDFANMTR	Modify motor heater circuits on TC2 medium voltage motors.	WOUT	OUTAGE	I&E		TC2S14
6189270	TC002FG-ID-2A-IDFANMTR	'A' INDUCED DRAFT FAN MOTOR NEEDS TO BE CLEANED AS OIL HAS BEEN LEAKING ON MOTOR WINDINGS	WOUT	OUTAGE	I&E		
6547040	TC002FG-ID-2A-XXX	Investigate issues with TC2 ID fan hub heaters.	SCH	OUTAGE	I&E		TC2S14
6580480	TC002FW-TFPXIC	2A TDBFP Bently Rack TDI card keeps resetting causing alarm to Operators.	WSCH	OUTAGE	I&E		TC2WKD
6428543	TC002GA-STASO-ESOPMTR	Make repairs to the TC2 ESOP panel. REMARKS: Cleaned and replaced wiring	WMAT	OUTAGE	I&E		TC2S14
6530111	TC002PFCBURXXX	I/E support for burner replacement project.	SCH	OUTAGE	I&E		TC2S14
6530154	TC002PFCPULA-MTR	PM-ANNUAL - & - TC2 "A" Coal mill motor clean, inspect & bearings oil change- REMARKS: Waiting on Inboard bearing RTD	SCH	OUTAGE	I&E		TC2S14
6576814	TC002PLTXXX	TC2 check all terminations on all Bentley Nevada equipment monitoring panels and terminal strips.	WSCH	OUTAGE	I&E		TC2WKD

TC2 ALL OUTAGE WORK ORDERS

6312783	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BPMCB2 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312782	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BPMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312781	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BPMCA2 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312780	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BPMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312778	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BOMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312776	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BHMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312775	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BGMCB2 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312774	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BGMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312773	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BGMCA2 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312772	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BGMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312779	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BOMCB1 CLEAN AND INSPECT MCC.	SCH	OUTAGE	I&E
6312777	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2BHMCB1 CLEAN AND INSPECT MCC.	SCH	OUTAGE	I&E
6561321	TC002PRD480XXX	Clean TC2 Switchgear 2014	SCH	OUTAGE	I&E
6312784	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2DPMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312785	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2DPMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312786	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2SDMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312787	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2SDMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312788	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TGMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312789	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TGMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312790	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TMMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312791	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TMMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312792	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TOMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312793	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2TOMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E
6312794	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2WPMCA1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E

TC2 ALL OUTAGE WORK ORDERS

Thompson

6312796	TC002PRD480XXX	PM-OUTAGE PM -TC2- MCC 2WPMCB1 CLEAN AND INSPECT MCC.	WOUT	OUTAGE	I&E	
6439451	TC002PRD7KVXXX	TC2 7KV and 14KV breakers need to have the manual close	SCH	OUTAGE	I&E	TC2S14
6530230	TC002SCRAMMDET	PM- SEMI-ANNUAL - & - 2 SCR AMMONIA DETECTOR CALIBRATION	SCH	OUTAGE	I&E	TC2S14
6547030	TC002SCRMODSRUCTURE	The TC2 A SCR dP pressure tap location needs to be changed.	SCH	OUTAGE	MECH	TC2S14
6475504	TC002SDRTNKXXX	Install and setup ORP probes and transmitters on TC2 scrubber.	SCH	OUTAGE	I&E	TC2S14
REMARKS: Installed ORP/PH probe for A transmitter.						

WO COUNT: 49

TCMSL6

SEDAM, DALE, MAINTENANCE LEADER

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6554752	TC002AH-BACVLVXXX	Add 2 four inch drain valves to the east side of the S.S.C.	WOUT	OUTAGE	MECH	TC2WKD
6491865	TC002BL-DRNVLVXXX	The Boiler drains recovery vessel manual level control valves need replaced.	SCH	OUTAGE	MECH	TC2S14
6577385	TC002BL-MS-PPG	MAIN STEAM LINE ISOLATION VALVE 029 BEFORE TDRCV-019B DRAIN VALVE IS LEAKING	WOUT	OUTAGE	MECH	TC2WKD
6579222	TC002BL-SEPVESPPG	Repair steam leak on pressure tap piping. It is located just above valve 2-BLS-V645C.	WOUT	OUTAGE	MECH	TC2WKD
6500186	TC002CA-HAEVLVXXX	2A house air comp disch vlv 2HAV001 will not close	WOUT	OUTAGE	MECH	
6538152	TC002CNDPPGXXX	extend piping for easy access on TC2 condense low point drains below grating on mezz under	SCH	OUTAGE	MECH	TC2S14
6580431	TC002ESPWETLCWXXX	Replace broken lower casing wash nozzles in WESP zone C.	WOUT	OUTAGE	MECH	TC2WKD
6580430	TC002ESPZONWETVLVXXX	Replace WESP zone isolation valves with stainless steel valves.	WOUT	OUTAGE	MECH	TC2WKD
6577534	TC002FW-TFP2B-RECCV054B	2B TDBFP Recirc valve is leaking through. TS/R Located on unit 2 6th landing East wall.	WOUT	OUTAGE	MECH	TC2WKD
6542554	TC002FW-TFPXXX	unit 2 BFP's closed cooling flow indicators dont turn and/or have fallen off. T/R	WOUT	OUTAGE	MECH	
6550578	TC002HL-INJPPG	Clean all Lime injection ports on duct work behind Air Heater.	SCH	OUTAGE	MECH	TC2S14
6577374	TC002WTRCHI-XXX	2B TDBFP SUCTION LINE AQUA AMMONIA INJECTION LINE IS LEAKING	WOUT	OUTAGE	MECH	TC2WKD
6447938	TC002WTRCHI-XXX	Please Inspect Check Valves on TC2 O2 Injection Skids	WOUT	OUTAGE	MECH	TC2S14

WO COUNT: 13

Thompson

TCMSL7		THOMAS, MARK - MAINTENANCE LEADER					
<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>	
6518018	TC002FW-MFPXXX	PM-CHECK - & - VIBRATION ON MDBFP EQUIPMENT WHEN UNIT IS COMING ON	WOUT	OUTAGE	MECH		
WO COUNT:		1					

TCMSLCC		WALCOTT, DANNY - MAINTENANCE LEADER					
<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>	
6566405	TC002BL-STORAGEEVES	INSULATE The check valve between the throttling vlv and 2-BLS-MOV-512	SCH	OUTAGE	MECH		
6524398	TC002CTHCW-2C-CTPMPMTR	INSULATE The 2A, 2B, and 2C CT pump motors need to have an Isol valve	SCH	OUTAGE	MECH	TC2S14	
6410930	TC002ESPWETXXX	An inspection performed by LG&E, SESS and Bechtel of the WESP water irrigation balancing during the	WOUT	OUTAGE	MECH	TC2S14	
6580405	TC002PLTXXX	Install safety signs on handrail and siding on TC2 OFA elevation where Petrochem employee fell	WOUT	OUTAGE	OTH		
6533908	TC002SDRRECXXX	PLEASE PAINT Add back-up line for the Recycle pump mechanical seal water line.	SCH	OUTAGE	MECH	TC2S14	
6548755	TC002TA-TURXXX	TC2 leak at southwest corner away from condenser, steam dump bypass vlv under insulation. Identified	WSCH	OUTAGE	MECH	TC2S14	
WO COUNT:		6					

TCMSLENGCIVL		CIVIL ENGINEERING					
<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>	
6327090	TC002SDRTNKXIC	Install full range level indication on unit 2 reaction tank. Provide tank connection/reference point	WMAT	OUTAGE	CIVIL	TC2S14	
WO COUNT:		1					

TCMSLENGMECH		MECHANICAL ENGINEERING					
<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>	
6535461	TC002AH-BACSCRAXXX	Install basalt tile on TC2 SSC.	WOUT	OUTAGE	MECH	TC2S14	
6546799	TC002AH-BACSCRAXXX	Replace chain on TC2 SSC.	SCH	OUTAGE	MECH	TC2S14	
6400209	TC002BL-BCWXXX	Install a low point drain on the BCP Discharge line before the discharge valve for chemical clean.	WSCH	OUTAGE	MECH		

TC2 ALL OUTAGE WORK ORDERS

6542978	TC002BL-DORXXX	Install refractory on new inspection doors and repair refractory on existing platform doors.	WOUT	OUTAGE	MECH	TC2S14
6575444	TC002BL-ECNPPG	Adjust hangers on the TC2 boiler economizer inlet piping at the feedwater flow element 2BLS-FT-105	WOUT	OUTAGE	MECH	TC2WKD
6532526	TC002BL-FRNXXX	TC2 CO Monitor - Mechanical and Electrical Installations - Capital	INPRG	OUTAGE	MECH	TC2S14
6414714	TC002BL-FRNXXX	Following four (4) events in which a total of nine (9) boiler roof tubes failed, LG&E arranged for m	WSCH	OUTAGE	MECH	TC2S14
6535458	TC002BL-FRNXXX	TC2 boiler inspections and punchlist repairs resulting from inspections.	WOUT	OUTAGE	MECH	TC2S14
6521228	TC002BL-FRNXXX	Purchase and install TC2 inspection doors during the TC2 spring outage.	WOUT	OUTAGE	MECH	TC2S14
6542995	TC002BL-FRNXXX	NDE on balancing/mising header welds on TC2. Repair as needed.	WOUT	OUTAGE	MECH	TC2S14
6535695	TC002BL-FRNXXX	External boiler leak Unit 2 10th landing southwest corner at spiral to vertical transtion zone.	WOUT	OUTAGE	MECH	TC2S14
6501870	TC002BL-FRNXXX	TC2 Ashpit Refractory--Inspect refractory and make any needed repairs.	WOUT	OUTAGE	MECH	TC2S14
6550776	TC002BL-HRH2A-CV116A	TC2 HRH CV-116A/B Desuperheater, Expander Replacement	SCH	OUTAGE	MECH	TC2S14
6544965	TC002BL-MS-PPG	TC2 High Energy Piping Repairs Post Inspection REMARKS: All indications found during inspection were repaired successfully.	INPRG	OUTAGE	MECH	TC2S14
6533796	TC002BL-SH-PSV907	TC2 main safety PS904, PSV907 and PSV908 are leaking.	WSCH	OUTAGE	MECH	TC2S14
6533702	TC002BL-SH-XXX	Pretest safety valves and repair valves as needed during outage.	SCH	OUTAGE	MECH	TC2S14
6535456	TC002CBAAHXXXX	TC2 Air Heater inspections and repairs.	WOUT	OUTAGE	MECH	TC2S14
6540440	TC002CW-CONXIC	Inspect TC2 waterboxes for cracks. Some vibration heard in B2 HP cond inlet.	WOUT	OUTAGE	MECH	
6535793	TC002EHCTHPHYDFLDTNK	TC2 EHC Tank Temperature Control Upgrade	SCH	OUTAGE	I&E	
6550579	TC002FG-DCTXXX	Repair, cover and make water tight inspection ports on sides of duct work down stream of the Air	INPRG	OUTAGE	MECH	TC2S14
6542829	TC002FG-DMPXXX	Provide mechanic to assist with biasing damper inspection.	WOUT	OUTAGE	MECH	TC2S14
6354888	TC002PFCBURXXX	Bechtel and Doosan burner inspection observation work order.	SCH	OUTAGE	MECH	TC2S14
6489828	TC002SCRMODCATALYST	TC2 - SCR Layer 1 Catalyst Changeout - Capital	INPRG	OUTAGE	MECH	TC2S14
6535768	TC002SCRMODCATALYST	TC2 SCR - Layer 1 Off-site Clean and store - Capital	INPRG	OUTAGE	MECH	TC2S14
6489840	TC002SCRMODXXX	TC2 SCR Tuning Following Layer Changeout	WENG	OUTAGE	MECH	

6533751 TC002WTRCP-VLVXXX

Install Condensate Polisher outlet valve to allow for routing of TC1 pegging condensate back to TC1

SCH

OUTAGE

MECH

TC2S14

WO COUNT: 26

TCOPL2 Trimble Co. Operation Production Leader 2

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6539432	TC002PLTXXX	Supplies for draining condensate, feedwater & closed cooling.	WSCH	OUTAGE	OPER	

WO COUNT: 1

TCOPL3 Hudson, Glenn Trimble Co. Operation Production Leader 3

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6524718	TC002AH-BACSCRAPCNV	Thompson Ind. to clean ash from submerged scrapper hopper.	INPRG	OUTAGE	OPER	
6550527	TC002BL-FRNXXX	Vacuum upper arch area of TC2 boiler for spring 2014 outage.	SCH	OUTAGE	OPER	
6579055	TC002BL-MS-PPG	Bulk nitrogen to be used for blanketing of TC2 boiler.	INPRG	OUTAGE	OPER	
6493826	TC002CBAAHT2A-	TC-2 Air Heater wash on the September 2013 outage	WOUT	OUTAGE	OPER	TC2-21
6520305	TC002CBAAHTXXX	TC2 Air Heater Wash	INPRG	OUTAGE	OPER	
6550526	TC002CBADCTXXX	Vacuum OFA and SA duct area for project eng. during TC2 spring 2014 outage.	SCH	OUTAGE	OPER	
6544482	TC002FW-FWHPPG	Vac out 7B heater channel side	SCH	OUTAGE	OPER	
6550521	TC002PFCPULA-XXX	Vacuum off tops of TC2 coal mills.	SCH	OUTAGE	OPER	
6550749	TC002SD-SMPTNKXXX	Industrial cleaning - TC2 oil water seperator, sumps, and floor drains.	SCH	OUTAGE	OPER	
6560389	TC002TA-CONXXX	Industrial cleaners vac out hotwell TC2	SCH	OUTAGE	OPER	

WO COUNT: 10

TCOPL5 Slaughter, Mitch Trimble County Operations Supervisor

<u>WONUM</u>	<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>WO STATUS</u>	<u>PRIORITY</u>	<u>LABOR TYPE</u>	<u>OUTAGE ID</u>
6517972	TC002CBAAHTXXX	TC2 Air Heater Wash	SCH	OUTAGE	OPER	TC2-23
6552511	TC002CW-CONXIC	Replace anodes in TC2 condenser waterboxes	SCH	OUTAGE	OPER	
6538141	TC002GA-STACLGXXX	TC2 replace generator resin	SCH	OUTAGE	OPER	

6/17/2014

TC2 ALL OUTAGE WORK ORDERS

Attachment #1 to Response KIUC-1 Question No. 30(f)

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Thompson

WO COUNT: 3

Thompson

From: Hammond, Steve(steve.hammond@doosan.com)
To: Mel Watkins; Rabe, Phil
CC: 'Babcock, James'; 'Brann, Devin'; 'Dan O'Reilly'; 'Dearman, James'; Dukes, Christopher; Carlisle, Gary; Boone, James; Joyce, Jeff; Craft, Jim; Mohn, Laura; Henderson, Trent; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; Smith, Timothy (Fuels); McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Groom, David
BCC:
Subject: 07292 - TC2 - SMR0107B - GAH Soot Blower Steam Supply – Access & Maintenance Platforms
Sent: 07/23/2014 09:28:20 AM -0400 (EDT)
Attachments: SMR 0107B Rev A 23Jul14.zip; Spring 2014 Outage Work Scope - SMR~WP Drg Register (140723).pdf;

Mel/Phil,

Please find attached to this e-mail an electronic copy of the listed document that is being issued for the first time.

SMR0107B - GAH Soot Blower Steam Supply – Access & Maintenance Platforms

The following documents are included to support the SMR;

- Drawings:
 - 06350-B270-AD-23570-0001 Rev C – General Arrangement
 - 06350-B270-AD-23570-0002 Rev D – Shop Assemblies General Arrangement
 - 06350-B270-AD-23570-0003 Rev C – Perspective View General Arrangement
 - 06350-B270-AD-23570-0004 Rev B – Steelwork General Arrangement
 - 06350-B270-AD-23570-0005 Rev B – Floor Grating Details
 - 06350-B270-AD-23570-0006 Rev B – Handrail Details
 - 06350-B270-AD-23570-0007 Rev B – Stairs Details
 - 06350-B270-AD-23570-0008 Rev B – Step Ladder Details
- Calculations:
 - 06350-B240-CA-23300-2-0112 Rev L – Forces & Moments to Bechtel Steel
 - 06350-B240-CA-23300-2-0113 Rev H – Forces & Moments to Bechtel Steel
 - 06350-B240-CA-23300-2-0128 Rev A – Forces & Moments to Bechtel Steel
- Reference Documents:
 - 06350-B240-TS-32000-2-0002 Rev C – TS Trimmer Steel Fab for Pipe Supports
 - 06350-B221-TS-39972-2-0001 Rev B – Technical Specification for Paint Systems

I have also attached for information a copy of the “SMR and Drawing Register” for SMR0107B only

If you have any questions please let me know.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5290

Thompson

#	Description	SMR #	WP #	Current Rev	Date of Issue
Main Scope					
1a	Upgrade steam supply to GAH soot blowers - Mechanical works	SMR 0107	WP 03	D	26-Jan-14
1b	Electrical Modifications, Bechtel ECN 25191-002-V1E-MBPX-01201	SMR 0159	WP 05	D	24-Dec-13
1c	Structural steel modification at EL 702' 2-1/2", Bechtel ECN 25191-422-SSE-0000-E1002	SMR 0166	WP 15	A	25-Nov-13
1d	Boiler Building Roof Ventilation Fan, Bechtel ECN 25191-002-V1E-MBPX-01204	SMR 0170	WP 03	A	24-Dec-13
1e	GAH Soot Blower Steam Supply – Access & Maintenance Platforms	SMR0107B	N/A	A	23-Jul-14
2	Upgrade WCAH and FD outdoor suction duct hood	SMR 0095	WP 04	D	27-Jan-14
2a	FD Suction Hood Structural steel modification, Bechtel ECN 25191-172-SSE-0000-E2301	SMR 0168	N/A	B	27-Jan-14
2b	Installation of WCAH coil handling system	SMR0177	N/A	A	01-Apr-14
3a	Replace burners and throats	SMR 0132	WP 01	C	25-Jan-14
3b	Electrical Modifications, Bechtel ECN 25191-002-V1E-MBPX-01205	SMR 0158	WP06	B	22-Feb-14
3c	PF Pipe Support Structural steel modification, Bechtel ECN # 25191-222-SSE-0000-E1401	SMR 0171	N/A	B	25-Jan-14
3d	Burner Addition of Core Air test Points	SMR 0132A	N/A	C	02-Mar-14
3e	Burner (Electrical) - ECN - 25191-002-V1E-MBPX-01206 (Revised Ethernet Cable Routing)	SMR 0158A	N/A	A	28-Feb-14
4a	Install # 4 new OFA ports and throats, and upgrade ductwork and wind box	SMR 0156	WP 02	D	03-Dec-13
4b	Structural steel modification to provide rigging and support, Bechtel ECN 25191-232-SSE-0000-E1901	SMR 0167	N/A	B	23-Jan-14
Additional Scope					
5	Inspect furnace dipper plate refractory, and repair if required	SMR 0114	WP 07	C	03-Dec-13
6	Replace # 2 mill seal air non return dampers	SMR 0068	WP 08	E	03-Dec-13
7	Inspect selected PF pipes for build-up, and clean if required	SMR 0141	WP 09	C	05-Nov-13
8	Inspect ID fan stall sensing ports, clean if required, and add insulation	SMR 0127	WP 10	C	03-Dec-13
9	Support LGE-KU to relocate SCR A side DP tapping point	SMR 0157	N/A	A	05-Nov-13
10	Inspect PA flow element impulse line fittings and ensure they are not covered by insulation	SMR 0101	WP 11	C	05-Nov-13
11	Fit # 30 PF orifice plates	SMR 0152	WP 12	C	18-Feb-14
12	AmStar application	SMR 0048	WP 14	F	03-Dec-13
13	Logic revisions	SMR 0155	N/A	D	01-Mar-14
14	Insulation	SMR 0165	N/A	C	03-Dec-13
15	Lime Injection - Temporary ~ Permanent System	SMR 0169	N/A	B	02-Mar-14
16	Removal and calibration of Economiser Inlet flow element (2-BLS-FT-105) and HP Spray Water flow element (2-AT-FE 103)	SMR 0173	N/A	A	08-Feb-14
17	Reposition SA Thermocouples	SMR 0137	N/A	B	28-Feb-14
18	Addition of flanges to the burner purge air pipes	SMR 0172	N/A	A	04-Mar-14
19	Addition of tell tale pipe to each of the six mill inlet duct steam inerting pipes	SMR 0174	N/A	A	06-Mar-14
20	Purge air fan pipework modification	SMR 0175	N/A	A	01-Apr-14
21	Hydrojet pipework and supports	SMR0117C	N/A	A	19-Mar-14

Thompson

#	Description	SMR #	WP #	Current Rev	Date of Issue
22	New Test Points Down Stream of the ID Fan	SMR 0176	N/A	A	01-Apr-14
	Administration				
23	Mobilisation	SMR 0161	N/A	A	05-Nov-13
24	Trade testing	SMR 0162	WP 01	A	05-Nov-13
25	Site support and administration	SMR 0163	N/A	A	05-Nov-13
26	De-mobilisation	SMR 0164	N/A	A	05-Nov-13

Thompson

Document No	Document Title	Current Rev	Issued to SBR	
			Rev	Date
Drawings				
06350-B270-AD-23570-0001	General Arrangement	C	C	23-Jul-14
06350-B270-AD-23570-0002	Shop Assemblies General Arrangement	D	D	23-Jul-14
06350-B270-AD-23570-0003	Perspective View General Arrangement	C	C	23-Jul-14
06350-B270-AD-23570-0004	Steelwork General Arrangement	B	B	23-Jul-14
06350-B270-AD-23570-0005	Floor Grating Details	B	B	23-Jul-14
06350-B270-AD-23570-0006	Handrail Details	B	B	23-Jul-14
06350-B270-AD-23570-0007	Stairs Details	B	B	23-Jul-14
06350-B270-AD-23570-0008	Step Ladder Details	B	B	23-Jul-14
Calculations				
06350-B240-CA-23300-2-0112	Forces & Moments to Bechtel Steel	L	L	23-Jul-14
06350-B240-CA-23300-2-0113	Forces & Moments to Bechtel Steel	H	H	23-Jul-14
06350-B240-CA-23300-2-0128	Forces & Moments to Bechtel Steel	A	A	23-Jul-14
Reference Documents				
06350-B240-TS-32000-2-0002	Technical Specification Trimmer Steel Fab for Pipe Supports	C	C	23-Jul-14
06350-B221-TS-39972-2-0001	Technical Specification for Paint Systems	B	B	23-Jul-14

Thompson

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Afiyet, Hamit; Allen, Ross; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Coomer, Timothy; Craven, David; Della Rocco, Thomas; Dorwart, Jordan; Dukes, Christopher; Dunlap, Gary; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hannon, Hannah; Hayes, Christopher; Henderson, Trent; Hudson, Glen; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Menezes, Tomas; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Osgood, Scott; Park, Marci; Parson, Jonathan; Payne, Nicholas; Phelps, Grant; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sanders, Matt; Schultz, Joseph; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Stivers, Clinton; Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan; Winburn, Christopher; Craft, Jim; Hance, Chuck; Heinz, John; Jensen, Jack; Melloan, Ricky; Mills, Ricky; Powell, Richard; Richardson, Stephen
CC:
BCC:
Subject: Current Outage Work order Lists
Sent: 07/03/2014 12:56:25 PM -0400 (EDT)
Attachments: tc0 all outage work orders including labor type.pdf; tc1 not tc1wkd report.pdf; tc1wkd report.pdf; tc2 not tc2wkd report.pdf; tc2wkd report.pdf; tcct report.pdf;

All,

As promised, attached is the weekly lists of outage work orders for TC1, TC2, CT's and common areas.

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

Start Date: 1/1/2007

End Date: 7/3/2014

TCCONT		Rick Boone/ TC Control Systems		
6199341	BMS mill logic - download and test new mill inert sequence logic	WOUT	OUTAGE	TC2S12
6298033	Condensate Polisher HMI; New Alarms No Longer Cause "Alarms" Tab to Flash Yellow	WOUT	OUTAGE	TC2S12
TCENGCHEM		Chemical Engineering Turner & Waller		
6535720	TC2 PJFF bag replacements.	WOUT	OUTAGE	TC2S14
TCMC		Bullock, Sam TRIMBLE COUNTY CONTRACTOR -- MECHANICAL		
6538226	PM-ANNUAL - & - 2B DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6538227	PM-ANNUAL - & - 2C DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6540330	TC2 Stack Inspection Spring 2014. And repairs.	SCH	OUTAGE	TC2S14
6538225	PM-ANNUAL - & - 2A DYNAMIC CLASSIFIER GEARBOX OIL CHANGE	SCH	ROUTINE	TC2S14
6540329	TC2 Boiler Deslag Spring 2014.	WCOMP	OUTAGE	TC2S14
6532422	While SEB is on site for the Unit 2 outage, move spare BCWP (Unit 2) to landing below Pump (See S.	WSCH	ROUTINE	TC2S14
TCMSL2		POWELL,RICHARD - MAINTENANCE LEADER		
6586018	Check calibration of the TC2 SH and RH biasing dampers	INPRG	OUTAGE	TC2-25
6561535	Rebuild REXROTH Turbine Control Servos	RMAT	ROUTINE	TC2S14
6541707	Please inspect the 2C hydrojet seal air motor during outage. Makes High pitched winding sound.	RMAT	OUTAGE	TC2S14
6536046	TC-2 Bottom Ash Submerged Scraper Conveyer Chain Tensioner west Press regulator needs adjusted.	SCH	OUTAGE	TC2S14
6530364	Inspect the TC2 Sootblower control valve. 2-SB-CV-050	SCH	OUTAGE	TC2S14
6542582	I/E support for Bechtel sootblower piping upgrade.	SCH	OUTAGE	TC2S14
6462893	2CWFT160B 2B CTWR Blowdown flowrate is reading bad quality.	SCH	ROUTINE	TC2S14
6547040	Investigate issues with TC2 ID fan hub heaters.	SCH	OUTAGE	TC2S14
6530111	I/E support for burner replacement project.	SCH	OUTAGE	TC2S14
6473413	Work with Dave Dukes on establishing TC2 instrument database.	SCH	ROUTINE	TC2S14
6547030	The TC2 A SCR dP pressure tap location needs to be changed.	SCH	OUTAGE	TC2S14
6531897	Work order to cover temporary power on TC2S14 outage.	SCH	7DAYS	TC2S14
6439451	TC2 7KV and 14KV breakers need to have the manual close	SCH	OUTAGE	TC2S14
6428543	Make repairs to the TC2 ESOP panel.	WMAT	OUTAGE	TC2S14
6441278	Modify motor heater circuits on TC2 medium voltage motors.	WOUT	OUTAGE	TC2S14
TCMSL6		SEDAM, DALE, MAINTENANCE LEADER		
6585881	Replace air heater access door gaskets on 4th landing.	INPRG	OUTAGE	TC2-25
6585477	TC2 EHC Flush- Hydrolube.	INPRG	OUTAGE	TC2-25
6583335	Install discharge valves on 2A and 2B EHC pumps.	INPRG	OUTAGE	TC2-25
6583334	Replace all TC2 EHC pump hoses with compatible material hoses	INPRG	OUTAGE	TC2-25

NOT TC2WKD OUTAGE WORK ORDERS

Thompson

Start Date: 1/1/2007

End Date: 7/3/2014

6582983	TS&R 2B EHC pump, pump is pumping to much pressure.	INPRG	24HOURS	TC2-25
6491865	The Boiler drains recovery vessel manual level control valves need replaced.	SCH	OUTAGE	TC2S16
6577385	MAIN STEAM LINE ISOLATION VALVE 029 BEFORE TDRCV-019B DRAIN VALVE IS LEAKING	SCH	OUTAGE	TC2S16
6500186	2A house air comp disch vlv 2HAV001 will not close	SCH	OUTAGE	TC2S16
6577374	2B TDBFP SUCTION LINE AQUA AMMONIA INJECTION LINE IS LEAKING	SCH	OUTAGE	TC2-25
6579222	Repair steam leak on pressure tap piping. It is located just above valve 2-BLS-V645C.	SCH	OUTAGE	TC2-25
6542554	unit 2 BFP's closed cooling flow indicators dont turn and/or have fallen off. T/R	WOUT	OUTAGE	TC2S16

TCMSLCC**WALCOTT, DANNY - MAINTENANCE LEADER**

6524398	INSULATE The 2A, 2B, and 2C CT pump motors need to have an Isol valve	SCH	OUTAGE	TC2S14
6533908	PLEASE PAINT Add back-up line for the Recycle pump mechanical seal water line.	SCH	OUTAGE	TC2S14
6410930	An inspection performed by LG&E, SESS and Bechtel of the WESP water irrigation balancing during the	WOUT	OUTAGE	TC2S14
6548755	TC2 leak at southwest corner away from condenser, steam dump bypass vlv under insulation. Identified	WSCH	OUTAGE	TC2S14

TCMSLENG**ELECTRICAL ENGINEERING**

6327090	Install full range level indication on unit 2 reaction tank. Provide tank connection/reference point	INPRG	OUTAGE	TC2S14
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TCMSLENGMECH**MECHANICAL ENGINEERING**

6550579	Repair, cover and make water tight inspection ports on sides of duct work down stream of the Air	INPRG	OUTAGE	TC2S14
6535768	TC2 SCR - Layer 1 Off-site Clean and store - Capital	INPRG	OUTAGE	TC2S14
6532526	TC2 CO Monitor - Mechanical and Electrical Installations - Capital	INPRG	OUTAGE	TC2S14
6522371	Submerged Scraper Conveyer inspection and Mat'l Analysis	SCH	7DAYS	TC2S14
6546799	Replace chain on TC2 SSC.	SCH	OUTAGE	TC2S14
6533702	Pretest safety valves and repair valves as needed during outage.	SCH	OUTAGE	TC2S14
6533751	Install Condensate Polisher outlet valve to allow for routing of TC1 pegging condensate back to TC1	SCH	OUTAGE	TC2S14
6535461	Install basalt tile on TC2 SSC.	WOUT	OUTAGE	TC2S14
6542978	Install refractory on new inspection doors and repair refractory on existing platform doors.	WOUT	OUTAGE	TC2S14
6521228	Purchase and install TC2 inspection doors during the TC2 spring outage.	WOUT	OUTAGE	TC2S14
6535458	TC2 boiler inspections and punchlist repairs resulting from inspections.	WOUT	OUTAGE	TC2S14
6542995	NDE on balancing/mising header welds on TC2. Repair as needed.	WOUT	OUTAGE	TC2S14
6535695	External boiler leak Unit 2 10th landing southwest corner at spiral to vertical transtion zone.	WOUT	OUTAGE	TC2S14
6501870	TC2 Ashpit Refractory--Inspect refractory and make any needed repairs.	WOUT	OUTAGE	TC2S14
6542829	Provide mechanic to assist with biasing damper inspection.	WOUT	OUTAGE	TC2S14
6535456	TC2 Air Heater inspections and repairs.	WOUT	OUTAGE	TC2S14

NOT TC2WKD OUTAGE WORK ORDERS

Start Date: 1/1/2007

End Date: 7/3/2014

6414714	Following four (4) events in which a total of nine (9) boiler roof tubes failed, LG&E arranged for m	WSCH	OUTAGE	TC2S14
6533796	TC2 main safety PS904, PSV907 and PSV908 are leaking.	WSCH	OUTAGE	TC2S14

TCMSLSS**STEWART, STEWART - SECOND SHIFT - MAINTENANCE LEADER**

6586108	Empty unit #2 coal silos	SCH	ROUTINE	TC2-25
6583353	TC2 cooling tower has broken header and several spray nozzles missing. Please inspect and repair	SCH	OUTAGE	TC2-25

TCOPL3**Hudson, Glenn Trimble Co. Operation Production Leader 3**

6493826	TC-2 Air Heater wash on the September 2013 outage	WOUT	OUTAGE	TC2-21
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TCPIC**Bullock, Sam**

6585709	Open one door on each reactor of the TC2 SCR top layer, landing 10	SCH	24HOURS	TC2-25
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OUTAGE WORK ORDERS

Start Date: 1/1/2010

Outage ID: TC2WKD

End Date: 7/3/2014

Thompson

TCMSL2**POWELL,RICHARD - MAINTENANCE LEADER**

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6576827	Install gauges on ISO phase bus duct. See Nick Payne	RMAT	OUTAGE	2.00	0.00
6531306	Pull wiring for additional Condenser waterbox thermocouples.	WOUT	OUTAGE	8.00	5,000.00
6576814	TC2 check all terminations on all Bentley Nevada equipment monitoring panels and terminal strips. Pay special attention to terminations for TC2 main Turbine 11Y Cap vibration (2MSTVR134YB.UNIT2@TC2)	WSCH	OUTAGE	2.00	0.00
6580480	2A TDBFP Bently Rack TDI card keeps resetting causing alarm to Operators. Same issue occurs on 2 MDBFP rack. TS&R during outage.	WSCH	OUTAGE	2.00	0.00

TCMSL6**SEDAM, DALE, MAINTENANCE LEADER**

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6542812	unit2 CC flange busted on 2A PA fan outboard bearing CC flow indicator.	SCH	OUTAGE	8.00	0.00
6550578	Clean all Lime injection ports on duct work behind Air Heater.	SCH	OUTAGE	4.00	0.00
6577534	2B TDBFP Recirc valve is leaking through. TS/R Located on unit 2 6th landing East wall.	SCH	OUTAGE	8.00	0.00
6580430	Replace WESP zone isolation valves with stainless steel valves. Valves are in warehouse under name Logan Waller and PO 902718. On drawing TC2-M-00006-QWP01 valves are labeled (nine total) 2-QWP-V-004A/B/C 2-QWP-V-005A/B/C 2-QWP-V-006A/B/C Also replace ~12 carbon steel nuts and bolts with stainless steel parts at irrigation header valves inside weather enclosure.	SCH	OUTAGE	8.00	0.00
6580431	Replace broken lower casing wash nozzles in WESP zone C. Nozzles to be replaced are mostly in lower zones C2 and C3. See Logan Waller for parts.	SCH	OUTAGE	6.00	0.00
6447938	Please Inspect Check Valves on TC2 O2 Injection Skids	WOUT	OUTAGE	3.00	0.00

TCMSLENGMECH**MECHANICAL ENGINEERING**

WONUM	DESCRIPTION	STATUS	PRIORITY	LBR. HRS.	BUDGET EST.
6575444	Adjust hangers on the TC2 boiler economizer inlet piping at the feedwater flow element 2BLS-FT-105	WOUT	OUTAGE	8.00	0.00

From: Hammond, Steve(steve.hammond@doosan.com)
To: Mel Watkins; Rabe, Phil; Dukes, Christopher
CC: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Carlisle, Gary; Boone, James; 'James T. (Tom) Trimble' (trimblejt@bv.com); Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; 'Sandra Roach'; Smith, Timothy (Fuels); Henderson, Trent; 'Brann, Devin' (dmbrann@bechtel.com)
BCC:
Subject: FW: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage - Logic to Allow Actual Compartment Stoichiometry to be Trended But Not Seen on the Screen (SMR 0155, # 10)
Sent: 07/09/2014 06:19:59 AM -0400 (EDT)
Attachments: 32-3-096 (09 July 2014).pdf;

Mel / Phil / Chris

Please find attached an update of the logic # 32-3-096 (new sheet created by Chris Dukes before the end of Spring 2014 Outage).

The Denominator and Numerators were reversed by ourselves and need to be changed immediately.

This logic for the compartment stoichiometry is for trending only and does not affect the combustion control. The equation used is;

$$WB \text{ Lambda } (2\text{-CB-2A-WBL1}) = \text{measured PA} + \text{measured SA} + 13.73 (\text{seal air allowance}) / (\text{Actual Feeder flow X } (HHV\text{coal}/9970) \times 1.02 \times 7.382)$$

It was previously issued via the email below.

Please review and approve for implementation.

If you have any questions let us know.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +44 1293 584634

From: Hammond, Steve
Sent: 18 April 2014 18:13
To: 'Watkins, Clyde'; 'Rabe, Phil'; 'Dukes, Christopher'
Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; 'Carlisle, Gary'; 'Boone, James'; 'James T. (Tom) Trimble'; 'Joyce, Jeff'; 'Craft, Jim'; 'Mohn, Laura'; 'Slaughter, Mitch'; 'Payne, Nicholas'; 'Powell, Richard'; 'Melloan, Ricky'; 'Sandra Roach'; 'Smith, Timothy (Fuels)'; 'Henderson, Trent'; 'Brann, Devin'
Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155)

Mel / Phil,

Further to our e-mail dated 10Apr14 please find attached two of the four outstanding logic revisions.

- Logic # 10 – Logic to allow actual compartment stoichiometry to be trended but not seen on the screen.

Please find attached the revision required on Emerson logic 32-3-097. The new WB Lambda signal (2-CB-2A-WBL1) is shown for 2A Mill only. All input signals except the Actual Feeder flow are already existing on Emerson logic 32-3-097. I have attached the logic 32-3-097 received on 6 February 2014 for completeness.

The equation used is;

$$WB \text{ Lambda } (2\text{-CB-2A-WBL1}) = \text{Actual Feeder flow X } HHV\text{coal}/9970 \times 1.02 \times 7.382 / (\text{measured PA} + \text{measured SA} + 13.73 (\text{seal air allowance}))$$

Note! $HHV\text{coal}/9970 = CQF$

This new signal will be alarmed at 0.80 which is consistent the minimum per the current f(x).

- Logic # 13 – Additional logic to support the new GAH sootblower steam supply.

See Doosan e-mail dated 15Apr14.

- Logic # 14 – Update of various set points.

Please find attached a list of set points that are to be updated.

I have updated SMR0155 to reflect this issue of logics, it is now at revision F.

There are two further logic revisions to be issued to complete the SMR, they are;

- Logic # 9 – Address case of one mill operating on a different fuel.
- Logic # 15 – Updates resulting from the calibration check of the flow elements tagged 2-BLS-FT-105 and 2-AT-FE 103.

We will work to provide the data required for logic's # 9 and 15 and send as soon as available.

If you have any questions please respond to the circulation above.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Hammond, Steve
Sent: 16 April 2014 15:33
To: Dukes, Christopher
Cc: Watkins, Clyde; Rabe, Phil; McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Carlisle, Gary; Boone, James; James T. (Tom) Trimble; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; Sandra Roach; Smith, Timothy (Fuels); Henderson, Trent; Brann, Devin
Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155) - E-mail 3 of 3

Chris,

Please find following our response to the four bullet points in your e-mail.

1. The newest revision of the "Trimble County 2 Burner Modifications" document Section 4.3 "Coal Firing" describes a Bad Quality position feedback will cause a mill trip. We would like some clarification on the reasoning behind this. LG&E does not necessarily agree with this philosophy.

Response: Doosan consider that if the position of the TSOD is not known due to 'Bad Quality' of the position feedback signal to the DCS then it potentially could be at any position – even fully shut – and hence we require the mill operation to cease. Doosan believe this to be the safe way forward but if LG&E have an alternative proposal this can be discussed at our meeting.

It should be noted that if the TSOD has a healthy feedback and within a specified error tolerance (TBC) of the commanded position then the mill is not tripped but an alarm is sounded.

2. On the new burner TSOD sheet 27-3-00XX, there are no defined Priority Raise/Lower Targets or Priority Raise/Lower Rates. Are these supposed to match the Firing and Cooling positions and stated 1.333%/s rates or are they to be determined upon commissioning and be different than the Firing and Cooling positions?

The target for Priority Lower is 40% (=cooling position) and the target for Priority Raise is 80% (= firing position). The rate used in both cases is 1.333%/s. The rate may be optimized during commissioning.

3. The MASTATION algorithm on the same sheet has a BTSC of 50 from the previous markup. Should this be changed to 40 to match the Cooling position set point?

That is correct, BTSC should be 40%; to line up with the new cooling position of 40%.

4. I have some general questions about the mill tripping logic based on TSOD position on 27-3-00XX as well.

Are you able to send these questions ahead of the meeting so we can prepare responses.

Finally, I will issue a separate notice for the meeting proposed for Tuesday, 22Apr14, at 3:30pm (UK) / 10:30am (EST).

If any of this is unclear or you have any questions please let us know.

Thanks and regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Dukes, Christopher [<mailto:Christopher.Dukes@lge-ku.com>]
Sent: 15 April 2014 20:32
To: Hammond, Steve
Cc: Watkins, Clyde; Rabe, Phil; McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Carlisle, Gary; Boone, James; James T. (Tom) Trimble; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; Sandra Roach; Smith, Timothy (Fuels); Henderson, Trent; Brann, Devin
Subject: Re: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155) - E-mail 3 of 3

Steve,

That time should work for me and the LGE DCS team.

Chris Dukes
Control Specialist
LG&E-KU
Trimble County Station
Phone: [502-627-6278](tel:502-627-6278)
Mobile: [502-667-3164](tel:502-667-3164)
Fax: [502-217-2013](tel:502-217-2013)
Pager: [502-332-9792](tel:502-332-9792)
Email: christopher.dukes@lge-ku.com

On Apr 15, 2014, at 3:30 PM, "Hammond, Steve" <steve.hammond@doosan.com> wrote:

Thanks Chris

I have suggested that next Tuesday, 22Apr14, at 3:30pm (UK) / 10:30am (EST) may be a good time for a meeting to discuss your questions below, does this work for you and others who need to attend?

Let me know.

Attachment #1 to Response KIUC-1 Question No. 30(f)
Page 366 of 470
Thompson

Regards

Steve

Steve Hammond
Doosan Babcock
Email: steve.hammond@doosan.com
Tel: +1 502 255 5262

From: Dukes, Christopher [<mailto:Christopher.Dukes@lge-ku.com>]
Sent: 15 April 2014 18:36
To: Hammond, Steve; 'Watkins, Clyde'; Rabe, Phil
Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Carlisle, Gary; Boone, James; 'James T. (Tom) Trimble'; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; 'Sandra Roach'; Smith, Timothy (Fuels); Henderson, Trent; 'Brann, Devin'
Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155) - E-mail 3 of 3

Steve,

Below are my questions for the call we discussed in today's ALL meeting:

1. The newest revision of the "Trimble County 2 Burner Modifications" document Section 4.3 "Coal Firing" describes a Bad Quality position feedback will cause a mill trip. We would like some clarification on the reasoning behind this. LG&E does not necessarily agree with this philosophy.
2. On the new burner TSOD sheet 27-3-00XX, there are no defined Priority Raise/Lower Targets or Priority Raise/Lower Rates. Are these supposed to match the Firing and Cooling positions and stated 1.333%/s rates or are they to be determined upon commissioning and be different than the Firing and Cooling positions?
3. The MASTATION algorithm on the same sheet has a BTSC of 50 from the previous markup. Should this be changed to 40 to match the Cooling position setpoint?
4. I have some general questions about the mill tripping logic based on TSOD position on 27-3-00XX as well.

I hope to have captured most of my questions here so Doosan can be prepared to discuss as soon as possible. If any of this can be answered simply through email, that may suffice. I would expect most of this will require a phone conversation.

Regards,

Chris

From: Dukes, Christopher
Sent: Monday, April 14, 2014 7:26 AM
To: 'Hammond, Steve'; Watkins, Clyde; Rabe, Phil
Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Carlisle, Gary; Boone, James; James T. (Tom) Trimble; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; Sandra Roach; Smith, Timothy (Fuels); Henderson, Trent; Brann, Devin
Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155) - E-mail 3 of 3

Steve,

I am reviewing the logic and have a couple of questions. Would it be best to set up a short call to clear this up, or try to word my questions in email format?

Regards,

Chris

From: Hammond, Steve [<mailto:steve.hammond@doosan.com>]
Sent: Thursday, April 10, 2014 7:01 AM
To: Watkins, Clyde; Rabe, Phil
Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Jones, Gareth; Dukes, Christopher; Carlisle, Gary; Boone, James; James T. (Tom) Trimble; Joyce, Jeff; Craft, Jim; Mohn, Laura; Slaughter, Mitch; Payne, Nicholas; Powell, Richard; Melloan, Ricky; Sandra Roach; Smith, Timothy (Fuels); Henderson, Trent; Brann, Devin
Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage (SMR 0155) - E-mail 3 of 3

Note - E-mail 3 of 3

Mel / Phil,

Please find attached an update to SMR 0155 which contains the logic revisions required to support the Spring 2014 outage, the following notes summarise the issue:

The document provided to give an overview of the logic modifications associated with the new burners has been updated and is now titled "TRIMBLE COUNTY 2 BURNER MODIFICATIONS – 10th April 2014".

- ? Logic # 1 – Oxygen trim control – No change from previous issue.
- ? Logic # 1a – Mill design stoichiometry and SA limit, Mill SA – No change from previous issue.
- ? Logic # 1b - Mill design stoichiometry and SA limit, Mill feeder – No change from previous issue.
- ? Logic # 2 – OFA control – No change from previous issue.
- ? Logic # 3 – SA cooling flow – No change from previous issue.
- ? Logic # 4 – TSOD – Logic revised following operating philosophy meeting.
- ? Logic # 5 - Deleted – No change from previous issue.
- ? Logic # 6 – Furnace purge permit start – No change from previous issue.
- ? Logic # 7 – TSOD interfaces – Reinstated and re-titled, logics # 27-3-0387 and 37-3-0303 – No change from previous issue, logics 28-3-344 and 44-3-102 are new.
- ? Logic # 8 - WCAH – No change from previous issue.
- ? Logic # 9 – Address case of one mill operating on a different fuel – Under review and forecast issue date to be advised.
- ? Logic # 10 – Logic to allow actual compartment stoichiometry to be trended but not seen on the screen – Under review and forecast issue date to be advised.
- ? Logic # 11 – Included with the revision for # 4.
- ? Logic # 12 – Ammonia flow issue when load is below 15% - See separate e-mail dated 10Apr14.
- ? Logic # 13 – Additional logic to support the new GAH sootblower steam supply – DPII were late in responding to a query, this has now been received and we expect to issue by the end of this week, 11Apr14.

- ? Logic # 14 – Update of various set points -- Under review and forecast issue date to be advised.
- ? Logic # 15 – Updates resulting from the calibration check of the flow elements tagged 2-BLS-FT-105 and 2-AT-FE 103– Under review and forecast issue date to be advised.

Also attached is a copy of Doosan's Data Sheet : D-NOx Coal Burner Process Data (#06350/B223/DS/34400/2./1090 Rev D), this contains the F(x) data to support various of the logics listed above, this was previously attached to our e-mail dated 02Apr14 and is attached again for reference – this document has not been revised.

We will work to provide the data required for logic's # 9, 10, 13, 14 and 15 and send as available.

We are working with Emerson to confirm availability of a tech to support the implementation of these logics and ask that they are reviewed and agreed for implementation.

If you have any questions please respond to the circulation above.

Thanks and regards

Steve

 Steve Hammond
 Doosan Babcock
 Email: steve.hammond@doosan.com
 Tel: +44 1293 584634

From: Watkins, Clyde [<mailto:cwatkins@bechtel.com>]
 Sent: 02 April 2014 13:43
 To: Hammond, Steve; Phil Rabe
 Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Christopher Dukes; Gary Carlisle; James Boone; James T. (Tom) Trimble; Jeff Joyce; Craft, Jim (EON); Laura Mohn; Mitch Slaughter; Nicholas Payne; Richard Powell; Ricky Melloan; Sandra Roach; Timothy Smith (Trimble); Trent Henderson; Brann, Devin
 Subject: RE: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage

Thanks Steve,

This list doesn't mention any changes to the DCS logics for the new air heater steam source. Is that because none are required?

Also, please add PLC logic changes to this list or advise where it will be tracked, tested, verified.

Thank You,

Mel Watkins
 Project Manager
 Trimble County Unit 2 Project
cwatkins@bechtel.com
 work: 301-228-8035 (Frederick)
 cell : 240-793-4490

From: Hammond, Steve [<mailto:steve.hammond@doosan.com>]
 Sent: Wednesday, April 02, 2014 8:18 AM
 To: Watkins, Clyde; Phil Rabe
 Cc: McCallum, Neil; Davidson, Gordon; Torkington, Ian R; Kerslake, Ian; Gratton, Ron; 06350 TRIMBLE COUNTY MAILBOX; Grist, John; Gonese, Jean; Bartlett, Derek; Maunder, Kevin; Lee, John; London, Alan; Christopher Dukes; Gary Carlisle; James Boone; James T. (Tom) Trimble; Jeff Joyce; Craft, Jim (EON); Laura Mohn; Mitch Slaughter; Nicholas Payne; Richard Powell; Ricky Melloan; Sandra Roach; Timothy Smith (Trimble); Trent Henderson; Brann, Devin
 Subject: 07292 - TC2 - List of Logic Revisions for the Spring 2014 Outage

Mel

Further to the action item call yesterday in which a full list of logic revisions was requested we respond as follows.

1. Doosan has used SMR0155 to issue the following logic revisions, this was issued on e-mails dated 19Feb14 (Rev C) and 01Mar14 (Rev D).

#	Description	Logic Sheets
1	Emerson logic 27-3-0062 Oxygen Trim control	? Logic 27-3 -0062
1a	Emerson logics 27-3-0031 for 2A Mill Secondary air, repeat for mills 2B-2F. This logic has an F(x) for the individual mill design stoichiometry and develops the Mill SA Limit.	? Logic 27-3-0031 (Repeat for mills 2B-2F)
1b	Emerson logics 32-3-022 for 2A Mill Feeder, repeat for mills 2B-2F. This logic has an F(x) for the individual mill design stoichiometry and develops the Mill SA set point.	? Logic 27-3-022 (Repeat for mills 2B-2F)
2	OFA Control Emerson logic 27-3-0065, 27-3-0069 (for Rear Wall), and 27-3-0071 for (Front Wall).	? Logic 27-3 -0065 ? Logic 27-3 -0069 ? Logic 27-3 -0071
3	SA Cooling flow burner logic Emerson logic 27-3-0032 for Mill A, repeat for Mills B, D and E, and 27-3-0038 for Mills C and F. And confirmation of SA limit	? 2A Secondary Air Control (3/3) - # 27-3-0032 ? 2C Mill Secondary Air Control (3/3) - # 27-3-0038
4	New logic for the total shut off (TSO) damper– New Emerson Sheet (1 off – Emerson/LG&E to repeat the other 29 actuators). This will be linked to SA existing damper logic and Drop 27 - TSO damper interface logics.	? Trimble County Unit 2 Burner A1 Total Shutoff Damper Control - # 27-3-00XX ? 2A Draft Group Sequence Logic - # 27-3-0387and 2A Air Preheater SA Outlet 2CD-179A-1 (2/5) - # 27-3-0303
5	Addition of burner air control dampers will affect oil burners and PF (mill) permits to start, oil burner permit to purge, on line monitoring and oil/PF burner tripping.	? DELETED
6	Also BMS Common - Furnace Purge Permit start and purge in progress monitoring of burner damper positions.	? Furnace Purge Logic Sheet 6 - # 44-3-0015 ? Furnace Purge Logic Sheet 2 - # 44-3-0011
7	Oil burner igniter Chentronics interface will only affect one logic per oil burner	? DELETED
7A	Oil Burner A1 Logics (similar requirements for all 30 oil burners)	? Oil Burner A1 Firing Logic - # 28-5-0012 ? Oil Burner A1 Atomiser Logic - # 28-5-0013 ? Oil Burner A1 Purge Logic - # 28-5-0018 ? Oil Burner A1 Fault Logic - # 28-5-0020
7B	Mill A Logics (similar requirements for all 6 mills)	? Mill A Oil Burner Group Logic Sheet 5 - # 28-5-0116
8	WCAH logic modification	? 2A Water Coil Air Heater 2CV-100A - # 27-3-0110

2. Since this list was issued the operating philosophy comments have been discussed which will lead to the further modification of the logics associated with the Total Shut Off damper (# 4 above) and others as noted below.

Attached to this e-mail is a copy of the Operating Philosophy comments along with points discussed during the meeting for your information, those have been highlighted in yellow for easy reference.

Arising from this the following logics will require revision / adding:

#	Description	Logic Sheets
9	DB will review logic previously developed for the original Fuel box test to address the case of one mill operating on a different fuel.	? TBC
10	DB also proposes to add logic to allow actual compartment stoichiometry to be calculated and trended (by Engineer, not on screen). The current stoichiometry displayed is corrected to Performance Coal basis. This will allow comparison of any difference to actual conditions for firing fuels.	? TBC

3. We are also looking at two additional logic revisions which are at present being discussed, these are:

#	Description	Logic Sheets
11	There is a concern that raising an alarm if the total shut off damper is not in its correct position is sufficient and should a mill be tripped.	? TBC
12	A spike in ammonia flow to the SCR was noted during the unit shut down which should not have occurred. The reasons for this are being investigated and a solution will be put forward.	? TBC

Once we have ordered our thoughts on these two we will issue further information regarding the logic revision recommended.

4. Attached to this e-mail is a copy of Doosan's Data Sheet : D-NOx Coal Burner Process Data (#06350/B223/DS/34400/2./1090 Rev D), this contains the F(x) data that will be added to the logic sheets as required.

5. Resulting from the issue of the .../1090 document containing the F(x) data a number of set points will need to be revised, these will include but not necessarily be limited to:

- Minimum SA windbox flow when coal firing should be raised from 280 kpph to 335 kpph, this is then more consistent with the min stoich f(x). Oil Firing min SA SP unchanged
- The expectation is that the OFA dampers will control crossover pressure, and SA dampers will be more closed in. We hope to achieve better damper characteristic with the new OFA, so suggest a starting optimum damper position of 62.5% SA which represents approximately where we were in January and 67.5% OFA (or delta +5%). This should be fairly conservative but can be optimised at site.
- PA damper HAD optimum position- I believe this was set through previous optimisation at site and a position of 58% is a conservative starting point (trends suggest up to 60% achievable)
- Note TSO damper modified to 40% cooling position with 15% on all SA w/box dampers (and characterised per crossover pressure f(X) per datasheet 1090 f(x))
- Anticipated crossover pressure/firing rate per datasheet 1090 f(x)

6. Resulting from the calibration of the two flow elements (2-BLS-FT-105 and 2-AT-FE 103) the logic set points will require amending to reflect the results.

I appreciate there is a lot of information included within this e-mail and if you have any questions please let me know by responding to the circulation above.

Thanks and regards

Steve

 Steve Hammond
 Doosan Babcock
 Email: steve.hammond@doosan.com
 Tel: +44 1293 584634

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Thompson

From: Anderson, Dave (Trimble County)/(O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Afiyet, Hamit; Allen, Ross; Ball, Adam; Bethany, Ron; Boone, James; Bullock, Sam; Byrd, Larry; Cash, Rebecca; Chin, Doug; Craft, Jim; Craven, David; Della Rocco, Thomas; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Griffith, Michelle; Hance, Chuck; Hannon, Hannah; Hayes, Christopher; Heinz, John; Henderson, Trent; Hudson, Glen; Jensen, Jack; Jones, Steve; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Menezes, Tomas; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Park, Marci; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Richardson, Stephen; Sanders, Matt; Schultz, Joseph; Sedam, Dale; Simpson, Jeff; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Thurston, Eric; Turner, Haley; Turner, Tyler; Walcott, Danny; Waller, Logan
CC:
BCC:
Subject: TC2-25 Outage Report.pptx
Sent: 07/15/2014 09:21:16 AM -0400 (EDT)
Attachments: TC2-25 Outage Report.pptx;

All,

Power point presentation summary of TC2 EHC outage.

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

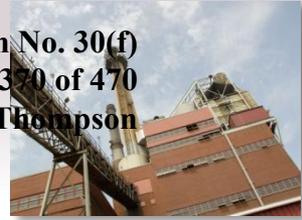


PPL companies

Trimble County Unit 2 Outage Report

WTC2-25 EHC & Turbine Valve Outage
June 29th, 2014

Maintenance Work Orders



TC2-25 Outage Data

Offline Date : **Sunday, June 29th, 2014**

Offline Time : **01:46 hrs.**

Outage: **Forced**

Start-Up

Type of Start up: **Cold**

HP Turbine 1st Stage Inner Wall (Upper)- **233.09 deg.F**

HP Turbine 1st Stage Inner Wall (Lower)- **258.41 deg.F**

Firing Date: **Saturday, July 12th, 2014**

Firing Time: **23:45 hrs.**

Online Date: **Sunday, July 13th, 2014**

Online Time: **08:13 hrs.**

Safety:

- Employee Injuries- **0**
- Employee Recordables- **0**
- Contractor Injuries- **0**
- Contractor Recordables- **0**

Cause of Forced Outage:

The Unit was taken offline due to EHC system and turbine valve issues.

Repairs made for cause of Forced Outage:

See following slides.



EHC System Maintenance Summary

TC2 was scheduled offline to replace “A” MSV fast acting solenoid. Turbine valves did not function correctly causing turbine overspeed. Unit will remain off to complete EHC flush and other activities.

The following is a list of action items personnel directing activities:

EHC System/ Turbine Trip

- EHC system flush- Hydrolube (Gary Williams). **Tyler Turner** is LG&E contact for these activities. Hydrolube mobilizing and due on site late Monday, June 30th.
- Verifying servo valves, dump valves, Master Trip solenoids and filters available as well as refurbishing contaminated valves- **Trent Henderson/ Ricky Powell**.
- Replacing 2B EHC pump- **Dale Sedam**
- Checking EHC coolers for leaks- **Dale Sedam**
- Checking EHC hoses and isolation valve arrangements- **Dale Sedam**
- Obtaining EHC Fluid and Cleaning agent as well as other materials needed by Hydrolube- **Marci Park/ Ron Bethany**
- Turbine Overspeed data analysis- **Emmett Moore/ MDA (Larry Anderson)**



EHC System Maintenance Summary

- EHC System Repairs & Turbine Valve Functional Tests
- EHC System Flush- Hydralube
 - Drain System
 - Remove Valve Servos, trip manifold, accumulators & filters.
 - Disconnect system pumps
 - Install “jumpers” where components are removed
 - Blow-down Lines & Clean Reservoir
 - Attach “high pressure flushing unit”
 - Refill system and add 55 gal. of cleaning agent
 - Flush system & periodically sample
 - Drain system and purge with air
 - Clean reservoir
 - Refill system and Rinse Flush
 - Drain system and purge with air
 - Restore system- install new or refurbished Valve Servos, trip manifold, accumulators & filters
 - Temporary coolers connected to system. Original coolers removed and sent out to check for leaks.
- Functionally Test EHC skid
- Functionally Test Valves

EHC System Maintenance- Date Summary

- Dates:
 - 6/29- Offline- EHC problems/ turbine overspeed
 - 6/29- Hydralube contacted to mobilize to Trimble for EHC flush
 - 6/30- Hydralube Travel
 - 7/1- Hydralube on site
 - 7/1- Installing Hydralube flushing equipment
 - 7/1- New 1" vent installed on top of reservoir, Coolers pressure tested with Nitrogen & 110 psi condensate (no leaks identified), connecting temporary cooler to system, OEM coolers pulled to send out for testing, Trip manifold pulled, Replacing "B" EHC pump
 - 7/2- EHC system Hydralube charged and leak check @ 14:20 hrs.
 - 7/2- Stroking Valves (Flushing) Start @ 18:00 hrs.
 - 7/5- EHC rinse completed @ 02:00 hrs.
 - 7/5- Restoring system
 - 7/6- EHC piping restored
 - 7/6- Valves stroked to remove air
 - 7/6- 7/11 Functional Testing- residual system contamination- trip block not functioning properly
 - 7/12- Mark VI software issues

EHC System Maintenance Summary

Other Items:

1. Separator Balancing Line Leak (Remove Fermanite box and Cap)- **Dale Sedam/ Southeast Boiler**
2. 2D recycle pump mechanical seal- **Dale Sedam**

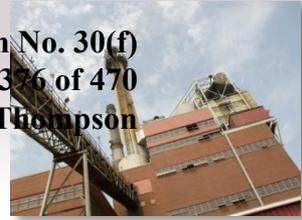
Boiler Leak Repair



PPL companies

Maintenance Work Orders

Trimble County Unit 2 Outage Report



Maintenance Work Orders

TCMSL2 POWELL,RICHARD - MAINTENANCE LEADER (I&E)

- 6585565- Check TC2 Mark VI connections in control cabinet
- 6586018- Check calibration of the TC2 SH and RH biasing dampers

TCMSL6 SEDAM, DALE, MAINTENANCE LEADER (MECH)

- 6554752- Add 2 four inch drain valves to the east side of the S.S.C.
- 6577374- 2B TDBFP SUCTION LINE AQUA AMMONIA INJECTION LINE IS LEAKING
- 6579222- Repair steam leak on pressure tap piping. It is located just above valve 2-BLS-V645C.

I think we will need scaffold to complete. We might look at P&ID to see what material and size pipe is so we can order new. I would probably replace elbow while there as well.

- 6582983- TS&R 2B EHC pump, pump is pumping to much pressure. S/M changed inline filter, but that did not help. Pump is running too high pressure. Tried adjusting pressure, but that did not work. Compensator/Regulator is not working. We believe that this is broken and pieces could be in pump. Please change entire pump assy. IIN#3009531.
- 6583333- Check 2A and 2B EHC coolers for leaks
- 6583334- Replace all TC2 EHC pump hoses with compatible material hoses
- 6585477- TC2 EHC Flush- Hydrolube.
- 6585881- Replace air heater access door gaskets on 4th landing.
- 6585902- Need to pull a few bags from the TC2 Baghouse. See Haley Turner
- 6583335- Install discharge valves on 2A and 2B EHC pumps.

Maintenance Work Orders

TCMSLENGMECH MECHANICAL ENGINEERING

- 6587156- Repair tube leak located on the right water wall below future sootblower at over fire air elevation.

TCMSLSS STEWART, STEWART - SECOND SHIFT - MAINTENANCE LEADER

- 6583353- TC2 cooling tower has broken header and several spray nozzles missing. Please inspect and repair during this outage.
- 6586108- Empty unit #2 coal silos

TCPIC Bullock, Sam

- 6585709- Open one door on each reactor of the TC2 SCR top layer, landing 10

Maintenance Work Orders

Doosan

#	Description	Forecast
1	EC-SBR/Petrochem looking at burner front and PF splash plate insulation to reduce burner front temperatures	f/c = 04-Jul-14 for 1 burner f/c = TBC for balance of 29 (Post outage activity)
2	Doosan to Issue updated 5 pair oil gun tip testing program for cold start	f/c = 03-Jul-14
3	Review Economiser Feed Piping supports in cold position and cut & re-weld the stubs to address the issue of the valves bottoming out on level 6?	f/c start is 01-Jul-14....Initial support survey completed and Stub cut & re welded 1st July '14
3a	Need Bechtel confirmation that supports in their piping scope are correctly loaded	Bechtel action
3b	Verify support supporting the Economizer inlet line adjacent to the check valve is loaded correctly - The support number is 31311SSC001	f/c survey = 01-Jul-14
4	Issue our email re Drain Pipe From the Small Start-up Vessel to the Boiler Drains Vessel (# 2-BLS-L879) and effect any repairs / check movement back in cold position	f/c response = 02-Jul-14
5	Logic updates	
5a	Doosan review and revision of logic associated with release of GAH soot blower system to warm pipework and blow GAH (enthalpy steam quality release set point)	01-Jul-14: Logic issued for review and release to implement
5b	Following a review Doosan recommend switching off the Optimum damper position up to 80% Unit load and returning to a minimum crossover duct pressure of 2.6 " wc. It will be a site activity to optimise the final minimum crossover duct pressure and the fuel rate to release the Optimum Damper Position Controller.	01-Jul-14: Logic issued for review and release to implement
5c	Doosan recommend that the new Enthalpy f(x) Set Point for sliding pressure mode mentioned in the e-mail sent by Kevin Maunder on 28-Jun-14, RE: 07292 TC2 - Logic Mark up re High Spray Flows and Enthalpy Control is implemented during the outage	01-Jul-14: Follow up to Kevin Maunder e-mail dated 28-Jun-14 recommending full implementation of the F(x) curve described, this can either be completed within the outage window or in steps once the unit is back on line - whichever is your preference. As offered in Kevin's e-mail, if you wish to discuss this please let us know or contact Kevin directly whilst he is at TC2.
5d	Doosan to review the cross-over duct pressure configuration modifications, testing and tuning suggested by David Lee to negate the Hydrojet impact on wind box / furnace pressure changes and if agreed recommend to LGE-KU for implementation	f/c = 02-Jul-14
5e	Ron Gratton to summarise revisions required to the DPII logic following the commissioning of the GAH soot blower steam system Doosan to verify that the GAH soot blower steam system operating philosophy is consistent with the finally commissioned system	Post outage activity

Attachment #1 to Response KIUC-1 Question No. 30(f)

Maintenance Work Orders

Doosan

Page 380 of 470
Thompson

5f (13)	Doosan to verify implementation of "Following Each MFT There is a Period (5 minutes) During Which All Dampers Are Frozen", logic sheets issued by Chris Dukes on 30-Jun-14	01-Jul-14: Steve Hammond, Confirmed implementation as intended.
5g (14)	LGE-KU to review and approve for implementation the fuel oil pressure control logic mark up sent by Paul Reynolds on 18-Jun-14, "07292A - Trimble County, Oil Gun Igniters, FUEL OIL PRESSURE CONTROL LOGIC MODIFICATION"	01-Jul-14: Following up to Paul Reynolds e-mail dated 18-Jun-14 recommending implementation of the fuel oil pressure control logic described and that this should be completed within the outage window. Can I ask you to review and release for implementation.
5h (15)	Doosan to review recent O ₂ dip seen when changing coal mills and recommend a logic revision to ensure this does not re-cur	01-Jul-14: Logic issued for review and release to implement
6	Verify thermocouple wiring to D3 PF upper and D4 PF lower is correct	30-Jun-14: Alan London, Thermocouples – D3 PF upper & D4 PF lower were removed, checked back to DCS at ambient. T/C heated and temperature rise noted. T/C replaced and reading close to others in the same location. E5 SA tip upper was found defective and was replaced.
7	Finalise Beck drive power / DCS cable routing on burner decks and replace all 'nylon cable ties' with metal P clips, as per Phil Rabe's request last week..survey complete & materials on order	f/c = 04-Jul-14
8	Reconcile and test flame scanners and check for faults / confirm how many are serviceable	30-Jun-14: Alan London, Current known stock of flame scanners is: Coal – 6 x new scanners, Oil – 2 x new scanners and 1 x used. Others are being recovered from the I&E workshop for testing.
9	Doosan to investigate A3, B4 and C3 oil scanners	01-Jul-14: Justin Heath, A3 & B4 flame monitors had their test cables removed and original 'used' cables re-fitted. Function checked and settings backed to Profile 0 / Set (High Load). C3 oil flame monitor has been fitted with a new cable. Functionality checks performed and settings backed to Profile 0 / Set (High Load).
10	Doosan to repair and refit Cegrit assemblies	f/c = 02-Jul-14....need to resolve electrical connection / hook up
11	Set mills A, B, D, & F core air damper minimum closed stops (to same position as C & E)	01-Jul-14: Advised complete by Ron Gratton
12	Look to fit all upgrade hardened PF Orifice plates – Materials in the stores	01-Jul-14: Advised complete by Ian Kerslake...Issue size / location sheet and/or include in IO&M
13	Complete OFA damper bearing and test point insulation	f/c = 03-Jul-14 Currently carded out & WIP
14	Complete installation of new valves on level 16 condensate pots and cap on vent line - Action EC-SBR & Mistras	f/c = 03-Jul-14 Currently carded out & WIP, sub assys being welded
15	OFA Port Rod adjustments – to eliminate the length variations that currently exist	03-Jul-14 Colour coded handles to be re-painted
16	Complete fitting the PA / SA test probes	01-Jul-14: Advised complete by Gareth Jones & scaffolds being removed
17	Survey the GAH pipework system and supports now the unit has gone through start to hot and now back to cold and note if any issues with supports / pipe movements i.e. level 14 down to 2	01-Jul-14: David Farrow, This has been walked down from the 16th to the 2nd floor examining all supports / guides and spring hangers for the correct movement, or fouling etc. Nothing untoward was observed.
18	Survey F row PF lines re movement on lower cans back to cold positions	01-Jul-14: David Farrow, This has been examined and the constant load supports have moved towards the cold set position to varying degrees. 01-Jul-14: David Bingham, Crawley Engineering have reviewed and believe that adjusting the pipework back to cold set position will have little benefit as during the next hot condition the same effect will happen again.

Maintenance Work Orders

Doosan

19	Take unit cold position readings on all the access ladders on the burner decks and mark on the ladders as completed with the unit in the hot position	f/c = 03-Jul-14...Now complete hot measurements marked on ladders...look to fit plate 3 position movement indicators
20	Can we repair bound up Mech. Stops on CA damper - A row, investigate if we source spares parts ASAP from Tyco / MacJunkin?	Parts on order due 8th July '14
21	Take photo's of burner and OFA throats - Site access via 'dance floor' doors, LGE-KU to open and shut on completion	01-Jul-14 both B&V and Bechtel photo's issued to all and further burner photos taken by Doosan to be issued 2nd July '14
22	LGE-KU to check out CO probes - A side as we understand from Devin that one appears to be flat lining?	LGE-KU action
23	LGE-KU to look at A3 fuel oil valve	LGE-KU action
24	LGE-KU to carry out further overhaul of purge air valves subject to repair kit availability - Rick Powell checking	LGE-KU action
25	Doosan to issue revised copy of our D-NOx burner optimisation test program phases 1 – 7 to LGE-KU and Bechtel	f/c = 04-Jul-14
26	Doosan to demobilise Storm & FERCo personnel on 30-Jun-14, Storm to remobilise for dirty air testing, FERCo to remobilise Monday week	Demobilisation action complete
27	Look at overall impact to our latest program as issued at the end of last week	f/c = 03-Jul-14
28	Gas Biasing Dampers - complete blade tip to tip measurements	f/c = 03 Jul-14...needs to be carded out
29	Clean Burners / Decks from previous PF leaks - Burner #'s & locations TBA	f/c = 03 Jul-14
30	Clean Burner fronts / boiler cladding ledges - all elevations - Petrochem	f/c = 04-Jul-14
31	Complete modifications to boiler front lagging re PF pipe support clashes x 2 locations - Petrochem	f/c = 04-Jul-14...currently WIP
32	Modify Purge air pipe / PF support clash on A1 burner	f/c = 03 Jul-14...material on site, needs to be carded out
33	Complete welding to toe plate on burner deck and remove misc wire support A Row	f/c = 03 Jul-14
34	Test / check SCR Sonic horns & open SCR doors and review ash build up re new sweep system in place	LGE-KU action
35	Open APH doors & inspect tops of baskets following lime injection	LGE-KU action
36	Test / Check HP Spraywater suspect T/C on 6th level north wall previously reading 40 deg low	LGE-KU action
37	F4 PF pipework clash with instrument air - A deck	01-Jul-14: Advised complete by Rob Elliott
38	Complete transfer of LG&E burner inventory from warehouse B	f/c = 04-Jul-14



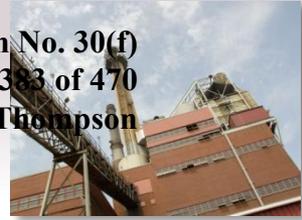
Rexroth Part Evaluation Report





PPL companies

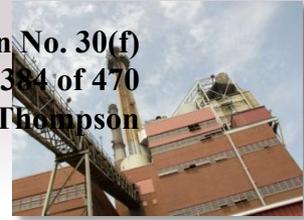
Trip Valve – 4WH 22 shows oxidation in





PPL companies

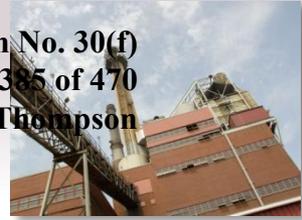
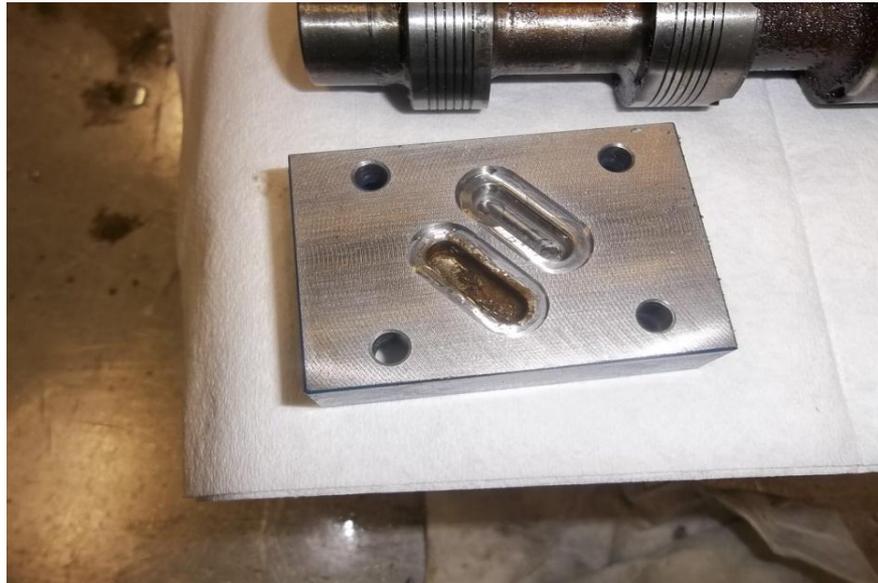
Trip Valve - 4WMM 6 shows varnish and oxidation





PPL companies

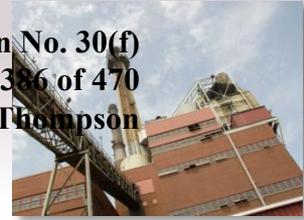
Varnish and debris in pressure port





PPL companies

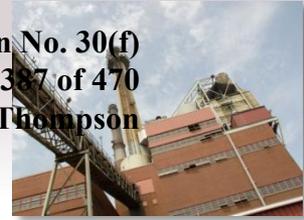
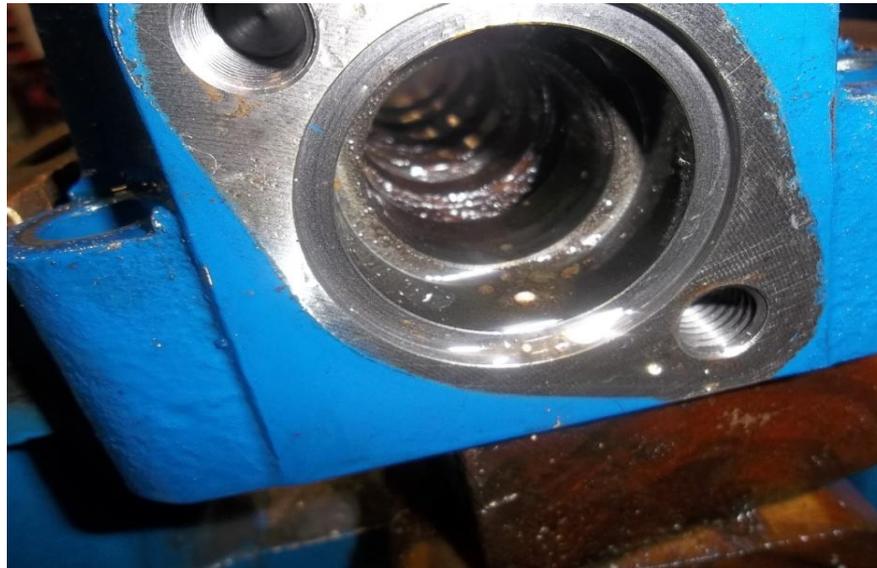
Spool shows oxidation as well as varnish





PPL companies

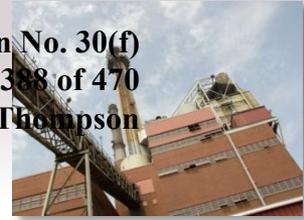
Major oxidation can be seen within the





PPL companies

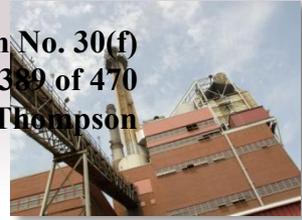
Water and oxidation shown





PPL companies

Varnish and oxidation



Turbine Trip Test Data



Turbine Trip Test Data

Turbine Trip Testing

Turbine Trip Testing					
Check for Hydraulic Leaks					
Check Cooling System					
ETD (On EHC SKID)	Trips ETS Pressure (Y or N)	Trips Valve (y or N)	Valve Tripped	Valve Travel Time	Time for ETS to Zero
Master Trip Solenoid A1 (MTS)	no	no	N/A	N/A	N/A
Master Trip Solenoid A2	no	no	N/A	N/A	N/A
Master Trip Solenoid B1	no	no	N/A	N/A	N/A
Master Trip Solenoid B2	no	no	N/A	N/A	N/A
MTS A1 and MTS A2	yes	yes	MSVA	1.25	22 sec
MTS A1 and MTS B1	no	no	N/A	N/A	N/A
MTS A1 and MTS B2	no	no	N/A	N/A	N/A
MTS A2 and MTS B1	no	no	N/A	N/A	N/A
MTS A2 and MTS B2	no	no	N/A	N/A	N/A
MTS B1 and MTS B2	yes	yes	CVA	0.78	4.98
MTS A1, MTS A2, MTS B1, and MTS B2	yes	yes	MSVA	1.31	5.08
Manual trip handle 1(A Side)	yes	yes	MSVA	1.31	5.08
Manual trip handle 2 (B Side)	yes	yes	MSVA	1.31	5.08

Turbine Trip Test Data

"A" Main Stop Valve	Travel Time						
Fast acting Soleniod Test 1	1.31						
Fast acting Soleniod Test 2	1.31						
Fast acting Soleniod Test 3	0.68						
Loss of ETS Pressure	1.31						
Servo Coil Polarity	Pass/Fail						
Servo Coil 1	Pass						
Servo Coil 2	Pass						
Servo Coil 3	Pass						
Valve Calibration	Pass						
Valve Calibration Reference	Servo Current	Actual Position					
-5%	87	0.121					
0%	-13	0.107					
25%	-15.42	25.012					
50%	-12.69	49.9479					
75%	-12.9	75.12					
100%	-17.34	99.936					
110%	-102.188	100.448					
Null Bias	13.44						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	5.68085	5.662946	5.667037	5.68085	5.68085	5.662946	5.66704
LVDT 1 Closed	1.531431	1.53063	1.531947		1.531431	1.53063	1.53195
LVDT 1 Open	5.546056	5.549922	5.548113		5.546056	5.549922	5.54811
LVDT 1 Closed	1.602298	1.601318	1.607434		1.602298	1.601318	1.60743
LVDT 1 Open	5.599611	5.600593	5.601154		5.599611	5.600593	5.60115
LVDT 1 Closed	1.602298	1.601318	1.602687		1.602298	1.601318	1.60269
Manual indicator Open	6.626						
Manual indicator Closed	0.1						

Turbine Trip Test Data

"B" Main Stop Valve	Travel Time						
Fast acting Soleniod test 1	1.36						
Fast acting Soleniod test 2	1.36						
Fast acting Soleniod test 3	1.31						
Test Solenoid trip	39.44						
Loss of ETS Pressure	1.25						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	5.60269	5.605085	5.603716		5.60269	5.605085	5.60372
LVDT 1 Closed	1.568579	1.569432	1.569553		1.568579	1.569432	1.56955
LVDT 2 Open	5.6089	5.613	5.6139		5.6089	5.613	5.6139
LVDT 2 Closed	1.557851	1.559862	1.56069		1.557851	1.559862	1.56069
Manual indicator Open	6.6						
Manual indicator Closed	0.1						

Turbine Trip Test Data

Reheat Valve "A"	Travel Time						
Fast acting Soleniod Test 1	1.25						
Fast acting Soleniod Test 2	1.36						
Fast acting Soleniod Test 3	1.36						
Test Solenoid trip	21.66						
Loss of ETS Pressure	1.25						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	5.007256	5.008678	5.011709		5.007256	5.008678	5.01171
LVDT 1 Closed	1.545847	1.545223	1.548079		1.545847	1.545223	1.54808
LVDT 1 Open	4.9817	4.985	4.9839		4.9817	4.985	4.9839
LVDT 1 Closed	1.639459	1.640289	1.640579		1.639459	1.640289	1.64058
Manual indicator Open	8.7						
Manual indicator Closed	0						

Turbine Trip Test Data

Interceptor Valve "A"	Travel Time						
Fast acting Solenoid Test 1	0.68						
Fast acting Solenoid Test 2	0.78						
Fast acting Solenoid Test 3	1.36						
Loss of ETS Pressure	1.36						
Servo Coil Polarity	Pass/Fail						
Servo Coil 1	Pass						
Servo Coil 2	Pass						
Servo Coil 3	Pass						
Valve Calibration	Pass						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	4.520427	4.525082	4.527006		4.520427	4.525082	4.52701
LVDT 1 Closed	1.379211	1.380967	1.38199		1.379211	1.380967	1.38199
LVDT 2 Open	4.531415	4.530644	4.53354		4.531415	4.530644	4.53354
LVDT 2 Closed	1.403544	1.403026	1.404586		1.403544	1.403026	1.40459
LVDT 3 Open	4.545281	4.53396	4.537548		4.545281	4.53396	4.53755
LVDT 3 Closed	1.386719	1.384283	1.385889		1.386719	1.384283	1.38589
Manual indicator Open	8.2						
Manual indicator Closed	0						
Valve Calibration Reference	Servo Current	Actual Position					
-5%	40.16	0.122					
0%	-9.9	0.123					
25%	-13.7	24.7205					
50%	-12.93	49.7778					
75%	-12.63	74.69					
100%	-14.4	99.6705					
110%	-98.206	100.05					
Null Bias	13.31						

Turbine Trip Test Data

	Travel Time						
Interceptor Valve "B"							
Fast acting Soleniod test 1	1.36						
Fast acting Soleniod test 2	1.36						
Fast acting Soleniod test 3	1.25						
Loss of ETS Pressure	1.36						
Servo Coil 1	Pass						
Servo Coil 2	Pass						
Servo Coil 3	Pass						
Valve Calibration	Pass						
LVDT 1 Open	4.537415	4.525328	4.545763		4.537415	4.525328	4.54576
LVDT 1 Closed	1.380392	1.377041	1.383255		1.380392	1.377041	1.38326
LVDT 2 Open	4.565174	4.565831	4.569156		4.565174	4.565831	4.56916
LVDT 2 Closed	1.388558	1.388962	1.389598		1.388558	1.388962	1.3896
LVDT 3 Open	4.587919	4.58496	4.583377		4.587919	4.58496	4.58338
LVDT 3 Closed	1.287469	1.287347	1.286942		1.287469	1.287347	1.28694
Manual indicator Open	8.2						
Manual indicator Closed	0						
Valve Calibration Reference	Servo Current	Actual Position					
-5%	42.98	0.2316					
0%	-7.71	0.2701					
25%	-11.58	24.7539					
50%	-11.18	49.78					
75%	-11.3063	74.822					
100%	99.7482	99.7482					
110%	-98.2666	100.217					
Null Bias	12						

Turbine Trip Test Data

"A" Control Valve	Travel Time						
Fast acting Soleniod Test 1	1.31						
Fast acting Soleniod Test 2	1.206						
Fast acting Soleniod Test 3	0.68						
Loss of ETS Pressure	1.31						
Servo Coil Polarity	Pass/Fail						
Servo Coil 1	Pass						
Servo Coil 2	Pass						
Servo Coil 3	Pass						
Valve Calibration	Pass						
Valve Calibration Reference	Servo Current	Actual Position					
-5%	73	-0.72					
0%	-12.69	0.05					
25%	-14.89	24.86					
50%	-15.25	49.85					
75%	-16.25	74.87					
100%	-21.27	99.6					
110%	-100.55	99.61					
Null Bias	13.32						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	4.952824	4.963228	4.96314		4.952824	4.963228	4.96314
LVDT 1 Closed	1.75266	1.756557	1.756703		1.75266	1.756557	1.7567
LVDT 2 Open	4.967456	4.989124	4.968027		4.967456	4.989124	4.96803
LVDT 2 Closed	1.747724	1.755187	1.748356		1.747724	1.755187	1.74836
LVDT 3 Open	4.913775	4.895596	4.908779		4.913775	4.895596	4.90878
LVDT 3 Closed	1.74112	1.734908	1.739488		1.74112	1.734908	1.73949
Manual indicator Open	2.9						
Manual indicator Closed	0						

Turbine Trip Test Data

"B" Control Valve	Travel Time						
Fast acting Soleniod Test 1	1.36						
Fast acting Soleniod Test 2	0.68						
Fast acting Soleniod Test 3	1.31						
Loss of ETS Pressure	0.78						
Servo Coil Polarity	Pass/Fail						
Servo Coil 1	Pass						
Servo Coil 2	Pass						
Servo Coil 3	Pass						
Valve Calibration	Pass						
Valve Calibration Reference	Servo Current	Actual Position					
-5%	83	0.011					
0%	-10.76	0.318					
25%	-13.64	25.223					
50%	-12.6	50.2198					
75%	-13.005	75.1978					
100%	-18.43	99.9925					
110%	-100.433	100.008					
Null Bias	18						
LVDT Calibration	Processor				Processor		
As found	<R>	<S>	<T>	As Left	<R>	<S>	<T>
LVDT 1 Open	4.985937	4.971444	4.980089		4.985937	4.971444	4.98009
LVDT 1 Closed	1.795963	1.790978	1.794555		1.795963	1.790978	1.79456
LVDT 1 Open	4.953849	4.944013	4.966965		4.953849	4.944013	4.96697
LVDT 1 Closed	1.806595	1.803392	1.811056		1.806595	1.803392	1.81106
LVDT 1 Open	4.960316	4.950343	4.954418		4.960316	4.950343	4.95442
LVDT 1 Closed	1.793743	1.790923	1.792469		1.793743	1.790923	1.79247
Manual indicator Open	2.75						
Manual indicator Closed	-0.1						

From: Melloan, Ricky(/O=LGE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=MELLOAN, RICKYCF4)
To: Joyce, Jeff; Rabe, Phil; Mohn, Laura; Anderson, Dave (Trimble County)
CC:
BCC:
Subject: Unit 2 Spring 2014 Outage Notes
Sent: 07/03/2014 09:59:19 AM -0400 (EDT)
Attachments: TC 2 OUTAGE NOTES.docx;

Attached is a very high level chronology of TC2 outage events/ progress. Not sure what this may be good for but passing it along anyway.

Rick Melloan
Trimble Co. Station
502-627-6259

TC2 OUTAGE NOTES - Spring 2014

- TC2 off line Friday, 2/7/14, for planned 15 week outage
- Return to service date is Monday, May 26.
- Boiler scaffold installed by Petrochem. Scaffold complete 2/13 at 3pm.
- First activity in furnace was Amstar coating removal around the burners and OFA cuts
- Other early activity includes WESP inspection, SCR inspection and SCR cleaning.
- OFA duct demo started immediately.
- 2/18 Removing WCAH coils on B side. New coils dirty. Need to be cleaned.
- 2/18 Doosan advised of change in plans to position new throats. Instead of lifting from ground up through the furnace as originally planned, throats would be placed through the windbox at each burner. Safer and more efficient.
- Southeast working two 10 hr shifts.
- All old quarls out on 2/23
- TO cooler shipped out to be cleaned.
- First new quarl in is F4 on 2/24. Fitting yet to be completed.
- 2/24 Discovered crack in 2A BFP recirc valve plug. Will have to be replaced.
- 2/25 F3 fitted and being welded. D1 in place. Two others prepped and ready to be placed.
- 2/25 Howden inspecting ID and FD fans.
- OFA duct erection in progress
- New intake hoods to arrive Friday
- 2/25 B WCAH coils out. New coils (one set) are on site after cleaning at Armstrong. Second set cleaned and in shipment.
- 2/27 9 of 30 throats are in place. F3 and D1 are near complete on tube welds. NDE to take place tonight on these panels. Remaining 7 are in various stages of fit up and weld. 16 panels are staged at the burner. None are staged on B row.
- 3/3 C1, C2, D1, F1, F2, and F4 100% welded. NDE complete on F4 with no findings. Quarls in hole in all but B and D rows (bottom).
- Intake hood delivery delayed due to weather.
- 3/6 Nine throats 100% welded. All panels in the boiler. 157 welds have been examined with no rejects.
- First burner scheduled to be installed 3/17 5 days ahead of schedule.
- Doosan will be ready to discuss revised completion date the week of the 17th
- 3/10 - Eighteen panels fully welded. NDE complete on eight panels. Starting to fit membrane on C and F rows.
- WCAH starting to go in on B side. Have to remove coil elements and install frame without coils. Too heavy to install as an assembly.
- Intake hoods arrived and staged.
- Plant maintenance replacing B FD and B ID fan hubs as preventive maintenance measure. Plan to overlay all mill floors and rolls. TOC back from cleaning.
- Amstar inspection revealed no major issues.

- 3/19 – Doosan announced schedule revision. Amstar now moved up to April 13th – 17th. One IDF will be needed for this work. Gas path clear date moved up to May 7 vs original date of May 16. With 10 days of pre start commissioning, this will allow on line May 17 -19.
- TC critical issues with accelerated schedule are having an IDF ready to run for Amstar work and repair of RH bypass valve incorrect material. Target is to have all work complete by April 31.
- 3/20 - Two top rows of burners installed. C row is fitted with weld ring tacked. All NDE is complete meeting 50% requirement except roof tube work.
- 3/20 - OFA panels are in and tubes welded. Two support frames on rear wall are in place but not welded. Duct work including new airfoils and new dampers in progress.
- Both new intake hoods are in place and welded.
- WCAH coils being installed on B side.
- 3/24 – Twenty nine burners are in the hole. Twenty burners , C, D, F and A rows, are set and aligned. F1 core air tube has to be removed to correct orientation. All NDE complete except roof tube project. B side WCAH coils installed.
- 3/26 – F1 core air tube will be removed next Thursday , 4/3/14, to correct orientation. RVI will be on site to make repairs. Early will remove and replace.
- 3/26 Most all materials, except some instrumentation , reported to be on site. All coal conduits that require modification have been returned to CE Smith.
- Weld resurfacing of all mill rolls and floors in progress. This work by TC (O&M).
- 3/27 RVI working on F1 burner. PF flange orientation was off by 30 degrees. Unbolted at windbox to pull elbow and core air tube. Rotated elbow to proper orientation. Cut and re-welded feet on core air tube for bottom support. Re installed assembly. Work complete today.
- 3/31 – All burners welded in. All core air supplies made up. Starting to make up coal conduits.
- Doosan witnessing calibration of critical transmitters per agreement. Documentation provided.
- 3/31 – Dipper plate (seal skirt) to be replaced. TC ordering materials. Upgrade to stainless and modify to bolted attachment vs weld. Early doing work. Est one week.
- Revising cold commissioning and startup schedule. Review next week.
- Feedwater flow nozzle and spray nozzle being welded in. Preheat required.
- OFA work critical path at this time. Support frames in place. Tube welding complete. Remaining work is duct and airfoils on two corners, dampers and installing new ports.
- 3/2 - All work inside the furnace except roof tube work is complete. Connections being made to burners on outside. All core air connections and knife gate shutoffs in. One new coal conduit has to be removed and modified. Has wrong attachment groove at one end. CL Smith to come in a make repair consisting of removing ceramic on the end, cutting off old end flange and welding on new flange in correct orientation. Amstar still scheduled for the 13th.
- 4/3 - Repair to conduit end in progress by CL Smith. All conduits connected on front wall. New oil guns and Beck drives to be installed next. Fitting conduit on rear wall. Weld in to feedwater nozzle in progress. All mill overlay work (by TC) complete. Dipper plate material on order.
- 4/7 - All oil guns in on front wall. Beck drives staged to be installed next. Rear wall still making up coal conduit and core air connections. RVI in tomorrow to install brass bushings on shut off

- damper screw drives. Doosan concerned about excessive clearance. OFA dampers are being reversed to allow drive to be installed on opposite side. Opposite side provides greater accessibility to drive and linkage. WCAHs coil installed. Working on welding in headers and valving. Still welding on feedwater and spraywater flow elements. Preparing for Amstar hookups this weekend.
- 4/9 - RVI here today to install brass bushing on burner screw drive collar. This will limit slop in this sleeve. All oil guns in front wall and top elevation in rear wall. Beck drive install waiting on completion of RVI modification. OFA openings will be blanked with plywood while fans are running for Amstar. OFA duct and dipper plate work will continue while Amstar is working in the boiler. Amstar to start Sunday for three days. All water coils installed. Headers and valving being welded.
- 4/16 - Amstar work started 4/14 and will continue thru Sat 4/19. Schedule extended due equipment problems and scope. Work continues on OFA and dipper plate while fans are running for Amstar. Efox scheduled for 4/21 to inspect OFA toggle section, dampers and exp jts. OFA work now concentrated on rear duct where airfoils are not started and toggle duct remains open. Emerson scheduled for next week to start logic changes. Water coil headers are in but not completely connected or insulated. Feedwater flow nozzle complete except insulation.
- 4/21 – Amstar work complete. Beck drives in on front wall burners. All purge air piping reconnected (hard pipe). Efox in today to inspect front toggle section. Dampers and exp jts in on rear wall. Airfoils going in on rear wall. All four ports still out on rear wall. WCAH fully piped except insulation. Walkdown today on roof fan, WCAH and sootblower steam piping. Walkdown tomorrow on burner fronts. These are initial walkdowns as none of these systems are 100% complete. Emerson here tomorrow to start logic revisions. Flow elements complete except insulation.
- 4/24/14 - Petrochem employee fell on Tuesday while insulating under OFA duct. No serious injury. Full investigation in progress. Walkdowns of roof vent, sootblower piping, WCAH, and burner fronts conducted this week. Most issues the result of work not being 100% complete. Platforming around some burner fronts need modification for safe access. Doosan to address. Final connections for purge air and I&E have started on burner fronts. Boiler to be filled for leak check (static head) this Friday after which scaffold will be removed. OFA remains critical path for May 7 completion. Emerson 30% complete with logic changes.
- 4/ 28 - Boiler filled over the weekend and leak checked. No leaks. Starting to remove scaffold. Beck, Efox, and Emerson here this week. Stoke OFA dampers and burner shutoff dampers. Early staffing at about 90 vs 160 peak. On schedule for May 7 completion for outage required work.
- 5/12 – Vacation last week. Outage work was essentially completed on 5/5/14. Boiler has been drained and nitrogen filled. Drag chain conveyor back in place. Fans on for Doosan air flow testing and calibration. Cold air PF testing conducted on D and F mills by Storm. Some orificing required. Core air distribution test completed. Doosan measuring and balancing SA flow at burners. Finding that varying settings (60% to 100%) are necessary across burner row. Leak test and coating of bag house starting today. B&V (Sandra Roach) here to monitor testing. FERCO scheduled for OFA traverse 5/15.

- 5/14 – On the evening of 5/14, during commissioning testing, the 2B FD fan operated in the stall mode for approximately 12 minutes. This was the result of the test setup with the AH outlet SA dampers closed and flow limited to the bypass duct. While trying to maintain a crossover duct pressure of 7 inches, the flow was restricted to the point of stalling the B fan. The cumulative stall was approx. 13 minutes vs the allowable of 15 min. A decision was made to restart the fans and complete the prestart commissioning testing but the change out the B FD blades prior to putting the unit in service.
- 5/19 - All PF testing by Storm and OFA traversing by FERCO was completed over the weekend. This allowed the fans to be removed from service and the B FD blade changeout was started on the evening of the 18th. This changeout was essentially completed by Monday morning. The fans will be restarted tonight and oil fire testing is planned to start tomorrow. Doosan announced this morning that they will restart with the TSOD at 80% vs the balanced position established by Doosan during testing. They will rebalance the after hot. Startup date of May 23 still on schedule.
- 5/20 – Fans back on last night. Water cleanup underway. Diamond in last night to set up hydro blast system. Mill and feeder cleanup underway after emptying hot bunkers. 2C and 2E feeder belts will be replaced. Start oil gun testing today. Only two guns to be in at a time. Coen scheduled in for tests. Meeting today to discuss new OFA K factors.
- 5/21 – Oil gun testing delayed yesterday due to hold card and logic issues. Started oil gun testing last night. Eleven guns fired. Several oil leaks at copper gasket on guns. Coen to advise fix. Doosan also running two fan secondary air flow test this morning with OFA damper closed to further check SA K factors. Damaged feeder belts being replaced. Oil gun testing to continue through tonight. Ongoing outage work is insulation and lagging by Pertochem and handrail work by Early.
- 5/22 - Oil leaks stopped by using gaskets supplied by instrument shop. Twenty guns have been proven. Still troubleshooting 10 guns. A and E rows are good. Hold up this morning is rewiring AH sootblower drain valves. Rewired because someone thought A & B valves switched but later found out they were correct. Resume oil testing after wiring is final. Complete feeder calcs today. Could possible fire coal tonight but need to have all oil guns proven. Startup will be on 100% Riverview coal with HHV of 11,300 input into CQF function.
- 5/23 - Day 105 of outage and target start- up date. Had up to 25 oil guns in last night and 850 psi pressure. Removed all but three guns this am due to stack conditions. Doosan to advise on tweaks to air pressures etc. to improve stack conditions. Plan is to fire coal as soon as oil firing is re-established and go on line with three mills.
- 5/27 - Continue to troubleshoot oil gun and scanner issues. Modified oil gun vanes over the weekend and tuned oil pressures and air pressures. Stack conditions improved. Have had A, B, and E mills on at various times but not together. B mill on last night but scanners took it out. Also have MFT and purge logic issues that Doosan is investigating. Today all oil pressures will be set at 100 psi and stroke on oil valves to be checked and set to 4 to 6 seconds open. After response to logic issues, resume oil gun checkout.

- 5/28 - Unit on line at 05:28. Raising load to 400 MW with A,B and E mills in service. Hold at 400MW for Doosan testing. Set classifiers and purge sootblower piping. Will prove all mills at 400MW. NOx and CO look good.
- 5/29 Unit tripped yesterday on feedwater swing after loss of third mill (scanners). Back on in the late afternoon then off again around midnight on high steam temperature. Conducted operation review with Doosan. Several contributing factors including HP FWH's not in service and running out of SH spraywater flow. Unit back on mid morning . Again plan to go to around 400MW (three mills at 120 klb) and let set for testing. Still having issues with getting some oil guns to light.
- 6/2 - Unit ran Fri, Sat and Sun am at around 400MW until trip in afternoon on low instrument air pressure. Upon coming back on, 2A ID tripped on axial vibration. Today vibration trip is being investigated and FD duct door leak being repaired. FERCO here to start back pass testing upon return to service. Doosan has advised that all 400 MW testing is complete and load can be increased upon return.
- 6/5 - Unit at 780MW. PF distribution ongoing with A,D and C mills complete (Storm). OFA traversing ongoing (FERCO). F1 burner temperature in alarm. Doosan to investigate. Coen supplying new oil gun tip (5) for testing. New tip has 8 holes vs 10 in original. Unclear as to how tip is to be tested. NOx looks good at less than 150 ppm furnace exit. Plan to reduce load to deslag this weekend.

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Straight, Scott; Joyce, Jeff
CC: Melloan, Ricky; Brightman, Jeff; Wodka, Nancy (PLG); Snyder, John
BCC:
Subject: Doosan Commissioning Schedule - Draft
Sent: 02/11/2014 06:07:18 PM -0500 (EST)
Attachments: Trimble Combustion System Milestone Schedule Rev P (2-10-14).pdf; Trimble TC2 Re-Start (14-02-06 IF).pdf;

Scott, Jeff,

Enclosed are two schedules:

1. Amendment 6 schedule, updated to show the outage duration of 105 days (15 weeks), Added key milestone dates for first oil fire, first coal fire, unit at 400 MW's, unit at full load, and other minor changes.
2. Doosan Detailed commissioning schedule. Note the Doosan outage duration will differ due to the float in the Amendment 6 schedule as well as other minor variances. The purpose of providing the Doosan detailed commissioning schedule is so that LGE can see the activities that are driving the restart durations.

Mel

Mel Watkins

Project Engineering Manager

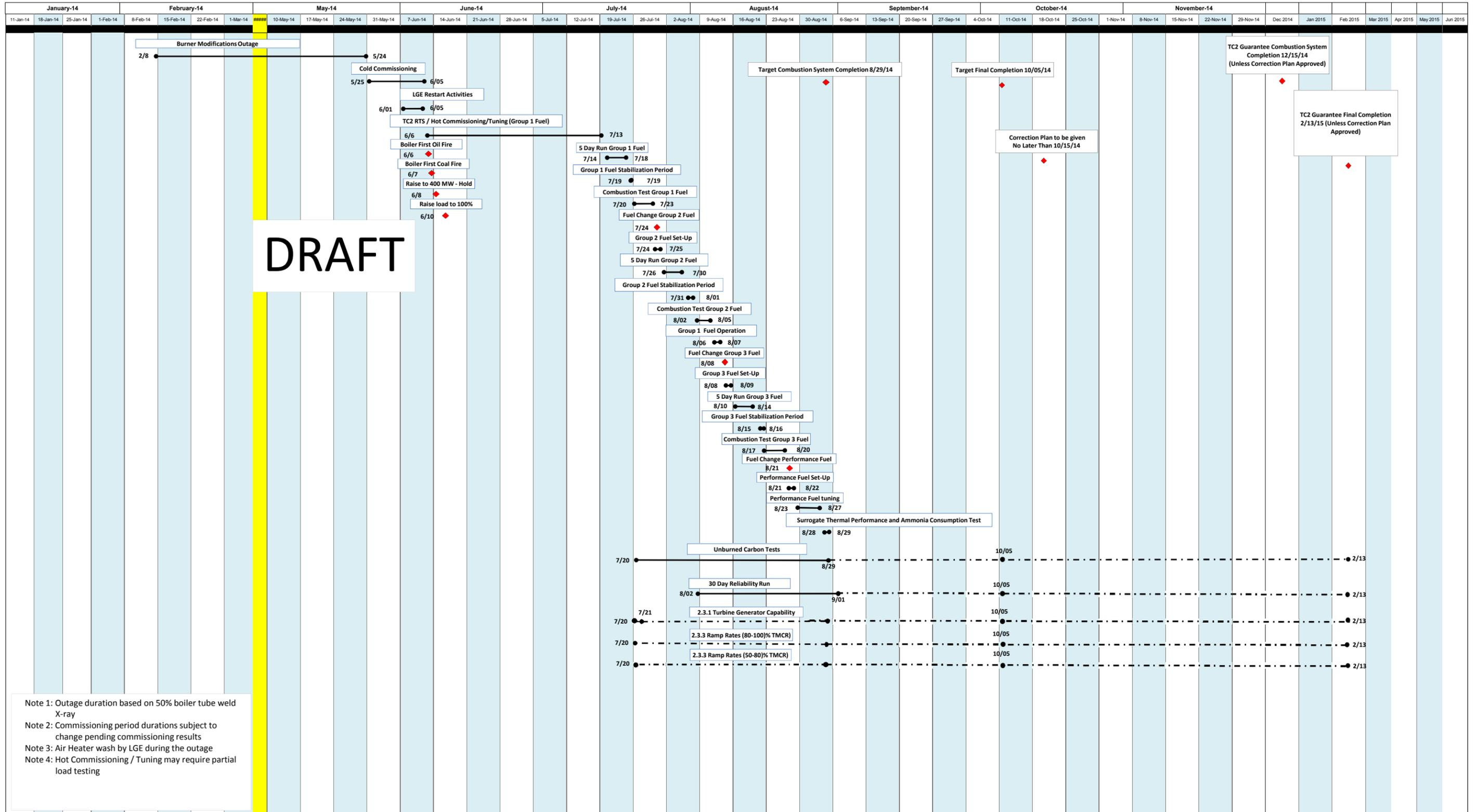
Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490



ID	Task Name	Vendor Support	Load Require (Mw)	Start	Finish	Duration	Gantt Chart																														
							May 2014	June 2014	July 2014	August 2014	September																										
1	Milestones & Load Raising			Mon 19/05/14	Sun 08/06/14	21 days	[Gantt Chart]																														
2	Gas Pass Permit Clearance (Post Amstar Works)			Mon 19/05/14	Mon 19/05/14	0 days	[Gantt Chart]																														
3	Air Heater Wash (2d) / Dry (2d) - LG&E	LG&E		Mon 19/05/14	Thu 22/05/14	4 days	[Gantt Chart]																														
4	Main Draught Plant in Service (including PA Fans)			Wed 21/05/14	Wed 21/05/14	0 days	[Gantt Chart]																														
5	Achieve Pre-Fire water chemistry conditions			Sun 01/06/14	Tue 03/06/14	3 days	[Gantt Chart]																														
6	Boiler 1st Fire Oil			Wed 04/06/14	Wed 04/06/14	0 days	[Gantt Chart]																														
7	Coal 1st Fire (Riverview Coal)			Thu 05/06/14	Thu 05/06/14	0 days	[Gantt Chart]																														
8	Raise load to 400MW and hold			Fri 06/06/14	Fri 06/06/14	1 day	[Gantt Chart]																														
9	Raise load to 100%			Sun 08/06/14	Sun 08/06/14	1 day	[Gantt Chart]																														
10	Coal Change (Riverview/PRB Blend Coal)			Sun 08/06/14	Sun 08/06/14	0 days	[Gantt Chart]																														
11	Burner Systems			Wed 07/05/14	Fri 20/06/14	43 days	[Gantt Chart]																														
12	Core Air dampers			Wed 21/05/14	Thu 22/05/14	2 days	[Gantt Chart]																														
13	Set CA damper Mech. Stops to achieve design flow range - requires SA			Wed 21/05/14	Thu 22/05/14	2 days	[Gantt Chart]																														
14	Measure and record CA flow deviation between burners	FERCo / Storm		Wed 21/05/14	Thu 22/05/14	2 days	[Gantt Chart]																														
15	D-Nox coal burner			Wed 07/05/14	Mon 26/05/14	18 days	[Gantt Chart]																														
16	Stroke test new Shut-Off damper actuators & check back to DCS graphics			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
17	Check new TC multiplexers and confirm burner TC indications back to DCS graphic			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
18	Verify burner adjustments are set to initial start-up settings			Wed 14/05/14	Wed 14/05/14	1 day	[Gantt Chart]																														
19	Balance burner SA flow using Shut-Off dampers and record actuator positions - requires SA			Fri 23/05/14	Mon 26/05/14	4 days	[Gantt Chart]																														
20	Oil Burners			Wed 07/05/14	Fri 06/06/14	29 days	[Gantt Chart]																														
21	Terminate Brad Harrison connectors on new COEN oil burners			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
22	Loop check new oil burner assy. & function test back to DCS graphics			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
23	Stroke test HEAI and main carriage in local and remote			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
24	Test fire all 30 new oil burners and optimise oil & atom air press and CA flow	COEN		Wed 04/06/14	Fri 06/06/14	3 days	[Gantt Chart]																														
25	Flame Monitors			Wed 07/05/14	Fri 20/06/14	43 days	[Gantt Chart]																														
26	Loop check new flame amplifier card back to DCS	Forney		Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
27	Optimise oil flame scanners during test firing and up to 40% load	Forney (initial 5 da		Wed 04/06/14	Wed 18/06/14	15 days	[Gantt Chart]																														
28	Optimise coal flame scanners during mill starts and high unit load	Forney (initial 5 da		Fri 06/06/14	Fri 20/06/14	15 days	[Gantt Chart]																														
29	Primary Air Flow Measurement			Wed 07/05/14	Wed 11/06/14	34 days	[Gantt Chart]																														
30	Calibrate HAD & CAD actuators to achieve uniform blade positioning (LG&E)			Wed 07/05/14	Tue 13/05/14	5 days	[Gantt Chart]																														
31	Obtain characteristic of PA Hot & Cold Air control dampers	Storm		Tue 27/05/14	Fri 30/05/14	4 days	[Gantt Chart]																														
32	6 Mill Test	FERCo		Mon 09/06/14	Mon 09/06/14	1 day	[Gantt Chart]																														
33	Optimal position for PA Hot Air control dampers			Tue 10/06/14	Wed 11/06/14	2 days	[Gantt Chart]																														
34	Secondary Air/OFA Flow Measurement			Wed 07/05/14	Wed 25/06/14	48 days	[Gantt Chart]																														
35	Leak test new OFA impulse pipework			Wed 21/05/14	Thu 22/05/14	2 days	[Gantt Chart]																														
36	Stroke check new OFA damper actuators and linkage movement			Wed 07/05/14	Thu 08/05/14	2 days	[Gantt Chart]																														
37	Traverses on new OFA aerofoils (cold air) (Ferco)	FERCo		Tue 27/05/14	Fri 30/05/14	4 days	[Gantt Chart]																														
38	Traverses on new OFA aerofoils (hot air) (Ferco)	FERCo		Thu 12/06/14	Mon 16/06/14	5 days	[Gantt Chart]																														
39	Finalise K factors in the DCS			Thu 12/06/14	Mon 16/06/14	5 days	[Gantt Chart]																														
40	Obtain characteristic of SA/OFA control dampers			Fri 23/05/14	Mon 26/05/14	4 days	[Gantt Chart]																														
41	Optimise optimal position for SA/OFA control dampers			Mon 09/06/14	Tue 10/06/14	2 days	[Gantt Chart]																														
42	Tuning of SA/OFA control dampers (DPS/Emerson)	Emerson		Wed 11/06/14	Fri 13/06/14	3 days	[Gantt Chart]																														
43	Monitor operation of SA/OFA control			Wed 11/06/14	Wed 25/06/14	15 days	[Gantt Chart]																														
44	Mill Systems			Tue 27/05/14	Mon 23/06/14	28 days	[Gantt Chart]																														
45	PF Pipe Clean air distrubution (Storm)			Tue 27/05/14	Sun 01/06/14	6 days	[Gantt Chart]																														
46	Perform PF pipe clean air flow distribution - set new orifice plates	Storm		Tue 27/05/14	Sun 01/06/14	6 days	[Gantt Chart]																														
47	PF Distribution (Storm)			Thu 12/06/14	Sat 21/06/14	10 days	[Gantt Chart]																														
48	Check/correct PF distribution on all mills (Storm/Alstom)	Storm + Alstom off		Thu 12/06/14	Sat 21/06/14	10 days	[Gantt Chart]																														
49	PF Fineness			Sat 14/06/14	Mon 23/06/14	10 days	[Gantt Chart]																														
50	Finalise mill classifier speed range (DPS/LG&E)	SGS for sample ar		Sat 14/06/14	Mon 23/06/14	10 days	[Gantt Chart]																														
51	Mill Seal Air Fan discharge non-return damper			Tue 27/05/14	Tue 27/05/14	1 day	[Gantt Chart]																														
52	Test out of service fan reverse flow leakage and windmilling			Tue 27/05/14	Tue 27/05/14	1 day	[Gantt Chart]																														
53	Test hot change-over of seal air fans			Tue 27/05/14	Tue 27/05/14	1 day	[Gantt Chart]																														
54	Gas Airheaters - new steam supply (DPII)			Wed 07/05/14	Tue 10/06/14	33 days	[Gantt Chart]																														
55	Install new control logic in PLC and update data link to DCS			Wed 07/05/14	Fri 09/05/14	3 days	[Gantt Chart]																														
56	Loop check all valves and TC's back to PLC and DCS	Diamond Power		Wed 07/05/14	Fri 09/05/14	3 days	[Gantt Chart]																														
57	Stroke test new and existing MOV's and new PCV			Mon 12/05/14	Tue 13/05/14	2 days	[Gantt Chart]																														
58	Test sootblowers on compr. Air ahead of first oil test firing	Diamond Power		Sat 31/05/14	Tue 03/06/14	4 days	[Gantt Chart]																														
59	Steam purge new steam supply piping			Fri 06/06/14	Fri 06/06/14	1 day	[Gantt Chart]																														

Trimble TC2 Re-Start (14-02-06 IF)	Task		Project Summary		Inactive Task		Duration-only		Finish-only		Deadline
	Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress		
	Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline		
	Summary		Inactive Task		Manual Task		Start-only				

ID	Task Name	Vendor Support	Load Require (Mw)	Start	Finish	Duration	Gantt Chart																														
							May 2014	June 2014	July 2014	August 2014	September																										
60	Test new steam supply controls and tune PCV	Diamond Power		Sat 07/06/14	Sat 07/06/14	1 day	[Gantt bar]																														
61	Check S/B steam temperatures during operation			Sat 07/06/14	Tue 10/06/14	4 days	[Gantt bar]																														
62	GAH water wash (LG&E) & Inspect			Mon 19/05/14	Tue 20/05/14	2 days	[Gantt bar]																														
63	Drying GAH (fans in service)			Wed 21/05/14	Thu 22/05/14	2 days	[Gantt bar]																														
64	Logic Changes			Wed 07/05/14	Mon 07/07/14	60 days	[Gantt bar]																														
65	Check implementation of new logic changes	Emerson		Wed 07/05/14	Wed 14/05/14	6 days	[Gantt bar]																														
66	Check / monitor operation of new logic changes	Emerson		Wed 04/06/14	Mon 07/07/14	34 days	[Gantt bar]																														
67	Optimise O2 Trim SA/OFA Bias			Mon 09/06/14	Wed 18/06/14	10 days	[Gantt bar]																														
68	Combustion Optimisation			Wed 04/06/14	Fri 11/07/14	38 days	[Gantt bar]																														
69	Phase 1 – Initial Start-up Optimization	RVI		Wed 04/06/14	Wed 04/06/14	0 days	[Gantt bar]																														
70	Phase 2 – Cooling Flows & Mill Start-up Permissives			Thu 05/06/14	Thu 05/06/14	0 days	[Gantt bar]																														
71	Phase 3 - PF Distribution			Thu 12/06/14	Thu 12/06/14	0 days	[Gantt bar]																														
72	Phase 4 – Burner Settings	RVI		Tue 24/06/14	Sat 28/06/14	5 days	[Gantt bar]																														
73	Phase 5 - OFA Ports	RVI		Sun 29/06/14	Thu 03/07/14	5 days	[Gantt bar]																														
74	Phase 6 - Stoichiometry	RVI		Fri 04/07/14	Sun 06/07/14	3 days	[Gantt bar]																														
75	Phase 7 - Mill Load v Stoichiometry	RVI		Mon 07/07/14	Wed 09/07/14	3 days	[Gantt bar]																														
76	Phase 8 - Oxygen Trim	RVI		Thu 10/07/14	Fri 11/07/14	2 days	[Gantt bar]																														
77	Group 1 Fuel test			Sat 12/07/14	Thu 17/07/14	6 days	[Gantt bar]																														
78	Pre-requisite Test Set-up on 1 Mill			Sat 12/07/14	Sat 12/07/14	1 day	[Gantt bar]																														
79	Final Stabilization			Sun 13/07/14	Sun 13/07/14	1 day	[Gantt bar]																														
80	Test Runs			Mon 14/07/14	Thu 17/07/14	4 days	[Gantt bar]																														
81	Group 2 Fuel test			Fri 18/07/14	Fri 01/08/14	15 days	[Gantt bar]																														
82	Load 1 Mill with Group 2 Test Fuel			Fri 18/07/14	Fri 18/07/14	1 day	[Gantt bar]																														
83	Pre-requisite Test Set-up on 1 Mill			Sat 19/07/14	Sat 19/07/14	1 day	[Gantt bar]																														
84	Introduce Test Group 2 Test Fuel			Sun 20/07/14	Sun 20/07/14	1 day	[Gantt bar]																														
85	Tuning and Stabilization			Mon 21/07/14	Fri 25/07/14	5 days	[Gantt bar]																														
86	Final Stabilization			Sat 26/07/14	Sat 26/07/14	1 day	[Gantt bar]																														
87	Test Runs			Sun 27/07/14	Wed 30/07/14	4 days	[Gantt bar]																														
88	Return to Riverview Blend			Thu 31/07/14	Fri 01/08/14	2 days	[Gantt bar]																														
89	Group 3 Fuel test			Sat 02/08/14	Thu 21/08/14	15 days	[Gantt bar]																														
90	Load 1 Mill with Group 2 Test Fuel			Sat 02/08/14	Sat 02/08/14	1 day	[Gantt bar]																														
91	Pre-requisite Test Set-up on 1 Mill			Mon 04/08/14	Mon 04/08/14	1 day	[Gantt bar]																														
92	Introduce Test Group 2 Test Fuel			Tue 05/08/14	Tue 05/08/14	1 day	[Gantt bar]																														
93	Tuning and Stabilization			Wed 06/08/14	Tue 12/08/14	5 days	[Gantt bar]																														
94	Final Stabilization			Wed 13/08/14	Wed 13/08/14	1 day	[Gantt bar]																														
95	Test Runs			Thu 14/08/14	Tue 19/08/14	4 days	[Gantt bar]																														
96	Return to Performance Coal			Wed 20/08/14	Thu 21/08/14	2 days	[Gantt bar]																														
97	Performance Test			Fri 22/08/14	Wed 10/09/14	14 days	[Gantt bar]																														
98	Performance Test			Fri 22/08/14	Wed 10/09/14	14 days	[Gantt bar]																														
99	Hydrated Lime injection upstream of GAH			Mon 09/06/14	Sun 15/06/14	7 days	[Gantt bar]																														
100	Monitor potential impact on GAH as a result of Hyd Lime injection upstream			Mon 09/06/14	Fri 13/06/14	5 days	[Gantt bar]																														
101	Measure SO3 in flue gas - GAH I/L & O/L			Fri 13/06/14	Sun 15/06/14	3 days	[Gantt bar]																														
102	O & Manuals			Sun 13/07/14	Thu 17/07/14	5 days	[Gantt bar]																														
103	Revise O & M manuals			Sun 13/07/14	Thu 17/07/14	5 days	[Gantt bar]																														
104	Training			Wed 14/05/14	Sun 20/07/14	68 days	[Gantt bar]																														
105	LG&E training - Part 1 (Pre Optimisation)			Wed 14/05/14	Thu 15/05/14	2 days	[Gantt bar]																														
106	LG&E training - Part 2 (Post Optimisation)			Fri 18/07/14	Sun 20/07/14	3 days	[Gantt bar]																														

Included in activities already detailed on programme
 Included in activities already detailed on programme
 Included in activities already detailed on programme

Trimble TC2 Re-Start (14-02-06 IF)	Task		Project Summary		Inactive Task		Duration-only		Finish-only		Deadline
	Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress		
	Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline		
	Summary		Inactive Task		Manual Task		Start-only				

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Joyce, Jeff; Melloan, Ricky; Maldonado, Francisco; Brann, Devin
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk45
Sent: 11/14/2013 07:11:33 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk45-13 - 2 Week Look.xps; Burner Programme - Bechtel Issue - Wk45-13.xps;

Laura,

Attached is the updated schedule. Neal is not available this morning to review the schedule. If you have any questions, please let us know.

On the AI review, we do plan to have this at 10:00 AM this morning, which Devin and Euan will review.

Thank You

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Wednesday, November 13, 2013 5:58 PM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk45

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

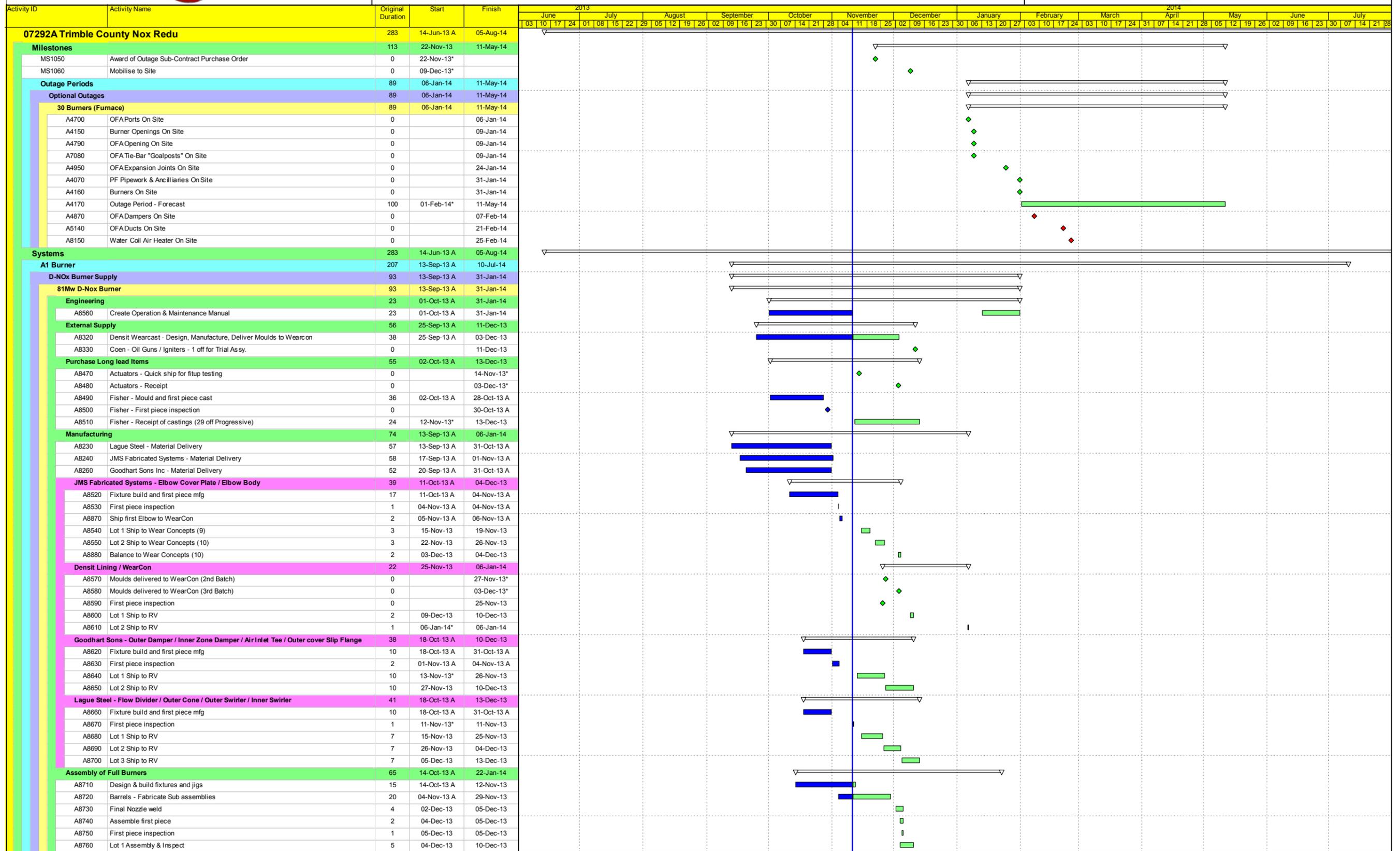
Regards

Ian Fleming

Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

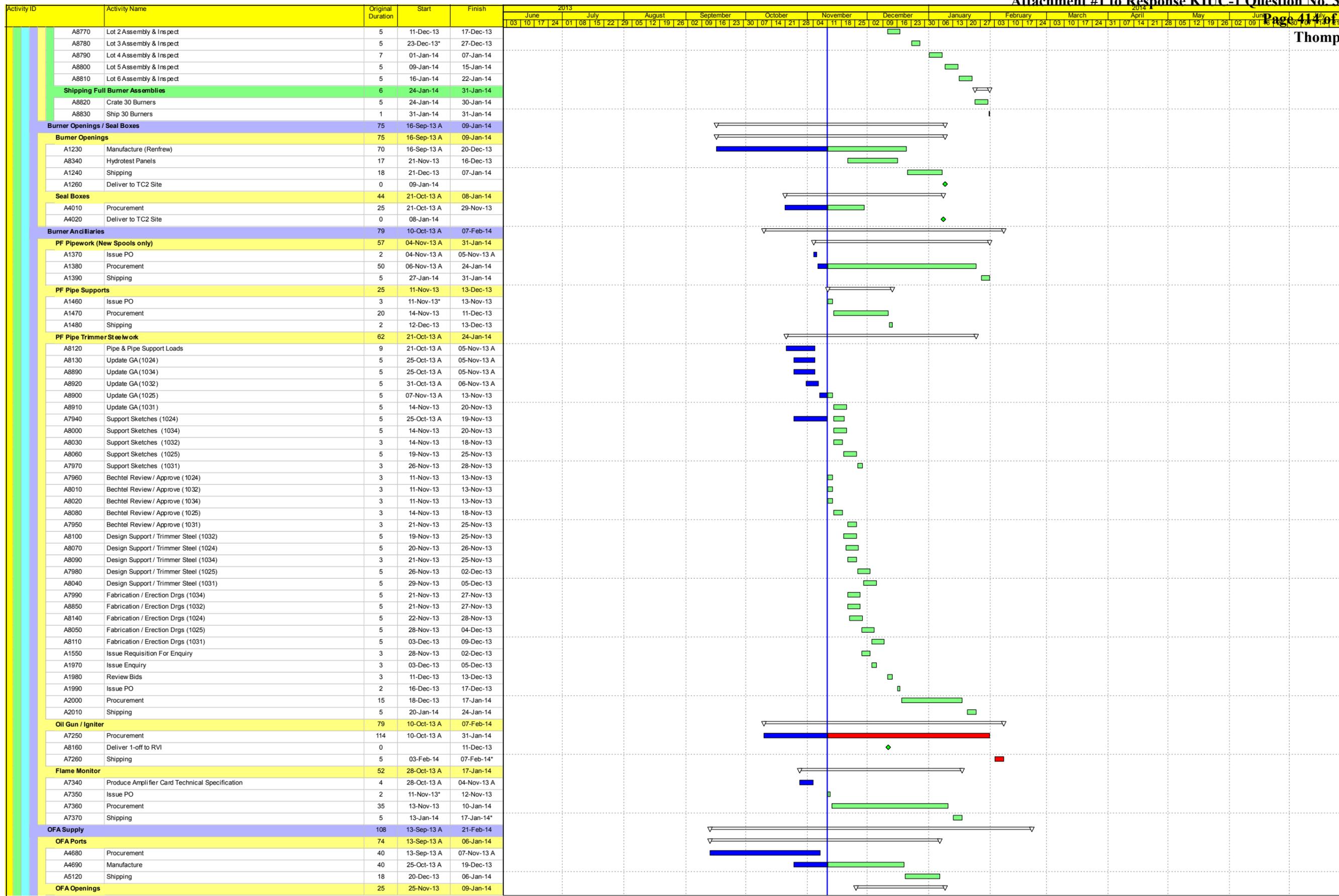
Tel: +44 (0) 141 885 3504
Email: ian.fleming@doosan.com

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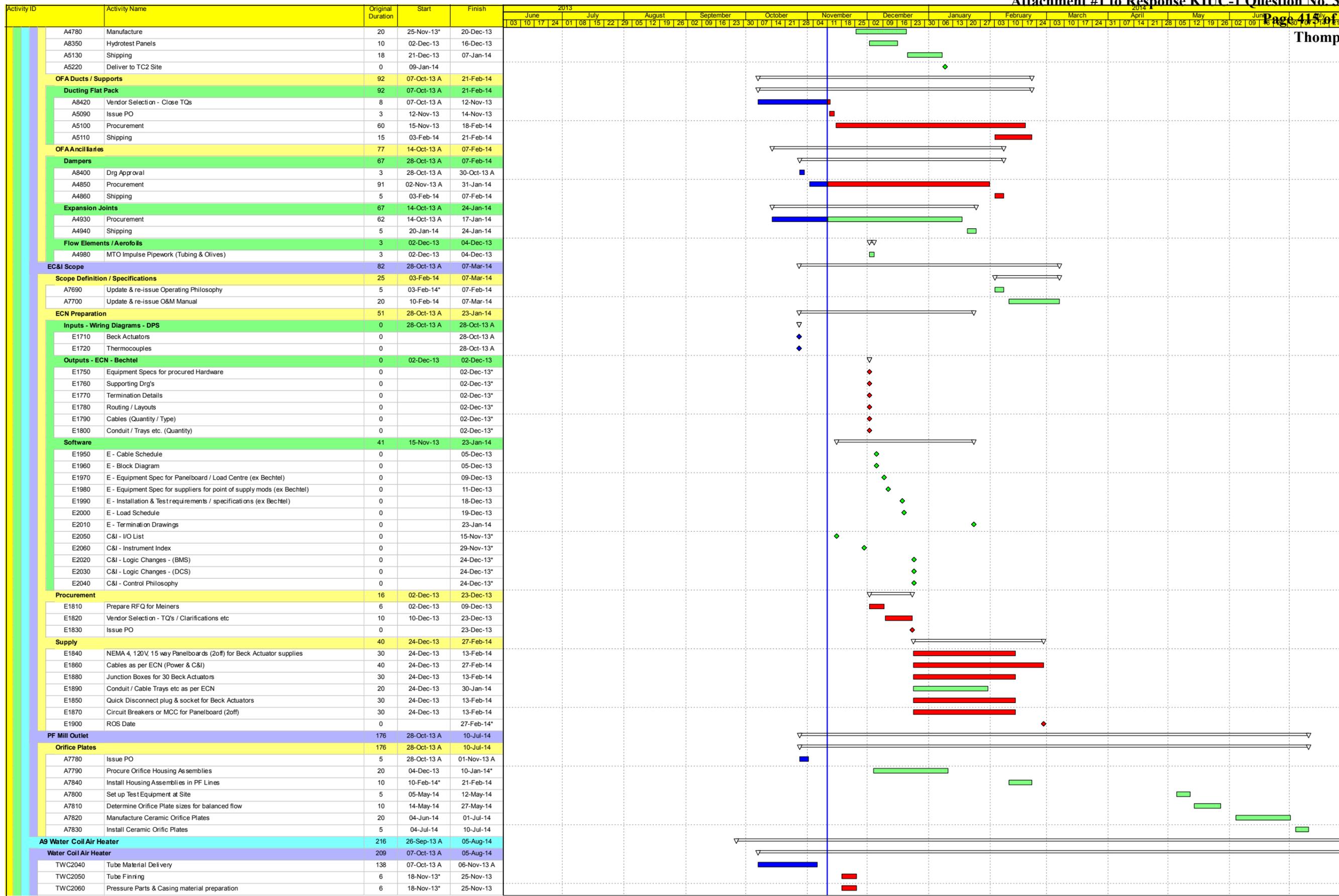
█ Actual Work █ Critical Remaining Work ◆ Milestone ◆ Milestone ◆ Critical Milestone ◆ Milestone █ Remaining Level ...
◆ Critical Milestone ◆ Milestone █ Remaining Level ...

Date	Revision	Checked	Approved
13-Nov-13	Wk 45/13 - Progress Update	IPF	
06-Nov-13	Wk 44/13 - Progress Update	IPF	



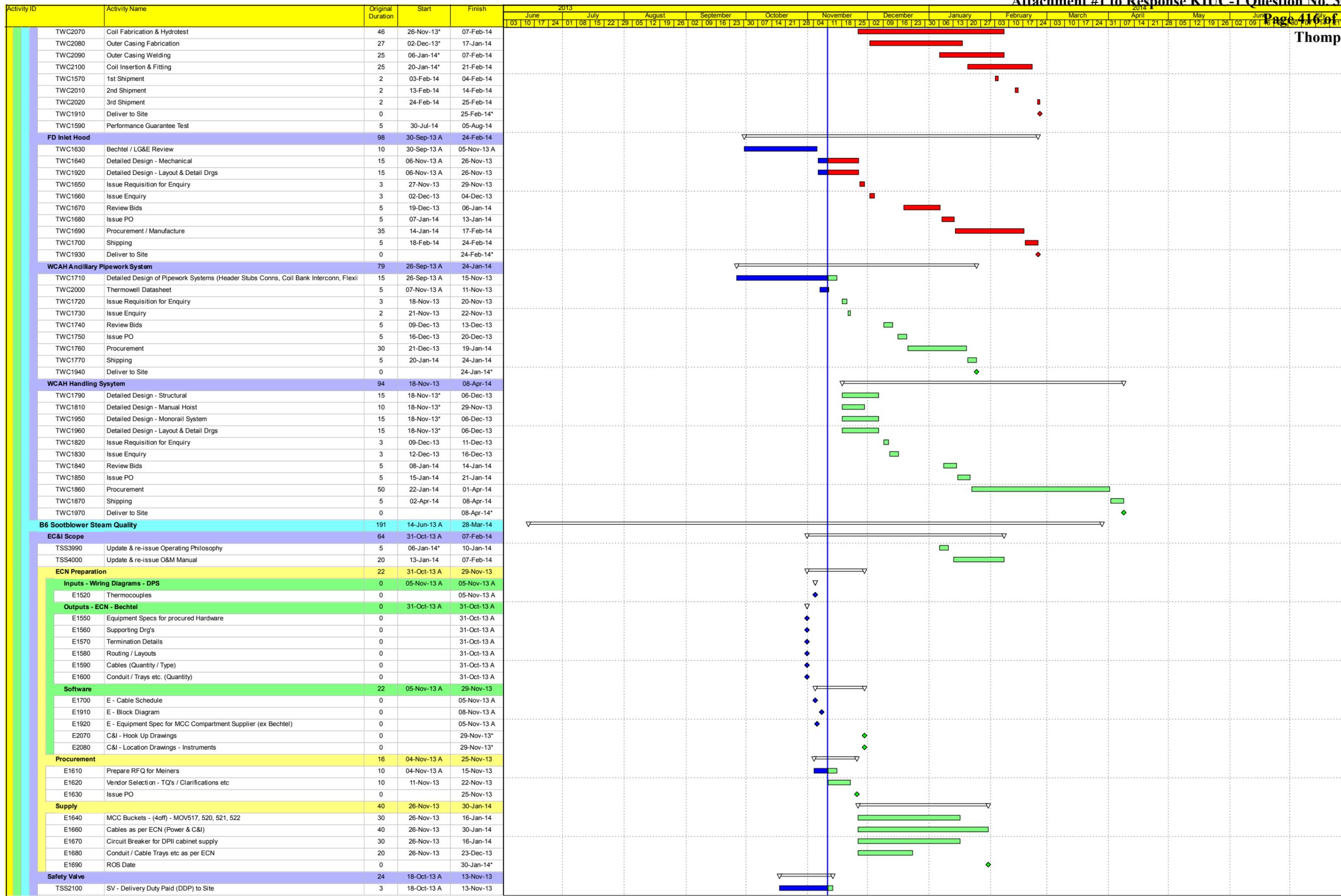
■ Actual Work
 ■ Critical Remaining Work
 ◆ Milestone
 Summary
■ Remaining Work
 ◆ Critical Milestone
 ◆ Milestone
 Remaining Level ...

Date	Revision	Checked	Approved
13-Nov-13	Wk 45/13 - Progress Update	IPF	
06-Nov-13	Wk 44/13 - Progress Update	IPF	



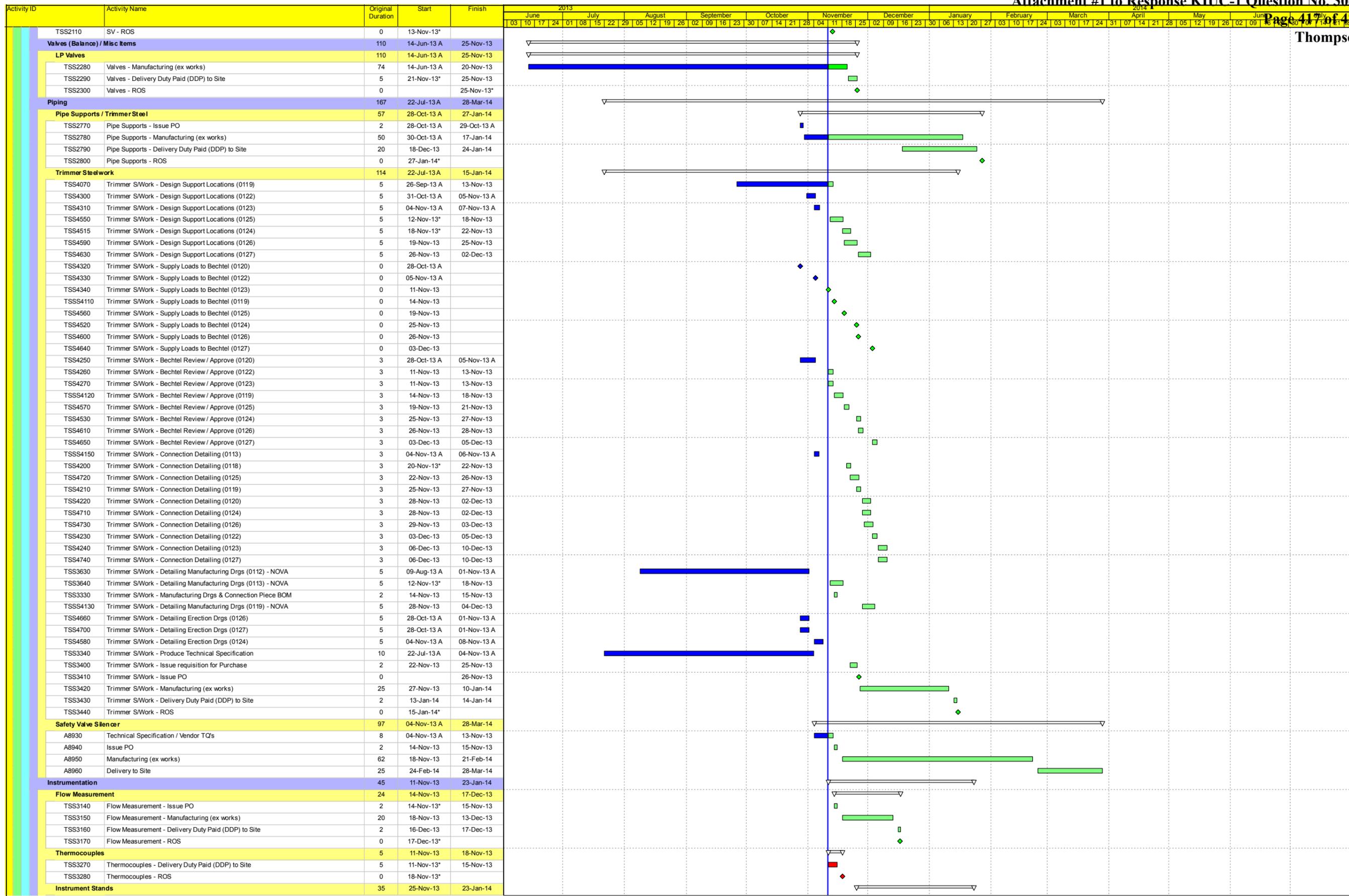
■ Actual Work ■ Critical Remaining Work ◆ Milestone Summary
■ Remaining Work ◆ Critical Milestone ◆ Milestone Remaining Level ...

Date	Revision	Checked	Approved
13-Nov-13	Wk 45/13 - Progress Update	IPF	
06-Nov-13	Wk 44/13 - Progress Update	IPF	



	Actual Work		Critical Remaining Work		Milestone		Summary
	Remaining Work		Critical Milestone		Milestone		Remaining Level ...

Date	Revision	Checked	Approved
13-Nov-13	Wk 45/13 - Progress Update	IPF	
06-Nov-13	Wk 44/13 - Progress Update	IPF	



■ Actual Work
 ■ Critical Remaining Work
 ◆ Milestone
 ◆ Milestone
 ◆ Critical Milestone
 Summary
 Remaining Level ...

Date	Revision	Checked	Approved
13-Nov-13	Wk 45/13 - Progress Update	IPF	
06-Nov-13	Wk 44/13 - Progress Update	IPF	

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Craft, Jim; Melloan, Ricky; Joyce, Jeff; Hobbs, Donna; Dearman, James; Babcock, James; Brann, Devin
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk46
Sent: 11/21/2013 09:52:12 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk46-13 - 2 Week Look.pdf; Burner Programme - Bechtel Issue - Wk46-13.pdf;

Laura,

Updated schedule for this morning's meeting.

Mel

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Thursday, November 21, 2013 7:05 AM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk46

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

Regards

Ian Fleming

Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

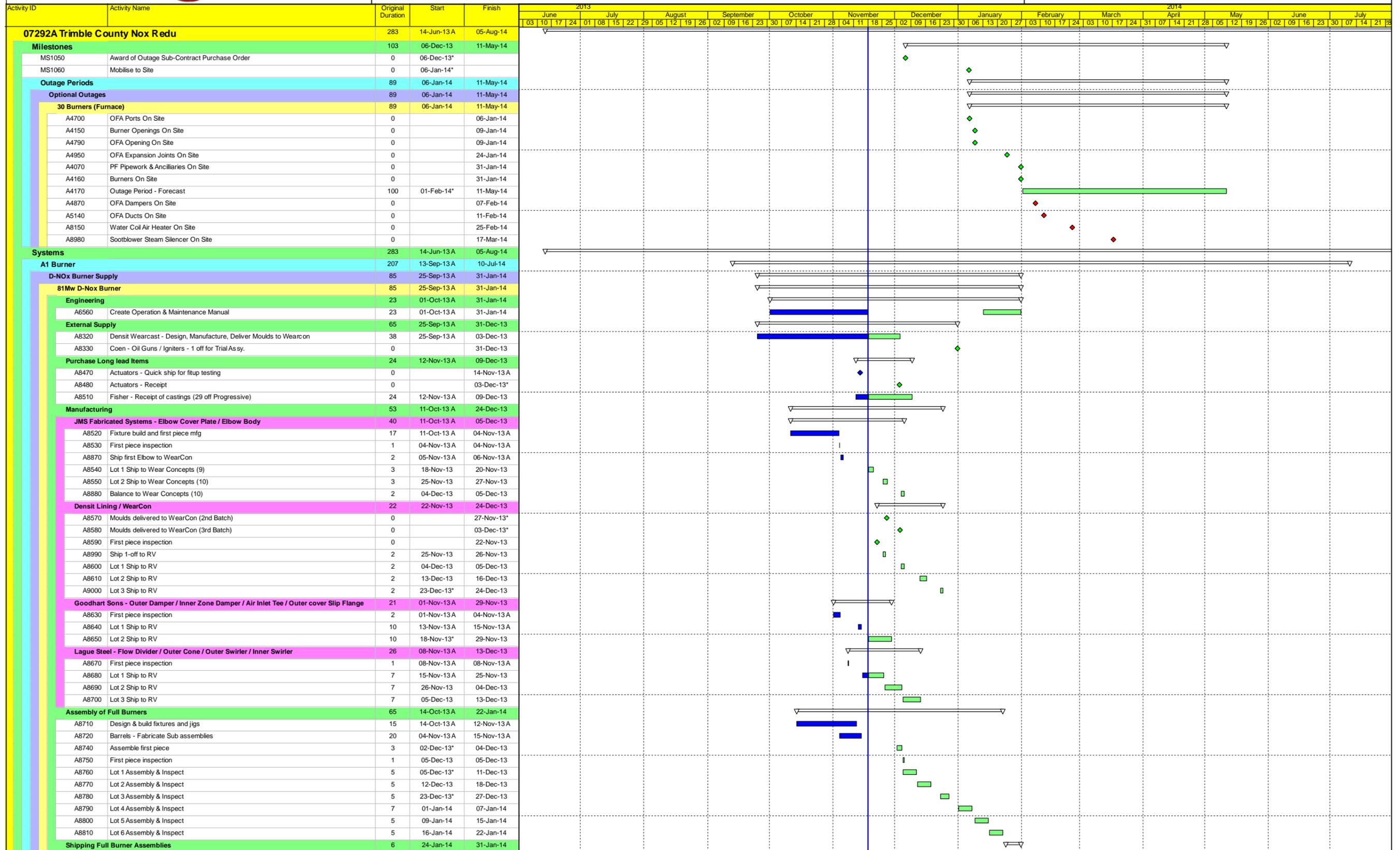
Tel: +44 (0) 141 885 3504

Email: ian.fleming@doosan.com

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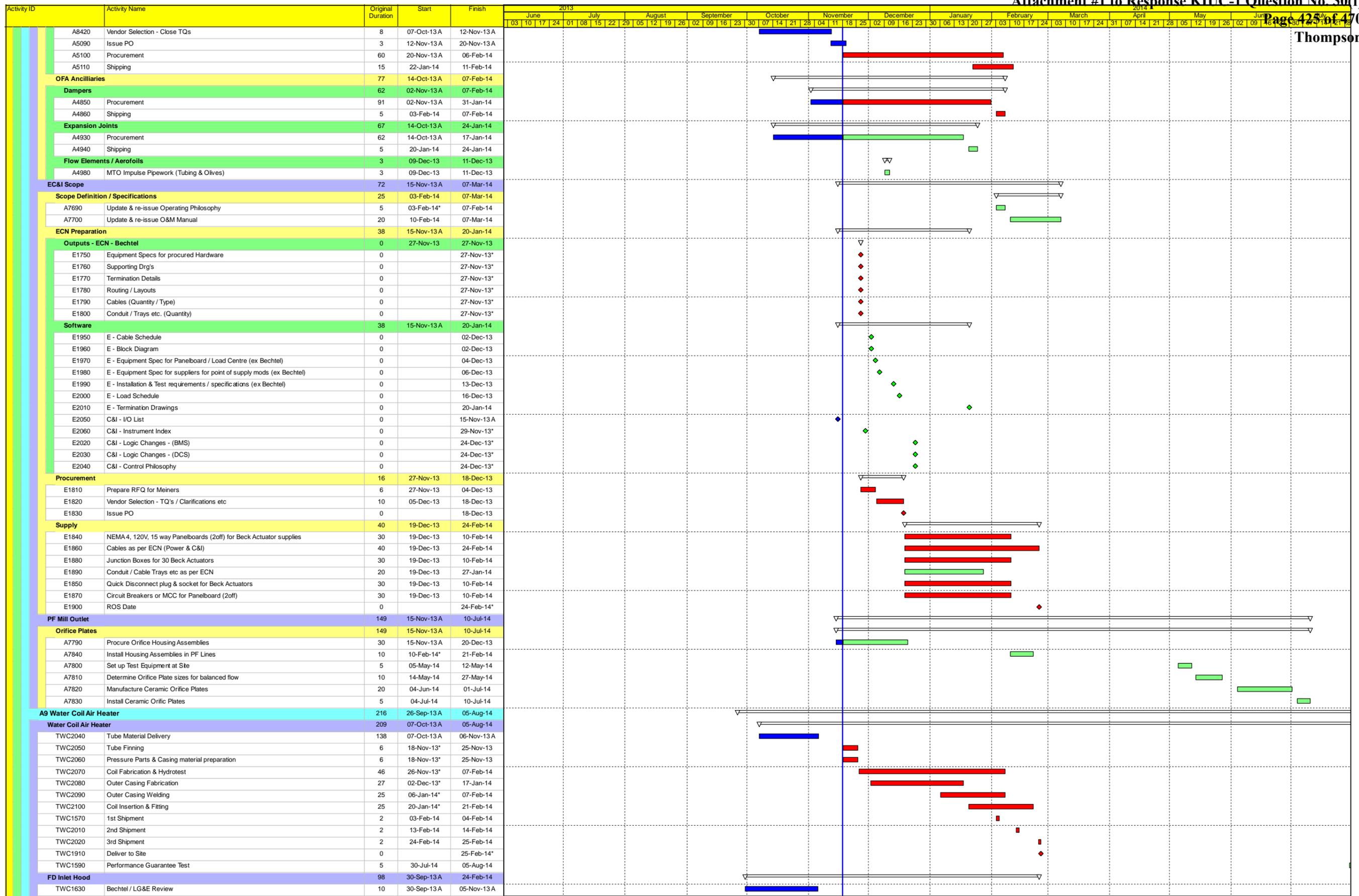


Trimble County 2 Combustion Enhancement Programme



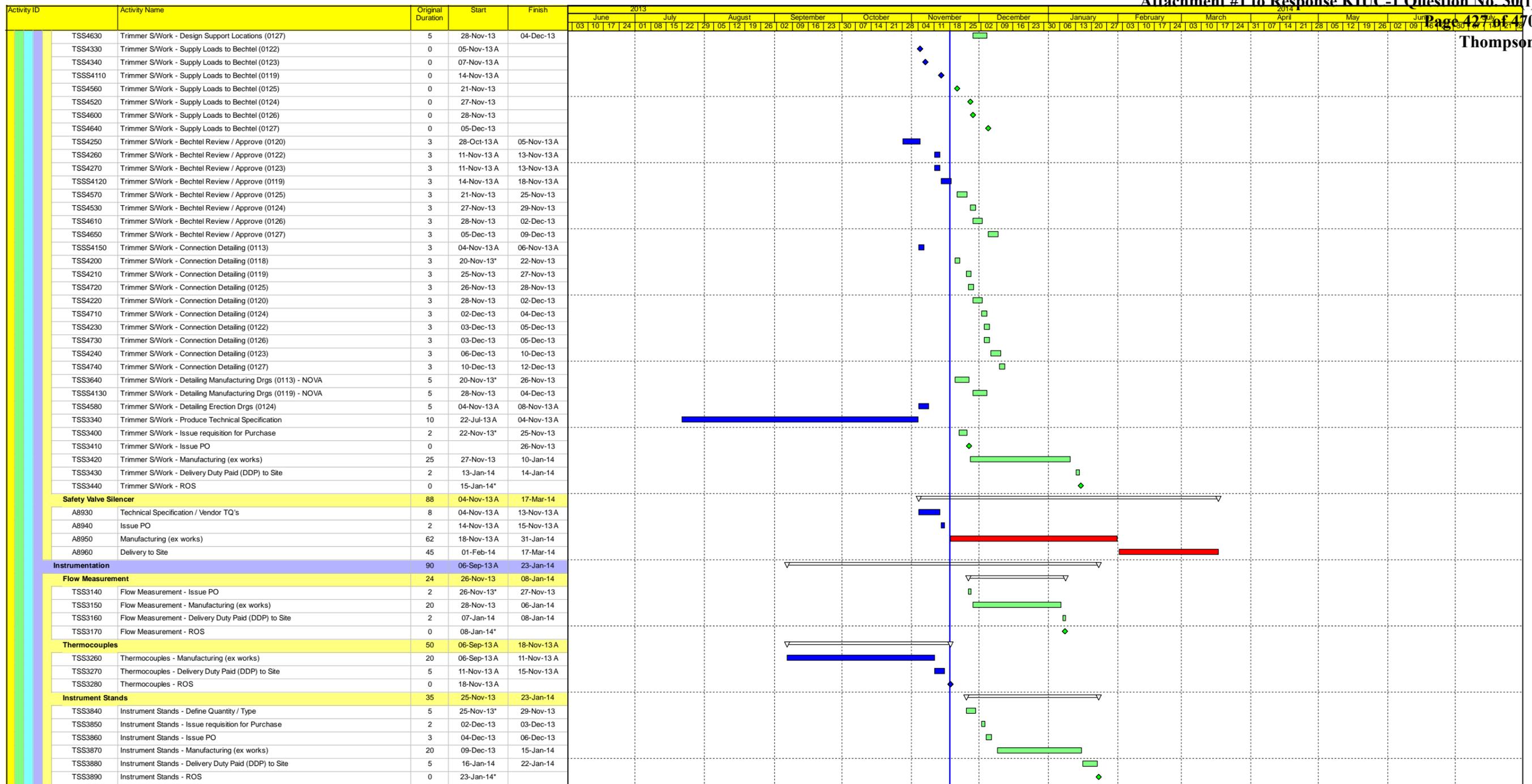
█ Actual Work █ Critical Remaining Work ◆ Milestone Summary
█ Remaining Work ◆ Critical Milestone ◆ Milestone Remaining Level ...

Date	Revision	Checked	Approved
20-Nov-13	Wk 46/13 - Progress Update	IPF	
13-Nov-13	Wk 45/13 - Progress Update	IPF	



■ Actual Work
 ■ Critical Remaining Work
 ◆ Milestone
 Summary
■ Remaining Work
 ◆ Critical Milestone
 ◆ Milestone
■ Remaining Level ...

Date	Revision	Checked	Approved
20-Nov-13	Wk 46/13 - Progress Update	IPF	
13-Nov-13	Wk 45/13 - Progress Update	IPF	



■ Actual Work ■ Critical Remaining Work ◆ Milestone Summary
■ Remaining Work ◆ Critical Milestone ◆ Milestone Remaining Level ...

Date	Revision	Checked	Approved
20-Nov-13	Wk 46/13 - Progress Update	IPF	
13-Nov-13	Wk 45/13 - Progress Update	IPF	

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Dearman, James; Joyce, Jeff; Melloan, Ricky; Maldonado, Francisco; Dorwart, Jordan
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk47
Sent: 12/03/2013 08:57:34 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk47-13 - 2 Week Look.pdf; Burner Programme - Bechtel Issue - Wk47-13.pdf;

Laura,

Updated burner schedule.

Mel

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Friday, November 29, 2013 5:13 AM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk47

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

Regards

Ian Fleming

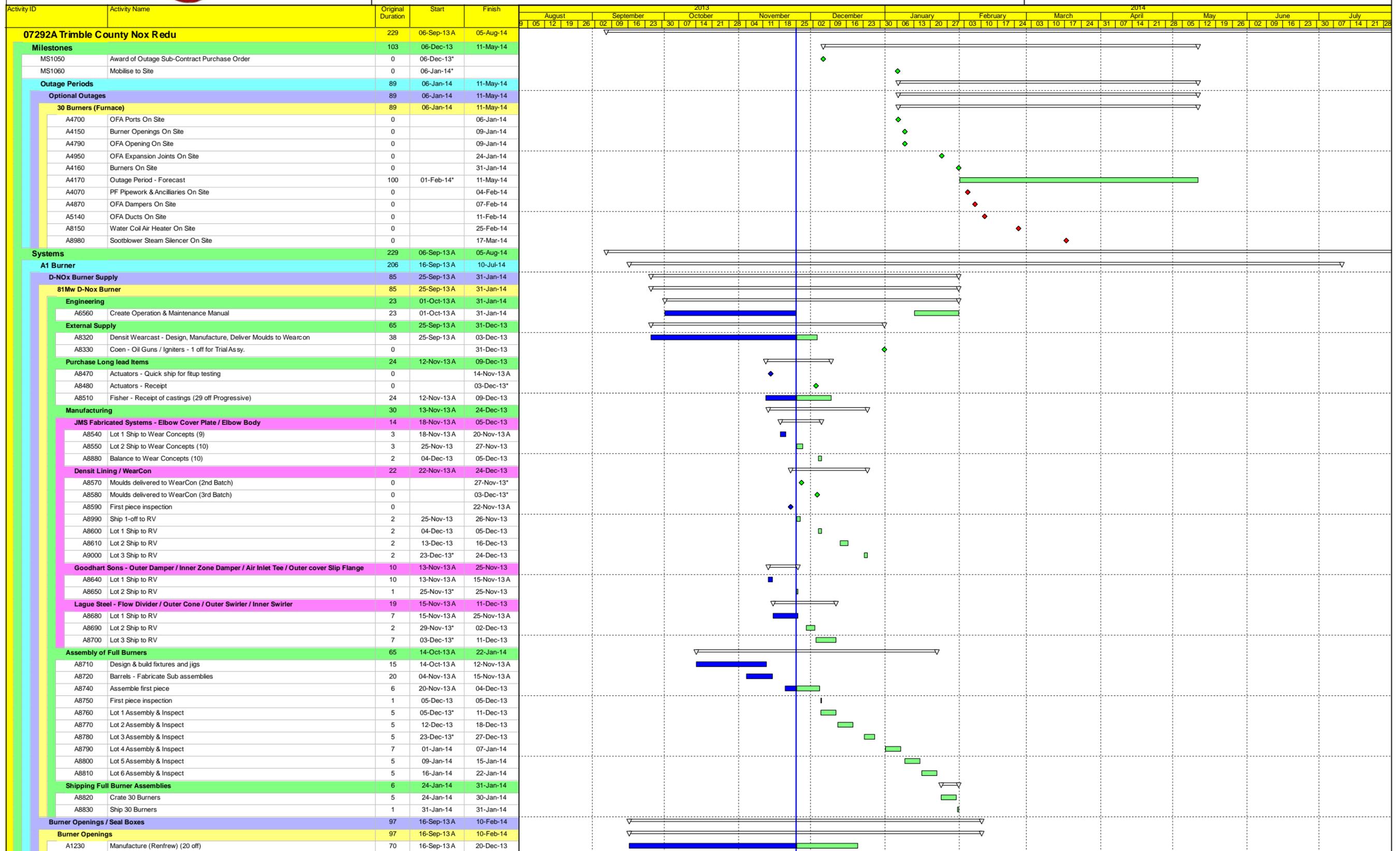
Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

Tel: +44 (0) 141 885 3504
Email: ian.fleming@doosan.com

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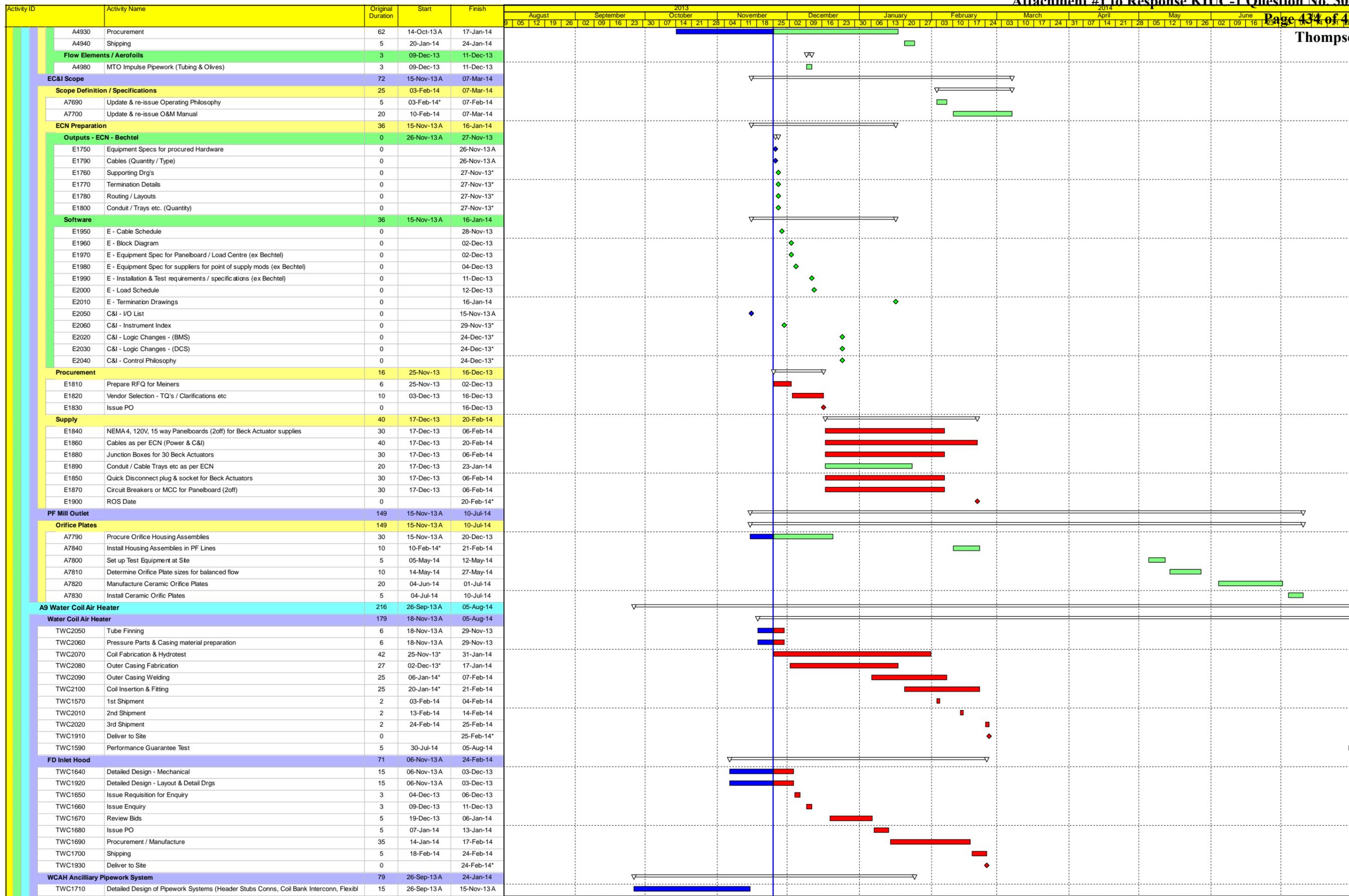


Trimble County 2 Combustion Enhancement Programme



█ Actual Work █ Critical Remaining Work ◆ Milestone ◆ Milestone Summary
█ Remaining Work ◆ Critical Milestone ◆ Milestone █ Remaining Level ...

Date	Revision	Checked	Approved
27-Nov-13	Wk 47/13 - Progress Update	IPF	
20-Nov-13	Wk 46/13 - Progress Update	IPF	



■ Actual Work
 ■ Critical Remaining Work
 ◆ Milestone
 Summary
 ◆ Critical Milestone
 ◆ Milestone
 Remaining Level ...

Date	Revision	Checked	Approved
27-Nov-13	Wk 47/13 - Progress Update	IPF	
20-Nov-13	Wk 46/13 - Progress Update	IPF	

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Craft, Jim; Joyce, Jeff; Melloan, Ricky; Maldonado, Francisco; Dorwart, Jordan
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk48
Sent: 12/05/2013 08:27:52 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk48-13 - 2 Week Look.pdf; Burner Programme - Bechtel Issue - Wk48-13.pdf;

Laura,

Updated schedule for today's call.

Mel

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Thursday, December 05, 2013 7:18 AM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk48

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

Regards

Ian Fleming

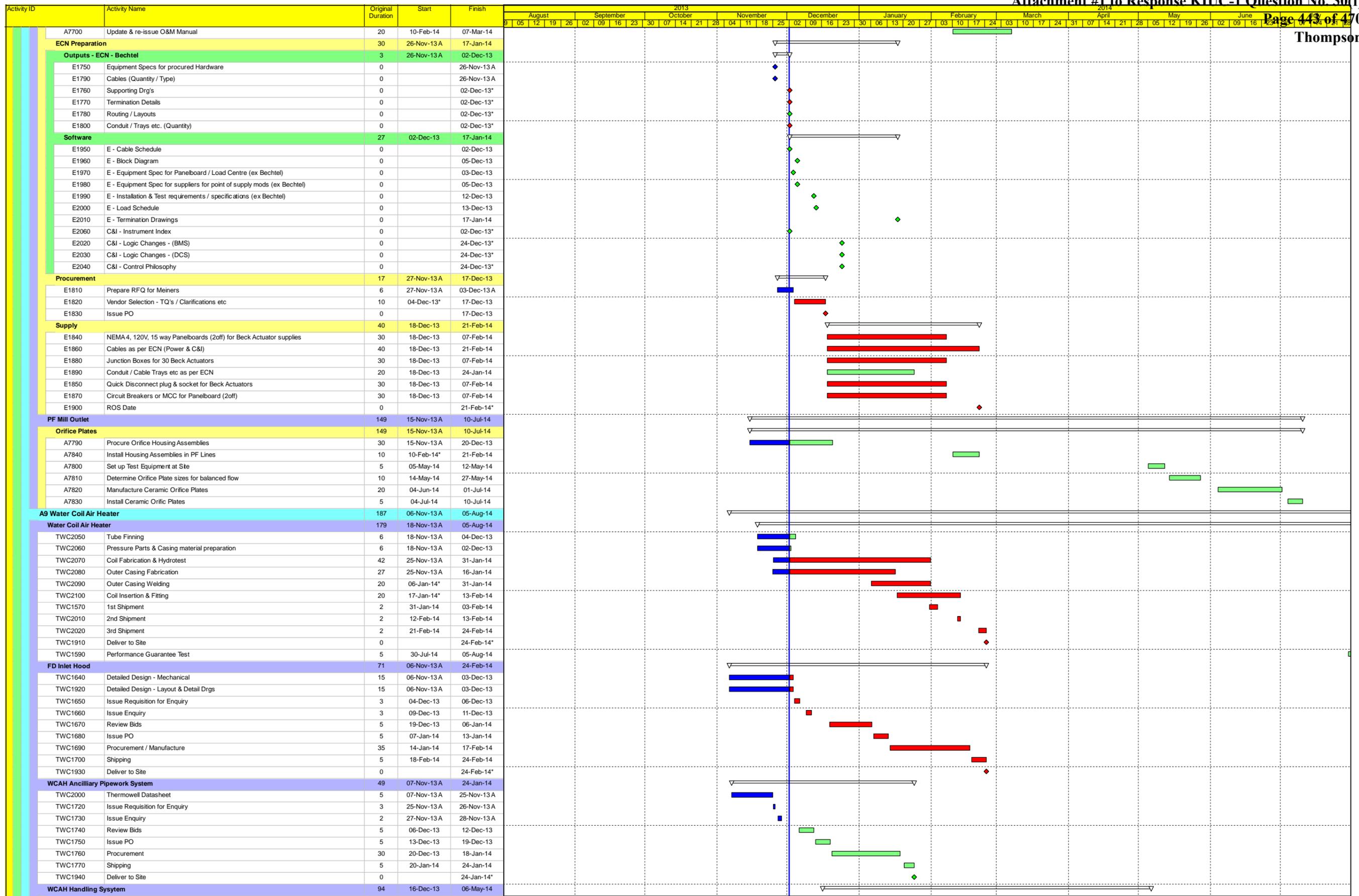
Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

Tel: +44 (0) 141 885 3504

Email: ian.fleming@doosan.com

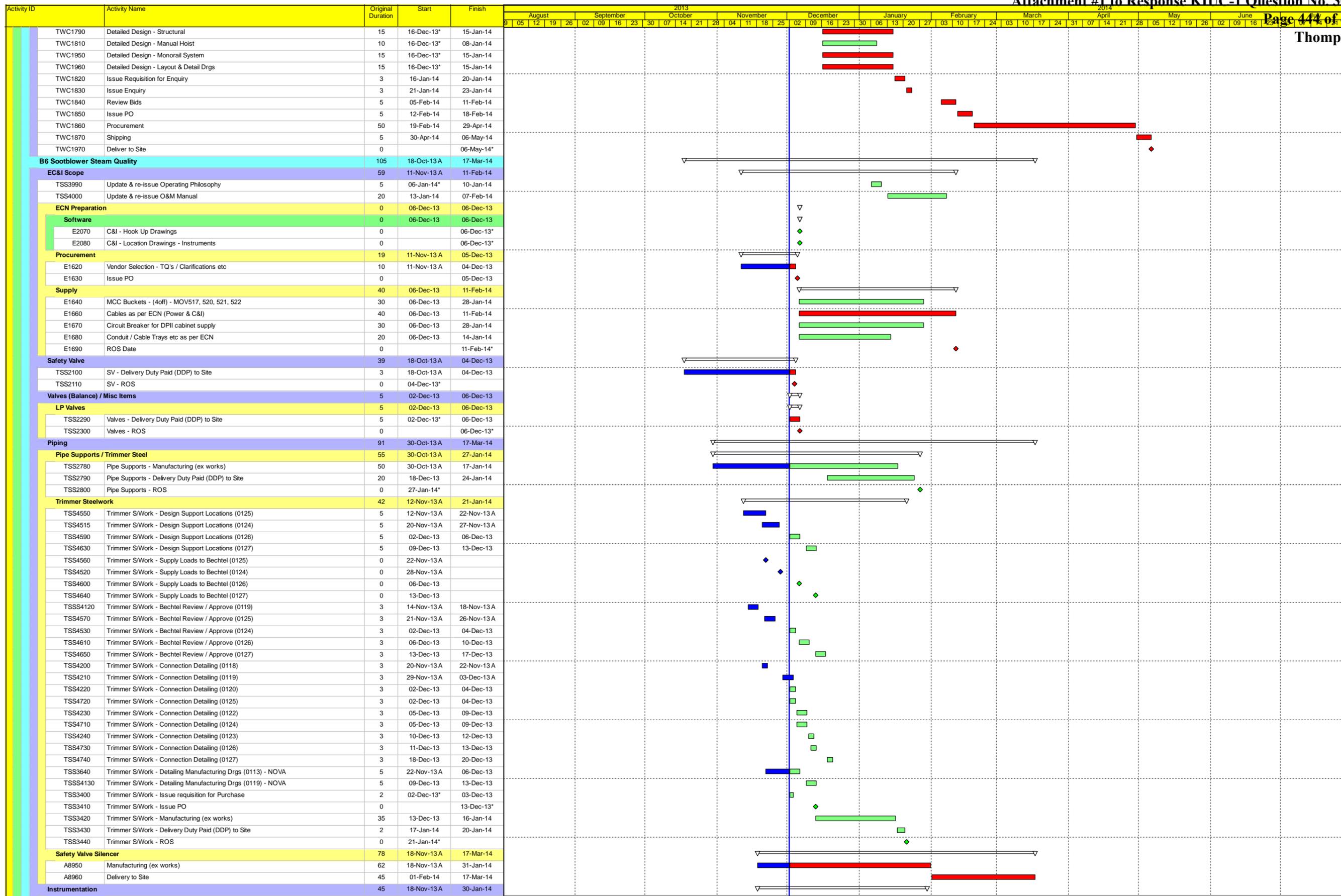
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Thompson



■ Actual Work ■ Critical Remaining Work ◆ Milestone Summary
■ Remaining Work ◆ Critical Milestone ◆ Milestone Remaining Level ...

Date	Revision	Checked	Approved
04-Dec-13	Wk 48/13 - Progress Update	IPF	
27-Nov-13	Wk 47/13 - Progress Update	IPF	



■ Actual Work
 ■ Critical Remaining Work
 ■ Remaining Work
 ◆ Milestone
 ◆ Critical Milestone
 ◆ Milestone
 Summary
 Remaining Level ...

Date	Revision	Checked	Approved
04-Dec-13	Wk 48/13 - Progress Update	IPF	
27-Nov-13	Wk 47/13 - Progress Update	IPF	

Thompson

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Craft, Jim; Melloan, Ricky; Joyce, Jeff; Dorwart, Jordan; Maldonado, Francisco; Dearman, James; Babcock, James; Brann, Devin; Scott Vierstra
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk49
Sent: 12/12/2013 09:41:04 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk49-13 - 2 Week Look.pdf; Burner Programme - Bechtel Issue - Wk49-13.pdf;

Updated schedule for today's call.

Mel

Mel Watkins

Project Engineering Manager
Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Thursday, December 12, 2013 5:35 AM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk49

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

Regards

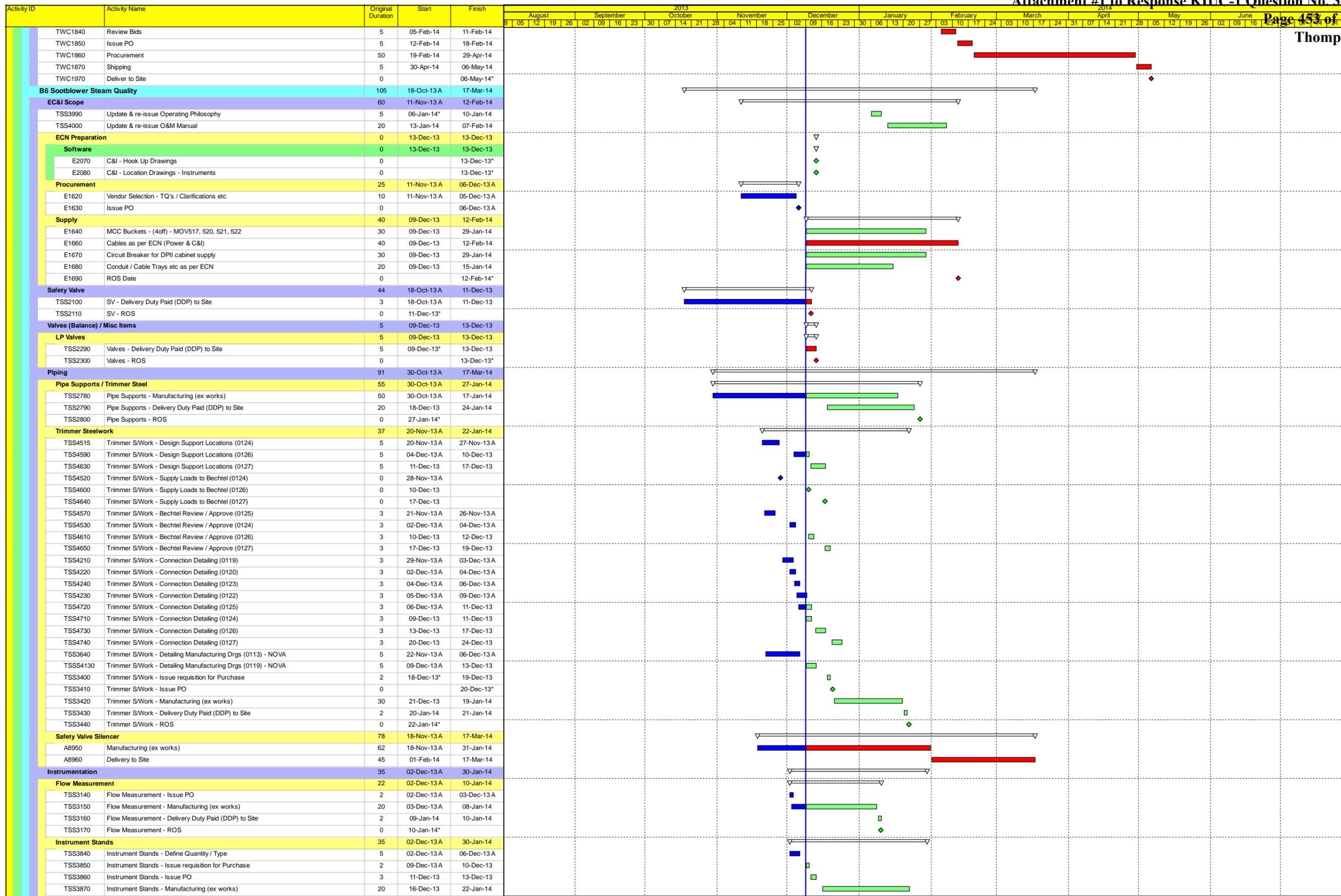
Ian Fleming

Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

Tel: +44 (0) 141 885 3504

Email: ian.fleming@doosan.com

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■ Actual Work
 ■ Critical Remaining Work
 ■ Remaining Work
 ▬ Summary
 ◆ Milestone
 ◆ Critical Milestone
 ◆ Milestone
 ▬ Remaining Level ...

Date	Revision	Checked	Approved
11-Dec-13	Wk 49/13 - Progress Update	IPF	
04-Dec-13	Wk 48/13 - Progress Update	IPF	

From: Watkins, Clyde(cwatkins@bechtel.com)
To: Mohn, Laura
CC: Maldonado, Francisco; Dorwart, Jordan; Melloan, Ricky; Joyce, Jeff; Dearman, James
BCC:
Subject: FW: 07292 TC2 - Bechtel programme updates - Wk50
Sent: 12/20/2013 09:23:14 AM -0500 (EST)
Attachments: Burner Programme - Bechtel Issue - Wk50-13 - 2 Week Look.pdf; Burner Programme - Bechtel Issue - Wk50-13.pdf;

Laura,

Please find attached updated schedules for our MONDAY meeting at 11:00 AM.

Mel

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Fleming, Ian [mailto:ian.fleming@doosan.com]
Sent: Friday, December 20, 2013 6:31 AM
To: McCallum, Neil; Hobbs, Donna; Watkins, Clyde
Subject: 07292 TC2 - Bechtel programme updates - Wk50

Neil / Donna / Mel,

Please find attached updated schedules for weekly review.

Regards

Ian Fleming

Senior Project Planning Engineer
Doosan Babcock
Porterfield Road
Renfrew
PA4 8DJ
United Kingdom

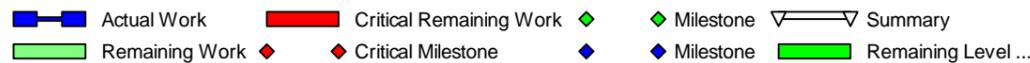
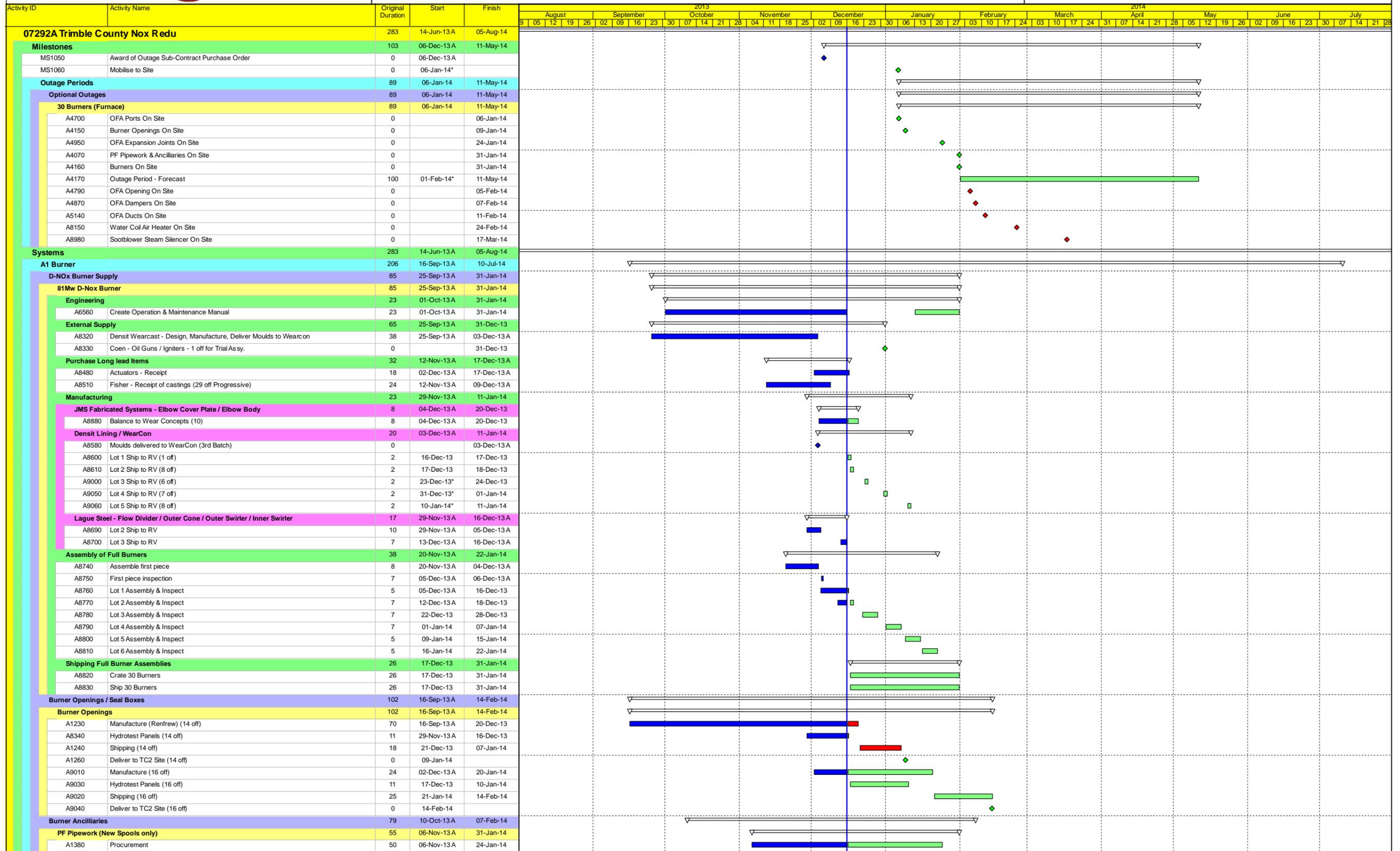
Tel: +44 (0) 141 885 3504

Email: ian.fleming@doosan.com

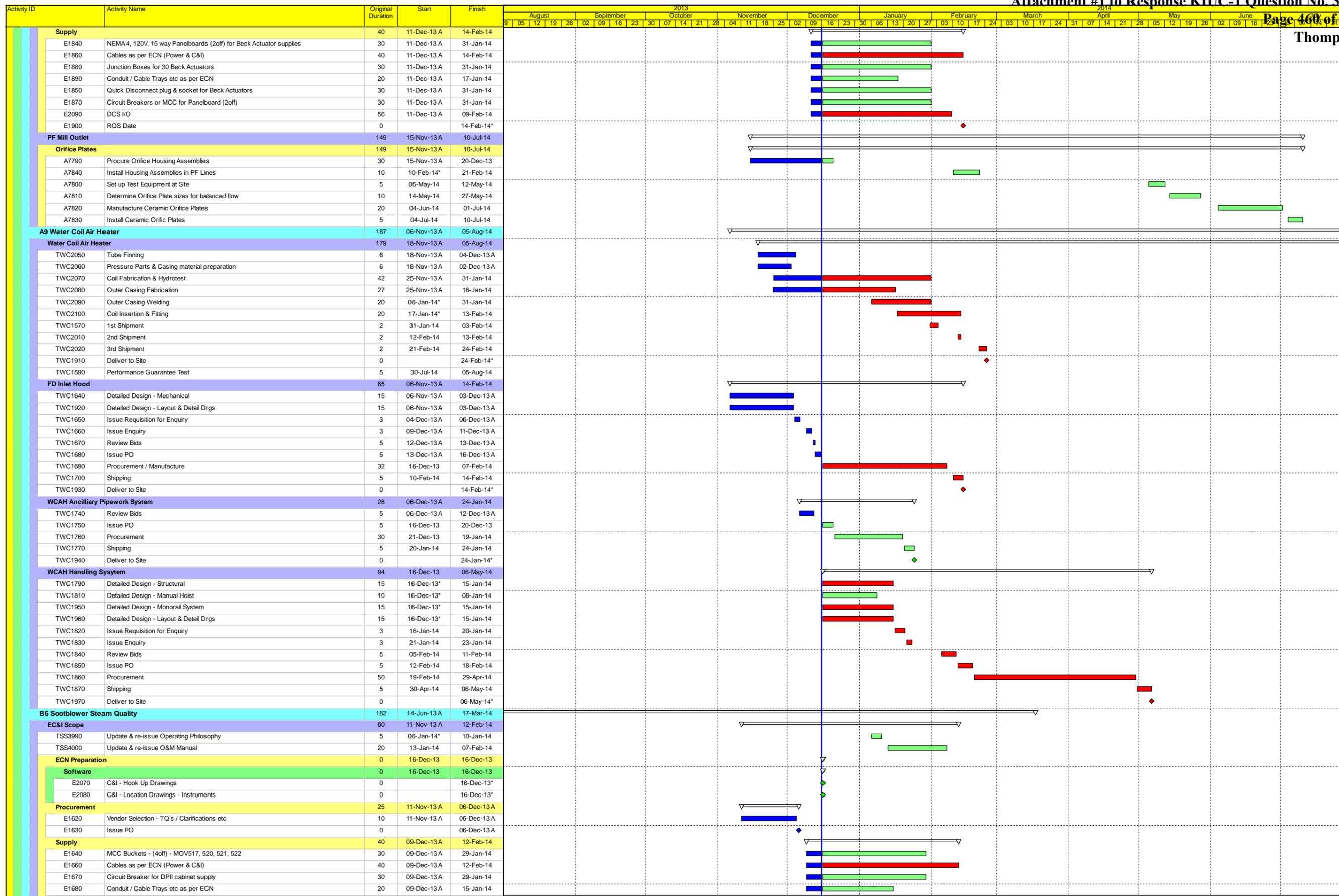
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Trimble County 2 Combustion Enhancement Programme

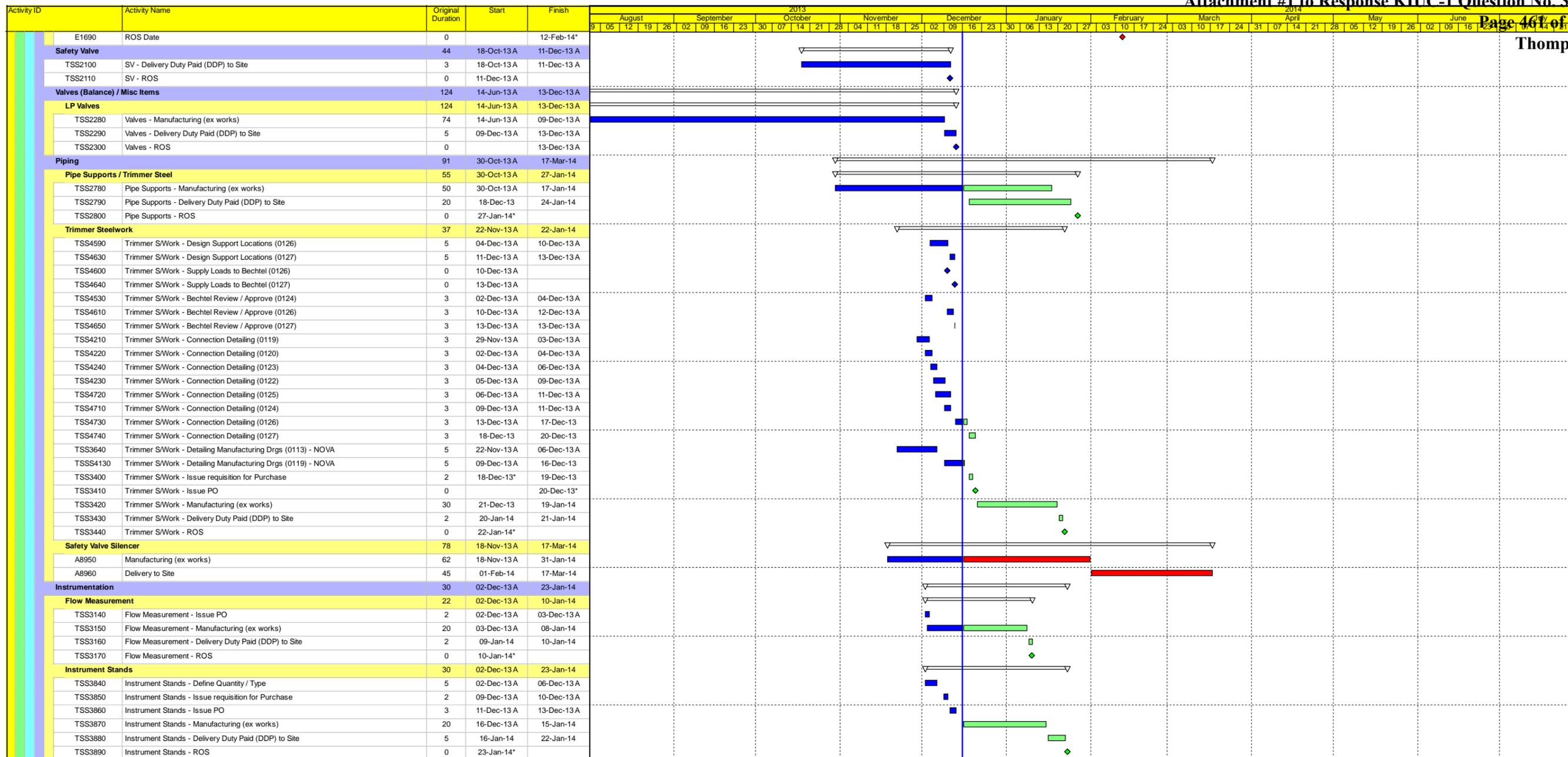


Date	Revision	Checked	Approved
18-Dec-13	Wk 50/13 - Progress Update	IPF	
11-Dec-13	Wk 49/13 - Progress Update	IPF	



■ Actual Work
 ■ Critical Remaining Work
 ◆ Milestone
 ▽ Summary
■ Remaining Work
 ◆ Critical Milestone
 ◆ Milestone
■ Remaining Level ...

Date	Revision	Checked	Approved
18-Dec-13	Wk 50/13 - Progress Update	IPF	
11-Dec-13	Wk 49/13 - Progress Update	IPF	



█ Actual Work
 █ Critical Remaining Work
 ◆ Milestone
 Summary
█ Remaining Work
 ◆ Critical Milestone
 ◆ Milestone
 Remaining Level ...

Date	Revision	Checked	Approved
18-Dec-13	Wk 50/13 - Progress Update	IPF	
11-Dec-13	Wk 49/13 - Progress Update	IPF	

From: Slaughter, Mitch(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=SLAUGHTERM)
To: Joyce, Jeff
CC: Melloan, Ricky; Anderson, Dave (Trimble County); Rabe, Phil
BCC:
Subject: FW: Amendment 6 Completion Schedule
Sent: 02/26/2014 02:25:37 PM -0500 (EST)
Attachments: Trimble Combustion System Milestone Schedule Rev S1 (2-25-14).pdf;

Jeff,
The feedback I would have on the attached amendment is listed below. If you have any questions, please let me know. Thanks Mitch.

- Oil gun testing – I would list it as “oil guns available for testing (one hour per gun)”. It’s listed as three days when if we hold them to about one hour per gun it would be just over 30 hours. This would also change the information on note #4 section “d”.
- Oil gun testing – this is based on getting a variance to the normal air permit from the state for commissioning, start-up and testing of the new oil guns. (R. Feider)
- The boiler de-slag will impact the Reliability run and the ramp testing at the end of the schedule.
- SCR Tuning is not on the schedule?
- The target for Combustion System Completion of 8/18/14, does not allow for any system or unit problems that could push any of the fuel test a week or two and still make that date?

From: Joyce, Jeff
Sent: Wednesday, February 26, 2014 10:07 AM
To: Melloan, Ricky; Slaughter, Mitch
Cc: Anderson, Dave (Trimble County)
Subject: FW: Amendment 6 Completion Schedule

From: Straight, Scott
Sent: Tuesday, February 25, 2014 9:09 AM
To: Joyce, Jeff
Subject: FW: Amendment 6 Completion Schedule

Jeff, call me after you have reviewed this. If I don’t hear from you by early afternoon, I will call you.

Scott

From: Watkins, Clyde [<mailto:cwatkins@bechtel.com>]
Sent: Tuesday, February 25, 2014 8:27 AM
To: Straight, Scott
Cc: Brightman, Jeff
Subject: Amendment 6 Completion Schedule

Scott,

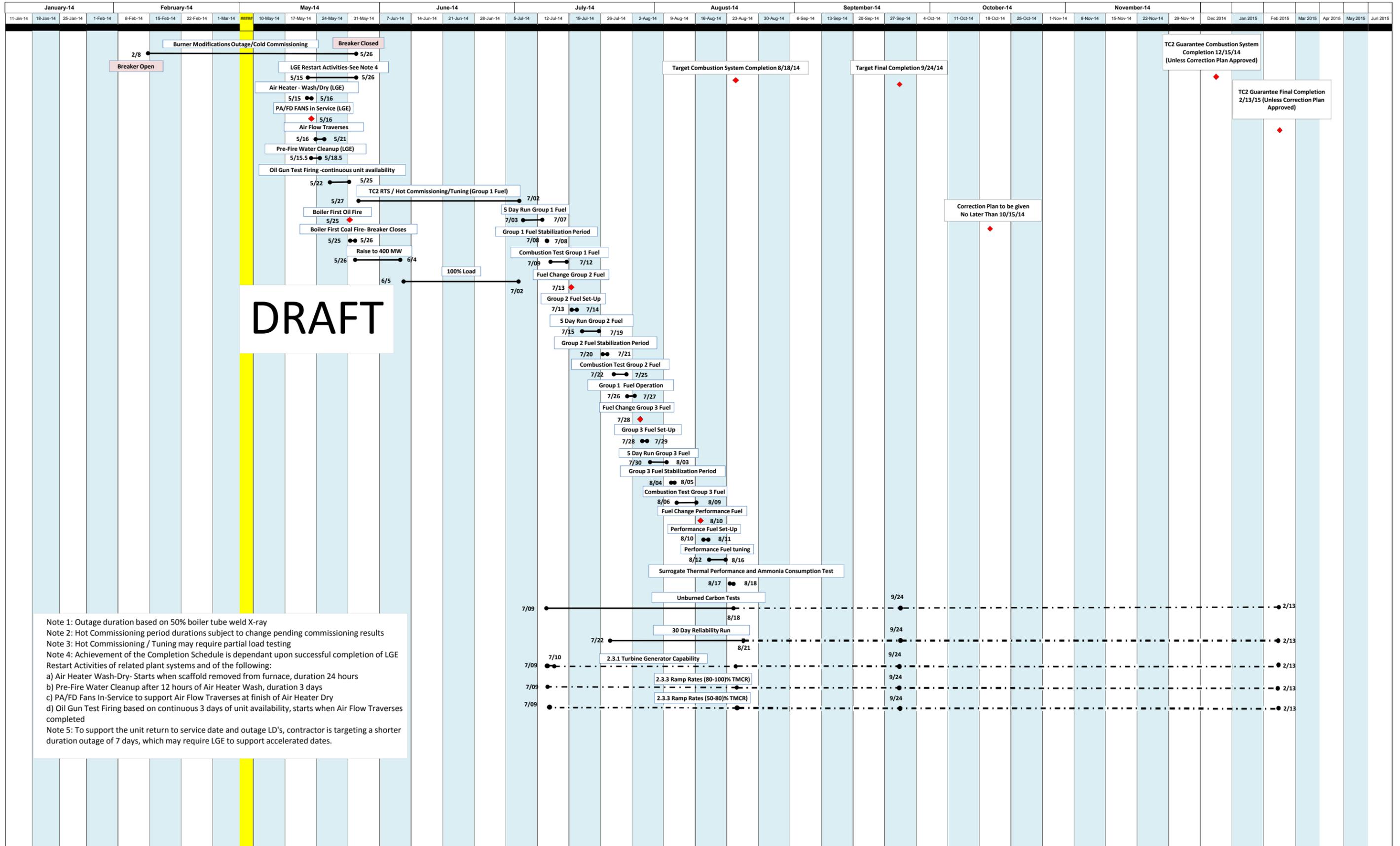
Attached is the updated Amendment 6 Completion schedule for your review.

Mel

Mel Watkins
Project Engineering Manager
Trimble County Unit 2 Project
cwatkins@Bechtel.com
work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490



From: Watkins, Clyde(cwatkins@bechtel.com)
To: Melloan, Ricky; Slaughter, Mitch
CC:
BCC:
Subject: FW: Amendment 6 Completion Schedule
Sent: 02/26/2014 11:10:30 AM -0500 (EST)
Attachments: Trimble Combustion System Milestone Schedule Rev S1 (2-25-14).pdf;

Rick, Mitch,

Attached is the schedule that was sent to LGE yesterday.

Mel

Mel Watkins

Project Engineering Manager

Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490

From: Watkins, Clyde
Sent: Tuesday, February 25, 2014 8:27 AM
To: Straight, Scott
Cc: Brightman, Jeff
Subject: Amendment 6 Completion Schedule

Scott,

Attached is the updated Amendment 6 Completion schedule for your review.

Mel

Mel Watkins

Project Engineering Manager

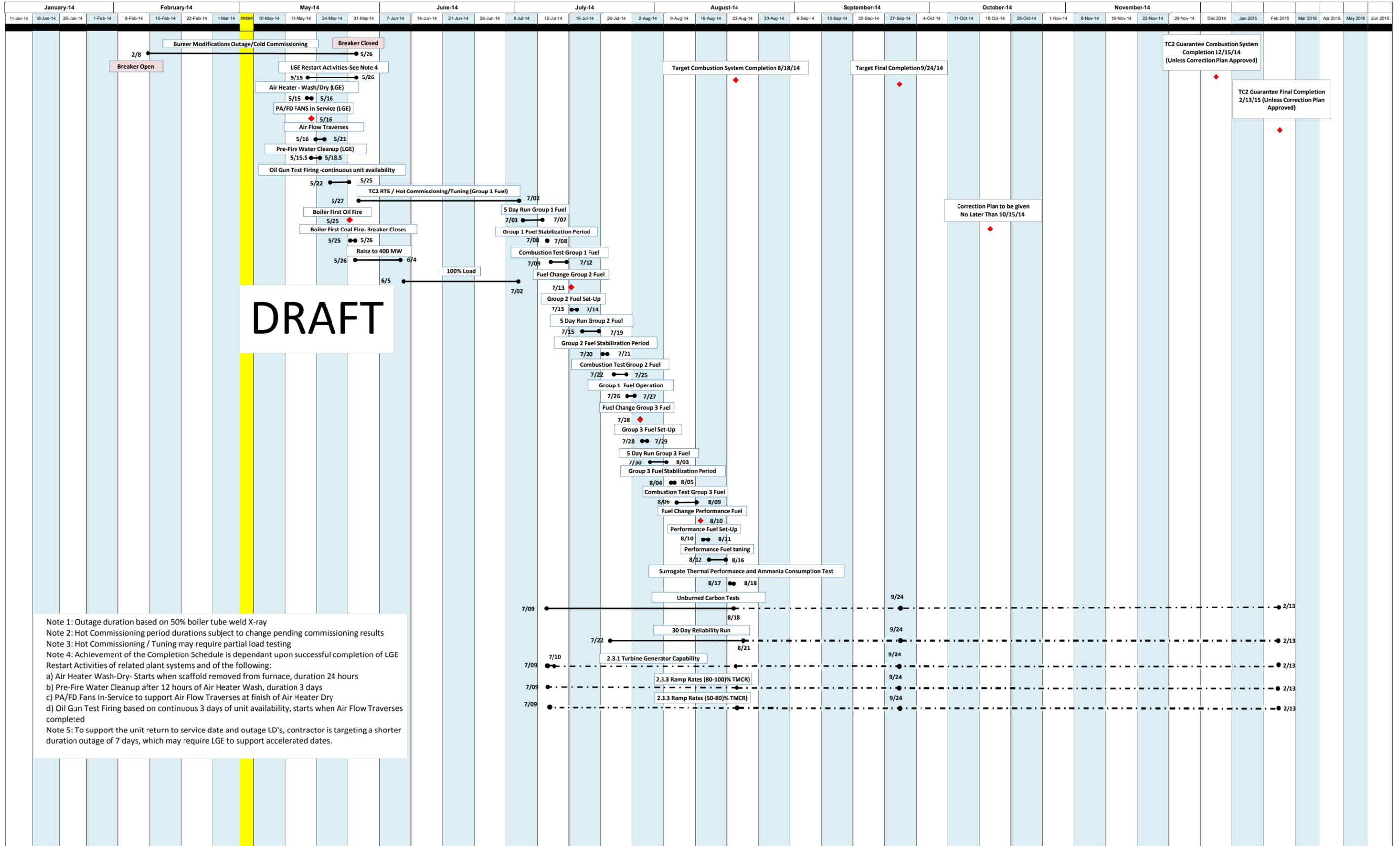
Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490



From: Joyce, Jeff(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=WEB/CN=JEFFJOYCE)
To: Melloan, Ricky; Slaughter, Mitch
CC: Anderson, Dave (Trimble County)
BCC:
Subject: FW: Amendment 6 Completion Schedule
Sent: 02/26/2014 10:07:28 AM -0500 (EST)
Attachments: Trimble Combustion System Milestone Schedule Rev S1 (2-25-14).pdf;

From: Straight, Scott
Sent: Tuesday, February 25, 2014 9:09 AM
To: Joyce, Jeff
Subject: FW: Amendment 6 Completion Schedule

Jeff, call me after you have reviewed this. If I don't hear from you by early afternoon, I will call you.

Scott

From: Watkins, Clyde [<mailto:cwatkins@bechtel.com>]
Sent: Tuesday, February 25, 2014 8:27 AM
To: Straight, Scott
Cc: Brightman, Jeff
Subject: Amendment 6 Completion Schedule

Scott,

Attached is the updated Amendment 6 Completion schedule for your review.

Mel

Mel Watkins

Project Engineering Manager

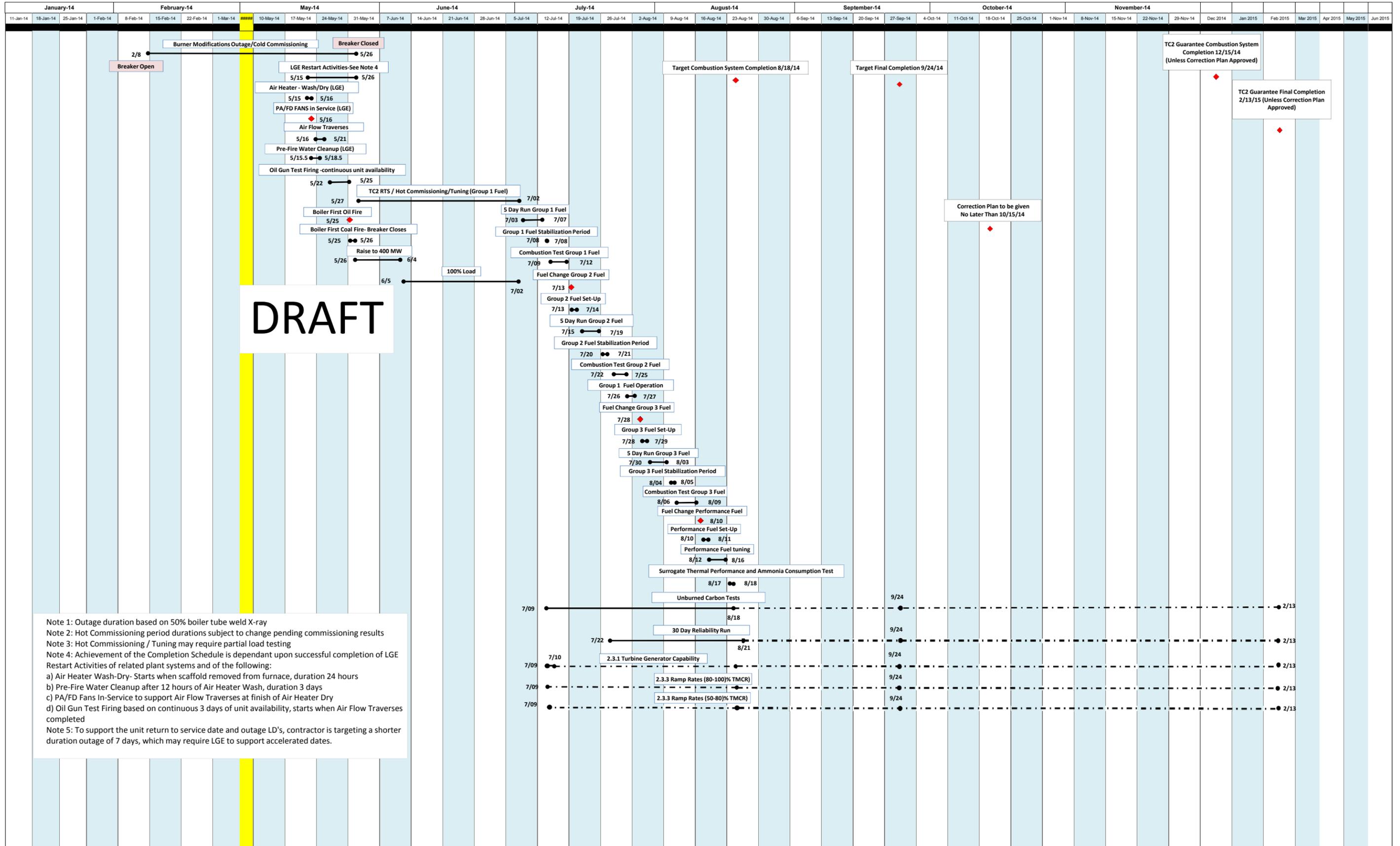
Trimble County Unit 2 Project

cwatkins@Bechtel.com

work: 301-228-8035 (Frederick)

work: 502-255-5277 (Trimble Site)

cell : 240-793-4490



Thompson

From: Anderson, Dave (Trimble County)(/O=LGE/OU=LOUISVILLE/CN=RECIPIENTS/CN=ANDERSOND)
To: Boone, James; Bullock, Sam; Byrd, Larry; Craft, Jim; Cuzick, Fred; Dorwart, Jordan; Dukes, Christopher; Feider, Ryan; Gilliland, Dave; Gray, Jeffrey; Hannon, Hannah; Heinz, John; Henderson, Trent; Jensen, Jack; Joyce, Jeff; Joyce, Kenny; Maldonado, Francisco; Melloan, Ricky; Mills, Ricky; Mohn, Laura; Moore, Emmett; Noonan, Kenny; Payne, Nicholas; Phelps, Grant; Powell, Richard; Rabe, Phil; Raker, Adam; Ransdell, Charles; Sedam, Dale; Slaughter, Mitch; Stewart, Robert E. (Trimble); Thomas, Mark; Turner, Haley; Turner, Tyler; Walcott, Danny; Hayes, Christopher; Craft, Jim
CC:
BCC:
Subject: TC2S14 Spring Outage Gantt Chart.xlsx
Sent: 12/10/2013 01:28:48 PM -0500 (EST)
Attachments: TC2S14 Spring Outage Gantt Chart.xlsx;

All,

Attached is the latest Excel sheet with work scope for the TC2 Spring outage. This includes budget amounts so please do not forward to Bechtel/ Doosan, contractors.... without management approval.

The next phase is for all planners and others in charge of projects to make sure cost estimates (exclude internal labor) are assigned in Maximo to the "other" field.

I will be running reports from Maximo and updating periodically.

Thanks,

David W. Anderson

Trimble County Outage Coordinator
Tel. 502-627-6313
Fax 502-217-2199
email: dave.anderson@lge-ku.com

Produced as Native

Original File Name: TC2S14 Spring Outage Gantt Chart.xlsx

Stored File Name: OpenText00253095.xlsx