

Forced Outage Report

Lost Opportunity

FORCED OUTAGE COST ANALYSIS				
MISO DART Revenue and LOST OPPORTUNITY				

Unit	Wilson - W1-13-03 & W1-13-04	Production Cost	
Date & Time Off Line	6/15/13 11:42 & 6/15/13 23:49	MW	\$/MW
Date & Time On Line	6/15/13 22:12 & 6/16/13 2:15	240	\$ 24.17
Outage Duration	10 hr. 30 min. & 2 hr. 26 min.	300	\$ 23.31
Outage Code	UO1 & UO1	420	\$ 22.36
Outage Reason	Unit tripped following #1 ID fan tripping on high amps. Unit tripped on high drum level after start up.		

Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity
6/15/13 (HE 12-24)	\$ 32.50	\$ 38.53	\$ (81,883)	\$ -
6/16/13 (HE 1-24)	\$ 28.25	\$ 28.69	\$ (36,399)	\$ -
Total			\$ (118,282)	\$ -

Start Up Fuel Cost		Total Forced Outage Cost	
S/U Fuel Consumed	40,242	DART P&L	\$ (118,282)
S/U Fuel Price	\$ 3.04	Lost Opportunity	\$ -
S/U Fuel Cost	\$ (122,404)	S/U Fuel Cost	\$ (122,404)
		Total	\$ (240,686)

NOTES:

All negative values are money out of pocket.

DART Revenue is calculated from differences between the DA award and RT events

Lost Opportunity is the lost margins if the unit had stayed running

Forced Outage Report

To: Bob Berry

From: Daryl Chinn

Date: 30-Jul-2013

Plant: Coleman

Unit: 1

GADS Class: UO2

Duration

Trip Time: 26-Jul-2013 22:18

Tie Time: 30-Jul-2013 01:10

Time Offline: 74:52

Outage Description

Coleman unit 1 was removed from service on Friday, 26-Jul-2013 at 10:18 and returned to service on Tuesday, 30-Jul-2013 at 01:10 for duration of 74:52 against an initial target of 76:00. This was an unplanned event, and as such is classified as a Class I (UO2) forced outage. The unit was removed from service in a controlled manner due to a suspected leak in the upper (hot) reheater section.

Root Cause

The root cause for the tube failures are, as suspected, near the top of the hot reheat section. The starter appears to be the first or second reheat tube in the 7th element which imposed damage to the HRA and reheat tubes in the 6th element from the west wall; both HRA screen tubes required a dutchman approximately 2' long. The first reheat tube required a dutchman; the second tube was repaired by pad welding. In the 7th element from the west wall; the first HRA screen tube required a rather long Dutchman (10' to 12') due to overheat damage caused by starvation from a small leak near the roof caused by the initial leak in the reheater. The second HRA required a Dutchman 1' to 2' long. The first 3 reheat tubes required dutchmen ~3' long due to the very poor condition of the existing tube metal. The 4th tube was pad welded. In total, 10 tubes were repaired or replaced.

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Failure History

11-Nov-2011	53:37	The second loop tube from the face of the hot end reheater failed in a catastrophic manner due to wall loss from coal ash corrosion.
2-Jan-2013	76:44	The 5 th tube in the third assembly from the east wall in the high temperature reheater had experienced external tube erosion caused by 7R soot blower.
18-Jan-2013	60:59	The second loop tube from the face of the 3 rd element from the west wall of the high temperature reheater section failed due to wall loss from coal ash corrosion.
22-Jan-2013	53:44	The first loop tube from the face of the 28 th element from the east wall of the hot end reheater failed due to wall loss from coal ash corrosion.
7-May-2013	58:30	North side of the hot reheater opposite the HRA screen, in the fourth element from the west wall causing damage to the 3 rd and 5 th element. The initial leak originated from a cracked lug between the outer loop and the second loop in the 3 element from the west wall.

Corrective Action

This section of the reheater is scheduled to be replaced during the fall outage of 2013.

SOE Print Out

N/A

Other Work Completed While Unit Was Offline

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Mechanical Maintenance

C1 Outage, Completed Tasks, 7-29-2013

- 6101950 Freed up and lubricated #6 Heater extraction isolation valve.
- 6104831 Removed cleaned and inspected B Condensate Pump suction strainer.
Found strainer partially plugged.
- 6102122 Replaced section of line and union on #3 heater shell side vent to hotwell.
- 6104669 Weld repaired coal leak on transition chute below feeder on "A" mill.
- 6102336 Replaced spinner and distribution cone on # 7 burner.
- 6104927 Repacked shafts on east and west slide gates at W/B.
- 6102456 Weld repaired coal leak on transition chute below feeder on D mill.
- 6104670 Weld repaired coal leak on transition chute below feeder on C mill.
- 6091987 Broke coupling on "A" mill; Checked and realigned motor.
- 6101745 Secured deck grating in the area around upper APH bearings.
- 6101836 Replaced ball valve on south side of W/B for seal box water supply.
- 6102025 Repaired two refract cooling water boxes on west side. Welded on new top,
half way across each box.
- 6104925 Checked upper right ROFA dampers. Found drive unit low on oil. Added oil
and stroked several times.
- 6104615 Adjusted packing on #3 heater extraction trap bypass valve.
- 6096942 Replaced section of pipe on "A" steam cleaning device trap drain.
- 6096943 Replaced section of 4" steam coil supply line between APHs.
- 6104973 Removed door frame at big room on west side and replaced frame gasket.
- 6104977 Inspected all four mills. Re-shimmed tensioners. Stroked and set classifiers.

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- 6104978 Inspected "A" APH air drive for looseness at shaft. Stub shaft bolts at over running clutch had backed out allowing shaft to wobble. Added new bolts and secured with wire.
- 6104972 Weld repaired gas leaks around A and B APH expansion joints, gas outlet ducts and precipitator inlet ducts.
- 6104961 Inspected booster fan blades for wear and oil leaks. Inspected for hydraulic leaks and hub oil level.
- 6104975 Changed oil in PA Fan bearings, FD Fan bearings and greased couplings on APHs.
- 6104971 Replaced four Dutchmen on HRA partition wall, 6th and 7th assemblies from west wall at elevation 212'. Replaced five reheater Dutchmen in the same assemblies. Pad weld repaired two R/H tubes in the same two assemblies. Added shields.
- 6104962 Replaced inspection door gasket on B mill pyrite hopper.
Replaced seal air hose on 8R sootblower.
- 6105095 Replaced S/H pendant isolation valve.
- 6105028 Broke coupling, checked and realigned motor. E/M changed oil IB bearing.
- 6099522 Installed larger oil cooler on B mill. Inspected for adequate water flow to cooler.

Forced Outage Report

Electrical & Instrument Maintenance, C1, Completed Outage Tasks

- 6104964- Cleaned all igniter and main flame scanners and performed dark furnace adjustment on each.
- 6104967- Blew back secondary air flow transmitters taps and sensing lines.
- 6104966- Cleaned furnace pressure taps and sensing lines.
- 6100763- Performed calibration on B, C, and D stock feeders.
- 6100764- Performed drum level trip checks.
-
- 6100763- "A" stock feeder would not run, replaced electronics with new upgrade, programmed, and verified operation. Replaced control relays in control cabinet. Performed long calibration and fill out data sheet.
- 6104965- Pulled igniter rods due to de-slagging of the boiler with high pressure water. Re-installed after de-slagging was complete.
- 6104970- Installed valves and fittings on the windbox to burner seal air pressure alarm and auto-start switches and blew back the taps and sensing's lines. Blew back the mill taps and sensing line.
- 6104963- Stroked and calibrated turbine valves.
- 6073121- Pulled generator stator RTD's wiring into TCS cabinet. Installed backplane and termination units and landed wiring in cabinet.
- 6104968- Removed and cleaned booster fan stall probe and blew back sensing lines.
- 6104969- Booster fan misc. tasks: Replaced the sensing lines to the seal air fan differential pressure switch. Rodded out the transmitter taps and blew back taps, halo's and sensing lines.
- 6096016- Replaced contactor coil on main transformer cooling fan relay.
- 6062477- Verified cubical wiring and prints on 1A MCC.
- 6106052- Wired Titan's 4 pack welders, unwired when Titan was completed.

Forced Outage Report

Operators Event Log

7/26/2013	21:20	C-1 LOSS 2" IN 3 MINUTES....VALVED MAKE-UP BACK IN..... CALLED ACES.... STARTING OFF LINE WITH C-1.....								
	21:50	#1 BYPASS DAMPER OPEN..... SHUTTING DOWN BOOSTER FAN.....								
	22:18	C-1 TRIPPED OFFLINE.....								
	22:30	TAGGING #1 GAS VALVE FOR MAINT TO INSTALL BLANK....								
	22:35	I-DEPT BLOWING BACK A SIDE SECONDARY AIR FLOW TRANSMITTER ON C-1....READING 180-200 KPPH LOWER THAN B SIDE.....								
	22:40	C-1 SUB PANEL K SMOKING UNDER COVER...REQUESTED K. MAYFIELD LOOK AT IT.....								
	22:45	MAINT HAS BLANK INSTALLED IN C-1 GAS LINE.....								
	22:50	ACES CALLED REQUESTING WE REMOVE ONE MILL FROM SERVICE ON C-2 AND C-3.....OK TAKING 2B AND 3B MILLS OFF.....								
	23:00	G. PILE AND B. JEAN DEPART.....								
	23:10	C-1 TURBINE ON GEAR.....								
	23:15	K. MAYFILED REPORTS A WIRE-NUT HAD BURNED UP IN SUB PANEL K ON C-1.....IT IS CAPPED OFF....WILL STILL HAVE TO DETERMINE WHAT IT FEEDS								
	23:30	J. PFEIFFER STAYING OVER TO CATCH CONDENSATE STORAGE TANKS.....								
	NOTE	INSTRUMENT AIR TO #1 DRUM CAMERA IS VALVED OUT.....								
	7/27/2013	0:00	TRACE OF RAIN IN THE RAIN GAUGE ON THE TURBINE DECK.....							
0:52		ISSUED HOLD #375 ON C-1 GENERATOR DISCONNECT 0303 WITH ENERGY CONTROL.....								
1:00		COAL HANDLING CLEANING INTAKES.....								
2:15		C-1 PRECIPS OUT OF SERVICE.....								
2:20		CALLED INLAND TO COME IN AND DESLAG C-1 BOILER....LEFT MESSAGES....								
2:30		OPENING BOILER DOORS ON C-1.....								
3:20		CALLED THOMPSON TO COME IN AND DESLAG C-1 BOILER...LEFT MESSAGE WITH DISPATCH.....								
3:35		CALLED MPW TO COME IN AND DESLAG C-1 BOILER.....LEFT MESSAGE WITH DISPATCH.....								
3:37		TERRY WENTWORTH CALLED BACK...TRYING TO FIND A CREW TO COME IN FROM LOUISVILLE OFFICE..... WILL CALL BACK SHORTLY.....								
4:11		MPW CALLED BACK.....THEY WILL HAVE A CREW HERE BETWEEN 08:00 AND 08:30.....								
5:00		G. TIVITT HERE.....								
5:05		PULLING ECONOMIZER HOPPERS PRIOR TO DESLAG.....								
5:12		VALVED OUT REFRACT COOLING WATER TO C-1 WET BOTTOM.....SUSPECT BOX BLOWING ON WEST END....SPRAYING UP ON KNEES.....								
7:00		"C"SHIFT (DOOLEY) HERE "B" SHIFT (JOHNSON) LEAVING...								
K.Grantland, P.Gatton, L.Shearn, M.Young, D.Mills(Days), J.Miller, R.Payne S/L, M.Lee, S.Kurz, G.Tivitt here										
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.	
	1	TUBE LEAK						N w/o Gas	OPEN	
	2	74	18.5	0.48	4.65	9.60	0.253	138 N w/o Gas	CLOSED	
	3	77	5.2	0.42	5.05	9.70	0.067	155 N w/o Gas	CLOSED	
	FGD Nox	0.39								
	FGD Removal %	97.5%								
	3A Mill Amps	92								
	3B Mill Amps	98								
	COND. STOR. TNK	18/19								
	Instr. Air Dew Point	-62.5								
	Sootblowing									
	#1 S/B Out of Service	NONE								
	#2 S/B Out of Service	8R								
	#3 S/B Out of Service	NONE								
	DHS--NTAS	NO THREATS								

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6:00	APM REQUESTED 3B MILL ON																																																																																										
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6:15	TAGGING 1A, 1C AND 1D MILLS FOR M/M																																																																																										
6:30	B HAGAN AND M OBRYAN HERE																																																																																										
6:41	BACKWASHING C1 COND WEST SIDE																																																																																										
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8:00	MPW HERE - SETTING UP TO DESLAG																																																																																										
8:22	TAGGING 1B MILL FOR M/M																																																																																										
9:00	TAGGING C1 BOOSTER FAN FOR M/M TO INSPECT FAN																																																																																										
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18:15	CLEARED FURNACE DESLAG..... THERE ARE 2 CHUNKS ON WEST WALL THAT WILL NOT COME OUT..... ONE ABOVE DESLAG DOOR AND ON ON LOWER ROFAPORT.....SHOT AT THEM SEVERAL TIMES AND THEY WOULD NOT COME OUT.....DID NOT WANT TO BUST OUT REFRACT.....WILL TALK TO MAINT IN THE MORNING.....MPW ROLLING UP EQUIPMENT AND PREPARING TO DEPART.....																																																																																										
18:55	2A BOILER FEED PUMP OUTBOARD MECHANICAL SEAL LEAK ABOUT THE SAME AS LAST NIGHT.....#2 EAST SIDE DESLAG DOOR ABOUT THE SAME ALSO...																																																																																										
19:00	PULLING #1 WET BOTTOM..... TAKING OFF SEAL END PLATES AND FLUSHING/ WASHING ON #1 WET SEAL.....																																																																																										
19:45	J. GOODMAN DEPARTS....BACK PAIN.....A & T FORM SUBMITTED.....WILL COVER VACANCY ON SHIFT.....																																																																																										
NOTE	ABSORBER CHLORIDES ARE 5700.....																																																																																										
NOTE	1ST WET SEAL SUPPLY LINE ON WEST SIDE #1 WETBOTTOM LEAKING AT VALVE OR FITTING....CLOSED VALVE.....IT IS MARKED WITH RED PAINT.....W.O. # 6101836 ALREADY IN THE SYSTEM FOR THIS LEAK.....																																																																																										

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21:05 #1 RAW WATER PUMP OFF.....BACKWASHING EAST SIDE #1 CONDENSER.....
 21:45 #1 WET BOTTOM CLEAN AND TAGGED..... CONTINUE WORKING ON WET SEAL.....
 NOTE AUXILIARY COMPLETED C-3 DC SEAL OIL PUMP TEST..... DID NOT TEST EGE DUE TO KNOWN ISSUE..... PAPERWORK SUBMITTED.....
 NOTE AUXILIARY COMPLETED C-3 AC/DC LUBE OIL PUMP TEST..... PAPERWORK SUBMITTED.....
 22:00 ARP POND LEVEL IS 411'6".....
 22:05 RESET GROUND ALARM ON C-2 ARP 4160 VOLT BREAKER..... 50N-2 PU TIME 41 MS..... TRIP TIME 23MS..... LOGGED SAME IN RELAY LEDGER.....
 NOTE AUXILIARY COMPLETED C-2 TURBINE SPINDLE READINGS..... PAPERWORK SUBMITTED AND DATA RECORDED BELOW.....
 NOTE AUXILIARY COMPLETED C-2 WEEKLY EMERGENCY LUBE OIL PUMP TEST... PAPERWORK SUBMITTED.....
 22:30 ACES CALLED REQUESTING WE REMOVE ONE MILL FROM SERVICE ON C-2 AND PEAK MILLS ON C-3 PRIOR TO REMOVING ONE MILL FROM SERVICE
 22:35 STARTED UP A LS MILL
 23:00 PUT 2C 480 STEP DOWN BACK ON STATION SIDE..... FOUND TO BE ON START-UP..... OK.....
 NOTE C-3 MILLS HAVE BEEN PEAKED..... DATA RECORDED BELOW.....
 23:50 STARTED UP B DEWATERER
 7/28/2013 0:00 .25" OF RAIN IN THE RAIN GAUGE ON THE TURBINE DECK.....
 1:40 SHUT DOWN A LS MILL
 1:55 #1 WET BOTTOM SLOPE JETS HAVE BEEN CLEANED OUT..... 10 TOTAL WERE PLUGGED..... NO SCALING PRESENT IN HOPPER OVERFLOWS OR EQUALIZING LINES..... WEST END SOUTH CORNER REFRACT BOX LID IS MISSING..... VALVED OUT BOTH VALVES FEEDING THIS BOX.....
 3:00 TESTING C-2 TURBINE VALVES AT ACES REQUEST.....
 4:30 #1 WET BOTTOM SEAL IS CLEAN.....
 5:15 PERFORMED FRONT STANDARD OIL TRIPS ON C-2..... PAPERWORK SUBMITTED AND DATA RECORDED BELOW.....
 7:00 "C" SHIFT (DOOLEY) HERE "B" SHIFT (JOHNSON) LEAVING...
 K.Grantland, P.Gatton, L.Shearn, M.Young, D.Mills(Days), J.Miller, R.Payne S/L, M.Lee, S.Kurz, here

Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
1	TUBE LEAK						N w/o Gas	OPEN
2	72	18.9	0.53	4.54	9.60	0.077	138 N w/o Gas	CLOSED
3	76	7.9	0.42	4.90	9.70	0.058	155 N w/o Gas	CLOSED
FGD Nox		0.40						
FGD Removal %		98.6%						
3A Mill Amps		93						
3B Mill Amps		0						
COND. STOR. TNK		22/23						
Instr. Air Dew Point		-68.9						
Sootblowing								
#1 S/B Out of Service		NONE						
#2 S/B Out of Service		8R						
#3 S/B Out of Service		NONE						
DHS--NTAS		NO THREATS						

6:14 TAGGING C1 UR ROFA DAMPER - FREE UP
 7:45 APM CALLED FOR 2B AND 3B MILLS
 7:52 3B MILL ON
 8:07 2B MILL ON
 10:06 WASHING AROUND C1 W/B AND RODDING ALL AIR PORTS
 8:30 3A COND VAC PUMP AIR LEAKAGE HANDLE BROKE MR# 6105019
 11:00 PUTTING AIR ON C1 STEAM COILS TO CHECK FOR LEAKS
 11:27 3A MILL A4 BURNER KEEP CAUSING OPACITY ISSUES - HAVE TO CLOSE THE AIR REGISTER DOWN SOMETIMES TO LET THE FLAME REATTACH...NEED TO CHECK INSIDE TO MAKE SURE ALL IS RIGHT MR# 6105020
 12:15 2D MILL HAS A COAL LEAK IN THE TRANSITION CHUTE - MR# 6105021
 12:28 TAGGING C1 SLUICE WATER BACK-UP TO THE W/B SEAL FOR M/M TO REPAIR A LEAK
 NOTE TONIGHT WHEN WE TAKE A MILL OFF - TAKE OFF 2D MILL SO TITAN CAN REPAIR COAL LEAK ON 2D MILL TRANSITION CHUTE
 13:20 C2 W/B HAS A PIN HOLE LEAK IN THE W/B SEAL ABOVE EAST SLAG GRINDER MR# 6105023
 14:42 TAKING AIR OFF OF C1 STEAM COILS FOR TITAN TO REPAIR LEAKS
 14:50 C3 EH LOW PSI CAME IN AT AROUND 1600# - BUT 3A PUMP DID NOT AUTO START - 3B EH PUMP WAS ON... SWAPPED PUMP TO 3A AND HOLDING 100# MORE PSI MR# 6105026
 15:00 ARP POND LEVEL AT 411'5"
 17:19 JASON GOODMAN CALLED TAKING PERSONAL DAY
 19:00 "B" SHIFT (JOHNSON) HERE "C" SHIFT (DOOLEY) LEAVING....
 S. HOWARD, A. MAYFIELD, M. CHRISTIAN, N. MOORMAN, R. CARMAN, D. TAUL, & J. KENNEDY HERE.....
 J GOODMAN(P/D)

Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
1	OUTAGE	----	----	----	----		0 N w/o Gas	OPEN
2	155	33.0	0.39	4.70	9.51	0.098	138 N w/o Gas	CLOSED
3	156	21.0	0.46	4.89	9.67	0.064	155 N w/o Gas	CLOSED
FGD Nox		0.36						
FGD Removal %		96.2%						
3A Mill Amps		93						
3B Mill Amps		95						
COND. STOR. TNK		21.5 / 23						
Instr. Air Dew Point		-70.7						

Forced Outage Report

Sootblowing										
#1 S/B Out of Service	NONE									
#2 S/B Out of Service	8R(R/T)									
#3 S/B Out of Service	NONE									
DHS--NTAS	NO THREATS									
	C-1 ECC.....3 MIL.....1ST STAGE 463.....1ST STAGE LEFT 495.....1ST STAGE RIGHT 501.....									
17:55	CHECKING TUBE METAL TEMPERATURES ON C-2 & C-3.....C-1 OUTAGE									
18:15	CHECKING INTAKES.....NOT MUCH IN THEM.....WILL CLEAN THEM AFTER LOAD DROPS.....									
NOTE	2 A BOILER FEED PUMP OUTBOARD MECHANICAL SEAL LEAK ABOUT THE SAME AS LAST NIGHT.....									
	#2 EAST SIDE DESLAG PORT ALSO ABOUT THE SAME AS LAST NIGHT.....									
19:20	TITAN NIGHT SHIFT HAS LOCATED THE COAL LEAK ON 2 D MILL TRANSITION CHUTE AND IS RIGGING TO MAKE REPAIRS WHEN MILL IS OFF.....									
	TITAN WILL SIGN OFF C-1 SLOW BOILER FILL AS SOON AS TUBE REPAIRS ARE COMPLETE AND WE CAN SET TO HYDRO AND FILL WITH CONDENSATE PUMP....									
NOTE	ABSORBER CHLORIDES ARE 5700.....									
20:30	TESTED BACK-UP EQUIPMENT ON C-3.....OK....									
21:55	STARTED UP B DEWATERER....									
22:45	ACES CALLED REQUESTING WE REMOVE ONE MILL FROM SERVICE ON C-2 AND C-3....TAKING 2D & 3B MILLS OFF.....									
23:05	STARTED UP "A" LS MILL.....									
23:55	2 D MILL TAGGED FOR TITAN TO REPAIR COAL LEAK.....									
7/29/2013	0:00 NO RAIN IN THE RAIN GAUGE ON THE TURBINE DECK.....									
	0:05 1A FD FAN TAGGED FOR MAINT TO CHANGE/FLUSH OIL IN BEARINGS.....1B RUNNING.....WILL LEAVE IT ON FOR TUBE LEAK REPAIRS AND HYDRO.....AND TALK TO MAINT IN THE MORNING.....									
	0:35 SIGNING ON 2D MILL WITH TITAN AND CHECKING TAGS.....									
	1:15 COAL HANDLING CLEANING INTAKES.....									
	1:30 ARP POND 411'4".....PUT #1 ASH SLUICE PUMP ON CIRCULATING WATER AND CLOSED ARP POND FLUSHING LINE TO 80% PER P. GRIMES REQUEST.....									
	2:15 TITAN HAS ROOT PASSES WELDED IN ON TUBE LEAKS.....RELEASED SLOW BOILER FILL.....SETTING BOILER TO HYDRO & PULL VACUUM ON REHEATER....									
	2:55 C-1 IS SET FOR HYDRO AND TO PULL VACUUM ON THE REHEATER.....									
	3:05 1 B CONDENSATE PUMP ON....FILLING C-1 WITH SLOW BOILER FILL.....NOTIFIED TITAN.....									
	3:20 TITAN RELEASED 2 D MILL....PULLING TAGS TO RESTORE SAME.....TITAN REPORTS METAL THIN IN THE TRANSITION CHUTE.....									
	3:35 CHECKED DESLAG PORTS FOR LEAKS WHILE WE ARE FILLING.....FURNACE APPEARS DRY.....1 PORT OF WATER IN THE DRUM.....									
	4:15 D. LINER CALLED IN REQUESTING EMERGENCY VACATION.....GRANTED REQUEST AS SUCH.....NO NEED FOR COVERAGE AT THIS POINT.....									
	4:45 C-1 DRUM VENTS AND PENDANT AND SLOW BOILER FILL CLOSED.....1B CONDENSATE PUMP OFF.....BOILER PACKED FULL OF WATER FOR HYDRO.....									
NOTE	VALVED OUT C-1 START-UP FEEDWATER REGULATOR.....REGULATOR WAS CLOSED AND WATER WAS LEAKING OUT NEAR OR BELOW THE STEM.....WHILE FILLING THE BOILER WITH THE SLOW BOILER FILL.....W.O. # 6105056 SUBMITTED.....									
4:55	B. WEEDMAN CALLED IN TO REPORT THAT HE WOULD NOT BE IN TODAY.....									
7:00	"A"SHIFT (Dooley)HERE "B" SHIFT (Johnson) LEAVING... L.PILE, D.HAYNES, D.LINER Vac, W.MILLS , F.GRAY , L.SMITH, R.JONES, AND D.SEBASTION, ALL HERE...COVERING									
		Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
		1	TUBE LEAK						N w/o Gas	OPEN
		2	73	13.6	0.42	4.50	9.30	0.092	138 N w/o Gas	CLOSED
		3	83	20.9	0.39	4.02	9.60	0.065	155 N w/o Gas	CLOSED
		FGD Nox	0.34							
		FGD Removal %	98.1%							
		3A Mill Amps	92.0							
		3B Mill Amps	0.0							
		COND. STOR. TNK	22/23							
		Instr. Air Dew Point	-70.1							
		Sootblowing								
		#1 S/B Out of Service	NONE							
		#2 S/B Out of Service	8R							
		#3 S/B Out of Service	NONE							

Forced Outage Report

5:58	APM CALLED FOR 2D AND 3B MILLS								
6:04	TAKING 1B FD FAN OFF AND TAGGING FOR M/M TO CHANGE OIL								
6:18	3B MILL ON								
6:22	2D MILL ON								
7:15	INSTALLING C1 W/B WET SEAL END PLATES								
8:55	HEAD COUNT CLEAR HYDROING C1								
9:11	1A BFP ON FOR C1 HYDRO								
9:17	1A BFP OFF VAC PUMPS ON								
10:00	TESTED PLANT EMERGENCY								
11:00	C1 BOILER DRY - DRAINING BOILER TO FIRING LEVEL AND SETTING BOILER FOR FIRING								
13:24	AUX REPORTED THE C1 PENDANT WAS LEAKING WATER OUT OF IT AFTER HYDRO MR# 6105095								
17:14	GAS FIRE IN C1 CALLED HOT LINE								
17:20	I/D DOING A HOT CAL ON C1 BYPASS STACK								
7:00PM	"D" SHIF (STERLING) HERE "A" SHIF (DOOLEY) LEAVING SHAVER VAC. V.Ramsey, B.Johnson, R.Payne, Gary.Tivitt, Sean.Emberton, Blake.Hunt,, Glen.Calhoun vac J. KENNEDY HERE.....								
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	BYPASS ST.
	1	OUTAGE							OPEN
	2	160	27.7	0.039	4.75	9.35	0.11	138NW/OGAS	CLOSED
	3	165	20.9	0.048	5.01	9.41	0.08	155NW/OGAS	CLOSED
	FGD Nox	0.36							
	FGD Removal %	95.8							
	3A Mill Amps	92							
	3B Mill Amps	98							
	COND. STOR. TNK	21/24							
	Instr. Air Dew Point	-45.6							
	Sootblowing								
	#1 S/B Out of Service	NONE							
	#2 S/B Out of Service	8R							
	#3 S/B Out of Service	NONE							
	DHS--NTAS	NO THREAT							
7:00PM	CLOSED #1 DRUM VENTS CALLED LAB								
7:00PM	RETAGGED #1 BOILER FEED PUMP SUPPLY FAN FOR MAINT. TO CHANGE BELTS.								
7:24PM	RELEASED #1 GEN HOLD								
8:45PM	#1 BOILER FEED PUMP SUPPLY FAN BACK IN SERVICE.								
9:00PM	ABSORBER CHLORIDES 5400								
9:30PM	WARMING #1 TURBINE SEALS								
9:45PM	PULLING VAC.UNIT #1								
10:45PM	2B & 3B MILLS OFF								
7/30/2013	12:30AM POPPED #1 POWER RELIEF								
	1:10AM UNIT #1 TIED ON LINE								

Forced Outage Report

NA

Boiler Tube Leak Record

Initial failure at hot reheat

Plant: Coleman

Unit: 1

Type of Leak: (Check One)

Pin Hole _____ Thick Lip Failure _____ Crack _____ Thin Lip Failure _____

Tube Wall Thinning X Other _____

Orientation of Rupture: (Check One)

Longitudinal X Circumferential _____

Probable Cause: (Check One)

Stress _____ Overheat _____ Erosion _____ Internal Corrosion _____

External Corrosion X Weld Failure _____ (Shop ___ Field ___)

Internal Obstruction to Flow _____ Sootblower Erosion _____

Other Coal ash corrosion

Forced Outage Report

Type of Repair: (Check One)

Dutchman X (4 ea., Length of Dutchman ~ 30")

Pad Weld _____

Plug Tube _____ Short Circuit _____ Other _____

Description of Repair or reheat tubes:

Tube Size OD 2.250" Wall Thickness 0.150" Tube Material SA213 T22

Welding Rod Used 8018 B3L

Welded By: Titan

Forced Outage Report

Subsequent failure of HRA

Type of Leak: (Check One)

Pin Hole _____ Thick Lip Failure _____ Crack _____ Thin Lip Failure X

Tube Wall Thinning X Other _____

Orientation of Rupture: (Check One)

Longitudinal X Circumferential _____

Probable Cause: (Check One)

Stress ___ Overheat X Erosion _____ Internal Corrosion _____

External Corrosion _____ Weld Failure _____ (Shop _____ Field _____)

Internal Obstruction to Flow _____ Sootblower Erosion _____

Other _____ External erosion due to reheat tube leak _____

Type of Repair: (Check One)

Dutchman X (3 ea., Length of Dutchman ~ 24", 1ea @~12')

Pad Weld _____

Plug Tube _____ Short Circuit _____ Other _____

Forced Outage Report

Description of Repair

Tube Size OD 1.750" Wall Thickness 0.165 / 0.260"

Tube Material SA210 A1

Welding Rod Used 7018 A1

Welded By: Titan

Exact Location of Leak: Be Specific

Approximate Elevation 208'-9"

Forced Outage Report

Pictures



Forced Outage Report



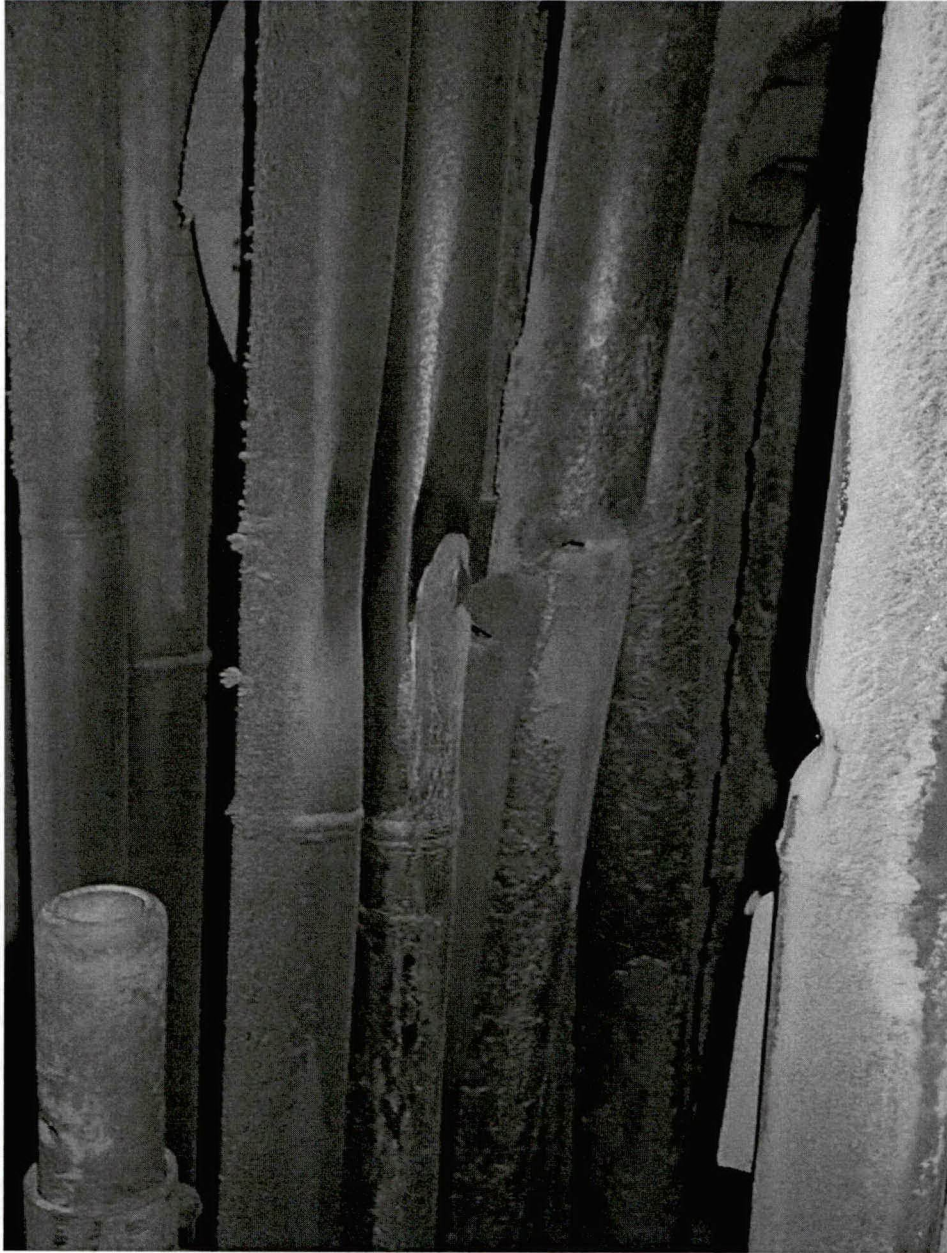
Forced Outage Report



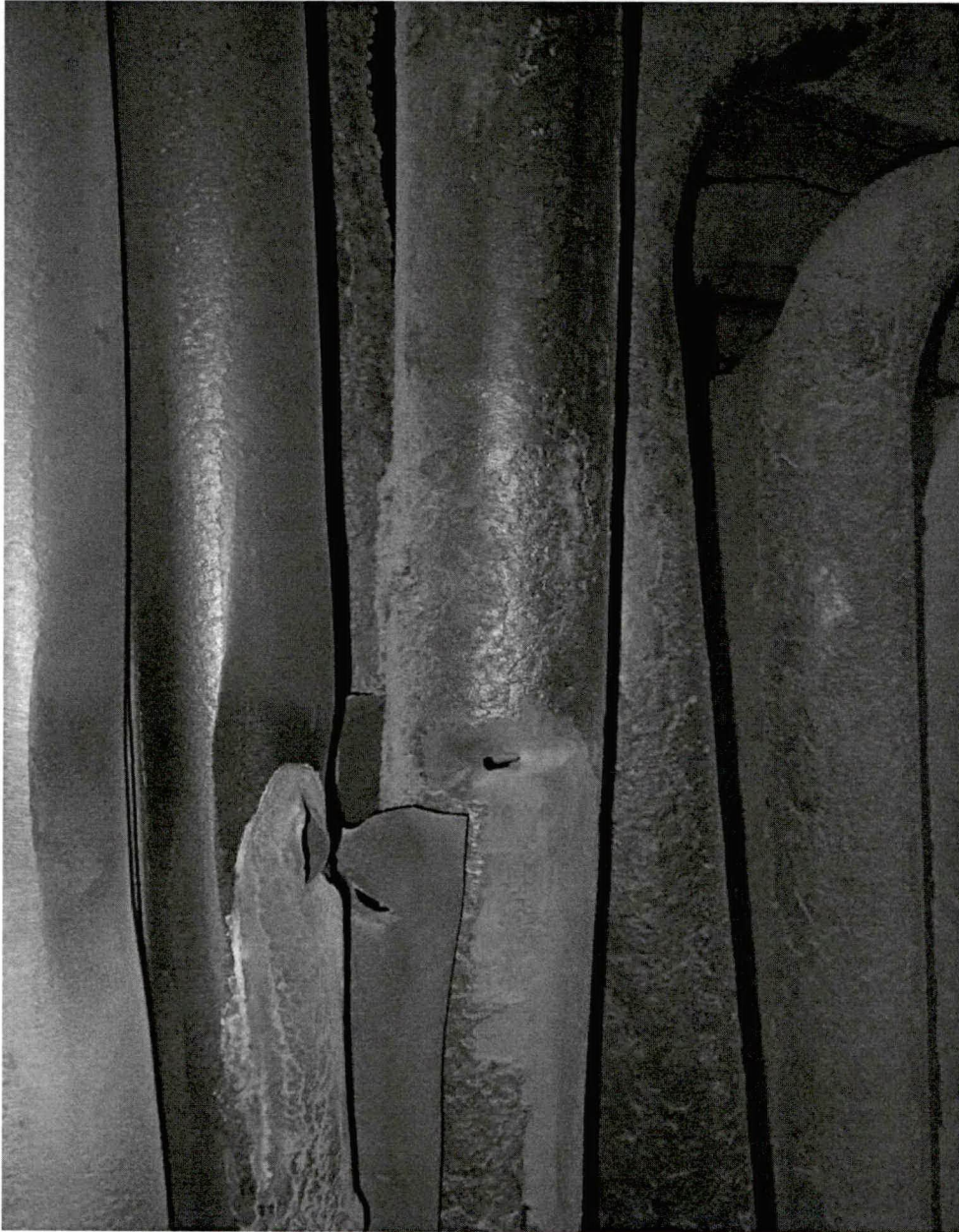
Forced Outage Report



Forced Outage Report



Forced Outage Report



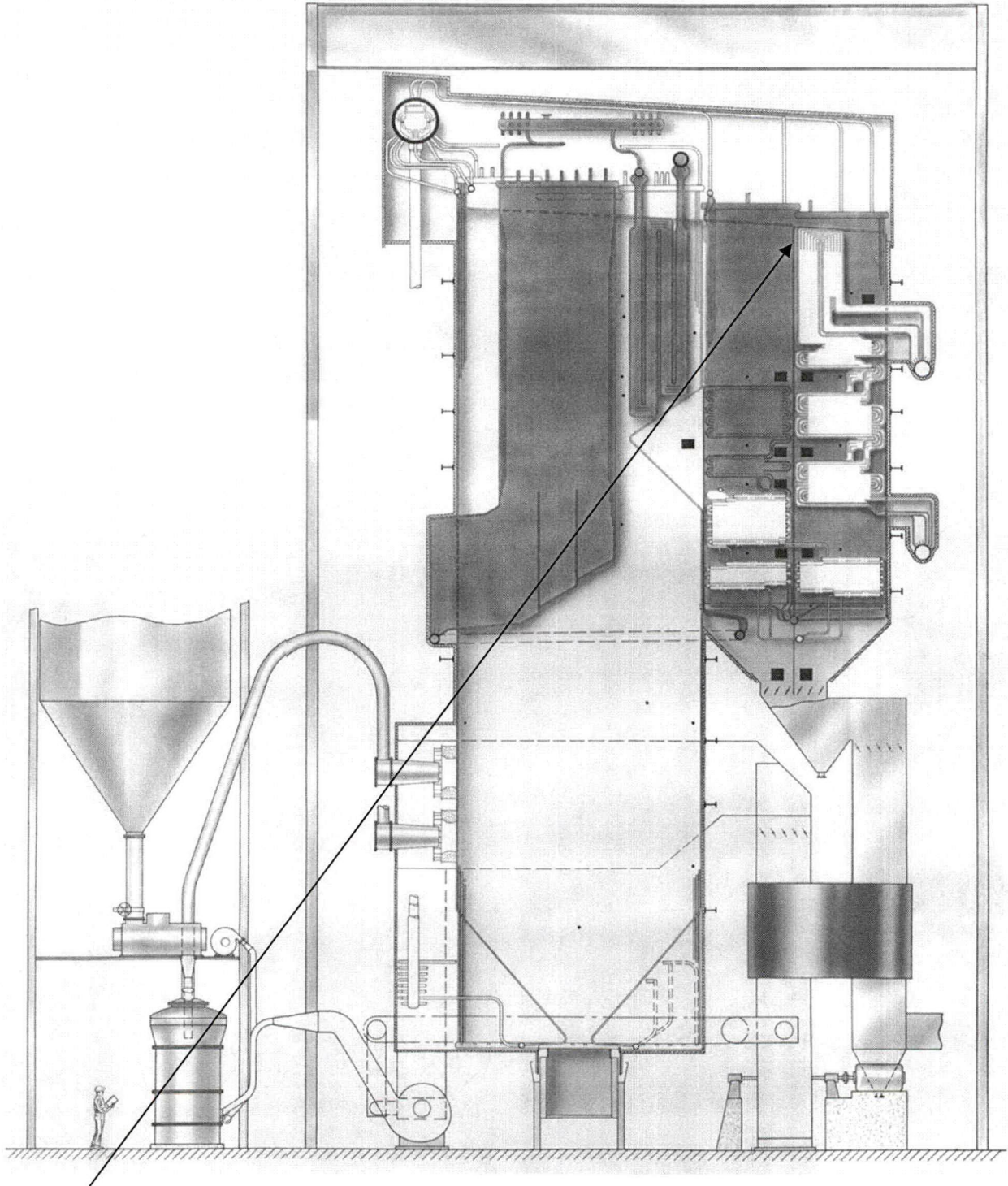
Forced Outage Report



Forced Outage Report

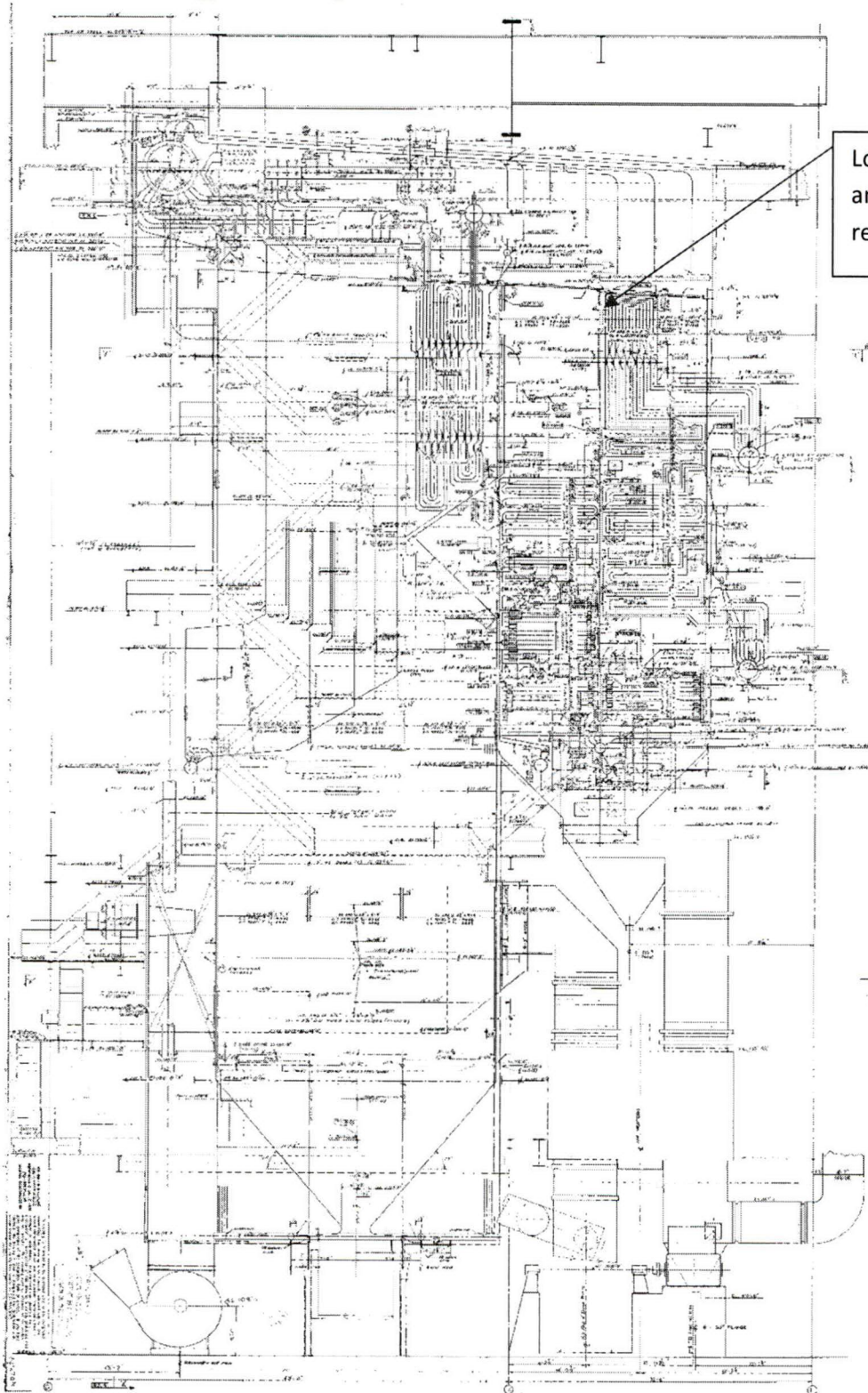


Forced Outage Report



Tube Leaks Here

Forced Outage Report



Location of hot reheat
and HRA tube leak
repair, west side

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	Coleman 1 - C1-13-11			Production Cost	
Date & Time Off Line	7/26/13 22:18			MW	\$/MW
Date & Time On Line	7/30/13 1:10			95	\$ 27.62
Outage Duration	74 hr. 52 min.			117	\$ 26.77
Outage Code	UO2			150	\$ 26.30
Outage Reason	Repair reheat section and HRA tube leaks.				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
7/26/13 (HE 22-24)	\$ 24.28	\$ 27.17	\$ (172)	\$ -	
7/27/13 (HE 1-24)	\$ 23.71	\$ 27.00	\$ (2,641)	\$ -	
7/28/13 (HE 1-24)	\$ 23.60	\$ 25.13	\$ -	\$ -	
7/29/13 (HE 1-24)	\$ 27.77	\$ 22.88	\$ -	\$ (7,372)	
7/30/13 (HE 1-10)	\$ 22.88	\$ 23.07	\$ (1,516)	\$ -	
Total			\$ (4,329)	\$ (7,372)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	912		DART P&L	\$ (4,329)	
S/U Fuel Price	\$ 5.67		Lost Opportunity	\$ (7,372)	
S/U Fuel Cost	\$ (5,173)		S/U Fuel Cost	\$ (5,173)	
			Total	\$ (16,874)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					

Forced Outage Report

To: Bob Berry

From: Daryl Chinn

Date: 5-Jul-2013

Plant: Coleman

Unit: 3

GADS Class: UO1

Duration

Trip Time: 2-Jul-2013 03:53

Tie Time: 4-Jul-2013 01:06

Time Offline: 45:13

Outage Description

Coleman Unit 3 was removed from service in a controlled fashion on Tuesday 2-Jul-2013 at 03:53 due to a suspected tube leak in the economizer / waterwall area. The unit was returned to service on Thursday 4-Jul-2013 at 01:06 for duration of 45:13 against an initial estimate of 48 hrs. The tube leak was discovered in the economizer section, it consisted of one leak in a horizontal economizer tube which impinged on a rear waterwall tube causing an additional leak. The economizer tube was the 24th from the east and the waterwall was the 12th from the east side. Upon a subsequent hydrostatic test, a very small pin hole leak was discovered on the south east slope, first slope tube, approximately 4' from the knee bend caused by a scallop bar crack which propagated into the tube.

Root Cause

After an exhaustive examination of the damage to the two tubes involved, there is no conclusive evidence for the cause for the external erosion, which was initially thought to have begun with the rear waterwall tube. This leak is not in a location that external erosion could have been caused by a gas leak. The two leaks as well as 4 other thinned waterwall tubes were repaired by pad welding.

Failure History

There have been no economizer tube leaks reported on Unit 3 in the last three years.

Forced Outage Report

Corrective Action

Apply base metal repairs to all six damaged tubes.

SOE Print Out

N/A

Other Work Completed While Unit Was Offline

Mechanical Maintenance

6099998 Weld repaired coal leak on A1 coal pipe at 6.5 floor.

6102125 Weld repaired gas leaks around gas outlet duct expansion joints above economizer hoppers.

6094850 Rebuilt actuator for #5 RCV and checked stroke.

6102301 Replaced complete dust valve assembly and actuator on #3 economizer hopper.

6094836 Weld repaired coal leak on B1 coal pipe near coal valve.

6098065 Replaced bearings on B mill trickle valves.

6102994 Replaced belt on B coal feeder.

6102992 Inspected #3 Booster Fan for wear and oil leaks. Checked oil level in hub. Welded plates to stationary vanes in duct.

6102903 Weld repaired tube leaks at elevation 504'. Weld repaired leak on first, north side waterwall slope tube 4' above knees.
Weld repaired economizer tubes from west, panel 4 tube 3, Panel 20 tube 1, panel 21 tube 1, panel 22 and 23 tube 1 were base metal buildup.
Weld repaired load bearing waterwall tube on the rear wall, 12th tube from east wall.

6099514 Cleaned and inspected oil recirc. piping for B APH hot end bearing. Fabricated and installed dip stick on suction line to pump. Changed oil filters on A and B side.

Forced Outage Report

Electrical & Instrument Maintenance

- 6102374- Calibrated A, B, C, and D stock feeders.
- 6102847- Cleaned furnace pressure taps and sensing lines.
- 6102848- Stroked all PA fan dampers, Mill Aux dampers, FD fan dampers, and both Feed water regulators. Replaced stepper driver on "B" mill west aux air damper.
- 6094708- Replaced electronics on B mill aux air damper, programmed and verified proper operation.
- 6102627- Replaced "B" O2 probe and electronics.
- 6102905- Replaced A3 cooling air valve solenoid.
- 6102849- Stroked air registers and OFA dampers.
- 6102850- Cleaned all igniter and main flame scanners, replaced B4 main flame scanner. Performed dark furnace adjustment
- 6102852- Blew back secondary air flow transmitters taps and sensing lines.
- 6097578- Performed drum level trip checks.
- 6102851- Misc. Instrument outage tasks: Remove igniter rods and verified proper operation and put back in. Programmed DCS logic on A & B BFP recirc regulators and verified proper operation. Repaired connection on RA-13-1 boiler T/C.
- 6102853- Stroked and calibrated turbine valves. Replaced both servo valves on the right intercept valve and recalibrated. Performed turbine simulated over speed test.
- 6100714- Replaced solenoid valve on #3 heater RCV valve and verified proper operation.
- 6102859- Pulled booster fan stall probe, cleaned and re-install probe.
- 6102859- Booster fan misc. outage tasks: Blew back the sensing lines for the seal air switch. Blew back the transmitters, taps, halo's and sensing lines.

Forced Outage Report

- 6102861- Performed precipitator internal inspection, found a few donuts on electrodes and cleaned as needed. Cleaned and checked connections in control cabinets and wiped down all bushings. Power up T/R's and electrical air testing looks good.
- 6102855- Changed oil and cleaned screens in A and B BFP's, A and B FD fans, A and B Mill, A and B PA fan and #3 ASP motors.
- 6093282- Temporarily wired past inverter by-pass switch. Wired 120 VAC from transformer to 34E power panel. This will allow the old inverter to be removed and new one installed with unit on line.

Forced Outage Report

Operators Event Log

7/2/2013	3:30AM	STARTING OFF WITH UNIT #3 WATER COMING OUT OF ECON HOPPERS.									
	3:35AM	INLAND WILL BE ON SITE AT 8:00AM FOR DESLAG AND AIR HTR. WASH.									
	3:53AM	COLEMAN UNIT #3 OFFLINE									
	4:30AM	#3 TURBINE ON GEAR									
	4:30AM	#3 NATURAL GAS VALVE AND PROPANE REDTAGGED FOR TITAN TO BLANK.									
	5:25AM	HOLD #312 ON 0313 GEN DISCONNECT.									
	6:00AM	#3 BOILER ENTRY PERMIT IS READY									
	6:00AM	#17 COAL CONVEYOR IS REDTAGGED FOR MAINT.									
	6:00AM	A LIMESTONE SLURRY FEED PUMP IS REDTAGGED TO CHANGE SEAL.									
	7:00AM	"A"SHIFT (Shaver) HERE "D" SHIFT (Sterling) LEAVING...									
		L.PILE, D.HAYNES,D.LINER SL, W.MILLS ,F.GRAY,L.SMITH, R.JONES, AND D.SEBASTION,ALL HERE...									
			Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
			1	100	12.1	0.32	4.70	9.80	0.109	150 N w/o Gas	CLOSED
			2	78	17.1	0.49	4.94	9.50	0.084	110 N w/o Gas	CLOSED
			3	OFF							
			FGD Nox	0.38							
			FGD Removal %	98.0							
			3A Mill Amps	OFF							
			3B Mill Amps	OFF							
			COND. STOR. TNK	19/20							
			Instr. Air Dew Point	-63.9							
			Sootblowing								
			#1 S/B Out of Service	NONE							
			#2 S/B Out of Service	NONE							
			#3 S/B Out of Service	NONE							
	6:40AM	C3 OFF LINE...STILL COOLING DOWN...175 DEGREES									
	7:40AM	INLAND ONSITE TO BEGIN SET UP FOR DESLAG ON C3									
	7:49AM	#2 ASH SLUICE PUMP HAS 4160 THERMAL ALARM IN...AUX ON THE WAY TO CHECK OUT...NOTIFIED ED AS WELL...WO# 6102862 ISSUED									
	10:00AM	INLAND READY TO START DESLAG IN BIG ROOM									
	10:15AM	LES GOING TO GET SMALL HOPPERS AND SET THEM ON WEST SIDE OF C3 FOR 3A MILL BALL EVACUATION									
	10:30AM	FRED AND DARREN GOING TO OPEN A DOOR AT THE ECON HOPPERS TO SEE WHAT WE HAVE THERE									
	11:05AM	1ST VAC TRUCK IS HERE									
	11:45AM	SETTING VAC TRUCK UP TO CLEAN FEEDERS OFF ON C3 FIRST...WAYNE MILLS WILL OPERATE FEEDERS FOR THEM									
	4:00PM	INLAND BREAKING DOWN OFF FEEDERS...WILL DUMP VAC TRUCK...THEN MOVE TO 3A BALL MILL AND START BALL EVACUATION									
	4:10PM	SCHEDULED ALL A SHIFT AUX AND UTILITY OPERATORS TO PUT MILL BALLS IN 3A MILL TOMORROW THEY ARE SCHEDULED 5A-5P									
	NOTE	22- 1.5" MILL BALLS...18- 1.25" MILL BALLS HAVE BEEN STAGED IN THE LOADING AREA ON C3 TO BE PUT IN 3A MILL IN THE MORNING									

Forced Outage Report

NOTE	C3 DESLAG IS COMPLETE									
5:45PM	INLAND SETTING HEADS FOR AH WASH									
5:50PM	SENDING DARREN TO PULL WETBOTTOM ON C3									
7:00PM	"D" SHIFT (STERLING) HERE "A" SHIFT (SHAVER) LEAVING									
	V.Ramsey , B.Johnson R.Payne, G.Tivitt, S.Emberton , B.Hunt,, G.Calhoun,.									
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	BYPASS ST.	
	1	160	23.5	0.400	4.69	9.65	0.11	150N W/O GAS	CLOSED	
	2	125	25.1	0.340	4.83	9.46	0.98	110NW/OGAS	CLOSED	
	3	OUTAGE								
	FGD Nox	0.37								
	FGD Removal %	96								
	3A Mill Amps									
	3B Mill Amps									
	COND. STOR. TNK	23/24								
	Instr. Air Dew Point	-71.1								
	Sootblowing									
	#1 S/B Out of Service	NONE								
	#2 S/B Out of Service	NONE								
	#3 S/B Out of Service	NONE								
	DHS--NTAS	NO THREAT								
7:30PM	#3 AIR HTR. WASH BEGINS.									
8:00PM	#3 WETBOTTOM IS REDTAGGED									
11:00PM	#3 BOILER SET TO HYDRO FILLING WITH SLOW BOILER FILL.									
11:45PM	TITAN CALLED TO QUIT FILLING BOILER FOUND ANOTHER LEAK IN ECONOMIZER.									
7/3/2013	12:15AM	COAL HANDLING CLEANING INTAKES								
	3:30AM	#3 FD FANS ARE REDTAGGED								
	3:30AM	3B COAL FEEDER IS REDTAGGED								
	4:00AM	TITAN DONE WITH TUBE LEAK FILLING WITH SLOW BOILER FILL LINE.								
	4:30AM	INLAND HAS BALLS OUT OF 3A MILL								
	5:00AM	#3 READY TO HYDRO								
	7:00	"B" SHIFT (JOHNSON) HERE "D" SHIFT (STERLING)LEAVING.....								
	S. HOWARD, A. MAYFIELD, M. CHRISTIAN, N. MOORMAN, J GOODMAN, R. CARMAN, D. TAUL, J. KENNEDY, HERE...									
	W. MILLS, F. GRAY, L. SMITH, R. JONES, & D. SEBASTIAN HERE FOR 3A MILL RECHARGE.....									
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.	
	1	99	12.0	0.37	4.65	9.68	0.115	150 N w/o Gas	CLOSED	
	2	116	28.0	0.49	4.85	9.59	0.098	110 N w/o Gas*	CLOSED	
	3	OUTAGE		OUTAGE	OUTAGE	OUTAGE	OUTAGE	0 N w/o Gas	OPEN	
	FGD Nox	0.37								
	FGD Removal %	97.3%								
	3A Mill Amps	OFF								
	3B Mill Amps	OFF								
	COND. STOR. TNK	17 / 18								
	Instr. Air Dew Point	-64.1								
								* 120 N With Gas		

Forced Outage Report

	Sootblowing									
	#1 S/B Out of Service	12R & 9R								
	#2 S/B Out of Service	8L(R/T)								
	#3 S/B Out of Service	NONE								
	DHS--NTAS		NO THREATS							
	C-3 ECC...3.13.....CHEST IN...518.....1ST VALVE IN...633.....1ST STAGE SH....576.....									
	CONTINUE TO RUN B DEWATERER FROM PRIOR SHIFT.....									
5:50	CHECKING TUBE METAL TEMPERATURES ON C-1 & C-2, C-3 OUTAGE.....									
5:55	GETTING HEADCOUNT TO HYDRO C-3 BOILER....									
6:10	HEADCOUNT CLEAR FOR C-3 HYDRO.....									
6:15	MAINT RELEASED ISOLATION OF WATER TO C-3 BOILER...PULLING TAG ON FEED PUMP TO HYDRO.....									
6:27	3 A BFP ON.....									
6:40	1800 PSIG ON C-3...FEED PUMP OFF.....									
7:40	DRAINING C-3 BOILER FOR MAINT.....									
7:55	BANKING 4 FEET OF WATER FROM CONDENSATE STORAGE TANKS IN C-3 HOTWELL FOR LATER...LAB AWARE.....									
8:30	C-3 ECONOMIZER HOPPERS ARE CLEAN....AS ARE PRECIP HOPPERS.....#9 PRECIP HAS HOLE IN GATE AND HOUSING...MAINT AWARE.....									
9:15	3 A AIR HEATER CLEAN.....									
10:00	3 B AIR HEATER CLEAN...SHUTTING DOWN WASH AND TAGGING AIR DRIVES.....									
10:20	SIGNED ON C-3 AIR HEATER AIR DRIVES FOR INLAND TO PULL WASH HEADS.....									
10:50	SETTING C-3 BOILER TO FIRE.....									
11:30	WASHING STEAM COILS AND FD FAN HOUSINGS.....									
12:00	40 BARRELS OF BALLS HAVE BEEN PLACED IN 3A MILL.....W. MILLS, F. GRAY, L. SMITH, D. SEBASTIAN, & R.JONES DEPART.....									
12:05	TAGGING OUT 3 A MILL TO OPEN DOORS AND CHECK BALL LEVEL.....									
12:30	P. GRIMES REPORTS ABSORBER CHLORIDES AT 6800									
	NOTE LAB HAS COVERAGE FOR C-3 START-UP TONIGHT AND TOMORROW.....									
14:30	TITAN FINISHED IN C-3 WETBOTTOM...PERFORMING OPERATIONS WB INSPECTION NOW.....									
15:00	OPERATIONS WETBOTTOM INSPECTION COMPLETE.....INLAND BEGINS SHOOTING C-3 WET BOTTOM SEAL.....									
16:15	C-3 WET BOTTOM SEAL CLEAN...INLAND BREAKING DOWN AND SIGNING OFF PERMITS.....									
	NOTE PER. R. MILLS, NEED TO TEST EGE AT OR NEAR SYNCH SPEED PRIOR TO UNIT TIE ON LINE.....									
16:45	ECONOMIZER BACK PLATES ARE INSTALLED....TITAN CHANGING CYLINDER ON #3 ECONOMIZER HOPPER.....									
16:55	FILLING C-3 TO A FIRING LEVEL WITH CONDENSATE PUMP.....									
17:00	C-3 WET BOTTOM RELEASED...PULLING TAGS TO RESTORE SAME.....									
7:00PM	"C" SHIFT (STERLING) HERE "B" SHIFT (JOHNSON) LEAVING DOOLEY VAC.									
	K,GRANTLAND ,P.Gatton,L.Shearn, R.PayneSL, M.Young,J.Miller,M.LEE, S.Kurz									
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	BYPASS ST.	
	1	160	25.2	0.330	4.72	9.65	0.11	150N W/O GAS	CLOSED	
	2	125	27.3	0.370	4.91	9.59	0.98	110NW/OGAS	CLOSED	
	3	OUTAGE								
	FGD Nox	0.33								
	FGD Removal %	96.3								
	3A Mill Amps									
	3B Mill Amps									
	COND. STOR. TNK	23/24								
	Instr. Air Dew Point	-74.6								
	Sootblowing									
	#1 S/B Out of Service	NONE								
	#2 S/B Out of Service	NONE								
	#3 S/B Out of Service	NONE								
	DHS--NTAS		NO THREAT							
	8:00PM ALL CLEAR ON HEAD COUNT TO FIRE #3 BOILER.									
	8:37PM FIRE IN #3 BOILER 3A FD FAN WILL NOT START ELECT. CHECKING.									
	9:30PM #1 WETBOTTOM REDTAGGED FOR TITAN TO FIX DISCHARGE LINE.									
	9:30PM ELECT.JUMPERED OUT 3A FD FAN									
7/4/2013	12:00AM PULLING VAC. ON UNIT #3									
	12:25AM ROLLING #3 TURBINE									
	12:30AM COAL HANDLING CLEANING INTAKES									
	1:00AM #3 EGE TEST WILL NOT RESET.									
	1:06AM #3 TIED ON LINE									

Forced Outage Report

Boiler Tube Leak Record

Plant: Coleman

Unit: 3

Type of Leak: (Check One)

Pin Hole Thick Lip Failure Crack Thin Lip Failure

Tube Wall Thinning Other External erosion from unknown source

Orientation of Rupture: (Check One)

Longitudinal Circumferential

Probable Cause: (Check One)

Stress Overheat Erosion Internal Corrosion

External Corrosion Weld Failure (Shop Field)

Internal Obstruction to Flow Sootblower Erosion

Other External erosion from unknown source

Forced Outage Report

Type of Repair: (Check One)

Dutchman _____ (Length of Dutchman _____) Pad Weld X

Plug Tube _____ Short Circuit _____ Other _____

Description of Repair:

Tube Size OD 2.250" Wall Thickness 0.240" Tube Material SA-178-Gr C

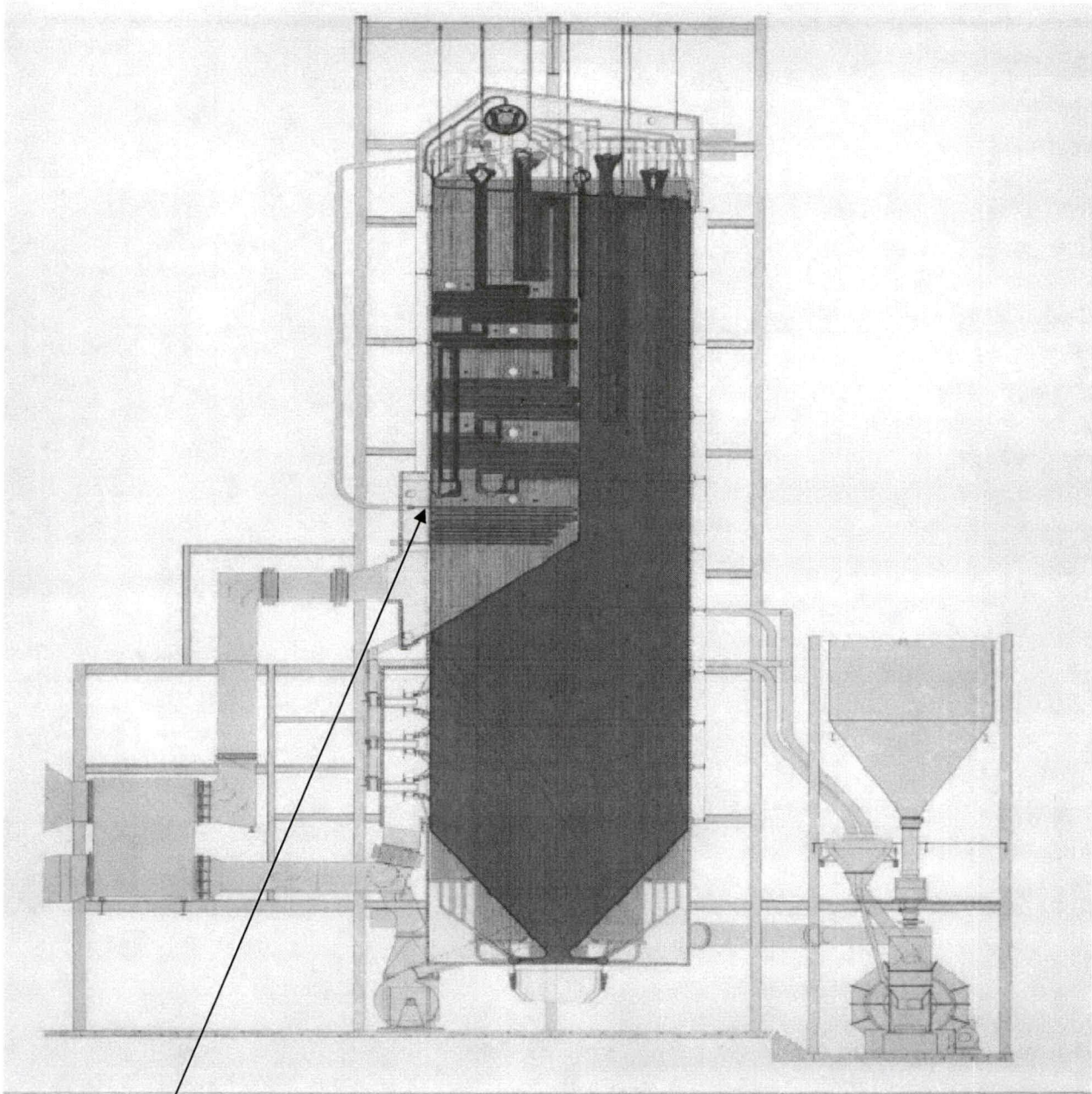
Welding Rod Used 7018

Welded By: Titan

Exact Location of Leak: Be Specific

Rear wall, 24th economizer tube from east wall, 12th rear water wall from east wall at approximate elevation 503'-6"

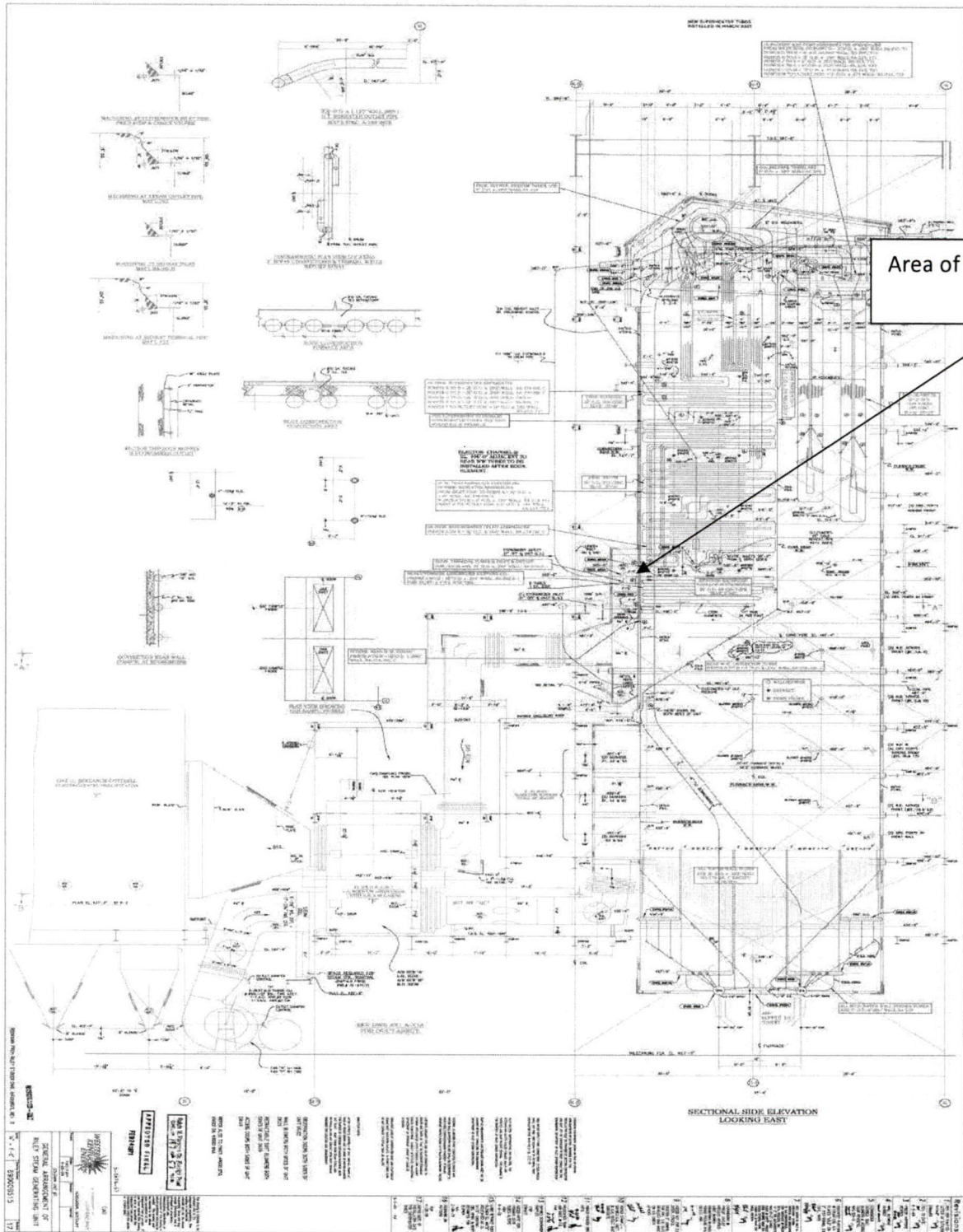
Forced Outage Report



KENNETH C. COLEMAN STEAM POWER PLANT
UNIT NO. 3
BIG RIVERS RURAL ELECTRIC COOPERATIVE CORPORATION
(NEAR) HAWESVILLE, KENTUCKY
1,160,000 LBS/HR. • 2200 PSIG DESIGN • 1875 PSIG OPERATING • 1005/1005F
FIRED BY PULVERIZED COAL
THE RALPH M. PARSONS COMPANY, CONSULTING ENGINEERS
RILEY INC. **STOKER** RILEY STOKER CORPORATION
WORCESTER, MASSACHUSETTS
A SUBSIDIARY OF THE RILEY COMPANY

Tube Leaks Here Rear wall, 24th economizer tube from east (far side) wall, 12th rear water wall from east wall at approximate elevation 503'-6"

Forced Outage Report



Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	Coleman 3 - C3-13-03			Production Cost	
Date & Time Off Line	7/2/13 3:53			MW	\$/MW
Date & Time On Line	7/4/13 1:06			67	\$ 28.99
Outage Duration	45 hr. 13 min.			122	\$ 26.04
Outage Code	UO1			155	\$ 25.70
Outage Reason	Repair economizer and water wall tube leaks.				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
7/2/13 (HE 4-24)	\$ 27.23	\$ 29.48	\$ (13,491)	\$ -	
7/3/13 (HE 1-24)	\$ 28.68	\$ 35.41	\$ -	\$ (11,962)	
7/4/13 (HE 1-10)	\$ 21.51	\$ 19.45	\$ (3,209)	\$ -	
Total			\$ (16,700)	\$ (11,962)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	515		DART P&L	\$ (16,700)	
S/U Fuel Price	\$ 5.67		Lost Opportunity	\$ (11,962)	
S/U Fuel Cost	\$ (2,922)		S/U Fuel Cost	\$ (2,922)	
			Total	\$ (31,584)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					



Forced Outage Report

To: Bob Berry

From: Chuck Tucker

Date: 23-Jul-2013

Plant: Green

Unit: 1

GADS Class: UO2

Duration

Trip Time: 10-Jul-2013 23:59

Tie Time: 12-Jul-2013 08:55

Time Offline: 32:56

Outage Description

Green Unit 1 was removed from service on Wednesday, 10-Jul-2013 at 23:59 due to a tube leak in the reheat section of the boiler. See tube leak report and information below.

Fires were established in the boiler on Friday, 12-Jul-2013 at 05:28

The unit was tied online on Friday, 12-Jul-2013 at 08:55

Root Cause

Boiler tube leak was caused by thinning tube wall due to erosion in the Reheat Intermediate Bank 21st element from the West, 1st tube from South. See tube leak report and information below.

Forced Outage Report

Failure History

There are four (4) reheat section tube leaks recorded in the period from 2007 to present for Green Unit 1. Those outages occurred on the following dates for the durations shown:

Sept-2008	31.8 hours	Reheat section
May-2010	26.4 hours	Intermediate Reheat
Feb-2011	38.83 hours	Reheat section
Oct-2012	59.33 hours	Reheat Superheater & Reheat Intermediate

Forced Outage Report

Boiler Tube Leak Record

Green Unit 1

Date and Time Unit Off: July 10, 2013 11:59 pm

Date and Time Unit On: July 12, 2013 08:55 am

Type of Leak: (Check One)

Pin Hole ___ Thick Lip Failure ___ Crack ___ Thin Lip Failure ___
Tube Wall Thinning X Other _____

Orientation of Rupture: (Check One)

Longitudinal X Circumferential ___

Probable Cause: (Check One)

Stress ___ Overheat ___ Erosion X Internal Corrosion ___
External Corrosion ___ Weld Failure ___ (Shop ___ Field ___)
Internal Obstruction to Flow ___ Sootblower Erosion ___
Other _____

Type of Repair: (Check One)

Dutchman X (Length of Dutchman 5 FT) Pad Weld ___
Plug Tube ___ Short Circuit ___ Other _____

Description of Repair:

Tube Size OD: 2.5" Wall Thickness: .148" Tube Material: SA213-T11

Welding procedure: GS-P5-P5-NSR

Welded By: Titan

Exact Location of Leak: Be Specific

Reheat Intermediate Bank 21st element from the West. Lead tube.

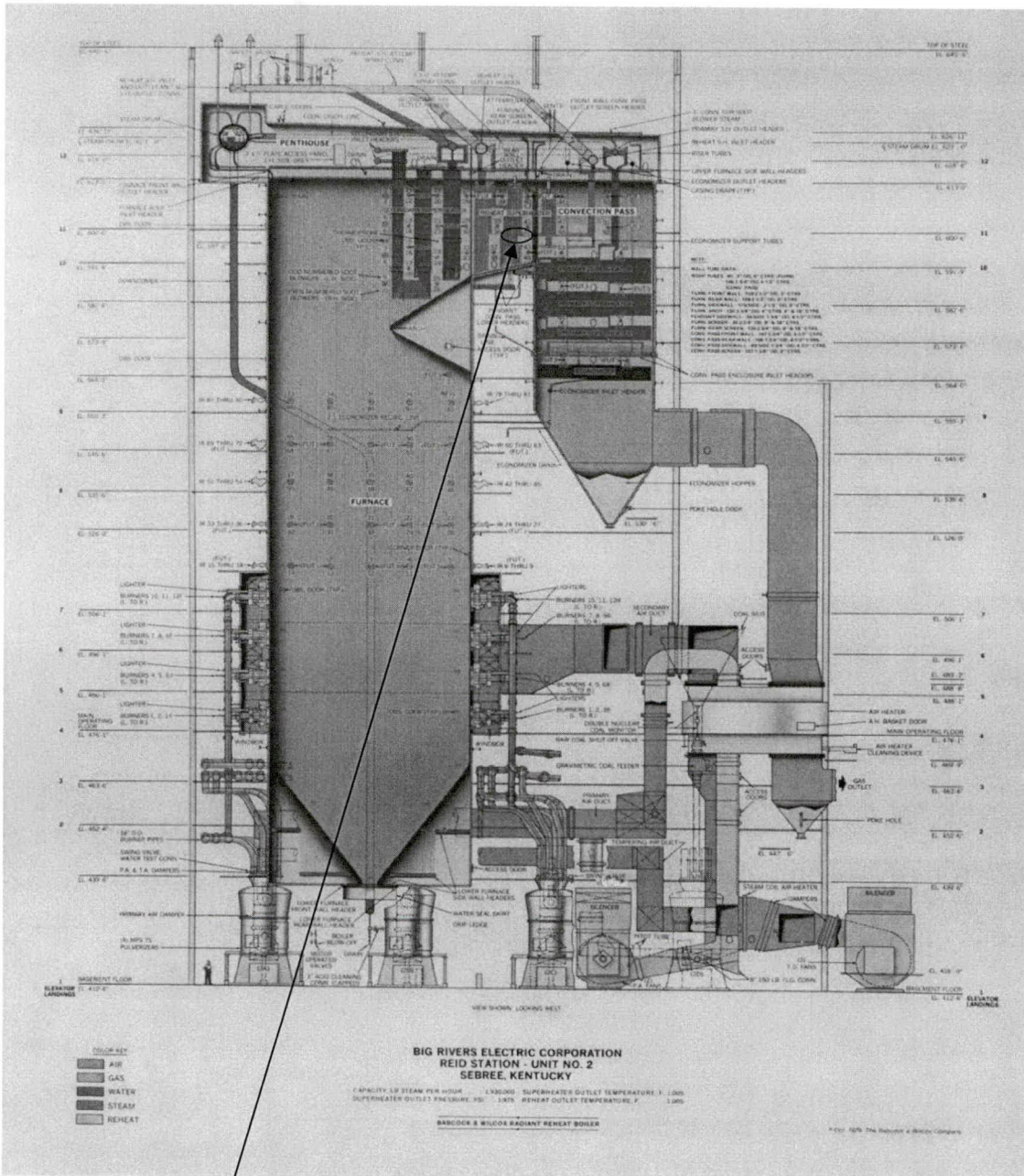
Titan replaced a 5ft Dutchman with a 1ft 90 degree elbow. This is part of the crossover tube from reheat intermediate tube to reheat outlet bank 1st tube.

Forced Outage Report

GREEN STATION UNIT 1

2013

Date and Time Unit Off: 7-10-2013 11:5900pm
Date and Time Unit On: 7-12-2013 08:55am



Reheat Intermediate Bank Lead 21st bundle from West - 1st tube from South

Forced Outage Report



Picture showing tube leak at Reheat Intermediate Bank Lead 21st bundle from West,
1st tube from South.

Forced Outage Report



Picture taken during 1A Air Heater inspection showing cracked splice plate on rack drive portion.

Forced Outage Report

SOE Print Out

N/A

Other Work Completed While Unit Was Offline

Electrical

A Side Precip

Date: 7/11/2013

Location	Description of Problem	Repaired
3W	Pins/Washers Missing	Yes
5W	Pins/Washers Missing	Yes

B Side Precip

Date: 7/11/2013

Location	Description of Problem	Repaired
1E	Broken Electrode	Yes
1W	Shock Bar Fell Down	Yes
2E	Pins and Washers Missing	Yes
2W	Pins and Washers Missing, Anvils Bolts and Nuts Missing	Yes
4W	Broken Support Bushing, Broken Electrode Rapper Insulator	Yes
6W	Plates are deteriorated from air in-leakage, remove electrodes	Yes

IT & Electrical

ET&S updated Gross & Net wathour meter programming for Modbus - DCS/Pi connection.

Instrument

1C BFP Recirc Regulator

1C Rating Damper

1A ID Fan fuse monitor fault

Cleaned Scanners & Ignitors packs

Cleaned boiler, PA Flow & Pulverizer taps

1A Hot Air Damper – gear module, adjusted stop

Forced Outage Report

Mechanical

Performed 1A Air Heater inspection and repaired several cracked splice plates on rack drive portion. Also replaced bypass seals on top & bottom – East corner. See attached picture of cracked splice plate.

Replaced 1C BFP Bypass Valve

Replaced 1C BFP Belly Drain Valve & piping

Weld up hole in 1C BFP strainer bleed off pipe

Open duct doors and inspect boiler

Open spray tower doors and inspect demister valves flow

Boiler inspection

Tube leak repair

Hydro boiler

Forced Outage Report

Operators Event Log



LOG BOOK

DATE 2/10/13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
12 ⁰⁰	
51	Cap 252 load 248 SO2 .214 NOX .154 opac 14.1
52	Cap 242 load 239 SO2 .306 NOX .220 opac 9.2
5/6/4/5	51 4 20/20 52 4 16/14 P-2 62%
scrubbers	1A 40 + 0 6 ¹⁰ 2A 38.6 0 6 ¹⁰ 1B 32.4 7 4 ¹⁰ 2B 27.4 2 4 ¹⁰
IV	In Service, A side, A+B Drums, #1 -17T Tanks - 16 #1 -36%
5 ¹⁵	1A BFP in service, 1B BFP off A Maint.
5 ¹⁵	1A 40 + 0 6 ¹⁰ 2A 36.1 0 4 ¹⁰ 1B 35.2 0 6 ¹⁰ 2B 37.8 5 4 ⁹

G-1: 250mw 2359 offline, RH tube leak

SH: 23.98

VO2: 0.02

G-2: 239mw

OPER	SUP'R
1ST	<i>[Signature]</i>
2ND	
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-10-13

- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
FA	Masters, Po. 15, Northington, Butler, 5 Barran, Mahan, Thomas, Cook, R Parker, Hubgood
G1	Load 247 A, B & D Mills precip 4 out SO ₂ .23 NOx .18 gravity 9.6
G2	Load 238 A, D & E Mills precip 2 out SO ₂ .26 NOx .25 gravity 8.0
slakers	G1 4 on 23.6 + 23.0 #1 + 2 silos G2 4 on 18.4 + 18.0 #3 silo prep 2 on 59" #4 silo
IV	A conveyors A & B Drums #25.0 21" #15 motor 36" 17" in Tanker silos 30' - 40'
	0 0 E 1.5 E 1.0 W 1.0 W 1.0
10:00	1A off 0° 6'10" 2A 38.0 0° 6'11" 1B off 0° 6'10" 2B 35.7 2° 6'10"
2:45	G1 D boiler Feed pump on A off

OPER	SUPR
1ST	<i>BS202</i>
2ND	
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-10-13

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|----------------------------------|---|--|
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| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
4:00	1A 40 0 ⁺ 6'10" 2A 37 0 ⁺ 6'10"
	1B 34 0 ⁺ 6'10" 2B 36 0 ⁺ 6'10"
Lime	29-16 26-10 23-8 47-29 35'2"
8 ^{am}	Beaven (P/D), Geek, Reed, Rittmeyer, Hopkins, Berry (sch) Whitledge, Hopkins, Bell (vac), Combs, Rigdon, Gorrell, Duval
9 ^{am}	1A 40+ 0T-6'10" 2A off 0T-6'10" 1B 34.1 2T-6'10" 2B 35.2 2T-6'9"
10 ^{am}	Tube Leak on G-1 10 th floor (sox up like) informed M.M. AND B. Vowels
10 ³⁰	called Aces informed of G-1 shutdown
11 ⁵⁹	G-1 OFF LINE

OPER	SUP'R
1ST	<u>TSZ</u>
2ND	<u>WSP-12A</u>
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-11-13

- | | | |
|---|---|--|
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| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
12 ⁰⁰	
G-1	OFF LINE - Tube Leak
G-2	LOAD 202 Cap 242 3 mills D:SID SO ₂ 20 Nox 24 opacity 8.8%
	ADS IN 2 Precips out
	Slaker, G-1 3 on 25 24 #1+2 G-2 4 on 24 24 #3 Prep 2 on 65% #4
	TU IN A conv A+B drums #1 Flyash 18TPH #1 smelt 36% 13' Tanks silo's #1-38' @ E. 1.5 W 1.0 #2-29' @ E 1.0 W 1.5
12 ³⁴	Transmission here to switch over to Davis County Line
1 ⁰⁵	called Hot Line on G-1
12 ²⁶	called B. Sterling VAC. Truck + Press Washer in morning

G-1: RH tube leak UCC: 24 hrs

G-2: 239 mws

OPER	SUP'R
1ST	
2ND	
3RD	JW 12A-8A
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-11-13

- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
	<u>Underflow Run Times</u>
	<u>1A 15 HRS 2A 12 HR 1</u>
	<u>1B 16 HRS 30min 2B 14 HRS</u>
	<u>IV Run Time 24 HR 1</u>
<u>1⁵⁰</u>	<u>1A 40+ OT-6'10" 2A 34.9 OT-6'10"</u>
	<u>1B 36.1 2T-6'10" 2B 36 OT-6'9"</u>
<u>3¹⁵</u>	<u>R/T Gen. Disconn. + G-1 0100-9</u>
	<u>G-2 Hotwell check DC5-1.5 Local - 13/4"</u>
<u>4⁵⁰</u>	<u>Fixation Line 10'</u>
	<u>G-2 SLAKER building out of service +</u>
	<u>service with tags</u>
<u>5⁵⁰</u>	<u>1A 40+ OT-6'11" 2A 36 OT-6'10"</u>
	<u>1B 33.8 4T-6'10" 2B 35.2 OT-6'10"</u>

OPER	SUP'R
1ST	
2ND	
3RD	<u>RJ/2A-PA</u>
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-11-13

- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
8A	Masters, Don, Than, Poiles, Northington, Butler, J Barren, Cook, R Parker, Lovan, Shelton
G1	Tube leak
G2	load 238 A.D.K.M.I.L.S prep 2 out Sor. 21 Nov. 22 gravity 7.3
Slaker	G1 3 on 25.1 + 24.2 # 1 + 2 s.los G2 out 24.2 + 24.2 # 3 s.los prep 2 on 81" # 4 s.los
I.V	Down 10' s.los 3F - 37 0 0 # E 1.5 # W 1.5
10:30	1A off 0' 6'11" 2A off 0' 6'10" 1B off 10' 6'10" 2B 35.4 0' 6'10"
2:00	service wtr line Broken Between G1 + G2 slaker Old

OPER	SUPR
1ST	<i>[Signature]</i>
2ND	
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-11-10

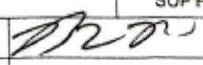
- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
2:35	Called Geer, Denton, Turner, & Strickland to come in tonight to help fire #1 Turner Reporting in
5:00	Service water line fixed
Line	20-17 27-9 25-9 50-33 20-9
4:45	1-D Condensate pump on
5:00	1-C DFP on
5:15	1-A DFP on Filling Boiler for Hydro
5:00	IU in service A conveyors Add Drums #2 Silo 18" #1 Silo 36" 26 in Tanks
	1A 40+ 0 611 2A 38 6 610
	1B 37 4 618 2B 36 2 610

OPER	SUPR
1ST	
2ND	
3RD	
SIGNED	

F155.12
R 1/83

Forced Outage Report



LOG BOOK

DATE 7-11-13

- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
8:00 AM	Beaven, Reed, Geer, Turner, Rittmeyer, Bachman, Hopkins, Kuhwa, Berry (sch), Bell (vac), Townsend, Rigdon, Garrell, Duval
	HYDRO OFG-1 Boiler @ 1600 PSI
8:12	G-1 HAS DRY boiler
	Thompson goes to ^{PRESS WASH} the out slope on 10 th
	1A OFF OT-6'11" 2A OFF OT-6'10"
	1B 37.8 4T-6'10" 2B 34.6 OT-6'10"
	Thompson working on Flyash Hoppers

OPER	SUP'R
1ST	
2ND	<i>AW SP-8A</i>
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-12-13

- | | | |
|---|--|--|
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| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
12 ^{mw}	
G-1	OUTAGE IN PROGRESS
G-2	LOAD 177 Cap 242 3m.11s D=51B SO2 .17 NOX .33 opacity 8.7% ADS IN 2 Precips out
12 ¹⁰	Thompson completed Boiler cleaning
	ILL IN A CONV. A+B drums #1 Flyash 24TPH #1 smoot 36% 28' Tanks silo #1-43' silo #2-28' @ E1.0 W1.5
	SLAKERS G-1 2 on 27 24.7 #1 G-2 4 on 24 22 #3 Prep 2 on 63% #4
	1A 40+ OT-6'11" 2A 38.3 OT-6'10" 1B 38.6 OT-6'10" 2B 35 OT-6'10"
	Thompson climbing back in Big chunder in muck gear to knock down

G-1: 248mw 0528 fire in boiler
0855 tied
O2: 8.92
SH: 15.08

OPER	SUP'R
1ST	
2ND	
3RD	<i>W/12A-PA</i>
SIGNED	

G-2: 239mw

F155-12
R 1/83

Forced Outage Report



LOG BOOK

DATE 7-12-13

- | | | |
|----------------------------------|---|--|
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| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
3 ¹⁶	A+B A.H. on
4 ¹⁹	AB-1 Hopper Dome was set up like concrete -
4 ³⁰	Released Boiler
	UNDERFLOW Run Times
	1A 10 HRS. 30 min 2A 8 HRS. 30 min
	1B 16 HRS. 2B 14 HRS.
	TU Run Time = 13 HRS.
	1A 40+ OT-6'11" 2A 39.5 OT-6'10"
	1B 34.1 OT-6'10" 2B 36.5 OT-6'10"
	PH's
	2A 6.41 2B 6.36
5 ⁰¹	Fans on
5 ²⁸	OIL FIRES IN G-1 Boiler
5 ⁴⁰	16' Lime

OPER	SUPR
1ST	
2ND	
3RD	<u>W/2A-PA</u>
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7/12/13

- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
8 ⁰⁰	Hust, Donithan, Belts, Farley, Quintana, Whitledge, Wigham, Parker Travis, Temple, Shelton, Tapp.
8 ¹	Start-up
8 ²	Cap 242 105d 239 SV2 352 NOK 220 Vpac 6.8
stokers	G1 2 25/25 G2 3 24/25 P2 85%
scrubbers	1A 40+ 0 6" 1B 37 0 6" 2A 35.4 0 6" 2B 36.0 0 6"
IU	In surge, A side, A+B Drums, #1 - 25T Tanks - 20 #1 - 36%
6.10's	#1 - 31' E-1.5 W-1.0 S-0 5-0 #2 - 38' E-1.5 W-.5 S-0 5-0
8 ⁵⁵	6-1 Trip.
10 ⁵⁸	Called bottline

OPER	SUP'R
1ST	<i>E. Green</i>
2ND	
3RD	
SIGNED	

F155.12
R 1/83

Forced Outage Report



LOG BOOK

DATE 7/12/13

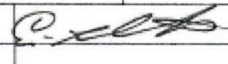
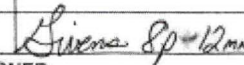
- REID
- GREEN
- COLEMAN
- WILSON

- SHIFT SUPERVISOR
- CONTROL OPERATOR
- AUXILIARY OPERATOR
- UTILITY OPERATOR
- _____

- SCRUBBER SHIFT SUPERVISOR
- SCRUBBER OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- SOLID WASTE OPERATOR
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
11 ⁴⁰	6-1 stack drain plugged.
2 ¹²	6-1 good for Full pressure full load + ADS
8 ⁰⁰	C Shift here & B Shift leaving
	Underflows 1A) 328 @ 6'11" 2A) off @ 6'11"
	1B) off @ 6'10" 2B) 358 @ 6'10"
	Stack Drains ok
	Flyash Silo Readings
	Silo 1 2
	Silo 0 0
	Safety 0 0
	Boghouse East 1.0 2.25
	West 1.0 2.25
	Flyash Silo Levels #1) 36' #2) 35'

OPER	SUP'R
1ST	
2ND	
3RD	
SIGNED	

F155.12
R 1/83

Forced Outage Report

Estimated Outage Costs

Tube leak repairs – Titan

Labor \$6,283

Material \$196

Total \$6,479

Other repairs:

Labor \$8,936

Material \$4,912

Total \$13,848

Grand Total \$20,327

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	Green 1 - G1-13-06			Production Cost	
Date & Time Off Line	7/10/13 23:59			MW	\$/MW
Date & Time On Line	7/12/13 8:55			163	\$ 25.46
Outage Duration	32 hr. 56 min.			199	\$ 24.73
Outage Code	UO2			235	\$ 24.53
Outage Reason	Repair reheater tube leak				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
7/10/13 (HE 23-24)	\$ 25.75	\$ 23.18	\$ 330	\$ -	
7/11/13 (HE 1-24)	\$ 28.63	\$ 26.44	\$ (10,913)	\$ -	
7/12/13 (HE 1-24)	\$ 27.19	\$ 25.92	\$ 14,539	\$ (15,874)	
Total			\$ 3,955	\$ (15,874)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	11,563		DART P&L	\$ 3,955	
S/U Fuel Price	\$ 3.16		Lost Opportunity	\$ (15,874)	
S/U Fuel Cost	\$ (36,502)		S/U Fuel Cost	\$ (36,502)	
			Total	\$ (48,421)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					



Forced Outage Report

To: Bob Berry

From: Chuck Tucker

Date: 13-Aug-2013

Plant: Green

Unit: 2

GADS Class: UO3

Duration

Trip Time: 26-Jul-2013 00:25

Tie Time: 27-Jul-2013 20:24

Time Offline: 43:59

Outage Description

Green Unit 2 was in process of being removed from service to replace the leaking 2B Recycle Pump Discharge Valve on Friday, 26-Jul-2013 at 00:24 when a boiler high drum level trip occurred. While the unit was offline, a boiler hydro was performed and a suspected water wall tube leak was verified and repaired on the East wall. See tube leak report and information below and description of other maintenance performed.

Fires were established in the boiler on Saturday, 27-Jul-2013 at 17:10.

The unit was tied online on Saturday, 27-Jul-2013 at 20:24.

During transfer of 4160V Bus auxiliaries from Start-Up to the Aux Transformer source, the control room operator found 2B Bus synchronizing 'B' phase voltage was not present preventing a bus transfer. Investigation identified a blown fuse in 'B' Phase secondary PT on 2B Bus which was replaced while online. Operations then transferred 2B Bus successfully.

Forced Outage Report

Root Cause

The leaking 2B Recycle Pump Discharge Valve was found to be heavily eroded inside due to wear as evidenced by the attached pictures.

The boiler tube leak was caused by pinhole in an East water wall tube. The leak was located 16 tubes north of IR 49, one foot below the centerline of the blower at Elevation 526'. Base metal repair was used to seal the leak. See the tube repair report and other information below.

Failure History

There is one (1) water wall tube leak and zero (0) recycle pump discharge valve failures recorded in the period from 2007 to present for Green Unit 2.

The tube leak outage occurred in Apr-2007 for duration of 38:51.

Forced Outage Report

Corrective Action

Replaced 2B Recycle Pump Discharge Valve



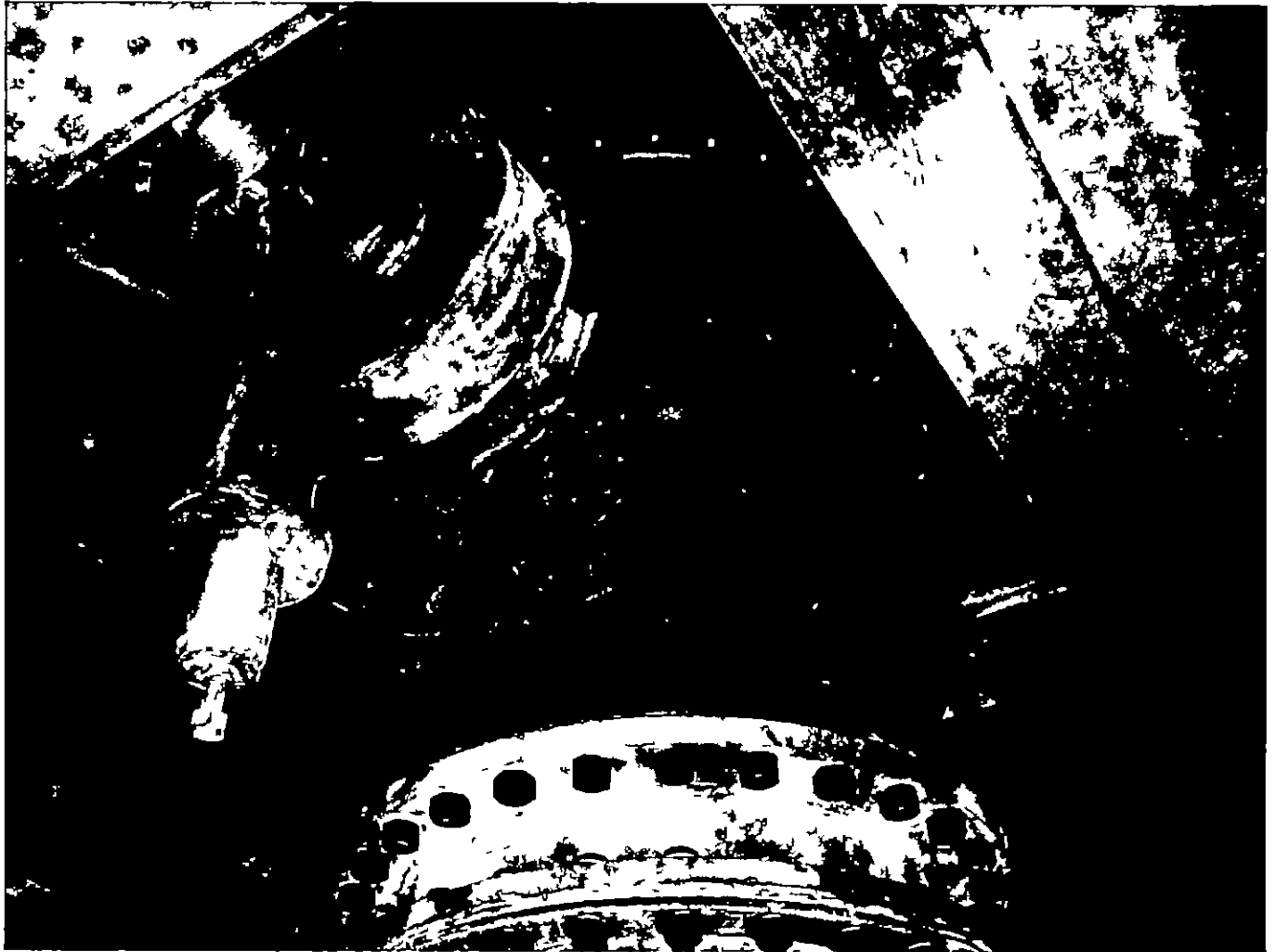
2B Recycle Pump Discharge Valve after removal.

Forced Outage Report



Inside view of valve shows erosion and wear of liner with multiple holes.

Forced Outage Report



New 2B Recycle Pump Discharge Valve installed and in service

Forced Outage Report

Green Boiler Tube Leak Record Unit 2

Date and Time Unit Off: 7-26-2013 12:25 AM

Date and Time Unit On: 7-27-2013 8:24 PM

Type of Leak: (Check One)

Pin Hole X Thick Lip Failure _____ Crack _____ Thin Lip Failure _____
Tube Wall Thinning _____ Other _____

Orientation of Rupture: (Check One)

Longitudinal _____ Circumferential _____

Probable Cause: (Check One)

Stress _____ Overheat _____ Erosion _____ Internal Corrosion _____
External Corrosion _____ Weld Failure _____ (Shop _____ Field _____)
Internal Obstruction to Flow _____ Sootblower Erosion _____
Other _____

Type of Repair: (Check One)

Dutchman _____ (Length of Dutchman _____) Pad Weld X
Plug Tube _____ Short Circuit _____ Other _____

Description of Repair:

Tube Size OD 2.50" Wall Thickness .203" Tube Material SA210A1

Welding procedure: GSP3-3L

Welded By: Titan

Exact Location of Leak: Be Specific

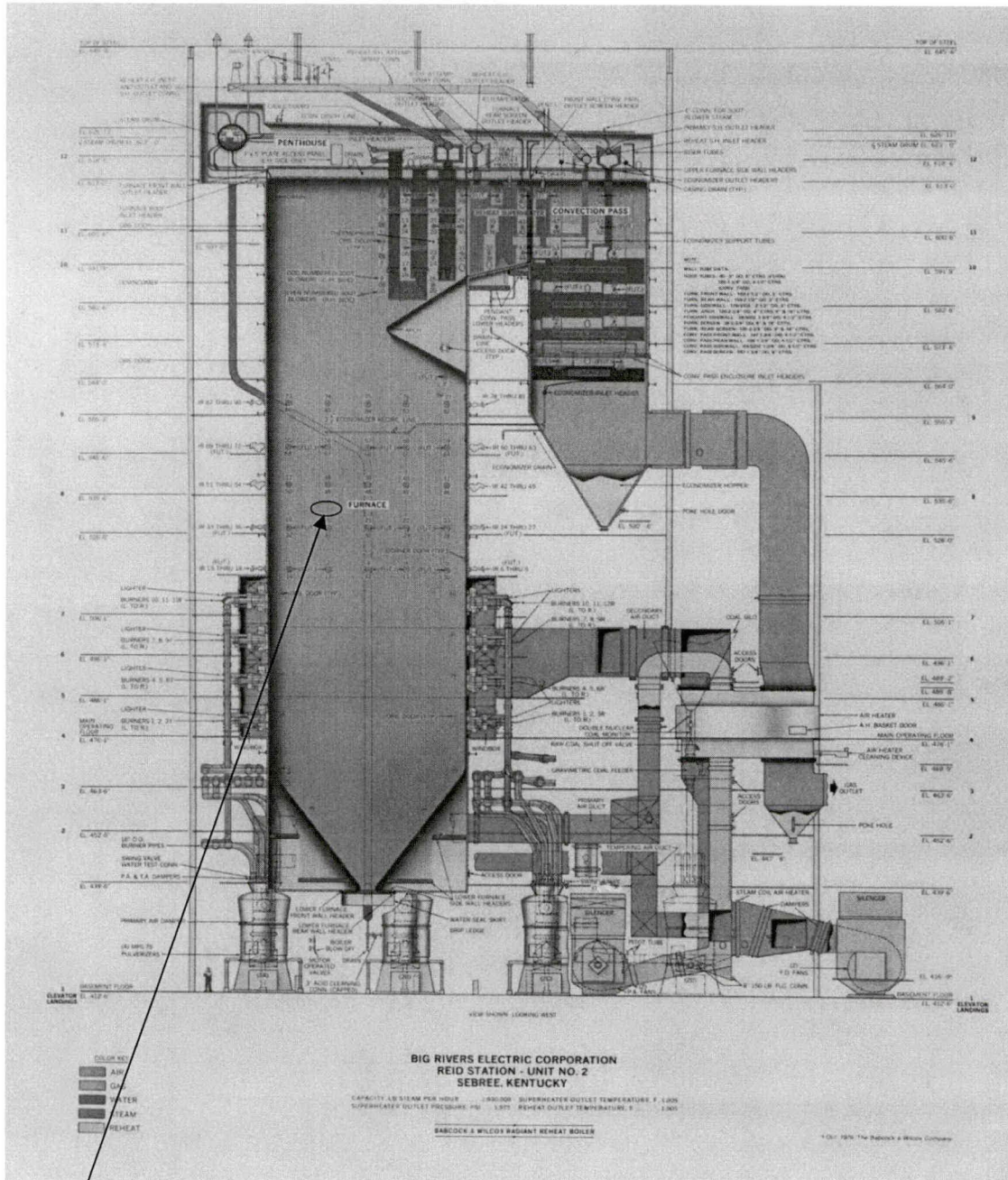
Water Wall Tube, East Wall – 16 tubes north of IR 49, 1 foot below centerline of blower
Elevation 526' - base metal repairs

Forced Outage Report

GREEN STATION UNIT 2

(1) TUBES INVOLVED

Date and Time Unit Off: 7-26-2013 12:25 AM
 Date and Time Unit On: 7-27-2013 8:24 PM



Water Wall Tube East Wall (Near Side) 16 tubes north of IR 49, 1 foot below centerline of blower - base metal repairs Elevation 526'

Forced Outage Report

SOE Print Out

Report Type	Standard				
Report Number	1				
Report Title	SOE STANDARD				
Recorder Number	1				
Triggered on....	26-Jul-2013 00:24:45:698				
Number of Event Records	281				
Event Time	State	AID	Tag Name	Tag Description	SER Index
26-Jul-2013 00:25:00:229	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:24:59:793	LOW	A	G233ANN383SOE	PULV D LUBE OIL PRESSURE LOW	134
26-Jul-2013 00:24:58:878	NORMAL		G232ANN325SOE	ELECTRIC DRIVE POWER FAILURE<	247
26-Jul-2013 00:24:58:655	RESET		G203BCPTRPSOE	2B CONDENSATE PUMP TRIP	166
26-Jul-2013 00:24:58:632	OPENED		G203BCPSTSSOE	2B CONDENSATE PUMP STATUS	167
26-Jul-2013 00:24:58:597	CLOSED		G203BCPSTSSOE	2B CONDENSATE PUMP STATUS	167
26-Jul-2013 00:24:58:596	TRIPPD	A	G203BCPTRPSOE	2B CONDENSATE PUMP TRIP	166
26-Jul-2013 00:24:57:798	CLOSED	A	G232ANN329SOE	B MILL RATING DAMPER CLOSED<	249
26-Jul-2013 00:24:57:766	ALARM	A	G232ANN325SOE	ELECTRIC DRIVE POWER FAILURE<	247
26-Jul-2013 00:24:57:085	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:24:57:085	TROUBL	A	G243ANN174SOE	EMERGENCY TRIP SYSTEM TROUBLE<	50
26-Jul-2013 00:24:56:461	NORMAL		G243ANN163SOE	EHC PUMP A OL OR HI TEMP	22
26-Jul-2013 00:24:56:437	CLOSED		G2032T1TIESTSSOE	G2 A BUS 2T1 TIE STATUS	188
26-Jul-2013 00:24:56:437	TRIPPD	A	G240ANN442SOE	TURBINE NO-LOAD TRIP	123
26-Jul-2013 00:24:56:435	NORMAL		G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:56:364	RESET		G203AIDTRPSOE	2A ID FAN TRIP	289
26-Jul-2013 00:24:56:357	RESET		G203ABFPTRPSOE	2A BFP TRIP	241
26-Jul-2013 00:24:56:347	OPENED		G203AIDSTSSOE	2A ID FAN STATUS	290
26-Jul-2013 00:24:56:347	RESET		G203AFDTRPSOE	2A FD FAN TRIP	182
26-Jul-2013 00:24:56:336	OPENED		G203ABFPSTSSOE	2A BFP STATUS	242
26-Jul-2013 00:24:56:334	OPENED		G203ACPSTSSOE	2A CONDENSATE PUMP STATUS	155
26-Jul-2013 00:24:56:320	OPENED		G203AFDSTSSOE	2A FD FAN STATUS	183
26-Jul-2013 00:24:56:302	TRIPPD	A	G203ACPTRPSOE	2A CONDENSATE PUMP TRIP	154
26-Jul-2013 00:24:56:300	TRIPPD	A	G203ACWPTRPSOE	G2 A CWP TRIP	149
26-Jul-2013 00:24:56:296	TRIPPD	A	G203ABFPTRPSOE	2A BFP TRIP	241
26-Jul-2013 00:24:56:293	TRIPPD	A	G203AIDTRPSOE	2A ID FAN TRIP	289
26-Jul-2013 00:24:56:290	TRIPPD	A	G203AFDTRPSOE	2A FD FAN TRIP	182
26-Jul-2013 00:24:55:953	ALARM	A	G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:941	NORMAL		G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:927	ALARM	A	G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:924	ALARM	A	G243ANN163SOE	EHC PUMP A OL OR HI TEMP	22
26-Jul-2013 00:24:55:914	NORMAL		G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:912	ALARM	A	G248ANN120SOE	SEAL OIL BACKUP PMP OL OR TRIP	9
26-Jul-2013 00:24:55:902	ALARM	A	G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:888	NORMAL		G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:876	STOPPD	A	G240ANN129SOE	TURB LO RES VPR EXTR STATUS	10
26-Jul-2013 00:24:55:876	ALARM	A	G240ANN119SOE	TURB LO VPR EXTR OL OR HI TMP	7
26-Jul-2013 00:24:55:561	TRIPPD	A	G202ANN056SOE	161 KV OCB 0116 AUTO TRIP	218
26-Jul-2013 00:24:55:549	RESET		G202ANN056SOE	161 KV OCB 0116 AUTO TRIP	218
26-Jul-2013 00:24:55:516	TRIPPD	A	G202ANN057SOE	161 KV OCB 0100 AUTO TRP	217
26-Jul-2013 00:24:55:509	TRIPPD	A	G202ANN056SOE	161 KV OCB 0116 AUTO TRIP	218
26-Jul-2013 00:24:55:494	RESET		G203AMNTRPSOE	G2 A MAIN TRIP	125
26-Jul-2013 00:24:55:471	OPENED		G203AMNSTSSOE	G2 A MAIN STATUS	126
26-Jul-2013 00:24:55:423	TRIPPD	A	G203AMNTRPSOE	G2 A MAIN TRIP	125
26-Jul-2013 00:24:55:420	TRIPPD	A	G250ANN058SOE	GENERATOR RELAY 86G1 TRIP	2
26-Jul-2013 00:24:55:377	LOW	A	G233ANN363SOE	PULV B LUBE OIL PRESSURE LOW	161
26-Jul-2013 00:24:54:018	STOPPD	A	G241ANN192SOE	BEARING OIL PUMP STATUS	179
26-Jul-2013 00:24:54:013	TRIPPD	A	G243ANN446SOE	HYDR FLUID LOW PRS TRP<	148
26-Jul-2013 00:24:53:900	NORMAL		G222ANN180SOE	HTR1 DC LVL HI-HI ISOLATION	30
26-Jul-2013 00:24:53:871	ALARM	A	G222ANN180SOE	HTR1 DC LVL HI-HI ISOLATION	30
26-Jul-2013 00:24:52:596	CLOSED		G203ACPSTSSOE	2A CONDENSATE PUMP STATUS	155
26-Jul-2013 00:24:51:941	NORMAL		G222ANN180SOE	HTR1 DC LVL HI-HI ISOLATION	30
26-Jul-2013 00:24:51:936	RESET		G203BIDTRPSOE	2B ID FAN TRIP	305
26-Jul-2013 00:24:51:931	RESET		G203BCWPTRPSOE	G2 B CWP TRIP	162

Forced Outage Report

26-Jul-2013 00:24:51:925	RESET		G203BFDTRPSOE	2B FD FAN TRIP	197
26-Jul-2013 00:24:51:925	RESET		G203BCPTRPSOE	2B CONDENSATE PUMP TRIP	166
26-Jul-2013 00:24:51:924	RESET		G203CASPTRPSOE	G2 C ASP TRIP	139
26-Jul-2013 00:24:51:912	OPENED		G203BIDSTSSOE	2B ID FAN STATUS	306
26-Jul-2013 00:24:51:911	ALARM	A	G222ANN180SOE	HTR1 DC LVL HI-HI ISOLATION	30
26-Jul-2013 00:24:51:906	OPENED		G203BCWPSTSSOE	G2 B CWP STATUS	163
26-Jul-2013 00:24:51:901	OPENED		G203CASPTSSOE	G2 C ASP STATUS	178
26-Jul-2013 00:24:51:901	OPENED		G203BCPSTSSOE	2B CONDENSATE PUMP STATUS	167
26-Jul-2013 00:24:51:898	OPENED		G203BFDSTSSOE	2B FD FAN STATUS	198
26-Jul-2013 00:24:51:868	TRIPPD	A	G203BFDTRPSOE	2B FD FAN TRIP	197
26-Jul-2013 00:24:51:866	TRIPPD	A	G203BIDTRPSOE	2B ID FAN TRIP	305
26-Jul-2013 00:24:51:865	TRIPPD	A	G203CASPTRPSOE	G2 C ASP TRIP	139
26-Jul-2013 00:24:51:865	TRIPPD	A	G203BCPTRPSOE	2B CONDENSATE PUMP TRIP	166
26-Jul-2013 00:24:51:864	TRIPPD	A	G203BCWPTRPSOE	G2 B CWP TRIP	162
26-Jul-2013 00:24:51:856	CLOSED	A	G232ANN328SOE	A MILL RATING DAMPER CLOSED<	94
26-Jul-2013 00:24:51:614	ALARM	A	G241ANN182SOE	BEARING OIL PUMP OL OR TRIP<	91
26-Jul-2013 00:24:51:362	OPENED		G203BMNSTSSOE	G2 B MAIN STATUS	130
26-Jul-2013 00:24:51:198	LOW	A	G243ANN153SOE	EHC FLUID PRESSURE LOW	19
26-Jul-2013 00:24:49:106	RESET		G233DRMLVLRPSC	DRUM LEVEL TRIP<	138
26-Jul-2013 00:24:47:997	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:24:47:983	RUNG		G241ANN192SOE	BEARING OIL PUMP STATUS	179
26-Jul-2013 00:24:46:882	OPENED		G203APASTSSOE	2A PA FAN STATUS	212
26-Jul-2013 00:24:46:878	OPENED		G203BPASTSSOE	2B PA FAN STATUS	226
26-Jul-2013 00:24:45:900	ACTIVE	A	G232ANN288SOE	EMGNCY FURN PRS CNTRLR OPER	122
26-Jul-2013 00:24:45:756	OPENED		G203BPULVSTSSOE	2B PULVERIZER STATUS	170
26-Jul-2013 00:24:45:741	OPENED		G203CPULVSTSSOE	2C PULVERIZER STATUS	186
>>> 26-Jul-2013 00:24:45:698	TRIPPD	A	G233ANN319SOE	MASTER FUEL TRIP	78
26-Jul-2013 00:24:24:823	TRIPPD	A	G233DRMLVLRPSC	DRUM LEVEL TRIP<	138
26-Jul-2013 00:22:44:969	CLOSED	A	G225ANN404SOE	HEATER 5 BS ISOL VALVE CLOSED	66
26-Jul-2013 00:22:44:660	NORMAL		G225ANN176SOE	HTR 5 LVL HI-HI BS-ISOL	26
26-Jul-2013 00:22:21:184	ALARM	A	G225ANN176SOE	HTR 5 LVL HI-HI BS-ISOL	26
26-Jul-2013 00:22:19:790	ALARM	A	G222ANN189SOE	HTR 2 LVL HI OR DRAINS BYP	49
26-Jul-2013 00:22:13:871	NORMAL		G225ANN176SOE	HTR 5 LVL HI-HI BS-ISOL	26
26-Jul-2013 00:22:10:437	ALARM	A	G225ANN176SOE	HTR 5 LVL HI-HI BS-ISOL	26
26-Jul-2013 00:21:58:642	ALARM	A	G225ANN186SOE	HTR 5 LVL HI OR DRAINS BYP	93
26-Jul-2013 00:21:12:008	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:21:07:463	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:21:03:617	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:20:59:073	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:20:25:520	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:19:44:630	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:17:38:107	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:17:16:088	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:13:14:919	OPENED		G203APULVSTSSOE	2A PULVERIZER STATUS	157
26-Jul-2013 00:12:35:787	TRIPPD	A	G233ANN465SOE	BLR MSTR TRP TO MAN<	137
26-Jul-2013 00:12:34:038	TRIPPD	A	G233ANN463SOE	FUEL MSTR TRP TO MAN<	86
26-Jul-2013 00:12:33:689	TRIPPD	A	G232ANN464SOE	AIR FLW MSTR TRP TO MAN<	135
26-Jul-2013 00:11:29:033	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:11:27:284	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:10:28:218	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:10:19:482	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:10:17:384	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
26-Jul-2013 00:04:42:566	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:04:41:165	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:04:40:119	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:04:38:018	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:04:36:621	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
26-Jul-2013 00:04:34:873	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:48:44:339	NORMAL		G222ANN188SOE	HTR 3 LVL HI OR DRAINS BYP	115
25-Jul-2013 23:37:11:850	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:37:10:802	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:39:347	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:37:601	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:33:411	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:30:959	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:28:865	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:19:774	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:36:14:883	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246

Forced Outage Report

25-Jul-2013 23:36:08:592	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:25:23:753	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:25:22:705	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:22:07:684	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:22:06:634	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:21:18:750	NORMAL		G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:21:17:002	HIGH	A	G232ANN286SOE	FURNACE VACUUM HIGH<	246
25-Jul-2013 23:09:14:753	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 23:09:14:608	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 23:05:58:441	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 23:04:34:740	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 23:04:34:693	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 23:03:40:150	HIGH	A	G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 22:34:44:309	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 22:34:44:280	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 22:32:37:289	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 22:32:37:164	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:24:07:007	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:24:06:935	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:15:21:274	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:15:21:136	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:09:04:802	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 21:09:04:771	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 20:45:52:720	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 20:45:52:636	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 20:27:29:763	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 20:27:29:685	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 20:00:02:555	OFF		G2MANTRIGSOE	MANUAL SOE TRIGGER	215
25-Jul-2013 20:00:00:308	ON		G2MANTRIGSOE	MANUAL SOE TRIGGER	215
25-Jul-2013 18:40:32:062	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 18:40:32:010	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 18:39:42:262	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 18:34:54:232	HIGH	A	G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 18:15:16:488	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 18:15:16:321	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 18:09:18:666	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 18:09:18:622	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 17:34:52:630	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 17:33:40:282	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 16:12:47:285	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 16:12:47:169	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 16:05:01:914	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 16:05:01:810	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 16:00:18:841	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 16:00:18:804	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:54:31:013	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 15:54:28:916	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 15:54:23:673	NORMAL		G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 15:52:54:201	ALARM	A	G230ANN256SOE	IGNITION OIL PRESS HIGH/LOW<	53
25-Jul-2013 15:41:06:425	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:39:15:586	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:39:15:541	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:39:15:229	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:39:15:143	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:37:03:651	HIGH	A	G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:29:29:397	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:23:45:535	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:23:45:428	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:23:45:417	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:23:45:361	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:21:45:919	HIGH	A	G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:16:59:369	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:16:59:326	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:16:55:719	OK		G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:16:55:694	HIHI	A	G255ANN257SOE	COLD RH DRIP POT 1 LVL HI-HI	54
25-Jul-2013 15:10:28:447	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:03:11:230	HIGH	A	G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71
25-Jul-2013 15:00:39:532	OK		G256ANN304SOE	REHEAT OUTLET TEMP HIGH<	71

Forced Outage Report

Other Work Completed While Unit Was Offline

Electrical

A Side Precip

Date: 7/26/2013

Location	Description of Problem	Repaired
1E	Replaced a pin	Yes
2W	Replaced a pin	Yes
3E	Replaced coupling on plate rapper rod and installed spacer	Yes
3W	Replaced a hammer bolt	Yes
4E	Replaced a pin	Yes
4W	Replaced missing angle iron	Yes

B Side Precip

Date: 7/26/2013

Location	Description of Problem	Repaired
1E	Replaced anvil bolt	Yes
1W	Replaced some angle iron	Yes
6E	Replaced a pin	Yes

Replace blown 2B Bus secondary 'B' phase PT fuse – synchronizing problem after unit start-up

ET&S washed G2 Step-Up transformer oil coolers

IT

Added DCS logic for parallel bus alarm – Both Main & Tie breakers closed

Instrument

Inspected & cleaned scanners & igniter packs

Cleaned boiler, PA Flow & Pulverizer taps

Stroke ID & FD Fan dampers

Forced Outage Report

Mechanical

Replaced 2B Recycle Pump Discharge Valve

Inspect & wash 2A & 2B Air Heaters

Inspect ID & FD Fan dampers

East Drum Vent – replaced valve

2A PA Fan Inboard Fan Bearing Oil Leak

Boiler inspection

Scrubber inspection – Mist Eliminator Panels, nozzles & isolation valves

Tube leak repair

Hydro boiler

Forced Outage Report

Operators Event Log



LOG BOOK

DATE 7-26-13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
12M	Masters, Balds, Northington, J Barren, wh Tledge, T Parker, Combs, Cook, Shetter, Tapp
12:01	G2 out of ADS shuttled up and down for outage
	G1 Load 177 A+B D Mills precip 3 out SOR .40 Nor 25 gravity 70
12:25	G2 Trapped all Toucher out of boiler
1V	Conveyors A+B Dms #1 28' #2 smod 36' 22' Tank
	1V 145 Ls 1A 17 Ls 2A 645 Ls 1D 1245 Ls 2D 1345 Ls
3:30	1A 349 0° 67' 2A 327 0° 611' 1B 339 0° 61' 2B 347 0° 67'

G1 - 249 mms

C' BFP'S ON

G2 offline at 0025 for a
deferred outage to repair

SW - 042 U03 - 2358

OPER	SUPR
1ST	
2ND	
3RD	<i>TB ED</i>

SIGNED discharge valve leak!

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-26-13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

8A-8p

TIME	REMARKS
8:00 AM	Brown - Greer - Turner - Denton - Rittmeyer - Strickland - Mahr - Collins - Thomas - Townsend - Loran - Holgood
G-1 Wood 247	Cap 250 3 Mills on C off
Max. 209	Sp. 542 Capacity 840
ADS Control in Service	4 pieces out of Service
G-2 off	
	EU in Service - A Conveyor - A+B Drums - #2 Flyash Silo @ 18 tons of ash per hour - #2 Smoot System @ 36% Line rate - 16 in Sludge tanks
	Slakers #1 Building in Service 3 on 23.6/23.2 #2 Silo #2 Building out of Service 23.2/25 Prep Building in Service 2 on 72.8% #4 Silo
	Underflow 1A) 33.5 @ 6'9" 2A) 39 @ 6'10" 1B) 34.4 @ 6'8" 2B) 37.3 @ 6'9"
	Stack Dampers OK
	Flyash Silo readings
	Silo 1 0 0
	Silo 2 0 0
	Big River East 1.0 1.0
	West 1.0 .5

OPER	SUP'R
1ST	
2ND	Greer 8A-8p
3RD	
SIGNED	

F155.12
R 1/83

Forced Outage Report



LOG BOOK

DATE 7-26-13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
	Hydro Lib levels #1) 49' #2) 39'
10 ⁰⁰	Expro going home
11 ⁰⁰	Changed Valving for air heater. Work to IW Ponds
12 ⁰⁰	Wadsworths 1A) 30.5 0 6'9" 2A) 33.3 0 6'10" 1B) 32.1 0 6'7" 2B) 30.5 0 6'9"
4 ⁰⁰	Line Lib levels #1) 3/3 #2) 4/3 #3) 12/7 #4) 45/38 Digital 41'4"
7 ⁰⁰	Dmitry, Bolds, Hust, Quintan, Lawrence, L. H. Halge, Peter Travis, Temple, Shelton, Tapp
3.10's	#1-46' E-1.5 W-1.0 #2-88' E- W- S-0 G-0 S- G-
Scrubbers	1A 28 0 6'9" 2A 28 0 6'10" 1B 35 0 6'9" 2B 35.4 0 6'9"
10 ⁰⁰	6-2 BFP Released. G. Miller F.11

OPER	SUP'R
1ST	
2ND	<i>Steven E. G.</i>
3RD	<i>[Signature]</i>
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7/24/13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
10:30	Filling G-2 Boiler for Hydro

OPER		SUP'R
1ST		<i>[Signature]</i>
2ND		
3RD		
SIGNED		

F155.12
R 1/83



Forced Outage Report



LOG BOOK

DATE 2/27/13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
61	Cap 250 SO ₂ 365 NOX 146 opal 7.9
62	outage
54KWS	G1 3 21/23 G2 0 22/25 P-2 78%
scrubbers	1A 28.8 0 610 2A 30.8 0 10 1B 33.8 0 610 2B 34.0 0 610
IU	In service, A sink, A+B Dms, # 1-14 T Tanks - 9 # 2 - 36%
1 ⁰⁰	Hydro Complete BFP off / Dry boiler per M.J.
aux	IU 24 H 1A 11H30M 2A 11H45M 1B 17H15M 2B 15H30M
12 ⁰⁰	G-2 Demister Wash Tank clean.
2 ⁴⁵	AH Wash Complete
3 ¹⁵	Swapped valves at IU/Ash Pond.

G1 - 248

C' BFP's ON

G2 off-line for UO3 to repair B negete discharge

Value leak, inspect scrubber modules, wash Air Haters, etc

Fires in at 1710, unit tied on-line at 2024

SA-1 SS-1 UO3 - 20.4 SH-3.6

OPER	SUP'R
1ST	<i>[Signature]</i>
2ND	
3RD	

SIGNED

F155.12
R 1/93

Forced Outage Report




LOG BOOK

DATE 7/27/13

- REID
- SHIFT SUPERVISOR
- SCRUBBER SHIFT SUPERVISOR
- GREEN
- CONTROL OPERATOR
- SCRUBBER OPERATOR
- COLEMAN
- AUXILIARY OPERATOR
- SCRUBBER AUXILIARY OPERATOR
- WILSON
- UTILITY OPERATOR
- SOLID WASTE OPERATOR
- _____
- SCRUBBER UTILITY OPERATOR

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
note	Vac check on 6.2 good
6:30	Steam coils clean.
note	#5 + #3 heaters have tube leaks - Talked to M.J. and we will try to get them in service before we take them out for repair.

OPER	SUP'R
1ST	
2ND	
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-27-13

- | | | |
|---|--|--|
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| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> _____ | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

SA-SP

TIME	REMARKS
8 ⁰⁰	Barron - Seer - Turner - Denton - Ritzmeyer - Strickland - Mahan - Thomas Townsend - Lovon - Holgood
G-1	Head 247 Cap 250 3 Mills on C off Nov. 211 So. 442 Opacity 8.60 ADS Control in service 4 precip's out of service
G-2	Pit Stop
I-4	Down - 8.5' in sledge tanks
Slakers	#1 Building in service 3 on 24/24 #2 Silo #2 Building out of service 248/249 Opp Building in service 2 on 81.5 #4 Silo
Flyash Silo Reading	#1 #2
Silo	0 0
Safety	0 0
Baghouse East	1.5 2.0
West	1.0 .5
Flyash Silo Levels	#1) 43' #2) 37'

OPER	SUP'R
1ST	
2ND	Supv SA-SP
3RD	
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK

DATE 7-27-13

- | | | |
|---|--|--|
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| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
	Underflow H) 28.0 @ 6'10" 2A) 30.0 @ 6'10" 1B) 33.2 @ 6'8" 2B) 34.7 @ 6'9" Stack Drains OK
4 ⁰⁰	Underflow H) 27.8 @ 6'10" 2A) 28.5 @ 6'10" 1B) 32.2 @ 6'8" 2B) 33.5 @ 6'9"
5 ¹⁰	Fire in G-2 Boiler - Notified H/L
6 ²⁰	Dennihan, Bolds, Farley, Lawrence, Wh. Hodge, Parker, Hoover Travis, Temple, Shelton, Tapp.
5:20:3	#1-48' E-2 U-15 #2-38' E-2.0 U-5 S-O G-O S-O S-O
scrubber	1A - @ 6'10" 2A 27. @ 6" 1B 31. @ 6'10" 2B 32.6 @ 6'10"
8 ²⁴	G-2 Tied on line
9 ²⁵	2B side Aux power would not sync to transfer
11 ²²	Terminus out

OPER	SUP'R
1ST	
2ND	<i>Shannon Sp-8</i>
3RD	<i>R. L. [Signature]</i>
SIGNED	

F155.12
R 1/93

Forced Outage Report



LOG BOOK


DATE 7/28/13

- | | | |
|---|--|--|
| <input type="checkbox"/> REID | <input checked="" type="checkbox"/> SHIFT SUPERVISOR | <input type="checkbox"/> SCRUBBER SHIFT SUPERVISOR |
| <input checked="" type="checkbox"/> GREEN | <input type="checkbox"/> CONTROL OPERATOR | <input type="checkbox"/> SCRUBBER OPERATOR |
| <input type="checkbox"/> COLEMAN | <input type="checkbox"/> AUXILIARY OPERATOR | <input type="checkbox"/> SCRUBBER AUXILIARY OPERATOR |
| <input type="checkbox"/> WILSON | <input type="checkbox"/> UTILITY OPERATOR | <input type="checkbox"/> SOLID WASTE OPERATOR |
| | <input type="checkbox"/> | <input type="checkbox"/> SCRUBBER UTILITY OPERATOR |

THIS FORM TO BE COMPLETED IN INK

TIME	REMARKS
12 ⁰⁰	
G1	Cap 250 load 177 SO2 .38D NOX 276 spec 8.1
G2	Cap Startup load 198 SO2 .78D NOX 202 spec 7.5
skates	G1 3 24/24 G2 2 24/23 P 2 88%
scrub	1A 0 6 ¹⁰ 2A OFF 0 6 ¹⁰ 1B 34 0 6 ¹⁰ 2B OFF 0 6 ¹⁰
IU	In service, A side, A+B Drums, # 1 - 24% Tanks - 18 # 1 - 36%
IU	12 H 30m 1A 14H 2A 5H 30M 1B 12H 2B 5H
3 ²⁰	201 LSC Astd mid point
note	Hotline called
6 ⁴⁰	Called Thompson to clean out 201 LSC 2 hours act.

7¹⁰ G-2 Good for full Pressure
& Raising Pressure
7⁴⁰ Put G-2 in ADS

OPER	SUP'R
1ST	
2ND	
3RD	
SIGNED	

G1 - 248 mm
C' BFP'S ON

G2 - 238 mm unit good for MAX pressure at 0710 (NO DERATE)

F155.12
R 1/93

Forced Outage Report

Estimated Outage Costs

Overall Total \$58,920.10

				Totals:	13,887.03	45,033.07	0.00
Work Order#	Work Order Description	Owning Department	Owning Resource	Actual Inventory Cost	Actual Desc Direct Cost	Actual Equipment Cost	
6104791	G2 Boiler Inspection Pitstop Outage 7-26-2013	MECHANICAL		0.00	8,740.48	0.00	
6104792	G2 Start up 7-28-13 after pitstop	MECHANICAL	GNM3	590.00	0.00	0.00	
6104793	G2 Scrubber Inspection 7-25-2013 Pitstop	MECHANICAL	GNOC	3,796.67	0.00	0.00	
6104795	G2 Pitstop Precip Repairs 7-24-2013	ELECTRICAL	GNM1	151.20	7,015.78	0.00	
6104816	G 2 PA FAN INBOARD FAN BEARING IS LEAKING OIL FROM THE BOTTOM OF THE SHAFT SEAL/BEARING COVER	MECHANICAL	GNM3	324.91	0.00	0.00	
6104818	2B Recycle Pump Discharge valve	MECHANICAL	GNOC	6,011.05	16,029.42	0.00	
6104828	G2 IGNITORS AND SCANNER INSPECTION 7-26-2013	INST	GNM5	1,331.42	0.00	0.00	
6104833	G2 East Drum Vent leaking through-replace valve	MECHANICAL	GNM3	1,681.77	0.00	0.00	
6104902	G2 Waterwall Tube Leak east side of boiler 16 tubes north of IR 49. 7-26-2013	MECHANICAL	GNOC	0.00	13,247.40	0.00	

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	Green 2 - G2-13-02			Production Cost	
Date & Time Off Line	7/26/13 0:25			MW	\$/MW
Date & Time On Line	7/27/13 20:24			157	\$ 25.65
Outage Duration	43 hr. 59 min.			191	\$ 24.87
Outage Code	U03			225	\$ 24.70
Outage Reason	Repair leak on B recycle pump discharge valve.				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
7/26/13 (HE 1-24)	\$ 26.17	\$ 29.34	\$ (327)	\$ (8,889)	
7/27/13 (HE 1-24)	\$ 23.26	\$ 26.64	\$ (500)	\$ -	
7/28/13 (HE 1-8)	\$ 18.60	\$ 13.53	\$ (1,487)	\$ -	
Total			\$ (2,314)	\$ (8,889)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	13,639		DART P&L	\$ (2,314)	
S/U Fuel Price	\$ 3.16		Lost Opportunity	\$ (8,889)	
S/U Fuel Cost	\$ (43,056)		S/U Fuel Cost	\$ (43,056)	
			Total	\$ (54,259)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					

Forced Outage Report

To: Bob Berry

From: Billy Boarman

Date: 26-Jul-2013

Plant: HMP&L Station Two

Unit: 1

GADS Class: UO2

Duration

Trip Time: 21-Jul-2013 14:05

Tie Time: 24-Jul-13 17:44

Time Offline: 75:39

Outage Description

HMP&L Station Two Unit 1 was removed from service on Sunday, 21-Jul-2013 at 14:04 due to a suspected tube leak in the Radiant Superheat Area of the boiler.

Root Cause

Tube leak on the Radiant SH Outlet 5th element from the east wall outer loop, at elevation 537' – 5" was caused by external corrosion.



Forced Outage Report

Failure History

16-Mar-2012	31:31	Tube leak in the radiant superheat outlet section, 3 rd element from the west wall, inner loop
3-Aug-2012	91:48	Tube leak in the radiant superheat outlet section, 2 nd element from the west wall, inner loop caused by soot blower erosion
24-Feb-2013	68:22	Tube leak on the Radiant SH Outlet 3 rd element from the west wall, on the outer loop at elevation 537' – 5" was caused by external corrosion
23-Mar-2013	70:02	Tube leak on the Radiant SH Outlet 4 th element from the east wall inner (hairpin) loop, at elevation 542' was caused by external corrosion
2-June-2013	70:00	Tube leak on the Radiant SH Outlet 5 th element from the west wall outer loop, at elevation 537' – 5" was caused by external corrosion.

Corrective Action

The outer loop on the 5th element from the east wall at elevation 537'-5" was replaced along with the addition of a 3' dutchman on each side leg. The 5th element washed several tubes on the 3rd element from the east wall, from low UT indications 8 dutchman were installed on the 3rd element at elevation 542'. All 8 dutchman were on the north side of the 3rd element, with the first one starting on the most outer tube. There were also 3 handcuffs installed, 2 on the 3rd element and one on the 4th element.

Forced Outage Report

SOE Print Out

Triggered on: 21-Jul-2013 14:04:22:348

Event Time	State	Tag Name	Tag Description
21-Jul-2013 14:04:47:818	HIGH	H124HTR6LVLHI	HP HTR 6-2 LEVEL HIGH
21-Jul-2013 14:04:38:944	OK	H150OCB166CSTP	OCB 0166 GEN H1 CS TRIP
21-Jul-2013 14:04:38:590	TRIP	H150OCB166CSTP	OCB 0166 GEN H1 CS TRIP
21-Jul-2013 14:04:36:788	OK	H150OCB162CSTP	OCB 0162 GEN H1 CS TRIP
21-Jul-2013 14:04:36:329	TRIP	H150OCB162CSTP	OCB 0162 GEN H1 CS TRIP
21-Jul-2013 14:04:32:210	OPEN	H150OCB166ST	OCB 0166 GEN H1 STATUS
21-Jul-2013 14:04:32:164	OK	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
21-Jul-2013 14:04:32:160	OPEN	H150FLDBKRST	GEN H1 FIELD BKR STATUS
21-Jul-2013 14:04:32:090	OK	H150OCB162GETP	OCB 0162 GEN H1 TRIP
21-Jul-2013 14:04:32:090	OK	H150OCB166GETP	OCB 0166 GEN H1 TRIP
21-Jul-2013 14:04:32:086	TRIP	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
21-Jul-2013 14:04:32:083	LKOUT	H150GENLO86G2	GEN DIFFERENTIAL LO (86G2)
21-Jul-2013 14:04:32:081	OK	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
21-Jul-2013 14:04:32:063	TRIP	H150OCB162GETP	OCB 0162 GEN H1 TRIP
21-Jul-2013 14:04:32:063	TRIP	H150OCB166GETP	OCB 0166 GEN H1 TRIP
21-Jul-2013 14:04:32:060	TRBLE	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
21-Jul-2013 14:04:26:094	OK	H133LMISTP	LAST MILL IN SERVICE TRIP
21-Jul-2013 14:04:24:300	TRIP	H140STPVLVTP	TURB STOP VLV CLSD TRIP
21-Jul-2013 14:04:23:028	LOW	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
21-Jul-2013 14:04:22:995	OK	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
21-Jul-2013 14:04:22:348	TRIP	H133EMERBLRTP	EMERGENCY BLR TRIP
21-Jul-2013 14:04:22:099	TRIP	H133LMISTP	LAST MILL IN SERVICE TRIP
21-Jul-2013 14:04:03:989	OK	H124HTR6LVLHI	HP HTR 6-2 LEVEL HIGH

Forced Outage Report

Other Work Completed While Unit Was Offline

- Clean Seal Trough
- H-1 Aux. Transformer –clean and check fans
- H-1 480V Transformers –clean and check
- H-1 Cooling tower DC fuses – check fuses
- Re-packed economizer drain valves
- Repaired bottom ash hopper equalizing valves
- Repaired gas leaks SCR sonic horn
- Replaced east drum gauge glass drain valve
- Repaired gas leak on SCR bottom elevation duct
- Repaired circumferential seals on Air Heaters
- Precipitator inspection
- Back-pass inspection
- Calibrated all coal feeders.
- Changed oil in all FD Fan, PA Fan, and Mill motors
- Repaired coal leaks on “A” Mill
- Repaired coal leaks on “B” Mill
- Cleaned seal air fan filters
- From the initial boiler hydro a pin hole leak was discovered on the east knee tubes, 1st tube from the south, this leak is located on top of the tube where it meets the east lower water wall header at elevation 438’-8”. Repaired via a BMR

Forced Outage Report

Operators Event Log

7/22/2013	8:00PM	H-1 F.D. FANS OFF FOR MAINT TO INSPECT H-1 BOILER												
	8:00PM	JOB SAFETY BRIEFING												
	NOTE	CALLED GREEN TO CHECK THICKENER RETURN - H-2 SCRUBBER EFFICIENCY IS LOW.												
	8:30PM	EXPRO IS AT GUARD SHACK												
	8:45PM	EXPRO SIGNING ON PERMITS												
	NOTE	G. BUNCH REPORTED H-1 TUBE LEAK - 5th ELEMENT FROM EAST BLOWN AND DAMAGED THE 4th AND 3rd ELEMENTS.												
	9:00PM	VC's HERE WITH MILL BALLS												
	9:02PM	RON BLANKS TAKING HIS PERSONAL DAY TOMORROW												
	9:55PM	ADDED 4 BARRELLS MILL BALLS 2" TO H-2 B MILL												
	10:25PM	EXPRO STARTED BLASTING												
	10:30PM	INLAND FINISHED WITH M.E. PANELS												
	11:00PM	INLAND SETTING UP TO VACUUM OUT PENTHOUSE												
7/22/2013		HELD WEEKLY SAFETY MEETING												
	3:00AM	INSPECTED H-1 BOILER - HAD EXPRO SOOT SOME SMALL ASH OFF THE FRONT OF THE SLAG SCREEN.												
	3:55AM	EXPRO HAS FINISHED H-1 BOILER DESLAG - GOING TO PULL WETBOTTOM AND TAG.												
	4:00AM	INLAND FINISHED BOILER PENTHOUSE, GOING TO START VACUUMING H-1 ECONOMIZER												
7/22/2013	8:00AM	CONN, CLARK, BREEDEN, CUTSHAW, HIGGINS, YOUNG, ONAN								B SHIFT PAYNE				
		BLANKS P.D.												
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE	
		R1	50	48	45								R-1 CTL 17'	
		H1		165	OUTAGE								PWTL 27'	
		H2	142	160	152	0.483	11	0.064	16.7	91.6	10.36	175	3 HMPL 15.1'	
		C.T.		58										
		ALARMS:									GAUGE GLASSES		DRYING AGENT	
		R1									OK		H-1 0%	
		H1	STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ										H-2 0%	
		H2	EH RES LEVEL HI										R-1 0%	
		SOOTBLOWERS TAGGED												
		R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31								SILO		BOOTHE SYSTEM	
		H1	5,6,7,8,9,10,11,20,32,39								15FT		OUT	
		H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,39											
		FUEL OIL	C.H.	HMPL	NORTH	SOUTH								
		LEVELS	6' 10 1/2"	10' 3 1/2"	13' 6 1/4"	8 1/4"								
7/22/2013	8:00AM	SAFETY BRIEFING												
	8:10AM	INLET DAMPER TO SCRUBBERS TAGGED OPEN PER ELEC												
	8:15AM	HAVING INLAND PULL OFF H1 ECONS AND VAC OUT DRYING AGENT. NEITHER SIDE WILL RUN												
	8:25AM	TAGGED H1 COAL FEEDERS FOR INST TO CALIBRATE												
	9:32AM	H1 B FD FAN ON FOR B.CHEATHAM												
	11:00AM	H1 EH UNIT IS CLEANED AND FILTERS HAVE BEEN CHANGED OUT												
	12:01PM	STARTED H1 VAC PUMPS FOR VAC CHECK PER B.CHEATHAM												
	NOTE:	BEATING DOWN PRECIPS ON H2 AND HAD INST CLEAN OPACITY LENS												
	2:08PM	H1 VAC PUMPS OFF. VAC CHECK COMPLETED												
	3:00PM	STARTED BOTH H1 EH PUMPS FOR INST.												
	3:15PM	H2 FLOW MONITOR FAULT. NOTIFY INST.												
	3:30PM	H1 PRECIP DOORS OPEN AND HOPPERS CLEANED OUT												
	3:35PM	LOST H2 ABSORBER LEVEL. LOST H2 BOOSTER FAN. H2 BYPASS DAMPER DID NOT COME OPEN. LOST H2 ON HIGH FURNACE PRESSURE												
	6:36PM	FIRES ESTABLISHED IN H2 BOILER. HOTLINE NOTIFIED												

Forced Outage Report

7/22/2013 8:00PM EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON

C SHIFT CARTER

UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE	
R1	47	50	45	4.63	10.8	0.474	14.3					CTL/ 17.8'
H1		165	153									PWTL / 25.8'
H2		165	152									CTL / 15.5'
C.T.	ON STANDBY		56									
ALARMS:												
R1	DRUM TRIP DISABLED											
H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW											
H2	EH RES LEVEL HI											
SOOTBLOWERS TAGGED												
R1	16,19,28,29,30,31											
H1	20 / 5,6,7,8,9,10,11,32,39- B HOT A.H. R/T											
H2	1,2,4,5,7,9,10,15,18,19,20,21,22,23,24,30,39											
FUEL OIL TANKS												
LEVELS	C.H.	HMPL	NORTH	SOUTH								
	6' 10 1/2"	10' 3 1/2"	13' 6 1/4"	8 1/4"				SILO LVL 15'	BOOTHE SYSTEM		OUT	
8:00PM	SAFETY BRIEFING											
NOTE	INLAND FINISHING H1 ECONS / SETTING UP FOR H1 PRECIP VACUMING & H1 WET SEAL CLEANING											
8:53pm	H2 SEALING TURBINE & PULLING VAC											
9:32PM	H2 TURBINE 100RPM											
9:42PM	H2 TURBINE ROLLING UP											
9:48pm	H2 TURBINE 3600 RPM FRONT STANDARD TEST											
10:15PM	H2-B MILL ON											
10:18PM	H2 TIED ON LINE											
10:19PM	H2 PRECIPS IN SERVICE											
NOTE	FLUSHING H2 SCRUBBER ABSORBER LEVEL COLUMN											
NOTE	HMPL SCRUBBER CHIMNEY PRESSUIZATION FANS NOT RUNNING FOUND 2 BLOWN FUSES ON # 2 NO FUSES/ GOT #1 FAN RUNNING/ ELECT DEPT ASSISTING											
NOTE	INLAND HAD VACUM TRUCK DOWN FOR ABOUT 1 HOUR BROUGHT IN ANOTHER TRUCK											
11:00PM	B. JONES, J. TAUL GOING HOME											
11:16PM	H2-A MILL ON											
11:30PM	H2 SILICA .407											
11:35PM	N. STIFF, S. HALLMAN GOING HOME											
NOTE	CLOSED H1 WATERWALL DRAINS & CLOSED ALL VENTS AT DRUM											
7/23/2013	NOTE H1 AIR HEATER GAS IN & GAS OUT HAVE 1'-2" ASH MIDDLE ROOM HAVE SOME CIRCUM SEALS MISSING ON A-GAS IN / B GAS OUT											
12:05AM	H2 FUEL OIL OUT OF BOILER											
12:30AM	OPENING H2 SCR DAMPERS											
12:49AM	H2 SILICA .395 GOOD FOR 1600 DRUM											
1:54AM	H2 SCR FLOWING AMMONIA											
2:18AM	H1 WET SEAL CLEAN / B. BOARMAN NOTIFIED											
3:04AM	H2 SILICA .352 GOOD FOR MAX CBD 1 TURN OPEN											
3:45AM	H2 IN ADS GOOD FOR 152 NET											
4:30am	INLAND DONE WITH H1 PRECIP PENTHOUSE/LEAVING											
NOTE	TALKED TO ACES BOTH H2 R.H. STOP VALVES PACKNIG LEAKING OUT OF ADS GOING DOWN TO 133 MW TO TEST R.H. VALVES											
7/23/2013 8:00AM	CONN, CLARK, BREEDEN, CUTSHAW, HIGGINS, YOUNG										B SHIFT PAYNE	
UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE	
R1	50	50	45									R-1 CTL 17'
H1		165	OUTAGE									PWTL 27'
H2	165	160	152	0.762	11.6	0.074	49	86.3	10.7	218	3.6	HMPL 15.7'
C.T.	STANDBY	58										
ALARMS:												
R1												
H1	STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ											
H2	EH RES LEVEL HI											
SOOTBLOWERS TAGGED												
R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31											
H1	5,6,7,8,9,10,11,20,32,39											
H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,39											
FUEL OIL TANKS												
LEVELS	C.H.	HMPL	NORTH	SOUTH								
	6' 8 1/2"	8' 7"	13' 6 1/4"	8 1/4"				SILO 13FT	BOOTHE SYSTEM		IN	

Forced Outage Report

7/23/2013	8:00AM	SAFETY BRIEFING													
	9:30AM	H1 BOILER SET FOR HYDRO EXCEPT FOR CHEMICAL FEED ISOLATION VALVES. STRIPPED. MAINT WORKING ON SAME													
	10:00AM	INLAND SHOOTING ME WASH HEADERS													
	10:05AM	ADDING MILL BALLS TO H2 MILLS. 7 BARRELS IN A MILL AND 2 BARRELS IN B MILL													
	11:35AM	TRANSFERRED FUEL OIL TO HMPL TANK													
		NOTE: H2 OPACITY RUNNING HIGH. WORKING ON BURNER DECK. ALL PRECIPIS BEAT DOWN													
	12:30PM	ELEC WORKING H2 A OUTLET PRECIP. KEEPS TRIPPING													
	12:30PM	INLAND DONE AT SCR DUCT WHERE LAGGING FELL													
	12:50PM	INLAND DONE AT SCRUBBERS													
	1:15PM	INST STROKING H1 TURBINE VALVES													
	2:15PM	FLUSHED TRW LINES AT SCRUBBERS													
		NOTE: H2 A OUTLET PRECIP TRIPPED FOUR TIMES TODAY. LAST TIME AT 3:13PM. LEAVING OUT AT THIS TIME													
	4:00PM	CLOSING H1 PRECIP DOORS													
	4:05PM	INLAND DONE VACUUMING AT SCR/RAPPER AREA.													
	4:28PM	H1 PRECIP DOORS CLOSED													
	5:00PM	INLAND LEAVING													
	5:30PM	PRECIP AIR TEST COMPLETED													
		NOTE: OLD COMPUTER ROOM AIR CONDITIONER GOING BAYLOR LEAVING													
7/23/2013	8:00PM	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER			
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE		
		R1	49	50	45	4.63	10.8	0.474	14.3					CTL/ 17.5'	
		H1		165	153									PWTL / 27.0'	
		H2	143	165	152	1.112	11	0.084	34.6	78.2	11.38	193/C	2.9	CTL / 15.5'	
		C.T.	ON STANDBY		56										
		ALARMS:													
		R1	DRUM TRIP DISABLED												
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW												GAUGE G z
		H2	EH RES LEVEL HI												OK
		SOOTBLOWERS TAGGED													
		R1-	16,19,28,29,30,31												
		H1	20 / 5,6,7,8,9,10,11,32,39- B HOT A.H. R/T												DRYING AGENT
		H2	1,2,4,5,7,9,10,15,18,19,20,21,22,23,24,30,39												R1-0%
														H1-0%	
														H2- 0%	
		FUEL OIL TANKS													
		LEVELS	C.H.	HMPL	NORTH	SOUTH		SILO LVL 15'	BOOTHE SYSTEM	OUT					
			6' 10 1/2"	10' 3 1/2"	13' 6 1/4"	8 1/4"									
		NOTE	H1-A BFP SET UP FOR HYDRO												
		NOTE	CHECKING ROTATION ON H1-A & H1-B SCR SEAL AIR FANS/ OK												
	7:50PM	H2 SCR AMMONIA TRIPPED LOW TEMP / C SCR INLET TEMP TRANSMITTER 329 DEG DROPPED AVG TEMP													
	8:00PM	SAFETY BRIEFING													
	8:04PM	SOUNDED WEATHER ALARM SEVERE STORM WARNING FOR WEBSTER & HENDERSON COUNTY /B.BOARMAN NOTIFIED													
	8:08PM	H2 SCR FLOWING AMMONIA													
		NOTE	H2-B & H2-D C.T. FANS TRIPPED HI VIBRATION DURING STORM												
	10:34pm	CALLED A.JAMES TO SIGN HIM OFF PERMITS #456089,#456116 CALLED BACK SAID OK													
	10:35PM	CALLED T.WEST TO SIGN HIM OFF PERMITS #456089,#456116 L/M													
	11:31pm	H1-B BFP ON FOR HYDRO													
	11:35PM	M.PEYTON GOING HOME													
7/24/2013	12:25AM	H1 HYDRO 10 MIN HOLD													
	12:35AM	H1-B BFP OFF													
	12:50AM	DRAINING H1 BOILER-WATERWALL DRAINS & VENTS OPEN LEAK @ LOWER WATERWALL													
	12:57AM	NOTIFIED ACES WOULD NOT MAKE 1000HRS THE TIME FOUND ANOTHER LEAK IN LOWER WATERWALL													
	2:30AM	CLOSED WATERWALL DRAINS -PER B.BOARMAN HELP LOCATE LEAK FROM OUTSIDE													
		NOTE MAINT CLOSING BOILER DOORS													
	3:00AM	S.HALLMAN,T.WEST,J.JACKSON,B.SHARTUNG HERE													
	3:25AM	H2 RAPPERS IN OUTAGE MODE													
		NOTE	H1 SCRUBBER BYPASS DAMPER OPEN/ INLET DAMPER CLOSED												
		NOTE	S.HALLMAN BLOWING BACK BOILER TAPS NO MAINT IN H1 BOILER												
		NOTE	REMOVING USED MILL BALL BARRELS												
	5:00AM	H2 RAPPERS IN NORMAL MODE													
	5:40AM	OPENING H1 WATERWALL DRAINS UP													

Forced Outage Report

7/24/2013 8:00AM MORRIS DENTON REYNOLDS BAKER, GATTON EDWARDS TATE										D SHIFT PARKER / ASKINS							
JOHNSON CUTSHAW YOUNG																	
UNIT	LOAD	UNIT CAP	NET CAP	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM FLOW	BACK PRESSURE						
R1	52	50	45	4.9	11.1	0.413	12.7				2.55	CTL 17.6 PWL 27					
H1	OFF	185															
H2	143	185	152	0.47	11.2	0.056	37.7	91.7	12	190	2.8	APL CTL 15.3					
C T		58	STANDBY														
ALARMS										GAUGE GLASSES		DRYING AGENT					
R1											OK		H-1 0%				
H1	STEAM SEAL HI/LO BURNER MANGT EH PRESSURE LO/PUMP START REQ												H-2 0%				
H2	EH RES LEVEL HI												R-1 0%				
BOOTBLOWERS TAGGED																	
R1	16 18 28 29 30 31																
H1	6 6 7 8 9 10 11 20 32 38																
H2	1 2 4 6 7 9 10 11 16 18 19 20 21 22 23 24 30 39																
FUEL OIL										C.H.		HMPL		NORTH		SOUTH	
LEVELS										8 6 1/4		12 4 1/2		13 6		8 1/4	
8:00AM	SAFETY BRIEFING																
8:33AM	H-1 B BFP ON FOR HYDRO																
8:44AM	RUNNING 10% DRYING AGENT TO H-2																
9:15AM	D FELTY CALLED IN FOR PERSONAL DAY TONIGHT 8P-8A																
9:18AM	CALLED T JACKSON L/M D EDMONDS L/M																
9:35AM	CLOSED IN PCC 1A TIE BREAKER AND OPENED A MAIN FOR COOLING TOWER FEED ELECTRICIAN CHANGING OUT UNDERVOLTAGE RELAY																
9:20AM	H-1 B BFP OFF																
9:50am	DRAINING H-1 WET SEAL FOR MAINT																
10:02AM	DRY BOILER PER BARRETT DRAINING TO FIRING LEVEL																
10:42AM	TRIED JACKSON AND EDMONDS AGAIN NNO ANSWER / LEFT MESSAGE																
10:25AM	CLOSED IN PCC 1A MAIN ELCET TESTED TRIP WORKED OK CLOSED A MAIN BACK IN AND OPENED B MAIN																
10:52AM	CLOSED IN PCC 1B MAIN ELECT TESTED TRIP WORKED OK CLOSED B MAIN BACK IN AND OPENED PCC 1A TIE BREAKER ALL NORMAL NOW																
12:00PM	H-1 BOILER AIR TEST IS GOOD																
12:00PM	T JACKSON CALLED BACK COMING IN 8:00PM																
12:36PM	OIL FIRE IN H-1 BOILER ACES NOTIFIED																
1:45PM	CLOSED IN 0189 DISCONNECT																
4:17PM	PULLING VACUUM																
4:47PM	ROLLING TURBINE																
5:44PM	H-1 TIED ON																
5:46PM	PRECIP8 IN SERVICE																
5:55PM	H-1 B-1 COAL FEEDER BELT PLUGGED ALARM IS IN																
	NOTE: SIDE PLATES ARE NOT TIGHT ON H-1 B COAL FEEDER																
7:20PM	H1 SILICA 255 GOOD FOR 1500 DRUM																
7:25PM	B RECYCLE PUMP ON																
7:26PM	H1 A PA FAN ON																
7:26PM	H1 A MLL ON																
7:35PM	H1 BOOSTER FAN ON																
7:40PM	TRANSFER H1 AUXILIARIES																
7:44PM	BYPASS DAMPER CLOSED ON H1 SCRUBBERS IN																

Forced Outage Report

Boiler Tube Leak Record

Plant: HMP&L Station Two

Unit: 1

Type of Leak:

Pin Hole (terminal tube) Thick Lip Failure Crack Thin Lip Failure
 (5th SH outlet element from the east)

Tube Wall Thinning

Orientation of Rupture: Longitudinal Circumferential

Probable Cause:

Stress Overheat Erosion Internal Corrosion

External Corrosion Weld Failure (Shop Field

Internal Obstruction to Flow Soot blower Erosion

Other

Type of Repair:

Dutchman Pad Weld Plug Tube Short Circuit Other

Description of Repair:

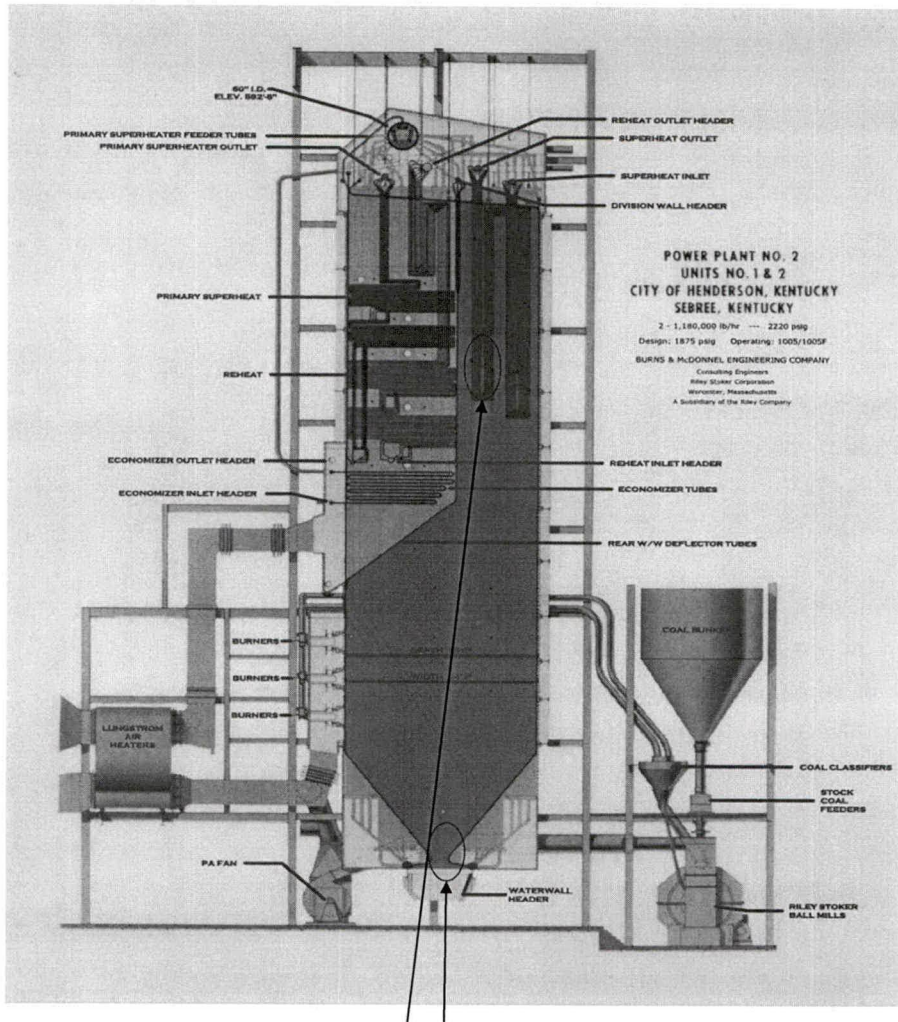
The outer loop on the 5th element from the east wall at elevation 537'-5" was replaced along with the addition of a 3' dutchman on each side leg. The 5th element washed several tubes on the 3rd element from the east wall, from low UT indications 8 dutchman were installed on the 3rd element at elevation 542'. All 8 dutchman were on the north side of the 3rd element, with the first one starting on the most outer tube. There were also 3 handcuffs installed, 2 on the 3rd element and one on the 4th element. From the initial boiler hydro a pin hole leak was discovered on the east knee tubes, 1st tube from the south, this leak is located on top of the tube where it meets the east lower water wall header at elevation 438'-8". Repaired via a BMR

Forced Outage Report

Exact Location of Leaks:

HMPL STATION UNIT 1 2013 (10) TUBES INVOLVED

Date and Time Unit Off 1404 7-21-13
Date and Time Unit On Stand-by 1744 7-24-13



The outer loop on the 5th element from the east wall at elevation 537'-5" was replaced along with the addition of a 3' dutchman on each side leg. The 5th element washed several tubes on the 3rd element from the east wall, from low UT indications 8 dutchman were installed on the 3rd element at elevation 542'. All 8 dutchman were on the north side of the 3rd element, with the first one starting on the most outer tube. There were also 3 handcuffs installed, 2 on the 3rd element and one on the 4th element. From the initial boiler hydro a pin hole leak was discovered on the east knee tubes, 1st tube from the south, this leak is located on top of the tube where it meets the east lower water wall header at elevation 438'-8". Repaired via a BMR

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	HMP'L 1 - H1-13-05			Production Cost	
Date & Time Off Line	7/21/13 14:05			MW	\$/MW
Date & Time On Line	7/24/13 17:44			111	\$ 28.97
Outage Duration	75 hr. 39 min.			133	\$ 28.31
Outage Code	UO2			155	\$ 28.16
Outage Reason	Repair superheat tube leak.				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
7/21/13 (HE 14-24)	\$ 32.86	\$ 32.81	\$ (7,816)	\$ -	
7/22/13 (HE 1-24)	\$ 34.27	\$ 40.29	\$ (45,235)	\$ -	
7/23/13 (HE 1-24)	\$ 32.83	\$ 29.70	\$ -	\$ (17,763)	
7/24/13 (HE 1-22)	\$ 28.56	\$ 24.15	\$ 2,060	\$ -	
Total			\$ (50,991)	\$ (17,763)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	8,554		DART P&L	\$ (50,991)	
S/U Fuel Price	\$ 3.14		Lost Opportunity	\$ (17,763)	
S/U Fuel Cost	\$ (26,883)		S/U Fuel Cost	\$ (26,883)	
			Total	\$ (95,637)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					

Forced Outage Report

To: Bob Berry
From: Billy Boarman
Date: 30-Jul-2013

Plant: HMP&L Station Two **Unit:** 1 **GADS Class:** UO3

Duration

Trip Time: 27-Jul-2013 00:53 Tie Time: 28-Jul-13 03:48
Time Offline: 26:55

Outage Description

HMP&L Station Two Unit 1 was removed from service on Saturday, 27-Jul-2013 at 00:53. The unit was removed from service based on a couple of indications. First it was noticed we were not indicating NOx reduction at the stack with the CEM instruments but seeing a tremendous reduction in NOx with the NEMS instruments located in the SCR ductwork. This provided an indication of insufficient NOx removal. We also were experiencing unusual pressure and temperature differentials through the Air Heater on B side.

Root Cause

Inspected the SCR and Diverter Damper to determine what the cause of these variations was. Upon inspections it was discovered that the "B" diverter damper was only open five percent and not allowing Flue Gas to flow through the SCR on "B" side. The inspection also verified that "B" side diverter damper shaft drive pins were sheared.

Failure History

2-Mar-2013	51:00	(Unforced Outage) Pins sheared on both SCR Diverter Dampers
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Forced Outage Report

Corrective Action

Replaced the pins on B Diverter Damper with 11" x 3/4" 17-4ph Stainless Steel round stock and stainless steel washers, then the dampers were stroked several times to confirm proper movement and sealing. Once confirmed, the inspection holes in the damper were repaired, the limits were adjusted to match damper position and the torque settings were checked and adjusted.

SOE Print Out

STANDARD SOE REPORT

Triggered on: 27-Jul-2013 00:52:43:536

Event Time	State	Tag Name	Tag Description
27-Jul-2013 00:53:39:840	TRIP	H125DRMTP	BLR DRUM LEVEL TRIP
27-Jul-2013 00:53:36:206	OK	H103BFP2ATP	4160 BKR BFP 2A TRIP
27-Jul-2013 00:53:36:141	TRIP	H103BFP2ATP	4160 BKR BFP 2A TRIP
27-Jul-2013 00:53:17:130	HIGH	H125DRMLVLHI	BLR DRUM LEVEL HIGH
27-Jul-2013 00:53:14:223	OK	H150OCB166CSTP	OCB 0166 GEN H1 CS TRIP
27-Jul-2013 00:53:13:822	TRIP	H150OCB166CSTP	OCB 0166 GEN H1 CS TRIP
27-Jul-2013 00:53:06:475	OK	H150OCB162CSTP	OCB 0162 GEN H1 CS TRIP
27-Jul-2013 00:53:05:656	TRIP	H150OCB162CSTP	OCB 0162 GEN H1 CS TRIP
27-Jul-2013 00:52:57:719	TRIP	H140MANTURTP	MAUNAL TURB TRIP
27-Jul-2013 00:52:56:982	OPEN	H150OCB166ST	OCB 0166 GEN H1 STATUS
27-Jul-2013 00:52:56:935	OK	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
27-Jul-2013 00:52:56:931	OPEN	H150FLDBKRST	GEN H1 FIELD BKR STATUS
27-Jul-2013 00:52:56:862	OK	H150OCB166GETP	OCB 0166 GEN H1 TRIP
27-Jul-2013 00:52:56:860	OK	H150OCB162GETP	OCB 0162 GEN H1 TRIP
27-Jul-2013 00:52:56:858	TRIP	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
27-Jul-2013 00:52:56:853	OK	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
27-Jul-2013 00:52:56:853	LKOUT	H150GENLO86G2	GEN DIFFERENTIAL LO (86G2)
27-Jul-2013 00:52:56:835	TRIP	H150OCB162GETP	OCB 0162 GEN H1 TRIP
27-Jul-2013 00:52:56:835	TRIP	H150OCB166GETP	OCB 0166 GEN H1 TRIP
27-Jul-2013 00:52:56:832	TRBLE	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
27-Jul-2013 00:52:52:635	OK	H140MANTURTP	MAUNAL TURB TRIP
27-Jul-2013 00:52:48:533	OK	H133LMISTP	LAST MILL IN SERVICE TRIP
27-Jul-2013 00:52:45:432	TRIP	H140STPVLVTP	TURB STOP VLV CLSD TRIP
27-Jul-2013 00:52:44:540	TRIP	H133LMISTP	LAST MILL IN SERVICE TRIP
27-Jul-2013 00:52:44:203	LOW	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
27-Jul-2013 00:52:44:154	OK	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
27-Jul-2013 00:52:43:536	TRIP	H133EMERBLRTP	EMERGENCY BLR TRIP
27-Jul-2013 00:52:33:102	OK	H125DRMLVLLW	BLR DRUM LEVEL LOW
27-Jul-2013 00:51:46:410	OK	H124HTR6LVLLO	HP HTR 6-2 LEVEL LOW

Forced Outage Report

Other Work Completed While Unit Was Offline

- Boiler Hydro and Reheat Vacuum Check, no issues

Operators Event Log

7/27/2013	12:02AM	H1 OUT OF ADS CONTROL													
	12:04AM	OIL IN H1 BOILER													
	12:08AM	TRANSFER AUXILIARIES													
	12:52AM	H1 SCRUBBERS OUT OF SERVICE													
	12:53AM	H1 TURBINE TRIPPED OFF LINE. FUEL OIL OUT OF BOILER													
	12:55AM	H1 PRECIPS OUT OF SERVICE													
	1:15AM	BREAK VAC ON H1													
	1:21AM	SEALS OFF H1 TURBINE													
	1:33AM	H1 TURBINE ON GEAR													
	1:50AM	H1 AIR HEATERS OFF													
	2:05AM	DRAINING H1 BOILER													
	5:00AM	H1 FD FANS OFF. OPENING SOME DOORS ON SCR													
	6:00AM	R1 BUNKERS 28FT DOWN IN A AND 23FT DOWN IN B													
	6:05AM	HOLD #376 ISSUED ON 0169 DISCONNECT													
	6:25AM	NATHAN STIFF HERE													
	6:30AM	J.ARNOLD HERE													
7/27/2013	8:00AM	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER			
		VAC													
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM.	FLC	BACK	PRESSURE
		R1	51	50	45	4.8	10.8	0.472	9.7						
		H1	OFF	165	PIT STOP										
					H1 NOTE SCR NOT IN B DAMPER WILL NOT OPEN										
		H2	155	165	152	0.685	11.3	0.057	19.6	88.4	8.71	223/C	3.1		
		C.T.	ON STANDBY	58											
		ALARMS:													
		R1	DRUM TRIP DISABLED												
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW											GAUGE G	
		H2	EH RES LEVEL HI											OK	
		SOOTBLOWERS TAGGED													
		R1- 16,19,28,29,30,31													
		H1 20 / 5,6,7,8,9,10,11,32,39- B HOT A.H. R/T													
		H2 1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,32,39													
		FUEL OIL TANKS													
		LEVELS	C.H.	HMPL	NORTH	SOUTH	SILO LVL 15'			BOOTHE SYSTEM			OUT		
			5' 10 3/4"	13' 10 1/2"	10' 6"	8 1/4"									

Forced Outage Report

	NOTE	NOTIFIED BREC DISPATCH R1 STEP-UP TRANSFORMER EMERGENCY SWITCH HANDLE BROKEN												
8:00AM		SAFETY BRIEFING												
	NOTE	H1 TURBINE GOVERNOR EXERCISER PUSH BUTTON REPAIRED												
	NOTE	MAINT WORKING ON 5&6 HTR EMERGENCY DRAIN LINE												
12:30pm		OPL REVIEWS & WEEKLY SAFETY MEETING												
	NOTE	CLEANED & RODDED H1 AIG NOZZLES												
2:00PM		A BUNKER 28' / B BUNKER 28'												
2:17PM		H1- B BFP ON FOR HYDRO & PULLING VACUM												
2:00PM		R/T A DRYFLYASH COLLECTOR FOR BROKEN BAG ALARM/ MAINT CHANGING BAGS OUT												
2:23PM		BOOTHE SYSTEM IN												
	NOTE	R.GENTRY HERE												
	NOTE	HOLDING J.ARNOLD OVER UNTIL STROKE H1 SCR DAMPERS												
3:10pm		J.FRANCIS CALLED SAID TO FIRE H1 WHEN MAINT RELEASES BOILER / ALSO KEEP R1 BUNKERS IN TOP OF FUNNEL												
	NOTE	H2 TURBINE/GEN #6 BRG METAL TEMP READING ERRATIC/ t.holt notified												
4:00PM		H1 DRY BOILER / SETTING TO FIRE												
	NOTE	M.JOHNSON ,B.BLAIR, M.EMBRY COMING IN AT 8P-8A TONITE												
5:00pm		DONE STROKING H1 SCR DIVERTER DAMPERS												
5:15PM		J.ARNOLD GOING HOME												
5:40pm		N.STIFF GOING HOME												
5:20PM		A DRYFLYASH COLLECTOR BACK IN SERVICE												
6:23pm		H1 FD FANS & Ahs AIR TEST												
6:30pm		J.ARNOLD HERE TO TRIP H1 86TV												
6:37PM		J.ARNOLD LEAVING												
7:00PM		MAINT RELEASING H1 BOILER												
7:03PM		R.BEAN COMING @ 10PM												
7/27/2013	8:00PM	CLARK, CONN, CUTSHAW, BREEDEN, HIGGINS, YOUNG, BLANKS, HIGGINS-VAC,, JOHNSON, EMBRY, BLAIR-START UP										B SHIFT PAYNE		
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK PRESSURE	
		R1	52	50	45	4.86	10.8	0.44	12.9				R-1 CTL PWTL	
		H1		165	153				OUTAGE					
		H2	144	160	152	0.563	10.7	0.06	18.4	90.7	10.44	229	2.9	
		C.T.	STANDBY 58											
		ALARMS:											GAUGE GLASSES	DRYING AGENT
		R1											OK	H-1 0%
		H1	STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ											H-2 0%
		H2	EH RES LEVEL HI											R-1 0%
		SOOTBLOWERS TAGGED												
		R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31										SILO	BOOTHE SYSTEM
		H1	5,6,7,8,9,10,11,20,32,39											
		H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,39											
		FUEL OIL	C.H.	HMPL	NORTH	SOUTH								
		LEVELS	5' 10 3/4"	13' 10 1/2"	10' 6"	8 1/4"								

Forced Outage Report

7/27/2013	8 00PM	SAFETY BRIEFING											
	8 00PM	FIRES ESTABLISHED IN H1 BOILER											
	8 15PM	CLOSED IN 0169 DISCONNECT											
	9 00PM	R GENTRY LEAVING											
	10 00PM	R BEAN HERE											
	11 30PM	J TAUL J JACKSON LEAVING											
	11 50PM	SEAL AND PULL VAC ON H1											
	NOTE	HAVING TROUBLE WITH H2 OPACITY BEATING DOWN PRECIP AND CHECKING BURNER DECK											
	2 05AM	CALLING INST LIST TO COME IN TO CLEAN OPACITY LENS											
	2 06AM	M PEYTON COMING IN AT 3AM ANYWAY WILL BE IN AS SOON AS HE CAN											
	2 58AM	RESET H1 TURBINE ROLLED OFF GEAR											
	3 00AM	R JENKINS B NICKELS B HIGDON HERE											
	3 05AM	H1 TURBINE AT 1000RPM											
	3 15AM	ROLLING TURBINE UP TO 3600RPM											
	3 44AM	H1 BPA FAN ON											
	3 45AM	H1 B MILL ON											
	3 48AM	H1 TIED ON LINE											
	3 49AM	H1 PRECIP AND SPRAYS IN											
	4 50AM	H1 SILICA 238 GOOD FOR 1500 DRUM											
	NOTE	HAD 21 EXCESS EMISSIONS ON H2 DUE TO OPACITY HAD TROUBLE WITH H2 FLY ASH ISSUES HAVE BEEN RESOLVED											
	5 00AM	H1 A PA FAN AND MILL ON											
	5 07AM	TRANSFER AUXILIARIES 52 201 4160 MAIN WILL NOT CLOSE IN ELEC WORKING ON SAME											
	5 09AM	H1 SCRUBBERS IN SERVICE											
	5 11AM	H1 SCRUBBERS TRIPPED UNIT PRESSURE UP AND SWINGING											
	5 11AM	TRIPPED H1 A MILL											
	5 27AM	H1 A PA FAN AND MILL ON											
	5 48AM	H1 SCRUBBERS IN											
	6 09AM	OIL OUT OF H1 BOILER											
	6 58am	R1 FUEL OIL IN BOILER											
	6 06am	H1 HAD 6 EXCESS EMISSIONS OUTBETWEEN 6 06AM & 6 36AM PROCESS PROBLEM											
	7 08AM	R1 52 7 WILL NOT CLOSE IN/ ELECT DEPT INVESTIGATING											
7/28/2013	8 00am	EDMONDS, JACKSON, GRIFFIN, HOGAN, BOWLEY, ALEXANDER, WADLINGTON										C SHIFT CARTER	
		UNIT	LOAD	UNIT CAP	VAC NET CAP	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM	FLC BACK PRESSURE
		R1		50	45								
		H1	142	165	118	0.804	9.6	0.05	30.7	87.4	16.34	230/A	2.6
		H2	155	165	152	0.429	10.5	0.068	18.6	91.6	7.93	237/C	2.9
		CT	ON STANDBY		58								

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS				
MISO DART Revenue and LOST OPPORTUNITY				
Unit	HMP'L 1 - H1-13-06			Production Cost
Date & Time Off Line	7/27/13 0:53			MW
Date & Time On Line	7/28/13 3:48			\$/MW
Outage Duration	26 hr. 55 min.			67
Outage Code	U03			\$ 31.87
Outage Reason	Repair/Inspect the SCR diverter dampers.			133
				\$ 28.31
				155
				\$ 28.16
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity
7/27/13 (HE 1-24)	\$ 23.26	\$ 26.64	\$ (1,184)	\$ -
7/28/13 (HE 1-20)	\$ 23.08	\$ 24.93	\$ (2,481)	\$ -
Total			\$ (3,665)	\$ -
Start Up Fuel Cost		Total Forced Outage Cost		
S/U Fuel Consumed	8,504		DART P&L	\$ (3,665)
S/U Fuel Price	\$ 3.14		Lost Opportunity	\$ -
S/U Fuel Cost	\$ (26,726)		S/U Fuel Cost	\$ (26,726)
			Total	\$ (30,390)
NOTES:				
All negative values are money out of pocket.				
DART Revenue is calculated from differences between the DA award and RT events				
Lost Opportunity is the lost margins if the unit had stayed running				

Forced Outage Report

To: Bob Berry

From: Billy Boarman

Date: 30-Jul-2013

Plant: HMP&L Station Two

Unit: 2

GADS Class: U01

Duration

Trip Time: 22-Jul-2013 15:35

Tie Time: 22-Jul-2013 22:18

Time Offline: 6:43

Outage Description

HMP&L Station Two Unit 2 tripped off line on Monday, 22-Jul-2013 at 15:34 due to high furnace pressure.

Root Cause

Scrubber absorber level indication dropped to 26% for ten seconds, this in turn tripped the Recycle pump and Booster fan. Once these items tripped the scrubber bypass damper did not open causing the boiler furnace pressure to increase rapidly triggering the unit to trip on high furnace pressure.

Failure History

n/a

Corrective Action

The absorber tower level column was inspected for blockage and the level probe was checked for proper operation, everything checked out ok. Also inspected the bypass damper pilot valve, solenoid, and blew all air lines out but could not find why the damper did not open. A new pilot valve and solenoid have been ordered to replace during the next unscheduled outage.

Forced Outage Report

SOE Print Out

STANDARD SOE REPORT

Triggered on: 22-Jul-2013 15:34:09:757

Event Time	State	Tag Name	Tag Description
22-Jul-2013 15:34:42:967	OK	H232SAF3ATRP	SEAL AIR FAN H2A TRIP
22-Jul-2013 15:34:42:955	TRIP	H232SAF3ATRP	SEAL AIR FAN H2A TRIP
22-Jul-2013 15:34:42:950	TRIP	H232BRCAF3TRP	BRNR COOLING AIR FAN 2 TRIP
22-Jul-2013 15:34:42:949	TRIP	H242TGRMTRTRP	TG DRIVE MTR TRIP
22-Jul-2013 15:34:42:853	TRBLE	H246XFERTOMAN	VOLTAGE REG TROUBLE
22-Jul-2013 15:34:42:799	OPEN	H250FLDBKRSTS	GEN H2 FIELD BKR STATUS
22-Jul-2013 15:34:42:790	OPEN	H250OCB186STS	OCB 0186 GEN H2 STATUS
22-Jul-2013 15:34:42:775	OPEN	H250OCB182STS	OCB 0182 GEN H2 STATUS
22-Jul-2013 15:34:42:760	OK	H203BUSAMAINTR	4160 BKR BUS A MAIN TRIP
22-Jul-2013 15:34:42:740	OPEN	H203BUSAMAINST	4160 BKR BUS A MAIN STATUS
22-Jul-2013 15:34:42:729	OK	H203BUSBMAINTR	4160 BKR BUS B MAIN TRIP
22-Jul-2013 15:34:42:714	OPEN	H203BUSBMAINST	4160 BKR BUS B MAIN STATUS
22-Jul-2013 15:34:42:689	OK	H250OCB186GETR	OCB 0186 GEN H2 TRIP
22-Jul-2013 15:34:42:687	OK	H250OCB182GETR	OCB 0182 GEN H2 TRIP
22-Jul-2013 15:34:42:667	TRIP	H203BUSBMAINTR	4160 BKR BUS B MAIN TRIP
22-Jul-2013 15:34:42:664	TRIP	H203BUSAMAINTR	4160 BKR BUS A MAIN TRIP
22-Jul-2013 15:34:42:657	TRIP	H250OCB182GETR	OCB 0182 GEN H2 TRIP
22-Jul-2013 15:34:42:657	TRIP	H250OCB186GETR	OCB 0186 GEN H2 TRIP
22-Jul-2013 15:34:42:656	LKOUT	H240STPVLO86TV	TURB STOP VLV LOCKOUT (86TV3)
22-Jul-2013 15:34:32:280	TRIP	H225DRMTRP	BOILER DRUM LEVEL TRIP
22-Jul-2013 15:34:25:264	OK	H240STPVLVTRP	TURB STOP VLV CLSD TRIP
22-Jul-2013 15:34:22:731	LOW	H225DRMLVLOW	BOILER DRUM LEVEL LOW
22-Jul-2013 15:34:14:253	OK	H233LMISTRP	LAST MILL IN SERVICE TRIP
22-Jul-2013 15:34:12:200	LOW	H222HTR2LVLLO	LP HEATER 2-3 LEVEL LOW
22-Jul-2013 15:34:10:604	LOW	H245SEALSTMLOW	TURBINE SEAL STEAM PRESS
22-Jul-2013 15:34:10:259	TRIP	H240STPVLVTRP	TURB STOP VLV CLSD TRIP
22-Jul-2013 15:34:10:258	TRIP	H233LMISTRP	LAST MILL IN SERVICE TRIP
22-Jul-2013 15:34:09:837	OK	H203M3ATRP	4160 BKR MILL H2A TRIP
22-Jul-2013 15:34:09:827	OPEN	H203M3BSTS	4160 BKR MILL H2B STATUS
22-Jul-2013 15:34:09:819	OPEN	H203M3ASTS	4160 BKR MILL H2A STATUS
22-Jul-2013 15:34:09:818	OPEN	H203PAF3BSTS	4160 BKR PA FAN H2B STATUS
22-Jul-2013 15:34:09:818	TRIP	H203M3ATRP	4160 BKR MILL H2A TRIP
22-Jul-2013 15:34:09:811	CLOSED	H203M3BSTS	4160 BKR MILL H2B STATUS
22-Jul-2013 15:34:09:757	TRIP	H233EMERBLRTRP	EMERGENCY BLR TRIP
22-Jul-2013 15:34:09:508	TRIP	H232FURNPRSTRP	FURNACE PRESSURE HIGH TRIP
22-Jul-2013 14:58:04:055	OPEN	H203ASPCSTS	4160 BKR ASH SLUC PMP C STAT

Forced Outage Report

Operators Event Log

7/22/2013	8:00AM	SAFETY BRIEFING												
	8:10AM	INLET DAMPER TO SCRUBBERS TAGGED OPEN PER ELEC												
	8:15AM	HAVING INLAND PULL OFF H1 ECONS AND VAC OUT DRYING AGENT. NEITHER SIDE WILL RUN												
	8:25AM	TAGGED H1 COAL FEEDERS FOR INST TO CALIBRATE												
	9:32AM	H1 B FD FAN ON FOR B.CHEATHAM												
	11:00AM	H1 EH UNIT IS CLEANED AND FILTERS HAVE BEEN CHANGED OUT												
	12:01PM	STARTED H1 VAC PUMPS FOR VAC CHECK PER B.CHEATHAM												
		NOTE: BEATING DOWN PRECIPS ON H2 AND HAD INST CLEAN OPACITY LENS												
	2:08PM	H1 VAC PUMPS OFF. VAC CHECK COMPLETED												
	3:00PM	STARTED BOTH H1 EH PUMPS FOR INST.												
	3:15PM	H2 FLOW MONITOR FAULT. NOTIFY INST.												
	3:30PM	H1 PRECIP DOORS OPEN AND HOPPERS CLEANED OUT												
	3:35PM	LOST H2 ABSORBER LEVEL. LOST H2 BOOSTER FAN. H2 BYPASS DAMPER DID NOT COME OPEN. LOST H2 ON HIGH FURNACE PRESSURE												
	6:38PM	FIRES ESTABLISHED IN H2 BOILER. HOTLINE NOTIFIED												
7/22/2013	8:00PM	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER		
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE	
		R1	47	50	45	4.63	10.8	0.474	14.3					CTL/ 17.8'
		H1		165	153									PWTL / 25.8'
		H2		165	152	FIRING BOILER 1050 PSI / 670 S.H. TEMP							CTL / 15.5'	
		C.T.	ON STANDBY		56									
		ALARMS:												
		R1	DRUM TRIP DISABLED											
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW										GAUGE GLASS! z	
		H2	EH RES LEVEL HI										OK	
		SOOTBLOWERS TAGGED												
		R1-	16,19,28,29,30,31											
		H1	20 / 5,6,7,8,9,10,11,32,39- B HOT A.H. R/T											
		H2	1,2,4,5,7,9,10,15,18,19,20,21,22,23,24,30,39											
		FUEL OIL TANKS												
		LEVELS	C.H.	HMPL	NORTH	SOUTH		SILO LVL 15'		BOOTHE SYSTEM			OUT	
			6' 10 1/2"	10' 3 1/2"	13' 6 1/4"	8 1/4"								
	8:00PM	SAFETY BRIEFING												
		NOTE INLAND FINISHING H1 ECONS / SETTING UP FOR H1 PRECIP VACUMING & H1 WET SEAL CLEANING												
	8:53pm	H2 SEALING TURBINE & PULLING VAC												
	9:32PM	H2 TURBINE 100RPM												
	9:42PM	H2 TURBINE ROLLING UP												
	9:48pm	H2 TURBINE 3600 RPM FRONT STANDARD TEST												
	10:15PM	H2-B MILL ON												
	10:18PM	H2 TIED ON LINE												

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS			
MISO DART Revenue and LOST OPPORTUNITY			

Unit	HMP'L 2 - H2-13-06	Production Cost	
Date & Time Off Line	7/22/13 15:35	MW	\$/MW
Date & Time On Line	7/22/13 22:18	94	\$ 29.73
Outage Duration	6 hr. 43 min.	127	\$ 28.45
Outage Code	U01	149	\$ 28.13
Outage Reason	Unit tripped on high furnace pressure when bypass damper failed when booster fan tripped.		

Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity
7/22/13 (HE 16-24)	\$ 39.45	\$ 48.87	\$ (25,686)	\$ -
7/23/13 (HE 1-6)	\$ 23.27	\$ 22.10	\$ 258	\$ -
Total			\$ (25,428)	\$ -

Start Up Fuel Cost		Total Forced Outage Cost	
S/U Fuel Consumed	5,522	DART P&L	\$ (25,428)
S/U Fuel Price	\$ 3.14	Lost Opportunity	\$ -
S/U Fuel Cost	\$ (17,354)	S/U Fuel Cost	\$ (17,354)
		Total	\$ (42,782)

NOTES:
All negative values are money out of pocket.
DART Revenue is calculated from differences between the DA award and RT events
Lost Opportunity is the lost margins if the unit had stayed running

Forced Outage Report

To: Bob Berry

From: Daryl Chinn

Date: 14-Aug-2013

Plant: Coleman

Unit: 1

GADS Class: UO2

Duration

Trip Time: 10-Aug-2013 11:28

Tie Time: 12-Aug-2013 17:43

Time Offline: 54:15

Outage Description

Coleman unit 1 was removed from service on Saturday, 10-Aug-2013 at 11:28 and returned to service on Monday, 12-Aug-2013 at 17:43 for duration of 54:15 against an initial target of 48:00. This was an unplanned event, and as such is classified as a Class I (UO2) forced outage. The unit was removed from service in a controlled manner due to a suspected tube leak in the upper (hot) reheater section.

Root Cause

The root cause for the tube failures are, as suspected, near the top of the hot reheat section. The starter appears to be the second reheat tube in the 5th element which imposed damage to the 9th and 10th HRA tubes from the west wall. The 5th reheat element from the west wall, 2nd circuit required a dutchman consisting of a complete upper loop. The 10th HRA screen tube required a rather long dutchman (10' to 12') due to overheat damage caused by starvation from a small leak near the roof caused by the initial leak in the reheater. The 9th HRA screen tube was pad welded.

Failure History

Leaks are becoming very common in this section due to the end of life condition of the existing reheat tubes.

Forced Outage Report

11-Nov-2011	53:37	The second loop tube from the face of the hot end reheater failed in a catastrophic manner due to wall loss from coal ash corrosion.
2-Jan-2013	76:44	The 5 th tube in the third assembly from the east wall in the high temperature reheater had experienced external tube erosion caused by 7R soot blower.
18-Jan-2013	60:59	The second loop tube from the face of the 3 rd element from the west wall of the high temperature reheater section failed due to wall loss from coal ash corrosion.
22-Jan-2013	53:44	The first loop tube from the face of the 28 th element from the east wall of the hot end reheater failed due to wall loss from coal ash corrosion.
7-May-2013	58:30	North side of the hot reheater opposite the HRA screen, in the fourth element from the west wall causing damage to the 3 rd and 5 th element. The initial leak originated from a cracked lug between the outer loop and the second loop in the 3 element from the west wall.
26-Jul-2013	74:52	Second reheat tube in the 7th element which imposed damage to the HRA and reheat tubes in the 6th element from the west wall; both HRA screen tubes required a dutchman approximately 2' long.

Forced Outage Report

Corrective Action

This section of the reheater was scheduled to be replaced during the fall outage of 2013.

SOE Print Out

NA

Other Work Completed While Unit Was Offline

Mechanical Maintenance

6106145 Replaced 12' dutchman, 10th tube from west side in HRA partition wall. Replaced 2nd loop in 5th R/H assembly from west side. Weld repaired 9th tube from west in HRA partition wall. Added shields on R/H tubes.

6106166 Broke coupling and checked lift on A Circulating Water Pump. Found gap at .562". Set at .078".

6105272 Replaced pyrite hopper slide gate valve on A mill.

6105201 Welded patches inside pyrite box on A mill.

6105198 Weld repaired gas leaks above W/B on south side of boiler. Welded patches on south side and west end seal skirt.

6106146 Installed and removed gas line blank. Closed boiler and APH doors.

Forced Outage Report

Electrical & Instrument Maintenance

6106212- Cleaned all of the igniter and main flame scanners.

6106211- Stroked and set turbine valves.

6106215- Cleaned Booster fan stall probes.

6105291- Repair "A" Stock feeder lbs. indication, it was showing 5000 lbs. with feeder off, Reprogrammed DT-9 electronics, replaced VFD controller, replace dip shunt, performed linearity and verified correct readings.

6106019- Performed annual turbine EH lines checks, replaced broken and missing clamps, replaced insulators, and checked for leaks.

6042617- Ran new wiring from fuse blocks on front of 4160 cubical doors to old fuse blocks on A & B BFP, A CWP and A mill 4160 volt breakers.

6062477- Continue to verify wiring in 1A MCC cubicles when unit is off line.

6105438- Replaced motor on #1 turbine vacuum breaker, also replace OL block with new adjustable style.

6101967- Verified proper breaker trip circuitry on the following 4160 volt breakers: 1B FD fan, 1B condensate pump, 1C mill, 1D mill, 1C PA fan and 1D PA fan.

Forced Outage Report

Operators Event Log

8/10/2013	10:15AM	SUSPECTED TUBE LEAK UNIT #1 WALKING BOILER DOWN RUNNING HOTWELL CHECK									
	10:38AM	STARTING DOWN WITH UNIT #1 LOST 1" IN 10 MIN. HOTWELL DROPPING FAST.									
	11:00AM	#1 BOOSTER FAN OFF									
	11:28AM	UNIT #1 OFFLINE CALLED HOTLINE									
	11:30AM	CALLED INLAND THEY WILL BE HERE AT 5:00PM FOR DESLAG.									
	12:00PM	#1 GAS VALVE IS REDTAGGED FOR MAINT. TO BLANK.									
	12:15PM	#1 TURBINE ON GEAR MAINT. HAS #1 GAS VALVE BLANKED.									
	1:00PM	#1 BOILER ENTRY PERMIT IS READY									
	1:30PM	HAVE HOLD #411 ON UNIT #1 GEN. DISCONNECT.									
	1:30PM	3B E.H.PUMP IS BACK ON AFTER MAINT. REPLACED O RING NO LEAKS.									
	2:00PM	ABSORBER CHLORIDES 6600									
	3:00PM	1A PA FAN AND MILL SEAL AIR FAN AND BUNKER GATE ARE REDTAGGED.									
	3:00PM	IDEPT CALIBRATING 1A MILL FEEDER.									
	3:30PM	1A MILL HOT AIR DAMPER WILL NOT CLOSE ALL THE WAY SHOWING 17% OPEN. W.O.# 6106144									
	5:00PM	INLAND ON SITE									
	19:00	"C"SHIFT (DOOLEY) HERE "B" SHIFT (STERLING) LEAVING... K.Grantland, P Gatton, L Shearn, M.Young, D. Mills(Days), J. Miller, R. Payne S/L, M.Lee, S.Kurz, here									
			Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
			1	TUBE LEAK						N w/o Gas	OPEN
			2	158	33.4	0.44	4.54	9.70	0.069	138 N w/o Gas	CLOSED
			3	165	25.8	0.48	4.85	9.70	0.060	155 N w/o Gas	CLOSED
			FGD Nox	0.37							
			FGD Removal %	98.3%							
			3A Mill Amps	94							
			3B Mill Amps	96							
			COND. STOR. TNK	22/23							
			Instr. Air Dew Point	-41.5							
	18:30	INLAND STARTING TO DESLAG C1 BOILER									
	20:20	INLAND COMPLETED THE BIG ROOM DESLAGING - MOVING THE DESLAG PORTS									
	20:52	LES SMITH REQUESTED VACATION FOR 8/12/2013 AND 8/13/2013 7P TO 7A BOTH DAYS - OK I HAVE SCHEDULED S KURZ THE FIRST NIGHT AND HAVE PUT ON THE SCHEDULE J KENNEDY ON THE SECOND NIGHT - NEED TO NOTIFY J KENNEDY									
	21:45	P KELLAMS GOING HOME									
	21:45	APM CALLED TO TAKE 2B AND 3B MILLS OFF									
	23:11	INLAND COMPLETED DESLAG - M/M LOOKS OK - PULLING WET BOTTOM - BUILDING SCAFFOLDING									
	NOTE	TESTED C2 EMER LUBE OIL PUMPS, #3 DC SEAL OIL PUMP, DID NOT TEST EGE, TESTED #3 AC AND DC LUBE OIL PUMPS									
8/11/2013	0:54	CLEANED INTAKES									
	1:13	C1 W/B CLEAN TAGGING IT OUT									
	1:30	1A PA FAN 4160 V BREAKER IS RACKED OUT AND STILL HAS A RUN LIGHT - MR# 6106163									
	4:00	TAGGING 1A CWP FOR M/M TO CHECK THE AIR GAP									
	4:22	RAN C2 OIL TRIPS									
	7:00	"B" SHIFT (JOHNSON) HERE "C" SHIFT (DOOLEY) LEAVING..... S. HOWARD, A. MAYFIELD, M. CHRISTIAN, N. MOORMAN, J. GOODMAN, R. CARMAN, D. TAUL, & J. KENNEDY HERE.....									
			Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
			1	OUTAGE						0 N w/o Gas	OPEN
			2	77	10.0	0.42	4.58	9.61	0.055	138 N w/o Gas	CLOSED
			3	74	6.0	0.51	4.85	9.60	0.052	155 N w/o Gas	CLOSED
			FGD Nox	0.37							
			FGD Removal %	98.5%							
			3A Mill Amps	95							
			3B Mill Amps	OFF							
			COND. STOR. TNK	22.5 / 24							
			Instr. Air Dew Point	-67.7							

Forced Outage Report

	Sootblowing								
	#1 S/B Out of Service	7L							
	#2 S/B Out of Service	6L							
	#3 S/B Out of Service	NONE							
	DHS--NTAS	NO THREATS							
	C-1 ECC. 3 MILS....1ST STAGE TEMP 601.....1ST STAGE LEFT.....634....1ST STAGE RIGHT.....640.....								
5:45	CHECKING TUBE METAL TEMPERATURES ON C-2, & C-3.....C-1 OFF TUBE LEAK.....								
6:15	CHECKING INTAKES....ALL OF THEM HAVE MATERIAL IN THEM.....WILL NEED TO BE CLEANED TONIGHT.....								
NOTE	2A BOILER FEED PUMP OUTBOARD MECHANICAL SEAL LEAK NO WORSE THAN BEFORE								
	C-2 EAST SIDE DESLAG DOOR ABOUT THE SAME AS FRIDAY.....								
	3B BOILER FEED PUMP OUTBOARD MECHANICAL SEAL LEAK ABOUT THE SAME AS FRIDAY.....								
	NO LEAKS ON 3B EH PUMP.....								
7:05	CALLED INLAND TO COME IN AT 17:00 TODAY FOR AN AIR HEATER WASH.....INLAND CHECKING ON EQUIPMENT.....								
7:15	TAGGING OUT 1A MILL FOR TITAN TO INSPECT CLASSIFIERS.....								
7:35	ACES CALLED REQUESTING WE RETURN IDLE MILLS TO SERVICE ON C-2 AND C-3....OK.....PUTTING 2B AND 3B MILLS ON.....								
8:30	J. NICHOLS WITH INLAND CALLED BACK.....THEY CAN WASH AIR HEATERS BUT PUMPS MUST DEPART SITE AT 06:30 ON MONDAY.....								
	THAT WILL NOT WORK.....CALLED J. NICHOLS BACK AND INFORMED HIM OF SAME.....								
8:45	BANKING WATER IN C-1 HOTWELL FROM CONDENSATE STORAGE TANKS FOR HYDRO ON C-1 LATER ON TODAY....LAB AWARE.....								
9:00	CALLED THOMPSON TO COME IN FOR C-1 AIR HEATER WASH....LEFT MESSAGE WITH DISPATCH REQUESTING A CALL BACK.....								
9:05	CALLED MPW TO CHECK ON AVAILABILITY FOR C-1 AIR HEATER WASH.....MPW REQUESTED I CALL MPW OPERATIONS MANAGER....OK....								
9:07	B. STERLING WITH THOMPSON CALLED BACK....THEY WILL HAVE A CREW HERE AT 17:00 TO SET UP FOR C-1 AIR HEATER WASH.....								
11:00	PULLING TAGS ON C-1 WET BOTTOM.....WEST SIDE HOPPER FULL OF WATER...MAINT TO WORK ON EAST SIDE.....TAGGING OUT WITH WATER UNDER THE WEST SIDE OF THE WET BOTTOM.....								
12:20	COMPLETED C-1 WET BOTTOM INSPECTION.....FOUND JET NOZZLE MISSING ON WEST SIDE WEST JET....2ND NOZZLE FROM NORTH.....								
	NO JETS NOZZLES WERE PLUGGED.....APPEARS THAT WEST SIDE NORTH CORNER REFRACT IS SPRAYING UP AND GETTING WEST END REFRACT BOX LIDS WET AND ALSO NORTH SIDE IN THE CENTER IS SPRAYING UP AND BARELY WETTING KNEES ON SOUTH SIDE IN..								
	MAINT AWARE.....TITAN TO REPLACE JET NOZZLE AND LOOK AT REFRACT COOLING WATER BOXES.....								
NOTE	VALVED OUT BOTH DISCHARGE VALVES ON CIRCULATING WATER BOOSTER PUMPS ON C-1.....LEAKING THROUGH AT WET BOTTOM WHERE BOOSTER PUMP SUPPLY BACKS UP REFRACT COOLING WATER.....								
15:10	TITAN RELEASED C-1 SLOW BOILER FILL.....SETTING C-1 BOILER TO HYDRO AND CHECK VACUUM ON THE REHEATER.....								
NOTE	AUXILIARIES HAVE CHECKED/CLEANED LUBE OIL TANK STRAINERS....BACK FLUSHED "NEW" VACUUM PUMP COOLERS, AND REGENERATED H2 DRIERS.....								
16:00	THOMPSON ON SITE.....								
16:15	C-1 BOILER IS SET TO HYDRO AND PULL VACUUM ON THE REHEATER.....								
16:25	1B CONDENSATE PUMP ON....FILLING C-1 WITH SLOW BOILER FILL.....								
16:35	MAINT RELEASED C-1 ISOLATION OF WATER TO BOILER CLEARANCE.....GETTING HEADCOUNT TO HYDRO C-1.....								
17:05	HEADCOUNT COMPLETE.....1A BOILER FEED PUMP ON FOR HYDRO.....								
17:35	1800 PSIG ON C-1 BOILER...FEEDPUMP OFF.....1A & 1B CONDENSER VACUUM PUMPS ON.....								
19:00	"C"SHIFT (DOOLEY) HERE "B" SHIFT (STERLING) LEAVING... K.Grantland, P Gatton, L Shearn, M.Young, D. Mills(Days), J. Miller, R. Payne S/L, M.Lee, S.Kurz, here								
	Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	Bypass Stk.
	1	TUBE LEAK						N w/o Gas	OPEN
	2	157	29.5	0.43	4.55	9.70	0.071	138 N w/o Gas	CLOSED
	3	164	15.8	0.48	4.85	9.70	0.058	155 N w/o Gas	CLOSED
	FGD Nox	0.36							
	FGD Removal %	98.2%							
	3A Mill Amps	96							
	3B Mill Amps	96							
	COND. STOR. TNK	22/23							
	Instr. Air Dew Point	-41.3							
	Sootblowing								
	#1 S/B Out of Service	7L							
	#2 S/B Out of Service	6L							
	#3 S/B Out of Service	NONE							
	DHS--NTAS	NO THREATS							
18:25	MAY HAVE A SMALL TUBE LEAK IN THE WET BOTTOM - M/M CHECKING								
19:05	C1 FD FANS OFF - OPENING C1 AIR HEATER DOORS - THEN THOMPSON WILL START SETTING HEADS								
20:30	LOWER WASH HEAD ARE INSTALLED - FOREMAN CHECKING ON THE TOP HEADS								
21:00	C1 ECON HOPPERS CLEAN								
21:15	STARTED C1 AH WASH								
21:12	C2 MAIN TRANSFORMER COILS NEED TO BE CLEANED - NEED TO HAVE TRANSMISSION COME AND CLEAN COOLERS								
22:16	HAVE HEAD COUNT HYDROING C1 BOILER AGAIN								
22:18	1A BFP ON								
22:18	1A BFP OFF AT 1800 #								
22:45	APM CALLED TAKING 2B AND 3B MILLS OFF								
22:57	C2 BOOSTER FAN BLADE PITCH STICKING AT 40% - MR# 6106181								
23:30	CHECK BACK-UP EQUIPMENT								

Forced Outage Report

8/12/2013	0:15	CLEANING INTAKES																		
	3:32	HAVE HEAD COUNT HYDROING C1 BOILER AGAIN																		
	3:53	1A BFP ON																		
	4:15	1A BFP OFF AT 1800 #																		
	4:42	C1 BOILER DRY - DRAINING BOILER DOWN TO FIRING LEVEL																		
	4:47	APM CALLED FOR 2B AND 3B MILLS																		
	4:52	3B MILL ON																		
	5:05	2B MILL ON																		
	5:33	C1 BOILER AT FIRING LEVEL																		
	7:00AM	"D" SHIFT (STERLING) HERE "C" SHIFT (DOOLEY) LEAVING V.Ramsey, B.Johnson,VAC, R.Payne , Gary.Tivitt, Sean.Emberton, Blake.Hunt,, Glen.Calhoun S.Howard here																		
		Unit	Load	Opacity	Nox	SO2	CBD PH	Silica	Capability	BYPASS ST.										
		1	OUTAGE																	
		2	160	40.6	0.044	4.47	9.63	0.64	138NW/OGAS	CLOSED										
		3	160	24.2	0.044	4.80	9.64	0.59	155NW/OGAS	CLOSED										
		FGD Nox	0.35																	
		FGD Removal %	98.5																	
		3A Mill Amps	95																	
		3B Mill Amps	98																	
		COND. STOR. TNK	20/24																	
		Instr. Air Dew Point	-65.4																	
		Sootblowing																		
		#1 S/B Out of Service	7L																	
		#2 S/B Out of Service	6L																	
		#3 S/B Out of Service	NONE																	
		DHS--NTAS	NO THREAT																	
	7:00AM	KEN GRANTLAND TAKING VAC. WED. 7A-7P SCHEDULED GARY TIVITT.																		
	8:00AM	#1 AIR HEATER WASH IS COMPLETE																		
	8:15AM	#1 AIR HTR AIR DRIVES ARE REDTAGGED FOR THOMPSON TO PULL HEADS.																		
	8:15AM	UNIT #1 SV-2 IS REDTAGGED FOR MAINT.TO TAKE 90 OFF TO WASH HEADER OUT.																		
	9:30AM	THOMPSON HAS WASH HEADS OUT OF AIR HTRS. HAVE AIR HTRS ON AIR DRIVE DRYING THEM OUT.																		
	10:00AM	HAVE #1 AIR HTR HEADER WASHED OUT TITAN PUTTING HDR. BACK TOGETHER.																		
	10:20AM	#1 IS SET FOR FIRE																		
	10:30AM	#1 WETBOTTOM IS BACK IN SERVICE HAVE SEAL ON WETBOTTOM.																		
	11:45AM	GETTING HEAD COUNT TO FIRE #1 BOILER.																		
	12:00PM	ALL CLEAR ON HEAD COUNT																		
	12:25PM	GAS IN UNIT #1 CALLED HOTLINE																		
	12:30PM	ABSORBER CHLORIDES 6900																		
	2:00PM	REDTAGGED #14 CONVEYOR FOR MAINT. TO REPAIR BENT FLIGHTS.																		
	2:00PM	VENT LINE OFF OF UNIT #1 #2 HYDROGEN COOLER HAS PIN HOLE LEAK. W.O.# 6106262																		
	2:00PM	ELECTRICIANS HAVE NEW MTR. ON #1 VAC. BRK.																		
	2:30PM	#1 BOOSTER FAN ON																		
	3:30PM	RELEASED HOLD 411 ON UNIT #1 GEN. DISCONNECT, EVERYTHING BACK IN SERVICE.																		
	3:30PM	1A CIRCULATING WATER PUMP ON																		
	4:10PM	PULLING VAC. ON UNIT #1																		
	5:00PM	ROLLING #1 TURBINE																		
	5:43PM	TIED UNIT #1 ON LINE																		

Forced Outage Report

Boiler Tube Leak Record

Initial failure at hot reheat

Plant: Coleman

Unit: 1

Type of Leak: (Check One)

Pin Hole _____ Thick Lip Failure _____ Crack _____ Thin Lip Failure _____

Tube Wall Thinning X Other _____

Orientation of Rupture: (Check One)

Longitudinal X Circumferential _____

Probable Cause: (Check One)

Stress _____ Overheat _____ Erosion _____ Internal Corrosion _____

External Corrosion X Weld Failure _____ (Shop _____ Field _____)

Internal Obstruction to Flow _____ Sootblower Erosion _____

Other Coal ash corrosion

Forced Outage Report

Type of Repair: (Check One)

Dutchman (upper loop, 2nd circuit) Pad Weld _____

Plug Tube _____ Short Circuit _____ Other _____

Description of Repair or reheat tubes:

Tube Size OD 2.250" Wall Thickness 0.150" Tube Material SA213 T22

Welding Rod Used 8018 B3L

Welded By: Titan

Subsequent failure of HRA

Type of Leak: (Check One)

Pin Hole _____ Thick Lip Failure _____ Crack _____ Thin Lip Failure

Tube Wall Thinning Other _____

Orientation of Rupture: (Check One)

Longitudinal Circumferential _____

Forced Outage Report

Probable Cause: (Check One)

Stress _____ Overheat X Erosion _____ Internal Corrosion _____

External Corrosion _____ Weld Failure _____ (Shop _____ Field _____)

Internal Obstruction to Flow _____ Soot blower Erosion _____

Other External erosion due to reheat tube leak

Type of Repair: (Check One)

Dutchman X (1ea @~12') Pad Weld _____

Plug Tube _____ Short Circuit _____ Other _____

Description of Repair for reheat tubes:

Tube Size OD 1.750" Wall Thickness 0.165 / 0.260"

Tube Material SA210 A1 Welding Rod Used 7018 A1

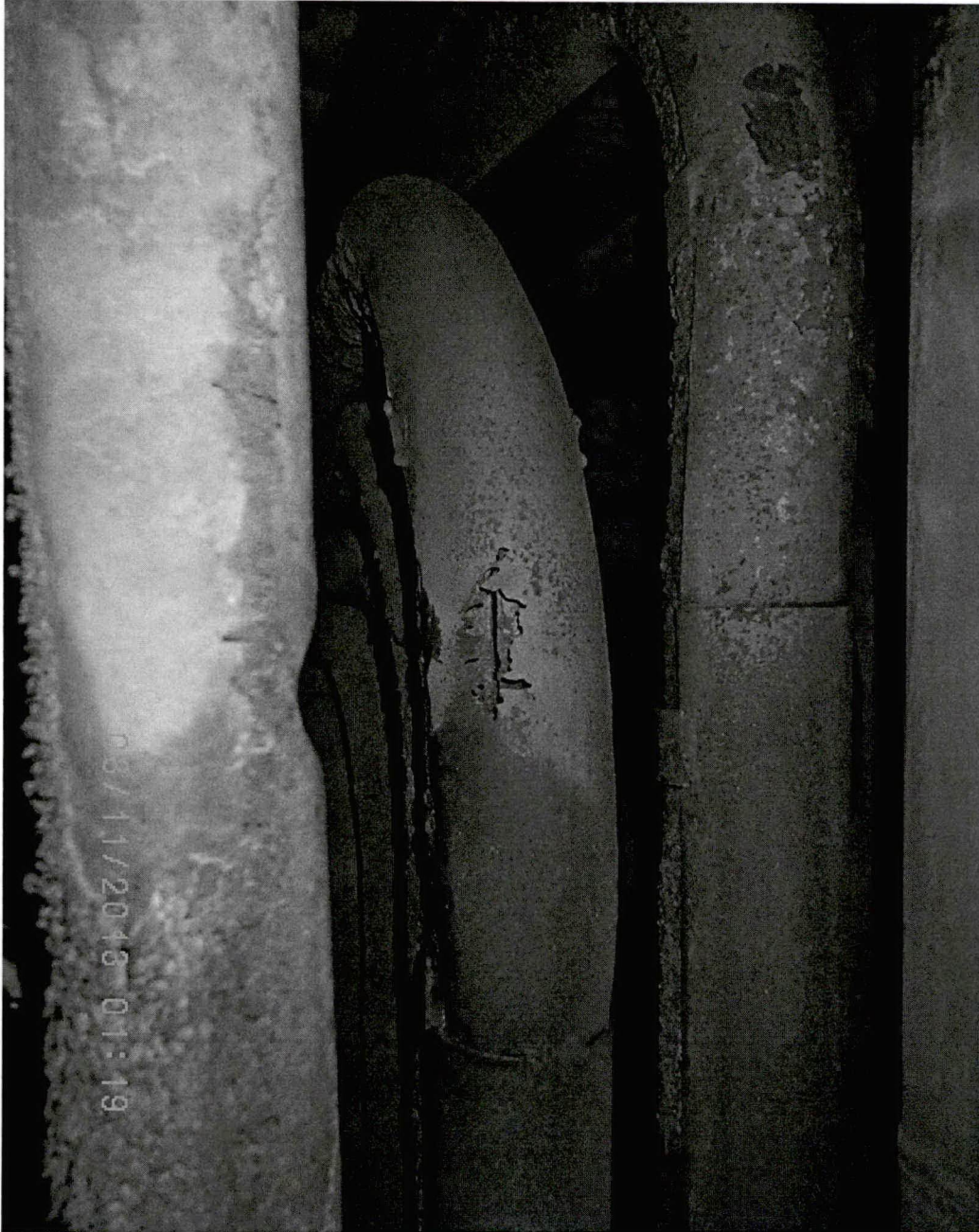
Welded By: Titan \ _____

Exact Location of Leak: Be Specific

Approximate Elevation 208'-9". Second reheat tube in the 5th element which imposed damage to the 9th and 10th HRA tubes from the west wall. The 5th reheat element from the west wall, 2nd circuit required a dutchman consisting of a complete upper loop. The 10th HRA screen tube required a rather long dutchman (10' to 12') due to overheating damage caused by starvation from a small leak near the roof caused by the initial leak in the reheater. The 9th HRA screen tube was pad welded.

Forced Outage Report

Pictures



Forced Outage Report



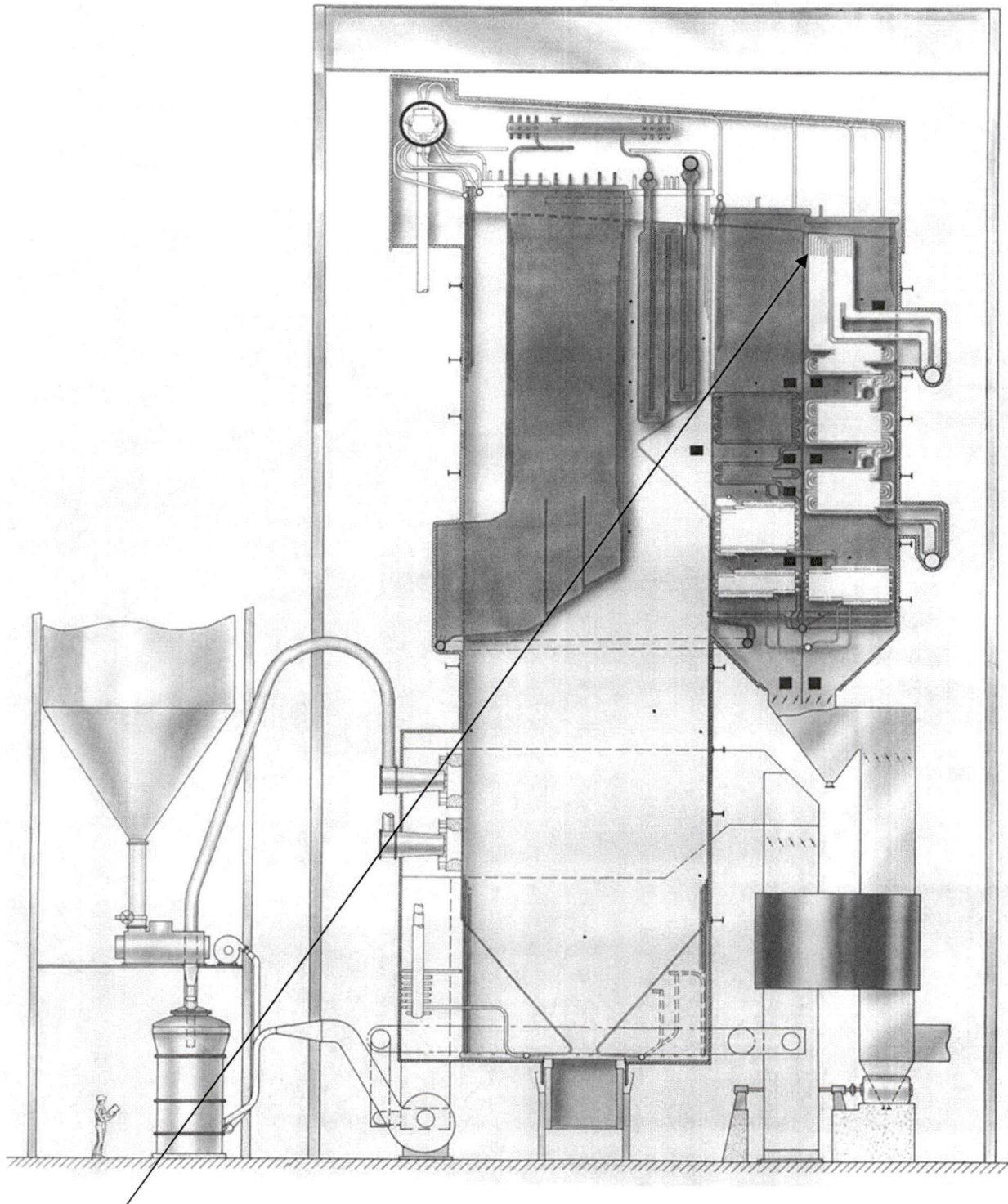
Forced Outage Report



Forced Outage Report

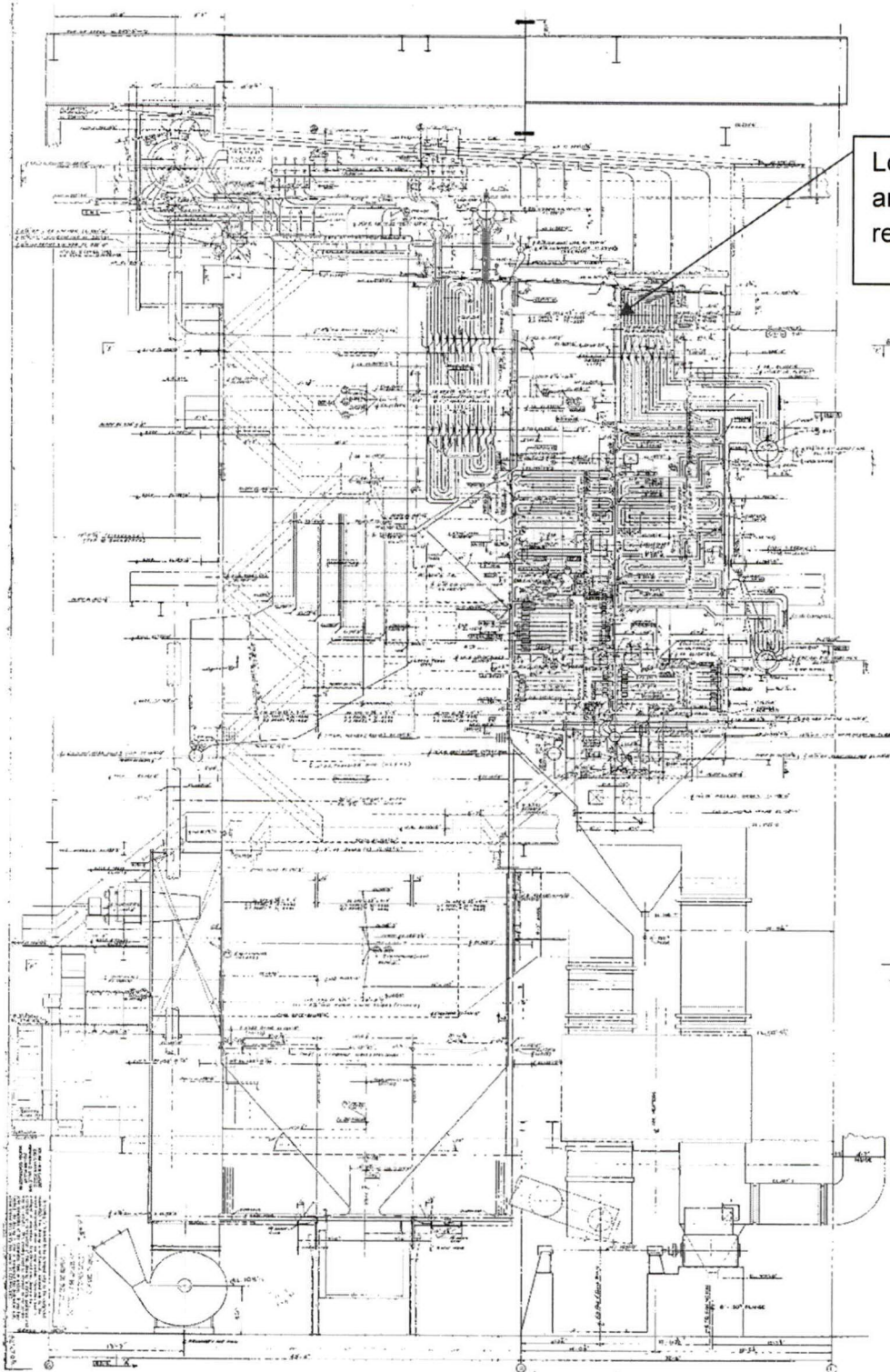


Forced Outage Report



Tube Leaks Here (Far Side) Approximate Elevation 208'-9"

Forced Outage Report



Location of hot reheat
and HRA tube leak
repairs, west side

Forced Outage Report

Estimated Outage Costs

Reheater Tube leak repairs:

Labor	\$16,700.20
Material	<u>\$ 960.00</u>
Total	\$17,660.20

Other Balance of Plant repairs:

Labor	\$10,728.93
Material	\$ 2,625.74
Industrial Cleaning	<u>\$13,000.00</u>
Total	\$26,354.67

Grand Total **\$44,014.87**

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS					
MISO DART Revenue and LOST OPPORTUNITY					
Unit	Coleman 1 - C1-13-12			Production Cost	
Date & Time Off Line	8/10/13 11:28			MW	\$/MW
Date & Time On Line	8/12/13 17:43			84	\$ 28.20
Outage Duration	54 hr. 15 min.			117	\$ 26.77
Outage Code	UO2			150	\$ 26.30
Outage Reason	Repair leaks in reheat section.				
Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity	
8/10/13 (HE 11-24)	\$ 29.90	\$ 42.77	\$ (32,384)	\$ -	
8/11/13 (HE 1-24)	\$ 27.01	\$ 41.58	\$ -	\$ (3,890)	
8/12/13 (HE 1-24)	\$ 31.44	\$ 31.52	\$ (36)	\$ (16,327)	
Total			\$ (32,421)	\$ (20,216)	
Start Up Fuel Cost			Total Forced Outage Cost		
S/U Fuel Consumed	610		DART P&L	\$ (32,421)	
S/U Fuel Price	\$ 5.67		Lost Opportunity	\$ (20,216)	
S/U Fuel Cost	\$ (3,457)		S/U Fuel Cost	\$ (3,457)	
			Total	\$ (56,094)	
NOTES:					
All negative values are money out of pocket.					
DART Revenue is calculated from differences between the DA award and RT events					
Lost Opportunity is the lost margins if the unit had stayed running					

Forced Outage Report

To: Bob Berry

From: Billy Boarman

Date: 13-Aug-2013

Plant: HMP&L Station Two

Unit: 1

GADS Class: UO2

Duration

Trip Time: 8-Aug-2013 22:42

Tie Time: 12-Aug-2013 10:46

Time Offline: 84:04

Outage Description

HMP&L Station Two Unit 1 was removed from service on Thursday, 08-Aug-2013 at 22:42 due to a suspected tube leak in the Radiant Superheat Area of the boiler.

Root Cause

The tube leak on the Radiant SH Outlet, 5th element from the east wall, inner loop, at elevation 542' was caused by external corrosion.



Forced Outage Report

Failure History

16-Mar-2012	31:31	Tube leak in the radiant superheat outlet section, 3 rd element from the west wall, inner loop
3-Aug-2012	91:48	Tube leak in the radiant superheat outlet section, 2 nd element from the west wall, inner loop caused by soot blower erosion
24-Feb-2013	68:22	Tube leak on the Radiant SH Outlet 3 rd element from the west wall, on the outer loop at elevation 537' – 5" was caused by external corrosion
23-Mar-2013	70:02	Tube leak on the Radiant SH Outlet 4 th element from the east wall inner (hairpin) loop, at elevation 542' was caused by external corrosion
2-June-2013	70:00	Tube leak on the Radiant SH Outlet 5 th element from the west wall outer loop, at elevation 537' – 5" was caused by external corrosion.
21-July-2013	75:40	Tube leak on the Radiant SH Outlet 5 th element from the east wall outer loop, at elevation 537' – 5" was caused by external corrosion.

Corrective Action

The inner loop on the 5th element from the east wall at elevation 542' was replaced along with the addition of a 3' dutchman on the north side and a 10' dutchman on the south side. During the initial inspection of the leak the hairpin loop on the 6th element was found to be very thin that would require replacement. While the unit was down we did a visual inspection as well as some UT of the remainder of the inner loops across the boiler. The #2 element from the east wall was found to be thin on the north side just above the hairpin loop. Replaced the #6 hairpin with the addition of a 3' dutchman on the north side and a 6' dutchman on the south side and installed a 7' Dutchman on the #2 element north side at elevation 542'

Forced Outage Report

SOE Print Out

STANDARD SOE REPORT

Triggered on: 8-Aug-2013 22:42:30:339

Event Time	State	Tag Name	Tag Description
8-Aug-2013 22:42:42:547	TRIP	H150OCB162CSTP	OCB 0162 GEN H1 CS TRIP
8-Aug-2013 22:42:35:336	OK	H133LMISTP	LAST MILL IN SERVICE TRIP
8-Aug-2013 22:42:31:654	TRIP	H140STPVLVTP	TURB STOP VLV CLSD TRIP
8-Aug-2013 22:42:31:342	TRIP	H133LMISTP	LAST MILL IN SERVICE TRIP
8-Aug-2013 22:42:30:339	TRIP	H133EMERBLRTP	EMERGENCY BLR TRIP
8-Aug-2013 22:42:29:936	LOW	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
8-Aug-2013 22:42:29:897	OK	H143HYDOILPRLO	TURB HYD OIL PRESS LOW
8-Aug-2013 22:42:29:814	OPEN	H150OCB166ST	OCB 0166 GEN H1 STATUS

Other Work Completed While Unit Was Offline

- Cleaned Seal Trough
- H-1 AUX. TRANSFORMER-CLEAN AND CHECK FANS
- H-1 480V TRANSFORMERS-CLEAN AND CHECK
- H-1 COOLING TOWER DC FUSES-CHECK FUSES
- Inspected the boiler accutemp system
- Re-packed start up feed water regulator outlet block valve
- Replaced the discharge isolation valve on the feedwater start up regulator piping
- Installed new ball and seat on the electromatic relief valve
- Repaired bottom ash hopper east equalizing valve piping
- Repaired gas leaks on three SCR sonic horns
- Replaced east drum gauge glass drain valve
- Replaced west reheat drain root valve
- Replaced west Primary SH drain root valve
- Repaired gas leaks on SCR duct work
- Precipitator inspection
- Back-pass inspection: Found one tube in the Primary Superheater at elevation 561'-6, 2nd bundle from the west wall, top tube, that a required a BMR because of soot blower erosion from #31 SB.
- Repaired leaks on coal piping
- Cleaned seal air fan filters
- From the initial boiler hydro a leak was discovered in the economizer section of the boiler, tube #36 from the west wall, 2nd tube down at elevation 521'-6". Repaired via a BMR.

Forced Outage Report

Operators Event Log

8/8/2013	8:00PM	SAFETY BRIEFING													
		NOTE DANNY MORRIS WILL BE OFF WORK STARTING 8-12-2013, ON SICK LEAVE TWO TO THREE WEEKS.													
	8:35PM	A COOLING TOWER CIR ON													
	8:35PM	J. HIGGINS OFF SICK FRIDAY 8A-8P													
	8:40PM	H-1 IS IN A RUN BACK, TRIED TO GO BACK IN ADS AND WENT TO RUN BACK AGAIN. LOAD 158MW - F.D. FANS 100% - EAST O2 2.2 WEST O2 2.1 - TALKED TO ACES, WE WILL WATCH AND TRY TO RAISE LOAD BACK AS SOON AS POSSIBLE.													
	9:05PM	H-1 OPENED A-2 AND A-4 SHROUD FROM 81 TO 85%. O2 RUNNING 1.9% - WALKING BOILER DOWN - MAKE UP IS 45% OPEN.													
	9:39PM	H-1 LOUD AROUND #48 SOOT BLOWER EAST SIDE - RAN HOT WELL CHECK 10 MIN LOST 5" - NOTIFIED J. FRANCIS - CALLED ACES GOING TO TAKE H-1 OFF - TUBE LEAK													
	9:55PM	LEFT MESSAGES FOR INLAND TO CALL PLANT. SOLO, J. HARVILLE, D. MARTIN MAIL BOEX IS FULL NO MESSAGES RECEIVED													
		NOTE INLAND WILL BE IN 2AM TO DESLAG AND 6AM WITH VACUUM TRUCK													
	10:00PM	H-1 SCR'S ARE BYPASSED													
	10:42PM	H-1 OFF LINE													
	10:44PM	H-1 PRECIPS AND SCRUBBERS ARE OUT OF SERVICE													
		NOTE FANS RUNNING AT PENTHOUSE													
	11:15PM	DRAINING H-1 BOILER													
	11:30PM	GLOBAL AT PLANT													
8/9/2013	2:10AM	INLAND AT PLANT													
	2:50AM	H-1 GAS TEMP 110, GOING TO OPEN S.H. DOOR.													
	3:12AM	H-1 S.H. DOOR BOTTOM HANDEL BROKE OFF INSIDE BRACE - CALLED GARY BUNCH, GOING TO CALL TITAN IN TO HELP GET DOOR OPEN.													
	3:14AM	H-1 GAS TEMP BACK UP TO 130, PUT F.D. FANS BACK ON TO COOL DOWN.													
	4:00AM	D. MORRIS GOING HOME, WIFE IS SICK													
	4:40AM	G. BUNCH AND TITAN HERE, H-1 F.D. FANS OFF - GAS TEMP 104.													
	4:55AM	INLAND REPORTED EQUIPMENT PROBLEM WITH THE WATER BLASTER - MECHANIC COMING OUT TO REPAIR.													
	5:20AM	TITAN HAS S.H. DOOR OPEN - NOTIFIED INLAND. INLAND CANT GET PUMP TO RUN.													
	5:30AM	INLAND HAS A WATER BLASTER COMING.													
	5:37AM	H-1 F.D. FAN ON - BOILER TEMPTURE 127 DEGREES.													
	7:05AM	Talked to Jack at Expro and cancelled them out for in the morning for H-2 outage													
	7:45AM	AMMONIA OUT ON H2 FOR INST TO WORK ON NEMS SYSTEM/PROBE													
8/9/2013	8:00AM	CONN, CLARK, CUTSHAW, BREEDEN, BLANKS, YOUNG						B SHIFT PAYNE							
		HIGGINS-SICK													
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK PRESSURE		
		R1		50		12 HOUR STANDBY						R-1 CTL	18'		
		H1		165	153	OUTAGE						PWTL	26.5'		
		H2	142	160	152	0.227	10.4	0.471	20	95.9	ST/WORKII	OUT	3.1		
		C.T.	STANDBY	58		AMM OUT/INST						HMPL	15.3'		
		ALARMS:										GAUGE GLASSES	DRYING AGENT		
		R1										OK	H-1	0%	
		H1	STEAM SEAL HI/LO	BURNER MANGT.	EH PRESSURE LO/PUMP	START REQ							H-2	0%	
		H2	EH RES LEVEL HI										R-1	0%	
		SOOTBLOWERS TAGGED													
		R1	1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31										SILO	BOOTHE SYSTEM	
		H1	5, 6, 7, 8, 9, 10, 11, 20, 32, 39										17FT	IN	
		H2	1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39												
		FUEL OIL	C.H.	HMPL	NORTH	SOUTH									
		LEVELS	8' 9 1/4"	13' 1"	15' 9 1/4"	8 1/4"									

Forced Outage Report

8/9/2013	8:00AM	SAFETY BRIEFING													
	8:00AM	INLAND STARTED WATER BLASTING IN H1 BOILER													
	9:08AM	H2 SCR'S COMPLETELY OUT OF SERVICE FOR BRIAN EDWARDS													
	11:02AM	H2 SCR'S GIVEN A START SIGNAL. B DAMPER WAS NOT SHOWING 0% SO NEEDED TO GO TO MAINT TO MAKE UP LIMIT													
		NOTE: NORTH COOLING TOWER RUNNING OVER. FOUND VALVE LOCALLY AT 37%. SHOWED 0% OVER HERE													
	11:15AM	INLAND MOVING DOWN TO SUPERHEAT SECTION TO SHOOT THE WALLS													
	12:10PM	MOVING INLAND DOWN TO BURNERS ON H1													
		NOTE: ASH SLUICE STRAINER CLEANED													
	2:15PM	J.REYNOLDS CALLED. WILL WORK FOR R.DENTON ON SUNDAY. OK													
	3:15PM	H1 WETBOTTOM PULLED DOWN AND TAGGED													
	3:40PM	INLAND MOVING TO H1 WETSEAL													
	4:20PM	H1 GENERATOR DISCONNECT 0169 TAGGED													
	4:30PM	INLAND STARTED WET SEAL													
	5:30PM	H1 WET SEAL COMPLETE													
	6:43PM	J.HIGGINS CALLING IN SICK FOR REST OF THE WEEKEND													
8/9/2013	8:00PM	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON											C SHIFT CARTER		
		VAC													
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK PRESSURE		
		R1		50	45									CTL/ PWTL / 2	
		H1		165	153	OUTAGE/ TUBE LEAK									
		H2	159	165	147	0.274	10.9	0.083	33.6	95	10.4	250/a	3.5	CTL / 15.2	
		C.T.	ON STANDBY		58										
		ALARMS:													
		R1													
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW										GAUGE G		
		H2	EH RES LEVEL HI										OK		
		SOOTBLOWERS TAGGED													
		R1	1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31												
		H1	20 / 5, 6, 7, 8, 9, 10, 11, 32, 39-												
		H2	1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39												DRYING A R1-0% H1-0% H2- 0%
		FUEL OIL TANKS													
		LEVELS	C.H.	HMPL	NORTH	SOUTH	SILO LVL 18'		BOOTHE SYSTEM		IN				
			8' 9 1/4"	13' 1"	15' 9 1/4"	8 1/4"									
		NOTE CHANGING SUCTION FILTERS ON A&B ELLIOTT AIR COMP													
	8:00PM	SAFETY BRIEFING													
		NOTE SETTING H1 BOILER FOR HYDRO & VAC CHECK													
		NOTE PUTTING BARRELS ON H1 HARDECK FOR AIR HEATER METAL REMOVAL													
	11:00PM	J.JACKSON,R.EDGE,S.HALLMAN GOING HOME													
	11:05pm	INLAND FINISHED WITH H1 ECONS & FLOOR													
	11:15PM	T&W LEAVING/ PUT H1 #6 HTR WATER BYPASS VALVE BACK TOGETHER COULD NOT MAKE REPAIRS BEFORE HYDRO													
	11:45PM	H1 BOILER SET FOR HYDRO & VACUM CHECK													
8/10/2013	12:45AM	H1 A&B VACUM PUMPS ON													
		NOTE INLAND CLEANING METAL OUT H1 A.H. AIR OUT													
	1:00AM	J.ARNOLD GOING HOME													
	1:50AM	H1 VACUM PUMPS OFF / CHECK GOOD													
		NOTE REMOVING PLASTIC FROM H1 FAN MOTORS													
	2:24AM	BOOTHE SYSTEM IN 19'													
	2:40AM	H2 COAL PUTTING 10% DRYING AGENT													
	2:45AM	INLAND HAS HEADS SET FOR H1 A.H. WASH													
	4:20AM	INLAND DONE WITH H1 AIR OUT													
		NOTE OPENING GAS IN & GAS OUT DOORS NO METAL SOME A.H. BASKETS & FILL MISSING OK													
	5:00AM	SENT INLAND HOME													

Forced Outage Report

8/10/2013	8:00AM	CONN, CLARK, CUTSHAW, BREEDEN, BLANKS, YOUNG										B SHIFT PAYNE									
		HIGGINS-SICK																			
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK	PRESSURE							
		R1		50		12 HOUR STANDBY									R-1 CTL	18'					
		H1		165	153	OUTAGE									PWTL	26.5'					
		H2	160	160	152	0.299	11.4	0.079	35	94.1	10.25	243	3.3	HMPL	15.3'						
		C.T.	STANDBY 58																		
		ALARMS:													GAUGE GLASSES		DRYING AGENT				
		R1														OK		H-1 0%			
		H1	STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ												H-2 0%						
		H2	EH RES LEVEL HI															R-1 0%			
		SOOTBLOWERS TAGGED																			
		R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31															SILO		BOOTHE SYSTEM	
		H1	5,6,7,8,9,10,11,20,32,39															17FT		IN	
		H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,32,34,39																		
		FUEL OIL		C.H.	HMPL	NORTH	SOUTH														
		LEVELS		8' 7 3/4"	13' 1"	15' 9 1/4"	8 1/4"														
8/10/2013	8:00AM	SAFETY BRIEFING																			
	8:15AM	TAGGED H1 MAIN STEAM STOP VALVE FOR MAINT TO WORK ON TURBINE DRAIN VALVES																			
	8:20AM	TAGGED H1 EH UNIT FOR MAINT TO WORK ON LEAK																			
	8:35AM	B AIR COMPRESSOR OFF																			
	9:05AM	SWITCHING OVER TO A SIDE. 4B CONVEYOR HAS ROLLER THAT LOOKS ABOUT TO COME APART. INFORMED G.BUNCH. HE WILL LOOK AT IT																			
	9:25AM	4B CONVEYOR TAGGED OUT																			
	10:00AM	B COMPRESSOR AUTO STARTED DUE TO DROP IN AIR PRESSURE																			
	11:15AM	FOUND #4 PULSATOR AT TOP OF SILO BLOWING STRAIGHT THROUGH. R.GENTRY WORKING ON SAME																			
	12:30PM	TAKING OFF B COMPRESSOR																			
	1:00PM	H1 EH PUMPS BACK IN SERVICE																			
	1:10PM	FIXED H2 #10 FLY ASH HOPPER SELONOID. GASKET BLOWN OUT																			
	1:15PM	OPENED UP 162 AND 166 PCB FOR ELEC. DISPATCH OK																			
	1:20PM	CALLED INLAND (SOLO) AND TOLD THEM TO BE IN AT 9PM FOR AIR HEATER WASH																			
	1:55PM	162 AND 166 PCB'S CLOSED BACK IN PER B.RIVERS																			
	2:03PM	CALLED J.BAKER AND J.GATTON FOR AUX SUNDAY FOR START UP. LEFT BOTH MESSAGE TO CALL BACK																			
	2:35PM	4B COAL CONVEYOR BACK IN SERVICE																			
	3:00PM	R.GENTRY, M.PEYTON LEAVING																			
	4:40PM	J.GATTON CALLED BACK. WILL BE IN TOMORROW AT 8AM																			
	4:55PM	MAIN STEAM STOP VALVE RELEASED ON H1. TURBINE DRAIN VALVES REPLACED																			
	6:00PM	B.BOARMAN CALLED H1 HYDRO WILL NOT BE UNTIL 10:00PM																			
	6:10PM	CALLED INLAND (SOLO) AND LEFT MESSAGE TO NOT BE IN UNTIL MIDNIGHT																			
	NOTE	RUNNING DRYING AGENT HOPPER EMPTY TO LOOK IN / WILL BE A WHILE FULL																			
8/10/2013	8:00pm	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER									
		VAC																			
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK	PRESSURE							
		R1		50	45												CTL/				
		H1		165	153	OUTAGE/ TUBE LEAK												PWTL / 2			
		H2	154	165	147	0.268	10.4	0.102	20	95.6	12.85	250/a	3.4					CTL / 15.5			
		A.H. PLUGGAGE FOR 5 MW DERATE																			
		C.T.	ON STANDBY 58																		
		ALARMS:																			
		R1																			
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW												GAUGE G						
		H2	EH RES LEVEL HI															OK			

Forced Outage Report

SOOTBLOWERS TAGGED													
R1		1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31											
H1		20 / 5, 6, 7, 8, 9, 10, 11, 32, 39-											
H2		1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39											
FUEL OIL TANKS													
LEVELS	C.H.	HMPL	NORTH	SOUTH	SILO LVL	11'	BOOTHE SYSTEM			IN			
	8' 7 3/4"	13' 1"	15' 9 1/4"	8 1/4"									
8:00PM	SAFETY BRIEFING												
8:10PM	R/T H1 COOLING TOWER 480 MAIN & TIE DC POWER FOR ELEC DEPT												
9:10PM	J.WEST NOTIFIED ME H1 HYDRO PUSHED BACK TO 12 MN												
NOTE		TRIED CALLING SOLO INLAND ABOUT H1 DELAY L/M											
9:12PM	INLAND HERE PUT THEM ON HOLD												
NOTE		NOTIFIED R.PARKER ABOUT DELAY											
9:27PM	SOLO INLAND CALLED BACK HE IS AT COLEMAN DESLAGGING												
NOTE		ADDED MILL BALLS TO H2 MILLS 1 BARREL EACH											
11:00PM	J.ARNOLD,J.JACKSON,S.HALLMAN GOING HOME												
8/11/2013	12:26AM	H1-B BFP ON FOR HYDRO											
1:20AM	H1 HYDRO BOILER PSI 1440 STARTING												
1:22AM	J.WEST NOTIFIED ME H1 HYDRO FOUND LEAK IN ECONOMIZER FIN TUBE -36 FROM WEST 2ND TUBE DOWN BY DEFLECTOR SHIELD												
		LOOKING AT POSSIBLY 3-4 DUTCHMEN WELDS. TIME FRAME 24HRS FOR NEXT HYDRO.											
1:24AM	H1-B BFP OFF												
2:13AM	DRAINING H1 BOILER FOR MAINT												
2:40AM	R.PARKER NOTIFIED OF H1 HYDRO												
3:00AM	INLAND SENT HOME												
3:00AM	M.PEYTON HERE												
3:03AM	ACES NOTIFIED H1 HYDRO HAD ANOTHER LEAK IN ECON SECTION												
NOTE		TOOK BACK PLATES OFF H1 ECONO HOPPERS											
8/11/2013	8:00AM	CONN, CLARK, CUTSHAW, BREEDEN, BLANKS, YOUNG						B SHIFT PAYNE					
		HIGGINS-SICK											
UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM.	FLC	BACK PRESSURE	
R1		50		12 HOUR STANDBY								R-1 CTL 18'	
												PWTL 26.5'	
H1		165	153	OUTAGE									
H2	143	160	147	0.247	10.6	0.056	19.8	95.7	9.52	210	2.9	HMPL 15.3'	
C.T.	STANDBY 58												
		ALARMS:											
R1													
H1		STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ											
H2		EH RES LEVEL HI											
		Gauge glasses OK											
		DRYING AGENT											
		H-1 0%											
		H-2 0%											
		R-1 0%											
SOOTBLOWERS TAGGED													
R1		1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31											
H1		5, 6, 7, 8, 9, 10, 11, 20, 32, 39											
H2		1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39											
FUEL OIL	C.H.	HMPL	NORTH	SOUTH	SILO	BOOTHE SYSTEM			OUT				
LEVELS		13' 1"	15' 9 1/4"	8 1/4"	6FT								
8/11/2013	8:00AM	SAFETY BRIEFING											
8:30AM	BOOTHE SYSTEM OUT OF SERVICE												
8:45AM	TALKED TO SOLO (INLAND) THEY WILL HAVE A CREW OUT TODAY AT 2PM FOR AIR HTR WASH												
10:15AM	BOTH H1 DRUM GAUGE GLASSES CHANGED OUT												
10:20AM	G.BUNCH CALLED WILL BE READY FOR HYDRO BY 11 CAN WE HAVE INLAND IN HERE BY NOON.												
10:21AM	CALLED SOLO (INLAND) TO HAVE CREW HERE AT NOON. HE STATED WOULD DO HIS BEST WAS NOT SURE HE COULD BE HERE BY THEN												
		I ASKED SOLO TO BE HERE AT NOON OR AS SOON THEREAFTER AS HE COULD. OK											
10:50AM	H1 B BFP ON FOR H1 HYDRO												
11:58AM	H1 BOILER AT 1440LBS. 10 MIN HOLD												
12:08PM	TITAN INSPECTING BOILER												
12:30PM	DRY BOILER. DRAINING TO FIRING LEVEL												
1:00PM	J.GATTON LEAVING												
1:30PM	J.TATE, J.REYNOLDS LEAVING												
2:15PM	H1 AIR HEATER WASH STARTED												
2:30PM	S.HALLMAN HERE												
5:00PM	H1 B AIR HEATER AIR DRIVE STOPPED WORKING. MAINT WORKING ON SAME												
5:15PM	H1 B AIR HEATER WORKING												
NOTE:		H1 SET TO FIRE											
7:00PM	R.JENKINS CALLED WILL BE IN AT 3AM / NOTIFIED J.WEST												

Forced Outage Report

8/11/2013 8:00PM		EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER	
UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK	PRESSURE	
R1		50	45										
H1		165	153	OUTAGE/ TUBE LEAK									
H2	158	165	147	0.339	10.9	0.07	15.4	94	10.25	250/a	3.3		
A.H. PLUGGAGE FOR 5 MW DERATE													
C.T.	ON STANDBY	58											
ALARMS:													
R1													
H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW											GAUGE G	
H2	EH RES LEVEL HI											OK	
SOOTBLOWERS TAGGED													
R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31												
H1	20 / 5,6,7,8,9,10,11,32,39-												
H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,32,34,39												
FUEL OIL TANKS													
LEVELS	C.H.	HMPL	NORTH	SOUTH	SILO LVL 1 even			BOOTHE SYSTEM		OUT			
		13' 1"	15' 9 1/4"	8 1/4"									
NOTE	H1 A.H. WASH ONGOING												
8:00PM	SAFETY BRIEFING												
8:05PM	PUTTING H1 ECONS BACK PLATES ON												
8:30AM	TALKED TO R.PARKER TO RELEASE HIM OFF PERMITS #456340-456339-456338-456336 SAID OK												
8:40PM	MAINT RELEASING H1 WETBOTTOM												
NOTE	MAINT WORKING ON LEAKS @H1 WETBOTTOM												
9:30pm	T.GRAY,J.JACKSON GOING HOME												
11:00PM	J.ARNOLD,S.HALLMAN GOING HOME												
8/12/2013 12:15AM	INLAND SHUTTING DOWN H1 A.H. WASH												
NOTE	INLAND TEARING DOWN H1 A.H. WASH HEADS & VACUMING												
1:20am	CLEANING H1 STEAM COILS & F.D FANS												
2:45AM	INLAND LEAVING												
2:50am	H1 STEAM COILS CLEAN & F.D. FANS CLEAN												
2:52AM	NOTIFIED J.WEST TO CLOSE H1 A.H. & F.D. FAN DOORS												
2:55AM	WARMING H1 STEAM COILS												
NOTE	H1 PRECIP HOPPERS 5-8 BACK PLATES ON												
3:47AM	RELEASED H1 F.D. FANS FOR AIR TEST												
4:14AM	H1 BOILER AIR TEST STARTED												
4:14AM	H1 FD FANS ON FOR BOILER AIR TEST STARTED												
4:38AM	H1 BOILER AIR TEST GOOD												
4:45AM	H1 PURGE COMPLETE												
4:47AM	H1 BOILER FIRES ESTABLISHED -B4-B3												
NOTE	H1-B2 OILGUN HAS FITTING STRIPPED OUT SWAPPING OUT GUN ON H2 -a4 w/o# 6106220												
5:53AM	J.GATTON CALLED IN SICK												
6:33AM	h1 drum vents closed												

Forced Outage Report

8/12/2013 8:00AM		DENTON,ONAN,REYNOLDS,BAKER,TATE,YOUNG,BLANKS,BREEDEN								D SHIFT PAYNE/ASKINS			
		EDWARDS-VAC,GATTON-S/L, MORRIS-S/L											
UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLC	BACK	PRESSURE	
R1		50		12 HOUR STANDBY									R-1 CTL
													PWTL
H1	START UP	165	153										
H2	160	160	147	0.281	10.8	0.082	25.3	94.9	14.01	245	4		HMPL
C.T.	STANDBY	58											
ALARMS:									GAUGE GLASSES		DRYING AGENT		
R1									OK				H-1 0%
H1	STEAM SEAL HI/LO	BURNER MANGT.		EH PRESSURE LO/PUMP START REQ									H-2 0%
H2	EH RES LEVEL HI												R-1 0%
SOOTBLOWERS TAGGED													
R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31												
H1	5,6,7,8,9,10,11,20,32,39												
H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,32,34,39												
FUEL OIL LEVELS		C.H.	HMPL	NORTH	SOUTH								
		8' 4"	12' 2 1/2"	15' 9 1/4"	8 1/4"								
8/12/2013 8:00AM	SAFETY BRIEFING												
9:15AM	H-1 PULLING VACUUM												
10:46AM	H-1 TIED ON												
10:48AM	H-1 PRECIPS IN SERVICE												
NOTE	H-1 PRCIPS WOULD NOT GO IN - ELECT DEPT HAD BKR'S LOCKED OUT												
11:21AM	H-1 PRECIPS IN SERVICE												
12:01PM	H-1 SCRUBBER IN SERVICE												
1:00PM	H-1 WARMING SCR'S												
2:50PM	CALLING MURPHY ELEVATOR OUT. HMPL ELEVATOR STUCK ON THIRD FLOOR. WONT MOVE. TRIED RESETING AND DOORS. NO LUCK												
2:54PM	H-1 GOOD FOR FULL CAPABILITY, 153NET.												

Forced Outage Report

Boiler Tube Leak Record

Plant: HMP&L Station Two

Unit: 1

Type of Leak:

Pin Hole _____ Thick Lip Failure _____ Crack √ (economizer tube) Thin Lip Failure √ (5th SH outlet element from the east)

Tube Wall Thinning _____

Orientation of Rupture: Longitudinal √ Circumferential _____

Probable Cause:

Stress ___ Overheat ___ Erosion _____ Internal Corrosion _____

External Corrosion √ Weld Failure _____ (Shop ___ Field ___)

Internal Obstruction to Flow _____ Soot blower Erosion _____

Type of Repair:

Dutchman √ Pad Weld √ Plug Tube _____ Short Circuit _____ Other _____

Description of Repair:

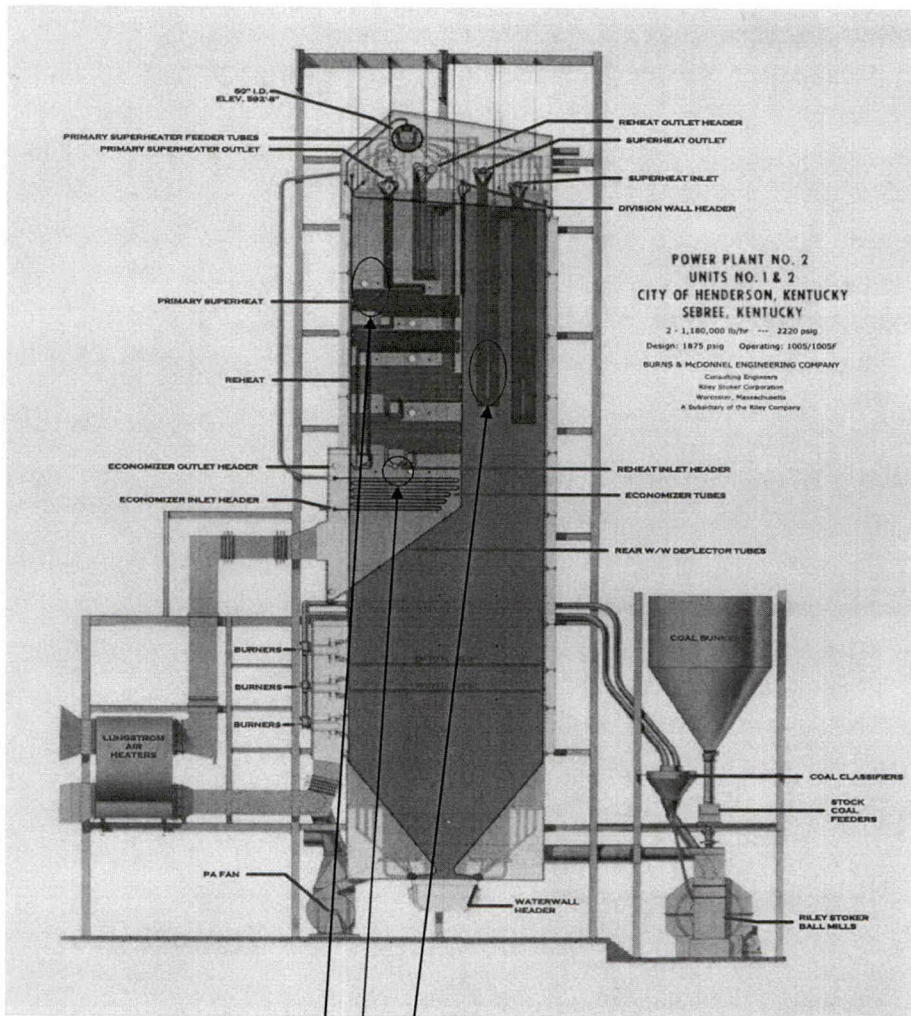
The inner loop on the 5th element from the east wall at elevation 542' was replaced along with the addition of a 3' dutchman on the north side and a 10' dutchman on the south side. The inner loop on the 6th element from the east wall at elevation 542' was also replaced with the addition of a 3' dutchman on the north side and a 6' dutchman on the south side. This was replaced due to a visual inspection that revealed tube wall thinning. From low UT indications 1 dutchman (7') was installed on the 2nd element from the east wall at elevation 542'. There were also 1 handcuff installed, 1 on the 6th element. From the initial boiler hydro a leak was discovered in the economizer section of the boiler, tube #36 from the west wall, 2nd tube down at elevation 521'-6", Repaired via a BMR. Back-pass inspection: Found one tube in the Primary Superheater at elevation 561'-6, 2nd bundle from the west wall, top tube that a required a BMR because of soot blower erosion from #31 SB.

Forced Outage Report

Exact Location of Leaks:

HMPL STATION UNIT 1 2013 (5) TUBES INVOLVED

Date and Time Unit Off ___ 2243 8-8-13
Date and Time Unit On Stand-by ___ 1046 8-12-13



The inner loop on the 5th element from the east wall at elevation 542' was replaced along with the addition of a 3' dutchman on the north side and a 10' dutchman on the south side. The inner loop on the 6th element from the east wall at elevation 542' was also replaced with the addition of a 3' dutchman on the north side and a 6' dutchman on the south side. This was replaced due to a visual inspection that revealed tube wall thinning. From low UT indications 1 dutchman (7') was installed on the 2nd element from the east wall at elevation 542'. There were also 1 handcuff installed, 1 on the 6th element. From the initial boiler hydro a leak was discovered in the economizer section of the boiler, tube #36 from the west wall, 2nd tube down at elevation 521'-6", Repaired via a BMR. Back-pass inspection: Found one tube in the Primary Superheats at elevation 561'-6, 2nd panel from the west wall, top tube that a required a BMR because of soot blower erosion from #31 SB.

Forced Outage Report

Estimated Outage Cost

- Air Heater Wash, Boiler De-slugging, Vacuuming Boiler Penthouse and Economizer, Clean Seal Trough

Total \$15,500

- Tube leak repairs – Titan

Labor \$35,456

Material \$1,692

Total \$37,148

- Other repairs:

Labor \$27,338

Material \$13,550

Total \$40,888

Grand Total \$93,536

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS				
MISO DART Revenue and LOST OPPORTUNITY				

Unit	HMP'L 1 - H1-13-08		Production Cost	
Date & Time Off Line	8/8/13 22:42		MW	\$/MW
Date & Time On Line	8/12/13 10:46		111	\$ 28.97
Outage Duration	84 hr. 4 min.		133	\$ 28.31
Outage Code	UO2		155	\$ 28.16
Outage Reason	Repair superheater tube leak.			

Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity
8/8/13 (HE 23-24)	\$ 24.38	\$ 24.67	\$ 717	\$ -
8/9/13 (HE 1-24)	\$ 28.36	\$ 31.04	\$ (11,350)	\$ -
8/10/13 (HE 1-24)	\$ 26.39	\$ 38.19	\$ -	\$ -
8/11/13 (HE 1-24)	\$ 26.54	\$ 41.37	\$ -	\$ -
8/12/13 (HE 1-18)	\$ 30.97	\$ 32.00	\$ 3,955	\$ (1,396)
Total			\$ (6,678)	\$ (1,396)

Start Up Fuel Cost		Total Forced Outage Cost	
S/U Fuel Consumed	6,496	DART P&L	\$ (6,678)
S/U Fuel Price	\$ 3.13	Lost Opportunity	\$ (1,396)
S/U Fuel Cost	\$ (20,330)	S/U Fuel Cost	\$ (20,330)
		Total	\$ (28,404)

NOTES:

All negative values are money out of pocket.

DART Revenue is calculated from differences between the DA award and RT events

Lost Opportunity is the lost margins if the unit had stayed running

Forced Outage Report

To: Bob Berry

From: Billy Boarman

Date: 19-Aug-2013

Plant: HMP&L Station Two

Unit: 1

GADS Class: UO3

Duration

Trip Time: 15-Aug-2013 00:45

Tie Time: 16-Aug-13 01:59

Time Offline: 25:14

Outage Description

HMP&L Station Two Unit 1 was removed from service on Thursday, 15-Aug-2013 at 00:45. The unit was removed from service based on a couple of indications. First it was noticed we were not indicating NOx reduction at the stack with the CEM instruments but were seeing a tremendous reduction in NOx with the NEMS instruments located in the SCR ductwork. This provided an indication of insufficient NOx removal. We also were experiencing unusual pressure and temperature differentials through the Air Heater on A side.

Root Cause

Inspected the SCR and Diverter Dampers to determine what was causing these variations. Upon inspection it was discovered that the "A" diverter damper was only opened 2% and was not allowing flue gas to flow through the "A" side SCR. The inspection also verified that the "A" side diverter damper shaft drive pins were sheared. Accumulation of ash behind the vertical jamb seals prevented proper expansion of the damper blade.

Failure History

2-Mar-2013	51:00	(Unforced Outage) Pins sheared on both SCR Diverter Dampers
27-Jul-2013	26:55	Pins sheared on "B" SCR Diverter Damper

Forced Outage Report

Corrective Action

Replaced the shaft pins on the "A" side Diverter Damper with 11" x 3/4" OEM specified 17-4ph stainless steel round stock. The vertical jamb seals on both "A" and "B" dampers were also inspected for ash build up behind the seals. Ash was removed from behind the jamb seals; once the ash was removed the jamb seals were repaired. The dampers were then stroked several times to confirm proper movement and sealing. Once confirmed, the limits were adjusted to match damper position and the torque settings were checked and adjusted.

SOE Print Out

STANDARD SOE REPORT

Triggered on: 15-Aug-2013 00:45:43:261

Event Time	State	Tag Name	Tag Description
15-Aug-2013 00:45:51:571	OPEN	H150OCB166ST	OCB 0166 GEN H1 STATUS
15-Aug-2013 00:45:51:517	OK	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
15-Aug-2013 00:45:51:513	OPEN	H150FLDBKRST	GEN H1 FIELD BKR STATUS
15-Aug-2013 00:45:51:444	OK	H150OCB166GETP	OCB 0166 GEN H1 TRIP
15-Aug-2013 00:45:51:443	OK	H150OCB162GETP	OCB 0162 GEN H1 TRIP
15-Aug-2013 00:45:51:439	TRIP	H150FLDBKRTP	GEN H1 FIELD BKR TRIP
15-Aug-2013 00:45:51:436	LKOUT	H150GENLO86G2	GEN DIFFERENTIAL LO (86G2)
15-Aug-2013 00:45:51:435	OK	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
15-Aug-2013 00:45:51:416	TRIP	H150OCB162GETP	OCB 0162 GEN H1 TRIP
15-Aug-2013 00:45:51:416	TRIP	H150OCB166GETP	OCB 0166 GEN H1 TRIP
15-Aug-2013 00:45:51:413	TRBLE	H150REVPWR67G2	GEN H1 REVERSE PWR (67G2)
15-Aug-2013 00:45:48:259	OK	H133LMISTP	LAST MILL IN SERVICE TRIP
15-Aug-2013 00:45:44:265	TRIP	H133LMISTP	LAST MILL IN SERVICE TRIP
15-Aug-2013 00:45:44:081	TRIP	H140STPVLVTP	TURB STOP VLV CLSD TRIP
15-Aug-2013 00:45:43:261	TRIP	H133EMERBLRTP	EMERGENCY BLR TRIP
15-Aug-2013 00:45:42:811	LOW	H143HYDOILPRLO	TURB HYD OIL PRESS LOW

Other Work Completed While Unit Was Offline

- Boiler Hydro and Reheat Vacuum Check, no issues
- Repaired gas leaks on the SCR Duct work

Forced Outage Report

Operators Event Log

8/15/2013	12:33AM	H-1 BOOSTER FAN TRIPPED													
	12:45AM	H-1 GENERATOR OFF LINE - WAS SHOWING -4 MW FOR ABOUT 3 SECONDS BEFORE TRIPPING - TRIP SCREEN SHOWS 'B' STOP VALVE ERROR													
		86TV DID NOT TRIP													
		NOTE FANS ON AT PENTHOUSE - 'B' DIVERTER DAMPER TO THE SCR POSITION													
	2:00AM	H-2 HOTWELL CHECK LOST 2 1/2" IN 1 HOUR													
	3:30AM	H-1 BOILER SET FOR HYDRO													
	4:45AM	H-1 'B' BFP ON TO FILL BOILER													
	5:46AM	H-1 'B' BOILER FEED PUMP OFF													
	5:56AM	H-1 'B' BOILER FEED PUMP OFF													
8/15/2013	7:00AM	EDMONDS,JACKSON , GRIFFIN, HOGAN, BOWLEY,ALEXANDER,WADLINGTON										C SHIFT CARTER			
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE		
		R1		50	45										
		H1		165	153	SCR OUTAGE									
		H2	159	165	147	0.65	10.9	0.093	29.3	88.8	12.42	236/A	3		
		A.H. PLUGGAGE FOR 5 MW DERATE													
		C.T.	ON STANDBY		58										
		ALARMS:													
		R1													
		H1	BURNER MANAGEMENT/STEAM SEAL LOW PRESSURE/H1 COOLING TOWER HI / LOW										GAUGE GLASSI		
		H2	EH RES LEVEL HI										OK		
		SOOTBLOWERS TAGGED													
		R1	1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31												
		H1	20 / 5, 6, 7, 8, 9, 10, 11, 32, 39-												
		H2	1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39												
		FUEL OIL TANKS													
		LEVELS	C.H.	HMPL	NORTH	SOUTH	SILO LVL 1 even		BOOTHE SYSTEM		IN				
			7'6 1/2"	13' 9"	15' 3"	8 1/4"									
		NOTE INLAND CLEANING H1 ECONS HARD DECK AREA													
	7:00AM	SAFETY BRIEFING													
		NOTE H1 PRECIPIS PULLING BACK PLATES AND CLEANING HOPPERS													
	8:05AM	H1 SCR DAMPERS AREA OPEN FOR ENTRY													
		NOTE SETTING BOILER TO FIRE													
	1:53PM	BOOTHE SYSTEM IN													
	3:53pm	R.BLANKS CALLED IN SICK TONITE													
	4:00PM	H1 BOILER SET TO FIRE / EXCEPT FOR BOILER IS DRAINED													
	4:53PM	CALLED R.PARKER TO RELEASE HIM OF H1 PERMITS #													
	5:15PM	STROKING H1 SCR DIVERTER DAMPERS													
	7:00PM	R.DENTON HERE													
	7:05PM	H1 SCR DAMPER LIMITS SET													
	7:11PM	H1-B BFP ON PUMPING BOILER UP TO FIRING LEVEL													
	7:20PM	PUTTING H1 FANS ON FOR AIR TEST													
8/15/2013	8:00PM	CONN, CLARK, CUTSHAW, HIGGINS BREEDEN, YOUNG										B SHIFT PENDLEY			
		BLANKS S/L DENTON & TATE HERE													
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE		
		R1		50		12 HOUR STANDBY							R-1 CTL		
		H1		165		FIRING		UNIT			0	PWTL			
		H2	142	160	147	0.291	10.6	0.054	21.6	94.7	8.08	229	2.95		
		C.T.	STANDBY 60									GAUGE GLASSES	DRYING AGENT		
		ALARMS:													
		R1											OK		
		H1	STEAM SEAL HI/LO BURNER MANGT. EH PRESSURE LO/PUMP START REQ										H-1 0%		
		H2	EH RES LEVEL HI										H-2 0%		
															R-1 0%
		SOOTBLOWERS TAGGED													
		R1	1, 2, 3, 6, 7, 16, 17, 18, 19, 22L, 28, 29, 30, 31											SILO	
		H1	5, 6, 7, 8, 9, 10, 11, 20, 32, 39											9'	
		H2	1, 2, 4, 5, 7, 9, 10, 11, 15, 18, 19, 20, 21, 22, 23, 24, 30, 32, 34, 39											BOOTHE SYSTEM	
															IN
		FUEL OIL													
		LEVELS	C.H.	HMPL	NORTH	SOUTH									
			7'6 1/2"	13' 9"	15' 3"	8 1/4"									
8/15/2013	8:00PM	SAFETY BRIEFING													
	8:15PM	FIRE IN H-1 BOILER													
	9:00PM	C.O. FOUND SUPERHEAT CALCULATION READING -7063 DEG & STEAM METAL TEMP DIFF READING 8058 DEGREES - NOTIFIED M. PEYTON													
	9:35PM	B. EDWARDS CALLED SAID TO CALL R. GENTRY IN - HE HAD BEEN WORKING ON THIS.													
	9:52PM	CALLED R. GENTRY - COMING IN													
	10:15PM	M. PEYTON GOT TURBINE TEMPS REPAIRED													

Forced Outage Report

8/16/2013	12:28AM	SEALING & PULLING VACUUM ON H-1 TURBINE											
	1:10AM	RESET H-1 TURBINE - ROLLED OFF GEAR TO 200 RPM											
	1:21AM	H-1 TURBINE AT 1000 RPM - 10 MINUTE HOLD											
	1:31AM	ROLLING TO SYNC SPEED											
	1:59AM	H-1 GENERATOR TIED ONLINE - PRECIPS IN - NOTIFIED H/L											
	2:09AM	TRANSFERRED VALVES ON H-1 TURBINE											
	3:00AM	R. GENTRY HERE - M. PEYTON LEAVING											
	3:00AM	B. WILLETT & B. JONES HERE											
	3:20AM	H-1 SCRUBBER IN SERVICE - NOTIFIED H/L											
	4:06AM	WARMING H-1 SCR											
	4:30AM	J. TATE LEAVING											
	5:00AM	R. DENTON LEAVING											
		NOTE H-1 SILICA .498 - GOOD FOR 1500 LBS											
	5:45AM	H-1 SILICA .358 - GOOD FOR 1650 LBS - RAISING SAME											
	6:50AM	SECHDULED J HIGGINS, L BREEDEN, AND T YOUNG 6A-6P SUNDAY 8-18-13											
	7:50AM	FLOWING AMM ON H-1											
8/16/2013	8:00AM	FELTY,CECIL,BLAIR,EMBRY,HILLYARD											
		DUVALL S/L,BEAN S/L M JOHNSON											
		A SHIFT T. TOW											
		UNIT	LOAD	UNIT CAP	NET CAP.	SO2	CO2	NOX	OPACITY	REMOVAL	DUST	AMM. FLOW	BACK PRESSURE
		R1	12 HOUR STANDBY	50	45								18'
		H1	148	165	153	0.794	10.5	0.19	74.4	85.8	65.08	200	26'
		H2	146	160	147	0.418	11.3	0.079	22.8	92.9	7.87	208	15.5'
		C.T.	0	61	61								
		ALARMS:											
		R1											
		H1	STEAM SEAL HI/LO,BURNER MANG., EH PRSS LO										
		H2	EH RES LEVEL HI										
		SOOTBLOWERS TAGGED											
		R1	1,2,3,6,7,16,17,18,19,22L,28,29,30,31										
		H1	5,6,7,8,9,10,11,20,29,30,33,39										
		H2	1,2,4,5,7,9,10,11,15,18,19,20,21,22,23,24,30,32,34,39										
		SILO											
		5'											
		BOOTHE SYSTEM											
		IN											
		FUEL OIL	C.H.	HMPL	NORTH	SOUTH							
		LEVELS	7' 3"	11' 9"	16' 5"	8 1/4"							

Estimated Outage Cost

- Vacuuming SCR duct work and Economizer hard deck

Total \$1,733.25

- SCR Damper Repairs – Titan

Labor \$18,800

Material \$4,254

Total \$23,054

- Other repairs:

Labor \$17,360

Total \$17,360

Grand Total \$42,147.25

Forced Outage Report

Lost Sales Opportunity Report

FORCED OUTAGE COST ANALYSIS			
MISO DART Revenue and LOST OPPORTUNITY			

Unit	HMP'L 1 - H1-13-09		Production Cost	
Date & Time Off Line	8/15/13 0:45		MW	\$/MW
Date & Time On Line	8/16/13 1:59		100	\$ 29.50
Outage Duration	25 hr. 14 min.		133	\$ 28.31
Outage Code	U03		155	\$ 28.16
Outage Reason	Repair SCR (A side) diverter dampers			

Date	DA LMP Average	RT LMP Average	DART P&L	Lost Opportunity
8/15/13 (HE 1-24)	\$ 26.55	\$ 30.93	\$ (801)	\$ -
8/16/13 (HE 1-9)	\$ 22.62	\$ 21.62	\$ 1,040	\$ -
Total			\$ 239	\$ -

Start Up Fuel Cost		Total Forced Outage Cost	
S/U Fuel Consumed	3,758	DART P&L	\$ 239
S/U Fuel Price	\$ 3.13	Lost Opportunity	\$ -
S/U Fuel Cost	\$ (11,761)	S/U Fuel Cost	\$ (11,761)
		Total	\$ (11,522)

NOTES:

All negative values are money out of pocket.

DART Revenue is calculated from differences between the DA award and RT events

Lost Opportunity is the lost margins if the unit had stayed running