



Submitted to:
Pinellas County



**Pinellas County Resource Recovery Facility
Facility Operating Report
Calendar Month of
July 2016**

Submitted By:

Covanta Pinellas

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Monthly Operations Status Report Covanta Pinellas

July 2016

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Monthly Operations Status Report Covanta Pinellas

July 2016

1.0 Monthly Operating Data: (See appendix D)

Monthly Highlights:

- ✚ The facility received a total of 77,339 tons for the month. There was 314 tons diverted. There was 0 tons returned from the landfill.
- ✚ Boiler No. 1 availability for the month was 87.1%.
- ✚ Boiler No. 2 availability for the month was 88.7%.
- ✚ Boiler No. 3 availability for the month was 88.1%.
- ✚ Total Boiler availability for the month was 85.6%.

- ✚ The facility processed 81,318 tons. The HHV for the period was 4,545 Btu/lb. (See appendix A)

- ✚ TG1 availability for the month was 98.0%.
- ✚ TG2 availability for the month was 80.8%.
- ✚ The total turbine generator availability for the month was 89.4%.

- ✚ The total gross power generated for the month was 43,849 MW and the estimated net power sold to Duke Energy was 37,024 MW or 455 Kwh/ton. There was 0 MW's purchased for the month.

- ✚ The total ash produced for the month was 20,327 tons or 25.0% of total tons processed.

- ✚ The gross ferrous metals removed for the period was 2,872 tons or 3.5% of the total tons processed.

- ✚ The total non-ferrous recovered for the period was 157 tons or 0.19% of the total tons processed.

- ✚ The estimated 12-month rolling capacity for the month of July 2016 is estimated to be 80.3%.

2.0 Refuse Pit Management

Pit Management	Last Turn Over	Due By
Bay #8	7/18/16	10/9/16
Bay #7	7/4/16	9/25/16
Bay #6	6/20/16	9/11/16
Bay #5	6/20/16	9/11/16
Bay #4	6/20/16	9/11/16
Bay #3	6/13/16	9/4/16
Bay #2	6/12/16	9/3/16
Bay #1	6/12/16	9/3/16

3.0 Reagents and Chemicals used for the period (actual):

Reagents and Chemicals	Reagents Used (Based on Silo %)	Reagents Delivered	SA Allowances	July MTD	July CYTD
Lime	761.89 tons	729.89 tons	20 lbs/ton	18.74 lbs/ton	18.32 lbs/ton
Urea	9,322.48 gallons	5,072.48 gallons	0.50 gal/ton	0.11 gal/ton	0.12 gal/ton
Carbon	12.60 tons	0.00 tons	0.66 lbs/ton	0.31 lbs/ton	0.57 lbs/ton
Sulfuric Acid	0.00 tons	0.00 tons (CT)	N/A	N/A	N/A
Caustic	0.00 tons	0.00 tons	N/A	N/A	N/A

4.0 Equipment Downtime Summary:

Boiler No.1

- On 7/3/2016, Unit was offline for 84.17 hours to repair #2 grate and 20" steam isolation valve. Unit was returned to service on 7/7/2016.
- On 7/7/2016, Unit was offline for 9.8 hours to clear a discharger plug. Unit was returned to service on 7/8/2016.
- On 7/30/2016, Unit was offline for 2.17 hours to repair a hydraulic leak in the martin cabinet.

Boiler No.2

- On 7/5/2016, Unit was offline for 14.27 hours to replace the #2 grate cylinder. Unit was returned to service on 7/6/2016.
- On 7/19/2016, Unit was offline for 70.14 hours to repair a tube leak in the evap section side wall. Unit was returned to service on 7/22/2016.

Boiler No.3

- On 7/24/2016, offline for 80.35 hours to repair the FD fan outboard bearing. Unit was returned to service on 7/28/2016.

- On 7/29/2016, Unit was offline for 60.53 hours to repair the scraper on the ash expeller. Unit was returned to service on 7/31/2016.

TG No.1

- On 7/5/2016, Unit was in standby for 15.22 hours due to no steam supply (grate bar failure). Unit was returned to service on 7/6/2016.

TG No.2

- On 7/24/2016, Unit was in standby for 81.32 hours due to no steam supply (FD fan bearing). Unit was returned to service on 7/28/2016.
- On 7/29/2016, Unit was in standby for 61.72 hours due to no steam supply (ash expeller). Unit was returned to service on 7/31/2016.

Metals Recovery

- Ferrous: Processed 100% of the generated ash for the month of July; there was a total of 47.1 hours when the system was shut down for equipment service/ PM's. The total hours of operation of the system for the month was 93.7%.
- Non-ferrous: Processed 100% of the generated ash for the month of July, There was a total of 59.2 hours when the non-ferrous system was shut down for equipment service/PM. The total hours of operation of the system for the month was 92.0%.

Other Major Equipment:

- Replaced the #2 Grate Cylinder on B102
- FloTech supplied, machined, and replaced bronze bushing on the main steam isolation valve for B101
- Replaced J-bar, and two grate bars on Run #2 on B101 during forced outage
- Repaired a Vacuum Leak on the Extraction piping to the LPFW heater for TG#1
- Continued work on OGPL list for guarding of equipment
- Performed preparations for Re-Test of PM 2.5
- Installed new Gearbox Drive and Motor on Pug Mill #2
- Replaced drive motor on V-2 Conveyor
- Changed out the Process Air Glycol Heat Exchanger
- Completed project for remote operation of Soot Blowers
- Replaced gearbox on CNV1.1 south conveyor

- Replaced the G-11 belt
- Performed 4 tube repairs to B102, replaced scraper on south expeller ram, repaired leak on steam drum water level sight glass, and repaired leak on high temperature super heater drain line leak during forced shutdown
- Repaired ash expeller scrapers in north and south expellers, replaced the outboard bearing for B103 FD Fan, and made one tube leak repair in the 1st pass, right wall in refractory area near the burner, installed refractory anchors and plastic refractory

5.0 Preventive Maintenance:

- Operations and Maintenance department completed the following work for July
 - ✓ 148 Corrective Maintenance Work Orders
 - ✓ 12 Corrective Maintenance Safety
 - ✓ 21 Corrective Maintenance Outage
 - ✓ 232 Preventive Maintenance PM's
 - ✓ 35 Preventive Maintenance Safety
 - ✓ 12 Preventive Maintenance Environmental
 - ✓ 452 Preventive & Corrective Maint WO's Created in July 2016
 - ✓ 164 Preventive & Corrective Maint WO's Open as of July 31, 2016

6.0 On Going Punch List Items Completed this period:

- 06/16 – 279,278,277,276,275,273,271,268,267,266,263,262,261,260,259

7.0 Safety:

- There were no lost time or OSHA recordable accidents for the period. The facility has gone 1174 days without a lost time injury. There were no contractor or employee accidents or incidents at the facility this month.

8.0 Environmental Testing and Reporting:

Description of all environmental testing conducted during the reporting period including air emissions, CEM and Residue tests and/or any of those tests that are anticipated to be performed during the next three (3) Billing Months:

- On June 4, 2014, an executed modification to the consent order entered into between the Florida Department of Environmental Protection and Pinellas County was issued. The executed consent order modified certain terms and conditions executed in the initial consent order (OGC File No. 12-1610). Upon the effective date of modification to the Consent Order and until June 30, 2015, the facility shall comply with the carbon monoxide limit of 100 ppm corrected to 7% oxygen based upon a 24-hour block average (excluding emission related to start up, shut down, and malfunctions). On June 17, 2015, Kelsi Oswald, Pinellas County issued a formal written request to the FDEP for a second modification of the Consent Order. A meeting was held with Pinellas County and the FDEP on June 26, 2015 at the FDEP Southwest District offices to discuss the request for modification. On June 29, 2015, the FDEP issued a second modification of the Consent Order to Pinellas County to extend the expiration date to December 31, 2016. This extension date of Consent Order synchronizes with the Facility current AC permit expiration date. The second modification of the consent order was officially executed by Mark Woodward, Pinellas County Administrator and Mary Yeargan, FDEP Southwest District Director on 16th of July, 2015.
- In the meeting held at the FDEP Southwest district office on June 26, 2015, the Department conveyed in that the second modification of the Consent Order upon execution would be retro-active to the date of the expiration of the first modification to the consent order.
- Pinellas County formally submitted the facility's Title V Permit renewal application prior to the stipulated deadline. In accordance with the County's request for review of the draft Title V permit application (as received on November 12, 2015), Covanta provided the following response below:

Covanta is aware of at least two specific changes that the County is looking to change in the Title V permit renewal process, voluntarily, that may result in changes to our operations. Covanta wishes to reserve the right to challenge any voluntary changes to the Title V operating permit caused by the County and regard these changes as a Change in Law per our Service Agreement.

Also Covanta also specifically reserves the right to assess additional items as a change in law in accordance with the Service Agreement of any voluntary or involuntary changes by either County (or otherwise) that may result in changes to our operations in the future as a result of the renewal of the PCRRF Title V operating permit.

The County received a request for additional information (RAI) letter from the FDEP as it pertains to the site's Title V permit renewal application. The County and Arcadis (on behalf of the County) prepared and submitted response to the RAI request from the Department.

The Department issued the official Notice of Draft Permit for the Title V Permit Renewal on May 16, 2016. The Department issued the official Notice of Proposed Permit for the Title V Permit Renewal on August 3, 2016. For ease of reference, an extracted portion from the proposed permit determination notice received by the County is below.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

(Sent by Electronic Mail – Return Receipt Requested)

Ms. Kelsi Oswald
Director, Division of Solid Waste
Pinellas County Board of County Commissioners
3095 114th Avenue North
St. Petersburg, Florida 33716

Re: Title V Air Operation Permit Renewal
Proposed Permit No. 1030117-013-AV

Dear Ms. Oswald:

One copy of the proposed permit determination for the renewal of the Title V air operation permit for the Pinellas County Resource Recovery Facility located at 3001 110th Avenue North, St. Petersburg, Pinellas County is enclosed. This letter is only a courtesy to inform you that the draft permit has become a proposed permit.

An electronic version of this determination has been posted on the Division of Air Resource Management's world wide web site for the United States Environmental Protection Agency (USEPA) Region 4 office's review.

Interested persons may view the proposed permit by visiting the following website:

<https://fldep.dep.state.fl.us/air/emission/apds/default.asp> and entering the permit number shown above.

Pursuant to Section 403.0872(6), Florida Statutes, if no objection to the proposed Title V air operation permit is made by the USEPA within 45 days, the proposed permit will become a final permit no later than 55 days after the date on which the proposed permit was mailed (posted) to USEPA. If USEPA has an objection to the proposed permit, the final permit will not be issued until the permitting authority receives written notice that the objection is resolved or withdrawn.

If you should have any questions, please contact Stephen Hathaway at 850/717-9031.

Executed in Tallahassee, Florida.



David Lyle Read, P.E.

David Lyle Read, P.E.

2016.08.03 08:21:03 -04'00'

For:

Syed Arif, P.E., Program Administrator
Office of Permitting and Compliance
Division of Air Resource Management

SA/dlr/sh

PROPOSED PERMIT DETERMINATION

Permit No. 1030117-013-AV

I. Public Notice.

An Intent To Issue Air Permit issued to the Pinellas County Board of County Commissioners for the Pinellas County Resource Recovery Facility located at 3001 110th Avenue North, St. Petersburg, Pinellas County, was clerked on May 16, 2016. The Public Notice Of Intent To Issue Air Permit was published in the Tampa Bay Times on June 3, 2016. The draft Title V air operation permit was available for public inspection at the permitting authority's office in Tallahassee. Proof of publication of the Public Notice Of Intent To Issue Air Permit was received on June 6, 2016.

II. Public Comment(s).

No Comments were received from the public during the 30-day public comment period; however, comments were received from the Permittee. The comments were not considered significant enough to reissue the draft Title V air operation permit and require another Public Notice; therefore, the draft Title V air operation permit was changed. Those comments are addressed below. Additions to the permit are indicated by double underline. Deletions from the permit are indicated by ~~strike through~~.

Letter from Beth Burns, Solid Waste Program Manager dated June 28, 2016.

- During the week of May 23, 2016, annual compliance stack testing as well as the relative accuracy test audit of the facility's continuous emission monitoring system were completed. One anomaly occurred with the reported laboratory results, the stack test results showed a statistical outlier for the B102 Particulate Matter less than 2.5 micron (PM 2.5) results. The FDEP was notified of the statistical outlier and that a re-test will be performed on B102 for this parameter. Please see more detailed description cited from the final contractor test report below:

"The organic fraction of the condensable portion of sample 2-O-M201A/202-1 yielded an atypical result of 125.3 mgs (total catch weight; 40 to 50 times higher than other organic fractions). The residue from this sample after drying was an amber colored, oily film (other organic fractions had no visual residue).

Additional analysis of this residue was conducted to determine its origin. Gas Chromatography/Mass Spectrometry (GC/MS) analysis revealed this residue to be high molecular weight, high boiling point hydrocarbon compound(s) (C19 to C28; hydrocarbon compound(s) with 19 to 28 carbons present). Further analysis, by Fourier Transform Infrared Spectroscopy (FTIR), indicated the residue compound(s) to have similar infrared spectrum as 1) "Contact Cleaner & Lubricant; 2) "All day make-up"; and/or 3) "Poly(Dimethylsiloxane-co-Diphenylsiloxane), 80% Dimethyl, SPP" (as per FTIR report). None of these substances is native to the flue gas, nor are they present in the sampling train, field recovery laboratory, or analytical laboratory. Parts cleaner and lubricants are routinely used in plant maintenance.

All other samples and blanks for this project displayed typical organic results for this source type; field blank (1.9mg), proof blank (2.7mg), reagent blank (0.7mg), all other test samples (2.2mg to 3.2mg).

The data for sample 2-O-M201A/202-1 is an anomaly that appears to represent random error that is not possible to absolutely identify (from sample recovery, laboratory analysis, reagents used, or unit maintenance). It is an anomaly that is not included in Table 2-2. The two (2) run average is presented in Table 2-2. All sample and analytical data for this run are presented in the appendices.

Since the original sample 2-O-M201A/202-1 condensable organic particulate result was treated as a statistical outlier, an additional set of EPA Method 201A/202 tests were performed on Unit 2 on July 7, 2016 as a voluntary proactive measure. The PM_{2.5}, PM₁₀, and condensable inorganic and organic particulate results from this additional testing are typical and within statistical norms and further justify the elimination of 2-O-M201A/202-1 from the previous compliance average that clearly was an anomaly. Final test report for this additional PM 2.5 test is still pending and upon completion will be submitted to the FDEP.

Additional environmental summary information can be found in Appendix B and Appendix D.



Appendices


Monthly Operations Status Report

Covanta Pinellas

July 2016

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Appendix A: HHV Calculation

	HHV Results for	July	2016			
					Weighted	
					Average/	
Model Inputs		Boiler 1	Boiler 2	Boiler 3	Total	
Total feed water flow, 1000 lb		137,592	140,348	136,843	414,783	
Main steam temp, deg. F		746	742	739	742	
Main steam pressure, psig		605	608	599	604	
Feed water temp, deg. F		244	241	244	243	
SCAH inlet temp, deg. F		100	100	100	100	
SCAH outlet temp, deg. F		287	243	251	260	
Average economizer inlet flue gas temp, deg. F		869	826	845	867	
Economizer outlet flue gas temp (SDA inlet), deg. F		545	540	540	542	
Economizer outlet water temp, deg. F		477	465	441	461	
Hours of operation		648	659	603	1,910	
Waste fired, tons					81,297	
Total number of soot blows					36	
Residue burnout (good = 1, poor = 2)					1	
Total auxiliary burner gas flow, 10,000 cf					729	
Ambient air temp, deg. F					84.9	
Relative humidity, percent					72	
Model Output		HHV =	4545	BTU/lb		
		BTU/lb	Percent			
Heat Outputs:						
Output in main steam from MSW		2961.1	65.2			
Output in auxiliary steam		7.7	0.2			
Total Heat Outputs		2968.9	65.3			
Heat Losses:						
Dry Gas Loss		660.5	14.5			
Water from Fuel Loss		724.2	15.9			
Loss due to moisture in air		38.3	0.8			
Loss due to unburned combustibles in residue		200.0	4.4			
Unmeasured Losses		113.6	2.5			
Total Heat Losses		1736.7	38.2			
Heat Credits:						
Credit due to entering air		160.9	3.5			
Credit due to sensible heat in as-fired fuel		0.0	0.0			
Total Heat Credits		160.9	3.5			
Refuse HHV = Outputs + Losses - Credits		4545	100.0			
Approximate Efficiency			64	Percent		

Appendix B: Schedule of Environmental Reporting

Regulatory Reports	Targeted Time Frame
QUARTERLY REQUIREMENTS	
Quarter GHG Monitoring Rule – Biogenic CO2 Determination	2 nd quarter 2016 sampling was completed. The FDEP was notified by email of the target time frame ahead of this sampling.
Cylinder Gas and Opacity Audit	2 nd quarter 2016, opacity audit was completed the week of May 16 th . The FDEP was notified by email of the scheduled dates of the audit. Final opacity audit report was submitted electronically to the FDEP by the County (Beth Burns) on June 9, 2016.
SEMI-ANNUAL REQUIREMENTS	
Excess Emissions / CEMS Downtime Report (July-December)	Report was Submitted by the County to the FDEP prior to the reporting deadline of January 30, 2016.
Excess Emissions / CEMS Downtime Report (January-July)	July 30, 2016
ANNUAL REQUIREMENTS	
Annual Title V - Statement of Compliance Report	Pinellas County submitted the compliance statement (for enter site beyond the WTE plant operations) to the FDEP prior to the March 1, 2016 reporting requirement. After which, the FDEP requested that the County resubmit the compliance statement with a few amendments. The County complied with the FDEP's request.
Report Title XXVIII, Chapter 376.303, Annual SARA Title III/ Tier II Report	Report was submitted electronically submitted prior to the March 1, 2016 reporting requirement.
PSD Analysis and Post-CRP Annual Emission Report	Pinellas County submitted the full report to the FDEP prior to the March 1, 2016 reporting requirement.
Annual Operating Report	The eAOR reported was submitted electronically by Covanta prior to April 1, 2016 as required. Kelsi Oswald, Pinellas County electronically acknowledge and sign the eAOR report as the Title V responsible official prior to April 1, 2016 deadline.

Regulatory Reports	Targeted Time Frame
Air Emissions Fees	The FDEP provides the Title V emission fees invoice to Covanta. Pinellas County is responsible for submitting the final payment. Pinellas County submitted the invoice fee to the FDEP prior to the April 1, 2016 deadline.
GHG Annual report to EPA documenting the facility's Carbon Dioxide emissions on annual basis	Report must be submitted electronically prior to the March 31, 2016 deadline. In 2015, the report was submitted with identified "errors". The County acknowledged that these "errors" for the landfill appear to be related to limitations of the EPA E-GGRT software.
Stack Testing Source Test Protocol (15 days prior to testing)	Source test protocols were issued to Pinellas County in draft for review with a request that comments be provided back to Covanta. Stack testing scheduled for the week of May 23rd 2016. Final source test plan report was submitted electronically to the FDEP by the County (Beth Burns) on April 22, 2016.
Annual Stack Testing (9-15 months cycle, but must complete 5 within 5 year period) * FDEP indicated that this condition does not apply to Hydrogen Chlorides (and fugitive emissions) due to an EPA clerical error. *	Annual compliance stack testing was completed the week of May 23 rd , 2016. The County submitted the Final STP to the FDEP via email on April 22, 2016. The final test reports was submitted prior to July 11, 2016. *See details in main body of this report regarding anomalous result on B102.*
Submit Annual Stack Test Report (45 days post-testing)	The Final Test report will be submitted within the 45 day time frame after the testing is completed. The final test reports was submitted prior to July 11, 2016.

Appendix C: Spare Transformer Maintenance Log

Note : The spare Transformer was placed in-service in response to the TR-01 failure on March 19, 2016. Thus, at this time there is no spare transformer maintenance log.

Appendix D: Monthly Operations Statistics

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Appendix E: Excess Emission Summary (*Other Events)

Unit	Date	Emission or Parameter	CEM Start Time	CEM End Time	Limit Averaging Period	Actual Average Value	Limit	Units of emission limit	60.7 Excess Emission Category	Reason	Corrective Action
1	7/3/2016	Carbon Monoxide	12:00	16:00	4-hour block average*	2501	100	ppm corrected to oxygen	Shutdown	On July 3, 2016, B101 had to be shut down due to grate damage and a broken grate cylinder. Boiler coded offline at 11:59 hours when the recorded steam flow dropped below 100 kilo-pounds per hour. After the boiler coded offline, operations continued with the shutdown procedure. A field operator isolated the B101 20-inch main steam line to the #1 turbine at 12:03 hours. Upon closing the B101 20-inch main steam valve, the back pressure from the common main steam header cross tie from B102 is relieved.	When the isolation of the #1 main steam valve occurred, the 6-inch steam valve which was open to the bypass condenser (at zero pressure) subsequently experienced a temporary surge of steam flow. At this lower pressure, the recorded steam flow increased above 100-kilo pounds per hour at 12:03 hours and coded the unit on-line. At 12:05 hours, the field operator isolated the 6-inch steam valve and the recorded steam flow immediately dropped. Due to B101 coding back on-line for three minutes, subsequently this elevated 3 minutes of on-line boiler data accounted for the entire carbon monoxide average for both the 4-hour and 24-hour block averages.
1	7/3/2016	Carbon Monoxide	00:00	23:59	4-hour block average*	220	100	ppm corrected to oxygen	Shutdown	On July 3, 2016, B101 had to be shut down due to grate damage and a broken grate cylinder. Boiler coded offline at 11:59 hours when the recorded steam flow dropped below 100 kilo-pounds per hour. After the boiler coded offline, operations continued with the shutdown procedure. A field operator isolated the B101 20-inch main steam line to the #1 turbine at 12:03 hours. Upon closing the B101 20-inch main steam valve, the back pressure from the common main steam header cross tie from B102 is relieved.	When the isolation of the #1 main steam valve occurred, the 6-inch steam valve which was open to the bypass condenser (at zero pressure) subsequently experienced a temporary surge of steam flow. At this lower pressure, the recorded steam flow increased above 100-kilo pounds per hour at 12:03 hours and coded the unit on-line. At 12:05 hours, the field operator isolated the 6-inch steam valve and the recorded steam flow immediately dropped. Due to B101 coding back on-line for three minutes, subsequently this elevated 3 minutes of on-line boiler data accounted for the entire carbon monoxide average for both the 4-hour and 24-hour block averages.

* Consent Order with Pinellas County stipulates that a 24-hour block average applies for carbon monoxide emission events rather than the 4-hour block average, currently effective through December 31, 2016.

Appendix F: 2016 Outage Schedule

DRAFT OUTAGE SCHEDULE 2016

BLR 1	BLR 2	BLR 3	UNSCHEDULED	HOLIDAY	COMMON	TG 1	TG 2	STACK TEST
-------	-------	-------	-------------	---------	--------	------	------	------------

JANUARY						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

FEBRUARY						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	BOILER 1 MAJOR		25	26	27
28	29					

MARCH						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
TG 1 BUS / TR CL FAILURE				25	26	
27	28	29	30	31		

APRIL						
S	M	T	W	T	F	S
					1	2
3	TG2 BUS	5	6	BOILER 2 MAJOR		9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MAY						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	STACK TESTING		26	27	28
29	30	31				

JUNE						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	CLEAN		23	24
25	26	27	28	29	30	

JULY						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	CLEAN		22	23
24	25	26	27	28	29	30
31						

AUGUST						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	CLEAN		25	26
27	28	29	30	31		

SEPTEMBER						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

OCTOBER						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	COMMON OUTAGE			27	28	29
30	30					

NOVEMBER						
S	M	T	W	T	F	S
		1	TG 1 MAJOR STEAM PATH			5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

DECEMBER						
S	M	T	W	T	F	S
				1	2	3
4	5	BOILER 3 MAJOR		9	10	
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Boiler No.1 Outage Dates:

2 /20 - 3 /11 21 Days

10 / 14 - 11 /6 24 Days

Boiler No.2 Outage Dates:

3 / 24 - 4 / 9 18 Days

10 / 11 - 11 / 19 40 Days

Boiler No.3 Outage Dates:

4 /24 - 5 / 14 21 Days

11 / 28 - 12 / 16 19 Days

Common Outage:

10 /23 - 11 / 1 10 Days

TG 1 Major

10 / 17 - 11 / 9 24 Days

Appendix G: Draft Outage Scopes

2016 B101				
SPRING OUTAGE Feb 20 - Mar 11		21 Days		
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
3rd Pass Rear - EL 81 to Roof	On / Off Line Blasting	Expellers - Discovery Work	Routine PM 's of FA transfer conveyors	Fabric Filter Bag Change Out
3rd Pass Rear - EL 51 to lower header	Full Scaffold, Sand Blast and UT - 6 days	Grates - Discovery / Inspection		
1st Pass Lower Front Wall / Tile	3rd Pass Flu Gas Access Doors - Pending			
Evaporator II Tubes				
Refractory - Discovery				
Shields - Discovery				
Pressure Part - Discovery				
FALL OUTAGE Oct 14 - Nov 6		24 Days		
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
2nd Pass Rearwall Tubes EL 54 - 81	Boiler Penthouse and Supports	Grates - Major Inspection	Replace All Fabric Filter DD Valves - Pending Spring 2017	FF Retro to Thimbleless Bags / Sonic Horns
Refractory - Discovery		Expellers - Discovery Work	Replace SDA Slidegates - Pending Spring 2017	FF Inlet Duct
Shields - Discovery				FF Hoppers / Door / Heaters / - Pending Spring 2017
Pressure Part - Discovery				
2016 B102				
SPRING OUTAGE March 27 - April 14		19 Days		
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
	On / Off Line Blasting	Grates - Discovery / Inspection	Routine PM 's of FA transfer conveyors	Fabric Filter Bag Change Out
Refractory - Discovery	Full Scaffold, Sand Blast and UT - 6 days	Expellers - Minor Discovery Work		
Shields - Discovery				
Pressure Part - Discovery				
Pressure Part - Discovery				
FALL OUTAGE Oct 11 - Nov 19		40 Days		
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
2nd Pass Rearwall Tubes EL 54' - 81'	Boiler Penthouse and Supports	Combustion Controls & Instruments	Replace All Fabric Filter DD Valves - Pending Spring 2017	FF Retro to Thimbleless Bags / Sonic Horns
Drop Wall Refractory		Combustion Air Supply	Replace SDA Slidegates - Pending Spring 2017	FF Inlet Duct
Refractory - Discovery		Undergrate Hoppers / Riddling Discharge		FF Hoppers / Door / Heaters / - Pending Spring 2017
Shields - Discovery		Hydraulic System / UFA Dampers		
Pressure Part - Discovery		Grate - Major Resurface		
		Ash Discharger		
		Feed Chute Cooling Water Jacket - TBD		
		Feed Table and Supports		
		Overfire Air Nozzles		

Appendix G: Draft Outage Scopes

2016 B103				
SPRING OUTAGE April 24 - May 14 21 Days				
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
3rd Pass Rear Wall - EL 81 to Roof	On / Off Line Blasting	Grates - Discovery / Inspection	Routine PM 's of FA transfer conveyors	Fabric Filter Bag Change Out
3rd Pass Rear Wall - EL 51 to lower header	Full Scaffold, Sand Blast and UT - 6 days			
Refractory - Discovery	Hangers			
Shields - Discovery				
Pressure Part - Discovery				
FALL OUTAGE Nov 28 - Dec 17 20 Days				
PRESSURE PARTS / REFRACTORY:	BOILER:	STOKER / EXPELLERS:	ASH HANDLING / CONVEYORS	APC:
2nd Pass Rearwall EL 62' - 81'	Boiler Penthouse and Supports	Grates - Major Inspection	Replace All Fabric Filter DD Valves -Pending Spring 2017	FF Retro to Thimbleless Bags / Sonic Horns
Refractory - Discovery		Expellers - Discovery Work	Replace SDA Slidegates - Pending Spring 2017	FF Inlet Duct
Shields - Discovery				FF Hoppers / Door / Heaters / - Pending Spring 2017
Pressure Part - Discovery				
2016 Common Outage				
COMMON OUTAGE Oct 23 - Nov 1 10 Days		TG No.1	TG No.2	VALVES
Electrical Testing	Inspect DA No1 and No2	Clean and Inspect No.1 Main Condenser	Clean and Inspect No.2 Main Condenser	Misc Valve Repairs
RSPB Belt Replacements including Gallery and C-1, C-4 and C-9	Clean both Slurry and Dilution Water Tanks	Clean and Inspect No.1 By-Pass Condenser	Clean and Inspect No.2 By-Pass Condenser	
VC 2 and VC3 Liners		Major Steam Path Replacement and 5 year Inspection		
Inspect and Repair Bottom Ash and Fly Ash Common Conveyors				
RSPB V2,V7,V8 and V13 Repairs				
Repairs to Common FA Conveyors				
New CNV-4				
New Dustmizers				