Alexandria Arlington Resource Recovery Facility

Fiscal Year 2019

Annual Operations Report

August 2019

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Definition of Abbreviations & Acronyms

Abbreviation/Acronym	Definition
APC	Air Pollution Control
Apr	April
Aug	August
Avg	Average
Btu	British thermal unit
CAAI	Covanta Alexandria Arlington, Inc.
CEMS	Continuous Emissions Monitoring System
CO	Carbon Monoxide
Dec	December
ECOM	Emergency Communications
Feb	February
FMG	Facility Monitoring Group
FY	Fiscal Year
gal	Gallon
GAT	Guaranteed Annual Tonnage
HCl	Hydrochloric (Hydrogen Chlorides)
HDR	HDR Engineering Inc
HHV	Estimated Waste Heating Value (Btu/lb)
ID	Induced Draft
Jan	January
Jul	July
Jun	June
klbs	Kilo-pounds (1,000 lbs)
kWhr	Kilowatt hours (1,000 watt-hours)
lbs	Pounds
LOA	Letter of Agreement
Mar	March
Max	Maximum
May	May
Min	Minimum
MSW	Municipal Solid Waste
MWhr	Megawatt hours
No	Number
NOV	Notice of Violation
Nov	November
NO_x	Nitrogen Oxide
Oct	October
OSHA	Occupational Safety and Health Administration
PDS	Potomac Disposal Services
ppm	Parts per million
ppmdv	Parts per million dry volume
PSD	Prevention of Significant Deterioration
Q1	First Quarter
Q2	Second Quarter
Third	Third Quarter
Q4	Fourth Quarter
RE	Reportable Exempt
RNE	Reportable Non-Exempt
SDA	Spray Dryer Absorber
Sep	September
SO_2	Sulfur Dioxide
TCLP	Toxicity Characteristic Leaching Procedure
VADEQ	Virginia Department of Environmental Quality
WL	Warning Letter
yr	Year
YTD	Year to date

Alexandria/Arlington Waste-to-Energy Facility
Annual Operations Report – Fiscal Year 2019

1.0 Purpose of Report

HDR Engineering, Inc. (HDR) was authorized by the Facility Monitoring Group (FMG) to conduct quarterly inspections and provide quarterly reports regarding the operation and maintenance of the Covanta Alexandria/Arlington Waste-to-Energy Facility (Facility) for the 2019 Fiscal Year. This report is prepared for the fourth quarter of the 2019 fiscal year and summarizes Facility operations between April 1, 2019 and June 30, 2019, as well as the entire fiscal year. This report identifies the fiscal year beginning on July 1, 2018 as FY19 and the quarter beginning on April 1, 2019 as Q4FY19.

This report is based upon HDR's experience in the waste-to-energy industry, upon site observation visits and previous reports provided by HDR, and upon data provided by Covanta Alexandria/Arlington, Inc. (CAAI), the Facility owner and operator.

2.0 Executive Summary

CAAI operated the Facility in an acceptable manner and in accordance with established waste-to-energy industry practices during Q4FY19. The operation of the Facility, maintenance, safety, and overall cleanliness continue to be above average. Environmental performance was excellent with no reportable environmental excursions throughout the quarter.

During Q4FY19, the boilers experienced two (2) instances of unscheduled downtime totaling 41.3 hours, and the turbine generators experienced no unscheduled downtime. Boiler No. 1 experienced one (1) instance of downtime totaling 51.8 hours for a scheduled cleaning outage, while no scheduled maintenance occurred on Boiler Nos. 2 and 3 during the quarter. No scheduled or unscheduled downtime was experienced by the turbine generators. The boilers experienced two (2) instances of standby downtime totaling 35.5 hours and

Turbine Generator No. 2 experienced one (1) instance of standby downtime totaling 15.2 hours during the quarter. A detailed listing of downtime is provided in Section 5.2 of this report.

Average waste processed during the quarter was 1,023.6 tons per day, or 105.0% of nominal facility capacity. Waste deliveries averaged 1,028.7 tons per day, which is 0.5% higher than the burn rate. The quarterly capacity utilization was 105.0%.

For FY19, average waste processed was 959.1 tons per day, or 98.4% of nominal facility capacity of 975 tons per day. Waste deliveries averaged 954.7 tons per day, which is 0.5% less than the annual burn rate. The annual capacity utilization of 98.4% compares very favorably to industry averages.

Performance trends for various measurements are presented in Section 4. In general, the Facility continues to demonstrate reasonable consistency in month to month performance throughout the most recent three-year period tracked for detailed comparisons.

During the quarter, MSW processed was slightly higher (0.1%) compared to the corresponding quarter in FY18; steam production decreased (3.0%), and electricity generated (gross) decreased (3.1%) from the corresponding quarter in FY18. The decrease in steam generation is attributable to the decrease (2.4%) in waste heating value, paired with more boiler downtime (28.1 additional hours). The decrease in electricity generated (gross) in Q4FY19, is attributable to lower steam production, paired with more downtime (15.2 additional hours) experienced by the turbine generators.

During FY19, MSW processed slightly decreased (less than 0.1%) from FY18; steam production decreased 4.1%, and electricity generated (gross) decreased 4.7% compared to FY18. The decrease in annual steam generation is attributable to the decrease (4.8%) in annual calculated average waste heating value offset by less (388.0 fewer hours) scheduled, unscheduled, and standby downtime experienced by the boilers. Annual electrical generation decreased in FY19 as

compared to FY18 due to lower annual steam production, offset by less (50.6 fewer hours) scheduled, unscheduled, and standby downtime experienced by the turbine generators.

3.0 Facility Inspection and Records Review

In May 2019, HDR met with the Facility management and other plant personnel to discuss Facility operations and maintenance, acquire data and reports, perform an independent visual inspection of the operating Facility, photograph areas of interest, and perform a review of recent Facility activity. This visit was coordinated with the scheduled FMG meeting. At the time of the inspection, HDR reviewed CAAI records and discussed performance issues with CAAI staff. HDR maintains a running tabulation of the status of corrective actions and plant performance trends. CAAI provides the following documents for each month:

- Facility Monthly Operating Reports
- Monthly Continuous Emissions Monitoring System (CEMS) Reports

Table 1 summarizes maintenance, repair, and plant condition issues reported during this and prior reporting periods. An “A” indicates an issue of the highest priority and worthy of immediate attention. Such items are usually safety or operability issues. A “B” indicates that the issue needs to be dealt with as quickly as possible, but is not urgent. These items will usually result in a process improvement or will help avoid future “urgent” issues. A “C” indicates that the issue should be dealt with in due course, but is not a priority issue. This category might include issues related to aesthetics, non-urgent maintenance, or housekeeping improvements which are not safety related.

Note that HDR inspections are generally performed while equipment is operating, and are not intended to address the internal condition, performance or life expectancy of mechanical, electrical and electronic equipment and structures. HDR inspections are only performed quarterly, generally representing findings on the day of the inspection. CAAI is responsible, without limitation, for operations,

maintenance, environmental performance and safety and should not rely on HDR observations or inspection reports which are overviews of Facility external conditions only.

Table 1: Summary of Inspection Report Deficiencies

*A is highest priority & demands immediate attention: B needs attention, but is not urgent; C can be addressed at earliest opportunity & is not urgent.

Item No.	Inspection Report Deficiencies	Issue Reported	Priority*	HDR Recommendation	Status	Open / Closed
1	Pot hole, southeast corner of Ash Trailer Canopy	August 2015	C	Repair road surface	**Status Unchanged**	Open
2	Pavement spider-cracking at Tipping Floor Entrance	November 2016	C	Resurface section of pavement at Tipping Floor Entrance	**Status Unchanged**	Open
3	SDA Penthouse No. 3 Door deteriorated at base	November 2017	C	Patch and Paint Door – Replace if necessary	**Status Unchanged**	Open
4	Pipe corroded on west side of SDA No. 1	March 2018	C	Conduct proper painting preservation measures	**Status Unchanged**	Open
5	Road Striping Missing on Entrance Road indicating Two-Way Road	February 2019	A	Paint road striping on Entrance Road leading up to scales	**Complete**	Closed
6	Roof Ventilation Fan Not Working above Deaerator – See Figure 1 (Appendix B)	May 2019	C	Repair roof ventilation fan	**Status Unchanged**	Open
7	Diamond Plate Deck Corroded at Boiler No. 3 Opacity Monitor – See Figure 2 (Appendix B)	May 2019	C	Sand, Prime, Paint, and Preserve	**Status Unchanged**	Open
8	Multiple stair treads missing and not adhered to Cooling Tower Access Stairs – See Figure 3 (Appendix B)	May 2019	A	Replace missing stair tread and apply adhesive to loose stair tread	**Status Unchanged**	Open
9	Hand railing cracked on south end of Cooling Tower Deck – See Figure 4 (Appendix B)	May 2019	A	Replace hand railing	**Status Unchanged**	Open
10	Hand Railing Posts (Typical of Most) on the Cooling Tower Deck Split with bolt exposed – See Figure 5 (Appendix B)	May 2019	A	Replace or install caps on all posts. Consider annual application of protective coatings to increase longevity.	**Status Unchanged**	Open

4.0 Facility Performance

Monthly operating data provided by CAAI indicates that 93,144 tons of MSW were processed during Q4FY19, and a total of 93,612 tons of MSW including 2,962 tons of Special Handling Waste were received. Total ash production during the quarter was 17,806 tons, which represents19.1% of the waste processed by weight. The average uncorrected steam production rate for Q4FY19 was 2.86 $tons_{steam}/ton_{waste}$, which is lower (3.0%) than the corresponding quarter in FY18. The decrease in this metric is attributable to the 2.4% decrease in the quarterly average waste heating value (HHV) calculated by CAAI.

On an annual basis, 350,057 tons of MSW were processed during FY19, and a total of 348,454 tons of MSW and 11,778 tons of Special Handling Waste were received. Total ash production during FY19 was 67,068 tons, which represents 19.2% of the waste processed. The average uncorrected steam production rate for FY19 was 2.93 $tons_{steam}/ton_{waste}$, and lower (4.1%) than the prior fiscal year. The decrease in this metric is attributable to the decrease (4.8%) in the calculated average waste heating value when comparing FY19 to FY18.

Chart 1: Tons of Waste Processed

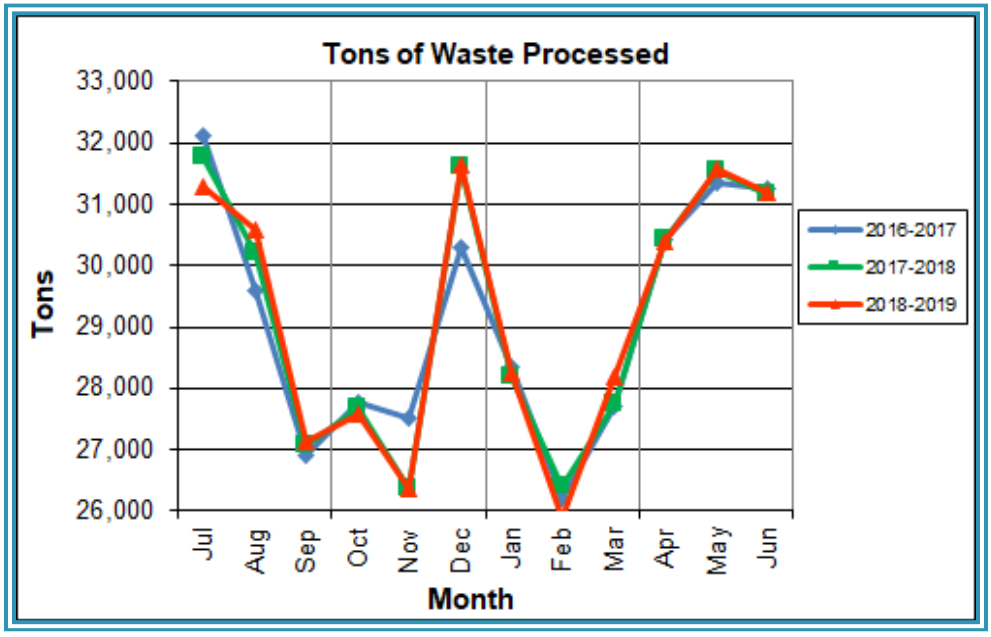


Chart 1 illustrates that Q4FY19 waste processed was slightly higher (0.1%) than the corresponding quarter, Q4FY18.

CAAI reported that 448 tipping floor/MSW internal inspections were conducted during the quarter and six (6) notices of violation (NOVs) were issued to haulers for the following issues:

- April 2019 – one (1) NOV was issued for excessive metal in the load
- May 2019 – three (3) NOVs were issued for:
  - One (1) NOV for excessive metal in the load
  - One (1) NOV for damaging the swing arm gate at the tipping floor entrance while entering prior to being instructed
  - One (1) NOV for a load of truck tires
- June 2019 – two (2) NOVs were issued for:
  - One (1) NOV for excessive metal in the load
  - One (1) NOV for opening the turnbuckle on the entrance ramp to the Tipping Floor

Chart 2: Tons of Ash Produced per Ton of Waste Processed

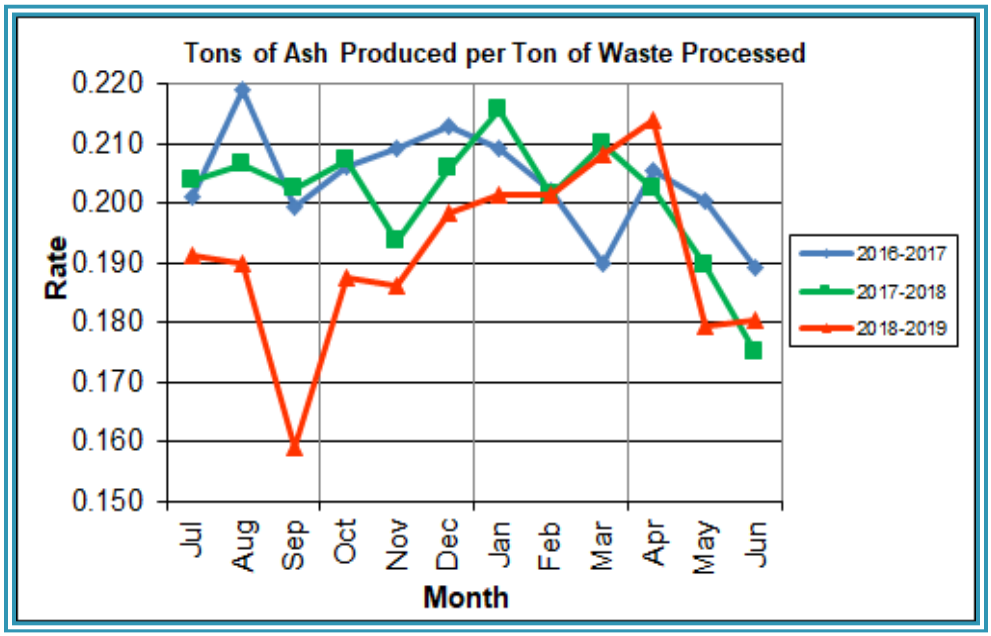


Chart 2 illustrates that the average ash production rate in Q4FY19 was higher (0.2%) at 19.1% of processed waste, compared to the corresponding quarter in FY18 when the rate was 18.9%. The increase in this metric is attributable to the significant decrease (15.0%) in ferrous metal recovery in Q4FY19 when compared to the corresponding quarter in FY18.

The annual ash production rate for FY19 was lower (0.9%) at 19.2% of processed waste, compared to FY18 when the rate was 20.1%. Ash production rates remain significantly lower than comparable facilities, mainly due to less water in the ash stream, coupled with good metal removal.

Chart 3: Ferrous Recovery Rate

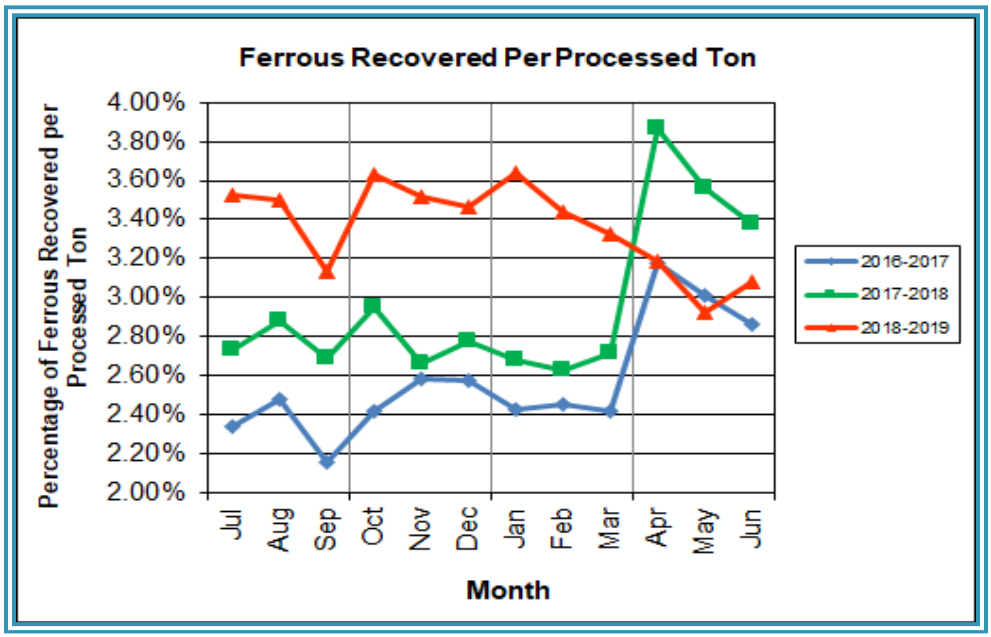
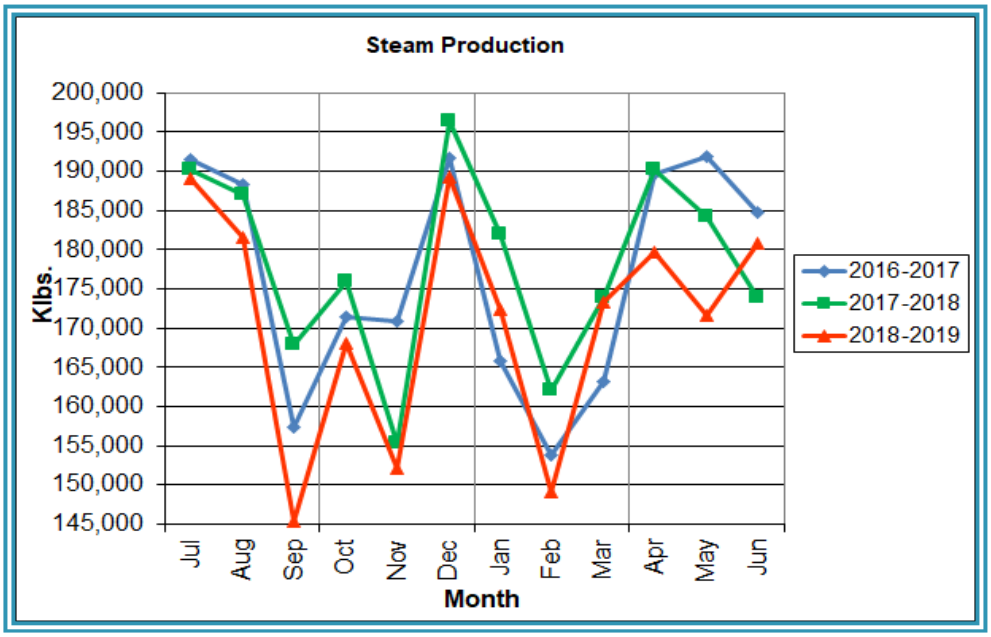


Chart 3 depicts the monthly ferrous metal recovery rate as a percentage of processed MSW tonnage. In Q4FY19, 2,850 tons of ferrous metals were recovered, which is 15.0% lower than the corresponding quarter in FY18 and equivalent to 3.1% of processed waste. CAAI reports that the decrease in ferrous recovery in Q4FY19 compared to the corresponding quarter last fiscal year is attributable to experimental processing of the recovered metals through a trommel screen to remove some of the residual ash. The ash that was removed from the ferrous metals was quantified and deducted from the recovery tonnage.

In FY19, 11,756 tons of ferrous metals were recovered, which is 12.8% higher than FY18 and equivalent to 3.4% of processed waste. CAAI indicated that in late March 2017, it made adjustments to the length of the main pan to decrease the gap between the pan and the ferrous magnet. The adjustments to the pan resulted in an increased trend in ferrous recovery for the last quarter of FY17 which has continued to date through FY19. This metric will continue to be monitored.

Chart 4: Steam Production



In Chart 4, the total steam production for Q4FY19 was 532,040 klbs, and lower (3.0%) than the corresponding quarter in FY18. The decrease in steam generation is attributable to the decrease (2.4%) in waste heating value, paired with more boiler downtime (28.1 additional hours).

Annual steam production for FY19 was 2,052,153 klbs. which is 4.1% lower than FY18 when 2,139,023 klbs. were produced. The decrease in annual steam generation is attributable to the decrease (4.8%) in annual calculated average waste heating value offset by less (388.0 fewer hours) scheduled, unscheduled, and standby downtime experienced by the boilers.

Chart 5: 12-Month Rolling Steam Production

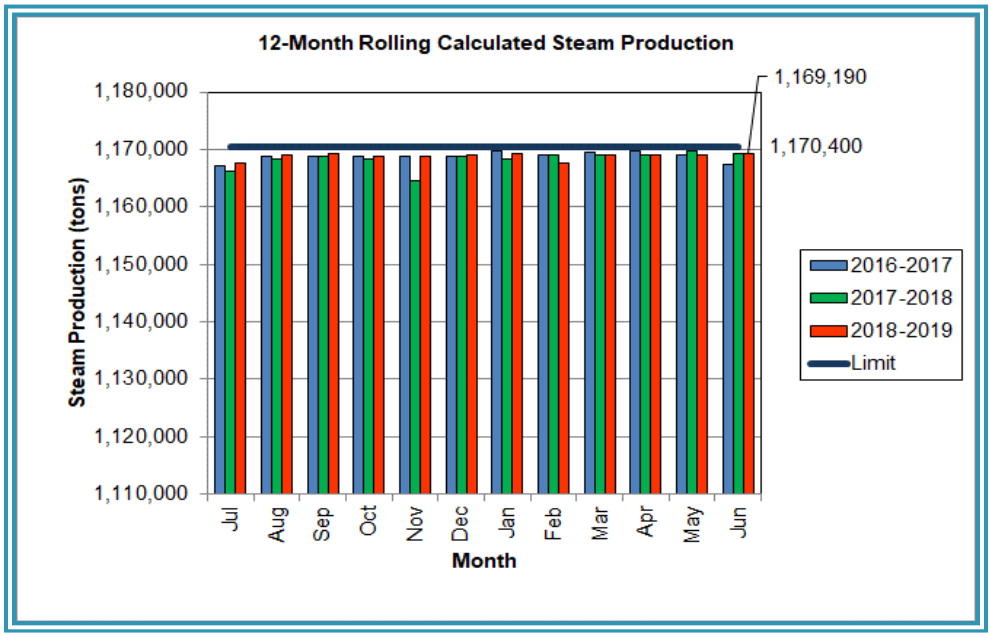
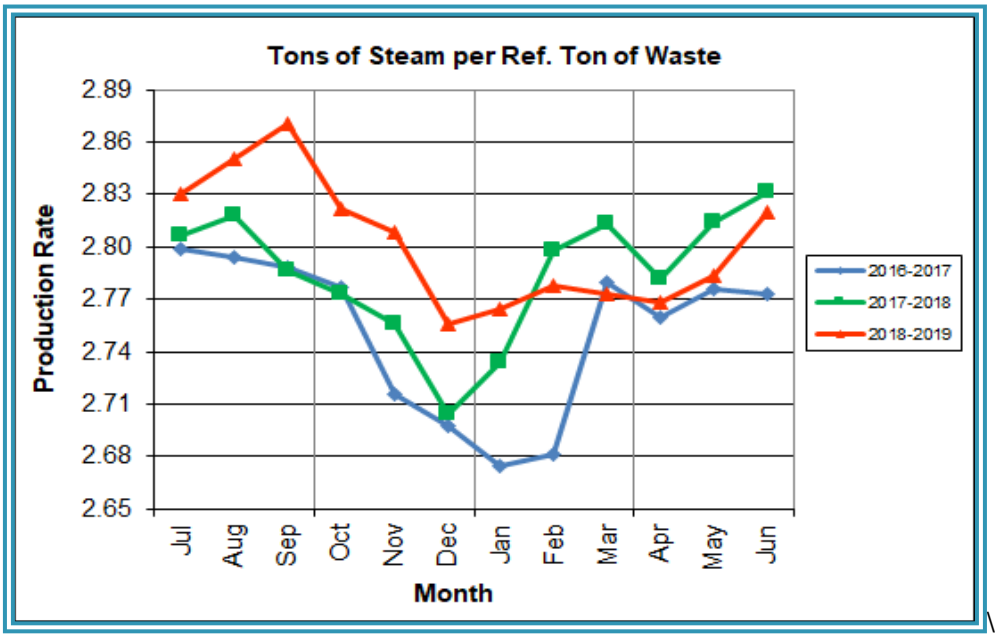


Chart 5 depicts the 12-month rolling steam production total for FY19. According to the Title V permit, the annual steam production for the Facility shall not exceed 1,170,400 tons on the basis of an average value of 3.34 lbs of steam per lb of MSW processed, calculated monthly as the sum of each consecutive 12-month period. The Facility was in compliance with the 12-month rolling steam production total every month in Q4FY19, and FY19. The 12-month rolling total for steam production ending in June 2019 was 1,169,190 tons which is 99.9% of the limit. Chart 5 shows that Facility throughput, and in turn, steam and electricity production are being throttled to stay ever so slightly below the steam production limit nearly every month.

Chart 6: Steam Production Rate



In Chart 6, the conversion of raw waste tonnages into "reference tons" is another way of analyzing steam production and helps to determine whether changes are related to boiler performance or to fuel issues. "Reference tons" are adjusted to account for the calculated average fuel heating value, so that lower Btu fuel raw tonnages are adjusted upwards and vice versa. In Q4FY19, this metric tracked slightly lower (0.6%) at 2.79 $tons_{steam}/ton_{ref}$ compared to the corresponding quarter in FY18.

The Annual steam production rate for FY19 was 2.80 $tons_{steam}/ton_{ref}$ which is higher (0.6%) than FY18. The slight increase in this metric is indicative of a slight improvement in boiler performance when comparing FY19 to FY18.

Chart 7: Calculated Waste Heating Value

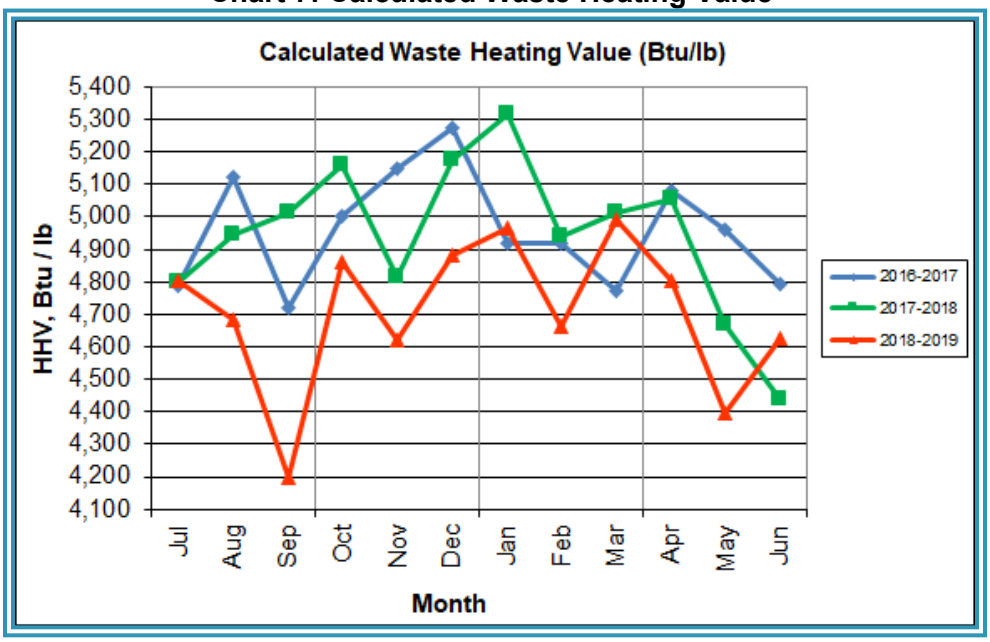


Chart 7 illustrates that Q4FY19 calculated average waste heating value was lower (2.4%) at 4,608 Btu/lb than the corresponding quarter Q4FY18, which averaged 4,722 Btu/lb.

In FY19, the annual average waste heating value was lower (4.8%) at 4,708 Btu/lb than FY18, which averaged 4,944 Btu/lb. Note that 63.4 inches of precipitation were recorded at Ronald Reagan National Airport in FY19 compared to 44.8 inches of precipitation in FY18 which is 41.5% higher[1]. This historically high rainfall in the Washington, D.C. Area negatively impacted the annual average waste heating value.

The FY19 annual average heating value of 4,708 Btu/lb is 4.6% higher than the facility design value of 4,500 Btu/lb. This disparity in average heating value of the fuel compared to the original design value established in the 1980's is one of the reasons that the annual capacity utilization is close to 100% and considerably higher than similar facilities that generally operate in the 90% range (see Section 2.0). In other words, there was sufficient conservatism in the original design of the boiler(s) and their capacity to absorb more heat, and routinely process more MSW, than they were originally rated for.

[1] https://www.wunderground.com/

Table 2: Quarterly Performance Summaries

Month		Waste Processed (tons)	Waste Diverted (tons)	Ash Shipped (tons)	Special Handling (Supplemental) (tons)	Ferrous Recovered (tons)	Steam Produced (klbs)	Net Electrical Generation (MWhr)
Q4FY17	**Quarterly Totals**	**93,024**	**0**	**18,451**	**4,842**	**2,805**	**566,152**	**40,625**
	April -17	30,423	0	6,255	1,420	966	189,608	13,778
	May -17	31,350	0	6,285	1,705	945	191,859	13,849
	June - 17	31,251	0	5,911	1,717	894	184,685	12,998
Q4FY18	**Quarterly Totals**	**93,094**	**0**	**17,592**	**3,438**	**3,354**	**548,286**	**38,568**
	April -18	30,420	0	6,157	886	1,177	190,177	13,812
	May -18	31,531	0	5,979	1,391	1,124	184,159	12,833
	June - 18	31,143	0	5,456	1,161	1,053	173,950	11,923
Q4FY19	**Quarterly Totals**	**93,144**	**0**	**17,806**	**2,962**	**2,850**	**532,040**	**37,155**
	April -18	30,387	0	6,503	895	967	179,676	12,894
	May -18	31,567	0	5,670	1,038	922	171,614	11,674
	June - 18	31,190	0	5,633	1,029	961	180,750	12,587
FY19 Totals		**350,057**	**0**	**67,068**	**11,778**	**11,756**	**2,052,153**	**142,430**
FY18 Totals		**350,087**	**0**	**70,368**	**16,431**	**10,418**	**2,139,023**	**150,506**
FY17 Totals		**349,516**	**0**	**71,208**	**13,411**	**9,036**	**2,120,115**	**150,935**

Table 2 presents the production data provided to HDR by CAAI for Q4FY19 on both a monthly and quarterly basis. For purposes of comparison, data for Q4FY17 and Q4FY18 are also shown, as well as FY17, FY18 and FY19 totals.

In comparing quarterly totals, the data shows:

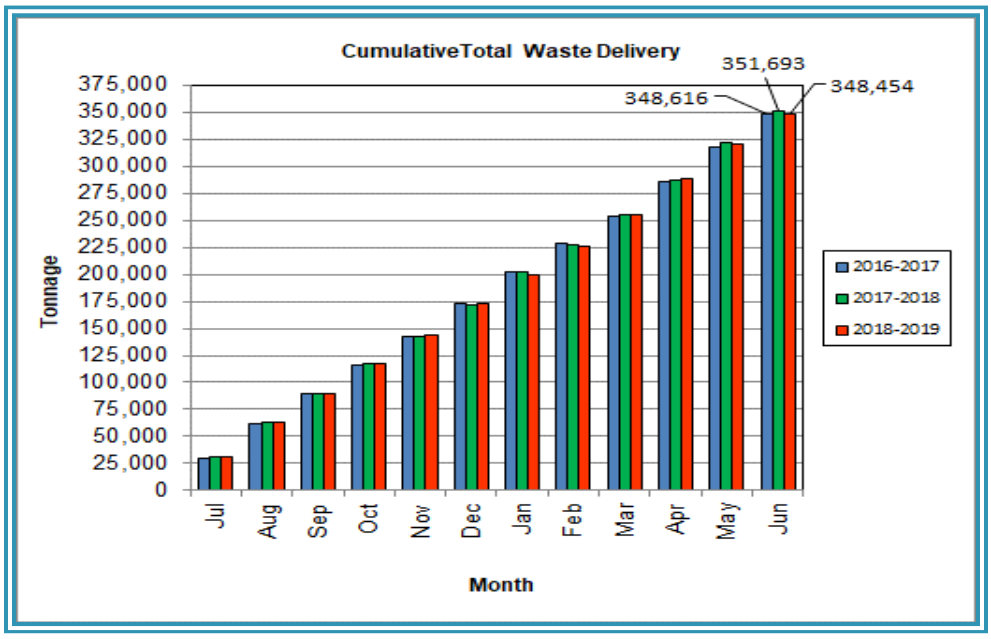
- Slightly more waste was processed in Q4FY19 than Q4FY18 and Q4FY17
- Less steam was generated in Q4FY19 than Q4FY18 and Q4FY17
- Less electricity (net) was generated in Q4FY19 than Q4FY18 and Q4FY17
- Less supplemental waste was received in Q4FY19 than Q4FY18 and Q4FY17.

Note that the total steam generation figures presented in Table 2 do not correlate with the annual steam production limit from the Facility Permit; such limits apply on a rolling average monthly basis, and not a fiscal year basis.

Table 3: Waste Delivery Classification

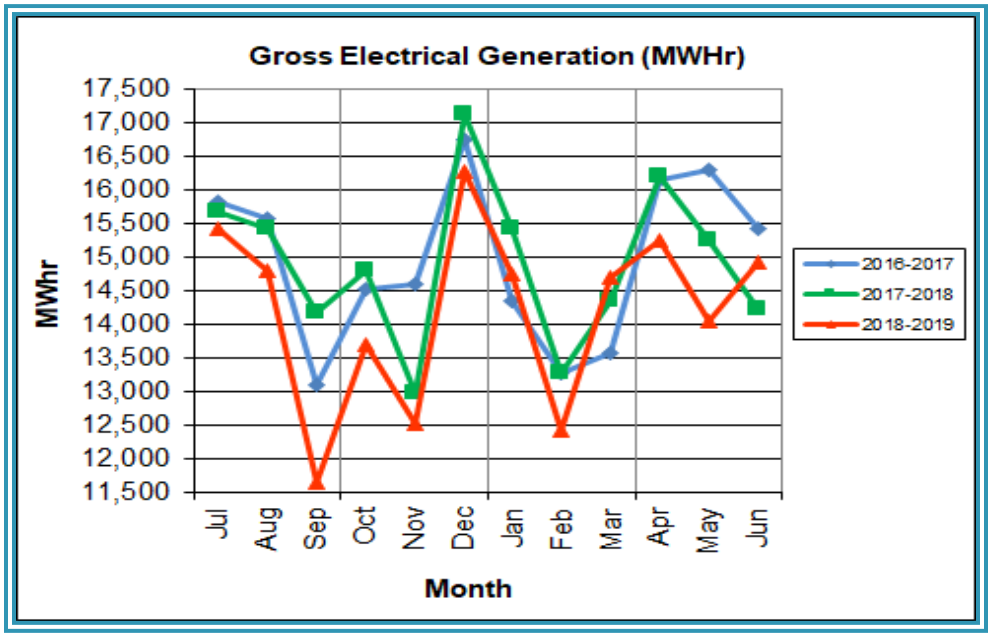
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY15	City Waste	1,814	1,497	1,699	1,737	1,518	1,770	1,411	1,209	1,648	2,155	2,059	2,045	20,562	5.91%
	County Waste	3,297	2,868	2,973	3,095	2,508	2,852	2,358	1,833	2,411	3,269	3,652	3,572	34,687	9.96%
	Municipal Solid Waste	26,661	24,466	21,887	21,241	21,678	27,906	24,611	20,915	24,094	25,189	23,126	25,667	287,442	82.57%
	Supplemental Waste	141	275	329	521	764	529	389	351	272	613	531	698	5,413	1.55%
	MSW Totals	**31,913**	**29,106**	**26,888**	**26,595**	**26,468**	**33,057**	**28,769**	**24,308**	**28,424**	**31,225**	**29,369**	**31,982**	**348,105**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY16	City Waste	1,960	1,563	1,723	1,645	1,685	1,872	1,147	1,619	1,811	2,024	1,950	2,220	21,219	6.03%
	County Waste	3,627	2,880	2,832	2,869	2,682	2,891	2,025	2,389	2,694	2,406	2,508	2,661	32,465	9.22%
	Municipal Solid Waste	27,933	22,999	22,552	22,850	20,679	26,138	22,632	22,781	22,935	24,388	26,561	27,355	289,801	82.32%
	Supplemental Waste	676	427	771	684	676	787	642	850	792	996	605	661	8,565	2.43%
	MSW Totals	**34,196**	**27,869**	**27,878**	**28,047**	**25,722**	**31,687**	**26,446**	**27,639**	**28,232**	**29,814**	**31,623**	**32,896**	**352,049**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY17	City Waste	1,678	1,836	1,668	1,722	1,817	1,708	1,597	1,452	1,604	1,882	2,170	2,002	21,136	6.06%
	County Waste	2,386	2,469	2,370	2,184	2,321	2,289	2,287	2,016	2,517	2,371	2,877	2,889	28,976	8.31%
	Municipal Solid Waste	24,862	26,976	22,760	22,110	21,598	25,996	24,218	20,888	20,401	25,004	26,143	24,135	285,091	81.78%
	Supplemental Waste	504	642	734	926	941	1,036	1,083	1,413	1,291	1,420	1,705	1,717	13,412	3.85%
	MSW Totals	**29,430**	**31,922**	**27,532**	**26,941**	**26,677**	**31,030**	**29,185**	**25,769**	**25,814**	**30,677**	**32,895**	**30,743**	**348,615**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY18	City Waste	1,699	1,876	1,642	1,719	1,849	1,541	1,621	1,365	1,569	2,000	2,298	2,011	21,191	6.03%
	County Waste	2,458	2,654	2,513	2,529	2,635	2,321	2,502	2,110	2,391	2,509	2,959	2,776	30,356	8.63%
	Municipal Solid Waste	24,950	25,303	21,518	20,885	19,108	24,668	25,302	20,826	22,980	26,645	27,438	24,091	283,714	80.67%
	Supplemental Waste	1,807	1,835	1,805	1,638	1,553	1,339	1,301	884	829	886	1,391	1,161	16,430	4.67%
	MSW Totals	**30,914**	**31,668**	**27,478**	**26,772**	**25,146**	**29,869**	**30,726**	**25,185**	**27,770**	**32,040**	**34,086**	**30,039**	**351,691**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY19	City Waste	1,848	1,836	1,823	1,996	1,892	1,732	1,823	1,458	1,614	2,063	2,442	1,882	22,409	6.43%
	County Waste	2,560	2,798	2,554	2,656	2,746	2,439	2,567	2,165	2,336	2,586	2,989	2,686	31,081	8.92%
	Municipal Solid Waste	25,442	25,920	21,873	21,678	21,472	23,046	21,455	21,975	24,323	28,361	25,444	22,197	283,185	81.27%
	Supplemental Waste	1,012	1,040	1,138	1,108	992	933	964	743	885	895	1,038	1,029	11,777	3.38%
	MSW Totals	**30,862**	**31,595**	**27,388**	**27,438**	**27,102**	**28,150**	**26,808**	**26,342**	**29,157**	**33,904**	**31,913**	**27,793**	**348,454**	**100.00%**

Chart 8: Cumulative Total Waste Delivery



As depicted in Table 3 and Chart 8, for FY19; cumulative total waste delivery was 0.9% lower compared to the same period in FY18.

Chart 9: Gross Electrical Generation

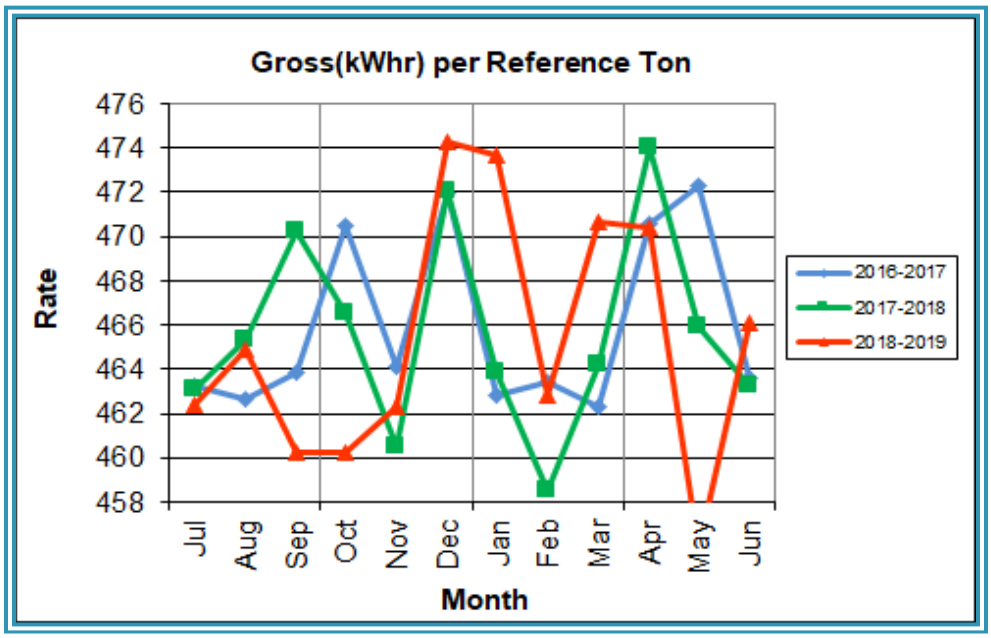


During Q4FY19, the Facility generated 44,256 MWhrs (gross) of electricity compared to Q4FY18 generation of 45,677 MWhrs (gross), a 3.1% decrease. The decrease in electricity generated (gross) in Q4FY19, is attributable to lower steam

production, paired with more downtime (15.2 additional hours) experienced by the turbine generators.

During FY19, the Facility generated 170,553 MWhrs (gross) of electricity compared to the FY18 generation of 178,963, a 4.7% decrease. Annual electrical generation decreased in FY19 as compared to FY18 due to lower annual steam production, offset by less (50.6 fewer hours) scheduled, unscheduled, and standby downtime experienced by the turbine generators.

Chart 10: Gross Conversion Rate



As shown in Chart 10, the average gross electrical generation per reference ton of refuse processed during Q4FY19 was 464 kWhr, which is slightly lower (0.8%) than the corresponding quarter in FY18. Since this calculated value uses reference or normalized tonnages of waste, it should cancel the effect of MSW heating value (Btu content) variability.

During FY19, the average gross electrical generation per reference ton of refuse processed was 465 kWhr, which is slightly lower (less than 0.1%) than FY18.

Chart 11: Net Conversion Rate

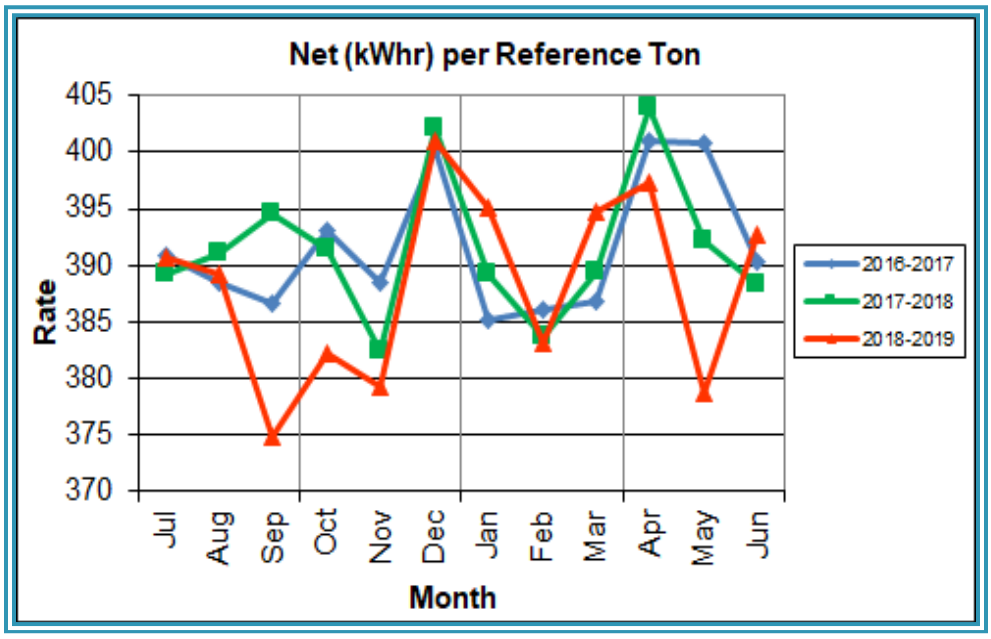


Chart 11 depicts the normalized net power (gross minus in-house usage) generation history. In Q4FY19, the average net electrical generation per reference ton was 390 kWhr, which is 1.3% lower than the corresponding quarter in FY18.

In FY19, the average net electrical generation per reference ton was 388 kWhr, which is lower (0.8%) than FY18.

Chart 12: Net Conversion Rate

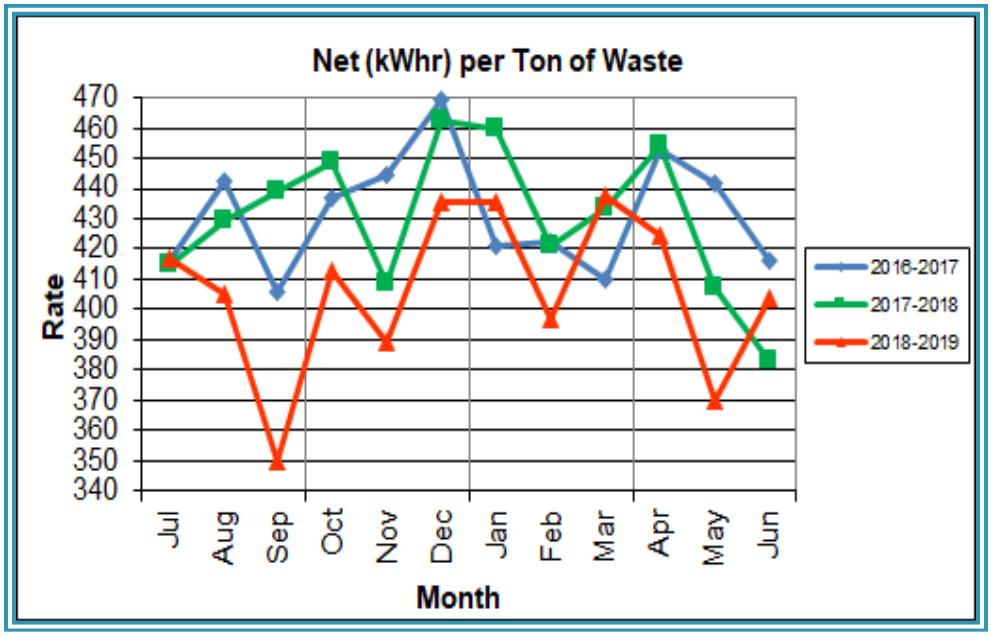


Chart 12 depicts the net power generation per processed ton. The net electrical generation per processed ton in Q4FY19 was 399 kWhr, which is 3.7% lower than the corresponding quarter in FY18 and is attributable to the decrease (2.4%) in waste heating value.

In FY19, the net electrical generation per processed ton was 406 kWhr which is 5.5% lower than FY18. The decrease is attributable to the decrease (4.8%) in annual average waste heating value.

Chart 13: Gross Turbine Generator Conversion Rate

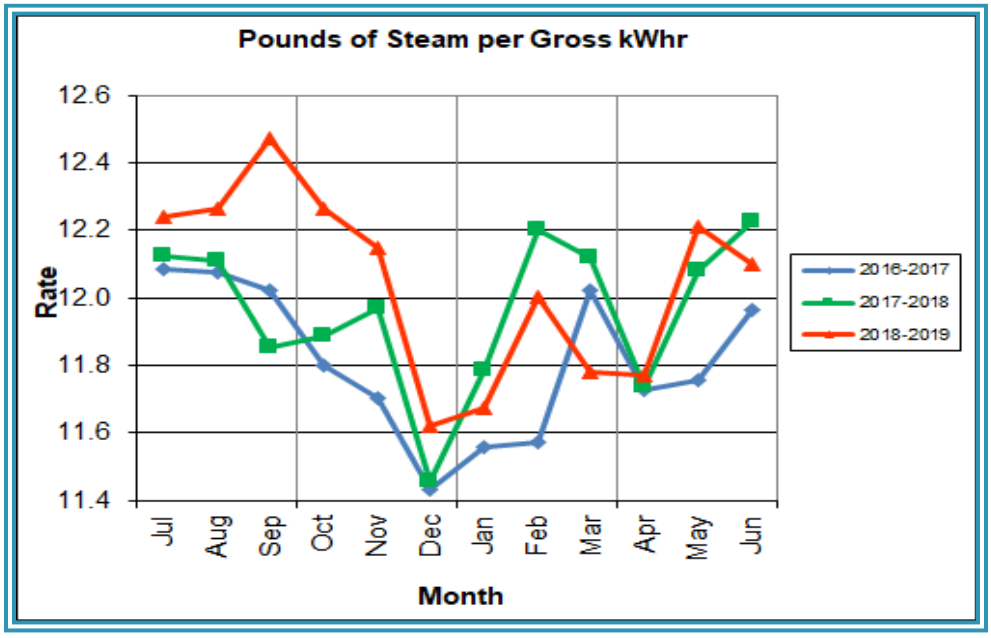


Chart 13 illustrates the quantities of steam required to generate one (1) kWhr of gross electricity. This measure is a turbine generator performance indicator, where lower steam rates indicate superior performance. For simplification, this calculated rate is based on the average for the two turbine generators. In Q4FY19 the average lbs of steam consumed per gross kWhr generated was 12.0, which is 0.2% higher (less efficient) than the corresponding quarter Q4FY18. A factor that negatively impacts this metric is Turbine Generator No. 2 continues to operate with its Stage 9 blades removed from the rotor. CAAI reported that during the Turbine Generator No. 2 overhaul in November 2013, some cracking was observed on the Stage 9 blades of the rotor, and the blading in that row was removed as a precautionary measure. CAAI originally indicated that a new set of blades would be manufactured and installed during a Turbine Generator No. 2 Outage in 2016,

but advised in May 2015, that the implementation of the replacement blades installation would be delayed and did not provide a date for repair. The average main steam temperature during the quarter was 687.4°F, which is 6.0°F higher than the average main steam temperature of the corresponding quarter last fiscal year and 12.6°F lower than design temperature of 700°F.

In FY19, the average lbs of steam consumed per gross kWhr was 12.0, which is 0.7% higher (less efficient) than the rate in FY18, noting that for this metric, lower steam consumption represents improved performance. The average steam temperature for FY19 was 679.6ºF, which is 1.7°F lower than the average main steam temperature last fiscal year and 20.4°F lower than design temperature of 700°F.

4.1 Utility and Reagent Consumptions

Table 4: Facility Utility and Reagent Consumptions

Utility	Units	Q4FY19 Total	Q4FY18 Total	Q4FY19"Per Processed Ton" Consumption	Q4FY18"Per Processed Ton" Consumption	FY19 Total	FY18 Total
Purchased Power	MWhr	5,553	5,510	0.0596	0.0592	22,154	22,193
Fuel Oil	Gal.	9,650	11,130	0.10	0.12	47,060	51,130
Boiler Make-up	Gal.	1,421,000	1,433,000	15.26	15.39	5,478,000	4,954,000
Cooling Tower Make-up	Gal.	40,434,486	39,987,886	434.11	429.54	136,886,796	141,527,845
Pebble Lime	Lbs.	1,654,000	1,286,000	17.76	13.81	5,620,000	1,286,000
Ammonia	Lbs.	176,000	183,000	1.89	1.97	656,000	730,000
Carbon	Lbs.	76,000	84,000	0.82	0.90	312,000	356,000
Dolomitic Lime	Lbs.	0	226,000	0.00	2.43	346,000	694,000

Fuel oil usage during the quarter represents approximately 0.16% of the total heat input to the boilers, which compares favorably with industry averages, and is slightly lower than the percentage of heat input in Q4FY18 which was 0.18%. Fuel oil is used to stabilize combustion of wet fuel, as well as during start-up and shut-down of the boilers for maintenance. Boiler makeup water usage during the quarter represents 2.2% of steam flow, which is identical to the boiler makeup in Q4FY18 and is acceptable. Pebble lime usage, at 1,654,000 lbs. is significantly higher (28.6%) than the corresponding quarter last year. During Q2FY19, CAAI reported that it was discontinuing dolomitic lime feed, while increasing lime slurry feed in an effort to stabilize the ash pH to levels that will minimize dolomitic lime to

condition the ash going forward. Ash pH levels in the range of 8 to 11 are desirable to minimize leaching potential of heavy metals. This operational change explains the significant increase in pebble lime usage during the quarter.

In comparing Q4FY19 to Q4FY18 on a per processed ton consumption basis:

- the purchased power consumption rate was 0.7% higher
- the total fuel oil consumption rate was 13.3% lower
- the boiler make-up water consumption rate was 0.9% lower
- the cooling tower make-up water consumption rate was 1.1% higher
- the total pebble lime consumption rate was 28.6% higher
- the ammonia consumption rate was 3.9% lower
- the carbon consumption rate was 9.6% lower
- the total dolomitic lime consumption rate was 100.0% lower, as no dolomitic lime was fed during the quarter

The significant decrease in carbon consumption during the quarter was primarily attributable to the Facility demonstrating compliance with mercury and dioxin/furan emissions limits during 2019 Stack Testing (March 2019) at a minimum feed rate of 12.0 lbs. per hour, rather than a minimum of 13.0 lbs. per hour which was demonstrated in 2018. CAAI reports that the significant decrease in dolomitic lime consumption during Q4FY19 compared to Q4FY18 was attributable to discontinuing dolomitic lime feed, while increasing lime slurry feed in an effort to stabilize the ash pH to levels that will allow eliminating dolomitic lime to condition the ash going forward.

4.2 Safety & Environmental Training

The Facility experienced no OSHA recordable accidents or First Aid accidents during the quarter. CAAI has operated 461 days without an OSHA recordable accident as of June 30, 2019. Safety and Environmental training was conducted with themes as follows:

April 2019

- Safety:
    - Electrical Safety

- Hearing Conservation
- Blood-Borne Pathogens

- Environmental:
  - Unauthorized Waste
  - Waste Inspections

May 2019

- Safety:
  - Emergency Action Plan
  - Severe Weather Events and Preparation
  - Positive and Negative Reinforcement
  - Line of Fire Accidents and Prevention
- Environmental:
  - Community Outreach
  - Environmental Incidents
  - Community Interaction

June 2019

- Safety:
  - Fire Prevention and Safety
  - Fire Response Exercise
  - Hot Loads
  - Fire Response Equipment
- Environmental:
  - Spill, Prevention, Control and Countermeasure Plans – Filling Operations and Spill Response

5.0 Facility Maintenance

Throughout the quarter, significant routine and preventative maintenance was performed. HDR considers that the Facility is implementing an effective maintenance regimen, and is performing routine and preventative maintenance, along with selected equipment replacements in a timely manner. CAAI monthly maintenance reports provide a detailed account of maintenance performed.

Beginning June 24, 2019 Boiler No. 1 experienced 51.8 hours of downtime for a scheduled boiler cleaning outage.

In addition to the scheduled outages, CAAI reports that 866 preventative maintenance actions were completed during the quarter.

5.1 Availability

Facility availabilities for Q4FY19 are shown in Table 5. According to CAAI reports, the average unit availabilities for Boiler Nos. 1, 2, and 3 for Q4FY19 were 97.6%, 98.1%, and 100.0%, respectively. The three-boiler average availability during the quarter was 98.6%, which is excellent and comparable to that of mature, well run waste to energy facilities. Note that 35.5 hours of standby downtime were not factored into overall boiler availability during the quarter.

According to CAAI reports, the average unit availabilities for Turbine Generator Nos. 1 and 2 for Q4FY19 was 100.0% and is excellent. Note that the reported availability metrics exclude standby time experienced which amounted to 15.2 hours for Turbine Generator No. 2.

Overall boiler availability for FY19 was 96.4%, and overall turbine generator availability was 99.9%. Overall availabilities for the boilers are highly acceptable and above industry averages, noting that these reported availability metrics exclude standby time experienced during the fiscal year which amounted to 210.6 hours for the boilers and 308.4 hours for the turbine generators.

Table 5: Quarterly Facility Unit Availabilities

Availability	Q1FY19 Average	Q2FY19 Average	Q4FY19 Average	Q4FY19 Average	FY19 Average
Boiler No. 1	98.3%	95.4%	91.7%	97.6%	95.8%
Boiler No. 2	98.9%	95.5%	93.7%	98.1%	96.5%
Boiler No. 3	94.7%	100.0%	93.4%	100.0%	97.0%
Avg.	***97.3%***	***97.0%***	***92.9%***	***98.6%***	***96.4%***
Turbine No. 1	100.0%	99.5%	100.0%	100.0%	99.9%
Turbine No. 2	100.0%	99.6%	99.7%	100.0%	99.8%
Avg.	***100.0%***	***99.6%***	***99.9%***	***100.0%***	***99.9%***

Table 6: Boiler Downtime – Q4FY19

Boiler Number	Outage Begin Date	Outage End Date	Hours Unavailable	Downtime Classification	Reason Unavailable
2	4/1/19	4/1/19	17.0	Unscheduled	Waterwall Failure – Inconel Area
2	5/1/19	5/2/19	24.3	Unscheduled	Atomizer Breaker Failure
3	5/1/19	5/1/19	11.8	Standby	Dominion Power Conducting Maintenance at the Van Dorn Substation
2	5/29/19	5/29/19	23.7	Standby	Process Throughput Limitations
1	6/24/19	6/26/19	51.8	Scheduled	Scheduled Boiler Cleaning Outage
Total Unscheduled Downtime				**41.3 Hours**	
Total Scheduled Downtime				**51.8 Hours**	
Total Standby Downtime				**35.5 Hours**	
Total Downtime				**128.6 Hours**	

Table 7: Turbine Generator Downtime – Q4FY19

Turbine Generator Number	Outage Begin Date	Outage End Date	Hours Unavailable	Downtime Classification	Reason Unavailable
2	5/1/19	5/1/19	15.2	Standby	Dominion Power Conducting Maintenance at the Van Dorn Substation
Total Unscheduled Downtime				**0.0 Hours**	
Total Scheduled Downtime				**0.0 Hours**	
Total Standby Downtime				**15.2 Hours**	
Total Downtime				**15.2 Hours**	

5.2 Facility Housekeeping

CAAI is performing Facility housekeeping and maintaining plant cleanliness in accordance with acceptable industry practices. A site inspection was conducted in May 2019. At the time of the inspection, new deficiencies were recorded and prior deficiencies were given a status update. Photos of interest from the inspection are depicted in Appendix B. The Facility housekeeping ratings from the May 2019 inspection are presented in Table 8.

Table 8: Facility Housekeeping Ratings – May 2019

Facility Area	Acceptable	Needs Improvement	Unacceptable
Tipping Floor	√		
Citizen's Drop-off Area	√		
Tipping Floor Truck Exit	√		
Front Parking Lot	√		
Rear Parking Lot	√		
Boiler House Pump Room	√		
Lime Slurry Pump Room	√		
Switchgear Area	√		
Ash Load-out Area	√		
Vibrating Conveyor Area	√		
Ash Discharger Area	√		
Cooling Tower Area	√		
Truck Scale Area	√		
SDA/FF Conveyor Area	√		
SDA Penthouses	√		
Lime Preparation Area	√		
Boiler Drum Levels	√		
Turbine Room	√		
Electrical Room	√		

6.0 Environmental

The air pollution control equipment maintained emission concentrations well within the established regulations. Average Continuous Emission Monitoring System (CEMS) data collected for each monthly period during Q4FY19 are summarized in Appendix A. No permit deviations were reported by the Facility during Q4FY19. Note that as of June 30, 2019, the CAAI Facility has operated 621 days without an environmental excursion.

6.1 Low NO_x Technology Implementation

The Virginia Department of Environmental Quality (VADEQ) has issued the final RACT permits for the installation and operation of LN™ Technology. CAAI has notified the Jurisdictions that the installation of LN™ Technology is planned on the first of the three (3) boilers in the second quarter of Fiscal Year 2020, with subsequent unit installations in the second quarters of Fiscal Years 2021 and 2022.

6.2 Nitrogen Oxide Emissions

During Q4FY19, the monthly emission concentrations of nitrogen oxides (NO_x) averaged 158.7 ppmdv, 159.7 ppmdv, and 159.3 ppmdv for for Boiler Nos. 1, 2, and 3, respectively. CAAI continues to operate the units at the lower (160 ppmdv) set-points, except immediately following a scheduled outage and associated boiler cleaning.

6.3 Sulfur Dioxide Emissions

During Q4FY19 the monthly emission concentration of stack sulfur dioxide (SO_2) averaged 0.0 ppmdv, 1.0 ppmdv, and 1.7 ppmdv for Boiler Nos. 1, 2, and 3, respectively. All of these stack SO_2 concentrations are significantly below the permit limit of 29 ppmdv @ 7% O_2.

6.4 Carbon Monoxide Emissions

During Q4FY19, the monthly average CO emission concentrations on Boiler Nos. 1, 2, and 3 were 29.7 ppmdv, 32.0 ppmdv, and 24.0 ppmdv, respectively, and all are well within permit limits (100 ppmdv, hourly average).

6.5 Opacity

During Q4FY19, the average opacity on Boiler Nos. 1, 2, and 3 were 0.2%, 1.2%, and 0.9%, respectively, which are all significantly below the 10% (6-minute) average permit limit.

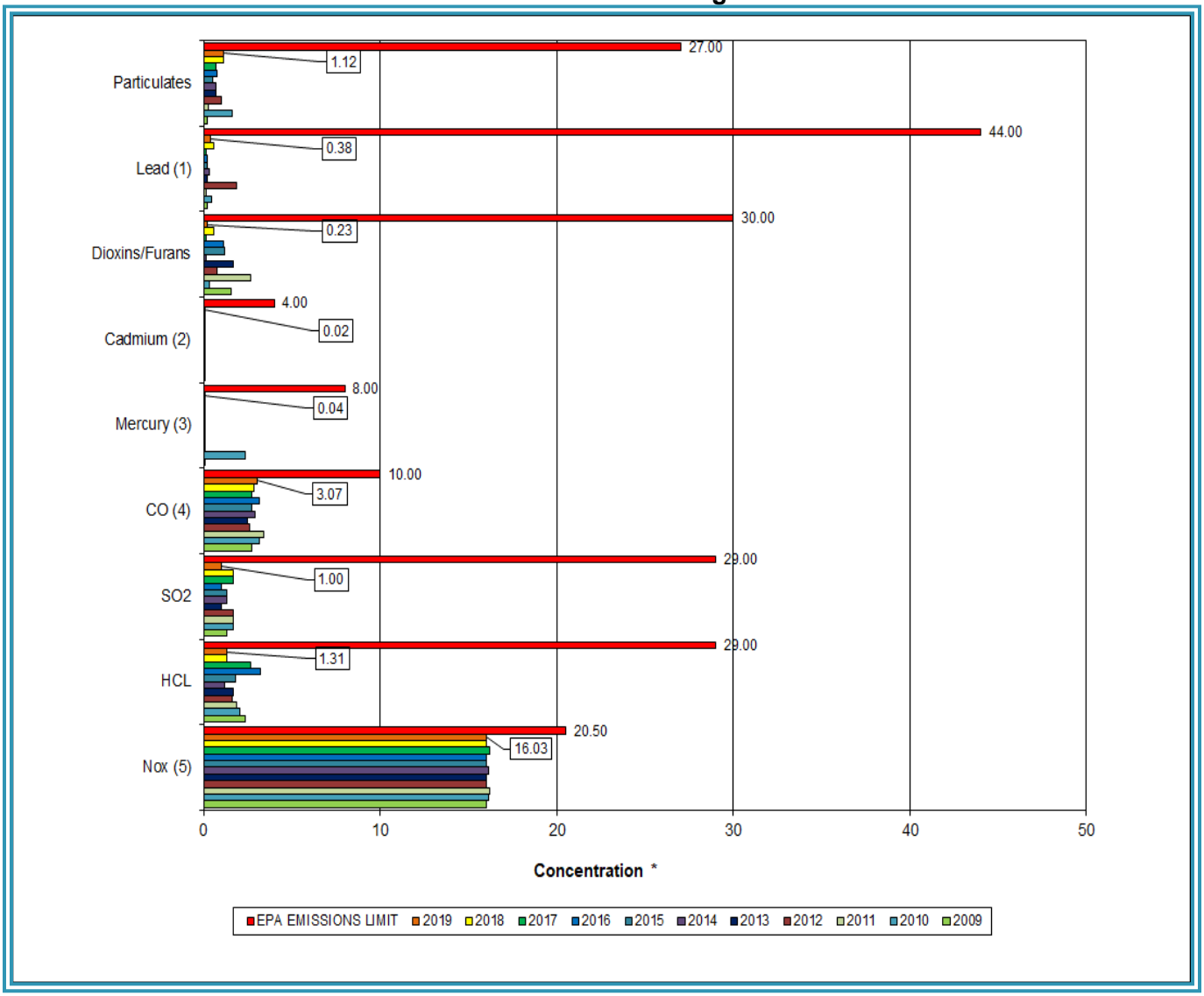
6.6 Daily Emissions Data

Appendix A, Tables 11, 12, and 13 tabulate the monthly average, maximum, and minimum emissions data for each unit during Q4FY19. Excursions, if any, would appear in bold print. It should be noted that these tabulations of monthly averages, reported here for informational purposes, are based on tabulations of daily averages. These averages do not correlate with official reports to the regulatory agencies because of differences in averaging times and other technical differences required by agency report formats.

6.7 2019 Annual Stack Testing

Annual stack testing was conducted March 18 through March 20, 2019 by Testar Inc. Historical stack test data including 2019 results are summarized in Chart 14 and Table 9. The 2019 test results demonstrate compliance well within the permit limits for all parameters. In addition to the tests required by the Facility permit, additional tests for small particulate matter ($PM_{2.5}$) were conducted. While there are no current Facility regulatory limits established for $PM_{2.5}$, average results for 2019 were 0.002 Gr/DSCF (grains per dry standard cubic foot) corrected to 7% O2, compared to the 2018 Annual Stack Testing PM <2.5 Results which averaged 0.004 Gr/DSCF corrected to 7% O2.

Chart 14: Stack Test Results through 2019



Note (1): Lead emissions have been increased by a factor of 100 for trending purposes
Note (2): Cadmium emissions have been increased by a factor of 100 for trending purposes
Note (3): Mercury emissions have been increased by a factor of 100 for trending purposes
Note (4): CO emissions have been decreased by a factor of 10 for trending purposes
Note (5): NO_x emissions have been decreased by a factor of 10 for trending purposes

Table 9: Stack Test Results through 2019

		NOx (ppmdv)	HCL (ppmdv)	SO_2 (ppmdv)	CO (ppmdv)	Mercury (mg/dscm)	Cadmium (mg/dscm)	Dioxins/Furans (ng/dscm)	Lead (mg/dscm)	Particulates (mg/dscm)	$PM_{2.5}$ (gr/dscf)
2011	Boiler 1	167	2.15	2.0	28	0.000360	0.000140	2.67	0.001720	0.130	0.00570
	Boiler 2	159	1.14	1.0	38	0.000440	0.000140		0.001460	0.350	0.00690
	Boiler 3	161	2.40	2.0	37	0.000360	0.000110		0.001470	0.350	0.00170
	AVERAGE	**162.3**	**1.90**	**1.67**	**34.33**	**0.000387**	**0.000130**	**2.67**	**0.001550**	**0.277**	0.00477
2012	Boiler 1	163	1.14	2.0	23	0.000300	0.000310		0.001340	0.640	0.00932
	Boiler 2	156	2.02	2.0	29	0.000340	0.000250		0.006520	1.280	0.00782
	Boiler 3	161	1.66	1.0	27	0.000370	0.000590	**0.75**	0.047800	1.020	0.00679
	AVERAGE	**160.0**	**1.61**	**1.67**	**26.33**	**0.000337**	**0.000383**	**0.75**	**0.018553**	**0.980**	0.00798
2013	Boiler 1	164	1.48	1.0	28	0.000364	0.000134		0.001450	0.637	0.00637
	Boiler 2	158	1.98	1.0	25	0.000372	0.000112	**1.66**	0.001050	0.737	0.00475
	Boiler 3	159	1.52	1.0	22	0.000422	0.000137		0.003030	0.733	0.00471
	AVERAGE	**160.3**	**1.66**	**1.00**	**25.00**	**0.000386**	**0.000128**	**1.66**	**0.001843**	**0.702**	0.00528
2014	Boiler 1	167	1.13	2.0	35	0.000327	0.000270	**0.16**	0.003820	0.282	0.00337
	Boiler 2	157	1.02	1.0	35	0.000348	0.000183		0.002520	1.240	0.00415
	Boiler 3	161	1.50	1.0	17	0.000492	0.000228		0.002850	0.520	0.00425
	AVERAGE	**161.7**	**1.22**	**1.33**	**29.00**	**0.000389**	**0.000227**	**0.16**	**0.003063**	**0.681**	0.00392
2015	Boiler 1	164	1.80	2.0	25	0.000316	0.000102		0.000995	0.513	0.00540
	Boiler 2	157	1.99	1.0	29	0.000375	0.000109		0.001300	0.532	0.00410
	Boiler 3	159	1.71	1.0	27	0.000385	0.000409	1.21	0.003040	0.499	0.00074
	AVERAGE	**160.0**	**1.83**	**1.33**	**27.00**	**0.000359**	**0.000207**	**1.21**	**0.001778**	**0.515**	0.00341
2016	Boiler 1	166	4.33	1.0	29	0.000456	0.000231		0.002810	1.170	0.00680
	Boiler 2	156	3.46	1.0	37	0.000428	0.000154	1.16	0.001130	0.657	0.00241
	Boiler 3	159	1.86	1.0	28	0.000375	0.000107		0.001590	0.371	0.00456
	AVERAGE	**160.3**	**3.22**	**1.00**	**31.33**	**0.000420**	**0.000164**	**1.16**	**0.001843**	**0.733**	0.00459
2017	Boiler 1	171	1.41	2.0	33	0.000493	0.000169	0.17	0.001770	0.860	0.00393
	Boiler 2	160	1.81	0.0	25	0.000411	0.000139		0.001040	0.742	0.00160
	Boiler 3	156	4.71	3.0	23	0.000368	0.000115		0.001170	0.561	0.00385
	AVERAGE	**162.3**	**2.64**	**1.67**	**27.00**	**0.000424**	**0.000141**	**0.17**	**0.001327**	**0.721**	0.00313
2018	Boiler 1	165	1.17	3.0	36	0.000401	0.000223		0.002670	0.649	0.00839
	Boiler 2	158	0.99	1.0	25	0.000415	0.000909		0.011200	2.040	0.00107
	Boiler 3	158	1.76	1.0	24	0.000481	0.000243	0.59	0.003190	0.655	0.00200
	AVERAGE	**160.3**	**1.31**	**1.67**	**28.33**	**0.000432**	**0.000458**	**0.59**	**0.005687**	**1.115**	0.00382
2019	Boiler 1	163	1.40	1.0	37	0.000423	0.000240		0.002080	0.750	0.00113
	Boiler 2	157	1.35	1.0	30	0.000389	0.000136	0.23	0.001120	0.973	0.00191
	Boiler 3	161	1.18	1.0	25	0.000409	0.000313		0.008080	1.640	0.00290
	AVERAGE	**160.3**	**1.31**	**1.00**	**30.67**	**0.000407**	**0.000230**	**0.23**	**0.003760**	**1.121**	0.00198
	EPA EMISSIONS LIMIT	205	29	29	100	0.08	0.04	30	0.44	27	--
	Percent of Limit for 2019	**78.2%**	**4.5%**	**3.4%**	**30.7%**	**0.5%**	**0.6%**	**0.8%**	**0.9%**	**4.2%**	--

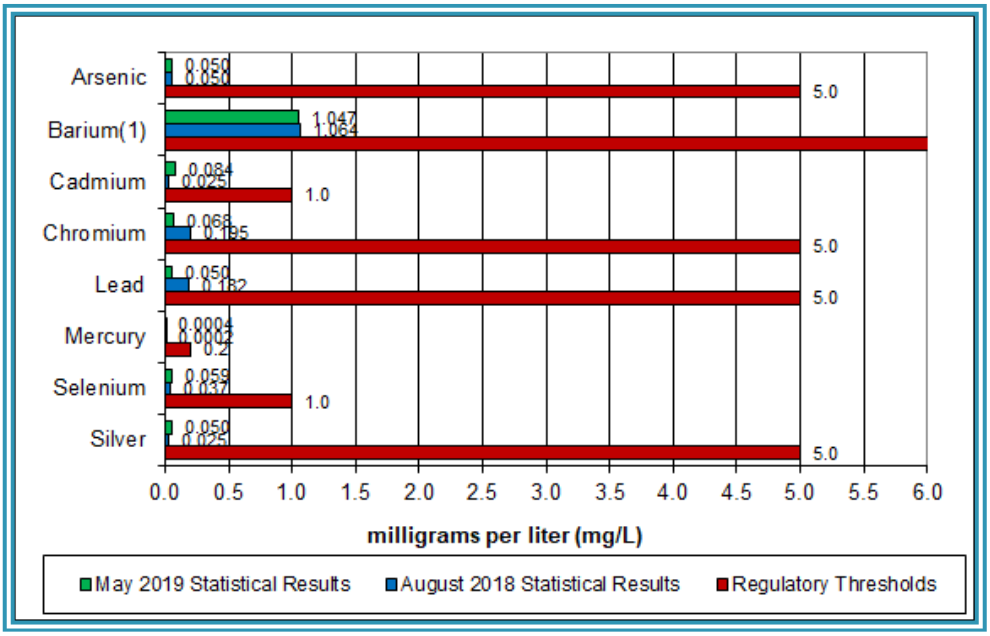
6.8 Ash System Compliance

During Q2FY19, CAAI reported that it was discontinuing dolomitic lime feed, while increasing lime slurry feed in an effort to stabilize the ash pH to levels that will allow eliminating dolomitic lime to condition the ash going forward. The desired ash pH level ranges from 8.0 to 11.0. During Q4FY19, CAAI reported that no dolomitic lime was fed, while pebble lime consumption rate was 17.8 lbs per ton, which is 28.6% higher than Q4FY18. Ash Toxicity (TCLP) tests were performed for field samples collected over a seven (7) day period in April and May 2019, and results indicated that the average pH during testing was 9.8. Results from the TCLP testing conducted in May 2019 and August 2018 are depicted in Table 10 and Chart 15 below.

Table 10: Comparison of Statistical Results and Regulatory Thresholds for Metal Analytes

Metals	90% Upper Confidence (May 2019)	90% Upper Confidence (August 2018)	Regulatory Threshold (mg/L)	% of Threshold (May 2019)	% of Threshold (August 2018)
Arsenic	0.050	0.050	5.0	1.00%	1.00%
Barium	1.047	1.064	100.0	1.05%	1.06%
Cadmium	0.084	0.025	1.0	8.40%	2.50%
Chromium	0.068	0.195	5.0	1.36%	3.90%
Lead	0.050	0.182	5.0	1.00%	3.64%
Mercury	0.0004	0.0002	0.2	0.20%	0.10%
Selenium	0.059	0.037	1.0	5.90%	3.70%
Silver	0.050	0.025	5.0	1.00%	0.50%

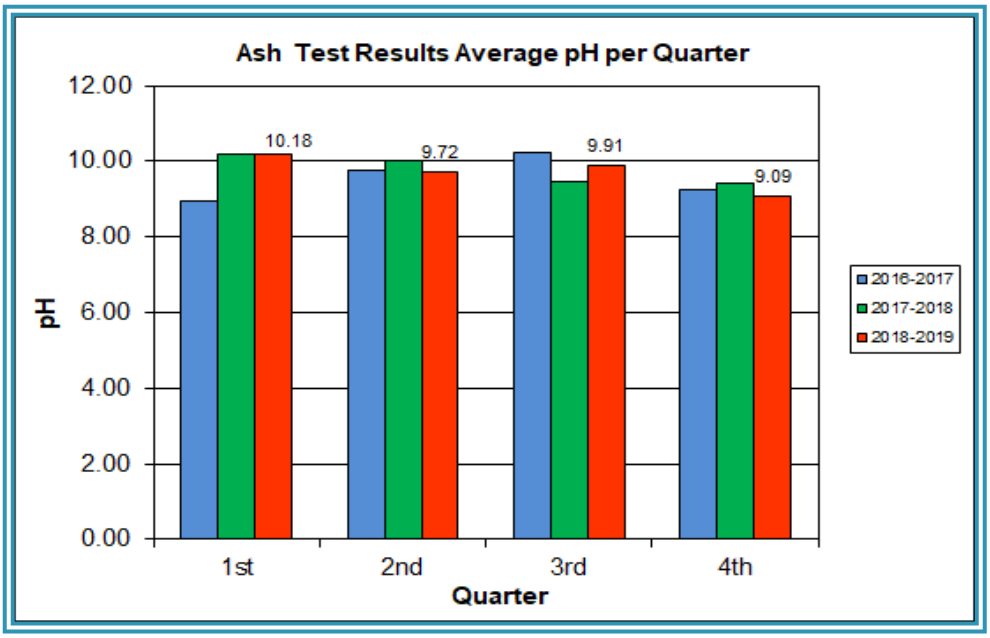
Chart 15: Ash Toxicity Characteristic Leaching Procedure (TCLP) Results



Note: The regulatory threshold for Barium is 100 mg/L

CAAI also samples ash monthly in-house, and documents pH reading to adjust dolomitic lime feed rate. The results for the ash pH tests are found below in Chart 16 where each quarter is represented by the average of the respective monthly readings. During Q4FY19, the average ash pH for in-house tests was 9.1.

Chart 16: Quarterly Ash Test Results



APPENDIX A
FACILITY CEMS DATA

Table 11: Unit #1 Monthly Summary for Reportable Emissions Data

Group#-Channel#		G8-C35	G8-C28	G8-C8	G8-C4	G8-C12	G8-C34	G8-C37	G8-C40	G8-C39
Long Descrip.		U-1 Steam	U-1 Econ	U-1 Stack	U-1 Stack	U-1 Stack	U-1 Opaci	U-1 FF In	U-1 Carbo	U-1 Lime
Short Descrip.		SteamFl	SO_2ec	SO_2sc	COsc	NO_xsc	Opacity	FF InTemp	CarbInj	LimeFlow
Units		K#/Hr	ppmc	ppm	ppmc	ppmc	%	deg F	#/hr	gpm
Range		0-100	0-2000	0-500	0-4000	0-1000	0-100	100-500	0-50	0-20
Apr - 19	AVG	84.0	17.0	0.0	32.0	159.0	0.1	300.0	13.3	3.8
	Max	88.9	30.0	2.0	42.0	164.0	0.4	302.0	13.6	4.1
	Min	70.4	9.0	0.0	22.0	154.0	0.0	295.0	13.3	3.2
May - 19	AVG	78.8	12.0	0.0	30.0	158.0	0.2	300.0	12.4	3.5
	Max	91.8	17.0	0.0	40.0	166.0	0.4	302.0	13.3	4.0
	Min	66.4	3.0	0.0	22.0	147.0	0.0	300.0	12.2	2.8
Jun - 19	AVG	82.7	21.0	0.0	27.0	159.0	0.3	300.0	12.4	3.5
	Max	90.8	59.0	3.0	38.0	162.0	0.5	301.0	13.9	3.8
	Min	67.5	3.0	0.0	18.0	155.0	0.1	299.0	12.2	3.0
Quarter Average		81.8	16.7	0.0	29.7	158.7	0.2	300.0	12.7	3.6
Quarter Max Value		91.8	59.0	3.0	42.0	166.0	0.5	302.0	13.9	4.1
Quarter Min Value		66.4	3.0	0.0	18.0	147.0	0.0	295.0	12.2	2.8
Limits:		98	NA	29	100	205	10	331	12(a)	

(a) Carbon flow limit is a minimum value

* Note: The data reported herein represent 24-hour average data for all parameters. Emissions excursions that are measured on shorter time intervals (i.e., 4-hour block averages for CO) do not correlate with the 24-hour average data reported above.

Table 12: Unit #2 Monthly Summary for Reportable Emissions Data

Group#-Channel#		G8-C35	G8-C28	G8-C8	G8-C4	G8-C12	G8-C34	G8-C37	G8-C40	G8-C39
Long Descrip.		U-2 Steam	U-2 Econ	U-2 Stack	U-2 Stack	U-2 Stack	U-2 Opaci	U-2 FF In	U-2 Carbo	U-2 Lime
Short Descrip.		SteamFl	SO_2ec	SO_2sc	COsc	NO_xsc	Opacity	FF InTemp	CarbInj	LimeFlow
Units		K#/Hr	ppmc	ppm	ppmc	ppmc	%	deg F	#/hr	gpm
Range		0-100	0-2000	0-500	0-4000	0-1000	0-100	100-500	0-50	0-20
Apr - 19	AVG	83.5	27.0	1.0	35.0	160.0	1.8	299.0	13.3	4.0
	Max	88.4	38.0	2.0	46.0	166.0	2.2	299.0	13.6	4.2
	Min	69.9	17.0	0.0	27.0	159.0	1.3	294.0	13.3	3.4
May - 19	AVG	78.9	22.0	1.0	30.0	159.0	1.1	298.0	12.4	3.6
	Max	90.2	32.0	3.0	38.0	161.0	1.6	301.0	13.3	4.2
	Min	66.2	14.0	0.0	23.0	158.0	0.5	266.0	12.2	2.9
Jun - 19	AVG	86.5	22.0	1.0	31.0	160.0	0.7	299.0	12.3	3.8
	Max	88.9	41.0	3.0	38.0	163.0	1.3	299.0	12.6	4.2
	Min	83.3	12.0	0.0	22.0	158.0	0.3	298.0	12.1	3.4
Quarter Average		83.0	23.7	1.0	32.0	159.7	1.2	298.7	12.7	3.8
Quarter Max Value		90.2	41.0	3.0	46.0	166.0	2.2	301.0	13.6	4.2
Quarter Min Value		66.2	12.0	0.0	22.0	158.0	0.3	266.0	12.1	2.9
Limits:		98	NA	29	100	205	10	330	12(a)	

(a) Carbon flow limit is a minimum value

* Note: The data reported herein represent 24-hour average data for all parameters. Emissions excursions that are measured on shorter time intervals (i.e., 4-hour block averages for CO) do not correlate with the 24-hour average data reported above.

Table 13: Unit #3 Monthly Summary for Reportable Emissions Data

Group#-Channel#		G8-C35	G8-C28	G8-C8	G8-C4	G8-C12	G8-C34	G8-C37	G8-C40	G8-C39
Long Descrip.		U-3 Steam	U-3 Econ	U-3 Stack	U-3 Stack	U-3 Stack	U-3 Opaci	U-3 FF In	U-3 Carbo	U-3 Lime
Short Descrip.		SteamFl	SO_2ec	SO_2sc	COsc	NO_xsc	Opacity	FF InTemp	CarbInj	LimeFlow
Units		K#/Hr	ppmc	ppm	ppmc	ppmc	%	deg F	#/hr	gpm
Range		0-100	0-2000	0-500	0-4000	0-1000	0-100	100-500	0-50	0-20
Apr - 19	AVG	83.4	25.0	2.0	24.0	160.0	1.0	298.0	13.3	3.8
	Max	88.9	34.0	4.0	34.0	165.0	1.6	301.0	13.6	4.2
	Min	69.1	19.0	1.0	17.0	158.0	0.6	298.0	13.2	3.0
May - 19	AVG	78.7	28.0	2.0	24.0	159.0	0.9	298.0	12.4	3.5
	Max	91.1	39.0	4.0	36.0	162.0	1.5	298.0	13.2	4.1
	Min	65.6	21.0	0.0	11.0	158.0	0.4	296.0	12.2	2.8
Jun - 19	AVG	86.8	24.0	1.0	24.0	159.0	0.8	298.0	12.3	3.7
	Max	90.9	31.0	4.0	32.0	161.0	1.2	303.0	12.4	4.0
	Min	82.3	16.0	0.0	18.0	159.0	0.5	295.0	12.3	3.1
Quarter Average		83.0	25.7	1.7	24.0	159.3	0.9	298.0	12.7	3.7
Quarter Max Value		91.1	39.0	4.0	36.0	165.0	1.6	303.0	13.6	4.2
Quarter Min Value		65.6	16.0	0.0	11.0	158.0	0.4	295.0	12.2	2.8
Limits:		98	NA	29	100	205	10	332	12a)	

(a) Carbon flow limit is a minimum value

* Note: The data reported herein represent 24-hour average data for all parameters. Emissions excursions that are measured on shorter time intervals (i.e., 4-hour block averages for CO) do not correlate with the 24-hour average data reported above.

APPENDIX B
SITE PHOTOS – May 2019

Figure 1: Roof Ventilation Fan Not Working above Deaerator – New Deficiency

Figure 2: Diamond Plate Deck Corroded at Boiler No. 3 Opacity Monitor – New Deficiency

Figure 3: Multiple stair treads missing and not adhered to Cooling Tower Access Stairs – New Deficiency

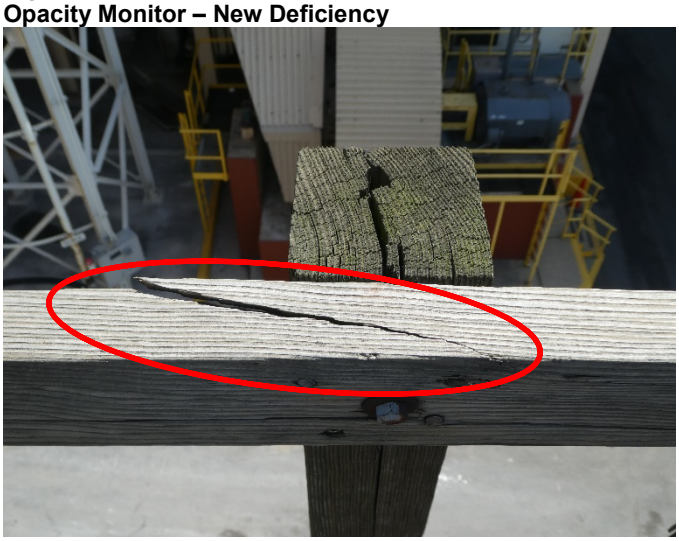


Figure 4: Hand railing cracked on south end of Cooling Tower Deck – New Deficiency

Figure 5: Hand Railing Posts (Typical of Most) on the Cooling Tower Deck Split with bolt exposed – New Deficiency

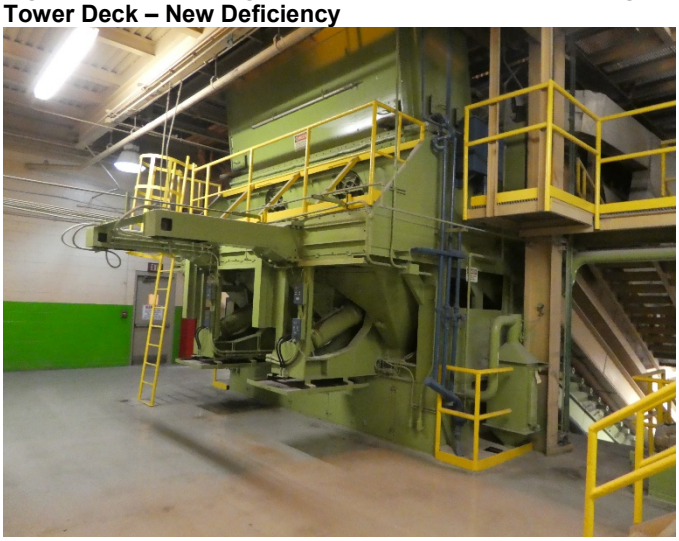


Figure 6: Boiler No. 1 Feed Rams on Firing Aisle

Figure 7: Ferrous Magnet with small gap between Main Vibrating Pan and Drum Magnet

Figure 8: Dolomitic Lime Silo and Screws – No Dolomitic Lime Ash Conditioning in Q4FY19

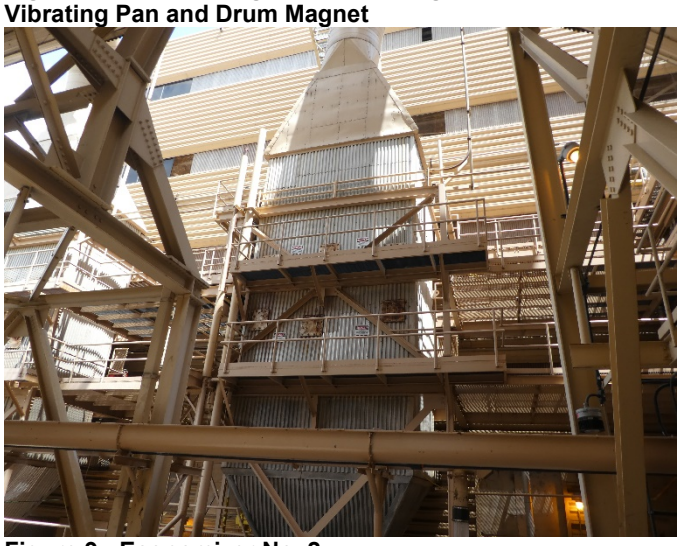


Figure 9: Economizer No. 2

Figure 10: Cooling Tower, Economizer, SDA, Dolomitic Lime Silo, ID Fan, and CEMS Enclosure, and Baghouse

Figure 11: Roadway on West Side of Facility Facing Entrance

Figure 12: Cooling Towers

Figure 13: General Facility Photo – From Tipping Floor Entrance Ramp

Figure 14: Scale House and Scales

Figure 15: Metal Roll-off

Figure 16: Citizen's Drop-off Roll-Off

Figure 17: New Entrance Roadway Paint Striping and 2-Way Traffic Sign

Figure 18: General Facility Photo – South West of Facility

Figure 19: General Facility Photo of South Side (Front) from Entrance

Figure 20: Ash/Metal Loading Ramp

Figure 21: Main Vibrating Conveyor

Figure 22: Turbine Generator No. 2 Lube Oil Skid

Figure 23: Main Condenser

Figure 24: Boiler Feed Pumps

Figure 25: Economizer Passes, and SDA Vessels from Cooling Tower Deck

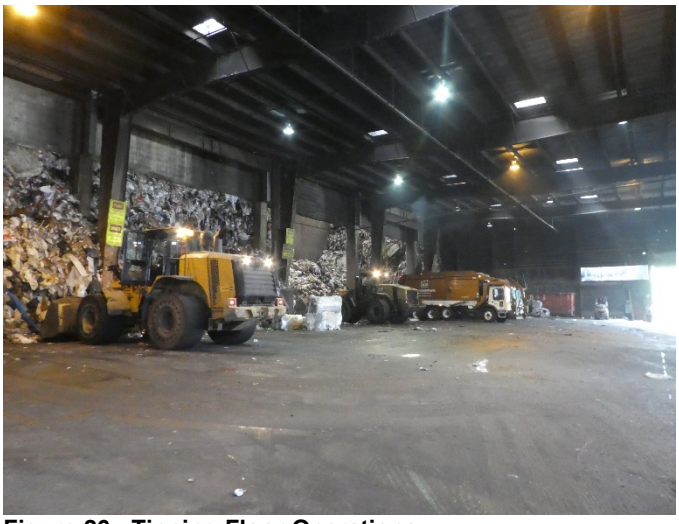


Figure 26: Tipping Floor Operations

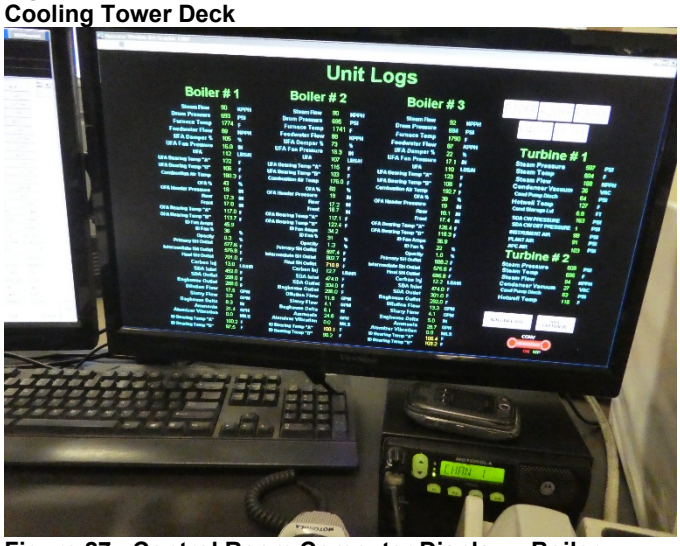


Figure 27: Control Room Computer Display – Boiler Operating Indication Screen

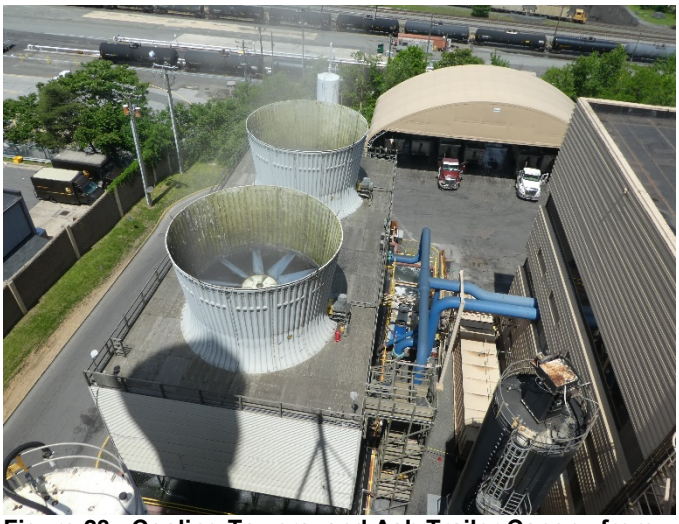


Figure 28: Cooling Towers, and Ash Trailer Canopy from SDA Penthouse

Figure 29: Deaerator

Figure 30: Entrance Roadway, Scale House, Switchyard and Tipping Floor Entrance from Turbine Enclosure Roof