Alexandria Arlington Resource Recovery Facility

Fiscal Year 2024

Third Quarter Operations Report

May 2024

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Definition of Abbreviations & Acronyms

Abbreviation/Acronym	Definition
APC	Air Pollution Control
Apr	April
Aug	August
Avg	Average
BCU	Boiler Capacity Utilization
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.)
kWh	Kilowatt hours (1,000 watt-hours)
lbs.	Pounds
LOA	Letter of Agreement
Mar	March
Max	Maximum
May	May
Min	Minimum
MSW	Municipal Solid Waste
MWh	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
Q2	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

1.0 Purpose of Report

HDR Engineering, Inc. (HDR) was authorized by the Facility Monitoring Group (FMG) to conduct quarterly site assessments and provide quarterly reports regarding the operation and maintenance of the Covanta Alexandria/Arlington Waste-to-Energy Facility (Facility) for the 2024 Fiscal Year. This report is prepared for the third quarter of the 2024 Fiscal Year and summarizes Facility operations between January 1, 2024, and March 31, 2024, as Q3FY24.

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 Q3FY24. The operation of the Facility, maintenance, safety, and overall cleanliness continue to be above average. The Facility experienced no reportable environmental excursions during the quarter.

During Q3FY24, the boilers experienced three (3) instances of scheduled downtime totaling 429.9 hours, seven (7) instances of unscheduled downtime totaling 200.9 hours and no standby downtime. The turbine generators experienced three (3) instances of unscheduled downtime totaling 51.4 hours during the quarter and one (1) instance of standby time totaling 166.5 hours. A detailed listing of downtime is provided in Section 5.1 of this report.

Average waste processed during the quarter was 932.1 tons per day, or 95.6% of nominal facility capacity which compares very favorably to industry averages. Waste deliveries averaged 919.4 tons per day, which is lower (1.4%) than the burn rate.

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.

Compared to the corresponding quarter in FY23, during Q3FY24 MSW processed was nearly identical (less than 0.1% higher), steam production decreased (5.0%), and electricity generated (gross) decreased (6.0%). The decrease in steam production was attributable to more (136.1 additional hours) boiler downtime, paired with lower (4.0%) average waste heating value (HHV), offset by an extra day of operations in February due to 2024 being a Leap Year. The decrease in gross electrical production is attributable to lower steam production, paired with more (217.9 additional hours) turbine generator downtime, offset by an extra day of operations in February due to 2024 being a Leap Year.

3.0 Facility Inspection and Records Review

In February 2024, HDR met with the Facility management and other plant personnel to discuss Facility operations and maintenance, perform an independent visual inspection of the operating Facility, photograph areas of interest, and perform a review of recent Facility activity. HDR obtained operating data and monthly reports electronically from CAAI throughout the quarter and 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 site assessments 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 site assessments are only performed quarterly, generally representing findings on the day of the assessment. 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	Pavement spider-cracking at Tipping Floor Entrance	November 2016	C	Resurface section of pavement at Tipping Floor Entrance	**Status Unchanged**	Open
2	SDA Penthouse No. 3 Door deteriorated at base	November 2017	C	Patch and Paint Door – Replace if necessary	**Status Unchanged**	Open
3	Deterioration behind lime slurry piping in SDA Penthouse No. 2	August 2019	C	Conduct painting preservation measures	**Status Unchanged**	Open
4	Siding deteriorated beneath Baghouse No. 3 Hoppers	August 2019	C	Replace siding	**Status Unchanged**	Open
5	Siding on north side of Baghouse No. 2 Deteriorated	February 2020	C	Replace siding and conduct painting preservation measures	**Status Unchanged**	Open
6	Damaged/Missing insulation and lagging throughout Facility	August 2020	C	Perform audit of all steam piping and replace damaged/missing insulation and lagging throughout the Facility as needed	**Status Unchanged**	Open
7	Insulation and lagging damaged/deteriorated around Boiler No. 3 Steam Drum	February 2021	C	Replace insulation and lagging	**Status Unchanged**	Open
8	Baghouse hopper heaters set to manual; heater off but signaling low temperature.	February 2021	B	Repair hopper heaters	**Updated to all hopper heaters**	Open
9	Feed Chute Cooling Jacket Water Level Boxes empty on Boilers No. 1	May 2021	B	Repair feed chute cooling jacket water level boxes	**Updated to Boiler No. 1**	Open
10	Uneven water flow from Cooling Tower nozzle/distribution on southeast side of tower	August 2021	C	Repair nozzle	**Status Unchanged**	Open
11	The Boiler No. 3 Upper-Level Furnace Camera Port is open.	November 2021	C	Fabricate temporary cover for open ports when cameras are out.	**Cover in place**	Closed
12	A temporary pump is being utilized on the ground floor of the Turbine Hall to transport wastewater from the trench drains to the Cooling Tower basin.	November 2022	B	Consider a permanent pump installation in lieu of temporary.	**Status Unchanged**	Open
13	There is a small section of building siding missing on the east side (near the Tipping Floor entrance).	May 2023	C	Repair/Replace siding.	**Status Unchanged**	Open
14	Grounding wire on southwest corner of Cooling Tower not secured.	May 2023	B	Repair grounding wire.	**Status Unchanged**	Open
15	There is a hole in stairs near Boiler No. 1 grate system. The area has been caution taped off.	May 2023	C	Repair stairs.	**Taken off list August 2023. Hole appeared to still be there May 2024**	Open
16	Boiler No. 2 Auxiliary gas burner control panel appears to be out of service. (Display screen covered)	May 2024	B	Repair control panel.	**Status Unchanged**	Open

4.0 Facility Performance

Monthly operating data provided by CAAI indicates that 84,820 tons of MSW were processed during Q3FY24, and a total of 83,664 tons of MSW including 1,548 tons of Special Handling Waste (1.9% by weight) were received. Total ash production during the quarter was 16,620 tons, which represents 19.6% of the waste processed. The average uncorrected steam production rate for Q3FY24 was 2.97 $tons_{steam}/ton_{waste}$, which is lower (5.0%) than the corresponding quarter and attributable to lower (4.0%) HHV.

Chart 1: Tons of Waste Processed

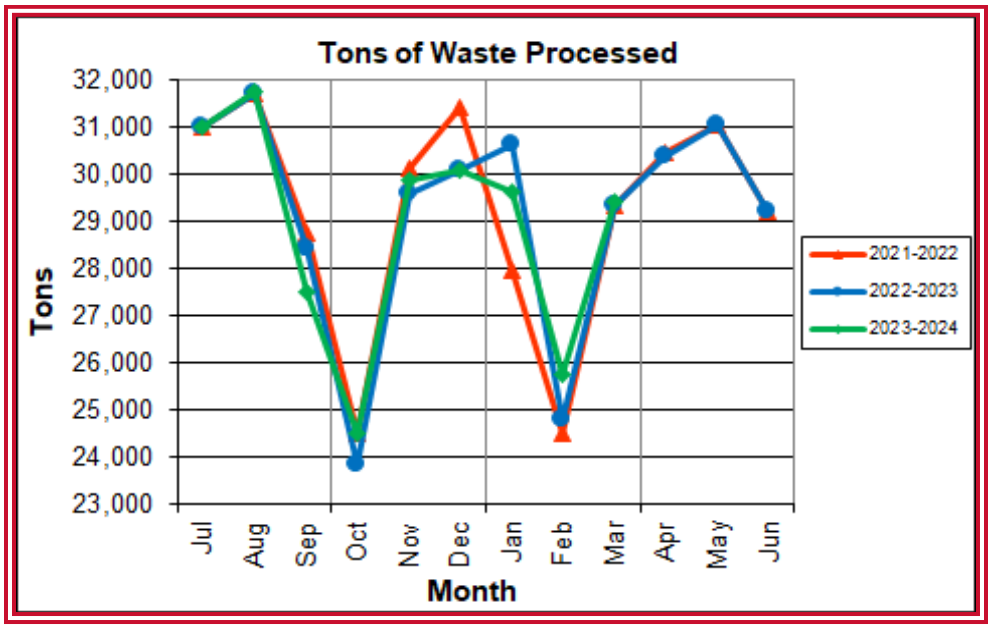


Chart 1 illustrates that Q3FY24 waste processed was nearly identical (less than 0.1% higher) than the corresponding quarter, Q3FY23. CAAI reported that 554 tipping floor/MSW internal inspections were performed during the quarter and there were two (2) notices of violation (NOV) issued to haulers; one (1) for a load of concrete that was dumped and had to be re-loaded, and one (1) for a driver smoking on the tipping floor.

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

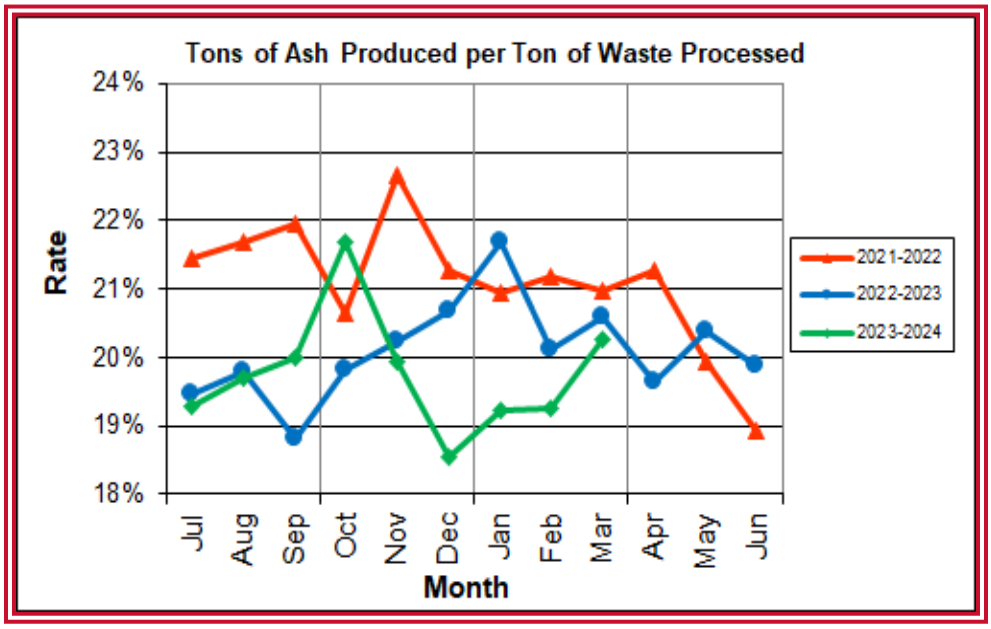


Chart 2 illustrates that the average ash production rate in Q3FY24 decreased (1.2 percentage points) to 19.6% of processed waste, compared to the corresponding quarter in FY23 when the rate was 20.8%. It is noteworthy that 3-year lows in ash production rate were experienced the last four (4) months of FY24.

Chart 3: Ferrous Recovery Rate

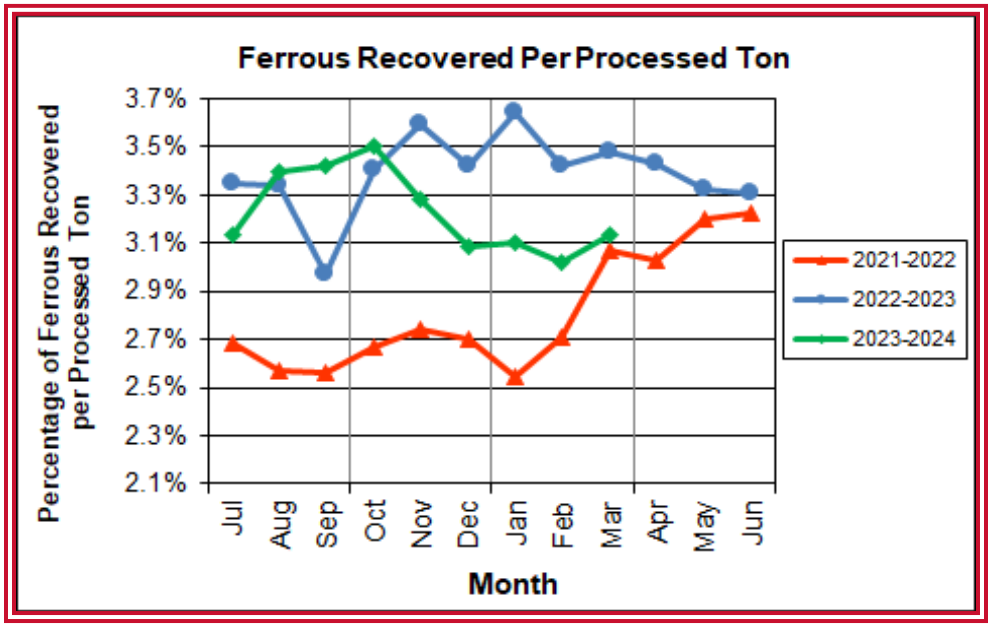
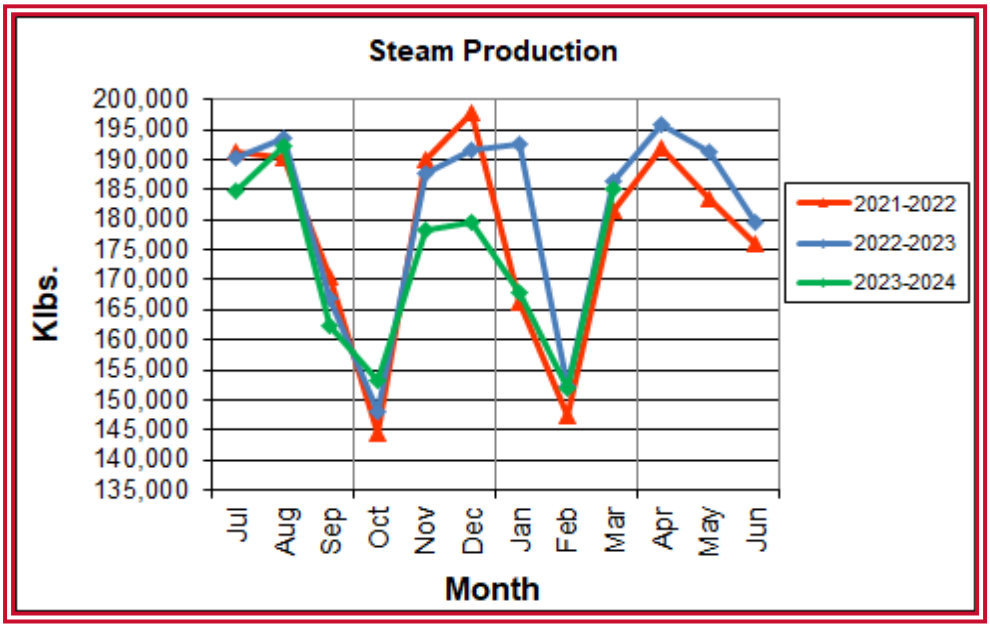


Chart 3 depicts the monthly ferrous metal recovery rate as a percentage of processed MSW tonnage. In Q3FY24, 2,621 tons of ferrous metals were

recovered, which is 12.3% lower than the corresponding quarter in FY23. Chart 3 illustrates that the ferrous recovery rate in Q3FY24 was 0.4 percentage points lower, at 3.1% of processed waste, compared to the corresponding quarter in FY23 when the rate was 3.5%.

Chart 4: Steam Production



In Chart 4, the total steam production for Q3FY24 was 504,648 klbs, 5.0% lower than the corresponding quarter in FY23. The decrease in steam production is attributable to more (136.1 additional hours) boiler downtime, paired with lower (4.0%) average waste heating value (HHV), offset by an extra day of operations in February due to 2024 being a Leap Year.

Chart 5: 12-Month Rolling Steam Production

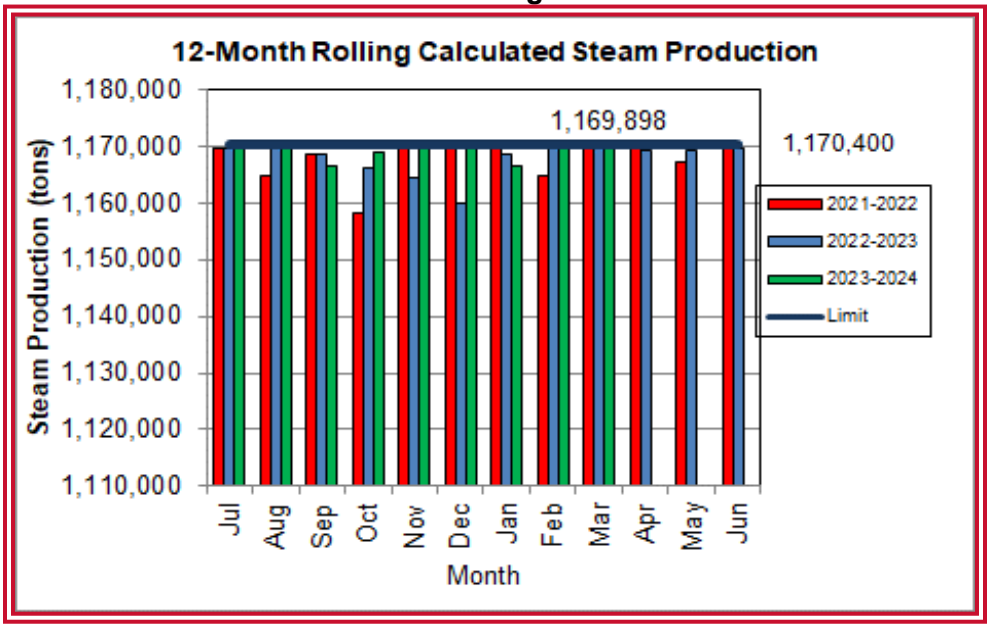
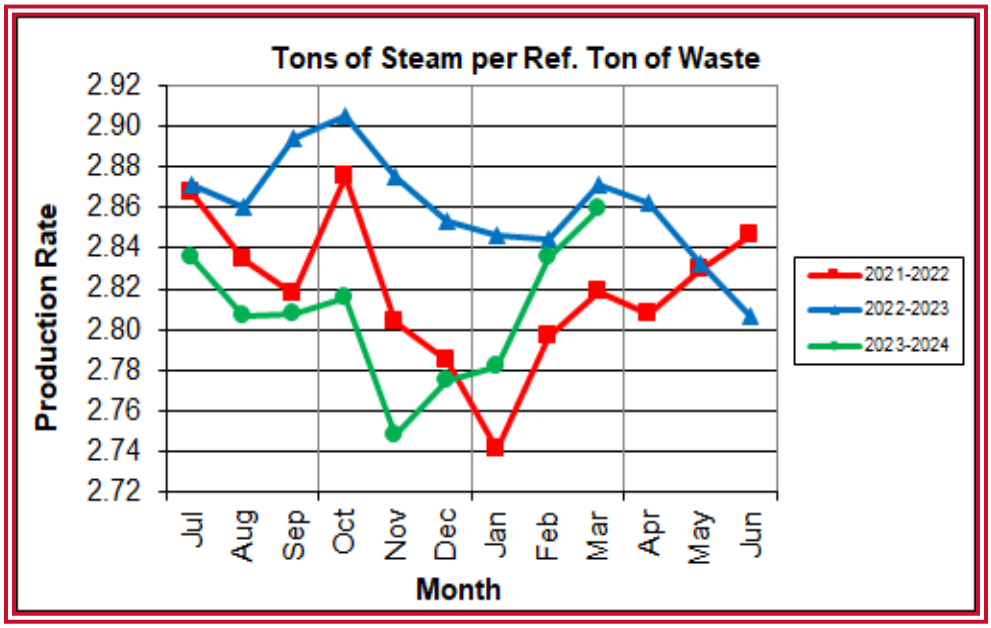


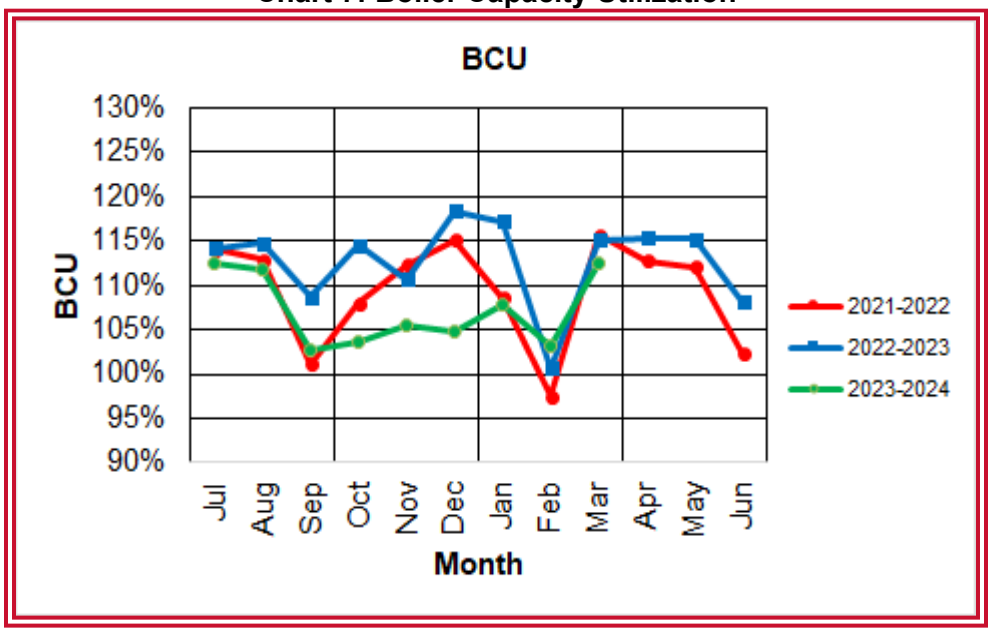
Chart 5 depicts the 12-month rolling steam production for Q3FY24, and for the previous two (2) fiscal years. According to the Title V permit, the annual steam production for the Facility shall not exceed 1,170,400 tons based on an average value of 3.34 lbs. of steam per lb. of MSW processed, calculated monthly as the sum of each consecutive 12-month period. The Facility complied with the 12-month rolling steam production total every month in Q3FY24. The 12-month rolling total for steam production ending in March 2024 was 1,169,898 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 slightly below the steam production permit limitation each 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 Q3FY24, this metric tracked lower (1.0%) at 2.8 $tons_{steam}/ton_{ref}$ compared to the corresponding quarter in FY23 and is indicative of a decrease in boiler performance.

Chart 7: Boiler Capacity Utilization



In Chart 7, the boiler capacity utilization (BCU) refers to the total steam production in respect to the total availability. This metric demonstrates how the boilers are operating compared to the design maximum continuous rating (MCR) when the units are online. The BCU during Q3FY24 was 108% compared to the corresponding quarter in FY23 111%.

Chart 8: Calculated Waste Heating Value

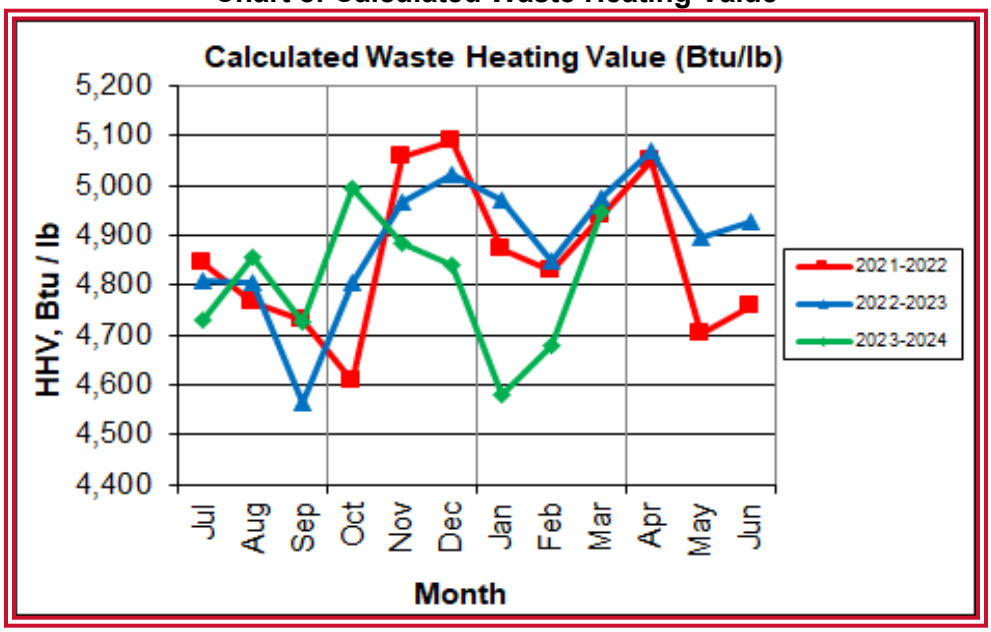


Chart 8 illustrates that Q3FY24 calculated average waste heating value was lower (4.0%) at 4,735 Btu/lb than the corresponding quarter in FY23, which averaged 4,931 Btu/lb. Note that 15.4[1] inches of precipitation were recorded at Ronald Reagan National Airport during Q3FY24, which is 9.8 inches more than the corresponding quarter in FY23 which affected the moisture content in the waste and negatively impacted the waste heating value.

[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 (MWh)
Q3FY22	**Quarterly Totals**	**81,854**	**0**	**17,209**	**1,423**	**2,279**	**495,005**	**34,648**
	January-22	27,976	0	5,857	448	713	166,110	11,594
	February-22	24,526	0	5,195	349	664	147,209	10,193
	March-22	29,352	0	6,157	626	902	181,686	12,861
Q3FY23	**Quarterly Totals**	**84,806**	**0**	**17,678**	**1,733**	**2,987**	**531,041**	**37,059**
	January-23	30,627	0	6,640	559	1,116	192,524	13,871
	February-23	24,821	0	4,993	592	849	152,100	10,416
	March-23	29,358	0	6,045	582	1,022	186,417	12,772
Q3FY24	**Quarterly Totals**	**84,820**	**0**	**16,620**	**1,548**	**2,621**	**504,648**	**34,217**
	January-24	29,629	0	5,697	500	920	167,742	11,514
	February-24	25,752	0	4,962	492	777	151,839	10,074
	March-24	29,439	0	5,961	556	924	185,067	12,629
FY24 YTD Totals		**259,587**	**0**	**51,219**	**5,052**	**8,382**	**1,555,175**	**104,969**
FY23 Totals		**259,464**	**0**	**52,271**	**5,431**	**8,834**	**1,609,398**	**104,910**
FY22 Totals		**259,440**	**0**	**55,632**	**4,915**	**6,993**	**1,579,450**	**109,464**

Table 2 presents the production data provided to HDR by CAAI for Q3FY24 on both a monthly and quarterly basis. For purposes of comparison, Q3FY22 and Q3FY23 are shown, as well as FY22, FY23 and FY24 year to date (YTD) totals. In comparing quarterly totals, the data shows:

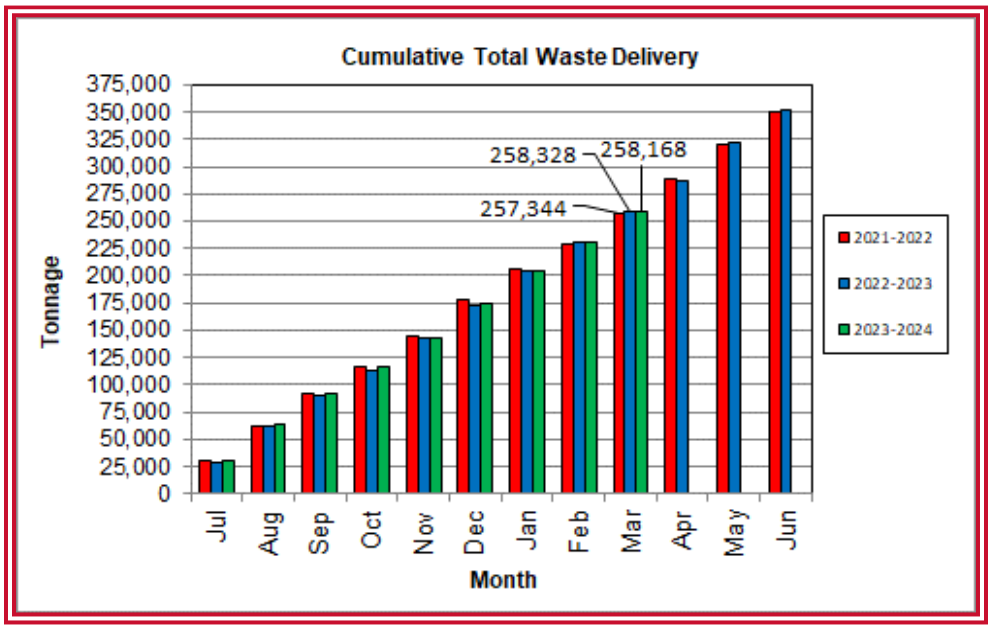
- Slightly more waste was processed in Q3FY24 than Q3FY23 and more than Q3FY22
- Less steam was generated in Q3FY24 than Q3FY23 but more than Q3FY22
- Less electricity (net) was generated in Q3FY24 than Q3FY23 and Q3FY22
- Less supplemental waste was received in Q3FY24 than Q3FY23 and more than Q3FY22

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 an annual rolling average, evaluated monthly.

Table 3: Waste Delivery Classification

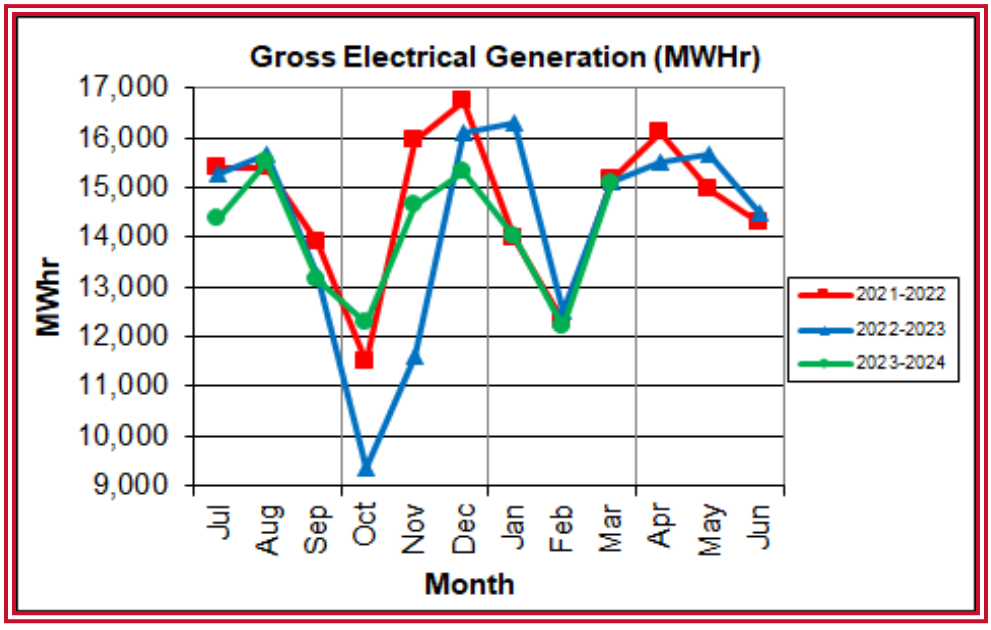
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY20	City Waste	2,070	1,771	1,726	1,894	1,742	1,844	1,870	1,489	1,925	1,931	1,849	2,051	22,160	6.30%
	County Waste	3,069	2,600	2,544	2,664	2,507	2,575	2,694	2,195	2,509	2,518	2,663	2,861	31,399	8.93%
	Brokered Waste	-	-	-	-	-	-	120	114	67	58	-	-	359	0.10%
	Municipal Solid Waste	26,033	23,287	22,129	23,644	20,837	23,822	24,859	20,472	20,333	24,220	27,605	27,375	284,614	80.91%
	Supplemental Waste	1,269	1,321	1,236	1,340	1,238	1,246	1,239	1,102	1,106	582	627	920	13,226	3.76%
	MSW Totals	**32,440**	**28,979**	**27,634**	**29,541**	**26,324**	**29,487**	**30,781**	**25,371**	**25,939**	**29,309**	**32,745**	**33,207**	**351,757**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY21	City Waste	1,583	1,905	2,121	1,906	1,970	1,999	1,556	1,393	2,038	2,102	2,042	2,197	22,811	6.55%
	County Waste	2,377	2,713	2,711	2,589	2,550	2,646	2,365	2,054	2,441	2,472	2,542	2,682	30,143	8.66%
	Municipal Solid Waste	22,517	26,941	24,523	22,102	19,209	25,831	22,419	20,046	25,980	25,621	25,260	24,603	285,053	81.88%
	Supplemental Waste	691	1,139	927	1,045	930	859	895	1,070	747	653	519	641	10,117	2.91%
	MSW Totals	**27,169**	**32,698**	**30,282**	**27,642**	**24,659**	**31,336**	**27,234**	**24,562**	**31,207**	**30,848**	**30,363**	**30,123**	**348,124**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY22	City Waste	1,853	2,080	2,042	1,855	2,002	1,914	1,628	1,570	1,900	1,895	2,107	2,203	23,049	6.58%
	County Waste	2,516	2,403	2,457	2,184	2,463	2,489	2,232	2,192	2,519	2,394	2,761	2,717	29,337	8.38%
	Municipal Solid Waste	24,682	26,646	25,378	19,376	23,834	27,424	24,212	19,114	23,465	25,745	27,057	23,637	290,569	83.01%
	Supplemental Waste	688	778	479	514	534	499	448	349	626	685	756	735	7,090	2.03%
	MSW Totals	**29,740**	**31,907**	**30,356**	**23,929**	**28,832**	**32,326**	**28,520**	**23,225**	**28,510**	**30,719**	**32,681**	**29,291**	**350,035**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY23	City Waste	1,841	2,020	1,874	1,827	2,046	1,872	1,880	1,566	1,829	1,887	2,035	1,913	22,590	6.43%
	County Waste	2,339	2,471	2,454	2,188	2,448	2,333	2,453	2,092	2,444	2,104	2,656	2,571	28,552	8.13%
	Municipal Solid Waste	24,434	26,977	23,660	17,994	24,827	25,487	26,656	21,209	23,673	24,530	29,037	24,013	292,500	83.32%
	Supplemental Waste	656	797	682	444	582	537	559	592	582	567	682	723	7,403	2.11%
	MSW Totals	**29,270**	**32,265**	**28,670**	**22,454**	**29,905**	**30,229**	**31,548**	**25,460**	**28,527**	**29,087**	**34,410**	**29,220**	**351,045**	**100.00%**
		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	% of Total
FY24	City Waste	1,780	2,149	1,746	1,735	1,889	1,688	1,829	1,603	1,650				16,070	6.22%
	County Waste	2,521	2,755	2,461	2,519	2,612	2,465	2,543	2,378	2,437				22,691	8.79%
	Municipal Solid Waste	25,031	26,225	23,276	19,985	22,285	26,796	25,750	20,805	23,119				213,274	82.61%
	Supplemental Waste	692	702	529	628	482	471	500	492	556				5,053	1.96%
	MSW Totals	**30,024**	**32,911**	**28,013**	**24,867**	**27,269**	**31,420**	**30,623**	**25,278**	**27,763**				**258,168**	100.00%

Chart 9: Cumulative Total Waste Delivery



As depicted in Table 3 and Chart 9, cumulative waste delivery through Q3FY24 was 0.1% lower compared to the same period in Q3FY23.

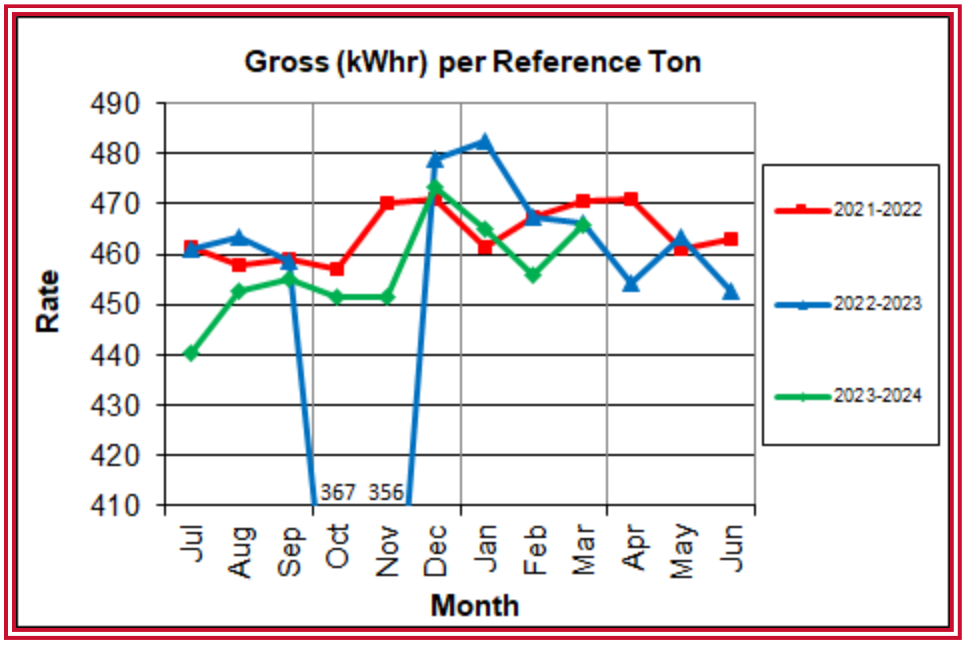
Chart 10: Gross Electrical Generation



During Q3FY24, the Facility generated 41,299 MWh (gross) of electricity compared to Q3FY23 generation of 43,949 MWh (gross), a 6.0% decrease. The decrease in gross electrical generation is attributable to lower (5.0%) steam production, paired with more (217.9 additional hours) turbine generator downtime, offset by an extra

day of operations in February due to 2024 being a Leap Year. Note that Turbine Generator No. 1 experienced a major overhaul in October and November 2022 totaling 898.3 hours of downtime and are depicted by spikes in Chart Nos. 10 through 14.

Chart 11: Gross Conversion Rate



As shown in Chart 11, the average gross electrical generation per reference ton of refuse processed during Q3FY24 was 462 kWh per reference ton, which is 2.1% less than the corresponding quarter in FY23.

Chart 12: Net Conversion Rate

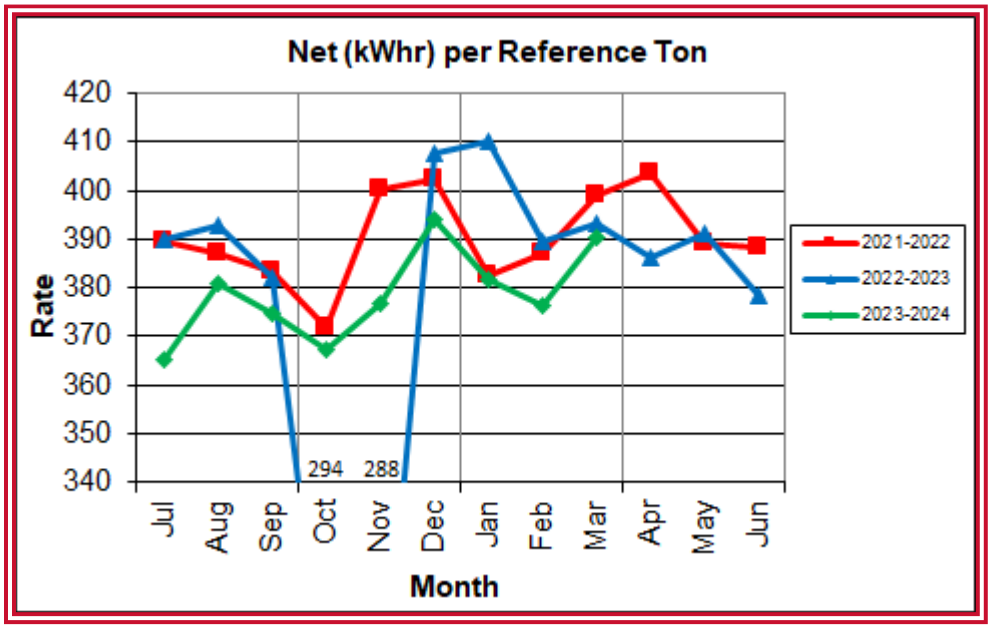


Chart 12 depicts the normalized net power generation (gross minus in-house usage). In Q3FY24, the average net electrical generation per reference ton was 383 kWh per ton, which is 3.7% lower than the corresponding quarter in FY23.

Chart 13: Net Conversion Rate

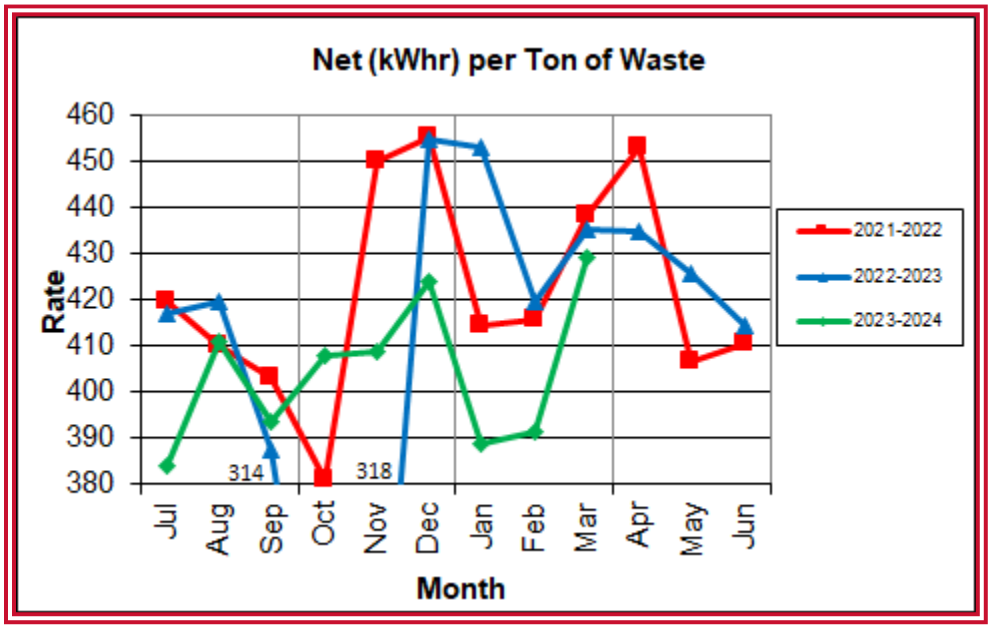


Chart 13 depicts the net power generation per processed ton. The net electrical generation per processed ton in Q3FY24 was 403 kWh per ton, which is 7.6%

lower than the corresponding quarter in FY23 due to the additional turbine generator downtime.

Chart 14: Gross Turbine Generator Conversion Rate

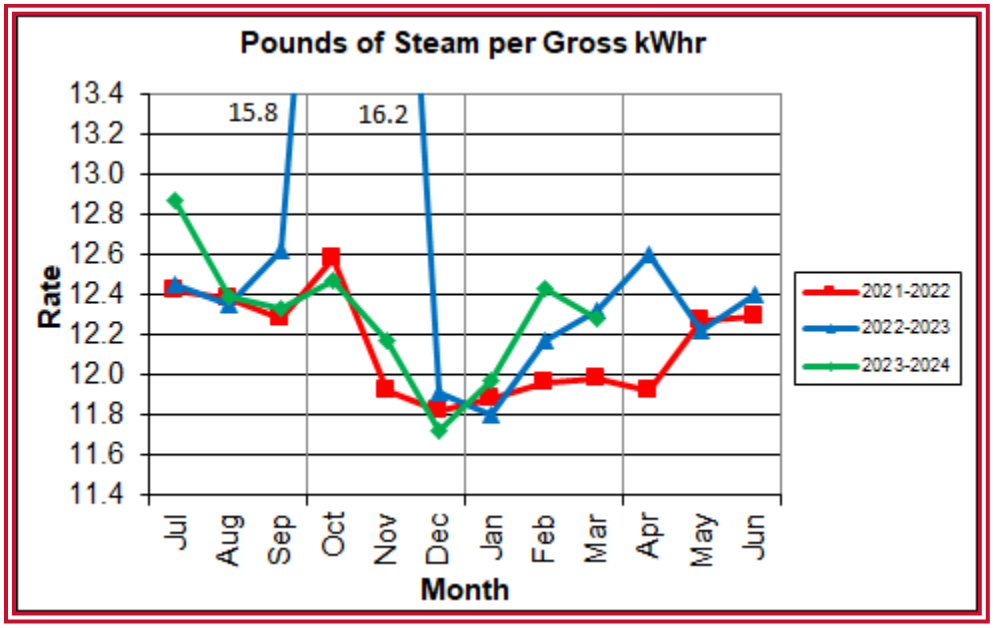


Chart 14 illustrates the quantities of steam required to generate one (1) kWh of electricity. This measure is a turbine generator performance indicator, where lower steam rates indicate superior performance. For simplification, this calculated rate is based on the average for the two turbine generators. In Q3FY24 the average pounds of steam consumed per gross kWh generated was 12.3, which is 1.1% higher (less efficient) than the corresponding quarter Q3FY23 and was negatively impacted by more turbine generator downtime. The average main steam temperature during the quarter was 676.9 °F, which is 9.0°F higher than the average main steam temperature of the corresponding quarter last fiscal year and 23.1 °F lower than design temperature of 700 °F. Lower main steam temperature decreases power generation, all other factors being equal.

4.1 Utility and Reagent Consumptions

Table 4: Facility Utility and Reagent Consumptions

Utility	Units	Q3FY24 Total	Q3FY23 Total	Q3FY24 "Per Processed Ton" Consumption	Q3FY23 "Per Processed Ton" Consumption
Purchased Power	MWh	-	5,354	0.00	0.06
Fuel Oil	Gal.	17,870	8,400	0.21	0.10
Boiler Make-up	Gal.	1,622,000	1,465,000	19.12	17.27
Cooling Tower Make-up	Gal.	35,117,125	36,717,382	414.02	432.96
Pebble Lime	Lbs.	1,450,000	1,456,000	17.10	17.17
Ammonia	Lbs.	173,000	150,000	2.04	1.77
Carbon	Lbs.	64,000	76,000	0.75	0.90

Fuel oil usage during the quarter represents approximately 0.32% of the total heat input to the boilers, which compares favorably with industry averages, and is more than the 0.15% of total heat input in Q3FY23. Fuel oil is used to stabilize combustion of wet fuel, as well as during start-up and shutdown of the boilers for maintenance. Boiler makeup water usage during the quarter represents 2.7% of steam flow, which is higher than the boiler makeup in Q3FY23 which was 2.3% of steam flow. Higher boiler makeup quantities are indicative of increased steam leakage.

In comparing Q3FY24 to Q3FY23 on a per processed ton consumption basis:

- There was no purchased power during the quarter; this was a change in the Facility's metering calculation, made in February 2023.
- The total fuel oil consumption rate was 112.7% higher
- The boiler make-up water consumption rate was 10.7% higher
- The cooling tower make-up water consumption rate was 4.4% lower
- The total pebble lime consumption rate was 0.4% lower
- The ammonia consumption rate was 15.3% higher
- The carbon consumption rate was 15.8% lower

The increase in the fuel oil consumption can be attributable to the higher moisture content in the waste in Q3FY24 compared to Q3FY23. As previously discussed, Q3FY24 had significantly more precipitation, negatively impacting the waste HHV, 4.0% lower than Q3FY23.

4.2 Safety & Environmental Training

The Facility experienced no OSHA recordable accidents and four (4) First Aid Accidents during Q3FY24. The first First Aid accident occurred on January 24, 2024, when an employee was struck in the hand while cleaning the transition chute. The second and third First Aid accidents occurred together on February 19, 2024, when an employee was clearing a hopper, and their hand was struck by a piece of clinker and the second employee was struck on the left shin by a piece of metal. The last First Aid accident occurred on March 3, 2024, when an employee was clearing a hopper and was struck by an object. CAAI has operated 481 days without an OSHA recordable accident as of March 31, 2024. Safety trainings were conducted during the quarter with themes as follows:

January 2024

- Safety: Access to Medical Records

February 2024

- Safety: Safe Work Permitting

March 2024

- Safety: Blood Borne Pathogens

5.0 Facility Maintenance

Throughout the quarter, regular 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 January 20, Boiler No. 3 experienced 164.8 hours of scheduled downtime for a scheduled major outage. Significant maintenance items completed during this outage includes:

- Feed table overhaul
- Installed access door on front wall

- A few small waterwall tube panel replacements

Beginning February 10, Boiler No. 2 experienced 168 hours of downtime followed for a scheduled major outage. Significant maintenance items completed during this outage includes:

- Replaced two waterwall panels
- Installed access door on front wall
- SDA 5-year complete inspection

In addition to the scheduled outages, CAAI reports that 723 preventative maintenance actions were completed during the quarter.

5.1 Availability

Facility availabilities for Q3FY24 are shown in Table 5. According to CAAI reports, the average availability for Boiler Nos. 1, 2, and 3 for Q3FY24 was 91.6%, 88.9%, and 90.2%, respectively. The three-boiler average availability during the quarter was 90.2%, which was negatively impacted by significant downtime (429.9 hours) for schedule boiler maintenance.

According to CAAI reports, the average availability for Turbine Generator 1 and 2 for Q3FY24 was 98.9% and 98.6%, respectively. Note that 220.5 hours of standby time was experienced by Turbine Generator No. 2 during the quarter and does not factor into overall availability.

Table 5: Quarterly Facility Unit Availabilities

Availability	Q1FY24 Average	Q2FY24 Average	Q3FY24 Average	FY24 YTD
Boiler No. 1	95.8%	92.2%	91.6%	93.2%
Boiler No. 2	98.5%	94.8%	88.9%	94.1%
Boiler No. 3	94.1%	99.8%	90.2%	94.7%
Avg.	*96.1%*	*95.6%*	*90.2%*	*94.0%*
Turbine No. 1	100.0%	99.6%	98.9%	99.5%
Turbine No. 2	100.0%	99.2%	98.6%	99.3%
Avg.	*100.0%*	*99.4%*	*98.8%*	*99.4%*

Table 6: Boiler Downtime – Q3FY24

Boiler Number	Outage Begin Date	Outage End Date	Hours Unavailable	Downtime Classification	Reason Unavailable
1	1/26/24	1/26/24	1.0	Unscheduled	13.8 kV Breaker Trip
2	1/10/24	1/11/24	35.2	Unscheduled	Waterwall Tube Leak
3	1/20/24	1/20/24	12.0	Unscheduled	Unexpected Early Outage Commencement
3	1/21/24	1/27/24	164.8	Scheduled	Major Outage
2	2/3/24	2/3/24	3.0	Unscheduled	Stoker Failure
2	2/10/24	2/17/24	168.0	Scheduled	Major Outage
1	2/19/24	2/21/24	56.5	Unscheduled	Grate Bar Failure
2	2/25/24	2/26/24	27.1	Unscheduled	Switchgear
3	2/25/24	2/27/24	39.8	Unscheduled	Switchgear
1	2/25/24	2/26/24	26.3	Unscheduled	Switchgear
1	3/2/24	3/6/24	97.1	Scheduled	Minor Outage
Total Unscheduled Downtime				**200.9 Hours**	
Total Scheduled Downtime				**429.9 Hours**	
Total Standby Downtime				**0.0 Hours**	
Total Downtime				**630.8 Hours**	

Table 7: Turbine Generator Downtime – Q3FY24

Turbine Generator Number	Outage Begin Date	Outage End Date	Hours Unavailable	Downtime Classification	Reason Unavailable
1	1/26/24	1/26/24	1.0	Unscheduled	13.8 kV Breaker Trip
1	2/10/24	2/17/24	166.5	Standby	Boiler No. 2 Outage
1	2/25/24	2/26/24	22.2	Unscheduled	Switchgear
2	2/25/24	2/26/24	28.2	Unscheduled	Switchgear
Total Unscheduled Downtime				**51.4 Hours**	
Total Scheduled Downtime				**0.0 Hours**	
Total Standby Downtime				**166.5 Hours**	
Total Downtime				**217.9 Hours**	

5.2 Facility Housekeeping

CAAI is performing Facility housekeeping and maintaining plant cleanliness in accordance with acceptable industry practices. A site walkdown was conducted in April 2024. At the time of the walkdown, new deficiencies were recorded, and prior deficiencies were given a status update. Photos of interest from the walkdown are depicted in Appendix B. The Facility housekeeping ratings from the May 2024 walkdown are presented in Table 8.

Table 8: Facility Housekeeping Ratings – May 2024

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 Q3FY24 are summarized in Appendix A. The Facility experienced no permit deviations during Q3FY24. As of March 31, 2024, the Facility operated 579 days without an environmental excursion.

6.1 Nitrogen Oxide Emissions

During Q3FY24, the monthly emission concentrations of nitrogen oxides (NO_x) averaged 88.7 ppm, 87.7 ppm, and 87.0 ppm for Boiler Nos. 1, 2, and 3, respectively. All these stack NO_X concentrations are significantly below the permit limit (110 ppm, 24-hr average, @ 7% O_2). In comparing Q3FY24 to the corresponding quarter last year, ammonia usage increased by 15.3%.

6.2 Sulfur Dioxide Emissions

During Q3FY24 the monthly emission concentration of stack sulfur dioxide (SO_2) averaged 2.3 ppm, 1.0 ppm, and 4.0 ppm for Boiler Nos. 1, 2, and 3, respectively. All these stack SO_2 concentrations are significantly below the permit limit of 29 ppm @ 7% O_2.

6.3 Carbon Monoxide Emissions

During Q3FY24, the monthly average CO emission concentrations on Boiler Nos. 1, 2, and 3 were 38.0 ppm, 26.0 ppm, and 24.0 ppm, respectively, and all are well within permit limits (100 ppmdv, 4-hour average).

6.4 Opacity

During Q3FY24, the average opacity on Boiler Nos. 1, 2, and 3 were 0.6%, 1.3%, and 0.9%, respectively, which are all significantly below the 10% (6-minute) average permit limit. New Opacity Monitors have been installed on all three units.

6.5 Daily Emissions Data

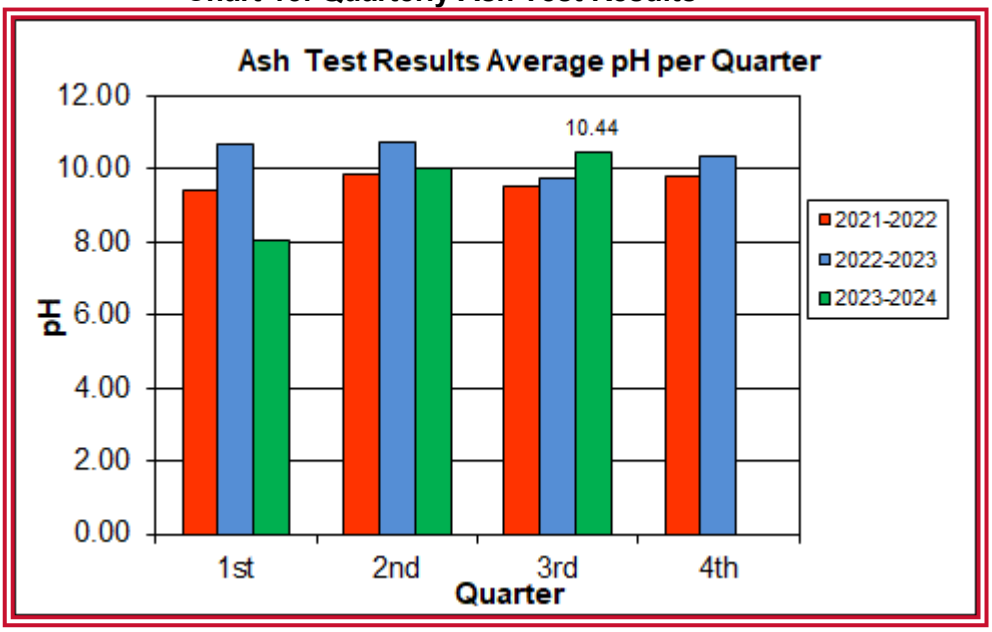
Appendix A, Tables 9, 10, and 11 tabulate the monthly average, maximum, and minimum emissions data for each unit during Q3FY24. Excursions appear in bold print. It should be noted that these tabulations of monthly averages, reported here for informational purposes, are based on tabulations of daily averages. 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.

6.6 Ash System Compliance

The desired ash pH level ranges from 8.0 to 11.0. Toxicity Characteristic Leaching Procedure (TCLP) testing ash samples were collected in March 2024. Results from the TCLP testing will be included in the forthcoming Q4FY24 Quarterly Report. CAAI continued to sample ash monthly in-house, and document pH readings and adjust lime feed rate as needed. The results for the in-house ash pH tests are depicted below in Chart 15 where each quarter is represented by the

average of the respective monthly readings. In Q3FY24, the average ash pH for in-house tests was 10.44, which is in the target range of 8 to 11.

Chart 15: Quarterly Ash Test Results



APPENDIX A
FACILITY CEMS DATA

Table 9: Boiler No. 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 Opacity	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
Jan – 24	AVG	84.4	20.0	2.0	44.0	88.0	0.5	298.0	11.3	3.4
	Max	90.9	28.0	7.0	57.0	91.0	0.7	299.0	11.4	3.8
	Min	75.3	15.0	0.0	30.0	86.0	0.3	297.0	11.2	3.0
Feb – 24	AVG	85.1	27.0	1.0	39.0	89.0	0.5	298.0	11.5	3.5
	Max	90.7	39.0	6.0	52.0	105.0	0.7	298.0	14.5	5.7
	Min	78.6	18.0	0.0	24.0	83.0	0.3	292.0	11.2	3.0
Mar - 24	AVG	86.8	45.0	4.0	31.0	89.0	0.8	298.0	11.4	3.6
	Max	89.9	89.0	13.0	41.0	96.0	1.2	299.0	12.0	4.4
	Min	81.0	18.0	0.0	16.0	85.0	0.4	294.0	11.2	2.9
Quarter Average		85.4	30.7	2.3	38.0	88.7	0.6	298.0	11.4	3.5
Quarter Max Value		90.9	89.0	13.0	57.0	105.0	1.2	299.0	14.5	5.7
Quarter Min Value		75.3	15.0	0.0	16.0	83.0	0.3	292.0	11.2	2.9
Limits:		99	NA	29	100	110	10	331	12(a)	

(a) Carbon flow limit is a minimum value
(b) Limit for NOx is based on an average daily limit

* 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 10: Boiler No. 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 Opacity	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
Jan – 24	AVG	83.3	24.0	1.0	31.0	88.0	1.2	293.0	11.3	3.5
	Max	89.5	35.0	4.0	48.0	90.0	1.7	295.0	11.4	3.7
	Min	75.4	15.0	0.0	14.0	84.0	0.4	292.0	11.2	3.0
Feb – 24	AVG	86.4	44.0	1.0	19.0	87.0	1.1	292.0	11.4	3.6
	Max	91.3	88.0	3.0	34.0	89.0	1.4	294.0	11.7	5.7
	Min	79.9	21.0	0.0	10.0	82.0	0.6	287.0	11.1	2.0
Mar - 24	AVG	86.7	50.0	1.0	28.0	88.0	1.5	299.0	11.2	3.7
	Max	92.9	75.0	3.0	38.0	89.0	2.2	301.0	11.9	4.1
	Min	80.0	30.0	0.0	14.0	86.0	1.0	293.0	11.2	3.0
Quarter Average		85.5	39.3	1.0	26.0	87.7	1.3	294.7	11.3	3.6
Quarter Max Value		92.9	88.0	4.0	48.0	90.0	2.2	301.0	11.9	5.7
Quarter Min Value		75.4	15.0	0.0	10.0	82.0	0.4	287.0	11.1	2.0
Limits:		98	NA	29	100	110	10	330	12(a)	

(a) Carbon flow limit is a minimum value
(b) Limit for NOx is based on an average daily limit

* 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 11: Boiler No. 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 Opacity	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
Jan – 24	AVG	80.3	28.0	3.0	32.0	87.0	0.3	299.0	11.2	3.3
	Max	88.8	63.0	7.0	50.0	88.0	0.6	299.0	11.7	3.9
	Min	68.9	14.0	0.0	12.0	83.0	0.2	298.0	11.1	2.5
Feb – 24	AVG	85.0	50.0	4.0	22.0	86.0	0.7	298.0	11.3	3.7
	Max	90.6	72.0	8.0	29.0	88.0	1.2	299.0	12.4	5.8
	Min	80.2	26.0	1.0	14.0	80.0	0.4	295.0	11.2	3.4
Mar - 24	AVG	86.3	38.0	5.0	18.0	88.0	1.7	299.0	11.3	3.8
	Max	91.6	58.0	9.0	28.0	88.0	2.1	299.0	12.0	4.3
	Min	79.6	24.0	1.0	9.0	87.0	1.2	298.0	11.2	3.1
Quarter Average		82.1	83.9	38.7	4.0	24.0	87.0	0.9	298.7	11.3
Quarter Max Value		91.6	91.6	72.0	9.0	50.0	88.0	2.1	299.0	12.4
Quarter Min Value		60.2	68.9	14.0	0.0	9.0	80.0	0.2	295.0	11.1
Limits:		98	NA	29	100	110	10	332	12(a)	

(a) Carbon flow limit is a minimum value
(b) Limit for NOx is based on an average daily limit

* 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 2024

Figure 1: North Side Of Building Beginning To Look Dirty.

Figure 2: Pavement Spider Cracking At Tipping Floor Entrance.
Punchlist Item Since 2016.

Figure 3: Resident Drop-Off Signs Hidden By Trees.

Figure 4: Entrance Gate Wire Pulled Apart.

Figure 5: New LED Lights Installed Over Tipping Hall.

Figure 6: Dirty And Damaged Walls In Tipping Hall.

Figure 7: Temporary Pump set up to transport wastewater from the trench drains to the Cooling Tower basin. Punchlist item since 2022.

Figure 8: Cooling Water Pump set up to transport condensed water from the boilers to the Cooling Tower basin.

Figure 9: Ferrous Drum Magnet In Operation.

Figure 10: Boiler No. 1 Hole In Staircase.

Figure 11: View Ports All Boilers Covered And Repaired.

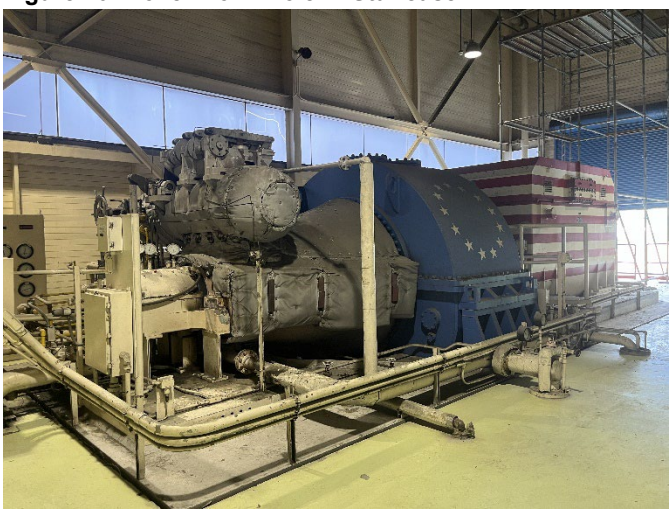


Figure 12: Turbine Generator No. 1.

Figure 13: Boiler No. 1 Water Box Empty.

Figure 14: Boiler No. 1 Superheater Hopper.

Figure 15: New Feed Chute On Boiler No. 2.

Figure 16: Boiler No. 2 Full Water Level Box.

Figure 17: Boiler No. 3 Viewport Capped For Repair. Closed On Punch List.

Figure 18: Boiler No. 1 Side Access Door.

Figure 19: Boiler No. 1 LN System.

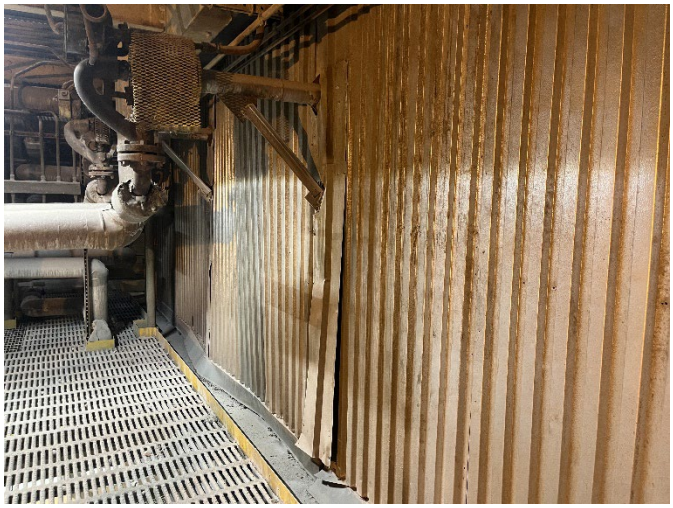


Figure 20: Lagging Depreciating Around Boiler No. 1

Figure 21: Boiler No. 2 Auxiliary Burner Control Panel.

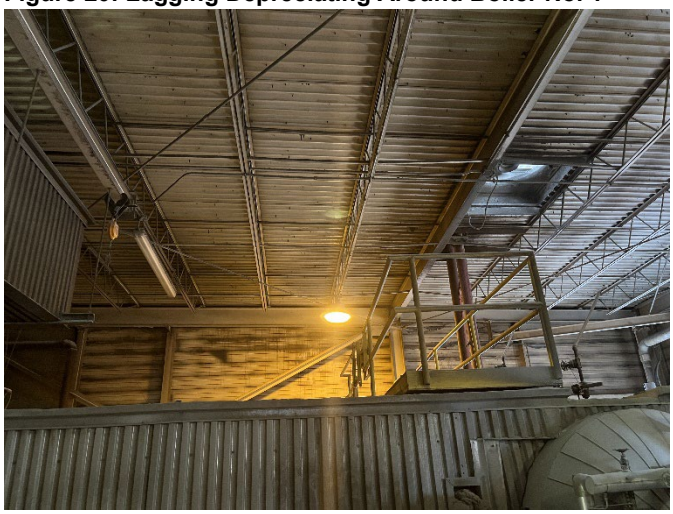


Figure 22: Lights Not In Service Over Boiler No. 1.

Figure 23: Lights Not In Service Over Boiler No. 2.

Figure 24: Insulation Deteriorating Around Boiler No. 3 Steam Drum.
Punchlist Item Since 2021.

Figure 25: Boiler No. 2 SDA Inlet Duct Expansion Joint In Good Condition.

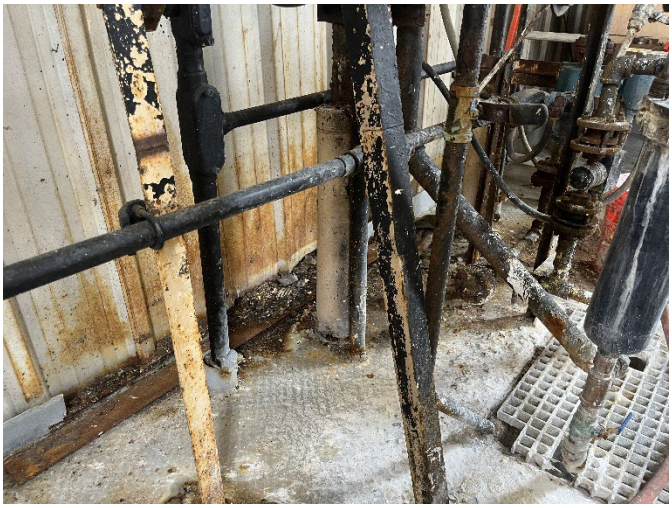


Figure 26: Deterioration Behind Lime Slurry Piping Of SDA No. 2.
Punchlist item since 2019

Figure 27: New Temperature Gauges and Thermal Couples.

Figure 28: Baghouse Hopper Heater Controls Set To Manual.
Punchlist Item Since 2021.

Figure 29: Baghouse No. 3 Opacity System Installed.

Figure 30: Refuse Pit Level.