



Operations Monitoring Report

Third Quarter FY21

Prepared by:

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I. Executive Summary

A review of the fiscal year 2021 (FY21) Third Quarter performance and contract obligations between Constellation New Energy (CNE) and the Metropolitan Government of Nashville and Davidson County (Metro) is presented in this report by Thermal Engineering Group, Inc. (TEG). The status of the available funds for all active capital construction and repair and improvement projects are also presented. For the fiscal year 2021 to date, CNE has not met their contract obligations to Metro since they have failed to meet the performance guarantees for multiple months as required by Paragraph 8.d of the Amendment 2 of the Amended and Restated DES Management Agreement (ARMA) between Metro and CNE. TEG will continue to monitor CNE's operations.

For the Third Quarter FY21, the chilled water sales decreased 15.2% over the previous Third Quarter (FY20). The chilled water sendout also decreased 12.0% over the previous Third Quarter. The system losses increased approximately 55.3%. The number of cooling degree days was 69.2% lower than in FY20. The peak chilled water demand for the current quarter was 9,582 tons, which is 7.0% higher than the previous Third Quarter. Although the Third Quarter was cooler than the previous year, the decline in chilled water sales is attributed to customer occupancies being lower than normal due to the nCOVID-19 pandemic.

Steam sendout for the current quarter increased by approximately 4.2% over the previous Third Quarter and steam sales, likewise, increased by approximately 4.0%. This increase came with a 16.5% increase in heating degree days thus the quarter was much cooler than in FY20. Total steam system losses were approximately 7.1% greater than in the previous Third Quarter. The peak steam demand for the current quarter was 138,100 pounds per hour, which represents an increase in the Third Quarter demand by approximately 1.0%. The increase in steam sales may be due to the decrease in building occupancy due to the pandemic and an increase in heating degree days.

With the implementation of the new System Performance Guarantee (Guaranteed Maximum Quantity or GMQ) levels beginning in this fiscal year, CNE has failed to consistently meet the chilled water-water conversion and the steam fuel conversion. The chilled water plant electric consumption per unit of sales continues to perform better than the guaranteed levels for the quarter but higher than many of the historic values. CNE continues to make changes to their operation at the EGF to address the issues preventing them from meeting the new performance criteria.

These changes have resulted in the quarterly average chiller plant efficiency being approximately 3.8% better than in the Third Quarter FY20. The chilled water-water conversion improved in the Third Quarter, compared to the first two quarters of FY21, with one month's results falling below the required standard. However, the required standard has not been met in five of the first nine months of FY21. The steam water conversion has operated similar to historic values with only three excursions above the guarantee for FY21 with two of those excursions occurring in the Third Quarter. The steam fuel guarantee was exceeded six of the first nine months of FY21. The steam electric conversion guarantee was exceeded only twice in the First Quarter FY21 with no subsequent excursions noted. TEG is continuing to monitor CNE's efforts in improving the system's performance.

Work continued with the DES Capital and Repair & Improvement Projects during the Second Quarter. Repair and Improvements to the EDS continue as scheduled. DES133.1, DES139, DES153, DES163, DES168, DES171, DES172, DES173, DES174, DES175, DES178, DES182, DES183, DES184, DES185 and DES 186 are ongoing. Projects DES152, DES154, DES161, DES177, DES179 and DES180 are anticipated to be executed in FY22. As noted in prior quarterly monitoring reports, the postponement or deference of these items will result in an increase in maintenance costs to the DES and could impact the delivery of steam and chilled water. Projects DES184, DES185 and DES186 have been added. DES175 and DES181 are in close-out.

The current fiscal year system operating costs to date are \$12,927,807. This value represents approximately 68.0% of the total budgeted operating cost for FY21. The customer revenues from the sales of steam and chilled water for FY21 are \$11,771,553 (64.1% of budgeted amount). The difference between the operating costs and customer revenue is the Metro funding amount (MFA), which represents the shortfall in cash flow for the system. The MFA transferred to date for FY21 is \$473,025 (75% of budget). However, the actual MFA required cannot be accurately calculated due to outstanding invoices as of the date of this report.

The DES response to the nCOVID-19 pandemic included the potential deferral of customer invoices and the waiving late fees. The option to take the deferral and the late fee waiver period expired at the end of the First Quarter. Two customers took advantage of the deferral option and were able to reduce a portion of the invoices. The repayments of the deferred amounts began in the First Quarter FY21 and the revenues shown include those amounts. The DES Advisory Board recommended to continue waiving the late fees to customers through May 2021.

Table of Contents

Section	Description	Page
I.	Executive Summary	i
II.	Energy Distribution System Sales and Performance	1
	A. Chilled Water	1
	1. Sales and Sendout	1
	2. Losses.....	2
	3. Performance	3
	B. Steam.....	5
	1. Sales and Sendout	5
	2. Losses.....	6
	3. Performance	7
	C. Contract Guarantee Performance	9
	D. Operating Costs.....	11
III.	EGF Operations	14
	A. Reliability.....	14
	B. Efficiency	15
	C. Environment, Health and Safety	15
	D. Personnel.....	15
	E. Training.....	15
	F. Water Treatment	15
	G. Maintenance and EGF Repairs	16
	H. EGF Walkthrough.....	17
IV.	Capital Projects	19
	A. Third Quarter FY21 Open Projects.....	19
	B. Third Quarter FY21 Closed Projects	25
	C. Capital Projects Budget.....	25
V.	Energy Distribution System Repair, Improvements, PM, and Emergencies ...	27
	A. Repairs and Improvements	27
	B. Preventive Maintenance.....	27
	C. Emergencies.....	28
	D. EDS Walkthrough.....	28
VI.	Customer Relations.....	35
	A. Marketing.....	35
	B. Customer Interaction.....	35
VII.	Recommendations.....	36

II. Energy Distribution Sales and Performance

A. Chilled Water

This section of the report discusses and presents performance information regarding the operation of the EGF for the periods described. Charts and tabular data are also presented to provide a more detailed description of the actual EGF performance.

The decline in business operations, office building occupancies and group events due to the COVID-19 pandemic has impacted the DES by creating a significant decrease in the steam and chilled water energy usage and demand during the twelve months since the pandemic began. Although the restrictions imposed on gatherings and businesses have loosened as the vaccines have become more available, building occupancies remain low resulting in a decline in the energy use normally experienced. However, the decline in usage does not impact the MFA, provided that the customers are paying their invoices, since the energy costs incurred by the system are passed through to the customers.

1. Sales and Sendout

A comparison for the Third Quarter chilled water sales is shown in Figure 1. This data reflects a 15.2% decrease in sales for the current quarter over the same quarter of the previous fiscal year.

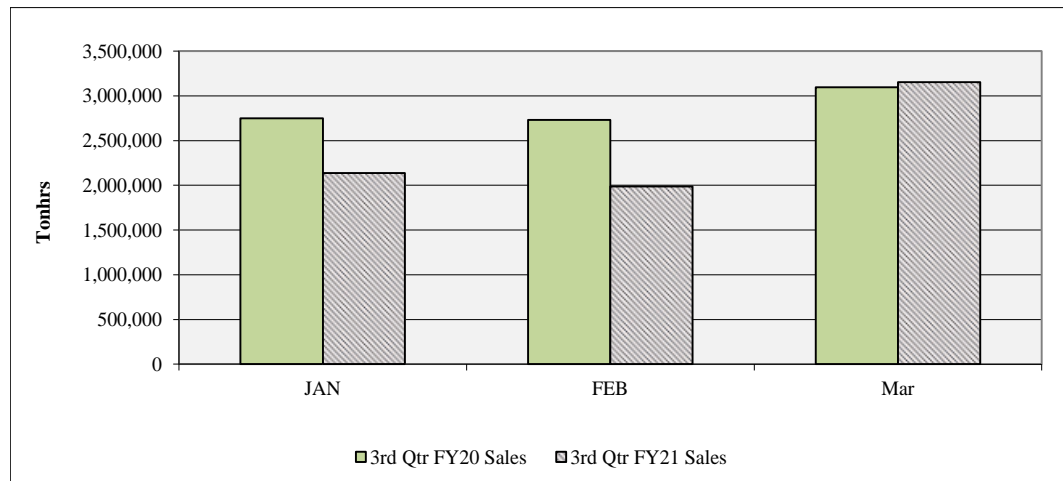


Figure 1. Chilled Water Sales Comparison

The peak chilled water demand for the current quarter was 9,582 tons, which represents a 7.0% increase over the previous Third Quarter. Although the chilled water demand is affected by building occupancies, the quarter experienced a 69.2% decrease in the number of cooling degree days which plays a significant role in chilled water demand and usage.

Figure 2 shows the chilled water sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in tonhrs per month between the recorded sendout and sales values and represent the total energy loss for chilled water in the EDS. The number of cooling degree days per month are also tracked for comparison.

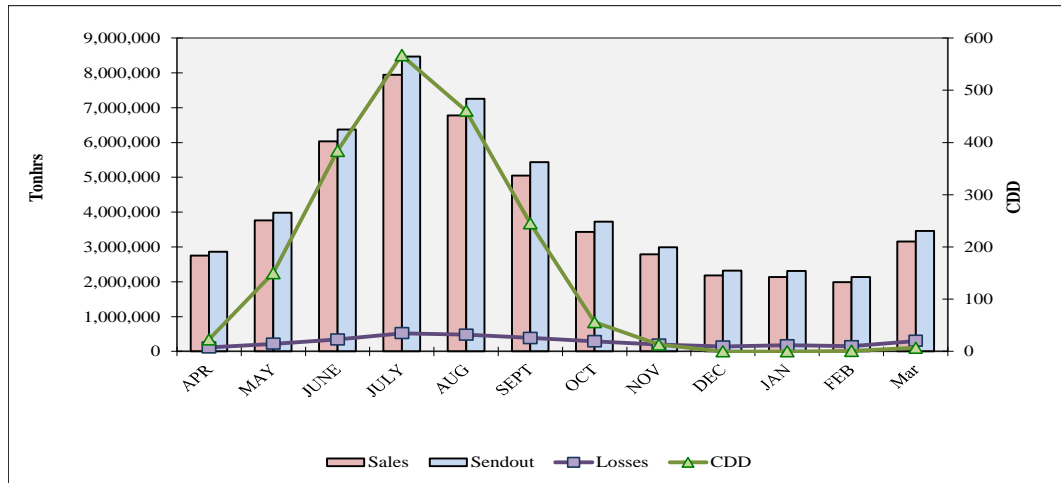


Figure 2. Chilled Water Sales, Sendout, Losses and CDD for the Previous Twelve Months

2. Losses

A comparison of the total, chilled water energy losses in the EDS for the Third Quarter is shown in Figure 3. These losses are the difference in chilled water sendout and sales.

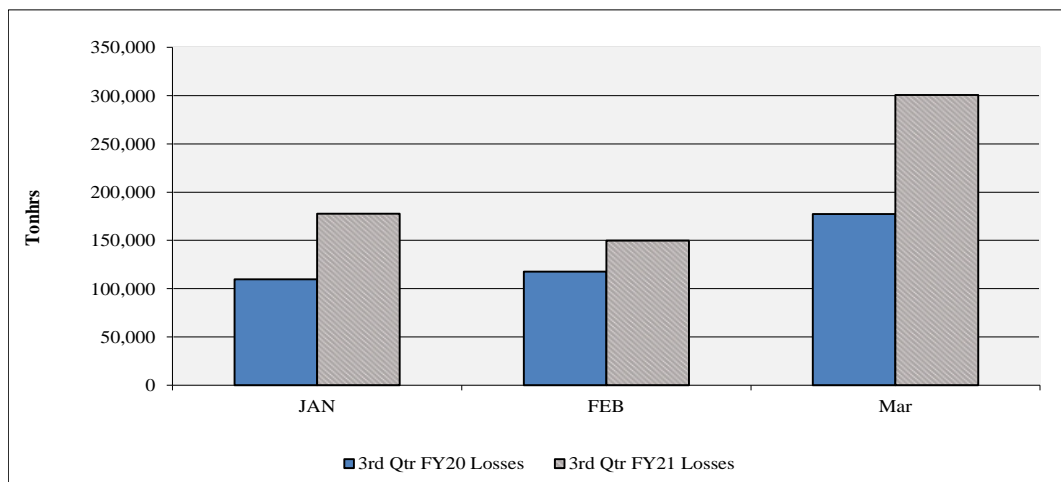


Figure 3. Chilled Water System Loss Comparison

The EDS make-up decreased by 68.2% over the previous Third Quarter. Although some distribution leaks have been repaired during the year, some losses still remain.

The daily losses have fluctuated throughout the quarter, the make-up rate finished the quarter at less than 25,000 gallons per day. These fluctuations in make-up are believed due to one or more customers adding city water to the system.

A leak is still suspected on 5th Ave N, but previous efforts to locate the actual source of the leak have been unsuccessful. Since the magnitude of the EDS make-up is so low, it may not prove cost beneficial to the DES to continue any exploratory excavations at this time. However, CNE and TEG will continue to monitor the EDS make-up and investigate any potential leaks. If the specific location of an additional leak were discovered, DES would address the issue promptly.

The make-up to the cooling towers decreased 8.7% over the previous Third Quarter. The water usage in the cooling towers is largely due to the consumption of chilled water and should vary with chilled water sales. The number of cycles of concentration in the condensing water circuit decreased 17.6%. The total chiller plant water use decreased 25.1% over the Third Quarter FY20. The overall city water make-up comparison for the chilled water system Third Quarter is shown in Figure 4.

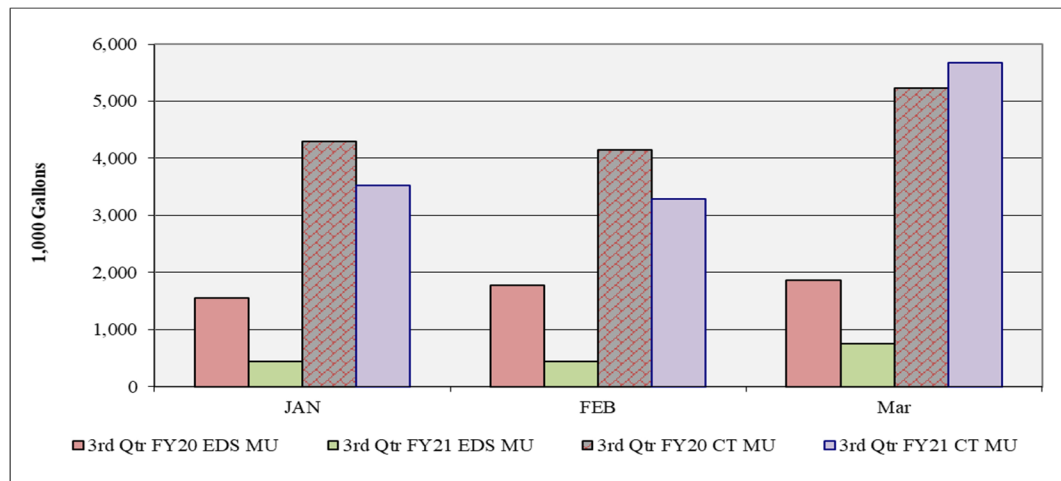


Figure 4. Chilled Water System City Water Usage Comparison

3. Performance

The performance of the chilled water aspect of the EGF is presented by the following two charts, Figures 5 and 6, for the previous twelve months. The System Performance Guarantee levels as described in Amendment 2 of the ARMA were not achieved for the chilled water-water conversion for one month of the quarter and five months out of the nine months so far in FY21. CNE has met the chilled water-electric guarantee each month of the fiscal year.

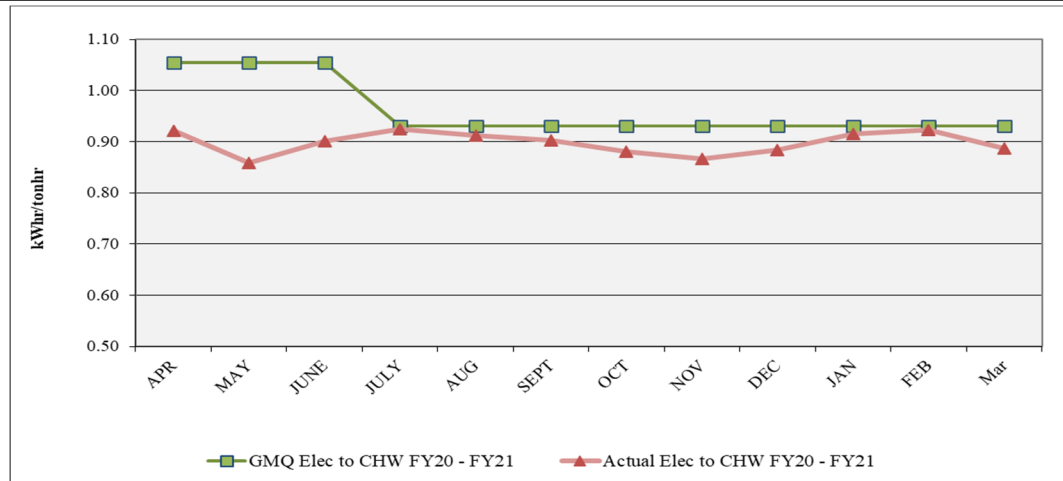


Figure 5. Chiller Plant Electric Performance Guarantee Comparison for the Previous Twelve Months

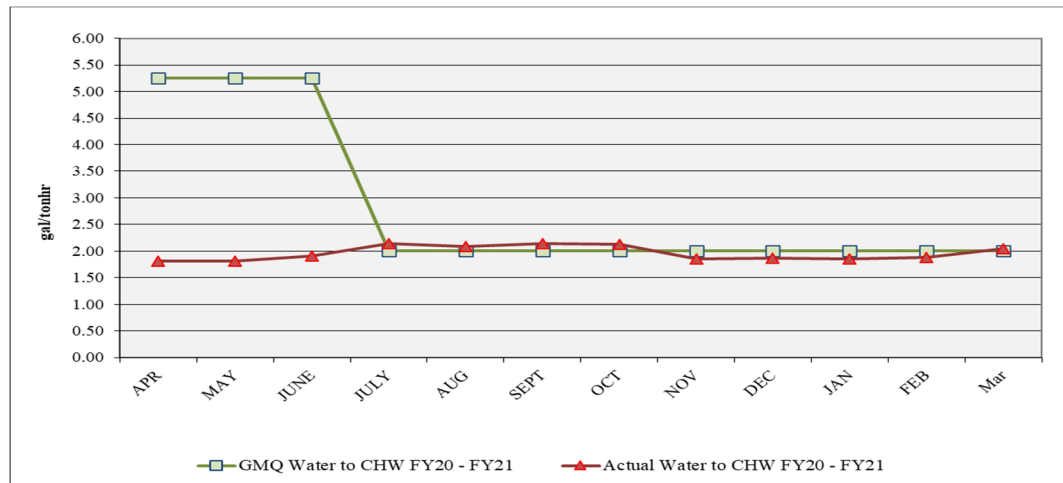


Figure 6. Chiller Plant Water Consumption Performance Guarantee Comparison for the Previous Twelve Months

The chilled water allocation of the electric consumption falls under the GMQ limit of 0.93 kWhr per tonhr for the current quarter, and no excursion is reported for the current fiscal year. The electric usage per unit of sales decreased 3.8% over the previous Third Quarter.

CNE has worked to address some operational issues within the plant in an additional effort to improve efficiency. CNE and TEG are continuing to monitor the improvements created by these changes.

The total consumption of city water for the chiller plant for the current quarter has decreased by approximately 25.1% due largely to the decrease in chilled water sales. The water conversion factor for the chiller plant increased by approximately

21.0% over the previous Third Quarter. However, a new equation for calculating the chilled water-water conversion factor came into use with the implementation of Amendment 2 beginning in July 2020. When a month-to-month comparison is made for the months of FY21, this conversion factor appears consistent and decreased below the guarantee only after the cooler months arrived and the EDS leak was found and repaired. March is the only month where the conversion factor exceeded the guaranteed value for the quarter.

B. Steam

1. Sales and Sendout

The steam sendout increased by approximately 4.2% over the previous Third Quarter (FY20), and the sales also increased by approximately 4.0%. The Quarter experienced a 16.4% increase in the number of heating degree days. The steam system losses increased 7.1%, and the relative amount of condensate return increased 10.9% due to condensate repairs made in the Second and Third Quarters. A comparison for the Third Quarter steam sales is shown in Figure 7.

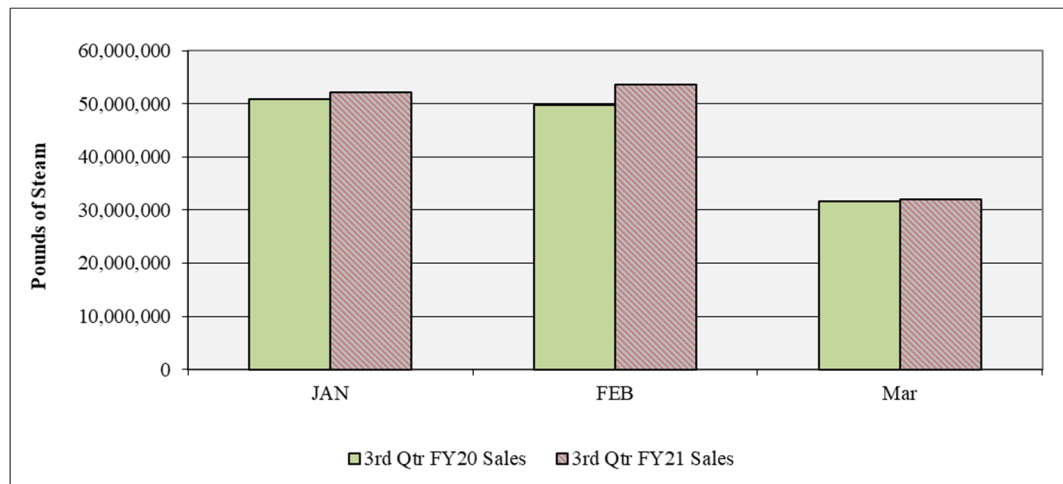


Figure 7. Steam Sales Comparison

The peak steam demand for the current quarter was 138,100 pph, which reflects an approximate 0.8% increase in the peak steam production over the previous Third Quarter.

Figure 8 shows the steam sales, sendout and losses for the previous twelve months. The losses on this figure are defined as the difference in pounds per month between the recorded sendout and sales values and represent the total mass loss in the EDS between the EGF and the customer meters.

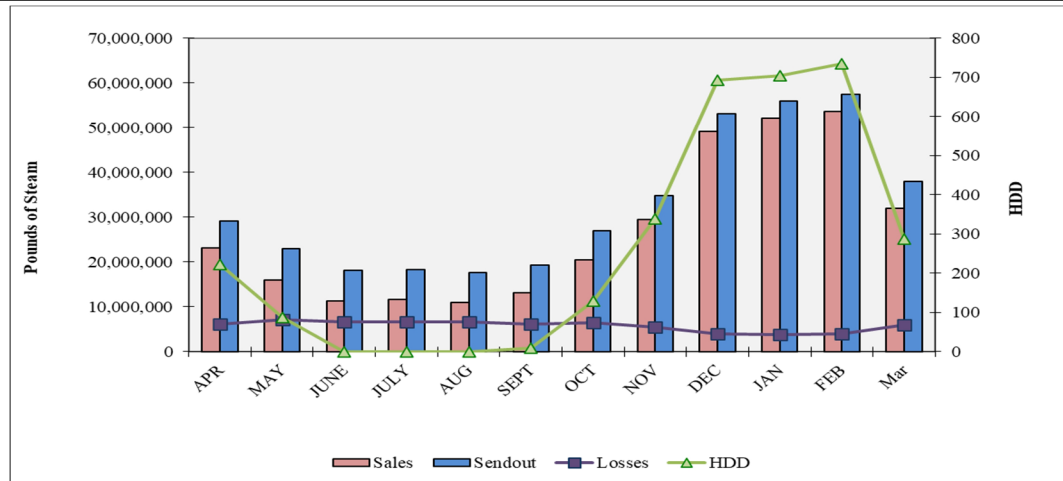


Figure 8. Steam Sales, Sendout, Losses and HDD for the Previous Twelve Months

2. Losses

A comparison of the total steam mass losses in the EDS for the Third Quarter is shown in Figure 9. The mass loss is caused by the heat loss in the EDS between the EGF and the customer meters, resulting in a mass loss at steam traps. Faulty traps, steam leaks or meter error could also be a contributing cause of these losses. Whenever steam sales decrease from the previous quarter, the percent of system losses can be expected to increase since most of these losses are based on a near constant heat loss of the system.

With the recent repairs to the condensate return system, the amount of condensate returned to the EGF has increased and is approaching historically typical values.

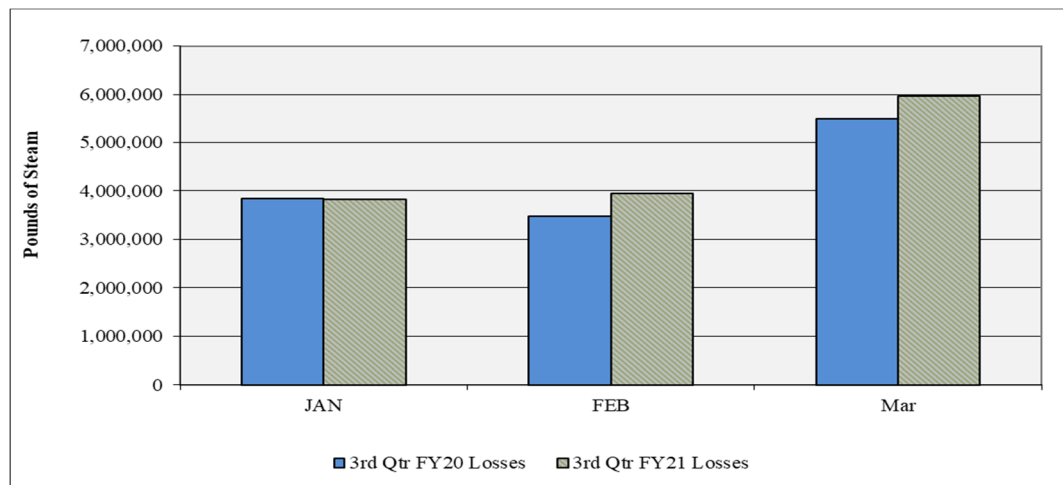


Figure 9. Steam System Losses

The amount of city water make-up (MU) to the steam system consists of the loss in mass between the EGF and the customers, in the condensate return from the customers to the EGF and losses at the EGF. The corresponding data for steam system make-up is shown in the comparison of Third Quarter data in Figure 10.

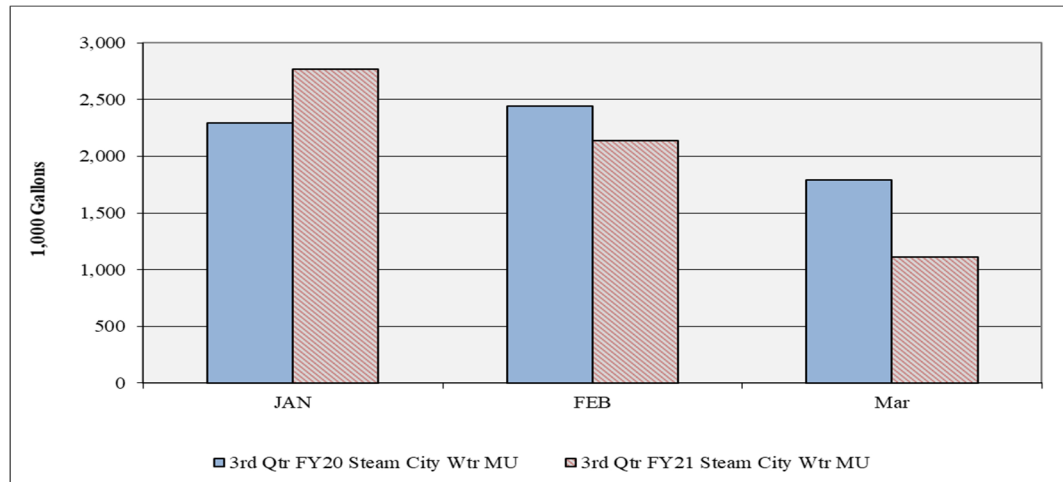


Figure 10. Steam System City Water Make-up Comparison

3. Performance

The performance of the steam system of the EGF is presented by the following three charts, Figures 11, 12 and 13. The steam fuel conversion factor exceeded the guaranteed values in October, November, and December 2020, and January, February, and March 2021. The steam electric conversion factor was exceeded in July and August (First Quarter) but was not exceeded during the Third Quarter. TEG monitors CNE’s performance regularly and will continue to report any non-compliance in the EGF’s operation. The steam water conversion factor exceeded the guaranteed values in December 2020 and January and February 2021; however, exceeding the steam water factor in the winter months is not historically unusual.

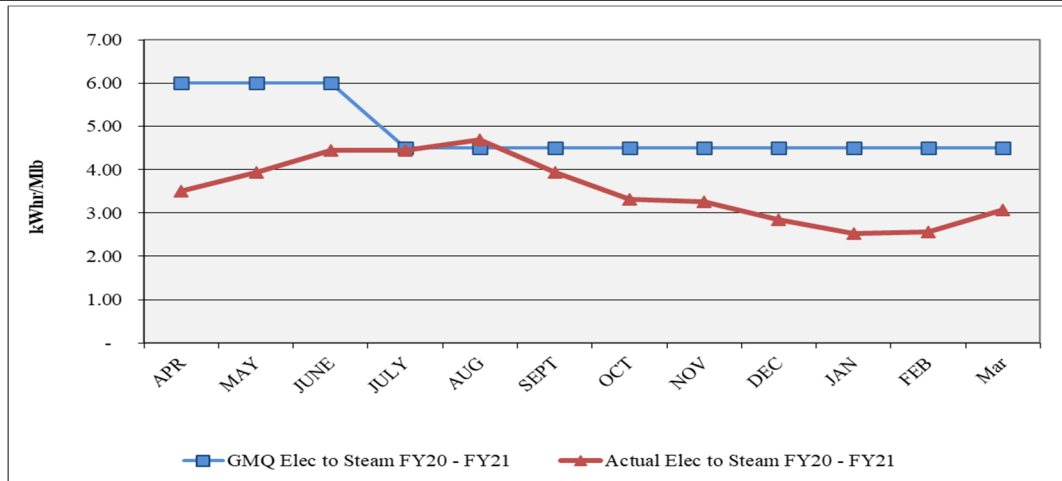


Figure 11. Steam Plant Electric Performance Guarantee for the Previous Twelve Months

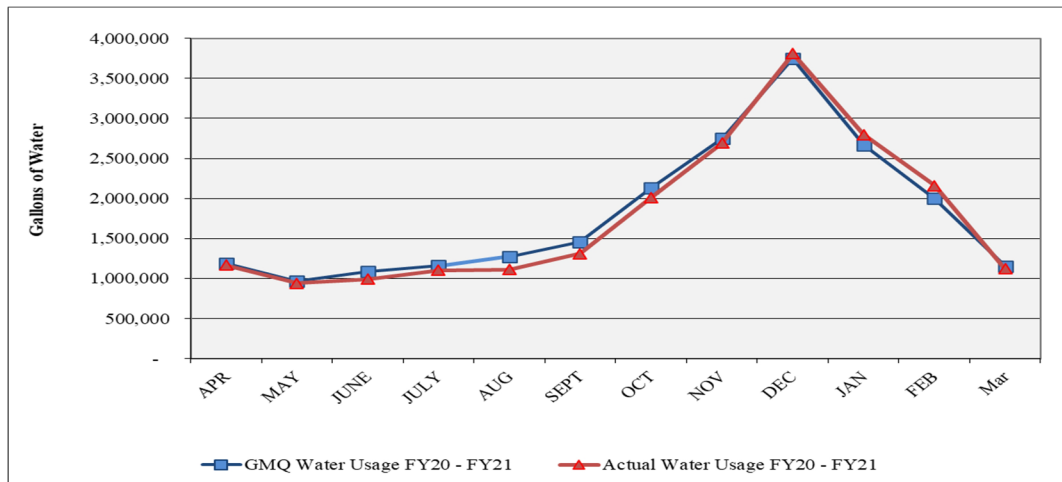


Figure 12. Steam Plant Water Performance Guarantee for the Previous Twelve Months

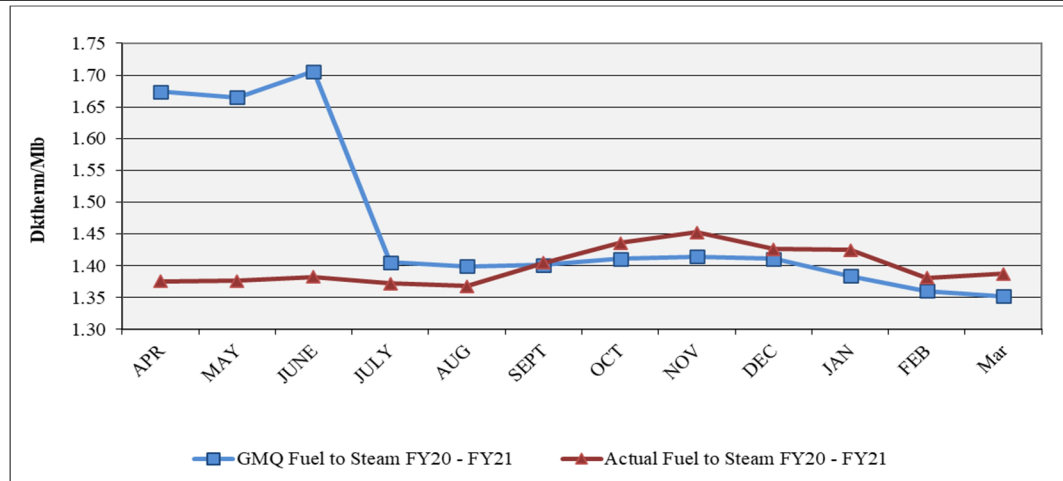


Figure 13. Steam Plant Fuel Performance Guarantee for the Previous Twelve Months

The current quarter experienced a marginal increase in the steam plant electric consumption while experiencing a 2.5% decrease in the electric conversion factor. The water consumption for the steam plant decreased 7.7% this quarter as compared to the previous Third Quarter due largely to recent condensate system repairs. The fuel consumption per unit of steam sales was 1.3% higher than in the previous Third Quarter. The increase in the fuel consumption per unit of sales represents a decrease in boiler plant efficiency.

C. Contract Guarantee Performance

The production and sales performance for the EGF and EDS are summarized in Table 1 for the current quarter. Additional parameters, such as cooling tower blow-down and peak demands are listed in this table, as well. Table 2 presents the Third Quarter comparisons of the Guaranteed Maximum Quantities (GMQ) or System Performance Guarantees of the criteria commodities (fuel, water, and electricity).

For FY21, CNE has not consistently met the performance guarantees required under Amendment 2 of the ARMA. At least one of the factors were exceeded in each of the nine months of FY21.

Table 1. Third Quarter FY21 Production, Sales and Consumption Summary

Item	Unit	Third Quarter FY21	Third Quarter FY20	*Percent Difference
	days	90	91	-1.10%
Total Electric Use	kWhrs	6,952,484	8,464,706	-17.87%
Chilled Water	kWhrs	6,584,314	8,099,791	-18.71%
Steam	kWhrs	368,170	364,915	0.89%
Total Water Use	kgal	20,157	25,391	-20.61%
Total Chilled Water	kgal	14,140	18,870	-25.07%
EDS Make-up	kgal	1,648	5,184	-68.21%
Cooling Towers	kgal	12,492	13,686	-8.72%
Calc CT Evaporation	kgal	10,280	11,625	-11.57%
CT Blowdown	kgal	2,212	2,061	7.33%
Calc # Cycles		4.65	5.64	-17.61%
Steam	kgal	6,017	6,521	-7.73%
Total Fuel Use	mmBTU	211,814	200,527	5.63%
Natural Gas	mmBTU	211,627	200,232	5.69%
Propane	mmBTU	189	295	-36.17%
Condensate Return	kgal	13,495	11,678	15.56%
	lbs	110,064,927	95,240,755	15.56%
Avg Temp	°F	184.0	177.3	3.76%
Sendout				
Chilled Water	tonhrs	7,904,700	8,981,300	-11.99%
Steam	lbs	151,422,000	145,265,000	4.24%
Peak CHW Demand	tons	9,582	8,955	7.00%
Peak Steam Demand	lb/hr	138,100	136,906	0.87%
CHW LF		38.19%	45.92%	-16.83%
Steam LF		50.76%	48.58%	4.49%
Sales				
Chilled Water	tonhrs	7,276,059	8,576,340	-15.16%
Steam	lbs	137,691,566	132,446,011	3.96%
Losses				
Chilled Water	tonhrs	628,641	404,960	55.24%
Steam	lbs	13,730,434	12,818,989	7.11%
		9.07%	8.82%	2.75%
Degree Days				
CDD		8	26	-69.23%
HDD		1,729	1,486	16.35%

*positive percent difference values imply an increase from FY20 to FY21

Table 2. Third Quarter Performance Guarantee Comparison for Steam and Chilled Water

GMQ Calculations	Unit	Third Quarter FY21	Third Quarter FY20	*Percent Difference
Steam				
GMQ Elec Conversion	kWhr/Mlb	4.50	6.00	
Electric Conversion	kWhr/Mlb	2.73	2.80	-2.52%
GMQ Plant Efficiency	Dth/Mlb	1.365	1.699	
Plant Efficiency	Dth/Mlb	1.398	1.380	1.26%
Actual %CR		72.69%	65.56%	10.87%
Avg CR Temp	°F	184	177	3.76%
GMQ Water Conversion	gal	5,831,475	7,053,573	
Water Conversion	gal	6,077,170	6,586,210	-7.73%
Chilled Water				
GMQ Elec Conversion	kWhr/tonhr	0.930	1.055	
Electric Conversion	kWhr/tonhr	0.908	0.944	-3.84%
GMQ Water Conversion	gal/tonhr	2.00	5.25	
Water Conversion	gal/tonhr	1.93	1.59	21.04%

*positive percent difference values imply an increase from FY20 to FY21

D. Operating Costs

The fixed operating costs for the DES include the management fee to CNE, debt service payments on the bonds and engineering and administration costs and are charged to the Initial System Customers (ISCs) relative to their contract demand. For all non-ISCs, their fixed costs are principally based on a value established by their contracts and are not tied directly to the actual costs of the debt service or CNE's management fee.

The variable costs are dependent on the amounts of steam and chilled water produced and sold to the customers. These latter costs include the utility and chemical treatment costs. Most of the costs incurred for the operation of the DES are passed onto the customers in the form of the demand charges (fixed costs) and energy charges (variable costs). Therefore, the reduction in monthly energy usage decreases the revenue for the DES but has negligible impact on the required Metro Funding Amount. A summary of the total operating costs for the fiscal year to date are shown in Table 3.

The revenues shown in Tables 3 and 4 reflect the charges to the customers for their respective steam and chilled water service. The difference between the total costs and revenues from the customers is the shortfall that must be covered by Metro. The shortfall

exists due to the remaining unsold capacity at the EGF and the debt service for bonds to which the customers do not directly contribute.

The DES response to the nCOVID-19 pandemic included the potential deferral of customer invoices and waiving late fees. Only two customers took advantage of the deferrals. These two customers are being invoiced one-twelfth of the total deferred amounts. Although the nCOVID-19 deferral period ended with the First Quarter, the DES Advisory Board recommended continuing to waive late fees from the customers through at least the end of May 2021.

For FY21, the current fiscal year system operating costs to date are \$12,927,807. This value represents approximately 68.0% of the total budgeted operating cost for FY21 and includes some costs occurring in the Fourth Quarter. The customer revenues from the sales of steam and chilled water for FY21 are \$11,771,553 (64.1% of budgeted amount). The difference between the operating costs and customer revenue is the Metro funding amount (MFA), which represents the shortfall in cash flow for the system. The MFA transferred to date for FY21 is \$473,025 (75% of budget). However, the actual MFA required cannot be accurately calculated due to outstanding invoices as of the date of this report. The total revenue list includes the costs associated with the FY20 customer true-up and repayment of the nCOVID-19 deferrals for the two customers who elected for this option.

Table 3. DES Expenses and Revenues to Date

Item	FY21 Budget	First Quarter Expenses	Second Quarter Expenses	Third Quarter Expenses	Fourth Quarter Expenses	Total Spending to Date	% of Budget
Operating Management Fee							
FOC: Basic	\$ 3,776,800	\$ 944,203	\$ 944,203	\$ 944,203	\$ -	\$ 2,832,608	75.00%
9th Chiller	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
C/O 6A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
C/O 6B	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
C/O 7	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
C/O 8	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Pass-thru Charges: Chemical Treatment	\$ 260,700	\$ 68,435	\$ 71,706	\$ 54,454	\$ -	\$ 194,595	74.64%
Insurance	\$ 14,800	\$ 16,013	\$ -	\$ -	\$ -	\$ 16,013	108.19%
Marketing: CNE Sales Activity	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Incentive Payments	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
FEA: Steam	\$ 125,000	\$ 890	\$ (6,066)	\$ (11,483)	\$ -	\$ (16,658)	-13.33%
Chilled Water	\$ 73,800	\$ (2,741)	\$ 8,642	\$ 3,738	\$ -	\$ 9,639	13.06%
Misc: Metro Credit	\$ -	\$ (347,378)	\$ (206,007)	\$ (144,834)	\$ -	\$ (698,220)	n.a.
ARFA	\$ 59,400	\$ 14,850	\$ 14,850	\$ 14,850	\$ -	\$ 44,550	75.00%
Deferral	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Subtotal - Man Fee =	\$ 4,310,500	\$ 1,041,650	\$ 1,033,335	\$ 1,005,762	\$ -	\$ 3,080,747	71.47%
Reimbursed Management Fee + Chem Treatment		\$ 1,041,650	\$ 685,347	\$ -	\$ -	\$ 1,726,996	0.00%
Metro Costs							
Pass-thru Charges: Engineering	\$ 37,300	\$ 6,136	\$ 14,296	\$ 21,027	\$ 2,643	\$ 44,103	118.24%
EDS R&I Transfers	\$ 291,900	\$ 72,258	\$ 73,692	\$ 72,975	\$ 24,325	\$ 243,250	83.33%
Metro Marketing	\$ 10,900	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
Project Administration	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Metro Incremental Cost	\$ 330,900	\$ 70,051	\$ 56,323	\$ 67,286	\$ 20,130	\$ 213,790	64.61%
Utility Costs: Water/Sewer	\$ 633,400	\$ 326,528	\$ 187,694	\$ 128,707	\$ -	\$ 642,929	101.50%
EDS Water/Sewer	\$ -	\$ 44	\$ 152	\$ 3,440	\$ -	\$ 3,635	n.a.
EDS Electricity	\$ 59,400	\$ 20,223	\$ 18,313	\$ 16,049	\$ -	\$ 54,585	91.89%
Electricity	\$ 5,919,500	\$ 1,461,598	\$ 679,802	\$ 619,746	\$ -	\$ 2,761,146	46.64%
Natural Gas Consultant	\$ 12,400	\$ -	\$ 1,000	\$ 5,000	\$ -	\$ 6,000	48.39%
Natural Gas Transport	\$ -	\$ 36,211	\$ 58,880	\$ 72,527	\$ -	\$ 167,619	n.a.
Natural Gas Fuel	\$ 2,305,000	\$ 150,093	\$ 445,716	\$ 632,645	\$ -	\$ 1,228,454	53.30%
Propane	\$ -	\$ 77,271	\$ -	\$ -	\$ -	\$ 77,271	n.a.
Subtotal - Metro Costs =	\$ 9,600,700	\$ 2,220,411	\$ 1,535,868	\$ 1,639,403	\$ 47,098	\$ 5,442,780	56.69%
Subtotal - Operations =	\$ 13,911,200	\$ 3,262,061	\$ 2,569,203	\$ 2,645,165	\$ 47,098	\$ 8,523,527	61.27%
Debt Service							
2012 Bonds	\$ 3,486,100	\$ 879,026	\$ 869,336	\$ 869,303	\$ 289,768	\$ 2,907,433	83.40%
2005 Bonds -Self Funded	\$ 377,700	\$ 337,647	\$ -	\$ -	\$ -	\$ 337,647	89.40%
2007 Bonds -Self Funded	\$ 176,000	\$ 44,000	\$ 44,000	\$ 44,000	\$ 44,000	\$ 176,000	100.00%
2008 Bonds -Self Funded	\$ 175,900	\$ 43,975	\$ 43,975	\$ 43,975	\$ 43,975	\$ 175,900	100.00%
2010 Bonds -Self Funded	\$ 178,300	\$ 44,575	\$ 44,575	\$ 44,575	\$ 44,575	\$ 178,300	100.00%
Fund 49107 -Self Funded	\$ 629,000	\$ 157,250	\$ 157,250	\$ 157,250	\$ 157,250	\$ 629,000	100.00%
Fund 49116 -Self Funded	\$ 75,000	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%
MIP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Oper. Reserve Fund	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	n.a.
Subtotal - Capital =	\$ 5,098,000	\$ 1,506,473	\$ 1,159,136	\$ 1,159,103	\$ 579,568	\$ 4,404,280	86.39%
Total =	\$ 19,009,200	\$ 4,768,534	\$ 3,728,339	\$ 3,804,269	\$ 626,666	\$ 12,927,807	68.01%
Customer Revenues							
Taxes Collected		\$ 92,533	\$ 77,468	\$ 75,201	\$ -	\$ 245,202	n.a.
Taxes Paid		\$ 92,533	\$ 77,467	\$ 50,321	\$ -	\$ 220,321	n.a.
Interest & Misc Revenue	\$ 230,900	\$ -	\$ 624	\$ -	\$ -	\$ 624	0.27%
Penalty Revenues/Credits		\$ 30,813	\$ 20,239	\$ 7,700	\$ -	\$ 58,753	n.a.
Energy Revenues Collected		\$ 4,261,488	\$ 3,687,538	\$ 3,740,230	\$ -	\$ 11,689,256	62.20%
Revenues =	\$ 18,378,500	\$ 4,292,301	\$ 3,708,402	\$ 3,772,810	\$ -	\$ 11,773,514	64.06%
Metro Funding Amount =	\$ 630,700	\$ 476,233	\$ 19,936	\$ 31,458	\$ 626,666	\$ 1,154,293	183.02%

The DES serves 29 customers and 42 buildings in downtown Nashville. These customers are divided into three categories: 1) Privately owned buildings, 2) State of TN owned buildings and 3) Metro owned buildings. The New Customers listed in Table 4 are non-Initial System private customers. A summary of the annual costs for each of these three categories is presented in Table 4. These values include late fees and penalties and any unpaid balances.

Table 4. Customer Revenue Summary to Date

Building	Chilled Water			Steam		
	Total Cost	Consumption (tonhrs/yr)	Unit Cost (\$/tonhr)	Total Cost	Consumption (Mlb/yr)	Unit Cost (\$/Mlb)
Private Customers	\$ 2,640,285	11,803,962	\$ 0.2237	\$ 978,095	67,070	\$ 14.5832
State Government	\$ 2,393,587	9,313,449	\$ 0.2570	\$ 1,371,253	94,464	\$ 14.5162
Metro Government	\$ 3,037,867	14,337,527	\$ 0.2119	\$ 1,268,171	110,848	\$ 11.4407
New Customers	\$ 1,974,701	8,602,837	\$ 0.2295	\$ 884,277	82,399	\$ 10.7316
Total	\$ 8,071,738	35,454,938	\$ 0.2277	\$ 3,617,519	272,381	\$ 13.2811

Total Revenue \$ 11,689,257
 True-up and Adjustments (Net) \$ 84,257
 Net Revenue \$ 11,773,514

III. EGF Operations

Items relating to the facility operations presented herein are derived from the monthly reports issued by CNE for FY21. TEG and CNE continue to meet monthly and regularly communicate about important issues and on-going projects. CNE has reported and managed EGF operations satisfactorily; however, they have failed to consistently meet all of the new performance guarantees in Amendment 2 for the fiscal year. The concerns raised in the previous Monitoring Report on the staffing level have been resolved. Although CNE was not able to maintain the steam production capacity for five days during December 2020, the issues with the boilers have been repaired and the problem did not recur in the Third Quarter.

A. Reliability

The principal issues surrounding the reliable operation of the EGF relates to the ability to operate without significant interruption, exclusive of planned outages, and disruption of service to the customers. The following disruptions in service occurred during the quarter.

-) CNE implemented a control systems' upgrade at the EGF during the quarter. As a result of this work, boiler 2 tripped in January causing the system pressure to drop to a low of 133 psig for approximately forty-five minutes.
-) In February, the boiler plant experienced two separate steam pressure sendout excursions. The first occurred on the 7th and was reportedly due to a failure of the soft water makeup control valve. This failure resulted in the system pressure being below 150 psig for approximately three hours. The second excursion on February 16th was due to a false reading from the condensate tank level controller resulting in all three operating boilers to trip. The steam sendout pressure was below 150 psig for approximately two hours.
-) In March, a failure with the control system air compressor caused the operating boilers to trip. The steam sendout pressure dropped to a low of 40 psig and the system pressure was below 150 psig for approximately ninety minutes.
-) There were no other reported issues.

B. Efficiency

The operation of the EGF did not satisfy all of the guaranteed levels for all commodity usage during the quarter. There were excursions above the guaranteed levels for the current quarter. A more detailed discussion of the contract guarantee performance was presented previously in this report.

C. Environment, Health and Safety

No environmental violations were reported during the quarter.

In order to maintain the COVID-19 social distancing guidelines, CNE has implemented and is requiring regular attendance for online safety courses for their employees.

D. Personnel

Following the issuance of the previous Monitoring Report, CNE clarified that they have one part-time person working remotely. With this part-time employee, CNE is currently staffed with nineteen full time employees, one part-time employee and one relief staff. This current level of staffing satisfies the level listed in the Amendment 2 of the ARMA. Of the current number of employees, fourteen were previously employed by Nashville Thermal Transfer Corporation.

E. Training

Staff training for this quarter consisted of the Health and Safety training discussed previously.

F. Water Treatment

The water treatment program consists of regular testing and monitoring of the water chemistry in the steam, chilled water, and condensing water systems. Chemicals are added to control the water hardness, chlorine levels and biologicals. Remote testing of the condensate at the AA Birch, Tennessee Tower and the Andrew Jackson also occurs regularly to monitor the concentration and distribution of the steam system chemicals.

Chem-Aqua began working as CNE's water treatment vendor during the quarter and is in the process of upgrading or replacing some of the EGF's chemical storage tanks and chemical feed systems.

) Steam System

- o The condensate return averaged approximately 72.7% of the steam sendout during the quarter, which represents a 10.9% increase over the previous Third Quarter. The repairs to the condensate return system have been

completed and condensate is no longer being dumped due to high hardness levels.

- Feedwater iron, pH, and hardness remained within their acceptable ranges during the quarter.
-) Condensing Water System
 - The conductivity of the condensing water continues to be normal with only a few excursions resulting in high cycles of concentration and low blowdown rates.
-) Chilled Water System
 - CNE continues to monitor and test for the presence of bacteria in the system. The continuous dosage of the biocide continues. The biological growth in the system, as measured at the EGF and at the customer buildings, has become essentially non-existent.
 - Metro and CNE are evaluating options for the installation of a side stream filter at the EGF.

G. Maintenance and EGF Repairs

CNE continues to report on the routine and preventative maintenance activities performed on the EGF primary and ancillary equipment. The principal items are discussed herein as they relate to the repair, maintenance or replacement of equipment or devices at the facility and are not considered extraordinary. The cost for these items is included as part of the FOCs.

-) Cleared debris around exterior of EGF;
-) Installed new computers and servers;
-) Checked and repaired plant computers and servers;
-) Installed a new Siemens Control System for the EGF;
-) Checked and adjusted packing on all pumps;
-) Repaired plant lighting;
-) Repaired chilled water sample line leaks;
-) Repaired several chemical feed pumps and associated piping;
-) Assisted Chem-Aqua with the replacement of chemical storage and feed equipment;
-) Completed boiler control wiring repairs on boilers 2 and 3;
-) Replaced the condensate probes on boilers 2 and 3;
-) Repaired fan motors on cooling towers 15 and 18;
-) Repaired the motor starter on cooling tower 1 and replaced the control transformer;
-) Repaired cooling tower 10 vibration alarm;

-) Repaired condensate pump 2;
-) Tuned the combustion for boilers 2 and 4;
-) Coated the risers in cooling towers 1, 6, 9 and 14;
-) Replaced chilled water make-up pump 2;
-) Replaced condensing water pump 1 soft start;
-) Rebuilt boiler feedwater pump 5;
-) Repaired the isolation valves on chiller evaporators 5 and 7;
-) Repaired the blowdown valves on boilers 2 and 3;
-) Repaired a leak on boiler 4 safety relief valve;
-) Assisted Southeastern Sound with fire alarm repairs and panel upgrades;
-) Other repairs, maintenance and preventative maintenance were made during the quarter and are listed in the monthly reports issued by CNE.

H. EGF Walkthrough

The Third Quarter EGF Walkthrough was conducted on March 30, 2021, by Kevin L. Jacobs, P.E. Based on the review of the EGF, the following comments and observations are presented. The items noted in this section need to be completed prior to the end of the operating contract for the System Operator in accordance with the ARMA paragraph 12.03.

-) CNE has reported in the previous quarters that the riser tubes in all of the cooling towers had been painted and that the cooling tower fill had all been replaced. Rust spots on the riser tubes remained present in the Fourth Quarter FY19 Walkthrough and have continued to worsen. CNE has applied the new coating on the riser tubes to four of the cooling towers since the previous Walkthrough Report.
-) In previous Walkthrough reports, it was noted that significant scale was observed on the fill (louvers) to several of the cooling towers. CNE began a thorough cleaning of the towers in FY20. The cleaning of the scale and building on the louvers has been significantly reduced. However, towers 11, 12, 13 and 15 need additional cleaning. No new work was performed since the First Quarter FY21 Walkthrough.
-) In previous Walkthrough reports, it was noted that a leaking chemical feed line was observed on the south side of the southern DA. The salt buildup noted in the previous Walkthrough report has been cleaned. This item will be removed from future reports unless the issue returns.
-) Four of the trees on the west side of the EGF have died and been removed. CNE and Metro have discussed the plan to potentially replace the trees and this issue is a recurring item for discussion during the monthly Operations Meetings. CNE plans to meet with the city's Urban Forester to determine the appropriate tree density required by the city for the EGF site and the proper species to replant. CNE

has reported that they have made attempts at contracting the city's Urban Forester. **CNE needs to address this issue as soon as possible.**

- J Salt build-ups and leaks were noted on the valves and gauges to the chemical feed lines at Tank 3 and BWT6130. **These leaks previously reported have been addressed. CNE and Chem-Aqua have begun the replacement of the chemical feed tanks and various chemical treatment equipment. This note on the salt build-ups will be removed from future reports unless the issue returns.**
- J The louvers and portions of the fill at cooling towers 1, 6 and 15 appear to have been damaged. **No additional work appears to have been completed since the First Quarter FY21 Walkthrough. The damaged portions need to be repaired or replaced.**
- J As noted in the previous Walkthrough report, water was dripping/running along the east and west faces of the louvers and tower structure to cooling tower 14. These leaks may be originating from the hot water deck. **During the Third Quarter Walkthrough, the amount of water dripping along the faces of the louvers and tower structure for tower 14 was greatly reduced from observations in previous walkthroughs. This item will be removed from future reports unless the issue returns.**
- J The presence of foam and algae on the cooling towers and cooling tower deck was significantly less than in previous walkthroughs, although algae remains in certain areas of the deck and on the cooling tower structures. **CNE needs to clean the existing algae and take measures to prevent or reduce its re-occurrence.**
- J As noted in the previous Walkthrough report, the insulation on the feedwater piping at the boiler 4 economizer appears to have been damaged. Also, insulation on the condensate piping near the unit heaters for the boiler plant make-up air was missing. **CNE has not repaired this insulation but reported that they are working on a list of insulation repairs in the EGF and will have an insulator make the necessary repairs in the Fourth Quarter.**
- J A small water leak was observed on the northside of the northern DA that appeared to be originating from the sight glass to the DA. **CNE stated that they were aware of the issue and are planning to make repairs to the sight glass soon.**
- J As noted in the previous Walkthrough report, the weather stripping on the doors to the two MCC's located on the cooling tower deck has deteriorated or is missing. Trash, wiring and other debris from electrical work was found within the MCC's. The door hardware was also damaged or broken on several of the MCC doors. **CNE has not addressed this issue since it was noted in the previous Walkthrough report of the issue with t door hardware, which was first noted in this report. CNE stated that they were aware of these issues and will be making repairs in the Fourth Quarter.**
- J CNE, Metro and TEG have discussed the need for CNE to perform additional cleaning of the EGF and to maintain an increased level of cleanliness through the plant. CNE stated in the First Quarter FY21 that they intended to address the overall cleanliness of the EGF. **No noticeable improvement is noted in this Third Quarter Walkthrough Report. CNE needs to address this issue promptly.**

-
-) Miscellaneous trash and debris were noted throughout the EGF. Two broken signs were noted near the deaerator and the exterior sign on the southwest corner of the EGF has blackened. **CNE has removed the trash previously noted and repaired the two broken signs near the deaerator. TEG and Metro are developing a plan to replace the signage around the EGF which will address the replacement of the blackened sign on the southwest corner. This item will be removed from future reports unless Metro elects to not replace or upgrade the signage.**
 -) CNE installed a new PC in the Metro office and it appeared to be working correctly. The Carbonite back-up software also appeared to be backing up the pertinent data.
 -) Other action items previously noted to be addressed by CNE have been completed. (See also the “Quarterly EGF Walkthrough Report,” dated April 5, 2021, by TEG for additional information.)

IV. Capital Projects

The Capital Projects discussed in this section are those projects funded through the issuance of bonds by Metro. Costs for these projects will be paid from funds already appropriated. The status of the projects is discussed, and the project cost-to-date and bond balances are also presented.

A. Third Quarter FY21 Open Projects

The following projects remained open at the end of the Third Quarter FY21.

1. DES111 – DES Combined Heat and Power

This project has been deferred and will be removed from future reports.

2. DES133.1 - Old Convention Center Site Redevelopment: Monitoring of Broadway Tunnel

This project involved the monitoring/reporting on the condition of the Broadway Tunnel related to the construction and blasting at the 5th + Broadway Development. Metro is pursuing reimbursement from the contractor(s) responsible for the blasting and subsequent damage to the tunnel through legal means. This project remains open. The repairs for tunnel damage were completed under project DES164.

3. DES139 – DES Options Review

TEG, the Metro Liaison and Metro Water Services (MWS) have discussed the Business and Marketing Plans proposed by TEG during the quarter. The draft of these documents remain under review by MWS, but TEG is working under this project number to address the questions and comments raised by MWS during this meeting and is preparing other documentation that presents recommendations for the DES moving into the future while remaining under Metro ownership.

4. DES152 – Manhole A and Manhole M Coating Repairs

The structural steel in these manholes was cleaned and painted as part of DES107 in 2015. Portions of the paint are failing, resulting in spots of corrosion on these supports. The paint manufacturer reviewed the failing coatings. Their position was that the surface preparation and paint application was at fault. However, TEG employed a painting inspector during this work and records were maintained regarding the ambient conditions, surface preparation and coating application process. Even with this evidence, the paint manufacturer was not willing to warrant the paint. To prevent progression of this corrosion, these areas need to be repaired. This project addresses these needed repairs. Due to similar issues resulting from DES107 work, Manhole B has been added to this scope.

Engineering has started on this project, and the work is anticipated to be completed during FY22.

5. DES153 – Manhole L Repairs

The structural steel in Manhole L is corroded and needs to be cleaned and painted to prevent additional corrosion. The condensate piping in this manhole experiences some hammering, and therefore the piping configuration needed to be modified to alleviate this problem. In addition, the condensate piping's routing interrupted the access ladder creating a safety concern.

This project was bid late in the First Quarter FY21; the project was awarded, and work began during the Second Quarter FY21. Construction was delayed because of a 2nd Avenue North bomb explosion on Christmas morning. Construction was resumed during the Third Quarter FY21. It is anticipated that this project will be completed during the Fourth Quarter FY21.

6. DES154 – Manhole K Repairs

The structural steel in Manhole K is corroded and needs to be cleaned and painted to prevent additional corrosion.

TEG started the design for these repairs during the First Quarter FY19; however, due to higher priority projects, this work was postponed. This project is anticipated to be executed during FY22

7. DES143/161 – Manhole N1, N2 and S6 Insulation

This project addresses the installation of insulation in three (3) manholes: Manhole N1, Manhole N2 and Manhole S6. Manhole N1 and N2 house chilled water piping which is partially uninsulated. Manhole S6 is a small manhole that is a part of the

State distribution system which houses steam and condensate return piping which is uninsulated. These projects address the insulation of this uninsulated piping. This project is anticipated to be completed during FY22.

8. DES163 – New Service to MDHA Parcel K (Peabody Union)

TEG had several conversations with the design and development team for this site and have discussed potentially providing chilled water to the twenty-seven story, mixed-use development. The preliminary economic evaluation typically provided to potential customers was completed and provided early in the Fourth Quarter FY21. This evaluation remains under review of the Owner's team.

9. DES168 – DES Service to 1st and KVB Hotels

The development of the two new hotels proposed at 1st Ave S and KVB remains on hold. The building's preliminary design is reported to include service from the DES but is currently on hold pending direction from the building's developer/owner.

10. DES171 – Broadway Tunnel Pipe Support & Safety Items Repairs

Some of the steel pipe supports, guides, and anchors in the Broadway Tunnel are corroded and needed to be repaired or replaced. Additionally, the access ladder in Manhole 18 needed to be re-positioned so that it properly aligns with the manway. A pre-bid meeting was held during the First Quarter FY21 and a verbal award was made. Work began on this project during the Second Quarter FY21. Construction was delayed because of a 2nd Avenue North bomb explosion on Christmas morning. Construction was allowed to resume during the Third Quarter FY21. It is anticipated that this project will be completed during the Fourth Quarter FY21.

11. DES172 – Viridian and 4th Avenue Tunnel Pipe Support Repairs

Some of the steel pipe supports, guides, and anchors in the 4th Avenue Tunnel and the supports for the Viridian service were corroded and either need to be repaired or replaced. Additionally, the access ladder in Manhole 17 needed to be re-positioned so that it properly aligns with the manway. A pre-bid meeting was held during the First Quarter FY21 and a verbal award was made. Work began on this project during the Second Quarter FY21. Construction was delayed because of a 2nd Avenue North bomb explosion on Christmas morning. Construction was allowed to resume during the Third Quarter FY21. It is anticipated that this project will be completed during the Fourth Quarter FY21.

12. DES173 – Manhole B3 Structural Repairs

This project involved the cleaning and coating of structural steel, the repair of some concrete surfaces, and the modification of the entry ladder. This project was awarded and was substantially complete during the Second Quarter FY21 with the issuance of a punch list. A final punch list review occurred during the first part of the Fourth Quarter FY21. It is expected that this project will be completed during the Fourth Quarter FY21.

13. DES174 – 7th Avenue Tunnel Pipe Support Repairs

Some of the steel pipe supports, guides, and anchors in the 7th Avenue Tunnel are corroded and either needed to be repaired or replaced. Additionally, the access ladder in Manhole 22 needed to be re-positioned so that it properly aligns with the manway. A pre-bid meeting was held during the First Quarter FY21 and a verbal award was made. Work began on this project during the Second Quarter FY21. Construction was delayed because of a 2nd Avenue North bomb explosion on Christmas morning. Construction was allowed to resume during the Third Quarter FY21. It is anticipated that this project will be completed during the Fourth Quarter FY21.

14. DES175 – Manhole 4 Condensate Return Repairs

This project is complete.

15. DES177 – Manhole B1 Ladder and Platform

Manhole B1 is located in 1st Ave South and houses a groundwater sump pump to alleviate the amount of groundwater that infiltrates into Manhole B. Manhole B1 is a 4 ft diameter, precast manhole with individual embedded rung access ladder. Currently, personnel stand on partially submerged concrete blocks when maintenance is required within this manhole. This project addresses the installation of a platform and ladder for maintenance.

It is anticipated that this project will be bid and awarded during the Fourth Quarter FY21 and executed during FY22.

16. DES178 – Manhole 5 Repairs

Manhole 5 has several structural steel piping supports which are corroded and need to be cleaned and coated. This project addresses the cleaning and coating of these components.

It is anticipated that this project will begin in the Fourth Quarter FY21.

17. DES179 – Manhole 11 Repairs

Manhole 11 has structural steel piping anchors/supports which are corroded and need to be cleaned and coated. This project addresses this need along with the repair of piping wall penetrations.

Engineering has begun on this project and the work is anticipated to be completed during FY22.

18. DES180 – State Tunnel Pipe Support Repairs

The State Tunnel has several steel piping supports which are corroded and need to be cleaned and coated. This project addresses the cleaning and coating of these components.

Engineering has started on this project and the work is anticipated to be completed during FY22.

19. DES181 – 3rd Ave Exploratory Excavation for a Chilled Water and Condensate Return Leak

The cost substantiation for this work was presented and reviewed during the Third Quarter FY21 and this project is now in close-out.

20. DES182 – Manhole B10 Expansion Joint Replacement

On the afternoon of January 7, 2021, CNE discovered some potential steam anchor movement in Manhole B9 and notified TEG. TEG reviewed this manhole the next morning and determined that the steam expansion joint in Manhole B10 was bound and caused some damage to the anchors in both Manholes B9 and B10. TEG returned to these manholes two business days later with a structural engineer. The structural engineer confirmed TEG's findings and construction drawings have been prepared to make repairs in both of these manholes. A new steam expansion joint for Manhole B10 was ordered and has been received by CNE.

Both TEG and the structural engineer do not believe that there is any imminent danger of either of these anchors failing as long as the system status remains relatively constant. However, instructions have been conveyed to CNE to isolate this section of distribution piping under specific system upset conditions. This isolation would only affect the Music City Center (MCC).

Because of the urgency of this repair and the uncertainty of the entire scope, it is impractical to bid this repair work. Therefore, TEG consulted with CNE and a contractor has been selected and preliminary meetings have taken place regarding

the scope of work. In addition, the contractor has completed some preliminary scope items.

Based upon discussions with the contractor, a four-day isolation of this piping segment is required to make the needed repairs. Due to the magnitude of this outage, TEG and CNE have been waiting for the weather to warm up prior to initializing the work. CNE will schedule a meeting with MCC to inform them of the circumstances, review the needed repairs and the planned outage period. This meeting will also focus on scheduling repairs with as little impact as possible to the MCC. If an upset condition occurs that requires the isolation of this section of the distribution system, the repairs will then begin immediately. Otherwise, it is expected that the needed repairs will be executed during the Fourth Quarter FY21.

21. DES183 – Hermitage Hotel Service Line Relocation

The Hermitage Hotel is installing a grease trap. This installation may require the relocation of the DES steam, condensate return and chilled water services to this building. TEG is discussing the situation with the Hermitage Hotel’s contractor and once a design for the installation of the grease trap is finalized, the scope of this DES project will be determined.

22. DES184 - 7th Avenue North Steam Leak Repair

Steam was discovered emanating from a steam piping wall penetration end can vent hole in Manhole 23. The end can is part of the 6” steam service line to the Tennessee Tower in 7th Avenue North. In addition, CNE conducted a thermographic survey of 7th Avenue and discovered several “hot spots” associated with the same 6” service line. CNE closed the steam isolation valve on this service line and the steam emanating from the vent hole stopped almost instantly. Based upon this, it was believed that there was a leak in the 6” steam service piping. Therefore, CNE was instructed to conduct an exploratory excavation in 7th Avenue North to locate the source of the steam venting into Manhole 23. With the use of thermographic equipment, the “hottest” spot in 7th Ave North was located which designated the starting point for the exploratory excavation. The excavation at this position did not reveal a leak in the steam piping, but it did reveal that the steam piping insulation and casing were in very poor condition. The conclusion was that groundwater had infiltrated the poor casing/insulation resulting in secondary steaming that was relieved through the vent hole in Manhole 23.

Instructions were given to the contractor to expose up to 30 feet of the steam piping unless casing/insulation in good repair was exposed. Once exposed, the contractor was instructed to remove the damaged insulation/casing furnish/install new foamglass insulation with Pitt-wrap. This work was completed, and the excavation was back filled in March. Steam is no longer “venting” in Manhole 23. Once cost documentation is reviewed and approved, this project will be closed.

22. DES185 – 5th Avenue North Exploratory Excavation

Hot water was discovered entering Manhole 10 through a steam line wall penetration. CNE was instructed to test the water to try and determine if it was DES condensate or chilled water. The results of these tests indicated that the water was not condensate or chilled water. Therefore, TEG notified Water Services to see if there was a city water leak in the area. Water Services “sounded” the area but were unable to find evidence of a leak. CNE was then instructed to perform an exploratory excavation. This excavation revealed a leak in the DES condensate piping approximately 30 feet south of Manhole 10. This leak was repaired, and the piping was re-insulated.

The exploratory excavation exposed the steam and condensate piping immediately south of Manhole 10 and it was discovered that there is no insulation on the steam piping and the condensate piping casing was damaged. Upon further investigation, a portion of the condensate piping was found to be badly corroded and required replacement. In addition, the steam piping penetrating Manhole 10 needed replacement to provide a sound penetration seal to prevent groundwater infiltration into Manhole 10.

Steam and condensate replacement piping sections are on order. The installation of these replacement sections will require a partial system outage. It is anticipated that these repairs will be completed during the Fourth Quarter FY21.

23. DES186 – Printers Alley Exploratory Excavation

CNE discovered “hot spots” in Printers Alley on the steam and condensate service lines to the Bobby Hotel. The temperature of one of these “hot spots” was recorded as 168°F which is indicative of an active condensate leak. TEG instructed CNE to conduct an exploratory excavation of the area. A condensate leak was discovered and repaired, but the condition of the steam and condensate casing, and the condition of portions of the condensate piping, needs to be addressed.

TEG is currently formulating a repair for this portion of the EDS. It is anticipated that these repairs will be completed during the Fourth Quarter FY21.

B. Third Quarter FY21 Closed Projects

DES175 and DES181 were closed during the Third Quarter FY21.

C. Capital Projects Budget

The following table summarizes the costs and remaining balance of the DES capital projects based on reported expenditures to date. Open projects or completed projects that

require some additional management are shown. Total costs for projects that are closed are shown with a gray highlight. Only the funds currently available are shown.

Table 5. Capital Projects Expense Summary

DES Project #	Description	Total Budget	FY21 Spending to Date	Total Spent to Date	Remaining Balance
Fund-49109					
DES157	MH 9 Repairs	\$ -	\$ 5,314	\$ 5,314	\$ (5,314)
Total Closed Projects		\$ 2,600,602	\$ -	\$ 2,600,602	\$ -
Metro Project Admin		\$ -	\$ -	\$ -	\$ -
Project Man, Development, etc		\$ 5,314	\$ -	\$ -	\$ 5,314
Fund Total		\$ 2,605,916	\$ 5,314	\$ 2,605,916	\$ -
Fund-49107					
DES157	MH 9 Repairs	\$ -	\$ 39	\$ 39	\$ (39)
Total Closed Projects		\$ 8,499,961	\$ -	\$ 8,499,961	\$ -
Metro Project Admin		\$ -	\$ -	\$ -	\$ -
Project Man, Development, etc		\$ 39	\$ -	\$ -	\$ 39
Fund Total		\$ 8,500,000	\$ -	\$ 8,500,000	\$ -
Fund-49116					
DES111	DES CHP	\$ 168,706	\$ -	\$ 168,706	\$ -
DES133.1	NCC Blasting Issue	\$ 72,151	\$ 54,922	\$ 92,073	\$ (19,922)
DES139	Options Review	\$ 211,250	\$ 179,550	\$ 315,800	\$ (104,550)
DES143	MH N1, N2 and S6 Insulation	\$ 1,700	\$ 679	\$ 2,114	\$ (414)
DES151	MH 23 Repairs	\$ 219,388	\$ -	\$ 219,388	\$ -
DES152	MH A & M Repairs	\$ 28,000	\$ 4,395	\$ 6,884	\$ 21,116
DES153	MH L Repairs	\$ 129,893	\$ 26,527	\$ 35,445	\$ 94,448
DES154	MH K Repairs	\$ 75,085	\$ 543	\$ 628	\$ 74,457
DES157	MH 9 Repairs	\$ 127,509	\$ 19,298	\$ 123,807	\$ 3,702
DES159	MH B2 Repairs	\$ 92,281	\$ 1,472	\$ 58,753	\$ 33,528
DES161	MH S6 Insulation	\$ 38,000	\$ -	\$ -	\$ 38,000
DES162	3rd and Molloy Service	\$ 120,885	\$ 26,257	\$ 142,141	\$ (21,257)
DES163	Parcel K Service	\$ 1,018,802	\$ 1,310	\$ 2,612	\$ 1,016,190
DES168	1st and KVB Hotels	\$ 5,365,777	\$ -	\$ 5,777	\$ 5,360,000
DES169	MH-20 Repairs	\$ 17,500	\$ 16,827	\$ 32,015	\$ (14,515)
DES171	Broadway Tunnel Support Repair	\$ 268,907	\$ 57,685	\$ 87,842	\$ 181,065
DES172	Viridian Pipe Support Repair	\$ 190,128	\$ 119,857	\$ 138,734	\$ 51,393
DES173	MH-B3 Structural Repair	\$ 31,823	\$ 43,696	\$ 45,519	\$ (13,696)
DES174	7th Ave Pipe Support Repairs	\$ 160,534	\$ 103,563	\$ 124,097	\$ 36,437
DES175	MH4 Condensate Repair	\$ 118,090	\$ 13,321	\$ 19,661	\$ 98,429
DES176	Condensate Leak at MH9	\$ 75,000	\$ 125,424	\$ 126,039	\$ (51,039)
DES177	MHB1 Ladder & Platform	\$ 45,500	\$ 3,310	\$ 3,310	\$ 42,190
DES178	MH-5 Repairs	\$ 97,500	\$ 3,802	\$ 3,802	\$ 93,698
DES179	MH-11 Repairs	\$ 58,500	\$ 3,938	\$ 3,938	\$ 54,562
DES180	State Tunnel Support Repairs	\$ 140,000	\$ 1,501	\$ 1,501	\$ 138,499
DES181	3rd Ave Leak Repair	\$ 140,000	\$ 3,079	\$ 3,079	\$ 136,921
DES182	MH-B10 Exp Joint Replacement	\$ 60,000	\$ 24,111	\$ 24,111	\$ 35,889
DES183	Hermitage Hotel Service Relocation	\$ 60,000	\$ 1,032	\$ 1,032	\$ 58,968
DES184	7th Ave STM Leak	\$ 125,000	\$ 1,055	\$ 1,055	\$ 123,945
DES185	MH10 Water Leak	\$ 110,000	\$ 11,578	\$ 11,578	\$ 98,422
Total Closed Projects		\$ 615,678	\$ 97	\$ 615,775	\$ (97)
Metro Project Admin		\$ -	\$ -	\$ -	\$ -
Project Man, Development, etc		\$ 16,016,413	\$ -	\$ -	\$ 16,016,413
Fund Total		\$ 26,000,000	\$ 848,828	\$ 2,417,218	\$ 23,582,782

V. Energy Distribution System Repairs, Improvements, PM, and Emergencies

Several EDS repairs and improvements were made during the Third Quarter. The principal items for discussion are presented in the following sections.

A. Repairs and Improvements

Several repairs were made to the EDS and at customer buildings during the quarter. The remaining value of the R&I account to date is \$25,518. Table 6 provides a summary of the FY21 expenditures and revenues to date associated with the R&I budget.

Table 6. FY21 Repair and Improvement Expenditure and Revenue Summary

Description	Date	Tracking #	Vendor	Expenditure	Transfers	Net Market Adjustment	Balance	
Value at end of FY20				\$ 211,925.09		\$ -	\$ 139,389.03	
CNE July 2020 R&I	12/7/2020	DES-2391	CNE	\$ 1,585.35				
CNE Aug 2020 R&I	12/7/2020	DES-2389	CNE	\$ 3,709.28				
CNE Sept 2020 R&I	11/30/2020	-	CNE	\$ 6,105.10				
				Sub-Total First Quarter	\$ 11,399.73	\$ 72,258.34	\$ -	\$ 200,247.64
CNE Oct 2020 R&I	12/15/20	-	CNE	\$ 5,283.66				
CNE Nov 2020 R&I	12/16/20	-	CNE	\$ 5,343.65				
DES 171 BW Tunnel	12/16/20	-	CNE	\$ 93,660.00				
DES159.1 MHB2	12/16/20	-	CNE	\$ 4,313.55				
CNE Dec 2020 R&I	02/01/21	-	CNE	\$ 9,837.57				
Net Change in Investment Value	12/31/20	-	-	\$ -		20.97		
				Sub-Total Second Quarter	\$ 118,438.43	\$ 73,691.66	\$ 20.97	\$ 155,521.84
CNE Jan 2021 R&I	02/17/21	-	CNE	\$ 2,781.36				
CNE Feb 2021 R&I	03/17/21	-	CNE	\$ 3,756.74				
DES175 MH-4 CND Repair	03/17/21	-	CNE	\$ 12,010.61				
DES176 MH-9 CND Leak Repair	03/17/21	-	CNE	\$ 6,441.14				
DES181 Third Ave Leak	03/17/21	-	CNE	\$ 106,878.22				
EMR20-003 Union St CND Repair	03/17/21	-	CNE	\$ 59,888.67				
DES181 Third Ave Leak (final)	03/25/21	-	CNE	\$ 6,822.46				
CNE Mar 2021 R&I	04/21/21	-	CNE	\$ 28,724.61				
				Sub-Total Third Quarter	\$ 227,303.81	\$ 72,975.00	\$ -	\$ 1,193.03
				Sub-Total Fourth Quarter	\$ -	\$ 24,325.00	\$ -	\$ 25,518.03
				FY21 Year to Date	\$ 357,141.97	\$ 243,250.00	\$ 20.97	\$ 25,518.03

B. Preventive Maintenance

Preventive maintenance, tunnel and manhole inspections and reviews of customers' mechanical rooms were performed during the quarter. The principal items for discussion are presented.

1. EDS Manhole/Tunnel Inspections
 - a. The monthly vault/tunnel reviews were conducted as scheduled.
 - b. Several of the vaults continue to require pumping due to the accumulation of either groundwater or surface run-off.
 - c. CNE continues to replace trap assemblies within the EDS as needed.
 - d. CNE has been cleaning areas of minor corrosion and then painting those areas with a cold galvanizing paint. If maintained, this should help reduce/slow down the progression of some areas of corrosion.

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- e. CNE has completed a lot of needed maintenance repairs in the last quarter.
 2. Customer metering station calibration checks were completed as scheduled.
 3. Water chemistry samples at customer buildings were taken as scheduled.
 4. Other EDS items are included in the CNE monthly reports.

C. Emergencies

There were no emergencies reported during the quarter.

D. EDS Walkthrough

The Third Quarter FY21 EDS walkthrough was conducted on March 2, 2021. The manholes and tunnel systems that were visited include Manhole 15, Manhole 23, the State Tunnel, the AA Birch Tunnel, the 4th Avenue Tunnel, the 7th Avenue Tunnel and the Broadway Tunnel. The following comments and observations are a result of these visits:

1. State Tunnel

- a. There are several locations, where the concrete tunnel structure has minor, moderate and major cracking, spalling, exposed/corroded rebar and/or shifting of structures. Minor repairs are needed at the following locations: E4, E8, E47, N48, W17A, W26, W42, W53, W57, W64 and W73. Moderate repairs are needed at the following locations: E11, E12, E28, E37, E51, E67, E69, N4, N5, N8, N12, N31, N45, N49, N50, N61, N62, W4, W15, W59, W67 and W71. Major repairs are needed at the following locations: E26, E66, N19, N20, N53, N54, W27, W43 and W44. Maintenance of the tunnel structure is the State's responsibility. The State hired a professional structural engineer to review the major repair areas at E1 and N19/ N20. Repairs were made in these areas however, not all areas at N19/N20 were addressed. The original plans for repairs at E1 included the demolition of the existing manhole and the construction of a new cast-in-place manhole. Instead, the actual construction included the installation of galvanized steel supports, application of concrete to areas of exposed rebar and the installation of a new precast manhole upper section. However, what was originally a difficult point of egress is now complicated with a lower manhole roof (due to the addition of galvanized steel) which makes egress even more difficult. The City is having discussions with the State regarding these deficiencies.
- b. Several of the pipe support columns/beams have minor, moderate and severe corrosion. Locations with minor corrosion include: E5, E11, E18, E20, E24, E29, E34, E38, E46, E47, E51, E52, E53, E54, E55, E56, E58, E59, E60, E62, E63, E65, N2, N3, N7, N11, N21, N22, N27, N28, N51, W1, W5, W6, W8, W13, W14, W19, W54 and W69. Moderate corrosion exists at the flowing locations: E1, E2,E3, E4,E7, E8, E9, E12, E17, E26, E28, E37, E44, E64,E69, N4, N5,N8, N9, N10,N12, N13, N14, N15, N16, N17, N18, N23, N24, N25, N26, N29, N30, N31, N32, N34, N35, N36, N37, N38, N39, N40, N41, N42,

N43, N44, N45, N47, N48, N49, N50, N52, N53, N54, N55, N56, N57, N58, N59, N60, N61, N63, N64, W2, W4, W7, W9, W55, W56, W59, W60, W62, W63, W67, W71, W73 and W74. Major corrosion exists at the following locations: E13, E66, N20, N62, W3, W27 and W75. These members support DES piping and are not considered part of the structure and need to be cleaned and coated. Some of this corrosion is due to leaks in the tunnel structure and therefore should not be repaired until the leaks are repaired – it is the State’s responsibility to repair structure leaks. TEG will coordinate with CNE the hiring of a contractor to begin cleaning and coating these support members.

- c. The steam valve at station W-1 has a small stem leak. CNE should tighten or replace the packing as soon as possible. There is also some insulation repairs needed at this location. CNE should either perform these insulation repairs as part of their obligation under Amendment 2 or coordinate these repairs with an insulation contractor.
- d. The State has removed several unused communications cables and inner ducts throughout the tunnel which were creating trip hazards. There are still several areas which contain an excessive quantity of cables and inner ducts, but do not appear to present a hazard to maintenance personnel.
- e. The concrete underneath the base plate of the piping support column at Station N33 needs to be repaired. TEG has confirmed that the use of Enecon’s Duraquartz product is suitable for this repair. Now that Enecon is an approved vendor, CNE should retain Enecon to make this repair and submit it as an R&I expense. **This item appeared in the 4/30/19 and 4/13/20 reports.**
- f. There is a small steam expansion joint leak at Station W17. Once this leak is large enough to be sealed, CNE should make this repair.
- g. The trap at Station W17A is not functioning properly. Since this review, CNE has already replaced this trap.
- h. The “spider” portion of the steam piping spider guide support at Station W18 is not inside the guide hoop. CNE should re-insert this spider into the hoop as soon as possible.
- i. The anchor bolt nuts are missing on the baseplates at Stations W19 and W63. CNE should furnish and install nuts on these anchor bolts as soon as possible.
- j. The anchor bolts in the wall plate supports at Stations E19 and N33 have fallen out. TEG has already provided a repair to CNE/FM Sylvan for these to be repaired in conjunction with the repairs being made at Manhole 10.
- k. One of the anchor bolts on the top plate of the pipe support at station E19 is missing. CNE should investigate if the bolt can be reinstalled and notify TEG of its findings. **This item appeared in the 4/30/20 report.**
- l. There is an excessive amount of spider webs at Stations E1, E2, E3 and W57. CNE has notified the State of this through their monthly reporting.
- m. There is a blind flange on the steam piping at Station N20 that the studs do not pass completely through the nuts. CNE should either re-work or replace these studs so that there is a minimum of 3 thread exposed outside of these nuts.

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- n. At Station N20, there are some insulation repairs needed. CNE should address this either through their obligation under Amendment 2 or by having an insulation contractor make these repairs and submitting it with their monthly R&I expenses.
 - o. The trap strainer at Station E1 does not have a blow down valve installed. CNE should add a blow down valve to this strainer as soon as possible.
2. AA Birch Tunnel
- a. There was a flange leak on the steam isolation valve in upper level of Manhole D3. CNE has repaired this leak however the insulation has not been repaired. In addition, there are some other insulation/jacketing repairs needed in this manhole. CNE should either repair/replace this insulation as their obligation under Amendment 2 or have the work done by a contractor and submit the costs with their monthly R&I expenses. **This item appeared in the 4/30/19 and 4/13/20 reports.**
 - b. The entry ladder has some corrosion on the wall brackets. CNE personnel cleaned this corrosion and painted it with cold galvanizing paint during the review.
 - c. There is a section of the condensate piping at the bottom of Manhole D2 which insulation was removed to facilitate piping work. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - d. The insulation was removed from a section of the chilled water piping at Station 1+25 to repair a leak. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - e. There is groundwater leaking into the tunnel at Stations 0+047, 2+20, 2+58 and 3+00. CNE should monitor Stations 2+20, 2+58 and 3+00 and report any significant changes to TEG. The infiltration at 0+47 is rather excessive and the water is cascading onto the lower chilled water pipe. CNE should install insulation jacketing from the upper chilled water pipe to below the lower chilled water pipe to prevent the water's impact on the lower piping.
 - f. Groundwater is leaking into Manhole D2 at the chilled water piping penetrations. CNE has tightened the link seals to try and reduce or eliminate this leak but this attempt was unsuccessful. Therefore, CNE should retain Enecon to fill the annular volume at the link seals with their hydraulic cement/grout and include this cost in their monthly R&I expenses.
 - g. There are some hairline cracks radiating from the chilled water piping penetrations in Manhole D2. CNE should monitor these cracks and report any significant changes to TEG.
 - h. The grating and some of the structural members supporting the grating in Manhole D2 is moderately to severely corroded. The grating in this area should be replaced with new aluminum, banded grating. The structural framing should be cleaned and coated using the Enecon products. This work should be completed as soon as possible as an R&I project.
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- i. There is dirt and mud in the elevated floor area of Manhole D2; CNE should remove this dirt and mud and clean this manhole as soon as possible. **This item appeared in the 4/13/20 report.**
 - j. The emergency light at Manhole D2 is not functioning properly. CNE should make this repair as soon as possible.
 - k. There is minor to moderate corrosion on the piping supports at Stations 0+08, 0+47, 0+65, 0+85, 1+05, 1+25, 1+45, 1+65, 2+03, 2+20, 2+38, 2+58, 3+00 and 3+20. CNE should wire brush/wire-wheel these areas and paint it with cold galvanizing paint to prevent further corrosion until a thorough cleaning and coating can be done by Enecon. **This item appeared in the 4/30/19 and 4/13/20 reports.**
3. 4th Avenue Tunnel
- a. The gearbox and handwheel of the butterfly valve at Station 4-13 is corroded and covered with calcium deposits. This gearbox/handwheel should be cleaned and the operation of the valve confirmed. CNE should install aluminum sheet metal above this valve to prevent the corrosion and calcium deposits. In addition, some of the electrical conduits at this location are badly corroded. CNE should repair these conduits as soon as possible.
 - b. The emergency light at Station 4-24 is not functioning properly. CNE should repair this light as soon as possible.
 - c. The steam expansion joints at Stations 4-45 and 4-78 are leaking. CNE should first tighten the packing injection bolts to try and stop this leak. If this is not successful, CNE should make repairs once the leak is sufficient that injection repairs will be successful.
 - d. The corroded pipe supports in this tunnel are being addressed under DES-172.
 - e. The piping support Teflon slides at locations 4-2, 4-3, 4-4, 4-5, 4-10, 4-26, 4-27, 4-28, 4-29, 4-30, 4-32, 4-35, 4-39, 4-40, 4-42, 4-45, 4-49, 4-56, 4-57, 4-68, 4-69, 4-72, 4-74, 4-77, 4-84, 4-89, 4-91 and 4-94 need repair. TEG will develop a scope of work and coordinate with CNE to have this work accomplished.
 - f. Some of the overhead electrical conduits in the area of 4-12 are moderately to severely corroded. CNE should clean these conduits with a wire brush/wheel so that the extent of any damage can be assessed and repaired as soon as possible. **This item appeared in the 4/30/19 report.**
 - g. The branch steam piping at station 4-62 in the vertical shaft (Manhole 16) at the 4th and Church Building (formerly the old Suntrust Building) has a blind flange connection at the top of the vertical piping. The gasket at this blind flange connection was replaced due to a leak, but the insulation has not been repaired/replaced. CNE needs to have the insulation repaired and order an insulation blanket to be installed on the flange connection as soon as possible. The insulation repair should match the existing material and thickness. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges. **This item appeared in the 4/30/19 and 4/13/20 reports.**
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- h. The grating in the vertical shaft (Manhole 16) at the 4th and Church Building (formerly the old Suntrust Building) is corroded and needs replacement. This is being addressed under DES-172.
 - i. Some minor insulation repairs are needed at 4-94. This insulation should be repaired/replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - j. The grout beneath the baseplates of the pipe supports at stations 4-45, 4-50, 4-51, 4-52, 4-53, 4-54, 4-55, 4-56, 4-57, 4-58, 4-59, 4-60 and 4-67 are cracked and need to be repaired. These were repaired during DES-166 and are still under warranty. The contractor has been contacted and will make the needed repairs.
 - k. The southern end of the 4th Avenue Tunnel accumulates a large amount of sediment due to the groundwater infiltration into the tunnel and the subsequent drainage of this water into the Broadway Tunnel. The annual removal of this sediment is now a part of CNE's contractual obligation with the City. This sediment build-up needs to be removed prior to the end of the contractual year.
4. 7th Avenue Tunnel
- a. The emergency light at Station 7-81 is not functioning properly. CNE should repair this light as soon as possible.
 - b. The corroded pipe supports are being addressed under DES-174.
 - c. The steam and condensate anchor table at Station 7-42 is being replaced under DES-174.
 - d. The piping support Teflon slides at locations 7-3, 7-5, 7-6, 7-9, 7-11, 7-12, 7-14, 7-15, 7-18, 7-20, 7-28, 7-29, 7-32, 7-37, 7-41, 7-44, 7-45, 7-46, 7-55, 7-65 and 7-68 need repair. TEG will develop a scope of work and coordinate with CNE to have this work accomplished.
 - e. The electrical junction box at Station 7-71 is not anchored. The anchoring "tab" is broken off. This junction box needs to be repaired/replaced and anchored. TEG will discuss this repair with CNE to develop a plan.
 - f. The steam trap at Station 7-45 is not functioning properly. CNE is already aware of this and repairs are underway.
 - g. The steam expansion joints at Stations 7-22 and 7-61 are leaking. CNE should tighten the packing bolts to see if this stops the leak. If this is not successful in stopping the leak, CNE should make repairs once the leak is sufficient that injection repairs will be successful.
 - h. The lights at Station 7-12 is not functioning properly. CNE should repair this light as soon as possible.
 - i. The trap at Station 7-11 is not functioning properly. CNE is aware of this and repairs are underway.

5. Broadway Tunnel
 - a. The trap at Station B-96 is not functioning properly and it is an Armstrong model 2011 which has proven to be unreliable. This trap should be replaced as soon as possible.
 - b. The steam expansion joint at the Bridgestone Tunnel is leaking. CNE should tighten the packing bolts to see if this stops the leak. If this is not successful in stopping the leak, CNE should make repairs once the leak is sufficient that injection repairs will be successful.
 - c. There is a leak on the dripleg drain at Station B-65. CNE has already made this repair subsequent to this review.
 - d. There is a leak on the dripleg drain at Station B-65. CNE has already made this repair subsequent to this review.
 - e. Some insulation is missing on a Bridgestone Arena chilled water service line near the Arena's mechanical room. It appears this insulation was removed when some instrumentation was installed. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges. **This item has appeared in prior reports.**
 - f. There is some insulation damage at Stations B-96, B-82, B-80, B-50, and B-49. Some of this is the result of the contraction of the piping from system shutdowns. CNE should make repairs to these areas using aerogel insulation thus reducing the overall diameter to eliminate any interference with the piping supports. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - g. The trap piping at Station B-20 should be insulated for personnel protection. Requires action within the next quarter. **This item appeared in the 4/10/17, 4/13/18, 4/30/19 and 4/13/20 reports.**
 - h. Corroded piping supports are being addressed in DES-171.
 - i. The piping support Teflon slides at locations B-6, B-8, B-10, B-13, B-14, B-16, B-17, B-19, B-20, B-21, B-22, B-26, B-31, B-33, B-34, B-35, B-37, B-41, B-43, B-46, B-53, B-57, B-60, B-62, B-63, B-65, B-68, B-69, B-72, B-74, B-75, B-77, B-78, B-80, B-81, B-85, B-86, B-88, B-89, B-93, B-94 and B-96 are in need of repair. TEG will develop a scope of work and coordinate with CNE to have this work accomplished.
 - j. The condensate piping support at Station B-38 is being repaired under DES-171.
 - k. The chilled water drain piping at Station B-62 is uninsulated. This piping should be insulated to prevent sweating and potentially prevent freezing of this piping in the winter months. This insulation should be replaced under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - l. There is still some debris in Manhole 18 that needs to be cleaned/removed. CNE should have this debris removed within the next quarter.

- m. There is a small hole in the northern wall at station B-49, next to the upper horizontal support connection. CNE should monitor this hole and notify TEG if there are any significant changes.
6. Manhole 15
- a. Groundwater is leaking into Manhole 15 through the eastern steam piping wall penetration. TEG is researching a remedy to this problem. CNE should continue to monitor this and report any significant changes to TEG.
 - b. The vent valve on top of the eastern chilled water pipe is either sweating or weeping/leaking. CNE should determine which of these cases is accurate. If the vent valve is leaking and needs to be replaced, it will have to be done during a partial isolation. In the meantime, CNE should install a threaded plug to prevent the water seepage. If the valve is not weeping/leaking, it should be insulated. This insulation should be installed under CNE's Amendment 2 obligation or by a contractor with the expense included in CNE's monthly R&I charges.
 - c. The western steam high performance butterfly valve is extremely difficult to operate. CNE should identify whether the gearbox/operator is the cause of this problem or if it is a faulty valve. Once identified, then CNE should replace either the gearbox or the valve. If it is the valve, TEG will coordinate this replacement with CNE.
 - d. Some of the grating "openings" at the top of the 4th Avenue Tunnel vertical shaft are clogged with debris. As this is an air intake for the 4th Ave Tunnel fans, these openings should be cleaned.
 - e. There is some minor corrosion on a couple of the clips attached to the sidewalk grating support beams. CNE should clean these areas, then paint them with cold galvanizing paint.
 - f. One section of the sidewalk grating was not sitting completely flat. CNE should monitor this grating and if necessary, replace it to prevent a trip hazard.
7. Manhole 23
- a. There are some surface cracks in the steam and condensate slip joint concrete pedestal. CNE should monitor these cracks and notify TEG of any significant changes.
 - b. There is a flanged steam valve in this manhole that is blind flanged. The pipe flange connection is leaking. This flange has a clamp on it with injection nozzles presumably because of prior leaks. CNE should make repairs once the leak is sufficient that injection repairs will be successful.
 - c. The drain in the air intake area in the sidewalk is not draining and water has accumulated. A camera was used to discover that this drain line has collapsed so the drain is not able to drain continuously and at times water will accumulate in this area. The location of the drain line collapse is about 15 feet below grade in 7th Ave. CNE should monitor this floor drain and pump out this area on an as-needed basis.
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Action Items

Action items from the above walkthrough are presented in the separate quarterly manhole review report presented to CNE.

VI. Customer Relations

This section contains descriptions of the marketing efforts made by the DES Team during the quarter and prominent existing customer interactions. The topics of interactions, meetings and training seminars with the customers are also discussed. There are currently 29 customers, comprised of 42 different buildings, connected to the EDS. Service to each of these buildings continues to prove satisfactory, and the responsiveness to customer issues is handled by CNE in an excellent and professional manner.

A. Marketing

The design of the two proposed hotels at 1st Ave S and KVB have been placed on hold. TEG will continue to remain in contact with the engineering team. This project is tracked under DES168.

Renewed conversations with the design and development team for the development of Lot K into a twenty-seven story, mixed-use building began during the quarter. TEG completed the preliminary economic evaluation for chilled water-only service to the team in early April. This evaluation remains under review from the Owner's design team.

TEG remained in contact with the potential customer at 333 Union St. This small boutique hotel is currently in the design phase but demolition and renovation work on the property began during the quarter. This development remains on hold pending approval of financing from the developer.

Another potential customer is a proposed hotel to be located near Peabody and 8th Ave S. Although initial discussions with this potential customer were favorable, it is believed that progress on this development has slowed due to the pandemic.

B. Customer Interaction

The CNE customer service representative (CSR) continues to respond to customer issues as they arise. Much of the communication involves minor problems with the customers' heating and cooling systems that are unrelated to DES service. Other more significant issues are summarized herein.

) Several customers made repairs within their buildings during the Quarter and requested assistance from CNE, which was provided. Some of these repairs involved isolating the steam or chilled water services to the building for the customers.

-) TEG provided technical assistance to personnel at the Hume Fogg, Fifth Third building and the Andrew Jackson building during the quarter to assist them in reducing their energy consumptions and improve their chilled water delta T's.
-) The Wildhorse Saloon was closed for the quarter due to damage sustained during the Christmas Day bombing. During this period, CNE was unable to review the metering station or retrieve any data from the metering panel. CNE has been in contact with the appropriate personnel and should be able to access the DES equipment in the Fourth Quarter.
-) The State steam tunnel system was down for a short period in January due to a pressure switch failure on the air compressor serving the State tunnel steam pressure reducing valve. CNE replaced the switch the same day.
-) CNE coordinated partial system shutdowns with affected customers during the quarter. Most of these shutdowns were necessary due to condensate system work.
-) CNE replaced a leaking gasket on the steam isolation valve at Hume Fogg in March.
-) CNE continues to work with building personnel at the John Sevier building to restore communications with the DES metering panel.
-) Other minor issues and customer interactions are noted in the monthly reports from CNE.

VII. Recommendations

CNE is obligated to meet the standard of good utility practice as required by the ARMA. In TEG's opinion, CNE needs to continue to improve the operations of the EGF to ensure compliance with the ARMA; however, they have improved in their maintenance of the EDS in the Third Quarter. Based on the review of the Third Quarter FY21 EGF and EDS operations, the following recommendations are made.

-) CNE needs to address the maintenance and repair items included in the EGF and EDS Walkthrough sections of this report as soon as possible.
-) Although CNE had performed some of the previously noted work on the cooling towers, they need to complete the remaining items and work towards restoring the chiller plant efficiency and water usage to its historic values.
-) CNE needs to address their inability to meet the new performance guarantees for the EGF. Failure to meet the performance guarantees for twelve consecutive months may be considered an Event of Default according to section 18.02 (4) of the ARMA.
-) CNE needs to improve the overall cleanliness and orderliness of the EGF.
-) Corroded structural steel within the vaults and tunnels should be cleaned and coated and/or repaired/replaced.
-) Insulation that is absent or in disrepair in the vaults and tunnels should be repaired/replaced through Amendment 2 of CNE's contract or through capital and R&I projects.
-) Steam traps which need repair or replacement should be addressed as soon as possible.

-) Expansion joint leaks should be repaired by either re-packing the joint or injection of a sealant once the leak(s) is sufficient for the repair to be effective.
-) CNE should continue to remove debris and mud from manholes.