



Operations Monitoring Report

Second Quarter FY11

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I. Executive Summary

A review of the fiscal year 2011 (FY11) Second Quarter performance and contract obligations between Constellation Energy Projects and Services (CEPS) 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 2011, CEPS has satisfactorily met all of the contract obligations to Metro and has had no contract violations.

For the Second Quarter FY11, the chilled water sendout increased by approximately 8.4% over the previous Second Quarter (FY10), and the sales increased by approximately 5.8%. There was a significant increase in number of cooling degree days between the two quarters. The peak chilled water demand for the current quarter was 11,800 tons, which is approximately 12% lower than the previous Second Quarter.

The steam sendout for the current quarter increased by 3.5% over the previous Second Quarter. Steam sales increased by approximately 4.1% over the previous Second Quarter. The current quarter saw an increase in heating degree days of 3.3% over the previous Second Quarter. Steam system losses were approximately 12.3% of the sendout which was 6.2% lower than in the previous Second Quarter (relative to sendout). The peak steam demand for the current quarter was 122,719 pounds per hour, which represents an approximate 22.6% increase from the previous Second Quarter.

The Energy Generating Facility (EGF) performance continues to surpass the System Performance Guarantee (Guaranteed Maximum Quantity or GMQ) levels. The chilled water plant electric consumption continues to perform considerably lower than the guaranteed levels. The steam plant electric consumption was slightly lower than in the previous Second Quarter. The steam plant fuel efficiency increased marginally from the previous Second Quarter. The total water consumption for the steam and chilled water plants has increased approximately 6.2% from the previous Second Quarter. The chilled water EDS make-up has increased by approximately 34% with additional increases in all other chiller plant water uses. The steam plant make-up, however, decreased by approximately 13% over the previous Second Quarter.

Work continued on DES Capital and Repair & Improvement Projects during the Second Quarter of FY11. No projects were closed during the Second Quarter FY11. Close-out of DES 059, and DES 081 were delayed due to paperwork delays and the discovery of some additional insulation damage. Punchlist work is yet to be completed on DES 066 while DES063 and DES073 were substantially completed during the Second Quarter with closeout anticipated in the Third Quarter. Design associated with DES 061 (Manholes 3 and 4) and DES080 continues. Construction continues on DES077 with an anticipated completion date during the Fourth Quarter FY11. DES076 is still on hold awaiting completion of a secondary fiber optic cable installation by the State. Repair and Improvements to the EDS continue as scheduled.

The current fiscal year system operating costs were \$8,581,545 at the end of the Second Quarter. This value represents approximately 42.0% of the total budgeted operating cost for FY11. The customer revenues from the sales of steam and chilled water for FY11 to date were \$7,794,758 which is approximately 44.0% of the budgeted amount. The difference between the operating costs and customer revenue, the Metro funding amount (MFA), is \$786,787 (32.0% of budget).

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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.

1. Sales and Sendout

A comparison for the Second Quarter chilled water sales is shown in Figure 1. This data reflects an increase in sales for the current quarter over the same quarter of the previous fiscal year by 5.8%. A comparison of the two quarters reveals a significant increase in the number of cooling degree days.

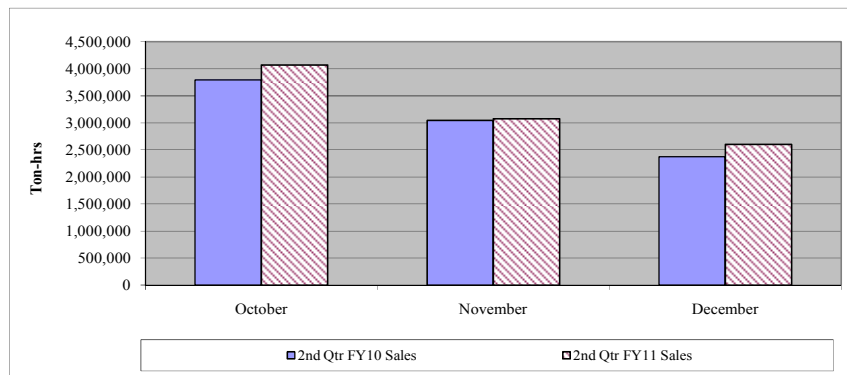


Figure 1. Second Quarter FY11 Sales Comparison

The peak chilled water demand for the current quarter is 11,800 tons. This peak demand is approximately 12% lower than in the previous Second Quarter.

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.

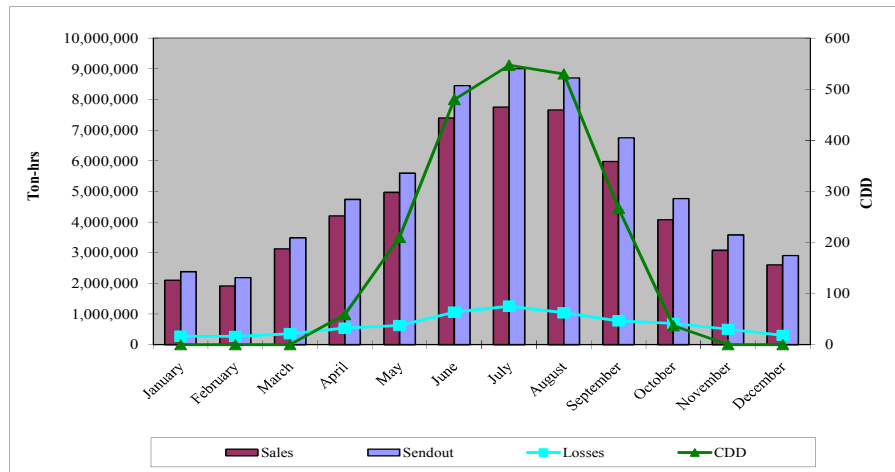


Figure 2. Chilled Water Sales, Sendout, Losses and CDD for the Previous Twelve Months

2. Losses

A comparison of the total, chilled water energy losses in the EDS for the Second Quarter is shown in Figure 3. These losses are the difference in chilled water sendout and sales. Due to an apparent error in the reading of the sendout meter at the EGF, the calculation of the energy losses is believed to be errant. The typical increase in the supply temperature between the EGF and the customers is less than 0.5°F. Therefore, the losses cannot be as significant as indicated by this calculation.

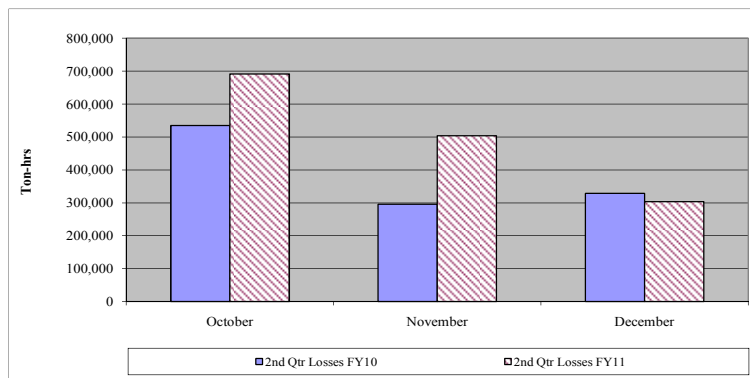


Figure 3. Chilled Water System Loss Comparison for the Second Quarter FY11

The EDS make-up increased by approximately 33.7% over the previous Second Quarter. The total energy losses have increased by approximately 29.3% over the previous Second Quarter. The make-up to the cooling towers increased by approximately 11.1%. The number of cycles of concentration in the condensing

water circuit increased by 2.7% in the Second Quarter over the previous Second Quarter. The overall city water make-up comparison for the chilled water system is shown in Figure 4.

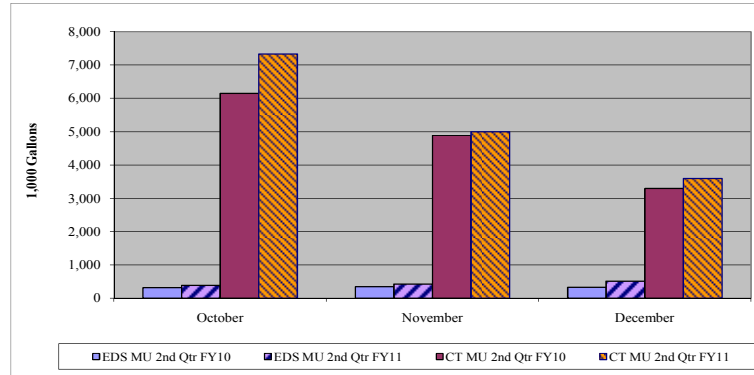


Figure 4. Chilled Water System City Water Usage Comparison

3. Performance

The performance of the chilled water aspect of the EGF is presented by the following two charts, Figures 5 and 6, for FY11. Under the management of CEPS, the System Performance Guarantee levels as described in the ARMA are being achieved quite satisfactorily.

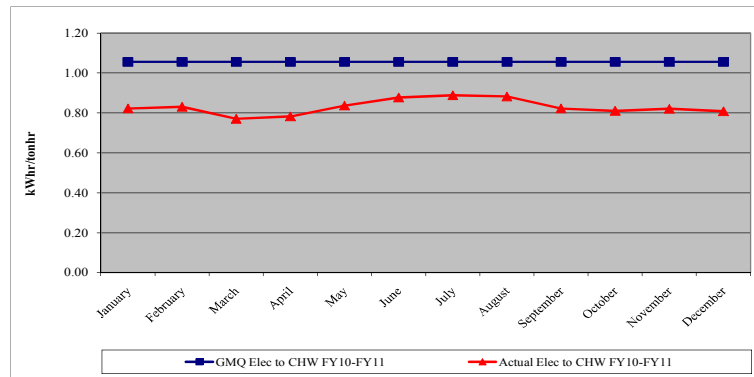


Figure 5. Chiller Plant Electric Performance Guarantee Comparison for the Previous Twelve Months

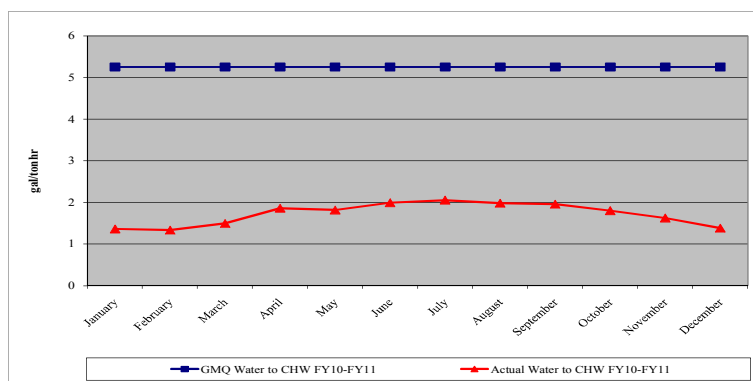


Figure 6. Chiller Plant Water Consumption Performance Guarantee Comparison for the Previous Twelve Months

The chilled water allocation of the electric consumption falls under the GMQ limit of 1.055 kWhr per tonhr for the current quarter, and no excursion is reported for the current fiscal year. The chiller plant electric usage for the current quarter increased approximately 8.3% over the Second Quarter for FY10. The actual electric conversion factor increased by 2.3% over the previous Second Quarter.

The actual chilled water plant water conversion factor is approximately 6.4% greater than in the previous Second Quarter. The total consumption of city water for the chiller plant for the current quarter is approximately 12.5% greater than that for the previous Second Quarter. This increase in water consumption is primarily due to an increase in the cooling tower make-up, the increase in sales and in the significant increase in cooling degree days for the quarter.

B. Steam

1. Sales and Sendout

The steam sendout increased by approximately 3.5% over the previous Second Quarter (FY10), and the sales increased by approximately 4.1%. The steam system losses have decreased by approximately 6.2% over the previous Second Quarter. The number of heating degree days have increased by 3.3% over the previous Second Quarter. A comparison for the Second Quarter steam sales is shown in Figure 7.

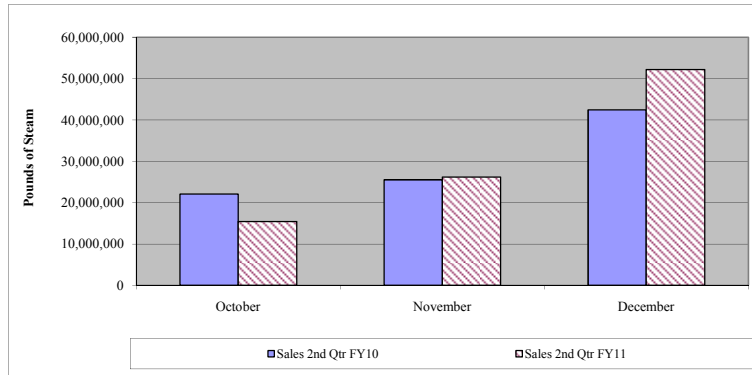


Figure 7. Steam Sales Comparison for the Second Quarter FY11

The peak steam demand for the current quarter is 122,719 pph, which reflects an approximate 22.6% increase in the peak steam production over the previous Second Quarter. The heating load factor for the current quarter, relative to sendout, is approximately 39% and is 15.6% less than in the previous Second 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.

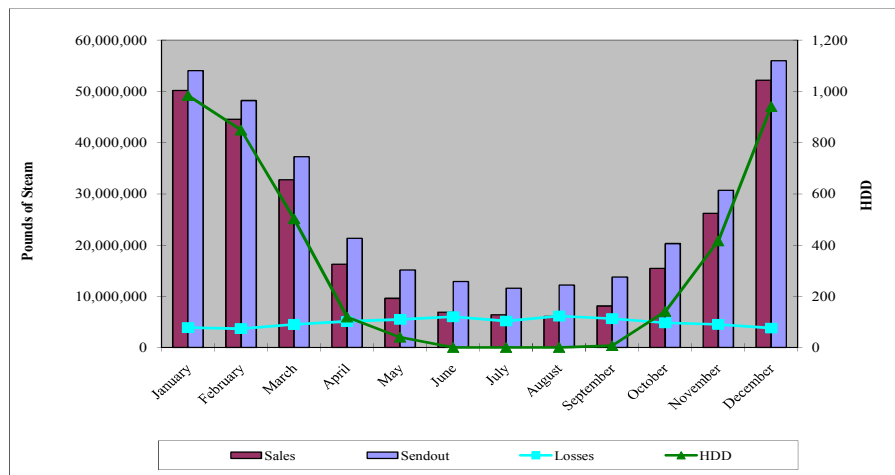


Figure 8. Steam Sales, Sendout, Losses and HDD for the Previous Twelve Months

2. Losses

A comparison of the total steam mass losses in the EDS for the Second 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. The total losses for the current quarter are approximately 6.2% lower than in the previous Second Quarter.

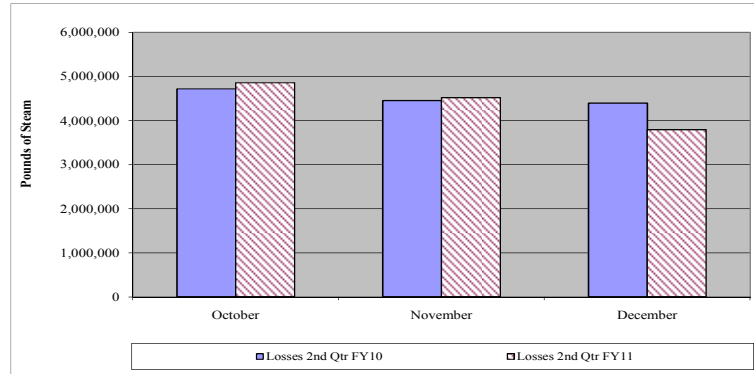


Figure 9. Second Quarter FY11 Steam System Losses

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. This data is shown in the comparison of Second Quarter data in Figure 10. Figure 10 depicts a decrease in city water make-up to the steam system of approximately 13.4% for the current quarter due primarily to the ongoing capital and maintenance improvements within the EDS.

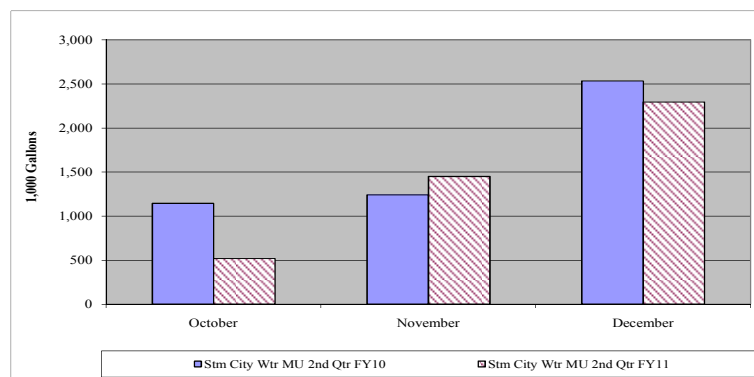


Figure 10. Second Quarter FY11 Steam System City Water Make-up Comparison

3. Performance

The performance of the steam system aspect of the EGF is presented by the following three charts, Figures 11, 12 and 13. Under the management of CEPS,

the System Performance Guarantee levels as described in the ARMA are being achieved satisfactorily.

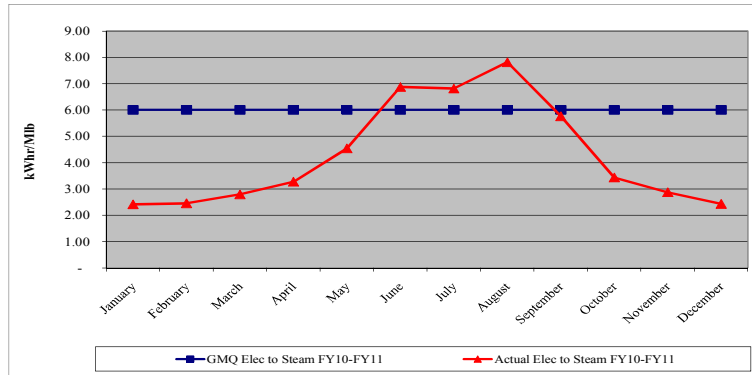


Figure 11. Steam Plant Electric Performance Guarantee for the Previous Twelve Months

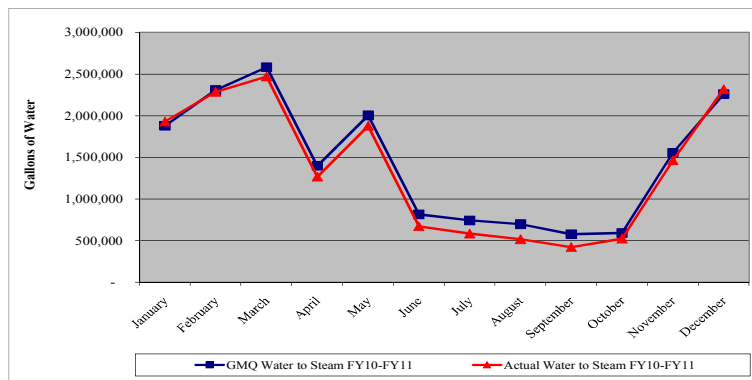


Figure 12. Steam Plant Water Performance Guarantee for the Previous Twelve Months

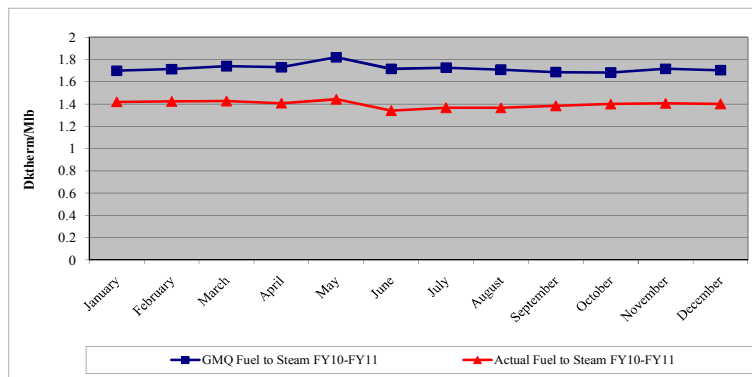


Figure 13. Steam Plant Fuel Performance Guarantee for the Previous Twelve Months

The current quarter experienced a 1.2% decrease in the steam plant electric consumption while experiencing a 5.1% decrease in the electric conversion factor. The water consumption for the steam plant decreased 13.4% this quarter as compared to the previous Second Quarter. The fuel consumption per unit of steam sales is relatively constant throughout the year and when compared to the historic data. The boiler plant fuel efficiency increased 1.3% for the current quarter.

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 blowdown and peak demands are listed in this table, as well. Table 2 presents the Second Quarter comparison of the Guaranteed Maximum Quantities (GMQ) of the criteria commodities (fuel, water and electricity).

Table 1. Second Quarter FY11 Production, Sales and Consumption Summary

Item	Unit	Second Quarter FY11	Second Quarter FY10	*Percent Difference
	days	92	92	0.00%
Total Electric Use	kWhrs	8,176,513	7,575,405	7.93%
Chilled Water	kWhrs	7,921,747	7,317,642	8.26%
Steam	kWhrs	254,766	257,763	-1.16%
Total Water Use	kgal	21,464	20,205	6.23%
Total Chilled Water	kgal	17,205	15,289	12.53%
EDS Make-up	kgal	1,294	968	33.68%
Cooling Towers	kgal	15,911	14,321	11.10%
Calc CT Evaporation	kgal	13,464	12,069	11.56%
CT Blowdown	kgal	2,447	2,252	8.66%
Calc # Cycles		5.50	5.36	2.67%
Steam	kgal	4,259	4,916	-13.36%
Total Fuel Use	mmBTU	150,034	146,929	2.11%
Natural Gas	mmBTU	147,977	146,871	0.75%
Propane	mmBTU	57	58	-1.72%
Condensate Return	kgal	9,291	8,279	12.22%
	lbs	75,773,556	67,521,467	12.22%
Avg Temp	°F	164.7	162.7	1.23%
Sendout				
Chilled Water	tonhrs	11,247,200	10,373,000	8.43%
Steam	lbs	106,994,000	103,397,000	3.48%
Peak CHW Demand	tons	11,800	13,400	-11.94%
Peak Steam Demand	lb/hr	122,719	100,125	22.57%
CHW LF		43.17%	35.06%	23.13%
Steam LF		39.49%	46.77%	-15.57%
Sales				
Chilled Water	tonhrs	9,750,192	9,215,099	5.81%
Steam	lbs	93,831,026	90,109,832	4.13%
Losses				
Chilled Water	tonhrs	1,497,008	1,157,901	29.29%
Steam	lbs	13,162,974	13,557,168	-2.91%
		12.30%	13.11%	-6.17%
Degree Days				
CDD		37	8	362.50%
HDD		1,498	1,450	3.31%

*positive percent difference values imply an increase from FY10 to FY11

Table 2. Second Quarter FY11 Performance Guarantee Comparison for Steam and Chilled Water

GMQ Calculations	Unit	Second Quarter FY11	Second Quarter FY10	*Percent Difference
Steam				
GMQ Elec Conversion	kWhr/Mlb	6.00	6.00	
Electric Conversion	kWhr/Mlb	2.72	2.86	-5.08%
GMQ Plant Efficiency	Dth/Mlb	1.701	1.714	
Plant Efficiency	Dth/Mlb	1.402	1.421	-1.32%
Actual %CR		70.82%	65.30%	8.45%
Avg CR Temp	°F	165	163	1.23%
GMQ Water Conversion	gal	4,402,179	5,058,561	
Water Conversion	gal	4,301,590	4,965,160	-13.36%
Chilled Water				
GMQ Elec Conversion	kWhr/tonhr	1.055	1.055	
Electric Conversion	kWhr/tonhr	0.812	0.794	2.31%
GMQ Water Conversion	gal/tonhr	5.25	5.25	
Water Conversion	gal/tonhr	1.76	1.66	6.36%

*positive percent difference values imply an increase from FY10 to FY11

D. Operating Costs

The operating costs for the DES include the management fee to CEPS, debt service payments on the bonds and engineering and administration costs. Some of these costs are fixed, implying that they do not vary depending on the production or sales of steam or chilled water. The variable costs are dependent on the amounts of steam and chilled water produced and sold to the customers, and these costs include the utility and chemical treatment costs. The vast majority 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). A summary of the total operating costs for the fiscal year to date are shown in Table 3.

The revenues shown 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 paid by Metro. The shortfall exists, in part, due to the remaining capacity at the EGF that was included in the original construction and remains unsold. This capacity is available for potential future customers.

The system operating costs for the first half of FY11 were \$8,581,545. This value represents approximately 42.0% of the total budgeted operating cost for FY11. The customer revenues from the sales of steam and chilled water for FY11 to date are \$7,794,758 which is approximately 44.0% of the budgeted amount. The difference

between the operating costs and customer revenue, the Metro funding amount (MFA), is approximately \$786,787. This value is approximately 32.0% of budget.

Table 3. DES Expenses and Revenues to Date

Item	FY11 Budget		FY11 Actual to 12/31/10		Percent of Budget
Fixed Costs	\$	4,956,000	\$	2,179,597	43.98%
Pass Throughs					
Non-Energy	\$	177,700	\$	77,457.24	43.59%
Energy	\$	9,952,900	\$	3,935,414	39.54%
Capital	\$	5,223,000	\$	2,389,077	45.74%
Total Expenses	\$	20,309,600	\$	8,581,545	42.25%
Total Revenues	\$	17,858,700	\$	7,794,758	43.65%
Metro Funding Amount	\$	2,450,900	\$	786,787	32.10%

The DES serves 26 customers and 40 buildings in downtown Nashville. These customers are divided into three categories: 1) Private customers who privately own their buildings, 2) State of TN owned buildings and 3) Metro owned buildings. 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	\$ 2,019,397.62	11,443,835	\$ 0.1765	\$ 731,078.48	33,502	\$ 21.8217
State Government	\$ 1,735,657.24	9,517,011	\$ 0.1824	\$ 986,998.13	42,402	\$ 23.2769
Metro Government	\$ 1,628,372.91	10,175,725	\$ 0.1600	\$ 867,513.84	38,487	\$ 22.5406
New Customers	\$ 661,563.32	3,837,926	\$ 0.1724	\$ 92,949.32	4,465	\$ 20.8163
Total	\$ 5,383,427.77	31,136,571	\$ 0.1729	\$ 2,585,590.45	114,392	\$ 22.6030

Total Revenue \$ 7,969,018.22
 True-up and Adjustments \$ (174,260.22)
 Net Revenue \$ 7,794,758.00

III. EGF Operations

Items relating to the facility operations presented herein are derived from the monthly reports issued by CEPS for FY11. Communication between TEG and CEPS continues to be excellent, and CEPS has reported and managed all EGF operations satisfactorily and according to the ARMA with no contract violations.

A. Reliability

The principle 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.

- During the month of December, the steam pressure dropped below 150 psig on three separate occasions.
 - One instance was caused by the loss of a flame scanner on Boiler #1 on December 8. The pressure dropped to 141 psig for 30 minutes.
 - A blown fuse in the Boiler #2 control cabinet caused the pressure to drop to 135 psig for 45 minutes until repairs could be made. This instance occurred on December 9.
 - On December 14, all three operating boilers were tripped off-line due to a momentary loss in natural gas pressure. The natural gas supplier reported that natural gas had to be re-routed in their distribution due to an auto accident. The boilers were re-started, but the steam pressure was below 150 psig for one hour, reaching a minimum pressure of 66 psig.

B. Efficiency

The operation of the EGF satisfied the guaranteed levels for all commodity usage during the quarter. There were no significant excursions above the guaranteed levels for the Second 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.

The Spill Prevention, Control and Countermeasures Plan was completed by RMT in October and delivered to CEPS. A safety meeting was held by RMT covering this topic in October.

Monthly safety meetings were conducted by HazMat, Inc and through CEPS personnel.

D. Personnel

The EGF currently has twenty-five full time employees. Of the current number of employees, nineteen 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.

- Steam System
 - The steam and condensate system had excellent chemistry for most of the quarter with a few exceptions. The condensate return was relatively high for the quarter noted by a marked increase in condensate (12% over the last Second 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
 - The system control and chemistry continues to be excellent.

G. Maintenance and EGF Repairs

CEPS continues to report on the numerous routine maintenance and preventive maintenance activities performed on the EGF primary and ancillary equipment. The principle 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.

- Safety gates were added on all cooling tower ladders.
- De-aerator #1 water box repairs were completed during the quarter.
- Repairs and PM were completed on several of the EGF pumps.
- The belt for the Cooling Tower #17 fan was replaced.
- The Expansion Tank #2 bladder was removed and inspected. CEPS believes this bladder is leaking.
- Other minor repairs and maintenance were made during the quarter and are listed in the monthly reports issued by CEPS.

H. EGF Walk-through

A quarterly Walk-through of the EGF was performed on January 4, 2011, by Kevin Jacobs, P.E. with TEG. This review involved a tour of the facility with the primary points of interest and concern noted herein.

- The operator log book indicated recurring problems with the condensate pumps within MH-18. These pumps return the majority of the condensate collected from the customers to the EGF.
- Maintenance was being performed on CHP-6 and CH-7 during the walk-through.
- The expansion tank bladder from tank #2 had been removed and was lying on the catwalk adjacent to the expansion tanks. CEPS has suspected that the bladder had been leaking and had removed it for inspection and repair.

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. New projects are anticipated for the 2010 Bond Projects, and some of these projects have been designed and bid. Due to the cost of the Tunnel Rock Rehabilitation project, two FY10 projects were deferred until FY11.

The statuses of the projects are discussed, and the project cost-to-date and bond balances are also presented.

A. Second Quarter FY11 Open Projects

The following projects remained open at the end of the Second Quarter FY11.

1. DES033 – Manhole Lid and Ring Replacement/Restoration

This project relates to the repair and replacement of manhole lids and rings whenever Metro Public Works performs Street re-paving. This project will remain open.

2. DES048 – Tunnel Lighting & Electrical Upgrades Phase III

The first two phases of this project have been completed, and the final phase is budgeted and awaiting the completion of the Tunnel Rock Rehabilitation Project (DES067) scheduled to be complete in the first part of calendar year 2011.

3. DES059 – CJC Condensate Service Line Repair

A “hot spot” was noted at the CJC service piping for several months. During the First Quarter of FY11, a small sink hole formed at the curb above these service

lines. It was found that the condensate return piping was leaking at this location due to external pipe corrosion. No protective coating or insulation was found on this piping. The condensate service line was replaced with epoxy coated piping and field insulated. All of this work was completed during the First Quarter FY11 and was expected to be closed out during the Second Quarter of FY11. However, due to delays in obtaining and processing the paperwork/invoices, this project was not closed out as expected. It is anticipated that this project will be closed during the Third Quarter FY11.

4. DES060 – Manhole & Tunnel Insulation Repair (Revised from DES050 for FY10)

The work associated with this project will be ongoing as required.

5. DES063 – Manhole A, B & M Sump Pump Installation

Due to the unanticipated high prices received from contractors, this project was deemed not economically viable. However, due to the amount of time required by CEPS personnel to keep Manhole B pumped out, CEPS offered to perform the labor required to install a sump pump in this one manhole if Metro would pay for the materials required. Metro agreed to this proposal and CEPS successfully installed a pump in this manhole during the Second Quarter FY11. Manholes A and M will not have sump pumps installed at this time. It is anticipated that this project will be closed during the Third Quarter FY11.

6. DES066 – First Avenue Manhole Retirement

TEG reviewed the work associated with this project and, due to settlement of the fill in one of the retired manholes, additional fill needs to be added. The work and close out for this project is anticipated during the Third Quarter FY11.

7. DES067 – EDS Tunnel Structural (Rock) Rehabilitation

This project was bid during the Third Quarter FY10. A formal award was made during the Fourth Quarter FY10 and mobilization was planned for the same quarter. This mobilization was delayed due to the flood in May 2010. Work began on this project in the First Quarter FY11. Work continues on this project and is anticipated to be completed during the 3rd Quarter FY11.

8. DES073 – MH-18 Platform Extension & Sump Pump Control Modifications

Work was started and completed during the Second Quarter FY11. It is anticipated that this project will be closed out during the Third Quarter FY11.

9. DES076 – Manhole S4A Rehabilitation

Preliminary design was completed for the repairs during the Third Quarter FY10. The State had originally requested that repairs not begin until June 2010 since some of the State's fiber optic communications cabling passes through this manhole. During final review of the repair drawings, the State voiced extreme concern about the absence of a secondary communication link if the fiber optics in this manhole were damaged during the rehabilitation. Therefore, the bidding of this project has been delayed. Meetings with the State took place during the First Quarter FY11 concerning the responsibilities between the State and Metro. The State concluded that the structural repair of the manhole is their responsibility, and they are moving forward with the installation of a secondary fiber optic line to replace the fiber optics within this manhole. Once this fiber optic work is complete, work will begin on the manhole structure. It is anticipated that the manhole work will begin in the Third or Fourth Quarter of FY11.

10. DES077 – Music City Center Service Connection

Work continues with the extension of services to the MCCC. Four of the five new vaults have been set and some of the in-building and direct-buried piping has been installed. Work continues on the direct-buried piping. The completion of the work is anticipated in the spring of 2011 (Fourth Quarter).

11. DES080 – Misc. Manhole & Tunnel Safety Repairs

As a result of the ongoing review of the manholes and tunnels, some safety items have been noted that require attention. This project was established to address these items.

Manholes 16A, 22B, D2 and D3 require the addition of some safety related items such as handrails, ladder cages etc. Design was started on the addition of these items during the Fourth Quarter FY10. The design is anticipated to be completed during the Third Quarter of FY11 along with its bid and award. Work should then commence during the Third or Fourth Quarter of FY11.

12. DES081 – Flood Related Repairs

As a result of the flooding in May 2010, some damage occurred to the EDS. Damage resulted in Manhole L located at Riverfront Park due to the required shut down and subsequent cooling of the steam system along with damage to components within the Broadway and 4th Avenue tunnels and to the metering station within the Nashville Symphony. This work was completed during the First Quarter FY11. The cost substantiation was reviewed with FEMA, and Metro will receive a partial reimbursement of these costs. The remaining costs will be covered by a special fund established by the City. Some additional insulation damage was discovered in Manhole B3 and was repaired during the

Second Quarter FY11. This discovery and subsequent repair has delayed the close out of this project until the Third Quarter FY11.

13. DES082 – Andrew Jackson Building Steam Isolation Valve Replacement

A leak developed at an instrument tap at the Andrew Jackson Building on the steam supply piping. During the review of the needed repairs, it was noted that a primary steam isolation valve for this building was installed in a vertical portion of piping, which presented a potential safety hazard. Therefore, this valve was replaced and relocated to provide a safer installation. This work was completed during the Second Quarter FY11, and this project is anticipated to be closed out during the Third Quarter FY11.

B. Second Quarter FY11 Closed Projects

No projects were closed during the Second Quarter FY11.

C. Capital Projects Budget

The following table summarizes the costs and remaining balance of the DES capital projects based on reported expenditures at the end of the Second Quarter FY11. 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. Since the remaining funds from the 2002A bond have been consumed, the previous projects associated with this bond are no longer noted in the following table. The 2008 Bond fund is also depleted and the projects associated with it are also not shown.

Table 5. Capital Projects Expense Summary

DES Project #	Description	Total Budget	FY11 Spending to Date	Total Spent to Date	Remaining Balance
2005B Bond Projects					
DES064	Spring 09 Steam Shutdown	\$ -	\$ -	\$ 950.19	\$ (950.19)
DES063	Sump Pump MH B and M	\$ -	\$ 13,166.04	\$ 18,359.72	\$ (18,359.72)
DES056	Citizen's Plaza Steam and Condensate	\$ -	\$ -	\$ 251.93	\$ (251.93)
DES057	Manhole 13	\$ -	\$ -	\$ 176.87	\$ (176.87)
DES061	Tunnel Steel Corrosion	\$ -	\$ 24,769.85	\$ 32,826.86	\$ (32,826.86)
DES073	MH 18 Condensate and Platform Exp	\$ -	\$ 3,713.38	\$ 16,369.11	\$ (16,369.11)
Total Closed Projects		\$ 7,320,301.40	\$ 291.52	\$ 6,748,102.36	\$ 572,199.04
Project Development		\$ 866,198.60	\$ 6,891.00	\$ 315,570.26	\$ 543,737.34
Total 2005B Bond		\$ 8,186,500.00	\$ 48,831.79	\$ 8,103,341.35	\$ 83,158.65
2007 Bond Projects					
Total Closed Projects		\$ 2,374,348.00	\$ -	\$ 2,620,770.53	\$ (246,422.53)
Project Development		\$ 484,152.00	\$ -	\$ -	\$ 484,152.00
Total 2007 Bond		\$ 2,858,500.00	\$ -	\$ 2,620,770.53	\$ 237,729.47
2010 Bond Projects					
DES059	CJC Steam & Cond Ser. Line Replace.	\$ 150,000.00	\$ 64.90	\$ 3,128.57	\$ 146,871.43
DES062	Stm and Cnd Line MHK to Wildhorse	\$ 300,000.00	\$ -	\$ 240,670.01	\$ 59,329.99
DES066	First Ave MH Abandonment	\$ -	\$ 97.35	\$ 1,493.89	\$ (1,493.89)
DES067	Tunnel Rock Repair	\$ 1,152,000.00	\$ 476,947.67	\$ 496,583.15	\$ 655,416.85
DES068	St. Mary's Cond Tempering Station	\$ 20,000.00	\$ 162.25	\$ 38,283.82	\$ (18,283.82)
DES069	Municipal Aud Tempering Station	\$ 25,000.00	\$ 20,565.88	\$ 24,892.20	\$ 107.80
DES070	MH 6 to 23 Cond Line	\$ 300,000.00	\$ -	\$ 526.62	\$ 299,473.38
DES071	Hermitage Hotel Ser Modifications	\$ 125,000.00	\$ -	\$ 1,119.07	\$ 123,880.93
DES072	Sheraton Stm & Cond Line	\$ 250,000.00	\$ -	\$ 31.38	\$ 249,968.62
DES073	MH 18 Condensate and Platform Exp	\$ -	\$ -	\$ 749.57	\$ (749.57)
DES075	2010 CHW Outage	\$ -	\$ -	\$ -	\$ -
DES076	MH S4A Rehabilitation	\$ -	\$ 2,536.54	\$ 3,218.09	\$ (3,218.09)
DES077	Music City Convention Center Design	\$ 6,090,000.00	\$ 67,503.87	\$ 169,565.71	\$ 5,920,434.29
Total Closed Projects		\$ -	\$ -	\$ -	\$ -
Metro Project Admin		\$ -	\$ -	\$ -	\$ -
Project Man, Development, etc		\$ 88,000.00	\$ -	\$ -	\$ 88,000.00
Total 2010 Bond		\$ 8,500,000.00	\$ 567,878.46	\$ 982,512.07	\$ 7,517,487.93

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

Several EDS repairs and improvements were made during the Second Quarter. The principle 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 budget at the end of the current quarter is \$297,631. Table 6 provides a summary of the FY11 expenditures and revenues to date associated with the R&I budget.

Table 6. Repair and Improvement Expenditure and Revenue Summary

Description	Date	Tracking #	Vendor	Expenditure	Transfers	Net Market Adjustment	Market Value	Balance
Values at end of FY10						\$ (7.36)	\$ 493,424.22	\$ 493,424.22
Transfer to General Account	07/08/10			\$ 6,682.81				
Constellation Energy - Period 5/1/10 - 5/31/10 (EDS Repair)	06/30/10	DES-1196	CEPS	\$ 613.67				
Constellation Energy - Period 6/1/10 - 6/30/10 (EDS Repair)	06/30/10	DES-1203	CEPS	\$ 1,399.60				
Overpayment Credit	08/12/10	-	-	\$ (1,019.45)				
Constellation Energy - Period 7/1/10 - 7/31/10 (EDS Repair)	09/13/10	DES-1224	CEPS	\$ 1,268.79				
Sub-Total First Quarter				\$ 8,945.42	\$ 61,775.01	\$ -	\$ 52,829.59	\$ 52,829.59
Constellation Energy - Period 8/1/10 - 8/31/10 (EDS Repair)	10/20/10	DES-1236	CEPS	\$ 374.14				
DES Repair And Improvements, for billing period of 7/04/10 - 10/02/10	10/05/10	DES-1231	TEG	\$ 2,808.96				
DES Repair And Improvements, for billing period of 10/03 - 10/30/10	11/04/10	1243	TEG	\$ 1,684.25				
Constellation Energy - EDS Tunnel Structural Rehab (EDS Repair)	10/20/10	N/A	CEPS	\$ 261,655.80				
Constellation Energy - Period 9/1/10 - 9/30/10 (EDS Repair)	11/23/10	1251	CEPS	\$ 3,780.20				
Constellation Energy - DES-059 CJC Repair October 3102010	11/23/10	1253	CEPS	\$ 18,886.75				
DES Repair And Improvements, for billing period of 10/31/10- 11/27/10	12/07/10	1258	TEG	\$ 616.55				
Sub-Total Second Quarter				\$ 289,806.65	\$ 41,183.34	\$ -	\$ (248,623.31)	\$ (248,623.31)
Sub-Total Third Quarter				\$ -	\$ -	\$ -	\$ -	\$ -
Sub-Total Fourth Quarter				\$ -	\$ -	\$ -	\$ -	\$ -
FY11 Year to Date				\$ 298,752.07	\$ 102,958.35	\$ -	\$ 297,630.50	\$ 297,630.50

B. Preventive Maintenance

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

1. EDS Tunnel and Manhole Inspections
 - a. Several leaks were noted on the steam expansion joints in the Broadway Tunnel during the quarter. CEPS will continue to monitor these leaks.
 - b. Some leaks were found during the quarter and continue to be monitored.
 - c. Minor repairs were made during the quarter.
2. State Tunnel Inspections
 - a. CEPS continues to monitor some steam and condensate leaks within the tunnel.
 - b. The tunnel radio system is continues to be non-operational. State personnel have been notified.
 - c. Other minor repairs were made during the quarter.
3. Other EDS Inspections
 - a. The thermo-graphic surveys for the quarter indicated that the previously noted hot spot outside of MH-10 has enlarged and that the heated area at 1st Ave and Malloy has returned.

- b. The tunnels were winterized.
- c. Other minor items are included in the CEPS monthly reports

C. Emergencies

No emergencies were reported during the quarter.

D. EDS Walk-through

The primary EDS walkthrough was conducted on January 20 and 28, 2011, by Jon Belcher, PE with TEG. The manholes visited included MH 11, 12, 16A, 22B, C, U, Viridian, B2, B3 and B4. The following comments and observations are a result of these visits:

- 1. Manhole 11
 - a. There was water in this manhole and it required pumping prior to entry.
 - b. This manhole employs individual ladder rungs embedded into the concrete wall for entry/egress. Even though these rungs appear to be in good condition, it is difficult to determine when or if they might fail. Therefore, these rungs should be removed and replaced with a steel ladder.
- 2. Manhole 12
 - a. There is no piping insulation in this manhole. This manhole is listed as a “high” priority on Manhole Insulation priority list developed by CEPS.
 - b. The steel structural components in this manhole need to be cleaned of all rust and painted to prevent further corrosion. This vault should be a “Moderate” to “High” priority on the “MH & Tunnel Structural Corrosion Prevention/Repair” project list.
 - c. There is debris in this manhole along with a large amount of rock and dirt in the floor. The dirt can retain moisture and can help accelerate the corrosion of the metal structural components in the manhole. All debris, dirt and rock should be cleaned from this manhole.
 - d. The steam expansion joint in this manhole is leaking slightly. In order to fix this leak, the system must be shut down for the joint to be re-packed. The leak must get worse before it can be fixed while the system is on-line. If an opportunity arises for this portion of the system to be shut down, the leak should be fixed at that time. Otherwise, the leak should be monitored until it can be fixed on-line.
 - e. Several years ago this manhole was rebuilt and new concrete walls and roof were installed. The existing interior steel walls were kept and used as an interior form for new concrete walls. However, the

steel roof was replaced with a concrete roof. A year ago, during the last Quarterly EDS Walkthrough that included this manhole, some cracking of the manhole roof in and around the manway accesses was noted. This cracking has progressed and a structural engineer should review the situation to determine if repairs are required. TEG will arrange a site visit with CEPS to accomplish this review.

3. Manhole 16A

- a. This manhole is located at the top of a riser shaft from the 4th Avenue Tunnel and only contains chilled water piping. There is no serviceable equipment in this manhole.
- b. Grating covers a portion of the vertical shaft from the 4th Avenue Tunnel, but due to the chilled water piping, portions of the shaft is not covered. This presents a potential safety hazard to maintenance personnel. TEG is currently developing drawings to add a handrail to be installed around the non-grated portion of the shaft opening.
- c. Some chilled water support “tabs” need to be cleaned of corrosion and painted to prevent additional corrosion.

4. Manhole 22B

- a. This manhole is located at the top of a riser shaft from the 7th Avenue Tunnel and contains steam, condensate and chilled water piping which serve the Nashville Public Library.
- b. There is no grating around the vertical piping “penetrations” within this manhole. This presents a potential safety hazard. TEG is currently developing drawings for the addition of grating and possibly handrails to this manhole.
- c. There is some minor debris in this manhole that needs to be cleaned out.

5. Manhole C

- a. There was water present in this manhole and it required pumping prior to entry.
- b. The link seal on the northern steam line penetration is starting to “back out”. This link seal should be loosened and re-positioned in the wall sleeve.

6. Manhole U

- a. There was no water present in this manhole.
- b. Because this manhole has a dirt floor, groundwater seeps into the manhole and results in secondary steaming.
- c. Wall brackets from an old entry ladder have never been removed. These present a potential safety hazard and should be removed.

7. Viridian Manhole
 - a. This manhole is located on Church Street directly in front of the Viridian. It houses the chilled water supply piping and isolation valves for the Viridian.
 - b. There was water present in this manhole and it required pumping prior to entry.

8. Manhole B2
 - a. There was water present in this manhole and it required pumping before entry.
 - b. The insulation jacketing on the western end of the chilled water valves has come off. This jacketing should be repaired.

9. Manhole B3
 - a. There was no water present in this manhole.
 - b. The steel structural components in this manhole need to be cleaned of all rust and painted to prevent further corrosion. This vault should be a “Low” priority on the “MH & Tunnel Structural Corrosion Prevention/Repair” project list.

10. Manhole B4
 - a. There was some water present in this manhole and required pumping before entry.

VI. Customer Relations

This section contains descriptions of the marketing efforts made by the DES Team during the quarter. The topics of interactions, meetings and training seminars with the customers are also discussed. There are currently 26 customers, comprised of 40 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 CEPS in an excellent and professional manner.

A. Marketing

TEG and Metro DES continue to monitor and remain involved with the progress associated with the development of the new Music City Convention Center (MCCC). Construction for this project began in the First Quarter FY11 and is expected to be completed by the spring of 2011.

CEPS was authorized by Metro to re-institute their sales and marketing program. Several potential new customers have presented themselves within recent months that CEPS could assist in pursuing. These customers include: the Omni Hotel, the expansion of the Country Music Hall of Fame and the Medical Mart.

B. Customer Interaction

The CEPS 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 reported issues with either their in-building heating or cooling systems. These issues were addressed by the CEPS customer service representative (CSR). In most cases, the issues related to failed customer equipment or the improper control of the building system. Several metering or electrical issues also occurred during the quarter that affected the recording of several customers' billing data.
- Several customers requested their chilled water return set point adjusted during the quarter. This procedure is common as the heating season begins and the cooling season ends.
- A leak was reported and repaired on the chilled water system at the Tennessee Tower building.
- Steam and chilled water service were restored to the Schermerhorn Symphony building in November. Although chilled water service had been received by the Symphony throughout the summer, this service had been directed through temporary equipment. This restoration of service in November marked the first opportunity since the flood of May 2010 for the building to have metered service through its permanent connection.
- Other minor issues and customer interactions are noted in the monthly CEPS reports.

VII. Recommendations

Based on the review of the Second Quarter EGF and EDS operations, the following recommendations are made.

- The repair of the cracks in the west wall of the EGF, as noted in the EGF Walk-through for the last quarter, should be addressed. TEG will prepare a directive for CEPS to address these issues during the Third Quarter. The recommendations by Mr. Stoneburg should be implemented. These recommendations include:
 - All of the existing cracks exposed to weather should be sealed with an injection epoxy (Crack-Pac by Simpson Strongtie or similar) to reduce the amount of water penetration into the concrete.
 - The spalling of existing cracks should be repaired using a concrete repair compound (SikaRepair 223 by Sika or similar).
 - For locations of spalling caused by embedded shale, the shale pieces should be completely removed and the location repaired using a concrete repair compound (SikaRepair 223 by Sika or similar).

- Safety items noted in the EDS Walk-through should be addressed.
- Cleaning, painting, replacement and repair of structural steel within manholes to reduce or eliminate corrosion has been assigned a capital project number of DES061. Repairs began in the Fourth Quarter FY10 and will be ongoing in a similar method to the Insulation Repair Project (DES060).
- Insulation which is not present or in disrepair within the manholes should be addressed through either additional capital projects, which include work within these manholes, or through DES060.