

EXECUTIVE SUMMARY

November 21, 2014

Audit Committee Members

Mayor McMillan and City Council Members

City of Clarksville

Clarksville, Tennessee 37040

Executive Summary of the Water Treatment Plant Upgrade

The following is an executive summary of the objectives, findings and recommendations related to the Internal Audit report on the Clarksville Gas, Water and Sewer Department's (CGW) water treatment plant upgrade. The full audit report is attached and contains additional details about the audit results as well as management's responses. The full report also describes the audit methodology and provides more background and statistical information.

Objectives of the audit

The objectives of the audit were to:

- Determine if internal controls were properly designed and operating effectively related to the contracting process of the water treatment plant upgrade.
- Evaluate the grant reimbursement process between the Tennessee Department of Economic and Community Development (TNECD), the Montgomery County Industrial Development Board (IDB) and CGW.
- Evaluate the safeguarding of CGW's assets related to the project.
- Determine whether CGW complied with state laws, regulations, contracts, change orders, amendments and agreements.
- Determine if financial records management was adequate related to: contractors' payments, retainage, construction in progress, asset capitalization, depreciation expense, expenditures, and reimbursements.

Brief Background

In February 2009, CGW began the process of expanding the City's existing water treatment plant in order to accommodate the needs of Hemlock Semiconductor Corporation (HSC) as it located a new plant in Montgomery County. An agreement to support the plant location in Montgomery County was signed by the City, the County, the Industrial Development Board (IDB), the TN Department of Economic and Community Development (TNECD) and Hemlock Semiconductor Corporation (HSC).

The cost of the upgrade was financed by a State FastTrack Infrastructure Development grant between TNECD and IDB. CGW made requests to and received reimbursements from IDB for the costs. The project was substantially complete and operational in October 2013. Final completion was in June 2014 and all reimbursements were received by August 2014.

Conclusions of Report

Our audit of the CGW's water treatment plant upgrade revealed the following findings and other information related to our objectives.

- The internal controls surrounding the contracting process related to the design and construction phases of the water treatment plant upgrade appear to have been adequately designed and operating effectively throughout the duration of the project.
- The audit identified the following weaknesses in the grant reimbursement process between TNECD/IDB and CGW:
 - There was no written agreement between IDB and CGW clarifying the grant requirements and defining the reimbursement process.
 - TNECD's retainage requirements, which are in seeming contradiction to Tennessee law, caused a delay of 6-10 months for the final payment request to be received by CGW. TNECD's general counsel is investigating whether their policy related to retainage is in conflict with the TN Prompt Pay Act. The related details can be found in the report section entitled Delayed Reimbursement.
- **Information in this bullet point is considered confidential in accordance with TCA 10-7-504(i)(1)(B) because of security reasons.**
- Our tests showed that CGW and its contractors complied with the requirements outlined in the HSC agreement related to water requirements, all change order requirements, and local and State purchasing laws.
- Audit testwork revealed that project transactions were properly reflected in CGW's financial records including construction in progress, expenditures, reimbursements, capitalized assets, and depreciation expense.

The audit makes the following recommendations:

- **Information in this bullet point is considered confidential in accordance with TCA 10-7-504(i)(1)(B) because of security reasons.**
- Future agreements between CGW and other governmental entities should be formalized in writing to minimize misunderstanding between parties and to protect CGW's legal standing in the agreement.

CGW management agreed with the findings in the audit report and has worked to correct the identified weaknesses.

The auditors would like to thank CGW management and staff for their cooperation and support during the conduct of the audit. If you have any questions about the audit, the findings, or the recommendations please contact me at 648-6106.

Respectfully,

**Lynn Stokes
Director of Internal Audit**

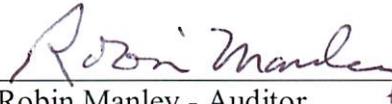
**cc: Laurie Matta, Director of Finance
Pat Hickey, General Manager, CGW
Chris Lambert, Water/Wastewater Senior Director, CGW
Chris Cherry, Water/Wastewater Assistant Director, CGW
Fred Klein, Senior Finance Director, CGW**



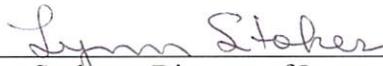
INTERNAL AUDIT REPORT

AUDIT TITLE:	WATER TREATMENT PLANT UPGRADE AUDIT #1402
DEPARTMENT:	GAS, WATER AND SEWER DEPARTMENT
AUDIT PERIOD:	FEBRUARY 11, 2009 TO JUNE 30, 2014

CITY OF CLARKSVILLE
Internal Audit Department
Water Treatment Plant Upgrade
AUDIT # 1402



Robin Manley - Auditor



Lynn Stokes – Director of Internal Audit

November 21, 2014
Date

**CITY OF CLARKSVILLE
INTERNAL AUDIT REPORT**

Water Treatment Plant Upgrade Audit

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Internal Audit Report

Origin of the Audit

This audit of the Clarksville Gas, Water and Sewer Department's (CGW) water treatment plant upgrade was conducted as a part of the annual audit plan approved by the Audit Committee for fiscal years 2014 and 2015.

Audit Objectives

Our objectives for this audit were to:

- Determine if internal controls were properly designed and operating effectively related to the contracting process of the water treatment plant upgrade.
- Evaluate the grant reimbursement process between the Tennessee Department of Economic and Community Development (TNECD), the Montgomery County Industrial Development Board (IDB) and CGW.
- Evaluate the safeguarding of CGW's assets related to the project.
- Determine whether CGW complied with state laws, regulations, contracts, change orders, amendments and agreements.
- Determine if financial records management was adequate related to: contractors' payments, retainage, construction in progress, asset capitalization, depreciation expense, expenditures, and reimbursements.

Scope and Methodology of the Audit

The audit focused on the water treatment plant upgrade project which was built to accommodate the needs of Hemlock Semiconductor Corporation as it located a new plant in Montgomery County. The upgrade project was selected for audit because of the high dollar amounts involved. The targeted areas of audit were the contracting process (design and construction phases) and the grant reimbursement process. The audit period covered February 11, 2009 to June 30, 2014. Evidence to support our conclusions was gathered from

inquiries of management and staff, review of source documents and tests of controls surrounding the processes involved.

The adequacy of the design and the adequacy of the construction of the plant upgrade were not evaluated as a part of the audit.

The audit scope included an evaluation of information technology (IT) access controls related to the plant's ultrafiltration membrane operating system.

Six contractors were involved in the project. The following items were reviewed and tested as part of the audit. Sample sizes and selections were based on auditor judgment.

- All contractor payments (168 transactions total) were tested for supporting documentation, appropriate approvals, progress reports, adjustments to requests for payment, retainage calculation and reimbursements.**
- From a total population of 15, all change orders and amendments were reviewed for content, timeliness and proper approval.**
- From a population of 29 assets all 29 assets resulting from the project were tested for depreciation expense methodology/calculation and proper recording in the financial software. Three of the assets were tested for costing methodology and compliance.**
- Out of 99 construction-in-progress transactions six operational expenditures were tested to verify their exclusion from being capitalized.**

The expenditure/grant reimbursement process was evaluated by reviewing the dates and amounts for 55 out of 55 CGW requests for payment to the IDB.

Statement of Auditing Standards

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

In December 2008, Hemlock Semiconductor Corporation (HSC) announced to the State of Tennessee's Department of Economic and Community Development (TNECD) that it intended to construct a manufacturing plant in the Montgomery County Industrial Park. The Industrial Park is managed by the Industrial Development Board of Montgomery County (IDB). Prior to HSC's announcement, an agreement was signed by HSC, the TNECD, the

IDB, Montgomery County and the City of Clarksville which identified the roles and responsibilities of all parties in support of the project.

In the agreement, the IDB and the City agreed to provide the needed infrastructure and delivery of services to the HSC plant site. The need for a defined, sustained level of water supply and water pressure to the site was identified as part of the agreement. In support of the utility requirements, the TNECD made available a reimbursable FastTrack Infrastructure Development grant to help fund the needed local utility upgrades. The grant was established between the TNECD and the IDB. The grant (and amendments #1 and #2) provided a total funding stream of \$73M for CGW to establish gas, water and sewer services on the plant site and to upgrade the delivery capacity of the City water system. The grant agreement also outlined the reimbursement process between TNECD and IDB.

After identifying water quality and quantity requirements, CGW determined that Jordan, Jones and Goulding (JJG) was the most qualified firm to perform the architectural/engineering services for the project. The appropriate form, Request for Professional Services, was filed with the City's Purchasing Department. JJG then assisted CGW in selecting an experienced and qualified construction contractor through the bidding process. The project required the construction of an ultrafiltration membrane system that would increase potable water production capacity from 24 million gallons per day to 28 million gallons per day. W. Rogers (Rogers) was determined to have the lowest and best bid at \$25,057,875.

Statistical Information

The project was conducted in two phases:

The first phase involved general engineering and consulting services which were provided by the project manager, JJG. Their project responsibilities were due as scheduled:

Schedule	Due
• Preliminary Design Report	July 2009
• Detailed Design	February 2010
• Bidding	March 2010
• Construction	Begin June 2010, complete June 2012

The fee for the above services was \$4.2M.

The second phase was the construction of the ultrafiltration membrane system, and this work was performed by W. Rogers of Kentucky and other sub-contractors. The original start date was October 6, 2010, and the original completion date was March 3, 2013 or 880 days. Due to change orders the completion date was revised to January 31, 2014, or 1,214 days. JJG issued a Certificate of Substantial Completion on October 8, 2013. The Certificate established the start date for warranties associated with the project.

Roger's final fee with eight change orders (valued at \$1,986,265, or 8% of the original bid) was \$27,044,140.

According to unaudited supplemental information provided in CGW's FY 2013 financial audit report, HSC was CGW's second largest water customer with annual sales of \$570,291 (3% of total sales).

Reimbursed Cost of Project:

The actual grant reimbursements received by CGW for the water treatment plant upgrade totaled approximately \$31.4M. Requests for payment were made by CGW through the IDB to the TNECD. Approximately \$9,600 of submitted costs were not reimbursed by the IDB because they were determined to be unallowable costs in accordance with the grant agreement with TNECD (examples are telephone and travel expenses).

Reimbursement Statistics:

Except for the last payment request in June 2014, which is addressed below in the report section titled Delayed Reimbursement, the average number of days from the time CGW paid a contractor until CGW received reimbursement from IDB for the cost related to that payment was 72 days. The breakdown of that time period is as follows:

Turn-around Periods	Average No. of Days
Average number of days from the time CGW paid contractors until CGW submitted a request for reimbursement to IDB:	12
Average number of days from the time IDB received the request from CGW until State Finance and Administration received the request for reimbursement at the State level:	21
Average number of days from the time State Finance/TNECD received the request for reimbursement until money was transferred to IDB:	22
Average number of days from the time IDB received the money from the State until CGW received the money from IDB:	17
Average number of days for the entire process:	72

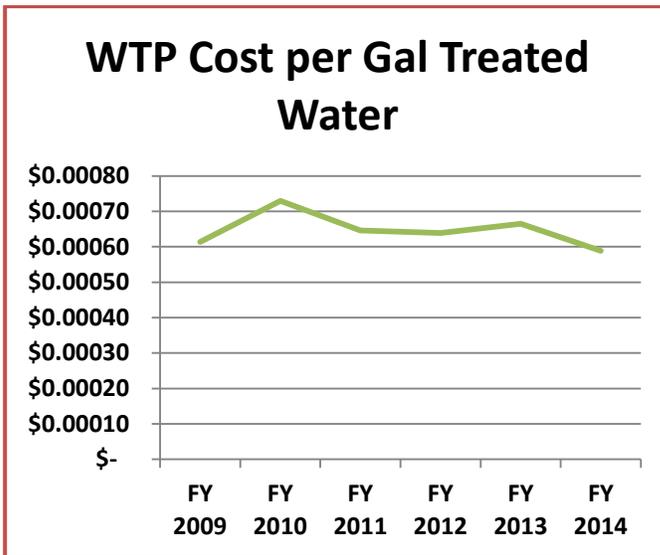
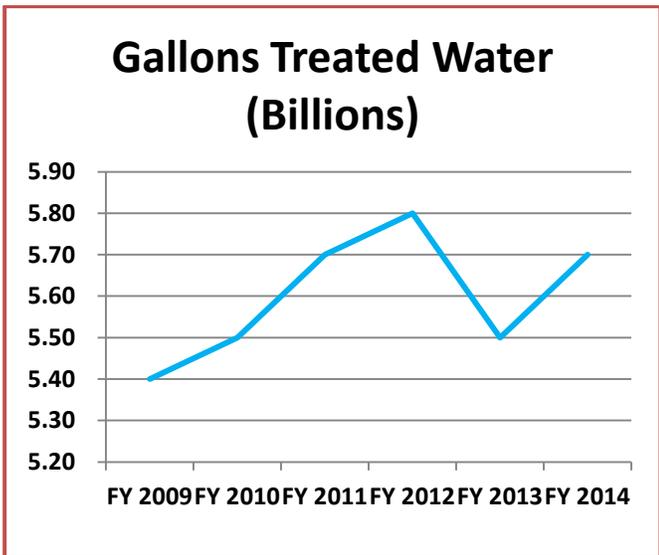
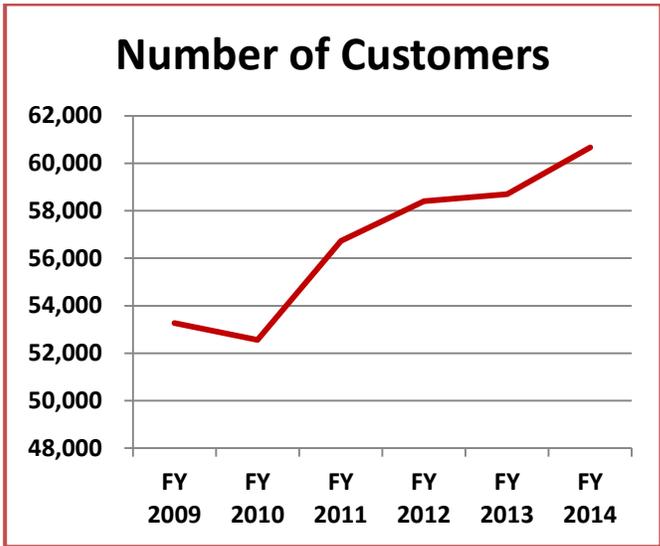
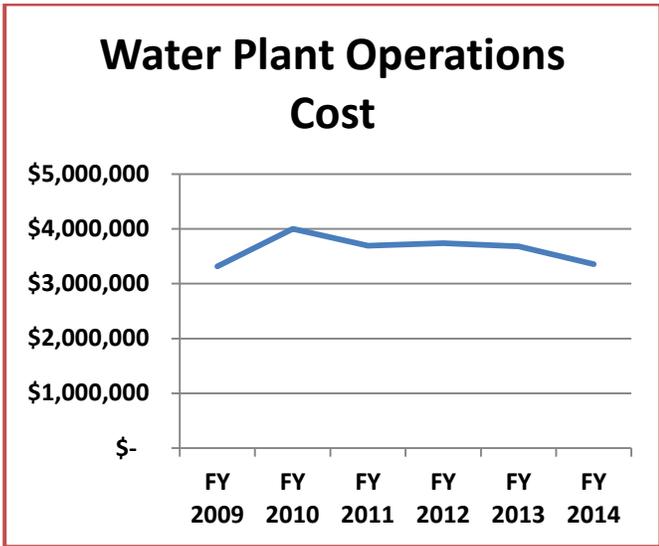
It appears from the above table that CGW submitted requests for reimbursement in a timely manner. The longest average turn-around time period was 22 days by State Finance/TNECD at the State level. IDB's participation in the process required an average of 38 days (21 days + 17 days).

Other Statistical Information:

The following table and charts reflect water treatment plant information for FY 2009 – FY 2014.

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>
Water Plant Operations Cost (Audited)	\$3.3M	\$4.0M	\$3.7M	\$3.7M	\$3.7M	\$3.4M
Number of Customers (Unaudited)	53,266	52,558	56,726	58,405	58,694	60,666
Gallons Treated Water (Unaudited)	5.4B	5.5B	5.7B	5.8B	5.5B	5.7B
WTP Cost per Gal Treated Water (Unaudited)	\$ 0.00061	\$ 0.00073	\$ 0.00065	\$ 0.00064	\$ 0.00067	\$ 0.00059

The water treatment plant upgrade was operational during FY 2014. Water treatment plant operating costs were similar across the comparison years, with FY 2014 operating costs and cost per gallon of treated water somewhat lower than other years.



Noteworthy Accomplishments

During the design and construction phases of the upgrade project CGW's procedures appeared to provide proper control over the project. Our tests of controls revealed that change orders and amendments were properly approved in a timely manner. Monthly progress reports were received and tested calculations were accurate. All required project documentation was on file. We found no exceptions in the recording and valuation of the assets associated with the upgrade project. We found no exceptions in the bidding process which was handled by the JJG, project engineer. Requests for payment by CGW to IDB were made in a timely manner except for the final request which had a specific reason for being delayed, as described below in the Delayed Reimbursement section of the report.

CGW met the challenge of installing the new membrane filtration system and simultaneously conducting a change-over from the old system without a water interruption to customers. They also developed an operations contingency plan before beginning the project.

According to independent sources the ultrafiltration membrane technology installed in this project is a cost effective method of water treatment which can readily be expanded to meet growing customer needs because of its design. It provides a consistent level of water quality and the process is automated requiring less manual intervention.¹ CGW joins other Tennessee water districts (Murfreesboro, Blount County, Tullahoma, Dickson and others) who have also selected membrane filtration technology for their water treatment plants.

Delayed Reimbursement

On October 8, 2013, the project engineer, JJG, issued a Certificate of Substantial Completion stating that the water treatment plant upgrade was substantially complete. In accordance with the Tennessee Prompt Pay Act (TCA 66-34-103(b)), and at the recommendation of JJG, CGW released \$1.1M of the total \$1.3M of retainage to the construction contractor.

The TN Prompt Pay Act requires owners (CGW in this case) to release retainage to prime contractors within 90 days after substantial completion of a project for the work completed. Under Tennessee law, failure to pay the retainage in a timely manner can result in an owner receiving a financial penalty.

When CGW submitted subsequent requests for reimbursement to IDB, TNECD indicated that CGW had prematurely released the retainage, and TNECD would not reimburse further requests for payment until the retainage account was replenished. TNECD's policy is to require grant recipients to maintain 5% retainage on projects until the following documents are provided to them: 1) the notice of project completion and 2) the contractor's release of liens.

¹ Tech Brief, A National Drinking Water Clearinghouse Fact Sheet: Membrane Filtration, March 1999

Since work valued at over \$700,000 remained to be completed on the water treatment plant project, CGW was not able to provide the required documentation to IDB and TNECD.

As a result, IDB did not forward CGW's subsequent requests for reimbursement to TNECD. And subsequent to that, CGW decided to delay further requests for payment until the project was totally complete in June 2014. All final requests were eventually reimbursed by TNECD in August 2014.

Because of the above events, reimbursements in the amount of \$713,367 were delayed until 6-10 months after CGW paid its contractors.

The auditors contacted TNECD's legal counsel in order to clarify TNECD's legal basis for requiring grant recipients to hold retainage in a manner seemingly in conflict with State law. After researching the question, an attorney with TNECD responded that their policies had not been updated since the enactment of the Tennessee Prompt Pay Act, and therefore, their policies were in conflict with the Act. According to the attorney, TNECD will update their reimbursement policies to reflect the provisions of the Tennessee Prompt Pay Act.

Results of the Audit

Auditor testing and research revealed the following findings and recommendations.

- 1. Information contained in this finding relates to cyber and homeland security and is considered confidential in accordance with TCA 10-7-504(i)(1)(B), and is not available for public inspection.**
- 2. There was no written interlocal agreement or grant agreement between IDB and CGW outlining the payment/reimbursement process or other requirements related to the grant administered by IDB.**

Criteria:

Written agreements identify the expectations and requirements of all parties and provide proof of understanding by all parties. They provide a solid legal basis for enforcement of the agreement.

Condition:

CGW did not have a written agreement with IDB outlining the methods or requirements for reimbursement. As stated in the Background section of this audit, there was a five-way written agreement between HSC and 4 local government entities which outlined a commitment on the part of all parties to bring to fruition the HSC project. There was also a grant agreement between the State (TNECD) and IDB which outlined the grant requirements and reimbursement process between IDB and TNECD. But there was no agreement between CGW and IDB which specified the responsibilities of each party related to the grant funding administered by IDB. There was no document which specified allowable/unallowable costs.

The average turnaround time for requests for reimbursement from CGW to IDB was 60 days (shown in the table on page 4 as 21 days + 22 days +17 days), but the actual number of days varied from 29 days to 111 days making cash flow predictions difficult. IDB did not reimburse approximately \$9,600 of submitted expenses. And, as stated in the Delayed Reimbursement section, there was a lack of agreement regarding the release of retainage. A written agreement between CGW and IDB might have clarified these details.

Cause:

According to CGW management, they were concerned about the lack of a written agreement and mentioned it to those in City government who were meeting with State leaders. It is unclear why a written agreement was not executed.

Effect:

The lack of a written agreement can result in misunderstandings between parties about expectations and responsibilities. Without a written agreement there may be no clear legal basis for enforcement if one party fails to perform. Also, cash planning is difficult without identified timelines.

Recommendation:

We recommend that future agreements between CGW and other local government entities be formalized in writing in order that all parties understand and agree to the terms.

Management Comments:

CGW management expressed concern at the time the agreement was made that there was no written agreement. The mindset of those making decisions at the State level seemed to be expediency. We agree that written agreements are preferable to verbal agreements, and they help protect the interests of the Department and the City.

Agree _____ X _____ Disagree _____

Corrective Action Plan: CGW management will work with the City Legal Department to ensure that all future agreements for services to be provided by CGW are formalized into a written document.

Projected Completion Date: NA

Responsible Manager: Pat Hickey

Conclusion

Our audit of the CGW's water treatment plant upgrade revealed the following results related to our original objectives.

- The internal controls surrounding the contracting process related to the design and construction phases of the water treatment plant upgrade appear to have been adequately designed and operating effectively throughout the duration of the project.
- The audit identified the following weaknesses in the grant reimbursement process between TNECD/IDB and CGW:
 - There was no written agreement between IDB and CGW clarifying the grant requirements and defining the reimbursement process.
 - TNECD's retainage requirements caused a delay of 6-10 months for the final payment request to be received by CGW. TNECD's policies related to retainage were later determined by their general counsel to be in conflict with the TN Prompt Pay Act. The related details can be found in the report section entitled Delayed Reimbursement.
- **Information contained in this bullet point relates to cyber and homeland security and is considered confidential in accordance with TCA 10-7-504(i)(1)(B) and is therefore not available for public inspection.**
- Our tests showed that CGW and its contractors complied with the requirements outlined in the HSC agreement plus its amendments, all change order requirements, and local and State purchasing laws.
- Audit testwork revealed that project transactions were properly recorded in CGW's financial records including construction in progress, expenditures, reimbursements, capitalized assets, and depreciation expense.

The audit makes the following recommendations:

- **Information contained in this bullet point relates to cyber and homeland security and is considered confidential in accordance with TCA 10-7-504(i)(1)(B) and is therefore not available for public inspection.**
- Future agreements between CGW and other governmental entities should be formalized in writing to minimize misunderstanding between parties and to protect CGW's legal standing in the agreement.

The auditors would like to thank the Clarksville Gas, Water and Sewer Department management and staff for their help and support during the performance of this audit. Their positive attitude facilitated the conduct of the audit and provides the necessary environment for process improvements to take place.

If further information about this audit is desired please contact Internal Audit at 931-648-6106.