

Audit Follow-Up

As of September 30, 2013

Audit of the Advanced Wastewater Treatment Project – Report 2

(Report #1312 issued April 19, 2013)

Report #1406

December 31, 2013

Summary

This is the first follow-up on the Audit of the Advanced Wastewater Treatment (AWT) Project – Report 2 (Report #1312 issued April 19, 2013). Nine action plan steps were established to address issues identified in that audit. Eight of those nine steps are addressed in this follow up. The ninth action plan step will be addressed in a subsequent and separate follow-up engagement. Of the eight steps addressed in this follow-up engagement, six were completed as of September 30, 2013. Actions have been initiated and are in progress to complete the two remaining steps.

The AWT project involves an intensive overhaul of the City’s TP Smith Water Reclamation Facility (TP Smith) to implement the most current technology in treating wastewater, “Bardenpho biological nutrient removal process.” The chief purpose of the AWT project is to lower the total nitrogen levels to under 3.0 milligrams (mg) per liter of treated liquids and improve the quality levels of the produced biosolids to “Class AA” as specified in the Florida Department of Environmental Protection (DEP) permit and Court Administrative Order. Class AA biosolids are considered by DEP as the highest quality of biosolids and are

distributed and marketed like other commercial fertilizers. The design changes to TP Smith involve structural, mechanical, electrical, and control improvements that would upgrade the facility to meet required treatment levels and accommodate the plant for future expansion of treatment capacity to 31.0 million gallons per day (MGD), when needed. Construction began in 2009 and is scheduled to be completed in January 2015. Currently the City treats an average of 17.7 MGD. Underground Utilities staff has continued to operate the TP Smith facility throughout the construction process. As construction phases are completed, the new or enhanced treatment facilities are being put into service.

As of October 31, 2013, approximately 91% (\$206 million) of the budgeted \$227 million has been expended on the AWT project.

In audit report #1312 we provided recommendations to assist management improve controls over project activities, enhance compliance with City policies, and implement project management best practices during the remainder of the City’s AWT project.

During this first follow-up period, the six steps that have been completed included:

1) Project management assessed and addressed

the administrative needs of the AWT project financial activities and staff capabilities.

- 2) AWT project management worked with Accounting Services staff to add AWT project assets valued in excess of \$150 million into the City's PeopleSoft Financials System.
- 3) AWT project management, working with the TP Smith Operations Manager, implemented a process to ensure that all applicable assets are properly recorded in the TP Smith asset maintenance system and the City's PeopleSoft Financials System. Our review showed this process was implemented and management planned to periodically reconcile the assets in both systems throughout the remainder of the project.
- 4) AWT project management implemented a process to request and review monthly minority business enterprise (MBE) participation reports from the prime contractor and final payment affidavits as to the MBE payments made during the applicable work package.
- 5) AWT project management implemented a process to verify selected amounts reported as paid to MBE businesses by the prime contractor and subcontractors working on the applicable work package.
- 6) AWT project management coordinated with the prime contractor, MWH, Incorporated (MWHC), to implement a process to track participation by local businesses during the project to the extent possible (recognizing that this was not required in the City's contract with MWHC).

The two steps for which actions have been initiated and are in progress include ensuring that:

- All invoices for payment are being reviewed for accuracy, compliance, timeliness, and coding. Additionally, there should be evidence to support that contractors' hourly rates were received and approved by project management. *[While there was evidence to support the construction manager has improved the review of invoices and transactions, we noted one instance when there was no evidence to support that the increased hourly rates charged by the design engineers were received and approved by project management (as required in the contract) and used to verify pay rates on an invoice.]*
- All acceptance and performance test results and documentation has been adequately collected, organized, and is being maintained in the City's records. *[AWT project management reported that the contractor has developed a process to ensure the test documentation will be uploaded to the system within 45 days after tests are completed. However, the Construction Manager has not yet verified that the submitted test documentation is complete and adequate. He indicated he will be performing verification procedures by January 31, 2014.]*

The completion date for these two remaining steps has been amended to March 31, 2014. We will address management's success in completing those steps in our subsequent follow-up engagement.

We appreciate the cooperation and assistance provided by the AWT project management and key staff from Accounting Services in completion of this audit follow-up.

Scope, Objectives, and Methodology

We conducted this audit follow-up in accordance with the International Standards for the Professional Practice of Internal Auditing and Generally Accepted Government Auditing Standards. Those standards require we plan and perform the audit follow-up to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit follow-up objectives.

Report #1312

The Office of the City Auditor has provided periodic reviews of the City's Advanced Wastewater Treatment (AWT) Project to provide assurance and advisory services related to project management activities for the purpose of assisting Underground Utilities management during the project's construction phase. Audit report #1312 reflected the results of our second audit of the City's AWT project. The objectives of the second audit were to:

- Report on the project status and accomplishments as of December 31, 2012.
- Determine compliance with City policies and procedures and contract requirements.
- Provide an independent assessment of project risk management, controls, goals, and expected deliverables.

The scope of that second audit included selected project management activities during the construction phase, with emphasis on financial oversight, acceptance and performance testing, and the implementation of the plant's enhanced

SCADA (supervisory control and data acquisition) network system.

The first audit of the AWT project (report #1102) covered the period January 1, 2010, through August 31, 2010, and tested selected financial transactions between August 1, 2006, and June 30, 2010. The second audit (report #1312) covered the period January 1, 2011, through December 31, 2012, and tested selected financial transactions during the period January 1, 2011, through September 30, 2012.

The audit scope for these two audits did not include an evaluation of the adequacy and quality of the engineering design and/or construction of the AWT facilities (TP Smith Water Reclamation Facility, referred to as TP Smith). Since the planning and acquisition phases for prime contractor and engineers had already been completed when we started the first audit, we focused our audit procedures on assessing project management controls and controls over the acquisition activities related to project expenditures during the audit period, including payments to contractors and procurement of labor, materials, and equipment.

Report #1406

This is our first follow-up on action plan steps identified in audit report #1312. The purpose of this follow-up is to report on the progress and status of efforts to complete action plan steps due for completion as of September 30, 2013. To determine the status of the action plan steps, we interviewed staff, made observations, reviewed relevant documentation, and performed limited testing of financial transactions.

Background

Advanced Wastewater System Project

The City's sanitary sewer collection system is comprised of approximately 900 miles of gravity pipe supported by 109 pumping stations using 140 miles of force main pipes. These pipes carry sewage (referred to as wastewater) completely separate from the stormwater system. Wastewater is transported from City homes and businesses to be treated at TP Smith. Before the AWT project, TP Smith operated three treatment "trains," i.e., separate processes that treat wastewater. Each train used a different aeration process based on the best-practices technology in place at the time of construction (1973, 1983, and 1991).

The AWT project involves an intensive overhaul of the TP Smith facility to implement the most current technology in treating wastewater, "Bardenpho biological nutrient removal process."

The chief purpose of the AWT project is to lower the total nitrogen levels to under 3.0 milligrams (mg) per liter of treated liquids and improve the quality levels of the produced biosolids to "Class AA" as specified in the Florida Department of Environmental Protection (DEP) permit and Court Administrative Order. Class AA biosolids are considered by DEP as the highest quality of biosolids and are distributed and marketed like other commercial fertilizers. The design changes to TP Smith involved structural, mechanical, electrical, and control improvements that would upgrade the facility to meet required treatment levels and accommodate the plant for future expansion of treatment capacity to 31.0 million gallons per day (MGD), when needed. Currently the City treats an average of 17.7 MGD.

Construction began in 2009 and is scheduled to be completed in January 2015. As construction phases are completed, the new or enhanced treatment facilities are being put into service.

Underground Utilities staff has continued to operate the TP Smith facility throughout the construction process and will continue to do so while the new buildings are constructed, upgrades are made to existing buildings, and new equipment is installed. Examples of project upgrades and renovations include:

- Renovation of the treatment "trains" to apply the Bardenpho biological nutrient removal process.
- Installation of a new anaerobic digestion system to stabilize biosolids before dewatering.
- Construction of additional clarifiers.
- Construction of new chlorine contact chambers to perform high-level disinfection. The use of chlorine gas was replaced with a commercial sodium hypochlorite system (placed in operation August 2011).
- Construction of a deep bed sand filter to meet the total suspended solids limits. Methanol is utilized as needed in the filter to reduce total nitrogen (placed in operation August 2011).
- Rehabilitation of the existing effluent pump station (completed August 2011).
- Replacement of dissolved air flotation structures with gravity belt thickeners to thicken biosolids.
- Installation of a new dryer to meet increased capacity needs and more reliably produce Class AA biosolids (installed January 2013).

The project has been funded through utility rate increases and bond financing. The City implemented sewer rate increases in three phases to support the bond financing for the project. Rate increases were effective April 2008, January 2009, and October 2010. Additional funding for the project was provided by proceeds of bond

issuances, not to exceed \$170 million, in 2007 and 2010.

Table 1 shows the amounts budgeted to the AWT project beginning in fiscal year 2007 and projected through 2014.

**Table 1
Historical and Planned
Budget for the AWT Project**

Fiscal Year	Amount Budgeted during the Fiscal Year	Project Budget Running Total
2007	\$ 25,263,917	\$ 25,263,917
2008	\$ 43,205,000	\$ 68,468,917
2009	\$ 73,198,000	\$141,666,917
2010	\$ 29,560,000	\$171,226,917
2011	\$ 42,047,200	\$213,274,117
2012	\$ 11,195,000	\$224,469,117
2013	\$ 1,982,800	\$226,451,917
2014	\$ 600,000	\$227,051,917

Source: Audit report #1312

The City’s project team consists of both City employees and consulting assistance led by the AWT Project Manager. City employees include Construction Manager, wastewater program engineers and inspectors, and administrative staff. Consulting employees include engineers and construction management professionals. The project team is tasked to monitor and oversee construction activities to ensure design plans are followed and construction quality is maintained.

Executive oversight of the project is the responsibility of the City Manager, Assistant City Manager for Utility Services, and Underground Utilities General Manager (Executive Management Team). The AWT Project Manager submits monthly project reports to the Executive Management Team to communicate the project status, successes, and challenges.

Since 2010, the AWT Project Manager has continued to provide oversight of the

Construction Manager and communicate with executive management. The Construction Manager performs the day-to-day management of the project, including review and approval of invoices, and management of the project team.

In report #1312, we provided the project status and accomplishments as of December 31, 2012. As of December 31, 2012, approximately 85% (\$193 million) of the original budgeted \$227 million had been expended on the AWT project and construction was estimated to be 85% complete.

Over 96% of expenditures incurred as of December 31, 2012, were recorded as construction, engineering, unclassified contractual services, and unclassified professional fees. The largest amount had been expended for the prime contractor for the AWT project, MWHC (70%), and ten (10%) percent had been expended for the prime engineering firm, Hazen & Sawyer.

We determined that as of December 31, 2012, the City had successfully achieved four of its six key project goals, including:

- ✓ There had been no major medical accidents or lost time due to accidents in over three years (1,235 days) of construction.
- ✓ The City was ahead of schedule for meeting the total nitrogen levels mandated by the DEP.
- ✓ The project was within the \$227 million budget and was projected to be completed within budget.
- ✓ The project had not incurred any permit violations.

In audit report #1312, we noted key areas where project management controls should be improved related to:

- Reviewing, tracking, approving, coding, and recording invoices (this issue was also reported in our first audit, report #1102).
- Recording of project assets and equipment in a timely manner (this issue was also reported in our first audit). In March 2013, adjustments were made to record \$124 million in completed AWT assets in the City's financial report as the result of this issue.
- Ensuring results of acceptance and performance testing are collected and maintained.
- Improving system controls over the network housing the TP Smith SCADA system.
- Ensuring there are processes in place to better monitor and verify the minority business enterprise (MBE) participation in construction projects and track local business participation.
- Ensuring there are project staff with adequate administrative capabilities to assist in overseeing the project's financial activities.

SCADA System

The TP Smith SCADA system is a central system that monitors data from various sensors located at strategic valve equipment and locations. One of the key processes of a SCADA is the ability to monitor an entire system in real time. Data collected is recorded and stored for historical and compliance reporting. In audit report #1312, we reported that a new network and SCADA system had been implemented and was operating in approximately 85% of the constructed facilities and operations.

A sewer treatment plant can be considered a key resource in the President's National Strategy for Homeland Security related to Critical Infrastructure, and therefore we did not include sensitive information and issues about this SCADA system in our audit report (#1312). Identified management and security issues related to the network and SCADA systems and applicable detailed information were instead provided to City management for their attention and resolution. City management developed a separate detailed action plan to address those SCADA issues.

Due to the sensitivity and confidentiality of key infrastructure resources, the SCADA-related action plan steps are being tracked separately and were not included in the scope of this follow-up engagement. We will follow up on those action plan steps accordingly and will report periodically on their status to the City's Information Technology Steering Committee and executive management.

Current Project Expenditures

Table 2, on the next page, provides the total project expenditures as of October 31, 2013. As of that date, approximately 91% (\$206 million) of the budgeted \$227 million has been expended on the AWT project. The majority (96%) of expenditures were recorded as construction, engineering, unclassified contractual services, and unclassified professional fees.

**Table 2
Project Expenditures by Account as of October 31, 2013**

Account Description	Amount	Percent of Total
Construction services	\$114,843,036	56%
Contract engineering services	\$28,534,972	14%
Unclassified contractual services	\$23,413,417	11%
Unclassified professional fees	\$30,978,854	15%
Salaries, wages, overtime and other salary items	\$2,722,776	1%
Direct overhead	\$1,885,732	1%
Unclassified supplies	\$1,256,250	.6%
Property insurance premiums	\$1,254,697	.6%
Miscellaneous (office related expenses and supplies)	\$1,745,796	.8%
Totals	\$206,635,530	100%
Percent of Total Project budget of \$227,051,917	91%	

96%

Source: City Financial System

Previous Conditions and Current Status

In audit report #1312, we reported that our assessment of project controls indicated that the majority of appropriate controls were in place to minimize project risks. We reported that some areas were identified where improvements should be made. Recommendations were made to assist management in addressing those areas. As previously noted in the background section of this report, those areas related to:

- Reviewing, tracking, approving, coding, and recording vendor invoices.
- Recording project assets and equipment in a timely manner.
- Ensuring results of acceptance and performance testing are collected and maintained.
- Ensuring there are processes in place to better monitor and verify MBE participation in

construction projects and to better track local business participation.

- Ensuring there are project staff with adequate administrative capabilities to assist in overseeing the project’s financial activities.
- Improving the system controls over the network housing the TP Smith SCADA system.

To address those areas (issues), management established nine action plan steps. One of those nine steps pertained to separate actions to be taken regarding the TP Smith SCADA system; as previously noted in this follow-up report, that action plan step is not addressed in this follow-up engagement.

Each of the other eight action plan steps was due for completion as of September 30, 2013. As shown in Table 3, six of those steps have been completed and actions are in progress to complete the remaining two steps.

Table 3
Action Plan Steps from Audit Report #1312
Due as of September 30, 2013, and Current Status

Action Plan Steps Due as of September 30, 2013	Current Status
<i>To ensure transactions and events relating to processing deliverables and contract payments are properly executed, classified, and recorded in a timely manner.</i>	
<ul style="list-style-type: none"> • Project management will coordinate with Underground Utilities Administrative staff to implement processes to ensure that project expenditures are reviewed for accuracy, compliance, timeliness, proper coding, and are accurately recorded (correct account and department). <i>[Report #1312 Action Plan Step A.1]</i> 	<ul style="list-style-type: none"> ❖ In progress. The Project Construction Manager is reviewing the invoices for accuracy, compliance, timeliness, and coding, and is monitoring the project expenditures. During this follow-up period, we selected four transactions to verify the expenditures were supported and reviewed by the Construction Manager. While there was evidence to support improvements of reviews of invoices and transactions, we noted one instance when there was no evidence to support the increased hourly rates charged for the design engineers were received and approved (as required in the contract) and used to verify pay rates on an invoice. Accordingly, we will review additional transactions during the next follow-up engagement to determine if this issue has been properly addressed.
<ul style="list-style-type: none"> • Project management will assess the administrative needs of the AWT project financial activities and staff capabilities. <i>[Report #1312 Action Plan Step A.2]</i> 	<ul style="list-style-type: none"> ✓ Completed. As reported in report #1312, the applicable AWT administrative staff position was moved from the AWT project office to the Underground Utilities Administrative Division. Because the project is in its final stages (over 90% of the project is completed) with relatively fewer transactions, the Construction Manager reported that he is able to perform the required financial activities with assistance as needed from the Administrative Division. Our review showed the Project Construction Manager is performing and/or providing oversight of the processing of project financial transactions. Accordingly, this step is completed.

<i>To ensure project capital assets are properly recorded in the City's records.</i>	
<ul style="list-style-type: none"> • Project staff will continue working with Accounting Services and Treatment Plant staff to implement a process to record constructed assets properly and timely in the City's financial system and plant's asset maintenance system. All assets currently in service will be recorded by August 31, 2013. Future assets will be recorded within 60 days upon being placed in service. <i>[Report #1312 Action Plan Step B.1]</i> 	<ul style="list-style-type: none"> ✓ Completed. As of September 30, 2013, we observed evidence to support that AWT project management worked with Accounting Services staff to add AWT project assets valued in excess of \$150 million into the City's PeopleSoft Financials System. There is a process in place to ensure the remaining assets are added to the financial system within 60 days upon being placed in service.
<ul style="list-style-type: none"> • Project staff should periodically reconcile the asset information recorded in the City's financial system and in the plant's asset maintenance system to ensure each is complete and accurate <i>[Report #1312 Action Plan Step B.2]</i> 	<ul style="list-style-type: none"> ✓ Completed and on-going. As the capital assets are added to the PeopleSoft Financials System, the Project Construction Manager sends the listing of assets to the TP Smith Operations Manager responsible for the application system tracking maintenance of equipment and assets at TP Smith. These managers work together to ensure that all applicable assets have been properly and correctly recorded in the asset maintenance tracking system and the PeopleSoft Financials System. Our review showed this process was implemented and management planned to periodically reconcile the assets in both systems throughout the remainder of the project. Accordingly, this step is completed
<i>To ensure test results and documentation are collected and retained.</i>	
<ul style="list-style-type: none"> • Construction Manager will work with the Design Engineer, per the contract with Hazen and Sawyer, to collect, organize, and maintain all acceptance and performance test results for the City's records. All testing completed to date will be provided by Hazen and Sawyer by June 28, 2013. All future testing will be provided within 45 days upon completion. <i>[Report #1312 Action Plan Step C.1]</i> 	<ul style="list-style-type: none"> ❖ In progress. The AWT Construction Manager reported that the contractor had provided the test documentation within an application system for City staff to access, and developed a process to ensure the test documentation was uploaded to the system within 45 days after tests are completed. However, the Construction Manager has not yet verified that the received test documentation is complete and adequate. He indicated he will be performing verification procedures by January 31, 2014. The completion date for this action plan step has been amended to March 31, 2014.

<i>To measure MBE and local participation in projects.</i>	
<ul style="list-style-type: none"> • The City will request that MWHC provide the monthly reports for MBE participation and the post-completion MBE affidavits for each Task Order. <i>[Note: The prime contractor is only obligated to provide MBE affidavits for payments to their subcontractors, not the subcontractors' payments to their sub-subcontractors.] [Report #1312 Action Plan Step D.1]</i> 	<ul style="list-style-type: none"> ✓ Completed and on-going. The AWT Construction Manager has implemented a process to request and review monthly MBE participation reports from the prime contractor on a periodic basis. Final payment affidavits were obtained for the completed work package. The Construction Manager indicated that he will continue this process and review of payments to MBE businesses throughout the end of the project as applicable.
<ul style="list-style-type: none"> • On the basis of the reports, the City MBE Office and Underground Utilities will follow up and coordinate efforts to conduct a cross sampling of MBE companies for documentation or confirmation that they were paid the reported amounts. Since the current Work Packages 2C and 3B do not include MBE goals on the basis of specialty construction, there is no need for future tracking and measurement of MBE work. <i>[Report #1312 Action Plan Step D.2]</i> 	<ul style="list-style-type: none"> ✓ Completed and on-going. The AWT Construction Manager has implemented a process to verify selected amounts reported being paid to MBE businesses by the prime contractor and subcontractors working on the AWT project Work Package 1. The Construction Manager indicated that he will continue this process and review of payments to MBE businesses throughout the end of the project as applicable.
<ul style="list-style-type: none"> • AWT Project Management Team staff will coordinate with MWHC to implement processes to track local contracts and spending to allow the local participation goal to be measured. <i>[Note: the contractor is not contractually required to track the local participation. It was a program goal, but not a contractual requirement.] [Report #1312 Action Plan Step D.3]</i> 	<ul style="list-style-type: none"> ✓ Completed. The AWT Construction Manager and MWHC have worked together to develop a process to report the amounts paid to local businesses (located in Leon, Wakulla, Jefferson, or Gadsden counties) on a quarterly basis. As of September 30, 2013, MWHC reported over \$1 million was paid to local businesses during the period March 1, 2013, through September 30, 2013, by MWHC and two subcontractors.

Table Legend:

- Issue to be addressed from the original audit.

✓ Action item addressed and resolved.

❖ In progress. Action item initiated but not completed.

Conclusion

Table 3 above shows six of the eight action plan steps due as of September 30, 2013, addressed in this follow-up engagement have been completed, and efforts are in progress to complete the remaining two steps. The completion dates for the two items in progress have been amended to March 31, 2014. Those two steps include ensuring that:

- All invoices for payment are reviewed for accuracy, compliance, timeliness, and coding. Additionally, there should be evidence to support that contractors' hourly rates were received and approved by project management.
- All acceptance and performance test results and documentation have been adequately collected, organized, and maintained for the City's records.

We appreciate the cooperation and assistance provided by the AWT project management and key staff from Accounting Services in completion of this audit follow-up.

Appointed Official's Response

City Manager:

I am pleased with the results of the latest follow-up on the AWT audit. The results reflect management's commitment to improvement and internal control. I appreciate the City Auditor's involvement and cooperation throughout the project.

Copies of this audit follow-up #1406 or audit report #1312 may be obtained from the City Auditor's website (<http://talgov.com/auditing>) or via request by telephone (850 / 891-8397), by FAX (850 / 891-0912), by mail or in person (Office of the City Auditor, 300 S. Adams Street, Mail Box A-22, Tallahassee, FL 32301-1731), or by e-mail (auditors@talgov.com).

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