Sam M. McCall, Ph.D., CPA, CGFM, CIA, CGAP
City Auditor

HIGHLIGHTS

Highlights of City Auditor Report #1102, a report to the City Commission and City management

January 6, 2011

Advanced Wastewater Treatment Project

As of this report, there have been no major worker medical incidents, and the project is currently within the amended budget and on schedule to meet the Total Nitrogen reductions per permit requirements.

WHY THIS AUDIT WAS DONE

This is the first of a series of audit reports on the Advanced Wastewater Treatment Project. The project's budget totals $227 million and estimated completion is January 2015. The purpose of this audit is to provide assurances and advisory services related to management activities; report on the project status and accomplishments as of August 31, 2010; and provide an independent assessment of risk management, project controls, project goals, and expected deliverables for financial transactions between August 1, 2006, and June 30, 2010.

WHAT WE RECOMMENDED

We provided the following recommendations to assist management in assuring that the project activities comply with City policies and procedures and contract requirements and incorporated project management best practices.

- To improve documentation of financial transactions to ensure compliance with City policies and procedures, we recommended invoices provide written approvals, be date stamped when received; transactions be reviewed to ensure correct department and cost accounts are accurate; and that necessary evidence be retained to support the expenditure as project related.
- To address the upcoming challenge of recording all project purchased and constructed assets in the City's financial and plant maintenance records, we recommended that staff continue their efforts to implement a process to record these assets properly and timely.
- To prevent the risk of losing critical data and negatively impacting operations, we recommended the AWT project include a backup and recovery plan for the enhanced SCADA system.
- To address the decreased project manager involvement in the AWT project, we recommended City management re-evaluate the project management needs of the project and determine how to ensure that the AWT Project is being effectively managed.

WHAT WE CONCLUDED

As of August 31, 2010, the AWT Project has encumbered/expended approximately 57% (approximately $129 million of $227 million) and construction is approximately 28% complete.

- Construction activities have not resulted in any major worker medical incidents (i.e., lost time due to worker accidents) in 378 work days.
- The project is currently within the amended budget and management anticipates the project will close within the final budget of $227 million.
- To date, all permit required Total Nitrogen (TN) reductions have been achieved on time, and project management reports that the project will meet the 6.5 mg/l and 3.0 mg/l TN levels in accordance with the permit required deadlines of January 2013 and January 2014.

Our assessment of project controls (shown in Report Table 7 beginning on page 10) indicated that the majority of project controls have been in place to minimize project risks. However, we did identify areas where improvements should be made and provided recommendations to assist management in assuring that the project activities complied with City policies and procedures and contract requirements and incorporated project management best practices.

Additionally, there is a pending legal challenge to the City's 2010 wastewater facility permit modification which could present a potential costly issue for the City. Should the outcome of the suit not be in favor of the City and Department of Environmental Protection (DEP), the City may need to make design changes that could delay construction, require additional construction, and increase the cost of the overall project. A ruling on the legal challenge should be known in early 2011.

To view the full report, go to:
http://www.talgov.com/auditing/auditreports.cfm

For more information, contact us by e-mail at auditors@talgov.com or by telephone at 850/891-8397.

Office of the City Auditor

Audit Report

CITY OF TALLAHASSEE
OFFICE OF THE CITY AUDITOR

Sam M. McCall, Ph.D.,CPA, CGFM, CIA, CGAP
City Auditor

Advanced Wastewater Treatment Project

Report #1102 ***January 6, 2011***

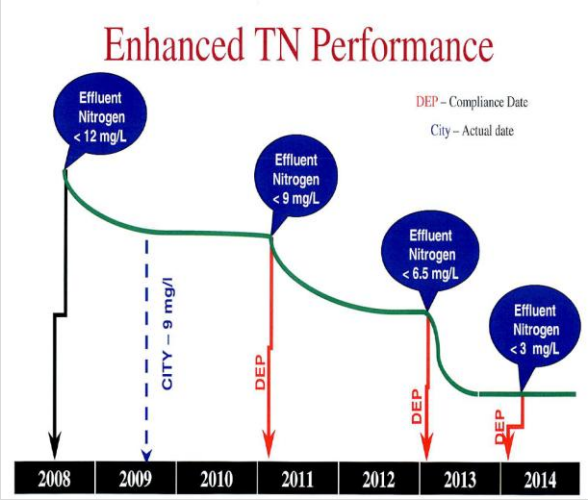
Summary

We are conducting an audit of the City's Advanced Wastewater Treatment (AWT) Project during the construction phase. Our objectives are to periodically provide assurances and advisory services related to project management activities; report on the project status and accomplishments; and provide an independent assessment of risk management, project controls, project goals, and expected deliverables. For this report, we reviewed project management activities from January 1, 2010, through August 31, 2010, and tested selected financial transactions between August 1, 2006, and June 30, 2010.

In summary, as of August 31, 2010:

- Construction activities have not resulted in any major worker medical incidents (i.e., lost time due to worker accidents) in 378 work days.
- The project is currently within the amended budget and management anticipates the project will close within the final budget of $227 million. This capital project is being funded through three incremental sewer rate increases occurring in 2008, 2009 and 2010, and utility revenue bonds. The project budget was revised and increased over the last three years based on the structural changes to enhance the City's overall treatment strategy and methodologies. As of August 31, 2010, the AWT Project has expended/encumbered approximately 57% of the authorized budget (approximately $129 million of $227 million budgeted) and construction is approximately 28% complete.
- Reductions in Total Nitrogen (TN) levels are ahead of schedule. Effluents (treated water) at the TP Smith facility met the 9.0 TN mg/l level in August 2009 that was required to be reached in January 2011 (as shown in Figure1 below). Project management reports that the project will meet the 6.5 mg/l and 3.0 mg/l TN levels in accordance with the permit required deadlines of January 2013 and January 2014.

Figure 1
Total Nitrogen Reductions and Target Dates



Source: Project Management documents

Our assessment of project controls indicated that the majority of project controls have been in place to minimize project risks. However, we have identified some areas where improvements should be made and provided recommendations to assist management in assuring project activities comply with City policies and procedures and contract requirements and incorporate project management best practices.

Areas where project management controls should be improved relate to: reviewing, tracking, approving, coding, and recording invoices; ensuring the most current design documents are being utilized by all parties involved (City staff, engineers, construction contractors and subcontractors); and recording of project assets and equipment. Due to recent changes in project

management responsibilities, executive management should re-evaluate project management needs and determine how to ensure that the AWT Project is being effectively managed. Details are provided in Table 7 beginning on page 10.

One additional issue was identified related to providing a secure off-site backup for critical operating system data collected at the TP Smith Plant. The AWT project team will be developing a backup and recovery plan to secure this data.

The City's March 2010 Wastewater Facility permit modification request to FDEP is being legally challenged. The permit modification requests extensions for the construction completion dates, but not for meeting the Total Nitrogen reduction levels. The City is continuing construction as submitted in the March 2010 permit modification. Should the outcome of the suit not be favorable to the City, design changes may need to be made that could delay construction and/or increase the cost of the overall project.

We would like to acknowledge the full and complete cooperation and support of management and staff from the Underground Utilities and City's engineering firms, Hazen & Sawyer and CH2M Hill, and prime contractor, MWH, Inc., during the audit and development of this audit report.

Scope, Objectives, and Methodology

The Office of the City Auditor is providing periodic reviews of the AWT Project to provide assurance and advisory services related to project management activities to assist Underground Utilities management during the project's construction phase. The audit is included in our 2010 and 2011 Audit Plans. We reviewed project management activities from January 1, 2010, through August 31, 2010, and tested selected financial transactions between August 1, 2006, and June 30, 2010.

Our objectives for this audit were to:

- Report on the project status and accomplishments as of August 31, 2010;
- Determine compliance with City policies and procedures and contract requirements; and
- Provide an independent assessment of risk management, project controls, goals, and expected deliverables.

Our audit scope included selected project management activities during the construction phase. The audit scope did not include an evaluation of the adequacy and quality of the engineering design and/or construction of the AWT facilities (TP Smith Treatment Plant). Since the planning and acquisition phases for prime contractor and engineers had already been completed, we focused our audit procedures on assessing project management controls and controls over the acquisition activities related to the project expenditures, including payments to contractors and procurement of labor, materials, and equipment.

To achieve our objectives, we reviewed key documentation, including City Commission agendas and meeting summaries, project manager periodic status reports and budget reports, Department of Environmental Protection (DEP) permits and reports, court documents, contracts, prime contractor bid documentation, and support documentation for transactions. We observed project management meetings with the major contractors, and conducted interviews with the project manager, project team members, contractors, executive management, and other key City staff with project related responsibilities. We also tested the appropriateness and compliance of sampled project expenditures related to construction services, materials, equipment, labor, and indirect expenses.

We conducted this audit in accordance with the International Standards for the Professional Practice of Internal Auditing and 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

Project Phases

All City capital projects follow similar life cycle phases. The phases related to the AWT project include:

Planning Phase – defining business problems; determining resource needs; identifying risks, costs, and benefits associated with each solution; developing a project plan; and obtaining funding.

Acquisition Phase – developing requests for proposals and evaluation criteria; evaluating proposals; selecting vendors; and negotiating contracts.

Construction (or Implementation) Phase – managing contracts and project staff; procuring equipment and materials; documenting project transactions and all changes to building designs; planning, performing, and documenting acceptance testing; preparing technical and user documentation; and putting the system into production (e.g., "commissioning").

Evaluation (or Post-Implementation) Phase – determining whether the completed product meets the planned and designed performance requirements; and measuring and evaluating the project successes and challenges (e.g., lessons learned) for future projects.

Underground Utilities

The City wastewater treatment facilities have the capacity to treat an annual average of 26.5 million gallons per day (MGD). Currently, the City treats an average of 17.7 MGD. The City's sanitary sewer collection system is comprised of approximately 675 miles of gravity pipe supported by over 85 pumping stations using 100 miles of force main pipes. These pipes carry sewage completely separate from the stormwater system. Sewage is transported from City homes and businesses to be treated at the TP Smith Water Reclamation Facility (TP Smith).

Wastewater, consisting of approximately 99% liquid and 1% solids, was previously also treated at a second treatment plant, Lake Bradford Road Wastewater Treatment Facility (Lake Bradford). In 2009, Lake Bradford ceased treating wastewater and began use only as a wastewater collection facility. Since fall 2009, all wastewater is sent to and treated at TP Smith through a series of processes, described below.

1. Wastewater enters the TP Smith plant at the Headworks facility where pretreatment consists of removing grit, sand, and debris (e.g., rags, sticks).
2. Initial nitrogen removal is accomplished by using microorganisms in a managed habitat (i.e., treatment "train" or system). TP Smith currently operates three treatment trains, each using a different methodology based on the best-practices technology in place at time of construction (1973, 1983, and 1991).
3. The majority of liquids (called effluents) are separated from solid residuals (called solids) through a settling process using clarifier units.
4. Effluents are disinfected using chemicals (currently chlorine gas, but this will be changed to commercial sodium hypochlorite during the AWT Project). Ninety-eight percent (98%) of the treated effluent currently meets "Part 2 Restricted Access Reuse" levels that can be disposed of either at the Southeast Sprayfield, where it is used to water farm plants to feed animals or to the Tram Road Reuse Facility, where it is used to water the Southwood Golf course and some school fields. The remaining 2% of the treated effluent is reused at the TP Smith Plant.
5. Solids go through multiple processes to remove the majority of liquids. These processes include using air bubbles, heat and oxygen removal (using anaerobic digesters), screw presses, and drying. Solids dried in large dryers are converted into fertilizer (referred to as Class AA biosolids) and can be sold. Solids that do not go through the drying process to meet the Class AA quality are transported to a Class B landfill.

Prior to the AWT project, TP Smith management was able to reduce the total nitrogen to 9.0 liters per MGD through minor process enhancements on treatment train #4 and enhanced training of plant operators.

Report on the Nitrate-N Movement in Groundwater into Wakulla Springs

In January 2004, the City Commission approved $300,000 to fund a three-year joint study of the impact of the City's effluent irrigation activities on the nitrate levels in groundwater and its relationship to nitrate concentration in some local springs.

The US Geological Survey released their "Report on the Nitrate-N Movement in Groundwater from Land Application of Treated Municipal Wastewater and Other Sources in the Wakulla Springs Springshed, Leon and Wakulla Counties, Florida

1966-2018" in May 2010. This study summarized the following:

> *Recent studies indicate nitrate-N from the City's sprayfield applications of treated effluents may be moving through the Upper Floridan aquifer to impact Wakulla Springs. Determining the link between nitrate-N application at the sprayfields and rising levels in Wakulla Springs was complicated because there are other sources of nitrate-N in the springshed, including atmospheric deposition, onsite sewage disposal systems, disposal of biosolids by land spreading, sinking streams, domestic fertilizer application, and livestock wastes*.

Initial results from the study reported to the City Commission in June 2007 indicated that the treated wastewater being disposed of at the City's sprayfields were a contributing factor to the increased nitrogen levels in Wakulla Springs.

To decrease the nitrogen loading to Wakulla Springs, the City took initial steps including eliminating land application of Class B solids at the airport property and eliminating cattle grazing at the Southeast sprayfield farm. Taking these changes into consideration, the geological study models show a "dramatic decline in nitrate-N load due to the planned reduction in nitrate-N in the wastewater."

2006 Wastewater Facility Permit Challenge and Settlement

In March 2006, the City's Domestic Wastewater Facility Permit (No. FLA010139) was challenged by the Florida Wildlife Federation, Florida Attorney General, Wakulla County Board of County Commission, and one Wakulla County citizen (collectively referred to as petitioners). The petitioners contested whether there were reasonable assurances that the permit contained conditions that would adequately protect the water quality in Wakulla Springs. Specifically,

- The nitrogen reductions of the effluents treated at TP Smith and Lake Bradford facilities were not low enough.
- There was not a nutrient management plan to lower the nitrogen levels of the treated effluents.

Mediation took place between the City and the Petitioners between September and December 2006. The final Settlement Agreement included key provisions for the City to lower Total Nitrogen (TN) levels by targeted dates, physical improvements to treatment plant facilities and construction timetables, quality levels of produced biosolids, and conduct feasibility studies related to increased reuse of treated effluents. In return, the petitioners agreed not to legally challenge, appeal, or in any other way impede or interfere with the issuance of a final permit regarding the conditions of this agreement. Additional details from the settlement agreement are provided in Appendix B.

To ensure compliance with the Settlement Agreement, the City was required to file an amended DEP permit application by January 15, 2007, that included terms set forth in the Settlement Agreement. The City and DEP considered the subsequently approved permit (dated January 28, 2007) the ruling document, thereby closing the Settlement Agreement. Appendix C shows the current status of the City's efforts toward complying with the permit.

2010 Wastewater Facility Permit Modification and Challenge

In 2009, City management re-examined the City's wastewater treatment plans and strategies and recommended changes to how the City's treatment facilities would be utilized in the future. The AWT Project management needed to revise the DEP permit to implement those strategies and to request extensions for the AWT Project construction deadlines.

Prior to submitting the permit modification request (between December 2009 and February 2010), the City's project team met with petitioners to notify them of the requested revisions and construction deadlines and address any issues or concerns that they might have. After meetings and sharing of information, the City submitted a permit modification application to the DEP in March 2010, requesting a 12-month extension on the installation of the new dryer and to complete construction for each treatment train.

The City did not request any extensions to the total nitrogen reduction schedule. Appendix C shows the DEP permit requirements and time schedule for the City treatment facilities, as well as any prior approved revisions and current requested revisions.

In April 2010, the Wakulla County citizen petitioner submitted a challenge to the City's

requested permit modification to DEP. The challenge is that the Settlement Agreement is still in effect and the City should not be able to seek permit modifications without getting approval from all petitioners. In addition to the challenge filed with the DEP, the petitioner filed a law suit against the City and DEP seeking a declaration that the settlement agreement is valid, binding, and enforceable on all parties. The City continues to declare that the City fully complied with the Settlement Agreement and it is no longer in effect, and the City shall not be prohibited from seeking revisions to the issued permits. DEP also claims that the Settlement Agreement was resolved and closed and permit revisions submitted to the DEP are to follow regular DEP review processes. A ruling on the legal challenge should be known in early 2011.

In the meanwhile, the City is continuing construction, as submitted in the March 2010 permit modification. Should the outcome of the suit not be favorable to the City and DEP, the City may need to make design changes that could delay construction and/or increase the cost of the overall project.

Project Description

Advanced Wastewater Treatment (AWT) Project

As described above, the FDEP permit issued in January 2007 prescribed structural improvements at their wastewater treatment facilities to lower nitrogen levels by targeted dates. The permit included nitrogen level targets and dates, construction timetables, quality levels of produced biosolids, and feasibility studies related to increased reuse of treated effluents. Subsequent to the Settlement Agreement, the AWT Project was officially initiated to address all of these components.

Initially, the AWT Project consisted of twelve smaller subprojects to fund and achieve AWT Project construction and nitrogen level goals and targets. In 2009, City management re-examined the City's wastewater treatment plans and strategies and recommended changes to how the City's treatment facilities would be utilized in the future. Management projected the changes would be more cost effective, while still complying with the FDEP permit conditions, specifically the lowered nitrogen levels. The design changes involved structural, mechanical, electrical, and control improvements that would upgrade the TP Smith facility to meet AWT treatment levels and accommodate future expansion of treatment capacity to 31.0 MGD. The latest revisions also eliminated all improvements and treatment capacity originally planned at the Lake Bradford facility.

In summer and fall 2009, additional changes were made in the City's management over the AWT Project, including:

- A new project manager with experience leading complex construction projects was assigned.
- Construction management assistance was procured from CH2M Hill, Inc (a global project delivery company including project management services).
- Funding and scope of twelve subprojects related to the AWT Project were merged into one AWT Project to facilitate more effective management of funds and activities.
- New cost estimates were obtained based on the proposed structural changes and a funding plan was designed. Table 2 on the next page shows the actual budgets (2007 – 2011) and planned budgets (2012-2014) for the AWT Project. The total project cost was increased to approximately $227 million.
- The original construction contract with the prime contractor (MWH Contractors) was a Construction Management at Risk (CMAR) agreement, whereby MWH Contractors would perform the work under a cost reimbursable basis with a guaranteed maximum price. The contract was amended to allow for the work to be done on a fixed price basis. Advantages of a CMAR contract is that the City receives pre-construction services such as schedule, budget, and constructability reviews and it allows the contractor to fast track early components of construction. The fixed price option allows for the defined construction work packages to be done on a fixed price basis if the parties agree. The AWT Project construction has been broken down into six defined work packages. Each package is bid and a fixed price is negotiated and approved. Management estimates that changing the project from the CMAR to fixed price option saved the City between $10-15 million in construction costs.

Table 1 provides a summary of the AWT construction work packages. Construction makes up approximately 80% of the total project budget of $227 million.

Table 1
Defined AWT Construction Work Packages

Work Package (WP) Description	Construction Budget
1 – Liquid Treatment Improvements	$ 67,733,675
2A - Biosolids I - Improvements	$ 22,305,948
2B – Biosolids II - Digester	$ 21,518,884
2C – Biosolids III – Dryer	$ 15,000,000
3A – Biological Nutrient Reduction I (BNR)– Preparation	$ 11,017,724
3B – BNR II – Converting treatment methodology (estimated budget)	$ 43,000,000
Total Estimated Construction Cost	**$ 180,576,231**
Percent of Total Project Budget	**80%**

Source: AWT Project contracts and budget documents

Appendix D in this report provides detailed information about each of the defined construction work packages.

The AWT Project involves an intensive overhaul of the TP Smith facility to implement the most current technology in treating wastewater, Bardenpho treatment methodology. The TP Smith facility will continue operating at 100% while new buildings are being constructed, upgrades are being made to existing buildings, and new equipment is being installed. Examples of project upgrades and renovations include:

- Each of the four treatment "trains" will be renovated to apply the Bardenpho treatment methodology.
- Additional clarifiers will be constructed.
- New chlorine contact chambers will be constructed to project high-level disinfection and the chlorine will be replaced with a commercial sodium hypochlorite system.
- A deep bed sand filter will be constructed to meet the total suspended solids limits. Methanol will be utilized as needed in the filter to reduce total nitrogen.
- The existing effluent pump station will be rehabilitated.
- Gravity belt thickeners will replace dissolved air flotation structures to thicken biosolids.
- A new anaerobic digestion system will be installed to further thicken biosolids.
- A new dryer will be installed to more reliably produce Class AA biosolids.

Originally, the City also planned to make similar structural improvements at the Lake Bradford treatment facility. During the City's re-examination of its wastewater treatment plans and strategies, the improvements at Lake Bradford facility were eliminated from the project. The City decided it was more cost effective to build new structures at the TP Smith facility when the capacity is needed at a future date, rather than renovate existing structures at Lake Bradford facility. The facility will continue to operate as a wastewater collection facility but not as a wastewater treatment facility. All wastewater treatment operations for the City will be conducted at the TP Smith facility.

Project Funding

The AWT Project is being funded through incremental increases to the base sewer rates and revenue bonds. In March 2008, the City Commission approved the increases to the base sewer rates to take effect in April 2008, January 2009, and April 2010. In August 2010, the City Commission authorized the issuance of Utility Revenue Bonds not to exceed $170 million. Table 2 shows the amounts budgeted to the AWT Project beginning in fiscal year 2007 and scheduled through 2014.

Table 2
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: Budget and Project Documentation

It is prudent for projects to include some contingency funds to provide adequate funding for construction "cost growth" (also called change

orders) during the project construction. Change orders can be due to owner's request, unforeseen circumstances, or engineering design errors. An industry standard for cost growth is approximately five percent. Table 3 shows the contingency amounts budgeted for the major work packages:

Table 3
Contingency Amounts Budgeted for Each Major Work Phase

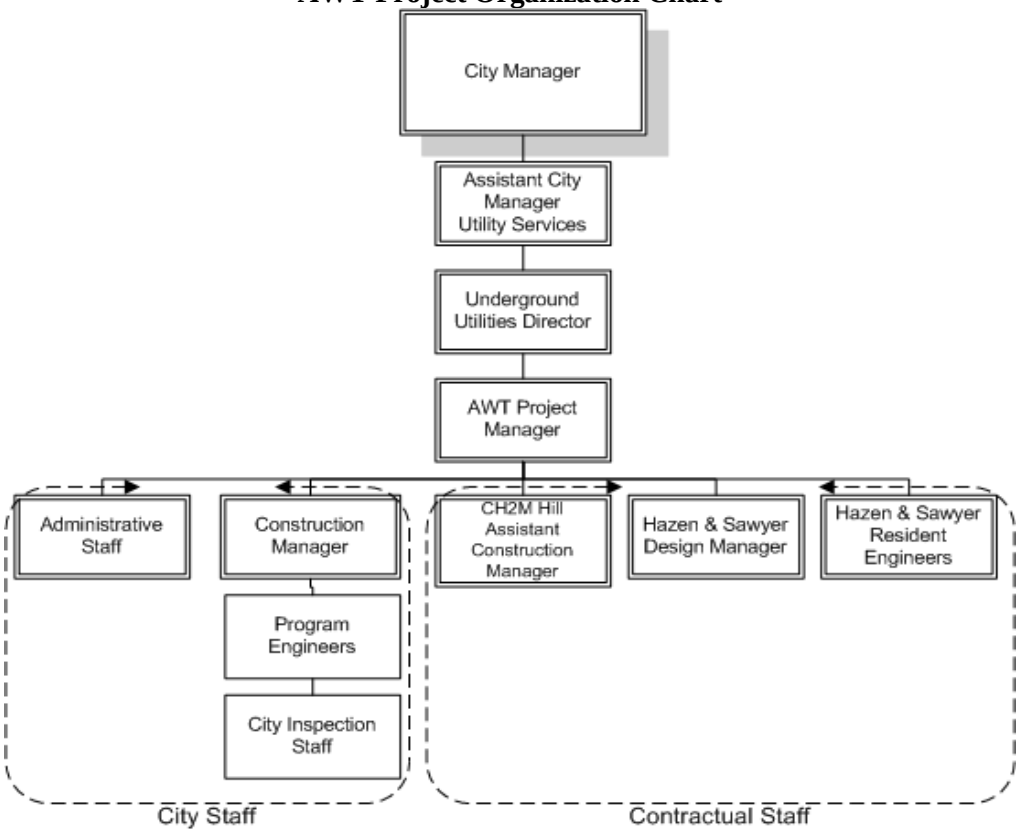
Work Phase	Budgeted Contingency	Percent of Construction Budget	Construction Budget
1	$3,500,000	5%	$67,733,675
2	$2,100,000	4%	$58,824,832
3	$1,800,000	3%	$54,017,724

As of August 31, 2010, change orders have been approved totaling $2,747,088 (2% of the total construction contracts $180,576,231). The AWT project is classified in the City as a Fast Track project (based on City Ordinance 09-O-13). As a Fast Track project, the City Manager is authorized to award contracts, purchases, and change orders up to the total project budget, $227 million. The Fast Track Program was designed to boost the local economy by allowing certain projects to move more quickly in procuring goods and services.

Project Team

The City's project team consists of both City employees and consulting assistance led by the AWT Project Manager. City employees include wastewater program engineers and inspectors. 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 Underground Utilities Director, Utility Services Assistant City Manager, and the City Manager. The AWT Project Manager submits monthly project reports to the Executive Management Team to communicate the project status, successes, and challenges. Figure 2 below provides the organization chart for the AWT Project team and executive management oversight.

Figure 2
AWT Project Organization Chart



Source: Project Documentation

Project Status and Accomplishments to Date

Table 4 provides the total project expenditures and outstanding encumbrances as of August 31, 2010. As of August 31, 2010, approximately 57% of the budgeted $227 million has been expended (32%) and encumbered (25%) on the AWT Project. The majority of expenditures have been construction and engineering (50% and 26%).

Additionally, Table 5 shows the amounts expended and encumbered on the AWT Project by vendor. The largest amount has been expended and encumbered for the prime contractor for the AWT Project, MWH Constructors, Inc. (68%). Sixteen (16%) percent has been expended and encumbered for and paid to engineering firms, Hazen & Sawyer (13%) and Carollo Engineers (3%), and 5% to Andritz Separation Inc., for the dryer equipment.

Table 4
Project Expenditures and Outstanding Encumbrances
by Account as of August 31, 2010

Account Description	Expended	Outstanding Encumbrances	Total Amount Expended & Encumbered as of 8/31/10	Total Percent Expended &Encumbered as of 8/31/10	
Construction Services	$ 36,346,798	$ 41,239,460	$ 77,586,258	60%	
Contract Engineering Services	$ 18,936,798	$ 6,060,262	$ 24,997,059	19%	
Unclassified Contractual Services	$ 11,973,845	$ 9,379,674	$ 21,353,519	17%	
Unclassified Supplies	$ 1,002,295	$ -	$ 1,002,295	1%	99%
Property Insurance Premium	$ 856,499	$ -	$ 856,499	1%	
Salaries	$ 853,570	$ -	$ 853,570	1%	
Direct Overhead	$ 834,922	$ -	$ 834,922	1%	
Miscellaneous Other Accounts	$ 1,405,087	$ 17,568	$ 1,422,655	1%	
Totals	**$ 72,209,813**	**$ 56,696,964**	**$ 128,906,777**	**100%**	
To date, Percentage of Project Budget: $227,051,917	**32%**	**25%**	**57%**		

Source: City Financial System

Table 5
Project Expenditures and Outstanding Encumbrances
by Vendor as of August 31, 2010

Vendor Name	Expended	Outstanding Encumbrances	Total Amount Expended & Encumbered as of 8/31/10	Total Percent Expended &Encumbered as of 8/31/10	
MWH Constructors, Inc	$ 43,958,966	$ 43,282,165	$ 87,241,131	68%	
Hazen & Sawyer, P.C.	$ 13,745,114	$ 3,373,393	$ 17,118,508	13%	
Andritz Separation Inc.	$ 674,983	$ 6,074,843	$ 6,749,826	5%	93%
CH2M Hill, Inc.	$ 2,964,656	$ 1,796,855	$ 4,761,511	4%	
Carollo Engineers, P.C.	$ 3,382,156	$ -	$ 3,382,156	3%	
All Remaining Vendors	$ 7,483,938	$ 2,169,708	$ 9,653,646	7%	
Totals	**$ 72,209,813**	**$ 56,696,964**	**$128,906,777**	**100%**	
To date, Percentage of Project Budget: $227,051,917	**32%**	**25%**	**57%**		

Source: City Financial System

To manage the various construction components, management has broken the major AWT construction components into six work contracts, referred to as work packages. Appendix D provides a brief description of each work package, budgeted cost for each, start and target completion dates, and percentage completion. As of August 31, 2010, the project is in the construction, (i.e, implementation)

phase for four of the six defined work packages. The engineering design for the remaining two work packages have been completed and management plans to develop and negotiate contracts for these in the future.

As of August 31, 2010, the AWT Project has expended/encumbered approximately 57% of the authorized budget (approximately $128 million of $227 million budgeted) and construction is approximately 28% complete.

Project Goals

Management developed six project goals at the beginning of the project. As of August 31, 2010, Table 6 shows the status of the project goals.

Table 6
Project Goals and Status as of August 31, 2010

Project Goal Description	Project Goal Met?
1. To complete the project in a safe manner, and not have any major medical accidents or lost time due to accidents.	Yes – there have been a few minor accidents, but no major medical accidents resulting in lost work time in 378 construction days.
2. Achieve Facility Permit schedule milestones to reach Total Nitrogen targets: TN level Month/Year TN @ 12 mg/l - July 2008 TN @ 9 mg/l - July 2011 TN @ 6.5 mg/l - Jan 2013 TN @ 3 mg/l - Jan 2014	 Yes Yes In process/on target In process/on target
3. Complete the project with • no permit violations • no unplanned operational disruptions.	Yes Yes (some minor disruptions, but no major disruptions)
4. Complete the project within budget	On target to meet the $227 million budget
5.a. Maximize local labor 5.b. Maximize MBE participation	To date, $13 million expended with local vendors To date, $3.2 million in contracts with MBE vendors which exceeds the $2.4 million goal
6. Upon completion, the treatment plants will meet Operational and Maintenance reliability and be sustainable.	In process and on target.

Note: (1) As of August 31, 2010.
Source: Project management

The success of the project as of the end of August 31, 2010, can be summarized as follows.

- √ There have been no major medical accidents or lost time due to accidents in over 378 days of construction.
- √ The City is ahead of schedule for meeting the total nitrogen levels mandated by the DEP.
- √ The project is currently within budget and is projected to continue to be within budget when the project closes in July 2015 (requested in current permit modification).
- √ The project has not incurred any permit violations or major unplanned operational disruptions.
- √ Project expenditures have benefited local labor and MBE businesses.

Management will continue to evaluate the project based on these performance goals throughout the project.

Project Management Controls and Compliance with Policies and Procedures

The most important factor influencing the outcome of a major construction project is how the project is managed. The City has two prevalent policies and procedures related to construction project management, Administrative Policy and Procedure #630, "Internal Control Guidelines" and City Commission Policy #218, "Capital Projects." These policies provide guidance to managers regarding basic controls and procedures that should be incorporated into project management processes.

Table 7 provides a listing of those relevant policies, controls, project management practices, and a description of how management has incorporated the control into the project processes.

In the following table, a "√" indicates the control was in place and the activity was completed. A "♦" indicates the control appears to be in place; but improvements could still be implemented and a "○"indicates the control is not in place. We have provided recommendations to management where improvements should be implemented.

Table 7
Policies, Procedures, Controls, and Practices
for Managing Major Construction Projects

Relevant Procedures & Controls	Status/Comments/Recommendations
Administrative Policies & Procedures (APP) #630, "Internal Control Guidelines" and City Commission Policy #218, "Capital Projects"	
There is direct activity management – including clear communication regarding team members' roles and responsibilities, staff accountability, approving work at critical points.	√ The AWT Project Manager is experienced in leading complex City construction projects. There are defined roles for project team members. The team regularly meets daily to discuss progress, issues, and upcoming plans and assignments. Additionally, key project team members (including both City staff and consultants) meet weekly with the prime contractor to discuss progress, issues, and upcoming inspections, plans, and assignments.
Management compares actual performance (i.e., expenditures, funding) to budgets and forecasts, and tracks major initiatives to measure the extent to which targets are being reached.	♦ The AWT Project Manager has been responsible for approving all project encumbrances and expenditures. He has regularly compared budget to actual performance using information extracted from the City's financial system. Audit comment: During our testing of expenditures, we noted that transactions were not consistently coded to the correct City accounts. This could result in inaccurate assessments when comparing budget to actual performance by accounts. We have brought this to management's attention so appropriate corrections can be made. We recommend that project staff review the accuracy of how transactions are coded and recorded in the City's financial system.
Transactions and events relating to processing deliverables and contract payments are properly executed, classified, and recorded in a timely manner.	♦ Project management has implemented a process to review, approve, and record expenditure transactions. To test the effectiveness of the process, we selected a sample of 60 expenditures charged to the AWT Project (including the earlier smaller projects that were merged into the AWT Project in October 2009) through June 30, 2010. The sample represented 25% of the total dollars expended as of June 30, 2010 ($14,644,105 of the total $59,054,593 expended). We noted the following areas where compliance with policies and procedures could be improved to support and record transactions: 1) Invoices should have written approvals and be date stamped when received to measure and ensure the timeliness of payments. 2) Transactions should be reviewed to ensure they are recorded to the correct department or cost account so the project budgets to actual cost comparisons are meaningful. 3) Expenditure documentation should support the expenditure was for an AWT Project purpose. We recommend that management adequately documents its review and approval of future project expenditures for accuracy, compliance, and proper coding and recording.

Key duties and responsibilities in authorizing, processing, recording, and reviewing transactions and events should be segregated among individuals to reduce the risk of error or inappropriate actions. No one individual should control all key aspects of a transaction or event.	♦ As described above, documentation of who reviews and approves expenditures needs to be improved. This will provide support that a proper segregation of duties exists.
Equipment, inventories, securities, cash, and other assets should be secured physically (by location, tagging, restricted access), and periodically counted and compared with amounts shown on control records.	√ There is evidence of a process of identifying inventories of equipment and materials delivered for the project construction.
On-going monitoring should be performed to ensure that employees, in carrying out their regular activities, obtain evidence as to whether the system of internal control is continuing to function. Department Director, or designee, shall encompass facilitation and oversight of project completion and management, execution and monitoring of project appropriation, opening, encumbrance, expenditure, transfers, supplemental appropriations, purchases, contracts, change orders, balance activities and project closing to effectively complete projects in the timeliest manner.	♦ To date, the project manager has been responsible for providing oversight of the project team's activities, and expenditure approvals and fiscal monitoring. <u>Audit Comment:</u> Due to the high level of construction activities currently in process at the AWT Project site at TP Smith, oversight of all project construction and financial activities is demanding and will continue to challenge the project manager and team. As discussed above, there are some improvements that should be made in processing expenditures to document, record and support transactions. <u>We recommend</u> that management periodically assess staffing levels and oversight processes to evaluate the effectiveness of project oversight.
Reviews should be made of actual performance versus budgets, forecasts, and prior periods. Major initiatives are tracked to measure the extent to which targets are being reached.	√ To date, there is evidence that the overall project schedule and budget have been closely monitored. Revisions to the budget and schedule have been requested as changes to the project scope have changed. To date the project is within the final approved budget of $227 million. √ The total nitrogen reduction are targets scheduled to be accomplished by the targeted completion date. ♦ The project's overall anticipated completion date was postponed one year to July 2012. The revised schedule has been submitted to DEP for approval.
Department directors are responsible for ensuring that all aspects of their projects comply with City policies and legal requirements, and that funds are expended for that which the project was intended.	√ To date, the AWT Project and TP Smith managers have complied with all DEP reporting requirements.
Department directors will be responsible for prohibiting deficits in their respective projects' total budget. Action should also be taken by department directors to avoid deficits in sub-projects and to correct them in a timely manner if they occur.	√ To date, the project budget amendments have been submitted and approved in a timely manner. Project expenditures are anticipated to be within the project's $227 million budget.

Department directors will be responsible for maintaining project completion dates on a current basis. This provides for a monthly review and update of project reports to ensure that no project is beyond its completion date as reflected in the PeopleSoft Financial System.	√ The AWT Project manager reports monthly to executive management and the PS financial system has been updated to reflect the changes in schedule. The current anticipated project end date in the financial system is September 2014. √ To date, the project completion schedules have been amended through one approved permit revision submitted to DEP. A second schedule and scope revision has been submitted to DEP and the City is awaiting approval. This second revision request is currently being challenged and is scheduled to be addressed in court December 2010.
Department directors will be responsible for ensuring the use of change order forms or contract amendment documents to fund change orders to contracts. The use of purchase orders as a device for contract change orders is prohibited.	√ The AWT Project Manager, construction manager, and administrative staff closely manage and track field change orders. Executive management has delegated authority to the project manager to approve change orders for minor extra work in groups up to $250,000 to cover minor issues that may come up during construction. The project manager communicates the changes to executive management for review before an additional $250,000 is authorized.
When the Commission approves a contingency for a project, the City Manager may authorize non-scope change orders up to the amount of the contingency. Any proposed non-scope change orders exceeding this amount shall trigger the need for Commission approval. The AWT Project is classified as a "Fast Track" project. City Ordinance 09-O-13, "Fast Track" provides authorization to the City Manager to award contracts, purchases, and change orders up to the total project budget, $227 million.	√ Each negotiated work package contract identifies a set amount for anticipated change orders (field changes). The project defines field changes as additional costs incurred as a result of changes in scope or unforeseen conditions. The City Manager has delegated authorization to the Director of Management and Administration to approve change orders for this project. The project manager is to communicate the requested changes for every $250,000 of changes. We conducted testing of 25% of the approximate $2.9 million in change orders and confirmed that the changes were appropriate and properly authorized, approved and documented. See Appendix D for the approved change order amount as of August 31, 2010.
Internal Control requires the design and use of adequate documents and records to help ensure the proper recording, design, and use of transactions and events.	♦ A separate document storage system is being utilized to store current and historical design documents. Controls over project design documents are the responsibility of the Design Manager (Hazen & Sawyer) and Prime Contractor (MWH). Audit Comment: To date, it has been a challenge to ensure that the most current design documents are being used by the prime contractor and all of the sub contractors, and there have been some instances where the most current document was not being utilized. Project management and contractors understand the importance of ensuring only the most current design documents are utilized and have implemented periodic comparisons of versions of design documents. We recommend the prime contractor implement processes to ensure the periodic comparisons are performed to minimize the risk that out of date design documents are not being utilized during construction. ♦ In process. Recording of assets purchased and constructed is the responsibility of the City staff. To

	date, a process has not been developed on how to track and record the constructed assets at TP Smith related to the AWT Project. DMA Accounting Services staff is working with TP Smith staff to develop a process to record the assets in the City's asset management system and in the plant's asset maintenance system to assist them in planning and tracking maintenance activities. Until construction of the assets is completed, Accounting Services is annually reporting the assets as construction-in-progress in the annual financial statements. Audit Comment: Since the project is still on-going, the individual assets do not need to be recorded immediately, however, we recommend that staff continue their efforts to implement a process to record constructed assets properly and timely in the City's financial system and plant's asset maintenance system. We also recommend that the information in the two systems be reconciled to ensure each is complete and accurate.
Performance indicators that relate different sets of operating or financial data to one another should be periodically analyzed.	√ Performance criteria to measure the success of the project were developed. See Table 6 on page 9 for each measure and status as of August 31, 2010.
Department directors or their designees to serve as managers of their respective capital projects. This responsibility shall encompass facilitation and oversight of project completion and management, execution and monitoring of project appropriation, opening, encumbrance, expenditure, transfers, supplemental appropriations, purchases, contracts, change orders, balance activities and project closing to effectively complete projects in the timeliest manner.	♦ On going. The designated project manager since October 2009 was the Electric Power Production Manager. The project manager provided on-site management and monitoring over all construction and contract activities with the assistance of project team members (consisting of consultants from Hazen & Sawyer and CH2M Hill and City staff skilled in the areas of engineering). Examples of these activities included assessing and managing project risks, monitoring contract deliverables (timing, cost, and quality), monitoring the project budget, managing and monitoring field changes, communicating with executive management, and negotiating contracts for additional construction work packages. Audit Comment: Since June 2010, the AWT Project Manager has also been tasked as the City's Interim Electric Utility General Manager. He has necessarily reduced his management and monitoring of the daily AWT Project construction activities. Decreased project manager involvement increases the risk that project management activities will not be as effective. We recommend City management re-evaluate the project management needs of the project and determine how to ensure that the AWT Project is being effectively managed.

Table Legend: √ Control in place to date; activity is on-going
♦ Control appears to be in place; but improvements could still be implemented.
o Control is not in place.

One additional issue related to system backup and recovery planning was noted while discussing the planning and design of the enhanced SCADA (supervisory control and data acquisition) system at the TP Smith plant. There is no current plan in the project to provide a secure off-site backup for SCADA data collected at the TP Smith Plant.

The TP Smith SCADA system is a central system that monitors data from various sensors located at strategic valve locations and equipment. 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. The backup and recovery plans for new enhanced SCADA are the same as for the current SCADA, which is periodic backups of the system are made and stored in the same vicinity as the operating servers housing the SCADA software and data.

Industry best practices recommend that businesses and government develop and implement backup and recovery plans for critical programs and data, including storing the backups in secure on-site and off-site locations. In order to prevent the risk of losing critical data and negatively impacting operations, we recommend the AWT project include a backup and recovery plan for the enhanced SCADA system.

Conclusion

Our assessment of project controls (shown in Table 7) indicated that the majority of project controls have been in place to minimize project risks. However, we have identified areas where improvements should be made and provided recommendations to assist management in assuring that the project activities complied with City policies and procedures and contract requirements and incorporated project management best practices.

Our report described the Advanced Wastewater Treatment (AWT) project phases, strategies, and activities; communicated the project's status and accomplishments as of August 31, 2010; evaluated the status of the project's goals and expected deliverables; and assessed the project controls observed and evaluated during the period January 1, 2010, through August 31, 2010.

As of August 31, 2010, the AWT Project has encumbered/expended approximately 57% (approximately $129 million of $227 million) and construction is approximately 28% complete.

The pending legal challenge to the City's 2010 wastewater facility permit modification presents a potential costly issue for the City. Should the outcome of the suit not be in favor of the City and DEP, the City may need to make design changes that could delay construction, require additional construction, and increase the cost of the overall project. A ruling on the legal challenge should be known in early 2011.

We would like to acknowledge the full and complete cooperation and support of management and staff from the Underground Utilities and City's engineering firms, Hazen & Sawyer and CH2M Hill, and prime contractor, MWH, Inc., during the audit and development of this audit report.

Appointed Official's Response

City Manager Response:

I am pleased to see that the results of this initial audit of the City's AWT project are generally positive and indicate that the project is proceeding in compliance with City policies and procedures, particularly those for internal controls and also that the project is currently on schedule and within budget. Once completed, this major project will provide significant environmental benefits to our community and Wakulla Springs and continues the City's strong commitment to environmental stewardship. This project is the single largest project undertaken by the City, and I believe that the real-time review of the project by the Auditor's Office will contribute significantly to its ultimate quality and success.

Copies of this audit report #1102 may be obtained from the City Auditor's website (http://talgov.com/auditing/index.cfm) 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).

Audit follow-up conducted by:
Beth Breier, CPA, CISA, Audit Manager
Sam M. McCall, Ph.D., CPA, CGFM, CIA, CGAP, City Auditor

Appendix A – Management's Proposed Action Plan

Action Steps	Responsible Employee	Target Date
A. Objective: ***To ensure transactions and events relating to processing deliverables and contract payments are properly executed, classified, and recorded in a timely manner.***		
1. A process should be implemented to ensure that: a. Project expenditures are reviewed for accuracy, compliance, timeliness, proper coding and recording (correct account and department), and approvals are adequately documented.	Jim Oskowis, Water Utility Jessica Miller, Water Utility	On-going until project completed
B. Objective: ***To ensure staffing levels are appropriate to monitor project activities.***		
1) Project Management should periodically assess staffing levels and oversight processes to evaluate the effectiveness of project oversight. 2) City management should periodically re-evaluate the project management needs of the project and determine how to ensure that the AWT Project is being effectively managed.	Jim Oskowis, Water Utility Mike Tadros, Underground Utility	As necessary throughout project
C. Objective: ***To ensure project capital assets are properly recorded in the City's records.***		
1) Project staff continues 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. 2) A process should be implemented to 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.	Jessica Miller, Water Utility Nico Lauw, Water Utility Rick Feldman, Accounting Services	On-going until project completed 3/1/2011
D. Objective: ***To ensure SCADA system information is adequately protected.***		
1) Develop a backup and recovery plan for the enhanced SCADA system and include the plan in the AWT project.	Dennis McGee, Water Utility	4/1/2011

APPENDIX B
Key Provisions from the Settlement Agreement

Below is provided the key Provisions from the Settlement Agreement between the City, Department of Environmental Protection and Petitioners (Florida Wildlife Federation, Florida Attorney General (Intervener), and one Wakulla County citizen). [Source: Florida Division of Administrative Hearings (DOAH) Case Nos. 06-1252, 06-1253 and 06-1254 Settlement Agreement, signed by all parties on December 19, 2006.]

1. The City will file an amended application to DEP to upgrade its entire wastewater treatment system to meet the following annual average treatment standards in the City's domestic wastewater prior to application at the Southeast Sprayfield:

   i. Carbonaceous Biochemical Oxygen Demand (CBOD) - 5 mg/L
   ii. Total Suspended Solids (TSS) - 5 mg/L
   iii. Nitrogen - - 3 mg/L
   iv. Phosphorus - - 2.5 mg/L
   v. Bacteriologicals – high-level disinfections (as specified in Rules 62-600-440(5) and 62-610.460, F.A.C.)

2. The City committed to timely physical upgrades at Lake Bradford and TP Smith to include screening technology enhancements, new aeration technology with methanol addition, high level disinfections, nitrification removal filters, and installation of new digesters, gravity belt thickeners, and additional dryers.

3. All biosolids produced by the City shall be slow release, coated, granular Class AA biosolids.

4. Regarding reuse and disposal, the City will be allowed to continue to dispose of treated water at the SE Sprayfield at the currently permitted gallons per day capacity and application rate, maximize uniform application at all dispersion points, and develop and utilize only specific types of vegetative cover most effective in reducing nitrogen at the SE Sprayfield. The City also agreed to seek additional public access reuse areas for application of treated water from both treatment plants. Included in seeking additional public access reuse areas, the City was to undertake a reuse feasibility study within one year of permit issuance to evaluate reuse water demand; identify potential reuse water users; evaluate the feasibility of providing reuse water to those areas identified, calculate capital and operating costs, and report the study findings to DEP.

5. The City agreed to implementation schedules related to construction, biosolids improvements, and nitrogen reduction. This schedule and status are provided in Attachment C.

6. The City committed to file an amended DEP permit application by January 15, 2007; respond to DEP expeditiously to any requests for additional information; and submit all applications, documentation, correspondence, etc., to the Wakulla County Administrator.

7. The parties involved agreed that the final permit issued by DEP:

   - Prohibits the City from land applying biosolids within the Wakulla Springs basin.
   - Prohibits the City from applying supplemental fertilizer at the sprayfields.
   - Requires the City to adhere to the Best Management Practices applicable to application of pesticides and herbicides at the sprayfields.
   - Shall not prohibit the marketing and use of slow release, coated, granular Class AA biosolids as fertilizer in the Wakulla Springs basin.
   - Contains monitoring conditions as set forth currently in the proposed permit.
   - Contains additional effluent monitoring conditions in order to verify compliance with the treatment levels proposed in Settlement Section Part I.A. and Nitrogen reduction schedule in Section Part I.D.iv.
   - Establishment of a Wakulla Springs Watershed Protection Committee. This committee shall be able to annually review and provide comment regarding environmental issues pertinent to Wakulla Springs particular to all permitted wastewater treatment facilities; groundwater quality, cooperative and regional solutions to adverse pollution on Wakulla Springs caused by humans, and opportunities for state and federal funding to improve the environmental quality of Wakulla Springs.

8. Both sides agree not to legally challenge, appeal, or in any other way impede or interfere with the issuance of a final permit regarding the conditions of this agreement.

APPENDIX C
DEP Permit Requirements and Time Schedule for City Treatment Facilities

(NLT = No longer than)
TP Smith Wastewater Facility

Item #	FDEP Description of Permit Requirement	FDEP Due Date	City's Current Status
1	Undertake a feasibility study to evaluate reuse water demand for reclaimed water from Lake Bradford Road WWTP and TP Smith WRF. The study should identify potential users, evaluate feasibility of providing reuse water to such entities, and calculate capital and operating costs for PART III reclaimed water reuse system	NLT 12 months (January 2009)	√ **Completed**. A Reuse Feasibility Analysis Report was completed in March 2009.
2	Submit results of the above reuse feasibility study to the FDEP	NLT 15 months (April 2009)	√ **Completed.** A Reuse Feasibility Analysis Report was completed and submitted in March 2009.
3	Complete Upgrade to Biosolids Treatment to produce all Class AA biosolids	*NLT 36 months (January 2011)* *Revised to: NLT 48 months (January 2012)*	♦ **In process.** Construction in progress and Dryer ordered. Dryer installation is anticipated to be completed in July 2012. *The City has requested an additional 12-month extension to 60 months, January 2013. FDEP approval is pending.*
4	Complete construction of and place into full operation the approved Treatment Train upgrade modifications specified in the permit application and Preliminary Design Report over a ~~5½~~ *6* year period as indicated to the right. Treatment Trains shall be completed in order as needed to meet required treatment limits and completion dates. *(Revised)*	~~*First Train - NLT 42 months (July 2011)*~~ *Revised to: NLT 48 months (January 2012)*	♦ **In process.** Construction design completed and scheduled to begin in June 2011. *The City has requested an additional 12-month extension to 60 months, January 2013*. *FDEP approval is pending.*
		~~*Second Train - NLT 54 months (July 2012)*~~ *Revised to: NLT 60 months (January 2013)*	♦ **In process.** Construction design completed and scheduled to begin in October 2012. *The City has requested an additional 12-month extension to 72 months, January 2014*. *FDEP approval is pending.*
		~~*Third Train - NLT 66 months (July 2013)*~~ *Revised to: NLT 72 months (January 2014~~*)*	♦ **In process.** Construction design completed and scheduled to begin in September 2013. *The City has requested an additional 12-month extension to 84 months, January 2015. FDEP approval is pending.*
5	Reduce Total Nitrogen (TN) in reclaimed water reaching Southeast Farm sprayfields (R-001 and R-003) and Southwest Sprayfield (R-002). TN is to be reduced from 12.0 to 3.0 mg/L over a 72 month period as indicated to the right	12.0 mg/L NLT 6 months (July 2008)	√ **Completed** on time
		9.0 mg/L NLT 36 months (January 2011)	√ **Completed**. Achieved in August 2009.
		6.5 mg/L NLT 60 months (January 2013)	♦ **In process** and on schedule
		3.0 mg/L NLT 72 months (January 2014)	♦ **In process** and on schedule
6	Comply with final reclaimed water AWT limits specified in DEP Permit No. FLA010139 referenced above (Section III.2)	NLT 72 months (January 2014)	♦ **In process** and on schedule

Source: FDEP Permit No. FLA010140, issued January 29, 2008, *revised on March 10, 2009,(revisions shown in italics)* and the March 24, 2010 revision request.

APPENDIX C (Continued)
DEP Permit Requirements and Time Schedule for City Treatment Facilities

Lake Bradford Wastewater Facility

Item #	FDEP Description of Permit Requirement	FDEP Due Date	City's Current Status
1	Undertake a feasibility study to evaluate reuse water demand for reclaimed water from Lake Bradford Road WWTP and TP Smith WRF. The study should identify potential users, evaluate feasibility of providing reuse water to such entities, and calculate capital and operating costs for PART III reclaimed water reuse system.	NLT 12 months (January 2009)	√ **Completed**. A Reuse Feasibility Analysis was released March 2009.
2	Submit results of the above reuse feasibility study to the Department	NLT 15 months (April 2009)	√ **Completed.** A Reuse Feasibility Analysis was released March 2009.
3	Complete construction of and place into full operation the approved treatment plant upgrade modifications specified in the permit application and Preliminary Design Report	NLT 30 months (July 2010) *Revised to NLT 54 months (July 2012)*	X ***Requested Deferral. The City is requesting to indefinitely defer*** *the completion of item #3 and #4 due to the City's evaluation that upgrading the LBR treatment facility is not cost effective or necessary. Based on revised capacity needs, the 4.5 MGD treatment capacity previously provided at LBR facility is not needed. In the future, it will be more cost effective to expand the TP Smith treatment facility to provide any additional capacity needs rather than retrofitting the existing older LBR treatment facility. The LBR facility is not currently used to treat wastewater and will not be used to treat wastewater in the future without the required upgrades. FDEP approval is pending.*
4	Comply with final reclaimed water AWT limits specified in DEP Permit No. FLA010140 referenced above (Section III.2)	NLT 36 months (January 2011) *Revised to NLT 60 months (January 2013)*	

Source: FDEP Permit No. FLA010140 issued January 29, 2008.

APPENDIX D – AWT and Other Contractors Construction Work Packages

Project Work Package Description	Date Construction Started or Scheduled to Start	Date Construction Completed or Scheduled to be Completed	Percent completed as of 8/31/10	Original Construction Budget	Approved Field Change as of 8/31/10 (1)	Value Engineering Savings as of 8/31/10 (2)	Amended Budget as of 8/31/10
Preliminary Project Work - Select demolition and site work, and pond relining and repair.	February-2009	September - 2009	100%	$7,237,177	$0	$0	$7,237,177
Preliminary Improvements to Train 3	February - 2010	March 2011	42%	1,047,116	$0	$0	$1,047,116
1 – WP 1 "Liquid Treatment Improvements" Includes site work preparation, piping, and/or construction for the headworks facility, dewatering facility, methanol feed facility, effluent storage ponds 1-7, primary clarifiers, digested sludge tanks and odor control, gravity thickening tank.	September -2009	Aprilr-2011	62%	$65,088,524	$2,984,066	($338,915)	$67,733,675
2 – WP 2 "Solids" has 3 sub-phases							
WP 2A - Phase I Biosolids Improvements - Includes construction of belt thickening facility, sludge thickening tank, dewatering facility, sludge holding tanks and odor control facilities.	June-2009	October-2011	26%	$22,225,211	$80,737	$0	$22,305,948
WP 2B - Phase II Solids (Digester) Includes modifications to existing digesters (will be #3,4, and WAS storage tank), 2 new digesters, new waste gas burner, site work, and demolition of existing waste gas burners and various piping and utilities.	September-2010	December - 2011	7%	$21,497,674	$21,210	$0	$21,518,884
WP 2C - Phase III Solids (Dryer) - Includes the construction of a new dryer facility and the purchase and installation of a new dryer facility.	December -2010	January-2012	n/a	$15,000,000	$0	$0	$24,749,826
3 – WP 3 has 2 sub-phases, Biological Nutrient Reduction (BNR) Upgrades							
WP 3A – Involves early site preparation work preparing for the BNR modifications, including investigative and relocation work.	September -2010	December-2011	7%	$11,017,724	$0	$0	$11,017,724
WP 3B – Involves converting the treatment "trains" methodology to 4-stage activated sludge treatment (called Bardenpho or BNR method, utilizing fine bubble diffusers to more efficiently remove the nitrates and treat the waste)	Summer 2011	January-2014	n/a	$43,000,000	$0	$0	$43,000,000

Note 1: Field changes are additional costs incurred as a result of changes in scope or unforeseen conditions.
Note 2: The contracts with MWH provide for shared (70% City / 30% MWH) savings of the net savings for any cost savings measures initially identified by MWH and agreed to by the City.

Source: City financial system, contracts, project documentation, and project manager.

APPENDIX E - TP Smith Wastewater Treatment Facility