

Audit

Follow-up

As of March 31, 2008



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

Gas Infrastructure

(Report #0727 issued September 13, 2007)

Report #0810

May 30, 2008

Summary

The Gas Utility and other City departments have completed the eight action plan steps due for completion as of March 31, 2008. Six additional steps that were due subsequent to that date have also been completed.

In audit report #0727 we noted that, overall, the City has adequate and proper processes and procedures to ensure a safe and reliable infrastructure. We also noted that significant improvements and enhancements had been and were being made in regard to accounting for and tracking that infrastructure. We reported that installations of new infrastructure met federal and state requirements and that expansions and replacements were planned and funded. We reported that an effective public protection program was established. However, we also identified areas where improvements and enhancements were needed. Accordingly, recommendations were made to install an additional isolation valve, accurately designate critical valves in the Gas Utility geographic information system (GIS), develop a project management plan for refinement of the Gas Utility's GIS, protect stored pipe from environmental elements, ensure timely repair of leaks, and enhance monitoring of system pressures at a satellite utility facility. Recommendations were also made to improve documentation in several areas, including

infrastructure testing and inspection, leak identification and repair, emergency notifications and responses, and other areas.

Twenty-seven action steps were developed to address the identified issues, for which eight were due for completion as of March 31, 2008. In our follow up we found that the Gas Utility (in conjunction with the Municipal Supply Center and Station 21, a satellite utility facility) has completed each of those eight steps and an additional six steps that were due for completion subsequent to that date. Actions that were completed included:

- A new isolation valve was installed at one of the gas regulating stations as prescribed by Public Service Commission (PSC) rules.
- The Gas Utility GIS was updated to properly and clearly depict critical (key and isolation) valves.
- Staff reassignments were made and management overview enhanced to ensure proper and timely testing of the cathodic protection system, and adequate tracking and timely repair of identified leaks.
- Monitoring of gas system pressures was enhanced at Station 21 through training and reestablishment of audible system alarms.

- Processes were established to ensure that dispatches of and responses to gas emergency notification are better documented and tracked.
- Updated pipe specifications and reorder points and quantities were identified and entered into the PeopleSoft Financials system.

We commend the Gas Utility, along with the MSC and Station 21, for their efforts and initiative in the timely completion of those action plan steps.

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 that 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 that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit follow-up objectives.

Report #0727

The scope of report #0727 included a review of the Gas Utility’s processes established to install (construct), maintain, protect, and account for the City’s gas infrastructure. The objectives were to determine whether:

- Adequate and complete records were maintained to enable the Gas Utility to effectively and efficiently track, monitor, and manage the City’s gas infrastructure;
- The Gas Utility has a process in place to ensure that additions (expansion and replacement) meet federal and state standards;

- The Gas Utility has a process in place to ensure gas infrastructure is safely and appropriately maintained;
- An adequate public protection program is maintained; and
- The Gas Utility has an adequate process for planning and funding gas infrastructure expansion and replacement.

The audit focused on programs and processes that were in effect during the time of our initial audit fieldwork in winter and spring 2007.

Report #0810

This is our first follow-up on action plan steps identified in audit report #0727. The purposes of this initial follow up is to report on the progress and status of efforts to complete action plan steps due for completion as of March 31, 2008. To determine the status of the action plan steps, we interviewed staff, made observations, and reviewed relevant documentation.

Background

The City’s Gas Utility was established in 1956. At the time of our initial audit, the infrastructure for that utility was comprised of:

- Four gate stations;
- 780 miles of gas mains;
- 18 regulating stations;
- 27,925 service points;
- Approximately 6,900 gas valves; and
- Other miscellaneous components such as test stations and anodes, odorizing equipments, etc.

The City’s gas pipelines (mains and service lines) are made up of either coated steel or polyethylene plastic. Polyethylene plastic is generally used for medium and low pressure lines while steel is used

for all high pressure lines. Polyethylene plastic and steel pipe used for gas pipelines must be manufactured in accordance with specifications provided in governing federal regulations.

An independent contractor performs the vast majority of infrastructure expansion and replacement. Occasionally, City staff installs or replaces gas mains or other infrastructure for minor jobs or projects.

The primary authority controlling and regulating the City's gas infrastructure is the United States Department of Transportation, Office of Pipeline Safety. The State of Florida, Public Service Commission establishes additional regulations.

For fiscal years 2002 through 2006 (five-year period), the City incurred costs of approximately \$7.9 million to maintain and operate the City's Gas Utility (exclusive of fuel costs). During that same five-year period, the City expended approximately \$14.5 million through ten capital projects for infrastructure expansion and replacement.

Previous Conditions and Current Status

In report #0727, we noted that, overall, the City has adequate and proper processes and procedures to ensure a safe and reliable infrastructure. We also noted that significant improvements and enhancements had been and were being made in regard to accounting for and tracking that infrastructure. We reported that installations of new infrastructure met federal and state requirements and that expansions and replacements were planned and funded. We reported that an effective public protection program was established. However, we also identified areas where improvements and enhancements were needed. As a result, we recommended that:

- A project management plan be developed to assist in the refinement of the Gas Utility's geographic information system (GIS) as part of the on-going "Automation Implementation" capital project;
- Pipe stored at the City's Municipal Supply Center (MSC) be better protected from environmental elements;
- An additional isolation valve be installed at one of the City's 18 regulating stations, and the integration of other regulating station isolation valves into the GIS;
- The cathodic protection system (protects underground metallic pipe and components from corrosion) be tested at the required frequencies and intervals, and records of those tests be better documented;
- Training be enhanced for non-Gas Utility staff inspecting gas service lines for atmospheric corrosion;
- Grade 2 and 3 gas leaks (which do not represent immediate threats to public safety) be timely repaired, and better records be maintained to track and monitor the status of leaks and related repairs;
- Critical infrastructure valves be designated in the GIS;
- Upon completion of a system upgrade, Station 21 staff (satellite City utility facility) be trained in their expected roles in monitoring system pressures and system alarms at that facility be reestablished;
- Emergency notification dispatches and responses be better documented; and
- Documentation be improved in other areas, including, for example, pipe specifications, reorder points and quantities, atmospheric corrosion, and valve inspections.

Twenty-seven action plan steps were developed to address the identified issues. Of those 27 steps, 8 were initially due for completion as of March 31, 2008. Table 1 that follows provides a summary of those 8 action plan steps and their current status, as well as the summary and status of 6 additional steps not due as of March 31, 2008, but nonetheless completed as of that date.

**Table 1
Action Plan Steps from Audit Report #0727
Due (or Otherwise Completed) as of March 31, 2008, and Current Status**

Action Plan Steps Due (or Otherwise Completed) as of March 31, 2008	Current Status
Ensure proper materials are obtained and safeguarded	
Gas Utility	
<ul style="list-style-type: none"> Updated pipe specifications will be provided to the MSC for all pipe materials and sizes. 	<ul style="list-style-type: none"> ✓ Completed. The Gas Utility submitted updated and complete specifications for all pipe materials to the MSC.
<ul style="list-style-type: none"> Appropriate reorder points and quantities will be determined for current circumstances and provided to MSC. 	<ul style="list-style-type: none"> ✓ Completed. The Gas Utility determined appropriate reorder points and quantities under current circumstances and provided that information to MSC.
Municipal Supply Center (MSC)	
<ul style="list-style-type: none"> The PeopleSoft Financials system will be updated upon receipt of updated pipe specifications from the Gas Utility. 	<ul style="list-style-type: none"> ✓ Completed. Upon receipt of the applicable information from the Gas Utility, updated pipe specifications were entered into the PeopleSoft Financials system.
<ul style="list-style-type: none"> Upon receipt of recommended quantities from the Gas Utility, reorder points, quantities, and suggested maximum inventory levels will be adjusted in the PeopleSoft Financials system. 	<ul style="list-style-type: none"> ✓ Completed. Upon receipt of the applicable information from the Gas Utility, MSC staff adjusted reorder points, reorder quantities, and suggested inventory levels in the PeopleSoft Financials system.
Ensure proper valve placement and records for regulating stations	
Gas Utility	
<ul style="list-style-type: none"> For the one regulating station, constructed subsequent to 1974 and identified on audit as not having an isolation valve located no more than 500 feet upstream from the station, an additional valve will be installed in accordance with PSC requirements. 	<ul style="list-style-type: none"> ✓ Completed. The Gas Utility installed the required isolation valve.
<ul style="list-style-type: none"> The Gas Utility will ensure that isolation valves for other regulating stations (i.e., stations not selected for audit) are properly located in accordance with PSC regulations. Additional valves will be installed at those other stations if warranted. 	<ul style="list-style-type: none"> ✓ Completed. The Gas Utility ensured that isolation valves are properly located for the regulating stations not selected for audit. Those isolation valves are reflected in the GIS.
<ul style="list-style-type: none"> The three applicable regulating station isolation valves will be incorporated into the Gas Utility GIS. 	<ul style="list-style-type: none"> ✓ Completed. The Gas Utility accurately incorporated the three valves into the GIS.

Ensure proper cathodic protection for metallic mains and service lines	
Gas Utility	
<ul style="list-style-type: none"> Gas Utility Maintenance Division management will periodically obtain and review records of tests performed to ensure that applicable staff is performing and documenting required testing of the sacrificial anodal system, rectifiers, and interference bond. 	<ul style="list-style-type: none"> ✓ Completed. Staff reassigned to manage and perform the cathodic protection function demonstrated a proper understanding for conducting and documenting the required testing. Records are now being prepared to properly categorize and identify all metallic components that must be tested and to document the tests performed. Gas Utility management is playing an active role in ensuring that testing is performed, including periodic reviews of applicable test records.
Ensure gas leaks are timely and properly addressed	
Gas Utility	
<ul style="list-style-type: none"> Applicable staff will be reminded that all gas leaks will be repaired in a timely manner. To facilitate that repair, Gas Utility Maintenance Division management will obtain and review periodic reports that reflect the status of all identified leaks. 	<ul style="list-style-type: none"> ✓ Completed. Staff reassigned to manage and oversee repairs of identified leaks demonstrated a proper understanding for ensuring and documenting the timely repair of leaks. Changes were also made so that both staff responsible for identifying leaks (through leak surveys) and staff responsible for repairing identified leaks report to the same manager. Additionally, Gas Utility Maintenance Division management now monitors the status of identified leaks through direct access to on-line records maintained for identified leaks. Audit’s review of those records during the follow up process indicated that identified leaks were being timely repaired.
Ensure other required inspections are performed	
Gas Utility	
<ul style="list-style-type: none"> Upon completion of applicable hydraulic modeling, critical valves (including isolation, key, and other critical designations) will be accurately and clearly designated in the Gas Utility GIS. 	<ul style="list-style-type: none"> ✓ Completed. Critical valves (e.g., isolation, key, high pressure) are now properly and clearly depicted in the Gas Utility GIS.
<ul style="list-style-type: none"> Valve and regulating station inspection records will be properly and adequately completed and imaged into the City’s Electronic Data Management System (EDMS) for storage. The imaged documents 	<ul style="list-style-type: none"> ✓ Completed. Both valve inspection records and regulating station inspection records are now imaged into the EDMS. Those records are indexed in a manner that allows retrieval of inspection records for specific valves and

<p>will be adequately indexed so as to allow efficient identification and retrieval of inspection documents for a specific valve(s) or regulating station(s).</p>	<p>regulating stations. Furthermore, the Gas Utility has linked regulating station depictions in the GIS to inspection records prepared for those stations. These actions enable management and supervisors to ensure that required inspections are being timely performed and to efficiently identify and review inspection results.</p>
<p>Ensure adequate monitoring of system pressurization</p>	
<p>Gas Utility</p>	
<ul style="list-style-type: none"> • Upon completion of the Supervisory Control and Data Acquisition (SCADA) system upgrade, Gas Utility staff will (1) provide appropriate training to Station 21 staff as to their expected roles and assigned responsibilities and (2) reestablish meaningful system alarms at Station 21 that indicate potential system over or under pressurizations. (NOTE: Station 21 is a satellite utility facility that, among other things, receives and dispatches emergency calls after normal working hours. Station 21 staff is also available to monitor gas flows on behalf of the Gas Utility.) 	<ul style="list-style-type: none"> ✓ Completed. Station 21 staff was provided appropriate training as to their expected roles and responsibilities for monitoring gas pressures through the upgraded SCADA system. Meaningful audible alarms were reestablished as part of that upgrade. Station 21 staff notifies and provides appropriate system information to designated Gas Utility staff when those alarms go off.
<p>Ensure appropriate and timely emergency responses</p>	
<p>Gas Utility</p>	
<ul style="list-style-type: none"> • Gas Utility staff responding to reported gas emergencies will be reminded of the requirement to properly and timely document their responses and actions taken in regard to the emergencies. Those responses/actions will be recorded in the PeopleSoft CIS through completed field activities/orders and also recorded in the new MOBILE Work Management System through a system interface. 	<ul style="list-style-type: none"> ✓ Completed. Gas Utility management reinforced to staff the importance of properly and timely documenting their responses to reported gas emergencies. Our follow up review showed that those responses are being properly and timely documented in both the PeopleSoft CIS and the MOBILE Work Management System. In addition, Gas Utility management now generates periodic reports that reflect the status of reported gas emergencies for the purpose of ensuring timely repairs and reporting of those repairs.
<p>Station 21</p>	
<ul style="list-style-type: none"> • Station 21 staff will be reminded of the requirement to create and dispatch a PeopleSoft CIS field activity/order to the Gas Utility for each gas emergency notification received, regardless of whether a verbal dispatch was also made. In addition, 	<ul style="list-style-type: none"> ✓ Completed. Management reminded Station 21 staff through meetings and a memorandum of the importance of creating and dispatching PeopleSoft CIS field activities/orders for gas emergency notifications called into Station 21. Additionally, Station 21 management

<p>CIS reports will be periodically generated and reviewed by supervisors to ensure the accuracy and documentation of field orders created by Station 21 staff and to assess staff performance.</p>	<p>now generates and reviews periodic system reports that reflect instances where Station 21 receives emergency calls but staff does not create a PeopleSoft CIS field activity/order for the Gas Utility. (NOTE: As determined in the initial audit, Station 21 staff does dispatch such notifications verbally prior to creating and dispatching a PeopleSoft CIS activity/order.) Those reports are used by Station 21 management when evaluating employee performance. Management asserted that “errors” have decreased significantly since this corrective action was implemented.</p>
---	---

Table Legend:

● - Issue addressed in the original audit

✓ - Issue addressed and completed

Conclusion

As described in Table 1 above, management completed each of the eight (100%) action plan steps due during the period October 1, 2007, through March 31, 2008. Furthermore, six additional steps due subsequent to that period were completed.

Significant remaining actions to be completed in subsequent periods include:

- Development of a project management plan to assist in the refinement of the Gas Utility’s GIS as part of the on-going “Automation Implementation” capital project;
- Better protecting pipe stored at the City’s Municipal Supply Center (MSC) from environmental elements (e.g., direct sunlight);
- Completion of accurate records of the test stations established for the cathodic protection system, and completion of testing of that system at the required intervals;
- Determination and formalization of the procedures and processes (e.g., staffs and frequency) that will be used for future testing for atmospheric protection;

- Use of PeopleSoft CIS to document, track, and record the repair of all identified leaks.
- Incorporation of the City of Midway gas infrastructure into the SCADA system; and
- Enhancements in reporting and documenting gas infrastructure performance measures.

We appreciate the cooperation and assistance provided by Gas Utility, MSC, and Station 21 staffs during this audit follow-up and commend their efforts to implement steps addressing the issues identified in the audit.

Appointed Official’s Response

City Manager:

I am very pleased with the results of this audit. The report reflects management’s commitment to compliance with applicable regulations, internal control and advanced technology to improve efficiency and effectiveness. The most important factor is the obvious commitment of management to a safe environment for our customers and employees. I also thank the audit staff for their thorough review and analysis.

Copies of this audit follow-up #0810 or audit report #0727 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:
T. Bert Fletcher, CPA, Sr. Audit Manager
Sam M. McCall, CPA, CGFM, CIA, CGAP, City Auditor