



**REVIEW OF
FLORIDA CITY GAS
DISTRIBUTION FACILITY
INSPECTIONS**

MARCH 2014

**BY AUTHORITY OF
THE FLORIDA PUBLIC SERVICE COMMISSION
OFFICE OF AUDITING AND PERFORMANCE ANALYSIS**

**REVIEW OF
FLORIDA CITY GAS
DISTRIBUTION
FACILITY INSPECTIONS**

JERRY HALLENSTEIN
SENIOR ANALYST

SOFIA DELGADO PERUSQUIA
PUBLIC UTILITY ANALYST I

MARCH 2014

**BY AUTHORITY OF
THE STATE OF FLORIDA
PUBLIC SERVICE COMMISSION
OFFICE OF AUDITING AND PERFORMANCE ANALYSIS**

PA-13-10-005

TABLE OF CONTENTS

CHAPTER		PAGE
1.0	EXECUTIVE SUMMARY	
1.1	Purpose and Objectives	3
1.2	Scope	3
1.3	Methodology	4
1.4	Observations.....	4
2.0	ORGANIZATION AND TRAINING	
2.1	Organization	7
2.2	Third Party Contractor.....	10
2.3	Employee Training	11
3.0	INSPECTION PROCESS AND RECORD-KEEPING	
3.1	Leak Survey and Repairs.....	13
3.2	Cathodic Protection.....	15
3.3	Odorization Inspections.....	17
3.4	Atmospheric Surveys	18
3.5	Regulator Stations Inspections.....	18
4.0	MANAGEMENT REPORTS	
4.1	Southern Operations Monthly Meeting	21
4.2	DOT Annual Reports.....	21
5.0	CANNOT GAIN ENTRY PROCESS	
5.1	Cannot Gain Entry Study 2010.....	23
5.2	Progress since 2010	23
6.0	COMPLIANCE INSPECTIONS AND INTERNAL AUDITS	
6.1	Compliance Inspection Process	25
6.2	Internal Audit Process.....	26
7.0	APPENDIX	
7.1	Commission Rules and Related Statutes	27

TABLE OF EXHIBITS

EXHIBIT		PAGE
1.	Florida City Gas Distribution Operations Organizational Chart 2014.....	8
2.	Florida City Gas Operations Services Organizational Chart 2014.....	9
3.	Florida City Gas Compliance of Leak Survey Inspections 2010-2013.....	14
4.	Florida City Gas Compliance of Leak Repairs 2010-2013.....	15
5.	Florida City Gas Compliance of Cathodic Protection Inspections 2010-2013.....	17
6.	Florida City Gas Compliance of Odorization Inspections 2010-2013	18
7.	Florida City Gas Compliance of Regulator Inspections 2010-2013	19
8.	Florida City Gas U.S. Department of Transportation Annual Reports Total Leaks Found 2010-2012	22
9.	Florida City Gas Cannot Gain Entry Success Rate 2010-2013	24
10.	Florida City Gas Compliance Audit Inspections 2010-2013	25

1.0 EXECUTIVE SUMMARY

1.1 PURPOSE AND OBJECTIVES

In November 2013, the Florida Public Service Commission's (Commission) Office of Auditing and Performance Analysis initiated an audit to examine the processes, systems, and internal controls used by Florida City Gas (FCG or the company) to perform inspections of its distribution facilities. FCG is a subsidiary of AGL Resources, and is headquartered in Hialeah, Florida.

The purpose of the audit was to assess the company's compliance with the Florida Administrative Code (F.A.C) regarding the inspection of natural gas services and to determine the adequacy of the company's management oversight.¹ The specific objectives of the audit were to:

- ◆ Determine the company's compliance with Chapter 25-12, Florida Administrative Code, Safety of Gas Transportation by Pipeline.
- ◆ Determine if the company is adequately managing the inspection of its distribution facilities in compliance with the company's operational policies and procedures.
- ◆ Assess the company's current practices for tracking and recording inspections of distribution facilities.
- ◆ Assess the company's employee training program for leak surveying.
- ◆ Identify internal control deficiencies, operational issues, or possible corrective actions regarding the inspection of its distribution facilities.

1.2 SCOPE

Given these objectives, the scope of the audit focused on the company's organization responsible for maintaining the gas pipeline infrastructure and repair of gas leaks. Commission audit staff paid specific attention to whether the company's gas inspection programs are operating effectively to ensure compliance with the Florida Administrative Code and the company's operating policies and procedures.

Additionally, audit staff examined the different data systems the company uses to track the progress of its facility inspection activities, including the internal controls to validate that inspection work was performed correctly. Commission audit staff analyzed the following areas as they relate to the company's field operations for the period 2010 through 2014:

- ◆ Completion of distribution facilities inspections in compliance with Commission rules

¹ The Minimum Federal Safety Standards and reporting requirements for pipeline facilities and transportation of gas prescribed by the Pipeline and Hazardous Materials Safety Administration in 49 Code of Federal Regulations (C.F.R.) 191 and 192 are adopted and incorporated by reference as part of Chapter 25-12 of the F.A.C.

- ◆ Record-keeping tools and practices
- ◆ Internal compliance inspections and audits
- ◆ Third-party contractors
- ◆ Management oversight and employee training

1.3 METHODOLOGY

Planning, research, and data collection for this audit were performed in November 2013 through January 2014. The information compiled in this report was gathered through company responses to audit staff's document requests and onsite interviews with key employees from regulatory compliance, employee training, internal auditing, distribution operations, and support services. Specific information collected and reviewed included:

- ◆ Gas inspection results and records
- ◆ Documentation of deficiencies or issues in facilities inspections
- ◆ Documentation of construction, replacement, or repair work performed
- ◆ System maps and facilities records
- ◆ Annual reports filed with the Florida Department of Transportation
- ◆ Commission rules and related statutes (provided in **Appendix 1**)

1.4 OBSERVATIONS

Through its review, Commission audit staff developed the following observations and conclusions regarding the processes, systems, and internal controls used by Florida City Gas to perform inspections of its distribution facilities.

1.4.1 OBSERVATION 1

Florida City Gas inspects its distribution facilities in compliance with Chapter 25-12 of the Florida Administrative Code.

Audit staff reviewed and assessed the following five specific types of inspection programs performed by FCG on its distribution facilities: Leak Surveying; Cathodic Protection; Odorization Inspections; Atmospheric Surveys, and Regulator Inspections. For each inspection program, audit staff documented the inspection process and compiled annual data to determine whether FCG is performing inspections in compliance with the Florida Administrative Code. Audit staff found that FCG is compliant with the timeliness of inspections. FCG's inspection processes and compliance results are discussed throughout Chapter 3.0.

1.4.2 OBSERVATION 2

Florida City Gas and AGL Resources employ effective automated systems to track and monitor its distribution operations.

AGL Resources has implemented a comprehensive in-house electronic management program to schedule, track, and monitor FCG's inspection programs. FCG requires its field technicians to electronically record pertinent information regarding the area surveyed, such as the date surveyed, condition of the premise, and whether a leak was detected. The information collected is fed into various electronic systems and databases to allow FCG to appropriately manage, track, and schedule repairs within the systems of record. Audit staff believes these

record-keeping systems provide FCG with effective and efficient management oversight of the inspection and repair programs. The record-keeping process for each inspection program is discussed throughout Chapter 3.0.

1.4.3 OBSERVATION 3

Florida City Gas and AGL Resources provide effective employee training and education.

FCG's employee training is handled and monitored by AGL Resources' corporate offices. All employee training is documented in two databases that allow employees access to resources for professional development and allow management to monitor training compliance and identify employees due for training. AGL Resources employs a corporate on-site trainer to track the compliance of all employee training, to perform the necessary training, and to review training reports with directors and supervisors on a regular basis. Employee training is discussed further in Chapter 2, section 2.3.

1.4.4 OBSERVATION 4

Florida City Gas maintains an open line of communication between upper-management and each of the distribution operations.

AGL Resources' Vice President and Director of Operations holds monthly meetings with management from the three utilities in AGL Resources' southern region, which includes FCG. Management from each utility is responsible for presenting key information pertaining to the status of all distribution operations. Reports presented include the results of inspected facilities, the completion of work compared to forecasted volumes, and leak discovery trends by grade and location. Audit staff believes the monthly meetings foster a team atmosphere and provides FCG with clear and timely feedback to assure goals are met. FCG's management reporting process is discussed further in Chapter 4.0, section 4.1.

1.4.5 OBSERVATION 5

Florida City Gas successfully targets surveys of customer premises identified as Cannot Gain Entry.

In 2010, FCG performed a study and found a high rate of leak surveys that acquired a Cannot Gain Entry (CGE) status. An example of a common entry barrier that triggers a CGE status is a locked gate. FCG found that approximately five percent of the customer premises surveyed in 2010 obtained a CGE status. In response, FCG increased its efforts to reduce the number of CGEs. The company has made numerous system enhancements to better capture the CGE process as well as scheduling Saturday surveys to target only CGEs. By 2012, FCG successfully conducted a leak survey for 95 percent of the customer premises that had acquired a CGE status. As of February 2014, FCG reported a 78% success rate for total CGEs discovered in 2013, but the company is continuing to work 2013 CGEs through March 2014. FCG's CGE process is discussed throughout Chapter 5.0.

1.4.6 OBSERVATION 6

Florida City Gas should develop an electronic database to capture all service line locations.

Gas service lines connect to a meter that delivers natural gas to individual customers. The distribution lines, also known as mains, operate at an intermediate pressure. FCG's in-house electronic management program is integrated with an electronic Geographical

Information System (GIS) grid mapping system of mains that allows for surveys to be tracked. The locations of FCG's service lines are currently captured on paper referred to as service cards. Audit staff believes that FCG would benefit by creating an electronic database of its service lines. The benefits of an electronic database would allow for searching, sorting, and updating of service lines to be performed more quickly as well as making the information more easily available to users. FCG did state that it currently is in the process of uploading these service cards into an electronic database. Audit staff recommends that FCG continue to establish an electronic record of service lines. FCG's mapping process is discussed further in Chapter 3.0, section 3.1.

1.4.7 OBSERVATION 7

AGL Resources should examine the feasibility and cost-effectiveness of adding more resources for conducting compliance audits.

AGL Resources conducts compliance audits on each of the service territories within FCG's operations; Miami-Dade, Brevard, and Port St. Luce. The audits are primarily a checklist of items to be performed to ensure compliance with the corporate Operations Procedure Manual and Title 49 of the Code of Federal Regulations Part 192 of the Minimum Federal Safety Standards. Audits are done on an as-needed basis and scheduled based on the performance of each service territory. Commission audit staff believes a more proactive approach should be considered. Audit staff recommends that AGL Resources examine the feasibility and cost-effectiveness of adding more resources for conducting compliance audits on a consistent basis. Regularly scheduled compliance audits could allow the company to identify any potential issues and take corrective action. FCG's compliance audits are discussed further in Chapter 6.0, section 6.1

2.0 ORGANIZATION AND TRAINING

2.1 ORGANIZATION

FCG provides transportation and sales of natural gas to over 104,000 residential, commercial, and industrial customers in Miami-Dade, Brevard, and St. Lucie counties. As of year-end 2012, the company had 3,400 miles of main and 127,238 service lines. FCG's Miami-Dade territory is the largest territory being comprised of 72,111 service lines alone.

Exhibit 1 depicts the organization responsible for FCG's distribution operations. The Executive Vice President and Senior Vice President are located in Atlanta and oversee all aspects of operations for the three utilities in AGL Resources' southern region: Atlanta Gas and Light, Florida City Gas and Chattanooga Gas. The Vice President of Operations is responsible for the day-to-day operations of Atlanta Gas and Light and Florida City Gas including safety, compliance, and financial performance. The Director of Operations, located in Hialeah, is responsible for regulatory compliance and oversight of FCG's operations. Five Operations Supervisors, three in Miami and one each in the Brevard and Port St. Lucie territories, report to the Director. The primary areas of responsibility for FCG distribution operations are:

- ◆ Maintenance of mains and services
- ◆ Leak repairs
- ◆ Atmospheric corrosion inspection
- ◆ Meter reading
- ◆ Service activations and deactivations
- ◆ Pipe locating
- ◆ Rerouting of services and mains

Exhibit 2 depicts the organization responsible for providing leak survey support services and corrosion control to FCG. With the exception of the leak survey contractors and the Corrosion Technicians shown in the exhibit, these positions are located in Atlanta. The Executive Vice President and Senior Vice President positions are the same as those shown on **Exhibit 1**. The Vice President Compliance and Technical Services is responsible for oversight of the corrosion control and leak survey programs for each of AGL Resources' three utilities as well as developing new initiatives to improve business and IT systems. The Managing Director of System Integrity is responsible for assessing and mitigating pipeline risks through oversight of the leak survey and corrosion control programs. The Manager, Leak Operation & Analysis Program is responsible for planning, scheduling, tracking, and reporting the progress of FCG's leak survey program including oversight of the third-party firm contracted to conduct leak surveys for FCG. Similarly, The Manager of Corrosion Control is responsible for scheduling, tracking, and reporting the progress of FCG's corrosion control/cathodic inspection program.

**FLORIDA CITY GAS
DISTRIBUTION OPERATIONS ORGANIZATIONAL CHART
2014**

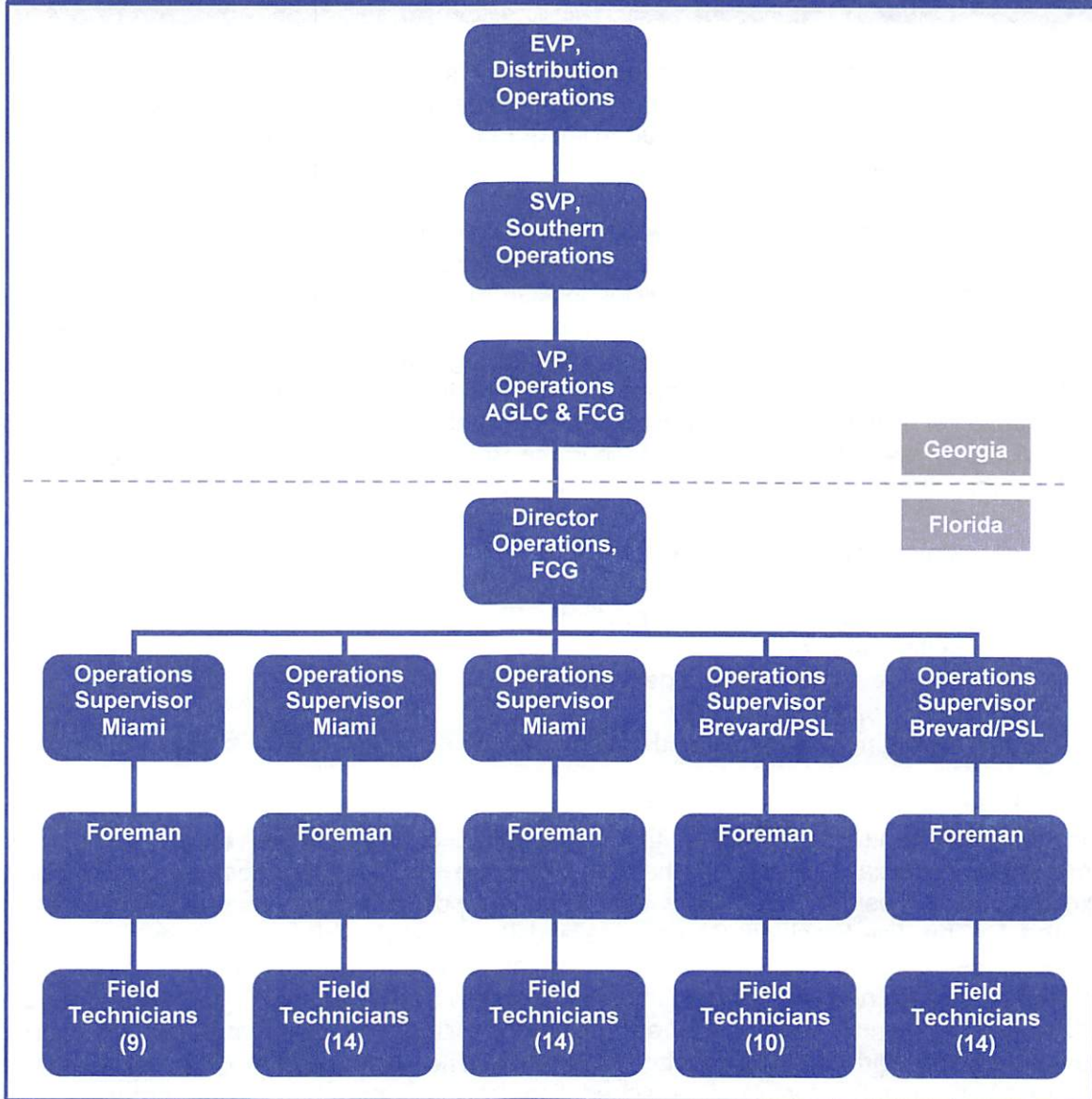


EXHIBIT 1

Source: Document Request Response 2-1.

**FLORIDA CITY GAS
OPERATIONS SERVICES ORGANIZATIONAL CHART
2014**

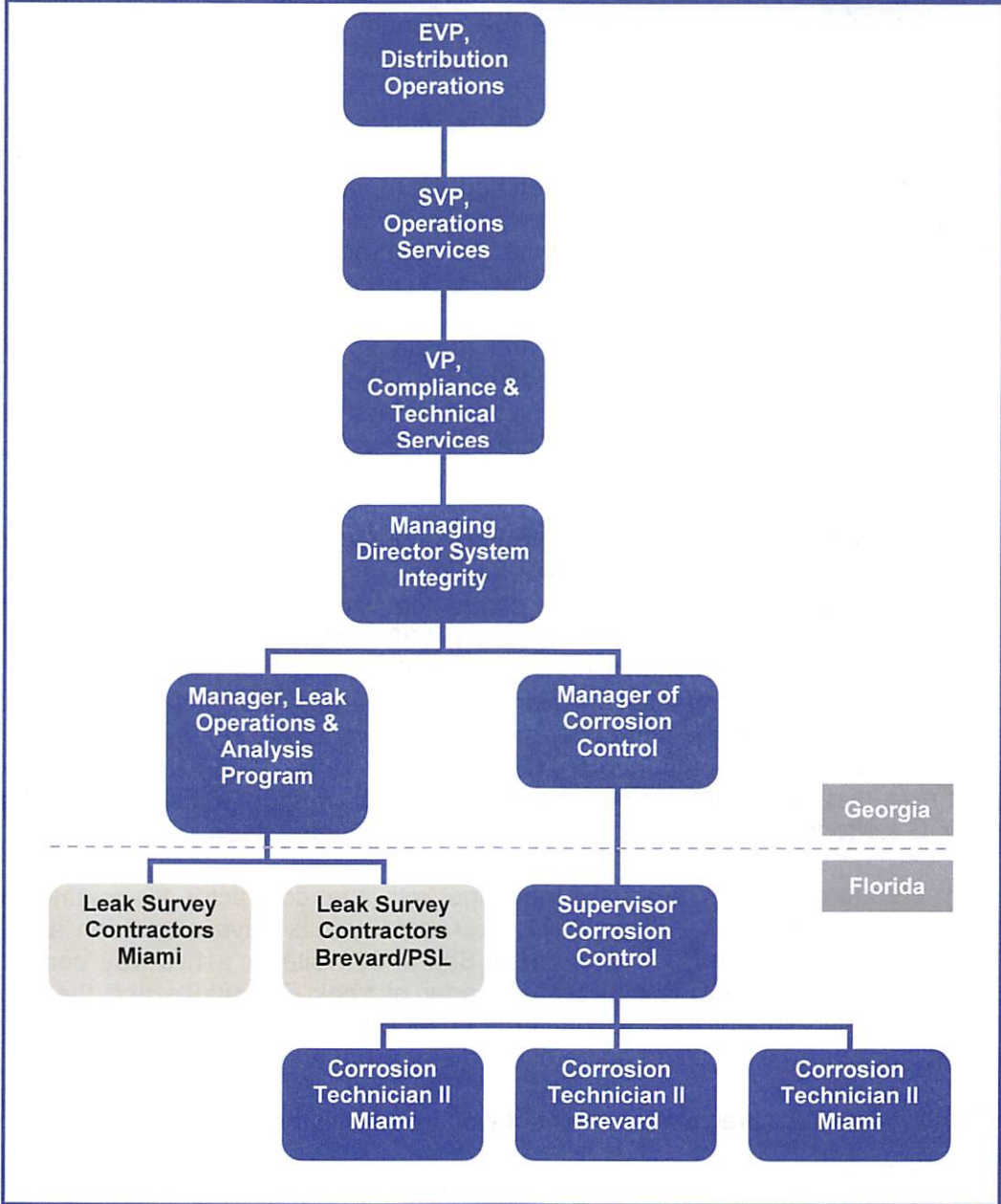


EXHIBIT 2

Source: Document Request Response 2-1.

2.2 THIRD-PARTY CONTRACTOR

FCG uses a third-party contractor to perform leak surveys of the company's service territory. The firm is one of the largest companies in the United States that provides the natural gas industry with leak detection and pipeline integrity services. Currently, five leak survey technicians are utilized by FCG to service the company's Miami-Dade, Port St. Lucie, and Brevard territories.

In August 2013, FCG discovered that the contractor's leak survey technicians were reporting a large number of grade three meter leaks (non-hazardous), but FCG's technicians were unable to locate the leaks when dispatched for repair. FCG learned that the contractor was not adequately training and auditing its leak survey technicians. In response, FCG suspended all newly hired technicians until the contractor audited 100% of the surveys performed by the new technicians. Additionally, FCG conducted meetings to initiate changes to the contractor's internal quality program. Changes made include increased visibility regarding all of the contractor new hire audit dates and results as well as requiring the contractor to change the time frame when it audits new technicians. The contractor now performs an audit of all leak surveys after a new technician completes ten days of individual work. If the technician fails the audit, they are required to redo all previously conducted leak surveys and are audited again. FCG closely monitors the results of these audits.

FCG evaluates the contractor performance through a quarterly scorecard. Presently, quarterly scorecard scores for the three AGL Resources' utilities are averaged to calculate a composite annual score for the third-party contractors. In 2010, separate scorecards were completed for each of the three utilities. Beginning in 2011 one composite scorecard is used for all three utilities due to a new contract between AGL Resources' and the contractor. The new contract compensates the contractor on their ability to manage their full account. Since 2011, the scorecards indicate that the contractor scored below average in its ability to minimize the number of customer premises that acquire a Cannot Gain Entry (CGE) status. However, audit staff would note that the contractor performed exceptional well for CGEs within FCG's service territory. FCG's efforts to address the high rate of CGEs are discussed in Chapter 5

AGL Resources holds quarterly meetings with the contractor to communicate and discuss scores problem areas. Since 2011, scorecard results have also been added to the company's leak survey SharePoint site. This SharePoint site is a two-way communication internet platform between AGL Resources' Manager of Leak Operations and the contractor's project managers and supervisors. Scorecards change year to year in order to address new issues as they arise. An example of some of the metrics that are used in the scorecard include:

- ◆ Compliance- Measures management of work related to the compliance date.
- ◆ Quality Audits- Measures ability to internally monitor quality using a Quality Audit process.
- ◆ Scope Management- Measures ability to manage resource allocation and workload at the grid level.

- ◆ Cannot Gain Entry (CGE)- Measures ability to complete surveys and minimize the number of CGEs that enter the process. Measure of contractor's ability to successfully complete CGEs utilizing the approved process.
- ◆ Productivity- Measures ability to utilize resources to reduce overall costs.
- ◆ Service Center Satisfaction- Customer satisfaction surveys administered by AGL Resources.

2.3 EMPLOYEE TRAINING

FCG's employee training is handled by AGL Resources' corporate offices. Employees receive baseline training in both technical and safety areas. In addition, each employee also takes courses on specific qualifications tied to their job descriptions. This training is primarily taught in AGL Resources' facilities in Atlanta. Employees are able to take more qualification courses over time to further their advancement in the company. The third-party contractors are responsible for the training of their employees. However, AGL Resources does require the contractors to be trained on company specifics.

AGL Resources uses two databases to track all employee training. Both databases are accessible to all management. These include:

- ◆ ELM- Enterprise Learning Management was implemented 2½ years ago and contain all employee training data. ELM also provides access to resources for professional development and allows enrollment in new courses.
- ◆ BI- Business Intelligence is an application that draws data from ELM and displays it in a dashboard format. Supervisors monitor these dashboards daily. BI also determines training compliance and identifies employees coming due or past due on training.

AGL Resources assigns an on-site trainer to each of its three utilities. The on-site trainer's main responsibilities are to track the compliance of all employee training, to perform the necessary training, and to review training reports with the Director and supervisors on a regular basis. The Director receives monthly and bi-weekly reports from the local trainer. Training qualifications are reviewed at the weekly staff meeting. The trainer also works with the supervisors to develop documentation for performance and training verification as well as to schedule training for their employees. Supervisors are responsible for tracking the compliance of all training and qualification for their respective employees.

3.0 INSPECTION PROCESS AND RECORD-KEEPING

3.1 LEAK SURVEYS AND REPAIRS

Rule 25-12.040 of the F.A.C. (Leak Surveys, Procedures and Classification) requires FCG to perform leak surveys at intervals not exceeding 15 months but at least once each calendar year for the following service areas:

- ◆ Principal business districts, master meter systems, and places where the public is known to congregate frequently.
- ◆ Where pipeline facilities, including service lines, are located under surfaces of such construction that little opportunity is afforded for a leak to vent safely.

Additionally, for pipeline facilities not included in the above categories (i.e., residential customers) the Rule requires leak surveys to be conducted at intervals not exceeding three years on bare metallic, galvanized steel, and coated tubing pipelines. For all remaining pipeline systems (i.e., plastic pipeline), leak surveys should be conducted at intervals not exceeding five years.

To comply with these requirements, FCG has implemented a comprehensive in-house electronic management program to schedule, track, and monitor the progress of leak surveys. The program, called ELROY (Effective Leak Reporting Over Years), interfaces with an electronic grid mapping system of mains (GIS) that allows for surveys to be tracked (i.e. transmission vs. distribution, protected vs unprotected, business vs non-business).² The locations of FCG's service lines are currently captured on paper. The company is currently in the process of uploading these service cards into an electronic database.

Map grids are assigned daily to leak survey technicians. A gas leak survey is performed using a sophisticated handheld flammable ionization device, referred to as a Flame Pack. The Flame Pack is equipped with an audible alarm that alerts the technician if a leak is detected. With the Flame Pack in hand, the technician walks along the gas mains and service lines denoted on the map grid they received. Technicians carry a handheld Personal Digital Assistant (PDA) in the field. The technician uses the device to record pertinent information regarding the area surveyed, such as the date surveyed, condition of the premise, and whether a gas leak was detected. Once the survey is complete, the technician, through the PDA, uploads the survey results into the ELROY system database.

If a leak is identified, the ELROY system is interfaced with a Compliance Tracking System (CTS) to record the repair due date and electronically generate a work order to be scheduled in one of the company's work order systems; Work Management Information System (for below-ground repairs) or Mobility (for above-ground repairs). Both the Work Management Information System and Mobility automatically update FCG's Compliance Tracking System with repair information and completion date.

² Gas mains are distribution lines that carry gas from one point to another acting as a common source of supply for more than one service line. Gas services are pipelines that carry gas from the main to the customer meter.

As **Exhibit 3** shows, between 2010 and 2014, FCG verified that its inspections complied with the time requirements of Rule 25-12.040 F.A.C. In March 2012, FCG discovered that some places of public assembly (i.e., YMCAs and churches) were not included in the leak survey scope. The company had previously thought that all places of public assembly were included in business district and therefore, included within the scope of leak surveys. The company identified the problem and created a Public Assembly category in 2012 which would encompass these services as shown in **Exhibit 3**.

FLORIDA CITY GAS COMPLIANCE OF LEAK SURVEY INSPECTIONS TIMELINESS 2010-2013								
	2010		2011		2012		2013	
	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant
Business District Mains	717	100%	717	100%	711	100%	852	100%
Business District Services	9510	100%	10263	100%	10776	100%	14360	100%
Public Assembly* Mains	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Public Assembly* Services	-	-	-	-	188	100%	47	100%
Distribution Non- Protected Mains	28	100%	25	100%	19	100%	18	100%
Distribution Non- Protected Services	1645	100%	2049	100%	1792	100%	1270	100%
Distribution Protected Mains	499	100%	529	105%**	457	100%	420	100%
Distribution Protected Services	23223	100%	24469	107%**	18454	100%	20900	100%
Propane Mains	2	100%	2	100%	2	100%	0	100%
Propane Services	128	100%	122	100%	121	100%	0	100%
Transmission Mains	49	100%	49	100%	72	100%	66	100%
Transmission Services	6	100%	6	100%	11	100%	21	100%
Total	35807	100%	38230	104%**	32415	100%	37907	100%

*Note: Public Assembly is a newly created category. Some of these premises were previously surveyed under the business district.

**Note: For areas that exceeded 100% compliance, FCG performed more inspections than were required.

EXHIBIT 3

Source: Document Request Response 2-4(a)

Rule 25-12.040 of the F.A.C. (Leak Surveys, Procedures and Classification) requires FCG to repair leaks within an allotted time according to the following categories:

- ◆ Grade 1 Leak- a leak of gas that represents an existing or probable hazard to persons or buildings requires immediate attention until it is no longer hazardous.
- ◆ Grade 2 Leak- a leak that is not a threat to persons or property at the time of detection shall be repaired within 90 days from the date the leak was originally located, unless due to resurvey the leak is reclassified as a Grade 3 leak.
- ◆ Grade 3 Leak- a leak that is not a threat to persons or property at the time of detection. Above-ground leaks shall be repaired within 90 days from the time originally located unless the leak is upgraded or does not produce a positive leak indication during resurvey.

Exhibit 4 illustrates FCG's compliance with the timeliness of leak repairs. Grade 1 and Grade 3 leaks over the years 2010 to 2013 have been repaired before or on the compliance date. The company's compliance rate for Grade 2 leaks has fallen from a high of 95.8% in 2011 to 89.4% in 2013. The leak repairs that are non-compliant were repaired, but were not repaired within the 90 days to comply with the F.A.C. According to FCG, the company makes every effort to be 100% compliant in the management of all leaks regardless of the grade. The three primary factors associated with not reaching 100% compliance from 2010 to 2014 are: the particular areas being surveyed in the recent 5-year cycle resulted in an increase in leaks discovered; the inability to access customer premises (CGEs) to make the necessary repairs within the compliance timeline and the training issue the Company had with its contractor regarding the discovery of leaks (as discussed Chapter 2, section 2.2), which the Company has proactively addressed. However, overall, FCG has maintained 93% or better compliance for the overall repair of all leaks.

FLORIDA CITY GAS COMPLIANCE OF LEAK REPAIRS TIMELINESS 2010-2013								
	2010		2011		2012		2013	
Leak Grades	Total Leaks Found	Percent Compliant	Total Leaks Found	Percent Compliant	Total Leaks Found	Percent Compliant	Total Leaks Found	Percent Compliant
1	72	100%	79	98.7%	82	100%	200	100%
2	409	93.8%	194	95.8%	118	91.5%	188	89.4%
3	3809	93.4%	3346	99.4%	2939	98%	5832	95.8%
Total	4290	93.5%	3619	99.2%	3139	97.9%	6220	95.8%

EXHIBIT 4

Source: Document Request Response 2-5.

3.2 CATHODIC PROTECTION

Rule 25-12.052 F.A.C. (Corrosion Control Criteria for Cathodic Protection of Buried or Submerged Metallic Pipeline) requires FCG to perform an inspection on each pipeline that is

under cathodic protection. Cathodic protection is a method the company uses to reduce corrosion of its steel pipelines. Per Rule 25-12.052 F.A.C.;

- ◆ Standard periodic test points and casings must be tested at least once each calendar year, but with intervals not exceeding 15 months.
- ◆ Each cathodic protection rectifier must be inspected six times each calendar year.
- ◆ Ten percent of isolated services and short pieces of mains not in excess of 100 feet be inspected in ten year intervals (10 percent per year).

Cathodic protection is applied by attaching a sacrificial piece of metal (e.g., magnesium) to the steel pipeline. The sacrificial metal is more negatively charged than the protected steel and serves as an anode³ to generate an electrical current to the protected steel pipe. The chemical reaction caused by the electrical current flowing from the sacrificial metal to the steel pipeline helps mitigate and divert corrosion. The more negatively charged sacrificial metal (i.e., the anode) loses its electrical current faster and corrodes instead of the pipeline.

FCG's corrosion technicians conduct a cathodic protection inspection by testing the electrical current of the sacrificial metal anode. Each corrosion technician is equipped with a laptop to enter their test results. The results are captured in a database called Cathodic Protection Data Manager (CPDM). Some of the functions CPDM enables FCG to perform include:

- ◆ Data storage
- ◆ Scheduling
- ◆ Routing service orders
- ◆ Management of multiple facilities
- ◆ Maintenance reminders
- ◆ Report generation

The process for dispatching a work order for cathodic protection is similar to that of leak surveying. CPDM is interfaced with FCG's Compliance Tracking System, which in turn, records the repair due date and electronically generates a work order to be scheduled in the Work Management Information System (below-ground repair).

Exhibit 5 depicts the number of cathodic protection inspections performed for each year 2010 through 2013. As shown, FCG remained at least 100% compliant with the F.A.C. for each inspection type.

³ An anode is an electrode through which electric current flows and oxidation occurs.

**FLORIDA CITY GAS
COMPLIANCE OF CATHODIC PROTECTION INSPECTIONS TIMELINESS
2010-2013**

	2010		2011		2012		2013	
	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant	Number of Inspect.	Percent Compliant
Test Points (Annually)	1502	100%	1899	100%	1649	100%	1701	100%
Isolated Services (10 Year Intervals)	25	108%*	62	326%*	28	147%*	18	105%*
Rectifiers (Every 2 months)	240	102%*	428	100%	279	100%	294	105%*
Casings (Annually)	60	100%	67	100%	71	100%	72	100%
Total	1827	100%	2276	102%*	2027	100%	2085	100%

*Note: For areas that exceeded 100% compliance, FCG performed more inspections than were required.

EXHIBIT 5

Source: Document Request Response 1-2d

3.3 ODORIZATION INSPECTION

Rule 25-12.055 of the F.A.C. (Odorization of Gas) requires FCG to intentionally odorize all gas transported at a concentration readily detectable at a gas and air mixture of one-fifth of the lower explosive limit. To comply with the rule, FCG performs odorization testing to verify the levels of mercaptan, the required odorant for identifying leaking gas. At least twelve times per calendar year, at intervals not exceeding forty-five days, FCG is required to sample gas distributed downstream of all injection points to ensure the presence of odorant in a concentration that is in accordance with the this rule. The testing of samples must be conducted using equipment manufactured specifically for odorant testing. FCG also requires its technicians to identify whether odor is detected whenever they have access to gas escaping the system.

FCG tracks inspections of its odorizers in the company's Compliance Tracking System (CTS). In addition, FCG's work order systems (Work Management Information System and Mobility) are used to record instances of odor that is detected whenever an employee has access to gas escaping the system. As shown in **Exhibit 6**, Florida City Gas' odorization inspections were 100% compliant in 2012 and 2013.

**FLORIDA CITY GAS
COMPLIANCE OF ODORIZATION INSPECTIONS TIMELINESS
2010-2013**

2010		2011		2012		2013	
Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant
578	100%	550	95.1%	585	100%	601	100%

EXHIBIT 6

Source: Document Request Response 2-4(d)

3.4 ATMOSPHERIC SURVEYS

Title 49 of the Code of Federal Regulations parts 192.479 and 192.481 require all above ground facilities, such as pipes, valves, compressor units, meter sets, and regulator and odorizer stations to be inspected for evidence of active corrosion. Inspections must be completed at least every three calendar years, but with intervals not exceeding 39 months. These visual inspections, referred to as atmospheric surveys, are generally performed by the company's field and service technicians when performing leak surveys, reading meters for billing, or performing work at the meter set.

FCG tracks inspection of its meter sets for atmospheric corrosion in the company's Meter History database. If atmospheric corrosion is detected, FCG's field technician enters the details of the inspection in the same handheld PDA used in the leak surveying process. The technician can directly upload the corrosion data from the PDA to the company's Meter History database. The Meter History database is interfaced with FGS Mobility system to generate a work order.

Due to changes in the record-keeping systems, compliance data for atmospheric surveys is not available prior to 2013. For 2013, of the 17,136 atmospheric inspections that were performed, 14,874 (86.8%) were inspected within the interval as required in Title 49 Part 192.481 CFR. According to FCG, the remaining 2,262 inspections were completed outside of the time interval due to problems with the accessibility (Cannot Gain Entry) of the meter as discussed in Chapter 5.

3.5 REGULATOR STATIONS INSPECTIONS

FCG's system moves natural gas through a series of distribution lines that range from 2 inches to more than 24 inches in diameter. Within each distribution system, pipelines operate at varying pressures. Regulator stations protect the pipeline system and ensure it operates safely by reducing the pressure as the gas flows further into the system, similar to the way an electric transformer steps down voltage to a level suitable for residential use. Generally speaking, the closer natural gas gets to a customer, the smaller the pipe diameter is, and the lower the pressure.

As required by federal regulation CFR Title 49, Part 192.739, Pressure Limiting and Regulating stations: Inspection and Testing, FCG performs inspections on regulator stations at intervals not exceeding 15 months to verify they are:

- ◆ In good mechanical condition
- ◆ Adequate in capacity and reliability of operation
- ◆ Set to function at the correct pressure
- ◆ Properly installed and protected from vehicular traffic, dirt, liquids, icing and other conditions that might prevent proper operation

FCG's Compliance Tracking System determines the schedule for regulator inspections. Inspections are assigned to Pressure Control Specialists based on the due date. Work is recorded initially on paper, then entered into the company's Compliance Tracking System. The Compliance Tracking System updates the record in the system and interfaces with FCG's Work Management Information System for regulators in need of repair.

As shown in **Exhibit 7**, FCG's regulator inspections are 100% compliant with federal regulation.

FLORIDA CITY GAS COMPLIANCE OF REGULATOR INSPECTIONS TIMELINESS 2010-2013							
2010		2011		2012		2013	
Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant	Number of Inspections	Percent Compliant
95	100%	94	100%	97	100%	110	100%

EXHIBIT 7

Source: Document Request Response 2-4(b)

4.0 MANAGEMENT REPORTS

4.1 SOUTHERN OPERATIONS MONTHLY MEETING

AGL Resources holds monthly meetings to discuss the status report on all distribution operations including, inspections and repairs. Attendees include AGL Resources' vice presidents, each southern utility's directors, managers of leak survey and corrosion control, and managers of other operation services. The leak survey managers present compliance charts, CGE counts and success rates, year-to-date main leaks found, year-to-date meter leak comparison, and a monthly trend of active leak counts. The Distribution Integrity Management Program team reports leak discovery rates, leak repair counts, work order management audits, and other key information pertaining to the integrity and reliability of the systems.

The Manager of Corrosion Control uses a set of metrics to track and report the status of all corrosion control activities. The metrics are created by in-house performance metric software. The software is connected to the Cathodic Protection Data Manager (CPDM) database. All data entered into CPDM is automatically uploaded into the monthly metrics. A sample of the reports available in Monthly Metrics includes:

- ◆ Number of Active Facilities Inspected year-to-date
- ◆ Number of reads that must be completed in the upcoming month
- ◆ Number of coded reads entered in the database
- ◆ Number of isolated services due

4.2 DOT ANNUAL REPORT

Florida City Gas' U.S. Department of Transportation (D.O.T.) annual reports are prepared by AGL Resources' compliance department. An FCG annual report is filed for the entire company as well as three separate reports for each one of its service centers, Miami, Brevard, and Port St. Lucie. The preparation and collection of data for this report is extracted from the company's many record-keeping systems such as GIS and Compliance Tracking System.

The D.O.T. annual report tracks the quantity, material, and age of the pipeline. Most of FCG's infrastructure is plastic and coated steel pipeline. The company has a pipeline replacement program, Distribution Integrity Management Program, to replace bare steel pipes with either plastic or coated steel. Bare steel and cast iron pipeline is more susceptible to leaks and corrosion. FCG plans to replace the last 14 miles by the end of 2014. Since 2010, the company has replaced over 32 miles of bare steel and cast iron pipelines.

FCG's annual report to the D.O.T. provides the total number of reported leaks for both mains and service pipelines. Additionally, The D.O.T. report breaks down the total number of leaks into eight cause categories and identifies whether the reported leak was considered to be hazardous. Hazardous leaks are identified when a technician can see, hear, or smell gas.

Exhibit 8 shows the total number of leaks FCG identified, by cause category, over the period 2010 through 2012.⁴ Over the three year period, the leading cause categories for main leaks were excavation damage (126), equipment damage (75), and "other" (69). Examples of

⁴ FCG's 2013 Annual Report to the U.S. Department of Transportation will not be available until March 2014.

leak causes that are captured in the "other" category include abandonments, renewal projects, and cast iron that exceeded its life expectancy. The leading causes for service leaks were equipment damage (1,788), corrosion (1,451), and excavation damage (367). Of the 388 total main leaks found from 2010 through 2012, 53% were identified as hazardous. Of the 4,299 total service leaks found over the same period 27% were hazardous.

FLORIDA CITY GAS U.S. DEPARTMENT OF TRANSPORTATION ANNUAL REPORTS TOTAL LEAKS FOUND 2010-2012				
Cause of Leak	Mains		Services	
	Total	Hazardous	Total	Hazardous
Corrosion	60	9	1451	185
Natural Forces	9	9	86	42
Excavation Damages	126	122	367	403
Other Outside Force Damage	5	4	42	35
Material or Welds	40	8	292	44
Equipment	75	23	1788	323
Incorrect Operations	4	4	43	8
Other	69	26	230	103
Total	388	205	4299	1143

EXHIBIT B

Source: Document Request Response 1-2c

5.0 CANNOT GAIN ENTRY PROCESS

5.1 CANNOT GAIN ENTRY STUDY 2010

During the leak survey process, technicians are required to survey all mains, services, and meter sets. If circumstances prevent entry or access to the meter, the service or meter set acquires a Cannot Gain Entry (CGE) status. The CGE status is recorded in the technicians handheld PDA and linked to FCG's ELROY system for monitoring and tracking. An example of a common entry barrier that would trigger a CGE status is a locked gate.

In 2010, FCG performed a study and found that a high rate of CGEs existed. Approximately five percent, or 2,229, of the total customer premises in FCG's territory acquired a CGE status. The study also indicated that FCG had the highest rate of CGE's in all of AGL Resources' service territories.

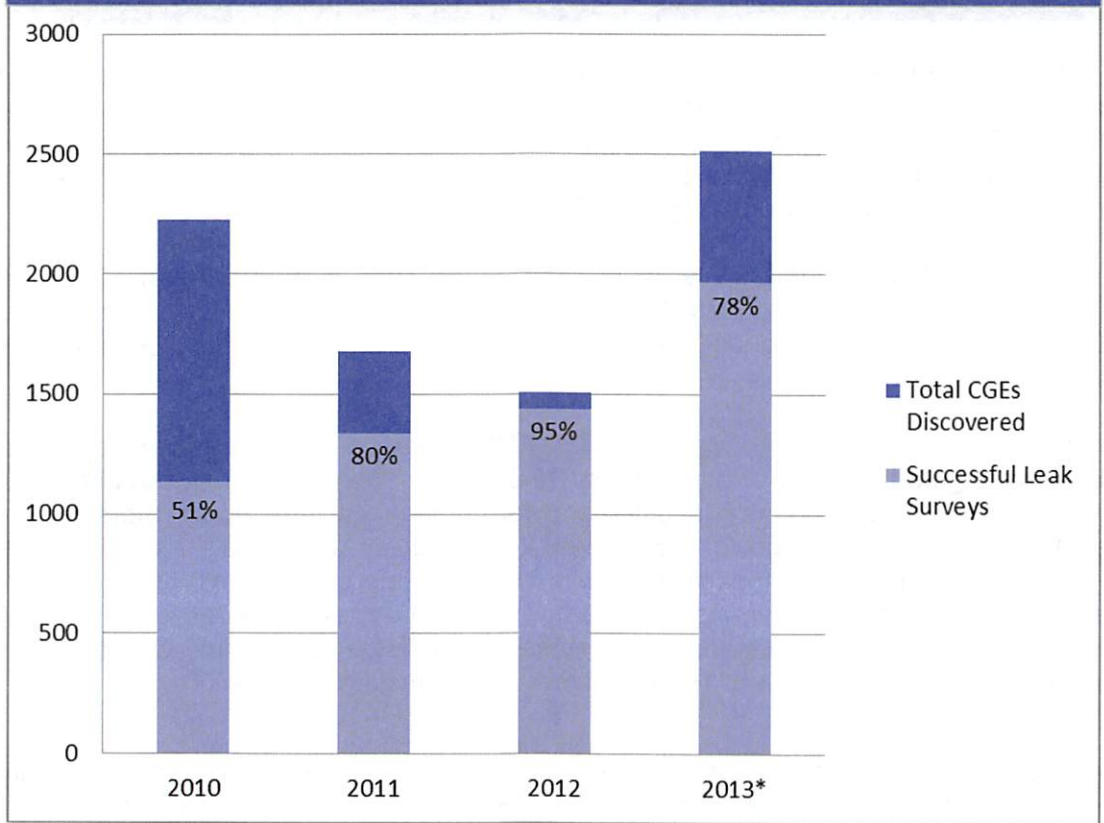
In response to the high rate of CGES, FCG instituted a series of weekend blitzes by engaging in targeted surveys of premises in CGE status. Beginning in November 2010, FCG conducted visits on weekends when customers were more likely to be home, thereby increasing the chance that technicians could gain access to previously unavailable meters. Customers were made aware of FCG's impending surveys via telephone calls, letters, door tags, and post cards. FCG makes three attempts, on average, to gain access in order to survey customer premises in CGE status. FCG's weekend blitzes proved to be successful. Of the 2,229 CGEs discovered, the company had a 51% success rate in conducting a leak survey.

5.2 PROGRESS SINCE 2010

Since 2010, FCG has continued its efforts to reduce the number of CGEs. The company has since made system enhancements to better capture the CGE process. Enhancements include upgrading its leak repair (ELROY), work order management (WMIS), and customer information (CIS) systems to accurately capture CGE attempts and CGE success rates. Additionally, the company has replaced the weekend blitzes with scheduled Saturday surveys to target only CGEs. As a last resort, FCG has created a policy in accordance with its tariff to remove the customer's meter and cap their line after several attempts to gain entry and notices were left at the premises. "The Customer... shall give Company employees and representatives access to the Customer's premise so that the Company may operate, inspect, and maintain its facilities. Failure to grant access could result in disconnection of service."

Exhibit 9 depicts FCG's CGE success rate for each year 2010 through 2013. In 2012, the company succeeded in performing a leak survey in 95% of the premises that acquired a CGE status. As of February 2013, FCG reported a 78% success rate for total CGEs discovered in 2013. It should be noted that 2013 was the beginning of the new five-year leak survey cycle for residential customers. According to FCG, the spike in the total number of CGEs shown for 2013 is attributed to the neighborhood that was surveyed, which has a higher concentration of CGEs. FCG will continue efforts to address and resolve the 2013 CGEs through March 2014.

**FLORIDA CITY GAS
CANNOT GAIN ENTRY SUCCESS RATE
2010-2013**



*Note: CGEs discovered in 2013 will be completed by March 2014.

EXHIBIT 9

Source: Document Request Response 2-6

6.0 COMPLIANCE INSPECTIONS AND INTERNAL AUDITS

6.1 COMPLIANCE INSPECTION PROCESS

AGL Resources' Technical Standards Group is responsible for conducting compliance audits for each utility in the southern region. Each audit consists of a checklist of items to be performed to ensure compliance with the corporate Operations Procedure Manual and Title 49 of the Code of Federal Regulations Part 192 of the Minimum Federal Safety Standards.

Exhibit 10 shows the compliance audits conducted on FCG's Miami-Dade, Brevard, and Port St. Lucie territories from 2010 to 2013. A service territory may be subject to either a partial or full audit. A partial audit is comprised of either a records or field inspection. A full audit is comprised of both types of inspections. Topics covered in the audit include leak surveys, distribution work orders, service cards, corrosion inspections, and cathodic protection rectifiers.

FLORIDA CITY GAS COMPLIANCE AUDIT INSPECTIONS 2010-2013					
		2010	2011	2012	2013
Partial Audit					
	Miami				
	Brevard		X		
	Port St. Lucie		X		
Full Audit					
	Miami			X	
	Brevard	X			
	Port St. Lucie	X			

EXHIBIT 10

Source: Document Request Response 1-5

An example of issues identified within the audits include documentation and updating of system records, continual training, and streamlining processes. Audit findings that require corrective action are entered into an Action Item Matrix for FCG to monitor the status of actions completed. The Action Item Matrix resides on a SharePoint site accessible to all management levels and the Technical Standards Group.

According to AGL Resources, compliance audits are conducted on an as-needed basis due to limited resources. While attempting to cover all the geographic divisions within AGL Resources, the Technical Standards Group determines the frequency of compliance audits based on the performance of each service center. This approach resulted in no compliance audits being performed in 2013. Audits of the Port St. Lucie and Brevard service centers are currently being performed and will be completed by the end of the first quarter of 2014. Commission audit staff believes a more proactive approach should be considered. Audit staff recommends that AGL Resources examine the feasibility and cost-effectiveness of adding more resources for conducting compliance audits on a consistent basis.

6.2 INTERNAL AUDIT PROCESS

In addition to the compliance audit inspections shown in described in section 6.1, AGL Resources' Internal Audit Department conducts operational audits on their distribution systems. In November 2013, a comprehensive internal audit was completed on AGL Resources' leak management program. The audit covered all the utilities owned by AGL Resources. As a result, Commission audit staff could not separately evaluate FCG specific performance as it related to the internal audit report.

The internal audit report focused on the following objectives:

- ◆ Determine whether the Company adequately trains employees on leak management, leak grading accuracy and other leak management responsibilities.
- ◆ Determine whether the Company adequately monitors compliance with leak management processes, including tracking leaks company-wide.
- ◆ Determine whether the Company is accurately and completely reporting leak management metrics to federal and state agencies.
- ◆ Determine whether the Company has adequately managed active leaks until repair status and is not missing compliance deadlines.

The leak management audit focused on the processes for grading, tracking, and managing leaks, including leak reevaluations, rechecks, regrades and regulatory reporting, once the leaks have been identified. The audit did not include a review of the individual utilities' programs, such as leak survey, locating, and odorization, that make up the overarching leak management program but rather on how leaks that are found are managed.

The audit report concluded that AGL Resources' is achieving compliance with internal company policies associated with leak management activities, but did recognize several areas to improve efficiency including:

- ◆ Updating leak reporting and work systems to operate within internal company policies.
- ◆ Monitoring of leak records within systems of record.
- ◆ Tracking and maintenance of leak detection equipment.
- ◆ Special cause verifications (formal documentation of unsatisfactory performance of an Operator Qualification task).
- ◆ Additional training over certain leak management processes.

AGL Resources' management accepted the findings and agreed to implement action plans to address the recommendations. Target completion dates ranged from December 2013 to June 2014, and at time of publication of this report, many had been achieved.

7.0 APPENDIX

APPENDIX 1 COMMISSION RULES AND RELATED STATUTES

Chapter 25-12, F.A.C. contains the Florida Public Service Commission rules for Safety of Gas Transportation by Pipeline. Commission rules adopt the Minimum Federal Safety Standards and reporting requirements for pipeline facilities and transportation of gas prescribed by the Pipeline and Hazardous Materials Safety Administration in Chapter 49 of the Code of Federal Regulations (CFR), parts 191 and 192 (2011). These chapters of the CFR are represented and adopted within the Commission rules.

The specific parts of chapter 25-12 reviewed by staff during this audit include:

Rule 25-12.040 - Leak Surveys, Procedures and Classifications requires the utility to perform gas leak surveys at least once each calendar year, not to exceed 15 months, in certain locations. Surveys of bare metallic, galvanized steel, and coated tubing pipelines must be conducted at an interval not to exceed three years. Remaining system pipeline must be surveyed every five years, or more frequently if experience requires. The rule requires a leak classification system to be used on all leak records and reports based upon a grade 1, grade 2, or grade 3 type leak. The adequacy of all leak repairs is required to be checked immediately after being completed, and the date and status of rechecks are to be recorded on the leak repair records.

Rule 25-12.050 - Facility Identification requires that gas service line valves at multi-service installations such as apartment buildings be plainly marked by a metal tag or other permanent means designating the building or part of the building being served. However, the meter may be marked in lieu of the service line. The marking of each customer meter, gas regulating station, or above ground gas transport facility must be permanently marked to identify the operator's name and phone number. Marking will be by metal signs, line markers, plastic decals, or other appropriate means.

Rule 25-12.052 - Corrosion Control Criteria for Cathodic Protection of Buried or Submerged Metallic Pipeline provides the criteria for proper cathodic protection of steel, cast iron, and ductile iron pipeline. Cathodic protection is used to prevent and deter the potential corrosion of metal pipeline facilities. A negative cathodic voltage of at least 0.85 volt, must be made with the protective current applied in accordance with Appendix D to Part 192, Title 49, Code of Federal Regulations (2011). This is the only criteria accepted for determination of the degree of cathodic protection for externally coated buried or coated submerged pipelines installed after June 1, 1975. The criteria for bare and essentially bare ineffectively coated metallic gas pipelines installed prior to July 31, 1971 require a net protective current from the electrolyte into the structure surface at predetermined current discharge points to protect the pipeline from corrosion. Each pipeline under cathodic protection is required to be tested at least once each calendar year, within an interval not to exceed 15 months to determine whether protection is in compliance with the Rule. If gas leakage from active corrosion is discovered on a pipeline, the utility is required to take subsequent corrective actions including cathodic protection to repair the leakage conditions. Repairs are required to be completed, or substantial progress toward correcting the deficiencies must be made within three months.

Rule 25-12.053 - Cathodic Protection – Electrical Survey requires each utility operator to have a comprehensive written procedure to evaluate electrical survey data on cathodically

unprotected pipelines and identify areas of active corrosion where protection is needed. The Rule requires a combination of pipe/soil potential and soil resistivity tests to be completed for initial surveys. When active corrosion is identified and the utility has no knowledge of electrical requirements for the system, tests to determine the degree of protective current required for cathodic protection are required. The utility may not be able to complete an electrical survey of an underground pipeline system in some conditions. For instance, it may not be practical to complete a survey when large obstructions lie in a position directly above the pipeline.

Rule 25-12.055 - Odorization of Gas requires each utility receiving gas directly through a transmission supplier, and distributing gas in a system serving more than 25 customers to odorize all gas transported. The purpose of odorization is to ensure gas leakages can be readily detected and repaired. The Rule requires utilities to sample downstream of all injection points to assure the presence of odorant in the required concentration. At least twelve times per calendar year, at intervals not greater than 45 days, each utility is required to test gas odorization concentrations using equipment manufactured for odorant testing.

Rule 25-12.060 - General Records provides instruction for maintaining system records necessary for Commission review. The Rule requires the utility to keep records to show compliance with Commission rules and adopted codes. All tabulations, standards, drawings, records of incidents, procedures or studies related to compliance with Commission rules are to be recorded and maintained for review by appropriate Commission personnel. All records are required to be organized, arranged, or prepared so that compliance can be readily determined. All records are to be retained within the state of Florida unless the Commission exempts the utility from the provision. The Rule also provides retention timeframes for different types of records.

Rule 25-12.062 - Leak Reports are required to provide records of gas leaks identified on the utility's system. The minimum information to be kept for leak reports includes, the address of the suspected leak, date and time reported, description of the leak, date and time the utility dispatched repair personnel, date and time of arrival, date and time the condition was made safe, the location of the leak found, and the cause of the leak.

Rule 25-12.085 - Written Annual Reports Required are submitted to the Department of Transportation (D.O.T.) and Florida Public Service Commission by each utility to update records of their gas distribution system. These reports provide annual pipeline summary data by operators of gas pipeline facilities located within the United States. The reports are provided for the preceding calendar year, to be received by the Commission no later than March 15th of each year.

The specific parts of Title 49 Part 192 of the Code of Federal Regulations reviewed by staff during this audit include:

Title 49 Part 192.479 – Atmospheric Corrosion: General states that an operator must clean and coat each pipeline or portion of pipeline that is exposed to the atmosphere. Coating material must be suitable for the prevention of atmospheric corrosion.

Title 49 Part 192.481 – Atmospheric Corrosion: Monitoring requires each pipeline or portion of pipeline that is exposed to the atmosphere must be inspected for evidence of atmospheric corrosion every 3 years for on shore pipeline and once a year for offshore pipeline.

Title 49 Part 192.479 – Pressure Limiting and Regulating Stations: Inspection and Testing requires each pressure limiting station, relief device, and pressure regulating station and its equipment to be inspected every calendar year at intervals not exceeding 15 months. Operators must determine that it is in good mechanical condition such as being adequate from the standpoint of capacity and reliability of operation for the service in which it is employed.