



**A Report to the Galveston  
City Council**

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**Audit Report  
AU2017-1**

# **Sewer Internal Controls – Public Works Department Audit Report**

## **Report Summary**

The City of Galveston is in the process of evaluating the written Standard Operating Procedures (SOP's) for the Public Works Department Sewer Division. The purpose of SOP's are to assist the Sewer division in maintaining their quality control, and quality assurance processes and ensure compliance with governmental regulations. The development and use of SOPs minimizes variation and promotes quality through consistent implementation of a process or procedure within the organization, even if there are temporary or permanent personnel changes. SOPs can indicate compliance with organizational and governmental requirements and can be used as part of personnel training programs since they provide detailed work instructions. SOP's minimize opportunities for miscommunication and address safety concerns. Historical data may be incorporated for use with SOP's and serve to be valuable for reconstructing project activities when no other references are available. The Public Works Department is charged with establishing the SOP's for the Sewer Administration within the City of Galveston. In turn, the City Auditor Department is responsible for evaluating the design and operating effectiveness of those SOP's.



**SEWER INTERNAL CONTROLS  
PUBLIC WORKS DEPARTMENT  
CITY AUDITOR**

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**AUDIT TEAM**

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**City of Galveston**  
**Sewer Internal Controls – Public Works Department**  
**City Auditor Executive Summary**

May 24, 2017

**Background**

The City of Galveston is in the process of evaluating the written Standard Operating Procedures (SOP's) for the Public Works Department Sewer Division. The purpose of SOP's are to assist the Sewer division in maintaining their quality control and quality assurance processes and ensure compliance with governmental regulations. The development and use of SOPs minimizes variation and promotes quality through consistent implementation of a process or procedure within the organization, even if there are temporary or permanent personnel changes. SOPs can indicate compliance with organizational and governmental requirements and can be used as part of personnel training programs since they provide detailed work instructions. SOP's minimize opportunities for miscommunication and address safety concerns. Historical data may be incorporated for use with SOP's and serve to be valuable for reconstructing project activities when no other references are available. The Public Works Department is charged with establishing the SOP's for the Sewer Administration within the City of Galveston. In turn, the City Auditor Department is responsible for evaluating the design and operating effectiveness of those SOP's.

**Objective**

The objective of this report is to evaluate the design and operating effectiveness of the SOP's of the applicable reporting internal control framework and financial reporting internal control framework in the Public Works Sewer Division.

**(1)Applicable Reporting Framework** - The objectives of internal controls over Sewer processes for an applicable reporting network are to ensure a complete set of principles for the requirements, laws, and regulations that a municipal government is subject to.

**(2)Financial Reporting Framework** - The objectives of internal controls over the Sewer division processes for a financial reporting network are to ensure a comprehensive set of standards for determining measurement, recognition, presentation, and disclosure.

**Scope**

To evaluate the design and operating effectiveness of the two objectives of internal controls over Sewer processes identified and then to evaluate the basic components of each objective for the City of Galveston as described in the supplemental appendices and below:

**(1)Applicable Reporting Network**

- a) Control Environment - The City of Galveston's control environment establishes the tone of an organization that influences the control consciousness of its personnel.
- b) Risk Assessment - Risk assessment is the City of Galveston's identification and analysis of relevant risks to achieving the organization's objectives.

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- c) **Control Activities** – The City of Galveston's control activities are the policies and procedures that are performed by personnel that help ensure that management's directives regarding compliance are carried out.
- d) **Information and Communication** - The information and communication component includes the City of Galveston's identification, capture, and exchange of information in a form and time frame that enable personnel to carry out their responsibilities.
- e) **Monitoring Activities** - Monitoring activities assess the City of Galveston's quality of internal control performance over time.
- f) **Capturing and processing information** for the City of Galveston.
- g) **Defining the financial reporting process** for the City of Galveston.

**(2) Financial Reporting Network**

- a) **Rights and Obligations** – All transaction balances properly reflect amounts collected or should have been collected by the City of Galveston.
- b) **Valuation and Allocation** – All transaction balances properly value and allocate amounts that individuals or agencies paid to the City of Galveston.
- c) **Occurrence** – All transaction balances represent amounts uncollected by the City of Galveston.
- d) **Completeness** – All transactions have been captured by the City of Galveston.
- e) **Accuracy** – All transactions have been accurately recorded by the City of Galveston.
- f) **Cut-off** – All transaction balances are recorded by the City of Galveston in the correct accounting period.
- g) **Classification** – All transaction balances are correctly classified by the City of Galveston.

**Fieldwork Performed**

The City Auditor Department evaluated a list of internal controls for the Public Works Sewer Division processes within a local municipality and questioned each internal control in a separate spreadsheet described and attached as Appendix 1 – Standard Operating Procedures. This list is not intended for the use of management but rather to inform management of the general needs

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required for the City's Sewer Process. Each internal control listed in Appendix 1 was then evaluated to determine if the control design and operations of management control proved to be effective in an applicable reporting framework or a financial reporting framework for the City of Galveston. The City Auditor Department also noted if opportunities exist for the improvement of those internal controls below in "City Auditor's Office Recommendations".

**Audit Findings**

There are no findings for the City Auditor to report to The Mayor and City Council concerning the Public Works Sewer Division. The City Auditor Department will make itself available to consult with the Sewer Public Works Department should management choose to act upon improving internal controls for Sewer Public Works Department compliance at the City of Galveston.

**Staff Conduct**

All staff acted in a professional and timely manner.

**City Auditor's Office Recommendation**

1. The City Auditor's Office recommends a Preventative Maintenance Program based upon a Risk Based Approach. Currently, the Wastewater Treatment Superintendent keeps track of daily rainfall, dry weather and lift station hours. This information is reviewed daily for any high usage of hours at the lift stations. This serves as an indication that there may be a leak in a particular area. The Superintendent then alerts the Inflow and Infiltration (I&I) crew to conduct an inspection of the area. The inspection gives the I&I crew the general location of the problem. If the leak or break is on public property the I&I crew will fix the problem. If the issue is on private property the Chief Plumbing Inspector is called to contact the homeowner and red flag the property. The Auditor's Office suggests that the I&I program be an ongoing program where "at risk" pipes in Galveston are checked with the television and smoke testing equipment. The Auditor's Office is aware that City Staff is still replacing and repairing infrastructure from Hurricane Ike. Therefore a Preventative Maintenance Program would be a future goal for the City.
2. A common problem that the Sewer Department faces on a daily basis is an unmaintained or broken cleanout. A broken cleanout has an increased chance of causing a blockage in pipes which can cause raw sewage to back up into a building or home. A missing cleanout lets storm water enter the pipe and overloads the sewer system and treatment facilities during wet weather. During these times more electricity is required to run the pumps at the lift stations costing the City of Galveston more money. The City Auditor's Office recommends that City Staff inform the citizens of Galveston of the inherit problems caused by broken or missing cleanouts. The Public Information Officer could be used to inform the citizens by writing an article in the paper and/or a page on the City's website. Appendix 2 is an example of a

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website educating the public on terminology, responsibility, and problems. This could be used to create the City's own web information page.

3. The City Auditor's Office recommends that City staff revise the current ordinance Sec. 36-147 Code 1960, § 23-112 to include a set of standards for homeowners. The City's current ordinance is as follows for Installation and Maintenance of Building Sewer: The city shall install and maintain all building sewers from the public sewer to the property line. Property owners shall be responsible for all maintenance and repair work required on private property. Below are a few examples of standards that could be used to improve the City's current ordinance.
  - a. Sewer pipes shall be kept free from roots, grease deposits, and other solids which may impede the flow or obstruct the transmission of waste.
  - b. The sewer service line shall have a two way cleanout located at the property line or at the sewer main easement. All cleanouts shall be securely capped with a proper cap at all times.
  - c. All joints of the sewer service line shall be watertight and all sewer service line pipes shall be sound to prevent exfiltration by waste or infiltration by ground water or storm water.
  - d. The sewer service line shall be free of any structural defects, cracks, breaks, openings, holes, or missing portions and the grade shall be uniform without sags or offsets. Appendix 3 is an example Ordinance that could be adjusted to fit the City of Galveston's needs.

**City Manager's Response:**

The Manager has reviewed the Auditor's report and has no issues with its findings or conclusions. However, recommended additions to the Ordinance are likely unenforceable and residential property owners would be challenged to perform the testing necessary to adhere to the requirements beyond visible fixtures. The Manager supports the need for scheduled maintenance and proactive monitoring of systems and to that end will work with the Auditor to facilitate the implementation of these processes beyond those currently in place.

# APPENDIX 1

## STANDARD OPERATING PROCEDURES

### FIELD OPERATIONS:

Does management have an organizational chart defining the activities and individuals responsible for them?

Are the duties of directors and employees clearly defined and assigned?

Are the policies governing employee conduct communicated in an effective way to staff and reviewed with them periodically?

Is a system used (ideally a map) to document the location of all field work performed?

Are personnel involved in operating functions required to take an annual vacation?

Is multiple personnel trained in the operating functions to provide backup in the case of vacation or other absences of the primary employees performing operations ?

Are personnel cross trained to broaden their current skill set and the efficiency of the task being performed?

Does management perform a periodic review to ensure compliance with state statutes and inspection requirements?

Is insurance coverage reviewed periodically by qualified individuals to determine adequacy?

Does the comprehensive liability policy include liability coverage for all directors and employees?

Do surety and/or performance bonds cover all employees/directors that perform operations?

Is a budget system (including monthly or quarterly budget reports) used for watching income and expenses?

Are cash projections made and periodically compared by management to the operational accounting information?

Are contractors used for any operating functions and their work documented?

Is there a system to monitor the work performed by contractors?

Are cash disbursements compared to work orders for reasonableness?

Is employee regular time reconciled to work orders for reasonableness?

Is employee overtime reconciled to work orders for reasonableness?

Is overtime formally approved by management?

Are methods of recording employee absences satisfactory?

# APPENDIX 1

## STANDARD OPERATING PROCEDURES

### WASTEWATER TREATMENT PLANT OPERATIONS:

Is a yearly budget established for operationing, maintaining and improving the plant?

Is the supervisor tracking and managing the yearly budget?

Does the supervisor have a operations and maintenance plan covering specific planning and management elements?

Does the supervisor have a detailed organization chart?

Is an employee given a position description; this includes a brief description of the character of the work, a list of the tasks required, the supervisory reporting position, the positons to be supervised, education and experience required, and typical tasks performed?

Is a specific employee responsible for responding to inquiries from outside stakeholders?

Does the supervisor check the daily reports, operations logs, e-mail, and other documents produced during the course of operations?

Is an emergency operating plan (EOP) developed and has it been tested?

Are the service standards and performance levels communicated to the employees?

### SAFETY:

Is the employee required to take safety training?

Is the employee required to complete a specific amount of safety training yearly?

Is the employee trained and instructed on the use and handling of various chemicals?

Are all chemicals in a safe place where they are not hazardous to employee's or property?

Does management verify certifications and licenses for working employees?

Is the supervisor responsible for training employees and enforcing safe work practices?

Are the employees observing safe work practices in the conduct of activities while at the facility?

# APPENDIX 1

## STANDARD OPERATING PROCEDURES

Is the employee provided the necessary safety gear to complete an assigned task?

Does the supervisor have a MSDS for every hazardous material used at the facility?

Are first aid kits visible and accessible at the facility?

Are fire hydrants visible and accessible at the facility?

### WORK MANAGEMENT:

Is worked tracked through work orders?

Are work orders maintained or logs kept to determine the percentage of reactive maintenance versus preventative maintenance?

Does the work management system allow for subsequent preventative maintenance to be scheduled?

Are assets or infrastructure systems grouped so that the work management system may generate specific conditions that may need preventative maintenance?

Does the information software include:

- Assets worked on and work performed.
- Assign, dispatch, status, prioritization, and key dates.
- Associated documents and images.
- Searching and reporting.
- Task procedures with resource utilization and asset association.
- Labor, material, and equipment tracking and history.
- Work requests with multiple assets with multiple tasks.
- Multiple work requests associated to individual assets.
- Cost estimating and comparison.
- Preventive or reactive maintenance work requests.
- Automatic work request creation using fixed or floating scheduling.
- Printing and emailing.
- Spatial display of work requests that are on a map.

Can work requests be generated from specific features or user-defined templates?

Can work requests be generated through specific locations?

Can work requests be tracked through a project's life cycle?

# APPENDIX 1

## STANDARD OPERATING PROCEDURES

Is there a system to alert management of overdue work requests?

Are work requests integrated with a map so as to aide in predicting future problems?

Can employees update work requests while in the field?

Does the work management system allow for Resource Planning and Utilization?

Does the work management system allow for cost estimation?

Does the work management system allow for cost estimation to be compared to actual costs?

Does the work management system generate a template that will allow for the work flow to be organized?

Is Infrared thermography or ultrasonics used in the work management system?

Are logs kept to reconcile elapsed time between public requests/complaints and the completion of the job?

Are logs kept to determine the percentage of first-time fixed calls?

Do employees that receive public requests/complaints have access to track workers in the field?

### **PURCHASING:**

Are Purchase Orders used?

Are the functions of purchasing goods, receipt of goods, and cash payment for goods performed by separate employees?

Are there adequate procedures for controlling the receipt of all goods and services purchased?

Are materials and supplies inspected for condition and counted when received?

Does the same person that makes Purchase Orders or Purchase Requests have access to the accounting records?

Are Purchase Orders or Purchase Requests reconciled to Work Orders?

Are logs maintained for purchases that are left over after completion of projects?

Does invoice processing include a mathematical check of footings, extensions and discounts?

# APPENDIX 1

## STANDARD OPERATING PROCEDURES

### PROPERTY/EQUIPMENT:

Are schedules of fixed assets maintained?

Are periodic inventories taken and compared with the schedules of fixed assets?

Is a system used (ideally a map) to document the location of all fixed assets?

Is the life-cycle of the systems, equipment, and other physical assets tracked in a fixed assets system?

Is the serviceability, remaining life and economic value of each asset documented?

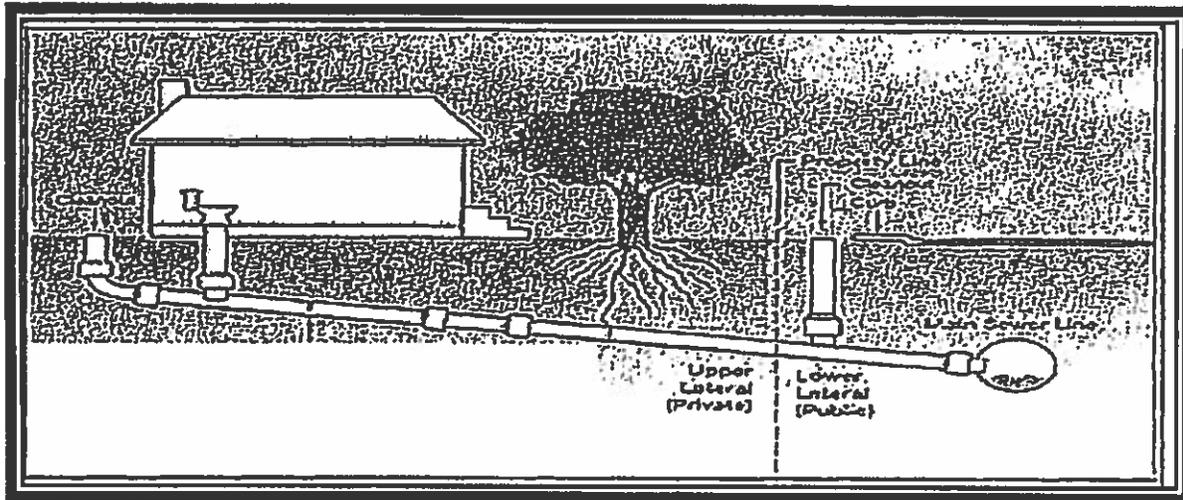
Is the equipment properly stored daily?

Is the equipment on a required maintenance program?

## APPENDIX 2 EXAMPLE WEBSITE

### What is a Sewer Service Line?

A Sewer Service Line is the pipe that conveys sewage from a building's plumbing to the City Sewer System. The Property owner is responsible for the maintenance and replacement of the upper Sewer Service Line only - that is the portion of the Sewer Service Line that is on private property. The City is responsible for the lower Sewer Service Line, which is the portion of the Sewer Service Line from the property line to the sewer main.



### Private Sewer Service Line Maintenance Requirements:

Your Private Sewer Service Line should be maintained such that it:

- Is free of any roots, grease deposits, and other solids which may obstruct the flow;
- Is watertight and does not have any structural defects, cracks, breaks, openings, rat holes, or mission portions;
- Has a two-way cleanout located at the property line or at the sewer main easement. All cleanouts shall be securely capped with a proper cap at all times; and
- Is free from any non-sewer connections to it (e.g., roof drain, area drain).

### Problems with Private Sewer Service Line that are not properly maintained:

An unmaintained Private Sewer Service Line has an increased chance of a blockage in the pipe, which can cause raw sewage to back up into a building. This can end up costing the property owner a sum of money to clean up the impacts.

An unmaintained Private Sewer Service Line also allows storm water to enter the pipe through cracks and other defects. This can overload the sewer system and treatment facilities during wet weather, resulting in untreated sewage entering the bay.

### Who needs to fix their Private Service Line and when?

Please refer to the City Private Sewer Service Line Program Requirements above. You may also voluntarily choose to repair or replace your Private Sewer Service Line at any time you feel it

**APPENDIX 2  
EXAMPLE WEBSITE**

necessary (for example, if you are experiencing frequent sewer backups). If this is the case, you are strongly encouraged to get a plumbing certificate to demonstrate that your new or repaired Private Sewer Service Line is free of leaks.

A City Permit is required for Private Sewer Service Line work when:

- The two-way cleanout needs to be installed in the sidewalk area or
- Your Private Sewer Service Line goes to a back or side yard sewer main.

If work is performed in the sidewalk area, you must also obtain a City Right of Way Concrete permit.

If your Private Sewer Service Line goes to a backyard or other easement sewer main, notify 811. Please be advised that utility locates take approximately 48 business hours to complete.

Unless there is a city sewer located within a dedicated easement, the Public Works Department will not come onto private property to mark anything for you. You must contact a professional if you are seeking to know where the lines run in your yard or on your property.

Once completed, the water line(s) will be marked with blue flags or spray paint, and the sewer line(s) will be marked with green flags or spray paint.

Only a Licensed Plumbing Contractor should be performing any Private Sewer Service Line repair or replacement work in the City.

Licensed contractors must follow the City Plumbing Code.

Two-Way Cleanouts are required to be installed at the Property line.

The City requires the property owner to install a two-way cleanout on the Sewer Service Line at the property line. Please call the Public Works Department to get the specific location of where the two-way cleanout should be installed. Any significant deviance from this must be approved by the Public Works Department.

The City in the wastewater treatment service area has worked to reduce wet weather sanitary sewer overflows to community streets, waterways, and the Bay. The replacement of old, and cracked sewer pipes can decrease the amount of rainwater infiltration entering the system which left unaddressed can overwhelm the conveyance and treatment capacity of the wastewater facilities.

The City has an ongoing replacement program for the publicly owned mainline pipes, manholes, pump stations and lower sewer service line. However, some homes have never had their original Sewer Service Lines replaced. Over time, these pipelines, generally made of clay, can crack, become disjointed, experience displacement, and/or be subjected to intrusion by tree roots, all of which can cause leakage and blockage. This Private Sewer Service Line Program is intended as a mechanism to have property owners renew their portion of the sewer system.

**APPENDIX 3  
EXAMPLE ORDINANCE**

**18-5.3 - Property Owner Responsibility for Sewer Service Lines.**

- a. Property owners own the entire sewer service lines and must maintain, repair and replace all sewer service lines associated with their parcels to the extent necessary to ensure the sewer service lines meet the standards of this chapter. The minimum standards are as follows:
  1. Sewer service lines shall be kept free from roots, grease deposits, and other solids which may impede the flow or obstruct the transmission of waste.
  2. The sewer service lines shall have a two way cleanout located at the property line or at the sewer main easement. All cleanouts shall be securely capped with a proper cap at all times.
  3. There shall be no non-sanitary sewer connections to the sewer service lines or to any plumbing that connects thereto.
  4. All joints of the sewer service lines shall be watertight and all sewer service pipes shall be sound to prevent exfiltration by waste or infiltration by ground water or storm water.
  5. The sewer service lines shall be free of any structural defects, cracks, breaks, openings, rat holes, or missing portions and the grade shall be uniform without sags or offsets.
- b. Property owners must perform any repair or replacement and perform any inspections necessary to ensure the upper sewer service lines meet the above standards and requirements of the City Ordinance.
- c. All property owners must obtain a plumbing permit for the upper sewer service lines from the City at the time and in the manner required by the City Ordinance.
- d. Before completing a title transfer associated with a parcel containing any structure, either the transferor or transferee, as negotiated between them, shall obtain a plumbing permit for the upper sewer service lines from the City, unless a time extension certificate is obtained, see paragraph g. After the title transfer is complete, the transferee is solely responsible for obtaining a plumbing permit for the upper sewer service lines. The requirement to obtain a plumbing permit for the upper sewer service lines before title transfer in no way affects the legality of the transfer of title in the underlying property transaction.
- e. Whenever a property owner submits an application for any permit or other approval needed for new construction upon a parcel, or for remodeling of an existing or previously existing structure, the property owner shall obtain a plumbing permit for the upper sewer service line from the City before obtaining a final permit. This paragraph applies to construction and remodeling if the cost of the permitted work exceeds the dollar amount specified in the City Ordinance.
- f. Whenever a property owner applies for any permit or other approval from the City for an increase or decrease in size of the property owner's water meter, the property owner shall obtain a plumbing permit for the upper sewer service lines from the City before obtaining a final permit or approval. The City may permit or approve an increase or decrease in water meter size without first requiring the property owner to obtain a plumbing permit for the upper sewer service lines if the property owner has submitted a pending application for a permit subject to paragraph e above.
- g. A property owner may at any time voluntary request a plumbing permit for the upper sewer service line for a given parcel from the City and the City shall issue the plumbing permit as provided by the City Ordinance if the upper sewer service lines located upon the parcel passes a verification test.
- h. If a plumbing permit for the upper sewer service lines cannot be obtained before the title transfer, the transferor, transferee, or other interested party or parties may obtain a time extension certificate from the City in accordance with the City Ordinance. Time extension certificates are issued in connection with title transfer transactions only.

**APPENDIX 3  
EXAMPLE ORDINANCE**

- i. A property owner may request an exemption certificate from the City in accordance with the City Ordinance.
- j. Property owners within common interest developments must obtain a plumbing permit for the upper sewer service lines from the City as described in the City Ordinance.
- k. The property owner of any parcel or any parcel group with upper sewer service lines exceeding one thousand (1,000') feet in total combined length within the parcel or parcel group must comply with the requirements for a condition assessment plan, corrective action work plan, and plumbing permit as specified in the City Ordinance.
- l. The City may establish fees for administration of this chapter. The property owner shall be responsible for paying any fees established by the City in addition to any fees established by the City.

(Ord. No. 3114 N.S., § 3, 11-18-2014)