



**Water Conservation Plan**  
*for the*  
**City of Galveston**  
  
**2009**

# **Water Conservation Plan for the City of Galveston**

**2009**

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## **I. OBJECTIVES**

Having a dependable water supply has been a key issue in economic and land development in Texas. The growing population and economic expansion occurring in Southeast Texas are placing increased demands on our water supplies. In order to meet the challenge of providing for our current and future needs we must learn to use more efficiently the water we already have. By stretching our existing supplies we can delay the need for new supplies, minimize the environmental impacts associated with developing new water resources, and postpone the high cost of constructing the infrastructure (treatment facilities, and pipelines) necessary to treat, and transport the additional water into our homes and businesses.

The objectives of this water conservation plan are as follows:

- To reduce water consumption from the levels that would prevail without conservation efforts.
- To reduce the loss and waste of water.
- To improve efficiency in the use of water.
- To document the level of recycling and reuse in the water supply.
- To extend the life of current water supplies by reducing the rate of growth in demand.

The water conservation plan presented in this document is a model water conservation plan intended for adoption by wholesale or retail public water suppliers in Region H. This model plan includes all the elements required by TCEQ.

## **II. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES**

### **II-I. Conservation Plans**

The TCEQ rules governing development of water conservation plans for public water suppliers are contained in Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code which is included in Appendix B. For the purpose of these rules, a water conservation plan is defined as “A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water<sup>1</sup>.” The elements in the TCEQ water conservation rules covered in this <sup>1</sup>conservation plan are listed below.

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<sup>1</sup> Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.2, and Subchapter B, Rule 288.20, downloaded from <http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/288a.pdf>, November 2003.

### Minimum Conservation Plan Requirements

The minimum requirements in the Texas Administrative Code for Water Conservation Plans for Public Water Suppliers are covered in this report as follows:

- 288.2(a)(1)(A) – Utility Profile – Section III and Appendix C
- 288.2(a)(1)(B) – Specification of Goals – Section IV
- 288.2(a)(1)(C) – Accurate Metering – Section V-I
- 288.2(a)(1)(D) – Universal Metering – Section V-I
- 288.2(a)(1)(E) – Determination and Control of Unaccounted – Section V-III
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### Conservation Additional Requirements (Population over 5,000)

The Texas Administrative Code includes additional requirements for water conservation plans for cities with a population over 5,000:

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections V-III, V-IV and V-V
- 288.2(a)(2)(B) – Record Management System – Section V-II
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers  
Section VIII-IV

### Additional Conservation Strategies

TCEQ rules also list additional optional but not required conservation strategies, which may be adopted by suppliers. The following optional strategies are included in this plan:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section VII
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section VIII-I
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section VIII-III
- 288.2(a)(3)(G) – Monitoring Method – Section V-V

### **III. WATER UTILITY PROFILE**

Appendix C to this water conservation plan is the water utility profile based on the format recommended by TCEQ. The information provided was obtained from monthly Utility Billing, and the Gulf Coast Water Authority take point meter. The data in the report is based on water use for calendar years.

### **IV. SPECIFICATION OF GOALS**

Current TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of the plan adoption, 5-year and 10-year goals for per capita municipal use, following TCEQ procedures described in the water utility profile (Appendix D) have been developed. The goals for this water conservation plan include the following:

- Strive to attain the per capita municipal water use below the specified amount in gallons per capita per day shown on the completed Excel spreadsheet using a 5-year rolling average calculation. (See 5-year and 10-year goals in Appendix F).
- Conduct water audits as required by the TCEQ and maintain unaccounted water to 12% of the total used through existing and new maintenance programs.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program as discussed in Section VI.

### **V. METERING, WATER USE RECORDS, CONTROL OF UNACCOUNTED WATER, AND LEAK DETECTION AND REPAIR**

One of the key elements in water conservation is careful tracking of water use and control of losses through illegal diversions and leaks. Careful metering of water deliveries and water use, detection and repair of leaks in the distribution system and regular monitoring of unaccounted water are important in controlling losses.

#### **V-I. Metering of Customer and Public Uses and Meter Testing, Repair and Replacement**

In 2005 The City of Galveston replaced all water meters throughout the system. As part of this meter replacement contract, the firm overseeing the project will randomly pull and test 400 meters and test their accuracy. This AWWA accuracy guarantee is good until 2015. The City will then have the option to extend this random testing contract.

#### **V-II. Record Management System**

The City of Galveston classifies water customers as residential, commercial, and governmental. This information is included in the yearly conservation report. Monthly recording and discussion of consumption, billing and unaccounted water is discussed monthly. The City of Galveston has limited industrial water customers as a result these accounts are classified as commercial.

### **V-III. Determination and Control of Unaccounted Water**

Unaccounted water is the difference between water delivered to customers and metered deliveries to customers plus authorized but unmetered uses. (Authorized but unmetered uses would include use for fire fighting, releases for flushing of lines, and uses associated with new construction.) Unaccounted water can include several categories:

- Inaccuracies in customer meters. (Customer meters tend to run more slowly as they age and under-report actual use.)
- Accounts which are being used but have yet to be added to the billing system.
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to illegal connections and theft.

Unaccounted water is calculated and discussed monthly with representatives from the Utility Billing, Finance, Public Works. With the measures described in this plan, the City of Galveston intends to maintain unaccounted water below 12% in 2009 and subsequent years. If unaccounted water exceeds 16%, the Public Works Department will implement a more intensive audit to determine the source(s) of and reduce the unaccounted water as funds are available. Monthly reporting and the annual water utility profile are the primary tools used to monitor unaccounted water.

### **V-IV. Leak Detection and Repair**

City crews and personnel will look for and report evidence of leaks in the water distribution system. Areas of the water distribution system in which numerous leaks and line breaks occur are targeted for replacement as funds are available.

### **V-V. Monitoring of Effectiveness and Efficiency – Annual Water Conservation Report**

An annual conservation report will be completed by May 1 of the following year for the preceding calendar year, and will be used to monitor the effectiveness and efficiency of the water conservation program and to plan conservation-related activities for the next year. This report records the water used by category, per capita municipal use, and unaccounted water for the current year and compares them to historical values.

## VI. CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN

The continuing public education and information on water conservation includes the following elements:

- Insert water conservation information with water bills. Inserts will include material developed by City of Galveston staff and material obtained by the TWDB, the TCEQ, Gulf Coast Water Authority, the Harris Galveston Subsidence District, and other sources.
- Promotion of Texas Smartscape
- Development of a rainwater harvesting demonstration project by calendar year 2012.

## VII. WATER RATE STRUCTURE

The current water rate ordinance is structured using a tiered method. The following is taken from the City of Galveston Code of Ordinance Sec. 36-64:

*Based on consumption.* For water supplied to consumers, the rates charged per one hundred (100) cubic feet shall be as follows:

Quantity	Inside City Limits	Outside City Limits
First 200 cubic feet or fraction thereof	\$10.67	\$21.34
Next 3,800 cubic feet	2.79	5.57
Next 46,000 cubic feet	2.97	5.94
Next 950,000 cubic feet	3.02	6.06
All over 1,000,000 cubic feet	3.63	6.62

City of Galveston Code of Ordinance Sec. 36-65:

The minimum monthly water bill on each connected meter shall be as follows:

Size of Meter (inches)	Minimum Consumption (Ccf*)	Inside City Limits	Outside City Limits
5/8	2	\$ 10.67	\$ 21.34
1	5	21.38	42.79
1 1/2	13	42.77	85.52
2	29	85.52	171.05
3	58	171.06	342.13
4	116	342.12	684.21
6 or over	232	684.21	1,368.46

**VIII. OTHER WATER CONSERVATION MEASURES**

**VIII-I. Ordinances, Plumbing Codes or Rules on Water Conserving Fixtures**

The International Plumbing Code, 2006 Edition, as amended by the City of Galveston was adopted by the Galveston City Council on September 13, 2007 by reference. Unless deleted, amended, expanded or otherwise changed, all provisions of such Code are applicable and binding. (Ordinance Number 07-068, § 2)

**VIII-II. Reservoir System Operational Plan**

The City of Galveston does not have a reservoir. Water is purchased water from the Gulf Coast Water Authority.

**VIII-III. Considerations for Landscape Water Management Regulations (Optional)**

Reserved

**VIII-IV. Requirement for Water Conservation Plans by Wholesale Customers**

The City of Galveston will amend the wholesale water contracts to insure that a Water Conservation/Drought Contingency Plans are enacted and implemented by the wholesale customers.

**VIII-V. Coordination with Regional Water Planning Group**

In accordance with TCEQ regulations, a copy of this adopted water conservation plan will be sent to the Region H water planning group. A copy of the transmittal letter to Region H Water Planning Group is included as Appendix F.

**VIII-VI Drought Contingency Plan**

The City of Galveston City Council adopted Ordinance No. 03-067 on June 26, 2003 putting in place a Drought Contingency Plan. This Drought Contingency Plan is now incorporated into this overall water conservation plan as Appendix C. All language set forth in Ordinance No. 03-067 remain enforceable and intact with the exception of a conflict between it and the Water Conservation Plan. If such conflict exists the Conservation Plan takes precedents.

**IX. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN**

A copy of Ordinance 09-048 amending Ordinance No. 03-067 and making it part of this updated Water Conservation Plan adopted by the City of Galveston's City Council on August 13, 2009 is attached and made part of this plan. Ordinance 09-048 designates responsible officials to implement and enforce the water conservation plan. Enforcement of Ordinance 09-048 becomes effective immediately as adopted by the Galveston City Council on August 13, 2009. Ordinance 09-048 is attached hereto Appendix G.

# **Appendix A**

List of References

# Appendix A

## List of References

(1) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter A, Rules 288.1 and 288.2, and Subchapter B, Rule 288.20, downloaded from <http://www.tceq.state.tx.us/assets/public/legal/rules/rules/pdflib/288a.pdf>, July 26, 2009.

The following conservation plans and related documents were reviewed in the development of this plan.

(2) City of Euless Draft Water Conservation Plan. July 2009.

(3) Texas Commission on Environmental Quality Water Utility Profile, downloaded from <http://www.tnrcc.state.tx.us/permitting/forms/10218.pdf>, April 29, 2004

(4) City of Austin Water Conservation Division: “City of Austin Water Conservation Plan, Developed to Meet Senate Bill 1 Regulatory Requirements,” Austin, August 1999.

# **Appendix B**

Texas Commission on Environmental  
Quality Rules on Municipal Water  
Conservation Plans

**Texas Administrative Code**

**TITLE 30**

ENVIRONMENTAL QUALITY

**PART 1**

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

**CHAPTER 288**

WATER CONSERVATION PLANS, DROUGHT CONTINGENCY  
PLANS, GUIDELINES AND REQUIREMENTS

**SUBCHAPTER A**

WATER CONSERVATION PLANS

**RULE §288.2**

**Water Conservation Plans for Municipal Uses by Public Water  
Suppliers**

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- (a) A water conservation plan for municipal water use by public water suppliers must provide information in response to the following. If the plan does not provide information for each requirement, the public water supplier shall include in the plan an explanation of why the requirement is not applicable.
- (1) Minimum requirements. All water conservation plans for municipal uses by public drinking water suppliers must include the following elements:
- (A) a utility profile including, but not limited to, information regarding population and customer data, water use data, water supply system data, and wastewater system data;
  - (B) until May 1, 2005, specification of conservation goals including, but not limited to, municipal per capita water use goals, the basis for the development of such goals, and a time frame for achieving the specified goals;
  - (C) beginning May 1, 2005, specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for municipal use, in gallons per capita per day. The goals established by a public water supplier under this subparagraph are not enforceable;
  - (D) metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply;
  - (E) a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement;
  - (F) measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.);
  - (G) a program of continuing public education and information regarding water conservation;
  - (H) a water rate structure which is not "promotional," i.e., a rate structure which is cost based and which does not encourage the excessive use of water;
  - (I) a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies; and
  - (J) a means of implementation and enforcement which shall be evidenced by:
    - (i) a copy of the ordinance, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and
    - (ii) a description of the authority by which the water supplier will implement and enforce the conservation plan; and
  - (K) documentation of coordination with the regional water planning groups for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

- (2) Additional content requirements. Water conservation plans for municipal uses by public drinking water suppliers serving a current population of 5,000 or more and/or a projected population of 5,000 or more within the next ten years subsequent to the effective date of the plan must include the following elements:
- (A) a program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water;
  - (B) a record management system to record water pumped, water deliveries, water sales, and water losses which allows for the desegregation of water sales and uses into the following user classes:
    - (i) residential;
    - (ii) commercial;
    - (iii) public and institutional; and
    - (iv) industrial; and
  - (C) a requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in this chapter; if the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter.
- (3) Additional conservation strategies. Any combination of the following strategies shall be selected by the water supplier, in addition to the minimum requirements in paragraphs (1) and (2) of this subsection, if they are necessary to achieve the stated water conservation goals of the plan. The commission may require that any of the following strategies be implemented by the water supplier if the commission determines that the strategy is necessary to achieve the goals of the water conservation plan:
- (A) conservation-oriented water rates and water rate structures such as uniform or increasing block rate schedules, and/or seasonal rates, but not flat rate or decreasing block rates;
  - (B) adoption of ordinances, plumbing codes, and/or rules requiring water-conserving plumbing fixtures to be installed in new structures and existing structures undergoing substantial modification or addition;
  - (C) a program for the replacement or retrofit of water-conserving plumbing fixtures in existing structures;
  - (D) reuse and/or recycling of wastewater and/or graywater;
  - (E) a program for pressure control and/or reduction in the distribution system and/or for customer connections;
  - (F) a program and/or ordinance(s) for landscape water management;
  - (G) a method for monitoring the effectiveness and efficiency of the water conservation plan; and
  - (H) any other water conservation practice, method, or technique which the water supplier shows to be appropriate for achieving the stated goal or goals of the water conservation plan.

- (b) A water conservation plan prepared in accordance with 31 TAC §363.15 (relating to Required Water Conservation Plan) of the Texas Water Development Board and substantially meeting the requirements of this section and other applicable commission rules may be submitted to meet application requirements in accordance with a memorandum of understanding between the commission and the Texas Water Development Board.
- (c) Beginning May 1, 2005, a public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group.

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**Source Note:** The provisions of this §288.2 adopted to be effective May 3, 1993, 18 TexReg 2558; amended to be effective February 21, 1999, 24 TexReg 949; amended to be effective April 27, 2000, 25 TexReg 3544; amended to be effective October 7, 2004, 29 TexReg 9384

# **Appendix C**

Drought Contingency Plan

# **DROUGHT CONTINGENCY PLAN FOR THE CITY OF GALVESTON**

## **Section I: Declaration of Policy, Purpose, and Intent**

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Galveston hereby adopts the following regulations and restrictions on the delivery and consumption of water.

Water uses regulated or prohibited under this Drought Contingency Plan are considered to constitute a waste of water which subjects the offender(s) to penalties as defined in Section X of this Plan.

## **Section II: Public Involvement**

Opportunity for the public to provide input into the preparation of the Plan was provided by the City of Galveston by means of scheduling and providing public notice of a public meeting, scheduled by the City Secretary, to accept input on the Plan.

## **Section III: Public Education**

Successful implementation of the Drought Contingency Plan depends on effective communication with the public. The City of Galveston must exchange ideas with the public to understand its needs and determine what water uses are most essential. The public must believe that the measures adopted are credible. A public awareness and education campaign will be successful if it conveys that:

1. The water management condition is real.
2. Reductions in water demand are necessary.
3. The adopted measures realistically correspond to the severity of the situation.
4. All Customers share the inconvenience during water shortages.
5. The City of Galveston is effectively managing the existing water supply.

To accomplish these objectives, the City will take the following steps during drought or water emergency conditions:

- Alert the public and keep the public regularly informed through local media.
- Initiate public discussions when appropriate.
- Promote public understanding of the Drought Contingency Plan and convey restrictions required should situations worsen.
- Educate the public about ways to use water more efficiently.
- Gather public support for the plan's actions.
- Highlight the leadership role of the city government to save water.
- The campaign will work to gather support from various forms of news media to successfully keep the public informed. Once initiated, and especially during stages 3 and 4, the City and the news media will provide regular alerts to successfully implement public awareness and education through the following options.

#### **News Media:**

- Radio, television, internet and public service announcements
- Newspaper and other local publication announcements
- Interviews on radio and television programs, when appropriate
- Other radio and television pieces
- Newspaper and local magazine articles
- Press releases
- Paid or donated advertising

#### ***Communications:***

- Citizen hot line (Number to be included in all communications).
- Communication to media web sites of the current stage and restrictions that apply.
- Telephone and written notifications to large water use customers when applicable.
- Water bill inserts or messages.
- Distribution of fact sheets, brochures, and pamphlets.
- Mail **distinctive-looking post cards** to customers beginning in stage two (2) conveying internal water restrictions that apply during this stage as well as a reminder to stay tuned to the media for mandatory restrictions during subsequent possible stages.

- Posting of signs and notices (e.g., city and county buildings, post offices).
- Billboards (if time and availability allows).
- Training City of Galveston customer service representatives.
- Post current Drought Contingency stage and restrictions that apply to the City's web site.

***Community Involvement:***

- Public meetings and hearings
- Public education seminars
- City employee training
- School programs
- Organized contests (e.g., poster or T-shirt design, showing new ideas to save water)
- Community outreach programs
- Education and outreach from community volunteers
- Formation of citizens' committees or other public forums

***Wholesale Customer Education:***

City of Galveston will periodically provide wholesale water customers with information about the Drought Contingency Plan including conditions that initiate each stage and the drought response measures to be implemented.

**Section IV: Coordination with Regional Water Planning Groups**

The service area of the City of Galveston is located within the Houston Region (H) Water Planning Group and the Director of Municipal Utilities will provide a copy of this Plan to the Houston Region (H) WPG<sup>2</sup> and to the City's supplier, the Gulf Coast Water Authority<sup>3</sup>.

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<sup>2</sup> Region H Administrative Office, 1660 W. Bay Area Blvd., Friendswood, TX 77546-2640  
Phone-281-486-1105 Fax- 281-218-3714

<sup>3</sup> 3630 Highway 1765 Texas City, TX 77591-4824 Phone-409-935-2438 Fax-409-935-4156

## **Section V: Authorization**

The Director of Municipal Utilities, or a designee, is hereby authorized and directed to implement and administer, at the direction of the City Manager, the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare.

## **Section VI: Application**

The provisions of this Plan shall apply to all customers purchasing water from the City of Galveston.

## **Section VII: Definitions**

For the purposes of this Plan, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial and non-profit establishments and governmental entities, such as retail establishments, large housing complexes, hotels/ motels and entertainment complexes, Port of Galveston entities, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

Retail Customer: any person or entity purchasing drinking water from the City of Galveston for use or consumption.

Wholesale Customer: any entity purchasing potable water from the City of Galveston for resale or redistribution.

Domestic water use: commonly known as “drinking water,” used for personal needs or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or cleaning.

Property in East Galveston: property located East of an extended line running North and South along the center of 45<sup>th</sup> street.

Property in West Galveston: property located West of an extended line running North and South along the center of 45<sup>th</sup> street.

Industrial water use: the use of water in processes designed to convert materials of lower value into form having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and right-of-way and medians. Both potable and non-potable water may be used for this purpose.

Non-essential water use: The use of potable water for the following purposes is considered non-essential and will be regulated or prohibited, depending on implementation stages of this Plan:

- (a) irrigation of landscape areas, including parks, schools, athletic field, and golf courses, except otherwise provided under this Plan;
- (b) washing any motor vehicle, motorbike, boat, trailer, airplane or other vehicle, other than in a commercial car wash, if not necessary for the protection of public health, safety, and welfare;
- (c) washing any sidewalks, walkways, driveway, parking lot, tennis courts, or other hard-surfaced areas;
- (d) washing buildings or structures for purposes other than immediate fire protection;
- (e) flushing gutters or permitting water to run or accumulate in any gutter or street;
- (f) filling, refilling, or adding to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) filling, refilling, or adding to any fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) using water hydrants for construction purposes or any other purposes other than fire fighting, hydrant flushing and street cleaning;
- (i) water loss because a responsible party has not repaired controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

**Section VIII: Criteria for Initiation and Termination of Drought Response Stages**

The Director of Municipal Utilities or a designee, under the direction of the City Manager, shall monitor water supply and demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified “triggers” are reached.

The criteria described below are based on statistical analysis of the vulnerability of water supply under past drought conditions.

**Stage 1 Triggers – MILD Water Shortage Conditions**

Requirements for Initiation and Termination

	<b>Triggering Criteria</b>		
	<b>For four consecutive days:</b>	<b>OR:</b>	<b>Goal</b>
Initiate	Total water demand exceeds 80% of deliverable capacity <b>or</b> Water reservoirs fall below 80% of capacity	For a single day demand exceeds 85% of deliverable capacity <b>or</b> Water reservoirs fall below 70% of capacity	Alert customers and create public awareness of water demand conditions
Terminate	May be rescinded when the need for conservation is no longer necessary for a period of 14 consecutive days, or as otherwise determined by the City Director of Municipal Utilities.		

**Stage 2 Triggers – MODERATE Water Shortage Conditions**  
Requirements for Initiation and Termination

	<b>Triggering Criteria</b>		
	<b>For four consecutive days:</b>	<b>OR:</b>	<b>Goal</b>
Initiate	Total water demand exceeds 85% of deliverable capacity <b>or</b> Water reservoirs fall below 70% of capacity	For a single day demand exceeds 90% of deliverable capacity <b>or</b> Water reservoirs fall below 65% of capacity	Daily water demand does not rise above 90% of capacity <b>or</b> Water reservoirs are above 80% of capacity
Terminate	When all of the conditions triggering events have ceased to exist for a period of 14 consecutive days, or as otherwise determined by the Director of Municipal Utilities. Upon termination of Stage 2, Stage 1 becomes operative.		

**Stage 3 Triggers – SEVERE Water Shortage Conditions**

Requirements for Initiation and Termination

	<b>Triggering Criteria</b>		
	<b>For THREE consecutive days:</b>		<b>Goal</b>
Initiate	Total water demand exceeds 90% of deliverable capacity <b>or</b> Water reservoirs fall below 65% of capacity		Reduce and maintain daily water demand at or below 90% of capacity <b>or</b> Water reservoirs are above 75% of capacity
Terminate	When all of the conditions triggering events have ceased to exist for a period of 10 consecutive days, or as otherwise determined by the Director of Municipal Utilities. Upon termination of Stage 3, Stage 2 becomes operative.		

## Stage 4 Triggers – CRITICAL Water Shortage Conditions

### Requirements for Initiation and Termination

	<b>Triggering Criteria</b>	
	<b>For ONE day:</b>	<b>Goal</b>
Initiate	Total water demand exceeds 95% of deliverable capacity <b>or</b> Water reservoirs fall below 60% of capacity	Reduce and maintain daily water demand at or below 80% of capacity
Terminate	When all of the conditions triggering events have ceased to exist for a period of 10 consecutive days, or as otherwise determined by the Director of Municipal Utilities. Upon termination of Stage 4, Stage 3 becomes operative.	<b>or</b> Water reservoirs are above 70% of capacity

## Stage 5 Triggers – EMERGENCY Water Shortage Conditions

### Requirements for Initiation and Termination

	<b>Triggering Criteria</b>	
		<b>Goal</b>
Initiate	<ol style="list-style-type: none"> <li>1. Major water line breaks, or pump or system failures occur, which cause significant loss of capability to provide water service; <b>or</b></li> <li>2. Natural or man-made contamination of the water supply source(s); <b>or</b></li> <li>3. Stage 4 has not reduced water usage to goal levels and the Director of Municipal Utilities determines the City may not be able to meet the water demands of customers.</li> </ol>	<ol style="list-style-type: none"> <li>1. For anticipated short-term emergency, discontinue all water system operations and correct the emergency situation to insure a safe supply of water.</li> </ol>
Terminate	<p>When all of the conditions triggering events have ceased to exist for a period of 14 consecutive days, or as otherwise determined by the Director of Municipal Utilities.</p> <p>Upon termination of Stage 5, Stage 4 becomes operative.</p>	<ol style="list-style-type: none"> <li>2. For anticipated or actual extended emergency period, reduce and maintain daily water demand to appropriate supply level while situation is being corrected.</li> </ol>

### **Section IX: Drought Response Stages**

The Director of Municipal Utilities, or a designee, shall continuously monitor water supply and demand conditions and, in accordance with the triggering criteria set forth in Section VIII of this Plan, shall determine that a mild, moderate, severe, critical, or emergency condition exists and shall implement the following notification procedures:

## **Notification**

### Notification of the Public:

When the Director of Municipal Utilities or a designee implements this Plan, he/she shall immediately notify the public by means of announcements in local media. Update releases will be on at least a daily basis during implementation of this Plan, unless otherwise specified for specific responses listed below.

### Additional Notification:

When the Director of Municipal Utilities or a designee implements this Plan, he/she shall immediately notify directly, or delegate to be notified directly, the following individuals and entities:

Mayor and members of the City Council

TCEQ – 512-239-6054 (required when restrictions are mandatory)

City Emergency Management Officer

Customers with highest water need or use, including hospitals; health care facilities; geriatric complexes and homes; the Port of Galveston; the County Department of Parks and Recreation; major hotels, cruise lines and entertainment centers; major restaurants; major housing complexes; water suppliers for off-shore locations; industrial plants and complexes.

## **Post Event Assessment**

At the termination of each event, Director of Municipal Utilities shall prepare a post-event assessment report and critique the effectiveness of deliverable capacity, triggers and response procedures so the City may consider modifications to this Plan and/or its execution.

## Stage 1 Response – MILD Water Shortage Conditions

<b><u>Supply Management Measures:</u></b>	<b><u>Voluntary Water Use Restrictions:</u></b>
<p>(a) The City will monitor water supply and demand on a constant basis and notify users by press releases of conditions as appropriate.</p> <p>(b) Call and mail notification to major water consumers of need to reduce their usage on a voluntary basis by at least 5%.</p> <p>(c) Water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.</p> <p>(d) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be performed at extended intervals or deferred at the discretion of the Director of Municipal Utilities.</p> <p>(e) The substitution of reclaimed, non-potable water for irrigation purposes may be initiated whenever feasible by the City and other governmental agencies engaged in irrigation activities.</p> <p>(f) The Director of Municipal Utilities may explore alternative sources of potable water.</p> <p>(g) Notify wholesale water purchasers of reductions in available water and advise implementation of conservation plan.</p>	<p>(a) Via press releases and/or published notices in all media, request that water customers practice water conservation and minimize or discontinue water use for non-essential purposes.</p> <p>(b) Request, via press releases and/or published notices, that customers voluntarily limit the irrigation of Landscaped areas with potable water to Tuesdays and Thursdays for customers on the East side of the City, and Wednesdays and Fridays for water customers on the West side of the City, and to irrigate landscapes before 10 a.m. OR after 8:00 p.m. on designated watering days.</p>
<p><u>Upon Termination of Stage 1:</u></p>	<p>Notify customers via press releases for at least two consecutive days that Stage 1 is ended.</p>

## Stage 2 Response – MODERATE Water Shortage Conditions

<b><u>Supply Management Measures:</u></b>	<b><u>Water Use Restrictions:</u></b>
<p>(a) The City will monitor water supply and demand on a constant basis and notify users of conditions on at least a daily basis via press notices.</p> <p>(b) Call and mail notification to major water consumers of need to reduce their</p>	<p>Under threat of penalty for violation, the following water use restrictions shall apply to all persons:</p> <p>(a) Irrigation of landscaped areas with hose-end sprinklers or automatic Irrigation systems shall be limited to</p>

usage by at least 10%.

(c) Water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.

(d) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be performed at extended intervals or deferred at the discretion of the Director of Municipal Utilities.

(e) The substitution of reclaimed, non-potable water for irrigation purposes should be initiated whenever feasible by the City and other governmental agencies engaged in irrigation activities.

(f) The Director of Municipal Utilities may explore alternative sources of potable water.

(g) Notify wholesale water purchasers of reductions in available water and advise implementation of conservation plan. If City anticipates shortage for extended period, meet with wholesale customers and formulate plan for allocation.

Mondays and Thursdays for customers on the East side of the City (east of 103<sup>rd</sup> Street), and Wednesdays and Saturdays for water customers on the West side of the City (west of 103<sup>rd</sup> Street), and to irrigate landscapes before 10 a.m. OR after 8:00 p.m. on designated watering days. However, irrigation of landscaped areas is permitted at any time on the designated days if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system.

(b) Private use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days before 10 a.m. OR after 8:00 p.m. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the premises of a commercial car wash or commercial service station.

Further, such washing may be exempted from these regulations if, as determined by the Director of Municipal Utilities, the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks, fishing vessels, and vehicles used to transport food and perishables

(c) Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools or jacuzzi-type pools is prohibited except on designated watering days before 10 a.m. OR after 8:00 p.m.

(d) The addition of potable water to any ornamental fountain or pond

for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life

(e) Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the Director of Municipal Utilities, or designee, City of Galveston.

(f) Unless permitted by the Director of Municipal Utilities, use of potable water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days before 10 a.m. OR after 8:00 p.m. However, if the golf course utilizes a water source other than potable water provided by the City of Galveston (e.g. reclaimed, non-potable water), the facility shall not be subject to these regulations.

(g) All restaurants are prohibited from serving water to patrons except on patron request.

(h) The following uses of potable water are considered non-essential in Stage 2 and are prohibited unless services are being provided by a third party for profit company:

1. wash down of any sidewalks, walkways, driveway, parking lot, tennis courts, or other hard-surfaced areas;
2. use of water to wash down buildings or structures for purposes other than immediate fire protection;
3. use of water for dust control, except as permitted by the

	<p>Director of Municipal Utilities;</p> <p>4. hydrant flushing, flushing gutters, or permitting water to run or accumulate in any street; and</p> <p>5. failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).</p>
<p><u>Upon Termination of Stage 2:</u></p>	<p>Notify customers via press releases for at least two consecutive days that Stage 2 is ended and City is reverting to Stage 1.</p>

### Stage 3 Response – SEVERE Water Shortage Conditions

<b><u>Supply Management Measures:</u></b>	<b><u>Water Use Restrictions:</u></b>
<p>(a) The City will monitor water supply and demand on a constant basis and notify users via press releases of conditions on at least a daily basis.</p> <p>(b) Reduce distribution pressure in 10% increments as possible and appropriate to attempt to stabilize minimum storage levels.</p> <p>(c) If condition is anticipated to extend beyond 24 –hours, meet with representatives of major water consumers and determine plan to reduce their usage by at least 15%.</p> <p>(d) Water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.</p> <p>(e) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be performed at extended intervals or deferred at the discretion of the Director of Municipal Utilities.</p> <p>(f) The substitution of reclaimed, non-potable water for irrigation purposes should be initiated whenever feasible by the City and</p>	<p><b>All requirements of Stage 2 shall remain in effect during Stage 3 except:</b></p> <p>(a) Irrigation of landscaped areas shall be limited to designated watering Days before 10 a.m. OR after 8:00 p.m., and shall be by means of hand-held hoses, hand-held buckets, drip irrigation only. <u>The use of hose–end sprinklers and automatic sprinkler systems are prohibited at all times.</u></p> <p>(b) The watering of golf course tees with potable water is prohibited unless the golf course utilizes a water source other than that provided by the City of Galveston (e.g. reclaimed, non-potable water) .</p> <p>(c) The use of water for construction purposes from designated fire hydrants by special permit is prohibited, except with the written permission of the Director of Municipal Utilities.</p>

<p>other governmental agencies engaged in irrigation activities.</p> <p>(g) The Director of Municipal Utilities may explore alternative sources of potable water.</p> <p>(h) Notify wholesale water purchasers of reductions in available water and request implementation of conservation plan. If City anticipates shortage for extended period, meet with wholesale customers and formulate plan for allocation.</p>	
<p><b>IF STAGE 3 IS IN EFFECT FOR 14 CONSECUTIVE DAYS</b>, the City Manager may announce and implement a 10% surcharge over regular rates for City potable water during the next 30-day billing cycle. The surcharge will be in effect for at least one billing cycle, and may be extended for subsequent 30-day billing cycle periods or terminated at the end of a billing period.</p>	
<p><b><u>Upon Termination of Stage 3:</u></b></p>	<p>Notify customers via press releases for at least two consecutive days that Stage 3 is ended and City is reverting to Stage 2. Upon reverting to Stage 2, any 10% surcharge will be terminated at the end of its billing cycle in effect at the time of termination.</p>

**Stage 4 Response – CRITICAL Water Shortage Conditions**

<b><u>Supply Management Measures:</u></b>	<b><u>Water Use Restrictions:</u></b>
<p>(a) The City will monitor water supply and demand on a constant basis and notify users via press releases of conditions on at least a daily basis.</p> <p>(b) Reduce distribution pressure in 10% increments as possible and appropriate to attempt to stabilize minimum storage levels.</p> <p>(c) If condition is anticipated to extend beyond 24 –hours, meet with representatives of major water consumers and determine plan to</p>	<p><b>All requirements of Stage 3 shall remain in effect during Stage 4 except:</b></p> <p>(a) Irrigation of landscaped areas with potable water shall be limited to designated watering days between the hours of 8:00 a.m. and 10:00 a.m. OR between the hours of 8:00 p.m. and 10 p.m., and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation <u>only</u>.</p>

<p>reduce their usage by at least 20%.</p> <p>(d) Water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.</p> <p>(e) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be performed at extended intervals or deferred at the discretion of the Director of Municipal Utilities.</p> <p>(f) The substitution of reclaimed, non-potable water for irrigation purposes must be initiated whenever feasible by the City and other governmental agencies engaged in irrigation activities.</p> <p>(g) The Director of Municipal Utilities should aggressively explore alternative sources of potable water.</p> <p>(h) Notify wholesale water purchasers of reductions in available water and request implementation of conservation plan. If City anticipates shortage for extended period, meet with wholesale customers and formulate plan for allocation.</p>	<p>(b) Use of potable water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Further, such vehicle washing using potable water at commercial car washes and commercial service stations shall occur only between the hours of 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10 p.m.</p> <p>(c) The filling, refilling, or adding of water to swimming pools, wading pools, and Jacuzzi-type pools is prohibited.</p> <p>(d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.</p> <p>(e) Unless specifically approved by the Director of Municipal Utilities, no application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage or a higher-numbered stage shall be in effect.</p>
<p><b>IF STAGE 4 IS IN EFFECT FOR 14 CONSECUTIVE DAYS OR A 10% WATER SURCHARGE IS CARRIED OVER FROM STAGE 3, the City</b></p>	

<p>Manager may announce and implement a 15% surcharge over regular rates for City potable water during the next 30-day billing cycle. The surcharge will be in effect for at least one billing cycle, and may be extended for subsequent 30-day billing cycle periods, reduced, or terminated effective the end of a billing cycle period.</p>	
<p><b><u>Upon Termination of Stage 4:</u></b></p>	<p>Notify customers via press releases for at least two consecutive days that Stage 4 is ended and City is reverting to Stage 3. If a 15% surcharge is in effect on reverting to Stage 3, it must be reduced to the Stage 3 rate -10% effective the next billing cycle following the termination date.</p>

## Stage 5 Response – EMERGENCY Water Shortage Conditions

<b><u>Supply Management Measures:</u></b>	<b><u>Water Use Restrictions:</u></b>
<b>Anticipated short-term Emergency:</b>	<b>For both short and long-term Emergencies:</b>
<p><b>Discontinue all water system operations and correct the emergency situation to insure a safe supply of water.</b></p> <ul style="list-style-type: none"> <li>(a) The City will monitor water supply and demand on a constant basis and notify users via press releases of conditions at least every 4 hours.</li> <li>(b) Reduce distribution pressure in 10% increments as possible and appropriate to attempt to stabilize minimum storage levels.</li> <li>(c) Issue Boil Water notices via press releases and, if necessary, published notices.</li> <li>(d) Place Fire Department on alert.</li> <li>(e) Available potable water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.</li> <li>(f) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be deferred at the discretion of the Director of Municipal Utilities.</li> <li>(g) The substitution of reclaimed, non-potable water for irrigation purposes must be initiated whenever feasible by the City and other governmental agencies engaged in irrigation activities.</li> <li>(h) The Director of Municipal Utilities should explore alternative sources of potable water.</li> <li>(i) Notify wholesale water purchasers of reductions in available water and mandate implementation of conservation plan. If City anticipates shortage for extended period, meet with wholesale customers and formulate plan for allocation.</li> </ul>	<p><b>All requirements of Stage 4 shall remain in effect during Stage 5 except:</b></p> <ul style="list-style-type: none"> <li>(a) All irrigation of landscaped areas with potable water is prohibited.</li> <li>(b) Use of potable water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited, except in situations affecting the public health and safety based on written permission of the Director of Municipal Utilities.</li> <li>(c) <u>There will be a pro rata curtailment of water deliveries to or diversions by wholesale water customers as provided in Texas Water Code, §11.039.</u></li> </ul>

**Anticipated Extended Emergency:**

- (a) The City will monitor water supply and demand on a constant basis and notify users via press releases of conditions at least every 4 hours.
- (b) Reduce distribution pressure in 10% increments as possible and appropriate to attempt to stabilize minimum storage levels.
- (c) If necessary, issue Boil Water notices via press releases, published notices (if necessary), and, if condition extends beyond 24 hours, direct mailing to customers.
- (d) Place Fire Department on alert.
- (e) If condition is anticipated to last over 24 hours, meet with representatives of major water consumers and determine plan to reduce their usage to the minimum amount feasible.
- (f) Available potable water will be distributed to reservoirs based on demand in specific areas served by the reservoirs.
- (g) City maintenance services (e.g. flushing of water mains, watering of City property) normally performed with potable water will be deferred at the discretion of the Director of Municipal Utilities.
- (h) The substitution of reclaimed, non-potable water for irrigation purposes must be initiated whenever feasible by the City and other governmental agencies engaged in irrigation activities.
- (i) The Director of Municipal Utilities should explore alternative sources of potable water.
- (j) Notify wholesale water purchasers of reductions in available water and mandate implementation of conservation plan. If City anticipates shortage for extended period, meet with wholesale customers and formulate plan for allocation.

<b><u>Upon Termination of Stage 5:</u></b>	Notify customers via press releases for at least two consecutive days that Stage 5 is ended and City is reverting to Stage 4.
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## **Section IX: Emergency Water Allocation**

**If the supply of available potable water reaches such a low level that anticipated demand cannot be met and the health and safety of the community may be at risk, the City Director of Municipal Utilities, at the direction of the City Manager, shall be responsible for administering an allocation program under which the City may limit the times and/or days water will be pumped into the water distribution system.** If necessary, this allocation system may vary for areas of the City served by different reservoirs and water will be distributed accordingly to these reservoirs.

Schedules of water availability in different areas of the City will be announced by press releases to all media, and may be supplemented by the distribution of circulars at businesses and public buildings throughout the City, as determined by the Directory of Municipal Utilities.

Water distribution will be administered by the City Director of Municipal Utilities, at the direction of the City Manager, based on priorities established at a meeting with the Mayor, City Manager, the City Emergency Operation Officer, and any other official(s) the aforementioned individuals deem necessary, including wholesale customer representatives. The agreement should include, but not be limited to, considering the following facilities in setting area priorities:

- Fire and Public Safety facilities
- Hospitals and Medical-related (including veterinary) facilities
- Facilities housing distribution points for food and bottled water
- Geriatric and Assisted Living facilities
- Educational and Day Care facilities (while in session)
- Food service facilities (e.g. restaurants, food kitchens)
- Government, Commercial and Industrial facilities (e.g. courts, Public Works water system stations, power complexes, manufacturers, distributors, retail stores, auto service stations, hotels, mortuaries, entertainment complexes)
- Port of Galveston facilities.
- Residential users and housing complexes

**Water distribution to wholesale accounts:** There will be a provision in every wholesale water contract entered into or renewed by the City after adoption of this plan, including contract extensions, that in case of a shortage of water resulting from drought, the water to be distributed shall be divided in accordance with Texas Water Code, §11.039.

## **Section X: Enforcement**

(a) No person shall knowingly or intentionally allow the use of water from the City of Galveston for any use contrary to any provision of this Plan, as specified by the drought response stage in effect at the time as a result of action taken by Director of Municipal Utilities, or a designee, in accordance with provisions of this Plan. Any violation shall be considered an infraction against the public health and sanitation of the City.

(b) Any person who violates this Plan is guilty of a misdemeanor and shall be punishable by a fine not exceeding \$2,000.00 dollars. Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Plan, the Director of Municipal Utilities shall, upon 48-hour advance notice to the customer, be authorized to discontinue water service to the premises where such violations occur.

Services discontinued under such circumstances shall be restored only upon advance payment of a re-connection charge, hereby established at \$40.00 same day or \$25.00 next day, and any other cost incurred by the City of Galveston in disconnecting and restoring service. In addition, suitable assurance must be given to the Director of Municipal Utilities that the same action shall not be repeated while the Plan is in effect. Compliance with this plan may also be sought through injunctive relief in the district court.

(c) The Director of Municipal Utilities shall assume that the billing name for a water customer account is the person responsible for any violations to this Plan, and shall be presumed to be the violator, unless that person can submit tangible proof to the Director that another person or entity bears responsibility for the property.

- (d) Any employee of the City of Galveston designated by the Director of Municipal Utilities, or a police officer, may issue a citation to a person or entity in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the violator, if known, and the offense charged. The citation shall direct him/her to appear in the city municipal court on the date shown on the citation, for which the date shall not be less than 3 days nor more than 5 days from the date the citation was issued. The alleged violator shall be served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence. The alleged violator shall appear in city municipal court to enter a plea of guilty or not guilty for the violation of this Plan. If the alleged violator fails to appear in city municipal court, a warrant for arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in city municipal court before all other cases.
- (e) In the event of water allocation, appropriate security measures should be implemented by the affected City departments.

## **Section XI: Variances**

The Director of Municipal Utilities, or a designee, may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

- (a) Compliance with this Plan cannot be technically feasible during the duration of the water supply shortage or other condition for which the Plan is in effect.

- (b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance, obtained from the Director of Municipal Utilities or a designee, with the City of Galveston within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the Director of Municipal Utilities, or a designee, and shall include the following:

- (a) Name and address of the petitioner(s).
- (b) Purpose of water use.
- (c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
- (d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
- (e) Description of the relief requested.
- (f) Period of time for which the variance is sought.
- (g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this of this Plan and the compliance date.
- (h) Other pertinent information.

Variances granted by the City of Galveston shall be subject to the following conditions, unless waived or modified by the Director of Municipal Utilities or a designee:

- (a) Variances granted shall be valid only for the granted limited time period during the current situation where Stages of conservation are declared, and shall expire on the designated date or the termination of Stage 1 in the current sequence, whichever occurs first.
- (b) All variances granted shall be valid for a maximum of 90 days, at which time, if the City is still under a declared conservation period, the customer will have to re-apply for a new variance.

No variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

March, 2003

# Appendix D

Water Utility Profile  
With Definition of Terms  
Utility Statistics



## TEXAS WATER DEVELOPMENT BOARD

### UTILITY PROFILE

The purpose of the Utility Profile is to assist with water conservation plan development and to ensure that important information and data be considered when preparing your water conservation plan and its target and goals. Please complete all questions as completely and objectively as possible. See *Water Conservation Plan Guidance Checklist* (WRD-022) for information on other water conservation provisions. You may contact the Municipal Water Conservation Unit of the TWDB at 512-936-2391 for assistance.

#### APPLICANT DATA

Name of Utility: **City of Galveston, Texas**

Address & Zip: **PO Box 779  
Galveston, TX 77553**

Telephone Number: **409-797-3630** Email: **publicworks@cityofgalveston.org** Fax: **409-797-3631**

Form Completed By: **Eric K. Wilson** Title: **Director of Municipal Utilities**

Signature: \_\_\_\_\_ Date: **August 14, 2009**

**Name and Phone Number of Person/Department** responsible for implementing a water conservation program:

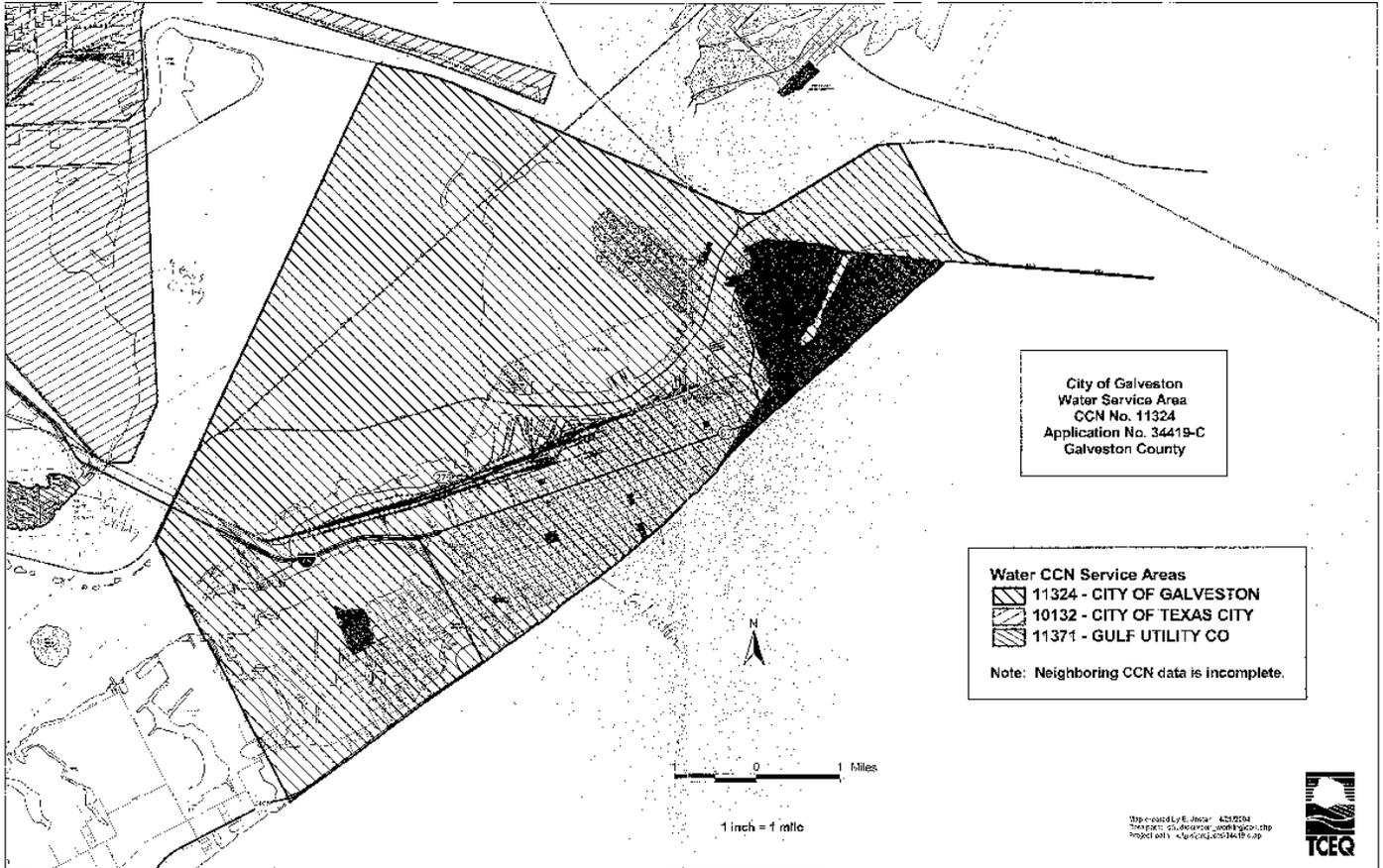
Name: **Municipal Utilities Director** Phone: **409-797-3630**

## UTILITY DATA

### I. CUSTOMER DATA

#### A. Population and Service Area Data

1. Please attach a copy of your Certificate of Convenience and Necessity (CCN) from the TCEQ



2. Service area size (square miles): 49.5
3. Current population of service area: **48,000** (\*estimated post Hurricane Ike 2008)
4. Current population served by utility: a: water **48,000\***  
b: wastewater **45,000\***

5. Population served by water utility for the previous five years:
6. Projected population for service area in the following decades:

Year	Population (1)	Year	Population (2)
2005	<b>57,212</b>	2010	<b>50,100</b>
2006	<b>56,987</b>	2020	<b>54,360</b>
2007	<b>56,958</b>	2030	<b>58,700</b>
2008	<b>57,086</b>	2040	<b>63,400</b>
2009	<b>48,000*</b>	2050	<b>68,500</b>

7. List source(s)/method(s) for the calculation of current and projected population:  
**(1) United States Census Bureau**  
**(2) Texas Data Center – Office of the State Demographer**

**B. Active Connections**

1. Current number of active connections by user type. If not a separate classification, check whether multi-family service is counted as Commercial (4 + Units)

<u>Treated Water Users</u>	<u>Metered</u>	<u>Not Metered</u>	<u>Total</u>
Residential-Single-Family	<b>18,418</b>	<b>0</b>	<b>18,418</b>
Residential-Multi-Family	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Commercial	<b>2,028</b>	<b>0</b>	<b>2,028</b>
Industrial	<b>16</b>	<b>0</b>	<b>16</b>
Public	<b>203</b>	<b>0</b>	<b>203</b>
Other	<b>2</b>	<b>0</b>	<b>2</b>

2. List the net number of new connections per year for most recent three years:

<u>Year</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Residential—Single Family	<b>655</b>	<b>427</b>	<b>1,098</b>
Residential—Multi-Family	<b>NA</b>	<b>NA</b>	<b>NA</b>
Commercial	<b>73</b>	<b>47</b>	<b>122</b>
Industrial	<b>0</b>	<b>1</b>	<b>0</b>
Public	<b>0</b>	<b>0</b>	<b>0</b>
Other	<b>0</b>	<b>0</b>	<b>0</b>

**C. High Volume Customers**

List annual water use for the five highest volume retail and wholesale customers  
(Please indicate if treated or raw water delivery.)

	<u>Customer</u>	<u>Use (1,000gal/yr.)</u>	<u>Treated or Raw</u>
1	<b>University of Texas Medical Branch Galveston (UTMB)</b>	<b>389,949</b>	<b>Treated</b>
2	<b>City of Galveston</b>	<b>266,190</b>	<b>Treated</b>
3	<b>Galveston County MUD # 1</b>	<b>189,497</b>	<b>Treated</b>
4	<b>Moody Gardens Complex</b>	<b>115,328</b>	<b>Treated</b>
5	<b>City of Jamaica Beach</b>	<b>75,971</b>	<b>Treated</b>

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Accounting Data**

- Amount of water use for previous five years (in 1,000 gal.):  
Please indicate: Diverted Water **none**  
Treated Water **none**

<u>Year</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
January	<b>329,710</b>	<b>356,218</b>	<b>396,888</b>	<b>427,718</b>	<b>449,348</b>
February	<b>339,271</b>	<b>325,538</b>	<b>367,368</b>	<b>428,405</b>	<b>428,323</b>
March	<b>399,384</b>	<b>371,019</b>	<b>444,083</b>	<b>516,942</b>	<b>496,522</b>
April	<b>405,520</b>	<b>396,182</b>	<b>471,188</b>	<b>450,416</b>	<b>552,991</b>
May	<b>438,388</b>	<b>415,477</b>	<b>523,923</b>	<b>535,886</b>	<b>569,193</b>
June	<b>459,961</b>	<b>498,750</b>	<b>451,713</b>	<b>576,529</b>	<b>618,566</b>
July	<b>538,585</b>	<b>538,762</b>	<b>538,162</b>	<b>562,276</b>	<b>636,821</b>
August	<b>522,479</b>	<b>548,515</b>	<b>548,586</b>	<b>606,550</b>	<b>576,716</b>
September	<b>461,054</b>	<b>446,071</b>	<b>503,761</b>	<b>576,994</b>	<b>198,374</b>
October	<b>436,716</b>	<b>488,504</b>	<b>479,269</b>	<b>548,627</b>	<b>382,669</b>
November	<b>364,977</b>	<b>428,619</b>	<b>434,380</b>	<b>493,450</b>	<b>349,216</b>
December	<b>365,928</b>	<b>404,176</b>	<b>419,685</b>	<b>475,704</b>	<b>318,463</b>
<b>Total</b>	<b>5,061,973</b>	<b>5,217,831</b>	<b>5,669,003</b>	<b>6,199,497</b>	<b>5,577,202</b>

Please indicate how the above figures were determined (e.g., from a master meter located at the point of a diversion from a stream or located at a point where raw water enters the treatment plant, or from water sales).

**Above data is from the take point meter from the Gulf Coast Water Authority at Virginia Point.**

2. Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types (See #1, Appendix A) for the past five years.

Year	Residential	Commercial	Industrial	Wholesale	**Government	Total
2008	<b>116,395</b>	<b>1,369,356</b>	<b>71,155</b>	<b>185,468</b>	<b>3,582,410</b>	<b>5,324,784</b>
2007	<b>117,676</b>	<b>1,384,725</b>	<b>72,880</b>	<b>194,846</b>	<b>3,683,814</b>	<b>5,453,941</b>
2006	<b>121,401</b>	<b>1,428,558</b>	<b>75,187</b>	<b>171,977</b>	<b>3,182,042</b>	<b>4,979,165</b>
2005	<b>117,211</b>	<b>1,379,252</b>	<b>72,592</b>	<b>170,330</b>	<b>3,104,605</b>	<b>4,843,990</b>
2004	<b>118,770</b>	<b>1,279,922</b>	<b>63,999</b>	<b>150,619</b>	<b>2,794,633</b>	<b>4,407,943</b>

Source: **Utility Billing Program**  
**\*\* City of Galveston and UTMB**

2. List previous five years records for water loss  
 (See #2, Appendix A)

Year	Amount (gal.)
2008	<b>252,418,000</b>
2007	<b>745,556,000</b>
2006	<b>689,838,000</b>
2005	<b>373,841,000</b>
2004	<b>654,030,000</b>

4. List previous five years records for annual peak-to-average daily use ratio  
 (See #3, Appendix A)

Year	Average MGD	Peak MGD	Ratio
2008	<b>15.280</b>	<b>23.95</b>	<b>1.57</b>
2007	<b>16.984</b>	<b>22.08</b>	<b>1.30</b>
2006	<b>15.531</b>	<b>24.03</b>	<b>1.55</b>
2005	<b>14.295</b>	<b>25.93</b>	<b>1.81</b>
2004	<b>13.868</b>	<b>20.49</b>	<b>1.48</b>

5. Total per capita water use for previous five years (See #4, Appendix A):

Year	Population	Total Through Take Point ***	Per Capita (gpcd)
2008	<b>57,086</b>	<b>5,577,202</b>	<b>267.67</b>
2007	<b>56,958</b>	<b>6,199,497</b>	<b>298.20</b>
2006	<b>56,987</b>	<b>5,669,003</b>	<b>272.54</b>
2005	<b>57,212</b>	<b>5,217,831</b>	<b>249.87</b>
2004	<b>57,320</b>	<b>5,061,973</b>	<b>241.95</b>

\*\*\* Wholesale population is included in the total population for the City of Galveston

6. Seasonal water use for the previous five years (**in gallons per person per day**)  
 (See #5, Appendix A):

Year	Population	Base Per Capita Use	Summer Per Capita Use
2008	<b>57,086</b>	<b>263.42</b>	<b>356.60</b>
2007	<b>56,958</b>	<b>248.88</b>	<b>340.48</b>
2006	<b>56,987</b>	<b>227.82</b>	<b>299.96</b>
2005	<b>57,212</b>	<b>203.47</b>	<b>308.02</b>
2004	<b>57,320</b>	<b>194.99</b>	<b>294.84</b>

## **B. Projected Water Demands**

Project water supply requirements for at least the next ten years using population trends, historical water use, and economic growth, etc. Indicate sources of data and how projected water demands were determined.

Attach additional sheets if necessary.

**The City of Galveston, while being relatively stable in population has been and is projected to continue to have an increased connection count growth over the foreseeable future. This growth is a result of Galveston's popularity as a tourist destination, with a growing number of second and vacation rental homes lining both the beach and bay sides of the island. This explains why the per capita consumption on the island continues to increase while the population stays stable or even decreases.**

**The Region H Water Planning Group has predicted the population of the City of Galveston to remain flat through the year 2060. Region H's assumption of flat population patterns result in a slight reduction in their projected water demand for the City through the 2060 time period.**

**<[http://regionhwater.org/documents/Region\\_H\\_projections\\_post.pdf](http://regionhwater.org/documents/Region_H_projections_post.pdf)>**

**However, the Texas Office of the State Demographer has taken a population reduction based on the affects of Hurricane Ike on the City and extrapolated the population increases based on the general growth in the Houston area.**

**< <http://txsdc.utsa.edu/tpepp/2008projections/>>**

**Upon review of water consumption data for the past five years based on active connection count in comparison to population the consumption is almost parallel if a 15% tourist correction is added to the population count. Based on projected populations from the Office of State Demographer for the five and ten year periods with the implementation of conservation measures and the resulting decrease in per capita water consumption the City is predicting a need of 6,470 acre feet of water in 2014 with a need of 6,670 acre feet in 2019.**

### III. WATER SUPPLY SYSTEM

#### A. Water Supply Sources

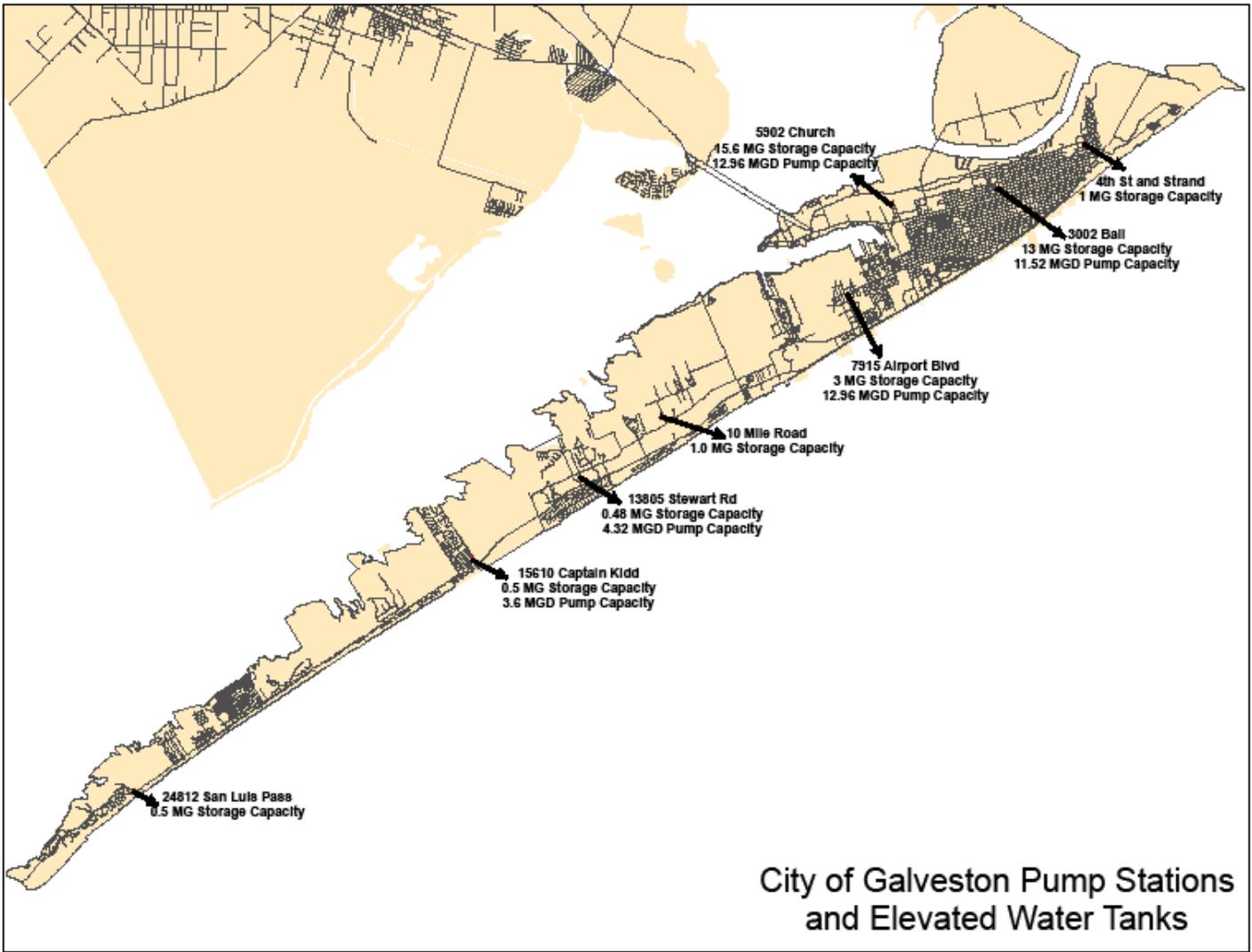
List all current water supply sources and the amounts available with each:

	<u>Source</u>	<u>Amount Available</u>
Surface Water:	_____	_____ MGD
Groundwater:	<b>Alta Loma Well Field</b>	<b>10.3</b> MGD
Contracts:	<b>Gulf Coast Water Authority</b>	<b>20.99</b> MGD
Other:	_____	_____ MGD

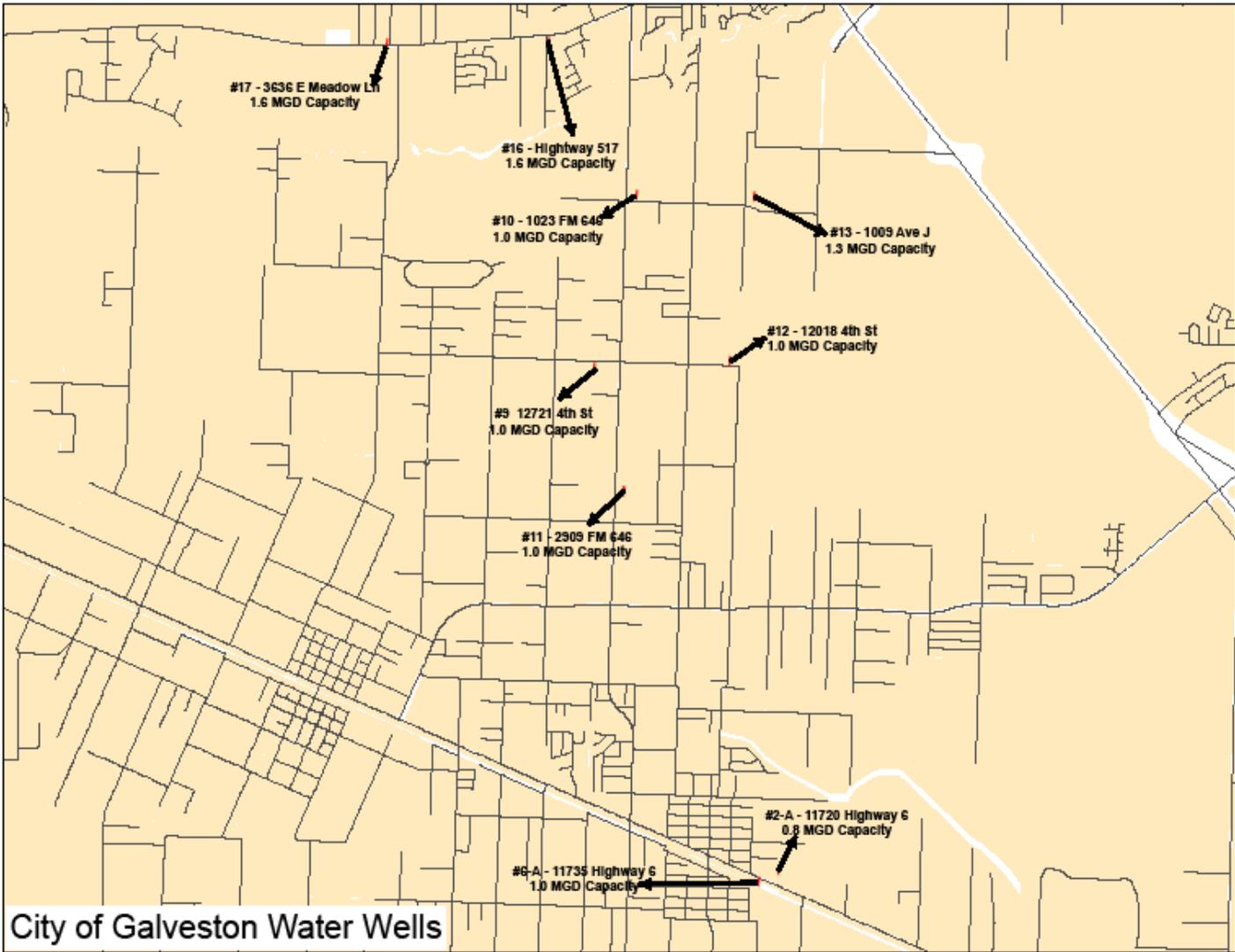
#### B. Treatment and Distribution System

1. Design daily capacity of system: **Total Firm Pumping Capacity is 45.36 MGD**
2. Storage Capacity: Elevated **2.5** MG, Ground **32.6** MG
3. If surface water, do you recycle filter backwash to the head of the plant?  
Yes \_\_\_\_\_ No \_\_\_\_\_. If yes, approximately \_\_\_\_\_ MGD.
4. Please describe the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.

**The City of Galveston is a purchased water system. The water is purchased from the Gulf Coast Water Authority and is augmented by a well field located on the mainland. The City operates five (5) booster stations which are used to increase the pressure for distribution as well as polishing of the purchased water. The City adds a corrosion inhibitor and increases the disinfection levels prior to being sent into the distribution system. The system has a total storage capacity of 35.1 million gallons, with a firm pumping capacity to distribution of 45.36 MGD. The booster pump stations are located at various points throughout the system. The mainland well field has a pumping capacity of 10.5 MGD.**



City of Galveston Pump Stations and Elevated Water Tanks





CHURCH

WINNIE

EAST ST

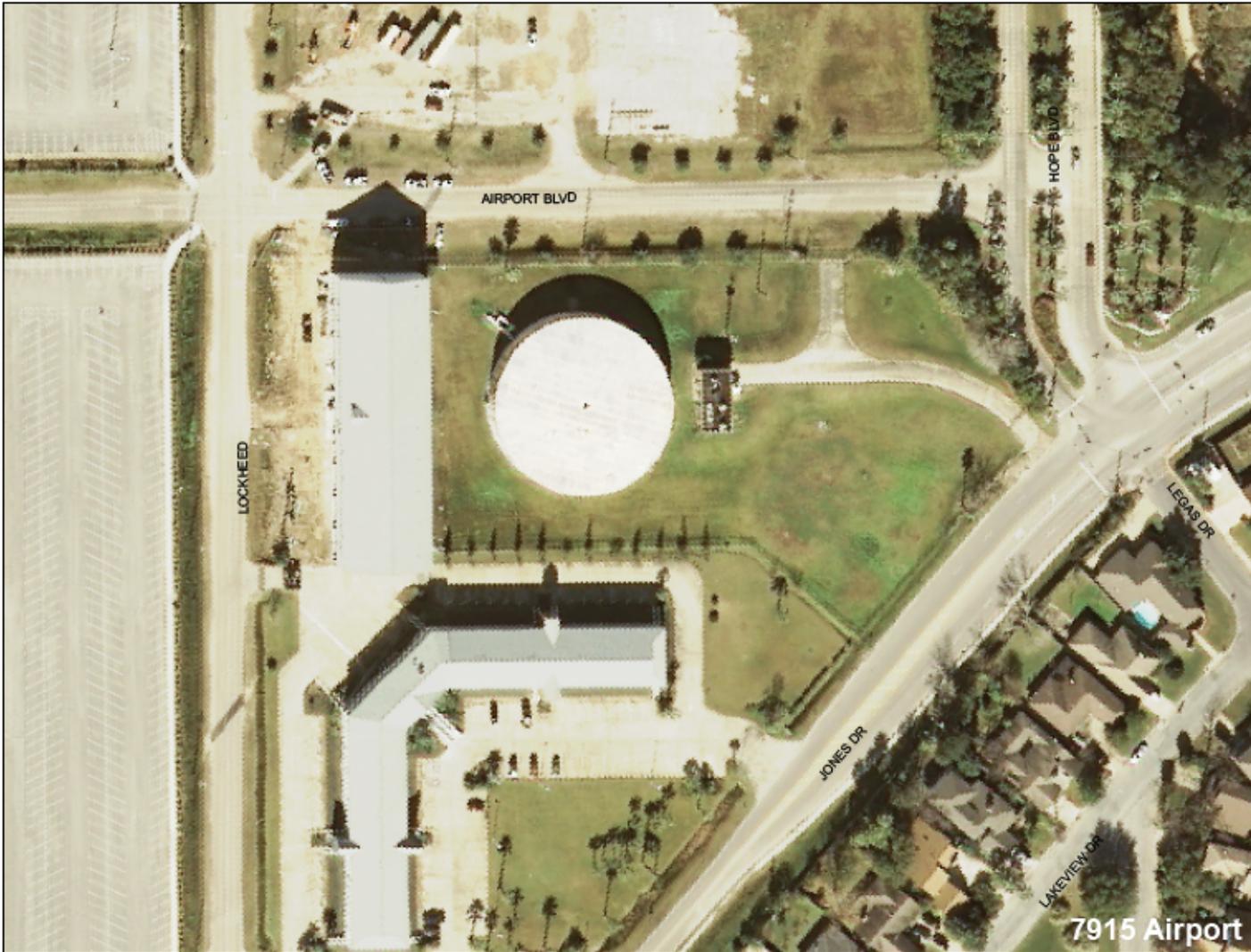
31ST ST

30TH ST

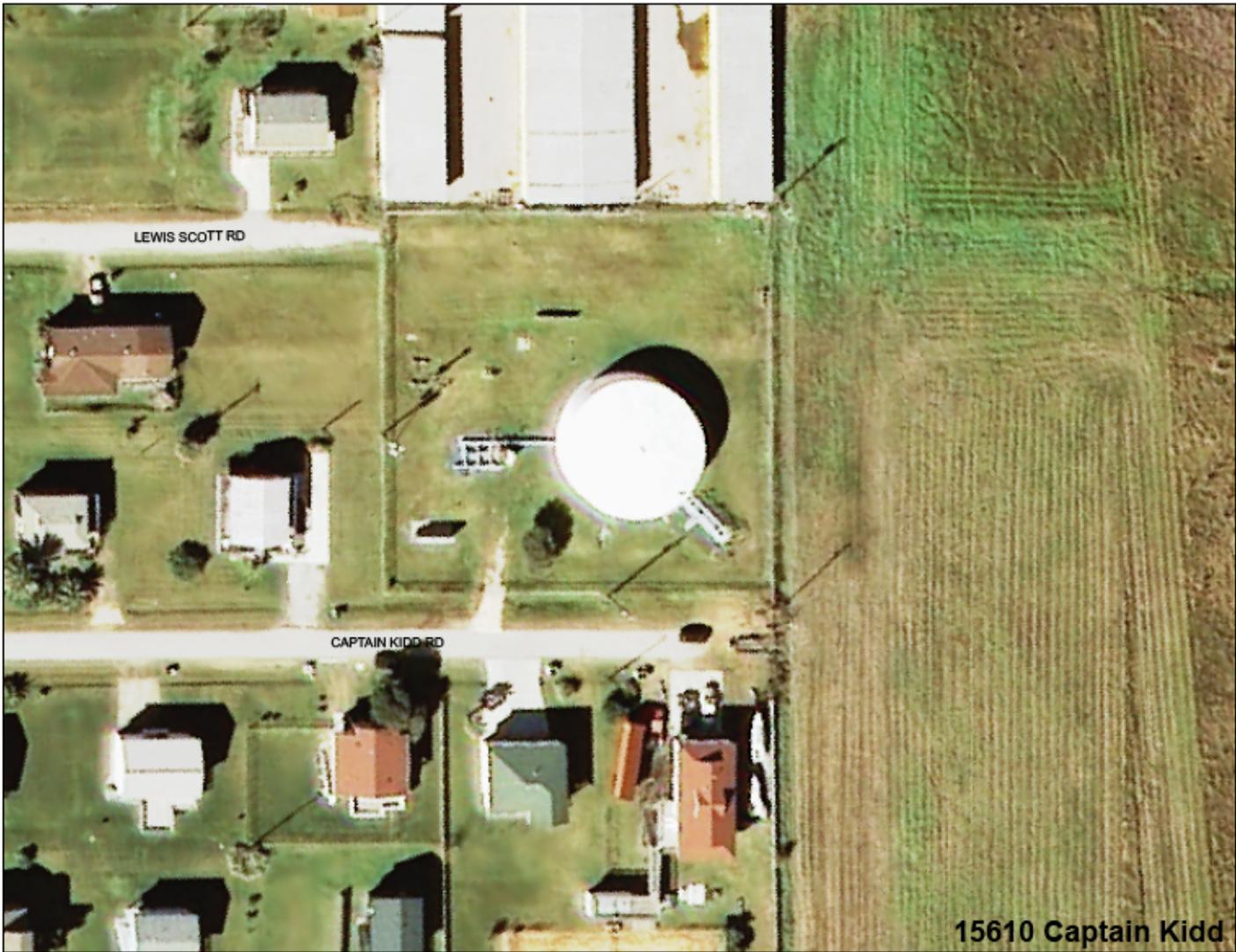
BALL

3002 Ball





7915 Airport



LEWIS SCOTT RD

CAPTAIN KIDD RD

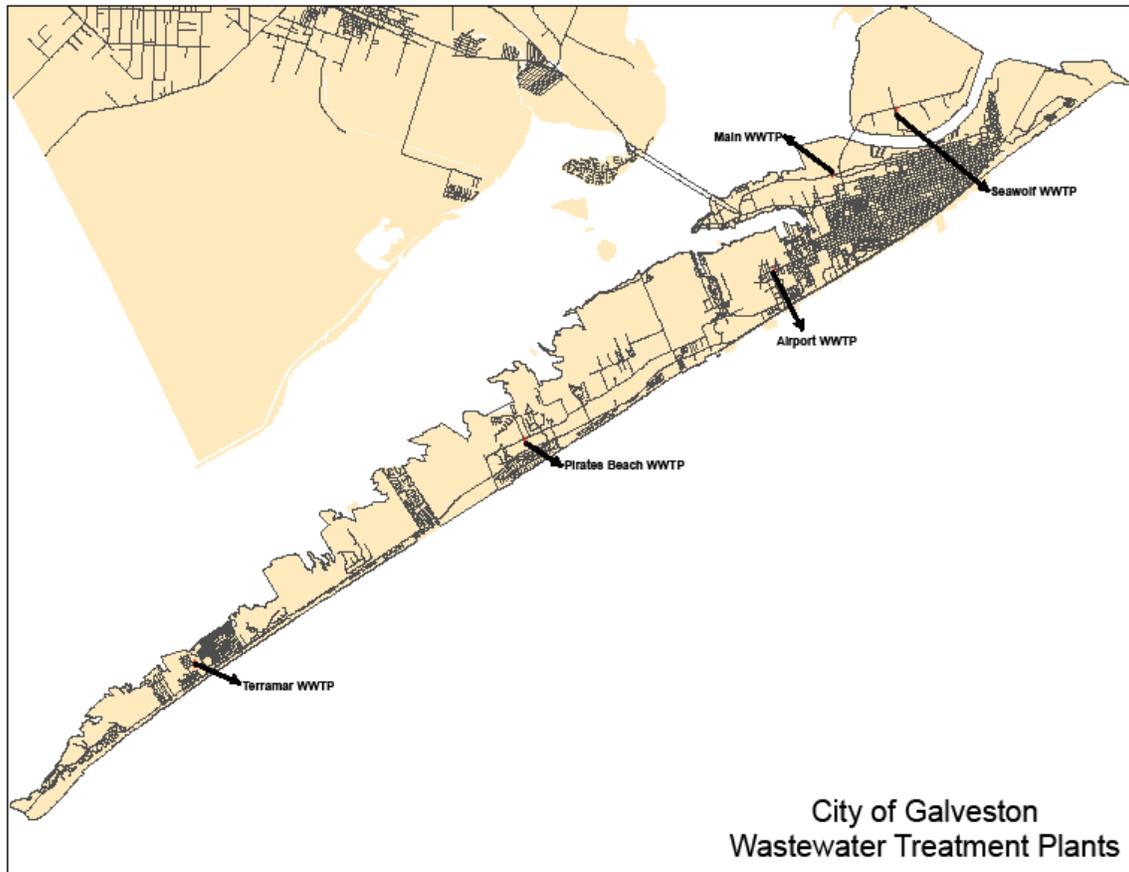
15610 Captain Kidd

#### IV. WASTERWATER SYSTEM DATA

##### A. Wastewater System Data

- 1) Design capacity of wastewater treatment plants: **14.979 MGD**
- 2) Is treated effluent used for irrigation on-site **NO**, off-site **Yes**, plant washdown **YES**, or chlorination/dechlorination **Yes**? If yes, approximately **30,000,000** gallons per month. Could this be substituted for potable water now being used in these areas? **NO**
- 3) Briefly describe the wastewater system of the area serviced by the utility.  
**All of Galveston Island except for isolated areas that are still using various forms of on-site treatment and the incorporated City Limits of Jamaica Beach.**

Describe how the treated wastewater is disposed of. Where applicable, identify treatment plant with the TCEQ name and number, the operator, owner and if wastewater is discharged, the receiving stream. If possible, attached a sketch or map which locates the plant and discharge points or disposal sites.



**Main Wastewater Treatment Facility,**

Process: Activated Sludge Process

Location: 5200 Port Industrial Boulevard

TPDES Permit No.: WQ0010688-001

EPA ID No.: TX0047309

Operator: Dennis Zajack

Owner: City of Galveston

Wastewater discharges into the Lower Galveston Bay, Segment No. 2439 of the Bays and Estuaries



## **Airport Wastewater Treatment Facility**

Process: Activated Sludge Process

Location: 7618 Mustang Drive

TPDES Permit No.: WQ0010688-002

EPA ID No.: TX0027791

Operator: Raul Silvas

Owner: City of Galveston

Wastewater discharges into a tidal canal which is connects Lake Madeline to Offatts Bayou (Madeline Lake Channel): thence to Offatts Bayou: thence to Galveston West Bay, Segment 2424 of the Bays and Estuaries.



### **Terramar Wastewater Treatment Facility**

Process: Activated Sludge Process/sequenced batch reactor

Location: Approximately 4.5 miles east of the San Louis Bridge and 1,900 feet west of the San Louis Pass Road (FM 3005) in Galveston County, Texas

TPDES Permit No.: WQ0010688-005

EPA ID No.: TX0066125

Operator: Raul Silvas

Owner: City of Galveston

Wastewater discharges via pipeline into Galveston West Bay, Segment 2424 of the Bays and Estuaries.



## Pirates Beach Wastewater Treatment Facility

Process: Activated Sludge Process

Location: Approximately 0.5 miles north of Steward Road and 0.25 mile east of 12-Mile Road on Galveston Island in Galveston County, Texas

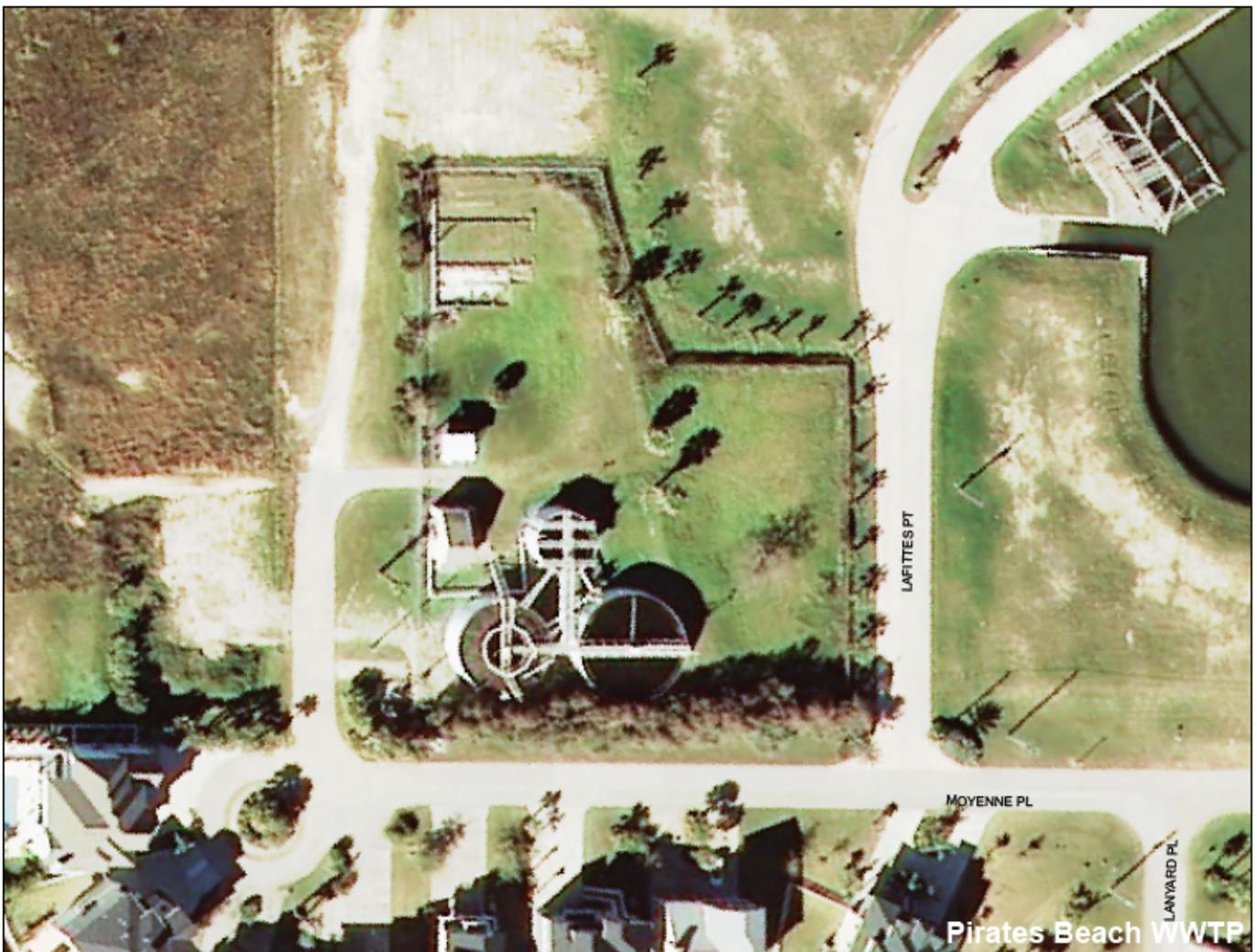
TPDES Permit No.: WQ0011477-001

EPA ID No.: TX0126977

Operator: Raul Silvas

Owner: City of Galveston

No Discharge, all effluent is pump via pipe to the Galveston Country Club Golf Course Irrigation Ponds



**Seawolf Park Wastewater Treatment Facility**

Process: Activated Sludge Process

Location: Seawolf Park on Pelican Island approximately 3.5 miles northeast of the Pelican Island Bridge in Galveston County, Texas

TPDES Permit No.: WQ0010688-004

EPA ID No.: TX0063665

Operator: Raul Silvas

Owner: City of Galveston

Wastewater discharges into Lower Galveston Bay, Segment 2439 of the Bays and Estuaries.



**B. Wastewater Data for Service Area**

1. Percent of water service area served by wastewater system is **92%**.
2. Monthly volume treated for previous three years (in 1,000 gallons):

<u>Year</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
January	<b>224,724</b>	<b>388,692</b>	<b>328,343</b>
February	<b>194,396</b>	<b>260,912</b>	<b>285,154</b>
March	<b>225,397</b>	<b>334,481</b>	<b>284,244</b>
April	<b>216,934</b>	<b>347,852</b>	<b>234,868</b>
May	<b>224,143</b>	<b>263,774</b>	<b>226,338</b>
June	<b>252,340</b>	<b>258,965</b>	<b>217,307</b>
July	<b>354,562</b>	<b>404,867</b>	<b>237,547</b>
August	<b>317,216</b>	<b>295,604</b>	<b>300,549</b>
September	<b>290,569</b>	<b>364,555</b>	<b>126,179</b>
October	<b>232,646</b>	<b>312,104</b>	<b>224,290</b>
November	<b>262,063</b>	<b>244,265</b>	<b>209,746</b>
December	<b>250,399</b>	<b>240,174</b>	<b>207,291</b>
Total	<b>3,045,389</b>	<b>3,716,245</b>	<b>2,881,856</b>

## Appendix A

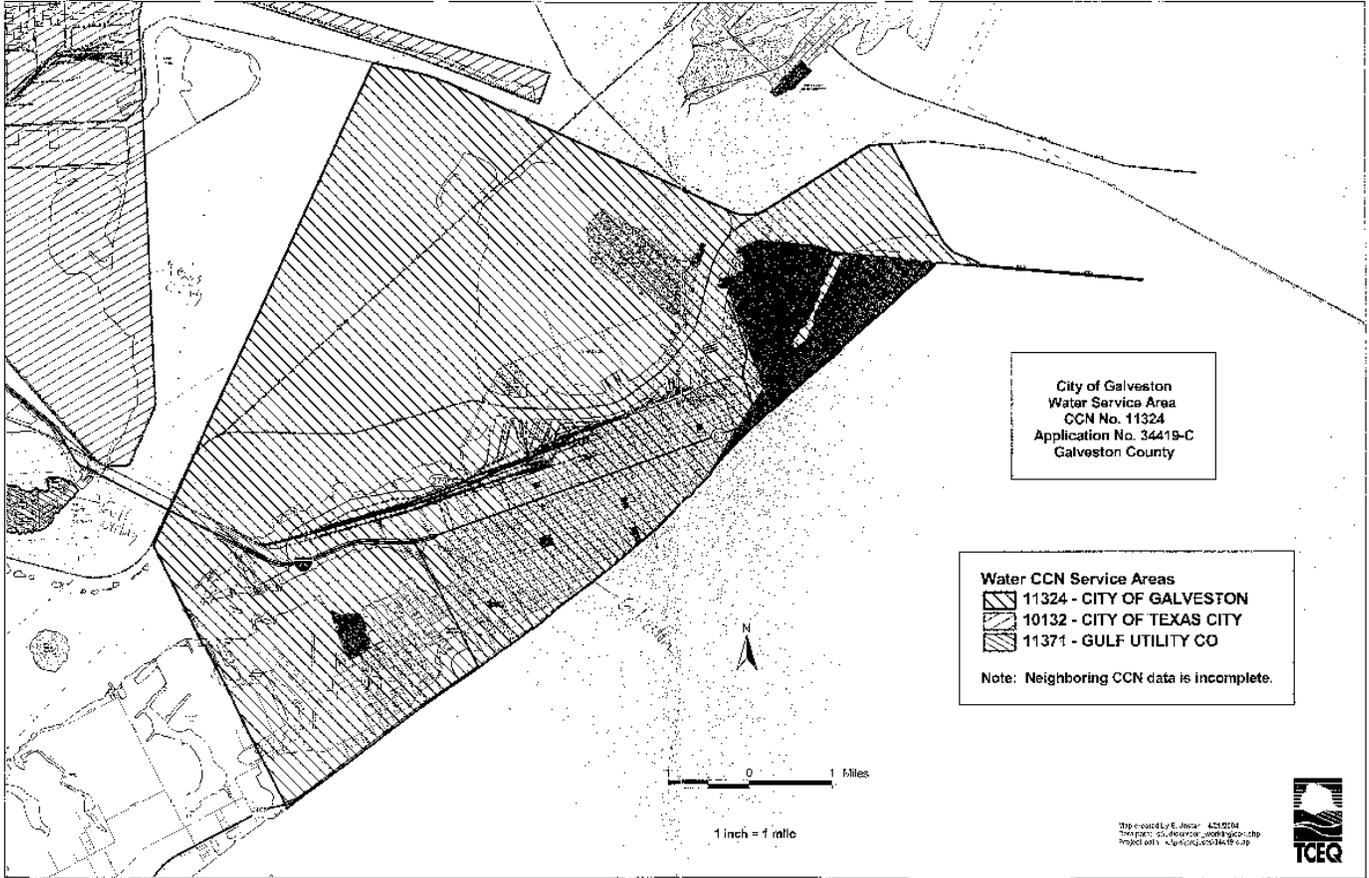
### Definitions of Utility Profile Terms

1. **Residential** sales should include water sold to residential (Single and Multi-Family) class customers only.  
**Industrial** sales should include water sold to manufacturing and other heavy industry.  
**Commercial** sales should include water sold to all retail businesses, offices, hospitals, etc  
**Wholesale** sales should include water sold to another utility for a resale to the public for human consumption.
2. **Water Loss** is the difference between water a utility purchases or produces and the amount of water that it can account for in sales and other known uses for a given period. Water loss can result from:
  1. inaccurate or incomplete record keeping;
  2. meter error;
  3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
  4. leaks; and
  5. water theft and unauthorized use.
3. The **peak-day to average-day ratio** is calculated by dividing the maximum daily pumpage (in million gallons per day) by the average daily pumpage. Average daily pumpage is the total pumpage for the year (as reported in Section IIA1, p. 4) divided by 365 and expressed in million gallons per day.
4. **Total use in gallons per capita per day** is defined as total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served, then dividing by 365. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculation gallons per capita per day for targets and goals developed for the water conservation plan. Total water use is calculated by subtracting the wholesale sales from the total water diverted or treated (as reported in Section IIA1).
5. **Seasonal water use** is the difference between base (winter) daily per capita use and summer daily per capita use. To calculate **the base daily per capita use**, average the monthly diversions for December, January, and February, and divide this average by 30. Then divide this figure by the population. To calculate the **summer daily per capita use**, use the months of June, July, and August.

# **Appendix E**

Certificate of Convenience  
And Necessity (CCN)

City of Galveston Water System CCN number 11324



# **Appendix F**

## **5 & 10 Year Water Conservation Goals**

## **5 and 10 year Targets and Goals**

### **1. Goals of the Program (5 year target and goals)**

The City of Galveston goals are to achieve a municipal use of 264.33 gallons per capita per day for the first 5 years beginning in the year 2009 and also achieve a municipal use water loss goal of 25.8 gallons per capita per day for the next 5 years beginning in the year 2009.

### **2. Goals of the Program (10 year target and goals)**

The City of Galveston goals are to achieve a municipal use of 258.99 gallons per capita per day for the next 10 years beginning in the year 2009 and also achieve a municipal use water loss goal of 25.28 gallons per capita per day for the next 10 years beginning in the year 2009.

1. The average five year baseline utilizing historical data is 267 gallons per capita per day. With an average five year water loss of 26.06 gallons per capita per day.

# **Appendix G**

Copy of Letter to the  
Harris/Galveston  
Subsidence District

# **Appendix H**

Copy of Resolution 09-048