

APPENDIX A

Water Conservation and Drought Contingency Plans

December 2013



CITY OF ALVIN
WATER CONSERVATION PLAN

THE WATER CONSERVATION PLAN REQUIREMENTS:

<p>A. _____ An evaluation of your water and wastewater system and customer use characteristics to identify water conservation opportunities and potential targets and goals. Completion of the <i>Water Conservation Utility Profile, WRD-264</i>, as part of the evaluation is required. <u>Attach a copy to the Plan.</u></p>	<p>Appendix A</p>
<p>B. _____ Inclusion of 5-year and 10–year targets & goals. Target and goals should be specific and quantified for municipal use expressed in gallons per capita per day as well as goals for water loss programs. Consider state and regional targets and goals, local climate, demographics, and the utility profile. Consider the anticipated savings that can be achieved by utilizing the appropriate Best Management Practices and other conservation techniques.</p>	<p>Section 8.0 of this plan</p>
<p>C. _____ A schedule for implementing the plan to achieve your targets and goals.</p>	<p>Section 8.0 of this plan</p>
<p>D. _____ A method for tracking the implementation and effectiveness of the plan. The method should track annual water use and provide information sufficient to evaluate the implementation conservation measures. The plan should measure progress annually, and, at a minimum, evaluate the progress towards meeting the targets and goals.</p>	<p>Section 8.0 of this plan</p>
<p>E. _____ A master meter to measure and account for the amount of water diverted from the source of supply.</p>	<p>Section 3.0 of this plan</p>
<p>F. _____ A program of universal metering of both customer and public uses of water, for meter testing, repair and for periodic replacement.</p>	<p>Section 3.0 and 4.0 of this plan</p>
<p>G. _____ Measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.).</p>	<p>Section 4.0 of this plan</p>
<p>H. _____ A continuous program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control water loss.</p>	<p>Section 4.0 of this plan</p>
<p>I. _____ A program of continuing education and information regarding water conservation. This should include providing water conservation information directly to each residential, industrial and commercial customer annually, and providing water conservation literature to new customers when they apply for service.</p>	<p>Section 6.0 of this plan</p>
<p>J. _____ 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.</p>	<p>Section 5.0 of this plan</p>

<p><u>Attach a copy of the rate structure.</u></p>	
<p>K. ____ A means of implementation and enforcement which shall be evidenced by adoption of the plan:</p> <ol style="list-style-type: none"> 1. a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan and 2. a description of the authority by which you will implement and enforce the conservation plan. 	<p>Section 7.0 of this plan</p>
<p>L. ____ Documentation that the regional water planning group for your service area has been notified of the water conservation plan.</p>	

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Appendix A

1.0 Introduction

The City of Alvin (COA) is located in Brazoria County, 20 miles south southeast of Houston, 30 miles north of the Gulf of Mexico. In 2007 House Bill 4 amended the Texas Water Code by requiring the Texas Commission on Environmental Quality (TCEQ) to require retail public utilities that provide potable water service to 3,300 or more connections to submit to the Texas Water Development Board (TWD) a water conservation plan based on specific targets and goals developed by the retail public utility and using appropriate best management practices or other water conservation strategies.

The COA is on the upper Texas Coast and has an average elevation of about 35' above mean sea level. Its climate is subtropical and receives an average of 50" of rainfall per year, which is among the highest in the state of Texas. This volume of rainfall helps to minimize the use of water for landscape irrigation by residential and commercial users.

2.0 Service Area

The COA service area includes the land within the COA city limits that covers 15.4 square miles with an estimated population of 23,140 (TWD Regional Water Plan)

Past		Projected	
Year	Population	Year	Population
2008	23,140	2010	23,231
2007	22,924	2020	25,123
2006	22,708	2030	26,935
2005	22,490	2040	28,605
2004	22,265	2050	30,375

3.0 Water Supply and Distribution

The infrastructure is maintained and operated by the City's Utility section of the Public Services Department, include 115 miles of water main, valves, fire hydrants, 6,579 water taps and meters, 5 water wells, 3 elevated storage tanks, 6 ground storage tanks, and 3 booster pump stations.

Well	gpm	mgd
3	1200	1.728
4	695	1.001
6	900	1.296
7	1500	2.160
8	1400	2.016

Pump Station	pumps	gpm	mgd
3	3	3000	4.320
4	3	1800	2.592
6	4	4000	5.760

4.0 Measures to Control Unaccounted for Water

All wells metered
Water metered as it leaves ground storage
Meters calibrated annually
All connections are metered
Meter change out programs targets 5% of meters change annually
“Zero Consumption” meters checked monthly
Leaks repaired immediately
Water used for flushing estimated

5.0 Water and Sewer Rate Structure

RESIDENTIAL RATE CALCULATION 10-08

WWW.ALVIN-TX.GOV

WATER	base rate	0-2000 gallons	\$	10.00 base
		2001-7000 gallons		2.56 per thousand
		Over 7000 gallons		3.90 per thousand
SEWER	<i>based on water consumption</i>			
	base rate	0-2000 gallons	\$	15.50 base
		Over 2000 gallons		2.56 per thousand

COMMERCIAL RATE CALCULATION 10-08

TX.GOV

WWW.ALVIN-TX.GOV

WATER	base rate	0-2000 gallons	\$	10.50 base
		2001-7000 gallons		2.56 per thousand
		OVER 7000 gallons		3.90 per thousand
SEWER	<i>based on water consumption</i>			
	base rate	0-2000 gallons	\$	16.00 base
		Over 2000 gallons		2.56 per thousand

6.0 Water Conservation Information and Outreach Programs

The COA provides “new” customers with water conservation tips. A section of water conservation tips will be added to the annual Consumer Confidence Report that is delivered to each resident. Contact has been made with Alvin Independent School District about the possibility of introducing conservation methods to elementary children.

7.0 Plan Adoption

The COA last update for drought contingency plan was enacted in August 2005 by Ordinance # 05-II

8.0 Five and Ten Year Goals

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

The City of Alvin goals are to achieve a municipal use of 100 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 7.5 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 Alvin goals are to achieve a municipal use of 100 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 5 gallons per capita per day for the next 10 years beginning in the year 2009.

3. Baseline gpcd

<u>Year</u>	<u>Population</u> <u>Sales (1,000 gal.)</u>	<u>Total Diverted (or</u> <u>Treated Less Wholesale</u>	<u>Per Capita</u> <u>(gpcd)</u>
2008	23,140	868,381	103
2007	22,924	812,731	97
2006	22,708	834,851	101
2005	22,490	883,918	108
2004	22,265	833,476	103

Best Management Practices

BMP	Enacted	Description	Comments
System Water Audit and Loss	YES	This BMP should be considered by a utility that: <ol style="list-style-type: none"> 1) Would like to analyze the benefits of reducing its unaccounted for water 2) Has not conducted a periodic water audit 3) Wants to determine if under-registering meters is impacting its revenues 4) Has not implemented a leak reduction program 	The COA has enacted this BMP does not perceive future significant gains with respect to water loss because of the effectiveness of the current program
Water Conservation Pricing	YES	Conservation pricing structures include increasing unit prices with increased consumption such as inverted block rates and excess use rates such as water budget rates and seasonal rates	See water rates in section 5.0
Prohibition on Wasting Water	YES	This BMP should be considered by utilities that have customers who continue to waste water despite the efforts of the utility to educate customers to reduce waste of water	The COA will instruct personnel to bring examples of water wasting to the attention of the customers that appear to be wasting water. Billing personnel will contact

			customers when excessive water is being used to ensure water is not wasted
Showerhead, aerator and toilet flapper retrofit	NO	This BMP is for a utility that has at least 20% of the homes built prior to 1995 for which there has been no active retrofit programs	This BMP may be considered in the future
Residential toilet replacement programs	NO	This BMP is for a utility that has at least 20% of the homes built prior to 1995 for which there has been no active retrofit program to replace high flush toilets with 1.6 gallon per flush toilets	This BMP may be considered in the future
Residential clothes washer incentive program	NO	This BMP can be implemented by any utility that has residential customers, the utility would develop and implement a program to encourage customers to purchase high efficiency clothes washers	This BMP may be considered in the future
School Education	PLANNED	This BMP is intended for a utility that has a school in its customer base. Lessons learned by students about smart water use are often shared with the whole family	The COA will add water conservation to its curriculum when it talks to classes about other environmental issues
Water Survey for Single-Family and Multi-family customers	NO	This BMP is intended for a utility that 20% of its homes constructed prior to 1995 and/or more 10% of its customers utilizing automatic irrigation systems	This BMP may be considered in the future
Landscape Irrigation and Conservation Incentives	YES	This BMP is intended for a utility with a substantial percentage of customers using automated irrigation and targeted to them	This BMP is addressed under Prohibition of Water Waste BMP
Waterwise Landscape and Conservation Programs	NO	This BMP is intended for a utility that has 20% or more of residential customers that have landscape materials that consume more than 20,000 gallons per month or use more than twice as much in the summer as in the winter	Not Applicable
Athletic Fields Conversion	NO	This BMP is intended for a utility which manages irrigated athletic fields or has customers that do	Not cost effective at this time to use treated effluent
Golf Course Conversion	NO	This BMP is intended for a utility which manages irrigated golf courses or has customers that do	Not applicable
Metering of all new	YES	This BMP is intended for utilities that do not have 100% metering for all	COA currently has 100% metering of all

connections		customers	connections
Wholesale Agency Assistance Programs	NO	This BMP is intended for utilities that supply agencies that supply potable water	Not applicable
Conservation Coordinator	NO	This BMP is intended for utilities. A common element in a successful conservation program is a coordinator who is responsible for implementing and maintaining the program	This BMP may be considered in the future
Water reuse	YES	This BMP is intended for a utility that may have potential applications for reuse within its system	Water is being reused at WWTP
Public Information	YES	A program for providing water conservation information to the public is an effective means of both promoting and specific water conservation programs and practices and educating the public about the importance of using water efficiently	See outreach program in section 6.0
Rainwater harvesting and condensate reuse	NO	This BMP is intended for a utility that is concerned with reducing outdoor irrigation demands on the potable water system	This BMP may be considered in the future
New Construction grey water	NO	This BMP is intended for a utility that has a new development in its service area where use of grey water can be an option for additional water supply	This BMP may be considered in the future
Park Conservation	NO	This BMP is intended for a utility that manages a parks or service customers with parks that consume water	This BMP may be considered in the future
Conservation programs for Industrial, Commercial and Institutional Accounts	NO	This BMP is intended for a utility that which serve industrial, commercial , and institutional accounts	This BMP may be considered in the future
Cost-Effective analysis for Municipal Water Users	NO	In evaluating water conservation efforts the decisions center around the comparison of the costs of implementing a program against the costs of conserved water or the avoided cost of acquiring new sources of water. In the strictest sense, if the analysis show the water user will gain positive value or that the costs of one option are less than the cost of another, then the	This BMP may be considered in the future

		conservation program shall be implemented.	
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Appendix A



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 Alvin

Address & Zip: 1100 W Highway 6, Alvin, Texas 77511

Telephone Number: 281 388-4336 Email: cpballast@psf.cityofalvin.com Fax: 281 388-4340

Form Completed By: Corbin Ballast Title: Utilities Superintendent

Signature: _____

Date: _____

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

Name: Public Services, Utilities

Phone: 281 388-4336

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): 15.4

3. Current population of service area: 23,140
4. Current population served by utility: a: water 23,140
b: wastewater 23,140
5. Population served by water utility for the previous five years: 6. Projected population for service area in the following decades:

Year	Population	Year	Population
2008	23,140	2010	23,231
2007	22,924	2020	25,123
2006	22,708	2030	26,935
2005	22,490	2040	28,605
2004	22,265	2050	30,375

7. List source(s)/method(s) for the calculation of current and projected population: 2000 census, and TWD 2006 Regional Water Plan population projections.

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 Residential X or Commercial _____

<u>Treated water users:</u>	<u>Metered</u>	<u>Not-metered</u>	<u>Total</u>
Residential-Single-Family	<u>5642</u>	_____	
Residential-Multi-Family	<u>184</u>	_____	
Commercial	<u>745</u>	_____	
Industrial	<u>as commercial</u>	_____	
Public	<u>as commercial</u>	_____	
Other (fire hydrant)	<u>8</u>	_____	

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

Year	<u>2008</u>	<u>2007</u>	<u>2006</u>
Residential –Single-Family	<u>112</u>	<u>159</u>	<u>282</u>
Residential-Multi-Family	<u>0</u>	<u>0</u>	<u>1</u>
Commercial	<u>7</u>	<u>15</u>	<u>17</u>
Industrial	<u>X</u>	<u> </u>	<u> </u>
Public	<u>X</u>	<u> </u>	<u> </u>
Other	<u>X</u>	<u> </u>	<u> </u>

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>indicate Treated OR Raw</u>
(1)	<u>AISSD</u>	<u>32,231</u>	<u>Treated</u>
(2)	<u>Hillcrest Apt</u>	<u>13,525</u>	<u>Treated</u>
(3)	<u>Steeplechase Apt</u>	<u>9,338</u>	<u>Treated</u>
(4)	<u>Willowcreek Apt</u>	<u>8,156</u>	<u>Treated</u>
(5)	<u>Stonegate Apt</u>	<u>7,629</u>	<u>Treated</u>

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. Amount of water use for previous five years (in 1,000 gal.):

Please indicate: Diverted Water _____
 Treated Water _____

Year	2008	2007	2006	2005	2004
January	69162	64623	75671	69120	66899
February	60920	60495	64878	65797	63264
March	65209	61991	72100	70003	68667
April	68173	67774	72700	73130	67486
May	81489	68825	72921	76207	70877
June	78219	68534	70391	82174	59526
July	73705	67730	64256	80352	67789
August	74019	71823	68949	73234	84215
September	76234	74964	71006	66516	80859
October	79245	72077	73876	58300	71107
November	72042	70072	63467	85494	64428
December	69964	68463	64366	83591	67359
Total	868,381	812,731	834,851	883,918	833,476

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).

Numbers were gathered from meters at wells

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	Other	Total
<u>Sold</u>						
2008	561,428	191,693			2150	755,276
2007	514,177	170,027			2146	686,350
2006	555,812	224,548			3214	783,525
2005	558,617	202,693			3614	764,924
2004	533,584	176,475			1224	711,286

for
ratio

3. List previous five years records
for water loss

(See #2, Appendix A)
Year Amount (gal.) % loss

4. List previous five years records
annual peak-to-average daily use

(See #3, Appendix A)
Year Average MGD Peak MGD Ratio

2008	98,665,000	11.36	2008	2.373	5.270	2.22
2007	111,666,000	13.75	2007	2.226	3.909	1.75
2006	35,701,000	4.28	2006	2.287	4.811	2.10
2005	109,394,000	12.38	2005	2.422	4.641	1.91
2004	112,190,000	13.46	2004	2.277	4.456	1.96

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

Year Population Total Diverted (or Treated Less Wholesale Sales (1,000 gal.)) Per Capita (gpcd)

2008	23,140	868,381	103
2007	22,924	812,731	97
2006	22,708	834,851	101
2005	22,490	883,918	108
2004	22,265	833,476	103

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

<u>Year</u>	<u>Population</u>	<u>Base Per Capita Use</u>	<u>Summer Per Capita Use</u>
2008	23,140	96	108
2007	22,924	94	101
2006	22,708	100	100
2005	22,490	108	116
2004	22,265	99	106

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.

Year	Population	Per Capita use/day	MGD	MG/Year
2009	22,190	103	2.286	834.233
2010	23,231	103	2.393	873.369
2011	23,421	103	2.412	880.512
2012	23,613	103	2.432	887.731
2013	23,808	103	2.452	895.512
2014	23,993	103	2.471	902.017
2015	24,180	103	2.491	909.047
2016	24,369	103	2.510	916.153
2017	24,563	103	2.530	923.446
2018	24,756	103	2.550	930.702

Population – Projections from 2006 TWD Regional Water Plan

Per Capita use – Average of last 5 years

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:	<u>City of Alvin Wells</u> _____	<u>8.2</u> _____MGD
Contracts:	_____	_____MGD
Other:	_____	_____MGD

B. Treatment and Distribution System

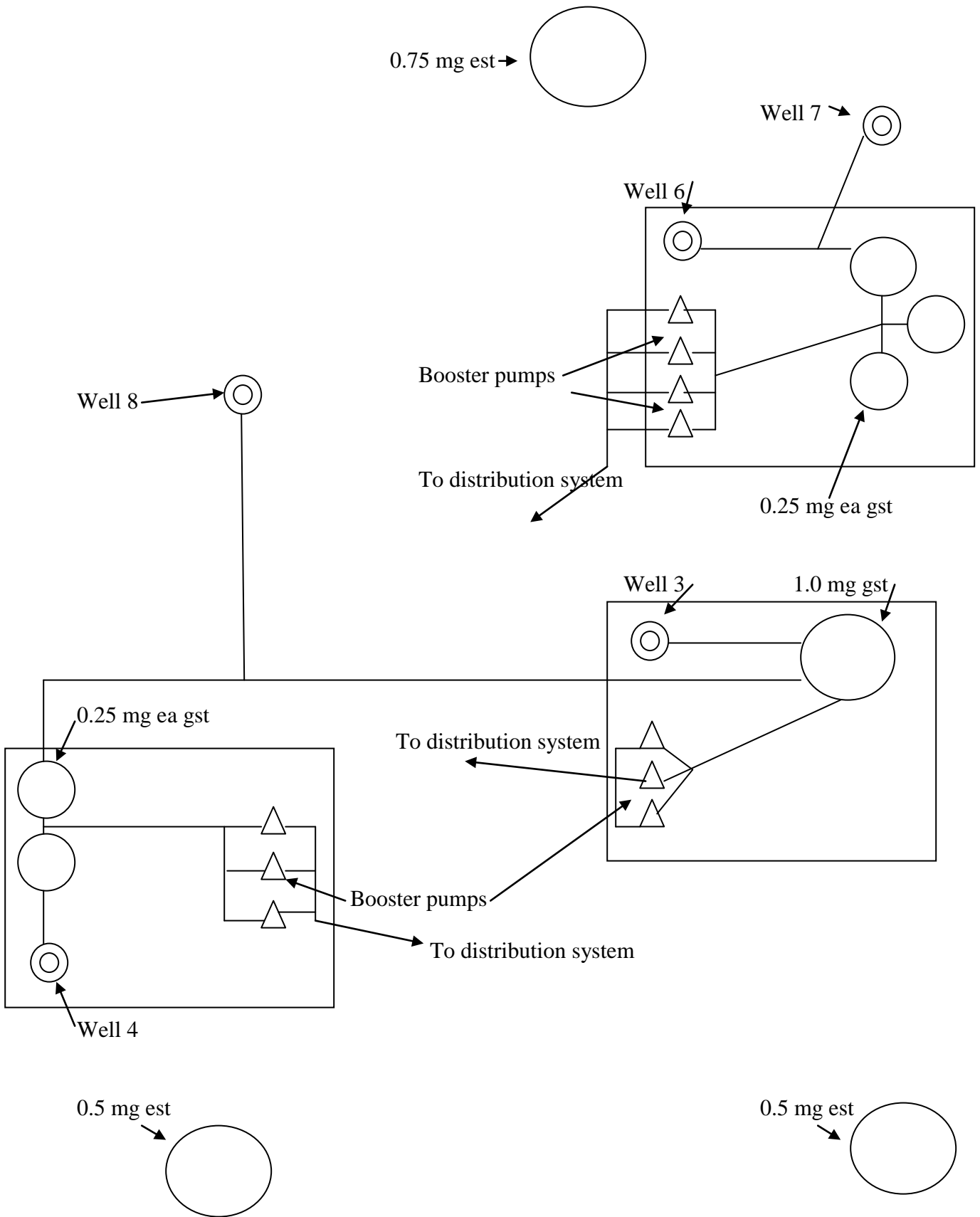
1. Design daily capacity of system: 8.2_____ MGD
2. Storage Capacity: Elevated 1.75_____ MGD, Ground 2.25_____ MGD
3. N/A If surface water, do you recycle filter backwash to the head of the plant?
Yes _____ No _____. If yes, approximately _____ MGD.
4. Please describe the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.

3 Elevated storage tanks
6 Ground storage tanks
5 wells (named 3, 4, 5, 6, 7, and 8)
10 booster pumps
3 water pump stations (named 3, 4, and 6)

Pump station 3 receives water from well 3 and 8 into a 1.0 MG gst, it has 3 booster pumps with a 4.32 MGD capacity that pumps to distribution system and ests.

Pump station 4 receives water from well 4 and 8 into two 0.25 MG gsts, it has 3 booster pumps with a 2.592 MGD capacity that pumps to distribution system and ests.

Pump station 6 receives water from well 6 and 7 into three 0.25 MG gsts, it has 4 booster pumps with a 5.76 MGD capacity that pumps to distribution system and ests.



IV. WASTEWATER UTILITY SYSTEM

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s): _____ MGD
2. Is treated effluent used for irrigation on-site NO, off-site NO, plant washdown YES, or chlorination/dechlorination YES?
If yes, approximately 200,000 gallons per month. Could this be substituted for potable water now being used in these areas NO?
3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. Please provide a sketch or map which locates the plant(s) and discharge points or disposal sites.

B. Wastewater Data for Service Area

1. Percent of water service area served by wastewater system: 100%
2. Monthly volume treated for previous three years (in 1,000,000 gallons):

Year	2008	2007	2006
JAN	135.742	126.860	66.868
FEB	124.190	82.163	59.720
MAR	98.900	94.396	63.800
APR	75.924	96.519	59.050
MAY	70.569	76.942	68.927
JUN	78.265	78.199	73.806
JUL	78.326	134.284	94.757
AUG	85.142	99.972	66.902
SEP	78.733	76.532	62.987
OCT	84.714	68.421	102.190
NOV	100.461	76.915	61.092
DEC	71.402	83.866	94.181
Total	1082.368	1095.07	874.28

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.



Drought Contingency Plan

**City of Alvin
216 W. Sealy Alvin, TX 77511
TX 0200001
July 13, 2005**

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 preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the **City of Alvin, Texas** hereby adopts the following regulations and restrictions on the delivery and consumption of water through an ordinance.

Water uses regulated or prohibited under this Drought Contingency Plan are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section XI of this Plan.

Section II: Public Involvement

Opportunity for the public to provide input into the update of the Plan was provided by the City of Alvin by means of posted public meetings to inform the public that the City of Alvin is amending the current Drought Contingency Plan adopted in 1999.

Section III: Public Education

The City of Alvin will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of Press Release and information on each water bill.

Section IV: Coordination with Regional Water Planning Groups

The service area of the City of Alvin is located within the Region H, Water Planning Group and the City of Alvin has provided a copy of this Plan to the Region H, Water Planning Group.

Section V: Authorization

The Director of Public Works, or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The Director of Public Works or his/her designee shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section VI: Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City of Alvin. The terms “person” and “customer” as used in the Plan, include individuals, corporations, partnerships, associations, and all other legal entities.

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, hotels and motels, 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.

Customer: any person, company, or organization using water supplied by the City of Alvin.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

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

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, this will include residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

Non-essential water use: water uses that are neither essential nor required for the protection of public, health, safety, and welfare, including:

- (a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) use of water to wash down 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) use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi type pools;
- (g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

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

The Director of Public Works or his/her designee 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 triggering criteria described below are based on:

1. KNOWN SYSTEM CAPACITY LIMITS.

Stage 1 Trigger -- MILD Water Shortage Conditions

Requirements for initiation

Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII–Definitions, when total daily water demand equals or exceeds 5.4 million gallons per day for three (3) consecutive days.

Requirements for termination

Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days.

Stage 2 Triggers -- MODERATE Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in Section IX of this Plan when:

- Total daily water demand equals or exceeds 6.0 million gallons per day for two (2) consecutive days.
- System water pressure approaching 40 psi in the distribution system as measured by the pressure gauges in the system.

Requirements for termination

Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of five (5) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

Stage 3 Triggers – SEVERE Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Plan when:

- Total system water demand equals or exceeds 6.5 million gallons per day for two (2) consecutive days.
- Net storage in water storage is continually decreasing on a daily basis and falls below 2.4 million gallons (60% capacity) for 48 hours.

- Water pressure approaching 35 psi in the distribution system as measured by the pressure gauges in the system.

Requirements for termination

Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

Stage 4 Triggers -- CRITICAL Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of this Plan when:

- The imminent or actual failure of a major component of the system that would cause an immediate health or safety hazard.
- Total water demand is exceeding the total system capacity of 8.2 million gallons per day for a twenty-four (24) hour period.
- All available water supplies, such as ground storage tanks, level is so low that the pumps cannot pump the daily water demand and replenishment of the storage tanks has stopped.
- One well is out of service and usage goes above 6.0 million gallons per day for two consecutive days.

Requirements for termination

Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

Stage 5 Triggers -- EMERGENCY Water Shortage Conditions

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when Director of Public Works, or his/her designee, determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; **or**
2. Natural or fabricated contamination of the water supply source(s).

Requirements for termination

Stage 5 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days.

Section IX: Drought Response Stages

The Director of Public Works, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis 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 water shortage condition exists and shall implement the following notification procedures:

Notification

Notification of the Public:

The Director of Public Works, or his/ her designee, shall notify the public by means of:

- **publication in a newspaper of general circulation,**
- **public service announcements,**
- **signs posted in public places**
- **take-home fliers at schools.**

Additional Notification:

The Director of Public Works, or his/ her designee, shall notify directly, or cause to be notified directly, the following individuals and entities:

- **Mayor / members of the City Council**
- **Fire Chief(s)**
- **City and/or County Emergency Management Coordinator(s)**
- **TCEQ (required when mandatory restrictions are imposed)**
- **Major water users**
- **Critical water users, i.e. hospitals**
- **Parks / street superintendents & public facilities managers**

Direct notice will be given only as appropriate to respective drought stages.

Stage 1 Response -- MILD Water Shortage Conditions

Target: Achieve a voluntary 10% reduction in daily water demand.

Voluntary Water Use Restrictions for Reducing Demand:

- (a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 p.m. to midnight on designated watering days.

- (b) All operations of the City of Alvin shall adhere to water use restrictions prescribed for Stage 2 of the Plan.
- (c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

Stage 2 Responses -- MODERATE Water Shortage Conditions

Target: Achieve a 15% reduction in daily water demand.

Water Use Restrictions for Demand Reduction:

Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

- (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime 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) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. 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 rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks 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 between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
- (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.
- (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 City of Alvin.
- (f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 12:00 midnight

and 10:00 a.m. and between 8 p.m. and 12:00 midnight. However, if the golf course utilizes a water source other than that provided by the City of Alvin, the facility shall not be subject to these regulations.

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

(h) The following uses of water are defined as non-essential and are prohibited:

1. Wash down of any sidewalks, walkways, driveways, parking lots, 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;
4. Flushing gutters or permitting water to run or accumulate in any gutter or street; and
5. Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

Stage 3 Responses -- SEVERE Water Shortage Conditions

Target: Achieve a 20% reduction in daily water demand.

Water Use Restrictions for Demand Reduction:

All requirements of Stage 2 shall remain in effect during Stage 3 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times.
- (b) The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the City of Alvin.
- (c) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

Stage 4 Responses -- CRITICAL Water Shortage Conditions

Target: Achieve a 25% daily water demand.

Water Use Restrictions for Reducing Demand: All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 p.m. and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
- (b) Use of 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 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.

(c) The filling, refilling, or adding of water to swimming pools, wading pools, and Jacuzzi type pools is prohibited.

(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.

(e) 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.

Stage 5 Responses -- EMERGENCY Water Shortage Conditions

Target: Achieve a 30% daily water demand.

Water Use Restrictions for Reducing Demand; All requirements of Stage 2, 3, and 4 shall remain in effect during Stage 5 except:

(a) Irrigation of landscaped areas is absolutely prohibited.

(b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

Section X: Enforcement

(a) No person shall knowingly or intentionally allow the use of water from the City of Alvin for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by City Manager, or his/her designee, in accordance with provisions of this Plan.

(b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than fifty dollars (\$50.00) and not more than two hundred dollars (\$200.00). 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 Public Works shall upon due 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 payment of a re-connection charge, hereby established at \$250.00, and any other costs incurred by the City of Alvin in discontinuing service. In addition, suitable assurance must be given to the Director of Public Works 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) Any person, including a person classified as a water customer of the City of Alvin, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

(d) Any employee of the City of Alvin, police officer, or code enforcement personnel, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the 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 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 municipal court, a warrant for his/her 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 municipal court before all other cases.

Section XI: Variances

The City of Alvin City Manager, or his/her 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 accomplished 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 with the City of Alvin within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the City Manager, or his/her 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 Plan and the compliance date.
- (h) Other pertinent information.

CITY OF ANGLETON



2009

Water Conservation Drought Contingency Plan

Adopted: 1999

Revised: April 2005

Revised: July 2009

The water services of the City of Angleton are located within the Houston Regional Water Planning Group H.

The City of Angleton has provided a copy of this plan to the San Jacinto Water Authority, Regional Water Planning Group H in Conroe, Texas.

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INTRODUCTION

Angleton is a City of an estimated 19,000 people located some fifteen (15) miles from the mouth of the Brazos River. Angleton is a community with growing commercial enterprises.

Angleton, along with other cities, worked toward an entity to supply water not only to this City but also to the whole local area comprised of seven cities, villages, and communities. The entity is Brazosport Water Authority.

Angleton is presently being served by Brazosport Water Authority (BWA) supplying an average of 1.8 million gallons per day to the City for both health operations and fire needs. The City also has three (3) wells for emergency purposes and three (3) wells for demand with one of them being used frequently.

The continued growth of the City with its increasing demand for water, makes it apparent that an additional water plant with storage is necessary in the very near future.

Because this City is aware of the need for and the scarcity of water, a conservation plan has been adopted to further conserve this valuable resource.

UTILITIES EVALUATION

- A. Population of the City 19,000 (estimated)
- B. Area of Service 15 square miles
- C. Number of Connections in service area
- | | |
|---------------|-------|
| December 2008 | 6,558 |
| December 2007 | 6,508 |
| December 2006 | 6,456 |
- D. Water Use Information
1. Two Year Average Annual Water Production 716.978 gallon/year
 2. Two Year Average Annual Water Production 59.748 gallon/month
 3. Monthly Water use for 2008 in gallons (million.thousand)
- | | |
|-----------|--------|
| January | 51.000 |
| February | 54.774 |
| March | 58.268 |
| April | 54.772 |
| May | 62.728 |
| June | 64.727 |
| July | 70.569 |
| August | 64.856 |
| September | 66.279 |
| October | 64.944 |
| November | 61.506 |
| December | 60.602 |
- E. Peak Daily Use
- | | |
|------|-------|
| 2008 | 3.115 |
| 2007 | 2.516 |
- F. Peak to Average Use Ration
- Average Daily Summer Use ÷ Average Daily Use 2008
- $$2.22 \div 1.95 = 1.14 \text{ Average Daily}$$
- One Day Peak Summer Use ÷ Average Daily
- $$3.11 \div 1.95 = 1.60$$

G. Safe Annual Yield of Water Supply

722.613 (million. thousand gallons)

H. Major High Volume User 2008 in gallons (million.thousand)

Oaks of Angleton	121,089
Southern Tri-Star	89,509
E2 Real Estate	56,434
Angleton Manor	54,180
Angleton Danbury Hospital	53,223

I. Population and Water Use Projections

Year	Daily Avg. MGD	Daily Max MGD	Population Potential
2010	2.0	2.9	19,000
2015	2.5	3.0	21,000
2020	3.0	3.5	24,000

J. Percentage of Metered Connections – 100%

K. Water Rate Structure

Minimum and first 2,000 gallons	\$11.75
2,000 to 10,000 gallons	\$3.55 per thousand gallons
10,000 to 25,000 gallons	\$3.80 per thousand gallons
25,000 to 50,000 gallons	\$4.05 per thousand gallons
50,000 and over	\$4.50 per thousand gallons

L. Applicable State/Federal or Other Regulations

TCEQ – Texas Commission on Environmental Quality

E.P.A. – Environmental Protection Agency

5 & 10 YEAR GOALS

5 Year: Based on population of 19,000, Angleton residents use approximately 100 gallons per person per day on average. The City of Angleton's goal is to reduce gallons per year by 1% or down to 90 gallons per day in five years.

10 Year: Based on estimated increase of population to 22,500 Angleton residents, our goal is to decrease usage by 1% per year or down to 90 gallons per person per day in ten years.

PUBLIC INVOLVEMENT

Normal Relations:

The City Council of the City of Angleton meets regularly on the second and fourth Tuesday of each month. These are open meetings that invite public comment and participation. City staff is also on hand to hear comments and complaints that help guide them in their daily efforts.

Brazosport Water Authority:

This entity holds monthly meetings on the fourth Tuesday of each month. These meetings also are open to the public. Angleton has one Director on the Board of the Water Authority that is appointed by the City Council. This director is one of nine.

WATER CONSERVATION PLAN

I. Education and Information

The City of Angleton, Texas will promote water conservation by informing the public of ways to conserve water. The following methods will be used to inform water users:

- 1) Periodic newspaper articles
- 2) Water Saving Brochure Handouts at the water billing office
- 3) Bi-Annual water saving tips on water bills
- 4) Phone calls (an average of 20 per month) on how to reduce high water usage & how to find leaks.
- 5) Periodic mail-outs of brochures on Water Saving Tips inside and outside the home.
- 6) Water department employees assist customers at their homes and business to help locate water leaks.

Suggestions on ways to save on water, which may be included in public information, are listed below:

A. Bathroom

- 1) Take a shower instead of taking a bath. Showers with low-flow showerheads often use less water.
- 2) Install a low-flow showerhead, which limits the flow from the shower to less than three gallons per minute.
- 3) Reduce the level of the water being used in a bathtub by one or two inches if a shower is not available.
- 4) Do not let the water run when washing hands. Water should be turned off while washing and scrubbing and be turned on again to rinse. A cutoff valve may be installed on the faucet.
- 5) Turn water off when brushing teeth until it is time to rinse.
- 6) Shampoo hair in the shower. Shampooing in the shower takes only a little more water than is used to shampoo hair during a bath and much less than shampooing and bathing separately.

- 7) When shaving, fill the lavatory basin with hot water instead of letting the water run continuously.
- 8) Test toilets for leaks. Add a few drops of food coloring or a dye tablet to the water in the tank but do not flush the toilet. Watch to see if the coloring appears in the bowl within a few minutes. If it does, the toilet has a silent leak that needs to be repaired.
- 9) Use a toilet tank displacement device such as a plastic bottle that is filled with stones or water, recapped and placed in the toilet tank. These devices will reduce the volume of water in the tank but will still provide enough for flushing. (Bricks are not recommended since they will crumble and could damage the working mechanism.) Displacement devices are not recommended with new low-volume flush toilets.
- 10) Never use the toilet to dispose of cleansing tissues, cigarette butts or other trash. This wastes a great deal of water and also places an unnecessary load on the sewage treatment plant or septic tank.
- 11) When remodeling a bathroom or building a new home, install a new low-volume flush toilet that uses only 1.6 gallons per flush.
- 12) Install faucet aerators to reduce water consumption.

B. Kitchen

- 1) Scrape the dishes clean instead of rinsing them before washing. There is no need to rinse unless they are heavily soiled.
- 2) Never run the dishwasher without a full load. This practice will save water, energy, detergent, and money.
- 3) Use the garbage disposal sparingly or start a compost pile.
- 4) Keep a container of drinking water in the refrigerator. Running water from the tap is wasteful. Keeping cold water in a picnic jug on a kitchen counter to avoid opening the refrigerator door frequently can save both water and energy.
- 5) Use a small pan of cold water when cleaning vegetables, rather than letting the water run over them.

- 6) Always keep water conservation in mind, and think of other ways to save in the kitchen.

C. Laundry

- 1) Wash only a full load when using an automatic washing machine (32 to 59 gallons are required per load).
- 2) Whenever possible, use the lowest water level setting on the washing machine for light or partial loads.
- 3) Use cold water as often as possible to save energy and to conserve the hot water for uses that cold water cannot serve.

D. Appliance and Plumbing

- 1) Check water requirements of various models and brands when considering purchasing any new appliance. Some use less water than others.
- 2) Check all water line connections and faucets for leaks. A slow drip can waste as much as 170 gallons of water each day, or 5,000 gallons per month, and will add to the water bill.
- 3) Learn to repair faucets so that drips can be corrected promptly. It is easy to do, cost very little, and can mean a substantial savings in plumbing and water bills.
- 4) Check for hidden water leakage such as a leak between the water meter and the house. To check, turn off all indoor and outdoor faucets and water-using appliances. If the meter continues to run or turn, a leak probably exists and needs to be located.
- 5) Insulate all hot water pipes to reduce the delays (and wasted water) experienced while waiting for the water to “run hot”.
- 6) Be sure the water heater thermostat is not set to high. Extremely hot settings waste water and energy because the water often has to be cooled with cold water before it can be used.
- 7) Use a moisture meter to determine when houseplants need water. More plants die from over-watering than from being on the dry side.

E. Out-Of-Door Use

- 1) Water only when needed. Look at the grass, feel the soil, or use a soil moisture meter to determine when to water.
- 2) Do not over-water. Soil can absorb only so much moisture, and the rest simply runs off. A timer will help, and either a kitchen timer or an alarm clock will do. One and half inches of water applied once a week in the summer will keep most Texas grasses alive and healthy.
- 3) Water lawns early in the morning during the hotter summer months. Otherwise, much of the water used on the lawn can simply evaporate between the sprinkler and the grass.
- 4) To avoid excessive evaporation, use a sprinkler that produces large drops of water rather than a fine mist. Sprinklers that send droplets out on a low angle, also help control evaporation.
- 5) Set the automatic sprinkler systems to provide thorough, but infrequent watering. Pressure regulation devices should be set to design specifications. Rain shut off devices can prevent watering in the rain.
- 6) Use drip irrigation systems for bedded plants, trees, shrubs, or turn on soaker hoses upside down so the holes are on the bottom. This will help avoid evaporation.
- 7) Water slowly for better absorption, and never water on windy days.
- 8) Position sprinklers and hoses so they will not be watering the streets or sidewalks.
- 9) Condition the soil with mulch or compost before planting grass or flowerbeds so that water will soak in rather than run off.
- 10) Fertilize lawns at least twice a year for root stimulation, but do not over-fertilize. Grass with a good root system makes a better use of less water and is more drought tolerant.
- 11) Do not scalp lawns when mowing during hot weather. Taller grass holds moisture better. Grass should be cut fairly often, so that only $\frac{1}{2}$ to $\frac{3}{4}$ inch is trimmed off.

- 12) Use a watering can or hand water with the hose in small areas of the lawn that need more frequent watering.
- 13) Use water-wise plants. Learn what types of grass, shrubbery, or plants do best in which parts of the lawn, and then plant accordingly. Choose plants that have low water requirements, are drought tolerant, and are adapted to the area where they are to be planted.
- 14) Consider decorating some areas of the lawn with wood chips, rocks, gravel, or other materials now available that require no water at all.
- 15) Do not “sweep” walks and driveways with the hose. Use a broom or rake instead.
- 16) When washing the car, use a bucket of soapy water and turn on the hose only for rinsing.

II. Plumbing Codes

The City of Angleton operates under the Southern Standard Plumbing Code that was adopted in 1997 for commercial and 2000 International Plumbing Code for residential. The City has always been quite severe in its interpretation of the rules and will continue to be. Persons who do not follow these codes are refused service.

III. Retrofit Program

An information program informs customers of the advantages of installing new water saving devices and of replacing devices that do not conserve. In addition, the rate structure will encourage conservation.

IV. Water Rate Structure

The City of Angleton has a graduated rate structure (see page 5), which encourages conservation.

V. Metering

The City of Angleton has 100% metering for all utility customers. The computer-billing program identifies high and low averages. The utility department checks these items monthly. Where highs and lows are apparent, the utility department rereads meters. Also, customers can request a reread of their meter. Dead meters are routinely replaced.

VI. Leak Detection and Repair

Leak detection has never been a problem. The public is the best informant available. In addition, City employees such as police, inspectors, etc. are constantly on the look-out for leaks. Pumping and tank levels are under constant monitoring by the City of Angleton's Computer System. The system will alert operators when a large leak occurs or if levels or pressures drop suddenly (SCADA Computer System). Leaks are repaired as soon as they occur or are reported, with the larger leaks having priority.

VII. Implementation and Enforcement

The Conservation Plan will be enforced as follows:

- A) People requesting new service taps are required to meet code requirements. The City has adequate inspection staff to oversee this requirement.
- B) Customers who do not pay their bill are routinely cut off from service.
- C) Customers with excessively high bills are routinely called to discuss their situation and are mailed Water Conservation Brochures.
- D) Customers are assisted in locating water leaks in their homes and in their yards.

VIII. Conservation Plan Monthly Report

The Water Department will file a monthly report with the City Manager and City Council containing the following information of use and maintenance:

- 1) Total Monthly Pumpage and Total Monthly Gallons Sold
- 2) Percent of Accountable Water
- 3) Monthly Leak Repair Report
- 4) Monthly Meter Change Out

An Annual Report will be filed with all the above listed for the year.

DROUGHT CONTINGENCY PLAN

I. Trigger Conditions

The following trigger conditions indicate when drought contingency measures will be put into effect. Trigger conditions will be set for mild, moderate, and severe.

A. Mild Drought

- 1) Average Daily Water use is approaching (2.9MGD) system capacity.
- 2) Goal: Reduction of MGD ½%

B. Moderate Drought

- 1) Average Daily Water use occasionally reaches (3.0MGD) system capacity.
- 2) Net storage in raw water reservoirs and water well pumping levels are continually decreasing on a daily basis such that a more serious problem may develop.
- 3) Goal: Reduction of MGD 1%

C. Severe Drought

- 1) The imminent or actual failure of a major component of system, which would cause an immediate health or safety hazard.
- 2) Water demand is exceeding the system's capacity (3.5) on a regular basis.
- 3) Brazos River flow is so low that the river pumps cannot pump the daily raw water demand.
- 4) All raw water is being pumped from Storage Reservoirs and all replenishment of Raw Water Reservoirs has stopped.
- 5) All emergency water wells pumping levels have drastically dropped where there is little or no pumpage from one or more well.
- 6) Emergency water shortage condition exists when there is a natural or man-made contamination of the water supply source and or when there is a failure of water delivery from Brazosport Water Authority.
- 7) Goal: Reduction of MGD 1 ½%

II. Drought Contingency Measures

The City of Angleton has a plan in its Rules and Regulations in which water ban will be partially or totally restricted as necessitated by emergency.

Step I

A Step I curtailment is one where the City Manager can restrict the use of water for outdoor sprinkling, watering of lawns, shrubs, driveways and automobiles to certain hours/days. Said restrictions will remain in effect until it is deemed the emergency conditions no longer exist.

Step II

A Step II curtailment is one where the City Manager will ban the use of water totally for outdoor sprinkling, watering of lawns, shrubs, driveways, and washing automobiles. Said restrictions will remain in effect until emergency conditions no long exist and the ban is lifted.

- A) The curtailment will be effective upon the City Manager's giving notice of curtailment by posting of a notice of curtailment and notifying the news media of the curtailment.
- B) The curtailment will be terminated upon the City Manager giving notice of termination as is done for the institution of the curtailment.
- C) The City Manager can amend, add, or delete any of these Rules and Regulations and shall notify the City Council at its regular meeting of said amendments, additions or deletions.
- D) Any violation of the Rules and Regulations adopted by the City Council shall carry a penalty of a fine of not less than \$200 nor more than \$500.

In addition to the existing Drought Contingency Plan, the City will enact the following Drought Contingency measures:

- A) Mild Drought Contingency Measures.
 - (i) Inform public by giving notice of a mild drought to the

communities within the district by the posting of the notice and notifying news media of the mild drought.

(ii) Included in the information to the public will be the recommendation that water users look for ways to conserve water.

(iii) Public will be advised of the trigger condition situation daily.

B.) Moderate Drought Contingency Measures

(i) Public will be informed as mentioned above

(ii) The Step I curtailment will be enacted.

(iii) Public will be advised of the trigger conditions daily.

C.) Major Drought Contingency Measures

(i) Public will be informed as mentioned above.

(ii) Step II curtailment will be enacted.

(iii) Certain industrial and commercial water users, which are not essential to the health and safety of the community, will be prohibited from water use.

(iv) Public will be advised of the trigger conditions daily.

III. Variances

The City Manager, or his/her designee, may grant, in writing, a temporary variance for water use prohibited under this plan if it is determined that failure to grant a variance would cause an emergency condition affecting the health, sanitation, or fire protection for the public or the person requesting the variance and if one or both of the following conditions are met:

A) Compliance with this plan that cannot be accomplished during the duration of the water shortage or other condition for which the plan is in effect.

- B) Alternative methods can be implanted which will achieve the same level of reduction in water use.

Person(s) requesting an exemption shall file a petition for variance with the City of Angleton within 5 days after the drought measures or a drought response state has been initiated. All petitions for variances shall be reviewed by the City Manager or his/her designee, and shall include the following:

- A) Name and address of the petitioner(s)
- B) Purpose of water uses
- C) Specific provision(s) of the plan from which the petitioner is requesting relief.
- D) Detailed statement as to how the specific provision would adversely affect the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this plan.
- 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 plan and the compliance date.
- H) Other pertinent information.

Variance granted by the City of Angleton shall be subject to the following conditions, unless waived or modified by the City Administrator or his/her designee:

- A) Variances granted shall include a timetable for compliance.
- B) Variances granted shall expire when the plan is no longer in effect.

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

IV. Information and Education

Once trigger conditions and emergency measures have been established, the public will be informed of the conditions and measures to be taken. The process for notifying the public includes:

- A) Posting the Notice of Drought conditions
- B) General circulation to newspapers
- C) Notifying local radio and TV stations
- D) Direct mailing and/or hand delivering to customers explaining need for and provisions of the Drought Contingency Plan

V. Termination Notification

Termination of the Drought measures will take place when the trigger conditions which initiated the drought measures have subsided and an emergency situation no longer exists. The public will be informed of the termination of the drought measures in the manner that they were informed of at the initiation of the drought measures.

CITY OF BRAZORIA
DROUGHT CONTINGENCY
PLAN

ORDINANCE NO. 421

AN ORDINANCE FOR THE CITY OF BRAZORIA, TEXAS, DEFINING VARIOUS CLASSIFICATIONS OF DROUGHT AND ESTABLISHING CONTINGENCY PLANS FOR EACH OF THOSE CLASSIFICATIONS; AUTHORIZING THE CITY ADMINISTRATOR OF THE CITY OF BRAZORIA TO IMPLEMENT AND ENFORCE THOSE CONTINGENCY PLANS: PROVIDING THAT THE VIOLATION OF AN IMPLEMENTED PLAN CONSTITUTES A MISDEMEANOR PUNISHABLE BY A FINE OF UP TO \$2,000.00 PER DAY FOR EACH VIOLATION; PROVIDING A SEVERABILITY CLAUSE; PROVIDING FOR THE REPEAL OF ALL RULES, ORDINANCES, POLICE REGULATIONS, RESOLUTIONS, AND/OR INFORMAL POLICIES OF THE CITY OF BRAZORIA TO THE EXTENT OF ANY CONFLICT OR INCONSISTENCY WITH THIS ORDINANCE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the City of Brazoria is a participating member city of the Brazosport Water Authority; and

WHEREAS, the Texas Water Development Board has required that all member cities in the Brazosport Water Authority adopt water conservation plans; and

WHEREAS, the City of Brazoria has adopted such a water conservation plan and wishes to make provision for the enforcement of that plan, particularly as it relates to the drought contingency portion of that plan,

NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BRAZORIA, TEXAS:

Section 1

For the purposes of this ordinance, the triggering conditions for drought contingency measures and the classification of those conditions are as follows:

- [A] Mild drought conditions shall consist of any one of the following:
 - [1] Water use by the City of Brazoria water patrons exceeds 3 million gallons for any seven (7) consecutive days; or
 - [2] The General Manager of the Brazosport Water Authority declares that a mild drought condition is in effect for the entire water system served by that authority.

- [B] Moderate drought conditions shall consist of any one of the following:
 - [1] Water use by the City of Brazoria water patrons exceeds 4 million gallons for any five (5) consecutive days; or
 - [2] The General Manager of the Brazosport Water Authority declares that a moderate

drought condition is in effect for the entire water system served by that authority.

- [C] Severe drought conditions shall consist of any one of the following:
 - [1] The imminent or actual failure of a major component of the City of Brazoria's water system which would cause an immediate health or safety hazard;
 - [2] Water use by the City of Brazoria water patrons exceeds 15 million gallons for any three (3) consecutive days; or
 - [3] The General Manager of the Brazosport Water Authority declares that a severe drought condition is in effect for the entire water system served by that authority.

Section 2

During the existence of any mild, moderate or severe conditions of drought determined as provided in Section 1, the City Administrator shall be empowered to regulate water use by any patrons of the water system of the City of Brazoria through the imposition of any reasonable water use restrictions, specifically including, but not limited to, the following:

- [A] During the existence of mild drought conditions, the City Administrator is empowered to restrict the use of water for outdoor sprinkling, watering of lawns and shrubs, washing of automobiles, and general outdoor use. Such use shall be restricted to alternate days for utility patrons having odd and even street numbers, or in the absence of street numbers, on the basis of odd or even designations for each patron made by the City Administrator. During such mild drought conditions, watering by hand held hoses or other manually operated devices shall be between the hours of 8:00 p.m. and 6:00 a.m. and by automatic devices between the hours of 2:00 a.m. and 6:00 a.m.
- [B] During the existence of moderate drought conditions, the City Administrator is empowered to restrict the use of water for outdoor sprinkling, watering of lawns and shrubs, washing of automobiles, and general outdoor use. Such use shall be restricted during such times as may be designated by the City Administrator, but in any event to be more restrictive than the permitted use specified for mild drought conditions.
- [C] During the existence of severe drought conditions, in addition to the restrictions specified for mild and moderate drought conditions, the City Administrator shall be empowered to completely terminate the use of water by industrial and commercial patrons to the extent such use is not essential for health or safety purposes.

Section 3

The existence of any one of the three above described drought conditions and the imposition of any restrictions on the use of water by the City of Brazoria patrons as authorized above shall be effective immediately upon the formal declaration of such condition and restrictions by the City Administrator. The declaration shall be made through such means as the City Administrator may determine are reasonably calculated to notify all city water patrons of such conditions and restrictions. Any such declaration shall include as soon as is reasonably possible, but not necessarily be limited to, the following:

- [A] Written announcement by the City Administrator posted at the City Hall and other public places throughout the City of Brazoria as may be determined by the City Administrator;
- [B] Publication of such notice in the Brazoria County News and the Brazosport Facts;
- [C] In the event of severe drought conditions direct contact with the industrial and commercial patrons affected by any special restrictions; and
- [D] To the extent possible, conveyance of the notice over the cable TV system serving the City of Brazoria.

The City Administrator shall, to the extent reasonably possible, anticipate the onset of any of the above described drought conditions and give appropriate notice of the same in the manner provided above. The City Administrator is further authorized to issue termination notices with respect to any or all of the above described drought conditions in the same manner as provided for above.

Section 4

It is hereby declared to be the intention of the City Council that the several provisions of this ordinance are severable, and if any court of competent jurisdiction enters a final order which holds that any section, sub-section, sentence, clause, phrase, or other portion of this ordinance is invalid, illegal, or otherwise unenforceable, then any such portion shall be deemed a separate, distinct and independent provision, and any such ruling shall not affect any other provisions of this ordinance which are not specifically designated as being illegal, invalid or unenforceable.

Section 5

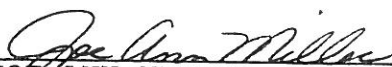
Any and all rules, ordinances, police regulations, resolutions, and/or policies of the City of Brazoria, whether written, or otherwise, which are in any manner in conflict with or inconsistent with this ordinance, shall be and are hereby repealed to the extent of such conflict and/or inconsistency.

Section 6

This ordinance shall be effective and applicable immediately from and after the date of its passage and


approval by the City Council of the City of Brazoria, and
the publication of its caption as provided by law.

PASSED and APPROVED this the 29th. day of
October, 1987.



JOE ANN MILLER, Mayor
City of Brazoria

ATTEST:



BETTY M. WILSON, City Secretary

**Drought Contingency Plan
For The
City of Freeport, Texas
Main Water System
I.D. # 0200005**

**DROUGHT CONTINGENCY PLAN
FOR THE
CITY OF FREEPORT, TEXAS**

Main Water System

NOVEMBER 19, 2001

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 preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Freeport, Texas hereby adopts the following regulations and restrictions on the delivery and consumption of water.

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section XI 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 Freeport by means of scheduling and providing public notice of a public meeting to accept input on the Plan on December 3, 2001.

Section III: Public Education

The City of Freeport will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of press releases or utility bill inserts.

Section IV: Coordination with Regional Water Planning Groups

The service area of the City of Freeport is located within the Houston Regional Water Planning Group H and City of Freeport has provided a copy of this Plan to the Houston Regional Planning Group H in Conroe, Texas.

Section V: Authorization

The Mayor, or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The

Mayor, or his/her designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section VI: Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City of Freeport. The terms "person" and "customer" as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

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, hotels and motels, 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.

Customer: any person, company, or organization using water supplied by the City of Freeport.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms 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 rights-of-way and medians.

Non-essential water use: water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

- (a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) use of water to wash down 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) use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

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

The Mayor, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan. Public notification of the initiation or termination of drought response stages shall be by means of publication in a newspaper of general circulation, direct mail to each customer, or signs posted in public places.

(a) Stage 1 - Mild Water Shortage Conditions

Requirements for initiation - Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII – Definitions, when **total daily water demand equals or exceeds 1.8 million gallons for 7 consecutive days and/or when pursuant to requirements specified in the City of Freeport wholesale water purchase contract with The Brazosport Water Authority, notification is received requesting initiation of Stage 1 of the Drought Contingency Plan.**

Requirements for termination - Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (5) consecutive days.

(b) Stage 2 - Moderate Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in Section VII of this Plan when **total daily water demand equals or exceeds 1.8 million gallons for 14 consecutive days and/or when pursuant to requirements specified in the City of Freeport wholesale water purchase contract with The Brazosport Water Authority, notification is received requesting initiation of Stage 2 of the Drought Contingency Plan.**

Requirements for termination - Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (5) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

(c) Stage 3 - Severe Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Plan when **total daily water demand equals or exceeds 2 million gallons for 5 consecutive days and/or when pursuant to requirements specified in the City of Freeport wholesale water purchase contract with The Brazosport Water Authority, notification is received requesting initiation of Stage 3 of the Drought Contingency Plan.**

Requirements for termination - Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (7) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

(d) Stage 4 - Critical Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of this Plan when **total daily water demand equals or exceeds 2.3 million gallons for 3 consecutive days and/or when pursuant to requirements specified in the City of Freeport wholesale water purchase contract with The Brazosport Water Authority, notification is received requesting initiation of Stage 4 of the Drought Contingency Plan.**

Requirements for termination - Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (7) consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

(e) Stage 5 - Emergency Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when the Mayor or his/her designee, determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; **or**
2. Natural or man-made contamination of the water supply source(s).

Requirements for termination - Stage 5 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (3) consecutive days.

(f) Water Rationing

Requirements for initiation - Customers shall be required to comply with the water allocation plan prescribed in Section X of this Plan and comply with the requirements and restrictions for Stage 5 of this Plan when **total daily water demand equals or exceeds 1.8 million gallons for 7 consecutive days and/or when pursuant to requirements specified in the City of Freeport wholesale water purchase contract with The Brazosport Water Authority, notification is received requesting initiation of Stage5 of the Drought Contingency Plan.**

Note: The inclusion of a water allocation or rationing plan as part of a drought contingency plan may not be required in all cases. For example, for a given water supplier, an analysis of water supply availability under drought of record conditions may indicate that there is essentially no risk of water supply shortage. Hence, a drought contingency plan for such a water supplier might only address facility capacity limitations and emergency conditions (e.g., supply source contamination and system capacity limitations).

Requirements for termination - Water rationing may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of (7) consecutive days.

Section IX: Drought Response Stages

The Mayor, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VIII of the Plan, shall determine that a mild, moderate, severe, critical, or emergency condition exists and shall implement the following actions upon publication of notice in a newspaper of general circulation:

Stage 1 - Mild Water Shortage Conditions

1. Goal:

Achieve a voluntary 10 percent reduction in daily water allocation demand from the Brazosport Water Authority.

2. Supply Management Measures:

The City of Freeport will implement water conservation and minimize any non-essential water uses.

3. Voluntary Water Use Restrictions:

- (a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 p.m. to midnight on designated watering days.

- (b) All operations of the City of Freeport shall adhere to water use restrictions prescribed for Stage 2 of the Plan.
- (c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

Stage 2 - Moderate Water Shortage Conditions

1. Goal:

Achieve a 20 percent reduction in daily water allocation demand from the Brazosport Water Authority.

2. Supply Management Measures:

The City of Freeport will implement water conservation and minimize any non-essential water uses.

- ### **3. Water Use Restrictions.** Under threat of penalty for violation, the following water use restrictions shall apply to all persons:
- (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime 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) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. 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 rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks 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 between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
 - (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.

- (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 City of Freeport.
- (f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight. However, if the golf course utilizes a water source other than that provided by the City of Freeport, the facility shall not be subject to these regulations.
- (g) All restaurants are prohibited from serving water to its patrons except when requested.
- (h) The following uses of water are defined as non-essential and are prohibited:
 - 1. wash down of any sidewalks, walkways, driveways, parking lots, 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;
 - 4. flushing gutters or permitting water to run or accumulate in any gutter or street; and
 - 5. failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

Stage 3 - Severe Water Shortage Conditions

- 1. Goal:

Achieve a 30 percent reduction in daily water allocation demand from the Brazosport Water Authority.
- 2. Supply Management Measures:

The City of Freeport will stop all non-essential water use.
- 3. Water Use Restrictions . All requirements of Stage 2 shall remain in effect during Stage 3 except:
 - (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times.
 - (b) The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the City of Freeport.
 - (c) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

Stage 4 - Critical Water Shortage Conditions

1. Goal:

Achieve a 40 percent reduction in daily water allocation demand from the Brazosport Water Authority.

2. Supply Management Measures:

The City of Freeport will stop all non-essential water use.

3. Water Use Restrictions. All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
- (b) Use of 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 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.
- (c) The filling, refilling, or adding of water to swimming pools, wading pools, and jacuzzi-type pools is prohibited.
- (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.
- (e) No applications 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 allowed or approved.

Stage 5 - Emergency Water Shortage Conditions

1. Goal:

Achieve a 45 percent reduction in daily water allocation demand from the Brazosport Water Authority.

2. Supply Management Measures:

The City of Freeport will stop all non-essential water use. As utilization of an alternative water source, the City of Freeport will use their ground water wells in the event that Stage 5 is implemented.

3. Water Use Restrictions. All requirements of Stage 2, 3, and 4 shall remain in effect during Stage 5 except:

- (a) Irrigation of landscaped areas is absolutely prohibited.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

Section X: Water Rationing

In the event that water shortage conditions threaten public health, safety, and welfare, the mayor is hereby authorized to ration water according to the following water allocation plan:

Single-Family Residential Customers

The allocation to residential water customers residing in a single-family dwelling shall be as follows:

Persons per Household	Gallons per Month
1 or 2	6,000
3 or 4	7,000
5 or 6	8,000
7 or 8	9,000
9 or 10	10,000
11 or more	12,000

“Household” means the residential premises served by the customer’s meter. “Persons per household” includes only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It shall be assumed that a particular customer’s household is comprised of two (2) persons unless the customer notifies the City of Freeport of a greater number of persons per household on a form prescribed by the mayor or his/her designee. The Mayor, or his/her designee, shall give his/her best effort to see that such forms are mailed, otherwise provided, or made available to every residential customer. If, however, a customer does not receive such a form, it shall be the customer’s responsibility to go to the City of Freeport offices to complete and sign the form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the City of Freeport. When the number of persons per household increases so as to place the customer in a different allocation category, the customer may notify the City of Freeport on such form and the change will be implemented in the next practicable billing period. If the number of persons in a household is reduced, the customer shall notify the City of Freeport in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the mayor or his/her designee shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with criminal negligence falsely reports the number of persons in a household or fails to timely notify the City of Freeport of a reduction in the number of

person in a household shall be fined in accordance with the Freeport Code of Ordinances, General Provisions 10:99 General Penalty.

Whenever in this code or any ordinance of the city an act is prohibited or is made or declared to be unlawful or an offense or a misdemeanor, or whenever in this code or any ordinance of the city the doing of any act is required or the failure to do any act is declared unlawful, unless another penalty is provided for elsewhere in this code or such other ordinance by amendment to this code, or such ordinance adopted after the effective date of the ordinance being amended, the violation of any such provision that governs fire safety, zoning, or public health and sanitation, including dumping of refuse, shall be punished by a fine not to exceed \$2,000.00 dollars; the punishment for any other provision shall be a fine not to exceed \$500.00 dollars; provided however, that no penalty shall be greater or less than the penalty provided for the same or similar offense under the law of the state.

Residential water customers shall pay the following surcharges:

- \$10.00 dollars for the first 1,000 gallons over allocation.
- \$20.00 dollars for the second 1,000 gallons over allocation.
- \$30.00 dollars for the third 1,000 gallons over allocation.
- \$40.00 dollars for each additional 1,000 gallons over allocation.

Surcharges shall be cumulative.

Master-Metered Multi-Family Residential Customers

The allocation to a customer billed from a master meter which jointly measures water to multiple permanent residential dwelling units (e.g., apartments, mobile homes) shall be allocated 6,000 gallons per month for each dwelling unit. It shall be assumed that such a customer's meter serves two dwelling units unless the customer notifies the City of Freeport of a greater number on a form prescribed by the Mayor, or his/her designee. The Mayor, or his/her designee, shall give his/her best effort to see that such forms are mailed, otherwise provided, or made available to every such customer. If, however, a customer does not receive such a form, it shall be the customer's responsibility to go to the City of Freeport offices to complete and sign the form claiming more than two (2) dwellings. A dwelling unit may be claimed under this provision whether it is occupied or not. New customers may claim more dwelling units at the time of applying for water service on the form prescribed by the Mayor or his/her designee. If the number of dwelling units served by a master meter is reduced, the customer shall notify the City of Freeport in writing within two (2) days. In prescribing the method for claiming more than two (2) dwelling units, the Mayor, or his/her designee, shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with criminal negligence falsely reports the number of dwelling units served by a master meter or fails to timely notify the City of Freeport of a reduction in the number of person in a household shall be fined not less than \$200.00 dollars. Customers billed from a master meter under this provision shall pay the following monthly surcharges:

- \$10.00 dollars, for 1,000 gallons over allocation up through 1,000 gallons for each dwelling unit.
- \$20.00 dollars, thereafter, for each additional 1,000 gallons over allocation up through a second 1,000 gallons for each dwelling unit.
- \$.30.00 dollars, thereafter, for each additional 1,000 gallons over allocation up through a third 1,000 gallons for each dwelling unit.
- \$40.00 dollars, thereafter for each additional 1,000 gallons over allocation.

Surcharges shall be cumulative.

Commercial/Industrial Customers

A monthly water usage allocation shall be established by the Mayor, or his/her designee, for each nonresidential commercial/Industrial customer who uses water for processing purposes. The non-residential customer's allocation shall be based on the severity of the drought conditions (e.g. stage 1 20%, stage 2 30%, stage 4 40%, stage 5 45%). If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record shall be used for any monthly period for which no history exists. The Mayor or designee shall give his/her best effort to see that notice of each non-residential customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it shall be the customer's responsibility to contact the City of Freeport to determine the allocation. Upon request of the customer or at the initiative of the Mayor or designee, the allocation may be reduced or increased if, (1) the designated period does not accurately reflect the customer's normal water usage, (2) one nonresidential customer agrees to transfer part of its allocation to another nonresidential customer, or (3) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the City Council of The City of Freeport. Nonresidential commercial/Industrial customers shall pay the following surcharges:

Customers whose allocation is 1 gallon through 12,000 gallons per month:

- \$10.00 dollars per thousand gallons for the first 1,000 gallons over allocation.
- \$20.00 dollars per thousand gallons for the second 1,000 gallons over allocation.
- \$30.00 dollars per thousand gallons for the third 1,000 gallons over allocation.
- \$40.00 dollars per thousand gallons for each additional 1,000 gallons over allocation.

Customers whose allocation is 13,000 gallons per month or more:

- 3% times the block rate for each 1,000 gallons in excess of the allocation up through 5 percent above allocation.
- 5% times the block rate for each 1,000 gallons from 5 percent through 10 percent above allocation.
- 7% times the block rate for each 1,000 gallons from 10 percent through 15 percent above allocation.
- 9% times the block rate for each 1,000 gallons more than 15 percent above allocation.

The surcharges shall be cumulative. As used herein, "block rate" means the charge to the customer per 1,000 gallons at the regular water rate schedule at the level of the customer's allocation.

Section XI: Enforcement

- (a) No person shall knowingly or intentionally allow the use of water from the City of Freeport for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by Mayor, or his/her designee, in accordance with provisions of this Plan.
- (b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished according to the provisions in the Freeport Code of Ordinances General Provisions 10.99. 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 Mayor shall, upon due 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 payment of a re-connection charge, hereby established at \$25.00 dollars, and any other costs incurred by the City of Freeport in discontinuing service. In addition, suitable assurance must be given to the Mayor or designee 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) Any person, including a person classified as a water customer of the City of Freeport, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.
- (d) Any employee of the City of Freeport, and/or police officer, designated by the Mayor, or his/her designee, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the 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 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 municipal court, a warrant for his/her 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 municipal court before all other cases.

Section XII: Variances

The Mayor, or his/her 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 accomplished 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 with the City of Freeport within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the Mayor, or his/her 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 Plan and the compliance date.
- (h) Other pertinent information.

Variances granted by the City of Freeport shall be subject to the following conditions, unless waived or modified by the Mayor or his/her designee:

- (a) Variances granted shall include a timetable for compliance.
- (b) Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

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

Section XIII: Severability

It is hereby declared to be the intention of the City Council of The City of Freeport that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable and, if any phrase, clause, sentence, paragraph, or section of this Plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, since the same would not have been enacted by the City Council of The City of Freeport without the incorporation into this Plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

**WATER CONSERVATION
PLAN FOR THE CITY OF
FREEPORT, TEXAS**

MARCH 2010

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APPENDICES

- APPENDIX A Definitions**
- APPENDIX B Texas Commission on Environmental Quality Rules on
Municipal Water Conservation Plans**
- TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.1 – Definitions (Page B-1)
 - TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 – Water Conservation Plans for Municipal Uses by Public Water Suppliers (Page B-4)
- APPENDIX C TCEQ Water Utility Profile**
- APPENDIX D City of Freeport Drought Contingency Plan**
- APPENDIX E Consideration for Landscape Water Management Regulations**
- APPENDIX F Letter to Region H Water Planning Group**
- APPENDIX G Adoption of Water Conservation Plan**
- APPENDIX H Illegal Water Connections and Thief of Water**
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Water Conservation Plan for the City of Freeport, Texas

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the growing population and economic development of Brazoria County, Texas has led to increasing demands for water supplies. At the same time, supplies to meet higher demands will be expensive and difficult to develop. It is therefore important that the City of Freeport (City) make the most efficient use of existing supplies.

- a. In order to conserve the available water supply and/or to protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, 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 Freeport adopts the following water conservation plan.
- b. Water uses regulated or prohibited under the water conservation plan (the plan) are considered to be nonessential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as referenced in subsection (e) of this plan.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers. TCEQ guidelines and requirements are included in Appendix B. The best management practices established by the Water Conservation Implementation Task Force, established pursuant to Senate Bill (SB) 1094 by the 78th Texas Legislature, were also considered in the development of the water conservation measures. The City developed this Water Conservation Plan following TCEQ guidelines and requirements.

The water conservation sections of the City's Plan include measures that are intended to result in ongoing, long-term water savings.

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.

In order to adopt this water conservation plan, which follows TCEQ's developed guidelines and requirements, The City of Freeport will need to do the following:

- Complete the water utility profile (Appendix C).
- Complete the annual water conservation implementation report (Appendix H).
- Set five-year and ten-year goals for per capita water use (Table 4.1).
- Adopt an ordinance approving the plan.

The water utility profile, goals, and ordinance(s) or regulations will be provided to TCEQ.

This Water Conservation Plan for the City of Freeport, Texas (City Plan) applies to all users of the City of Freeport water supply.

This City Plan includes all of the elements required by TCEQ.

2. TEXAS COMMISSION ON ENVIRONMENTAL QUALITY RULES

2.1 Conservation Plans

The TCEQ rules governing development of water conservation plans for public water suppliers are contained in TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2, 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.” The elements in the TCEQ water conservation rules covered in the conservation sections of the City Plan are listed below.

Minimum Conservation Plan Requirements

The minimum requirements in the TAC for water conservation plans for Public Water Suppliers are covered in this report as follows:

- 288.2(a)(1)(A) – Utility Profile – Section 3 and Appendix C
- 288.2(a)(1)(B) – Specification of Goals – Section 4
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 4
- 288.2(a)(1)(D) – Accurate Metering – Sections 5.1 and 5.2
- 288.2(a)(1)(E) – Universal Metering – Section 5.2
- 288.2(a)(1)(F) – Determination and Control of Unaccounted Water – Section 5.4
- 288.2(a)(1)(G) – Public Education and Information Program – Section 6
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 7
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 8.1
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 9
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 8.7 and Appendix F

- 288.2© – Review and Update of Plan – Section 10

Conservation Additional Requirements (Population over 5,000)

The TAC includes additional requirements for water conservation plans for Public Water Suppliers serving a population over 5,000:

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections 5.4, 5.5, and 5.6
- 288.2(a)(2)(B) – Record Management System – Section 5.3
- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers – Section 8.6

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis. This report is included in Appendix H.

In addition to the TCEQ required water conservation strategies, the City also requires the following strategy to be included:

- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 8.3 and Appendix D

TCEQ rules also include optional, but not required, conservation strategies, which may be adopted by The City:

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 7
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 8.3
- 288.2(a)(3)(C) – Replacement or Retrofit of Water-Conserving Plumbing Fixtures Section 8.5
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 8.2
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 8.5 and Appendix E

- 288.2(a)(3)(G) – Monitoring Method – Section 5.6
- 288.2(a)(3)(H) – Additional Conservation Ordinance Provisions – Section 8.

3. WATER UTILITY PROFILE

Appendix C to this City Plan is the City of Freeport water utility profile based on the format recommended by the TCEQ. In adopting this City Plan, the City of Freeport will provide a water utility profile to TCEQ for review and comment.

4. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of plan adoption, the City must develop a 5-year and 10-year goals for per capita municipal use. These goals should be submitted to TCEQ. The goals for this City Plan include the following:

- Maintain the per capita municipal water use below the specified amount in gallons per capita per day in a dry year, as shown in the completed Table 4.1.
- Maintain the level of unaccounted water in the system below 15 percent annually in 2010 and subsequent years, as discussed in Section 5.4.
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 5.2.
- Increase efficient water usage through a water conservation ordinance, order or resolution as discussed in Section 8.4 and Appendix G.
- Decrease waste in lawn irrigation by implementation and enforcement of landscape water management regulations, as discussed in Section 8.5 and Appendix E.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 6.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.

**Table 4.1
Five-Year and Ten-Year Municipal Per Capita Water Use Goals (gpcd)**

Description	Current Average (gpcd)	5-year Goal (gpcd)	10-year Goal (gpcd)
Current 5-Year Average Per Capita Municipal Use with Credit for Reuse	91	91	91
Expected Reduction due to Low-Flow Plumbing Fixtures	0	1	1
Projected Reduction Due to Elements in this City Plan	0	3	3
Water Conservation Goals (with credit for reuse)	91	87	87

- **Based on 2005-2009 consumption**

5. METERING, WATER USE RECORDS, CONTROL OF UNACCOUNTED WATER, AND LEAK DETECTION AND REPAIR

One of the key elements of water conservation is tracking water use and controlling losses through illegal diversions and leaks. It is important to carefully meter water use, detect and repair leaks in the distribution system and provide regular monitoring of unaccounted water.

5.1 Accurate Metering of Treated Water Deliveries from BWA

- The city purchases treated surface water from the Brazosport Water Authority.
- Water deliveries from Brazosport Water Authority (BWA) are metered by BWA using meters with accuracy of ± 2 percent. These meters are calibrated on an annual basis by BWA to maintain the required accuracy.
- The city owns and operates two surface water booster stations and two metered groundwater wells (used for emergency purposes). Water is received into the ground storage tanks via water supply lines. The water is then distributed through transmission lines to customers. The groundwater storage tanks capacity is 2 MG with 1 MG elevated storage.
- The city uses approximately 584,000,000 gallons annually. The purchased water provides all of the demand for the city.

5.2 Metering of Customer and Public Uses and Meter Testing, Repair, and Replacement

- The City of Freeport meters 100 percent of the connections to the distribution system including municipal uses. Meters range in size from three-quarters inch to ten inches. All meters are designed to provide accurate flows to within plus or minus five percent.
- The city practices a meter change-out program whereby meters are changed out every 7—10 years. Additionally, larger meters (3" and up) are field tested on no less than a 5-year interval and either maintained or replaced when their test flow is more than a 3 percent difference from actual flow.

5.3 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the City of Freeport will maintain a customer billing and record management system that allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. This information will be included in an annual water conservation report, as described in Section 5.6. Should TCEQ or TWDB require the inclusion of additional customer classes, the City will add the required classes to its billing and records management system.

5.4 Determination and Control of Unaccounted Water

Unaccounted water is the difference between water delivered to the City of Freeport from BWA and metered water sales to customers plus authorized but unmetered uses. (Authorized but unmetered uses would include use for firefighting, releases for flushing of lines, uses associated with new construction, etc.).

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 not yet been added to the billing system.
- Losses due to water main breaks and leaks in the water distribution system.
- Losses due to fire fighting.
- Losses due to illegal connections and theft.
- Other.

To the extent possible these sources of unaccounted for water will be measured or metered for annual water loss calculations. Measures to control unaccounted water will be part of the routine operations of the City of Freeport. Maintenance crews and personnel will test for, observe for, and report evidence of leaks in the water distribution system. A leak detection and repair program is described in Section 5.5 below. Meter services technicians and all City crews will watch for and report signs of water loss and illegal connections, so they can be quickly addressed. Unaccounted water should be calculated in accordance with the provisions of Appendix C. With the measures described in this City Plan, the City of Freeport should maintain unaccounted water below 15 percent in 2010 and subsequent years. If unaccounted water exceeds this goal, the City of Freeport will implement a more intensive audit to determine the source(s) of and reduce the unaccounted water. The annual conservation report described below is the primary tool that should be used to monitor unaccounted water.

5.5 Leak Detection and Repair

- As described above, City crews and personnel should 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, should be targeted for replacement as funds are available.
- Leaks are reported by any municipal employee as well as the general public.
- All leaks are repaired the same day or as soon as practicable.

5.6 Water Conservation Implementation Report

Appendix H includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of every year, starting in the year 2010. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also calls for the five-year and ten-year per capita water use goals from the water conservation plan. The reporting entity must answer whether or not these goals have been met and if not, why not. The amount of water saved is also requested.

6. PUBLIC EDUCATION AND INFORMATION

The City will support programs to educate the public regarding water conservation activities that support its goals. This includes educating the general public on the need for and practices of water conservation through public service announcements and other means. This information will be provided by means of public notice, web site, press releases and mailings.

7. WATER RATE STRUCTURE

The current City of Freeport rate structure is as follows:

Residential Rates

0- 2,000 gallons	\$10.00
3,000 – 12,000 gallons	\$3.20 per thousand gallons
13,000 – up gallons	\$4.30 per thousand gallons

Commercial/Industrial Rates

0 – 2,000 gallons	\$10.50
3,000 – up gallons	\$4.70 per thousand gallons

7.1 Outside City Limits

Rates are 1.5 times the basic charge

7.2 Wholesale Contracts

The City of Freeport has no wholesale contracts with any other municipalities or water districts at this time.

8. OTHER WATER CONSERVATION MEASURES

8.1 Reuse and Recycling of Wastewater

The city has no program regarding the reuse of gray water at this time.

8.2 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures

The state has required water-conserving fixtures in new construction and renovations since 1992. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures. The City of Freeport will continue to implement ordinances, plumbing codes, and rules on water conserving fixtures as they evolve through relevant building codes and State of Texas requirements.

Plumbing codes

- The city operates under the 2003 International Building Code. This code has been formally adopted by the city council and is included in the City of Freeport Code of Ordinances. A copy of this code is on file at city hall. The city routinely inspects new construction, remodeling, add-ons, etc., through building permits. All new construction is required to meet state and federal rules regarding water-conserving plumbing fixtures.
- Water-conserving plumbing fixtures in existing structures other than what would be required through the permitting process for remodels and building upgrades.

8.3 Landscape Water Management Measures

The City of Freeport to consider landscape water management measures as listed in Appendix E

8.4 Other conservation measures

The city recognizes that in order to accomplish the goals and objectives of this water conservation plan, other conservation measures may be required that are not outlined within the body of this document. The city is aware of the Water Conservation Best Management Practices Guide published by the Water Conservation Implementation Task Force in November 2004. As deemed necessary, the city will implement other measures either from the BMP guide or as otherwise seen fit to assure compliance with the plan.

8.5 Requirement for Water Conservation Plans by Wholesale Customers

The City of Freeport has no wholesale contracts with any other municipalities or water districts at this time.

8.6 Coordination with Regional Water Planning Group

The water service area of the City of Freeport is located within the Region H Water Planning area and a copy of this plan has been provided to the Region H Water Planning Group (RWPG).

9. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

No person shall intentionally or knowingly allow the use of water from the City of Freeport for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by city manager, or his/her designee, in accordance with provisions of this plan.

Any person who intentionally or knowingly violates this plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than \$1.00 and not more than \$200.00. 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 city manager, or his/her designee, shall, upon due 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 payment of a re-connection charge in accordance with current policies and ordinances and any other costs incurred by the City of Freeport in discontinuing service. In addition, suitable assurance must be given to the city manager or his/her designee, 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.

10. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

The City Plan will be updated based upon receipt of new or updated information, and as required by the TCEQ.

Appendix A

Definitions

10-1

Appendix A

Definitions

Definitions: For the purpose of this plan, the following definitions shall apply:

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

Commercial and institutional water use shall mean water use which is integral to the operations of commercial and nonprofit establishments and governmental entities, such as retail establishments, hotels and motels, restaurants, and office buildings.

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

Customer shall mean any person, company, or organization using water supplied by the City of Freeport.

Domestic water use shall mean water use for personal needs or for household or sanitary purposes such as drinking, cooking, bathing, heating, cooling, sanitation, or for cleaning a residence, business, industry, or institution.

Drought contingency plan shall mean a strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).

Municipal per capita water use shall mean the sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.

Municipal use shall mean the use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial

enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.

Municipal use in gallons per capita per day shall mean the 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. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

Landscape irrigation use shall mean 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 rights-of-way and medians.

Nonessential water use shall mean water uses that are neither essential nor required for the protection of public, health, safety, and welfare, including:

- (1) Irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this plan.
- (2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle.
- (3) Use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts or other hard-surfaced areas.
- (4) Use of water to wash down buildings or structures for purposes other than immediate fire protection.
- (5) Flushing gutters or permitting water to run or accumulate in any gutter or street.
- (6) Use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools.
- (7) Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life.
- (8) Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).
- (9) Use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Pollution shall mean the alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public

health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

Public water supplier shall mean an individual or entity that supplies water to the public for human consumption.

Regional water planning group shall mean a group established by the Texas Water Development Board to prepare a regional water plan under V.T.C.A., Water Code § 16.053.

Retail public water supplier shall mean an individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

Reuse shall mean the authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

Water conservation plan shall mean 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. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

Wholesale public water supplier shall mean an individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

Appendix B
Texas Commission on Environmental Quality
Rules on Municipal Water Conservation Plans

Appendix C
Water Utility Profile

Appendix D
City of Freeport, Texas Drought Contingency Plan

Appendix E
Consideration for Landscape Water Management
Regulations

Appendix F
Letter to Region H Water Planning Group

Appendix G
Adoption of Water Conservation Plan

Appendix H
Illegal Water Connections and Thief of Water

Appendix I
TCEQ Water Conservation Implementation
Report

**CITY OF LAKE JACKSON
DROUGHT CONTINGENCY
PLAN**

SECTION 2: All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of the conflict only.

SECTION 3: If any part or portion of this ordinance shall be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect or impair any remaining portions or provisions of this ordinance.

SECTION 4: This ordinance shall take effect and be in force upon adoption after second and final reading.


PASSED AND APPROVED on the first reading this 2 day of August, 1999.

PASSED AND ADOPTED on this second and final reading this 16 day of August, 1999.



MAYOR, CITY OF LAKE JACKSON

ATTEST:



CITY SECRETARY

ORDINANCE NO. 99-1608

AN ORDINANCE AMENDING CHAPTER 102 OF THE CITY CODE OF ORDINANCES BY ADOPTING A NEW DIVISION 3 ENTITLED DROUGHT CONTINGENCY PLAN TO BE NUMBERED 102-106 THROUGH 102-115; ESTABLISHING A PENALTY OF NOT LESS THAN \$25 NOR MORE THAN \$200.00 FOR EACH VIOLATION PER DAY; REPEALING ALL ORDINANCES IN CONFLICT TO THE EXTENT OF THE CONFLICT ONLY; PROVIDING A SAVINGS CLAUSE; PROVIDING THAT THIS ORDINANCE SHALL TAKE EFFECT AND BE IN FORCE FIVE DAYS AFTER ITS DESCRIPTIVE CAPTION IS PUBLISHED WITHIN TEN DAYS OF FINAL PASSAGE IN THE BRAZOSPORT FACTS; AND SUSPENDING THE CHARTER RULE REQUIRING THAT AN ORDINANCE BE READ ON TWO SEPARATE READINGS.

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LAKE JACKSON, TEXAS:

SECTION 1: That Chapter 102 of the Code of Ordinances of the City of Lake Jackson, Texas is hereby amended by adopting a new Division 3 entitled Drought Contingency Plan, to read as follows:

Division 3. Drought Contingency Plan

Section 102-106. 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 preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City of Lake Jackson (City) hereby adopts the following regulations and restrictions on the delivery and consumption of water.

Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section X of this Plan.

Section 102-107. Public Involvement

a. Public Input

Opportunity for the public to provide input into the preparation of the Plan was provided by the City by means of newspaper, and public notice postings.

b. Public Education

The City will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of City newsletter, newspaper, and City WebPage.

c. Coordination with Regional Water Planning Groups

The service area of the City of Lake Jackson is located within the Houston Region and the City of Lake Jackson has provided a copy of this Plan to the Houston Region.

Section 102-108. Authorization

The City Manager or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The City Manager or his/her designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section 102-109. Application

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City. The terms "person" and "customer" as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

Section 102-110. 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, hotels and motels, 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.

Customer: any person, company, or organization using water supplied by the City.

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms 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 rights-of-way and medians.

Non-essential water use: water uses that are not essential or required for the protection of public, health, safety, and welfare, including:

- (a) Irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) Use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) Use of water to wash down 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) Use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (i) Use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Water related recreation/amusement facility: a heavy user of water for a recreation or amusement facility. Examples of such facilities would include public or private golf course, private water related amusement park or like facility.

Section 102-111. Triggering Criteria for Initiation and Termination of Drought Response Stages

The City Manager, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the Plan. Public notification of the initiation or termination of drought response stages shall be by means of newspaper, and WebPage.

The triggering criteria described below are based on distribution system capacity, 75% of the systems distribution capabilities are defined as the safe operating capacity (SOC).

a. Stage 1 - Mild Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the restrictions on certain non-essential water uses defined in Section 102-110 of this Plan when total daily water demand equals or exceeds 5.8 million gallons for 3 consecutive days or 6.2 million gallons on a single day.

Requirements for termination - Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 3 consecutive days.

b. Stage 2 Moderate Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the restrictions on certain non-essential water uses for Stage 2 of this Plan when total daily water demand equals or exceeds 6.2 million gallons for 3 consecutive days or 6.5 million gallons on a single day.

Requirements for termination - Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 3 consecutive days.

c. Stage 3 - Severe Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the restrictions on certain non-essential water uses for Stage 3 of this Plan when total daily water demand equals or exceeds 6.5 million gallons for 3 consecutive days or 7.2 million gallons on a single day.

Requirements for termination - Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 3 consecutive days.

d. Stage 4 - Critical Water Shortage Conditions

Requirements for initiation - Customers shall be required to comply with the restrictions for Stage 4 of this Plan when the City Manager, or his/her designee:

Determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or
2. Natural or man-made contamination of the water supply source(s).

Requirements for termination – Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of 3 consecutive days.

Section 102-112. Drought Response Stages

The City Manager, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VIII of the Plan, shall determine that a mild, moderate, severe, or critical condition exists and shall implement the following actions upon publication of notice in a newspaper of general circulation:

Stage 1 - Mild Water Shortage Conditions

Goal: Reduce daily water use to less than 5.8 million gallons (90% of SOC).

Supply Management Measures: Reduced flushing of water mains, reduced irrigation of public landscaped areas.

Water Use Restrictions. The following water use restrictions shall apply to all persons:

- (a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to alternate days, even numbered addresses would water on even numbered days and odd numbered addresses would water on odd numbered days. However, irrigation of landscaped areas is permitted at anytime 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) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days. 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 immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks 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.
- (d) 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 City.
- (f) Use of water for the irrigation of a water related recreation/amusement facility is prohibited except on designated watering days. However, if the facility utilizes a water source other than that provided by the City, the facility shall not be subject to these regulations.
- (f) The following uses of water are defined as non-essential and are prohibited:
 1. Wash down of any sidewalks, walkways, driveways, parking lots, 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;
 4. Flushing gutters or permitting water to run or accumulate in any gutter or street; and

5. Failure to repair a controllable leak(s) within a forty-eight hour period after having been given notice directing the repair of such leak(s).

Stage 2 - Moderate Water Shortage Conditions

Goal: Reduce water usage to less than 5.8 million gallons (90% of SOC).

Supply Management Measures: Reduced flushing of water mains, reduced irrigation of public landscaped areas.

Water Use Restrictions. Under the threat of penalty of violation, all requirements of Stage 1 shall remain in effect and become mandatory during Stage 2 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
- (b) The use of water for irrigation of water related recreation/amusement facility is prohibited, unless the facility utilizes a water source other than that provided by the City.
- (c) 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.

Stage 3 - Severe Water Shortage Conditions

Goal: Reduce water usage to less than 5.8 million gallons (90% of SOC).

Supply Management Measures: Discontinued flushing of water mains, discontinued irrigation of public landscaped areas.

Water Use Restrictions. All requirements of Stage 1 and 2 shall remain in effect during Stage 3 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
- (b) Use of 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. Vehicle washing at commercial car washes and commercial service stations is permitted but 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.
- (c) The filling, refilling, or adding of water to swimming pools, wading pools, and jacuzzi-type pools is prohibited.
- (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.

Stage 4 - Critical Water Shortage Conditions

Goal: Reduce water usage to less than 6.5 million gallons (SOC).

Supply Management Measures: Cease all non-essential water uses.

Water Use Restrictions. All requirements of Stage 1, 2, and 3 shall remain in effect during Stage 4 except:

- (a) Irrigation of landscaped areas is absolutely prohibited.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited, except at commercial car washes or commercial service station between the hours of 6:00 a.m. and 8:00 a.m. and between 6:00 p.m. and 8:00 p.m.

Section 102-113. Enforcement

- (a) No person shall knowingly or intentionally allow the use of water from the City for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by City Manager, or his/her designee, in accordance with provisions of this Plan.
- (b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than 25 dollars (\$) and not more than 200 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 City Manager shall, upon due 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 payment of a re-connection charge, hereby established at \$150, and any other costs incurred by the City in discontinuing service. In addition, suitable assurance must be given to the City Manager 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) Any person, including a person classified as a water customer of the City, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.
- (d) Any police officer, or other person designated by the City Manager, may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in 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 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 municipal court, a warrant for his/her 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 municipal court before all other cases.

Section 102-114. Variances

The City Manager, or his/her 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 accomplished 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 with the City within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the City Manager, or his/her 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 Plan and the compliance date.
- (h) Other pertinent information.

Variances granted by the City shall be subject to the following conditions, unless waived or modified by the City Manager or his/her designee:

- (a) Variances granted shall include a timetable for compliance.
- (b) Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

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

Section 102-115. Severability

It is hereby declared to be the intention of the City of Lake Jackson that the sections, paragraphs, sentences, clauses, and phrases of this Ordinance are severable and, if any phrase, clause, sentence, paragraph, or section of this Plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, since the same would not have been enacted by the City of Lake Jackson without the incorporation into this Plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

It is also noted that a private well must not be connected to a house or building that is furnished water by the City without prior approval from, or review by the City. Also, no private water source or well may be connected in any fashion to the City's potable water supply.

SECTION 2: Any person, firm, corporation, association or other entity that violates this ordinance shall be subject to a fine of not less than \$25 nor more than \$200 for each violation per day.

SECTION 3: All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of the conflict only.

SECTION 4: If any part or portion of this ordinance shall be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect or impair any remaining portions or provisions of this ordinance.

SECTION 5: The City Secretary shall publish the caption of this ordinance within ten days of final passage in The Brazosport Facts. This ordinance shall take effect and be in force five days after publication in accordance with Section 3-15 of the Charter of the City of Lake Jackson, Texas.

SECTION 6: Upon the affirmative notice of all Councilmembers present, the rule requiring ordinances to be read on two separate dates is hereby suspended and this ordinance shall be passed and become effective from and after the date of its adoption on its first reading.

ADOPTED AND APPROVED on this first and final reading this 16 day of August, 1999.



MAYOR, CITY OF LAKE JACKSON

ATTEST:



CITY SECRETARY

CITY OF LAKE JACKSON
WATER CONSERVATION PLAN

Steele Environmental Services, LLC

*Helping Businesses & Governments Comply with Environmental Regulation
by Specializing in Environmental Strategy.*

January 4, 2010: Minor revisions as follows (by Steele Environmental) -
- Changed statement about recycling effluent as athletic field irrigation source to conditional pending other re-use analysis;
- Added table in Section 8 to clarify gpcd
Pending ordinance approval:
- Revise Section 7 to clarify terms of adoption.

May 22, 2009

CERT # 7005 1160 0002 6625 0906

CERT # 7005 1160 0002 6625 0913

Ethan Ham (ethan.ham@twdb.state.tx.us; 512-463-4292)
Texas Water Development Board
PO Box 13231
Austin, Texas 78711-3231

Resource Protection Team
MC-160
Texas Commission on Environmental Quality P.O.
Box 13087
Austin, Texas, 78711-3087

**RE: CITY OF LAKE JACKSON (PWS ID # 0200006, CCN 11291)
MUNICIPAL WATER CONSERVATION PLAN (April 2009 edition)**

Dear Sir or Madam:

Pursuant to the respective requirements of 31 TAC 363 and 30 TAC 288.2 respectively, please find enclosed the updated Municipal Water Conservation Plan for the above-referenced entity.

If you have any questions on this submission, you may direct them to Craig Nisbett, P.E., Director of Public Works at 979-415-2430 or cnisbett@ci.lake-jackson.tx.us, or to the undersigned.

Thank you for your attention to this matter.

Sincerely,

Alison Steele Mandadi, P.G.
Principal
Alison@EnviroSteele.com

Ecc & hcc: Craig Nisbett, P.E., Director of Public Works, City of Lake Jackson (cnisbett@ci.lake-jackson.tx.us)
Ecc: David Ellis, Utilities Superintendent, City of Lake Jackson (dellis@ci.lake-jackson.tx.us)
Cc: STEELE File 2009005

Encl: Municipal Water Conservation Plan, City of Lake Jackson, April 2009 (2 copies, TWDB)
Encl: Municipal Water Conservation Plan, City of Lake Jackson, April 2009 (1 copy, TCEQ)

MUNICIPAL WATER CONSERVATION PLAN

Revision Date: January 4, 2010



**City of Lake Jackson
25 Oak Drive
Lake Jackson, TX 77566**

**Mr. William P. Yenne
City Manager**

**Mr. Craig Nisbett, P.E.
Public Works Director**

**Mr. David Ellis
Water Utilities Superintendent**

Consistent with the Requirements of:

**Title 31, Texas Administrative Code,
Chapter 363 (TWDB)**

Regulatory Contact:

Ethan Ham (ethan.ham@twdb.state.tx.us;
512-463-4292)
Texas Water Development Board
PO Box 13231
Austin, Texas 78711-3231

**Title 30, Texas Administrative Code,
Chapter 288.2 (TCEQ)**

Regulatory Contact:

Resource Protection Team
MC-160
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas, 78711-3087



REVISION: 01-10

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
PAGE # (without inserts): 2

WATER CONSERVATION PLAN GUIDANCE CHECKLIST

TCEQ / TWDB PROVISION (3300 GUIDELINES):		NOTES
A. <input checked="" type="checkbox"/>	An evaluation of your water and wastewater system and customer use characteristics to identify water conservation opportunities and potential targets and goals. Completion of the Water Conservation Utility Profile, WRD-264 , as part of the evaluation is required. <u>Attach a copy to the Plan.</u>	See Appendix A. We have re-cast WRD-264 into spreadsheet format for ease of future water accounting.
B. <input checked="" type="checkbox"/>	Inclusion of 5-year and 10-year targets & goals. Target and goals should be specific and quantified for municipal use expressed in gallons per capita per day as well as goals for water loss programs . Consider state and regional targets and goals, local climate, demographics, and the utility profile. Consider the anticipated savings that can be achieved by utilizing the appropriate Best Management Practices and other conservation techniques.	See Section 8.0 of this Plan.
C. <input checked="" type="checkbox"/>	A schedule for implementing the plan to achieve your targets and goals.	See Section 8.0 of this Plan.
D. <input checked="" type="checkbox"/>	A method for tracking the implementation and effectiveness of the plan. The method should track annual water use and provide information sufficient to evaluate the implementation conservation measures. The plan should measure progress annually, and, at a minimum, evaluate the progress towards meeting the targets and goals.	See Section 8.0 of this Plan with review forms in Appendix C.
E. <input checked="" type="checkbox"/>	A master meter to measure and account for the amount of water diverted from the source of supply.	See Section 3.0.
F. <input checked="" type="checkbox"/>	A program of universal metering of both customer and public uses of water, for meter testing, repair and for periodic replacement.	See Sections 3.0 & 4.0 of this Plan.
G. <input checked="" type="checkbox"/>	Measures to determine and control water loss (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections, abandoned services, etc.).	See Section 4.0 of this Plan.
H. <input checked="" type="checkbox"/>	A continuous program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control water loss.	See Section 4.0 of this Plan.
I. <input checked="" type="checkbox"/>	A program of continuing education and information regarding water conservation. This should include providing water conservation information directly to each residential, industrial and commercial customer annually, and providing water conservation literature to new customers when they apply for service.	See Section 6.0 of this Plan.
J. <input checked="" type="checkbox"/>	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. <u>Attach a copy of the rate structure.</u>	See Section 5.0 of this Plan. Rate structure is in Table 5.1; ordinance is in Appendix E.
K. <input checked="" type="checkbox"/>	A means of implementation and enforcement which shall be evidenced by adoption of the plan: <input checked="" type="checkbox"/> 1. a copy of the ordinance, resolution, or tariff indicating official adoption of the water conservation plan and <input checked="" type="checkbox"/> 2. A description of the authority by which you will implement and enforce the conservation plan.	An ordinance has been drafted to adopt the Water Conservation Plan by reference. See above.
L. <input checked="" type="checkbox"/>	Documentation that the regional water planning group for your service area has been notified of the water conservation plan.	Brazoria County Groundwater Conservation District will be notified.



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<p>–√– Notes: The water conservation plan may also include other conservation methods or techniques deemed appropriate</p>	<p>No additional provisions are deemed to be necessary at this time.</p>
<p>–√– No plan is complete without formal adoption by the governing body of the entity. For a municipal water system, adoption would be by the city council as an ordinance, or a resolution by an entity’s board of directors.</p>	<p>See K. above.</p>
<p>–√– Please identify who is responsible for the conservation plan and for preparing the annual report.</p>	<p>Craig Nisbett, P.E., Pubic Works Director (point of contact)</p>

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1.0 INTRODUCTION

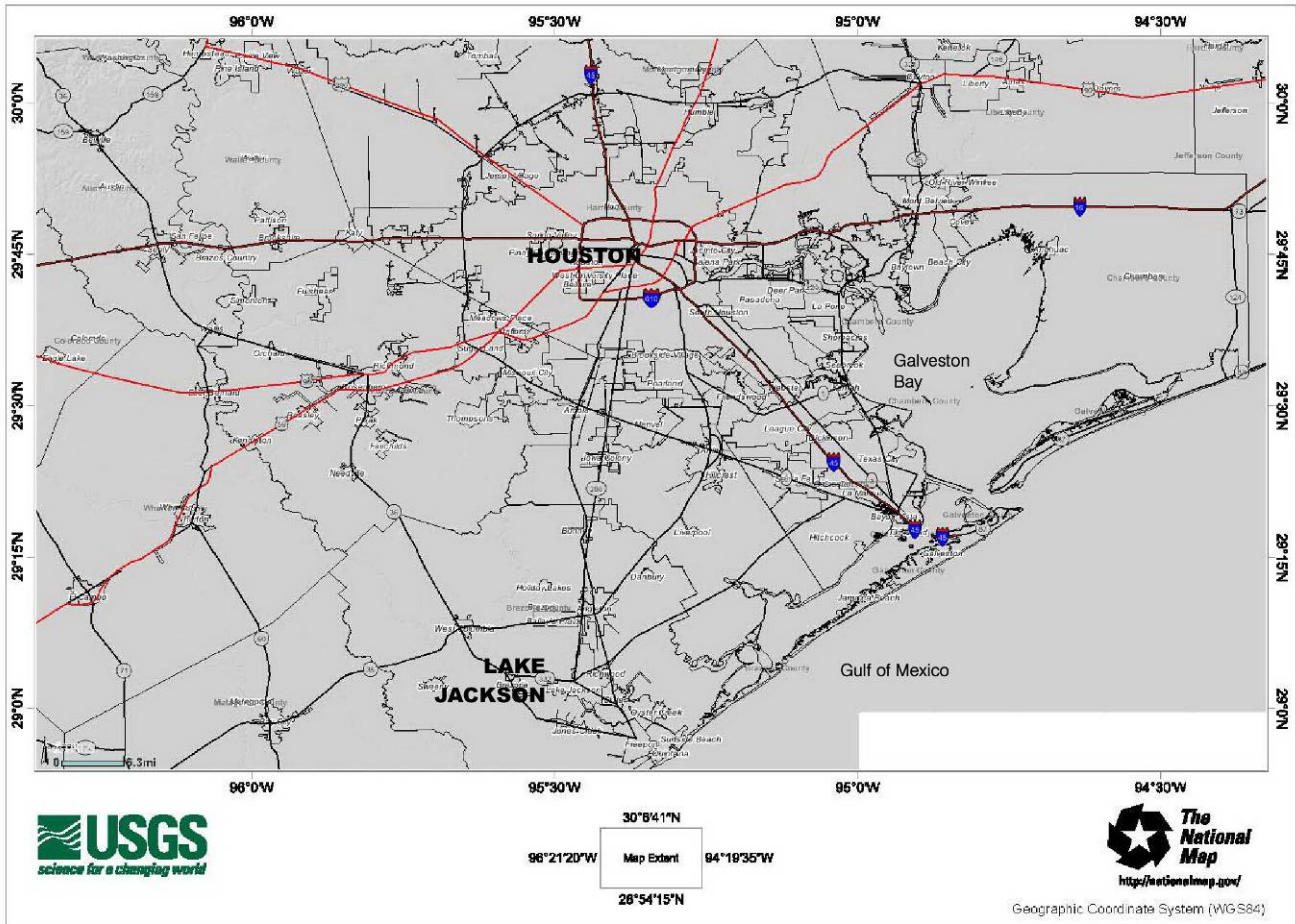
1.1 Location

The City of Lake Jackson is located in south Brazoria County, immediately east of the Brazos River, approximately 11 miles northwest of the Gulf of Mexico, and 50 miles south of Houston. Figure 1.1 shows the regional location of the City of Lake Jackson.

Figure 1.1

Location

(Courtesy USGS)



In 2007 House Bill 4 amended the Texas Water Code by requiring the Texas Commission on Environmental Quality (TCEQ) to require retail public utilities that provides potable water service to 3,300 or more connections to submit to the Texas Water Development Board (TWDB) a water conservation plan based on specific targets and goals developed by the retail public utility and using appropriate best management practices, or other water conservation strategies.

The City of Lake Jackson (COLJ) is subject to this regulation by virtue of its size. This document represents the second revision of its plan, and the first conservation edition segregated from drought



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contingency planning requirements. The first combined plan was prepared and submitted to TWDB in November of 1999 and was titled "Water Conservation & Drought Contingency Plan".

1.2 Environment.

Lake Jackson is located on the Upper Coast of Texas and its elevation averages less than 20 feet above mean sea level¹. Its climate is subtropical, and the general area receives an average of around 50 inches of precipitation per year², which is among the highest in the state of Texas. This volume of precipitation helps to minimize the use of water for landscape irrigation by commercial and residential customers.

1.3 Demographics

The Lake Jackson was initially developed beginning in 1941 in response to the need to provide municipal and residential infrastructure for employees of the nearby Dow Chemical plant. Initial architectural developments were carefully planned to capitalize on the area's aesthetic assets such as mature live oak and other tree species. On March 14, 1944, the City of Lake Jackson was incorporated and the streets, parks, water and sewer system, fire equipment, etc., were later given to the City by the Dow Chemical Company. By 1954, Lake Jackson was large enough to vote for a Home Rule Charter. The 2000 Census population figure indicated a population of 26,386 individuals.

This unique and intentional development history is reflected in the City's present-day non-industrial character. In contrast to some other "company towns" which were less carefully planned, Lake Jackson is segregated from industrial facilities which largely support Dow Chemical to the south (heavy industry is instead concentrated in the nearby towns of Clute and Freeport). As a result of its focus of providing high-quality-of-life residential and supportive commercial and public development, Lake Jackson has avoided the components of "flight" and urban decay that often affect mixed-use municipalities that historically included industrial infrastructure. There are no industrial facilities currently within the City limits. Further information on the history of Lake Jackson can be found on the City's website:

<http://www.lakejackson-tx.gov/pages/history-of-lake-jackson.php>

1.4 General Water Use

Lake Jackson currently receives approximately 77% of its water supply from 11 city-owned wells. The balance of the supply is obtained via a "take or pay" contract with Brazosport Water Authority (BWA).

2.0 SERVICE AREA

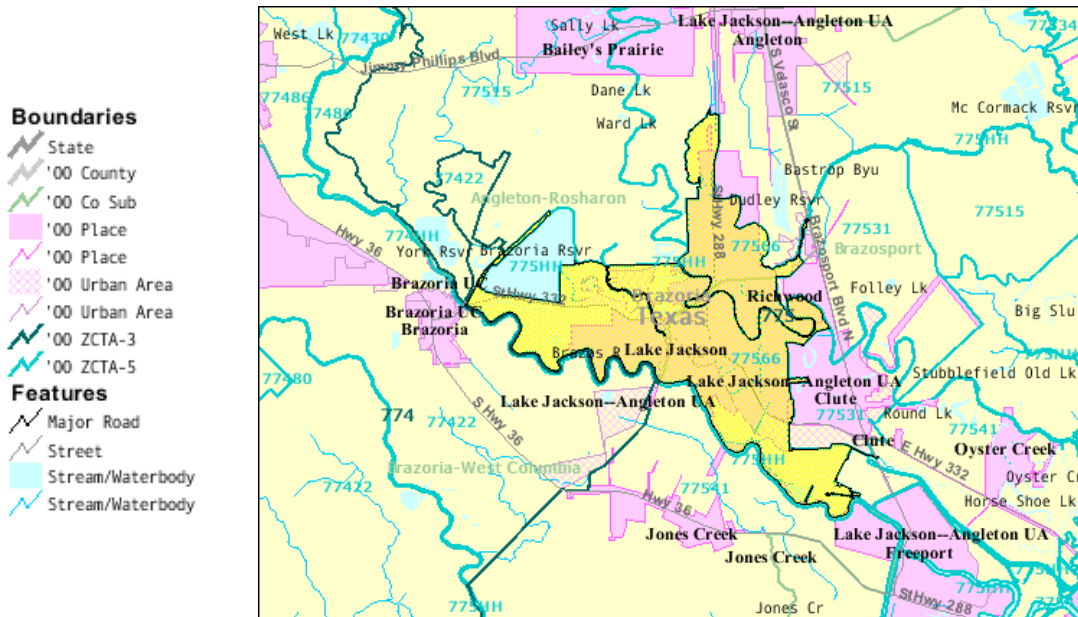
The service area includes the land within the City of Lake Jackson city limits as shown in Figure 2.1 on the following page. This area covers approximately 18.1 square miles. The population of Lake Jackson is estimated to be approximately 27,621 residents as of the date of this Plan revision. The projected future population growth is shown in Table 2.1 (next page) and in Appendix A.

¹ USGS 7.5-minute topographic map Lake Jackson, TX quadrangle.

² From www.nationalatlas.gov



Figure 2.1
Lake Jackson Service Area - City limits (shaded yellow)
(Courtesy US Census Bureau – Fact Finder³)



This diagram is intended to be reproduced in color. Lake Jackson is shaded canary yellow.

Table 2.1
Lake Jackson Population Projections
(TWDB Projection⁴)

Year	Projected Population
2000	26,386
2010	29,383
2020	32,502
2030	35,488
2040	38,241
2050	41,159
2060	44,205

3.0 WATER SUPPLY AND DISTRIBUTION SYSTEM INFORMATION

Infrastructure maintained and operated by the City's Public Works Department includes 130 miles of mains, valves, fire hydrants, 8,741 taps and meters, 11 water wells, 5 elevated tanks, 4 ground storage tanks, and 2 Booster Pump Stations. In addition to the 11 water wells owned by the City, the Brazosport Water Authority (BWA) provides water to the City under contract.

³ Per US Census Fact Finder utility, access on April 8, 2009 at: http://factfinder.census.gov/servlet/MapItDrawServlet?geo_id=86000US77566&_bucket_id=50&tree_id=420&context=saff&lang=en&sse=on

⁴ Per 2006 Regional Water Plan, City Population Projections 2000 – 2060, accessed on April 8, 2009 at: http://www.twdb.state.tx.us/DATA/popwaterdemand/2003Projections/Population%20Projections/STATE_REGION/City_Pop.htm.



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The maximum pumping rate of the City-owned wells is 6.8 million gallons per day (see Table 3.1 for individual well rates). Details pertaining to the City's wells are shown in Table 3.1, and water tower storage is shown in Table 3.2. Table 3.3 contains some historical use data.

Table 3.1
Lake Jackson Water Wells

WELL #	WELL ADDRESS	Gallons Per Minute (GPM)	LATITUDE	LONGITUDE	ELEVATION
4	101 Oyster Creek Drive	600	29° 02'39.07" N	95° 26'46.82" W	13 feet
5	6 Oak Drive - Tower	400	29° 02'14.57" N	95° 26'51.95" W	10 feet
7	103 Beechwood - Tower	650	29° 03'22.05" N	95° 26'00.74" W	13 feet
8	302 Magnolia	410	29° 02'19.38" N	95° 26'30.49" W	13 feet
9	334 Circle Way	450	29° 02'24.98" N	95° 26'39.03" W	13 feet
10	709 Yaupon	420	29° 03'03.60" N	95° 26'15.15" W	16 feet
11	711 Yaupon	450	29° 03'20.12" N	95° 26'17.11" W	16 feet
12	705 Yaupon	590	29° 02'43.23" N	95° 26'12.26" W	13 feet
14	100 Cottonwood	400	29° 03'18.46" N	95° 25'39.33" W	13 feet
15	319 Balsam	600	29° 00'58.33" N	95° 25'31.71" W	10 feet
16	102 Yaupon	600	29° 01'59.55" N	95° 26'28.85" W	10 feet

Table 3.2
Lake Jackson Water Tower Storage

#	STORAGE ADDRESS	GALLONS OF STORAGE	Voltage	METER #	PROVIDER	Meter Make
2	6 Oak Drive-OD Tower	300,000 gallons, 142.5 ft tall	480	W68098002	Direct Energy	Westinghouse
3	103 Beechwood-BW Tower	500,000 gallons, 155.7 ft tall	480	47553927.00	Direct Energy	Sangamo
4	801 Hwy 332	500,000 gallons, 155.0 ft tall	240	65985507	Direct Energy	
5	223 Hwy 332-Dow/Ag Tower	500,000 gallons, 156.7 ft tall	240	A85053680	Direct Energy	ABB
6	897 FM 2004-Dunbar park	750,000 gallons, 158.3 ft tall	240	77395593		GE

Service connection and water supply information for years 2006, 2007, and 2008 are shown in Table 3.3. Service connections have increased by an average of approximately 40 connections for each successive year.



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**Table 3.3
Lake Jackson Service Connection & Water Supply, 2006 – 2008**

2006	Total	BWA	COLJ Wells	Av/dy	Mx Day	Number of Services	Gal/Svc
Jan	90,930,000	16,730,000	74,200,000	2,933,226	3,720,000	11,249	8,083
Feb	79,260,000	14,100,000	65,160,000	2,830,714	3,980,000	11,249	7,046
Mar	95,350,000	49,950,000	45,400,000	3,075,806	4,150,000	11,221	8,497
Apr	123,378,000	47,680,000	75,698,000	4,112,600	6,050,000	11,262	10,955
May	114,682,000	43,270,000	71,412,000	3,699,419	5,800,000	11,262	10,183
Jun	104,560,000	54,010,000	50,550,000	3,485,333	4,790,000	11,262	9,284
Jul	94,990,000	52,810,000	42,180,000	3,064,194	4,520,000	11,265	8,432
Aug	99,870,000	59,800,000	40,070,000	3,221,613	4,230,000	11,260	8,869
Sep	87,778,000	47,040,000	40,738,000	2,925,933	4,080,000	11,260	7,796
Oct	86,365,000	21,340,000	65,025,000	2,785,968	3,890,000	11,286	7,652
Nov	84,360,000	31,990,000	52,370,000	2,812,000	4,210,000	11,277	7,481
Dec	73,610,000	6,790,000	66,820,000	2,374,516	3,480,000	11,273	6,530
Ttl	1,135,133,000	445,510,000	689,623,000	Average	4,408,333	11,261	8,401
Avg/mo	94,594,417	37,125,833	57,468,583				
Avg/dy	3,109,953	1,220,575	1,889,378				

2007	Total	BWA	COLJ Wells	Av/dy	Mx Day	Number of Services	Gal/Svc
Jan	78,680,000	40,800,000	37,880,000	2,538,065	4,130,000	11,291	6,968
Feb	78,680,000	39,285,000	36,700,000	2,810,000	3,080,000	11,279	3,730
Mar	91,400,000	46,030,000	45,370,000	2,948,387	4,150,000	11,281	8,102
Apr	78,870,000	39,660,000	39,210,000	2,629,000	3,700,000	11,306	6,976
May	93,694,000	46,674,000	47,020,000	3,022,387	3,610,000	11,307	8,286
Jun	91,040,000	48,110,000	42,930,000	3,034,667	4,020,000	11,301	8,056
Jul	84,486,000	37,410,000	47,076,000	2,725,355	3,250,000	11,346	7,446
Aug	100,810,000	44,020,000	56,790,000	3,251,935	6,100,000	11,376	8,862
Sep	87,130,000	39,970,000	47,160,000	2,904,333	3,590,000	11,352	7,675
Oct	93,900,000	42,670,000	51,230,000	3,029,032	3,480,000	11,363	8,264
Nov	94,580,000	40,000,000	54,580,000	3,152,667	4,270,000	11,389	8,305
Dec	87,740,000	37,640,000	50,100,000	2,830,323	3,480,000	11,425	7,680
Ttl	1,061,010,000	502,269,000	556,046,000	Average	3,905,000	11,335	7,529
Avg/mo	88,417,500	41,855,750	46,337,167				
Avg/dy	2,906,877	1,376,079	1,523,414				

2008	Total	BWA	COLJ Wells	Av/dy	Mx Day	Number of Services	Gal/Svc
Jan	102,488,000	45,368,000	57,120,000	3,306,065	4,020,000	11,430	8,967
Feb	113,023,774	48,531,000	64,481,330	4,036,563	5,660,000	11,408	9,907
Mar	147,838,000	65,698,000	82,140,000	4,768,968	5,660,000	11,420	12,946



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Apr	155,965,433	59,384,000	96,570,000	5,198,848	6,090,000	11,444	13,629
May	177,418,423	61,927,000	115,480,000	5,723,175	7,130,000	11,568	15,337
Jun	173,056,550	54,477,000	118,568,000	5,768,552	8,200,000	11,433	15,137
Jul	130,758,505	58,637,000	72,110,000	4,218,016	6,110,000	11,423	11,447
Aug	109,985,422	54,664,000	55,310,000	3,547,917	4,830,000	11,550	9,523
Sep	92,375,948	38,121,000	54,243,500	3,079,198	2,950,000	11,505	8,029
Oct	109,760,445	52,370,000	57,379,000	3,540,660	4,560,000	11,422	9,610
Nov	97,550,000	45,940,000	51,610,000	3,251,667	4,430,000	11,448	8,521
Dec	90,544,000	41,153,000	49,391,000	2,920,774	3,590,000	11,445	7,911
Ttl	1,500,764,500	626,270,000	874,402,830				
Avg/mo	125,063,708	55,897,500	72,866,903	Average	5,269,167	11,458	12,654
Avg/dy	4,111,684	3,441,044	4,804,411				

4.0 MEASURES TO CONTROL “UNACCOUNTED FOR” WATER

The City of Lake Jackson performs an unaccounted for water survey annually. The City’s measures include the following:

- a. Meters at all eleven (11) of its own groundwater wells.
- b. Meters on the incoming purchased surface water from the BWA.
- c. All water is metered when it enters the storage tanks.
- d. All of the water is metered again when it leaves the storage tanks.
- e. All meters at the water plants are calibrated annually.
- f. Meters at the wells are propeller type and are changed out every ten years.
- g. Every service collection to which the City supplies water is metered.
- h. The City tests each meter that is removed for accuracy. If the meter does not meet AWWA standards for accuracy it is not placed back in service until it is repaired.
- i. The City allocated 2008-2009 budget funds for a meter replacement program in which a minimum of 5% of the water meters are to be replaced annually.
- j. "Zero consumption" meters are checked every month.
- k. When the City observes leaks or is informed of leakage, repairs to the system are made immediately.

5.0 WATER AND SEWER RATE STRUCTURE

The City of Lake Jackson water rate structure is provided in Table 5.1. The rate increases as water usage increases. A complete copy of the water ordinance is found in Appendix E.



Water Conservation Plan

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Table 5.1

Water & Sewer Rate Structure

*Sewer is charged per equivalent water usage, capped at 15,000 gallons

Water Consumption (gallons)	Water	Sewer*	TOTAL
0 - 2,000	\$7.50	\$8.50	\$16.00
3,000	\$10.10	\$11.45	\$21.55
4,000	\$12.70	\$14.40	\$27.10
5,000	\$15.30	\$17.35	\$32.65
6,000	\$17.90	\$20.30	\$38.20
7,000	\$20.50	\$23.25	\$43.75
8,000	\$23.10	\$26.20	\$49.30
9,000	\$25.70	\$29.15	\$54.85
10,000	\$28.30	\$32.10	\$60.40
11,000	\$30.90	\$35.05	\$65.95
12,000	\$33.50	\$38.00	\$71.50
13,000	\$36.10	\$40.95	\$77.05
14,000	\$38.70	\$43.90	\$82.60
15,000	\$41.30	\$46.85	\$88.15
16,000	\$43.90	\$46.85	\$90.75
17,000	\$46.50	\$46.85	\$93.35
18,000	\$49.10	\$46.85	\$95.95
19,000	\$51.70	\$46.85	\$98.55
20,000*	\$54.30	\$46.85	\$101.15

* Increased rates for single-family high-volume users are discussed elsewhere in this Plan.

6.0 WATER CONSERVATION INFORMATION AND OUTREACH PROGRAMS

The City currently provides all residents with a City newsletter at least twice a year. These newsletters include water conservation tips. An example, from the 2007 Water Quality Report, is attached as Appendix B; this same information is posted on the City website.

The City will include water conservation tips in each "newcomer" packet provided to new City residents. The City also runs an informational ad once a month in the local paper. The City will periodically insert a water conservation tip in this ad.

7.0 PLAN ADOPTION

The City of Lake Jackson's initial Drought Contingency Plan was adopted by the City Council on August 16, 1999. The committee to prepare the initial plan was comprised of five volunteers that are City residents. Three meetings, which were open to the public, were held during the plan preparation. A public meeting was held the night that the plan was adopted by the City Council as City Ordinance No. 99-1608. The Ordinance was successfully implemented for approximately 21 days in 2008.



8.0 FIVE AND TEN YEAR GOALS

8.1 Best Management Practices (BMPs)

The Texas Water Development Board Report 362, “Water Conservation Best Management Practices (BMP) Guide,” was used for reference in the development of this water conservation plan⁵. The BMP Guide provides information on water conservation techniques to achieve the targets and goals of the water conservation plan. The following BMPs were considered in the formulation of the five and ten year goals:

BMP	Enacted	Description:	Comments:
System Water Audit and Audit Loss	YES	This BMP should be considered by a utility that: 1) would like to analyze the benefits of reducing its unaccounted for water, 2) has not conducted a periodic water audit, 3) wants to determine if under-registering meters is impacting its revenues, or 4) has not implemented a leak reduction program.	The City of Lake Jackson has enacted this BMP but plans to conduct further analysis. The city currently experiences a 20% average annual water loss (see calculations in Appendix A). These originate from water main leaks, meter leaks, and hydrant flushings, and non-metered connections (e.g., connections to the City itself). As a first measure, the City will begin quantifying its own internal water use, in order to determine whether the 20% figure is accurate.
Water Conservation Pricing	YES (planned)	Conservation pricing structures include increasing unit prices with increased consumption such as inverted block rates, base rates and excess use rates such as water budget rates, and seasonal rates.	The existing ordinance is presented in Appendix E. The City will further develop and propose a revision to the water ordinance that includes surcharging high-use single family connections. A “high use” single family customer is considered to be one using 20,000 gallons per month or more during the irrigation season (ref: TWDB, GDS use study).
Prohibition on Wasting Water	YES	This BMP should be considered by utilities that have customers who continue to waste water despite the efforts of the utility to educate customers to reduce waste of water. Many customers who are cooperating with conservation efforts may lose their inclination to conserve water if other water customers are ignoring efficient water management practices and continuing to irrigate the streets and parking lots or allow outside leaks to run visibly for long periods.	The City will instruct its existing operators (typically 1 day operator, 1 rotation shift operator, and 1 Foreman are on staff during business hours) to bring examples of water wasting to the attention of customers whose systems are leaking, malfunctioning, or otherwise appear to be engaging in excessive irrigation. Records of these interventions will be kept so that their effectiveness can be evaluated. See the example report form in Appendix F.

⁵ <http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>



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BMP	Enacted	Description:	Comments:
Showerhead, Aerator, and Toilet Flapper Retrofit	NO	This BMP is intended for a Municipal Water User Group ("utility") that has at least 20 percent of the homes and apartment units it serves constructed prior to 1995 and for which there has not been an active retrofit program for efficient showerheads and faucet aerators.	This BMP will be reserved for future consideration.
Residential Toilet Replacement Programs	NO	This BMP is intended for a Municipal Water User Group ("utility") that has at least 20 percent of its homes and apartment units in its service area constructed prior to 1995 and for which there has not been an active retrofit program to replace high flush volume toilets with 1.6 gallons per flush toilets ("ULFT").	This BMP will be reserved for future consideration.
Residential clothes washer incentive program	NO	This BMP can be implemented by any Municipal Water User Group ("utility") that has residential customers. The utility would develop and implement an incentive program to encourage customers to purchase efficient clothes washers.	This BMP will be reserved for future consideration.
School education	YES (planned)	This BMP is intended for a Municipal Water User Group ("utility") that serves schools as a part of its customer base. Lessons learned by students about good water use habits are often shared with the whole family.	The City offers annual week-long summer "Envirocamps" (day camps) for school children within its jurisdiction. The current program will be expanded to include a water conservation module. Previous utility-related educational materials have included a publication titled "Let's Learn About Wastewater Treatment" by Channing L. Bete Co. Inc., and a topical coloring book produced by the Texas Water Utilities Association.
Water Survey for Single-Family and Multifamily Customers	YES (planned)	This BMP is intended for a Municipal Water User Group ("utility") that has 20 percent of homes and apartments constructed before 1995 and/or more than 10 percent of landscapes with automatic irrigation systems.	The City will use its automated telephone system to offer water surveys to 1% of its largest single-family customers per calendar year (with each successive year targeting customers who had not previously accepted the survey offer). An existing operator will be trained to perform basic residential evaluations and offer suggestions to the customers for reduction in water consumption.
Landscape Irrigation Conservation and Incentives	YES	This BMP is intended for use by a municipal water user group ("utility") with a substantial percentage of customers using automated landscape irrigation systems and is targeted to customers who have automated irrigation systems.	This BMP is addressed under the "Prohibition on Wasting Water" BMP.



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BMP	Enacted	Description:	Comments:
Water Wise Landscape Design and Conversion Programs	NO	This BMP is intended for a Municipal Water User Group ("utility") that has 20 percent or more residential customers that have landscapes consisting of high water use landscape materials that consume more than 20,000 gallon per month or use more than twice as much water in the summer as in the winter.	This BMP will be reserved for future consideration.
Athletic Fields Conservation	YES (conditional)	This BMP is intended for all Municipal Water User Groups ("utility") which manage irrigated athletic field(s) and/or serve a customer with irrigated athletic field(s).	The City owns and operates a series of athletic fields which <u>may be</u> irrigated using effluent treated from the wastewater treatment plant. If implemented, this measure would result in savings of approximately 6.5 million gallons per year. However, other re-use options for the effluent are currently being evaluated and final analysis on effluent re-use is pending.
Golf Course Conservation	NO	This BMP is intended for all Municipal Water User Groups ("utility") that serve a golf course customer. Golf courses often involve a visible use of water, which comes under scrutiny by the public and water resource managers both because of large water demand to maintain the course, and because of the perception that the water use may be excessive.	There are no golf courses using municipal supply for irrigation purposes at this time.
Metering of All New Connections and Retrofit of the 16 Connections	YES	This BMP is intended for all Municipal Water User Groups ("utility") that do not have 100 percent metering of all customer connections.	The City has 100% metering already in place.
Wholesale agency assistance programs	NO	This BMP is intended for Wholesale Municipal Water User Groups ("agency") supplying potable water.	Not applicable.
Conservation coordinator	YES (qualified)	This BMP is intended for all Municipal Water User Groups ("utility"). A common element in successful conservation programs is a conservation coordinator who is responsible for implementing and maintaining the conservation program.	The City receives environmental consulting assistance and plans to continue to utilize this resource as budgets allow to supplement its own workforce in monitoring and reporting per the Conservation Plan requirements.
Water reuse	YES	This BMP is intended for Municipal Water User Groups ("utility") that may have potential applications for reusing water within its system.	See "Athletic Fields Conservation".
Public Information	YES	A program for providing water conservation information to the public is an effective	The City has a program of public information described elsewhere in



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BMP	Enacted	Description:	Comments:
		means of both promoting specific water conservation programs and practices and educating the public about the importance of using water efficiently.	this Plan (and illustrated in Appendix B), and will continue that program.
Rainwater harvesting and condensate reuse	NO	This BMP is intended for use by a municipal water user group ("utility") concerned with reducing outdoor irrigation demands on the potable water system.	This BMP will be reserved for future consideration.
New Construction Grey Water	NO	This BMPs intended for a Municipal Water User Group ("utility") that has new development in its service area where use of graywater can be an option for an additional water supply.	This BMP will be reserved for future consideration.
Park Conservation	NO	This BMP is intended for all Municipal Water User Groups ("utility") which manage parks or serve customers with parks which consume water.	None of the local parks are irrigated extensively by the water supply.
Conservation Programs for Industrial, Commercial, and Institutional Accounts	NO	This BMP is intended for all Municipal Water User Groups ("utility") which serve industrial, commercial, and institutional ("ICI") customers.	The City contains no industrial customers at this time. Commercial and institutional customers are relatively low in number.
Cost-Effectiveness Analysis for Municipal Water Users	NO	In evaluating water conservation efforts, the decisions center around comparison of the costs of implementing a program against the "costs of conserved water" or the "avoided costs" of acquiring new sources of water. In the strictest sense, if the analysis shows that the water user will gain positive value (benefit-cost) or that the costs of one option are less than the costs of another (cost effectiveness), then the conservation program should be implemented.	This BMP will be reserved for future consideration. A "Region H" preliminary cost savings spreadsheet is contained within Appendix G for future reference.

In considering the basis for the 5 and 10 year goals, an analysis was completed as follows:

Parameter	Data / Response / Comments
Obtain the average annual gpcd for the last 5 years	See Appendix A.
Project water supply requirements for the next 10 years using population trends, historical water use, and economic growth, etc.	See Appendix A.
Consider state and regional targets	City of Lake Jackson per capita water consumption is already significantly



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and goals, local climate, demographics, the utility profile	lower than the historical per capita consumption demonstrated by the six largest Texas cities ⁶ . It is also significantly lower than historical consumption in the major city that most closely resembles it in climate profile (i.e., Houston).
Consider the anticipated savings that can be achieved by utilizing the appropriate BMPs and other conservation techniques	BMP analysis is presented in the section above.
Use the information above to establish per capita water use goals for the next five-and ten-year periods	Per capita water use goals are presented in the section below.
Water Loss: obtain the average annual water loss figures for the last five years in establishing water loss 5 year and 10 year goals.	As noted elsewhere in this Plan, water loss is minimal at approximately 0.02% of diversion annually. The goal with respect to annual water loss is to continue the existing programs and measures so that this value does not rise significantly, and to respond with additional countermeasures if it does rise.
Methods to track annual water use and provide information sufficient to evaluate the implementation of conservation measures	Annual water use is tracked via the existing metering system (individual meters plus incoming and outgoing meters on wells and storage) followed by spreadsheeting and analysis of data.
Have a plan to measure progress annually, and at a minimum, evaluate the progress towards meeting the targets and goals every five years.	Once a year, diversion data will be spreadsheeted, analyzed, and compared to previous years' data in order to gauge program effectiveness.

Goals of the Program (5 and 10 year target and goals)

The City's goals are to achieve an average reduction of 1.2 gallons per capita per day for the ten years beginning in the year 2009 (in other words, a per capita reduction of 1% per year for the 2009 – 2018 relative to the average for the period 2004 – 2008 inclusive). These goals are reflected in the Table presented at the end of this section.

The City believes these to be reasonable goals in view of its customer profile (largely residential) and comparatively low average historic consumption rate of 121 gallons per capita per day (gpcd; 5-year average; Table A5, Appendix A).

Year	Gallons per capita per day (gpcd) goal
Historic average (2004-2008)	121
2009	119.8
2010	118.6
2011	117.4
2012	116.2
2013	115
2014	113.8

⁶ http://www.texaswatermatters.org/popup_con_cities.htm referencing state data sources.



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2015	112.6
2016	111.4
2017	110.2
2018	109



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APPENDIX A: Water Conservation Utility Profile, WRD-264

The spreadsheet inserted into this section duplicates information on TWDB Form WRD-264 (2-25-05).
Definitions from that document are provided below.

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.

CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

This section captures data requested in TWDB Form WRD-264.

APPLICANT DATA

Name of Utility: **CITY OF LAKE JACKSON**
 Address & Zip: **25 OAK DRIVE, LAKE JACKSON, TX 77566**
 Telephone Number: **979-415-2430**
 Email: **cnisbett@ci.lake-jackson.tx.us**
 Fax: **979-297-9804**
 Form Completed By: **CRAIG NISBETT, P.E.**
 Title: **DIRECTOR OF PUBLIC WORKS**

Signature: _____

Date: _____

Person/Department responsible for implementing a water conservation program:

Name: **CRAIG NISBETT, P.E.**
 Phone number: **979-415-2430**

UTILITY DATA

Section I: CUSTOMER DATA

- A 1 Please attach a copy of your Certificate of Convenience and Necessity (CCN) from the TCEQ
Attached at the end of this Section.

- A 2 Service area (sq.mi): **19.8**

- A 3 Current population of service area: **27,621**
(see source notes below)

- A 4 Current population served by utility:
 - a. Water: **27621** **(Total population from TCEQ, in March 10, 2009 letter)**
 - b. Wastewater: **27621** **(All population within the City limits are serviced).**

- A 5 Population served for the prev. 5 yrs: Estimates 2004 – 2007 (2008 not available this source) from Texas State Library referencing US Census estimates for July 1 of each year, accessed on April 10, 2009 at:
<http://www.census.gov/popest/cities/tables/SUB-EST2007-04-48.xls>

Year	Population
2004	26,751
2005	27,032
2006	27,220
2007	27,467
2008	27,621

Estimate for 2008 from TCEQ Drinking Water Protection Team (J. Schildwachter) in a letter to the Utilities Superintendent dated March 10, 2009. This value was calculated by TCEQ and used as the basis for the formulation of the current PWS sampling regime.

- A 6 Projected population for service area:

Year	Population
2010	29,383
2020	32,502
2030	35,488
2040	38,241
2050	41,159

Projections from TWDB, 2006 Regional Water Plan, City Population Projections 2000 – 2060, accessed on April 8, 2009 at:
http://www.twdb.state.tx.us/DATA/popwaterdemand/2003Projections/Populati on%20Projections/STATE_REGION/City_Pop.htm

CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

B 1 Active Connections

Current number of active connections by user type.

If not a separate classification, check whether multi-family service is counted as Residential _____ or Commercial _____

Treated water users:	Metered	Not-metered	Total
Residential-Single-Family	8263	0	8263
Residential-Multi-Family	2655	0	2655
Commercial	476	0	476
Industrial	0	0	0
Public	14	0*	14
Other	0	0	0
TOTAL:	11408	0	11408

* Excludes City-owned connections; data pending.

B 2 Net number of new connections per year for most recent three years

Type of Connection	2008	2007	2006
Residential – Single-Family	26	44	42
Residential - Multi-Family	0	0	0
Commercial	4	4	3
Industrial	0	0	0
Public	0	0	0
Other	0	0	0
TOTAL:	30	48	45
Average:	41		

C Annual water use for the five highest volume retail and wholesale customers

Rank	Customer Name	Use (1,000gal./yr.)	indicate Treated OR Raw
1	Brazosport Mem Hospital	25,533	treated
2	Star Bright Market	14,110	treated
3	Oyster Creek Apts	13,865	treated
4	Jackson Square #1	9,856	treated
5	Veard~LJ LTD Apts	9,603	treated

Apts = Apartment complex.

CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

Section II: WATER USE DATA FOR SERVICE AREA

A 1 Amount of water use for previous five years (in 1,000 gal.):

Please indicate if diverted _____ or treated X

Year	2008	2007	2006	2005	2004
January	102,488	78,680	90,930	87,060	80,840
February	113,024	78,680	79,260	76,137	84,000
March	147,838	91,400	95,350	84,050	79,390
April	155,965	78,870	123,378	93,843	91,270
May	177,418	93,694	114,682	108,260	95,130
June	173,057	91,040	104,560	119,090	108,590
July	130,759	84,486	94,990	113,510	96,210
August	109,985	100,810	99,870	119,345	136,770
September	92,376	87,130	87,778	109,503	103,570
October	109,760	93,900	86,365	95,323	97,080
November	97,550	94,580	84,360	81,446	82,050
December	90,544	87,740	73,610	88,080	87,440
TOTAL	1,500,765	1,061,010	1,135,133	1,175,647	1,142,340

A 2 Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types

Yr	Residential	Commercial	Industrial	Wholesale	Other	Total Sold
04	658,103	307,915	n/a	n/a	1,238	967,256
05	662,351	330,001	n/a	n/a	1,492	993,844
06	652,344	326,441	n/a	n/a	1,406	980,191
07	585,596	321,592	n/a	n/a	1,148	908,336
08	631,563	343,955	n/a	n/a	2,494	978,012

A 3 List previous five years records for water loss

Year	Amount (gal)
2004	299,325,000
2005	207,146,000
2006	218,164,000
2007	198,180,000
2008	279,491,000

Average: 240,461,200
 Diversion*: 1,202,978,900 * 5-year average
 % Loss: 20%

A 4 List previous five years records for annual peak-to-average daily use ratio

Year	Average MGD	Peak MGD	Ratio
2004	3,129,541	6,718,000	2.15
2005	3,218,460	6,030,000	1.87
2006	3,110,110	6,050,000	1.95
2007	2,906,346	6,100,000	2.10
2008	4,113,367	8,200,000	1.99

CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

A 5 Total per capita water use for previous five years

Year	Population	Total Diverted (gallons)*	Per Capita (gpcd)	
2004	26,751	1,142,340,000	117	* (or treated, less wholesale sales. Assumes previous total population references). 5-Year ave: 121 gallons per capita per day
2005	27,032	1,175,647,000	119	
2006	27,220	1,135,133,000	114	
2007	27,467	1,061,010,000	106	
2008	27,621	1,500,764,500	149	

A 6 Seasonal water use for the previous five years

Year	Population	Base Per Capita Use	Summer Per Capita Use	
2004	26,751	105	139	Seasonal water use is the difference between base (winter) daily per capita use and summer daily per capita use. To calculate the <u>base</u> 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 <u>summer</u> daily per capita use, use the months of June, July, and August.
2005	27,032	103	142	
2006	27,220	100	120	
2007	27,467	99	109	
2008	27,621	124	163	

B Projected Water Demands:

Year	Projected Population	Projected water use (1,000 gal.)
2010	29,383	1,297,897
2011	29,695	1,311,674
2012	30,041	1,326,982
2013	30,388	1,342,290
2014	30,735	1,357,598
2015	31,081	1,372,906
2016	31,428	1,388,214
2017	31,774	1,403,522
2018	32,121	1,418,830
2019	32,467	1,434,138
2020	32502	

Projections from TWDB, 2006 Regional Water Plan, for years 2010 and 2020 and then interpolated for intervening years assuming a linear increase (annual projections were not found among federal and state sources reviewed).

Projected water use calculated based on the population-normalized averages of 2005 - 2008 annual usages and multiplied by projected population for each successive year.

SECTION III: WATER SUPPLY SYSTEM

A Current water supply sources and the amounts available with each:

Type	Source	Amount Available (MGD)
Surface water	n/a	n/a
Groundwater	11 City wells	6.8
Contracts	BWA	2
Other	n/a	n/a

Total MGD: 8.8
Percent GW: 77.3%

B Treatment & distribution system:

Parameter	MGD
1 Design capacity of the system:	9.445
2 Storage capacity - elevated:	2.55

CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

2	Storage capacity - ground:	2.00
---	----------------------------	------

3 If surface water, do you recycle backwash to the head of the plant?

YES: n/a
 NO: n/a

(check one)

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.

See Section 3.0 of the narrative section of this Plan.

SECTION IV: WASTEWATER UTILITY SYSTEM

A 1 Design cap, WWTP: 5.85 MGD

2 Is treated effluent used for irrigation --

on-site: yes

off-site: NO

plant washdown: yes

chlor/decolor: yes

If yes, gal per month: 3.31

3 Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. Please provide a sketch or map which locates the plant(s) and discharge points or disposal sites

Plant Name: DYSON CAMPBELL WATER RECLAMATION CENTER
 TCEQ Name (RN): CITY OF LAKE JACKSON
 TCEQ Number: CN600318984; RN101920338
 TPDES #: 10047-001
 Operator: CITY OF LAKE JACKSON
 Owner: CITY OF LAKE JACKSON
 Receiving stream: BRAZOS RIVER TIDAL (SEGMENT 1201)



Treatment process is conventional activated sludge with nitrification.



CITY OF LAKE JACKSON, TEXAS
MUNICIPAL WATER CONSERVATION PLAN: WATER ACCOUNTING

- B 1** Percent of water service area served by wastewater system: **100.0%**
- B 2** Monthly volume treated for previous three years (in 1,000 gallons)

Year	2008	2007	2006	Average MGD
January	107,284	117,738	75,366	1.08
February	100,810	86,698	65,558	1.00
March	104,485	127,332	73,442	1.09
April	91,298	137,455	71,125	1.11
May	92,659	111,203	75,762	1.00
June	86,672	109,465	78,000	1.02
July	88,747	161,491	110,926	1.29
August	101,827	108,025	80,002	1.04
September	80,852	99,658	86,014	0.99
October	85,902	94,850	103,745	1.02
November	91,298	90,617	77,090	0.96
December	88,151	89,177	89,434	0.96
TOTAL	1,119,985	1,333,709	986,464	

END OF FORM WRD-264



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Water Conservation Plan

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APPENDIX B: Example Public Outreach & Education

The enclosed water conservation tips (public service message) was reproduced from the 2007 annual drinking water report produced by the City and mailed to each service customer.

Similar information is posted on the City website.



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Water Conservation Tips

In the Bathroom:

1. Take a five minute shower instead of a bath.
Amount saved: 15 gallons per shower
2. Don't use toilets as a wastebasket, flush only when you need to.
Amount saved: 12 or more gallons per day
3. When brushing teeth, use a glassful of water instead of running the tap.
Amount saved: 3 or more gallons per brushing.
4. When taking a bath, don't run the water without closing the drain first. The warm water that comes after running the tap for a while will take care of that first cold burst of water.

In the Kitchen:

1. When washing dishes by hand, fill up the sink with soap and water instead of running the water the whole time. *Amount saved: 25 gallons per load*
2. Keep a pitcher of water in the refrigerator when you want a drink instead of running the tap until the water cools. *Amount saved: 2 gallons per drink*
3. Thaw frozen foods in the refrigerator, not under running tap water. Amount saved: 5 or more gallons per meal
4. Start a compost pile as an alternative to using a kitchen sink garbage disposal.

Outside around your home:

1. Water your lawn during the early morning hours when there are low temperatures and low winds. This reduces the amount of water you lose from evaporation.
2. Position your sprinklers to water only the lawn, not the sidewalk or street.
3. Don't waste water hosing down your driveway or sidewalk.
Amount saved: 25 gallons every five minutes not using hose
4. Drive your car over your lawn when washing to save on watering it, or use a commercial car wash that recycles water.
5. Don't over water your lawn during the summer, as a general rule it only needs to be watered every 5-7 days during this time.



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City of Lake Jackson
25 Oak Drive
Lake Jackson, TX 77566

PRSRT. STD.
US Postage
Lake Jackson, TX
Permit No. 12

Public Participation Opportunities:

Please contact David Ellis, Superintendent of Utilities, at 979-415-2680 with any questions.

Check out our website at www.ci.lake-jackson.tx.us for more information!



The screenshot shows the City of Lake Jackson website. At the top is a banner with the city logo on the left and a photograph of a stone archway with the text "LAKE JACKSON CITY OF ENCHANTMENT" in the center. Below the banner is a navigation menu with links: Home, City Calendar, City Departments, City Government, Residents, Commercial, Visitors, and Contacts. A breadcrumb trail reads "You are here: Home » Residents » Water Conservation Tips". To the right is a search box with the text "Search: Enter Search..." and a "Submit" button. On the left side, there are four sections: "Upcoming Events" with a "NEWSROOM" link and sub-links for "Public Hearings/Meetings", "swine flu information..", and "early voting begins.."; "Swine Flu Information"; "VOLUNTEER APPLICATIONS" with a sub-link for "boards & commissions"; and "PROJECT UPDATES". The main content area is titled "Water Conservation Tips" and is attributed to "David Ellis - Utilities Superintendent". It lists four tips under two sub-headings: "In the Bathroom:" and "In the Kitchen:". Each tip includes the action and the amount of water saved.

Upcoming Events

NEWSROOM
[Public Hearings/Meetings](#)
[swine flu information..](#)
[early voting begins..](#)

[More]

Swine Flu
Information
[More]

VOLUNTEER APPLICATIONS
[boards & commissions](#)

[More]

PROJECT UPDATES

[More]

Water Conservation Tips

David Ellis - Utilities Superintendent

In the Bathroom:

1. Take a five minute shower instead of a bath.
Amount saved: 15 gallons per shower
2. Don't use toilets as a wastebasket, flush only when you need to.
Amount saved: 12 or more gallons per day
3. When brushing teeth, use a glassful of water instead of running the tap.
Amount saved: 3 or more gallons per brushing.
4. When taking a bath, don't run the water without closing the drain first. The warm water that comes after running the tap for a while will take care of that first cold burst of water.

In the Kitchen:

1. When washing dishes by hand, fill up the sink with soap and water instead of running the water the whole time. Amount saved: 25 gallons per load
2. Keep a pitcher of water in the refrigerator when you want a drink instead of



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① APPENDIX C: Annual 5 & 10 Year Goal Reviews

This Appendix contains a blank copy and any subsequent completed copies of the annual reports.



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Water Conservation Plan

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Environmental Management System:

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Water Conservation Program Annual Report

For questions or information call:
Adolph L. Stickelbault
512-936-2391
Municipal Water Conservation
adolph.stickelbault@twdb.state.tx.us

Texas Water Development Board (TWDB) Rules require that entities that receive financial assistance of more than \$500,000 implement a water conservation program for the life of the loan and report annually on the progress of program implementation. A water conservation plan or program is one that contains long-term elements such as ongoing public education activities, universal metering, water accounting and estimated water savings from reuse/recycling activities, leak detection and repair and other conservation activities.

The following questions are designed to provide the TWDB this information in a concise and consistent format for all required to report. Please fill in the blanks that pertain to your program as completely and objectively as possible. **As you complete the report form, please review your utility's water conservation plan to see if you are making progress toward meeting your stated goal(s).**

Return completed form to:
Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711-3231
ATTN: CONSERVATION
Revised February 2008
V:\WRP\Cons\MUN\Adolph

LONG-TERM WATER CONSERVATION PROGRAM

1. Education and Information Program

(TWDB Rules require a continuing program that at minimum provides conservation information directly to each customer, one other type of annual educational water conservation activity and to provide water conservation literature to new customers when they apply for service)

What is the total number of water conservation brochures that your utility mailed to its customers during the last 12 months? _____ **Please indicate the 12 month period** _____

How many handouts were distributed to customers by field employees, at the utility office, and other programs and events? _____

Number of water conservation articles published in local newspaper(s) _____

Which months were conservation messages printed on utility/water bills?

In addition, the following education activities were conducted during the reporting period (presentations, school programs, exhibits, television, radio, etc.).



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Water Conservation Plan

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2. Water Conservation Retrofit and Plumbing Rebate Programs

Have you conducted a plumbing retrofit or rebate program during the last 12 months? Yes No
If yes, approximately _____ households received kits/rebates. Please describe your program and list specific items provided or types of fixtures rebated

3. Conservation – Oriented Rate Structure

Have your rates or rate structure changed since your last report? Yes No

If yes, please describe the changes and attach a copy of the new rate structure.

If you purchase water from a wholesale supplier, is this a “take or pay” contract? Yes No

If yes, what is your minimum volume to take? _____ gallons/day.

4. Universal Metering and Meter Repair

(TWDB Rules require that your utility undertake measures to determine and control unaccounted for water, universal metering of both customer and public uses, periodic meter testing and repair, and distribution system leak detection and repair)

In the first blank fill in total number of meters in your utility of each type or size of meter.

During the past 12 months, what was the number of **(system-wide)**:

Production (master) meters _____ (total), tested _____, repaired _____, replaced _____.

Meters larger than 1 ½” _____ (total), tested _____, repaired _____, replaced _____.

Meters 1 ½” or smaller _____ (total), tested _____, repaired _____, replaced _____.

5. Water Audits and Leak Detection

a. The total amount of water purchased or produced during the last 12 months was _____

b. The total amount of account (metered) water sold during the last 12 months _____

c. The total amount of identified and estimated (known & explained) losses _____

d. The total amount of lost water (unexplained missing water) _____

e. What is your water loss percentage (line d. ÷ line a. x 100) _____ %

How often do you calculate water loss or audit the water in your system? _____ (Times per year)

Number of leaks repaired on the system and at service connections _____.

Please list the main cause of water loss for water in your system: *(examples - leaks, un-metered utility or city uses, problems with master meter, customer meters, record and data problems, etc.)*:



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION APPENDICES

The TWDB offers free technical assistance regarding leak detection and unaccounted for water. To find out more about this free service, please place checkmark on left.

6. Water-Conserving Landscaping

Please list any water-conserving landscaping programs, educational activities, or ordinances enacted during the last 12 months.

7. Other Comments

List any other water conservation activities your utility is conducting.

DROUGHT CONTINGENCY/EMERGENCY WATER DEMAND MANAGEMENT

8. During the past 12 months, did your utility find it necessary to activate its the Drought Contingency/Emergency Demand Management Plan? (Please check one) Yes No

If you answered **yes**, was the need due to: (Please check all applicable)

- (1) water shortage
- (2) high demand
- (3) inability to treat or pump water at required rates,
- (4) equipment failure, or
- (5) other causes?

If you answered **yes**, what were the starting and ending dates:

Start Date (mm/dd/yr) _____

Ending Date (mm/dd/yr) _____

9. Recycling and Reuse of Water or Wastewater Effluent

What types of water recycling or reuse activities are practiced by your utility? **Examples: effluent irrigation, recycling filter backwash, or using effluent for chlorination at wastewater plant, etc.**

10. The recycling and/or reuse (Question 9) amounted to approximately _____ gallons. (please provide the total amount for the reporting period).

EFFECTIVENESS OF THE PROGRAM

(Review the stated goal(s) of your water conservation plan to gauge effectiveness)

11. Approximately how much water did the utility save during the reporting period due to the overall conservation program? [Review your water conservation plan regarding your gpcd and/or other goal(s)]

_____ Gallons.



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION APPENDICES

12. In your opinion, how you would rank the effectiveness of your utility's conservation program?

Effective ___ Somewhat effective ___ Less than effective ___ Not effective ___

13. Please provide the total* gallons per capita per day (gpcd) for the reporting period you provided on Page 2 of the report form. _____ Water Loss gpcd* _____

*(Total gpcd: the calculation is made by dividing the amount you provided Number 5a on Page 3 by the population served and then dividing by 365)

*(Water Loss gpcd: the calculation is made by dividing the amount you provided in Number 5d on Page 3 by the population served and then dividing by 365).

14. Does the staff of your utility review the conservation program on a regular basis? ___ Yes ___ No

How often? _____ Year your plan was approved _____

15. What types of problems did your utility encounter in implementing the water conservation program during the last 12 months?

16. What might your utility do to improve the effectiveness of your program?

17. What might the TWDB do to improve the effectiveness of your program?

18. If known, how much expense has your utility incurred in implementing this program during the reporting period (*literature, materials, staff time, etc.*)? \$ _____ (dollars/year)

19. If known, how much did your program save? \$ _____ (dollars/year based on water savings and treatment or purchase of waster costs and any deferred capital costs due to conservation).

To ensure we address future correspondence to the proper person, please type or print the following:

Name Title Phone Date _____

Email address: _____

For a list of free technical assistance services available from the TWDB, please write or call at 512-463-7955, or check out our website: <http://www.twdb.state.tx.us>

Return completed form to:

Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, TX 78711-3231
ATTN: CONSERVATION



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
APPENDICES

APPENDIX D: CCN



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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? Document for CITY OF LAKE JACKSON (11291)

Document Type

Name: **UTILITY APPLICATION (CCN)**

Description:

Document Status: **Completed**



Values

REVIEW-PREFIX (A, P)	
REVIEW-NUMBER	000
REVIEW-SUFFIX	0
APPL. OR CASE NUMBER	01506
APPLICATION EXTENSION (C, D, Q)	C
CONTESTED (U, C)	
CASE-TYPE (W, S)	
CASE-STATUS (P, C, D, W)	C
FILED DATE	
TO LEGAL	
DATE SEND	
POSTED TO CID	
CCO DATE	
FORMAL HEARING SCHEDULED	
ORDER SIGNED	



Document

ID: **123337**

Received Date: **03/01/1986**

Final Action Date:

Document Creation Date: **11/02/2000**

Document Affiliation

Type:

Individual:

Organization:

No occurrences retrieved



SITE SEARCH:
 please enter search phrase

SUBJECT INDEX
 > [Air](#) > [Water](#) > [Waste](#)
 > [Search TCEQ Data](#)
 > [Agency Organization Map](#)

[TCEQ Home](#)

? Public Water Systems Details/Data Sheet for CITY OF LAKE JACKSON (0200006)

- Affiliations
- Site Visits
- Documents
- Violations
- Sources
- Sold Source
- Entry Points
- Plants

Responsible Party

Organization: **CITY OF LAKE JACKSON**
 Address: **25 OAK DR**
C/O DAVID ELLIS UTILITIES SUPERINTENDENT
LAKE JACKSON, TX 77566-5231

Individual: **BOB SIPPLE**
 Job Title: **MAYOR** Phone: **(979) 415-2400**

Occurrences were successfully retrieved.

Customers

Reference Number	Name	Role
CN600318984	CITY OF LAKE JACKSON	RESPONSIBLE PARTY

Properties

Rating: **Superior**

Utility CCN/Reg: **(11291) CITY OF LAKE JACKSON**

CR Regulated Entity Number: **RN101388247**

CCEDS Status: **NO ACTIVE NOE EXISTS**

Ownership Type: **MUNICIPALITY**

System Type: **COMMUNITY**

Interconnection: **2**

County: **BRAZORIA (20)**

Region: **HOUSTON (12)**

Monitoring Class: **SURFACE WATER**

Out of Season:

- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

Customer Groups

Class	Category	Population Count	Connection Count	Meter Count
-------	----------	------------------	------------------	-------------

RESIDENTIAL RESIDENTIAL AREA 27621 11433 8826
 Occurrences retrieved.

Capacity

Total Storage:

Total Storage: **6.550 MG**
 Elevated Storage: **2.550 MG**
 Pressure Tank Capacity: **0.00000 MG**

Production:

Total Production: **7.927 MGD**
 Max Purchased Capacity: **2.000 MGD**
 Emergency Production: **0.000 MGD**
 Total Service Capacity: **0.000 MGD**
 Service Pump Capacity: **6.480 MGD**
 Emergency Service Capacity: **0.000 MGD**

Consumption:

Avg Daily Consumption: **3.887 MGD**
 Max Daily Consumption: **0.000 MGD**

Activity

Activity Status: **ACTIVE**

Operator Grades

Grade

WATER GRADE B GROUND
 WATER GRADE C GROUND
 WATER GRADE D

	↓	↑
Total	1	
	6	
	2	
	↓	↑

Occurrences retrieved.

Site Visits

Survey Date	Visit Type	Deficiency Score	Inspector
12/22/1999	SURVEY	0	LETICIA DELEON
09/07/2001	SURVEY	2	BARRY PRICE
01/11/2005	SURVEY	0	DAVID LIVINGS SR
07/10/2008	SURVEY	9	ERESHA DESILVA
	MD09/08/2008,RD09/23/2008		

	↓	↑
	↓	↑
	↓	↑

Site Visit occurrences retrieved.

[Run Water System Data Sheet Report](#)

Occurrences retrieved.

[Comments](#) | [Webmaster](#) | [Disclaimer](#)

Version V2.2.3

04/29/2009
7:04:09PM

Texas Commission on Environmental Quality

WSDSR

Water System Data Sheet

PWS ID	PWS Name	Central Registry RN
0200006	CITY OF LAKE JACKSON <i>Superior</i>	RN101388247

Organization/Customer *	Central Registry CN
CITY OF LAKE JACKSON	CN600318984

* Regulatory mail will be addressed to this organization / person

Responsible Official **		Title	
BOB SIPPLE		MAYOR	
Mailing Address:			
Street Address		C/O or Address Line 2	
25 OAK DR		C/O DAVID ELLIS UTILITIES SUPERINTENDENT	
City	State	Zip	
LAKE JACKSON	TX	77566 - 5231	
Business Phone	Other Phone	Other Phone Type	Email
(979) 415-2400			

** Regulatory mail will be addressed to this person

PWS Contact - If different than above ***		Title	
DAVID ELLIS		UTILITIES SUPT	
Mailing Address for PWS Primary Contact:			
Street Address		C/O or Address Line 2	
25 OAK DR		C/O DAVID ELLIS UTILITIES SUPERINTENDENT	
City	State	Zip	
LAKE JACKSON	TX	77566 - 5231	
Business Phone	Other Phone	Other Phone Type	Email
(979) 415-2680	(979) 482-4821	CELLULAR	

*** Copies of most regulatory mail will be addressed to this person

Emergency Contact Name ****	Emergency Phone	Emergency Email
EVON HOFFMAN	(979) 415-2400	

**** This contact information will be used only in the event of an emergency

Owner Type	Owner Type Options: AFFECTED COUNTIES, COUNTY, DISTRICT/AUTHORITY, EXEMPT, FEDERAL GOVERNMENT, INVESTOR, MUNICIPALITY, NATIVE AMERICAN, PRIVATE, SUBMETER \ ALLOCATION, STATE GOVERNMENT, NOT RETAIL PUBLIC UTILITIES, WATER SUPPLY CORPORATION, MISC/UNKNOWN
MUNICIPALITY	

System Type	System Type Options: COMMUNITY, COMMUNITY (NON-GOVERNMENT OWNED), TRANSIENT/NON-COMMUNITY, NON-PUBLIC, NON-TRANSIENT/NON-COMMUNITY
COMMUNITY	

Customer Class	Customer Category	Population Served	# of Connect	# of Meters	# I/C w/other PWS
RESIDENTIAL	RESIDENTIAL AREA	27,621	11,433	8,826	2

Total Product (MGD)	Average Daily Consump.	Total Storage (MG)	Elev. Storage (MG)	Booster Pump Cap. (MGD)	Aux.Prod.Cap. Max.Pur.Cap.(MGD)	Pressure Tank Cap.(MG)
7.927	3.887	6.550	2.550	6.480	2.000	0.00000

Activity Status	Deactivation Date	Reason
ACTIVE		

Operator Grade	Number
WATER GRADE B GROUND	1
WATER GRADE C GROUND	6
WATER GRADE D	2

Last Survey Date	Surveyor	Survey Type	Code	Region	County	Def.Score
07/10/2008	ERESHA DESILVA	SURVEY		12	BRAZORIA	9
01/11/2005	DAVID LIVINGS SR	SURVEY		12	BRAZORIA	0
09/07/2001	BARRY PRICE	SURVEY		12	BRAZORIA	2

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
001	SAMPLE TAP / BRAZOS RIVER (D)	(No plants for this EP)				No

(Active Sources)
(No active Sources associated with this EP/Plant)

(Inactive/Offline Sources)
(No inactive Sources associated with this EP/Plant)

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
002	SP / GULF COAST, BRAZOS RIVER(A)	PLANT 1 - 6 OAK DR()	1148			No

Train: (Unnamed)

(Treatments)				
Disinfection Zone	Treatment Sequence	Objective	Process	Treatment
	1	D	890	CHLORAMINES (PRE)
	2	Z	380	FLUORIDATION

(Active Sources)						
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006K	16 - 102 YOUPON(A)	O	G	338	600	550
Drill Date		Well Data				
9/26/1984		CHICOT AQUIFER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006A	4 - 101 OYSTER CREEK(A)	O	G	338	400	300
Drill Date		Well Data				
3/11/1964		CHICOT AQUIFER,UPPER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006B	5 - 6 OAK DR(A)	O	G	239	480	450
Drill Date		Well Data				
12/16/1948		CHICOT AQUIFER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006L	8 NEW - 302 MAGNOLIA(A)	O	G	350	450	446
Drill Date		Well Data				
2/27/2002						

GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source		
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM	
G0200006E	9 - 334 CIRCLE WAY(A)	O	G	340	375	450	
Drill Date		Well Data					
6/0/1972		CHICOT AQUIFER,UPPER					
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source		
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM	
P0200006A	SW FROM BRAZOSPORT WA (A)	O	S	0	0	0	
Water Body		Segment Number			Surface Water Intake Type		
		()					
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	0200497		

(Inactive/Offline Sources)			
SourceNumber	Name	Status	Depth
G0200006D	8 - 302 MAGNOLIA	P	340

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
003	SP / GULF COAST, BRAZOS RIVER(A)	PLANT 2 - 103 BEECHWOOD()	1153			No

Train: (Unnamed)

(Treatments)				
Disinfection Zone	Treatment Sequence	Objective	Process	Treatment
	1	D	890	CHLORAMINES (PRE)
	2	Z	380	FLUORIDATION

(Active Sources)						
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006F	10 - 709 YOUPON(A)	O	G	345	450	450
Drill Date		Well Data				
12/9/1977		CHICOT AQUIFER,UPPER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006G	11 - 711 YOUPON(A)	O	G	335	475	480
Drill Date		Well Data				
1/0/1978		CHICOT AQUIFER,UPPER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006H	12 - 705 YOUPON(A)	O	G	348	690	620
Drill Date		Well Data				
1/0/1981		CHICOT AQUIFER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006I	14 - 101 COTTONWOOD(A)	O	G	338	570	450
Drill Date		Well Data				
1/0/1981		CHICOT AQUIFER				

GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source		
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM	
G0200006C	7 - 103 BEECHWOOD(A)	O	G	340	500	425	
Drill Date		Well Data					
12/5/1967		CHICOT AQUIFER,UPPER					
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source		
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM	
P0200006B	SW FROM BRAZOSPORT WA (A)	O	S	0	0	0	
Water Body		Segment Number			Surface Water Intake Type		
		()					
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller		
Not Available	Not Available	Not Available	Not Available	Not Available	0200497		

(Inactive/Offline Sources)
(No inactive Sources associated with this EP/Plant)

(Entry Point)						
Entry Point	EP Name/Source Summation (Activity Status)	Plant Name (Activity Status)	WUD Plant Num	DBP Mon Type	Mon Chem Mon Type	Sample Point
004	0.5 MG EST / GULF COAST (A)	PLANT 3 - 319 BALSAM ST()	1158			No

Train: (Unnamed)

(Treatments)				
Disinfection Zone	Treatment Sequence	Objective	Process	Treatment
	1	D	403	GASEOUS CHLORINATION(PRE)

(Active Sources)						
Source Number	Source Name (Activity Status)	Operational Status	Source Type	Depth	Tested GPM	Rated GPM
G0200006J	15 - 319 BALSAM(A)	D	G	338	515	520
Drill Date		Well Data				
9/26/1984		CHICOT AQUIFER				
GPS Latitude (decimal)	GPS Longitude (decimal)	GPS Elevation	GPS Date	GPS Cert. No.	Seller	
Not Available	Not Available	Not Available	Not Available	Not Available	Not a Purchased Source	

(Inactive/Offline Sources)
(No inactive Sources associated with this EP/Plant)

Sources not Associated with a Plant or Entry Point				
Source Number	Name	Activity Status	Operational Status	Source Type
P0200006C	EMERGENCY I/C WITH CITY OF CLUTE	I	E	G

Code Explanations
Monitoring Type Codes: (G) GROUND WATER , (S) SURFACE WATER , (U) GROUND WATER UNDER THE INFLUENCE
Activity Status Codes:
Operational Status Codes: (C) CAPPED , (D) DEMAND , (E) EMERGENCY , (F) FORMER PWS SOURCE , (I) INACTIVE PWS SYSTEM , (N) NON-DRINKING WATER , (O) OPERATING , (P) PLUGGED , (T) TEST , (Y) PWS NOT ACTIVE AND NOT EXPECTED TO BE SO
Source Types: (G) GROUND WATER , (S) SURFACE WATER , (U) GROUND WATER UNDER THE INFLUENCE

- End of Report -

The Texas Commission on Environmental Quality is pleased to provide this information to you free of charge. Please understand that we cannot guarantee the accuracy or completeness of the information being supplied. At the time of your query this data was the most current information available from our database, which is updated weekly. Every effort was made to retrieve it according to your query.

Thank-you for using WUD.



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
APPENDICES

① APPENDIX E: Water, Sewer & Trash Fees Ordinance

ORDINANCE NO. 08-1888 (Oct 6/8)

AN ORDINANCE BY THE COUNCIL OF THE CITY OF LAKE JACKSON, TEXAS AMENDING SECTION 102.1 OF THE CODE OF ORDINANCES BY REVISING THE FEES TO BE CHARGED FOR WATER, SEWER, GARBAGE, AND DUMPSTER SERVICES; REPEALING ALL ORDINANCES IN CONFLICT HEREWITH; PROVIDING FOR A SAVINGS CLAUSE; AND PROVIDING FOR AN EFFECTIVE DATE.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LAKE JACKSON, TEXAS:

Section 1: Section 102.1 is amended to read as follows:

ARTICLE I. IN GENERAL

Sec. 102-1. Schedules.

The following rates per month shall be charged for utility services:

- 1) Water rates:
 - a) First 2,000 gallons, base rate \$8.60
(Senior citizen discount 40% of base rate)
 - b) All over 2,000 gallons, per 1,000 \$2.85
- 3) Brazoria County Water Conservation District
 - a) pass thru of fees, all over 2,000 gallons per 1,000 \$.03
- 4) Sewer charges per month:
 - a) Base rate of 2,000 gallons \$9.60
(Senior citizen discount 40% of base rate)
 - b) All over 2,000 gallons, per 1,000 \$3.20

No residential service shall be charged for over 15,000 gallons

- 5) Service deposits:
 - a) Residential \$75.00
 - b) Residential, senior citizen (65 years or over) \$35.00
 - c) Commercial, minimum \$75.00
 Or such larger sum as may be determined by the City Manager based upon estimated usage

Service deposit for residential service may be waived if an immediate family member, who is a current City utility customer and who has had two continuous years of service, signs a letter of guaranty. To qualify to sign a letter of guaranty the cosigner can have had

no delinquent bills or insufficient checks six months prior to signing the guaranty agreement, nor ever been disconnected for nonpayment of his City utility bill.

If the guarantor or cosigner leaves the City or discontinues City utility service prior to completion of a three year period from the date of service connection for whom they cosigned, the customer may be required to pay the standard service deposit for the remainder of the three year period.

6) Water and sewer tap fees. The following tap fees shall be charged by the City for water and sewer taps in areas where water and sewer lines have not been installed by the City:

- a) 3/4 inch water service \$350.00
- b) 1 inch water service \$500.00
- c) 2 inch water service \$2,000.00
- d) 2 inch water service and irrigation \$2,000.00
- e) 3 inch and larger water service \$100.00*
- f) 4 inch sewer service \$100.00
- g) 6 inch sewer service \$150.00

*plus all costs incurred in such taps

The fee for water and sewer taps in areas where the City has installed water and/or sewer lines shall be as established by the City Council.

7) Garbage and trash rates:

- a) Residential. A flat fee of \$14.00 per month, excluding state sales tax.
- b) Residential recycling fee of \$2.10 per month.
- c) Residential special pickup fee: \$12.50 per cubic yard for trash and \$8.00 per cubic yard for brush, with a \$30.00 minimum.
- d) Residential Twenty-yard container for yard waste and brush only, uncompacted, placed on premises and removed by City:

Each time serviced, excluding state sales tax (User must call for service)	\$160.00
If container goes over one month unserviced, Excluding state sales tax	\$160.00

- e) Apartments/multifamily. A flat fee of \$14.00 per individual family unit, per month.
- f) Apartment recycling fee of \$1.00 per unit per month.
- g) Commercial. For three and four yard service monthly fees, excluding state sales tax:

Size	Pickups per week				
	2	3	4	5	6
3 yard	\$60.75	\$91.05	\$121.50	\$163.17	\$182.25
4 yard	\$80.98	\$121.50	\$161.99	\$202.50	\$242.97

h) Business shared dumpsters:

Small business:

Barbershop or beauty shop; cleaners; laundromat; single purpose office doctor, insurance, etc.); service station having no mechanical repairs; miscellaneous small retail business, \$22.36 monthly service charge, excluding state sales tax.

Medium business:

Banks and savings and loans; post office; service station with light mechanical repairs; miscellaneous medium retail business, \$29.17 monthly service charge, excluding state sales tax.

Large business:

Pharmacy; bar and lounge; auto parts; hardware; major auto repairs; appliance stores; car wash; doctor clinic multi-occupied); miscellaneous large business, \$35.99 monthly service charge, excluding state sales tax.

i) Twenty-yard containers, uncompacted, placed on premises and removed by City:

Initial Placement	\$75.00
Relocation	\$50.00
Each time serviced, excluding state sales tax (User must call for service)	\$245.30
If container goes over one month unserviced, excluding state sales tax	\$245.30

j) Thirty-yard containers, uncompacted, placed on premises and removed by City:

Initial Placement	\$75.00
Relocation	\$50.00
Each time serviced, excluding state sales tax (User must call for service)	\$367.97
If container goes over one month unserviced, excluding sales tax	\$367.97

k) Forty-yard containers, uncompacted, placed on premises and removed by City:

Initial Placement \$75.00
Relocation \$50.00

Each time serviced, excluding state sales tax \$431.31
(User must call for service)

If container goes over one month unserviced
Excluding sales tax \$431.31

l) Twenty-yard self-contained compactor, compacted, user supplies self-contained unit. City services, user must call for service; excluding state sales tax \$264.10

Cleaning fee. As deemed necessary by City (per cleaning) \$100.00

m) Thirty-yard self-contained compactor, compacted, user supplies self-contained unit. City services, user must call for service; excluding state sales tax \$396.15

Cleaning fee. As deemed necessary by City (per cleaning) \$100.00

n) Forty-yard containers, compacted, user supplies compactor and container, City services, user must call for service; excluding state sales tax. \$468.72

o) Commercial tree and landscape service may dispose of yard waste at the mulch site at the rate of \$4.00 per cubic yard.

Section 2: That if any provision of this ordinance or application thereof to any person or circumstance is held invalid by any court, such holding shall not affect the validity of the remaining portions of this ordinance, and the City Council of the City of Lake Jackson, Texas, hereby declares that it would have enacted such remaining portions despite any such invalidity.

Section 3: That all ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of the conflict only.

Section 4: That this ordinance shall become effective the seventh day of October, 2008

Passed and Approved on first reading this 2nd day of September, 2008.

Passed and Adopted on second and final reading this 6th day of October, 2008



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
APPENDICES

① APPENDIX F: Excess Water Use Investigation



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION APPENDICES

Investigation of Excess Water Use



Address: _____

Inspector: _____

Date: _____

On the above date, an apparent incident of excess water use was observed at this private-property address, consisting of the following (check one):

- Excessive irrigation leading to saturation and run-off to ditch or storm drain.
- Irrigation line break leading to uncontrolled discharge.
- Other apparent excess indoor or outdoor water use, leading to discharge to ditch or storm drain.
- Private water utility line break (customer's portion of the line).
- Other (describe): _____

The following actions were taken by the inspector (check all that apply):

- A property representative was located and the water discharge was brought to the attention of that person, whose name is: _____ .
- The property representative was asked if they would like information on how to fix the problem and/or avoid the discharge in the future.
- The property representative was provided with a friendly reminder of the goals of the City's Water Conservation Plan, and the costs of excessive discharges (see reverse side of this sheet).
- If no property representative could be located, a copy of this notice was left at the address. Property representative - please see reverse side for further information.
- Other: _____ .

Additional comments or results of this investigation:

OPERATORS - PLEASE RETURN COMPLETED FORMS TO YOUR SUPERVISOR, SO THAT THEY CAN BE FORWARDED TO THE WATER UTILITIES SUPERINTENDENT. THANK YOU!!



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
APPENDICES



Wise Use of Water



DID YOU KNOW...

- ❑ The Texas Legislature recently strengthened a law that requires municipalities to develop Water Conservation Plans
- ❑ As part of its Plan, the City has developed strategies to ensure that water is not wasted, either within its municipal distribution system or by its customers
- ❑ One of those strategies is to contact customers whose systems appear to be releasing more water than necessary, to see if they would like assistance in preventing water waste
- ❑ Minimizing water use saves YOU money, because the amount you pay is based on the amount you use
- ❑ Additional water conservation information is available on the City's website under the "Residents" tab or by searching "water conservation".



THANK YOU FOR YOUR SUPPORT!



REVISION: 05-09

Water Conservation Plan

Prepared with assistance from www.EnviroSteele.com

Environmental Management System:

TWDB - WATER CONSERVATION
APPENDICES

① APPENDIX G: Region H Cost Savings Spreadsheet

Region H - DRAFT City of Lake Jackson Data

Regional Data	
Population	27,621
SF Population	20,901
MF Population	6,720
Institutional Population	552
SF Units	8,263
MF Units	2,655
Average Yearly Rainfall (inches)	46.1
SF Household Size	2.77
MF Household Size	1.78
No. of Bathrooms per SF House	2.0
No. of Bathrooms per MF Unit	1.2
No of Irrigation Months	6
% of High Use SF customers	10%
No. of MF Units per Washer	18
No. of MF Units per Complex	50

From TCEQ calculations (see WCP).
 Estimate based on ratio of 3.11 SF connections to MF connections (2009 data)
 Estimate based on ratio of 3.11 SF connections to MF connections (2009 data)
 Estimate.
 2009 data
 2009 data

For Participating Customers								
	Savings per Residential Capita (gpd)	Savings per Living Unit (gpd)	No. of Measures per Living Unit	Savings per Measure (gpd)	Measure Costs	Cost per AF of Water Saved (Amortized)	Standard Delivery Description	Other Delivery Options
Residential	1	2	3	4	5	6	7	8
SF Toilet Retrofit	10.5	29.1	2.0	14.5	\$ 85	\$ 370	free or rebate	direct install
SF Showerheads and Aerators	5.5	15.2	2.0	7.6	\$ 7	\$ 106	kits picked up by customer	door to door distribution or direct install
SF Clothes Washer Rebate	5.6	15.5	1.0	15.5	\$ 120	\$ 735	rebate from water utility only	joint rebate with energy utility
SF Irrigation Audit-High User	18.0	50.0	1.0	50.0	\$ 70	\$ 459	staff	hire contractor
SF Rainwater Harvesting	18.3	50.7	1.0	50.7	\$ 250	\$ 424	rebate	
SF Rain Barrels	2.0	5.5	1.0	5.5	\$ 45	\$ 705	rebate or distribution	
MF Toilet Retrofit	10.5	18.7	1.2	15.6	\$ 75	\$ 305	free or rebate	direct install
MF Showerheads and Aerators	5.5	9.8	1.2	8.2	\$ 4	\$ 57	kits picked up and installed by apt. mgmt.	
MF Clothes Washer Rebate	0.9	1.7	0.056	30.0	\$ 120	\$ 553	rebate from water utility only	joint rebate with energy utility
MF Irrigation Audit	1.4	2.5	NA	125.0	\$ 150	\$ 393	staff	hire contractor
MF Rainwater Harvesting	6.6	11.8	NA	589.6	\$ 2,050	\$ 299	rebate	
Commercial								
Commercial Toilet Retrofit				26.0	\$ 150	\$ 365	free or rebate	direct install
Coin-Operated Clothes Washer Rebate				45.0	\$ 170	\$ 522	rebate from water utility only	joint rebate with energy utility
Irrigation Audit				125.0	\$ 150	\$ 393	staff	hire contractor
Commercial General Rebate				1.0	\$ 1.2	\$ 103	rebate	
Commercial Rainwater Harvesting				589.6	\$ 2,050	\$ 299	rebate	

Notes:
SF=single-family, **MF=**multi-family
 Column 1 - savings per person in gallons per day
 (For SF and MF Toilet Retrofits, Showers and Aerators and SF Clothes Washers see Section 2. For other measures, Column 1 is calculated by dividing Column 4 by the SF household size or the MF population using the measure)
 Column 2 - savings per housing unit in gallons per day
 (Column 3 x Column 4, with the exception of MF Irrigation Audits and MF Rainwater Harvesting, which are calculated by multiplying Column 1 x MF household size.)
 Column 3 - the number of measures needed for each living unit
 Column 4 - gallons saved per day for each measure (see Section 2)
 Column 5 - program costs including rebates, staff time and marketing (see Section 2)
 Column 6 - cost per acre foot of water saved each year [(column 5 x 325,851 gallons/AF) / (column 4 x 365 days)] amortized at 5% interest over the life of the measure
 Column 7 - delivery option(s) for which costs are estimated
 Column 8 - other possible delivery options
 * See Sections 2 and 3 for additional information on calculations and assumptions

Region H - DRAFT City of Lake Jackson Data

Regional Data	
Population	27,621
SF Population	20,901
MF Population	6,720
Institutional Population	552
SF Units	8,263
MF Units	2,655
Average Yearly Rainfall (inches)	46.1
SF Household Size	2.77
MF Household Size	1.78
No. of Bathrooms per SF House	2.0
No. of Bathrooms per MF Unit	1.2
No of Irrigation Months	6
% of High Use SF customers	10%
No. of MF Units per Washer	18
No. of MF Units per Complex	50

From TCEQ calculations (see WCP).
 Estimate based on ratio of 3.11 SF connections to MF connections (2009 data)
 Estimate based on ratio of 3.11 SF connections to MF connections (2009 data)
 Estimate.
 2009 data
 2009 data

For Participating Customers

	Savings per Residential Capita (gpd)	Savings per Living Unit (gpd)	No. of Measures / Living Unit	Savings per Measure (gpd)	Current Penetration Rate	Potential Penetration Rate	Number of Proposed Measures	Potential Savings for the Region (gpd)	Potential Savings for the Region (acre-ft/yr)	Program Costs per Measure	Total Program Costs	Cost per AF of Water Saved (Amortized)	Standard Delivery Description
	1	2	3	4	5	6	7	8	9	10	11	12	13
Residential													
SF Toilet Retrofit	10.5	29.1	2.0	14.5	10%	50%	6,610	96,151	107.70	\$ 85	\$ 561,884	\$ 370	free or rebate
SF Showerheads and Aerators	5.5	15.2	2.0	7.6	10%	50%	6,610	50,365	56.42	\$ 7	\$ 46,273	\$ 106	kits picked up by customer
SF Clothes Washer Rebate	5.6	15.5	1.0	15.5	0%	90%	7,437	115,382	129.24	\$ 120	\$ 892,404	\$ 735	rebate from water utility only
SF Irrigation Audit-High User	18.0	50.0	1.0	50.0	1%	5%	331	16,526	18.51	\$ 70	\$ 23,136	\$ 459	staff
SF Rainwater Harvesting	18.3	50.7	1.0	50.7	0%	5%	413	20,957	23.47	\$ 250	\$ 103,288	\$ 424	rebate
SF Rain Barrels	2.0	5.5	1.0	5.5	0%	30%	2,479	13,613	15.25	\$ 45	\$ 111,551	\$ 705	rebate or distribution
MF Toilet Retrofit	10.5	18.7	1.2	15.6	10%	60%	1,593	24,849	27.83	\$ 75	\$ 119,475	\$ 305	free or rebate
MF Showerheads and Aerators	5.5	9.8	1.2	8.2	10%	60%	1,593	13,016	14.58	\$ 4	\$ 6,372	\$ 57	kits picked up, installed by apt. mgmt.
MF Clothes Washer Rebate	0.9	1.7	0.056	30.0	2%	80%	115	3,452	3.87	\$ 120	\$ 13,806	\$ 553	rebate from water utility only
MF Irrigation Audit	1.4	2.5	NA	125.0	0%	50%	27	3,319	3.72	\$ 150	\$ 3,983	\$ 393	staff
MF Rainwater Harvesting	6.6	11.8	NA	589.6	0%	5%	3	1,565	1.75	\$ 2,050	\$ 5,443	\$ 299	rebate
								359,194	402		\$ 1,887,613.45		
Commercial													
Commercial Toilet Retrofit				26.0						\$ 150		\$ 365	free or rebate
Coin-Operated Clothes Washer Rebate				45.0	0%	50%				\$ 170		\$ 522	rebate from water utility only
Irrigation Audit				125.0						\$ 150		\$ 393	staff
Commercial General Rebate				1.0						\$ 1.2		\$ 103	rebate
Commercial Rainwater Harvesting				589.6						\$ 2,050		\$ 299	rebate

Notes:

SF=single-family, MF=multi-family

Column 1 - savings per person in gallons per day

(For SF and MF Toilet Retrofits, Showers and Aerators and SF Clothes Washers see Section 2. For other measures, Column 1 is calculated by dividing Column 4 by the SF household size or the MF population using the measure.)

Column 2 - savings per housing unit in gallons per day

(Column 3 x Column 4, with the exception of MF Irrigation Audits and MF Rainwater Harvesting, which are calculated by multiplying Column 1 x MF household size.)

Column 3 - the number of measures needed for each living unit

Column 4 - gallons saved per day for each measure (see Section 2)

Column 5 - the percent of customers that have already implemented this measure

Column 6 - the potential number of customers who could be expected to implement the program with substantial marketing and outreach

Column 7 - estimated number of measures [(column 6 - column 5) * number of MF or SF units]

Column 8 - potential savings for the region in gallons per day (column 4 x column 7)

Column 9 - potential savings for the region in acre-feet [(column 8 * 365) / 325851]

Column 10 - program costs including rebates, staff time and marketing (see Section 2)

Column 11 - total program cost (column 7 x column 10)

Column 12 - cost per acre foot of water saved each year [(column 5 x 325,851 gallons/AF) / (column 4 x 365 days)] amortized at 5% interest over the life of the measure

Column 13 - delivery option(s) for which costs are estimated

* See Sections 2 and 3 for additional information on calculations and assumptions



LAKE JACKSON
TEXAS

MUNICIPAL WATER CONSERVATION PLAN

April 2009

CITY OF MANVEL
WATER CONSERVATION AND
DROUGHT CONTINGENCY
PLANS

ORDINANCE NO. 2005-0-08

AN ORDINANCE AMENDING THE CODE OF ORDINANCES OF THE CITY OF MANVEL, TEXAS, ESTABLISHING WATER CONSERVATION (DROUGHT CONTINGENCY) REGULATIONS; DEFINING CERTAIN TERMS; PROVIDING RULES AND REGULATIONS GOVERNING DROUGHT RESPONSE STAGES; PROVIDING PROCEDURES FOR ADMINISTRATION AND ENFORCEMENT OF A WATER CONSERVATION AND EMERGENCY MANAGEMENT PLAN; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED TWO THOUSAND DOLLARS FOR EACH DAY OF VIOLATION OF ANY PROVISION HEREOF; REPEALING ALL OTHER ORDINANCES OR PARTS OF ORDINANCES INCONSISTENT OR IN CONFLICT HEREWITH; PROVIDING FOR SEVERABILITY; DECLARING AN EMERGENCY; AND PROVIDING OTHER PROVISIONS RELATING TO THE SUBJECT..

* * * * *

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MANVEL:

Section 1. 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 preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the City hereby adopts these regulations and restrictions on the delivery and consumption of water.

Section 2. Water uses regulated or prohibited under this Drought Contingency Plan, hereafter referred to as the "Plan," are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined herein.

Section 3. Authorization. The Director of Public Works, or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon

determination that such implementation is necessary to protect public health, safety, and welfare. The Director of Public Works or his/her designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

Section 4. Application. The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the City. The terms “person” and “customer,” as used in the Plan, include individuals, corporations, partnerships, associations, and all other legal entities.

Section 5. Definitions. For the purposes of this Plan, the following definitions shall apply:

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

Commercial and institutional water use shall mean water use that is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation shall mean 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.

Customer any person, company, or organization using water supplied by the City.

Domestic water use water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address shall mean street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use shall mean the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use shall mean 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 rights-of-way and medians.

Non-essential water use shall mean water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

- (a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- (b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) use of water to wash down 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) use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (i) use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd numbered address shall mean street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Waste of water or water wasting the application of water, provided through the City's potable water system, to soil or to the ground, at a rate of flow that, or in quantity that, exceeds the rate of the water's absorption into the ground. The standing of water on the ground, or the running of water over the ground into a ditch or into gutter or other means of drainage, whether natural or man-made, shall be prima facie evidence that water has been applied at an excessive rate of flow and/or in an excessive quantity; provided, however, the following shall not constitute water wasting:

(a) Inadvertent and incidental splashing or spilling of water during water applications; or

(b) Leakage of water due to plumbing or piping disruptions or breaks, when such disruptions or breaks are promptly repaired or such repairs are promptly undertaken and diligently pursued until completion.

Water Production Capacity shall mean the sum of the design pumping capacities of groundwater wells connected to the City water system.

Section 6. Criteria for Initiation and Termination of Drought Response Stages.

A. The Director of Public Works or his/her designee shall monitor water supply and/or 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.

B. The triggering criteria described below are based on known system design conditions and performance capabilities.

1. Stage 1 Trigger - MILD Water Shortage Conditions:

(a) Requirement for initiation. Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses defined under Stage 1 in Section 9 hereof, when total daily water demand equals or exceeds 60% of the City's Water Production Capacity for three (3) consecutive days.

(b) Requirement for termination. Stage 1 of the Plan may be rescinded when the triggering event condition has ceased to exist for a period of three (3) consecutive days.

2. Stage 2 Trigger - MODERATE Water Shortage Conditions.

(a) Requirement for initiation. Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses defined under Stage 2 in Section 9 hereof, when total daily water demand equals or exceeds 70% of the City's Water Production Capacity for three (3) consecutive days.

(b) Requirement for termination. Stage 2 of the Plan may be rescinded when the triggering event condition has ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

3. Stage 3 Trigger - SEVERE Water Shortage Conditions.

(a) Requirement for initiation. Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses defined under Stage 3 in Section 9 hereof, when total daily water demand equals or exceeds 80% of the City's Water Production Capacity for three (3) consecutive days.

(b) Requirement for termination. Stage 3 of the Plan may be rescinded when the triggering event condition has ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

4. Stage 4 Triggers - CRITICAL Water Shortage Conditions.

(a) Requirement for initiation. Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses defined under Stage 4 in Section 9 hereof, when total daily water demand equals or exceeds 90% of the City's Water Production Capacity for three (3) consecutive days.

(b) Requirement for termination. Stage 4 of the Plan may be rescinded when the triggering event condition has ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

5. **Stage 5 Triggers - EMERGENCY Water Shortage Conditions.**

(a) Requirements for initiation. Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when the Director of Public Works, or his/her designee, determines that a water supply emergency exists if any of the following triggers exist:

(1) Total daily water demand equals or exceeds 95% of the City's Water Production Capacity for three (3) consecutive days.

(2) Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or

(3) Water supply source(s) are contaminated.

(b) Requirements for termination. Stage 5 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage 5, Stage 4 becomes operative.

Section 7. Wasting water; vegetative watering. It shall be unlawful for any person to cause, allow, or otherwise permit water wasting when applying water to grounds, lawns, plants, trees, shrubs, bushes, or other vegetative matter, or when applying water for any landscaping or agricultural purpose of any kind.

Section 8. Notices.

A. Upon the determination that a Stage 2 or higher water condition exists, the City shall provide for notification to each customer of such condition, as applicable, of all water use restrictions then in effect, and of the penalties for failure to comply with the imposed restrictions. Such notice shall be given to each customer within the City by publication in the

City's official newspaper. Additional means of notification may be employed at the discretion of the City council and/or the City manager.

B. At such time that the water supply system has been restored to below a Stage 2 condition the City shall provide notice of the termination of the condition either through available media sources or through written notice in the manner provided above.

Section 9. Drought Response Stages. The Director of Public Works or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section 6 of this Plan, shall determine that a mild, moderate, severe, critical, or emergency condition exists and shall implement the following notification procedures:

A. **Stage 1 Response - MILD Water Shortage Conditions.**

Goal: Achieve a voluntary 10 percent reduction in daily water demand.

Supply Management Measures: City will reduce waterline flushing at the discretion of the Director of Public Works or designate.

Voluntary Water Use Restrictions:

1. Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 p.m. to midnight on designated watering days.

2. All operations of the City shall adhere to water use restrictions prescribed for Stage 2 of the Plan.

3. Water customers are requested to practice water conservation and to minimize or discontinue non-essential water use.

B. **Stage 2 Response - MODERATE Water Shortage Conditions.**

Goal: Achieve a 20 percent reduction in daily water demand.

Supply Management Measures: City will reduce waterline flushing at the discretion of the Director of Public Works or designate and will adhere to the Stage 2 response water use restrictions defined below.

Water Use Restrictions. Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

1. Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime 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.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. 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 rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
3. 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 between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
4. 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.
5. 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 City.
6. Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 12:00 midnight and

10:00 a.m. and between 8 p.m. and 12:00 midnight. However, if the golf course utilizes a water source other than that provided by the City, the facility shall not be subject to these regulations.

7. All restaurants are prohibited from serving water to patrons except upon request of the patron.

8. All non-essential water use as defined in Section 5 hereof is prohibited.

C Stage 3 Response -- SEVERE Water Shortage Conditions.

Goal: Achieve a 30 percent reduction in daily water demand.

Supply Management Measures: City will eliminate waterline flushing unless required for health and welfare of the public and will adhere to the Stage 3 response water use restrictions defined below.

Water Use Restrictions. All requirements of Stage 2 shall remain in effect during Stage 3 except:

1. Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times.

2. The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the City.

3. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

D. Stage 4 Response - CRITICAL Water Shortage Conditions.

Goal: Achieve a 40 percent reduction in daily water demand.

Supply Management Measures: City will eliminate waterline flushing unless required for health and welfare of the public and will adhere to the Stage 4 response water use restrictions defined below.

Water Use Restrictions. All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

1. Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.

2. Use of 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 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.

3. The filling, refilling, or adding of water to swimming pools, wading pools, and jacuzzi-type pools is prohibited.

4. 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.

5. 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.

E. Stage 5 Response - EMERGENCY Water Shortage Conditions.

Goal: Achieve a 50 percent reduction in daily water demand.

Supply Management Measures: City will eliminate waterline flushing unless required for health and welfare of the public and will adhere to the Stage 5 response water use restrictions defined below.

Water Use Restrictions. All requirements of Stage 2, 3, and 4 shall remain in effect during Stage 5, except that:

1. Irrigation of landscaped areas is absolutely prohibited.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

Provision of Alternative Water Supplies. In the event of source contamination or failure, at the discretion of the Director of Public Works, or his/her designee,

alternative water supplies shall be provided to affected citizens. Alternative supplies may include, but are not limited to, bottled water, alternate groundwater well(s), or hook-up to another public or private water supplier.

Section 10. Penalties for Violation of this Ordinance.

A. *Criminal penalties.* Any person who shall violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense.

B. *Discontinuance of water service for failure to comply.*

1. *First notice.* The City shall provide written notice, by hand delivery, to each customer deemed to be in violation hereof, by affixing such written notification to the front door or main entrance of the place of violation.

2. *Second notice.* In the event a customer commits violations of this Ordinance on two separate occasions during any single serious water condition or emergency water condition, service to such customer shall be discontinued following written notice thereof to such customer by registered or certified mail, return receipt requested.

3. *Reconnection.* No service which has been disconnected pursuant to this section shall be restored until such violation is discontinued, payment has been made to the City of a \$100.00 reconnection fee, and the violator has reimbursed the City for any and all costs incurred by the City, including reasonable attorney's fees, in the enforcement of this Ordinance.

4. The liabilities of a customer under this subsection (b) for reconnection fees and costs shall be in addition to and cumulative of any and all other criminal penalties for which such customer may otherwise be liable hereunder, and to any other remedy available to the City, whether at law or in equity.

Section 11. Adoption of water conservation and emergency management plan. There is hereby adopted for the City a "water conservation and emergency management plan," dated October, 1998, a true and correct copy of which is filed and maintained in the office of the City secretary.

Section 12. Variances. The Director of Public Works, or his/her 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 accomplished 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.

C. Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance with the City 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 Public Works, or his/her designee, and shall include the following:

1. Name and address of the petitioner(s).
2. Purpose of water use.
3. Specific provision(s) of the Plan from which the petitioner is requesting relief.
4. 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.
5. Description of the relief requested.
6. Period of time for which the variance is sought.
7. Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
8. Other pertinent information.

D. Variances granted by the City shall be subject to the following conditions, unless waived or modified by the Director of Public Works or his/her designee:

1. Variances granted shall include a timetable for compliance.

2. Variances granted shall expire when the Plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

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

Section 13. Coordination with Regional Water Planning Groups. The service area of the City of Manvel is located within the Region H Water Planning Group and the City of Manvel has provided a copy of this Plan to the Region H Water Planning Group.

Section 14. Public Involvement. Opportunity for the public to provide input into the preparation of the Plan was provided by the City of Manvel by means of scheduling and providing public notice of a public meeting to accept input on the Plan. Public input on the plan was addressed in preparing the plan.

Section 15. In the event any clause phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstances shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Manvel, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts

PASSED, APPROVED, AND ADOPTED on this 18TH DAY OF APRIL, 2005.

ON FILE
Delores M. Martin, Mayor

ATTEST:

ON FILE

Debi Bottoms, City Secretary

APPROVED BY ALISON HOLLAND

OLSON AND OLSON

CITY OF PEARLAND WATER CONSERVATION AND DROUGHT CONTINGENCY AND WATER EMERGENCY RESPONSE PLAN



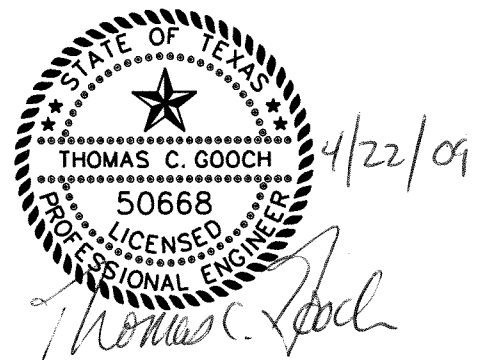
April 2009

Prepared By:

Freese and Nichols, Inc.
2010 Broadway
Pearland, Texas 77581
(281) 485-2404
PRL-09106



CITY OF PEARLAND WATER CONSERVATION AND DROUGHT CONTINGENCY AND WATER EMERGENCY RESPONSE PLAN



April 2009

Prepared By:

Freese and Nichols, Inc.
2010 Broadway
Pearland, Texas 77581
(281) 485-2404
PRL-09106



FORWARD

This water conservation and drought contingency and water emergency response plan was prepared by Freese and Nichols for the City of Pearland. The plan was prepared pursuant to Texas Commission on Environmental Quality rules. To develop a regional approach, the water conservation plan and drought contingency plan for the City of Houston and information from the *Region H Water Planning Group 2006 Regional Water Plan* were consulted.

Questions regarding this water conservation and drought contingency and water emergency response plan should be addressed to the following:

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Freese and Nichols, Inc.

(817) 735-7300

tcg@freese.com

Amy Kaarlela

Freese and Nichols, Inc.

(817) 735-7300

Danny Cameron

Director of Public Works

City of Pearland

(281) 652-1904

The water conservation and drought contingency and water emergency response plan is based on the Texas Administrative Code in effect in January 2009.

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Water Conservation and Drought Contingency and Water Emergency Response Plan for the City of Pearland

April 2009

1. INTRODUCTION AND OBJECTIVES

Water supply has always been a key issue in the development of Texas. In recent years, the growing population and economic development of the City of Pearland have led to increasing demands for water supplies. Historic reliance on groundwater supplies in the area has caused subsidence in the Gulf Coast Aquifer. The Harris-Galveston Subsidence District and the Fort Bend Subsidence District were created to reduce subsidence by reducing reliance on groundwater. Utilities in those districts are being encouraged to transition from groundwater to surface water. The recently created Brazoria County Groundwater Conservation District has limited authority over groundwater pumping in the county. Additional surface water supplies to meet higher demands will come at higher cost than current groundwater resources. It is therefore important that the City of Pearland make the most efficient use of existing supplies in order to delay the need for new supplies.

Recognizing the need for efficient use of existing water supplies, the Texas Commission on Environmental Quality (TCEQ) has developed guidelines and requirements governing the development of water conservation and drought contingency plans for public water suppliers.^{1, 2} These TCEQ guidelines and requirements are included in Appendix B. The best management practices established by the Water Conservation Implementation Task Force³, established pursuant to SB1094 by the 78th Legislature, were also considered in the development of the water conservation measures in this plan. The City of Pearland has developed this water conservation and drought contingency and water emergency response plan following TCEQ guidelines and requirements. This water conservation and drought contingency and water emergency response plan was developed with consideration of the City of Houston's Water Conservation Plan⁴ and Drought Contingency Plan.⁵ This plan replaces the City of Pearland's Drought Contingency Plan dated August 2005⁶. The City of Pearland has not previously completed a water conservation plan.

The water conservation sections of this plan include measures that are intended to result in ongoing, long-term water savings. The drought contingency and water emergency response sections of this plan address strategies designed to temporarily reduce water use in response to specific conditions.

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.

^{1, 2} Superscripted numbers match references listed in Appendix A

- 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.
- To delay and decrease capital expenditures required to serve Pearland's future growth.
- To satisfy the requirements set forth by TCEQ and other agencies.

This plan includes all of the elements required by TCEQ. Some elements of this plan go beyond TCEQ requirements. Appendix C shows where the plan addresses specific TCEQ requirements.

2. WATER SYSTEM DESCRIPTION AND UTILITY PROFILE

Appendix D to this water conservation and drought contingency and water emergency response plan is the water utility profile for Pearland presented in the format recommended by the TCEQ.

The City of Pearland provides water through ten city-owned wells and two surface water connections at which they purchase water. Pearland provides retail service to residential and commercial customers; the city does not have any wholesale customers. Pearland city limits encompass approximately 50 square miles. The 2000 Census reported a population of 37,640 people for Pearland. The 2008 population is estimated at 90,700. The city is projected to continue to grow rapidly in the coming decades.

The city owns and operates ten water wells that have a combined pumping capacity of 11,004 gpm. Water is purchased from Harris County MUD 13 at the Green Tee Water Plant. (The ultimate source of this supply is treated water from Houston.) The average volume purchased is 100,000 gallons per day. Water is purchased from the City of Houston at the Far Northwest Water Plant. Pearland has a contract to purchase a minimum of 70 million gallons per month (or 2.3 million gallons per day on average) from the City of Houston. Pearland is planning to develop an additional connection to purchase surface water from the City of Houston. Current plans are to purchase 10 MGD from Houston routed through the Alice Water Plant. An expansion of the Alice Plant to handle the additional supply is under design. Available city-wide ground and elevated storage capacities total 9.0 and 3.5 million gallons, respectively.

Figure 1 shows the historic per capita use by the City of Pearland. Figure 2 shows the historic percentage of water loss by the City of Pearland. Figure 3 is a map showing the service area for the City of Pearland

Figure 1: City of Pearland per Capita Water Use

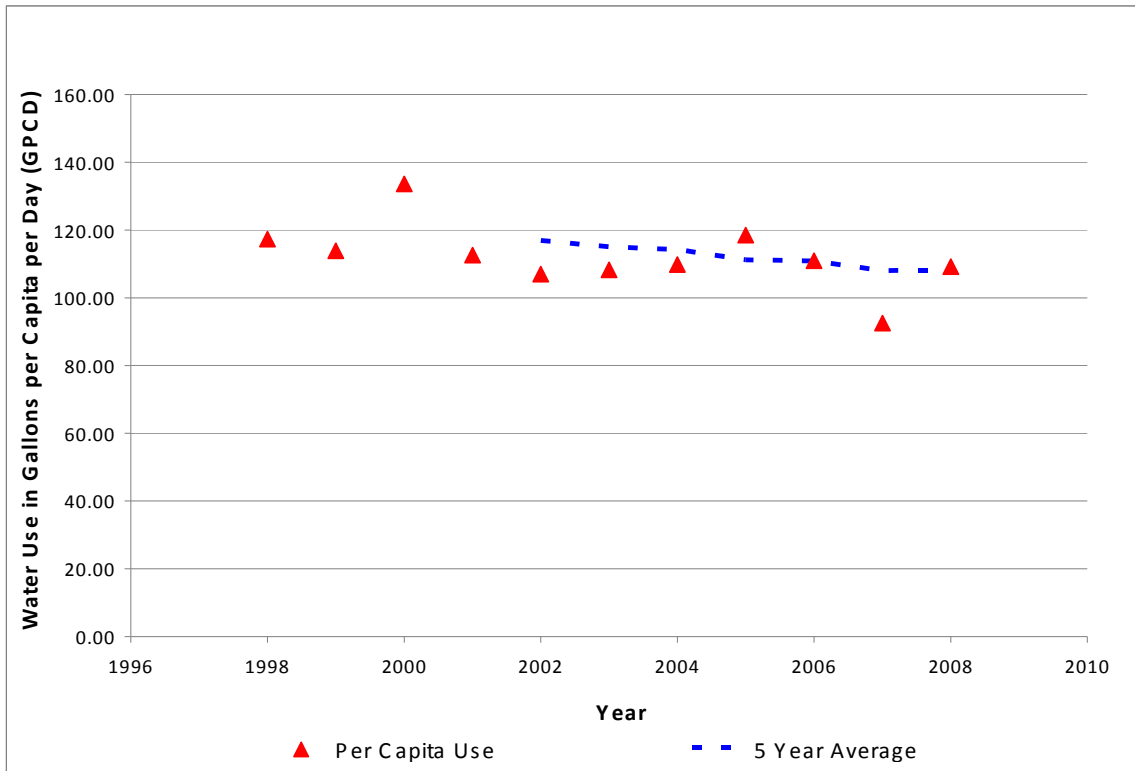
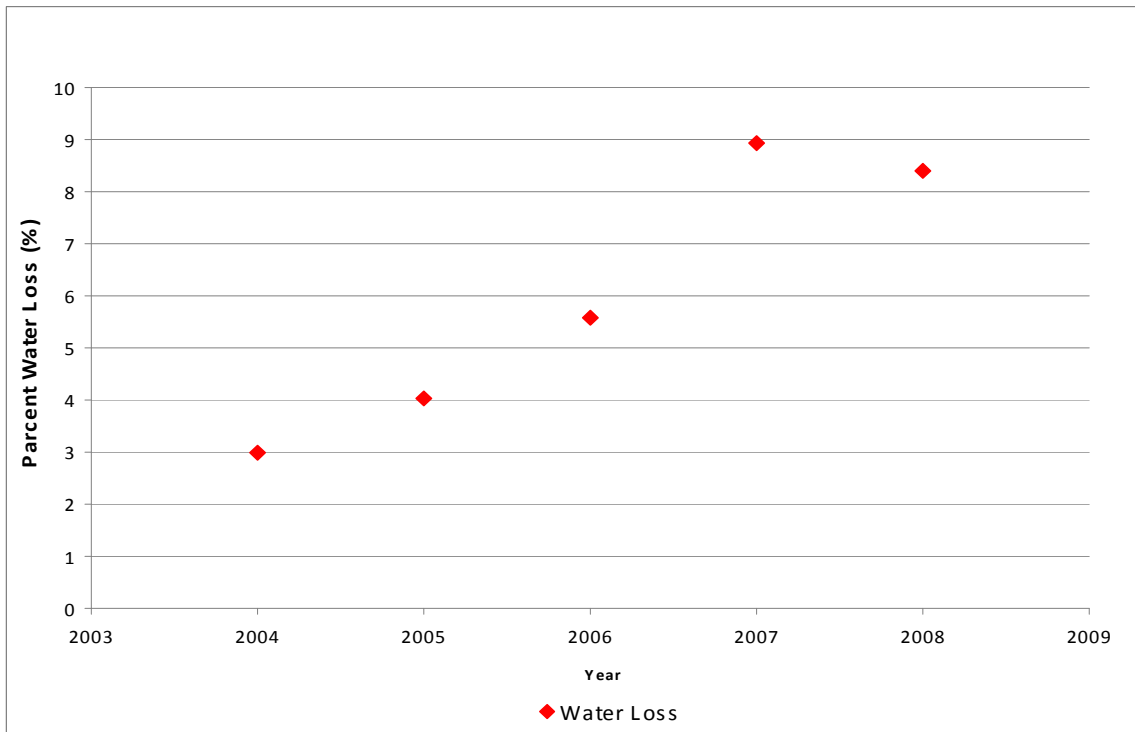
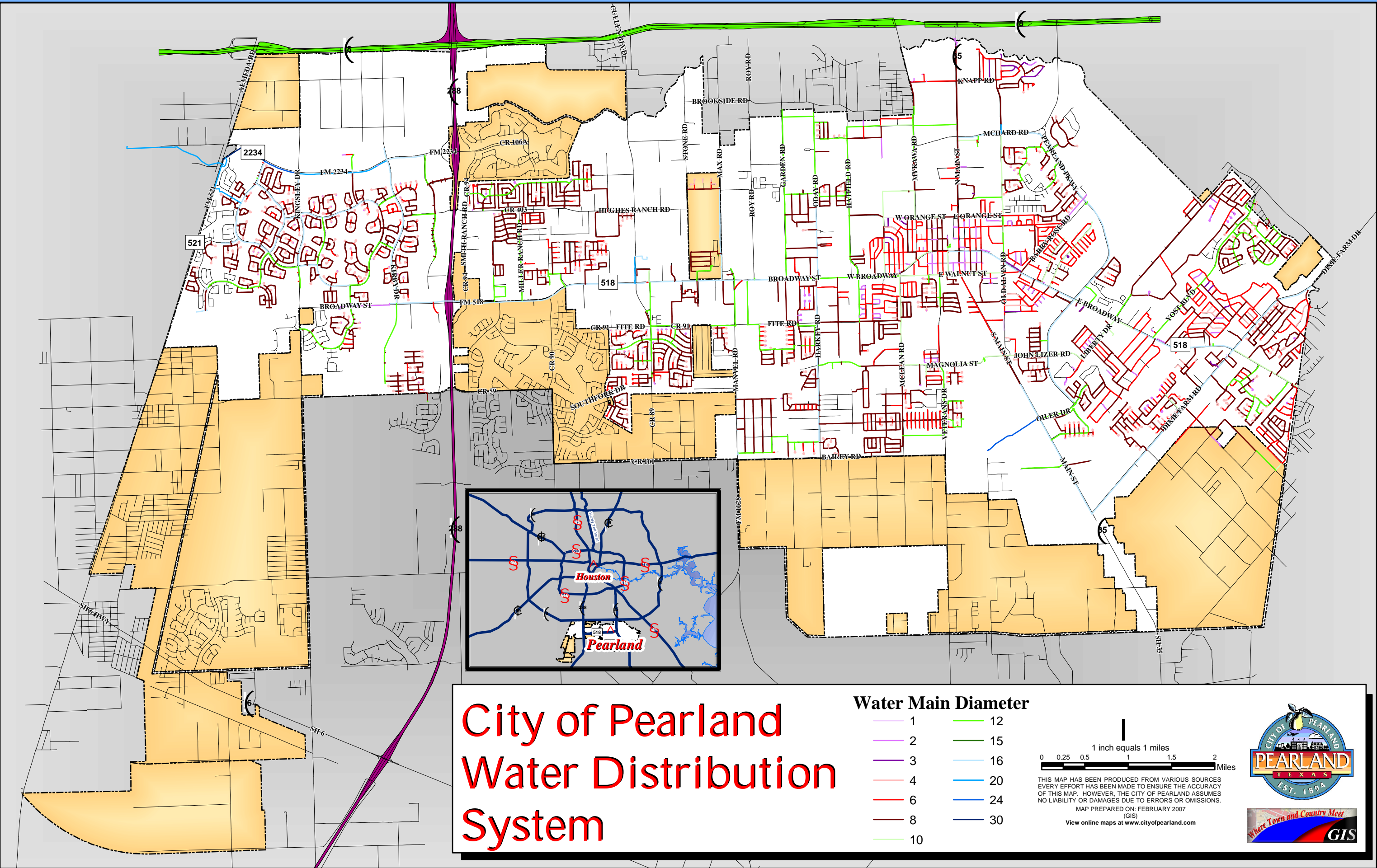


Figure 2: City of Pearland Percent Water Loss

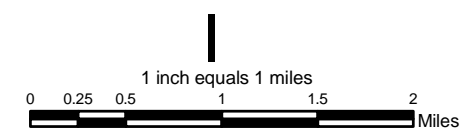




City of Pearland Water Distribution System

Water Main Diameter

- | | |
|----|----|
| 1 | 12 |
| 2 | 15 |
| 3 | 16 |
| 4 | 20 |
| 6 | 24 |
| 8 | 30 |
| 10 | |



THIS MAP HAS BEEN PRODUCED FROM VARIOUS SOURCES EVERY EFFORT HAS BEEN MADE TO ENSURE THE ACCURACY OF THIS MAP. HOWEVER, THE CITY OF PEARLAND ASSUMES NO LIABILITY OR DAMAGES DUE TO ERRORS OR OMISSIONS.
MAP PREPARED ON: FEBRUARY 2007
(GIS)
View online maps at www.cityofpearland.com



3. SPECIFICATION OF WATER CONSERVATION GOALS

TCEQ rules require the adoption of specific water conservation goals for a water conservation plan. As part of plan adoption, the City of Pearland developed 5-year and 10-year goals for per capita municipal use. The goals for this water conservation plan include the following:

- Keep the 5-year average water use as of 2014 below 109 gallons per capita per day (5-year goal).
- Keep the 5-year average water use as of 2019 below 107 gallons per capita per day (10-year goal).
- Maintain the level of unaccounted water in the system below 10 percent annually in 2009 and subsequent years, as discussed in Section 4.3.
- Implement and maintain a program of universal metering and meter replacement and repair, as discussed in Section 4.2.
- Increase efficient water usage through landscape water management ordinance, as discussed in Section 7.4 and Appendix E.
- Decrease waste in lawn irrigation by implementation and enforcement of a landscape water management ordinance, as discussed in Section 7.4.
- Raise public awareness of water conservation and encourage responsible public behavior by a public education and information program, as discussed in Section 5.
- Develop a system specific strategy to conserve water during peak demands, thereby reducing the peak use.
- To delay and decrease capital expenditures required to serve Pearland’s future growth.

**Table 3.1
Five-Year and Ten-Year Municipal Per Capita Water Use Goals (gpcd)**

Description	Current Average (gpcd)	5-Year Goal (gpcd)	10-Year Goal (gpcd)
Water Conservation Goals	111	109	107

Note: The current 5-year average excludes data from 2007, which was a year of abnormally low water use.

4. METERING, LEAK DETECTION AND RECORD MANAGEMENT

One of the key elements of water conservation is tracking water use and controlling losses through leaks and illegal diversions. It is important to carefully meter water use, detect and repair leaks in the distribution system and provide regular monitoring of unaccounted water.

4.1 Accurate Metering of Water Pumping and Deliveries

Water pumped from groundwater supplies is metered by the City of Pearland with accuracy of $\pm 5\%$. Water deliveries from the City of Houston are metered by the City of Houston using meters with accuracy of $\pm 2\%$ (City of Houston Contract). The City of Houston maintains a program to pull, test and replace any meters determined to be functioning outside these parameters.

4.2 Universal Metering

Except for some public uses, the City of Pearland meters all water users. The City is installing meters on all new public uses and the City is implementing a program to have all existing users metered by 2019. The City converted all meters to automated meters 10 years ago. Pearland has not have a formal meter testing program in recent years, but meter testing is conducted for any meter which displays unusual results. Accuracy of the meters has been good and has not required a formal meter testing program, but the City plans to implement such a program by 2014.

4.3 Determination and Control of Unaccounted Water

Unaccounted water is the difference between water pumped from supplies and metered water sales to customers plus authorized but unmetered uses. (Authorized but unmetered uses would include use for fire fighting, releases for flushing of lines, uses associated with new construction, etc.) Unaccounted water can be caused by the following:

- 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 not yet been 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.
- Other.

Measures to control unaccounted water are part of the routine operations of the City. A leak detection and repair program is described in Section 4.4 below. Meter readers actively watch for and report signs of illegal connections, so they can be quickly addressed.

Unaccounted water should be calculated in accordance with the provisions of Appendix D. With the measures described in this plan, Pearland should maintain unaccounted water below 10 percent in 2009 and subsequent years. If unaccounted water exceeds this goal,

Pearland will implement a more intensive audit to determine the source(s) of and reduce the unaccounted water.

4.4 Leak Detection and Repair

As they travel the city performing their regular duties, maintenance crews and personnel actively 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 will be targeted for replacement as funds are available.

4.5 Record Management System

As required by TAC Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2(a)(2)(B), the City of Pearland has a record management system which allows for the separation of water sales and uses into residential, commercial, public/institutional, and industrial categories. The City has not historically tracked these categories, but recent changes to the rate structure using different rates for residential and commercial customers require better tracking by category.

5. CONTINUING PUBLIC EDUCATION AND INFORMATION CAMPAIGN

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

- Notify customers through newspapers, e-mail, city website, and bill inserts.
- The City website includes information on water conservation tips <http://www.cityofpearland.com/>.
- Notifying local organizations, schools, and civic groups that staff are available to make presentations on Pearland's water conservation programs).
- Consider developing or providing a water conservation curriculum for Pearland Public Schools.
- Consider providing a water conservation booth at public events in which the City participates.

6. WATER RATE STRUCTURE

The City of Pearland has an increasing block rate structure for residential customers to discourage excessive water use. Current rates as of March 2009 are given below.

Residential Rates

1. Monthly minimum charge \$11.98. This includes up to 2,000 gallons water use.
2. 1st tier 2,000 gallons up to 6,000 gallons, \$2.93 per thousand gallons.
3. 2nd tier from 6,001-15,000 gallons, \$3.67 per thousand gallons.
4. 3rd tier from 15,001-25,000 gallons, \$4.40 per thousand gallons.
5. 4th tier is any additional usage over 25,001 gallons, \$5.86 per thousand gallons.

Commercial Rates

Monthly minimum charge of \$11.98 for the first 2,000 gallons of water. Each additional thousand gallons of water will be billed at \$3.67.

Multi-Unit Rates

Monthly minimum charge of \$10.89 for the first 2,000 gallons of water. Each additional thousand gallons of water will be billed at \$3.67.

Landscape or Irrigation

Monthly minimum charge of \$11.98 for the first 2,000 gallons of water. Each additional thousand gallons of water will be billed at \$4.40.

7. OTHER WATER CONSERVATION MEASURES

7.1 City of Houston System Operation

The City of Pearland purchases treated surface water from the City of Houston. Houston's water right permits allow coordinated operation of its water supply sources.

7.2 Reuse and Recycling of Wastewater

The City of Pearland treats wastewater at four wastewater treatment plants with a total capacity of 10 MGD. Reuse water is used for wash down at the wastewater treatment plants. Plans have been developed with Brazoria County MUD #4 to use effluent for golf course irrigation, but this is not currently being done. There are also plans to use effluent to irrigate a proposed arboretum/nature center.

7.3 Ordinances, Plumbing Codes, or Rules on Water-Conserving Fixtures

Since 1992, the state has required water-conserving fixtures in new construction and renovations. The state standards call for flows of no more than 2.5 gallons per minute (gpm) for faucets, 3.0 gpm for showerheads, and 1.6 gallons per flush for toilets. Similar standards are now required nationally under federal law. These state and federal standards assure that all new construction and renovations will use water-conserving fixtures.

7.4 Landscape Water Management Measures

The City is currently considering adoption of a landscape management ordinance. Among the measures that such an ordinance might include are:

- Prohibition of watering of impervious surfaces. (Wind driven water drift will be taken into consideration.)
- Prohibition of outdoor watering during precipitation or freeze events.
- Rain and freeze sensors required on all new irrigation systems. Rain and freeze sensors must be maintained to function properly.
- Requirement that all new irrigation systems be in compliance with state design and installation regulations (TAC Title 30, Part 1, Chapter 344).

Appendix E is a summary of landscape water management measures that the City is considering.

7.5 Additional Water Conservation Measures

The City recommends voluntary water use restrictions beginning July 1 and ending October 1 of each year:

- Measures to be implemented directly by the City of Pearland to manage limited water supplies and/or reduce water demand:
 - Reduced or discontinued flushing of water mains.

- Water customers are requested to voluntarily limit landscape irrigation use to even numbered days of the month for customers with street address ending in an even number (0,2,4,6,8), and odd numbered of the month for water customers with a street address ending in an odd number (1,3,5,7,9), and to irrigate landscapes between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 10:00 p.m. on designated watering days, except:
 - Landscape irrigation use is permitted at anytime if it is by means of a faucet filled bucket or watering can of five (5) gallon or less, hand held water hose, or drip irrigation.
- Water customers are requested to practice water conservation and to minimize or discontinue non-essential water use.

7.6 Requirement for Water Conservation Plans by Wholesale Customers

Currently the City of Pearland does not have any wholesale water customers. In the event that Pearland does, in the future, provide wholesale supply, any contract for the wholesale sale of water entered into after the adoption of this plan will include a requirement that the wholesale customer and any wholesale customers of that wholesale customer develop and implement a water conservation plan meeting the requirements of Title 30, Part 1, Chapter 288, Subchapter A, Rule 288.2 of the Texas Administrative Code.¹ The requirement will also extend to each successive wholesale customer in the resale of the water.

7.7 Coordination

A copy of this Water Conservation and Drought Contingency and Water Emergency Response Plan will be provided to the City of Houston and the Region H Water Planning Group. A copy of the cover letter to be sent with those plans is included in Appendix F.

7.8 Water Conservation Implementation Report

Appendix G includes the TCEQ-required water conservation implementation report. The report is due to the TCEQ by May 1 of each year, starting in the year 2009. This report lists the various water conservation strategies that have been implemented, including the date the strategy was implemented. The report also calls for the five-year and ten-year per capita water use goals from the previous water conservation plan (which is not applicable to Pearland because they did not have a previous conservation plan). The amount of water saved through conservation is also requested. The Texas Water Development Board plans to require a separate report beginning in 2010.

8. IMPLEMENTATION AND ENFORCEMENT OF THE WATER CONSERVATION PLAN

Appendix H contains a copy of an ordinance adopted by the City Council to adopt the water conservation plan. The ordinance designates responsible officials to implement and enforce the water conservation plan. Appendix E, the considerations for landscape water management regulations, also includes information about enforcement. Appendix G includes a copy of an ordinance, order, or resolution that could be adopted related to illegal connections and water theft. Appendix G contains a sample ordinance that could be adopted for landscape irrigation to meet TAC Title 30, Part 1, Chapter 344.

9. REVIEW AND UPDATE OF WATER CONSERVATION PLAN

TCEQ requires that the water conservation plans be updated prior to May 1, 2009. The plans are required to be updated every five years thereafter. This plan fulfills the requirement for an update by May 1, 2009, and the plan will be updated as required and as appropriate based on new or updated information.

10. DROUGHT CONTINGENCY AND EMERGENCY RESPONSE PLAN

10.1 Introduction

The purpose of this drought contingency and water emergency response plan is as follows:

- To conserve the available water supply in times of drought and emergency
- To maintain supplies for domestic water use, sanitation, and fire protection
- To protect and preserve public health, welfare, and safety
- To minimize the adverse impacts of water supply shortages
- To minimize the adverse impacts of emergency water supply conditions.
- To satisfy the requirements set forth by TCEQ and other agencies

A drought is defined as an extended period of time when an area receives insufficient amounts of rainfall to replenish the water supply, causing water supply shortages. In the absence of drought response measures, water demands tend to increase during a drought due to the need for additional outdoor irrigation. The severity of a drought depends on the degree of depletion of supplies and on the relationship of demand to available supplies.

10.2 Provisions to Inform the Public and Opportunity for Public Input

The City of Pearland will provide opportunity for public input in the development of this drought contingency and water emergency response plan by the following means:

- Providing written notice of the proposed plan and the opportunity to comment on the plan by newspaper, posted notice, and notice on the web site.
- Making the draft plan available on the web site.
- Providing the draft plan to anyone requesting a copy.
- Receiving input from the public at City Council workshops and meetings when the plan was under consideration.

10.3 Provisions for Continuing Public Education and Information

After the plan is adopted the City will continue to inform and educate the public about the drought contingency and water emergency response plan by the following means:

- Preparing a bulletin describing the plan and making it available at city hall and other appropriate locations.
- Making the plan available to the public through the city web site.
- Including information about the drought contingency and water emergency response plan on the city web site.

- Notifying local organizations, schools, and civic groups that staff are available to make presentations on the drought contingency and water emergency response plan (usually in conjunction with presentations on water conservation programs).

At any time that the drought contingency and water emergency response plan is activated or the drought stage or water emergency response stage changes, the City will notify local media of the issues, the drought response stage or water emergency response stage (if applicable), and the specific actions required of the public. The information will also be publicized on the city web site. Billing inserts and/or the “Connect-CTY” system will also be used as appropriate. (The “Connect-CTY” system is an automated calling system which can contact all of the City’s customers. It will be used to notify them of the initiation or termination of drought stages.)

10.4 Initiation and Termination of Drought or Emergency Response Stages

Initiation of a Drought or Water Emergency Response Stage

The City Manager or his/her official designee may order the implementation of a drought or water emergency response stage when one or more of the trigger conditions for that stage is met. The following actions will be taken when a drought or water emergency response stage is initiated:

- The public will be notified through local media and the city web site as described in Section 10.3.
- The City of Houston will be notified by e-mail with a follow-up letter or fax that provides details of the reasons for initiation of the drought/water emergency response stage.
- If any mandatory provisions of the drought contingency and water emergency response plan are activated, the City will notify the Executive Director of the TCEQ and the Houston Director of Public Works and Engineering within 5 business days.

If drought contingency/water emergency response stages are initiated by the City of Houston, the City of Pearland will consider implementing the similar stage of the drought contingency plan. For other trigger conditions internal to the city, the City Manager or his/her official designee may decide not to order the implementation of a drought response stage or water emergency even though one or more of the trigger criteria for the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, the anticipation of replenished water supplies, or the anticipation that additional facilities will become available to meet needs. The reason for this decision should be documented.

Termination of a Drought/Emergency Response Stage

The City Manager or his/her official designee may order the termination of a drought or water emergency response stage when the conditions for termination are met or at their discretion. The following actions will be taken when a drought or emergency response stage is terminated:

- The public will be notified through local media and the city web site as described in Section 10.3.
- The City of Houston will be notified by e-mail with a follow-up letter or fax.
- If any mandatory provisions of the drought contingency and water emergency response plan that have been activated are terminated, the City will notify the Executive Director of the TCEQ and the Houston Director of Public Works and Engineering within 5 business days.

The City Manager or his/her official designee may decide not to order the termination of a drought or water emergency response stage even though the conditions for termination of the stage are met. Factors which could influence such a decision include, but are not limited to, the time of the year, weather conditions, or the anticipation of potential changed conditions that warrant the continuation of the drought stage. The reason for this decision should be documented.

10.5 Drought Contingency and Emergency Response Stages and Measures

Stage 1

Initiation and Termination Conditions for Stage 1

The City may initiate Stage 1 if any one of the following conditions is met:

- The City total daily water demand equals or exceeds 70 percent of the current available system operating capacity for three consecutive days.
- The City total daily water demand equals or exceeds 80 percent of the current available system operating capacity on a single day.
- The City Manager or his/her official designee feels that the initiation of a Stage 1 drought is appropriate
- The City of Houston has initiated Stage 1.

Stage 1 of the Plan may be rescinded when conditions listed as triggering events have ceased to exist for a period of seven consecutive days.

Goal for Use Reduction and Actions Available under Stage 1

Stage 1 is intended to raise public awareness of potential drought or water emergency problems. The goal for water use reduction under Stage 1 is a 2 percent reduction in the amount of water produced by the City of Pearland. The City Manager or his/her official

designee may order the implementation of any of the actions listed below, as deemed necessary:

- Review the problems that caused the initiation of Stage 1.
- Identify alternative water sources and or alternative delivery systems.
- Measures to be implemented directly by the City of Pearland to manage limited water supplies and/or reduce water demand:
 - Reduced or discontinued flushing of water mains.
 - Reduced or discontinued irrigation of public landscaped areas.
- Water customers are requested to voluntarily limit landscape irrigation use to even numbered days of the month for customers with street address ending in an even number (0,2,4,6,8), and odd numbered of the month for water customers with a street address ending in an odd number (1,3,5,7,9), and to irrigate landscapes between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 10:00 p.m. on designated watering days, except:
 - Landscape irrigation use is permitted at anytime if it is by means of a faucet filled bucket or watering can of five (5) gallon or less, hand held water hose, or drip irrigation.
- Water customers are requested to practice water conservation and to minimize or discontinue non-essential water use.
- Increase public education efforts on ways to reduce water use.
- Intensify efforts on leak detection and repair.
- Notify major water users and work with them to achieve voluntary water use reductions.
- Attempt to decrease water purchases from the City of Houston by using groundwater where practical.

Stage 2

Initiation and Termination Conditions for Stage 2

The City may initiate Stage 2 if any one of the following conditions is met:

- The City's total daily water demand equals or exceeds 80 percent of the available system operation capacity for three consecutive days.
- The City's total daily water demand equals or exceeds 90 percent of the available system operation capacity on a single day.
- The City Manager or his/her official designee feels that the initiation of a Stage 2 drought is appropriate.
- The City of Houston has initiated Stage 2.

Stage 2 may terminate when the circumstances that caused the initiation of Stage 2 have ceased to exist for a period of seven consecutive days or when the City of Houston terminates its Stage 2 condition.

Goal for Use Reduction and Actions Available under Stage 2

The goal for water use reduction under Stage 2 is a five percent reduction in the amount of water produced by the City of Pearland. The City Manager or his/her official designee may order the implementation of any of the actions listed below, as deemed necessary. Measures described as “requires notification to TCEQ” impose mandatory requirements on customers. The supplier must notify TCEQ and the City of Houston within five business days if these measures are implemented:

- Continue or initiate any actions available under Stage 1.
- Initiate studies to evaluate alternatives should conditions worsen.
- Measures to be implemented directly by the City of Pearland to manage limited water supplies and/or reduce water demand:
 - Reduced or discontinued flushing of water mains,
 - Reduced or discontinued irrigation of public landscape areas;
- **Requires notification to TCEQ** - Water customers shall limit landscape irrigation use with hose-end sprinklers or automatic irrigation systems to even numbered days of the month for customers with street address ending in an even number (0,2,4,6,8), and odd numbered of the month for water customers with a street address ending in an odd number (1,3,5,7,9), and to irrigate landscapes between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 10:00 p.m. on designated watering days, except:
 - Landscape irrigation use is permitted at anytime if it is by means of a faucet filled bucket or watering can of five (5) gallon or less, hand held water hose, or drip irrigation.
- **Requires notification to TCEQ** - Water customers shall limit non-essential water use to even numbered days of the month for customers with a street address ending in an even number (0,2,4,6 or 8), and odd numbered days of the month for water customers with a street address ending in an odd number (1,3,5,7 or 9), and only between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 10:00 p.m. on designated watering except:
 - Private motor vehicle washing, when allowed, shall be done with a hand-held bucket or a hand held hose equipped with a positive shutoff nozzle.
 - Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station.
 - Vehicle washing may be exempted from these regulations if the health, safety and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.

- Further accelerate public education efforts on ways to reduce water use.
- Encourage the public to wait until the current drought or emergency situation has passed before establishing new landscaping.
- Attempt to decrease water purchases from the City of Houston by using groundwater where practical.

Stage 3

Initiation and Termination Conditions for Stage 3

The City may initiate Stage 3 if any one of the following conditions is met:

- The City total daily water demand equals or exceeds 85 percent of the available system operation capacity for three consecutive days.
- The City total daily water demand equals or exceeds 95 percent of the available system operation capacity on a single day.
- The City Manager or his/her official designee feels that the initiation of a Stage 3 drought is appropriate.
- The City of Houston has initiated Stage 3.

Stage 3 may terminate when the circumstances that caused the initiation of Stage 3 have ceased to exist for seven consecutive days or when the City of Houston terminates its Stage 3 condition.

Goals for Use Reduction and Actions Available under Stage 3

The goal for water use reduction under Stage 3 is a reduction of ten percent in the amount of water produced by the City of Pearland.

The City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston. In addition, the City Manager or his/her official designee may order the implementation of any of the actions listed below, as deemed necessary. Measures described as “requires notification to TCEQ” impose mandatory requirements on customers. The supplier must notify TCEQ and the City of Houston within five business days if these measures are implemented:

- Continue or initiate any actions available under Stages 1 and 2.
- Implement viable alternative water supply strategies.
- **Requires Notification to TCEQ** – Initiate mandatory water use restrictions as follows:
 - Prohibit hosing of paved areas, buildings, or windows.
 - Prohibit operation of all ornamental fountains or other amenity impoundments (i.e. reflecting pools and water gardens) to the extent they use treated water.

- Prohibit washing or rinsing of vehicles by hose except with a hose end cutoff nozzle.
- Prohibit using water in such a manner as to allow runoff or other waste.
- **Requires Notification to TCEQ** – Limit landscape watering with sprinklers or irrigation systems at each service address to once every seven days. Exceptions are as follows:
 - Foundations, new landscaping, new plantings (first year) of shrubs, and trees may be watered for up to 2 hours on any day by a hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system.
 - Golf courses may water greens and tee boxes without restrictions.
 - Public athletic fields used for competition may be watered twice per week.
 - Locations using other sources of water supply for irrigation may irrigate without restrictions.
 - Registered and properly functioning ET/Smart irrigation systems and drip irrigation systems may irrigate without restrictions.
- **Requires Notification to TCEQ** – Limit landscape watering with sprinklers or irrigation systems between November 1 and March 31 to once every two weeks. An exception is allowed for landscape associated with new construction that may be watered as necessary for 30 days from the date of the certificate of occupancy, temporary certificate of occupancy, or certificate of completion.
- **Requires Notification to TCEQ** – Prohibit hydroseeding, hydromulching, and sprigging.
- **Requires Notification to TCEQ** – Existing swimming pools may not be drained and refilled (except to replace normal water loss).
- **Requires Notification to TCEQ** - Initiate a rate surcharge for all water use over a certain level.
- **Requires Notification to TCEQ** – Prohibit watering of golf courses using treated water, except as needed to keep greens and tee boxes alive.
- Attempt to decrease water purchases from the City of Houston by using groundwater where practical.

Stage 4

Initiation and Termination Conditions for Stage 4

The City may initiate Stage 4 if any one of the following conditions is met:

- The City total daily water demand equals or exceeds 90 percent of the available system operation capacity for three consecutive days.
- The City total daily water demand equals or exceeds 98 percent of the available system operation capacity on a single day.

- The City Manager or his/her official designee feels that the initiation of a Stage 4 drought is appropriate.
- The City of Houston has initiated Stage 4.

Stage 4 may terminate when the circumstances that caused the initiation of Stage 4 no longer prevail or when the City of Houston terminates its Stage 4 condition.

Goals for Use Reduction and Actions Available under Stage 4

The goal for water use reduction under Stage 4 is a reduction of 15 percent of water used by the City of Pearland, or a greater reduction if deemed necessary by the City Manager or his/her official designee.

The City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston. In addition, the City Manager or his/her official designee may order the implementation of any of the actions listed below, as deemed necessary. Measures described as “requires notification to TCEQ” impose mandatory requirements on member cities and customers. The supplier must notify TCEQ and the City of Houston within five business days if these measures are implemented.

- Continue or initiate any actions available under Stages 1, 2, and 3.
- Implement viable alternative water supply strategies.
- **Requires Notification to TCEQ** – Prohibit the irrigation of new landscaping using treated water.
- **Requires Notification to TCEQ** – Prohibit washing of vehicles except as necessary for health, sanitation, or safety reasons.
- **Requires Notification to TCEQ** – Prohibit commercial and residential landscape watering, except that foundations and trees may be watered for 2 hours on any day with a hand-held hose, a soaker hose, or a dedicated zone using a drip irrigation system. ET/Smart irrigation systems are not exempt from this requirement.
- **Requires Notification to TCEQ** – Prohibit golf course watering with treated water except for greens and tee boxes.
- **Requires Notification to TCEQ** – Prohibit the permitting of private pools. Pools already permitted may be completed and filled with water. Existing private and public pools may add water to maintain pool levels but may not be drained and refilled.
- **Requires Notification to TCEQ** – Require all commercial water users to reduce water use by a percentage established by the City Manager or his/her official designee.
- Attempt to decrease water purchases from the City of Houston by using groundwater where practical.

Emergency Water Shortage

Initiation and Termination Conditions for Emergency Water Shortage

The City may initiate an Emergency Water Shortage condition for all of the City or the affected part of the City if any one of the following conditions is met:

- The City experiences major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or
- The City experiences natural or man-made contamination of the water supply source(s).
- The City's total daily water demand equals or exceeds 91 percent for three consecutive day and/or the system pressure falls below 30 psi on any single occasion.
- The City Manager or his/her official designee feels that the initiation of an Emergency Water Shortage is appropriate.
- The City of Houston has initiated emergency water shortage.

Emergency water shortage may terminate when the circumstances that caused the initiation of the emergency water shortage no longer prevail or when the City of Houston terminates its emergency water shortage condition.

Goals for Use Reduction and Actions Available under Emergency Water Shortage

The goal for water use reduction under an emergency water shortage is a reduction of 35 percent or whatever amount is deemed necessary. If circumstances warrant or if required by the City of Houston, the City Manager or his/her official designee can set a goal for a greater water use reduction.

The City Manager or his/her official designee will consider implementing any action(s) required by the City of Houston. In addition, the City Manager or his/her official designee may order the implementation of any of the actions listed below, as deemed necessary. Measures can be initiated for all or part of the City, as appropriate. Measures described as "requires notification to TCEQ" impose mandatory requirements on member cities and customers. The supplier must notify TCEQ and the City of Houston within five business days if these measures are implemented.

- Continue or initiate any actions available under Stages 1, 2, 3, and 4.
- Implement viable alternative water supply strategies.
- Measures to be implemented directly by the City of Pearland to manage limited water supplies and/or reduce water demand:
 - Reduced or discontinued flushing of water mains.
 - Reduced or discontinued irrigation of public landscaped areas.
- **Requires notification to TCEQ** - All landscape irrigation use is prohibited.

- **Requires notification to TCEQ** - All non-essential water use is prohibited.
- **Requires notification to TCEQ** - All aesthetic water use is prohibited.
- **Requires notification to TCEQ** - All Commercial and institutional water use customers are encouraged to practice conservation measures and may be required to cease certain operations as directed by the City Manager or his/her official designee.
- Attempt to decrease water purchases from the City of Houston by using groundwater where practical.

10.6 Procedures for Granting Variances to the Plan

The City Manager or his/her official designee may grant temporary variances for existing water uses otherwise prohibited under this drought contingency and water emergency response plan if one or more of the following conditions are met:

- Failure to grant such a variance would cause an emergency condition adversely affecting health, sanitation, or fire safety for the public or the person or entity requesting the variance.
- Compliance with this plan cannot be accomplished due to technical or other limitations.
- Alternative methods that achieve the same level of reduction in water use can be implemented.

Variances shall be granted or denied at the discretion of the City Manager or his/her official designee. All petitions for variances should be in writing and should include the following information:

- Name and address of the petitioners
- Purpose of water use
- Specific provisions from which relief is requested
- Detailed statement of the adverse effect of the provision from which relief is requested
- Description of the relief requested
- Period of time for which the variance is sought
- Alternative measures that will be taken to reduce water use
- Other pertinent information.

10.7 Procedures for Enforcing Mandatory Water Use Restrictions

Mandatory water use restrictions may be imposed in Stage 2, Stage 3, and Stage 4 drought contingency and emergency response stages. The penalties associated with the mandatory water use restrictions are included in the ordinance.

Appendix G contains the ordinance that may be adopted by the city council regarding the drought contingency plan and emergency response plan, including enforcement of same.

10.8 Coordination

A copy of this Water Conservation and Drought Contingency and Water Emergency Response Plan has been provided to the City of Houston and the Region H Water Planning Group. A copy of the cover letter to be sent with those plans is included in Appendix F.

10.9 Review and Update of Drought Contingency and Water Emergency Response Plan

As required by TCEQ rules, the City of Pearland will review the drought contingency and emergency response plan every five years. The plan will be updated as appropriate based on new or updated information.

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, downloaded from [http://info.sos.state.tx.us/pls/pub/readtac\\$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288](http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=288), July 2007.
- (2) Title 30 of the Texas Administrative Code, Part 1, Chapter 288, Subchapter B, Rule 288.20, downloaded from <http://www.tnrcc.state.tx.us/oprd/rules/pdflib/288a.pdf>, July 2007.
- (3) Water Conservation Implementation Task Force: “Texas Water Development Board Report 362, Water Conservation Best Management Practices Guide,” prepared for the Texas Water Development Board, Austin, November 2004.
- (4) City of Houston.: *Water Conservation Plan*, City of Houston, Houston, 2004.
- (5) City of Houston.: *Drought Contingency Plan*, City of Houston, Houston, 2004.
- (6) City of Pearland.: *Drought Contingency Plan for the City of Pearland*, Pearland, July 25, 2005
- (7) Freese and Nichols Inc. *City of Pearland Water and Wastewater Impact Fee Study 2007 Update*, Pearland, May 2008
- (8) Kellogg Brown and Root and Turner Collie and Braden.: *2006 Region H Water Plan*, Houston, December 16, 2005

APPENDIX B
TCEQ RULES

APPENDIX B
**Texas Commission on Environmental Quality Rules on Municipal Water
Conservation and Drought Contingency Plans**

Texas Administrative Code

<u>TITLE 30</u>	ENVIRONMENTAL QUALITY
<u>PART 1</u>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<u>CHAPTER 288</u>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<u>SUBCHAPTER A</u>	WATER CONSERVATION PLANS
RULE §288.1	Definitions

The following words and terms, when used in this chapter, shall have the following meanings, unless the context clearly indicates otherwise.

- (1) Agricultural or Agriculture--Any of the following activities:
 - (A) cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
 - (B) the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;
 - (C) raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
 - (D) raising or keeping equine animals;
 - (E) wildlife management; and
 - (F) planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.
- (2) Agricultural use--Any use or activity involving agriculture, including irrigation.
- (3) 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 water supply is made available for future or alternative uses.
- (4) Drought contingency plan--A strategy or combination of strategies for temporary supply and demand management responses to temporary and potentially recurring water supply shortages and other water supply emergencies. A drought contingency plan may be a separate document identified as such or may be contained within another water management document(s).
- (5) Industrial use--The use of water in processes designed to convert materials of a lower

order of value into forms having greater usability and commercial value, commercial fish production, and the development of power by means other than hydroelectric, but does not include agricultural use.

- (6) Irrigation--The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water through a municipal distribution system.
- (7) Irrigation water use efficiency--The percentage of that amount of irrigation water which is beneficially used by agriculture crops or other vegetation relative to the amount of water diverted from the source(s) of supply. Beneficial uses of water for irrigation purposes include, but are not limited to, evapotranspiration needs for vegetative maintenance and growth, salinity management, and leaching requirements associated with irrigation.
- (8) Mining use--The use of water for mining processes including hydraulic use, drilling, washing sand and gravel, and oil field repressuring.
- (9) Municipal per capita water use--The sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.
- (10) Municipal use--The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.
- (11) Municipal use in gallons per capita per day--The 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. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.
- (12) Nursery grower--A person engaged in the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or nonsoil media, who grows more than 50% of the products that the person either sells or leases, regardless of the variety sold, leased, or grown. For the purpose of this definition, grow means the actual cultivation or propagation of the product beyond the mere holding or maintaining of the item prior to sale or lease, and typically includes activities associated with the production or multiplying of stock such as the development of new plants from cuttings, grafts, plugs, or seedlings.
- (13) Pollution--The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the

public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

- (14) Public water supplier--An individual or entity that supplies water to the public for human consumption.
- (15) Regional water planning group--A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.
- (16) Retail public water supplier--An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.
- (17) Reuse--The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.
- (18) Water conservation plan--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. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).
- (19) Wholesale public water supplier--An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

Source Note: The provisions of this §288.1 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 August 15, 2002, 27 TexReg 7146, amended to be effective October 7, 2004, 29 TexReg 9384.

Texas Administrative Code

<u>TITLE 30</u>	ENVIRONMENTAL QUALITY
<u>PART 1</u>	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
<u>CHAPTER 288</u>	WATER CONSERVATION PLANS, DROUGHT CONTINGENCY PLANS, GUIDELINES AND REQUIREMENTS
<u>SUBCHAPTER A</u>	WATER CONSERVATION PLANS
RULE §288.2	Water Conservation Plans for Municipal Uses by Public Water Suppliers

- (a) A water conservation plan for municipal water use by public water suppliers shall 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;
- (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 the 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.

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.

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 B

DROUGHT CONTINGENCY PLANS

RULE §288.20

**Drought Contingency Plans for Municipal Uses by Public
Water Suppliers**

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- (a) A drought contingency plan for a retail public water supplier, where applicable, must include the following minimum elements.
- (1) Minimum requirements. Drought contingency plans must include the following minimum elements.
- (A) Preparation of the plan shall include provisions to actively inform the public and affirmatively provide opportunity for public input. Such acts may include, but are not limited to, having a public meeting at a time and location convenient to the public and providing written notice to the public concerning the proposed plan and meeting.
- (B) Provisions shall be made for a program of continuing public education and information regarding the drought contingency plan.
- (C) The drought contingency plan must document coordination with the regional water planning groups for the service area of the retail public water supplier to ensure consistency with the appropriate approved regional water plans.
- (D) The drought contingency plan must include a description of the information to be monitored by the water supplier, and specific criteria for the initiation and termination of drought response stages, accompanied by an explanation of the rationale or basis for such triggering criteria.
- (E) The drought contingency plan must include drought or emergency response stages providing for the implementation of measures in response to at least the following situations:
- (i) reduction in available water supply up to a repeat of the drought of record;
 - (ii) water production or distribution system limitations;
 - (iii) supply source contamination; or
 - (iv) system outage due to the failure or damage of major water system components (e.g., pumps).
- (F) The drought contingency plan must include the specific, quantified targets for water use reductions to be achieved during periods of water shortage and drought. The entity preparing the plan shall establish the targets. The goals

established by the entity under this subparagraph are not enforceable.

- (G) The drought contingency plan must include the specific water supply or water demand management measures to be implemented during each stage of the plan including, but not limited to, the following:
 - (i) curtailment of non-essential water uses; and
 - (ii) utilization of alternative water sources and/or alternative delivery mechanisms with the prior approval of the executive director as appropriate (e.g., interconnection with another water system, temporary use of a non-municipal water supply, use of reclaimed water for non-potable purposes, etc.).
 - (H) The drought contingency plan must include the procedures to be followed for the initiation or termination of each drought response stage, including procedures for notification of the public.
 - (I) The drought contingency plan must include procedures for granting variances to the plan.
 - (J) The drought contingency plan must include procedures for the enforcement of any mandatory water use restrictions, including specification of penalties (e.g., fines, water rate surcharges, discontinuation of service) for violations of such restrictions.
- (2) Privately-owned water utilities. Privately-owned water utilities shall prepare a drought contingency plan in accordance with this section and incorporate such plan into their tariff.
- (3) Wholesale water customers. Any water supplier that receives all or a portion of its water supply from another water supplier shall consult with that supplier and shall include in the drought contingency plan appropriate provisions for responding to reductions in that water supply.
- (b) A wholesale or retail water supplier shall notify the executive director within five business days of the implementation of any mandatory provisions of the drought contingency plan.
- (c) The retail public water supplier shall review and update, as appropriate, the drought contingency plan, at least every five years, based on new or updated information, such as the adoption or revision of the regional water plan.

Source Note: The provisions of this §288.20 adopted 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

**CONSERVATION AND DROUGHT CONTINGENCY PLAN SECTIONS
ADDRESSING TCEQ REQUIREMENTS**

APPENDIX C

CONSERVATION AND DROUGHT CONTINGENCY PLAN

SECTIONS ADDRESSING TCEQ RULES

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.”¹ The elements in the TCEQ water conservation rules covered in this conservation plan are listed below.

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 2 and Appendix D
- 288.2(a)(1)(B) – Specification of Goals – Section 3
- 288.2(a)(1)(C) – Specific, Quantified Goals – Section 3
- 288.2(a)(1)(D) – Accurate Metering – Sections 4.1
- 288.2(a)(1)(E) – Universal Metering – Section 4.2
- 288.2(a)(1)(F) – Determination and Control of Unaccounted Water – Section 4.3
- 288.2(a)(1)(G) – Public Education and Information Program – Section 5
- 288.2(a)(1)(H) – Non-Promotional Water Rate Structure – Section 6
- 288.2(a)(1)(I) – Reservoir System Operation Plan – Section 7.1
- 288.2(a)(1)(J) – Means of Implementation and Enforcement – Section 8
- 288.2(a)(1)(K) – Coordination with Regional Water Planning Group – Section 7.7 and Appendix F
- 288.2(c) – Review and Update of Plan – Section 9

Conservation Additional Requirements (Population over 5,000)

The Texas Administrative Code includes additional requirements for water conservation plans for drinking water supplies serving a population over 5,000:

- 288.2(a)(2)(A) – Leak Detection, Repair, and Water Loss Accounting – Sections 4.3 and 4.4
- 288.2(a)(2)(B) – Record Management System – Section 4.5

- 288.2(a)(2)(C) – Requirement for Water Conservation Plans by Wholesale Customers – Section 7.6

Additional Conservation Strategies

The TCEQ requires that a water conservation implementation report be completed and submitted on an annual basis. This report is included in Appendix I.

TCEQ rules also include optional, but not required, conservation strategies, which may be adopted by suppliers.

- 288.2(a)(3)(A) – Conservation Oriented Water Rates – Section 6
- 288.2(a)(3)(B) – Ordinances, Plumbing Codes or Rules on Water-Conserving Fixtures – Section 7.3
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 7.4 and Appendix E
- 288.2(a)(3)(C) – Replacement or Retrofit of Water-Conserving Plumbing Fixtures – Section 7.4
- 288.2(a)(3)(D) – Reuse and Recycling of Wastewater – Section 7.2
- 288.2(a)(3)(F) – Considerations for Landscape Water Management Regulations – Section 7.5 and Appendix E
- 288.2(a)(3)(G) – Monitoring Method – Not Included in this plan.
- 288.2(a)(3)(H) – Additional Conservation Ordinance Provisions – Section 7.5

Drought Contingency Plans

This model drought contingency and water emergency response plan is consistent with Texas Commission on Environmental Quality guidelines and requirements for the development of drought contingency plans for public water suppliers, contained in Title 30, Part 1, Chapter 288, Subchapter B, Rule 288.20 of the Texas Administrative Code.² This rule is contained in Appendix B.

Minimum Requirements

TCEQ’s minimum requirements for drought contingency plans are addressed in the following subsections of this report:

- 288.20(a)(1)(A) – Provisions to Inform the Public and Provide Opportunity for Public Input – Section 10.2
- 288.20(a)(1)(B) – Provisions for Continuing Public Education and Information – Section 10.3
- 288.20(a)(1)(C) – Coordination with the Regional Water Planning Group – Section 10.8
- 288.20(a)(1)(D) – Criteria for Initiation and Termination of Drought Stages – Section 10.4
- 288.20(a)(1)(E) – Drought and Emergency Response Stages – Section 10.5

- 288.20(a)(1)(F) – Specific, Quantified Targets for Water Use Reductions – Section 10.5
- 288.20(a)(1)(G) – Water Supply and Demand Management Measures for Each Stage – Section 10.5
- 288.20(a)(1)(H) – Procedures for Initiation and Termination of Drought Stages – Section 10.4
- 288.20(a)(1)(I) - Procedures for Granting Variances – Section 10.6
- 288.20(a)(1)(J) - Procedures for Enforcement of Mandatory Restrictions – Section 10.7
- 288.20(a)(3) – Consultation with Wholesale Supplier – Sections 1, 10.4, and 10.6
- 288.20(b) – Notification of Implementation of Mandatory Measures – Section 10.4
- 288.20(c) – Review and Update of Plan – Section 10.9

APPENDIX D
WATER UTILITY PROFILE

Water Utility Profile

Based on TCEQ Format

The purpose of the Water Utility Profile is to assist an applicant with water conservation plan development and to ensure that important information and data be considered when preparing your water conservation plan and goals. You may contact the Municipal Water Conservation Unit of the TWDB at 512-936-2391 for assistance, or the TCEQ Resource Protection Team at 512-239-4691.

Name of Entity: City of Pearland
 Address & Zip: 3519 Liberty Drive, Pearland, TX 77581
 Telephone Number: (281) 652-1900
 Fax Number: (281) 652-1710
 Form Completed by: Danny Cameron
 Title: Director of Public Works

Signature: _____
 Date: _____

Name and phone number of person/department responsible for implementing a water conservation program:

Name: Danny Cameron, Public Works
 Phone Number: (281) 652-1904

I. POPULATION AND CUSTOMER DATA

A. Population and Service Area Data

1. Please attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and a service-area map.
2. Service area size (square miles): about 50
3. Current population of service area: 90,700 as of end of 2008
4. Current population served by utility:
 (end of 2008 - less than population because MUD #1 is in the city but has its own water.)
 water: 86,256 water.)
 wastewater: about 81,943
5. Population served by water utility for the previous five years. (Please list by year in ascending order.):

Year	End-of Year Population	Average Population	Average Population Served
2004	56,690	53,607	53,607
2005	69,050	62,870	62,870
2006	81,524	75,287	75,287
2007	87,100	84,312	80,181
2008	90,700	88,900	84,544

Note: End-of-Year population from City Planning Department. In 2007 and 2008, population served is less than population because of MUD#1 area, which is in the city but has a separate water supply.

6. Projected population for service area in the following decades:

Year	Population
2010	96,386
2020	145,733
2030	180,000

7. List source/method for the calculation of current and projected population:
 Current and projected populations from City of Pearland data.

B. Active Connections

1. Current number of active connections.

Check whether multi-family service is counted as Residential or Commercial ____.
 Current year is: 2008

Treated Water Users	Metered	Non-Metered	Total
Residential	26,020		26,020
Commercial/ Industrial	756		756
Irrigation	947		947
Other (Government)	183		183
Total	27,906	0	27,906

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

Year	2006	2007	2008
Residential			
Commercial			
Industrial			
Other			
Total	3,776	3,031	1,260

Note: Data by type of connection were not available prior to 2008.

C. High Volume Customers

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

Customer	Use (1,000 gal/yr)	Treated or Raw Water?
Shadow Creek Ranch Management	168,653.1	Treated
Pearland ISD	78,919.6	Treated
Shawcor	16,259.8	Treated
Inland American (Waterford Place)	11,488.5	Treated
Salem Village	9,145.7	Treated

II. WATER USE DATA FOR SERVICE AREA

A. Water Accounting Data

1. Amount of water use for previous five years (in 1,000 gal):
 Please indicate: Diverted Water
 Treated Water

Year	2008	2007	2006	2005	2004
January	210,196	180,422	203,915	162,637	163,774
February	213,573	178,306	175,520	141,376	128,849
March	238,269	234,569	236,646	167,358	146,738
April	266,747	227,529	277,099	222,720	152,591
May	345,804	239,697	325,828	252,461	182,850
June	335,988	246,313	297,085	309,115	165,455
July	370,845	202,866	238,268	269,133	203,271
August	312,458	255,298	290,524	269,816	259,208
September	289,156	240,800	291,725	250,854	229,914
October	298,423	240,732	250,726	268,703	207,896
November	247,800	244,569	252,155	212,206	156,714
December	240,366	216,047	209,590	192,361	151,248
Total	3,369,625	2,707,147	3,049,081	2,718,740	2,148,508

Please indicate how the above figures were determined (e.g., from a master meter located at the point of diversion from a stream, or located at a point where raw water enters the treatment plant, or from water sales).
 The above figures were obtained from the City of Pearland. They are a combination of metered groundwater pumping and metered surface water purchases.

2. Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types

Year	Residential	Commercial/ Industrial	Irrigation Meters	Builders	Other (Government)	Total Sold
2004						1,914,648.4
2005						2,405,249.6
2006						2,557,087.2
2007						2,282,920.4
2008	1,904,232.2	260,790.3	454,424.0	79,731.0	177,607.5	2,876,785.0

Note: Data by category are not available prior to 2008.

3. List previous five years records for water loss (the difference between water diverted (or treated) and water delivered (sold)).
(TWDB requires that the data for this entry be reported in **gallons**.)

Year	Amount (gal.)	%
2004	64,190,000	2.99
2005	109,675,100	4.03
2006	162,543,250	5.58
2007	241,619,543	8.93
2008	283,134,960	8.40

4. Municipal water use for previous five years:

Year	Population Served (Average for Year)	Total Diverted (or Treated) (1,000 gal)
2004	53,607	2,148,508
2005	62,870	2,718,740
2006	75,287	3,049,081
2007	80,181	2,707,147
2008	84,544	3,369,625

B. Projected Water Demands

If applicable, attach projected water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirement from such growth.

Year	Projected Demand (Ac-Ft)	Source of data	Additional Water Supply Requirements
2009	11,172	City of Pearland	
2010	11,823	City of Pearland	
2011	12,475	City of Pearland	
2012	15,086	City of Pearland	
2013	16,089	City of Pearland	
2014	16,614	City of Pearland	
2015	16,905	City of Pearland	
2016	17,099	City of Pearland	
2017	17,294	City of Pearland	
2018	17,488	City of Pearland	

III. WATER SUPPLY SYSTEM DATA

A. Water Supply Sources

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

Type	Source	Amount Authorized (AF/Y)
Surface Water	City of Houston and Harris County MUD 13	2,688
Groundwater	Gulf Coast Aquifer	4,013
Contracts	City of Houston (new contract)	11,210
Other		

B. Treatment and Distribution System

1. Design daily capacity of system: 48.10 MGD

2. Storage capacity:
 Elevated 3,500,000 MG
 Ground 9,059,000 MG

3. If surface water, do you recycle filter backwash to the head of the plant?
 N/A Yes ___ No ___. If yes, approximately ___MGD. Note: Pearland does not have any water treatment plants.

4. Please attach a description of the water system. Include the number of treatment plants, wells, and storage tanks. If possible, include a sketch of the system layout.
 See Figure 3.1 for map. Pearland has 10 groundwater wells, two connections for purchased surface water, 6 elevated tanks, and 16 ground storage tanks.

IV. WASTEWATER SYSTEM DATA

A. Wastewater System Data

1. Design capacity of wastewater treatment plant(s): 10.05 MGD
2. Is treated effluent used for irrigation on-site ____, off-site ____, plant washdown X, or chlorination/dechlorination ____? If yes, approximately ____ gallons per month.
3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. Please provide a sketch or map which locates the plant(s) and discharge points or disposal sites.

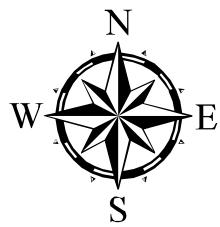
A map of the wastewater system showing the location of the 5 wastewater treatment plants is at the end of this appendix.

Treatment Plant Name	TCEQ Number	Operator	Owner	Receiving Stream
Barry Rose Facility 2	RN101613446	City of Pearland	City of Pearland	Clear Creek
Longwood Facility	RN104480777	City of Pearland	City of Pearland	Clear Creek
Brazoria County MUD 5	RN105274179	City of Pearland	City of Pearland	Clear Creek
Southwest Environmental Center WWTP	RN101609196	City of Pearland	City of Pearland	Clear Creek
Far Northwest Environmental Center	RN104480819	City of Pearland	City of Pearland	Clear Creek

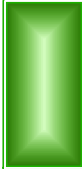
B. Wastewater Data for Service Area

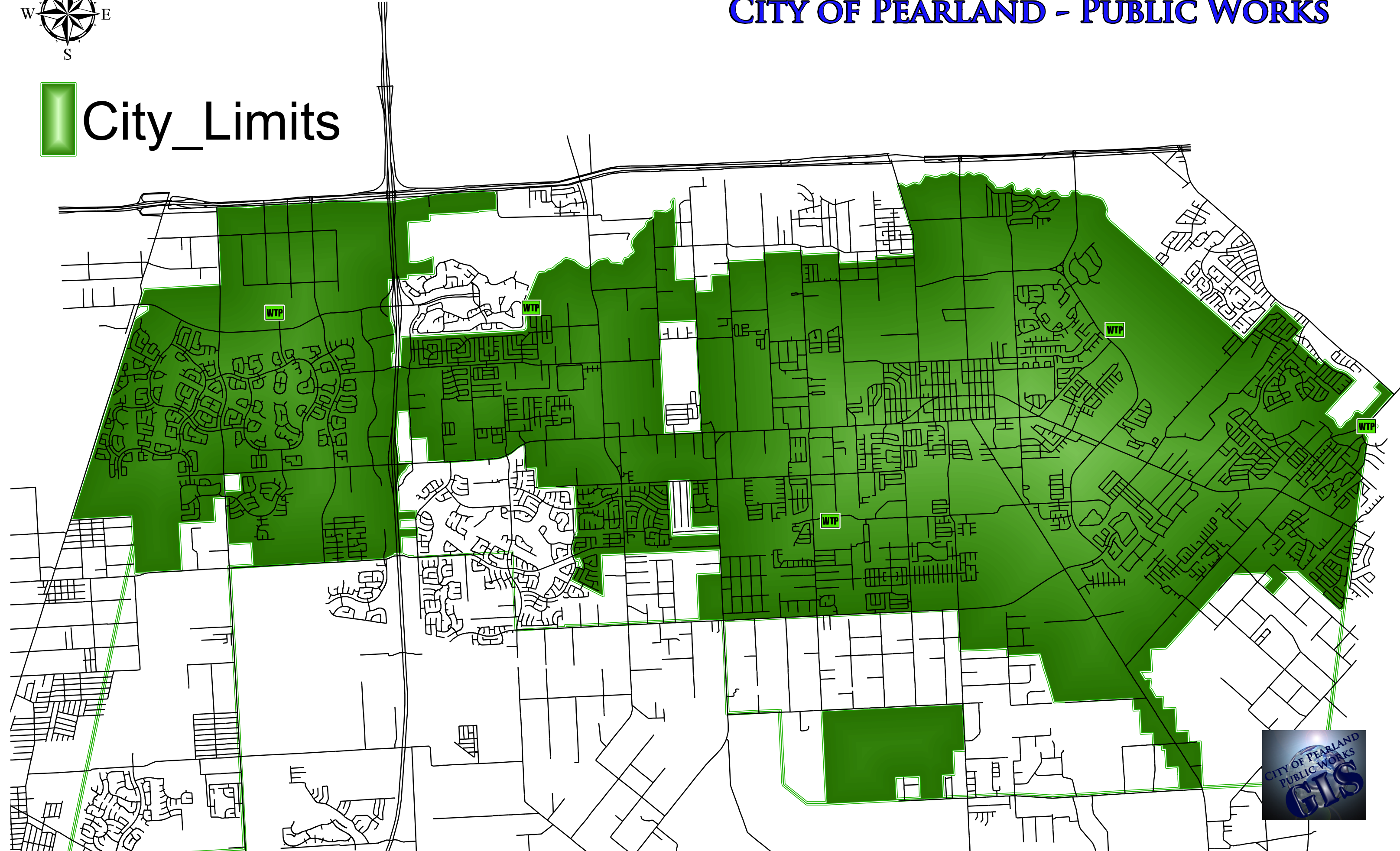
- 1. Percent of water service area served by wastewater system: about 95 %
- 2. Monthly volume of wastewater treated for previous three years (in 1,000 gallons):

Year	2006	2007	2008
January	4,747	7,484	7,174
February	4,741	5,489	6,471
March	4,488	6,485	6,470
April	4,470	6,102	5,214
May	5,046	6,138	5,319
June	5,768	6,098	5,913
July	6,885	8,643	5,240
August	5,048	5,936	6,151
September	4,717	6,020	5,639
October	8,206	5,187	5,403
November	4,674	5,636	5,963
December	5,844	5,026	5,293
Total	64,634	74,244	70,250



CITY OF PEARLAND - PUBLIC WORKS

 City_Limits



APPENDIX E
CONSIDERATIONS FOR LANDSCAPE WATER MANAGEMENT
REGULATIONS

APPENDIX E
Considerations for Landscape Water Management Regulations

A. Purpose

The purpose of these proposed landscape water management regulations is to provide a consistent mechanism for preventing the waste of water resources. To enact these provisions, entities must verify legal authority to adopt such provisions, and must promulgate valid rules, orders, or ordinances.

B. Potential Measures

The following landscape water conservation measures could potentially be included in the landscape management regulations adopted and enforced in this plan.

1. Lawn and Landscape Irrigation Restrictions

- a. A person should avoid irrigating, watering, or causing or allowing the irrigation or watering of lawn or landscape located on any property owned, leased, or managed by that person in such a manner that causes:
 - i. over-watering lawn or landscape, such that a constant stream of water overflows from the lawn or landscape onto a street or other drainage area; or
 - ii. irrigating lawn or landscape during any form of precipitation or freezing conditions. This restriction applies to all forms of irrigation, including automatic sprinkler systems; or
 - iii. the irrigation of impervious surfaces or other non-irrigated areas, wind driven water drift taken into consideration.
- b. A person should avoid the irrigation or watering of any lawn or landscape located on any property owned, leased, or managed by the person more than two times per week (Sunday through Saturday).

2. Rain and Freeze Sensors and/or ET or Smart Controllers

- a. Any new irrigation system installed on or after January 1, _____, must be equipped with rain and freeze sensing devices and/or ET or Smart controllers in compliance with state design and installation regulations.
- b. A person should avoid:
 - i. knowingly or recklessly installs or allows the installation of new irrigation systems in violation of Subsection B.2.a; or
 - ii. knowingly or recklessly operates or allows the operation of an irrigation system that does not comply with Subsection B.2.a.

3. Filling or Refilling of Ponds

- a. A person should not knowingly or recklessly fill or refill any natural or manmade pond located on any property owned, leased, or managed by the

person by introducing any treated water to fill or refill the pond. This does not restrict the filling or maintenance of pond levels by the effect of natural water runoff or the introduction of well water into the pond. A pond is considered to be a still body of water with a surface area of 500 square feet or more (other than a swimming pool).

4. Lawn and Landscape Irrigation Restrictions
 - a. A person should avoid knowingly or recklessly operating a lawn or irrigation system or device on property that the person owns, leases, or manages that:
 - i. has broken or missing sprinkler head(s); or
 - ii. has not been properly maintained to prevent the waste of water.
 - b. All new athletic fields must have separate irrigation systems that are capable of irrigating the playing fields separately from other open spaces.
 5. Rain and Freeze Sensors
 - a. Existing irrigation systems could be required to be retrofitted with rain and freeze sensors capable of multiprogramming within 5 years.
- C. Variances
1. In special cases, variances may be granted to persons demonstrating extreme hardship or need. Variances may be granted under the following circumstances:
 - a. the applicant must sign a compliance agreement agreeing to irrigate or water the lawn and/or landscape only in the amount and manner permitted by the variance; and
 - b. the variance must not cause an immediate significant reduction to the water supply; and
 - c. the extreme hardship or need requiring the variance must relate to the health, safety, or welfare of the person making the request; and
 - d. the health, safety, and welfare of the public and the person making the request must not be adversely affected by the requested variance.
 2. A variance will be revoked upon a finding that:
 - a. the applicant can no longer demonstrate extreme hardship or need; or
 - b. the terms of the compliance agreement are violated; or
 - c. the health, safety, or welfare of the public or other persons requires revocation.

APPENDIX F

**LETTERS TO REGION F WATER PLANNING GROUP AND CITY OF
HOUSTON**

APPENDIX F
Letters to Region H Water Planning Group and the City of Houston

Date

Region H Water Planning Group
C/O San Jacinto River Authority
Attn. Jace Houston
P.O. Box 329
Conroe, Texas 77305

Dear Sir:

Enclosed please find a copy of the recently completed Water Conservation and Drought Contingency and Water Emergency Response Plan for the City of Pearland. I am submitting a copy of this plan to the Region H Water Planning Group in accordance with the Texas Water Development Board and Texas Commission on Environmental Quality rules. The Board of the City of Pearland adopted the plan on _____, 2009.

Sincerely,

Danny Cameron
Public Works Director
City of Pearland

Date

Ms. Yolanda Wilson, Water Conservation Coordinator
City of Houston Water Conservation Program
Public Works/Engineering-Drinking Water Operations
611 Walker, 21st Floor
Houston, Texas 77002

Dear Ms. Wilson:

Enclosed please find a copy of the recently completed Water Conservation and Drought Contingency and Water Emergency Response Plan for the City of Pearland. I am submitting a copy of this model plan to the City of Houston in accordance with the requirement of the City of Houston Water Supply Contract. The Board of the City of Pearland adopted the plan on _____, 2009.

Sincerely,

Danny Cameron
Public Works Director
City of Pearland

APPENDIX G

TCEQ WATER CONSERVATION IMPLEMENTATION REPORT

APPENDIX G
TCEQ Water Conservation Implementation Report



Texas Commission on Environmental Quality

Water Conservation Implementation Report

This report must be completed by entities that are required to submit a water conservation plan to the TCEQ in accordance with Title 30 Texas Administrative Code, Chapter 288. Please complete this report and submit it to the TCEQ. If you need assistance in completing this form, please contact the Resource Protection Team in the Water Supply Division at (512) 239-4691.

Name:	City of Pearland	
Address:	3519 Liberty Dr. Pearland, TX. 77581	
Telephone Number:	(281) 652-1799	Fax: (281) 652-1812
		Title: Director of Public
Form Completed By:	Danny Cameron	Works
Signature:		Date:

I. WATER USES

Indicate the type(s) of water uses (example: municipal, industrial, or agricultural).

- Municipal Use
- _____ Use
- _____ Use

II. WATER CONSERVATION MEASURES IMPLEMENTED

Provide the water conservation measures and the dates the measures were implemented.

Description of Water Conservation Measure:

Universal metering of customer and public uses and meter testing repair and replacement. The City began using automated meters 10 years ago.

Date Implemented: **1999**

Description of Water Conservation Measure:

The City conducts annual water audits to determine the amount and control for unaccounted water.

Date Implemented: _____

Description of Water Conservation Measure:
Leak Detection and Repair. The City crews and staff look for and report evidence or leaks in the water distribution system. Once a leak is reported a crew responds to the site to repair the leak.

Date Implemented: _____

Description of Water Conservation Measure:
Record Management System. The City has a record management system which allows them to separate sales into various categories.

Date Implemented: _____

Description of Water Conservation Measure:
Public Education through newspapers, e-mail, city website, bill inserts, and the Connect-CTY automatic calling system.

Date Implemented: _____

Description of Water Conservation Measure:
Increasing Block Rate Structure. The City has an increasing block rate structure which encourages users to conserve water with higher rates for increased water use.

Date Implemented: _____

Description of Water Conservation Measure:
Reuse and Recycling of Wastewater. Reuse water is used for wash down at the wastewater treatment plant.

Date Implemented: _____

Description of Water Conservation Measure:
Landscape Water Management Measures. Prohibits watering of impervious surfaces, watering during a rain or freeze events and requires all new irrigation systems to install a rain/freeze sensor.

Date Implemented: _____

Description of Water Conservation Measure:

Date Implemented: _____

Description of Water Conservation Measure:

Date Implemented: _____

III. TARGETS

- A. Provide the **specific and quantified five and ten-year targets** as listed in water conservation plan for previous planning period.

5-Year Specific/Quantified Target: N/A (No plan before May 2009)

Date to achieve target: _____

10-Year Specific/Quantified Target: N/A (No plan before May 2009)

Date to achieve target: _____

- B. State if these targets in the water conservation plan are being met.
The first water conservation plan was completed in May 2009. The City has not been able to track the targets set in the plan at this time.

- C. List the **actual amount of water saved**.
The first water conservation plan was completed in May 2009. The City has not been able to track the actual amount of water saved from these programs at this time.

- D. If the targets are not being met, provide an explanation as to why, including any progress on the targets.

If you have any questions on how to fill out this form or about the Water Conservation program, please contact the Texas Commission on Environmental Quality at (512) 239-4691.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.

APPENDIX H

**ADOPTION OF WATER CONSERVATION AND DROUGHT CONTINGENCY
AND WATER EMERGENCY RESPONSE PLAN**

APPENDIX H
**Adoption of Water Conservation and Drought
Contingency and Water Emergency Response Plan**

Municipal Ordinance
**Adopting Water Conservation and Drought
Contingency and Water Emergency Response Plan**

Ordinance No. _____

AN ORDINANCE ADOPTING A WATER CONSERVATION AND DROUGHT CONTINGENCY AND WATER EMERGENCY RESPONSE PLAN FOR THE CITY OF PEARLAND TO PROMOTE RESPONSIBLE USE OF WATER AND TO PROVIDE FOR PENALTIES AND/OR THE DISCONNECTION OF WATER SERVICE FOR NONCOMPLIANCE WITH THE PROVISIONS OF THE WATER CONSERVATION AND DROUGHT CONTINGENCY AND WATER EMERGENCY RESPONSE PLAN.

WHEREAS, the City of Pearland, Texas (the “City”), recognizes that the amount of water available to its water customers is limited; and

WHEREAS, the City recognizes that due to natural limitations, drought conditions, system failures and other acts of God which may occur, the City cannot guarantee an uninterrupted water supply for all purposes at all times; and

WHEREAS, the Water Code and the regulations of the Texas Commission on Environmental Quality (the “Commission”) require that the City adopt a Water Conservation and Drought Contingency and Water Emergency Response Plan; and

WHEREAS, the City has determined an urgent need in the best interest of the public to adopt a Water Conservation and Drought Contingency and Water Emergency Response Plan; and

WHEREAS, pursuant to Chapter 54 of the Local Government Code, the City is authorized to adopt such Ordinances necessary to preserve and conserve its water resources; and

WHEREAS, the City Council of the City of Pearland desires to adopt the Water Conservation and Drought Contingency and Water Emergency Response Plan as official City policy for the conservation of water.

NOW THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF Pearland THAT:

Section 1. The City Council hereby approves and adopts the Water Conservation and Drought Contingency and Water Emergency Response Plan (the “Plan”), attached hereto as Addendum A, as if recited verbatim herein. The City commits to implement the requirements and procedures set forth in the adopted Plan.

Section 2. Any customer, defined pursuant to 30 Tex. Admin. Code Chapter 291, failing to comply with the provisions of the Plan shall be subject to a fine of up to two thousand dollars (\$2,000.00) and/or discontinuance of water service by the City. Proof of a culpable mental state is not required for a conviction of an offense under this section. Each day a customer fails to comply with the Plan is a separate violation. The City's authority to seek injunctive or other civil relief available under the law is not limited by this section.

Section 3. The City Council does hereby find and declare that sufficient written notice of the date, hour, place and subject of the meeting adopting this Ordinance was posted at a designated place convenient to the public for the time required by law preceding the meeting, that such place of posting was readily accessible at all times to the general public, and that all of the foregoing was done as required by law at all times during which this Ordinance and the subject matter thereof has been discussed, considered and formally acted upon. The City Council further ratifies, approves and confirms such written notice and the posting thereof.

Section 4. Should any paragraph, sentence, clause, phrase or word of this Ordinance be declared unconstitutional or invalid for any reason, the remainder of this Ordinance shall not be affected.

Section 5. The City Manager or his designee is hereby directed to file a copy of the Plan and this Ordinance with the Commission in accordance with Title 30, Chapter 288 of the Texas Administrative Code.

Section 6. The City Secretary is hereby authorized and directed to cause publication of the descriptive caption of this ordinance as an alternative method of publication provided by law.

Section 7. {If Applicable} Ordinance No. _____, adopted on _____, is hereby repealed.

Passed by the City Council on this ___ day of _____, ____.

Mayor

Attest:

City Secretary

CITY OF RICHWOOD
WATER CONSERVATION AND
DROUGHT CONTINGENCY
PLANS

ORDINANCE NO. 362

AN ORDINANCE OF THE CITY OF RICHWOOD, TEXAS REPEALING ORDINANCE NO. 221-A, AND ADOPTING A DROUGHT CONTINGENCY PLAN, SETTING TRIGGERING CRITERIA FOR INITIATION AND TERMINATION OF DROUGHT RESPONSE STAGES; PROVIDING FOR ENFORCEMENT; CONTAINING A PENALTY FOR PENALTY FOR VIOLATION; PROVIDING FOR THE SEVERABILITY OF THE PROVISIONS OF THIS ORDINANCE; AND REPEALING ORDINANCES OR PART OF ORDINANCES IN CONFLICT THEREWITH.

WHEREAS, there may exist circumstances in the future that will signal a need for temporary but significant reduction of water use to insure an adequate supply of water during drought conditions;

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF RICHWOOD, TEXAS:

Section One: 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 preserve public health, welfare and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the city hereby adopts the following restrictions on the delivery and consumption of water, to be known as the Drought Contingency Plan. Further to ensure the city's water is used efficiently in order to conserve as much water as possible, the city hereby adopts the Water Conservation Plan as defined in Section 7 of this plan.

Water uses regulated or prohibited under this drought contingency plan (the plan) are considered to be nonessential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section 11 of this plan.

Section Two: Public Involvement

Public Input. Opportunity for the public to provide input into the preparation of the plan was provided by the city by means of newspaper, and public notice postings.

Public Education. The city will periodically provide the public with information about the plan, including information about the conditions under which each stage of the plan is to initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of city newsletter, newspaper and city webpage.

Coordination with regional water planning groups. The service area of the city is located within the Houston Regional Water Planning Group H and the city has provided a copy of this plan to the Houston Regional Water Planning Group H in Conroe, Texas.

Section Three: Authorization

The City Administrator or his/her designee is hereby authorized and directed to implement the applicable provisions of this plan upon determination that such implementation is necessary to protect public health, safety and welfare. The City Administrator or his/her designee, shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this plan.

Section Four: Application

The provisions of this plan shall apply to all persons, customers, and property utilizing water provided by the city. The terms “person” and “customer” as used in the plan include individuals, corporations, partnerships, associations, and all other legal entities.

Section Five: Definitions

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

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

Commercial and institutional water use means water use which is integral to the operations of commercial and nonprofit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation means 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.

Domestic water use means water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address means street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

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

Landscape irrigation use means 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 rights-of-way and medians.

Nonessential water use means water uses that are not essential or required for the protection of public, health, safety, and welfare including:

- (1) Irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this plan;
- (2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (3) Use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas.
- (4) Use of water to wash down buildings or structures for purposes other than immediate fire protection;
- (5) Flushing gutters or permitting water to run or accumulate in any gutter or street;
- (6) Use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (7) Use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- (8) Failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- (9) Use of water from hydrants for construction purposes or any other purposes other than fire fighting.

Odd number address means street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

Water related recreation/amusement facility means a heavy user of water for a recreation or amusement facility. Examples of such facilities would include public or private golf course, private water related amusement park or like facility.

Section Six Triggering criteria for initiation and termination of drought response stages

The City Administrator, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and shall determine when conditions warrant initiation or termination of each stage of the plan. Public notification of the initiation or termination of drought response stages shall be by means of newspaper or webpage.

The triggering criteria described below are based on distribution system capacity, seventy-five (75) percent of the systems distribution capacity are defined as the safe operating capacity (SOC).

(1) Stage 1 - Mild water shortage conditions

Requirements for initiation - customers shall be required to comply with the restrictions on certain nonessential water uses defined in Section 6 of this plan when total daily water demand equals or exceeds 75% of the SOC for three (3) consecutive days or or 85% of the system distribution capacity on a single day.

OR

The General Manager of the Brazosport Water Authority declares that a Mild Drought Condition is in effect for the entire water system.

Requirements for termination of Stage 1 of the plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days.

(2) Stage 2 - Moderate water shortage conditions

Requirements for initiation - customers shall be required to comply with the restrictions on certain nonessential water uses for stage 2 of this plan when total daily water demand equals or exceeds 85% of the SOC for three (3) consecutive days or 90% of the system distribution capacity on a single day.

OR

The General Manager of the Brazosport Water Authority declares that a Moderate Drought Condition is in effect for the entire water system.

Requirements for termination of Stage 2 of the plan may be rescinded when all of the conditions listed as triggering event have ceased to exist for a period of three (3) consecutive days.

(3) Stage 3 - Severe water shortage conditions

Requirements for initiation - customers shall be required to comply with the restrictions on certain nonessential water uses for stage 3 of this plan when total daily water demand equals or exceeds 90% of the SOC for three (3) consecutive days or 95% system distribution capacity on a single day.

OR

The General Manager of the Brazosport Water Authority declares that a Mild Drought Condition is in effect for the entire water system.

Requirements for termination of Stage 3 of the plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days.

(4) Stage 4 - Critical water shortage conditions

Requirements for initiation - customers shall be required to comply with the restrictions for stage 4 of this plan when the City Administrator, or his/her designee:

Determines that a water supply emergency exists based on:

- a. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or
- b. Natural or manmade contamination of the water supply source(s).

Requirements for termination of stage 4 of the plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days.

Section Seven: Drought response stages

The City Administrator, or his/her designee, shall monitor water supply and/or demand conditions on a daily basis, and in accordance with the triggering criteria set forth in Section 6 of the plan, shall determine that a mild, moderate, severe, or critical condition exists and shall implement the following actions upon publication of notice in a newspaper of general circulation.

Stage 1 - Mild water shortage conditions

Goal: Reduce daily water use to less than 90% of SOC.

Supply management measures: Reduced flushing of water mains, reduced irrigation of public landscaped areas.

Water use restrictions. The following water use restrictions shall apply to all persons:

- (1) Water customers are requested to voluntarily limit the irrigation of landscaped areas to alternate days, even numbered addresses would water on even numbered days and odd numbered addresses would water on odd numbered days. However, irrigation of landscaped areas is permitted at any time if it is by means of a hand-held hose, a faucet filled with bucket or water can of five (5) gallons or less, or drip irrigation system.
- (2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days. Such washing, when allowed, shall be done with a hand-held bucket or hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
- (3) 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.
- (4) 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 city.
- (5) Use of water for the irrigation of a water related recreation/amusement facility is prohibited except on designated watering days. However, if the facility utilizes a water source other than that provided by the city, the facility shall not be subject to these regulations.
- (6) The following uses of water are defined as nonessential and are prohibited:

- a. Wash down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- b. Use of water to wash down buildings or structures for purposes other than immediate fire protection;
- c. Use of water for dust control;
- d. Flushing gutters or permitting water to run or accumulate in any gutter or street; and
- e. Failure to control a controllable leak(s) within forty-eight (48) hour period after having been given notice directing the repair of such leak(s).

Stage 2 - Moderate water shortage conditions

Goal: Reduce daily water use to less than 90% of SOC.

Supply management measures: Reduced flushing of water mains, reduced irrigation of public landscaped areas.

Water use restrictions. Under the threat of penalty of violation, all requirements of stage 1 shall remain in effect and become mandatory during stage 2 except:

- (1) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 p.m.
- (2) The use of water for irrigation of water related recreation/amusement facility is prohibited, unless the facility utilizes a water source other than that provided by the city.
- (3) 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.

Stage 3 - Severe water shortage conditions

Goal: Reduce daily water use to less than 90% of SOC.

Supply management measures: Reduced flushing of water mains, reduced irrigation of public landscaped areas.

Water use restrictions. All requirements of stage 1 and 2 shall remain in effect during stage 3 except:

- (1) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
- (2) Use of 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. Vehicle washing at commercial car washes and commercial service stations is permitted but shall occur only between the hours of 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10:00 p.m.
- (3) The filling, refilling, or adding of water to swimming pools, wading pools and jacuzzi-type pools is prohibited.
- (4) 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.

Stage 4 - Critical water shortage conditions

Goal: Reduce daily water use to less than 85% of SOC.

Supply management measures: Cease all nonessential water uses.

Water use restrictions. All requirements of stages 1, 2, and 3 shall remain in effect in stage 4 except:

- (1) Irrigation of landscaped areas is absolutely prohibited.
- (2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited, except any commercial car washes or commercial service station between the hours of 6:00 a.m. and 8:00 a.m. and between 6:00 p.m. and 8:00 p.m.

Section 8: Enforcement

- A. No person shall knowingly or intentionally allow the use of water from the city for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this plan, or in an amount in excess of that permitted

by the drought response stage in effect at the time pursuant to action taken by the City Administrator, or his/her designee, in accordance with provisions of this plan.

- B. Any person who violates this plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than twenty-five dollars (\$25.00) and not more than two hundred dollars (\$200.00). Each day that one (1) or more of the provisions of this plan is violated shall constitute a separate offense. If a person is convicted of three (3) or distinct violations of this plan, the City Administrator shall, upon due 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 payment of a reconnection charge, hereby established at one hundred fifty dollars (\$150.00), and any other costs incurred by the city in discontinuing service. In addition, suitable assurance must be given to the City Administrator 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. Any person, including a person classified as a water customer of the city, in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed responsible for their minor children and proof that a violation, committed by a child, occurred on property within the parent's control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this plan and that the parent could not have reasonably known of the violation.
- D. Any police officer, or other person designated by the City Administrator, may issue a citation to a person he/she reasonably believes to be in violation of this division. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in municipal court on the date shown on the citation. 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 fourteen (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 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 municipal court, a warrant for his/her 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 municipal court before all other cases.

Section Nine: Variances

The City Administrator, or his/her 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 (1) or more of the following conditions are met.

- (1) Compliance with this plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the plan is in effect.
- (2) Alternate methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting and exemption from the provisions of this division shall achieve the same level of reduction in water use within five (5) days after the plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the City Administrator, or his/her designee, and shall include the following:

- (1) Name and address of the petitioner(s).
- (2) Purpose of water use
- (3) Specific provision(s) of the plan from which the petitioner is requesting relief.
- (4) 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 the petitioner complies with this division.
- (5) Description of the relief requested.
- (6) Period of time for which the variance is sought.
- (7) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this plan and the compliance date.
- (8) Other pertinent information.

Variances granted by the city shall be subject to the following conditions, unless waived or modified by the City Administrator or his/her designee:

- (1) Variances granted shall include a timetable for compliance.

- (2) Variances granted shall expire when the plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

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

Section Ten: Severability

It is hereby declared to be the intention of the city that the sections, paragraphs sentences, clauses and phrases of this division are severable and, if any phrase, clause, sentence, paragraph, or section of this plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this plan, since the same would not have been enacted by the city without the incorporation of this plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

It is also noted that a private well must not be connected to a house that is furnished water by the city without prior approval from, or review by the city. Also, no private water source or well may be connected in any fashion to the city's potable water supply.

Section Eleven: Penalty

Any person, firm, corporation, association or other entity that violates this division shall be subject to a fine of not less than twenty-five dollars (\$25.00) nor more than two hundred dollars (\$200.00) for each violation per day.

Section Twelve: Adoption

This ordinance shall take effect and be in force from and after its passage and approval.

PASSED AND ADOPTED this 10th day of _January, 2010

Michael Johnson, Mayor

ATTEST:

Karen B. Schrom
City Secretary